Appendix E
Natural Resources
(Part 2)

Appendix E-4
Field Sampling Reports
(Part 2)

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 67

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603)472-5191

Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? X -Y enestler@normandeau.com

Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform								
	***Container Type						PL	PL								
	***Container Size							100mL								
	*** Preservative						H2SO4	NaOH								
1	HB 17		6/17/15	0742			1	1								
2	HB 2		6/17/15	0809			1	1								
3	HB 7		6/17/15	0813			1	1								
4	HB 21		6/17/15	0817			1	1								
5	HB 13		6/17/15	0821			1	1								
6	HB 11		6/17/15	0825			1	1								
7	HB 25		6/17/15	0828			1	1								
8	HB 19		6/17/15	0832			1	1								

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible] Normandeau	6/17/15	1200	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: X Standard; ☐ CLP-like; ☐ NJ-Reduced; ☐ NJ-Full; ☐ (other)

EDDs Required? X If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected In? MD ☐ NJ ☐ NY X PA ☐ Other

⇨ Enter PWSID No.

Receipt Information (completed by Sample Receiver)

Performed by

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
	N	N	N	N
	Y	Y	Y	Y

Circle appropriate Y or N.	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?
	N	N	N	N
	Y	Y	Y	Y

ALS FIELD SERVICES

☐ Pickup
☐ Labor
☐ Composite Sampling
☐ Rental Equipment
☐ Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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Middletown, PA 17057
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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd. Bedford NH, 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

						***Container Type	PL	PL								
						***Container Size		100mL								
						*** Preservative	H2SO4	H2SO4								
						ANALYSES/METHOD REQUESTED	TKN, NO2/NO3/ TN	Fecal Coliform								
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis										
1 B 29		6/17/15	0836			1	1									
2 B 26			0841			1	1									
3 B 23			0846			1	1									
4 HB 29			0851			1	1									
5 HB 27			0855			1	1									
6 HB 6			0859			1	1									
7 HB 20			0902			1	1									
8 HB 5			0905			1	1									

Receipt Information (completed by Sample Receiving)

Performed by: DETAIL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.	
N	N	N	N		
Y	Y	Y	Y		
Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?	
N	N	N	N	N	
Y	Y	Y	Y	Y	

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Burnett Normandeau	6/17/15	1200	2 [illegible]	6/17	123[illegible]
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] (other)

SDWA Forms?⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

EDDs Required? [X] If yes, format type: In Excel

Other

⇨ Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup; [ ] Labor; [ ] Composite Sampling; [ ] Rental Equipment; [ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	***Container Type	PL	PL								
	***Container Size		100mL								
	*** Preservative	H_2SO_4	$Na_2S_2O_3$								
	*G or C										
	**Matrix										
	ANALYSES/METHOD REQUESTED	TKN, NO2/NO3, TN	Fecal Coliform								
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	Enter Number of Containers Per Analysis							
1 HB 18		6/17/15	0912	1	1						
2 HB 4			0915	1	1						
3 HB 3			0919	1	1						
4 HB 1			0922	1	1						
5 HB 12			0925	1	1						
6 HB 9			0928	1	1						
7 HB 28			0939	1	1						
8 B 9			0944	1	1						

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	N	
	Y	Y	Y	Y	
	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Normandeau	6/17/15	1200	2 D. Tan	6/17	1239
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

EDDs Required? [X] If yes, format type: In Excel

⇨ Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 4 of 07

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform								
	***Container Type						PL	PL								
	***Container Size							100 mL								
	*** Preservative						H_2SO_4	$Na_2S_2O_3$								
	ANALYSES/METHOD REQUESTED															
	Enter Number of Containers Per Analysis															
1	B 10		6/17/15	0948			1	1								
2	B 4			0954			1	1								
3	B 6			0958			1	1								
4	B 30			1004			1	1								
5	B 18			1007			1	1								
6	B 19			1012			1	1								
7	B 7			1016			1	1								
8	B 22			1019			1	1								

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
	N	N	N	N
	Y	Y	Y	Y

Circle appropriate Y or N.	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Burnett Normandeau	6/17/15	1200	2 1) Tom L	6/17	1230
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

SDWA Forms? ⇒ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

EDDs Required? [X] If yes, format type: In Excel

⇒ Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES

[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603)472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#:

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform															
							***Container Type		PL	PL													
							***Container Size			100mL													
							*** Preservative		H_2SO_4	$Na_2S_2O_3$													
							ANALYSES/METHOD REQUESTED																
							Enter Number of Containers Per Analysis																
1	B 28		6/17/15	1022			1	1															
2	B 24			1026			1	1															
3	B 27			1030			1	1															
4	B 2			1032			1	1															
5	B 25			1035			1	1															
6	B 32			1038			1	1															
7	B 14			1043			1	1															
8	B 39			1046			1	1															

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
	Y N	Y N	Y N	Y N
Custody seals Present?	Y N	Y N	Y N	Y N
(If present) Seals intact?	Y N	Y N	Y N	Y N
Received on ice?	Y N	Y N	Y N	Y N
COC/Labels complete/accurate?	Y N	Y N	Y N	Y N
Container in good condition?	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/17/15	1200	2 [signature]	6/17	1237
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

→ Enter PWSID No.

ALS FIELD SERVICES

[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

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Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	***Container Type	***Container Size	*** Preservative	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform								
						PL	PL								
							100mL								
						H_2SO_4	$Na_2S_2O_3$								

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform								
1	B 44		6/17/15	1050			1	1								
2	B 46			1056			1	1								
3	B 38			1059			1	1								
4	B 3			1103			1	1								
5	B 45			1106			1	1								
6	B 13			1116			1	1								
7	B 8			1119			1	1								
8	B 5			1128			1	1								

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
	N	N	N	N
	Y	Y	Y	Y

Circle appropriate Y or N.	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?
	N	N	N	N
	Y	Y	Y	Y

Container in good condition?: N / Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/17/15	1200	2 [signature] Tetra Tech	6/17	1230
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms?⇒ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

⇒ Enter PWSID No.

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

***Container Type	PL	PL								
***Container Size		100mL								
*** Preservative	H_2SO_4	$Na_2S_2O_3$								

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform								
						Enter Number of Containers Per Analysis									
1 B 15		6/17/15	1122			1	1								
2															
3															
4															
5															
6															
7															
8															

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	
Y	Y	Y	Y	
Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N
Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Burnett Normandeau	6/17/15	1200	2 D. Tank	6/17	1237
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

EDDs Required? [X] If yes, format type: In Excel

⇨ Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES

[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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Page 1 of 2

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Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

							***Container Type	PL	PL	CG	CG												
							***Container Size		100mL	4oz	8oz												
							*** Preservative	H_2SO_4	$Na_2S_2O_3$														
							ANALYSES/METHOD REQUESTED																
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform	TOC	Grain Size/Atterberg														
						Enter Number of Containers Per Analysis																	
1 HB 16		6/18/15	0715			1	1	1	1														
2 HB 15			0718			1	1	1	1														
3 HB 22			0721			1	1	1	1														
4 HB 10			0723			1	1	1	1														
5 B 17			0733			1	1	1	1														
6 HB 14			0736			1	1	1	1														
7 HB 26			0739			1	1	1	1														
8 HB 23			0741			1	1	1	1														

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	
Y	Y	Y	Y	
Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N
Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 PL Normandeau	6/18/15	1230	2 [signature]	6/18/15	1230
3			4 [signature]		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [X] If yes, format type: In excel

DOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

⇨ Enter PWSID No.

ALS FIELD SERVICES

[X] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 2 of 2

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495303

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	***Container Type	PL	PL	CG	CG						
	***Container Size		100mL	4oz	8oz						
	*** Preservative	H_2SO_4	$Na_2S_2O_3$								
	*G or C										
	**Matrix										
	ANALYSES/METHOD REQUESTED	TKN, NO2/NO3, TN	Fecal Coliform	TOC	Grain Size/Atterberg						
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	Enter Number of Containers Per Analysis							
1 HB 24		6/18/15	0746	1	1	1	1				
2 HB 8			0749	1	1	1	1				
3 HB 30			0805	1	1	1	1				
4 B 5			0956			1	1				
5 B 15			1106			1	1				
6 B 8			1119			1	1				
7 B 13			1136			1	1				
8 B 45			1145			1	1				

Receipt Information (completed by Sample Receiving)

Performed by: SHIRLEY HEAT

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	
Y	Y	Y	Y	
Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N
Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/18/15	1230	2	6/18/15	1230
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

⇨ Enter PWSID No.

ALS FIELD SERVICES

[X] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ot=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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ALS Environmental

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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 6

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg								
							Enter Number of Containers Per Analysis									
1	B3		6/18/15	1257			1	1								
2	B38			1307			1	1								
3	B46			1316			1	1								
4	B44			1327			1	1								
5	B39			1336			1	1								
6	B14			1345			1	1								
7	B18			1353			1	1								
8	B30			1405			1	1								

***Container Type	CG	CG								
***Container Size	4oz	8oz								
*** Preservative										

ANALYSES/METHOD REQUESTED

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
	N	N	N	N
	Y	Y	Y	Y

Circle appropriate Y or N.	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?
	N	N	N	N
	Y	Y	Y	Y
Container in good condition?				
N				
Y				

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/19/15	1555	2 [signature]	6/19	[illegible]
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected to? MD [ ] NJ [ ] NY [X] PA [ ]

Other

⇨ Enter PWSID No.

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES

[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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Middletown, PA 17057
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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:
COC#

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:
Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? X -Y enestler@normandeau.com
Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg								
***Container Type							CG	CG								
***Container Size							4oz	8oz								
*** Preservative																
1	B 22		6/18/15	1423			1	1								
2	B 7			1432			1	1								
3	B 32			1442			1	1								
4	B 2			1453			1	1								
5	B 25			1503			1	1								
6	B 27			1512			1	1								
7	B 24			1523			1	1								
8	B 28			1536			1	1								

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: INITIAL HERE
Cooler Temp:
Therm. ID:
No. of Coolers:
Notes:

Circle appropriate Y or N.				
Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	
Y N	Y N	Y N	Y N	
Custody seals Present?	(If present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/19/15	1555	2 [signature]	6/19	1000
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

⇨ Enter PWSID No.

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:
COC#

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] -Y enestler@normandeau.com
Fax? [ ] -Y No.:

***Container Type	CG / CG
***Container Size	4oz / 8oz
***Preservative	

ANALYSES/METHOD REQUESTED: TOC; Grain Size/Atterberg

Enter Number of Containers Per Analysis

#	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg
1	B 19		6/18/15	1545			1	1
2	B 6		↓	1553			1	1
3	B 4		↓	1601			1	1
4	B 10		↓	1609			1	1
5	B 9		↓	1617			1	1
6	HB 4		↓	1627			1	1
7	HB 18		↓	1633			1	1
8	HB 3		↓	1640			1	1

Receipt Information (completed by Sample Receiving)
Performed by: INITIAL HERE
Cooler Temp:
Therm. ID:
No. of Coolers:
Notes:

Correct containers?	Y	N
Correct sample volume?	Y	N
Correct preservation?	Y	N
Headspace/Volatiles?	Y	N
Circle appropriate Y or N.		
Custody seals Present?	Y	N
(if present) Seals intact?	Y	N
Received on ice?	Y	N
COC/Labels complete/accurate?	Y	N
Container in good condition?	Y	N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/19/15	1555	2 Christopher Fellows	6/19	11:00
3			4		
5			6		
7			8		
9			10		

Data Deliverables
[X] Standard
[ ] CLP-like
[ ] NJ-Reduced
[ ] NJ-Full
[ ] (other)

SDWA Forms? ⇨ yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

EDDs Required? [X] If yes, format type: In Excel
Other
⇨ Enter PWSID No.
DOD Criteria Required?

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

*G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SD=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603)472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain size/Atterberg								
	***Container Type						CG	CG								
	***Container Size						4oz	8oz								
	*** Preservative															
1	HB 1		6/18/15	1649			1	1								
2	HB 12		6/18/15	1704			1	1								
3	HB 28		6/18/15	1714			1	1								
4	HB 9		6/18/15	1723			1	1								
5	HB 17		6/19/15	0746			1	1								
6	HB 2		6/19/15	0756			1	1								
7	HB 7		6/19/15	0808			1	1								
8	HB 21		6/19/15	0821			1	1								

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?
N	N	N	N	N
Y	Y	Y	Y	Y

Circle appropriate Y or N.	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N	N
Y	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Ce ~~tA~~ Normandeau	6/19/15	1555	2 Cmarp Fedex	6/19	Mdl
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

SDWA Forms? ⇨ yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

→ Enter PWSID No.

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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ALS Environmental

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Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:
COC#

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:
Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? X -Y enestler@normandeau.com
Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg								
	***Container Type				CG	CG										
	***Container Size				4oz	8oz										
	*** Preservative															
1	HB 13		6/19/15	0829			1	1								
2	HB 19			0840			1	1								
3	HB 11			0850			1	1								
4	HB 25			0859			1	1								
5	B 29			0909			1	1								
6	B 26			0922			1	1								
7	B 23			0937			1	1								
8	HB 27			0949			1	1								

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: INITIAL HERE
Cooler Temp:
Therm. ID:
No. of Coolers:
Notes:

Circle appropriate Y or N.				
Correct containers?	N	N	N	N
Correct sample volume?	Y	Y	Y	Y
Correct preservation?				
Headspace/Volatiles?				
Custody seals Present?	N	N	N	N
(if present) Seals intact?	Y	Y	Y	Y
Received on ice?				
COC/Labels complete/accurate?				
Container in good condition?				

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/19/15	1555	2 [signature]	6/19	1600
3			4		
5			6		
7			8		
9			10		

Data Deliverables: X Standard; ☐ CLP-like; ☐ NJ-Reduced; ☐ NJ-Full; ☐ (other)

EDDs Required? X If yes, format type: In Excel

SDWA Forms?⇨ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected In? MD ☐ NJ ☐ NY X PA ☐ Other

⇨ Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

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ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #:

COC#

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? X -Y enestler@normandeau.com

Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg													
	***Container Type						CG	CG													
	***Container Size						4oz	8oz													
	*** Preservative																				
	ANALYSES/METHOD REQUESTED																				
	Enter Number of Containers Per Analysis																				
1	HB 29		6/11/15	0958			1	1													
2	HB 6			1008			1	1													
3	HB 20			1017			1	1													
4	HB 5			1027			1	1													
5																					
6																					
7																					
8																					

Receipt Information (completed by Sample Receipt)

Performed by: INITIAL HERE

Cooler Temp:

Therm. ID:

No. of Coolers:

Notes:

Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	
Y	Y	Y	Y	
N	N	N	N	N
Y	Y	Y	Y	Y

Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/11/15	1515	2 [illegible]	[illegible]	[illegible]
3			4		
5			6		
7			8		
9			10		

Data Deliverables: X Standard; ☐ CLP-like; ☐ NJ-Reduced; ☐ NJ-Full; ☐ (other)

EDDs Required? X If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected In? MD ☐ NJ ☐ NY X PA ☐ Other

⇨ Enter PWSID No.

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

www.normandeau.com (603) 472-5191

Chain of Custody Form

Project Name: AKRF BREAKWATER
Project Number: 23674.000
Originating Contact: J. BLAN
Originator Location: W. HAVERSTRAW, NY
Final Destination: BEDFORD, NH
Sampler(s): BURNETT, SHERMAN

Page 1 of 1

Method of Shipment: COMPANY VEHICLE

Sample No.	Sample Identification (CRATE #)	Collection Date	Collection Time	Containers No. (Crates)	Containers Type	Grab.	Comp.	Presv. (Formaldehyde)	Parameters	Comments Below:
1	33	6/18-6/19		1	JAR		✓			60 Samples
2	93	↓		↓	↓		↓	↓		B = 30
3	888									HB = 30
4	80F									
5	91F									
6	66F									
			Total	6	CRATES					

Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)
Joan Blan	A T Bullock	A T Bullock			
Printed Name: JOAN BLAN	Printed Name: Alan T Bullock	Printed Name: Alan T Bullock	Printed Name:	Printed Name:	Printed Name:
Date: 6-22-15	Date: 6.22.15	Date: 6-23.15	Date:	Date:	Date:

Appendix D

Photographs of each macrofaunal grab sample before and after sieving

Appendix Figure D-1. Photograph of macrofauna sample B2 before sieving, June 2015.

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Appendix Figure D-7. Photograph of macrofauna sample B5 after sieving, June 2015.

Appendix Figure D-8. Photograph of macrofauna sample B5 after sieving, June 2015.

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Appendix Figure D-10. Photograph of macrofauna sample B6 after sieving, June 2015.

Appendix Figure D-11. Photograph of macrofauna sample B7 after sieving, June 2015.

Appendix Figure D-12. Photograph of macrofauna sample B7 after sieving, June 2015.

Appendix Figure D-13. Photograph of macrofauna sample B8 after sieving, June 2015.

Appendix Figure D-14. Photograph of macrofauna sample B8 after sieving, June 2015.

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Appendix Figure D-16. Photograph of macrofauna sample B9 after sieving, June 2015.

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Appendix Figure D-18. Photograph of macrofauna sample B10 after sieving, June 2015.

Appendix Figure D-19. Photograph of macrofauna sample B13 after sieving, June 2015.

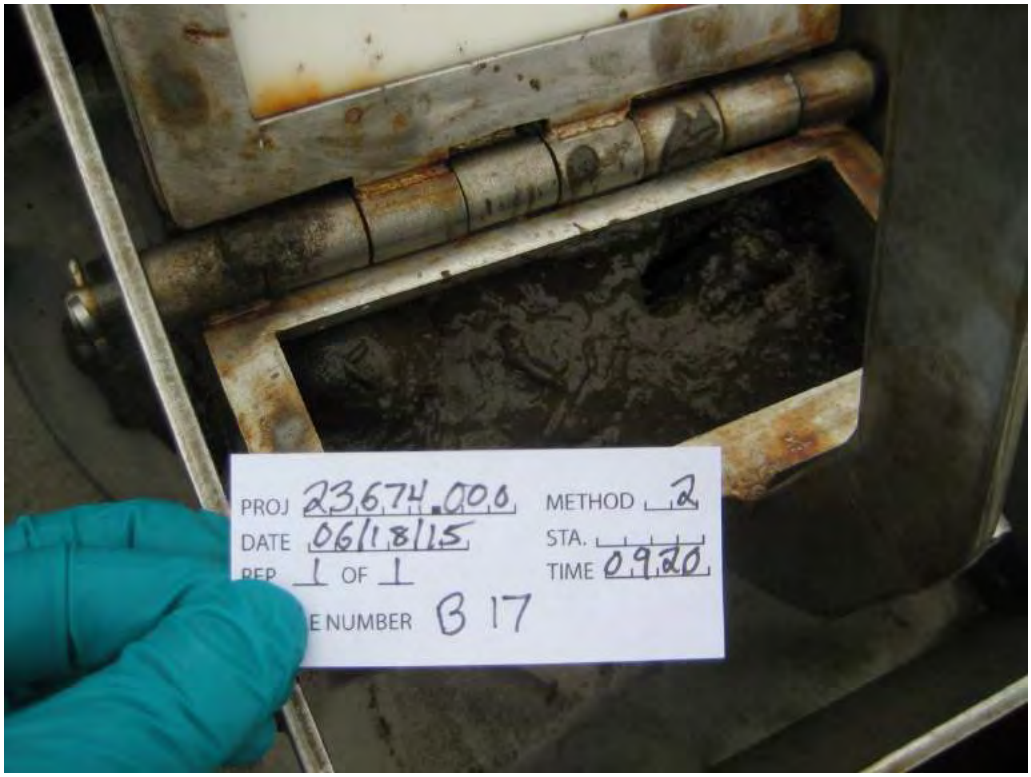
Appendix Figure D-20. Photograph of macrofauna sample B13 after sieving, June 2015.

Appendix Figure D-21. Photograph of macrofauna sample B14 after sieving, June 2015.

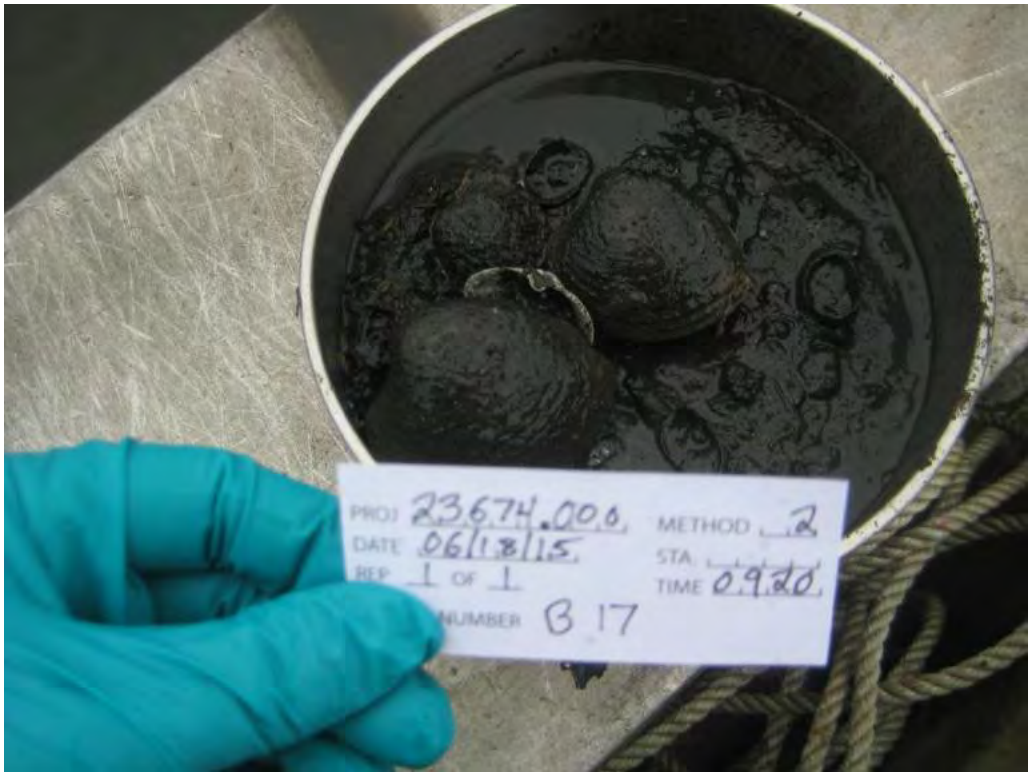
Appendix Figure D-22. Photograph of macrofauna sample B14 after sieving, June 2015.

Appendix Figure D-23. Photograph of macrofauna sample B15 after sieving, June 2015.

Appendix Figure D-24. Photograph of macrofauna sample B15 after sieving, June 2015.



Appendix Figure D-25. Photograph of macrofauna sample B17 after sieving, June 2015.



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Appendix Figure D-27. Photograph of macrofauna sample B18 after sieving, June 2015.

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Appendix Figure D-32. Photograph of macrofauna sample B22 after sieving, June 2015.

Appendix Figure D-33. Photograph of macrofauna sample B23 after sieving, June 2015.

Appendix Figure D-34. Photograph of macrofauna sample B23 after sieving, June 2015.

Appendix Figure D-35. Photograph of macrofauna sample B24 after sieving, June 2015.

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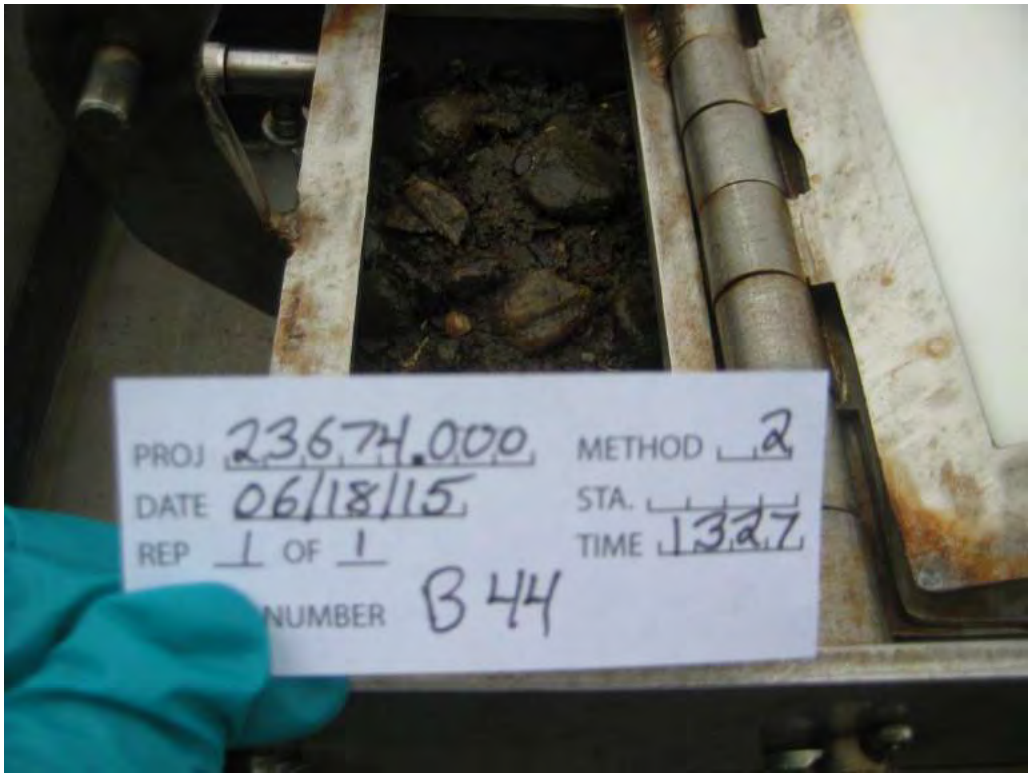
Appendix Figure D-53. Photograph of macrofauna sample B39 after sieving, June 2015.

Appendix Figure D-54. Photograph of macrofauna sample B39 after sieving, June 2015.



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Appendix Figure D-56. Photograph of macrofauna sample B44 after sieving, June 2015.

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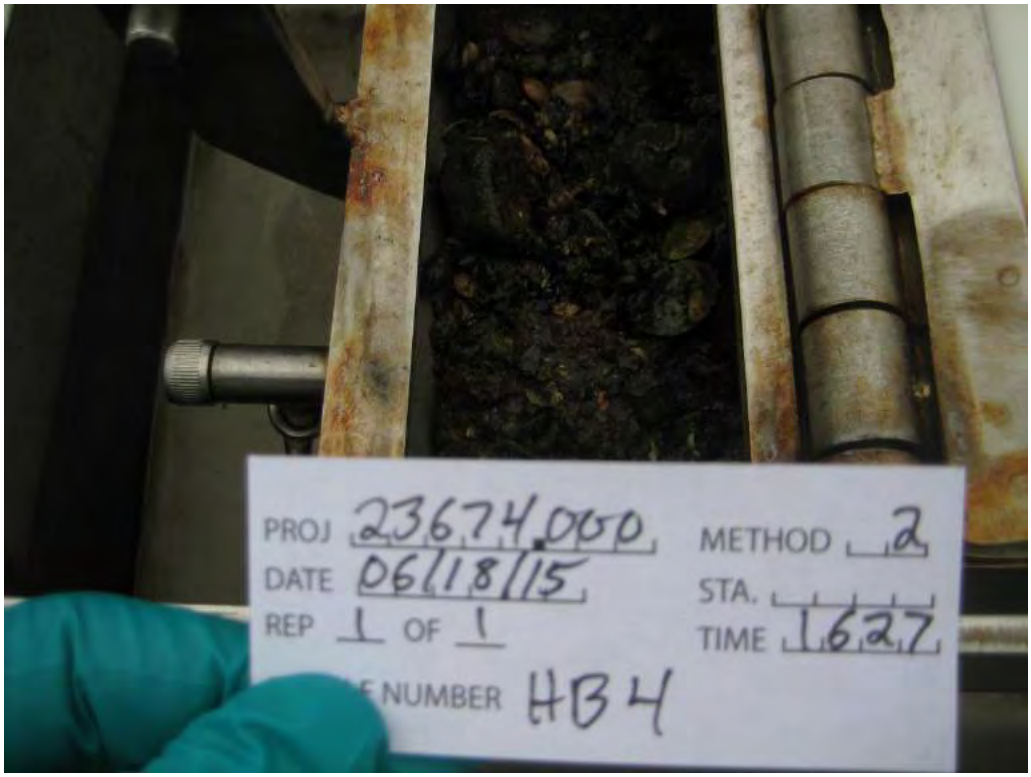
Appendix Figure D-65. Photograph of macrofauna sample HB3 after sieving, June 2015.

Appendix Figure D-66. Photograph of macrofauna sample HB3 after sieving, June 2015.



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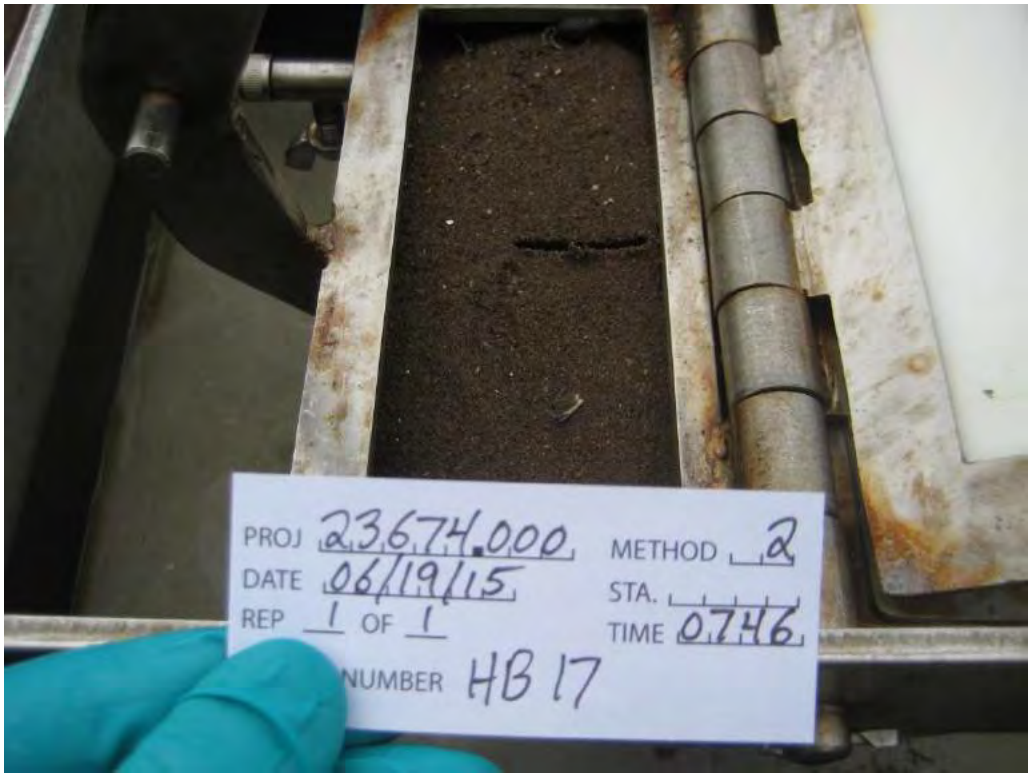
Appendix Figure D-92. Photograph of macrofauna sample HB16 after sieving, June 2015.



Appendix Figure D-93. Photograph of macrofauna sample HB17 after sieving, June 2015.

Appendix Figure D-94. Photograph of macrofauna sample HB17 after sieving, June 2015.

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Appendix Figure D-96. Photograph of macrofauna sample HB18 after sieving, June 2015.

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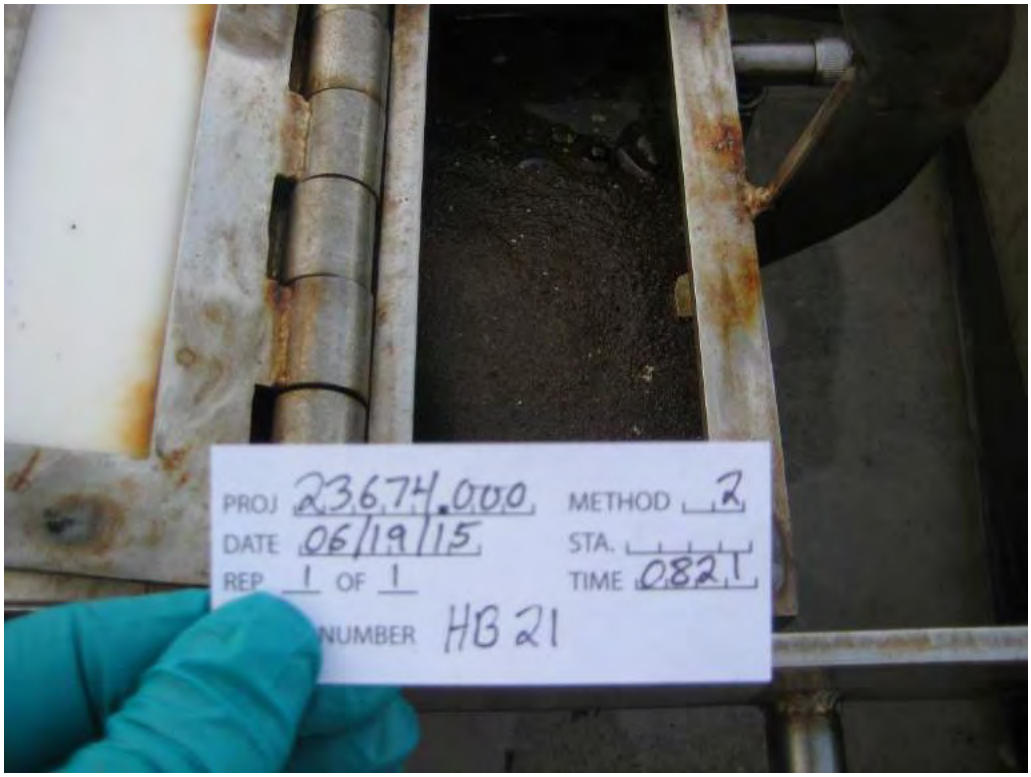
Appendix Figure D-100. Photograph of macrofauna sample HB20 after sieving, June 2015.



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Appendix Figure D-119 Photograph of macrofauna sample HB30 after sieving, June 2015.

Appendix Figure D-120 Photograph of macrofauna sample HB30 after sieving, June 2015.

Field Standard Operating Procedures for an Ecological Survey in Raritan Bay to Assess Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects

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June 2015

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APPENDICES:

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APPENDIX 2: City of New York, Parks & Recreation, Permit to Conduct Research in Parks

APPENDIX 3: City of New York, Parks & Recreation, Permit to Perform Work on Park Property

APPENDIX 4: Field Data Sheets and Chain-of-Custody Form

APPENDIX 5: Equipment Calibration and Maintenance Information

APPENDIX 6: YSI Model 85 Handheld Oxygen, Conductivity, Salinity and Temperature System Operations Manual

APPENDIX 7: YSI Professional Plus User Manual

APPENDIX 8: One-Shot Traceable Conductivity Standard Certificate of Analysis Temperature Correction Information

I. General Information

1.0 Introduction

The objective of this survey is to collect ecological data that will satisfy requirements for an Environmental Impact Statement (EIS) to analyze impacts of a proposed project in Raritan Bay, along the south shore of Staten Island, NY. This survey will be performed for the Governor's Office of Storm Recovery (GOSR) by Normandeau Associates, Inc. (Normandeau), as a subcontractor to AKRF, Inc (AKRF). The GOSR, acting under authority of the U.S. Department of Housing and Urban Development's (HUD) regulations at 24 CFR Part 58, and in cooperation with other involved and interested agencies, is preparing an EIS to analyze potential impacts of the Living Breakwaters and Tottenville Dune Projects. Environmental review for the proposed actions will require additional data to characterize existing benthic and fish communities in the project area. Normandeau will collect and process benthic macroinvertebrates, fish, water and sediment samples to provide the needed data.

This document constitutes the Standard Operating Procedures (SOP) manual for the field tasks of this ecological survey in Raritan Bay. The goals of this SOP are to (1) provide sufficiently detailed instructions to enable field technicians to follow consistent and technically valid protocols, and to (2) document the field procedures used in the survey.

2.0 Technical Approach

This ecological survey in Raritan Bay will include sampling to support a benthic macroinvertebrate study and a fish community study. The approach to conducting sampling for these studies is described below in Sections 2.1 (benthic) and 2.2 (fish).

All ecological sampling activities performed by Normandeau for this survey effort will be conducted following the provisions of: (1) NYSDEC License to Collect or Possess: Scientific # 121 (Appendix 1); (2) City of New York, Parks & Recreation, Permit to Conduct Research in Parks (Appendix 2), and (3) City of New York, Parks & Recreation, Permit to Perform Work on Park Property (Appendix 3).

2.1 Benthic Macroinvertebrate Study

Normandeau will conduct sampling during June and September to support the benthic macroinvertebrate study. Samples for benthic macrofauna, sediment characteristics (grain size and total organic carbon), and water quality will be collected at 60 locations during both June and September surveys. Paired samples for hard clams (*Mercenaria mercenaria*) and sediment chemistry will be collected at a subset of stations (30 hard clam sites), as part of the benthic study. Samples will be collected at locations identified by AKRF based on a stratified random sampling design.

Benthic Macrofauna and Sediment Characteristics

Sediment samples (for benthic macrofauna, sediment characteristics) will be collected using a 0.04-m^2 Young-modified van Veen grab. Normandeau will locate the benthic stations using marine navigation grade GPS with coordinates provided by AKRF in latitude and longitude. Along with the collection of the benthic samples, the crew will also complete the field processing of those samples. Prior to processing the benthic macrofauna samples, field scientists will photograph each sample. Macrofauna samples will be gently washed through a 0.500 mm-mesh sieve, preserved in buffered formalin, and stained with rose bengal. Samples will be kept in the custody of the field crew chief and transferred with appropriate Chain-of-Custody forms to Normandeau's Bedford NH laboratory for processing.

Additional grab samples will be collected for grain size analysis and total organic carbon at each of the 60 sampling stations during both surveys.

Water Quality

At each benthic station, water quality samples and data will also be collected. Temperature, dissolved oxygen, pH and salinity will be measured at the surface and bottom using a calibrated YSI instrument. The field crew will also deploy a Secchi disc and record depth. Water quality sampling at each of the 60 stations in June and September will also include collection of surface grab samples for total nitrogen and fecal coliforms.

Hard Clam and Sediment Chemistry

Paired samples for hard clams (*Mercenaria mercenaria*) and sediment chemistry are planned to be collected at half of the sampling locations (30 hard clam sites) during the June survey only. Clam collection will be conducted using a small clam dredge towed for five minutes. Hard clams will be counted and measured from each dredge sample. A wet-weight total biomass of clams per sample will be measured in the field. Following measurement and enumeration of clams, sufficient numbers (at least 1000 g; to provide 70 g of clam meat) will be packaged and refrigerated for tissue chemistry. If a sufficient quantity of clams is not collected during the June survey, additional sampling will take place in September to achieve an overall total of 30 hard clam and sediment stations sampled across both seasons.

Sediment chemistry samples will be collected using a Young-modified van Veen grab sampler near the midpoint of each towed clam dredge sample. The grab sampler and sediment processing tools will be cleaned between samples using appropriate techniques to ensure that there is no cross contamination among samples. The sediment chemistry samples will be taken from the undisturbed surface of grabs using appropriate clean techniques. This material will be handled according to protocols appropriate to each sample type and the amount of sediment required for each analysis will be placed in sample containers provided by the chemistry laboratory. Sediment chemistry samples will be refrigerated at 1-4°C until they have been received at the laboratory for processing.

2.2 Fish Study

Fish sampling will take place in conjunction with the benthic sampling in June and September and as a stand-alone effort in July. On the first day of the fish sampling effort, the crew will set baited sea bass traps at 10 randomly selected sites (20 total traps) with

coordinates provided by AKRF, Inc. in latitude and longitude. To complete the day's fishing activities, the crew will deploy the otter trawl and 2-meter beam trawls at 10 randomly selected sites with coordinates provided by AKRF. The trawls will be towed on parallel tracks at each station. An otter trawl with an 11-m foot rope and chain sweep and a 3.2 cm stretch mesh throughout will be used. The otter trawl will have wood doors measuring 0.3 m by 0.6 m. A 2-m beam trawl will be used as the second trawl at each station. The beam trawl will be equipped with a calibrated General Oceanics mechanical flowmeter model 2030R so sample volumes can be estimated. The body of the net will have a mesh size of 3.8 cm stretch and the cod end will have a mesh size of 3.2 cm stretch. The cod end will be fitted with a liner with a mesh size of 1.3 cm stretch. The beam and the skids of the trawl will be made of aluminum.

Both trawls will be towed at approximately 1.5 meters per second for duration of 10 minutes. At the end of each tow the trawls will be retrieved and the contents of the cod-end emptied into a shallow container filled with water. All fish and epibenthic invertebrates will be identified and counted. Twenty individuals of each fish species will be measured to the nearest mm. After processing, the fish and invertebrates will be returned to the bay alive if possible, unless retained as a voucher specimen. All sample information for each trawl will be recorded on field data sheets for each sample.

On the next day of the field effort, the crew will first haul and process the 20 sea bass traps. The contents of each trap will be emptied into shallow container filled with water. All fish and invertebrates will be identified, counted, and 20 individuals of each fish species will be measured to the nearest mm. After processing, all organisms will be returned to the bay alive if possible. All sample information for each pair of traps will be recorded on field data sheets for each sample. The crew will then re-set the pair of traps for a second 24-hour set at each fish trap station. Fish traps will be retrieved the following day as described above. Once traps are set, the crew will proceed to either finish any trawling or start the beach seine survey at 20 randomly selected sites with coordinates provided by AKRF, Inc. in latitude and longitude. The 30-m by 2.4-m deep beach seine will be towed in a counter clockwise sweep along each selected beach. The wings of the beach seine will have 1.0 cm bar mesh and the bag mesh will be 0.5 cm bar mesh. Any collected fish and epibenthic invertebrates will be gathered to the bag of the net and emptied into a shallow container filled with water. All specimens will be identified to species, counted and 20 individuals of each fish species will be measured to the nearest mm. After processing, the fish and invertebrates will be returned to the bay alive if possible. All sample information for each beach seine will be recorded on field data sheets for each sample. On the last day, the crew will complete any beach seine sampling not completed. When the sampling event is complete the field team will return the vessel to the West Haverstraw Office until the next sampling event.

3.0 Sampling Schedule and Logistics

Normandeau will conduct sampling during June, July and September. Samples to support the fish study will be collected during each of these three surveys. Samples to support the benthic macroinvertebrate study will be collected during the June and September surveys, only. Table I-1 lists the number of stations that will be sampled during each survey.

For each survey, the Normandeau field team will set up a base of operations in Laurence Harbor, New Jersey to reduce daily travel time. The field team will move one of Normandeau's 25-foot research vessels to a local marina prior to each of the three sampling events. Sampling will be conducted from Normandeau's 25- foot R/V *Parker* or R/V *Privateer*. For each of the three sampling events Normandeau will assign a three person field team to the project. The field team will be led by a USCG licensed captain who will be responsible for all sampling activities.

Table I-1. Numbers of stations sampled by survey and gear type.

Sample Type	Sampling gear	Stations sampled in June	Stations sampled in July	Stations sampled in September	Total # of stations sampled	Number of samples per station	Parameters
Fish (trap)	fish trap	10	10	10	30	4	Fish community (and epibenthos)
Fish (trawl)	otter and beam trawl nets	10	10	10	30	2	Fish community (and epibenthos). One otter trawl sample, and one beam trawl sample, at each station
Fish (seine)	seine net	20	20	20	60	1	Fish community (and epibenthos)
Soft-bottom macrofauna	van Veen grab	60	None	60	120	1	Benthic macroinvertebrate community
Sediment characteristics	van Veen grab	60	None	60	120	1	Sediment grain size (Atterberg and % sand, silt, clay), Total organic carbon
Water quality	water bottle	60	None	60	120	1	Total nitrogen and fecal coliforms
Hard clams	clam dredge	30	None	None. Unless clams not collected in spring	30	1000 grams of clams are needed.	Clam tissue contaminant burden, metals and organics (including dioxins/furans)
Sediment chemistry	van Veen grab	30	None	None. Unless clams not collected in spring	30	1 or more, depending on volume	Sediment chemistry samples will be analyzed for contaminants specified in NYSDEC 6 NYCRR Part 375-6.8(b)

4.0 Sample Site Selection

Samples will be collected at locations identified by AKRF based on a stratified random sampling design. Prior to each survey, field crews will receive a listing of sampling locations that includes the Site ID, Sample ID, Latitude and Longitude for each location, along with a map of sampling locations. The list of sampling locations will include Alternate locations that will be used if sampling cannot be conducted at the Primary locations.

Sampling sites will be located by the field crew using shipboard differential Global Positioning Systems (GPS).

5.0 Quality Assurance

5.1 Normandeau's Quality Assurance Program

It is Normandeau's policy to supply quality services, information, data, and products in a superior manner, at a fair cost, and with timely delivery. To accomplish this policy, Normandeau's QA program has been designed to meet or exceed the guidance criteria of the U.S. Environmental Protection Agency and be consistent with the intent of federal regulations (10 CFR 50) which require that QA be separated from operational and budgetary concerns. Normandeau has a full time QA Director who supervises the implementation and documentation of QA Programs and reports directly to the President of the Company.

Normandeau's QA program comprises two systems: a quality control (QC) system and a quality assurance system (Figure I-1). The principal strengths of the QA Program are the functional independence of the systems and the common collection and interpretation point for quality related information, the QA Director. The QC system is managed by the Program Manager and conducted by operational personnel. The QA system is managed by Normandeau's QA Director and utilizes project-independent technical personnel during performance and system audits.

5.1.1 Quality Control System

The function of the QC system is to continually monitor the reliability and validity (accuracy, precision, and completeness) of data produced on a daily basis. The QC system is approved by the QA Director and any changes to the procedures must be coordinated through Normandeau's QA Department. For the Ecological Survey in Raritan Bay, field managers and lab managers will act as quality control supervisors who will:

- monitor performance and results of quality control procedures;
- monitor instrument maintenance, calibration, and reliability;
- monitor document control and conduct audits of documentation resulting from sample analysis, instrument maintenance and calibration and data processing;
- monitor sample control procedures and documentation; and
- monitor training of technicians.

Specific sample control procedures including packaging, preservation and Chain-of-Custody (COC) for each task is documented in Sections II and III of this SOP. In general, each sample is given a unique sample number. Each sample is then tracked by its sample number from field collection and throughout the laboratory and data processing functions. Daily collection of samples is tracked from the field site to the laboratory for final analysis by means of a COC form. At Normandeau's laboratory each sample is tracked through each storage and analysis step by means of sample control logs. The function of this system is to provide a paper trail of who performed each step in the analysis of a sample from collection to storage, when each step occurred, what condition the samples were in and where each step took place.

CLIENT REQUIREMENTS

NORMANDEAU ASSOCIATES, INC. QUALITY ASSURANCE PLAN

- General Guidance to Operating Entities
- Focus for Establishment of Project-Specific Data Quality Goals
- Management Commitment in the Person of the Quality Assurance Director

QUALITY CONTROL SYSTEM

- **Standard Procedures**
  - Methods selected are EPA-approved and/or specified by authoritative source (e.g., ASTM)
  - Documentation of all procedures and any modifications employed due to special conditions
- **Precision and Accuracy Inspections**
  - Rejection criteria
  - At least 10% replication
  - Standard additions – "spikes"
  - Control charts
  - Calibration standards
  - Reagent purity
  - External quality control samples
- **Instrument Calibration and Reliability**
  - Calibrated to manufacturer and/or EPA specifications
  - Review of equipment performance history conducted prior to use
  - Preventive maintenance schedule
- **Data Traceability**
  - Specification of data reduction scheme
  - "Chain of Custody" review
- **Documentation**
  - Systematic filing of data records, procedures, correspondence, contractual papers, laboratory notes
  - Evidence of inspections for control purposes
- **Personnel Training**
  - Detailed orientation and training procedures
  - Intensive inspection of early work
- **Corrective Action Assignments**

QUALITY ASSURANCE SYSTEM

- **Periodic Audits**
  - Independent monitoring of program functions on a regular basis
  - Review of all procedures to ensure conformity to written project procedure manuals
  - Documentations of observations
- **Classification of Program Deficiencies and Nonconformities**
  - Severity of effect on project quality goals
  - Evaluation of appropriate corrective action
- **Reporting**
  - Audit results to project and staff management
  - Assignment of corrective action responsibility and date for completion
  - Thorough documentation
- **Follow-Up Audit**
  - Review of correction actions by Quality Assurance Director
- **Client-Normandeau Associates, Inc. Audit Review**

Figure I-1. Normandeau QA Plan.

Data Control Procedures

Specific data control procedures for each task, including procedures for completing data sheets, storage, and chain of custody, are documented in the *Data Handling* elements of this SOP. In general, all completed data sheets are maintained in a master project file at the Bedford, NH, facility. At the Bedford, NH, facility each data sheet is tracked by means of data control logs. The project files contain the following documentation:

- calibration records of all instrumentation,
- procedures for all operations,
- copies of all data sheets,
- sample and data control logs,
- data tabulations and working tables,
- copies of all correspondence associated with the program, and
- copies of all official contracts and communications.

Instrument Calibration Procedures

The appropriate Quality Control Supervisor audits calibration procedures and approves calibration records of all instruments prior to use. Specific procedures for instrument calibration are documented in the *Instrument Calibration and Maintenance* elements of this SOP (Appendix 5). These procedures include calibration schedules for each instrument, documentation of calibration results on standard calibration data sheets, and calibration to NIST traceable standards where possible. A calibration and maintenance log accompanies each instrument. The log includes:

- instrument number and identification
- date of calibration
- calibration due date
- initials of the person(s) calibrating the instrument
- standards used, and
- results, including instrument accuracy at receipt for calibration, adjustments made, instrument accuracy after calibration, and approval for use.

Field instrument calibration checks are performed prior to each day of use (Table I-2).

Table I-2. Field Instrument Calibration Frequency and Tolerance.

	Frequency of Calibration Checks	Tolerance
Conductivity	Daily	±5% of Std
Temperature	Daily	±3% of Std
Dissolved Oxygen	Daily	±5% of the 100% saturation value in an air-saturated fresh water bath at ambient temperature

Equipment Maintenance Procedures

Specific maintenance procedures for field equipment is documented in the *Equipment Calibration and Maintenance* elements of this SOP. In general, equipment maintenance procedures include cleaning procedures and general parts replacement procedures along with maintenance schedules.

Training of Technicians

To assure the standardization of field and data processing procedures, Normandeau has developed a two level system for training technicians: the first level is documented standard operating procedures; the second level is a training program for all new project personnel. At a minimum, this training program consists of:

- A complete reading and explanation of the project SOP.
- The Field Manager will observe the first two or more times a new procedure is performed.
- Personnel assigned to unfamiliar tasks are accompanied by an experienced technician for at least their first two attempts.
- On tasks requiring identification of fish or invertebrates in the field, the Field Manager has final approval as to who is qualified to make these identifications.

5.1.2 Quality Assurance System

It is the responsibility of the QA Department to verify the achievement of quality through all phases of a project. This responsibility is accomplished primarily by audits, tests, and surveys that provide objective evidence that quality control programs are being implemented. Field, laboratory and data processing tasks are subject to at least one audit per year. They are conducted by an audit team of technically qualified personnel familiar with, but independent of and not responsible for, the work or activities under evaluation. The audit team reviews the operations, specifications, QC systems, plans, and project objectives and examines the acquisition and transfer of data from field to report.

Audit results are presented orally to the appropriate project or facility management by the audit team after the audit has been completed. At this time, specific findings are presented and recommended courses of corrective action developed. Subsequently, the audit results are documented in a written audit report and reviewed by management having responsibility in the areas audited. These reports include a summary of audit results, observations made with a listing of non-conformities, recommendations and corrective action taken.

The QA Director maintains a file of all project and facility audits. This file includes copies of the audit checklists, audit reports, written replies, the record of completion of corrective action and follow-up action. Further copies of the audit reports, written responses and records of completion of corrective actions are sent to Normandeau's President.

5.2 Non-Conforming Items and Corrective Action

Documentation of problems or unusual events occurring during a survey is accomplished using Extraordinary Event/Nonconformity (EE/NC) Forms (Figure I-2). The EE/NC Form is

designed to dispense information to the Program Manager and the QA Director and to obtain necessary action on items that are critical to technical operations and management of programs. The EE/NC Report is used to report results from observations such as:

- losing a sample
- noting samples that are grossly different from expected (content, preservation, labels)
- quality control samples that exceed acceptable limits.

The EE/NC Report is designed for use by any person who identifies a problem or discovers information that is germane to a program scope of work. The originator's supervisor is responsible for delivery of the completed form to the appropriate action addressee. Action addressees must respond within the time frame indicated by the originator (normally ten working days). The QA Director is informed of each report and maintains an awareness of the status of follow-up on a weekly basis.

Items, samples, data, or information not in conformity with specifications or which do not meet preconditions for the next step in processing or use, are set aside until the problem is resolved and documented via the EE/NC Report procedure.

EXTRAORDINARY EVENT/NONCONFORMITY REPORT

EE/NC Report Number: Date:_____ From:_____

Respond by (date): _____ Project No.: _____ Title:_____

Date closed: _____

ADDRESSEES:
QA: ✓ Project Mgr.: _____ Field Mgr.: _____ Lab Mgr.: _____ Technical Mgr.: _____ Others: _____

PROBLEM DEFINITION (e.g., Sample ID, Activity, Data, Standard, etc. Not in Conformity) :

RECOMMENDATIONS FOR or CORRECTIVE ACTION TAKEN:

Signed:

ACTION ADDRESSEE RESPONSE:

CORRECTIVE ACTION COMPLETED: Date: _____ Signed:_____

Distribution: ORIGINAL:QA. COPIES OF ORIGINAL: Originator, Addressees
RESPONSES: QA (responses are to be made on copies)

Figure I-2. EE/NC Form.

II. Field Standard Operating Procedures for the Benthic Macroinvertebrate Study

Water quality samples will be collected first at each benthic station. Crews will complete water quality sampling at as many stations as possible before returning to the pier to transfer water samples to the chemistry lab courier within the holding time window for fecal coliform samples. Crews will then return to complete the required sampling at each benthic station.

At stations that include sampling for hard clams, benthic sample collection will be conducted in the following order (once water quality samples have been collected):

(1) collect macrofauna sample;

(2) collect sediment sample for TOC and grain size/Atterberg;

(3) conduct clam dredge sampling;

(4) if sufficient clams were collected for tissue burden analyses (see Section II, 3.4), then collect sediment samples for chemistry analyses. Samples for sediment chemistry analyses will only be collected if sufficient clams have been obtained from that station. Crews should position vessel to avoid sampling directly over the area where the clam dredge was deployed, but within a 30-meter radius of the target sampling location.

1.0 Sampling Equipment

1.1 Soft-Bottom Sediment Sampling

A 0.04-m^2 Ted Young-modified van Veen grab sampler will be used to collect soft-bottom sediment samples for benthic macrofauna, sediment characteristics (TOC, grain size/Atterberg), and sediment chemistry (e.g., metals, organics) analyses.

1.2 Water Quality

Water quality sampling equipment is described in Section II, 4.0.

1.3 Clam Dredge

Hard clams will be collected using a 1-meter clam dredge.

2.0 Gear Deployment

2.1 Soft-Bottom Sediment Sampling

A van Veen grab sampler will be used to collect sediment samples for benthic macrofauna, sediment characteristics, and sediment chemistry. One macrofaunal sample will be collected from each benthic station, and sufficient numbers of grabs will be collected to provide the necessary sediment volume for analyses.

Once the survey vessel is on station and coordinates have been verified, the sediment grab will be deployed. When slack in the winch wire indicates that the grab is on the bottom, the grab and captured sample will be brought back to the surface. Upon retrieval of the grab, the sample will be inspected for acceptability (sufficient quantity, undisturbed, not washed out). If the sample is unacceptable, the grab will be emptied, rinsed, and redeployed.

Precautions will be taken during the deployment and retrieval of the grab sampler to prevent contamination of samples between stations. Sampling for infauna, TOC, grain size, and sediment chemistry all require that the grab and associated sampling equipment be washed and thoroughly rinsed between sampling stations. For sediment chemistry samples, before the grab is retrieved, the vessel must be positioned so that the engine exhaust will not contaminate the sample when it has been brought on deck.

2.2 Water Quality

Water quality gear deployment is described in Section II, 4.0.

2.3 Clam Dredge

A 1-meter clam dredge will be towed for five minutes at each hard clam station. If at least half of the required biomass of clams (1000g) is collected in one dredge tow, then a second dredge sample will be collected to complete the station (see Section II, 3.4).

3.0 Collection Methods

3.1 Use Code

3.1.1 All Fish Study samples are either Use Code 1, 2 or 5. Use code definitions are as follows:

Use Code Definitions

Use Codes	Definition
1	Assigned to samples when there are no sampling problems
2	Assigned to a sampling location when a sample cannot be collected at the Primary location and an Alternate location must be used.
5	Assigned to samples when sampling problems are encountered and a sample must be retaken.

3.1.2 The Crew Leader may retake a sample if he or she feels any problems have prevented a valid sample.

3.1.3 An explanation for use code 2 and 5 is recorded under "comments" on the data sheet.

3.2 Field Processing of Benthic Macrofauna Samples

If the macrofauna grab sample is acceptable, the sample will be processed. For the macrofauna samples only, photographs of the grab will be taken before and after the sample has been sieved, and measurements of penetration depth will be taken. Sampling labels (including Site_ID, Sample_ID, date) will be included in each photograph to identify the sample. The first photograph of the macrofaunal sample will be taken prior to sieving the

sample. The penetration depth of the sample will then be measured using a plastic ruler (marked in millimeters) pushed into the sediment. Any sediment adhering to the surface of the ruler will be rinsed back into the grab for processing with the remainder of the sample. The grab will then be placed over a bucket, the jaws opened, and the sample emptied into the bucket. Filtered seawater will be used to gently wash the sample into the bucket. Grab samples for macrofaunal analyses will be rinsed through 500-µm-mesh sieves. Once the sample has been sieved, a second photograph of the sample will be taken. The portion retained on the screens will then be transferred to labeled jars and fixed in 10% buffered formalin. Sample jars will be Nalgene or other sturdy plastic jars with screw-capped lids. Each sample jar will be filled no more than half full of material. The jar will be gently turned around on its side to distribute the formalin evenly throughout the sample. Sieves will be washed between samples.

All benthic macrofaunal samples must be handled gently during the sieving process, fixed in 10% formalin as quickly as possible to prevent deterioration of the fauna, and all sample jars must be labeled accurately.

Following each benthic survey, the macrofaunal samples (stored in sturdy coolers) will be driven to the Normandeau office in Bedford, NH. The samples to be processed, while still preserved in 10% formalin, can be shipped by FedEx ground or 2-day express delivery (if courier delivery is not feasible). The lids on the plastic sample jars will be taped and the jars inserted individually into large zip-locked or tied plastic bags lined with absorbent padding.

3.3 Field Processing of Sediment Samples

If the grab sample to be used for sediment characteristics or chemical analyses meets the acceptability criteria, the water overlying the sample will be siphoned or gently decanted from the grab. The surface sediment (0 to 2 cm) will then be collected with a scoop and transferred to appropriate storage containers provided by the laboratory. All sediment chemistry samples will be collected at least 2 cm from the sides of the grab. Laboratory instructions regarding fill levels and sample handling will be followed. The sediment chemistry samples must be kept cold or frozen. All samples will be kept on ice in coolers during transport. Samples labels will be checked to ensure that all station information is complete and matches the field data sheet and COC.

3.4 Field Processing of Hard Clam Samples

Hard clams will be identified, sorted and separated from all other organisms and debris in each dredge sample, then counted, measured, and weighed. The length of each clam will be measured to the nearest millimeter using calipers. A wet-weight total biomass of clams per sample (to the nearest gram) will then be collected. The tare weight of a bucket with holes in the bottom will be measured and recorded. All clams in the sample, after having been rinsed of any sediment or debris, will then be placed in the bucket and weighed. The total wet-weight of clams in the sample will be recorded as the weight of the bucket + clams minus the tare weight of the bucket.

A target of 1500 g of clams will be collected and packaged at each hard clam station, with any additional clams being released. A minimum of 1000 g will be required to complete a station for clam tissue burden analyses. If 500 - 999 g of clams are collected, a second dredge

sample will be taken to complete the station. If less than 500 g of clams are collected, then any clams will be released.

If sufficient clams have been collected for tissue burden analyses, then sediment samples for chemistry analyses will be collected. Samples for sediment chemistry analyses will only be collected if sufficient clams have been obtained from that station.

4.0 Water Quality Measurement

Water quality will include both *in situ* measurements and samples collected for laboratory analyses.

4.1 Equipment

Water quality measurements will be made with a Yellow Springs Instruments (YSI) Model 85, or the YSI Professional Plus water quality system.

4.2 Calibration

The YSI meters will be calibrated prior to each day's sampling use (instrument calibration procedures are described in Appendix 5, Equipment Calibration and Maintenance). YSI Model 85 water quality systems will be calibrated and checked as described in the YSI Model 85 operations manual in Appendix 6. The YSI Professional Plus water quality system will be calibrated and checked as described in the YSI Professional plus user manual in Appendix 7. In addition, a check of the calibration of each meter used is performed in the laboratory at the beginning of each day of use as described in Appendix 5.

4.3 Field Procedures

4.3.1 Water quality measurements will be collected *in situ* at each benthic sampling station. Surface and bottom measurements will be made at each station. The boat will be brought on station, and upon instruction from the Boat Captain, water samples will be collected. At each benthic station, seawater samples will be collected by hand for total nitrogen and fecal coliforms. Samples will be collected from the water surface by a field scientist who will carefully reach over the side and collect the water sample on the upcurrent side of the vessel. Samples will be collected 0.3 m below the surface and stored immediately on ice in a cooler. Samples will be delivered to the laboratory courier with sufficient time to allow for sample processing within 6 hours of collection.

4.3.2 Descriptive data for each sampling location are recorded on the Water Quality section of the Soft-Bottom Benthic Samples field data sheet (Section 4.4).

4.3.3 Upon instruction from the Boat Captain, *in situ* water analyzer probes are lowered over the side. The appropriate length of cable is paid out so that surface (0.3m) measurements can be taken. After surface measurements are taken the probe is lowered to the bottom for measurements.

4.3.4 Measurements of temperature, oxygen, pH and conductivity are made at surface and bottom for each sampling location to the nearest 0.1°C, 0.1 mg/l, and scale division respectively. Secchi depth will be recorded at each station.

4.3.5 When reading the dissolved oxygen concentration with a DO meter, it is important to avoid recording inaccurate data that might occur due to meter malfunction or some other reason. In particular, high dissolved oxygen readings above 100% saturation may be observed under certain conditions. Refer to Appendix E of the YSI Model 85 user's manual (Appendix 6 of this SOP) to determine the expected 100% saturation value for the tabulated temperature and conductivity closest to the temperature and conductivity observed in the field as a check of whether the DO reading is reasonable for the ambient temperature and salinity conditions. If a questionable DO reading is observed in the field, take a second reading with the same meter, and record this second reading in the comments section of the data sheet after checking "1" in the COMMENTS of the S1 card type. Two consecutive readings at the same water quality station and depth with the same DO meter that are 110% or higher than the saturation value for the ambient temperature will cause the DO meter to immediately be taken out of service until maintenance is performed, and a second calibrated meter will be used to record the DO reading. Refer to pages 53 and 54 of Appendix 6 of this SOP for Table of Solubility of Oxygen in mg/l in Water Exposed to Water- Saturated Air.

4.4 Water Quality Data Sheet

The water quality data sheet consists of the Q1 card type which is incorporated into the field data sheet (Appendix 4-1). Water quality data obtained at fixed stations are recorded on the field data sheet for the ichthyoplankton sample which is geographically closest to the water quality station.

Coding Instructions

Coding instructions for the Q1 card type (Water Quality Information) are given below. All entries should be made neatly with only one symbol per data block.

VARIABLE NAME	INSTRUCTIONS
SOURCE CARD TYPE	Preprinted Q1
TASK_CD	89 preprinted
SITE_ID	Enter assigned SITE_ID
SAMPLE_ID	Enter assigned SAMPLE_ID
DATE	Record month, day, and year
TIME	Record time of water quality measurements using 24-hour clock
H_2O_TEMP	Record water temperature to the nearest 0.1°C
D_O	Record dissolved oxygen to the nearest 0.1 mg/liter
pH	Record pH
COND	Record conductivity to the nearest scale division
BOTTOM DEPTH (ft)	Record bottom depth (in feet) at the station where the water quality sample was taken. Water quality readings should be taken 1 foot below the surface and 1 foot above bottom.

III. FIELD STANDARD OPERATING PROCEDURES FOR THE FISH STUDY

1.0 Sampling Equipment

1.1 Beach Seine

Samples will be collected using a beach seine (Table III-1).

Table III-1. Specifications of the beach seine

Gear Code = 12	
Number of wings	2
Length of wings	100 ft (30.5 m)
Depth of wings	8 ft (2.4 m)
Wing mesh (bar mesh)	3/8 in. (1.0 cm)
Length of bag	20 ft (6.1 m)
Depth of bag	10 ft (3.0 m)
Bag mesh (bar mesh)	3/16 in. (0.5 cm)

1.2 Otter Trawl

An otter trawl with an 11-m foot rope and chain sweep and a 3.2 cm stretch mesh throughout will be used. The otter trawl will have wood doors measuring 0.3 m by 0.6 m.

1.3 Beam Trawl

A 2-m beam trawl will be used as the second trawl at each trawl station. The inside width of the beam trawl net-mouth opening is 2.0955 meters (82.5 inches); the inside height is 0.7874 meters (31 inches). A General Oceanics Flowmeter will be used with the beam trawl to calculate the volume of water sampled. Flowmeter calibration and maintenance is described in Appendix 5.

1.4 Fish Trap

Sea bass traps measuring 48" long, 15" high, and 24" wide, will be deployed. Trap construction includes 1.5" mesh wire, with 1.5" mesh twine funnel net at the entry, and an opening at the entry funnel of 12"x10". Each trap weighs 50 lbs., weighted by two 25 lb. cement skids, one on each side of the trap bottom.

2.0 Gear Deployment

2.1 Beach Seine

2.1.1 One end of the seine is attached to the boat by a line and the other end is held on shore, while the net is paid out over the bow and stretched out perpendicular to shore.

2.1.2 The seine is then hauled in a clockwise direction towards shore in a semicircular path unless the current is such that it is not feasible to do so.

2.1.3 When both ends are on shore, the seine is hauled onto the beach while care is exercised to ensure that the lead line remains in contact with the bottom at all times and the bag is always centered.

2.2 Otter Trawl and Beam Trawl

The otter trawl and beam trawl will be towed on parallel tracks at each station. Both trawls will be towed at approximately 1.5 meters per second (approximately 3 knots) for duration of 5 minutes.

2.3 Fish Trap

Two fish traps will be deployed at each fish trap station, for two, 24-hour sets (i.e., four samples per station). On the first day of sampling at each fish trap station, a pair of sea bass traps will be deployed. Each trap will be baited (e.g., with crushed clams or menhaden in the bait bag). After a set time of about 24 hours, the crew will haul and process the 20 sea bass traps. Once the contents of each trap have been processed, the crew will then re-set the pair of traps for a second 24-hour set at each fish trap station. Fish traps will be retrieved the following day with the contents of each processed as a separate sample.

3.0 Collection Methods

3.1 Use Code

3.1.1 All Fish Study samples are either Use Code 1, 2 or 5. Use code definitions are as follows:

Use Code Definitions

Use Codes	Definition
1	Assigned to samples when there are no sampling problems
2	Assigned to a sampling location when a sample cannot be collected at the Primary location and an Alternate location must be used.
5	Assigned to samples when sampling problems are encountered and a sample must be retaken or is not usable.

3.1.2 The Crew Leader may retake a sample if he or she feels any problems have prevented a valid sample.

3.1.3 An explanation for use code 2 and 5 is recorded under "comments" on the data sheet.

3.2 Field Processing of Samples

3.2.1 The contents of each beach seine, trawl, or fish trap sample will be collected and transferred into a high-sided collection pan filled with water.

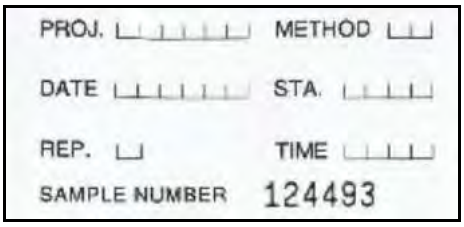
The contents of the sample will be kept continually immersed in water to maximize survival of the fish and invertebrates.

3.2.2. All fish and invertebrates will be sorted, identified and counted. Twenty fish of each species, in each sample, will be measured to the nearest millimeter (all lengths are measured in centimeters total length, to one decimal place):

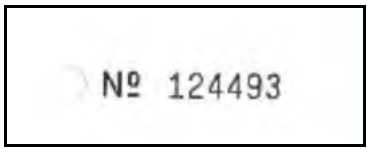
3.2.3 Fish and invertebrates will be processed, recorded on the field data sheets, and returned to the bay alive (except for invertebrate vouchers) unless the taxonomy is uncertain.

3.2.4 Fish and invertebrates of uncertain identification will be placed in a sample container, preserved with 10% formalin, and taken to the laboratory for positive identification. In addition, at least one specimen of each invertebrate species collected during this project will be retained as a representative voucher specimen.

3.2.5 Each sample container taken to the laboratory will be labeled externally with a printed label and an internal label containing sample number is placed inside the sample jar (see examples of external and internal labels for sample number 124493 shown below in Figure III-1). The number of samples returned to laboratory will be recorded on field data sheets. Sample custody will be documented using a COC form.



External Label



Internal Label

Figure III-1. Examples of external (a) and internal (b) labels used to identify samples in containers that are taken to the laboratory.

IV. DATA HANDLING AND DATA CENTER PROCEDURES

1.0 Data Handling Field Data Sheets

Data from sample processing that occurs in the field for all field tasks will be recorded on a field data sheet. The field data sheets will be printed on an 8-1/2" x 11" sheet of weatherproof paper. Specific coding instructions for each variable on the field data sheets are provided below.

All completed data sheets will be reviewed for completeness and legibility by the originator. Data sheets will then be transferred to the Field Operations Manager for quality control checks.

Field data sheets for each sampling type are provided in Appendix 4.

1.1 Field Data Sheet Coding

VARIABLE NAME	INSTRUCTIONS
YR	Preprinted
DATE:	Record date (Mo/Day) of sample collection
TIME:	Record time of the collection using 24-hour clock
GPS POSITION	Record the GPS position of the vessel at the time of sample collection to the nearest degree and minute (decimal minutes with three significant places to the right of the decimal point) of latitude and longitude.
SITE_ID:	Record Site Identification number
SAMPLE_ID:	Record Sample Identification number
DURATION	Record the duration of the sampling effort in minutes to the nearest tenth
FLO_N	Record the flowmeter number
FLO_END	Record flowmeter reading at completion of sample collection
FLO_START	Record flowmeter reading at start of sample collection
FLO_DIF	Calculate difference between flowmeter start and end readings to determine if sample is valid
BOTTOM DEPTH (ft)	Enter bottom depth in feet
TOW_	
SPD:	Enter vessel tow speed for trawls or clam dredge. Record tow speed to the nearest 0.1 meter per second
DIR	Enter tow direction code: 1 = north

VARIABLE NAME	INSTRUCTIONS
	2 = south 3 = east 4 = west
TIDE STG:	Enter code for tidal stage 1 = low slack 2 = flood 3 = high slack 4 = ebb
WAVE HT:	Enter code for estimated wave height: 1 = calm to 1/2 ft 2 = light chop (>1/2 ft to 1 ft) 3 = heavy chop (>1 ft to 2 ft) 4 = large waves (>2 ft)
BOTM TYP:	Enter code for bottom type: 1 = sand 2 = mud 3 = vegetation 4 = debris 5 = brick 6 = gravel (less than 3") 7 = cobble (greater than 3") 8 = mussel/oyster bed 9 = other
VESL CD:	N/A
USE CODE:	Enter appropriate use code
CREW:	Record name or initials of individuals responsible for sample collection
COMMENTS:	Record any pertinent information not recorded elsewhere on the data sheet. Check comment block if comments may affect data interpretation.

2.0 Data Center Procedures

Normandeau's Data Center in Bedford, NH, will keypunch, verify and error check all field and laboratory data collected by Normandeau as part of this survey effort. "Error-free" data files will be "mapped" to Statistical Analysis System (SAS) compatible files for delivery to AKRF (Figure IV-1).

2.1 Keypunch and Verify

1. Field and laboratory data sheets will be duplicated by the originator.
2. Original data sheets will be sent to the data center for keypunching and subsequent placement in a project file.
3. Copies of each data sheet will be retained by the originator.
4. All data will be double keypunched using Normandeau's keypunch verification software. This software requires keypunching of an original file for each data set. The data set is then keypunched a second time and this second set is simultaneously compared with the original file. Any discrepancies between the two copies causes the keyboard to lock on the discrepancy. Discrepancies must be resolved by the entry clerk before keypunching of the second data set can proceed.

2.2 Error Checking QC Inspections

1. Error checking software available on Normandeau's computer system will be used to systematically inspect raw data files and provide the following types of error resolution: Univariate, bivariate, and multivariate.
2. Results of each error checking audit are summarized as tabular output which identifies the type of error and its location in each raw data file.
3. Errors identified by an error checking software must be resolved by a QC inspector who compares the original data sheet and the raw data file.
4. Error resolutions are initialed by the QC inspector and dated on both the original data sheet (in red pencil or ink) and on a hard copy of the raw data file.
5. SAS data mapping to create data files will not proceed until all errors are resolved and error checking audits are "error free".
6. SAS mapping software is then used to transfer "error-free" field and laboratory data sets into Excel files for submittal to AKRF.

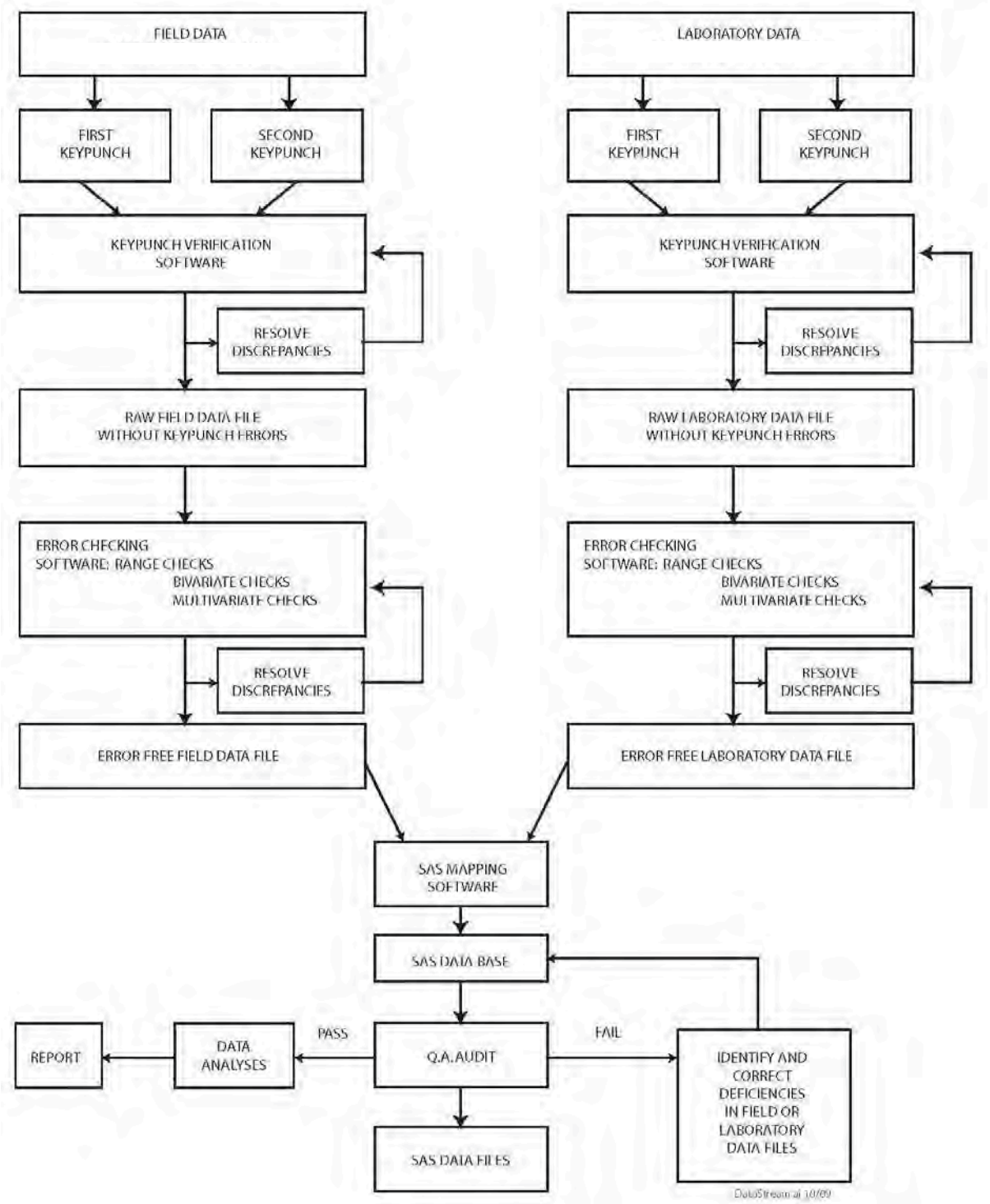


Figure IV-1. Data stream for the ecological data collected in Raritan Bay.

Appendix 1

New York State Department of Environmental Conservation

License to Collect or Possess: Scientific #121

LICENSE
Under the Environmental Conservation Law (ECL)

Licensee Information

License Issued To:
ERIC C NESTLER
25 NASHUA RD
BEDFORD, NH 03110

(603) 637-1146
COUNTY: ALBANY
REGION: 4

DEC Contact Information

DIVISION OF FISH, WILDLIFE AND MARINE RESOURCES
SPECIAL LICENSES UNIT
625 BROADWAY, ALBANY, NEW YORK 12233-4752
PHONE: (518) 402-8985 FAX: (518) 402-8925
WEBSITE: www.dec.state.ny.us

License Authorizations

License to Collect or Possess: Scientific
License # 121

New License Effective Date: 6/4/2015 Expiration Date: 6/3/2016

NYSDEC Approval

By acceptance of this license, the licensee agrees that the license is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this license.

License Regulations

6 NYCRR Part 175
ECL 11-0515 (1)
6 NYCRR Part 189

LICENSE TO COLLECT OR POSSESS: SCIENTIFIC - LICENSE CONDITIONS

1. **Collection from the Wild: Authorized Species, Specific** The licensee is authorized to collect and possess the following species: Marine fish species (Super-order Pisces), Marine invertebrate species (NY Indigenous), Northern quahog (Mercenaria mercenaria)

2. **Scientific Collection - Authorized Activities** The licensee is authorized to possess the collected species for the following activity(ies): Species surveys consistent with the work plan submitted to the NYS DEC Special Licenses Unit on May 22, 2015.

3. **Scientific Collection - Location** The licensee is authorized to collect species from the following locations only:
Raritan Bay off the South shore of Staten Island.

4. **Scientific Collection - Authorized Collection Equipment General** The licensee shall only collect authorized species using: Clam dredge, van Veen Grab, seine net, fish traps, and otter & beam trawl nets.

5. **Scientific Collection – Gear Marking and Monitoring** The licensee shall mark all gear deployed with the licensee's name, resident address and license type and number. All traps and nets shall be checked no less than once every twenty-four (24) hours.

6. **Scientific Collection - LCP - Collection of Endangered or Threatened Species Prohibited** The licensee shall not collect or possess any endangered/threatened species pursuant to this license.

7. **Scientific Collection - Conservation Officer Notification Marine and Coastal District** The licensee shall notify the appropriate Regional Environmental Conservation Officer prior to all collection activities. If collection activities include, the use of a vessel, the name, registration number and a description of the vessel must be provided in the notification. Regional Law Enforcement telephone numbers are: Long Island, Region 1: (631) 444-0250; New York City, Region 2: (718) 482-4885; and, Hudson River, Region 3: (845) 256-3013.

8. **Collection from the Wild - Authority to Designate Agents** The licensee is authorized to designate agents to assist the licensee with the activities authorized pursuant to this license provided that:

a. the licensee submits a written request to the NYSDEC Special Licenses Unit at the address listed on the front of this license containing the:
i) name
ii) address
iii) age
iv) phone number of the person he or she is nominating as a designated agent, and;

b. the licensee receives an amended license from the Special Licenses Unit listing the designated agent(s) he or she has nominated before that person can conduct activities authorized by this license.

9. Authorized Designated Agents The following Designated Agents are authorized: Michael Ricci, Charles Sweeney, Scott Schanke, Christopher Burnett, William Furman, Craig Tompkins, Andrew Saltalamachia, Anthony Spadavecchia, Chris Ward, Michael Mettler, Jayme Shaffer, Keither Marburger.

10. Scientific Collection - Reporting Requirement - Prior to Expiration The licensee shall file a written annual report prior to the expiration date of this license. Such annual report shall contain: a) name of the licensee, b) license number, c) common name of the listed animals collected, d) location(s) of collection, e) date(s) of collection, f) biological data collected and g) final disposition of collected animals. The licensee shall send this report to the NYSDEC Special Licenses Unit 625 Broadway, Albany, NY 12233-4752.

GENERAL CONDITIONS - Apply to ALL Authorized Licenses

1. GC – Licensee Shall Read All Conditions The licensee shall read all license conditions prior to conducting any activities authorized pursuant to this license.

2. GC – License is Not Transferrable This license is not transferrable and is valid only for the person identified as the licensee.

3. GC – Licensee Responsible for Federal, State or Local Permits/Licenses The licensee is responsible for obtaining any and all necessary, corresponding Federal, State or local permits or licenses prior to conducting any activity authorized pursuant to this license.

4. GC – Reasons for Revocation This license may be revoked for any of the following reasons:

i. licensee provided materially false or inaccurate statements in his or her application, supporting documentation or on required reports;
ii. failure by the licensee to comply with any terms or conditions of this license;
iii. licensee exceeds the scope of the purpose or activities described in his or her application for this license;
iv. licensee fails to comply with any provisions of the NYS Environmental Conservation Law, any other State or Federal laws or regulations of the department directly related to the licensed activity;
v. licensee submits a check, money order or voucher for this license or application for this license that is subsequently returned to the department for insufficient funds or nonpayment after the license has been issued.

5. GC – Licensee Shall Carry Copy of License The licensee shall carry a copy of this license or a document provided by the department, if relevant, when conducting activities pursuant to this license.

6. GC – Licensee Shall Notify of Change of Address The licensee shall notify the Special Licenses Unit in writing, by mail or email, within five (5) days of the official change of residence.

7. GC – Licensee is Liable for Designated Agents If designated agents are authorized pursuant to this license, the licensee shall be liable and responsible for any activities conducted by designated agents pursuant to this license or any actions by designated agents resulting from activities authorized by this license.

8. GC – Licensee Renewal The licensee shall submit a written request for the renewal of this license prior to the expiration date listed on the license. The licensee shall include accurate and complete copies of any required reports with their renewal request. This renewal paperwork shall be sent to:

NYSDEC
Special Licenses Unit
625 Broadway
Albany, NY 12233-4752.

This license is deemed expired on the date of expiration listed on the license.

NOTIFICATION OF OTHER LICENSEE OBLIGATIONS

MN– Licensee is Liable
The licensee shall be liable and responsible for any activities conducted under the authority of this license or any actions resulting from activities authorized by the license.

MN – Access by Law Enforcement
The licensee shall allow representatives of the NYS DEC Division of Law Enforcement to enter the licensed premises to inspect his or her operations and records for compliance with license conditions.

Trespassing Prohibited
This license is not a license to trespass. The licensee shall obtain permission from the appropriate landowner/land manager prior to conducting activities authorized pursuant to this license

Appendix 2

City of New York, Parks & Recreation, Natural Resources Group, Permit to Conduct Research in Parks

City of New York Parks & Recreation
Natural Resources Group

Permit to Conduct Research in Parks

The following individuals are authorized to conduct scientific research at the location(s) and dates listed below:

Personnel: Sandy Collins[1,2], Christopher Burnett[2], Teresa Cannone[1], William Furman[2], Keith Marburger[2], Aubrey McMahon[1], Michael Mettler[2], Jesse Moore[1], Eric Nestler[2], Michael Ricci[2], Andrew Saltalamachia[2], Scott Schanke[2], Chad Seewagen[1], Jayme Shaffer[2], Anthony Spadavecchia[2], Charles Sweeney[2], Craig Tompkins[2], Sarah Vorsanger[1], Chris Ward[2]

Location(s): Conference House Park

Dates: June 15 – December 31, 2015

The following actions are granted by this permit:

- [1]Conduct wildlife surveys, conduct vegetation surveys, and field verify wetland areas as part of an Environmental Impact Statement. Surveys will be done twice (late spring/early summer and fall).
- [2]Collect sediment samples from approved locations using a grab sampler. Sediment samples will be used to characterize benthic macroinvertebrates, clam tissue chemistry and sediment chemistry. Samples will be collected twice (late spring/early summer and fall).
- [2]Collect water quality data on site from approved locations using a calibrated YSI Pro instrument and collected water samples to be analyzed in laboratory. Samples will be collected twice (late spring/early summer and fall).
- [2]Sample fish using baited sea bass traps and trawls from approved locations. Sampling will occur in spring, summer, and fall. Researchers will keep a record of species and number of fish that die using each type of sampling gear and report it to NYC Parks.

Permittees must contact the Park Administrator or Manager 48 hours prior to conducting the permitted activities. You may obtain contact information for Administrators and Managers by calling 646-613-1200.

Permittees must have the permit, or a photocopy, in their possession when conducting the above-referenced research activities, as well as any required Federal or State permits.

Permittees shall be held liable for any and all damages or injuries to persons or property that may occur or be caused by the use of the permit. By accepting a permit, permittees agree to indemnify and hold harmless the City and the Department from any and all claims whatsoever that may result from such use.

As a condition of this permit, Parks requires an annual report, due 90 days after completion of research activities or after the calendar year, whichever is sooner. The report should include:

- Dates when research occurred
- Number and type of samples collected
- Disposition of samples
- Summary of research results, including all data generated

This information will be used internally only and will not be distributed to any outside person or group, except with written permission of the permittee. Send reports via e-mail to research.permits@parks.nyc.gov or to the following address:

Research Permits c/o Novem Auyeung
New York City Urban Field Station
431 Walter Reed Road
Fort Totten Park
Bayside, NY 11359

For additional information about Parks' research permits, please call: (718) 225-3061 x312
e-mail: research.permits@parks.nyc.gov,
or write: New York City Urban Field Station, 431 Walter Reed Road, Fort Totten Park, Bayside NY 11359

Permittees shall be held liable for any and all damages or injuries to persons or property that may occur or be caused by the use of the permit. By accepting a permit, permittees agree to indemnify and hold harmless the City and the Department from any and all claims whatsoever that may result from such use.

Appendix 3

City of New York, Parks & Recreation, Permit to Perform Work on Park Property

NYC Parks

Therese Braddick
Deputy Commissioner
Capital Projects

T 718.760.6602
F 718.760.6666

E therese.braddick@parks.nyc.gov

City of New York
Parks & Recreation

Olmsted Center
Flushing Meadows
Corona Park
Flushing, NY 11368
www.nyc.gov/parks

THIS PERMIT IS NOT VALID UNLESS BOTH PARTIES HAVE SIGNED THIS PERMIT

AKRF, Inc
AKRF Engineering P.C.
440 Park Avenue South 8th Floor
New York, NY 10016

PERMIT TO PERFORM WORK ON PARK PROPERTY

Permit No: **R-8-15NF**
Start: JULY 1, 2015
Expiration: **August 30, 2015**

PERMISSION AS REQUESTED IS GRANTED TO YOU AS PERMITTEE TO PERFORM WORK ON PARK PROPERTY SUBJECT TO THE TERMS AND CONDITIONS AS SET FORTH HEREIN:

LOCATION: Conference House Park - Staten Island

FOR THE PURPOSE OF: The Living Breakwaters Data Collection Round 3 –

- Field Data Collection - Sampling of Benthic Study (macroinvertebrates, Clams for tissue contaminant analysis, sediment contaminants, sediment grain size and total organic carbon, select in-situ water quality parameters as well as total nitrogen and fecal coliform at randomly selected sampling locations, and fish along the shore and off-shore of Conference House Park, within the Raritan Bay in the Tottenville Section.)

PERMIT TO PERFORM WORK ON PARK PROPERTY

This document constitutes a permit ("Permit") issued by the New York City ("City") Department of Parks & Recreation ("Parks") to AKRF, Inc – AKRF Engineering P.C. ("Permittee") to perform Field Data Collection along the shore and off-shore of the Conference House Park ("the Work") in Conference House Park - Staten Island (more particularly on the attached map hereinafter referred to as the "Permitted Premises," and shown on Exhibit A).

1. Grant

This permit is granted solely for the purposes of:

A. Field Data Collections as more specifically described in Exhibit A. Work may begin on 07/01/15 and shall be completed by **August 30, 2015** ("Work Term").

B. Permitttee must restore the Permitted Premises that is damaged by Permittee in the course of the Work by performing certain restoration work ("the Restoration Work") to a condition acceptable to Parks.

C. This Permit grants Permittee a license to enter the Permitted Premises for the purposes described above; it is understood that Permittee has no ownership interest in the Permitted Premises and shall have no rights with respect to the Permitted Premises except as set forth herein.

2. Notifications

The Acting Chief of Operations of the Borough of Staten Island, Thomas Russo at 718-390-8013 or designee shall be notified by the Permittee at least forty-eight (48) hours before construction work is started under this Permit.

All the Work shall be performed in the areas shown on Exhibit A.

4. Conditions and Terms of Issuance

A. "City" shall mean the City of New York.

B. "Commissioner of Parks" shall mean the Commissioner of the New York City Department of Parks & Recreation or his designee.

C. "Parks" shall mean the New York City Department of Parks & Recreation.

D. Permittee shall strictly adhere to all City, state and federal laws, rules and regulations, including but not limited to the Rules and Regulations of Parks.

E. The Permittee shall, at its sole cost and expense, restore and improve the Permitted Premises that are disrupted or disturbed by the Work. The restoration and improvement work must be in accordance with the restoration plan (Exhibit B) and be approved by Parks' Construction and Forestry Divisions.

5. Expiration, Termination and Extension of Permit

This Permit is terminable at will at the discretion of the Commissioner upon forty-eight hours (48) hours notice. Extension requests must be made forty eight (48) hours prior to expiration. Parks reserves the right to amend this Permit to cover new conditions.

6. Coordination

A. This Permit does not grant the Permittee exclusive right to use the Permitted Premises. The Permittee shall coordinate Work with any other work being performed in the area by Parks, its contractors, or sub-contractors, utility companies, other City or state agencies, or any other authorized permittees.

B. This Permit is issued for work on lands under the jurisdiction of Parks. Permittee shall be responsible for securing any permits required to perform any of the Work or Restoration Work.

C. The Work and the Restoration Work shall be open at all times to the reasonable inspection of all agencies involved in the permitting process for the Work and the Restoration Work as well as all agencies with applicable oversight authority over any portion of the Work and/or the Restoration Work.

7. Intentionally Omitted

8. Access and Use Requirements

A. Permittee shall not commence the Work or the Restoration Work until all required permits and approvals have been obtained from all appropriate agencies.

B. For any questions regarding the permit area. Permittee shall contact the Chief of Operations for the Borough of Staten Island.

A. Prior to any excavation, Permittee shall, contact "One Call Users' Council, Inc." at 1-800-272-4480, to obtain information on underground utilities.

D. Access to the Permitted Premises shall be via Parks' Roads and Paths unless otherwise approved by Parks or any other agency with jurisdiction over adjacent routes.

E. Permittee shall maintain all areas used for access to the Permitted Premises, as well as any staging areas, in a condition acceptable to Parks.

F. Permittee shall not permit debris to accumulate anywhere on the Permitted Premises and shall clean up the Permitted Premises on a regular basis during the Permit Term.

G. Emergency vehicles must always have access through the Permitted Premises.

9. Maintenance and Restoration of Site

A. In addition to the Restoration Work, the Permittee shall replace and restore all planted areas, trees, shrubs and other existing structures or substructures, utility lines, roads, walks and/or curbs damaged or destroyed by Permittee during the term of this Permit, and such replacement and/or restoration shall be in accordance with all applicable laws, rules, and regulation and must be approved by Parks. Upon the expiration or sooner termination of this Permit, all temporary structures, equipment and material belonging to Permittee shall be removed from the Permitted Premises.

B. Supervision. Permittee shall have qualified supervisory personnel present at the Permitted Premises during all phases of the restoration to ensure that Permittee adheres to all Parks' specifications.

C. Weekend or Holiday Work. All construction work shall be performed in accordance with Sections 24-222 and 24-223 of the Administrative Code of the City of New York. No construction work other than necessary maintenance, emergencies or as required by the City or its appropriate agency, is to be performed on Parks property on Saturdays, Sundays or Holidays, except by written permission from Parks and in compliance with all City, state and federal laws and the Rules.

D. Safety Devices. Barricades, warning devices, signs, flags, lights, shall be provided and maintained as required to insure public safety. Permittee is responsible for the adequacy of the safety devices. Parks shall have the right to order the Permittee to vary and/or increase the safety devices installed on the Permitted Premises. Permittee shall maintain any such devices in good condition throughout the duration of this Permit.

E. Regardless of prior existing conditions at the Permitted Premises, all the Restoration Work must be performed at a level consistent with standard construction procedures for new work.

10. Modifications/Choice of Laws/Venue

A. This Permit constitutes the whole of the agreement between the parties hereto, and no other representation made heretofore shall be binding upon the parties hereto. No modification to this Permit shall be valid unless in writing, signed by the parties hereto. Waiver of any breach or default of any provision hereof shall not be deemed a waiver of any subsequent breach of the same or other provision. This Permit shall be deemed to be executed in New York City, State of New York, regardless of the domicile of the Licensee and shall be governed by and construed in accordance with the laws of the State of New York.

The parties agree that any and all claims asserted by or against the City arising under or related to this Permit shall solely be heard and determined either in the courts of the United States located in the City or in the courts of the State located in the City and County of New York. The parties shall consent to the dismissal and/or transfer of any claims asserted in any other venue or forum to the proper venue or forum. If Permittee initiates any action in breach of this Section, the Permittee shall be responsible for and shall promptly reimburse the City for any attorneys' fees incurred by the City in removing the action to a proper court consistent with this Section.

11. Liability

A. To the fullest extent of permitted by law, Permittee shall defend, indemnify and hold the City and its officials and employees harmless against any and all claims, liabilities, settlements, damages, costs and expenses of whatever nature (including, without limitation. attorneys' fees and disbursements) arising out of or related to any of the operations under this Permit, or Permittee's failure to comply with the law or any of the requirements of this Permit. Insofar as the facts or law relating to any of the foregoing would preclude the City or its officials and employees from being completely indemnified by the Permittee, the City and its officials and employees shall be partially indemnified by Permittee to the fullest extent permitted by law.

B. Copyrights and Patents: To the fullest extent of the law, the Permittee shall indemnify, defend, and hold the City and its officials and employees harmless against any and all claims, liabilities, settlements, damages, costs and expenses of whatever nature (including, without limitation, attorneys' fees and disbursements), against any of them for infringement or violation of any copyright, patent, trademark, service mark, trade dress, rights of publicity, or other intellectual or proprietary right, or any other property or personal right of any third party, in each case arising out of the use for the purpose of this Permit of any plans, designs, drawings or specifications furnished by Permittee in the performance of this Permit.

C. These indemnification provisions shall survive the termination or expiration of this Permit. These indemnification provisions shall not be limited in any way by any other provision of this Permit, including Section 5 hereof.

D. Permittee's activities shall be performed in such manner that the stability of the existing and adjacent areas is not disturbed. Permittee shall be responsible for any damage caused to adjacent Parks areas or appurtenances which result from performance of the Work or the Restoration Work.

12. Insurance

The Parties acknowledge that Permittee is self-insured. Permittee shall cause any and all contractors/consultants, including sub-contractors and sub-consultants ("Contractor") to comply with following insurance requirements:

A. Types of Insurance: From the date Permittee's Contractor is required to provide Proof of Insurance pursuant to Section 12(E) below through the date of completion of all required Work, Permittee's Contractor shall maintain the following types of insurance as

indicated herein in Section 12(J) (with the minimum limits and special conditions specified).

(i) Commercial General Liability Insurance: Permittee's Contracotor shall maintain a Commercial General Liability ("CGL") insurance policy or policies (including umbrella or excess policies, if any) satisfying the requirements of this Section 12. This insurance shall protect the insureds from claims for property damage and/or bodily injury, including death, that may arise from any of the operations under this Permit. Coverage shall be at least as broad as that provided by the most recently issued Insurance Service Office ("ISO") Form CG 0001. Such CGL insurance shall name the City, together with its officials and employees, as an Additional Insured with coverage at least as broad as the most recent edition of ISO Form CG 2026. Such CGL insurance shall be primary and non-contributing to any insurance or self-insurance maintained by the City and must be "occurrence" based rather than "claims-made".

(ii) Workers' Compensation, Employers' Liability, and Disability Benefits Insurance, United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance: Permittee's Contractor shall maintain Workers Compensation, Employers' Liability, and Disability Benefits Insurance as required by New York law and United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance as required by law.

(iii) Comprehensive Business Automobile Liability Insurance: Permittee's Contractor shall maintain Comprehensive Business Automobile Liability insurance for liability arising out of any owned, non-owned, leased and hired vehicles to be used in connection with this Permit. Coverage should be at least as broad as the most recent edition of ISO Form CA0001.

(iv) Marine Protection and Indemnity Insurance: Permittee's Contractor shall maintain Marine Protection and Indemnity Insurance with coverage at least as broad as Form SP-23. The insurance shall provide coverage for Permittee's Contractor, Permittee, and for the City (together with its officials and employees) as an Additional Insured for bodily injury and property damage arising from marine operations under this Permit. Coverage shall include, without limitation, injury or death of crew members (if not fully provided through other insurance), removal of wreck, damage to piers, wharves and other fixed or floating objects and loss of or damage to any other vessel or craft, or to property on such other vessel or craft.

(v) Hull and Machinery Insurance: Permittee's Contractor shall maintain Hull and Machinery Insurance with coverage for Permittee's Contractor, Permittee,

and for the City (together with its officials and employees) as Additional Insured at least as broad as the latest edition of American Institute Tug Form for all tugs used under this Contract and Collision Liability at least as broad as the latest edition of American Institute Hull Clauses.

B. General Requirements for Insurance Policies:

(i) All required insurance policies shall be maintained with companies that may lawfully issue the required policy and have an A.M. Best rating of at least A- VII or a Standard and Poor's rating of at least A, unless prior written approval is obtained from the Mayor's Office of Operations.

(ii) Permittee (or its contractors) shall be solely responsible for the payment of all premiums for all required policies and all deductibles and self-insured retentions to which such policies are subject, whether or not the City is an insured under the policy.

(iii) The City's limits of coverage for CGL insurance shall be the greater of (i) the minimum limits set forth in Section 12(J) or (ii) the limits provided to the Permittee as Named Insured under all primary, excess and umbrella policies of that type of coverage.

C. Proof of Insurance:

(i) Before any Work pursuant to this Permit begins, Permittee shall, for each policy required under this Permit, except for Workers Compensation, Employers Liability and Disability Benefits Insurance, file a Certificate of Insurance with the Commissioner pursuant to 12(G).

(ii) All Certificate(s) of Insurance shall be in a form reasonably acceptable to the City and shall certify the issuance and effectiveness of the types of insurance specified in Section 12(J) and be accompanied by either a duly executed "Certification by Broker" in the form contained in Section 12(K) or completed copies of all policies referenced in the Certificate of Insurance. Where completed policies have not yet been issued, binders are acceptable.

(iii) Certificates of Insurance confirming renewals of insurance shall be submitted to the Commissioner prior to the expiration date of coverage of policies required under this Permit. Such Certificates of Insurance shall comply with the requirements of 12(E) (i) and (ii).

(iv) The Permittee shall be obligated to provide the City with a copy of any policy required by this Section 12 upon the demand for such policy by the Commissioner or the New York City Law Department.

C. Operations of the Permittee:

(i) The Permittee shall not commence the Work unless and until all required certificates have been submitted to and accepted by the Commissioner. Acceptance by the Commissioner of a certificate hereunder does not excuse the Permittee from securing a policy consistent with all provisions of this Section or of any liability arising from its failure to do so.

(ii) The Permittee shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this Permit and shall be authorized to perform Work and Replacement Work only during the effective period of all required coverage.

(iii) In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the Permittee shall immediately stop all Work or Replacement Work, and shall not recommence Work or Replacement Work until authorized in writing to do so by the Commissioner.

(iv) Where notice of occurrence, accident, claim or suit is required under a policy maintained in accordance with this Section 12, the Permittee shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this Permit (including notice to Commercial General Liability insurance carriers for events relating to the Permittee's or its Contractors' employees) no later than 20 days after such event. For any policy where the City is an additional insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The Permittee shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

D. Wherever reference is made in this Section 12 to documents to be sent to the Commissioner (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Section 17.

E. Materiality/Non-Waiver: The Permittee's failure to secure policy(ies) in complete conformity with this Section, or to give the Insurance Company timely notice of any sort required in this Permit on behalf of the City, or to do anything else required by this Section 12 shall constitute a material breach of this Permit. Such breach shall not be waived or otherwise excused by any action or inaction by the City at any time.

F. Other Remedies: Insurance coverage in the minimum amounts provided for herein shall not relieve the Permittee of any liability under this Permit, nor shall it preclude the City from exercising any rights or taking such other actions as are available to it under any other provisions of this Permit or as otherwise provided by law.

G. Insurance Schedule

Types of Insurance	Minimum Limits and Special Conditions
Workers' Compensation, Employer's Liability, and Disability Insurance and United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance	Per Statutory Limits as required by the laws of the State of New York
Commercial General Liability	$1,000,000 per occurrence, $2,000,000 aggregate. Additional Insureds: 1) City of New York, including its officials and employees, with coverage at least as broad as ISO Form CG 2026 2) Permittee
Comprehensive Business Auto Coverage	$1,000,000 per accident
Marine Protection and Indemnity Insurance	$1,000,000 per occurrence, $1,000,000 aggregate. Additional Insureds: 1) City of New York, including its officials and employees 2) Permittee
Hull and Machinery Insurance	$4,000,000 per occurrence Additional Insureds: 3) City of New York, including its officials and employees 4) Permittee

H. The Certificate by Broker must be in the following form:

CERTIFICATION BY BROKER

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance, dated _____, is accurate in all material respects, and that the described insurance is effective as of the date of this Certification.

_____
[Name of broker (typewritten)]

_____
[Address of broker (typewritten)]

_____
[Signature of authorized official or broker]

_____
[Name of authorized official or broker (typewritten)]

Sworn to before me this __ day of _____

_____
Notary Public

_____

13. Independent Contractors. No Assignment

The parties to this Permit shall be independent contractors, and nothing herein shall be deemed to make the parties hereto joint venturers, partners, agent/principal or otherwise. This Permit shall not be assignable without the other party's prior written consent.

14. Investigations

a) The parties to this Permit shall cooperate fully and faithfully with any investigation, audit or inquiry conducted by a State of New York ("State") or City governmental agency or authority that is empowered directly or by designation to compel the attendance and to examine witnesses under oath or conducted by the Inspector General of a governmental agency that is a party in interest to the

transaction, submitted bid, submitted proposal, contract, lease, permit, or license that is the subject of the investigation, audit or inquiry.

(b) (i) If any person who has been advised that his or her statement and any information from such statement will not be used against him or her in any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract or license entered into with City, State or any political subdivision or public authority thereof, or the Port Authority of New York and New Jersey, or any local development corporation within City, or any public benefit corporation organized under the laws of the State of New York; or

(ii) If any person refuses to testify for a reason other than the assertion of his or her privilege against self incrimination in an investigation, audit or inquiry conducted by a City or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest and is seeking testimony concerning the award of or performance under any transaction, agreement, lease, permit, contract or license entered into with City, State or any political subdivision thereof or any local development corporation within the City; then

(c) (i) The commissioner or agency head whose agency is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit or license shall convene a hearing, upon not less than five days written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

(ii) If any non-governmental party to the hearing requests an adjournment, the commissioner or agency head who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit or license pending the final determination pursuant to paragraph (e) below with City incurring any penalty or damage for delay or otherwise.

(d) The penalties which may attach after a final determination by the commissioner or agency head may include, but not exceed:

(i) The disqualification for a period not to exceed five years from the date of an adverse determination for any person or entity of which such person was a member at the time the testimony was sought from submitting bids for, transacting business with or entering into or obtaining any contract, lease, permit or license with or from City; and/or

(ii) The cancellation or termination of any and all such existing City contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this Permit, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of

the notice scheduling the hearing, without the City incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals, or fees accrued prior to the cancellation or termination shall be paid by City.

(e) The commissioner or agency head shall consider and address in reaching his or her determination and in assessing an appropriate penalty the factors in sub paragraphs (i) and (ii) below. He or she may also consider, if relevant and appropriate, the criteria established in sub-paragraphs (iii) and (iv) below in addition to any other information which may be relevant and appropriate:

(i) The party's good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit including, but not limited to, the discipline, discharge or disassociation of any person failing to testify, the production of accurate and complete books and records and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought.

(ii) The relationship of the person who refused to testify to any entity that is a party to the hearing, including, but not limited to, whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity.

(iii) The nexus of the testimony sought to subject entity and its contracts, leases, permits or licenses with City.

(iv) The effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in an entity subject to penalties under paragraph (d) above, provided that the party or entity has given actual notice to the commissioner or agency head upon the acquisition of the interest, or at the hearing called for in paragraph (c) (i) above gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity must present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

(f) (i) The term "license" or "permit" as used herein shall be defined as a license, permit, franchise or concession not granted as a matter of right.

(ii) The term "person" as used herein shall be defined as a natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

(iii) The term "entity" as used herein shall be defined as any firm, partnership, corporation, association or person that receives monies, benefits, licenses, leases or permits from or through City or otherwise transacts business with the City.

(iv) The term "member" as used herein shall be defined as any person associated with another person or entity as a partner, director, officer, principal or employee.

(g) In addition to and notwithstanding any other provision of this Permit the commissioner or agency head may in his or her sole discretion, terminate this Permit upon not less than three days written notice in the event the Permittee fails

to promptly report in writing to the Commissioner of Investigation of the City of New York any solicitation of money, goods, requests for future employment or other benefit or thing of value, by or on behalf of any employee of the City or other person, firm, corporation or entity for any purpose which may be related to the procurement or obtaining of this Permit by the Permitee, or affecting the performance of this Permit.

15. Notices

All notices to Parks shall be sent to the following addresses:

New York City Parks & Recreation
Counsel's Office
The Arsenal
830 Fifth Avenue
New York, New York 10065
and

Director of Permits
The Olmsted Center
Flushing Meadows - Corona Park
Flushing, New York 11368

All notices to Permittee shall be sent to following address:

Governor's Office of Storm Recovery
25 Beaver Street
New York, NY 10004

18. Copyright

The Permittee warrants that it has obtained or will obtain prior to the commencement of any portion of the Work and the Restoration Work all required approvals and permissions to use any and all materials that without such permission or approval would infringe or violate the copyright, trademark, service mark, trade dress, rights of publicity, or other intellectual or proprietary right, or any other property or personal right of any third party.

19. Safety Standards

All products, materials and equipment used to perform the Work must meet the reasonable safety standards of Parks.

20. No Cost

All the Work and the Restoration Work performed under this Permit shall be at no cost to the City or Parks.

21. Assignment

The Permittee shall not assign, transfer, convey or otherwise dispose of this Permit or of Permittee's rights, obligations, duties, in whole or in part, under this Permit, unless the prior written consent of Parks shall be obtained, which consent shall not be unreasonably withheld or delayed. Any such assignment, transfer, conveyance or other disposition without such consent shall be void.

22. Merger

This written Permit contains all the terms and conditions agreed upon by the parties hereto, and no other permit, agreement, oral or otherwise, regarding the subject matter of this Permit shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

23. Modification

No modification, amendment, waiver or release of any provision of this Permit or of any right, obligation, claim or cause of action arising hereunder shall be valid or binding for any purpose unless in writing and duly executed by both parties to this Permit.

24. Protection of Property

The Permittee assumes the risk of, and shall be responsible for, any loss or damage to property of the City of New York, including the Site, involved in the performance of this Permit, and caused, either directly or indirectly, by the acts, conduct, omissions or lack of good faith of the Permittee, or his or her officers, managerial personnel and employees, or any person, firm, company, agency or others engaged by the Permit as expert, consultant, specialist or subcontractor hereunder.

The rights and remedies of the City provided herein shall not be exclusive and are in addition to any other rights and remedies provided by law or by this Permit.

25. Field Data Collection

Parks acknowledges that the the Work is being performed in support of a Federally funded, State implemented project to increase coastal resiliency along the South Shore of Staten Island. The project is referred to by the Living Breakwaters. Permittee shall

provide Parks with a copy of any and all results and/or findings from the Work to Parks within thirty (30) days of Permittee's receipt of same.

Permittee shall coordinate all public relations outreach through Parks Office of Public Information. Parks shall be provided with five (5) copies of all materials published for the project. The Permittee shall consult with Parks Office of Public Information on any and all proposal(s) to be published or release print or electronic materials. Permitee shall cooperate with Parks Office of Public Information during the course of the project, providing access to the site and offsite facilities where work is conducted and to materials and information related to the project.

CITY OF NEW YORK / PARKS & RECREATION

By: _____
Daniel Grulich
Director Interagency Coordination

Cc: FILE/ D. Shanks-Brown, A. Oliveri, Borough Commissioner L. Ricciardone, T. Russo A. Israel, D. Howe

Contact Information:
NYCDPR- Tom Russo- 718-403-8013
NYCDPR-Forestry-Arne Israel-718-390-2080

Accepted and Agreed
(AKRF, Inc
AKRF Engineering P.C.)

Print Name: Sandra Collins

Signature: _____

Title: Vice President

Dated: 6/10/15

Permit No. **R-8-15NF**

CERTIFICATION BY BROKER

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance, dated 6/11/15, is accurate in all material respects, and that the described insurance is effective as of the date of this Certification.

Dale Group Inc
[Name of broker (typewritten)]

30A Vreeland Road, Florham Park, NJ 07932
[Address of broker (typewritten)]

[Signature of authorized official or broker]

Lee Jorge
[Name of authorized official or broker (typewritten)]

Sworn to before me this 11th day of June, 2015

Notary Public

Carol DeCapua
Notary Public of New Jersey
My Commission Expires
May 2, 2017

Appendix 4

Field Data Sheets and Chain-of-Custody Form

Appendix 4-1. Field Data Sheet for the Soft-Bottom Macrofauna Survey.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2

Soft-Bottom Benthic Samples Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE MO	DATE DAY	TIME (24 hr)	Use code	VESL CD	Tide stage	Wave ht	Btm Type	Com-ments
0 2			0 0 2	1 5									

GPS LOCATION N ___° ___ . ___ W ___° ___ . ___

BOTTOM DEPTH(ft) ___

CREW: _____

MACROFAUNA GRAB SAMPLE (0.04m² Van Veen)

Check box to verify

☐ Picture Taken Before Seiving

☐ Picture Taken After Seiving

GRAB PENETRATION (cm) ___

COMMENTS: _____

SEDIMENT CHARACTERISTICS GRAB SAMPLE (0.04m² Van Veen)

Check box to verify

☐ TOC Sample Collected

☐ Grain Size/Atterberg Sample Collected

COMMENTS: _____

WATER QUALITY

GPS LOCATION N ___° ___ . ___ W ___° ___ . ___

Q1	MO	DAY	YR	TIME
8 9			1 5	

	H2O TEMP	DO	pH	COND
Surface				
Bottom				

BOTTOM DEPTH(ft) ___

SECCHI DEPTH (circle units) ___ ft. m

Check box to verify

☐ Total Nitrogen Samples Collected

☐ Fecal Coliforms Sample Collected

COMMENTS: _____

Appendix 4-2. Field Data Sheet for the Hard Clam Survey.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2

Clam Dredge Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE MO	DATE DAY	TOW_ SPD	TOW_ DIR	Use code	VESL_ CD	Tide stage	Wave ht	Com-ments
0 1			0 0 1	1 5									

TIME (24 hr)	BOTTOM DEPTH(ft)	DURATION

CREW: _____

START GPS LOCATION N ☐☐° ☐☐.☐☐☐ W ☐☐° ☐☐.☐☐☐

END GPS LOCATION N ☐☐° ☐☐.☐☐☐ W ☐☐° ☐☐.☐☐☐

C1

Hard Clam

TOTAL COUNT ☐☐☐☐

TOTAL WEIGHT (bucket & clams) ☐☐☐☐ (g)

BUCKET WEIGHT ☐☐☐☐ (g)

CLAM WEIGHT ☐☐☐☐ (g)

Is weight enough to send out tissue samples?

Yes ☐ ≥ 1000 g

No ☐ <1000 g

If yes, then collect Sediment Chemistry Samples (e.g., metals & organics)

B1

SEDIMENT CHEMISTRY

GPS LOCATION N ☐☐° ☐☐.☐☐☐ W ☐☐° ☐☐.☐☐☐

DATE MO	DATE DAY	TIME (24 hr)	BOTTOM DEPTH(ft)	Use code	Tide stage	Wave ht	Com-ments

☐ Check box to verify that Sediment Chemistry Samples have been collected.

COMMENTS: _____

B1_FIELD1 Clam Dredge.AI 06/15

Appendix 4-3. Field Data Sheet for Beach Seine Sampling.

Page ____ of _____

AKRF Staten Island Breakwater Survey - 23674.000 Task 2
Beach Seine Field data sheet

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE		TIME				Tide stage	Wave ht	Use code	Comment
					MO	DAY	h	h	m	m				
2 3			0 1 2	1 5										

GPS LOCATION N ☐☐°☐☐.☐☐☐ W ☐☐°☐☐.☐☐☐

CREW: _____

C1

SPECIES NAME	TAXA CODE						TOTAL COUNT				

COMMENTS: _____

_____

_____

S1_FIELD1.AI 06/13

Appendix 4-4. Field Data Sheet for Otter Trawl Sampling.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2

Otter Trawl Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE MO	DATE DAY	TOW_ SPD	TOW_ DIR	Use code	VESL_ CD	Tide stage	Wave ht	Com-ments
5 3			0 4 9	1 5									

		TIME (24 hr)	BOTTOM DEPTH(ft)	DURATION
FLO_N				
FLO_END				
FLO_STRT				
FLO_DIF				

CREW: _____

START GPS LOCATION N ___° __.____ W ___° __.____

END GPS LOCATION N ___° __.____ W ___° __.____

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

_____

_____

S1_FIELD1 Otter Trawl.Al 06/15

Appendix 4-5. Field Data Sheet for Beam Trawl Sampling.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2

Beam Trawl Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE		TOW_		Use code	VESL_ CD	Tide stage	Wave ht	Com-ments
					MO	DAY	SPD	DIR					
9 8			0 1 8	1 5									

FLO_N			
FLO_END		TIME (24 hr)	BOTTOM DEPTH(ft)	DURATION
FLO_STRT				
FLO_DIF				

CREW: _____

START GPS LOCATION N ___° ___ . ___ W ___° ___ . ___

END GPS LOCATION N ___° ___ . ___ W ___° ___ . ___

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

S1_FIELD1 Beam Trawl AJ09v1

Appendix 4-6. Field Data Sheet for Fish Trap Sampling.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2

Fish Trap Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	TRAP	GEAR	YR	Use Code	Com-ments
4 3				0 3 6	1 5		

	DATE		TIME (24 hr)		BOTTOM DEPTH (ft)	Tide stage	Wave ht
	MO	DAY	h h	m m			
SET							
PULL							

CREW: _____

Bait Used: _____

GPS LOCATION N ___° ___.____ W ___° ___.____

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

S1 FISH Fish Trap AZ 06-15

Appendix 4-7. Field Data Sheet for Fish Measurements.

AKRF Staten Island Breakwater Survey - 23674.000 Task 2
Field Length data sheet

Page ____ of _____

L2 TASK CODE	SITE_ID	SAMPLE_ID	DATE MO	DAY	YR
2 3					

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

SPECIES _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

COMMENTS: _____

_____

_____

SI_FIELD.DCAI 06/15

Appendix 4-8. Normandeau Chain-of-Custody Form.

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

www.normandeau.com (609) 472-5191

Chain of Custody Form

Project Name: _____
Project Number: _____
Originating Contact: _____
Originator Location: _____
Final Destination: _____
Sampler(s): _____

Page of

Method of Shipment:

Sample		Collection		Containers		Grab.	Comp.	Presv.		Parameters				Comments Below:
No.	Identification	Date	Time	No.	Type									
			Total											

Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)
Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Date:	Date:	Date:	Date:	Date:	Date:

Appendix 4-8_Chain of custody doc 1/12/07

Appendix 5

Equipment Calibration and Maintenance Information

5.0 Equipment Calibration and Maintenance

5.1 General Oceanics Flowmeters

It is essential that each flowmeter (digital and electronic) be calibrated and its fitness for field use evaluated. This should be performed upon acquisition before its first use in the field, and following each field use thereafter. This testing procedure is carried out by a qualified technician in the Horn Point Environmental Laboratory (HPEL) flume. Data returned from HPEL subsequent to testing are used by the Data Center to calculate a regression equation for each flowmeter. By means of this equation, water velocity can be determined from field readings and ultimately, sample volume calculated. In addition, the precision of each of these meters is assessed from the HPEL data.

Digital and electronic flowmeters may be judged non-functional by field crews while in use. This decision may be based upon the instrument having sustained obvious physical damage prior to, or during use and after having passed the HPEL testing procedure, or upon one or more flowmeter field readings exceeding tolerance limits.

5.1.1 Calibration Schedule

New flowmeters and functional units returned from the field after one week of use will be sent to HPEL for calibration.

5.1.2 Flowmeter Handling Procedures Related to Calibration

5.1.2.1 All new and functional (returned from the field after one week of use) digital and electronic flowmeters will be sent to HPEL at weekly intervals accompanied by adequate numbers of calibration data sheets.

5.1.2.2 This weekly frequency may be altered by the Field Operations Manager based on projected needs for calibrated flowmeters.

5.1.2.3 United Parcel Service will deliver flowmeters to HPEL and will return them to Normandeau the following week.

5.1.2.4 Flowmeters returned from HPEL will be retained by the Field Operations Supervisor until data evaluation has been completed.

5.1.2.5 Calibration data sheets will be checked by the Field Operations Manager for obvious errors, especially transpositional errors producing highly aberrant values. Errors will be treated as follows:

- If easily reconcilable, corrections will be made on the original and all copies with due notation of the change.
- If not easily reconcilable, notation will be made of the fact, no further evaluation of those data will take place and the flowmeter will be assigned for recalibration. Data sheets found to contain errors will be retained by the Field Operations Manager and not sent to the Data Center.

5.1.2.6 The original data sheets will be submitted to the Data Center for processing.

5.1.2.7 The Data Center will calculate the regression equation and precision estimate for each digital flowmeter with the results distributed within four working days to the following:

- Original to the Technical Director.
- Copy to the Field Operations Manager.

5.1.2.8 The Field Operations Manager will be responsible for the evaluation of the status of newly calibrated flowmeters. The following criteria will apply:

- Individual digital flowmeters having a precision estimate greater than or equal to ±15 cubic meters will be considered unacceptable and removed from service for return to the vendor.
- Individual electronic flowmeters with readings differing from known flume velocities by more than 10% at 70, 80, or 90 cm/sec will be considered unacceptable and removed from service for return to the vendor.

5.1.2.9 Digital and electronic flowmeters determined to be acceptable will be made available for field assignment by the Field Operations Manager.

5.1.2.10 As flowmeters return from field use, they will be brought to the Field Operations Manager. At the same time a list of flowmeter numbers being submitted is to be provided with an indication of their status:

- Those apparently functioning properly based on field performance will be stored until they can be sent to HPEL.
- Those damaged but judged easily repairable will be repaired and subsequently sent to HPEL for calibration.
- Those considered non-functional on the basis of obvious damage or questionable field performance and judged to be not easily repairable will be stored until returned to the vendor.

5.1.2.11 The Field Operations Manager will maintain a log recording the history of each flowmeter. Included will be the following information:

- Identification number and vendor serial number.
- Date of receipt.
- Date and nature of each assignment.
- Date of service removal and reason for that removal.

5.1.2.12 Any problems or variance from these procedures will be documented by an EE/NC Report.

5.2 YSI Model 85 Handheld Oxygen, Conductivity, Salinity, and Temperature System

5.2.1 Maintenance

5.2.1.1 Maintain the Model 85 handheld water quality system as described in the YSI Model 85 operation manual in Appendix 1.

5.2.2 Calibration

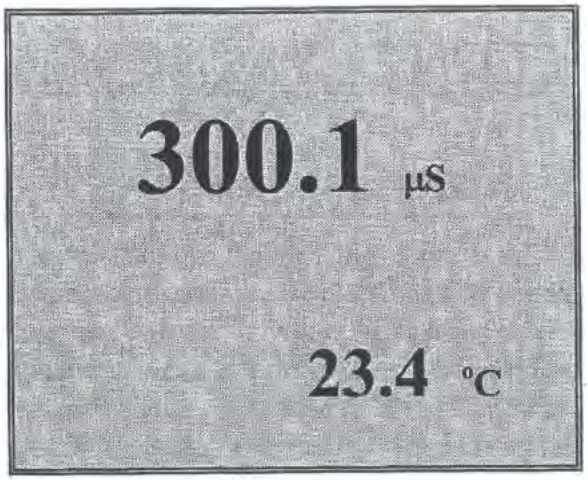
5.2.2.1 Perform daily calibration of the YSI Model 85 handheld water quality system as described in the YSI Model 85 operations manual in Appendix 6.

5.2.2.2 Each YSI Model 85 water quality meter will be assigned a unique identification number (or serial number) and a calibration and repair log will be maintained specific to each calibration event or repair for the life of the meter.

5.2.2.3 Each daily calibration event is recorded in the calibration log specifying the date and time calibrated, the person performing the calibration check, the outcome of the calibration, and if any repairs were made.

5.2.3 Making Conductivity and Dissolved Oxygen Measurements

5.2.3.1 Select **Conductivity** (not temperature compensated). The large numbers on the display will be followed by either **µS** or **mS**. Additionally the small portion of the display will show the °C **NOT** flashing.



5.2.3.2 Select Dissolved Oxygen with mode button. The instrument is reading Dissolved Oxygen when the large numbers on the display are followed by Mg/L.

5.3 YSI Model Professional Plus Handheld Oxygen, Conductivity, Salinity, and Temperature System

5.3.1 Maintenance

5.3.1.1 Maintain the Model Professional Plus handheld water quality system as described in the YSI Model Professional Plus operation manual in Appendix 7.

5.3.2 Calibration

5.3.2.1 Perform daily calibration of the YSI Model Professional Plus handheld water quality system as described in the YSI Model Professional Plus operations manual in Appendix 7.

5.3.2.2 Each YSI Professional Plus water quality meter will be assigned a unique identification number (or serial number) and a calibration and repair log will be maintained specific to each calibration event or repair for the life of the meter.

5.3.2.3 Each daily calibration event is recorded in the calibration log specifying the date and time calibrated, the person performing the calibration check, the outcome of the calibration, and if any repairs were made.

5.3.3 Making Conductivity and Dissolved Oxygen Measurements

5.3.3.1 When using the YSI Professional Plus make sure you have selected Conductivity (the measure of a solution's ability to conduct electrical current). Conductivity reading is a reading without any temperature compensation.

5.3.3.2 When using the YSI Professional Plus to make Dissolved Oxygen measurements select Run mode (main display) and record dissolved oxygen reading displayed in mg/L.

5.4 Calibration Checks of YSI Model 85 and Professional Plus Water Quality Meters

5.4.1 Calibration checks of the measured water temperature, dissolved oxygen concentration, and conductivity (at ambient temperature) are performed at the beginning of each sampling day to maintain a record of instrument performance and data quality for the YSI Model 85 and Professional Plus water quality meters used for the HRBMP. Calibration may be performed more frequently if the calibration results appear out of the range of normal expected values or if the instrument or probes sustained any damage.

5.4.2 Calibration checks of the measured water temperature, dissolved oxygen concentration, and conductivity (at ambient temperature) with the YSI meter will be performed using the tolerance standards presented in Table II-13.

5.4.2.1 Calibration checks of the temperature measurements will be performed using a NIST traceable field thermometer.

5.4.2.2 Calibration checks of the conductivity measurements will be performed using a One-Shot Traceable Conductivity Standards obtained from VWR that are representative of the range of conductivities observed in the Hudson River estuary.

5.4.2.3 Calibration checks of the dissolved oxygen measurement system will be performed using an air-saturated water bath in freshwater at ambient (room) temperature. This air-saturated water bath is assumed to be at 100% saturation for dissolved oxygen concentrations.

5.4.3 Each YSI water quality meter will be assigned a unique identification number (or serial number) and a calibration and repair log will be maintained specific to each calibration event or repair for the life of the meter.

5.4.4 Calibration checks of the YSI meter thermistor and dissolved oxygen measurements will be performed using an air-saturated water bath in the following manner:

5.4.4.1 First calibrate the YSI meter as specified in Section 5.2 or 5.3 above for the salinity and temperature of the air-saturated freshwater bath.

5.4.4.2 Prepare the air-saturated freshwater bath by bubbling air through an air stone into a carboy of distilled water for at least 30 minutes.

5.4.4.3 Withdraw approximately 2 liters of air-saturated water and pour it back and forth between two containers four to five times to remove any supersaturation.

5.4.4.4 Measure and record the temperature of the air-saturated freshwater bath with the NIST thermometer to the nearest 0.1°C.

5.4.4.5 Measure and record the water bath temperature to the nearest 0.1°C with the YSI meter.

5.4.4.6 Use the measured temperature with the NIST thermometer to determine actual dissolved oxygen concentration of the air-saturated freshwater bath to the nearest 0.1 mg/l at the time of the reading for conductivity of zero and 100% saturation (see Appendix E of the YSI Model 85 user's manual; Appendix 6 of this SOP).

5.4.4.7 Measure and record the dissolved oxygen concentration with the YSI meter to the nearest 0.1 mg/l.

5.4.4.8 Record the following information in the DO-Meter Calibration Log:

- Unique Meter Number
- Date Calibrated
- Calibrated by
- Actual Temperature (NIST Thermometer)
- Observed Temperature (YSI Meter)
- Actual DO (DO_{std}, Appendix E of YSI Model 85 user's manual, Appendix 6 of this SOP)
- Observed DO (DO_{obs}, YSI Meter)
- Observed deviation, as the percent difference between the standard and observed dissolved oxygen readings using the following equation:

$$\frac{DO_{obs} - DO_{std}}{DO_{std}} = \%$$

5.4.4.9 If the percent difference between the observed and the standard DO readings exceeds ±5% or if the difference between the observed and standard temperatures exceeds ±3%, the instrument is out of tolerance. The meter should be repaired and

Table II-13. Field Instrument Calibration Frequency and Tolerance.

	Frequency of Calibration Checks	Tolerance
Conductivity	Daily	±5% of Std
Temperature	Daily	±3% of Std
Dissolved Oxygen	Daily	±5% of the 100% saturation value in an air-saturated fresh water bath at ambient temperature

recalibrated or sent to the Standards Laboratory for repair and a second meter used that will pass a calibration check. The DO and/or temperature data obtained since the previous calibration check must be removed from the field data sheets and an EE/NC Report filed explaining the reasons for the missing data.

5.4.5 Calibration A checks of the conductivity and temperature measurement systems will be performed using One-Shot Traceable Conductivity Standards provided by VWR and a NIST traceable field thermometer. These checks will be performed in the following manner:

5.4.5.1 First calibrate the YSI meter as specified in Section 5.2 or 5.3 above for Conductivity.

5.4.5.2 Prepare One-Shot Traceable Conductivity Standard (One-Shot) by pouring it into calibration vessel.

5.4.5.3 Measure and record the temperature of the One-Shot with the NIST thermometer to the nearest 0.1EC.

5.4.5.4 Measure and record the temperature of the One-Shot with YSI meter to the nearest 0.1EC.

5.4.5.5 Record difference between NIST thermometer and YSI meter to nearest 0.1EC.

5.4.5.6 Record Identification number on One-Shot. The One-Shot standard should not be used more than seven days.

5.4.5.7 Record conductivity value from One-Shot Certificate of Analysis Table Appendix 8.

5.4.5.8 Record observed conductivity value from the YSI meter.

5.4.5.9 Calculate the observed deviation, as the difference between the One-Shot standard and the YSI meter using the following equation.

5.4.5.10 If the percent difference between the conductivity readings exceeds ±5% or if the difference between the observed and standard temperatures exceeds ±3%, the instrument is out of tolerance. The meter should be sent to the Standards Laboratory for repair and a second meter used that will pass a calibration check. The conductivity and/or temperature data obtained since the previous calibration check must be removed from the field data sheets and an EE/NC Report filed explaining the reasons for the missing data.

$$\frac{C_{obs} - C_{std}}{C_{std}} = \%$$

C_{obs} = observed conductivity (after correcting for cable length)
C_{std} = actual conductivity of standard
% = percent difference

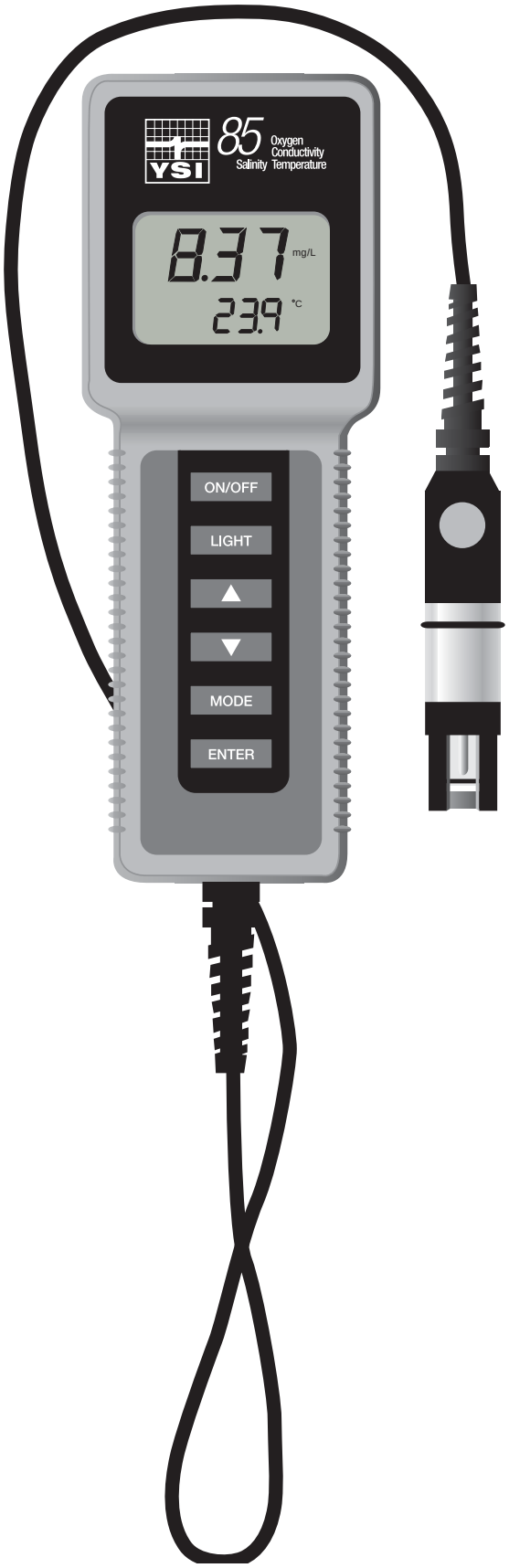
5.2.3 One-Shot Traceable Conductivity Standard

One-Shot standard solutions should be changed after seven days of use.

Appendix 6

YSI Model 85 Hand Held Oxygen, Conductivity, Salinity, and Temperature System Operations Manual

YSI *incorporated*



YSI Model 85

Handheld Oxygen, Conductivity, Salinity, and Temperature System

Operations Manual

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SECTION 1 INTRODUCTION

The YSI Model 85 Handheld Dissolved Oxygen, Conductivity, Salinity and Temperature System is a rugged, micro-processor based, digital meter with an attached YSI combination conductivity and dissolved oxygen probe.

The YSI Model 85 is designed for use in field, lab, and process control applications as well as for environmental, aquaculture, and industrial uses. The Model 85 is available with cable lengths of either 10, 25, 50 or 100 feet. The body of the probe has been manufactured with stainless steel to add rugged durability and sinking weight. The probe also utilizes our easy to install cap membranes for measuring dissolved oxygen.

The YSI Model 85 probe is a non-detachable, combination sensor designed specifically for the YSI Model 85 Handheld System. The conductivity portion is a four-electrode cell with a cell constant of 5.0/cm ±4%. The dissolved oxygen portion is a polargraphic Clark type sensor.

The Model 85's microprocessor allows the system to be easily calibrated for dissolved oxygen or conductivity with the press of a few buttons. Additionally, the microprocessor performs a self-diagnostic routine each time the instrument is turned on. The self-diagnostic routine provides you with useful information about the conductivity cell constant and function of the instrument circuitry. The system simultaneously displays temperature (in °C), along with one of the following parameters: dissolved oxygen in either mg/L (milligrams per liter) or % air saturation; conductivity; temperature compensated conductivity; (in µS/cm or mS/cm), and salinity (in parts per thousand {ppt}).

The system requires only a single calibration regardless of which dissolved oxygen display you use. The calibration of conductivity is not required but is available. A single calibration will adjust the instrument, regardless if you are reading conductivity or temperature compensated conductivity. You can switch between all of these parameters with the push of a single key.

A calibration\storage chamber is built into the instrument case. A small sponge in the chamber can be moistened to provide a water saturated air environment that is ideal for air calibration of the dissolved oxygen probe. This chamber also provides a convenient place to store the probe when the system is not in use, and provides protection for the electrodes within the conductivity probe. The Model 85 case is also waterproof (rated to IP65). You can operate your Model 85 in the rain without damage to the instrument.

Six AA-size alkaline batteries power the instrument. A new set of alkaline batteries will provide approximately 100 hours of continuous operation. When batteries need to be replaced, the LCD will display a **"LO BAT"** message.

SECTION 2 PREPARING THE METER

2.1 UNPACKING

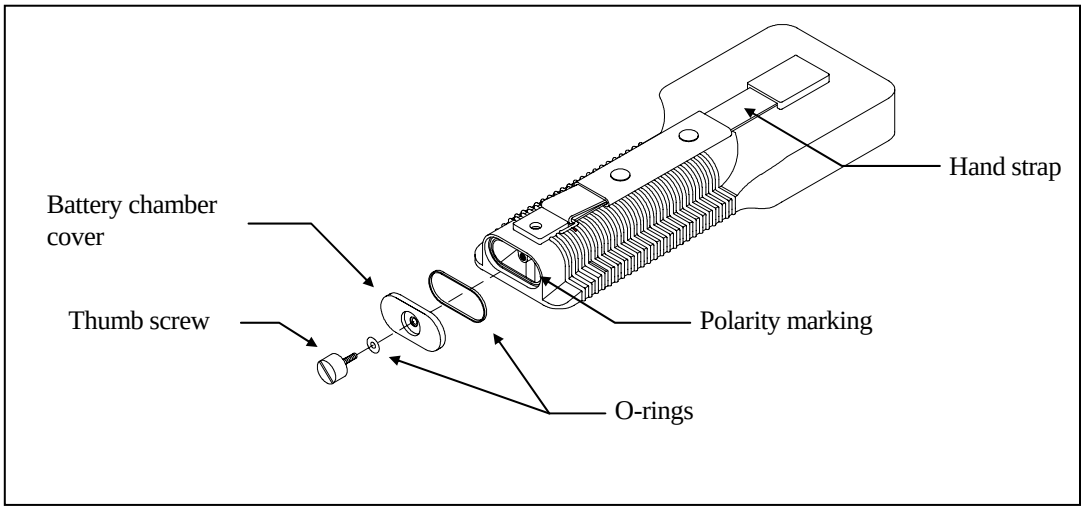
When you unpack your new YSI Model 85 Handheld Dissolved Oxygen, Conductivity, Salinity and Temperature System for the first time, check the packing list to make sure you have received everything you should have. If there is anything missing or damaged, call the dealer from whom you purchased the Model 85. If you do not know which of our authorized dealers sold the system to you, call YSI Customer Service at 800-765-4974 or 937-767-7241, and we'll be happy to help you.

2.2 WARRANTY CARD

Before you do anything else, please complete the Warranty Card and return it to YSI. This will record your purchase of this quality instrument in our computer system. Once your purchase is recorded, you will receive prompt, efficient service in the event any part of your YSI Model 85 should ever need repair and we will be able to quickly verify the warranty period.

2.3 BATTERIES

There are a few things you must do to prepare your YSI Model 85 for use. First, locate the six AA-size alkaline batteries that were included in your purchase. Use a screwdriver or a small coin to remove the thumbscrew on the bottom of the instrument. This thumbscrew holds the battery-chamber cover in place. The battery-chamber cover is marked with the words "OPEN" and "CLOSE."



NOTE: On some models, the battery cover thumbscrew may be unscrewed by hand (a screwdriver may not be required).

There is a small label inside each of the two battery-chamber sleeves. These labels illustrate the correct way to install the batteries into each sleeve of the battery-chamber.

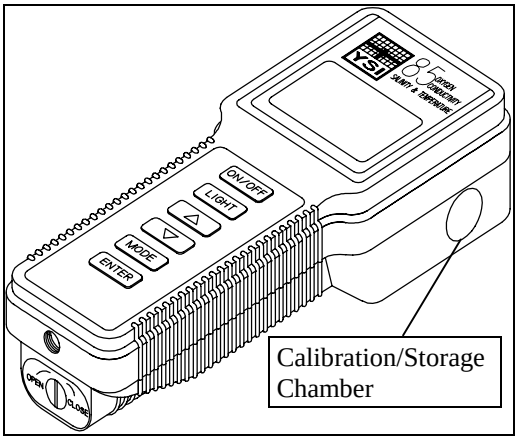
NOTE: It is very important that the batteries be installed ONLY as illustrated. The instrument will not function and may be damaged if the batteries are installed incorrectly.

Turn the instrument on by pressing and releasing the **ON/OFF** button on the front of the instrument. The liquid crystal display (LCD) should come on. Allow a few seconds for the instrument to complete its diagnostic routine. Notice that the instrument will display the specific cell constant of the conductivity probe during this diagnostic routine. If the instrument does not operate, consult the section entitled Troubleshooting.

You may also want to take the instrument into a dark room and with the instrument ON, hold down the **LIGHT** button. The instrument backlight should illuminate the LCD so that the display can be easily read.

2.4 CALIBRATION/STORAGE CHAMBER

The Model 85 has a convenient calibration storage chamber built into the instruments' side. This chamber provides an ideal storage area for the probe during transport and extended non-use. If you look into the chamber you should notice a small round sponge in the bottom of the chamber. Carefully put 3 to 6 drops of clean water into the sponge. Turn the instrument over and allow any excess water to drain out of the chamber. The wet sponge creates a 100% water saturated air environment for the probe, which is ideal for dissolved oxygen calibration.



2.5 HAND STRAP

The hand strap is designed to allow comfortable operation of the Model 85 with minimum effort. If the hand strap is adjusted correctly, it is unlikely that the instrument will be easily dropped or bumped from your hand. See figure on previous page.

To adjust the hand strap on the back of the meter, unsnap the vinyl cover and pull the two Velcro strips apart. Place your hand between the meter and the strap and adjust the strap length so that your hand is snugly held in place. Press the two Velcro strips back together and snap the vinyl cover back into place.

2.6 THE METER CASE

The meter case is sealed at the factory and is not intended to be opened, except by authorized service technicians. Do not attempt to separate the two halves of the meter case as this may damage the instrument, break the waterproof seal, and will void the manufacturer's warranty.

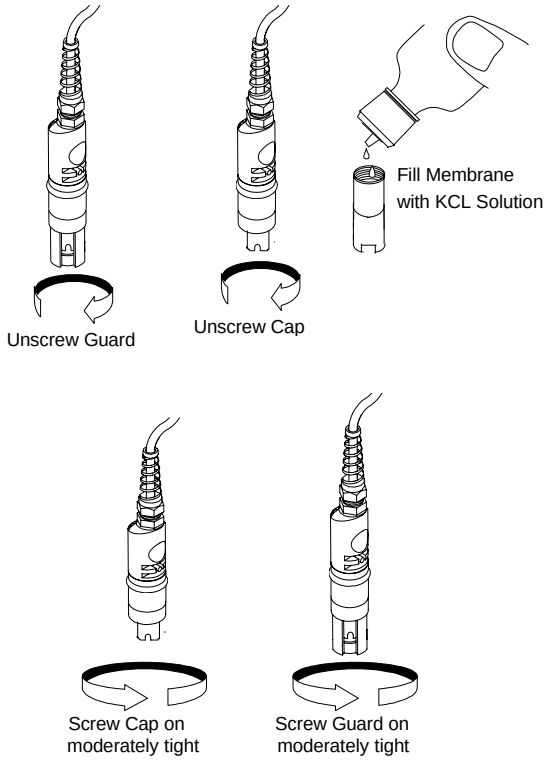
SECTION 3 PREPARING THE PROBE

The YSI Model 85 dissolved oxygen probe is shipped dry. The protective membrane cap on the probe tip must be removed and replaced with KCl solution and a new membrane cap before using the probe. Follow the instructions below to install KCl solution and the new membrane cap.

3.1 MEMBRANE CAP INSTALLATION

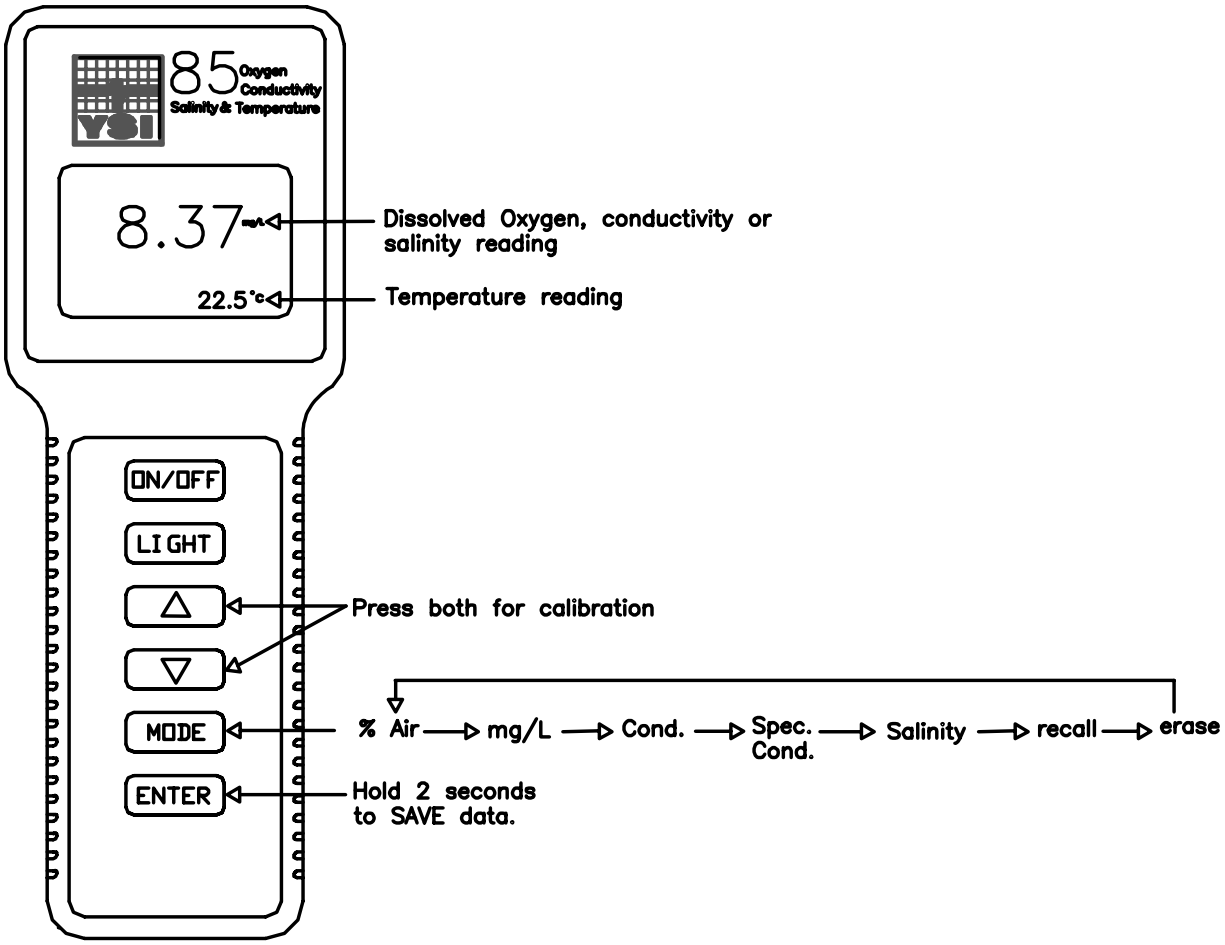
To install a new membrane on your YSI Model 85 dissolved oxygen probe:

1. Unscrew and remove the probe sensor guard.
2. Unscrew and remove the old membrane cap.
3. Thoroughly rinse the sensor tip with distilled water.
4. Prepare the electrolyte according to the directions on the KCl solution bottle.
5. Hold the membrane cap and fill it at least 1/2 full with the electrolyte solution.
6. Screw the membrane cap onto the probe moderately tight. A small amount of electrolyte should overflow.
7. Screw the probe sensor guard on moderately tight.



SECTION 4 OVERVIEW OF OPERATION

The following diagram is an overview of the operation of the Model 85. See the following sections for details of operation.

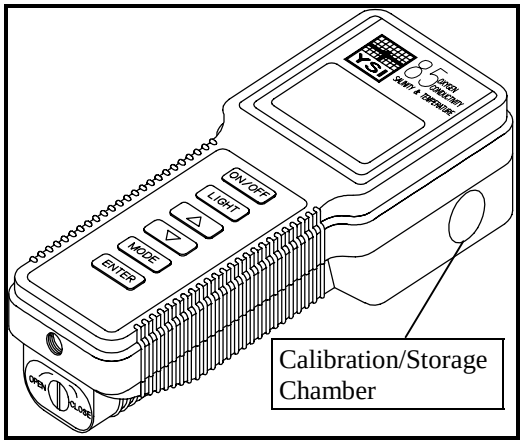


SECTION 5 CALIBRATION

5.1 CALIBRATION OF DISSOLVED OXYGEN

To accurately calibrate the YSI Model 85 you will need to know the approximate altitude of the region in which you are located.

1. Ensure that the sponge inside the instrument's calibration chamber is wet. Insert the probe into the calibration chamber.



2. Turn the instrument on by pressing the **ON/OFF** button on the front of the instrument. Press the **MODE** button until dissolved oxygen is displayed in mg/L or %. Wait for the dissolved oxygen and temperature readings to stabilize (usually 15 minutes is required).

3. Use two fingers to press and release both the **UP ARROW** and **DOWN ARROW** buttons at the same time.

4. The LCD will prompt you to enter the local altitude in hundreds of feet. Use the arrow keys to increase or decrease the altitude. When the proper altitude appears on the LCD, press the **ENTER** button once.

EXAMPLE: Entering the number 12 here indicates 1200 feet.

5. The Model 85 should now display **CAL** in the lower left of the display, the calibration value should be displayed in the lower right of the display and the current % reading (before calibration) should be on the main display. Make sure that the current % reading (large display) is stable, then press the **ENTER** button. The display should read **SAVE** then should return to the Normal Operation Mode.

Each time the Model 85 is turned off, it may be necessary to re-calibrate before taking measurements. All calibrations should be completed at a temperature which is as close as possible to the sample temperature. Dissolved oxygen readings are only as good as the calibration.

5.2 CALIBRATION OF CONDUCTIVITY

IMPORTANT: System calibration is rarely required because of the factory calibration of the YSI Model 85. However, from time to time it is wise to check the system calibration and make adjustments when necessary.

Prior to calibration of the YSI Model 85, it is important to remember the following:

1. Always use clean, properly stored, NIST traceable calibration solutions (see Accessories and Replacement Parts). When filling a calibration container prior to performing the calibration procedures, make certain that the level of calibrant buffers is high enough in the container to cover the entire probe. Gently agitate the probe to remove any bubbles in the conductivity cell.
2. Rinse the probe with distilled water (and wipe dry) between changes of calibration solutions.
3. During calibration, allow the probe time to stabilize with regard to temperature (approximately 60 seconds) before proceeding with the calibration process. The readings after calibration are only as good as the calibration itself.
4. Perform sensor calibration at a temperature as close to 25°C as possible. This will minimize any temperature compensation error.

Follow these steps to perform an accurate calibration of the YSI Model 85:

1. Turn the instrument on and allow it to complete its self-test procedure.
2. Select a calibration solution that is most similar to the sample you will be measuring.
    - For sea water choose a 50 mS/cm conductivity standard (YSI Catalog# 3169)
    - For fresh water choose a 1 mS/cm conductivity standard (YSI Catalog# 3167)
    - For brackish water choose a 10 mS/cm conductivity standard (YSI Catalog # 3168)
3. Place at least 3 inches of solution in a clean glass beaker.
4. Use the **MODE** button to advance the instrument to display conductivity.
5. Insert the probe into the beaker deep enough so that the oval-shaped hole on the side of the probe is completely covered. Do not rest the probe on the bottom of the container -- suspend it above the bottom at least 1/4 inch.
6. Allow at least 60 seconds for the temperature reading to become stable.
7. Move the probe vigorously from side to side to dislodge any air bubbles from the electrodes.
8. Press and release the **UP ARROW** and **DOWN ARROW** buttons at the same time.

The **CAL** symbol will appear at the bottom left of the display to indicate that the instrument is now in Calibration mode.

9. Use the **UP ARROW** or **DOWN ARROW** button to adjust the reading on the display until it matches the value of the calibration solution you are using.
10. Once the display reads the exact value of the calibration solution being used (the instrument will make the appropriate compensation for temperature variation from 25°C), press the **ENTER** button once. The word "**SAVE"** will flash across the display for a second indicating that the calibration has been accepted.

The YSI Model 85 is designed to retain its last conductivity calibration permanently. Therefore, there is no need to calibrate the instrument after battery changes or power down.

SECTION 6 ADVANCED CONDUCTIVITY SETUP

The default settings of the YSI Model 85 are appropriate for the vast majority of measurement applications. However, some measurement applications require very specific measurement criteria. For that reason, we have made the YSI Model 85 flexible to accommodate these "advanced users."

If, for example, you are using the YSI Model 85 for a process control application that requires that the conductivity readings be compensated to 20 °C instead of 25 °C -- this is the section to read. Or, if your application for the YSI Model 85 involves the measurement of a very specific saline solution, the default temperature coefficient may need to be changed to get the very best measurement of that specific salt.

IMPORTANT: There is never a need to enter Advanced Setup Mode unless your special measurement application calls for a change in reference temperature and or temperature coefficient. Therefore, unless you are certain that your application requires a change to one or both of these criteria, do not modify the default reference temperature (25°C) or the default temperature coefficient (1.91%).

6.1 CHANGING THE TEMPERATURE COEFFICIENT

Follow these steps to modify the temperature coefficient of the Model 85.

1. Turn the instrument on and wait for it to complete its self-test procedure.
2. Use the **MODE** button to advance the instrument to display conductivity.
3. Press and release both the **DOWN ARROW** and the **MODE** buttons at the same time.

The **CAL** symbol will appear at the bottom left of the display. The large portion of the display will show **1.91 %** (or a value set previously using Advanced Setup).

4. Use the **UP ARROW** or **DOWN ARROW** button to change the value to the desired new temperature coefficient.
5. Press the **ENTER** button. The word "**SAVE**" will flash across the display for a second to indicate that your change has been accepted.
6. Press the **MODE** button to return to normal operation; the CAL symbol will disappear from the display.

6.2 CHANGING THE REFERENCE TEMPERATURE

Follow these steps to modify the reference temperature of the Model 85.

1. Turn the instrument on and wait for it to complete its self-test procedure.
2. Use the **MODE** button to advance the instrument to display conductivity.
3. Press and release both the **DOWN ARROW** and the **MODE** buttons at the same time.

The **CAL** symbol will appear at the bottom left of the display. The large portion of the display will show **1.91 %** (or a value set previously using Advanced Setup).

4. Press and release the **MODE** button; the large portion of the display will show **25.0C** (or a value set previously using Advanced Setup).
5. Use the **UP ARROW** or **DOWN ARROW** button to change the value to the desired new reference temperature (any value between 15 ^{o}C and 25 ^{o}C is acceptable).
6. Press the **ENTER** button. The word "**SAVE**" will flash across the display for a second to indicate that your change has been accepted.
7. The instrument will automatically return to normal operation mode.

6.3 CHANGING FROM AUTORANGING TO MANUAL RANGING

If your application is easier to perform using a manual range that you select, the YSI Model 85 allows you to turn off the default autoranging feature. While you are making conductivity or temperature compensated conductivity measurements, simply press and release the **UP ARROW** button. Each additional press of the **UP ARROW** button will cycle the Model 85 to a different manual range until you return again to autoranging. Five pushes of the **UP ARROW** button will cycle the Model 85 through the four manual ranges and return the instrument to autoranging.

NOTE: You may see an error message in some manual ranges if the manual range selected is not adequate for the sample you are measuring. If this happens, simply press and release the **UP ARROW** button again until a range is selected which is suitable for your sample. If you get lost and don't know if you're in a manual range or autoranging, simply turn the instrument off and back on. Also note that the conductivity units will flash while you are in manual range. The instrument will always default to autoranging when first turned on.

The four ranges of the YSI Model 85 are:

Range 1	Range 2	Range 3	Range 4
0 to 499.9 µS/cm	0 to 4999 µS/cm	0 to 49.99 mS/cm	0 to 200.0 mS/cm

SECTION 7 MAKING MEASUREMENTS

7.1 TURNING THE INSTRUMENT ON

Once the batteries are installed correctly, press the **ON/OFF** button. The instrument will activate all segments of the display for a few seconds, which will be followed by a self-test procedure that will last for several more seconds. During this power on self-test sequence, the instrument's microprocessor is verifying that the instrument is working properly. The Model 85 will display the cell constant of the conductivity probe when the self-test is complete. If the instrument were to detect an internal problem, the display would show a **continuous** error message. See the section entitled Troubleshooting for a list of these error messages.

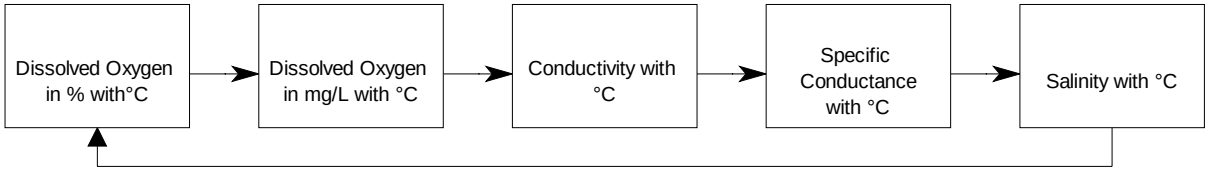
7.2 THE MEASUREMENT MODES OF THE MODEL 85

The Model 85 is designed to provide six distinct measurements:

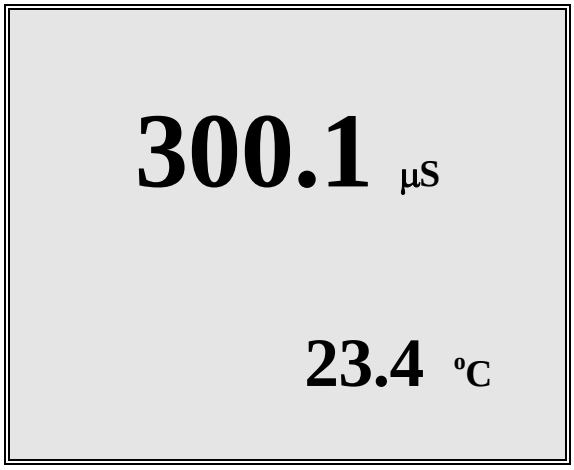
- **Dissolved Oxygen %** -- A measurement of oxygen in percent of saturation.
- **Dissolved Oxygen mg/L** -- A measurement of oxygen in mg/L
- **Conductivity** -- A measurement of the conductive material in the liquid sample without regard to temperature
- **Specific Conductance** -- Also known as temperature compensated conductivity which automatically adjusts the reading to a calculated value which would have been read if the sample had been at 25° C (or some other reference temperature which you choose). See Advanced Setup.
- **Temperature** -- which is always displayed.
- **Salinity** -- A calculation done by the instrument electronics, based upon the conductivity and temperature readings.

NOTE: When you turn the Model 85 off, it will "remember" which mode you used last and will return to that mode the next time the instrument is turned on.

To choose one of the measurement modes above (temperature is always displayed) simply press and release the **MODE** button. Carefully observe the small legends at the far right side of the LCD.



If the instrument is reading **Specific Conductance** the large numbers on the display will be followed by either a **µS** or an **mS.** Additionally the small portion of the display will show the **° C** flashing on and off.



If the instrument is reading **Conductivity** (not temperature compensated) the large numbers on the display will be followed by either a **µS** or an **mS.** Additionally the small portion of the display will show the **° C** **NOT** flashing.

If the instrument is reading **Dissolved Oxygen** the large numbers on the display will be followed by either a mg/L or %. It is important to remember that the dissolved oxygen probe is stirring dependent. This is due to the consumption of oxygen at the sensor tip during measurement. When taking dissolved oxygen measurements the probe must be moved through the sample at a rate of 1 foot per second to provide adequate stirring.

If the instrument is reading **Salinity** the large numbers on the display will be followed by a **ppt.**

7.3 AUTORANGING & RANGE SEARCHING

The YSI Model 85 is an autoranging instrument. This means that regardless of the conductivity or salinity of the solution (within the specifications of the instrument) all you need to do to get the most accurate reading is to put the probe in the sample. This feature makes the Model 85 as simple as possible to operate.

When you first place the Model 85 probe into a sample or calibration solution, and again when you first remove the probe the instrument will go into a range search mode that may take as long as 5 seconds. During some range searches the instrument display will flash **rANG** to indicate its movement from one range to another. The length of the range search depends on the number of ranges that must be searched in order to find the correct range for the sample. During the range search, the instrument will appear to freeze on a given reading for a few seconds then, once the range is located, will pinpoint the exact reading on the display. The display may also switch to **00.0** for a second or two during a range search before it selects the proper range.

7.4 THE BACKLIGHT

At times it may be necessary to take measurements with the Model 85 in dark or poorly lit areas. To help in this situation, the Model 85 comes equipped with a backlight that will illuminate the display so that it can be easily read. To activate the backlight, press and hold the **LIGHT** button. The display will remain lit as long as the button is depressed. When you release it, the light goes out to preserve battery life.

SECTION 8 SAVING DATA

The Model 85 is equipped with non-volatile memory that is capable of storing up to 50 different sets of readings. Non-volatile means that you do not need to worry that your data will be lost due to a power failure or power interrupt. The Model 85 will also assign a site identity number to each set of readings to allow easy review of the data. This feature is useful in situations where transcribing data is difficult or not available.

8.1 SAVING DATA TO MEMORY

1. While any parameter is displayed on the screen depress the **ENTER** button and hold for approximately 2 seconds. The meter will flash **SAVE** on the display along with the current site identity being used.

2. When all 50 sites are full the display will flash **FULL** on the screen. This message will remain on the screen (even after power down) until a button is pushed.

Once you have acknowledged the memory is full, any subsequent saved data will begin overwriting existing data starting with site #1.

8.2 RECALLING STORED DATA

1. To put the Model 85 into the **RECALL** mode depress the **MODE** button repeatedly until **rcl** is displayed on the screen along with the site ID number in the lower right corner. (see figure #1)

2. Depress the **ENTER** button to review the last set of data that was saved. The Model 85 will display the dissolved oxygen in % saturation and temperature. Another press of the **ENTER** button will display the dissolved oxygen in mg/L and the temperature.

Depress the **ENTER** button again and again to review the conductivity, specific conductivity and salinity readings. All of which are displayed with the temperature.

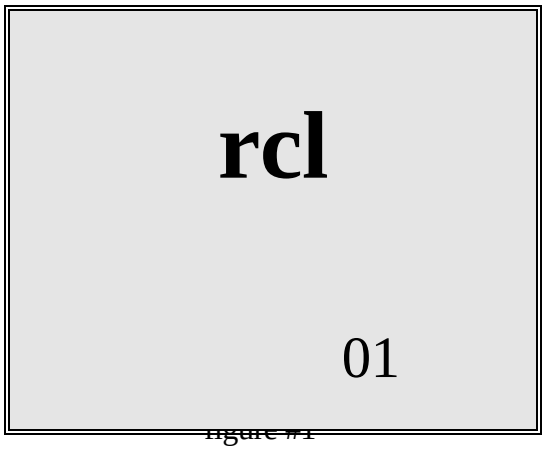


figure #1

3. Depress the **UP ARROW** button to increment through the saved sets of data.

4. Depress the **DOWN ARROW** button to decrement through the saved sets of data.

5. When the correct site ID# is displayed, press the **ENTER** button to display the data.

6. When you have finished recalling data, press the **MODE** button to return to normal operation.

NOTE: The Model 85 will recall data as a list. When the **UP ARROW** is depressed the Model 85 will display the Site ID# for the previously recorded date. For example: If you are reviewing Site ID# 5 and the **UP ARROW** is depressed the Model 85 will display Site ID# 4. If you are reviewing Site ID# 5 and Site ID# 5 was the last set of data stored the **DOWN ARROW** button will display Site ID# 1.

Here is an example of the Model 85 memory.
Site ID #1
Site ID #2
Site ID #3 ←—If the **UP ARROW** button was pressed the Model 85 would display Site ID #2
Site ID #4
Site ID #5

8.3 ERASING STORED DATA

1. To erase the data that is stored into the Model 85's memory, depress the **MODE** button repeatedly until the Model 85 displays **ErAS** on the screen. (see figure #2)

2. Depress and hold the **DOWN ARROW** and **ENTER** buttons simultaneously for approximately 5 seconds.

3. The Model 85 flashing DONE on the display for 1 to 2 seconds indicates successful erasure. The instrument will automatically change to normal operation after completion.

IMPORTANT: Data in all 50 site ID's will be erased completely and will be lost forever. Do not use the erase function until all recorded data has been transcribed to an archive outside the Model 85.

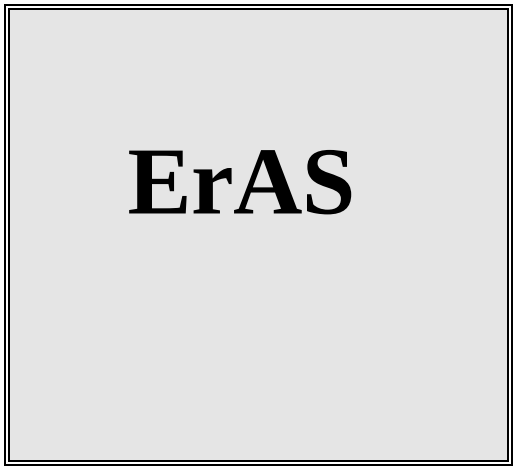


figure #2

SECTION 9 MAINTENANCE

9.1 CLEANING AND STORAGE

The single most important requirement for accurate and reproducible results in conductivity measurement is a clean cell. A dirty cell will change the conductivity of a solution by contaminating it.

NOTE: ALWAYS RINSE THE CONDUCTIVITY CELL WITH CLEAN WATER AFTER EACH USE.

To clean the conductivity cell:

1. Dip the cell in cleaning solution and agitate for two to three minutes. Any one of the foaming acid tile cleaners, such as Dow Chemical Bathroom Cleaner, will clean the cell adequately. When a stronger cleaning preparation is required, use a solution of 1:1 isopropyl alcohol and 1 N HCl. Remove the cell from the cleaning solution.

2. Use the nylon brush (supplied) to dislodge any contaminants from inside the electrode chamber.

3. Repeat steps one and two until the cell is completely clean. Rinse the cell thoroughly in deionized, or clean tap water.

4. Store the conductivity cell in the meter storage chamber.

NOTE: See Section 11, Dissolved Oxygen Probe Precautions for instructions on cleaning the dissolved oxygen electrodes.

SECTION 10 PRINCIPLES OF OPERATION

The dissolved oxygen sensor utilizes an oxygen permeable membrane that covers an electrolytic cell consisting of a gold cathode and a porous silver anode. This membrane acts as a diffusion barrier and an isolation barrier preventing fouling of the cathode surface by impurities in the environment. Upon entering the cell through the membrane, oxygen is reduced at an applied potential of -0.8 V referenced to the silver electrode. The reduction current at the cathode is directly proportional to the partial pressure of oxygen in liquid (expressed as %-air saturation) which is proportional to the concentration of dissolved oxygen (in mg/L) at a particular temperature. Thus the same partial pressure of oxygen (% air-saturation) in liquid gives different concentrations of dissolved oxygen (mg/L) at different temperatures because of the different solubility's of oxygen at different temperatures.

The conductivity cell utilizes four pure nickel electrodes for the measurement of solution conductance. Two of the electrodes are current driven, and two are used to measure the voltage drop. The measured voltage drop is then converted into a conductance value in milli-Siemens (millimhos). To convert this value to a conductivity (specific conductance) value in milli-Siemens per cm (mS/cm), the conductance is multiplied by the cell constant that has units of reciprocal cm (cm^{-1}). The cell constant for the Model 85 conductivity cell is 5.0/cm $\pm$ 4%. For most applications, the cell constant is automatically determined (or confirmed) with each deployment of the system when the calibration procedure is followed. Solutions with conductivity's of 1.00, 10.0, 50.0, and 100.0 mS/cm, which have been prepared in accordance with recommendation 56-1981 of the Organisation Internationale de Métrologie Légale (OIML) are available from YSI. The instrument output is in µS/cm or mS/cm for both conductivity and specific conductance. The multiplication of cell constant times conductance is carried out automatically by the software.

10.1 TEMPERATURE EFFECT ON CONDUCTIVITY

The conductivity of solutions of ionic species is highly dependent on temperature, varying as much as 3% for each change of one degree Celsius (temperature coefficient = 3%/C). In addition, the temperature coefficient itself varies with the nature of the ionic species present.

Because the exact composition of a natural media is usually not known, it is best to report a conductivity at a particular temperature, e.g. 20.2 mS/cm at 14 C. However, in many cases, it is also useful to compensate for the temperature dependence in order to determine at a glance if gross changes are occurring in the ionic content of the medium over time. For this reason, the Model 85 software also allows the user to output conductivity data in either raw or temperature compensated form. If "Conductivity" is selected, values of conductivity that are NOT compensated for temperature are output to the display. If "Specific Conductance" is selected, the Model 85 uses the temperature and raw conductivity values associated with each determination to generate a specific conductance value compensated to a user selected reference temperature (see Advanced Setup) between 15 C and 25 C. Additionally the user can select any temperature coefficient from 0% to 4% (see Advanced Setup). Using the Model 85 default reference temperature and temperature coefficient (25 C and 1.91%), the calculation is carried out as in equation (1) below:

$$\text{Specific Conductance (25°C)} = \frac{\text{Conductivity}}{1 + TC * (T - 25)}$$

As noted above, unless the solution being measured consists of pure KCl in water, this temperature compensated value will be somewhat inaccurate, but the equation with a value of TC = 0.0191 will provide a close approximation for solutions of many common salts such as NaCl and NH_4Cl and for seawater.

Salinity is determined automatically from the Model 85 conductivity readings according to algorithms found in Standard Methods for the Examination of Water and Wastewater (ed. 1989). The use of the Practical Salinity Scale 1978 results in values which are unitless, since the measurements are carried out in reference to the conductivity of standard seawater at 15 C. However, the unitless salinity values are very close to those determined by the previously-used method where the mass of dissolved salts in a given mass of water (parts per thousand) was reported. Hence, the designation "ppt" is reported by the instrument to provide a more conventional output. For further information on conductivity and the above standard information, refer to the ASTM document, Standard Methods of Test for Electrical Conductivity of Water and Industrial Wastewater, ASTM Designation D1125-82, and OIML Recommendation Number 56. ASTM symbols for conductivity, cell constant, and path length differ from those preferred in the general literature and also from those used in this manual.

SECTION 11 DISCUSSION OF MEASUREMENT ERRORS

11.1 DISSOLVED OXYGEN MEASUREMENT ERRORS

There are three basic types of error. Type 1 errors are related to limitations of instrument design and tolerances of instrument components. These are chiefly the meter linearity and the resistor tolerances. Type 2 errors are due to basic probe accuracy tolerances, chiefly background signal, probe linearity, and variations in membrane temperature coefficient. Type 3 errors are related to the operator's ability to determine the conditions at the time of calibration. If calibration is performed against more accurately known conditions, type 3 errors are appropriately reduced.

The sample calculations that follow are for a near extreme set of conditions.

TYPE 1 ERRORS

A. Meter linearity error: ±1% of full scale reading, or ±0.15 mg/l

B. Component and circuitry error: ±0.05 mg/l

TYPE 2 ERRORS

A. Temperature compensation for membrane temperature coefficient: ±0.03 mg/l

B. Temperature measurement errors: A maximum ±0.2^{o}C probe error is equal to ±0.14 mg/l

TYPE 3 ERRORS

A. Altitude:

A 1000-foot change in altitude is equal to an error of approximately 3% at the 10 mg/l level.

B. Humidity:

Errors occur if calibration is performed at less than 100% humidity. The error varies with the temperature as follows:

TEMPERATURE	ERROR
0^oC	0.02 mg/l
10^oC	0.05 mg/l
20^oC	0.12 mg/l
30^oC	0.27 mg/l
40^oC	0.68 mg/l

APPROXIMATING THE ERROR

It is unlikely that the actual error in any measurement will be the maximum possible error. A better error approximation is obtained using a root mean squared (r.m.s.) calculation:

$$\text{r.m.s. error} = \pm[1a^2 + 1b^2 + 2a^2 + 2b^2 + 3a^2 + 3b^2]^{1/2} \text{ mg/l}$$

11.2 CONDUCTIVITY MEASUREMENT ERRORS

System accuracy for conductivity measurements is equal to the sum of the errors contributed by the environment and the various components of the measurement setup. These include:

- Instrument accuracy
- Cell-constant error
- Solution temperature offset
- Cell contamination (including air bubbles)
- Electrical noise
- Galvanic effects

Only the first three are of major concern for typical measurements, although the user should also be careful to see that cells are clean and maintained in good condition at all times.

Instrument Accuracy = ± .5% maximum
The accuracy specified for the range being used is the worst case instrument error.

Cell-Constant Error = ± .5% maximum
Although YSI cells are warranted to be accurate to within one percent, you should still determine the exact cell constant of your particular cell. Contamination or physical damage to the cell can alter the cell constant. Performing a calibration will eliminate any error that might arise because of cell constant change.

YSI cells are calibrated to within one percent of the stated cell constant at a single point. We consider these products to be usefully linear over most instrument ranges. The cell constant can be calibrated to ±0.35% accuracy with YSI conductivity calibrator solutions.

Temperature Error = ± 1% maximum
The solution temperature error is the product of the temperature coefficient and the temperature offset from 25 C, expressed as a percentage of the reading that would have been obtained at 25 C. The error is not necessarily a linear function of temperature. The statement of error is derived from a 25 C temperature offset and a 3%/ C temperature coefficient.

Total Error
Considering only the above three factors, system accuracy under worst case conditions will be ±2%, although the actual error will be considerably less if recommended and properly calibrated cells and instrument ranges are used. Additional errors, which can essentially be eliminated with proper handling, are described below.

Cell Contamination
This error is usually due to contamination of the solution being measured, which occurs when solution is carried-over from the last solution measured. Thus, the instrument might be correctly reporting the conductivity seen, but the reading does not accurately represent the value of the bulk

solution. Errors will be most serious when low conductivity solutions are contaminated by carry-over from high conductivity solutions, and can then be of an order of magnitude or more.

Follow the cleaning instructions carefully before attempting low conductivity measurements with a cell of unknown history or one that has been previously used in higher value solutions.

An entirely different form of contamination sometimes occurs due to a buildup of foreign material directly on cell electrodes. While rare, such deposits have, on occasion, markedly reduced the effectiveness of the electrodes. The result is an erroneously low conductance reading.

Electrical-Noise Errors

Electrical noise can be a problem in any measurement range, but will contribute the most error and be the most difficult to eliminate when operating in the lowest ranges. The noise may be either line-conducted or radiated or both, and may require, grounding, shielding, or both.

Galvanic and Miscellaneous Effects

In addition to the error sources described above, there is another class of contributors that can be ignored for all but the most meticulous of laboratory measurements. These errors are always small and are generally completely masked by the error budget for cell-constant calibration, instrument accuracy, etc. Examples range from parasitic reactance associated with the solution container and its proximity to external objects to the minor galvanic effects resulting from oxide formation or deposition on electrodes. Only trial and error in the actual measurement environment can be suggested as an approach to reduce such errors. If the reading does not change as the setup is adjusted, errors due to such factors can be considered too small to see.

11.3 DISSOLVED OXYGEN PROBE PRECAUTIONS

1. Membrane life depends on usage. Membranes will last a long time if installed properly and treated with care. Erratic readings are a result of loose, wrinkled, damaged, or fouled membranes, or from large (more than 1/8" diameter) bubbles in the electrolyte reservoir. If erratic readings or evidence of membrane damage occurs, you should replace the membrane and the KCl solution. The average replacement interval is two to four weeks.

2. If the membrane is coated with oxygen consuming (e.g. bacteria) or oxygen evolving organisms (e.g. algae), erroneous readings may occur.

3. Chlorine, sulfur dioxide, nitric oxide, and nitrous oxide can affect readings by behaving like oxygen at the probe. If you suspect erroneous readings, it may be necessary to determine if these gases are the cause.

4. Avoid any environment that contains substances that may attack the probe materials. Some of these substances are concentrated acids, caustics, and strong solvents. The probe materials that come in contact with the sample include FEP Teflon, stainless steel, epoxy, polyetherimide and the polyurethane cable covering.

5. For correct probe operation, the gold cathode must always be bright. If it is tarnished (which can result from contact with certain gases) or plated with silver, the gold surface must be restored. To restore the cathode, you may either return the instrument to the factory or clean it using the YSI 5238 probe reconditioning kit. Never use chemicals or abrasives not supplied with this kit.

NOTE: Model 85 probes built before July, 1996 (serial numbers starting with 96F or lower), should be cleaned with the sanding disc mounted on a FLAT surface. Do NOT use the curved tool provided in the 5238 probe reconditioning kit on these probes.

6. It is also possible for the silver anode to become contaminated, which will prevent successful calibration. To clean the anode, remove the membrane and soak the probe overnight in 3% ammonium hydroxide. Next, rinse the sensor tip with deionized water, add new KCl solution, and install a new membrane. Turn the instrument on and allow the system to stabilize for at least 30 minutes. If, after several hours, you are still unable to calibrate, return the YSI Model 85 system to an authorized service center for service.

7. To keep the electrolyte from drying out, store the probe in the calibration chamber with the small piece of sponge.

SECTION 12 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	ACTION
1. Instrument will not turn on	A. Low battery voltage B. Batteries installed wrong C. Meter requires service	A. Replace batteries B. Check battery polarity. C. Return system for service
2. Instrument will not calibrate (Dissolved Oxygen)	A. Membrane is fouled or damaged B. Probe anode is fouled or dark C. Probe cathode is tarnished D. System requires service	A. Replace membrane & KCl B. Clean anode C. Clean cathode D. Return system for service
3. Instrument will not calibrate (Conductivity)	A. Cell is contaminated	A. See “Maintenance” Section
4. Instrument "locks up"	A. Instrument has rec'd a shock B. Batteries are low or damaged C. System requires service	A & B. Remove battery lid, wait 15 seconds for reset, replace lid. C. Return system for service
5. Instrument readings are inaccurate (Dissolved Oxygen)	A. Cal altitude is incorrect B. Probe not in 100% O_2 saturated air during Cal procedure C. Membrane fouled or damaged D. Probe anode is fouled or dark E. Probe cathode is tarnished F. System requires service	A. Recalibrate w/correct value B. Moisten sponge & place in Cal chamber w/ probe & Recal C. Replace membrane D. Clean anode E. Clean cathode F. Return system for service
6. Instrument readings are inaccurate (Conductivity)	A. Calibration is required B. Cell is contaminated C. Tempco is set incorrectly D. Reference temperature incorrect E. Readings are or are not temperature compensated.	A. See “Calibration” Section B. See “Maintenance” Section C. See “Advanced Setup” Section D. See “Advanced Setup” Section E. See “Making Measurements” Section
7..LCD displays "LO BAT" Main display flashes “off”	A. Batteries are low or damaged	A. Replace batteries
8. Main Display reads “OVEr” (Secondary display reads “ovr”) (Secondary display reads “udr”)	A. Conductivity reading is >200 mS B. Temperature reading is >65°C C. Temperature reading is <-5°C D. Salinity reading is >80 ppt E. User cell constant cal K is >5.25 F. DO temperature is >46°C G. DO % saturation is >200% H. DO concentration is >20 mg/L	In all cases, check calibration values and procedures; check advanced setup settings. If each of these are set correctly, return instrument for service.
9. Main display reads “Undr”	A. User cell constant cal K is <4.9 B. DO current too low to calibrate	A. Recalibrate instrument using known good conductivity standard. Follow cell cleaning procedure in the Maintenance section. B. Replace membrane, clean probe
10. Main display reads “rErr”	A. Reading exceeds user selected manual range.	A. Use the mode key to select a higher or lower manual range, or set system to autoranging.
11. Main display reads “PErr”	A. User cell constant cal K is 0.0 B. Incorrect sequence of keystrokes.	A. See “Advanced Setup” section. B. Refer to manual section for step by step instruction for the function you are attempting.

SYMPTOM	POSSIBLE CAUSE	ACTION
12. Main display reads “LErr”	A. In temperature compensated conductivity mode, temperature exceeds the values computed using user defined temperature coefficient and/or reference temperature. B. In cell constant cal mode, temperature exceeds the values computed using user defined temperature coefficient and/or reference temperature.	A. & B. Adjust user defined tempco or reference temperature. (pg. 10)
13. Main display reads “Err” (Secondary display reads “ra”)	A. System has failed its RAM test check procedure.	A. Turn instrument OFF and back ON again. B. Return the system for service (pg. 26)
14. Main display reads “Err” (Secondary display reads “ro”)	A. System has failed its ROM test check procedure.	A. Turn instrument OFF and back ON again. B. Return the system for service (pg. 26)
15. Secondary display reads “rEr”	A. Temperature jumper is set to °F and reading is >199.9°F but <203°F.	A. Return the system for service. (pg. 26)
16. Main display reads “FAIL” (Secondary display reads “eep”)	A. EEPROM has failed to respond in time.	A. Return the system for service. (pg. 26)
17. Readings on main display don’t change	A. Meter is in recall mode.	A. Press **MODE** button to return to Normal Operation (pg. 12)

SECTION 13 WARRANTY AND REPAIR

YSI Model 85 Handheld Meters are warranted for two years from date of purchase by the end user against defects in materials and workmanship. YSI Model 85 probes and cables are warranted for one year from date of purchase by the end user against defects in material and workmanship. Within the warranty period, YSI will repair or replace, at its sole discretion, free of charge, any product that YSI determines to be covered by this warranty.

To exercise this warranty, write or call your local YSI representative, or contact YSI Customer Service in Yellow Springs, Ohio. Send the product and proof of purchase, transportation prepaid, to the Authorized Service Center selected by YSI. Repair or replacement will be made and the product returned, transportation prepaid. Repaired or replaced products are warranted for the balance of the original warranty period, or at least 90 days from date of repair or replacement.

Limitation of Warranty

This Warranty does not apply to any YSI product damage or failure caused by (i) failure to install, operate or use the product in accordance with YSI's written instructions, (ii) abuse or misuse of the product, (iii) failure to maintain the product in accordance with YSI's written instructions or standard industry procedure, (iv) any improper repairs to the product, (v) use by you of defective or improper components or parts in servicing or repairing the product, or (vi) modification of the product in any way not expressly authorized by YSI.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. YSI's LIABILITY UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, AND THIS SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY DEFECTIVE PRODUCT COVERED BY THIS WARRANTY. IN NO EVENT SHALL YSI BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECTIVE PRODUCT COVERED BY THIS WARRANTY.

AUTHORIZED U.S. SERVICE CENTERS

Please visit www.ysi.com or contact YSI Technical Support for the nearest authorized service center.

YSI Incorporated • Technical Support • Phone: +1 937 767-7241 • 800 897-4151 • Fax: 937 767-1058 • Email: environmental@ysi.com

CLEANING INSTRUCTIONS

NOTE: Before they can be serviced, equipment exposed to biological, radioactive, or toxic materials must be cleaned and disinfected. Biological contamination is presumed for any instrument, probe, or other device that has been used with body fluids or tissues, or with wastewater. Radioactive contamination is presumed for any instrument, probe or other device that has been used near any radioactive source.

If an instrument, probe, or other part is returned or presented for service without a Cleaning Certificate, and if in our opinion it represents a potential biological or radioactive hazard, our service personnel reserve the right to withhold service until appropriate cleaning, decontamination, and certification has been completed. We will contact the sender for instructions as to the disposition of the equipment. Disposition costs will be the responsibility of the sender.

When service is required, either at the user's facility or at YSI, the following steps must be taken to insure the safety of our service personnel.

1. In a manner appropriate to each device, decontaminate all exposed surfaces, including any containers. 70% isopropyl alcohol or a solution of 1/4 cup bleach to 1-gallon tap water are suitable for most disinfecting. Instruments used with wastewater may be disinfected with .5% Lysol if this is more convenient to the user.
2. The user shall take normal precautions to prevent radioactive contamination and must use appropriate decontamination procedures should exposure occur.
3. If exposure has occurred, the customer must certify that decontamination has been accomplished and that no radioactivity is detectable by survey equipment.
4. Any product being returned to the YSI Repair Center, should be packed securely to prevent damage.
5. Cleaning must be completed and certified on any product before returning it to YSI.

PACKING INSTRUCTIONS

1. Clean and decontaminate items to insure the safety of the handler.
2. Complete and include the Cleaning Certificate.
3. Place the product in a plastic bag to keep out dirt and packing material.
4. Use a large carton, preferably the original, and surround the product completely with packing material.
5. Insure for the replacement value of the product.

Cleaning Certificate

Organization _____

Department _____

Address _____

City _____ State _ Zip _____

Country _____ Phone _____

Model No. of Device _ Lot Number _____

Contaminant (if known) _____

Cleaning Agent(s) used _____

Radioactive Decontamination Certified?

(Answer only if there has been radioactive exposure)

_____ Yes _____ No

Cleaning Certified By _____

Name Date

SECTION 14 ACCESSORIES AND REPLACEMENT PARTS

The following parts and accessories are available from YSI or any Franchise Dealer authorized by YSI.

YSI ORDER NUMBER	DESCRIPTION
YSI 5906	Replacement Membrane Cap Kit (6 each)
YSI 5238	Probe Reconditioning Kit
YSI 3161	Conductivity Calibration Solution 1,000 μ/cm (1 Quart)
YSI 3163	Conductivity Calibration Solution 10,000 μ/cm (1 Quart)
YSI 3165	Conductivity Calibration Solution 100,000 μ/cm (1 Quart)
YSI 3167	Conductivity Calibration Solution 1,000 μ/cm (8 pints)
YSI 3168	Conductivity Calibration Solution 10,000 μ/cm (8 pints)
YSI 3169	Conductivity Calibration Solution 50,000 μ/cm (8 pints)
YSI 5520	Carrying Case
YSI 118510	Replacement Probe & Cable Assembly (10 feet)
YSI 118522	Replacement Probe & Cable Assembly (25 feet)
YSI 118527	Replacement Probe & Cable Assembly (50 feet)
YSI 118519	Replacement Probe and Cable Assembly (100 feet)
YSI 038501	Replacement Front Case Cover
YSI 055242	Replacement Rear Case Cover
YSI 055244	Replacement Battery Cover Kit
YSI 055204	Replacement Case Gasket and Screw
YSI 055219	Storage Chamber Sponge
YSI 030156	Main Board Assembly
YSI 038213	Replacement Electrode Cleaning Brush

APPENDIX A SPECIFICATIONS

Operating Environment

Medium: fresh, sea, or polluted water and most other liquid solutions.
Temperature: -5 to +65 °C
Depth: 0 to 10, 0 to 25, 0 to 50, or 0 to 100 feet (depending on cable length)

Storage Temperature: -10 to +50 °C

Material: ABS, Stainless Steel, and other materials

Dimensions:

Height:	9.5 inches	(24.13 cm)
Thickness:	2.2 inches	(5.6 cm)
Width:	3.5 inches max.	(8.89 cm)
Weight:	1.7 pounds (w/ 10' cable)	(.77 kg)
Display:	2.3"W x 1.5"L	(5.8cm W x 3.8cm L)

Power: 9 VDC -6 AA-size Alkaline Batteries (included)
Approximately 100 hours operation from each new set of batteries

Water Tightness: Meets or exceeds IP65 standards

Extensive testing of the YSI Model 85 indicates the following typical performance:

Measurement	Range	Resolution	Accuracy
Conductivity	0 to 499.9 µS/cm	0.1 µS/cm	± .5% FS
	0 to 4999 µS/cm	1.0 µS/cm	± .5% FS
	0 to 49.99 mS/cm	.01 mS/cm	± .5% FS
	0 to 200.0 mS/cm	0.1 mS/cm	± .5% FS
Salinity	0 to 80 ppt	.1 ppt	± 2%, or ± 0.1 ppt
Temperature	-5 to +65 °C	0.1 °C	± 0.1 °C (±1 lsd)
Dissolved Oxygen	0 to 200 % Air Sat.	0.1% Air Saturation	± 2% Air Saturation
	0 to 20 mg/L	0.01 mg/L	± 0.3 mg/L

Adjustable Conductivity Reference Temperature: 15°C to 25°C

Adjustable Temperature Compensation Factor for Conductivity: 0% to 4%

Temperature Compensation: Automatic

Range: Autoranging for Dissolved Oxygen

User selected or Autoranging for Conductivity

APPENDIX B - TEMPERATURE CORRECTION DATA

Temperature Correction Data for Typical Solutions

A. Potassium Chloride** (KCl)

Concentration: 1 mole/liter			Concentration: 1 x 10^{-1} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	65.10	1.67	0	7.13	1.78
5	73.89	1.70	5	8.22	1.80
10	82.97	1.72	10	9.34	1.83
15	92.33	1.75	15	10.48	1.85
20	101.97	1.77	20	11.65	1.88
25	111.90	1.80	25	12.86	1.90
			30	14.10	1.93
			35	15.38	1.96
			37.5	16.04	1.98
			40	16.70	1.99
			45	18.05	2.02
			50	19.43	2.04

Concentration: 1 x 10^{-2} mole/liter			Concentration: 1 x 10^{-3} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	0.773	1.81	0	0.080	1.84
5	0.892	1.84	5	0.092	1.88
10	1.015	1.87	10	0.105	1.92
15	1.143	1.90	15	0.119	1.96
20	1.275	1.93	20	0.133	1.99
25	1.412	1.96	25	0.147	2.02
30	1.553	1.99	30	0.162	2.05
35	1.697	2.02	35	0.178	2.07
37.5	1.771	2.03	37.5	0.186	2.08
40	1.845	2.05	40	0.194	2.09
45	1.997	2.07	45	0.210	2.11
50	2.151	2.09	50	0.226	2.13

** Charts developed by interpolating data from International Critical Tables, Vol. 6, pp. 229-253, McGraw-Hill Book Co., NY.

B. Sodium Chloride* (NaCl)

Saturated solutions at all temperatures			Concentration: 0.5 mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	134.50	1.86	0	25.90	1.78
5	155.55	1.91	5	29.64	1.82
10	177.90	1.95	10	33.61	1.86
15	201.40	1.99	15	37.79	1.90
20	225.92	2.02	20	42.14	1.93
25	251.30	2.05	25	46.65	1.96
30	277.40	2.08	30	51.28	1.99
			35	56.01	2.01
			37.5	58.40	2.02
			40	60.81	2.02
			45	65.65	2.04
			50	70.50	2.05

Concentration: 1×10^{-1} mole/liter			Concentration: 1×10^{-2} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	5.77	1.83	0	0.632	1.87
5	6.65	1.88	5	0.731	1.92
10	7.58	1.92	10	0.836	1.97
15	8.57	1.96	15	0.948	2.01
20	9.60	1.99	20	1.064	2.05
25	10.66	2.02	25	1.186	2.09
30	11.75	2.04	30	1.312	2.12
35	12.86	2.06	35	1.442	2.16
37.5	13.42	2.07	37.5	1.508	2.17
40	13.99	2.08	40	1.575	2.19
45	15.14	2.10	45	1.711	2.21
50	16.30	2.12	50	1.850	2.24

Concentration: 1×10^{-3} mole/liter		
C	mS/cm	%/ C (to 25 C)
0	0.066	1.88
5	0.076	1.93
10	0.087	1.98
15	0.099	2.02
20	0.111	2.07
25	0.124	2.11
30	0.137	2.15
35	0.151	2.19
37.5	0.158	2.20
40	0.165	2.22
45	0.180	2.25
50	0.195	2.29

* Charts developed by interpolating data from the CRC Handbook of Chemistry and Physics, 42nd ed., p. 2606, The Chemical Rubber Company, Cleveland.

C. Lithium Chloride* (LiCl)

Concentration: 1 mole/liter			Concentration: 1×10^{-1} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	39.85	1.82	0	5.07	1.87
5	46.01	1.85	5	5.98	1.85
10	52.42	1.89	10	6.87	1.85
15	59.07	1.92	15	7.75	1.85
20	65.97	1.95	20	8.62	1.85
25	73.10	1.98	25	9.50	1.86
30	80.47	2.02	30	10.40	1.88
35	88.08	2.05	35	11.31	1.91
37.5	91.97	2.07	37.5	11.78	1.92
40	95.92	2.08	40	12.26	1.94
45	103.99	2.11	45	13.26	1.98
50	112.30	2.15	50	14.30	2.02

Concentration: 1×10^{-2} mole/liter			Concentration: 1×10^{-3} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	0.567	1.88	0	0.059	1.93
5	0.659	1.92	5	0.068	2.03
10	0.755	1.96	10	0.078	2.12
15	0.856	2.00	15	0.089	2.19
20	0.961	2.04	20	0.101	2.25
25	1.070	2.08	25	0.114	2.28
30	1.183	2.12	30	0.127	2.31
35	1.301	2.16	35	0.140	2.32
37.5	1.362	2.18	37.5	0.147	2.32
40	1.423	2.20	40	0.154	2.31
45	1.549	2.24	45	0.166	2.29
50	1.680	2.28	50	0.178	2.25

D. Potassium Nitrate** (KNO_3)

Concentration: 1×10^{-1} mole/liter			Concentration: 1×10^{-2} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	6.68	1.78	0	0.756	1.77
5	7.71	1.79	5	0.868	1.80
10	8.75	1.81	10	0.984	1.83
15	9.81	1.83	15	1.105	1.86
20	10.90	1.85	20	1.229	1.88
25	12.01	1.87	25	1.357	1.90
30	13.15	1.90	30	1.488	1.93
35	14.32	1.92	35	1.622	1.95
37.5	14.92	1.94	37.5	1.690	1.96
40	15.52	1.95	40	1.759	1.97
45	16.75	1.97	45	1.898	1.99
50	18.00	2.00	50	2.040	2.01

* Charts developed by interpolating data from the CRC Handbook of Chemistry and Physics, 42nd ed., p. 2606, The Chemical Rubber Company, Cleveland.
** Charts developed by interpolating data from International Critical Tables, Vol. 6, pp. 229-253, McGraw-Hill Book Co., NY.

E. Ammonium Chloride* (NH_4Cl)

Concentration: 1 mole/liter			Concentration: 1 x 10^{-1} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	64.10	1.60	0	6.96	1.82
5	74.36	1.53	5	7.98	1.88
10	83.77	1.45	10	9.09	1.93
15	92.35	1.37	15	10.27	1.97
20	100.10	1.29	20	11.50	2.00
25	107.00	1.21	25	12.78	2.03
			30	14.09	2.06
			35	15.43	2.07
			37.5	16.10	2.08
			40	16.78	2.08
			45	18.12	2.09
			50	19.45	2.09

Concentration: 1 x 10^{-2} mole/liter			Concentration: 1 x 10^{-3} mole/liter		
C	mS/cm	%/ C (to 25 C)	C	mS/cm	%/ C (to 25 C)
0	0.764	1.84	0	0.078	1.88
5	0.889	1.86	5	0.092	1.90
10	1.015	1.88	10	0.105	1.91
15	1.144	1.91	15	0.119	1.93
20	1.277	1.94	20	0.133	1.95
25	1.414	1.97	25	0.148	1.98
30	1.557	2.02	30	0.162	2.01
35	1.706	2.06	35	0.178	2.04
37.5	1.782	2.08	37.5	0.186	2.06
40	1.860	2.10	40	0.194	2.07
45	2.020	2.14	45	0.210	2.11
50	2.186	2.18	50	0.227	2.15

* Charts developed by interpolating data from the CRC Handbook of Chemistry and Physics, 42nd ed., p. 2606, The Chemical Rubber Company, Cleveland.

APPENDIX C REQUIRED NOTICE

The Federal Communications Commission defines this product as a computing device and requires the following notice:

This equipment generates and uses radio frequency energy and if not installed and used properly, may cause interference to radio and television reception. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- re-orient the receiving antenna
- relocate the computer with respect to the receiver
- move the computer away from the receiver
- plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet, prepared by the Federal Communications Commission, helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 0004-000-00345-4.

APPENDIX D CONVERSION CHART

TO CONVERT FROM	TO	EQUATION
Feet	Meters	Multiply by 0.3048
Meters	Feet	Multiply by 3.2808399
Degrees Celsius	Degrees Fahrenheit	(9/5 ^{o}C)+32
Degrees Fahrenheit	Degrees Celsius	5/9 (^{o}F-32)
Milligrams per liter (mg/l)	Parts per million (ppm)	Multiply by 1

APPENDIX E OXYGEN SOLUBILITY TABLE

Table A: Solubility of Oxygen in mg/l in Water Exposed to Water-Saturated Air at 760 mm Hg Pressure.
Salinity = Measure of quantity of dissolved salts in water.
Chlorinity = Measure of chloride content, by mass, of water.
S($^0/_{00}$) = 1.80655 x Chlorinity ($^0/_{00}$)

Temp °C	**Chlorinity:0 Salinity:0**	**5.0 ppt 9.0 ppt**	**10.0 ppt 18.1 ppt**	**15.0 ppt 27.1 ppt**	**20.0 ppt 36.1 ppt**	**25.0 ppt 45.2 ppt**
0.0	14.62	13.73	12.89	12.10	11.36	10.66
1.0	14.22	13.36	12.55	11.78	11.07	10.39
2.0	13.83	13.00	12.22	11.48	10.79	10.14
3.0	13.46	12.66	11.91	11.20	10.53	9.90
4.0	13.11	12.34	11.61	10.92	10.27	9.66
5.0	12.77	12.02	11.32	10.66	10.03	9.44
6.0	12.45	11.73	11.05	10.40	9.80	9.23
7.0	12.14	11.44	10.78	10.16	9.58	9.02
8.0	11.84	11.17	10.53	9.93	9.36	8.83
9.0	11.56	10.91	10.29	9.71	9.16	8.64
10.0	11.29	10.66	10.06	9.49	8.96	8.45
11.0	11.03	10.42	9.84	9.29	8.77	8.28
12.0	10.78	10.18	9.62	9.09	8.59	8.11
13.0	10.54	9.96	9.42	8.90	8.41	7.95
14.0	10.31	9.75	9.22	8.72	8.24	7.79
15.0	10.08	9.54	9.03	8.54	8.08	7.64
16.0	9.87	9.34	8.84	8.37	7.92	7.50
17.0	9.67	9.15	8.67	8.21	7.77	7.36
18.0	9.47	8.97	8.50	8.05	7.62	7.22
19.0	9.28	8.79	8.33	7.90	7.48	7.09
20.0	9.09	8.62	8.17	7.75	7.35	6.96
21.0	8.92	8.46	8.02	7.61	7.21	6.84
22.0	8.74	8.30	7.87	7.47	7.09	6.72
23.0	8.58	8.14	7.73	7.34	6.96	6.61

Temp °C	Chlorinity:0 Salinity:0	5.0 ppt 9.0 ppt	10.0 ppt 18.1 ppt	15.0 ppt 27.1 ppt	20.0 ppt 36.1 ppt	25.0 ppt 45.2 ppt
24.0	8.42	7.99	7.59	7.21	6.84	6.50
25.0	8.26	7.85	7.46	7.08	6.72	6.39
26.0	8.11	7.71	7.33	6.96	6.62	6.28
27.0	7.97	7.58	7.20	6.85	6.51	6.18
28.0	7.83	7.44	7.08	6.73	6.40	6.09
29.0	7.69	7.32	6.96	6.62	6.30	5.99
30.0	7.56	7.19	6.85	6.51	6.20	5.90
31.0	7.43	7.07	6.73	6.41	6.10	5.81
32.0	7.31	6.96	6.62	6.31	6.01	5.72
33.0	7.18	6.84	6.52	6.21	5.91	5.63
34.0	7.07	6.73	6.42	6.11	5.82	5.55
35.0	6.95	6.62	6.31	6.02	5.73	5.46
36.0	6.84	3.52	6.22	5.93	5.65	5.38
37.0	6.73	6.42	6.12	5.84	5.56	5.31
38.0	6.62	6.32	6.03	5.75	5.48	5.23
39.0	6.52	6.22	5.98	5.66	5.40	5.15
40.0	6.41	6.12	5.84	5.58	5.32	5.08
41.0	6.31	6.03	5.75	5.49	5.24	5.01
42.0	6.21	5.93	5.67	5.41	5.17	4.93
43.0	6.12	5.84	5.58	5.33	5.09	4.86
44.0	6.02	5.75	5.50	5.25	5.02	4.79
45.0	5.93	5.67	5.41	5.17	4.94	4.72

* This table is provided for your information only. It is **NOT** required when calibrating the Model 85 in accordance with the instructions outlined in the section entitled Calibration.

APPENDIX F CALIBRATION VALUES TABLE

Table A: Calibration values for various atmospheric pressures and altitudes.
Note: This table is for your information only. It is not required for calibration.

Pressure Inches of Hg	Pressure mm Hg	Pressure kPA	Altitude in feet	Altitude in meters	Calibration Value in %
30.23	768	102.3	-276	-84	101
29.92	760	101.3	0	0	100
29.61	752	100.3	278	85	99
29.33	745	99.3	558	170	98
29.02	737	98.3	841	256	97
28.74	730	97.3	1126	343	96
28.43	722	96.3	1413	431	95
28.11	714	95.2	1703	519	94
27.83	707	94.2	1995	608	93
27.52	699	93.2	2290	698	92
27.24	692	92.2	2587	789	91
26.93	684	91.2	2887	880	90
26.61	676	90.2	3190	972	89
26.34	669	89.2	3496	1066	88
26.02	661	88.2	3804	1160	87
25.75	654	87.1	4115	1254	86
25.43	646	86.1	4430	1350	85
25.12	638	85.1	4747	1447	84
24.84	631	84.1	5067	1544	83
24.53	623	83.1	5391	1643	82
24.25	616	82.1	5717	1743	81
23.94	608	81.1	6047	1843	80
23.62	600	80.0	6381	1945	79
23.35	593	79.0	6717	2047	78
23.03	585	78.0	7058	2151	77
22.76	578	77.0	7401	2256	76
22.44	570	76.0	7749	2362	75
22.13	562	75.0	8100	2469	74
21.85	555	74.0	8455	2577	73
21.54	547	73.0	8815	2687	72
21.26	540	71.9	9178	2797	71
20.94	532	70.9	9545	2909	70
20.63	524	69.9	9917	3023	69
20.35	517	68.9	10293	3137	68

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ITEM # 038503
DRW # A38503 - Web
Revision E - Web
November 1998

Appendix 7

YSI Professional Plus User Manual

YSI®

Professional *Plus*

USER MANUAL

Item # 605596
Rev D
Drawing # A605596
March 2009

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WARRANTY

The YSI Professional Plus Instrument (Pro Plus) is warranted for three (3) years from date of purchase by the end user against defects in materials and workmanship, exclusive of batteries and any damage caused by defective batteries. Pro Plus field cables are warranted for two (2) years from date of purchase by the end user against defects in material and workmanship (6 months for non-field rugged cables*). Pro Plus sensors (pH, ORP, pH/ORP combo, Polarographic DO) are warranted for one (1) year from date of purchase by the end user against defects in material and workmanship (6 months for ammonium**, nitrate**, chloride**, and Galvanic DO). Pro Plus systems (instrument, cables & sensors) are warranted for 90 days from date of purchase by the end user against defects in material and workmanship when purchased by rental agencies for rental purposes. Within the warranty period, YSI will repair or replace, at its sole discretion, free of charge, any product that YSI determines to be covered by this warranty.

To exercise this warranty, call your local YSI representative, or contact YSI Customer Service in Yellow Springs, Ohio at +1 937 767-7241, 800-897-4151 or visit www.YSI.com (Support tab) for a Product Return Form. Send the product and proof of purchase, transportation prepaid, to the Authorized Service Center selected by YSI. Repair or replacement will be made and the product returned, transportation prepaid. Repaired or replaced products are warranted for the balance of the original warranty period, or at least 90 days from date of repair or replacement.

LIMITATION OF WARRANTY

This Warranty does not apply to any YSI product damage or failure caused by:

1. failure to install, operate or use the product in accordance with YSI's written instructions;
2. abuse or misuse of the product;
3. failure to maintain the product in accordance with YSI's written instructions or standard industry procedure;
4. any improper repairs to the product;
5. use by you of defective or improper components or parts in servicing or repairing the product;
6. modification of the product in any way not expressly authorized by YSI.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. YSI's LIABILITY UNDER THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, AND THIS SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY DEFECTIVE PRODUCT COVERED BY THIS WARRANTY. IN NO EVENT SHALL YSI BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECTIVE PRODUCT COVERED BY THIS WARRANTY.

* The warranty period for the non-field rugged cables (605107, 605177, 605108, 605178, 605109, 605179) is listed as 6 months. However, the true "working life" of these sensors may be 3-9 months depending on storage and usage in solutions other than clean aqueous samples.

** The warranty for the ammonium, nitrate, and chloride sensors (605104, 605105, 605106) is listed as 6 months. However, the true "working life" of these sensors may be 3-9 months depending on storage and usage in solutions other than clean aqueous samples.

INTRODUCTION

Thank you for purchasing the YSI Professional Plus (Pro Plus). The Pro Plus features a waterproof (IP-67) case, backlit display and keypad, user-selectable cable options, USB connectivity, large memory with extensive site list capabilities, and a rugged, rubber over-molded case.

Reading the entire manual before use is recommended for an overall understanding of the instrument's features.

GETTING STARTED

INITIAL INSPECTION

Carefully unpack the instrument and accessories and inspect for damage. Compare received parts with items on the packing list. If any parts or materials are damaged, contact YSI Customer Service at 800-897-4151 (+1 937 767-7241) or the authorized YSI distributor from whom the instrument was purchased.

BATTERY INSTALLATION

The Pro Plus requires (2) alkaline C-cell batteries which are included with the purchase of a new instrument. Battery life depends on parameters and usage. Under normal conditions, battery life is approximately 80 hours for continuous use at room temperature. To install or replace the batteries:

1. Turn the instrument over to view the battery cover on the back.
2. Unscrew the four captive battery cover screws.
3. Remove the battery cover and install the new batteries, ensuring correct polarity alignment on the instrument or the removed cover. (Figure 1)
4. Replace the battery cover on the back of the instrument and tighten the four screws. Do NOT over-tighten.

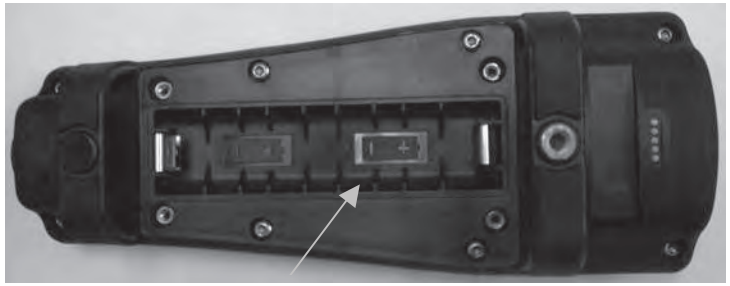


Figure 1. Pro Plus with battery cover removed. Notice battery symbols indicating polarities.

> *Batteries must be installed in the instrument even if powering the unit via the USB connection. This will retain the correct date and time if the PC is turned off. If the USB power is disconnected and there are no batteries in the instrument, the date and time will need to be reset upon subsequent power on.*

NOTE - On subsequent battery changes you will have approximately 2 minutes to change the batteries before the clock resets. If the clock resets, the instrument will automatically bring up the Date/Time menu the next time it is powered on in order to update this information. This is important, especially if you intend to log data!

SETUP

The Pro Plus instrument has several compatible field-rugged cable/sensor options, each with temperature:

Cable:	*Available Sensors:*
Cable number 60520-x	DO/temp (605780 for lab BOD)
Cable number 60530-x	Conductivity/temp
Cable number 60510-x	ISE*/temp
Cable number 6051010-x	ISE*/ISE*/temp
Cable number 6051020-x	ISE*/DO/temp
Cable number 6051030-x	ISE*/conductivity/temp
Cable number 6052030-x	DO/conductivity/temp
Cable number 605790-x	DO/conductivity/ISE*/ISE*/temp (Quatro**)

*ISE (Ion Selective Electrode) notates a port that can accept pH, ORP, Ammonium, Nitrate, Chloride, and, in some cases, a pH/ORP combination sensor.

**Cable 605790 will be referred to as a Quatro cable throughout this manual.

All cables come in standard lengths of 1, 4, 10, 20, and 30-meters (3.28, 13, 32.8, 65.6, and 98.4-feet) with options for special order lengths up to 100-meters (328-feet) on the 60520-x cables. Contact YSI or your local representative for additional information.

In addition there are several cable options with built in sensors for the measurement of pH and ORP that are not considered field-rugged (non-replaceable sensors, less rugged single-junction sensors). These cables are

recommended for lab use or controlled conditions where a more rugged, field cable is not necessary. These cables include:

Cable number 605107	1-meter cable; single-junction pH sensor
Cable number 605177	4-meter cable; single-junction pH sensor
Cable number 605108	1-meter cable; single-junction ORP sensor
Cable number 605178	4-meter cable; single-junction ORP sensor
Cable number 605109	1-meter cable; single-junction pH/ORP sensors
Cable number 605179	4-meter cable; single-junction pH/ORP sensors

STANDARD PRO SERIES SENSOR INSTALLATION

Throughout the manual, the term "sensor" refers to the removable portion or electrode sensing portion of the cable assembly. For example, the DO sensor or pH sensor is the part that can be removed from a field cable and replaced with a new sensor. The conductivity sensor is not removable from a non-Quatro cable but still refers to the "sensing" portion and will be referred to as a sensor. This section covers most of the sensor installations on a Professional Series cable bulkhead including the following sensors:

2003 - Polarographic DO (black)	1001 - pH	1003 - pH/ORP	1005 - Chloride
2002 - Galvanic DO (gray)	1002 - ORP	1004 - Ammonium	1006 - Nitrate

See the next section of this manual for installation instructions for the Quatro cable's Conductivity/Temperature sensor.

Dual sensor bulkhead ports are numbered 1 and 2, see figure to the left. Please refer to the following tables to determine correct sensor installation into each port of a two port cable.

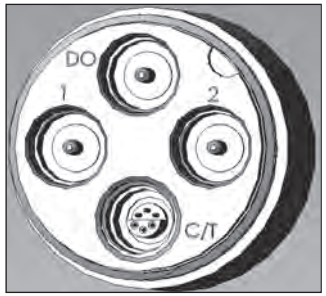
	Port 1 Options	Port 2 Options
1010 dual cable	pH	pH
	ORP	ORP
	pH or pH/ORP*	pH or pH/ORP*
	ammonium	ammonium
	chloride	chloride
	nitrate	nitrate
		none (port plug)

* If using a 6051010 cable, a sensor must be installed in port 1 for correct operation. If you install a pH/ORP combo sensor into a 6051010 cable, ORP will not be measured. It is not recommended to use a pH/ORP combo sensor on a 6051010 cable.

	Port 1 Options	Port 2 Options
1020 dual cable	pH	Polarographic DO
	ORP	Galvanic DO
	pH or pH/ORP	none (port plug)
	ammonium	
	chloride	
	nitrate	
	none (port plug)	

If using a 1020 cable, install a pH, ORP, pH/ORP, Ammonium, Nitrate or Chloride sensor in port 1 and a DO sensor in port 2.

If using a 605103 pH/ORP combination probe on a 6051020 or 6051030 cable you can report both pH and ORP. However, it is recommended to set ISE1 as pH and ISE2 as ORP in the Sensor Setup menu.



The Quatro cable bulkheads are labeled 1, 2, DO, and CT, see figure to the left. All sensors except the Conductivity/Temperature sensor can be installed following the Standard Pro Series Sensor Installation instructions. Conductivity/Temperature sensor installation is described in the next section. For ease of installation, YSI recommends that you install a sensor into port 1 first; followed by DO installation, then port 2, and lastly C/T.

	Port 1 Options	Port 2 Options	DO Port Options	CT Port Options
Quatro Cable (pn: 605790)	pH	pH	Polarographic DO	5560 Conductivity/ Temperature sensor only
	ORP	ORP	Galvanic DO	
	pH or pH/ ORP*	pH or pH/ ORP*	none (port plug)	
	ammonium	ammonium		
	chloride	chloride		
	nitrate	nitrate		
		none (port plug)		

* If using a Quatro cable, a sensor must be installed in port 1 for correct operation of port 2. If you install a pH/ORP combo sensor into a Quatro cable, ORP will not be measured. It is not recommended to use a pH/ORP combo sensor on a Quatro cable.

Before installing either dissolved oxygen sensor, the instrument must be configured for the sensor being installed. See the Setup - Dissolved Oxygen section of this manual for instrument configuration instructions. Failure to do this may result in damage not covered under warranty.

First, ensure both the sensor connector and sensor port on the cable are clean and dry. To connect the sensor, grasp the sensor with one hand and the sensor connection end of the cable (bulkhead) in the other. Push the sensor into the connector on the cable until it is properly seated and only one o-ring is visible. Failure to properly seat the probe may result in damage. Twist the sensor clockwise to engage threads and finger tighten (Figure 2). Do not use a tool. This connection is waterproof. Please refer to the sensor installation sheet that is included with each sensor for detailed instructions.

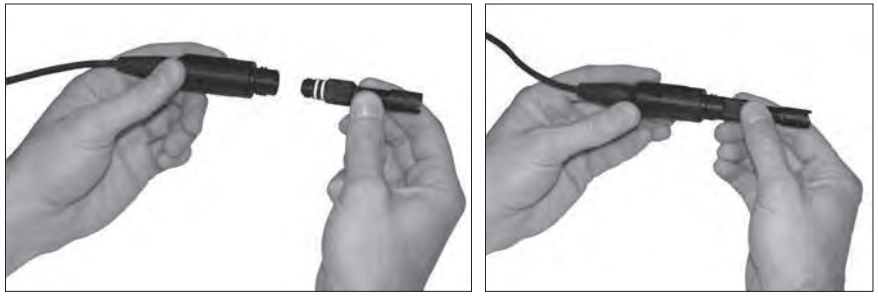


Figure 2. The image on the left shows a clean, dry sensor being aligned with the bulkhead. On the right, the sensor has been pushed into the bulkhead and is being screwed into place.

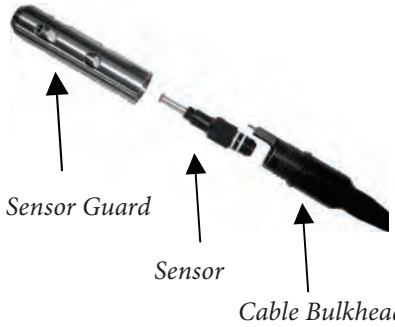


Figure 3. The sensor(s) will install directly in the cable bulkhead. Once installed, the sensor guard will protect the sensor during sampling (DO cap membrane not shown).

CONDUCTIVITY/TEMPERATURE SENSOR INSTALLATION IN A QUATRO CABLE

As mentioned, the installation of the Conductivity/Temperature sensor (model 5560) in a Quatro cable is different from all other Pro Series sensor installations. Follow these instructions when installing a conductivity/temperature sensor in a Quatro cable:

1. Locate the C/T port and, if replacing, remove the old sensor using the installation tool to loosen the stainless steel retaining nut. Once the stainless steel retaining nut has been completely unscrewed from the bulkhead, remove the old sensor from the bulkhead by pulling the sensor straight out of the bulkhead.
2. Apply a thin coat of o-ring lubricant (supplied with the sensor) to the o-rings on the connector side of the new sensor.

> ⓘ *Visually inspect the port for moisture. If moisture is found, it must be completely dried prior to sensor installation.*

3. Align the connectors of the new sensor and the port. With connectors aligned, push the sensor in towards the bulkhead until you feel the sensor seat in its port. You will experience some resistance as you push the sensor inward, this is normal
4. Once you feel the sensor seat into the port, gently rotate the stainless steel sensor nut clockwise with your fingers, Do not use the tool.
5. The nut must be screwed in by hand. If the nut is difficult to turn, STOP, as this may indicate cross threading. If you feel resistance or cross threading at any point, unscrew the nut and try again until you are able to screw the nut down completely without feeling any resistance. Damage to your cable/sensor may occur if you force the parts together.
6. Once completely installed, the nut will seat flat against the bulkhead. At this point, use the tool that was included with the sensor to turn the nut an additional ¼ to ½ turn so it cannot come loose (figure 4). DO NOT over tighten.

> ⓘ *Do not cross thread the sensor nut. Seat nut on face of bulkhead. Do not over tighten.*

Please refer to the sensor installation sheet that is included with the conductivity/temperature sensor for detailed instructions.

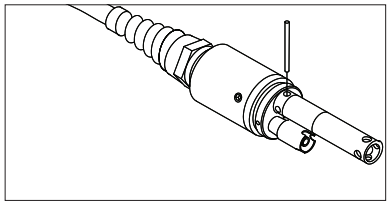


Figure 4. Installation tool used to tighten stainless steel retaining nut of 5560 conductivity/temperature sensor.

INSTALLING PORT PLUGS IN UNUSED PORTS

As necessary, install a port plug into any port that does not have an installed sensor. This will protect the bulkhead from water damage. Port plugs and a tube of o-ring lubricant are included with all Quatro cables. These items can be ordered separately if needed. To install a port plug, apply a thin coat of o-ring lubricant to the two o-rings on the port plug. After application, there should be a thin coat of o-ring lubricant on the o-rings. Remove any excess o-ring lubricant from the o-ring and/or port plug with a lens cleaning tissue. Next, insert the plug into an empty port on the bulkhead and press firmly until seated. Then, turn the plug clockwise to engage the threads and finger-tighten until the plug is installed completely. Do ***not*** use a tool to tighten the plug.

CONNECTING THE CABLE TO AN INSTRUMENT

To connect a cable, align the keys on the cable connector to the slots on the instrument connector. Push together firmly, then twist the outer ring until it locks into place (figure 5). This connection is water-proof.

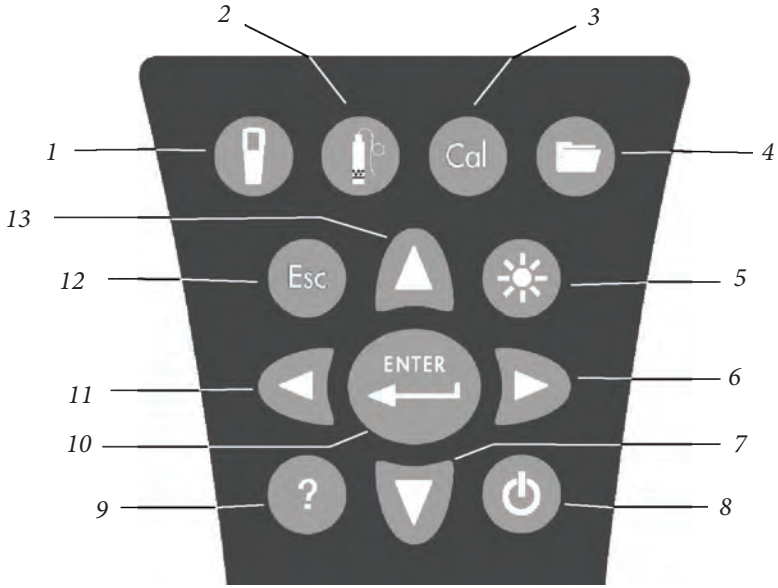
Figure 5. Note the keyed connector. The cable and instrument connectors can only be mated once the keys are properly aligned.

> ⓘ *When a sensor is not installed, the sensor and cable sensor connectors are NOT water-proof. Do not submerge the cable without a sensor or port plug installed in all available ports.*
>
> *When the cable is disconnected, the cable's instrument connector and the connector on the instrument maintain an IP-67 rating.*

SENSOR STORAGE

The cable assembly is supplied with a storage container, or sleeve, that installs on to the cable. The container is used for short-term storage (less than 30 days). Be sure to keep a small amount of moisture (tap water) in the container during storage. This is done to maintain a 100% saturated air environment which is ideal for short-term sensor storage (see Care, Maintenance, and Storage for more detailed information). Do not submerge the sensors in an aqueous solution. The intent is to create a humid air storage environment.

KEYPAD

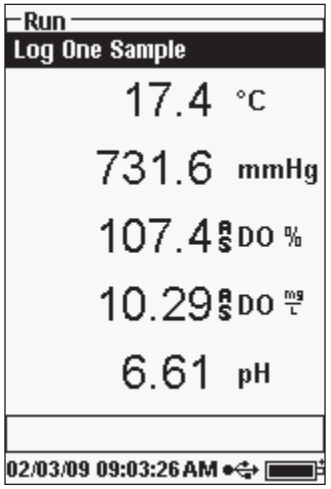


Number	*Key*	*Description*
1		**System** Opens System Menu from any screen. Use to adjust system settings.
2		**Sensor** Opens Sensor Menu from any screen. Use to enable sensors and display units.
3	Cal	**Calibrate** Opens Calibrate Menu from any screen. Use to calibrate all parameters except temperature.
4		**File** Opens File Menu from any screen. Use to view data and GLP files, set up site and folder lists, and delete data.
5		**Backlight** Press to turn the instrument backlight on and off and to adjust the display contrast when pressed with the left or right arrow key.

Number	Key	Description
6		**Right Arrow** Use to navigate right in alpha/numeric entry screens. Can be pressed simultaneously with Backlight key to increase display contrast.
7		**Down Arrow** Use to navigate through menus and to navigate down in alpha/numeric entry screens.
8		**Power** Press to turn the instrument on. Press and hold for 3 seconds to turn off.
9		**Help** Press to receive hints & tips during operation.
10		**Enter** Press to confirm selections, including alpha/numeric key selections.
11		**Left Arrow** Use to navigate left in alpha/numeric entry screens. Press to return to previous menu in all screens except alpha/numeric entry. Can be pressed simultaneously with Backlight key to decrease display contrast.
12		**Exit/Escape** Exits back to Run Screen. When in alpha/numeric entry screen, escapes to previous menu.
13		**Up Arrow** Use to navigate through menus and to navigate up in alpha/numeric entry screens.

MAIN DISPLAY

Press the Power key to turn the instrument on. The instrument will briefly display the splash screen with the YSI logo then go directly to the main run screen. The first time the instrument is powered up or if the instrument has had a battery change (with batteries removed for more than 2 minutes), you will need to set the date and time. Follow the instructions under **System Menu | Date/Time**.



The display at the left shows the run mode (main display) with temperature in °C, barometer in mmHg, DO in % and mg/L, and pH as the reported parameters. The date, time and battery level are indicated at the bottom of the screen. The logging preference of Log One Sample at a time is indicated at the top of the screen.

This screen also shows the message line towards the bottom of the display above the date and time. In this case, it doesn't show a message but messages will appear frequently to indicate calibration steps, set date and time, etc.

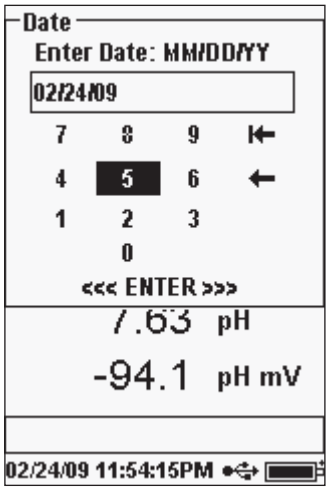
A USB symbol will show up on the bottom of the display when connected to a PC through USB with the communications saddle. The instrument will display full battery power when it is receiving power through the USB connection.

> ***Contrast** – the contrast adjustment can be accomplished by pressing the backlight key and the left or right arrow key at the same time.*

MENU LAYOUT

Press Esc at anytime in the menus to escape back to the Run screen. The left arrow can be used to go back to the previous menu in all screens except alpha/numeric entry screens. You must use Esc to get out of the alpha/numeric screens if you want to exit before finishing or without saving changes. Functions that are enabled appear as a circle with a dot ⦿ or a box with a check mark ☑. Disabled functions appear as a circle only ○ or an empty ☐.

ALPHA/NUMERIC ENTRY



The numeric screens will display numbers only (shown on the left). Alpha/numeric screens will display numbers across the top and letters along the bottom rows (shown on the right). Letters appear as a common keyboard arrangement.

When an alpha or numeric character is required, the screen will show the alpha/numeric entry screen. To select a character, highlight it by using the arrow keys to move the highlight box over the desired selection. Then, press **Enter** on the keypad to confirm the selection. After confirming the selection, it will appear in the line at the top of the display.

For capital letters or lower case entry, highlight "SHIFT" and press **Enter** on the keypad to change the characters from upper to lower case.

To delete the entire line of the current entry, highlight ⇤ and press **Enter** on the keypad. The ← symbol functions as a backspace key in the alpha/numeric entry screens by deleting one character at a time. Use the "SPACE" function to add a space between characters.

When you have finished entering the correct information (16 character max), highlight <<<ENTER>>> at the bottom of the screen and press **Enter** on the keypad to confirm.

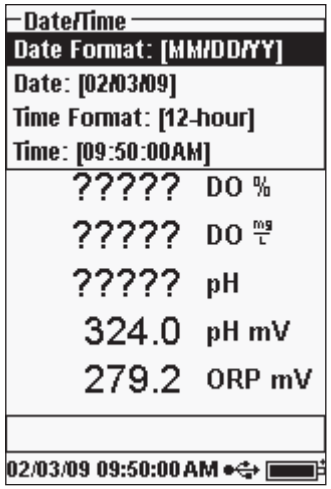
> ⓘ *The ◀ key cannot be used to escape to the previous menu from an alpha/numeric entry screen. Instead, use the Esc key to go back to the previous menu when in alpha/numeric entry screens.*

SYSTEM MENU

Press System to access any of the following menu items.

The System menu will allow you to access the setup options of the instrument including; **Date/Time**, **GLP**, **Language**, **Radix Point**, **Logging**, **Auto-Shutoff**, **Backlight**, **SW** (Software) **Version**, **Serial #**, and **Unit ID**. Any item with [brackets] shows the current setting inside the brackets. For instance, in the example at the left, Radix Point is currently set to [Decimal]. The brackets will also give a quick visual clue as to what items can be changed.

DATE/TIME



Highlight **Date/Time** from the **System** menu. Press enter to select.

Date Format – Highlight and press enter to open a sub menu for selecting the preferred date format: YY/MM/DD, MM/DD/YY, DD/MM/YY, or YY/DD/MM.

Date – Highlight and press enter to use the numeric entry screen to set the correct date.

Time Format – Highlight and press enter to open a submenu to select the preferred time format from 12-hour or 24-hour.

Time – Highlight and press enter to use the numeric entry screen to set the correct time.

> ⓘ *The date and time will need to be reset if a battery change takes longer than 2 minutes. When this occurs, the Date/Time menu will automatically appear upon power up and require you to set the date and time.*

GLP

The GLP or 'Good Laboratory Practice' file saves detailed information about calibrations. It also includes diagnostic information about the sensors. Calibrations are logged into a file, the GLP, for later review as needed. A single GLP file is utilized to store all calibration records and is capable of storing 500 records. Once the GLP file is full, the instrument will begin to overwrite the oldest record with each new calibration record.

> ⓘ *In order to keep all of your GLP records, periodically download the GLP to Data Manager and export it to another program. Otherwise, the unit will overwrite the oldest record once the memory is full. Also, since Data Manager saves GLP files under the Unit ID, you must periodically export and rename the GLP file on your PC or it will be overwritten each time you upload the GLP file from the instrument.*

Several calibration parameters are saved for each calibration record including optional ones that can be enabled by the user. Standard parameters include date/time stamp, calibration method, and sensor information. Optional, user selectable parameters include User ID, Probe ID, and User Fields 1 and 2.

The sensor specific information that is saved with each calibration point is different for each sensor. The sensor specific values saved are:

Conductivity
Method (Spec Cond, Cond, Salinity)
Cal Value (value of calibration solution)
Sensor Value (Cell Constant)
Temperature Reference (User selected in Sensor Setup menu)
Temperature Compensation Coefficient %/°C (User selected in Sensor Setup menu)
TDS Constant (User selected in Sensor Setup menu)
Temperature
Cal Cell Constant
Calibrate Status

DO
Method (%, mg/L)
Cal Value
Sensor Value (Sensor Current)
Sensor Type (Polarographic/Galvanic)
Membrane Type (Teflon Black, PE Yellow, PE Blue)
Salinity Mode (user entered value if in Manual Salinity Mode)
Temperature
Barometer
Calibrate Status

pH (up to 6 calibration points)
Buffer Value
Sensor Value (mV)
Temperature
Slope (mV/pH)
Slope (% of ideal)
Calibrate Status

ORP
Cal Solution Value
Sensor Value
Temperature
Calibrate Status

Ammonium
Buffer Value
Sensor Value (mV)
Temperature
Calibrate Status

Chloride
Buffer Value
Sensor Value (mV)
Temperature
Calibrate Status

Nitrate
Buffer Value
Sensor Value (mV)
Temperature
Calibrate Status

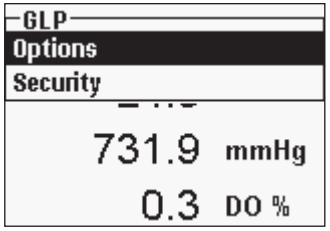
An example of a GLP record

(Operation performed is single point % DO Calibration)

*** Calibrate – DO% ***

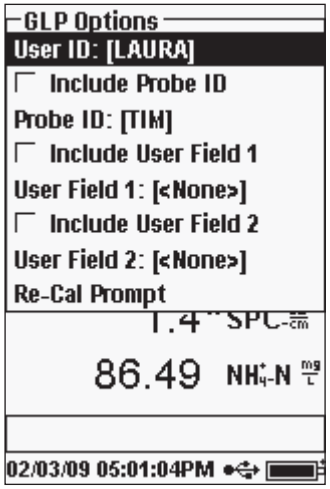
Date	02/03/09 MM/DD/YY
Time	12:14:57PM 12-hour
User ID:	Tech 1
Probe ID	08D
Method	DO Air Calibrate
Cal Value:	100.00%
Sensor Value:	5.175155uA
Sensor Type	Polarographic
Membrane Type	1.25 PE Yellow
Salinity Mode	5.175165 Auto
Temperature	23.9 °C
Barometer	731.4 mmHg
Calibrate Status	Calibrated

GLP SETTINGS



In the System menu, highlight **GLP** and press enter to view and modify the GLP settings.

Highlight Options and press enter to access **User ID**, **Probe ID**, **User Defined Fields**, and **Re-Cal Prompt**.

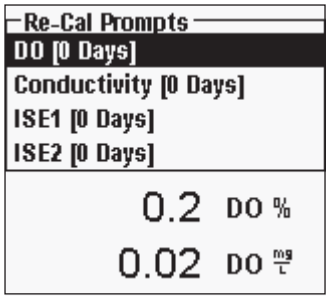


User ID may be used to identify the person calibrating the instrument. Highlight **User ID** and press enter to select, edit, or delete a User ID from a list of previously entered IDs. Or, highlight **Add New** and press enter to create a new User ID using the alpha/numeric entry screen. The User ID may also be changed in the **Calibration** menu during the calibration process. The selected User ID will be stored in the GLP file with each calibration record. A User ID could be a person's initials or badge number. The character limit is 16 characters.

Probe ID is stored with the calibration record and may be used to distinguish one cable/probe

assembly from another, typically by serial number. Highlight **Include Probe ID** and press enter to turn this function on (☑) and off (☐). Highlight **Probe ID** and press enter to add, view, edit, delete, or select a Probe ID. The Probe ID may also be changed in the **Calibration** menu during the calibration process. The character limit is 16 characters.

User Fields 1 and 2 are stored with the calibration record and may be used to enter other parameters pertinent to the user, such as weather conditions, elevation, etc. Highlight **Include User Field 1** or **Include User Field 2** and press enter to turn this function on and off. Highlight **User Field 1** or **User Field 2** and press enter to add, delete, view, edit, or select a User Field. The character limit is 16 characters. When enabled, a prompt for selecting a User Defined Field will appear during the calibration process.



Re-Cal Prompt may be used to remind the user to perform a calibration. To set a time interval, highlight the parameter you wish to be reminded about and press enter to access the numeric entry screen. Enter a value in days and press enter to confirm the reminder time. To turn off the Re-cal prompt, set the reminder to zero (0) days (this is the default).

The **Security** section of the GLP menu is a password protected area. This area includes options to set a new password and to lock access to the calibration menu. When first viewing the security menu, you will be required to enter a password. Use the "shift" on the alpha/numeric screen to switch to lower case if necessary and enter "**ysi123**". This is the default password.

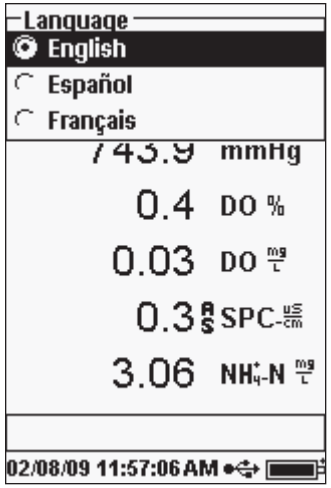
Protect Cal can be enabled (☑) or disabled (☐). When enabled, the user must know and enter the instrument's password to enter the calibration menu option. Highlight **Protect Cal** and press enter to enable or disable this feature.

Set Password allows a user to set the security password. Highlight **Set Password,** press enter, and use the alpha/numeric entry screen to set the new password. The password can have up to 16 characters.

Contact YSI Technical Support at environmental@ysi.com or +1 937 767-7241 if you forget or misplace your password.

> ⓘ *Once a password is set, and the GLP security screen exited, a password must be entered to make changes under GLP security. Keep passwords in a safe place.*

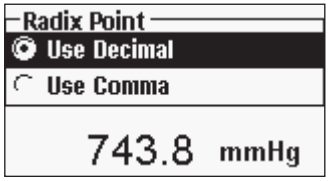
LANGUAGE



The Pro Plus can be configured to display all text in English, Spanish, French, German, Portuguese, Italian, Norwegian, Simplified Chinese, Traditional Chinese, or Japanese. From the factory, the instrument includes English, Spanish, and French language options. The other language options can be downloaded from www.ysi.com/support.

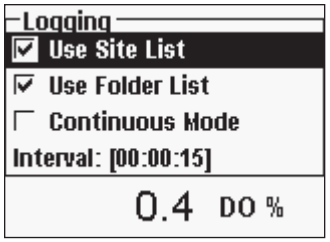
Once the appropriate language file is in the instrument, press System, highlight **Language,** and press enter. Highlight the desired language and press enter to confirm.

RADIX POINT



Radix Point allows the user the option to choose between a comma or a decimal in numeric displays. For example, 1.00 becomes 1,00 when **Use Comma** is selected. Highlight **Use Decimal** or **Use Comma** and press enter to make your selection.

LOGGING



From the System menu, highlight **Logging** and press enter to view or change the logging options. Logging options include **Use Site List**, **Use Folder List**, **Continuous Mode**, and **Interval**.

Use Site List and **Use Folder List** are optional ways of filing or 'tagging' your logged data points. If these settings are enabled, you will be prompted to select a Site and/or Folder to 'tag' to the logged data point. See the **File and Site Lists** section of this manual for information on creating Site and Folder Lists.

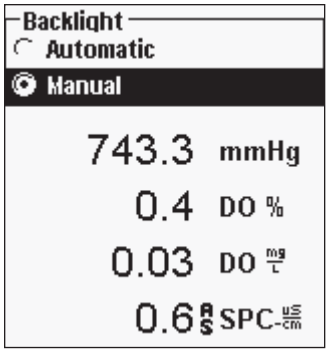
Check the box for **Continuous Mode** if you want to log samples continuously at a specific time interval. To set the length of time between logged samples, highlight **Interval** and press enter. Enter the interval as HH:MM:SS. This interval will display at the top of the screen when you select the **Start Logging** option in run mode.

To log one sample at a time, uncheck **Continuous Mode**. When Continuous Mode is unchecked, **Log One Sample** will appear at the top of the run screen.

AUTO SHUTOFF

Auto Shutoff powers the instrument off after a user specified time period. Highlight **Auto Shutoff** and press enter. Using the alpha/numeric entry screen, enter a value between 0 and 360 minutes. To disable auto shutoff, set the value to 0 (zero).

BACKLIGHT



Backlight can be set to **Automatic** or **Manual**. Automatic turns the backlight on when you turn the instrument on and when you press any key. Manual allows you to turn the backlight on or off with the backlight key. When in Automatic mode, the instrument will turn the backlight off 60 seconds after the last key press. The instrument will "reset" the 60 second time period every time a key is pressed. The lighted keypad will turn off after approximately 20 seconds.

SW VERSION (SOFTWARE VERSION)

SW Version shows the instrument's software version. The instrument's software can be updated via www.ysi.com/support. There you will find the new software files and instructions on how to update the instrument. There is no need to send the instrument back to the factory for upgrades.

SERIAL

Serial # shows the instrument's serial number and allows you to match it with the number engraved on the back of the instrument's case.

UNIT ID

Unit ID is used to identify instruments in the Data Manager software program that was included with your instrument. It is also used to identify GLP files, Site Lists, Configuration files, and Data files transferred from the instrument to the PC. The default Unit ID is the instrument's serial number. To modify the Unit ID, highlight **Unit ID**, press enter and then use the alpha/numeric entry screen. The character limit is 16 characters.

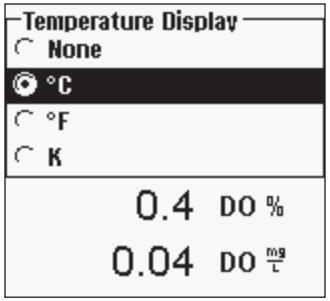
PARAMETERS: SETUP, DISPLAY, AUTO STABLE, AND CALIBRATION

The following section is separated by parameter and will discuss sensor setup, display options, auto stable features, and calibration procedures for each parameter. The sections are separated by parameter due to the versatility of the Pro Plus. You may focus solely on the parameters of your choice.

For the highest accuracy, calibrate or verify each sensor regularly. For your convenience, YSI offers 5580 Confidence Solution® which allows you to check the accuracy of pH, conductivity, and ORP readings to help determine if a sensor calibration is necessary.

If you receive an error message during a calibration that indicates questionable results, you have the option to either accept or decline the calibration. YSI recommends that you decline a questionable calibration since accepting it may result in erroneous data. After declining a questionable calibration, ensure the sensor is clean, the calibration solution is good, the calibration vessel is clean, and that you are entering the correct calibration value if entering manually. Then, try to recalibrate the sensor. If you continue to have problems, see the Troubleshooting section of this manual.

TEMPERATURE



All probe/cable assemblies, except the Quatro, have a built-in temperature sensor. The Quatro cable ships with a Conductivity/Temperature sensor that must be installed on the cable. Temperature calibration is not required nor is it available.

To set the units, press Sensor , highlight **Display** and press enter. Highlight **Temperature** and press enter. Highlight the desired temperature units of **°F**, **°C**, or **K** and press enter to confirm the selection. Only one temperature unit may be displayed at a time. You may also choose not to display temperature. If you choose not to display temperature, other parameters that require a temperature reading will still be temperature compensated.

DISSOLVED OXYGEN (DO)

DO sensors can be used on 60520-X, 6051020-X, 6052030-X, and Quatro cables.

PREPARING THE DO SENSOR FOR THE FIRST TIME

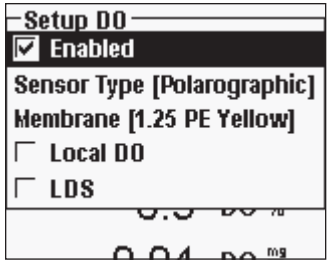
The dissolved oxygen sensor is shipped with a dry, protective red cap that will need to be removed before using. It is very important to put a new membrane with electrolyte solution on the sensor after removing the red cap.

Prepare the membrane solution according to the instructions on the bottle. After mixing, allow the solution to sit for 1 hour. This will help prevent air bubbles from later developing under the membrane. Ensure you are using the correct electrolyte solution for the correct sensor. Galvanic sensors utilize electrolyte with a light blue label and Polarographic sensors utilize electrolyte with a white label. The dissolved oxygen sensor is supplied with cap membranes specific to the sensor type ordered (Polarographic or Galvanic). 5912, 5913, and 5914 membrane kits are for Galvanic sensors and the 5906, 5908, and 5909 membrane kits are for Polarographic sensors. See the **Setup - Dissolved Oxygen** section of this manual for more information on the different types of membranes available from YSI.

Remove the red cap by pulling it straight off the sensor tip. Discard or save for later use during long term storage. Thoroughly rinse the sensor tip with distilled or deionized water. Fill the cap membrane 3⁄4 full of electrolyte solution, then tap the cap with a finger to release any trapped air. Be careful not to touch the membrane portion of the cap. Thread the membrane cap onto the sensor, moderately tight. Do not use a tool. It's typical for some of the electrolyte solution to spill over. For detailed instructions on changing a membrane cap, see the **Care, Maintenance, and Storage** section of this manual.

SETUP - DISSOLVED OXYGEN

Press Sensor , highlight **Setup** and press enter. Next, highlight **DO** and press enter.



Enabled allows you to enable or disable the Dissolved Oxygen function. Highlight **Enabled** and press enter to activate(☑) or deactivate(☐) dissolved oxygen. Disable dissolved oxygen if you do not have a dissolved oxygen sensor connected to the instrument.

> *If a sensor is Enabled that isn't connected to the instrument, the display will show an unstable, false reading, ?????, or ----- next to the units.*

Sensor Type sets the type of oxygen sensor being used: either Polarographic (black) or Galvanic (grey). Highlight **Sensor Type** and press enter. Highlight the correct sensor type installed on the cable and press enter to confirm.

If using a ProBOD sensor/cable assembly, the sensor type should be set to polarographic.

The Pro Plus has two compatible sensors for use with a field cable:

Polarographic – This sensor has a black sensor body and is engraved with the model number 2003.

Galvanic – This sensor has a grey sensor body and is engraved with the model number 2002.

In terms of physical configuration, membrane material, and general performance, YSI Professional Series Galvanic dissolved oxygen sensors are exactly like the Professional Series Polarographic sensors. The advantage of using Galvanic sensors is convenience. Galvanic sensors provide for an instant-on sensor without the need for warm-up time but this affects the life of the sensor. Polarographic sensors last longer and have a longer warranty but require a 5-15 minute warm-up time before use or calibration.

> **IMPORTANT** – *The instrument default setting is Galvanic. Please change the **Sensor Type** to match the correct sensor. If you observe readings very close to 0 or extremely high readings (i.e. 600%), your **Sensor Type** setting (Polarographic or Galvanic) may be set incorrectly and you should immediately ensure it matches the sensor installed on your cable.*

Membrane sets the type of membrane used on the dissolved oxygen sensor. Highlight **Membrane** and press enter. Highlight the correct membrane type installed on the sensor and press enter to confirm. The DO sensor is supplied with membranes specific to the sensor type ordered and are color coded as described in the following tables.

Galvanic membrane kits:

Item	*Color*	*Material*	*Description*
5912	Black	1 mil Teflon®	Traditional membrane material
5913	Yellow	1.25 mil polyethylene	Improved response time and less flow dependence than Teflon® Ships standard with the sensor.
5914	Blue	2 mil polyethylene	Less flow dependence than 1.25 mil but somewhat slower response

Polarographic membrane kits:

Item	*Color*	*Material*	*Description*
5906	Black	1 mil Teflon®	Traditional membrane material
5908	Yellow	1.25 mil polyethylene	Improved response time and less flow dependence than Teflon® Ships standard with the sensor.
5909	Blue	2 mil polyethylene	Less flow dependence than 1.25 mil but somewhat slower response

Selecting a Dissolved Oxygen Membrane:

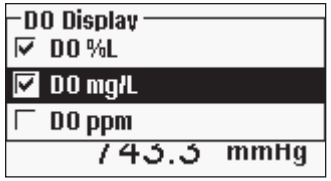
Membrane Type	*Flow Dependence After 4 Minutes*	*Typical Response Time - 95%*
5912, 5906 - Black	60%	18 seconds
5913, 5908 - Yellow	25%	8 seconds
5914, 5909 - Blue	18%	17 seconds

Local DO allows for localized DO% measurements. This sets the calibration value to 100% regardless of the altitude or barometric pressure. Highlight **Local DO** and press enter to enable (☑) or disable (☐) this function. Local DO is a method for the Pro Plus to factor in the barometric pressure on each DO measurement. In essence, if the barometric pressure changes you wouldn't notice the difference in the DO% readings in air-saturated water or water-saturated air. Local DO is ideal for EU compliance. When Local DO is enabled, an L will appear next to DO% on the run screen. DO mg/L readings are unaffected by the selection of DO Local.

LDS (Last Digit Suppression) rounds the DO value to the nearest tenth; i.e. 8.27 mg/L becomes 8.3 mg/L. Highlight **LDS** and press enter to enable (☑) or disable (☐) this function.

DISPLAY - DISSOLVED OXYGEN

Press Sensor, highlight **Display** and press enter. Highlight **DO** and press enter. All DO units can be displayed simultaneously. Highlight the unit(s) and press enter to activate (☑) or deactivate (☐) units from the run screen. Note - You will not be able to display dissolved oxygen unless it is **Enabled** in the Sensor Setup menu first, see previous section.



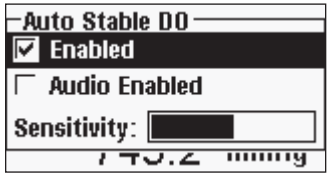
DO % will show DO readings in a percent scale from 0 to 500%.

DO mg/L will show DO readings in milligrams per liter (equivalent to ppm) on a scale from 0 to 50 mg/L.

DO ppm will show DO readings in parts per million (equivalent to mg/L) on a scale from 0 to 50 ppm.

AUTO STABLE - DISSOLVED OXYGEN

Auto Stable indicates when a reading is stable.When Auto Stable is enabled, **AS** will blink next to the parameter until it is stable. Once the parameter is stable, **AS** will stop blinking.



To enable Auto Stable, press Sensor, highlight **Auto Stable** and press enter. Highlight **DO** and press enter.

Highlight **Enabled** and/or **Audio Enabled** (instrument will beep when the stability

is achieved) and press enter to confirm. The Auto Stable **Sensitivity** can be decreased or increased. Highlight **Sensitivity** and use the left and right arrow keys to slide the bar. The more sensitive you make it (larger black bar) the harder it is to achieve stability in a changing environment.

The **Auto Stable** system works by examining the previous 5 readings, computing the percent change in the data and comparing that change against a % threshold value. The % threshold value is determined by the **Sensitivity** bar setting. The following chart can be used as a guide when setting the Sensitivity bar.

Sensitivity selected by User	*% Data Variance Threshold*
100 - Most Sensitive, Sensitivity bar is set to the far right	0.05%
75	0.62525%
50	1.275%
25	1.8875%
0 - Least Sensitive, Sensitivity bar is set to the far left	2.5%

Example:

The instrument obtained the following data:

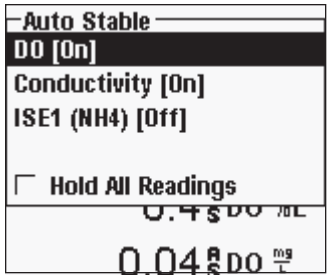
Reading #1 95.5 DO%
Reading #2 95.7 DO%
Reading #3 95.8 DO%
Reading #4 96.1 DO%
Reading #5 95.3 DO%

The instrument is programmed to determine the minimum and maximum data value over the previous 5 samples, and to compute the percent difference between those values. In this example, that gives a percent change of:

% Change = 100 * ((96.1 – 95.3) / 95.3)
% Change = 0.83%

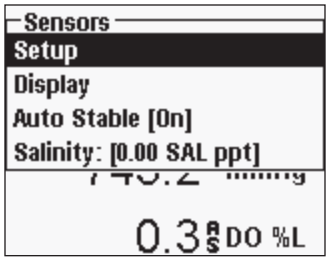
In this example, if the Sensitivity bar is set to the far right, the Auto Stable requirement would not be met and AS would continue to blink. However, if the sensitivity bar is set to the median threshold (1.275%), the Auto Stable requirement would be met and AS would display steadily on the display.

Within the Auto Stable menu, you can also choose to **Hold All Readings** for as many parameters as you set for Auto Stable. For instance, if DO and pH have



Auto Stable and Hold All Readings enabled, then the display will hold the readings once DO and pH have both reached their Auto Stable settings. You must press the **Esc** key to "release" the held display in order to take subsequent readings **Hold All Readings** must be reactivated after each use!

SALINITY CORRECTION



The last feature in the **Sensor** menu is the **Salinity** correction value which is used to calculate the dissolved oxygen mg/L and ammonia readings when a conductivity sensor is not in use. Press Sensor, highlight **Salinity**, and press enter. Then, use the numeric entry screen to enter the Salinity value of the water you will be testing from 0 to 70 ppt.

If using a cable with a conductivity sensor, the salinity measured by the conductivity sensor will be used in the DO and ammonia mg/L calculations and 'As Measured' will be displayed next to **Salinity** in the Sensor menu.

As the salinity of water increases, its ability to dissolve oxygen decreases. For example, fully oxygenated 20 °C water at sea level with zero salinity will hold 9.092 mg/L of dissolved oxygen. If that same sample had a salinity value of 9 ppt, then it would hold 8.621 mg/L of dissolved oxygen. Therefore, to obtain accurate mg/L readings, it is important to know the salinity of the water you will be testing and to input that value into the instrument. The salinity of fresh water is typically 0-0.5 ppt and seawater is typically 35 ppt. You will also have the opportunity to enter or modify the Salinity correction value during DO calibration.

CALIBRATION - DISSOLVED OXYGEN

The Pro Plus offers several options for calibrating dissolved oxygen: DO% in water saturated air, DO mg/L and DO ppm in a solution of known dissolved oxygen determined by a Winkler Titration, and a Zero point. If performing a zero point calibration, you must also perform a %, mg/L, or ppm calibration following the zero calibration. For both ease of use and accuracy, YSI recommends performing the following 1-point DO % water saturated air calibration:

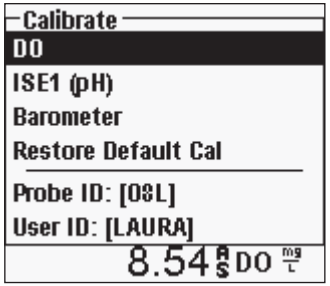
> *It is not necessary to calibrate in both % and mg/L or ppm. Calibrating in % will simultaneously calibrate mg/L and ppm and vice versa.*

Calibrating DO % in Water Saturated Air:
1-Point Calibration

The supplied sensor storage container (a grey sleeve for a single port cable or a screw on plastic cup for the dual-port and Quatro cables) can be used for DO calibration purposes.

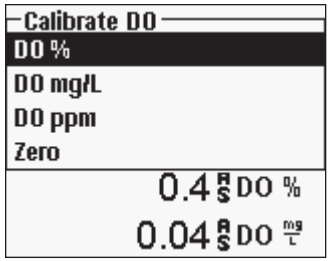
Moisten the sponge in the storage sleeve or plastic cup with a small amount of clean water. The sponge should be clean since bacterial growth may consume oxygen and interfere with the calibration. If using the cup and you no longer have the sponge, place a small amount of clean water (1/8 inch) in the plastic storage cup instead.

Make sure there are no water droplets on the DO membrane or temperature sensor. Then install the storage sleeve or cup over the sensors. The storage sleeve ensures venting to the atmosphere. If using the cup, screw it on the cable and then disengage one or two threads to ensure atmospheric venting. Make sure the DO and temperature sensors are not immersed in water. Turn the instrument on and wait approximately 5 to 15 minutes for the storage container to become completely saturated and to allow the sensors to stabilize.



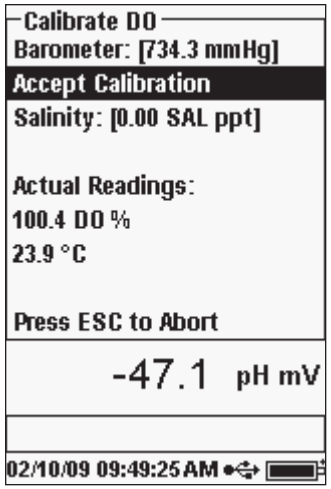
Press Cal. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. User ID will appear automatically. Select 'None' if you do not want a User ID stored with the calibration. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting your User ID and/or Probe ID if appropriate, highlight DO and press enter.



Highlight **DO %** and press enter to confirm.

The instrument will use the internal barometer during calibration and will display this value in brackets at the top of the display. Highlight **Barometer** and press enter to adjust it if needed. If the barometer reading is incorrect, it is recommended that you calibrate the barometer. Note - the barometer should be reading "true" barometric pressure (see Barometer section for more information on "true" barometric pressure). If the value is acceptable, there is no need to change it or perform a barometer calibration.



The Salinity value displayed near the top of the screen is either the salinity correction value entered in the Sensor menu or the Salinity value as measured by the conductivity sensor in use and enabled. If you are not using a conductivity sensor, the Salinity correction value should be the salinity of the water you will be testing. Highlight **Salinity** and press enter to modify this setting if necessary. See the **Salinity Correction** section of this manual for more information.

Wait for the temperature and DO% values under "Actual Readings" to stabilize, then highlight **Accept Calibration** and press enter to calibrate. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled in the GLP menu, you will be prompted to select these inputs and then press Cal to complete the calibration. The message line at the bottom of the screen will display "Calibrating Channel..." and then "Saving Configuration...".

Calibrating DO% in Water Saturated Air:
2-Point Calibration with Zero Solution

Place the sensor in a solution of zero DO.

A zero DO solution can be made by dissolving approximately 8 - 10 grams of sodium sulfite (Na_2SO_3) into 500 mL tap water or DI water. Mix the solution thoroughly. It may take the solution 60 minutes to be oxygen-free.

Press Cal. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting the Probe ID and/or User ID if appropriate, highlight DO and press enter. Highlight **Zero** and press enter. Wait for the temperature and DO% values under "Actual Readings" to stabilize, then press enter to **Accept Calibration**. If User Field 1 or 2 are enabled, you will be prompted to select the fields and then press Cal to complete the calibration. The screen will then prompt for a follow-up second point calibration.

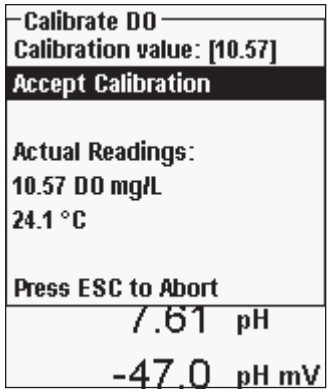
Highlight **DO%** and press enter to continue with the next calibration point. Rinse the sensor of any zero oxygen solution using clean water. Then follow the steps under Calibrating DO % in Water Saturated Air to complete the second point.

Calibrating in mg/L or ppm as a Titration:
1-Point Calibration

Place the sensor into an adequately stirred sample that has been titrated to determine the dissolved oxygen concentration. Allow the sensor to stabilize.

Press Cal. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting the Probe ID and/or User ID if appropriate, highlight DO and press enter. Highlight **DO mg/L or ppm** and press enter.



Highlight **Calibration value** and press enter to manually input the sample's dissolved oxygen value. Highlight **Accept Calibration** and press enter once the temperature and Dissolved Oxygen readings stabilize. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled in the GLP menu, you will be prompted to select the fields after selecting **Accept Calibration**. After making your selection, press Cal to complete the calibration. After completing the calibration, the message line will display "Calibrating Channel..." and then "Saving Configuration...".

Calibrating in mg/L or ppm as a Titration: **2-Point Calibration with Zero Solution**

Place the sensor in a solution of zero DO.

A zero DO solution can be made by dissolving approximately 8 - 10 grams of sodium sulfite (Na_2SO_3) into 500 mL tap water. Mix the solution thoroughly. It may take the solution 60 minutes to be oxygen-free.

Press Cal. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting the Probe ID and/or User ID if appropriate, highlight DO and press enter. Highlight **Zero** and press enter. Wait for the temperature and DO% values under "Actual Readings" to stabilize, then press enter to **Accept Calibration**. If User Field 1 or 2 are enabled, you will be prompted to select the fields and then Press Cal to complete the calibration. The screen will then prompt for a follow-up second point calibration.

Highlight the desired calibration units (mg/L or ppm) and press enter to continue with the next point. Rinse the sensor of any zero oxygen solution using clean water. To complete the second calibration point, follow the steps under Calibrating in mg/L or ppm as a Titration: **1-Point Calibration**.

BAROMETER

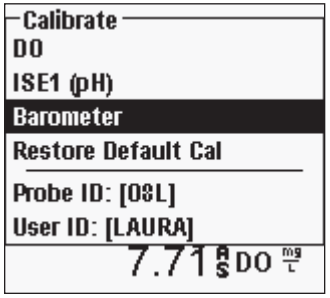
All Professional Plus instruments contain an internal barometer.

DISPLAY - BAROMETER

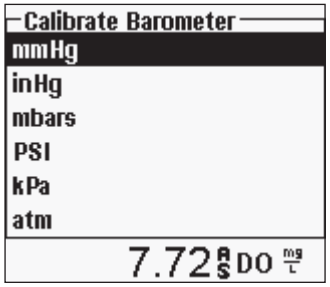
Press Sensor, highlight **Display** and press enter. Highlight **Barometer** and press enter. The measurement unit options are: mmHg, inHg, mBar, PSI, kPa, or Atm. Only one unit can be displayed at a time. Select **None** if you do not want to display a barometric pressure reading.

Whether or not you choose to display the barometer reading, the barometric pressure will still be used for calibrating DO% and for compensating for pressure changes if **Local DO** is enabled.

CALIBRATION - BAROMETER

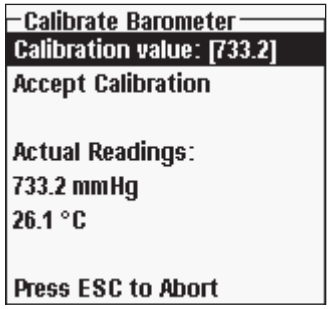


The barometer in the instrument is calibrated at the factory. If the barometer requires calibration, press **Cal**. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. When enabled, these IDs are stored with each calibration record in the GLP file.



After selecting the Probe ID and/or User ID if appropriate, highlight **Barometer** and press enter.

Highlight the desired unit and press enter.



Highlight **Calibration Value** and press enter to manually enter the correct "true" barometric pressure. Next, highlight **Accept Calibration**, and press enter. If User Field 1 or 2 are enabled, you will be prompted to select the fields and then press Cal to complete the calibration or press Esc to cancel the calibration.

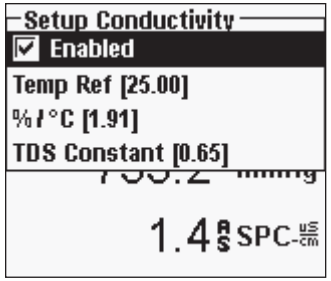
> *Laboratory barometer readings are usually "true" (uncorrected) values of air pressure and can be used "as is" for barometer calibration. Weather service readings are usually not "true", i.e., they are corrected to sea level, and therefore cannot be used until they are "uncorrected". An approximate formula for this "uncorrection" is below:*

True BP = [Corrected BP] – [2.5 * (Local Altitude in ft. above sea level/100)]

CONDUCTIVITY

Conductivity sensors are supplied with 60530-X, 6051030-X, 6052030-X , and Quatro cables. Conductivity sensors are built into the 60530-X, 6051030-X, and 6052030-X cables and are not replaceable. Conductivity/Temperature sensors are shipped with the Quatro cable, must be installed, and are replaceable.

SETUP - CONDUCTIVITY



Press Sensor , highlight **Setup,** and press enter. Highlight **Conductivity**, press enter.

Enabled allows you to enable or disable the conductivity measurement. Highlight **Enabled** and press enter to activate (☑) or deactivate (☐) conductivity. Disable conductivity if you do not have a conductivity sensor connected to the instrument.

> *If a sensor is Enabled that isn't connected to the instrument, the display will show an unstable, false reading next to the units.*

Temp Ref (Temperature Reference) is the reference temperature used for calculating temperature compensated Specific Conductance. This will be the

temperature all Specific Conductance values are compensated to. The default is 25 °C. To change the Reference Temperature, highlight **Temp Ref** and press enter. Use the numeric entry screen to enter a new value between 15.00 and 25.00 °C. Next, highlight <<<ENTER>>> at the bottom of the screen and press enter on the keypad to confirm.

%/°C (Percent per Degree Celsius) is the temperature coefficient used to calculate temperature compensated Specific Conductance. The default is 1.91% which is based on KCl standards. To change the temperature coefficient, highlight %/°C and press enter. Use the numeric entry screen to enter a new value between 0 and 4%. Next, highlight <<<ENTER>>> at the bottom of the screen and press **Enter** on the keypad to confirm.

TDS Constant is a multiplier used to calculate an estimated TDS (Total Dissolved Solids) value from conductivity. The multiplier is used to convert Specific Conductance in mS/cm to TDS in g/L. The default value is 0.65. This multiplier is highly dependent on the nature of the ionic species present in the water sample. To be assured of moderate accuracy for the conversion, you must determine a multiplier for the water at your sampling site. Use the following procedure to determine the multiplier for a specific sample:

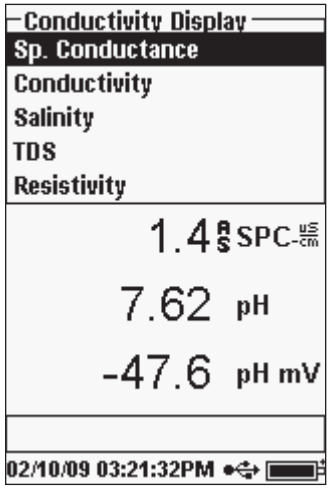
1. Determine the specific conductance of a water sample from the site;
2. Filter a portion of water from the site;
3. Completely evaporate the water from a carefully measured volume of the filtered sample to yield a dry solid;
4. Accurately weigh the remaining solid;
5. Divide the weight of the solid (in grams) by the volume of water used (in liters) to yield the TDS value in g/L for this site; Divide the TDS value in g/L by the specific conductance of the water in mS/cm to yield the conversion multiplier. Be certain to use the correct units.

> *If the nature of the ionic species at the site changes between sampling studies, the TDS values will be in error. TDS cannot be calculated accurately from specific conductance unless the make-up of the chemical species in the water remains constant.*

To change the multiplier, highlight **TDS Constant** and press enter. Use the numeric entry screen to enter a new value between 0 and 0.99. Highlight <<<ENTER>>> at the bottom of the screen and press **Enter** on the keypad to confirm.

DISPLAY - CONDUCTIVITY

Press Sensor, highlight **Display** and press enter. Highlight **Conductivity** and press enter. Highlight **Sp. Conductance** (Specific Conductance), **Conductivity**, **Salinity**, **TDS**, or **Resistivity**, and press enter to select the reporting units for each parameter. One reporting unit per parameter may be enabled. To disable a parameter, select **None**. You will not be able to display any of these parameters unless the Conductivity sensor is **Enabled** in the Sensor Setup menu first.



Sp. Conductance can be displayed in us/cm or ms/cm. Specific conductance is temperature compensated conductivity.

Conductivity can be displayed in uS/cm or mS/cm. Conductivity is the measure of a solution's ability to conduct an electrical current. Unlike specific conductance, conductivity is a direct reading without any temperature compensation.

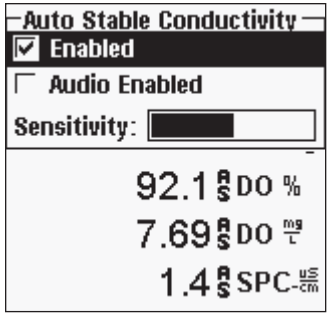
Salinity can be displayed in ppt (parts per thousand) or PSU (practical salinity units). The units are equivalent as both use the Practical Salinity Scale for calculation.

TDS can be displayed in mg/L (milligrams per liter), g/L (grams per liter), or kg/L (kilograms per liter).

Resistivity can be displayed in ohm-cm (ohms per centimeter), kohm-cm (kilo ohms per centimeter), or Mohm-cm (mega ohms per centimeter).

AUTO STABLE - CONDUCTIVITY

Press Sensor, highlight **Auto Stable** and press enter. Highlight **Conductivity** and press enter.

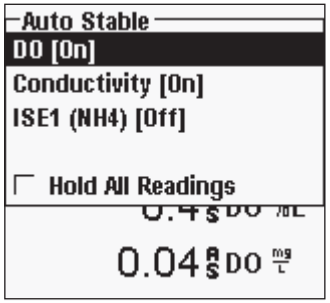


Auto Stable indicates when a reading is stable. Highlight **Enabled** and/or **Audio Enabled** (instrument will beep when the stability is achieved) and press enter enable (☑) or disable (☐). When Auto Stable is enabled, **AS** will blink next to the parameter until it is stable. Once the parameter is stable, **AS** will stop blinking.

The Auto Stable **Sensitivity** can be decreased or increased. Highlight **Sensitivity** and use the left and right arrow keys to slide the bar. The more sensitive you make it (larger black bar) the harder it is to achieve stability in a changing environment.

The **Auto Stable** system works by examining the previous 5 readings, computing the percent change in the data and comparing that change against a % threshold value. The % threshold value is determined by the **Sensitivity** bar setting. The following chart can be used as a guide when setting the Sensitivity bar.

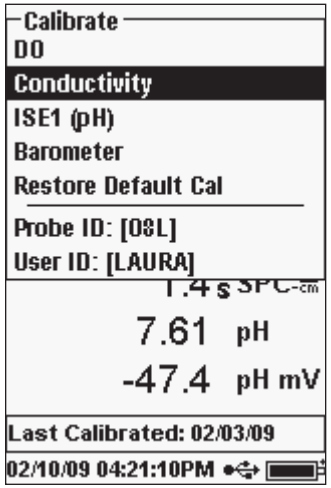
Sensitivity selected by User	*% Data Variance Threshold*
100 - Most Sensitive, Sensitivity bar is set to the far right	0.025%
75	0.39375%
50	0.7625%
25	1.13125%
0 - Least Sensitive, Sensitivity bar is set to the far left	1.5%



Within the Auto Stable menu, you can also choose to **Hold All Readings** for as many parameters as you set for Auto Stable. For instance, if conductivity and DO have Auto Stable and Hold All Readings enabled, then the display will hold the readings once conductivity and DO have both reached their Auto Stable settings. You must press the **Esc** key to "release" the held display in order to take subsequent readings. **Hold All Readings** must be reactivated after each use!

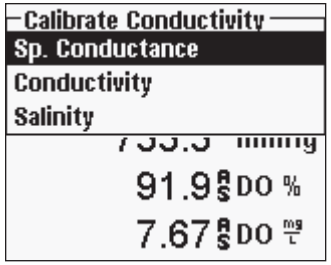
CALIBRATION - CONDUCTIVITY

> *The 6051030 ISE/conductivity cable has a specialized calibration container that resembles a large test tube. This calibration chamber can be used to calibrate the conductivity sensor with an ISE sensor installed. A ring-stand should be used to support this chamber.*



Press Cal . Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. User ID will appear automatically. Select 'None' if you do not want a User ID stored with the calibration. When enabled, these IDs are stored with each calibration record in the GLP file.

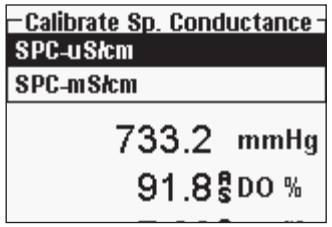
After selecting the User ID and/or Probe ID if appropriate, highlight **Conductivity** and press enter.



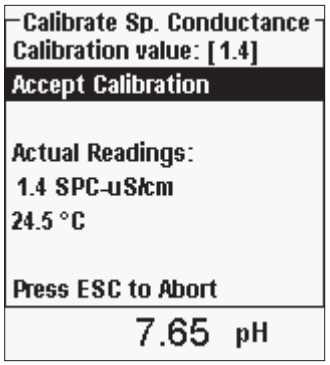
Highlight the desired calibration method; **Sp. Conductance**, **Conductivity**, or **Salinity** and press enter. YSI recommends calibrating in specific conductance for greatest ease.

Calibrating in Specific (Sp.) Conductance or Conductivity

Place the sensor into a fresh, traceable conductivity calibration solution. The solution must cover the holes of the conductivity sensor that are closest to the cable. Ensure the entire conductivity sensor is submerged in the solution or the instrument will read approximately of half the expected value!



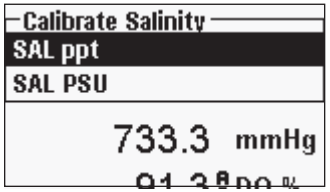
Choose the units in either **SPC-us/cm**, **C-us/cm** or **SPC-ms/cm**, **C-ms/cm** and press enter.



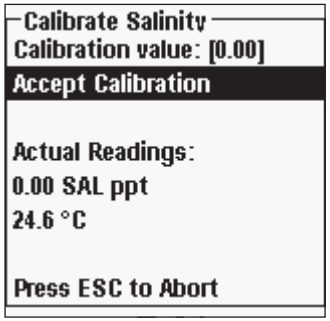
Highlight **Calibration value** and press enter to input the value of the calibration standard. Then, once the temperature and conductivity readings stabilize, highlight **Accept Calibration** and press enter. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled in the GLP menu, you will be prompted to select the fields and then press Cal to complete the calibration. After completing the calibration, the message line at the bottom of the screen will display "Calibrating Channel..." and then "Saving Configuration...".

Calibrating in Salinity

Place the sensor into a salinity calibration solution. The solution must cover the holes of the conductivity sensor that are closest to the cable. Ensure the entire conductivity sensor is submerged in the solution or the instrument will read approximately of half the expected value!



Select **SAL ppt** or **SAL PSU** and press enter.



Highlight **Calibration value** and press enter to input the value of the calibration standard. Then, once the temperature and conductivity readings stabilize, highlight **Accept Calibration** and press enter. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled, you will be prompted to select the fields and then press Cal to complete the calibration.

pH

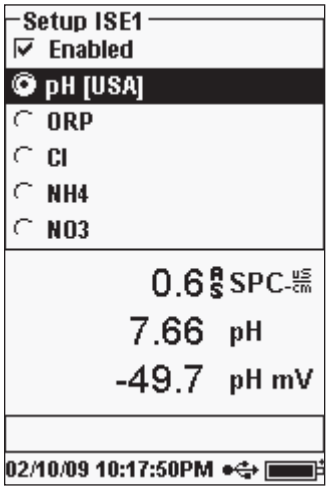
pH sensors can be used on 60510-X, 6051020-X, 6051030-X, 6051010-X, and Quatro cables.

If using a 605103 pH/ORP combination sensor on a 6051020 or 6051030 cable you can report both pH and ORP by configuring ISE1 as pH and ISE2 as ORP in the Sensor Setup menu.

The 605103 pH/ORP combination sensor is not recommended for use on a 6051010 or Quatro cable. If used on one of these cable, only pH will be reported and ORP will not be measured.

SETUP - pH

Press Sensor, highlight **Setup**, press enter. Highlight **ISE1** if using a 60510, 6051020, or 6051030 cable. If using a 6051010 or Quatro cable, highlight **ISE1** if the pH sensor is installed in port 1 or highlight **ISE2** if the pH sensor is installed in port 2(a sensor must be installed in port 1 for port 2 to operate). Press enter.



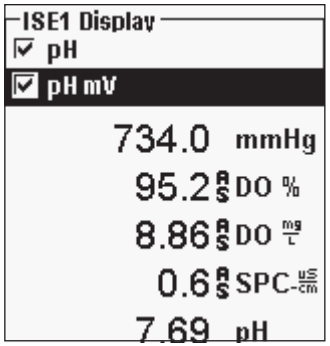
Enabled allows you to enable or disable the ISE function and select which ISE sensor is installed on the cable. Highlight **Enabled** and press enter to enable (☑) or disable (☐) the ISE you selected previously (either ISE1 or ISE2). Disable the ISE function(s) if you do not have a ISE sensor connected to the instrument.

After enabling the ISE function, ensure that it is set to pH as shown in the left screen shot. If necessary, highlight pH and press enter to set the ISE to pH.

Highlighting **pH[USA]** and pressing enter will also allow you to select the values for auto buffer recognition which are used during calibration. The buffer options are **USA** (4, 7, 10), **NIST** (4.01, 6.86, 9.18), and **User-Defined**. The selected option will be displayed in [brackets].

> ⓘ *If a sensor is Enabled that isn't connected to the instrument, the display will show an unstable false reading, ?????, or ----- next to the units.*

DISPLAY - pH



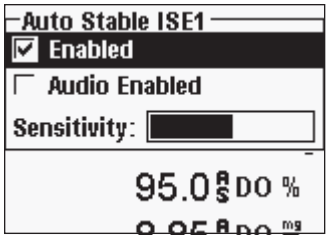
Press Sensor, highlight **Display** and press enter.

Highlight **ISE (pH)** and press enter. You will not be able to **Display** the sensor unless it is **Enabled** in the Sensor Setup menu.

Highlight **pH** and/or **pH mV**, press enter to enable (☑) or disable (☐). Both can be reported at the same time.

AUTO STABLE - pH

Press Sensor, highlight **Auto Stable** and press enter. Highlight **ISE (pH)** and press enter.

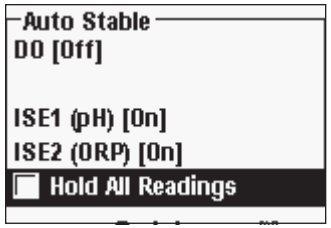


Auto Stable indicates when a reading is stable. Highlight **Enabled** and/or **Audio Enabled** (instrument will beep when the stability is achieved) and press enter enable (☑) or disable (☐). When Auto Stable is enabled, **AS** will blink next to the parameter until it is stable. Once the parameter is stable, **AS** will stop blinking.

The Auto Stable **Sensitivity** can be decreased or increased. Highlight **Sensitivity** and use the left and right arrow keys to slide the bar. The more sensitive you make it (larger black bar) the harder it is to achieve stability in a changing environment.

The **Auto Stable** system works by examining the previous 5 readings, computing the percent change in the data and comparing that change against a % threshold value. The % threshold value is determined by the **Sensitivity** bar setting. The following chart can be used as a guide when setting the Sensitivity bar.

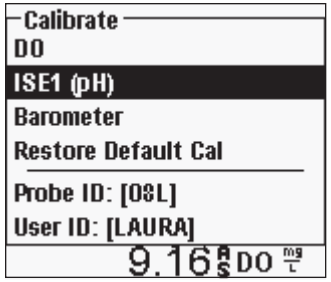
Sensitivity selected by User	*% Data Variance Threshold*
100 - Most Sensitive, Sensitivity bar is set to the far right	0.025%
75	0.39375%
50	1.5%
25	1.13125%
0 - Least Sensitive, Sensitivity bar is set to the far left	0.15%



Within the Auto Stable menu, you can also choose to **Hold All Readings** for as many parameters as you set for Auto Stable. For instance, if ORP and pH have Auto Stable enabled and Hold All Readings is enabled, then the display will hold the readings once ORP and pH have both reached their Auto Stable settings. You must press the **Esc** key to "release" the held display in order to take subsequent readings. **Hold All Readings** must be reactivated after each use!

CALIBRATION - pH

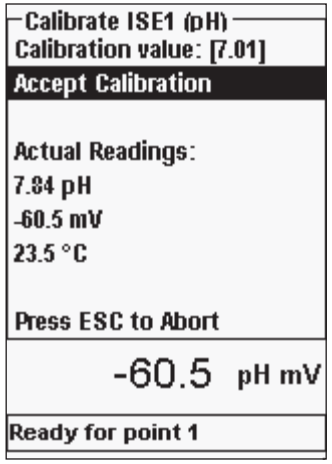
> *Calibration can be accomplished in any buffer order. pH 7 buffer should be used regardless of how many calibration points you use but it does not have to be used first.*



Press Cal . Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. User ID will appear automatically. Select 'None' if you do not want a User ID stored with the calibration. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting your User ID and/or Probe ID if appropriate, highlight **ISE (pH)** and press enter. The message line will show the instrument is "Ready for point 1". The pH calibration allows up to six calibration points.

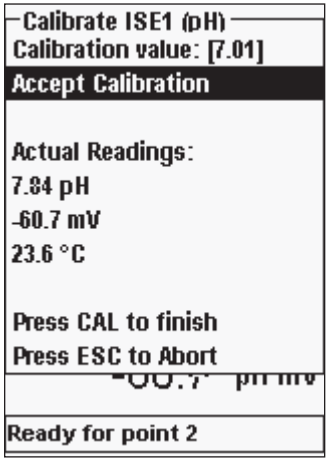
Place the sensor in a traceable pH buffer solution. The instrument should automatically recognize the buffer value and display it at the top of the calibration screen. If the calibration value is incorrect, the auto buffer recognition setting



in the Sensor Setup menu may be incorrect. If necessary, highlight the **Calibration Value** and press enter to input the correct buffer value.

Once the pH and temperature readings stabilize, highlight **Accept Calibration** and press enter to accept the first calibration point. The message line will then display "Ready for point 2".

If you do not wish to perform a second point, press Cal to finalize the calibration. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled, you will be prompted to select these fields and then press Cal to finalize the calibration.



To continue with the 2nd point, place the sensor in the second buffer solution. The instrument should automatically recognize the second buffer value and display it at the top of the screen. If necessary, highlight the **Calibration Value** and press enter to input the correct buffer value. Once the pH and temperature readings stabilize, highlight **Accept Calibration** and press enter to confirm the second calibration point. The message line will then display 'Ready for point 3" and you can continue with the 3rd calibration point if desired.

If you do not wish to perform a 3rd calibration point, press Cal to complete the calibration. If User Field 1 or 2 are enabled, you will be prompted to select these fields and then press Cal to finalize the calibration.

Continue in this fashion until the desired number of calibration points is achieved (up to six).

> *Once you've achieved the desired number of cal points you must press* Cal *to finalize the calibration and to allow the instrument to update the pH offset and slope. The instrument will not take these cal values into account until Cal has been pressed.*

> *The actual readings displayed during the calibration will NOT reflect the updated calibration information. These values will not change until Cal is pressed to finalize the calibration and to update the instrument.*

ORP

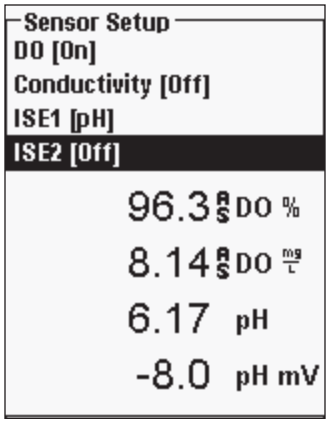
ORP sensors can be used on 60510-X, 6051020-X, 6051030-X, 6051010-X, and Quatro cables.

If using a 605103 pH/ORP combination sensor on a 6051020 or 6051030 cable you can report both pH and ORP by configuring ISE1 as pH and ISE2 as ORP in the Sensor Setup menu.

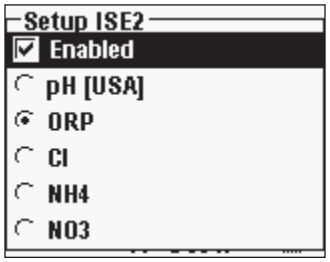
The 605103 pH/ORP combination sensor is not recommended for use on a 6051010 or Quatro cable. If used on one of these cable, only pH will be reported and ORP will not be measured.

SETUP - ORP

Press Sensor, highlight **Setup**, press enter.



Highlight **ISE1** if using a 605102 (ORP sensor) on a 60510, 6051020, or 6051030 cable. Highlight **ISE2** is using a 605103 (pH/ORP sensor) on a 60510, 6051020, or 6051030 cable. If using a 6051010 or Quatro cable, highlight **ISE1** if the ORP sensor is installed in port 1 or highlight **ISE2** if the ORP sensor is installed in port 2 (a sensor must be installed in port 1 for port 2 to operate). Press enter.

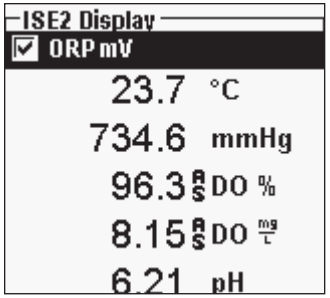


Enabled allows you to enable or disable the ISE function and select which ISE sensor is installed on the cable. Highlight **Enabled** and press enter to enable (☑) or disable (☐) the ISE you selected previously (either ISE1 or ISE2).

After enabling the ISE function, ensure ORP is selected as the ISE sensor as shown in screen shot to the left. If necessary, highlight ORP and press enter to set the selected ISE to ORP.

> *If a sensor is Enabled that isn't connected to the instrument, the display will show an unstable false reading, ?????, or ----- next to the units.*

DISPLAY - ORP

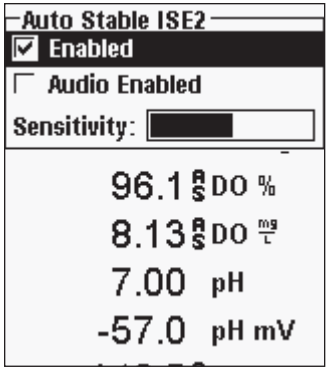


Press Sensor, highlight **Display** and press enter.

Highlight **ISE (ORP)** and press enter. You will not be able to **Display** the sensor unless it is **Enabled** in the Sensor Setup menu.

Press enter to enable (☑) or disable (☐) **ORP mV.**

AUTO STABLE - ORP



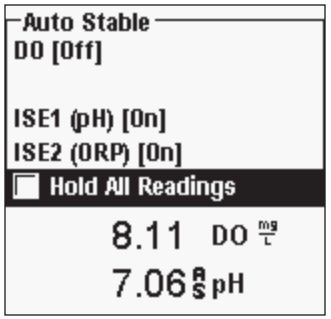
Press Sensor, highlight **Auto Stable** and press enter. Highlight **ISE (ORP)** and press enter.

Auto Stable indicates when a reading is stable. Highlight **Enabled** and/or **Audio Enabled** (instrument will beep when the stability is achieved) and press enter enable (☑) or disable (☐). When Auto Stable is enabled, **AS** will blink next to the parameter until it is stable. Once the parameter is stable, **AS** will stop blinking.

The Auto Stable **Sensitivity** can be decreased or increased. Highlight **Sensitivity** and use the left and right arrow keys to slide the bar. The more sensitive you make it (larger black bar) the harder it is to achieve stability in a changing environment.

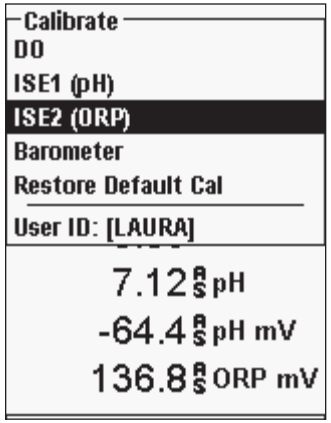
The **Auto Stable** system works by examining the previous 5 readings, computing the percent change in the data and comparing that change against a % threshold value. The % threshold value is determined by the **Sensitivity** bar setting. The following chart can be used as a guide when setting the Sensitivity bar.

Sensitivity selected by User	*% Data Variance Threshold*
100 - Most Sensitive, Sensitivity bar is set to the far right	0.05%
75	0.62525%
50	1.275%
25	1.8875%
0 - Least Sensitive, Sensitivity bar is set to the far left	2.5%



Within the Auto Stable menu, you can also choose to **Hold All Readings** for as many parameters as you set for Auto Stable. For instance, if ORP and pH have Auto Stable enabled and Hold All Readings is enabled, then the display will hold the readings once ORP and pH have both reached their Auto Stable settings. You must press the **Esc** key to "release" the held display in order to take subsequent readings. **Hold All Readings** must be reactivated after each use!

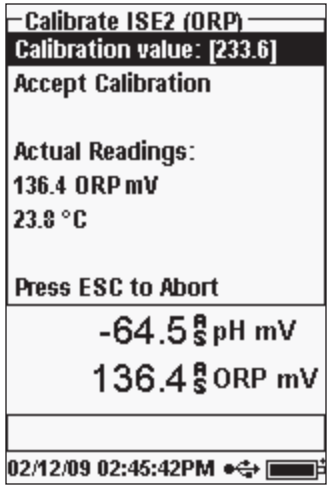
CALIBRATION - ORP



Press Cal . Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. User ID will appear automatically. Select 'None' if you do not want a User ID stored with the calibration. When enabled, these IDs are stored with each calibration record in the GLP file.

After selecting your User ID and/or Probe ID if appropriate, highlight **ISE (ORP)** and press enter. The message line will show the instrument is "Ready for point".

Place the sensor in a solution of known ORP and wait for the readings to stabilize.



Highlight **Calibration value** and press enter to input the value of the ORP calibration standard. If using the YSI Zobell calibration solution, the Pro Plus will automatically determine the calibration value. However, the calibration value should be verified against the chart on the side of the Zobell bottle. Next, once the temperature and ORP readings stabilize, highlight **Accept Calibration** and press enter to calibrate. Or, press Esc to cancel the calibration. If User Field 1 or 2 are enabled, you will be prompted to select the fields and then press Cal to complete the calibration.

AMMONIUM, NITRATE, CHLORIDE

Ammonium, Nitrate, and Chloride sensors can be used on 60510-X, 6051020-X, 6051030-X, 6051010-X, and Quatro cables. These cables also accommodate pH and ORP sensors so instrument setup is important.

> **WARNING**: *Ammonium, Nitrate, and Chloride sensors should only be used at DEPTHS OF LESS THAN 55 FEET (17 METERS). Use of the sensors at greater depths is likely to permanently damage the sensor membrane.*

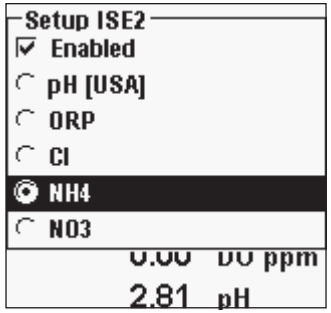
> **WARNING**: *Ammonium, Nitrate, and Chloride sensors should only be used in FRESHWATER.*

SETUP - AMMONIUM, NITRATE, CHLORIDE

Install the Ammonium, Nitrate, or Chloride sensor in Port 2 if using in conjunction with pH or ORP sensor on a 6051010 or Quatro cable. See the **Getting Started Setup** section of this manual for a complete list of cable/sensor configurations.

Press Sensor , highlight **Setup**, press enter. Highlight **ISE1** if using an ammonium, nitrate, or chloride sensor on a 60510, 6051020, or 6051030 cable.

If using a 6051010 or Quatro cable highlight **ISE1** if the sensor is installed in Port 1 or highlight **ISE2** if the sensor is installed in Port 2. Press enter.



Enabled allows you to enable or disable the ISE function and select which ISE sensor is installed on the cable.

Highlight **Enabled** and press enter to enable (☑) or disable (☐) the ISE you selected previously (either ISE1 or ISE2).

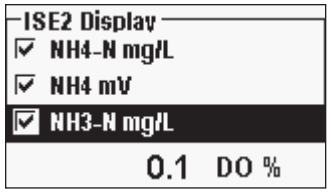
After enabling the ISE function, choose the parameter you want enabled for that ISE. In this example, NH4 is selected.

Cl - Chloride
NH4 - Ammonium
NO3 - Nitrate

> ⓘ *If a sensor is Enabled that isn't connected to the instrument, the display will show an unstable, false reading next to the units.*

DISPLAY - AMMONIUM, NITRATE, CHLORIDE

Press Sensor, highlight **Display**, press enter. Highlight **ISE2(NH4)**, press enter. You will not be able to **Display** the sensor unless it is **Enabled**.



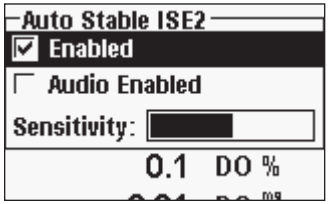
Highlight the value you wish to display and press enter to enable (☑) . Ammonium can be displayed as **NH4-N mg/L** (Ammonium), **NH3-N** (Ammonia) and/or **NH4 mV** (sensor signal).

The same steps would be followed to display nitrate or chloride.

Ammonia is calculated from the pH, salinity, and temperature readings. If a pH sensor is not in use, the instrument will assume the sample is neutral (pH 7) for the calculation. If a conductivity sensor (Salinity) is not in use, the instrument will use the salinity correction value entered in the Sensor Menu for the calculation (see Salinity Correction within the Dissolved Oxygen Setup section of this manual for more information).

AUTO STABLE - AMMONIUM, NITRATE, CHLORIDE

Auto Stable indicates when a reading is stable. When Auto Stable is enabled, **AS** will blink next to the parameter until it is stable. Once the parameter is stable, **AS** will stop blinking.

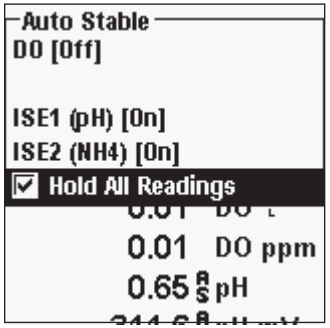


To enable Auto Stable, press Sensor, highlight **Auto Stable** and press enter. Highlight **ISE1** or **ISE2** and press enter.

Highlight **Enabled** and/or **Audio Enabled** (instrument will beep when the stability is achieved) and press enter to confirm. The Auto Stable **Sensitivity** can be decreased or increased. Highlight **Sensitivity** and use the left and right arrow keys to slide the bar. The more sensitive you make it (larger black bar) the harder it is to achieve stability in a changing environment.

The **Auto Stable** system works by examining the previous 5 readings, computing the percent change in the data and comparing that change against a % threshold value. The % threshold value is determined by the **Sensitivity** bar setting. The following chart can be used as a guide when setting the Sensitivity bar.

Sensitivity selected by User	*% Data Variance Threshold*
100 - Most Sensitive, Sensitivity bar is set to the far right	0.05%
75	0.62525%
50	1.275%
25	1.8875%
0 - Least Sensitive, Sensitivity bar is set to the far left	2.5%



Within the Auto Stable menu, you can also choose to **Hold All Readings** for as many parameters as you set for Auto Stable. For instance, if pH and Ammonium have Auto Stable enabled and Hold All Readings is also enabled, then the display will hold the readings once pH and Ammonium have both reached their Auto Stable settings. You must press the **Esc** key to "release" the held display in order to take subsequent readings. **Hold All Readings** must be reactivated after each use!

CALIBRATION - AMMONIUM, NITRATE, CHLORIDE

The 6051030 ISE/conductivity cable has a specialized calibration container that resembles a large test tube. This calibration chamber can be used to calibrate the ISE sensors with the conductivity sensor. A ring-stand should be used to support this chamber.

> *The ISE sensors can be calibrated at 1, 2, or 3-points.*
> **A 2-point calibration without chilling a third calibration solution is extremely accurate and is the preferred method.**
> *Greatest accuracy is achieved if the actual samples to be measured are within 10 ˚C of the calibration solutions.*

CALIBRATION TIP: Exposure to the high ionic content of pH buffers can cause a significant, but temporary, drift in the ammonium, nitrate, and chloride ISE sensors. Therefore, when calibrating the pH sensor, YSI recommends that you use one of the following methods to minimize errors in the subsequent readings:

- When calibrating pH, remove ISE sensors from the cable bulkhead and plug the ports. After pH calibration is complete, replace the ISE sensors and proceed with their calibration with no stabilization delay.

- Calibrate pH first, immersing all of the sensors in the pH buffers. After calibrating pH, place the sensors in 100 mg/L nitrate or ammonium standard or 1000 mg/L chloride standard depending on the sensor in use and monitor the reading. Usually, the reading starts low and may take awhile to reach a stable value. When it does, proceed with the calibration. This may take several hours.

Preparing Chloride Standards

The following recipes are provided for preparation of 10 and 1000 mg/L chloride reagents. Nitrate and Ammonium standards can be purchased from YSI or other laboratory supply companies.

It is important to note that some of the chemicals required for these solutions could be hazardous under some conditions. It is the responsibility of the user to obtain and study the MSDS for each chemical and to follow the required instructions with regard to handling and disposal of these chemicals.

You will need: Solid sodium chloride or a certified 1000 mg/L chloride solution from a supplier, magnesium sulfate, high purity water, a good quality analytical

balance, 1000 mL volumetric flask, an accurate 10 mL measuring devices, and 1000 mL glass or plastic storage vessels.

1000 mg/L Standard: Accurately weigh 1.655 grams of anhydrous sodium chloride and transfer into a 1000 mL volumetric flask. Add 0.5 grams of anhydrous magnesium sulfate to the flask. Add 500 mL of water to the flask, swirl to dissolve all of the reagents , and then dilute to the volumetric mark with water. Mix well by repeated inversion and then transfer the 1000 mg/L standard to a storage bottle. Rinse the flask extensively with water prior to its use in the preparation of the 10 mg/L standard. Alternatively, simply add 0.5 grams of magnesium sulfate to a liter of a 1000 mg/L chloride standard from a certified supplier.

10 mg/L Standard: Accurately measure 10 mL of the above 1000 mg/L standard solution into a 1000 mL volumetric flask. Add 0.5 grams of anhydrous magnesium sulfate to the flask. Add 500 mL of water, swirl to dissolve the solid reagents, and then dilute to the volumetric mark with water. Mix well by repeated inversion and then transfer the 10 mg/L standard to a storage bottle.

AMMONIUM (NH4+) , NITRATE (NO3-), AND CHLORIDE CL- 2-POINT

The calibration procedures for ammonium, nitrate, or chloride are similar to pH. The only differences are the calibration solutions. Recommended values for calibration solutions and the order of calibration are as follows:

Sensor	*1st Point*	*2nd Point*
Ammonium-nitrogen (NH4-N)	1 mg/L	100 mg/L
Nitrate-nitrogen (NO3-N)	1 mg/L	100 mg/L
Chloride (Cl-)	10 mg/L	1000 mg/L

Place the proper amount of 1 mg/L standard for Ammonium or Nitrate (10 mg/l for Chloride) into a clean, dry or pre-rinsed calibration cup. Carefully immerse the sensor into the solution. Allow at least 1 minute for temperature equilibration before proceeding.

Press Cal. Highlight Probe ID or User ID if you wish to add, select, edit, or delete an ID. Probe ID must be enabled in the System GLP menu to appear in the Calibrate menu. User ID will appear automatically. Select 'None' if you do not want a User ID stored with the calibration. When enabled, these IDs are stored with each calibration record in the GLP file.

```
Calibrate ISE2 (NH4)
Calibration value: [10.00]
Accept Calibration
Salinity: [0.00 SAL ppt]

Actual Readings:
+++++ NH4-N mg/L
312.3 mV
18.9 °C
```

After selecting your User ID and/or Probe ID if appropriate, highlight **Ammonium**, **Nitrate**, or **Chloride** to access the appropriate calibration, and press enter. The parameter you want to calibrate may appear under ISE1 or ISE2 depending on your cable type and setup. The message line will show the instrument is ready for the 1st calibration point.

The instrument will display the calibration value at the top of the screen. If necessary, highlight the **Calibration value** and press enter to input the correct value.

Once the readings stabilize, highlight **Accept Calibration** and press enter to accept the first calibration point. The message line will then display "Ready for point 2".

If you do not wish to perform a second point, press Cal to finalize the calibration. If User Field 1 or 2 are enabled, you will be prompted to select these fields and then press Cal to finalize the calibration. Alternatively, you may press Esc to cancel the calibration.

To continue with the 2nd point, rinse the sensor with clean water, then dry it before placing it in the second calibration standard. Allow at least 1 minute for temperature equilibration before proceeding. The instrument will display the second calibration value at the top of the screen. If necessary, highlight the **Calibration value** and press enter to input the correct buffer value. Once the readings stabilize, highlight **Accept Calibration** and press enter to confirm the second calibration point. The message line will then display "Ready for point 3" and you can continue with the 3rd calibration point if desired.

If you do not wish to perform a 3rd calibration point, press Cal to complete the calibration. If User Field 1 or 2 are enabled, you will be prompted to select these fields and then press Cal to finalize the calibration. Alternatively, you may press Esc to cancel the calibration.

AMMONIUM (NH4+) , NITRATE (NO3-), AND CHLORIDE CL- 3-POINT

A 2-point calibration without chilling a third calibration solution is extremely accurate and is the preferred method. If you must perform a 3-point calibration, the following procedure requires one portion of the high concentration calibration solution and two portions of the low concentration calibration solution. The

high concentration solution and one of the low concentration solutions should be at ambient temperature. The other low concentration solution should be chilled to less than 10 °C prior to calibration.

> ⚠ **WARNING**: *The chilled calibration solution MUST BE CHILLED TO AT LEAST 5 °C COOLER THAN THE 1ST CALIBRATION POINT, otherwise the 1st point will be OVERRIDDEN.*

Follow the procedure for a 2-point cal. After the second calibration point is complete, the message line with state 'Ready for point 3". Place the proper amount of chilled 1 mg/L standard (10 mg/L for the chloride) into a clean, dry or pre-rinsed calibration cup. Carefully immerse the sensor into the solution. Allow for temperature equilibration. If necessary, highlight **Calibration value** and press enter to manually enter the 3rd buffer value. Once the readings are stable, highlight **Accept Calibration** and press enter to confirm. Press Cal to complete the calibration. If User Field 1 or 2 are enabled, you will be prompted to select these fields and then press Cal to finalize the calibration. Alternatively, press Esc to cancel the calibration.

TAKING MEASUREMENTS

To obtain the most accurate readings, be sure the instrument is calibrated before taking measurements.

DISSOLVED OXYGEN

Turn the instrument on and wait 5-15 minutes if using a polarographic sensor. If using a field cable/sensor, install the sensor guard to protect the sensor and membrane. Place the probe in the sample to be measured and give the probe a quick shake to release any air bubbles. Allow the temperature readings to stabilize. Next, stir the probe in the sample to overcome the stirring dependence of the dissolved oxygen sensor. You must provide at least 3 inches per second for 2.0 PE membranes, 6 inches per second for 1.25 PE membranes, and 12 inches per second for Teflon® membranes. Once the values plateau and stabilize, you may record the measurement and/or log the data set. The dissolved oxygen reading will drop over time if stirring is ceased.

If placing the DO sensor into a stream or fast flowing waters it is best to place it perpendicular to the flow and NOT facing into the flow.

If using the DO sensor in an aeration tank/basin, it is helpful to make sure bubbles do not burst on the membrane since this may cause unstable readings. You should be able to prevent this by pointing the sensor upwards so it's facing

the sky and then twist tying, zip tying, or rubber banding the bulkhead to the cable. Making a simple curve to the cable without bending or breaking the cable will allow you to lower the sensor into the aeration tank while the sensor points skyward so the bubbles are no longer bursting on the membrane surface.

CONDUCTIVITY

The conductivity sensor will provide quick readings as long as the entire sensor is submerged and no air bubbles are trapped in the sensor area. Immerse the probe into the sample so the sensors are completely submerged and then shake the probe to release any air bubbles. Occasional cleaning of the sensor may be necessary to maintain accuracy and increase the responsiveness. To clean the sensor, use the conductivity cleaning brush with a mild detergent.

pH/ORP

pH and ORP readings are typically quick and accurate. However, it may take the sensors a little longer to stabilize if they become coated or fouled. To improve the response time of a sensor, follow the cleaning steps in the Maintenance section of this manual.

AMMONIUM, NITRATE, AND CHLORIDE

These sensors may take a little longer to stabilize if the tips are dirty or fouled. If installed with a pH sensor, always maintain a clean pH sensor for a more rapid sensor stabilization.

These sensors can only be used in freshwater.

LOGGING DATA

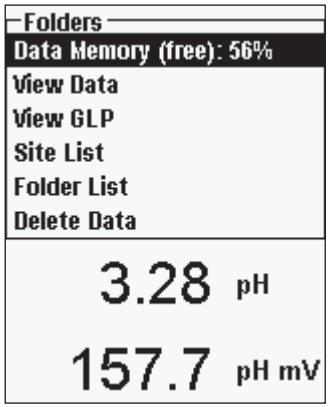
Log One Sample is already highlighted in Run mode. Press enter to open a submenu. If **Use Site List** and or **Use Folder List** are enabled in the Logging Setup menu, you will have to option to select these two items before the data point is logged. If necessary, use the keypad to create a new Site or Folder name. If Site List and Folder List are disabled in the **System** menu, you will not see these options when logging a sample. Once the Site and/or Folder name is selected, highlight **Log Now** and press Enter. The instrument will confirm that the data point was successfully logged.

If you would like to log at a specific interval vs. logging one sample at a time or vice versa, press **System**, then highlight **Logging** and press enter. Select **Continuous Mode** and adjust the time Interval if necessary. On the Run screen, the option to log will change from **Log One Sample** to **Start Logging** based on the time interval entered in the Logging Menu.

During a continuous log, the Start Logging dialog box on the Run screen will change to Stop Logging. Press Enter to stop continuous logging.

FILES AND SITE LISTS

FILE MEMORY

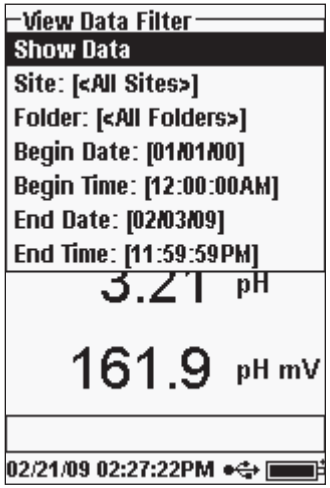


To view the file memory, press **File**.

The **Data Memory** shows a percentage indicating the amount of memory available. If the file memory is near 0%, files should be downloaded to a PC and/or deleted to free up memory.

VIEWING SAVED DATA

Press **File**, highlight **View Data** and press enter.

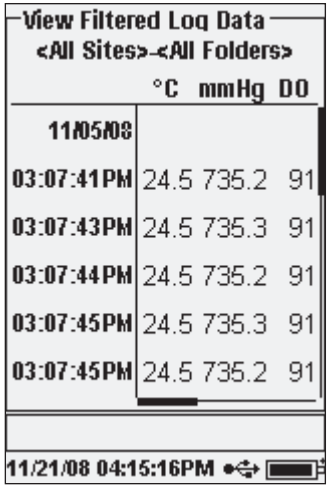


Configuring your data view:

Site: will allow you to view data from one particular site or all sites. Highlight **Site**, press enter, and select the site you wish to view data from or select **All Sites** to view data from all sites.

Folder: will allow you to view data from one particular folder or all folders. Highlight **Folder**, press enter, and select the file you wish to view data from or select **All Folders** to view data from all folders.

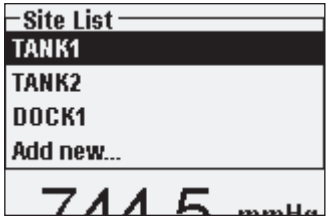
Begin Date, Begin Time, End Date, and **End Time:** will allow you to view data collected between a specific time period. Highlight the



time qualifier you would like to set, press enter, and use the numeric entry screen to select the date/time you wish to view.

After making your selections in the Data Filter, highlight **Show Data** and press enter. The data will have date and time stamps. You will likely have to scroll up and down and side to side using the arrow keys to completely view the data file. No more than 100 data records can be viewed at one time.

SITE LIST



To modify the **Site List**, press **File**, highlight **Site List**, and press enter. Enter new site names or edit existing sites with the alpha/numeric entry screen. Site lists can also be created and edited on your PC with Data Manager and then downloaded to the instrument.

FOLDER

To modify the **Folder List**, press **File**, highlight **Folder List**, and press enter. Enter new Folder names or edit existing folders with the alpha/numeric entry screen.

DELETE DATA

Press **File**, highlight **Delete Data**, and press enter. Enter the criteria for the data you wish to delete in the Delete Data Filter, then highlight **Delete Data** and press enter.

DATA MANAGER DESKTOP SOFTWARE

Data Manager is provided with the purchase of a Pro Plus Instrument. Data Manager is a powerful Windows® based software that will allow you to easily manage logged data, set up instruments, and conduct real time studies.

Minimum PC system requirements for Data Manager are Windows® 2000 with SP4 (minimum) or Windows® XP with SP2 (minimum) Operating System, 300 MHz or higher Pentium®-compatible CPU, 128 MB of RAM or higher, 80 MB or more of free hard-disk space, USB 2.0, and Microsoft® .NET.

Data Manager needs to be installed on a PC before use and before you try to connect a Pro Plus to your PC. First install Data Manger, then connect the communications saddle to the PC and, lastly, connect the saddle to your Pro Plus. Data Manager will identify the connected instruments by their Unit ID.Refer to the Data Manager Readme file for detailed installation instructions. Data Manager will then recognize the attached instruments.

From the 'home' screen of Data Manager, see below, you can select one of the following functions: Retrieve Instrument Data, Real Time Instrument Data, Instrument Configuration, or View Saved File/Data.

USING THE COMMUNICATIONS SADDLE

> ⚠ **WARNING**: *DO NOT connect the Communications Saddle to your PC before installing Data Manager. The Communication Saddle drivers MUST be installed prior to connecting it to your PC. The drivers will install automatically during the Data Manager installation. The first time the saddle is connected to the PC, you may have to walk through a couple of installation wizards. For detailed instruction, please refer to the Readme file located on the CD that was included with your instrument.*

A PC will recognize the Communications Saddle (saddle) as a YSI water quality instrument with or without the Pro Plus installed in the saddle.

To connect the saddle to a Pro Plus, simply align the saddle to the oval section on top of the instrument and push it down to snap it in place (Figure 6).

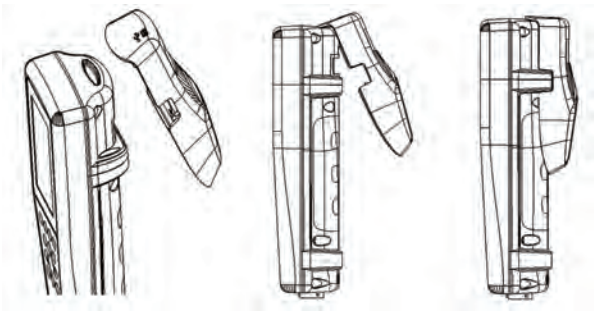


Figure 6. Locate the oval alignment groove at the top of the instrument and inside the saddle. Insert the saddle into this oval groove. Press the saddle towards the back of the instrument until it snaps into place.

Connect the USB cable to the top of the saddle and to a USB port on the PC. Once Data Manager is launched, the program will recognize all saddles with instruments connected to the PC.

The instrument will be powered through the saddle and USB connection when connected to the PC. However, the instrument must still have batteries installed in order to keep the date and time correct when powering the PC off at night. Make sure the instrument is turned off first, then turn off the PC to keep the instrument from running all night on the batteries. If you power it off and power off the PC the instrument will keep the correct date and time if it has batteries installed. If batteries are not installed, the instrument's date and time will not remain correct and will need to be reset each morning.

MANAGE LOGGED DATA

Data that has been logged to the Professional Plus can easily be uploaded to the PC via the provided USB saddle. You can upload sensor data, GLP files, site lists, and instrument configuration files individually or all at once. After connecting the instrument to the PC via the USB saddle and cable and launching Data Manager, click the **Retrieve Instrument Data** tab. Click on the Instrument's Unit ID you would like to retrieve data from, then select the files you would like to retrieve and click Start.

Once the sensor data is uploaded to the PC, you can graph and view tabular data by instrument Unit ID, date/time, site name, and/or folder name. This allows you to configure the report according to your needs. You can choose to view all data from all instruments, or select a certain date/time range for only a few specific instruments, there are multiple ways to view the data. Once the report has been defined, you will be able to print the graph and/or export the table.

Data Manager takes information management one step further and allows you to delete specific points instead of entire files. This allows you to clean up data that is no longer needed or that may have been collected erroneously, for example, when the sensor was out of the water. If you can not delete data due to regulation and compliance purposes, Data Manager has the solution. While viewing logged data or real time data, you have the ability to 'tag' individual data points with comments.

In addition to sensor data, you will be able to view GLP files, site lists, and configuration files that have been uploaded from the instrument. These can be printed and exported as well.

REAL TIME STUDIES

Data Manager allows you to view real time data on the PC.

After selecting your instrument, click the **Real Time Instrument Data** tab. Next, input your sample interval, site/folder name, select the parameters you wish to view and click **OK**. You must click **Start** on the next screen to begin your real time study. Choose to hide the table or graph by unchecking the box next to these options. Click **Stop**, then **Edit Setup** to change the Y-scale min/max of the graph, to select different colors, or to name your graph. Add a comment to a data point by clicking in the comment field of the table next to the data point. You may also **Print** the graph and **Export** the data for viewing in another program.

CONFIGURE INSTRUMENTS

Data Manager allows for easy and quick configuration of single or multiple instruments. Once you have uploaded a site list or configuration file, you can edit it as needed, save it, and download it to other instruments. You no longer need to configure each instrument individually. By using the same configuration file for all instruments, you can rest assured that all instruments will have identical settings.

New site lists and configuration files can be created in Data Manager as well. These lists and files can be downloaded to one or multiple instruments. Save time by creating these files on your PC and downloading them to the instrument as opposed to creating them on the instrument.

CARE, MAINTENANCE, AND STORAGE

This section describes the proper procedures for care, maintenance and storage of the sensors. The goal is to maximize their lifetime and minimize down-time associated with improper sensor usage.

UPDATING INSTRUMENT FIRMWARE

The instrument's firmware can be updated via www.ysi.com. There you will find the new firmware file and instructions on how to update the instrument. There is no need to send the instrument back to the factory for upgrades.

GENERAL MAINTENANCE

GENERAL MAINTENANCE - O-RINGS

The instrument utilizes o-rings as seals to prevent water from entering the battery compartment and sensor ports. Following the recommended procedures will help keep your instrument functioning properly.

If the o-rings and sealing surfaces are not maintained properly, it is possible that water can enter the battery compartment and/or sensor ports of the instrument. If water enters these areas, it can severely damage the battery terminals or sensor ports causing loss of battery power, false readings, and corrosion to the sensors or battery terminals. Therefore, when the battery compartment lid is removed, the o-ring that provides the seal should be carefully inspected for contamination (e.g. debris, grit, etc.) and cleaned if necessary.

The same inspection should be made of the o-rings associated with the sensor connectors when they are removed. If no dirt or damage to the o-rings is evident, then they should be lightly greased without removal from their groove. However, if there is any indication of damage, the o-ring should be replaced with an identical o-ring. At the time of o-ring replacement, the entire o-ring assembly should be cleaned.

To remove the o-rings:
Use a small, flat-bladed screwdriver or similar blunt-tipped tool to remove the o-ring from its groove. Check the o-ring and the groove for any excess grease or contamination. If contamination is evident, clean the o-ring and nearby plastic parts with lens cleaning tissue or equivalent lint-free cloth. Alcohol can be used to clean the plastic parts, but use only water and mild detergent on the o-ring itself. Also, inspect the o-rings for nicks and imperfections.

> ⚠ *Using alcohol on o-rings may cause a loss of elasticity and may promote cracking. Do not use a sharp object to remove the o-rings. Damage to the o-ring or the groove may result.*

Before re-installing the o-rings, make sure to use a clean workspace, clean hands, and avoid contact with anything that may leave fibers on the o-ring or grooves. Even a very small amount of contamination (hair, grit, etc.) may cause a leak.

To re-install the o-rings:
Place a small amount of o-ring grease between your thumb and index finger. (More grease is NOT BETTER!)

Draw the o-ring through the grease while pressing the fingers together to place a very light covering of grease to the o-ring. Place the o-ring into its groove making sure that it does not twist or roll.

Use your grease-coated finger to once again lightly go over the mating surface of the o-ring.

> ⚠ *Do not over-grease the o-rings. The excess grease may collect grit particles that can compromise the seal. Excess grease can also cause the waterproofing capabilities of the o-ring to diminish, potentially causing leaks. If excess grease is present, remove it using a lens cloth or lint-free cloth.*

GENERAL MAINTENANCE - SENSOR PORTS

It is important that the entire sensor connector end be dry when installing, removing or replacing. This will prevent water from entering the port. Once a sensor is removed, examine the connector inside the port. If any moisture is present, use compressed air to completely dry the connector or place directly in front of a steady flow of fresh air. If the connector is corroded, return the cable to your dealer or directly to an YSI Repair Center.

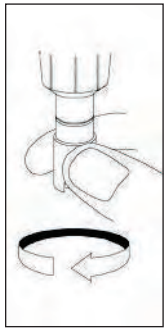
> ⓘ *Remove sensors upside down (facing the ground) to help prevent water from entering the port upon removal.*

SENSOR MAINTENANCE

SENSOR MAINTENANCE - DISSOLVED OXYGEN

Membrane Cap Installation

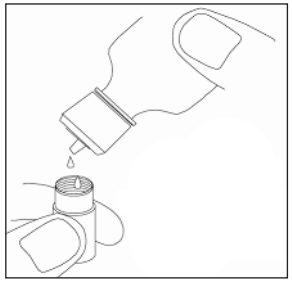
The DO sensor (Polarographic and Galvanic) is shipped with a dry, protective red cap that will need to be removed before using. Remove the protective cap or used membrane cap and replace it with a new membrane cap following these instructions:



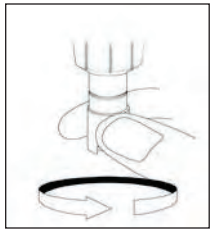
Remove the sensor guard to access the sensor tip.

Unscrew and remove any old membrane cap by holding the sensor when unscrewing the membrane cap and discard.

Thoroughly rinse the sensor tip with distilled or DI water.



Fill a new membrane cap with O2 sensor electrolyte solution that has been prepared according to the directions on the bottle. Be very careful not to touch the membrane surface. Lightly tap the side of the membrane cap to release bubbles that may be trapped.



Thread the membrane cap onto the sensor. It is normal for a small amount of electrolyte to overflow.

Polarographic Sensors - Model # 605203

The KCl (potassium chloride) solution and the membrane cap should be changed at least once every 30 days during regular use. In addition, the KCl solution and membrane should be changed if (a) bubbles are visible under the membrane; (b) significant deposits of dried electrolyte are visible on the membrane; and (c) if the sensor shows unstable readings or other sensor-related symptoms.

During membrane changes, examine the gold cathode at the tip of the sensor and the silver anode along the shaft of the sensor. If either the silver anode is black in color or the gold cathode is dull, the sensor may need resurfaced using the fine sanding disks included in the membrane kit. Do not sand the electrode every membrane change as this is not routine maintenance. In fact, visually, the anode may appear tarnished and operate just fine. YSI recommends using the 400 grit wet/dry sanding disks to resurface the electrodes if the sensor has difficulty stabilizing or calibrating after a membrane change.

To resurface the sensor using the fine sanding disk, follow the instructions below.

Gold Cathode:

For correct sensor operation, the gold cathode must be textured properly. It can become tarnished or plated with silver after extended use. Never use chemicals or abrasives not recommended or supplied by YSI.

First dry the sensor tip completely with lens cleaning tissue. Wet a sanding disk with a small amount of clean water and place it face up in the palm of your hand. Next, with your free hand, hold the sensor in a vertical position, tip down. Place the sensor tip directly down on the sanding disk and twist it in a circular motion to sand the gold cathode. The goal is to sand off any build-up and to lightly scratch the cathode to provide a larger surface area for the O2 solution under the membrane. Usually, 3 to 4 twists of the sanding disk are sufficient to remove deposits and for the gold to appear to have a matte finish. Rinse thoroughly and wipe the gold cathode with a wet paper towel before putting on a new membrane

cap. If the cathode remains tarnished, contact YSI Technical Support or the Authorized dealer where you purchased the instrument.

Silver Anode

After extended use, a thick layer of Silver Chloride (AgCl) builds up on the silver anode reducing the sensitivity of the sensor. The anode must be cleaned to remove this layer and restore proper performance. The cleaning can be chemical or mechanical:

Chemical cleaning: Remove the membrane cap and rinse the electrodes with deionized or distilled water. Soak the sensing anode section of the sensor in a 14% ammonium hydroxide solution for 2 to 3 minutes or in a 3% ammonia solution overnight for 8-12 hours (most household ammonia cleaners are typically around 3%). Rinse heavily in cool tap water followed by a thorough rinsing with distilled or deionized water. The anode should then be thoroughly wiped with a wet paper towel to remove the residual layer from the anode. You can smell the tip of the sensor to help ensure all the ammonia has been rinsed off. Trapping residual ammonia under the new membrane cap can quickly tarnish the electrode and/or give false readings.

> *Chemical cleaning should be performed as infrequently as possible. First attempt a membrane change and recalibrate. If a new membrane does not resolve the problem, then proceed with cleaning.*

Mechanical cleaning: In order to sand the silver anode along the shaft of the sensor, simply hold the sensor in a vertical position. Wet the sanding disk with a small amount of clean water then gently wrap it around the sensor shaft and twist it a few times to lightly sand the anode (the goal is to simply sand off any build-up without scratching or removing layers of the anode itself). Usually, 3 to 4 twists of the sanding disk are sufficient to remove deposits. However, in extreme cases, more sanding may be required to regenerate the original silver surface.

After completing the sanding procedure, repeatedly rinse the electrode with clean water and wipe with lens cleaning tissue to remove any grit left by the sanding disk. Thoroughly rinse the entire tip of the sensor with distilled or deionized water and install a new membrane.

> **IMPORTANT**: *Be sure to: (1) Use only the fine sanding disks provided and (2) Sand as mentioned in the above procedures. Not adhering to either of these instructions can damage the electrodes. If this procedure is unsuccessful, as indicated by improper electrode performance, contact YSI Technical Support or the Authorized dealer where you purchased the instrument.*

Galvanic Sensors – Model # 605202

We recommend that the Sodium Chloride (NaCl) solution and the membrane cap be changed at least once every 60 days during regular use. In addition, the NaCl solution and membrane should be changed if (a) bubbles are visible under the membrane; (b) significant deposits of dried electrolyte are visible around the membrane; and (c) if the sensor shows unstable readings or other sensor-related symptoms.

The Galvanic dissolved oxygen sensor is continuously reducing oxygen even when the display of the instrument is not active. This factor allows the sensor to be used with no warm-up period as soon as the instrument is powered on (instant on DO). However, because the sensor is "on" all the time, some solid from the oxidation of the zinc anode will form in the electrolyte within 1-2 weeks of activation. Small amounts of the solid will generally cause no performance problems, but excessive amounts may result in jumpy dissolved oxygen readings. The rate of solid formation is dependent on the type of membrane installed. The formation of solids based on membrane type typically form more rapidly with the 5912 (1 mil Teflon), less rapid with 5913 (1.25 mil PE), and least rapid with 5914 (2 mil PE).

> *The Galvanic DO sensor solution will appear milky white after use but will NOT affect the accuracy of the sensor unless there is excessive build up. The color change is acceptable and normal as long as DO readings remain stable.*

At the time the membrane cap is changed, YSI recommends that you rinse the anode (silver shaft of the sensor) with purified water and wipe with a clean paper towel. If white deposits are evident on the anode after cleaning, YSI recommends that you remove this material by sanding the anode with the sandpaper disk enclosed in your membrane kit. Follow the "Mechanical Cleaning" instructions under the Polarographic Silver Anode section.

> **IMPORTANT**: *Be sure to: (1) Use only the fine sanding disks provided and (2) Sand as mentioned in the above procedures. Not adhering to either of these instructions can damage the electrodes.*
> **WARNING**: *DO NOT PERFORM THE POLAROGRAPHIC CHEMICAL CLEANING ON A GALVANIC SENSOR. If this procedure is unsuccessful, as indicated by improper electrode performance, contact YSI Technical Support or the Authorized dealer where you purchased the instrument.*

SENSOR MAINTENANCE - CONDUCTIVITY

The openings that allow sample access to the conductivity electrodes should be cleaned regularly. The small cleaning brush included in the Maintenance Kit is ideal for this purpose. Dip the brush in clean water and insert it into each hole 10 to 12 times. In the event that deposits have formed on the electrodes, it may be necessary to use a mild detergent (laboratory grade soap or bathroom foaming tile cleaner) with the brush. Rinse thoroughly with clean water, then check the response and accuracy of the conductivity cell with a calibration standard.

> *If this procedure is unsuccessful, as indicated by improper electrode performance, contact YSI Technical Support or the Authorized dealer where you purchased the instrument.*

SENSOR MAINTENANCE - TEMPERATURE

You must keep the temperature portion of the sensor free of build up. Other than that, the sensor requires no maintenance. The conductivity cleaning brush can be used to scrub the temperature sensor if needed. Alternatively, you can use a toothbrush to clean the sensor.

SENSOR MAINTENANCE - pH, ORP AND COMBINATION pH/ORP

> *Typical working life for pH and ORP sensors is approximately 12-24 months depending on usage, storage, and maintenance. Proper storage and maintenance generally extends the sensor's working life.*

Cleaning is required whenever deposits or contaminants appear on the glass and/or platinum surfaces or when the sensor's response slows. The cleaning can be chemical and/or mechanical.

Removing the sensor from the cable may make cleaning easier. Initially, use clean water and a soft clean cloth, lens cleaning tissue, or cotton swab to remove all foreign material from the glass bulb and/or platinum button. Then use a moistened cotton swab to carefully remove any material that may be blocking the reference electrode junction of the sensor.

> **CAUTION**: *When using a cotton swab, be careful NOT to wedge the swab between the guard and the glass sensor. If necessary, remove cotton from the swab tip, so that the cotton can reach all parts of the sensor tip without stress. You can also use a pipe cleaner for this operation if more convenient.*

If good pH and/or ORP response is not restored, perform the following additional procedure:

1. Soak the sensor for 10-15 minutes in clean water containing a few drops of commercial dishwashing liquid.
2. GENTLY clean the glass bulb and platinum button by rubbing with a cotton swab soaked in the cleaning solution.
3. Rinse the sensor in clean water, wipe with a cotton swab saturated with clean water, and then rerinse with clean water.

If good pH and/or ORP response is still not restored, perform the following additional procedure:

1. Soak the sensor for 30-60 minutes in one molar (1 M) hydrochloric acid (HCl). This reagent can be purchased from most lab supply distributors. Be sure to follow the safety instructions included with the acid.
2. Rinse the sensor in clean water, wipe with a cotton swab saturated with clean water (not DI water), and then rerinse with clean water. To be certain that all traces of the acid are removed from the sensor crevices, soak the sensor in clean water for about an hour with occasional stirring.

If biological contamination of the reference junction is suspected or if good response is not restored by the above procedures, perform the following additional cleaning step:

1. Soak the sensor for approximately 1 hour in a 1:1 dilution of commercially-available chlorine bleach.
2. Rinse the sensor with clean water and then soak for at least 1 hour in clean water with occasional stirring to remove residual bleach from the junction. (If possible, soak the sensor for a period of time longer than 1 hour in order to be certain that all traces of chlorine bleach are removed.) Then rerinse the sensor with clean water and retest.

> *Dry the port and sensor connector with compressed air and apply a very thin coat of o-ring lubricant to all o-rings before reinstallation.*

SENSOR MAINTENANCE - CHLORIDE

> *Typical working life for chloride sensors is approximately 3-6 months depending on usage, storage, and maintenance. Proper storage and maintenance generally extends the sensor's working life.*

The chloride sensor is considered a pellet membrane ISE. As always, when handling sensors, care should be taken to avoid damaging the membrane. This

sensor can be regenerated by washing with alcohol and/or gently polishing with fine emery paper in a circular motion to remove any deposits or discoloration, then thoroughly washing with deionized water to remove any debris. The sensor may require soaking in the high standard chloride calibration solution to recover its performance.

SENSOR MAINTENANCE - AMMONIUM AND NITRATE

> ⓘ *Typical working life for ammonium and nitrate sensors is approximately 3-6 months depending on usage, storage and maintenance. Proper storage and maintenance generally extends the sensor's working life.*

The ammonium and nitrate sensors are PVC membranes. As always, when handling a sensor, care should be taken to avoid damaging the membrane. After extensive use the membranes may become coated with a deposit or scoured with fine scratches which may cause a slow or reduced response (low slope) or unstable readings. Deposits may be removed with a fine jet of deionized water or rinsing in alcohol followed by soaking in the high standard calibration solution. Gently dab dry with a lint-free tissue before taking measurements.

SENSOR STORAGE

SHORT-TERM STORAGE

The cable assembly is supplied with a sensor storage container, or sleeve, that attaches to the cable. The container is used for short-term storage (less than 30 days). Be sure to keep a small amount of moisture (tap water) in the container during storage. This is done to maintain a 100% saturated air environment which is ideal for short-term sensor storage. The sensors should not be submersed in water. The intent is to create a humid air storage environment.

LONG-TERM STORAGE

Long-term Storage - Temperature

No special storage is required. The temperature sensor can be stored dry or wet as long as solutions in contact with the thermistor are not corrosive (for example, chlorine bleach).

Long-term Storage Temperature: -5 to 70°C (23 to 158°F)

Long-term Storage - Conductivity

No special storage is required. Sensors can be stored dry or wet as long as solutions in contact with conductivity electrodes are not corrosive (for example, chlorine bleach). However, it is recommended that the sensor be cleaned with the provided brush prior to and after long term storage.

Long-term Storage Temperature: -5 to 70°C (23 to 158°F)

Long-term Storage - Dissolved Oxygen

Dissolved oxygen sensors (Polarographic and Galvanic) should be stored in a dry state for long term storage First, remove the membrane cap and thoroughly rinse the sensor with clean water. Next, either blow it dry with compressed air or allow to air dry completely. Install a clean, dry new membrane cap over the sensor to keep it dry and to protect the electrodes.

After storing the sensor for a long period of time, it is necessary to "condition" the sensor by putting a new membrane with electrolyte solution on the sensor and then turning the instrument on to allow the sensor sufficient time to stabilize.

Long-term Storage Temperature: -5 to 70°C (23 to 158°F)

Long-term Storage - pH

The key to pH sensor storage, short or long-term, is to make certain that the sensor does not dry out. Sensors which have been allowed to dry out due to improper storage procedures may be irreparably damaged by the dehydration and will require replacement. You can try to rehydrate the sensor by soaking it (preferably overnight) in a potassium chloride solution or a pH 4 buffer before attempting to calibrate.

To store the sensor, remove it from the cable and seal the vacant port with a port plug. Fill the original shipping/storage vessel (plastic boot or bottle) with buffer 4 solution and then submerge the sensor into the solution. The sensor should remain submerged in the solution during the storage period; therefore, make certain that the vessel is sealed to prevent evaporation and periodically check the vessel to ensure the sensor does not dry out.

Long-term Storage Temperature: 0 to 30°C (32 to 86°F)

> ⓘ *It is important not to store the pH sensor in distilled or deionized water as the glass sensor may be damaged by exposure to this medium.*

Long-term Storage - ORP

To store, remove the sensor from the cable and seal the vacant port with the provided plug. Fill the original shipping/storage vessel (plastic boot or bottle) with buffer 4 solution and then submerge the sensor into the solution. The sensor should remain submerged in the solution during the storage period; therefore, make certain that the vessel is sealed to prevent evaporation and periodically check the vessel to ensure the sensor does not dry out.

Long-term Storage Temperature: 0 to 30°C (32 to 86°F)

Long-term Storage - Ammonium, Nitrate, and Chloride

The key to ISE sensor storage, short or long-term, is to make certain that the sensor does not dry out. Sensor junctions that have been allowed to dry out due to improper storage procedures may be irreparably damaged by the dehydration and will require replacement. You can attempt to rehydrate the sensor by soaking it (preferably overnight) in the sensor's high calibration solution before attempting to calibrate.

The recommended storage of these sensors is in moist air. Remove the sensor from the cable and seal the vacant port with the provided plug. Place the sensor in its original shipping storage vessel (plastic boot or bottle) with a small amount of tap water or its high calibration standard. The vessel should remain a saturated air environment. The sensor only needs to be kept in moist air, not submerged. Make certain that the vessel is sealed to prevent evaporation.

Long-term Storage Temperature: 0 to 30°C (32 to 86°F)

TROUBLESHOOTING

Illegal Value may appear during alpha/numeric entry on the message line. This only appears if the values entered do not match the formatting. This will also appear in GLP security area if the password is incorrect.

If you forget the GLP Security Password please contact YSI Tech Support at environmental@ysi.com, 800-897-4151, or +1 937 767-7241.

HELP

During use of the Professional Plus instrument, press **Question** ? from any screen to view help messages directly on the display.

ERROR MESSAGES

If readings for a certain parameter are over range you will see a series of +++++ and if the readings are under range you will see a series of ----- plus the error message along the bottom of the screen. If you see a series of ????? that will indicate that a certain parameter can not be calculated. The following are potential error messages:

Probe Temp over range
Probe Temp under range
Case Temp over range
Case Temp under range
pH over range
pH under range
ORP over range
ORP under range
Cl over range
Cl under range
NH4 over range
NH4 under range
NO3 over range
NO3 under range
DO over range
DO under range
Conductivity over range
Conductivity under range
Barometer over range
Barometer under range

Error messages for the sensors typically indicate a need to properly clean the sensor. First verify the sensor is properly setup in the Sensor menu, then conduct the recommended cleaning and attempt to calibrate the sensor. If this does not work, it may indicate the useful life of the sensor has been reached and may need to be replaced. You may also contact Technical Support to help determine the next step.

DISSOLVED OXYGEN

The dissolved oxygen sensors will use Probe Current (DO uA) and Probe Slope (%/uA) as part of their GLP file records. The following information indicates the acceptable values for each of these readings:

Polarographic DO at 25 °C, 100% saturated air environment at 760 mmHg

- Probe Current
  - 1.25 mil PE membrane
    - Average 6.15 uA (min. 4.31 uA, max. 8.00 uA)
  - 2.0 mil PE membrane
    - Average 3.38 uA (min. 2.37 uA, max. 4.40 uA)
  - 1 mil Teflon® membrane
    - Average 16.29 uA (min. 11.40 uA, max. 21.18 uA)
- Probe Slope
  - 1.25 mil PE membrane
    - Average 16.26 % sat/uA (min. 12.51 uA, max. 23.23 uA)
  - 2.0 mil PE membrane
    - Average 29.56 % sat/uA (min. 22.74 uA, max. 42.23 uA)
  - 1 mil Teflon® membrane
    - Average 6.14 % sat/uA (min. 4.72 uA, max. 8.77 uA)

RESTORE DEFAULT CALIBRATION VALUES

Occasionally, the instrument may need to have the factory calibration default values restored. In order to accomplish this press Calibrate (Cal), highlight **Restore Default Cal** and press enter. Highlight the parameter you wish to restore to default and press enter. Next you will be asked to confirm the operation. Highlight **Yes** and press enter to confirm.

ACCESSORIES / PART NUMBERS

*Cable Part Number**	*Description*
6050000	Professional Plus Instrument
60510-1, -4, -10, -20, or -30	1, 4, 10, 20, or 30-meter cable for ISE/temp
60520-1, -4, -10, -20, or -30**	1, 4, 10, 20, or 30-meter cable for DO/temp
60530-1, 4, -10, -20, or -30	1, 4, 10, 20 or 30-meter cable for Cond/temp
6051010-1, 4, -10, -20, or -30	1, 4, 10, 20, or 30-meter cable for ISE/ISE/temp
6051020-1, -4, -10, -20, or -30	1, 4, 10, 20, or 30-meter cable for ISE/DO/temp
6051030-1, 4, -10, -20, or -30	1, 4, 10, 20, or 30-meter cable for ISE/Cond/temp
6052030-1, -4, -10, -20, or -30	1, 4, 10, 20 or 30-meter cable for DO/Cond/temp
605790-1, -4, -10, -20, or -30	1, 4, 10, 20 or 30-meter Quatro cable for DO/Cond/temp/ISE/ISE
605107	1-meter pH/temp single junction lab-grade combo electrode
605177	4-meter pH/temp single junction lab-grade combo electrode
605108	1-meter ORP/temp single junction lab-grade combo electrode
605178	4-meter ORP/temp single junction lab-grade combo electrode
605109	1-meter pH/ORP/temp single junction lab-grade combo electrode
605179	4-meter pH/ORP/temp single junction lab-grade combo electrode

Sensor Part Number	*Description*
605202	Galvanic DO sensor
605203	Polarographic DO sensor
605101	pH (ISE)
605102	ORP (ISE)
605103***	pH/ORP Combination (ISE)
605104****	Ammonium (ISE)

Sensor Part Number	*Description*
605105****	Chloride (ISE)
605106****	Nitrate (ISE)
605780	Self-Stirring BOD sensor
005560	Conductivity/Temperature sensor for Quatro cable

* All cables include temperature.
Cables with conductivity include sensor
(no need to order separate conductivity sensor).
** Special order cables up to 100-meters are available with 60520 cables.
*** Not compatible with 6051010-X or Quatro cables.
**** Freshwater only

Accessory Part Number	*Description*
603059	Flow cell, standard, 203 mL (for two-port sensors)
603077	Flow cell kit, 1 or 2 port sensor (includes 603059 flow cell for two-port sensors with the 603078 adapter for one-port sensors)
603078	Flow cell adapter, single port (use with 603059 flow cell to accommodate one-port sensors)

Accessory Part Number	*Description*
605990	Flow cell kit for Quatro cable assemblies.
603056	Flow cell mounting spike
605604	Communications saddle kit
605515	Data Manager desktop software
603075	Carrying case, soft-sided
603074	Carrying case, hard-sided
605745	Maintenance kit
038213	Brush, tube cleaner
601205	Grease, o-ring

Accessory Part Number	*Description*
603069	Belt clip
063517	Ultra clamp
063507	Tripod clamp
603062	Cable management kit
605978	Weight, sensor/cable, 4.9 oz.
063019	Weight, sensor/cable, 24 oz., 3”
063020	Weight, sensor/cable, 51 oz., 6”
603070	Shoulder strap

Solutions Part Number	*Description*
3161	1,000 us/cm conductivity solution (quart)
3163	10,000 us/cm conductivity solution (quart)
3169	50,000 us/cm conductivity solution (8 pints)
3682	Zobell ORP solution (125 mL)
3824	pH 4, 7, 10 buffers (2 pints of each)
3841	1 mg/L ammonium solution (500 mL)
3842	10 mg/L ammonium solution (500 mL)
3843	100 mg/L ammonium solution (500 mL)
3885	1 mg/L nitrate solution (500 mL)
3886	10 mg/L nitrate solution (500 mL)
3887	100 mg/L nitrate solution (500 mL)
5580	Confidence Solution (verifies pH, ORP, conductivity sensor performance)

DECLARATION OF CONFORMITY

The undersigned hereby declares on behalf of the named manufacturer under our sole responsibility that the listed product conforms to the requirements for the listed European Council Directive(s) and carries the CE mark accordingly.

Manufacturer:	YSI Incorporated 1725 Brannum Lane Yellow Springs, OH 45387 USA
Product Name:	Professional Plus Water Quality Instrument
Model Numbers	
Instrument/Accessory:	Professional Plus (6050000) / ProComm (605604)
Probe/Cable Assemblies:	605107, 605177, 605108, 605178, 605109, 605179, 605780, 60510, 60520, 60530, 6051010, 6051020, 6051030, 6052030, 605790
Sensors:	605202, 605203, 605780, 605101, 605102, 605103, 605104, 605105, 605106, 005560
Conforms to the following:	
Directives:	EMC 2004/108/EC RoHS 2002/95/EC WEEE 2002/96/EC

Harmonized Standards:	• EN61326-1:2006, Electrical equipment for measurement, control, and laboratory use – EMC requirements – Part 1: General Requirements • EN61326-2-3:2006, Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-3: Particular Requirements – Test configuration, operational conditions, and performance criteria for transducers with integrated or remote signal conditioning. • EN61000-3-2:2006, Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current < 16A per phase). • EN61000-3-3:1995 +A1:2001 +A2:2005, Electromagnetic compatibility (EMC) – Part 3: Limits – Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current < 16A.
Supplementary Information:	All performance met the continuous unmonitored operation criteria as follows: 1. ESD, EN61000-4-2, Performance Criterion B 2. Radiated Immunity, EN61000-4-3, Performance Criterion A 3. EFT, EN61000-4-4, (EFT) Performance Criterion B 4. Surge, EN61000-4-5, Performance Criterion B 5. Conducted Immunity, EN61000-4-6, Performance Criterion A 6. Voltage Interrupts, EN61000-4-11, Performance Criterion B 7. RF Emissions, EN55011:1998, A1:1999 Class B equipment
Authorized EU Representative	YSI Hydrodata Ltd Unit 8, Business Centre West, Avenue 1 Letchworth, Hertfordshire, SG6 2HB UK

Signed: Lisa M. Abel Date: 22 February 2008
Title: Director of Quality

The undersigned hereby declares on behalf of the named manufacturer under our sole responsibility that the listed product conforms to the requirements for electrical equipment under US FCC Part 15 and ICES-003 for unintentional radiators.

Manufacturer:	YSI Incorporated 1725 Brannum Lane Yellow Springs, OH 45387 USA
Product Name:	
Model Numbers	
Instrument/Accessory:	Professional Plus (6050000) / ProComm (605604)
Probe/Cable Assemblies:	605107, 605177, 605108, 605178, 605109, 605179, 605780, 60510, 60520, 60530, 6051010, 6051020, 6051030, 6052030, 605790
Sensors:	605202, 605203, 605780, 605101, 605102, 605103, 605104, 605105, 605106, 005560
Conforms to the following:	
Standards:	• FCC 47 CFR Part 15-2008, Subpart B, Class B, Radio Frequency Devices • ICES-003:2004, Digital Apparatus
Supplementary Information:	Tested using ANSI C63.4-2003 (excluding sections 4.1, 5.2, 5.7, 9, and 14)

Signed: Lisa M. Abel Date: 22 February 2008
Title: Director of Quality

The undersigned hereby declares on behalf of the named manufacturer under our sole responsibility that the listed product conforms with the Australian and New Zealand Electromagnetic Compatibility (EMC) requirements for generic products to be used in residential, commercial, and light industrial environments.

Manufacturer:	YSI Incorporated 1725 Brannum Lane Yellow Springs, OH 45387 USA
Product Name:	Professional Plus Water Quality Instrument
Model Numbers	
Instrument/Accessory:	Professional Plus (6050000) / ProComm (605604)
Probe/Cable Assemblies:	605107, 605177, 605108, 605178, 605109, 605179, 605780, 60510, 60520, 60530, 6051010, 6051020, 6051030, 6052030, 605790
Sensors:	605202, 605203, 605780, 605101, 605102, 605103, 605104, 605105, 605106, 005560
Conforms to the following:	
Standards:	• AS/NZS 4251.1:1999, Electromagnetic Compatibility (EMC) – Generic emission standard – Part 1: Residential, commercial, and light industry.

Signed: Lisa M. Abel Date: 22 February 2008
Title: Director of Quality

RECYCLING

YSI is committed to reducing the environmental footprint in the course of doing business. Even though materials reduction is the ultimate goal, we know there must be a concerted effort to responsibly deal with materials after they've served a long, productive life-cycle. YSI's recycling program ensures that old equipment is processed in an environmentally friendly way, reducing the amount of materials going to landfills.

- Printed Circuit Boards are sent to facilities that process and reclaim as much material for recycling as possible.
- Plastics enter a material recycling process and are not incinerated or sent to landfills.

- Batteries are removed and sent to battery recyclers for dedicated metals.

When the time comes for you to recycle, follow the easy steps outlined at www.ysi.com.

CONTACT INFORMATION

ORDERING AND TECHNICAL SUPPORT

Telephone: 800 897 4151 (US)
+1 937 767 7241 (Globally)
Monday through Friday, 8:00 AM to 5:00 ET

Fax: +1 937 767 9353 (orders)
+1 937 767 1058 (technical support)

Email: environmental@ysi.com or proseries@ysi.com

Mail: YSI Incorporated
1725 Brannum Lane
Yellow Springs, OH 45387 USA

Internet: www.ysi.com

When placing an order please have the following available:
1.) YSI account number (if available)
2.) Name and phone number
3.) Purchase Order or Credit Card
4.) Model Number or brief description
5.) Billing and shipping addresses
6.) Quantity Telephone: 800 897 4151 (US)

SERVICE INFORMATION

YSI has authorized service centers throughout the United States and Internationally. For the nearest service center information, please visit www.ysi.com and click 'Support' or contact YSI Technical Support directly at 800-897-4151.

When returning a product for service, include the Product Return form with cleaning certification. The form must be completely filled out for a YSI Service Center to accept the instrument for service. The form may be downloaded from www.ysi.com by clicking on the 'Support" tab, then the Product Return Form button.

Item # 605596
Rev D
Drawing # A605596
March 2009

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Appendix 8

One-Shot Traceable Conductivity Standard Certificate of Analysis
Temperature Correction Information

CERTIFICATE OF ANALYSIS

Complies with ISO Guide 34, ISO Guide 31, ISO Guide 35, ISO/IEC 17025, ANSI/NCSL Z540-1, and ISO 9001

TRACEABLE® CERTIFIED REFERENCE MATERIAL

ACCREDITED
A2LA Certificate No. 1750.02
Reference Material Producer

Temperature Correction Information 1.954 %

If your conductivity meter allows you to set a temperature coefficient (temperature correction) then the underlined number shown above is the best approximation for this specific analysis for this specific Traceable® Certified Reference Material. For more precise measurements use the chart. Use the chart below only for making absolute measurements. That is, measurements without any automatic temperature correction (temperature coefficient set to 0). The chart below displays derived values.

Using a thermometer, measure the temperature of this certified reference material. Shown on the chart is temperature (in the far left column) in whole degrees. Shown across the top row is temperature in tenths of a degree. Locate the measured temperature in whole numbers on the far left column, and then follow across the row to the temperature in tenths of a degree. At the intersection is the certified reference material value at that specific temperature. Standardize your meter using that value. Example: Measured temperature is 25.0°C. Find 25°C in the far left column, find the row 0.0°C. Where 25°C and 0.0°C intersect, read the value in microsiemens/cm.

Temperature Correction Chart in microsiemens/cm

	0.0°C	0.1°C	0.2°C	0.3°C	0.4°C	0.5°C	0.6°C	0.7°C	0.8°C	0.9°C
15°C	807	809	810	812	814	816	818	820	822	824
16°C	825	827	829	831	833	835	837	839	841	842
17°C	844	846	848	850	852	854	856	858	859	861
18°C	863	865	867	869	871	873	875	877	878	880
19°C	882	884	886	888	890	892	894	896	898	900
20°C	901	903	905	907	909	911	913	915	917	919
21°C	921	923	925	926	928	930	932	934	936	938
22°C	940	942	944	946	948	950	952	954	956	958
23°C	960	961	963	965	967	969	971	973	975	977
24°C	979	981	983	985	987	989	991	993	995	997
25°C	999	1001	1003	1005	1007	1009	1011	1013	1015	1017
26°C	1019	1021	1022	1024	1026	1028	1030	1032	1034	1036
27°C	1038	1040	1042	1044	1046	1048	1050	1052	1054	1056
28°C	1058	1060	1062	1064	1066	1068	1070	1072	1074	1076
29°C	1078	1080	1083	1085	1087	1089	1091	1093	1095	1097
30°C	1099	1101	1103	1105	1107	1109	1111	1113	1115	1117
31°C	1119	1121	1123	1125	1127	1129	1131	1133	1135	1137
32°C	1139	1141	1143	1145	1148	1150	1152	1154	1156	1158
33°C	1160	1162	1164	1166	1168	1170	1172	1174	1176	1178
34°C	1181	1183	1185	1187	1189	1191	1193	1195	1197	1199
35°C	1201	1203	1205	1207	1210	1212	1214	1216	1218	1220

Control Company -- 4455 Rex Road -- Friendswood, TX 77546
Tel: (281) 482 1714 Fax: (281) 482 9448 sales@control3.com www.control3.com

Control Company is an ISO Guide 34:2009 Certified Reference Material (CRM) Producer Accredited by American Association for Laboratory Accreditation (A2LA Certificate No. 1750.02). This certificate fulfils the requirements of ISO Guide 31:2000 (Reference Materials - Contents of Certificates and Labels), ISO Guide 34:2009 "Quality System Guidelines for the Production of Reference Materials", and ISO Guide 35:2006 "Certification of Reference Materials - General and Statistical Principals". Control Company is an ISO 17025:2005 Calibration Laboratory Accredited by American Association for Laboratory Accreditation (A2LA Certificate No. 1750.01). Control Company is ISO 9001:2008 certified by Det Norske Veritas (DNV Certificate No. CERT-01805-2006-AQ-HOU-RvA). TRACEABLE® is a registered trademark of Control 3 Inc.

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ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 8, 2015

Mr. Eric Nestler
Normandeau Associates, Inc.- Bedford
25 Nashua Road
Bedford, NH 03110

Certificate of Analysis

Project Name:	**2015PC-Clam**	Workorder:	**2077511**
Purchase Order:		Workorder ID:	**23674.000**

Dear Mr. Nestler:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, June 17, 2015.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Paul Geoghegan

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

SAMPLE SUMMARY

Workorder: 2077511 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2077511001	HB 17	Water	6/17/2015 07:42	6/17/2015 20:15	Collected by Client
2077511002	HB 2	Water	6/17/2015 08:09	6/17/2015 20:15	Collected by Client
2077511003	HB 7	Water	6/17/2015 08:13	6/17/2015 20:15	Collected by Client
2077511004	HB 21	Water	6/17/2015 08:17	6/17/2015 20:15	Collected by Client
2077511005	HB 13	Water	6/17/2015 08:21	6/17/2015 20:15	Collected by Client
2077511006	HB 11	Water	6/17/2015 08:25	6/17/2015 20:15	Collected by Client
2077511007	HB 25	Water	6/17/2015 08:28	6/17/2015 20:15	Collected by Client
2077511008	HB 19	Water	6/17/2015 08:32	6/17/2015 20:15	Collected by Client
2077511009	B 29	Water	6/17/2015 08:36	6/17/2015 20:15	Collected by Client
2077511010	B 26	Water	6/17/2015 08:41	6/17/2015 20:15	Collected by Client
2077511011	B 23	Water	6/17/2015 08:46	6/17/2015 20:15	Collected by Client
2077511012	HB 29	Water	6/17/2015 08:51	6/17/2015 20:15	Collected by Client
2077511013	HB 27	Water	6/17/2015 08:55	6/17/2015 20:15	Collected by Client
2077511014	HB 6	Water	6/17/2015 08:59	6/17/2015 20:15	Collected by Client
2077511015	HB 20	Water	6/17/2015 09:02	6/17/2015 20:15	Collected by Client
2077511016	HB 5	Water	6/17/2015 09:05	6/17/2015 20:15	Collected by Client
2077511017	HB 18	Water	6/17/2015 09:12	6/17/2015 20:15	Collected by Client
2077511018	HB 4	Water	6/17/2015 09:15	6/17/2015 20:15	Collected by Client
2077511019	HB 3	Water	6/17/2015 09:19	6/17/2015 20:15	Collected by Client
2077511020	HB 1	Water	6/17/2015 09:22	6/17/2015 20:15	Collected by Client
2077511021	HB 12	Water	6/17/2015 09:25	6/17/2015 20:15	Collected by Client
2077511022	HB 9	Water	6/17/2015 09:28	6/17/2015 20:15	Collected by Client
2077511023	HB 28	Water	6/17/2015 09:39	6/17/2015 20:15	Collected by Client
2077511024	B 9	Water	6/17/2015 09:44	6/17/2015 20:15	Collected by Client
2077511025	B 10	Water	6/17/2015 09:48	6/17/2015 20:15	Collected by Client
2077511026	B 4	Water	6/17/2015 09:54	6/17/2015 20:15	Collected by Client
2077511027	B 6	Water	6/17/2015 09:58	6/17/2015 20:15	Collected by Client
2077511028	B 30	Water	6/17/2015 10:04	6/17/2015 20:15	Collected by Client
2077511029	B 18	Water	6/17/2015 10:07	6/17/2015 20:15	Collected by Client
2077511030	B 19	Water	6/17/2015 10:12	6/17/2015 20:15	Collected by Client
2077511031	B 7	Water	6/17/2015 10:16	6/17/2015 20:15	Collected by Client
2077511032	B 22	Water	6/17/2015 10:19	6/17/2015 20:15	Collected by Client
2077511033	B 28	Water	6/17/2015 10:22	6/17/2015 20:15	Collected by Client
2077511034	B 24	Water	6/17/2015 10:26	6/17/2015 20:15	Collected by Client

SAMPLE SUMMARY

Workorder: 2077511 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2077511035	B 27	Water	6/17/2015 10:30	6/17/2015 20:15	Collected by Client
2077511036	B 2	Water	6/17/2015 10:32	6/17/2015 20:15	Collected by Client
2077511037	B 25	Water	6/17/2015 10:35	6/17/2015 20:15	Collected by Client
2077511038	B 32	Water	6/17/2015 10:38	6/17/2015 20:15	Collected by Client
2077511039	B 14	Water	6/17/2015 10:43	6/17/2015 20:15	Collected by Client
2077511040	B 39	Water	6/17/2015 10:46	6/17/2015 20:15	Collected by Client
2077511041	B 44	Water	6/17/2015 10:50	6/17/2015 20:15	Collected by Client
2077511042	B 46	Water	6/17/2015 10:56	6/17/2015 20:15	Collected by Client
2077511043	B 38	Water	6/17/2015 10:59	6/17/2015 20:15	Collected by Client
2077511044	B 3	Water	6/17/2015 11:03	6/17/2015 20:15	Collected by Client
2077511045	B 45	Water	6/17/2015 11:06	6/17/2015 20:15	Collected by Client
2077511046	B 13	Water	6/17/2015 11:16	6/17/2015 20:15	Collected by Client
2077511047	B 8	Water	6/17/2015 11:19	6/17/2015 20:15	Collected by Client
2077511048	B 5	Water	6/17/2015 11:28	6/17/2015 20:15	Collected by Client
2077511049	B 15	Water	6/17/2015 11:22	6/17/2015 20:15	Collected by Client

SAMPLE SUMMARY

Workorder: 2077511 23674.000

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)

PROJECT SUMMARY

Workorder: 2077511 23674.000

Workorder Comments

See attached subcontracted fecal coliform results from Garden State Laboratories. VLF

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511001** Date Collected: 6/17/2015 07:42 Matrix: Water
Sample ID: **HB 17** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/23/15 13:18	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/24/15 13:39	JWB	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:40	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511002** Date Collected: 6/17/2015 08:09 Matrix: Water
Sample ID: **HB 2** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/23/15 13:23	AMH	A
Total Kjeldahl Nitrogen	0.6J	J	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/24/15 13:39	JWB	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:40	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511003** Date Collected: 6/17/2015 08:13 Matrix: Water
Sample ID: **HB 7** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/23/15 13:24	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/24/15 13:39	JWB	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:43	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511004** Date Collected: 6/17/2015 08:17 Matrix: Water
Sample ID: **HB 21** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.07J	J	mg/L	0.10	0.01	EPA 353.2			6/23/15 13:25	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/24/15 13:39	JWB	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:43	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511005** Date Collected: 6/17/2015 08:21 Matrix: Water
Sample ID: **HB 13** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/23/15 13:26	AMH	A
Total Kjeldahl Nitrogen	1.6		mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.60		mg/L	1.00		Calculation			6/24/15 13:39	JWB	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:45	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511006** Date Collected: 6/17/2015 08:25 Matrix: Water
Sample ID: **HB 11** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.07J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:36	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:45	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511007** Date Collected: 6/17/2015 08:28 Matrix: Water
Sample ID: **HB 25** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.07J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:37	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:48	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511008** Date Collected: 6/17/2015 08:32 Matrix: Water
Sample ID: **HB 19** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.07J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:38	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:48	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511009** Date Collected: 6/17/2015 08:36 Matrix: Water
Sample ID: **B 29** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.09J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:39	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:50	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511010** Date Collected: 6/17/2015 08:41 Matrix: Water
Sample ID: **B 26** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:40	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:50	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511011** Date Collected: 6/17/2015 08:46 Matrix: Water
Sample ID: **B 23** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.09J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 11:41	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:53	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511012** Date Collected: 6/17/2015 08:51 Matrix: Water
Sample ID: **HB 29** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:42	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/18/15	J1H	6/19/15 13:00	NJA	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:53	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511013** Date Collected: 6/17/2015 08:55 Matrix: Water
Sample ID: **HB 27** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:13	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/24/15	J1H	6/25/15 09:46	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:23	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:56	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511014** Date Collected: 6/17/2015 08:59 Matrix: Water
Sample ID: **HB 6** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:50	AMH	A
Total Kjeldahl Nitrogen	1.7		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.80		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 13:56	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511015** Date Collected: 6/17/2015 09:02 Matrix: Water
Sample ID: **HB 20** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:52	AMH	A
Total Kjeldahl Nitrogen	2.2		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.30		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:00	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511016** Date Collected: 6/17/2015 09:05 Matrix: Water
Sample ID: **HB 5** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:53	AMH	A
Total Kjeldahl Nitrogen	1.7		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.80		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:00	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511017** Date Collected: 6/17/2015 09:12 Matrix: Water
Sample ID: **HB 18** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:54	AMH	A
Total Kjeldahl Nitrogen	1.8		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.90		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:03	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511018** Date Collected: 6/17/2015 09:15 Matrix: Water
Sample ID: **HB 4** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:55	AMH	A
Total Kjeldahl Nitrogen	1.8		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.90		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:03	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511019** Date Collected: 6/17/2015 09:19 Matrix: Water
Sample ID: **HB 3** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:56	AMH	A
Total Kjeldahl Nitrogen	1.5		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.60		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:05	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511020** Date Collected: 6/17/2015 09:22 Matrix: Water
Sample ID: **HB 1** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.10		mg/L	0.10	0.01	EPA 353.2			6/25/15 11:57	AMH	A
Total Kjeldahl Nitrogen	1.8		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.90		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:05	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511021** Date Collected: 6/17/2015 09:25 Matrix: Water
Sample ID: **HB 12** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.11	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:16	AMH	A
Total Kjeldahl Nitrogen	2.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.51		mg/L	1.00		Calculation			6/26/15 16:23	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:07	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511022** Date Collected: 6/17/2015 09:28 Matrix: Water
Sample ID: **HB 9** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.11		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:04	AMH	A
Total Kjeldahl Nitrogen	4.3		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	4.41		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:10	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511023** Date Collected: 6/17/2015 09:39 Matrix: Water
Sample ID: **HB 28** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.11		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:05	AMH	A
Total Kjeldahl Nitrogen	2.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.51		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:10	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511024** Date Collected: 6/17/2015 09:44 Matrix: Water
Sample ID: **B 9** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.09J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 12:06	AMH	A
Total Kjeldahl Nitrogen	1.9		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.90		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:13	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511025** Date Collected: 6/17/2015 09:48 Matrix: Water
Sample ID: **B 10** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.08J	J	mg/L	0.10	0.01	EPA 353.2			6/25/15 12:07	AMH	A
Total Kjeldahl Nitrogen	1.5		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.50		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:13	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511026** Date Collected: 6/17/2015 09:54 Matrix: Water
Sample ID: **B 4** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.16		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:08	AMH	A
Total Kjeldahl Nitrogen	1.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	1.56		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:16	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511027** Date Collected: 6/17/2015 09:58 Matrix: Water
Sample ID: **B 6** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.17		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:09	AMH	A
Total Kjeldahl Nitrogen	2.0		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.17		mg/L	1.00		Calculation			6/26/15 15:41	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:16	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511028** Date Collected: 6/17/2015 10:04 Matrix: Water
Sample ID: **B 30** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.19		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:10	AMH	A
Total Kjeldahl Nitrogen	2.2		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.39		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:19	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511029** Date Collected: 6/17/2015 10:07 Matrix: Water
Sample ID: **B 18** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.20	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:19	AMH	A
Total Kjeldahl Nitrogen	2.3		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.50		mg/L	1.00		Calculation			6/26/15 16:23	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:19	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511030** Date Collected: 6/17/2015 10:12 Matrix: Water
Sample ID: **B 19** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.16		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:18	AMH	A
Total Kjeldahl Nitrogen	1.9		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.06		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:22	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511031** Date Collected: 6/17/2015 10:16 Matrix: Water
Sample ID: **B 7** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.16		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:19	AMH	A
Total Kjeldahl Nitrogen	2.3		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.46		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:22	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511032** Date Collected: 6/17/2015 10:19 Matrix: Water
Sample ID: **B 22** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.16		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:20	AMH	A
Total Kjeldahl Nitrogen	2.3		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.46		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:25	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511033** Date Collected: 6/17/2015 10:22 Matrix: Water
Sample ID: **B 28** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.11		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:21	AMH	A
Total Kjeldahl Nitrogen	3.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	3.51		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:25	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511034** Date Collected: 6/17/2015 10:26 Matrix: Water
Sample ID: **B 24** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.25		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:22	AMH	A
Total Kjeldahl Nitrogen	2.5		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.75		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:28	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511035** Date Collected: 6/17/2015 10:30 Matrix: Water
Sample ID: **B 27** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.32		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:23	AMH	A
Total Kjeldahl Nitrogen	3.1	1	mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	3.42		mg/L	1.00		Calculation			6/26/15 15:43	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:28	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511036** Date Collected: 6/17/2015 10:32 Matrix: Water
Sample ID: **B 2** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:44	AMH	A
Total Kjeldahl Nitrogen	2.0		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.33		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:31	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511037** Date Collected: 6/17/2015 10:35 Matrix: Water
Sample ID: **B 25** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:45	AMH	A
Total Kjeldahl Nitrogen	2.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.73		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:31	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511038** Date Collected: 6/17/2015 10:38 Matrix: Water
Sample ID: **B 32** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.32		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:46	AMH	A
Total Kjeldahl Nitrogen	2.5		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.82		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:34	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511039** Date Collected: 6/17/2015 10:43 Matrix: Water
Sample ID: **B 14** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:47	AMH	A
Total Kjeldahl Nitrogen	2.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.73		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:34	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511040** Date Collected: 6/17/2015 10:46 Matrix: Water
Sample ID: **B 39** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:48	AMH	A
Total Kjeldahl Nitrogen	2.5		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	2.83		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:37	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511041** Date Collected: 6/17/2015 10:50 Matrix: Water
Sample ID: **B 44** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:49	AMH	A
Total Kjeldahl Nitrogen	3.4		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	3.73		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:37	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511042** Date Collected: 6/17/2015 10:56 Matrix: Water
Sample ID: **B 46** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.33		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:50	AMH	A
Total Kjeldahl Nitrogen	3.0		mg/L	1.0	0.4	S4500NH3G-11	6/19/15	J1H	6/22/15 14:37	C_W	A
Total Nitrogen	3.33		mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:40	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511043** Date Collected: 6/17/2015 10:59 Matrix: Water
Sample ID: **B 38** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.31	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:22	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:23	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:43	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511044** Date Collected: 6/17/2015 11:03 Matrix: Water
Sample ID: **B 3** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.39		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:58	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:43	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511045** Date Collected: 6/17/2015 11:06 Matrix: Water
Sample ID: **B 45** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.39		mg/L	0.10	0.01	EPA 353.2			6/25/15 12:59	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:46	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511046** Date Collected: 6/17/2015 11:16 Matrix: Water
Sample ID: **B 13** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.38		mg/L	0.10	0.01	EPA 353.2			6/25/15 13:00	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:46	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511047** Date Collected: 6/17/2015 11:19 Matrix: Water
Sample ID: **B 8** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.36		mg/L	0.10	0.01	EPA 353.2			6/25/15 13:01	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:49	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511048** Date Collected: 6/17/2015 11:28 Matrix: Water
Sample ID: **B 5** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.36		mg/L	0.10	0.01	EPA 353.2			6/25/15 13:02	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:49	SUB	B

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ANALYTICAL RESULTS

Workorder: 2077511 23674.000

Lab ID: **2077511049** Date Collected: 6/17/2015 11:22 Matrix: Water
Sample ID: **B 15** Date Received: 6/17/2015 20:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.42		mg/L	0.10	0.01	EPA 353.2			6/25/15 13:03	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/22/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 15:52	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/17/15 14:51	SUB	B

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PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2077511013	2	HB 27	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2077511021	2	HB 12	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2077511029	2	B 18	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2077511035	1	B 27	S4500NH3G-11	Total Kjeldahl Nitrogen
The RPD associated with this sample was recovered at 58%. The RPD is outside method acceptance limits of 10%.				
2077511043	2	B 38	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WCPR/32561 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077511001, 2077511002, 2077511003, 2077511004, 2077511005, 2077511006, 2077511007, 2077511008, 2077511009, 2077511010, 2077511011, 2077511012

METHOD BLANK: 2193603

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2193604

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	101	mg/L	20	20.3	90 - 110	

MATRIX SPIKE SAMPLE: 2193605 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	4.847	mg/L	10	11.207	63.6*	90 - 110	

SAMPLE DUPLICATE: 2193607 ORIGINAL: 2077511003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	-.459	mg/L	-.572	-21.9*	10	

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WCPR/32563 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077511028, 2077511029, 2077511030, 2077511031, 2077511032, 2077511033, 2077511034, 2077511035, 2077511036, 2077511037, 2077511038, 2077511039, 2077511040, 2077511041, 2077511042

MATRIX SPIKE SAMPLE: 2193621 ORIGINAL: 2077511028

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	2.163	mg/L	10	12.094	99.3	90 - 110	

SAMPLE DUPLICATE: 2193622 ORIGINAL: 2077511035

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	3.088	mg/L	1.701	57.9*	10	

SAMPLE DUPLICATE: 2193623 ORIGINAL: 2077511039

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	2.392	mg/L	2.893	19*	10	

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QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WCPR/32591 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077511043, 2077511044

METHOD BLANK: 2194979

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2194980

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	103	mg/L	20	20.5	90 - 110	

MATRIX SPIKE SAMPLE: 2194981 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	.949	mg/L	10	12.221	113*	90 - 110	

SAMPLE DUPLICATE: 2194982 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	5.383	mg/L	5.599	3.93	10	

SAMPLE DUPLICATE: 2194983 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	.988	mg/L	.875	12.1*	10	

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QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WCPR/32592 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077511045, 2077511046, 2077511047, 2077511048, 2077511049

METHOD BLANK: 2194988

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2194989

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	98.4	mg/L	20	19.7	90 - 110	

MATRIX SPIKE SAMPLE: 2194990 ORIGINAL: 2077511045

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	.09	mg/L	10	4.449	43.6*	90 - 110	*

SAMPLE DUPLICATE: 2194991 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	1.021	mg/L	.782	26.5*	10	

SAMPLE DUPLICATE: 2194992 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	7.1	mg/L	7.129	.41	10	

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QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WCPR/32626 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077511013

METHOD BLANK: 2196141

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2196142

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	99.7	mg/L	20	19.9	90 - 110	

SAMPLE DUPLICATE: 2196143 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	.382	mg/L	-.535	-1200*	10	

MATRIX SPIKE SAMPLE: 2196144 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	-.607	mg/L	10	11.652	123*	90 - 110	

SAMPLE DUPLICATE: 2196145 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	3.921	mg/L	3.974	1.34	10	

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QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WETC/155831 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples:

METHOD BLANK: 2195726

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2195728

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2195598 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	8.76	mg/L	8.835	.85	10	

MATRIX SPIKE SAMPLE: 2195599 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	8.76	mg/L	10	18.095	93.4	90 - 110	

METHOD BLANK: 2195730

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

METHOD BLANK: 2195732

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2195734

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WETC/155837 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077511001, 2077511002, 2077511003, 2077511004, 2077511005

METHOD BLANK: 2195761

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2195596 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	0	mg/L	0	NC	10	

MATRIX SPIKE SAMPLE: 2195597 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	0	mg/L	2	1.953	97.7	90 - 110	

SAMPLE DUPLICATE: 2195600 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.022	mg/L	.023	4.44	10	

MATRIX SPIKE SAMPLE: 2195601 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.022	mg/L	2	2.177	108	90 - 110	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

METHOD BLANK: 2195763

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2195765

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WETC/155961 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077511006, 2077511007, 2077511008, 2077511009, 2077511010, 2077511011, 2077511012, 2077511014, 2077511015, 2077511016, 2077511017, 2077511018, 2077511019, 2077511020, 2077511022, 2077511023, 2077511024, 2077511025, 2077511026, 2077511027, 2077511028, 2077511030, 2077511031, 2077511032, 2077511033, 2077511034, 2077511035

METHOD BLANK: 2197017

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197019

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197021

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197023

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197025

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WETC/155962 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077511036, 2077511037, 2077511038, 2077511039, 2077511040, 2077511041, 2077511042, 2077511044, 2077511045, 2077511046, 2077511047, 2077511048, 2077511049

METHOD BLANK: 2197121

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197123

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196914 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.95	mg/L	.951	.11	10	

MATRIX SPIKE SAMPLE: 2196915 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.95	mg/L	2	3.058	105	90 - 110	

METHOD BLANK: 2197125

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

SAMPLE DUPLICATE: 2196916 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	2.895	mg/L	2.865	1.04	10	

MATRIX SPIKE SAMPLE: 2196917 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	2.895	mg/L	10	12.275	93.8	90 - 110	

METHOD BLANK: 2197127

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197129

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

QC Batch: WETC/155969 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077511013, 2077511021, 2077511029, 2077511043

METHOD BLANK: 2197200

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196906 ORIGINAL: 2077511013

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.103	mg/L	.096	7.04	10	

MATRIX SPIKE SAMPLE: 2196907 ORIGINAL: 2077511013

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.103	mg/L	2	2.453	118*	90 - 110	

SAMPLE DUPLICATE: 2196908 ORIGINAL: 2077511021

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.107	mg/L	.103	3.81	10	

MATRIX SPIKE SAMPLE: 2196909 ORIGINAL: 2077511021

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.107	mg/L	2	2.463	118*	90 - 110	

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

SAMPLE DUPLICATE: 2196910 ORIGINAL: 2077511029

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.198	mg/L	.197	.51	10	

MATRIX SPIKE SAMPLE: 2196911 ORIGINAL: 2077511029

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.198	mg/L	2	2.549	118*	90 - 110	

METHOD BLANK: 2197202

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196912 ORIGINAL: 2077511043

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.31	mg/L	.309	.32	10	

MATRIX SPIKE SAMPLE: 2196913 ORIGINAL: 2077511043

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.31	mg/L	2	2.657	117*	90 - 110	

SAMPLE DUPLICATE: 2196918 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.475	mg/L	.479	.84	10	

QUALITY CONTROL DATA

Workorder: 2077511 23674.000

MATRIX SPIKE SAMPLE: 2196919 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.475	mg/L	2	2.819	117*	90 - 110	

SAMPLE DUPLICATE: 2196920 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	.485	1.23	10	

METHOD BLANK: 2197204

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

MATRIX SPIKE SAMPLE: 2196921 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	2	2.82	116*	90 - 110	

METHOD BLANK: 2197206

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

QUALITY CONTROL DATA QUALIFIERS

Workorder: 2077511 23674.000

QUALITY CONTROL PARAMETER QUALIFIERS

Lab ID	#	Sample Type	Analytical Method	Analyte
2194990	1	Matrix Spike	S4500NH3G-11	Total Kjeldahl Nitrogen

The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511001	HB 17	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511002	HB 2	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511003	HB 7	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511004	HB 21	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511005	HB 13	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511006	HB 11	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511007	HB 25	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511008	HB 19	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511009	B 29	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511010	B 26	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511011	B 23	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511012	HB 29	S4500NH3G-11	WCPR/32561	S4500NH3G-11	WETC/155728
2077511014	HB 6	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511015	HB 20	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511016	HB 5	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511017	HB 18	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511018	HB 4	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511019	HB 3	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511020	HB 1	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511021	HB 12	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511022	HB 9	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511023	HB 28	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511024	B 9	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511025	B 10	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511026	B 4	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511027	B 6	S4500NH3G-11	WCPR/32562	S4500NH3G-11	WETC/155836
2077511028	B 30	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511029	B 18	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511030	B 19	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511031	B 7	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511032	B 22	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511033	B 28	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511034	B 24	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511035	B 27	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511036	B 2	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511037	B 25	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511038	B 32	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511039	B 14	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511040	B 39	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511041	B 44	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511042	B 46	S4500NH3G-11	WCPR/32563	S4500NH3G-11	WETC/155836
2077511043	B 38	S4500NH3G-11	WCPR/32591	S4500NH3G-11	WETC/155896
2077511044	B 3	S4500NH3G-11	WCPR/32591	S4500NH3G-11	WETC/155896
2077511045	B 45	S4500NH3G-11	WCPR/32592	S4500NH3G-11	WETC/155896
2077511046	B 13	S4500NH3G-11	WCPR/32592	S4500NH3G-11	WETC/155896
2077511047	B 8	S4500NH3G-11	WCPR/32592	S4500NH3G-11	WETC/155896
2077511048	B 5	S4500NH3G-11	WCPR/32592	S4500NH3G-11	WETC/155896
2077511049	B 15	S4500NH3G-11	WCPR/32592	S4500NH3G-11	WETC/155896
2077511001	HB 17			EPA 353.2	WETC/155837
2077511002	HB 2			EPA 353.2	WETC/155837
2077511003	HB 7			EPA 353.2	WETC/155837
2077511004	HB 21			EPA 353.2	WETC/155837
2077511005	HB 13			EPA 353.2	WETC/155837
2077511013	HB 27	S4500NH3G-11	WCPR/32626	S4500NH3G-11	WETC/155971
2077511001	HB 17			Calculation	WETC/155905
2077511002	HB 2			Calculation	WETC/155905

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511003	HB 7			Calculation	WETC/155905
2077511004	HB 21			Calculation	WETC/155905
2077511005	HB 13			Calculation	WETC/155905
2077511006	HB 11			EPA 353.2	WETC/155961
2077511007	HB 25			EPA 353.2	WETC/155961
2077511008	HB 19			EPA 353.2	WETC/155961
2077511009	B 29			EPA 353.2	WETC/155961
2077511010	B 26			EPA 353.2	WETC/155961
2077511011	B 23			EPA 353.2	WETC/155961
2077511012	HB 29			EPA 353.2	WETC/155961
2077511014	HB 6			EPA 353.2	WETC/155961
2077511015	HB 20			EPA 353.2	WETC/155961
2077511016	HB 5			EPA 353.2	WETC/155961
2077511017	HB 18			EPA 353.2	WETC/155961
2077511018	HB 4			EPA 353.2	WETC/155961
2077511019	HB 3			EPA 353.2	WETC/155961
2077511020	HB 1			EPA 353.2	WETC/155961
2077511022	HB 9			EPA 353.2	WETC/155961
2077511023	HB 28			EPA 353.2	WETC/155961
2077511024	B 9			EPA 353.2	WETC/155961
2077511025	B 10			EPA 353.2	WETC/155961
2077511026	B 4			EPA 353.2	WETC/155961
2077511027	B 6			EPA 353.2	WETC/155961
2077511028	B 30			EPA 353.2	WETC/155961
2077511030	B 19			EPA 353.2	WETC/155961
2077511031	B 7			EPA 353.2	WETC/155961
2077511032	B 22			EPA 353.2	WETC/155961
2077511033	B 28			EPA 353.2	WETC/155961
2077511034	B 24			EPA 353.2	WETC/155961
2077511035	B 27			EPA 353.2	WETC/155961

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511036	B 2			EPA 353.2	WETC/155962
2077511037	B 25			EPA 353.2	WETC/155962
2077511038	B 32			EPA 353.2	WETC/155962
2077511039	B 14			EPA 353.2	WETC/155962
2077511040	B 39			EPA 353.2	WETC/155962
2077511041	B 44			EPA 353.2	WETC/155962
2077511042	B 46			EPA 353.2	WETC/155962
2077511044	B 3			EPA 353.2	WETC/155962
2077511045	B 45			EPA 353.2	WETC/155962
2077511046	B 13			EPA 353.2	WETC/155962
2077511047	B 8			EPA 353.2	WETC/155962
2077511048	B 5			EPA 353.2	WETC/155962
2077511049	B 15			EPA 353.2	WETC/155962
2077511013	HB 27			EPA 353.2	WETC/155969
2077511021	HB 12			EPA 353.2	WETC/155969
2077511029	B 18			EPA 353.2	WETC/155969
2077511043	B 38			EPA 353.2	WETC/155969
2077511006	HB 11			Calculation	WETC/156038
2077511007	HB 25			Calculation	WETC/156038
2077511008	HB 19			Calculation	WETC/156038
2077511009	B 29			Calculation	WETC/156038
2077511010	B 26			Calculation	WETC/156038
2077511011	B 23			Calculation	WETC/156038
2077511012	HB 29			Calculation	WETC/156038
2077511014	HB 6			Calculation	WETC/156038
2077511015	HB 20			Calculation	WETC/156038
2077511016	HB 5			Calculation	WETC/156038
2077511017	HB 18			Calculation	WETC/156038
2077511018	HB 4			Calculation	WETC/156038
2077511019	HB 3			Calculation	WETC/156038

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511020	HB 1			Calculation	WETC/156038
2077511022	HB 9			Calculation	WETC/156038
2077511023	HB 28			Calculation	WETC/156038
2077511024	B 9			Calculation	WETC/156038
2077511025	B 10			Calculation	WETC/156038
2077511026	B 4			Calculation	WETC/156038
2077511027	B 6			Calculation	WETC/156038
2077511028	B 30			Calculation	WETC/156039
2077511030	B 19			Calculation	WETC/156039
2077511031	B 7			Calculation	WETC/156039
2077511032	B 22			Calculation	WETC/156039
2077511033	B 28			Calculation	WETC/156039
2077511034	B 24			Calculation	WETC/156039
2077511035	B 27			Calculation	WETC/156039
2077511036	B 2			Calculation	WETC/156040
2077511037	B 25			Calculation	WETC/156040
2077511038	B 32			Calculation	WETC/156040
2077511039	B 14			Calculation	WETC/156040
2077511040	B 39			Calculation	WETC/156040
2077511041	B 44			Calculation	WETC/156040
2077511042	B 46			Calculation	WETC/156040
2077511044	B 3			Calculation	WETC/156040
2077511045	B 45			Calculation	WETC/156040
2077511046	B 13			Calculation	WETC/156040
2077511047	B 8			Calculation	WETC/156040
2077511048	B 5			Calculation	WETC/156040
2077511049	B 15			Calculation	WETC/156040
2077511013	HB 27	Calculation	WETC/0	Calculation	WETC/0
2077511021	HB 12	Calculation	WETC/0	Calculation	WETC/0

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077511 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077511029	B 18	Calculation	WETC/0	Calculation	WETC/0
2077511043	B 38	Calculation	WETC/0	Calculation	WETC/0

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

VAF

Page 1 of 7

Courier:
Tracking #:

20775 11

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-415330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? X -Y enestler@normandeau.com
Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform							
	***Container Type						PL	PL							
	***Container Size							100mL							
	** Preservative						H2SO4	NaS2O3							
1	HB 17	350617 027	6/17/15	0742			1	1							
2	HB 2	28	6/17/15	0809			1	1							
3	HB 7	29	6/17/15	0813			1	1							
4	HB 21	30	6/17/15	0817			1	1							
5	HB 13	31	6/17/15	0821			1	1							
6	HB 11	32	6/17/15	0825			1	1							
7	HB 25	33	6/17/15	0828			1	1							
8	HB 19	34	6/17/15	0832			1	1							

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

See Subbed out Garden State Lab

LMG 06/18/15 0839

(completed by Sample Receiver)
Performed by: LMG
Cooler Temp: 1
Therm. ID: 791
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	Y N

	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Chris Burnett Normandeau	6/17/15	1200	2	D. Tomlin	6/17	1237
3	D. Tomlin	6/17	1330	4	[illegible]	6/17/15	1.50
5	D. Tomlin	6/17	1800	6	[illegible]	6/17	1820
7	[illegible]	6/17	2015	8	[illegible]	6/17/15	2015
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ]

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG=Amber Glass; CG=Clear Glass, PL=Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 2 of 17

Courier:
Tracking #:

511

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford NH, 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? X -Y enestler@normandeau.com
Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3/ TN	Fecal Coliform								
	***Container Type						PL	PL								
	***Container Size							100mL								
	*** Preservative						H2SO4	NaOH								
	ANALYSES/METHOD REQUESTED															
	Enter Number of Containers Per Analysis															
1	B 29		6/17/15	0836			1	1								
2	B 26			0841			1	1								
3	B 23			0846			1	1								
4	HB 29			0851			1	1								
5	HB 27			0855			1	1								
6	HB 6			0859			1	1								
7	HB 20			0902			1	1								
8	HB 5			0905			1	1								

Recal Subbed out to Garden State Lab Dr

LMG 06/18/15 0839

Receipt Information (completed by Sample Receiver)
Performed By: [illegible]
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	
	Y N	Y N	Y N	Y N	

	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Burnett Normandeau	6/17/15	1200	2 [illegible]	6/17	123
3 [illegible]	6/17	1330	4 [illegible]	6/17/15	1320
5 [illegible]	6/17	1800	6 [illegible]	6/17	1800
7 [illegible]	6/17	2015	8 [illegible]	6/17/15	2015
9			10		

Data Deliverables: X Standard; ☐ CLP-like; ☐ NJ-Reduced; ☐ NJ-Full; ☐ other

SDWA Forms? ⇒ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected in? MD ☐ NJ ☐ NY X PA ☐ Other

EDDs Required? X If yes, format type: Int Excel

DOD Criteria Required?

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

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Page 3 of 17

Courier:

Tracking #:

511

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: Normal-Standard TAT is 10-12 business days. Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? X -Y enestler@normandeau.com
Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform
	***Container Type						PL	PL
	***Container Size							100mL
	Preservative						H_2SO_4	NaS2O3
1	HB 18		6/17/15	0912			1	1
2	HB 4			0915			1	1
3	HB 3			0919			1	1
4	HB 1			0922			1	1
5	HB 12			0925			1	1
6	HB 9			0928			1	1
7	HB 28			0939			1	1
8	B 9			0944			1	1

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

Recall Submitted out to Green Lab

LMG 06/18/15 0839

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Normandeau	6/17/15	1200	2 D. Tanner	6/17	1237
3 D. Tanner	6/17	1317	4 [illegible]	6-17-15	13:20
5 D. Tanner	6/17	1800	6 [illegible]	6/17	1800
7 [illegible]	6/17	2015	8 [illegible]	6/17/15	2015
9			10		

Data Deliverables: X Standard; CLP-like; NJ-Reduced; NJ-Full; (other)

SDWA Forms? yes / yes / yes / yes

State Samples Collected In? MD / NJ / NY X / PA

Other

EDDs Required? X If yes, format type: In Excel

DOD Criteria Required?

Receipt Information (completed by Sample Receiving)
Performed In: LMG
Cooler Temp: 1
Therm. ID: 791
No. of Coolers:
Notes:

Circle appropriate Y or N.
Correct containers? Y
Correct sample volume? Y N
Correct preservation? Y N
Headspace/Volatiles? Y N
Custody seals Present? Y N
(If present) Seals intact? Y N
Received on Ice? Y N
COC/Labels complete/accurate? Y N
Container in good condition? Y N

ALS FIELD SERVICES
Pickup
Labor
Composite Sampling
Rental Equipment
Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

VAF

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

511

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] -Y enestler@normandeau.com
Fax? [ ] -Y No.:

	***Container Type	PL	PL								
	***Container Size		100 mL								
	*** Preservative	H_2SO_4	$NaOH$								

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform							
							Enter Number of Containers Per Analysis								
1	B 10		6/17/15	0948			1	1							
2	B 4			0954			1	1							
3	B 6			0958			1	1							
4	B 30			1004			1	1							
5	B 18			1007			1	1							
6	B 19			1012			1	1							
7	B 7			1016			1	1							
8	B 22			1019			1	1							

Recalls Subbed out to Garden State Lab

LMG 06/18/15 0835

Receipt Information (completed by Sample Receiving)
Performed by: LMG
Cooler Temp: 1
Therm. ID: 191
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	

	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/17/15	1200	2 D. Tauber	6/17	123
3 D. Tauber	6/17	1330	4 D. Tauber	6/17/15	1320
5 D. Tauber	6/17	1800	6	6/17	1800
7	6/17	2015	8	6/17/15	2015
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] new
SDWA Forms? ⇒ yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]
Other
EDDs Required? [X] If yes, format type: In Excel
DOD Criteria Required?

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass; PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

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Courier:
Tracking #:

511

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#:
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] -Y enestler@normandeau.com
Fax? [ ] -Y No.:

	***Container Type	PL	PL								
	***Container Size		100mL								
	*** Preservative	H_2SO_4	$Na_2S_2O_3$								

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Analysis

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform							
1	B 28		6/17/15	1022			1	1							
2	B 24			1026			1	1							
3	B 27			1030			1	1							
4	B 2			1032			1	1							
5	B 25			1035			1	1							
6	B 32			1038			1	1							
7	B 14			1043			1	1							
8	B 39			1046			1	1							

Recals Subbed out to Grande Lab

LMG 06/18/15 0839

Receipt Information (completed by Sample Receiver)
Performed by: LMG
Cooler Temp: 1
Therm. ID: 191
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y N	Y N	Y N	Y N	

	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y N	Y N	Y N	Y N	Y N

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/17/15	1200	2	6/17	1237
3	6/17	1330	4	6-17-15	13:20
5	6/17	1800	6	6/17	1800
7	6/17	2015	8	6/17/15	2015
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other
EDDs Required? [X] If yes, format type: In Excel
DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]
Other

ALS FIELD SERVICES: [ ] Pickup; [ ] Labor; [ ] Composite Sampling; [ ] Rental Equipment; [ ] Other:

* G=Grab; C=Composite
**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

VAF

Page 6 of 7

Courier:

Tracking #:

511.

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y enestler@normandeau.com
Fax? [ ] Y No.:

	***Container Type	PL	PL								
	***Container Size		100mL								
	** Preservative	H_2SO_4	$Na_2S_2O_3$								
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform				
1 B 44		6/17/15	1050			1	1				
2 B 46			1056			1	1				
3 B 38			1059			1	1				
4 B 3			1103			1	1				
5 B 45			1106			1	1				
6 B 13			1116			1	1				
7 B 8			1119			1	1				
8 B 5			1128			1	1				

Enter Number of Containers Per Analysis

Results subbed out to Garden State Lab

Receipt Information (completed by Sample Receiver)
Performed by: [illegible]
Cooler Temp:
Therm. ID: 191
No. of Coolers:
Notes:

	Y	N	Y	N	Y	N	Y	N	Circle appropriate Y or N.
Correct containers?	Y	N	Y	N	Y	N	Y	N	
Correct sample volume?	Y	N	Y	N	Y	N	Y	N	
Correct preservation?	Y	N	Y	N	Y	N	Y	N	
Headspace/Volatiles?	Y	N	Y	N	Y	N	Y	N	
Custody seals Present?	Y	N	Y	N	Y	N	Y	N	
(If present) Seals intact?	Y	N	Y	N	Y	N	Y	N	
Received on ice?	Y	N	Y	N	Y	N	Y	N	
COC/Labels complete/accurate?	Y	N	Y	N	Y	N	Y	N	
Container in good condition?	Y	N	Y	N	Y	N	Y	N	

LMG 06/18/15 0839

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible] Normandeau	6/17/15	1200	2 D. Taylor	6/17	1237
3 D. Taylor	6/17	1334	4 [illegible]	6/17	1320
5 D. Taylor	6/17	1800	6 [illegible]	6/18	1000
7 [illegible]	6/17	2015	8 [illegible]	6/17/15	2015
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup; [ ] Labor; [ ] Composite Sampling; [ ] Rental Equipment; [ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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P. 717-944-5541
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

VAF

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 7 of 7

Courier:

Tracking #:

511

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different from Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

***Container Type	PL	PL																					
***Container Size		100mL																					
*** Preservative	H_2SO_4	$Na_2S_2O_3$																					

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform																
1 B 15		6/17/15	1122			1	1																
2																							
3																							
4																							
5																							
6																							
7																							
8																							

Enter Number of Containers Per Analysis

Recall Subbed out Caden Lab

Side DX

LMG 06/18/15 0839

Receipt Information (completed by Sample Receiving)

Performed by: Whitney

Cooler Temp: 1

Therm. ID: 191

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y	Y	Y	Y	
	N	N	N	N	
	Y	Y	Y	Y	Y

	Custody seals Present?	(if present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Burnett Normandeau	6/17/15	1200	2 D. Tank	6/17	1237
3 D. Tanner	6/17	1330	4 [illegible]	6-17-15	1320
5 D. Tanner	6/17	1800	6 [illegible]	6/17	1800
7 [illegible]	6/17	2015	8 [illegible]	6/17/15	2015
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other

SDWA Forms? → yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

1.9c

Garden State Laboratories, Inc.

Bacteriological and Chemical Testing
410 Hillside Avenue
Hillside, New Jersey 07205

Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

Toll Free 800-273-8901
Telephone 908-688-8900
Fax 908-688-8966
email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617027.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 17 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 07:42

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	38	organisms/100ml		6/17/15-13:40

< = less than, not detected.

Harvey Klein

285736

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Certified by NJ Dept. of Health, NJDEP #20044, NY Dept. of Health #11550 and PADEP #68-03680.

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email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617028.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 2 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:09

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-13:40

< = less than, not detected.

Harvey Klein

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Internet: www.gslabs.com

REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617029.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 7 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:13

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	63	organisms/100ml		6/17/15-13:43

< = less than, not detected.

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REPORT OF ANALYSIS

TO: ALS Life Sciences / Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617030.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 21 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:17

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-13:43

< = less than, not detected.

2857

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617031.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 13 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:21

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	45	organisms/100ml		6/17/15-13:45

< = less than, not detected.

Harvey K

285

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REPORT OF ANALYSIS

REPORT # 350617032.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 11 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:25

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-13:45

< = less than, not detected

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617033.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 25 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:28

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-13:48

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

REPORT # 350617034.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 19 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:32

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-13:48

< = less than, not detected.

Harvey Klein

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Harvey Klein, M.S., Laboratory Director

REPORT OF ANALYSIS

REPORT # 350617035.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 29 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:36

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-13:50

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

REPORT # 350617036.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 26 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:41

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-13:50

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617037.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 23 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:46

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-13:53

< = less than, not detected.

Harvey Klein

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Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

REPORT OF ANALYSIS

REPORT # 350617038.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 29 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:51

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	54	organisms/100ml		6/17/15-13:53

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617039.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 27 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:55

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-13:56

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617040.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 6 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 08:59

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	63	organisms/100ml		6/17/15-13:56

< = less than, not detected.

Harvey Klein

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617041.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 20 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:02

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-14:00

< = less than, not detected.

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REPORT OF ANALYSIS

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617042.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 5 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:05

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:00

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617043.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 18 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:12

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:03

< = less than, not detected.

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email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617044.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 4 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:15

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:03

< = less than, not detected.

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617045.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 3 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:19

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:05

< = less than, not detected.

Harvey Klein
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Certified by NJ Dept. of Health, NJDEP #20044, NY Dept. of Health #11550 and PADEP #68-03680.

Garden State Laboratories, Inc.

Bacteriological and Chemical Testing
410 Hillside Avenue
Hillside, New Jersey 07205

Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

Toll Free 800-273-8901
Telephone 908-688-8900
Fax 908-688-8966
email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617046.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 1 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:22

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:05

< = less than, not detected.

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617047.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 12 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:25

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:07

< = less than, not detected.

Harvey Klein
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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617048.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 9 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:28

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:10

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617049.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 28 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:39

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:10

< = less than, not detected.

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617050.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 9 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:44

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:13

< = less than, not detected.

Harvey Klein

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Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

REPORT OF ANALYSIS

REPORT # 350617051.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 10 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:48

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:13

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617052.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 4 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:54

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:16

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

REPORT # 350617053.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 6 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 09:58

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:16

< = less than, not detected.

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REPORT OF ANALYSIS

REPORT # 350617054.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 30 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:04

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:19

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617055.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 18 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:07

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	36	organisms/100ml		6/17/15-14:19

< = less than, not detected.

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REPORT OF ANALYSIS

REPORT # 350617056.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 19 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:12

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:22

< = less than, not detected.

Harvey Klein

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email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617057.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 7 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:16

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:22

< = less than, not detected.

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617058.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 22 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:19

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:25

< = less than, not detected.

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REPORT OF ANALYSIS

REPORT # 350617059.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 28 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:22

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:25

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617060.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 24 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:26

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:28

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617061.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 27 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:30

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	45	organisms/100ml		6/17/15-14:28

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617062.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 2 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:32

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	99	organisms/100ml		6/17/15-14:31

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

TO: ALS Life Sciences / Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617063.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 25 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:35

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-14:31

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617064.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 32 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:38

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	15	organisms/100ml		6/17/15-14:34

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617065.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 14 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:43

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:34

< = less than, not detected.

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email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350617066.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 39 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:46

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:37

< = less than, not detected.

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Telephone 908-688-8900
Fax 908-688-8966
email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617067.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 44 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:50

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:37

< = less than, not detected.

Harvey Klein

285736

The liability of Garden State Laboratories, Inc. for services rendered shall in no event exceed the amount of the invoice.
Certified by NJ Dept. of Health, NJDEP #20044, NY Dept. of Health #11550 and PADEP #68-03680.

Garden State Laboratories, Inc.

Bacteriological and Chemical Testing
410 Hillside Avenue
Hillside, New Jersey 07205

Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

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REPORT OF ANALYSIS

REPORT # 350617068.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 46 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:56

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	50	organisms/100ml		6/17/15-14:40

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

REPORT # 350617069.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 38 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 10:59

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	54	organisms/100ml		6/17/15-14:43

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617070.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 3 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:03

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:43

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617071.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 45 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:06

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-14:46

< = less than, not detected.

Harvey Klein
285736

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REPORT OF ANALYSIS

REPORT # 350617072.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 13 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:16

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/17/15-14:46

< = less than, not detected.

Harvey Klein
285736

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350617073.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 8 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:19

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/17/15-14:49

< = less than, not detected.

Harvey Klein
285736

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REPORT OF ANALYSIS

REPORT # 350617074.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 5 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:28

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/17/15-14:49

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350617075.0
CLIENT # ALS04
DATE SUBMITTED: 6/17/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B 15 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/17/15 TIME SAMPLED: 11:22

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	<10	organisms/100ml		6/17/15-14:51

< = less than, not detected.

Harvey Klein

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ALS Environmental
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 8, 2015

Mr. Eric Nestler
Normandeau Associates, Inc.- Bedford
25 Nashua Road
Bedford, NH 03110

Certificate of Analysis

Revised Report - 7/8/2015 4:43:29 PM - See workorder comment section for explanation

Project Name:	**2015PC-Clam**	Workorder:	**2077771**
Purchase Order:		Workorder ID:	**23674.000**

Dear Mr. Nestler:

Enclosed are the analytical results for samples received by the laboratory on Thursday, June 18, 2015.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Paul Geoghegan

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

SAMPLE SUMMARY

Workorder: 2077771 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2077771001	HB16	Water	6/18/2015 07:15	6/18/2015 21:30	Collected by Client
2077771002	HB15	Water	6/18/2015 07:18	6/18/2015 21:30	Collected by Client
2077771003	HB22	Water	6/18/2015 07:21	6/18/2015 21:30	Collected by Client
2077771004	HB10	Water	6/18/2015 07:23	6/18/2015 21:30	Collected by Client
2077771005	B17	Water	6/18/2015 07:33	6/18/2015 21:30	Collected by Client
2077771006	HB14	Water	6/18/2015 07:36	6/18/2015 21:30	Collected by Client
2077771007	HB26	Water	6/18/2015 07:39	6/18/2015 21:30	Collected by Client
2077771008	HB23	Water	6/18/2015 07:41	6/18/2015 21:30	Collected by Client
2077771009	HB24	Water	6/18/2015 07:46	6/18/2015 21:30	Collected by Client
2077771010	HB8	Water	6/18/2015 07:49	6/18/2015 21:30	Collected by Client
2077771011	HB30	Water	6/18/2015 08:05	6/18/2015 21:30	Collected by Client

SAMPLE SUMMARY

Workorder: 2077771 23674.000

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)

PROJECT SUMMARY

Workorder: 2077771 23674.000

Workorder Comments

See attached subcontracted fecal coliform results from Garden State Labs. VLF 7/7/15

This report was modified on 7/8/15 to attach subcontrating data. VLF

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771001** Date Collected: 6/18/2015 07:15 Matrix: Water
Sample ID: **HB16** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.48		mg/L	0.10	0.01	EPA 353.2			6/25/15 13:55	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/24/15 09:39	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:08	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771002** Date Collected: 6/18/2015 07:18 Matrix: Water
Sample ID: **HB15** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.48	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:33	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/24/15 09:39	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:24	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:08	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771003** Date Collected: 6/18/2015 07:21 Matrix: Water
Sample ID: **HB22** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.47		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:03	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/24/15 09:39	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:08	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771004** Date Collected: 6/18/2015 07:23 Matrix: Water
Sample ID: **HB10** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.47		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:04	AMH	A
Total Kjeldahl Nitrogen	1J	J	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/24/15 09:39	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:11	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771005** Date Collected: 6/18/2015 07:33 Matrix: Water
Sample ID: **B17** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.50		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:05	AMH	A
Total Kjeldahl Nitrogen	0.8J	J	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/24/15 09:39	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:11	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771006** Date Collected: 6/18/2015 07:36 Matrix: Water
Sample ID: **HB14** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.49		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:06	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:11	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771007** Date Collected: 6/18/2015 07:39 Matrix: Water
Sample ID: **HB26** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.49		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:07	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:14	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771008** Date Collected: 6/18/2015 07:41 Matrix: Water
Sample ID: **HB23** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.49		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:08	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:14	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771009** Date Collected: 6/18/2015 07:46 Matrix: Water
Sample ID: **HB24** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.49		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:09	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:14	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771010** Date Collected: 6/18/2015 07:49 Matrix: Water
Sample ID: **HB8** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.49	2	mg/L	0.10	0.01	EPA 353.2			6/25/15 16:36	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:24	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:17	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
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ANALYTICAL RESULTS

Workorder: 2077771 23674.000

Lab ID: **2077771011** Date Collected: 6/18/2015 08:05 Matrix: Water
Sample ID: **HB30** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	*Cntr*
WET CHEMISTRY											
Nitrate/Nitrite-N	0.46		mg/L	0.10	0.01	EPA 353.2			6/25/15 14:16	AMH	A
Total Kjeldahl Nitrogen	1.0 U	U	mg/L	1.0	0.4	S4500NH3G-11	6/23/15	J1H	6/23/15 10:05	C_W	A
Total Nitrogen	1.00 U	U	mg/L	1.00		Calculation			6/26/15 16:11	KLR	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached					Subcontract			6/18/15 14:17	SUB	A

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2077771002	2	HB15	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				
2077771010	2	HB8	EPA 353.2	Nitrate/Nitrite-N
The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits.				

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

QC Batch: WCPR/32593 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077771001, 2077771002, 2077771003, 2077771004, 2077771005

METHOD BLANK: 2194995

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2194996

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	101	mg/L	20	20.2	90 - 110	

MATRIX SPIKE SAMPLE: 2194997 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	6.961	mg/L	10	16.394	94.3	90 - 110	

SAMPLE DUPLICATE: 2194998 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	-.02	mg/L	-.111	-139*	10	

SAMPLE DUPLICATE: 2194999 ORIGINAL: 2077771001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	.31	mg/L	.424	31.1*	10	

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

QC Batch: WCPR/32594 **Analysis Method:** S4500NH3G-11

QC Batch Method: S4500NH3G-11

Associated Lab Samples: 2077771006, 2077771007, 2077771008, 2077771009, 2077771010, 2077771011

METHOD BLANK: 2195008

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Kjeldahl Nitrogen	1.0 U	mg/L	1.0	

LABORATORY CONTROL SAMPLE: 2195009

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	95.8	mg/L	20	19.2	90 - 110	

SAMPLE DUPLICATE: 2195010 ORIGINAL: 2077771006

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	-.444	mg/L	-.668	-40.3*	10	

MATRIX SPIKE SAMPLE: 2195011 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Kjeldahl Nitrogen	1.067	mg/L	10	9.743	86.8*	90 - 110	

SAMPLE DUPLICATE: 2195012 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Total Kjeldahl Nitrogen	38.524	mg/L	37.696	2.17	10	

QUALITY CONTROL DATA

Workorder: 2077771 23674.000

QC Batch: WETC/155963 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077771001, 2077771003, 2077771004, 2077771005, 2077771006, 2077771007, 2077771008, 2077771009, 2077771011

METHOD BLANK: 2197169

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197171

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

METHOD BLANK: 2197173

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196922 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.562	mg/L	.563	.18	10	

MATRIX SPIKE SAMPLE: 2196923 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.562	mg/L	2	2.612	103	90 - 110	

QUALITY CONTROL DATA

Workorder: 2077771 23674.000

METHOD BLANK: 2197175

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196924 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	.487	.82	10	

MATRIX SPIKE SAMPLE: 2196925 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	2	2.526	102	90 - 110	

METHOD BLANK: 2197177

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196926 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	17.77	mg/L	17.46	1.76	10	

MATRIX SPIKE SAMPLE: 2196927 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	17.77	mg/L	20	36.09	91.6	90 - 110	

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

METHOD BLANK: 2197179

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

QC Batch: WETC/155969 **Analysis Method:** EPA 353.2

QC Batch Method: EPA 353.2

Associated Lab Samples: 2077771002, 2077771010

METHOD BLANK: 2197200

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196906 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.103	mg/L	.096	7.04	10	

MATRIX SPIKE SAMPLE: 2196907 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.103	mg/L	2	2.453	118*	90 - 110	

SAMPLE DUPLICATE: 2196908 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.107	mg/L	.103	3.81	10	

MATRIX SPIKE SAMPLE: 2196909 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.107	mg/L	2	2.463	118*	90 - 110	

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

SAMPLE DUPLICATE: 2196910 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.198	mg/L	.197	.51	10	

MATRIX SPIKE SAMPLE: 2196911 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.198	mg/L	2	2.549	118*	90 - 110	

METHOD BLANK: 2197202

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

SAMPLE DUPLICATE: 2196912 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.31	mg/L	.309	.32	10	

MATRIX SPIKE SAMPLE: 2196913 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.31	mg/L	2	2.657	117*	90 - 110	

SAMPLE DUPLICATE: 2196918 ORIGINAL: 2077771002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.475	mg/L	.479	.84	10	

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QUALITY CONTROL DATA

Workorder: 2077771 23674.000

MATRIX SPIKE SAMPLE: 2196919 ORIGINAL: 2077771002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.475	mg/L	2	2.819	117*	90 - 110	

SAMPLE DUPLICATE: 2196920 ORIGINAL: 2077771010

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	.485	1.23	10	

METHOD BLANK: 2197204

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

MATRIX SPIKE SAMPLE: 2196921 ORIGINAL: 2077771010

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Nitrate/Nitrite-N	.491	mg/L	2	2.82	116*	90 - 110	

METHOD BLANK: 2197206

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Nitrate/Nitrite-N	0.10 U	mg/L	0.10	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077771 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077771001	HB16	S4500NH3G-11	WCPR/32593	S4500NH3G-11	WETC/155908
2077771002	HB15	S4500NH3G-11	WCPR/32593	S4500NH3G-11	WETC/155908
2077771003	HB22	S4500NH3G-11	WCPR/32593	S4500NH3G-11	WETC/155908
2077771004	HB10	S4500NH3G-11	WCPR/32593	S4500NH3G-11	WETC/155908
2077771005	B17	S4500NH3G-11	WCPR/32593	S4500NH3G-11	WETC/155908
2077771006	HB14	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771007	HB26	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771008	HB23	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771009	HB24	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771010	HB8	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771011	HB30	S4500NH3G-11	WCPR/32594	S4500NH3G-11	WETC/155896
2077771001	HB16			EPA 353.2	WETC/155963
2077771003	HB22			EPA 353.2	WETC/155963
2077771004	HB10			EPA 353.2	WETC/155963
2077771005	B17			EPA 353.2	WETC/155963
2077771006	HB14			EPA 353.2	WETC/155963
2077771007	HB26			EPA 353.2	WETC/155963
2077771008	HB23			EPA 353.2	WETC/155963
2077771009	HB24			EPA 353.2	WETC/155963
2077771011	HB30			EPA 353.2	WETC/155963
2077771002	HB15			EPA 353.2	WETC/155969
2077771010	HB8			EPA 353.2	WETC/155969
2077771001	HB16			Calculation	WETC/156041
2077771003	HB22			Calculation	WETC/156041
2077771004	HB10			Calculation	WETC/156041
2077771005	B17			Calculation	WETC/156041
2077771006	HB14			Calculation	WETC/156041
2077771007	HB26			Calculation	WETC/156041

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077771 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077771008	HB23			Calculation	WETC/156041
2077771009	HB24			Calculation	WETC/156041
2077771011	HB30			Calculation	WETC/156041
2077771002	HB15	Calculation	WETC/0	Calculation	WETC/0
2077771010	HB8	Calculation	WETC/0	Calculation	WETC/0

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 2

Courier:

Tracking #:

2077771

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603)472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different from Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform	TOC	Cyanide/Total Cyanide							
							PL	PL	CG	CG							
								100mL	4oz	8oz							
							H_2SO_4	$Na_2S_2O_3$									
							Enter Number of Containers Per Analysis										
1	HB 16		6/18/15	0715			1	1	1	1	on SEP. COC						
2	HB 15			0718			1	1	1	1							
3	HB 22			0721			1	1	1	1							
4	HB 10			0723			1	1									
5	B 17			0733			1	1									
6	HB 14			0736			1	1									
7	HB 26			0739			1	1									
8	HB 23			0741			1	1									

SUB OUT TO GALDEN STATE

Receipt Information (completed by Sample Receiving)

Performed by: RMC

Cooler Temp: 1

Therm. ID: 291

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	Y	Y	Y	Y	
	N	N	N	N	N
	N	N	N	N	N

	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments: RMC 6/19 643 @ 7.6° FOC

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] Normandeau	6/18/15	1230	2 [signature]	6/18	1230
3 [signature]	6/18/15	1350	4 Benighta McGudden	6/18/15	1350
5 [signature]	6/18	1915	6 [signature]	6/18	1925
7 [signature]	6/18	2230	8 RMC	6/18	2230
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] new

SDWA Forms? ⇒ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? ND [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In excel

DOD Criteria Required?

ALS FIELD SERVICES: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

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771

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495303

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] -Y enestler@normandeau.com
Fax? [ ] -Y No.:

***Container Type	PL	PL	CG	CG
***Container Size		100 mL	4oz	8oz
Preservative	H_2SO_4	$Na_2S_2O_3$		

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, NO2/NO3, TN	Fecal Coliform	FOG	Chloride, Sulfate, Alkalinity							
1 HB 24		6/18/15	0746			1	1	1		ON SEP. COC						
2 HB 8			0749			1	1	1								
3 HB 30			0805			1	1	1								
4 B 5			0956													
5 B 15			1106													
6 B 8			1119													
7 B 13			1136													
8 B 45			1145													

Enter Number of Containers Per Analysis

SUBCONTRACTED OUT TO GANDER STATE

Receipt Information (completed by Sample Receiving)
Partnered by: Kind
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	N	
	Y	Y	Y	Y	

	Custody seals Present?	(if present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
			N	N	N
	Y				Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments: Rec'd 6/19 643 @ 7.6°C EOK

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Normandeau	6/18/15	1230	2 [illegible]	6/18	1232
3 [illegible]	6/18/15	1350	4 Benjamin McGuillicuddy	6/18/15	1350
5 [illegible]	6/18	1915	6 [illegible]	6/18	1915
7 [illegible]	6/18	2130	8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

SDWA Forms? ⇒ yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

ALS FIELD SERVICES: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

Garden State Laboratories, Inc.

Bacteriological and Chemical Testing
410 Hillside Avenue
Hillside, New Jersey 07205

Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

Toll Free 800-273-8901
Telephone 908-688-8900
Fax 908-688-8966
email: info@gslabs.com
Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350618006.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB16 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:15

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	45	organisms/100ml		6/18/15-14:08

< = less than, not detected.

285806

The liability of Garden State Laboratories, Inc. for services rendered shall in no event exceed the amount of the invoice.
Certified by NJ Dept. of Health, NJDEP #20044, NY Dept. of Health #11550 and PADEP #68-03680.

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REPORT OF ANALYSIS

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350618007.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB15 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:18

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/18/15-14:08

< = less than, not detected.

Harvey Klein
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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350618008.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB22 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:21

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	64	organisms/100ml		6/18/15-14:08

< = less than, not detected.

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350618009.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB10 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:23

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/18/15-14:11

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350618010.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: B17 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:33

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/18/15-14:11

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

REPORT # 350618011.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 14 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:36

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/18/15-14:11

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350618012.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 26 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:39

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	10	organisms/100ml		6/18/15-14:14

< = less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350618013.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 23 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:41

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/18/15-14:14

< = less than, not detected.

Harvey Klein

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Mathew Klein, M.S., Founder (1916-1996)
Harvey Klein, M.S., Laboratory Director

REPORT OF ANALYSIS

REPORT # 350618014.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences | Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 24 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:46

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	27	organisms/100ml		6/18/15-14:14

<= less than, not detected.

Harvey Klein

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REPORT OF ANALYSIS

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

REPORT # 350618015.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 8 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 07:49

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	18	organisms/100ml		6/18/15-14:17

< = less than, not detected.

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Internet: www.gslabs.com

REPORT OF ANALYSIS

REPORT # 350618016.0
CLIENT # ALS04
DATE SUBMITTED: 6/18/15

TO: ALS Life Sciences I Environmental
34 Dogwood Lane

Middletown PA 17057
ATT: Vicki L. Forney

SAMPLE TYPE: WATER, GRAB SAMPLE
SAMPLE ID: HB 30 PROJECT NAME 23674.000 NORMANDEAU ASSOC. INC.
SAMPLE LOCATION:

DATE SAMPLED: 6/18/15 TIME SAMPLED: 08:05

ANALYSIS	RESULT	UNITS		DATE ANALYZED
Fecal Coliform, SM 9222 D	55	organisms/100ml		6/18/15-14:17

< = less than, not detected.

Harvey Klein

285806

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Certified by NJ Dept. of Health, NJDEP #20044, NY Dept. of Health #11550 and PADEP #68-03680.

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 27, 2015

Mr. Eric Nestler
Normandeau Associates, Inc.- Bedford
25 Nashua Road
Bedford, NH 03110

Certificate of Analysis

Project Name:	**2015PC-Clam**	Workorder:	**2078083**
Purchase Order:		Workorder ID:	**23674.000**

Dear Mr. Nestler:

Enclosed are the analytical results for samples received by the laboratory on Friday, June 19, 2015.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Paul Geoghegan

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney

Mrs. Vicki A. Forney
Project Coordinator

SAMPLE SUMMARY

Workorder: 2078083 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2078083001	B3	Solid	6/18/2015 12:57	6/19/2015 19:15	Collected by Client
2078083002	B38	Solid	6/18/2015 13:07	6/19/2015 19:15	Collected by Client
2078083003	B46	Solid	6/18/2015 13:16	6/19/2015 19:15	Collected by Client
2078083004	B44	Solid	6/18/2015 13:27	6/19/2015 19:15	Collected by Client
2078083005	B39	Solid	6/18/2015 13:36	6/19/2015 19:15	Collected by Client
2078083006	B14	Solid	6/18/2015 13:45	6/19/2015 19:15	Collected by Client
2078083007	B18	Solid	6/18/2015 13:53	6/19/2015 19:15	Collected by Client
2078083008	B30	Solid	6/18/2015 14:05	6/19/2015 19:15	Collected by Client
2078083009	B22	Solid	6/18/2015 14:23	6/19/2015 19:15	Collected by Client
2078083010	B7	Solid	6/18/2015 14:32	6/19/2015 19:15	Collected by Client
2078083011	B32	Solid	6/18/2015 14:42	6/19/2015 19:15	Collected by Client
2078083012	B2	Solid	6/18/2015 14:53	6/19/2015 19:15	Collected by Client
2078083013	B25	Solid	6/18/2015 15:03	6/19/2015 19:15	Collected by Client
2078083014	B27	Solid	6/18/2015 15:12	6/19/2015 19:15	Collected by Client
2078083015	B24	Solid	6/18/2015 15:23	6/19/2015 19:15	Collected by Client
2078083016	B28	Solid	6/18/2015 15:36	6/19/2015 19:15	Collected by Client
2078083017	B19	Solid	6/18/2015 15:45	6/19/2015 19:15	Collected by Client
2078083018	B6	Solid	6/18/2015 15:53	6/19/2015 19:15	Collected by Client
2078083019	B4	Solid	6/18/2015 16:01	6/19/2015 19:15	Collected by Client
2078083020	B10	Solid	6/18/2015 16:09	6/19/2015 19:15	Collected by Client
2078083021	B9	Solid	6/18/2015 16:17	6/19/2015 19:15	Collected by Client
2078083022	HB4	Solid	6/18/2015 16:27	6/19/2015 19:15	Collected by Client
2078083023	HB18	Solid	6/18/2015 16:33	6/19/2015 19:15	Collected by Client
2078083024	HB3	Solid	6/18/2015 16:40	6/19/2015 19:15	Collected by Client
2078083025	HB1	Solid	6/18/2015 16:49	6/19/2015 19:15	Collected by Client
2078083026	HB12	Solid	6/18/2015 17:04	6/19/2015 19:15	Collected by Client
2078083027	HB28	Solid	6/18/2015 17:14	6/19/2015 19:15	Collected by Client
2078083028	HB9	Solid	6/18/2015 17:23	6/19/2015 19:15	Collected by Client
2078083029	HB17	Solid	6/19/2015 07:46	6/19/2015 19:15	Collected by Client
2078083030	HB2	Solid	6/19/2015 07:56	6/19/2015 19:15	Collected by Client
2078083031	HB7	Solid	6/19/2015 08:08	6/19/2015 19:15	Collected by Client
2078083032	HB21	Solid	6/19/2015 08:21	6/19/2015 19:15	Collected by Client
2078083033	HB13	Solid	6/19/2015 08:29	6/19/2015 19:15	Collected by Client
2078083034	HB19	Solid	6/19/2015 08:40	6/19/2015 19:15	Collected by Client

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2078083 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2078083035	HB11	Solid	6/19/2015 08:50	6/19/2015 19:15	Collected by Client
2078083036	HB25	Solid	6/19/2015 08:59	6/19/2015 19:15	Collected by Client
2078083037	B29	Solid	6/19/2015 09:09	6/19/2015 19:15	Collected by Client
2078083038	B26	Solid	6/19/2015 09:22	6/19/2015 19:15	Collected by Client
2078083039	B23	Solid	6/19/2015 09:37	6/19/2015 19:15	Collected by Client
2078083040	HB27	Solid	6/19/2015 09:49	6/19/2015 19:15	Collected by Client
2078083041	HB29	Solid	6/19/2015 09:58	6/19/2015 19:15	Collected by Client
2078083042	HB6	Solid	6/19/2015 10:08	6/19/2015 19:15	Collected by Client
2078083043	HB20	Solid	6/19/2015 10:17	6/19/2015 19:15	Collected by Client
2078083044	HB5	Solid	6/19/2015 10:27	6/19/2015 19:15	Collected by Client

SAMPLE SUMMARY

Workorder: 2078083 23674.000

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)

PROJECT SUMMARY

Workorder: 2078083 23674.000

Workorder Comments

See attached subcontracted atterberg limits and grain size results from ALS-Kelso. VLF 7/24/15

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083001** Date Collected: 6/18/2015 12:57 Matrix: Solid
Sample ID: **B3** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	20.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2940		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	79.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:29	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083002** Date Collected: 6/18/2015 13:07 Matrix: Solid
Sample ID: **B38** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	18.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	1620		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	81.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:29	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083003** Date Collected: 6/18/2015 13:16 Matrix: Solid
Sample ID: **B46** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	6430		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	75.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:29	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083004** Date Collected: 6/18/2015 13:27 Matrix: Solid
Sample ID: **B44** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	20.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2360		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	79.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:30	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083005** Date Collected: 6/18/2015 13:36 Matrix: Solid
Sample ID: **B39** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2270		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	77.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:30	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083006** Date Collected: 6/18/2015 13:45 Matrix: Solid
Sample ID: **B14** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	4140		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	75.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:30	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083007** Date Collected: 6/18/2015 13:53 Matrix: Solid
Sample ID: **B18** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	10400		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	74.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:31	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083008** Date Collected: 6/18/2015 14:05 Matrix: Solid
Sample ID: **B30** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	39.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	42400		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	60.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:31	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083009** Date Collected: 6/18/2015 14:23 Matrix: Solid
Sample ID: **B22** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	23.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3470		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	76.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:31	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083010** Date Collected: 6/18/2015 14:32 Matrix: Solid
Sample ID: **B7** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	6990		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	77.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:31	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083011** Date Collected: 6/18/2015 14:42 Matrix: Solid
Sample ID: **B32** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	21.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	9050		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	78.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:32	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083012** Date Collected: 6/18/2015 14:53 Matrix: Solid
Sample ID: **B2** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	19.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	4410		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	80.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:32	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083013** Date Collected: 6/18/2015 15:03 Matrix: Solid
Sample ID: **B25** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3310		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	77.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:32	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083014** Date Collected: 6/18/2015 15:12 Matrix: Solid
Sample ID: **B27** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	26.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	9510		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	73.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:33	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083015** Date Collected: 6/18/2015 15:23 Matrix: Solid
Sample ID: **B24** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	23.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	23500		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	76.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:33	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083016** Date Collected: 6/18/2015 15:36 Matrix: Solid
Sample ID: **B28** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	19.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2940		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	80.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:34	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083017** Date Collected: 6/18/2015 15:45 Matrix: Solid
Sample ID: **B19** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2460		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	77.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:34	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083018** Date Collected: 6/18/2015 15:53 Matrix: Solid
Sample ID: **B6** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	26.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	7820		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	73.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:34	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083019** Date Collected: 6/18/2015 16:01 Matrix: Solid
Sample ID: **B4** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	30.0		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	7650		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	70.0		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:34	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083020** Date Collected: 6/18/2015 16:09 Matrix: Solid
Sample ID: **B10** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3050		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	75.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:35	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083021** Date Collected: 6/18/2015 16:17 Matrix: Solid
Sample ID: **B9** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	23.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	1640		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	76.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:35	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083022** Date Collected: 6/18/2015 16:27 Matrix: Solid
Sample ID: **HB4** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	20.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3880		mg/kg	500	84.8	SW846 9060A		7/10/15 13:49	NK	A
Total Solids	79.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:35	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083023** Date Collected: 6/18/2015 16:33 Matrix: Solid
Sample ID: **HB18** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	19.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	9170		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	80.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:36	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083024** Date Collected: 6/18/2015 16:40 Matrix: Solid
Sample ID: **HB3** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	21.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	1470		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	78.5		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:36	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083025** Date Collected: 6/18/2015 16:49 Matrix: Solid
Sample ID: **HB1** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	28.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2090		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	71.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:36	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083026** Date Collected: 6/18/2015 17:04 Matrix: Solid
Sample ID: **HB12** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2720		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	75.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:36	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083027** Date Collected: 6/18/2015 17:14 Matrix: Solid
Sample ID: **HB28** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	30.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2960		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	69.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:37	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083028** Date Collected: 6/18/2015 17:23 Matrix: Solid
Sample ID: **HB9** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2510		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	77.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:37	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083029** Date Collected: 6/19/2015 07:46 Matrix: Solid
Sample ID: **HB17** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2020		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	75.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:37	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083030** Date Collected: 6/19/2015 07:56 Matrix: Solid
Sample ID: **HB2** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	30.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	9520		mg/kg	500	84.8	SW846 9060A		7/14/15 10:21	NK	A
Total Solids	69.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:38	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083031** Date Collected: 6/19/2015 08:08 Matrix: Solid
Sample ID: **HB7** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	30.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	4160		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	69.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:38	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083032** Date Collected: 6/19/2015 08:21 Matrix: Solid
Sample ID: **HB21** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3600		mg/kg	500	84.8	SW846 9060A		7/13/15 10:50	NK	A
Total Solids	74.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:38	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083033** Date Collected: 6/19/2015 08:29 Matrix: Solid
Sample ID: **HB13** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	28.9		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	11800		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	71.1		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:38	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083034** Date Collected: 6/19/2015 08:40 Matrix: Solid
Sample ID: **HB19** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	29.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3810		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	70.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:39	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083035** Date Collected: 6/19/2015 08:50 Matrix: Solid
Sample ID: **HB11** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	1920		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	74.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:39	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083036** Date Collected: 6/19/2015 08:59 Matrix: Solid

Sample ID: **HB25** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	23.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	1750		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	76.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:39	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083037** Date Collected: 6/19/2015 09:09 Matrix: Solid
Sample ID: **B29** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	26.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	2520		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	73.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:39	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083038** Date Collected: 6/19/2015 09:22 Matrix: Solid
Sample ID: **B26** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3710		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	74.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:40	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083039** Date Collected: 6/19/2015 09:37 Matrix: Solid
Sample ID: **B23** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	27.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	6570		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	72.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:40	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083040** Date Collected: 6/19/2015 09:49 Matrix: Solid
Sample ID: **HB27** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	28.7		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	3010		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	71.3		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:40	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083041** Date Collected: 6/19/2015 09:58 Matrix: Solid
Sample ID: **HB29** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	31.2		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	5030		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	68.8		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:40	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083042** Date Collected: 6/19/2015 10:08 Matrix: Solid
Sample ID: **HB6** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.0		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	4530		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	75.0		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:41	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083043** Date Collected: 6/19/2015 10:17 Matrix: Solid
Sample ID: **HB20** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	24.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	14300		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	75.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:41	SUB	A

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ANALYTICAL RESULTS

Workorder: 2078083 23674.000

Lab ID: **2078083044** Date Collected: 6/19/2015 10:27 Matrix: Solid
Sample ID: **HB5** Date Received: 6/19/2015 19:15

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	28.6		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
Total Organic Carbon (TOC)	5260		mg/kg	500	84.8	SW846 9060A		6/25/15 09:00	NK	A
Total Solids	71.4		%	0.1	0.01	S2540G-11		6/23/15 15:16	CF	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:41	SUB	A

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Project Coordinator

QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/155849 **Analysis Method:** S2540G-11

QC Batch Method: S2540G-11

Associated Lab Samples: 2078083001, 2078083002, 2078083003, 2078083004, 2078083005, 2078083006, 2078083007, 2078083008, 2078083009, 2078083010, 2078083011, 2078083012, 2078083013, 2078083014, 2078083015, 2078083016, 2078083017, 2078083018, 2078083019, 2078083020, 2078083021, 2078083022, 2078083023, 2078083024, 2078083025, 2078083026, 2078083027, 2078083028, 2078083029, 2078083030, 2078083031, 2078083032, 2078083033, 2078083034, 2078083035, 2078083036, 2078083037, 2078083038, 2078083039, 2078083040, 2078083041, 2078083042, 2078083043, 2078083044

SAMPLE DUPLICATE: 2195788 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	9.8208	%	10.1718	3.51	10	
Total Solids	90.1791	%	89.8281	.39	5	

SAMPLE DUPLICATE: 2195789 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	13.3692	%	12.7733	4.56	10	
Total Solids	86.6307	%	87.2266	.69	5	

SAMPLE DUPLICATE: 2195790 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	25.6749	%	17.9513	35.4*	10	
Total Solids	74.325	%	82.0486	9.88*	5	

SAMPLE DUPLICATE: 2195791 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	7.6195	%	9.0319	17*	10	
Total Solids	92.3804	%	90.968	1.54	5	

SAMPLE DUPLICATE: 2195792 ORIGINAL: 2078083007

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers

QUALITY CONTROL DATA

Workorder: 2078083 23674.000

Moisture	25.0555	%	20.6567	19.2*	10
Total Solids	74.9444	%	79.3432	5.7*	5

SAMPLE DUPLICATE: 2195793 ORIGINAL: 2078083017

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	22.3411	%	21.9173	1.92	10	
Total Solids	77.6588	%	78.0826	.54	5	

SAMPLE DUPLICATE: 2195794 ORIGINAL: 2078083027

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	30.1693	%	30.4551	.94	10	
Total Solids	69.8306	%	69.5448	.41	5	

SAMPLE DUPLICATE: 2195795 ORIGINAL: 2078083037

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	26.2041	%	27.2601	3.95	10	
Total Solids	73.7958	%	72.7398	1.44	5	

QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/155946 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2078083001, 2078083002, 2078083003, 2078083004, 2078083005, 2078083006, 2078083007, 2078083008, 2078083009, 2078083010, 2078083011, 2078083012, 2078083041, 2078083042, 2078083043, 2078083044

METHOD BLANK: 2196766

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2196767

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	97.7	mg/kg	411000	402000	80 - 120	

MATRIX SPIKE SAMPLE: 2196770 ORIGINAL: 2078083002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	1620	mg/kg	1670	3480	112	80 - 120	

METHOD BLANK: 2196769

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	90.0J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2196768

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	95.6	mg/kg	411000	393000	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

METHOD BLANK: 2196771

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2196772

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	96.1	mg/kg	411000	395000	80 - 120	

QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/156237 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2078083033, 2078083034, 2078083035, 2078083036, 2078083037, 2078083038, 2078083039, 2078083040

METHOD BLANK: 2199651

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199652

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	93.4	mg/kg	411000	384000	80 - 120	

METHOD BLANK: 2199653

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	150J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199654

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	92	mg/kg	411000	378000	80 - 120	

MATRIX SPIKE SAMPLE: 2199655 ORIGINAL: 2078083039

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	6570	mg/kg	3070	8970	78.2*	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

METHOD BLANK: 2199656

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199657

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	91.2	mg/kg	411000	375000	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/156753 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2078083013, 2078083014, 2078083015, 2078083016, 2078083017, 2078083018, 2078083019, 2078083020, 2078083021, 2078083022

METHOD BLANK: 2204627

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	90.0J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204628

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	93.8	mg/kg	411000	386000	80 - 120	

MATRIX SPIKE SAMPLE: 2204629 ORIGINAL: 2078083022

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	3880	mg/kg	2800	6410	90.5	80 - 120	

METHOD BLANK: 2204630

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	90.0J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204631

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	95.8	mg/kg	411000	394000	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/156754 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2078083014, 2078083023, 2078083024, 2078083025, 2078083026, 2078083027, 2078083028, 2078083029, 2078083030, 2078083031, 2078083032

METHOD BLANK: 2204634

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	100J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204635

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	95.3	mg/kg	411000	392000	80 - 120	

MATRIX SPIKE SAMPLE: 2204636 ORIGINAL: 2078083031

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	4160	mg/kg	2860	6930	96.9	80 - 120	

METHOD BLANK: 2204637

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204638

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	96.6	mg/kg	411000	397000	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

METHOD BLANK: 2204639

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	90.0J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204640

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	95.2	mg/kg	411000	391000	80 - 120	

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QUALITY CONTROL DATA

Workorder: 2078083 23674.000

QC Batch: WETC/156756 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2078083030

METHOD BLANK: 2204674

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	100J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204675

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	95	mg/kg	411000	391000	80 - 120	

MATRIX SPIKE SAMPLE: 2204676 ORIGINAL: 2078083030

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	9520	mg/kg	2990	9440	-2.67*	80 - 120	

METHOD BLANK: 2204677

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2204678

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	85.4	mg/kg	411000	351000	80 - 120	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2078083 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2078083001	B3			S2540G-11	WETC/155849
2078083002	B38			S2540G-11	WETC/155849
2078083003	B46			S2540G-11	WETC/155849
2078083004	B44			S2540G-11	WETC/155849
2078083005	B39			S2540G-11	WETC/155849
2078083006	B14			S2540G-11	WETC/155849
2078083007	B18			S2540G-11	WETC/155849
2078083008	B30			S2540G-11	WETC/155849
2078083009	B22			S2540G-11	WETC/155849
2078083010	B7			S2540G-11	WETC/155849
2078083011	B32			S2540G-11	WETC/155849
2078083012	B2			S2540G-11	WETC/155849
2078083013	B25			S2540G-11	WETC/155849
2078083014	B27			S2540G-11	WETC/155849
2078083015	B24			S2540G-11	WETC/155849
2078083016	B28			S2540G-11	WETC/155849
2078083017	B19			S2540G-11	WETC/155849
2078083018	B6			S2540G-11	WETC/155849
2078083019	B4			S2540G-11	WETC/155849
2078083020	B10			S2540G-11	WETC/155849
2078083021	B9			S2540G-11	WETC/155849
2078083022	HB4			S2540G-11	WETC/155849
2078083023	HB18			S2540G-11	WETC/155849
2078083024	HB3			S2540G-11	WETC/155849
2078083025	HB1			S2540G-11	WETC/155849
2078083026	HB12			S2540G-11	WETC/155849
2078083027	HB28			S2540G-11	WETC/155849
2078083028	HB9			S2540G-11	WETC/155849
2078083029	HB17			S2540G-11	WETC/155849
2078083030	HB2			S2540G-11	WETC/155849
2078083031	HB7			S2540G-11	WETC/155849
2078083032	HB21			S2540G-11	WETC/155849
2078083033	HB13			S2540G-11	WETC/155849

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2078083 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2078083034	HB19			S2540G-11	WETC/155849
2078083035	HB11			S2540G-11	WETC/155849
2078083036	HB25			S2540G-11	WETC/155849
2078083037	B29			S2540G-11	WETC/155849
2078083038	B26			S2540G-11	WETC/155849
2078083039	B23			S2540G-11	WETC/155849
2078083040	HB27			S2540G-11	WETC/155849
2078083041	HB29			S2540G-11	WETC/155849
2078083042	HB6			S2540G-11	WETC/155849
2078083043	HB20			S2540G-11	WETC/155849
2078083044	HB5			S2540G-11	WETC/155849
2078083001	B3			SW846 9060A	WETC/155946
2078083002	B38			SW846 9060A	WETC/155946
2078083003	B46			SW846 9060A	WETC/155946
2078083004	B44			SW846 9060A	WETC/155946
2078083005	B39			SW846 9060A	WETC/155946
2078083006	B14			SW846 9060A	WETC/155946
2078083007	B18			SW846 9060A	WETC/155946
2078083008	B30			SW846 9060A	WETC/155946
2078083009	B22			SW846 9060A	WETC/155946
2078083010	B7			SW846 9060A	WETC/155946
2078083011	B32			SW846 9060A	WETC/155946
2078083012	B2			SW846 9060A	WETC/155946
2078083041	HB29			SW846 9060A	WETC/155946
2078083042	HB6			SW846 9060A	WETC/155946
2078083043	HB20			SW846 9060A	WETC/155946
2078083044	HB5			SW846 9060A	WETC/155946
2078083033	HB13			SW846 9060A	WETC/156237
2078083034	HB19			SW846 9060A	WETC/156237
2078083035	HB11			SW846 9060A	WETC/156237

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2078083 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2078083036	HB25			SW846 9060A	WETC/156237
2078083037	B29			SW846 9060A	WETC/156237
2078083038	B26			SW846 9060A	WETC/156237
2078083039	B23			SW846 9060A	WETC/156237
2078083040	HB27			SW846 9060A	WETC/156237
2078083013	B25			SW846 9060A	WETC/156753
2078083015	B24			SW846 9060A	WETC/156753
2078083016	B28			SW846 9060A	WETC/156753
2078083017	B19			SW846 9060A	WETC/156753
2078083018	B6			SW846 9060A	WETC/156753
2078083019	B4			SW846 9060A	WETC/156753
2078083020	B10			SW846 9060A	WETC/156753
2078083021	B9			SW846 9060A	WETC/156753
2078083022	HB4			SW846 9060A	WETC/156753
2078083014	B27			SW846 9060A	WETC/156754
2078083023	HB18			SW846 9060A	WETC/156754
2078083024	HB3			SW846 9060A	WETC/156754
2078083025	HB1			SW846 9060A	WETC/156754
2078083026	HB12			SW846 9060A	WETC/156754
2078083027	HB28			SW846 9060A	WETC/156754
2078083028	HB9			SW846 9060A	WETC/156754
2078083029	HB17			SW846 9060A	WETC/156754
2078083031	HB7			SW846 9060A	WETC/156754
2078083032	HB21			SW846 9060A	WETC/156754
2078083030	HB2			SW846 9060A	WETC/156756

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

* 2 0 7 8 0 8 3 *

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603)472-5791
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y enestler@normandeau.com
Fax? [ ] Y No.:

***Container Type: CG | CG
***Container Size: 4oz | 8oz
***Preservative:

ANALYSES/METHOD REQUESTED: TOC | Grain Size/Atterberg

Enter Number of Containers Per Analysis

#	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg
1	B3		6/18/15	1257			1	1
2	B38		↓	1307			1	1
3	B46		↓	1316			1	1
4	B44		↓	1327			1	1
5	B39		↓	1336			1	1
6	B14		↓	1345			1	1
7	B18		↓	1353			1	1
8	B30		↓	1405			1	1

Received by: [signature]
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

Check	Cooler 1
Correct containers?	Y
Correct sample volume?	N
Correct preservation?	N
Headspace/Volatiles?	N
Custody seals Present?	N
(If present) Seals intact?	N
Received on ice?	Y
COC/Labels complete/accurate?	Y
Container in good condition?	Y

Circle appropriate Y or N.

SAMPLED BY (Please Print): Chris Burnett

Project Comments: [initials] 6/20 134

#	Relinquished By / Company Name	Date	Time	#	Received By / Company Name	Date	Time
1	[signature] Normandeau	6/19/15	1555	2	[signature] / Chmaip Fdenu	6/19	1600
3	Chmaip Fdenu	6/19/15	1810	4	[signature]	6/19	1810
5	[signature]	6/17	1913	6	[signature]	6/19/15	1915
7				8			
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ]
EDDs Required? [X] If yes, format type: In Excel

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ] Other

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

0883

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] -Y enestler@normandeau.com
Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg									Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
***Container Type						CG	CG													
***Container Size						4oz	8oz													
*** Preservative																				
9 1 B 22		6/18/15	1423			1	1									Y	N	N	N	N
10 2 B 7			1432			1	1									Y	N	N	N	N
11 3 B 32			1442			1	1									Y	N	N	N	N
12 4 B 2			1453			1	1									Y	N	N	N	N
13 5 B 25			1503			1	1									Y	N	N	N	N
14 6 B 27			1512			1	1									Y	N	N	N	N
15 7 B 24			1523			1	1									Y	N	N	N	N
16 8 B 28			1536			1	1									Y	N	N	N	N

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Custody seals Present? (If present) Seals Intact? Received on Ice? COC/Labels complete/accurate? Container in good condition?

SAMPLED BY (Please Print): Chris Burnett

Project Comments: Rml 6/20 134

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/19/15	1555	2 Chris Faerm	6/19	1800
3 Chris Faerm	6/19/15	1810	4 [illegible]	6/19	1810
5 [illegible]	6/19	1915	6 [illegible]	6/19/15	1915
7			8		
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other
SDWA Forms? ⇨ yes [ ]; yes [ ]; yes [ ]; yes [ ]
State Samples Collected In? MD [ ]; NJ [ ]; NY [X]; PA [ ]
EDDs Required? [X] If yes, format type: In Excel
Other
DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup; [ ] Labor; [ ] Composite Sampling; [ ] Rental Equipment; [ ] Other:

Receipt Information (completed by Sample Receiving)
Performed by: Rml
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc. Rev 01-2013

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

083

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y enestler@normandeau.com
Fax? [ ] Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg									Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	***Container Type						CG	CG													
	***Container Size						4oz	8oz													
	*** Preservative																				
							ANALYSES/METHOD REQUESTED														
							Enter Number of Containers Per Analysis														
17	1 B 19		6/18/15	1545			1	1													
18	2 B 6			1553			1	1													
19	3 B 4			1601			1	1													
20	4 B 10			1609			1	1													
21	5 B 9			1617			1	1													
22	6 HB 4			1627			1	1													
23	7 HB 18			1633			1	1													
24	8 HB 3			1640			1	1													

Receipt Information (completed by Sample Receiving)
Performed by: RMK
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

Circle appropriate Y or N.: Correct containers? N; Correct sample volume? N; Correct preservation? N; Headspace/Volatiles? N

Custody seals Present? Y; (if present) Seals intact? Y; Received on ice? N; COC/Labels complete/accurate? N; Container in good condition? N

SAMPLED BY (Please Print): Chris Burnett

Project Comments: RMK 6/20 134

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Normandeau	6/18/15	1555	2 Chris Faerm	6/19	1600
3 Chris Faerm	6/19/15	1810	4 [illegible]	6/19/15	1810
5 [illegible]	6/19	1915	6 [illegible]	6/19/15	1915
7			8		
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]

Other

ALS FIELD SERVICES: [ ] Pickup; [ ] Labor; [ ] Composite Sampling; [ ] Rental Equipment; [ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

c083

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y enestler@normandeau.com
Fax? Y No:

	Analyses/Method Requested	
**Container Type	CG	CG
***Container Size	4oz	8oz
Preservative		
	TOC	Grain size/Atterberg

Enter Number of Containers Per Analysis

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain size/Atterberg
25 1	HB 1		6/18/15	1649			1	1
26 2	HB 12		6/18/15	1704			1	1
27 3	HB 28		6/18/15	1714			1	1
28 4	HB 9		6/18/15	1723			1	1
29 5	HB 17		6/19/15	0746			1	1
30 6	HB 2		6/19/15	0756			1	1
31 7	HB 7		6/19/15	0808			1	1
32 8	HB 21		6/19/15	0821			1	1

Receipt Information (completed by Sample Receiver)
Performed by: BmL
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

Check	Response
Correct containers?	Y
Correct sample volume?	Y
Correct preservation?	N
Headspace/Volatiles?	Y
Custody seals Present?	N
(If present) Seals Intact?	Y
Received on Ice?	Y
COC/Labels complete/accurate?	Y
Container in good condition?	Y

Circle appropriate Y or N.

SAMPLED BY (Please Print): Chris Burnett

Project Comments: BmL 6/20 134

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[illegible] Normandeau	6/19/15	1555	2	Christoph Feldner	6/19	1700
3	Christoph Feldner	6/19/15	1810	4	[illegible]	6/19/15	1810
5	[illegible]	6/19	1915	6		6/19/15	1915
7				8			
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ]
EDDs Required? [X] If yes, format type: In Excel
SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]
Other
DOD Criteria Required?

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

083

Co. Name: Normandeau Associates, Inc.
Contact (Report to): Eric Nestler
Phone: (603) 472-5191
Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):
PO#:

Project Name/#: 23674.000
ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required:
Approved By:

Email? [X] Y enestler@normandeau.com
Fax? [ ] Y No.:

***Container Type	CG	CG																					
***Container Size	4oz	8oz																					
***Preservative																							
ANALYSES/METHOD REQUESTED	TOC	Grain Size/Atterberg																					

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg															
1	HB 13		6/19/15	0829			1	1															
2	HB 19			0840			1	1															
3	HB 11			0850			1	1															
4	HB 25			0859			1	1															
5	B 29			0909			1	1															
6	B 26			0922			1	1															
7	B 23			0937			1	1															
8	HB 27			0949			1	1															

Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: [illegible]
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

Circle appropriate Y or N.				
Correct containers?	N	N	N	N
Correct sample volume?	Y	Y	Y	Y
Correct preservation?	N	N	N	N
Headspace/Volatiles?	Y	Y	Y	Y
Custody seals Present?	N	N	N	N
(if present) Seals Intact?	Y	Y	Y	Y
Received on Ice?	N	N	N	N
COC/Labels complete/accurate?	Y	Y	Y	Y
Container in good condition?	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments: [illegible] 6/20 134

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible] Normandeau	6/19/15	1555	2 [illegible]	6/19	1600
3 [illegible]	6/19/15	1870	4 [illegible]	6/19	1870
5 [illegible]	6/19	1915	6 [illegible]	6/19/15	1915
7			8		
9			10		

Data Deliverables: [X] Standard; [ ] CLP-like; [ ] NJ-Reduced; [ ] NJ-Full; [ ] other
EDDs Required? [X] If yes, format type: In Excel
DOD Criteria Required?

SDWA Forms? ⇒ yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]
Other

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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Rev 01-2013

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 6 of 6

Courier:

Tracking #:

0083

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd.
Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? X -Y enestler@normandeau.com

Fax? -Y No.:

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TOC	Grain Size/Atterberg								
							***Container Type	CG	CG							
							***Container Size	4oz	8oz							
							***Preservative									
1	HB 29		6/19/15	0958			1	1								
2	HB 6			1008			1	1								
3	HB 20			1017			1	1								
4	HB 5			1027			1	1								
5																
6																
7																
8																

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: Rmk
Cooler Temp: 1
Therm. ID: 291
No. of Coolers:
Notes:

Circle appropriate Y or N.	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Custody seals Present?	(If present) Seals Intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
	Y	Y	Y	Y					
	N	N	N	N	N	N	N	N	N

SAMPLED BY (Please Print): Chris Burnett

Project Comments: Rmk 6/20 134

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
Normandeau	6/19/15	1515	2 [illegible]	6/19	1600
3 [illegible]	6/19/15	1810	4 [illegible]	6/19	1810
5 [illegible]	6/19	1915	6 [illegible]	6/19/15	1915
7			8		
9			10		

Data Deliverables: X Standard; ☐ CLP-like; ☐ NJ-Reduced; ☐ NJ-Full; ☐ other

EDDs Required? X If yes, format type: In Excel

DOD Criteria Required?

SDWA Forms? ⇨ yes ☐ yes ☐ yes ☐ yes ☐

State Samples Collected In? MD ☐ NJ ☐ NY X PA ☐ Other

ALS FIELD SERVICES: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment ☐ Other:

* G=Grab; C=Composite **Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

Analytical Laboratory Services, Inc.
Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 1 of 6
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.:

Container Type			G											
Container Size			8 oz											
Preservative			none											
ANALYSES/METHOD REQUESTED														
Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits								
					Enter Number of Containers Per Sample or Field Results Below.									
2078083 001	6/18/15	1257	G	SO	1	x								
2078083 002	6/18/15	1307	G	SO	1	x								
2078083 003	6/18/15	1316	G	SO	1	x								
2078083 004	6/18/15	1327	G	SO	1	x								
2078083 005	6/18/15	1336	G	SO	1	x								
2078083 006	6/18/15	1345	G	SO	1	x								
2078083 007	6/18/15	1353	G	SO	1	x								
2078083 008	6/18/15	1405	G	SO	1	x								
2078083 009	6/18/15	1423	G	SO	1	x								
2078083 010	6/18/15	1432	G	SO	1	x								

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

Sample/COC Comments
Subcontract: ALS Kelso

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] [ ] other
Reportable to PADEP? Yes [ ]
PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Rev 5/05

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Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 2 of 6
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.:

Container Type	G										
Container Size	8 oz										
Preservative	none										

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.										
2078083 011	6/18/15	1442	G	SO	1	x									Subcontract: ALS Kelso
2078083 012	6/18/15	1453	G	SO	1	x									
2078083 013	6/18/15	1503	G	SO	1	x									
2078083 014	6/18/15	1512	G	SO	1	x									
2078083 015	6/18/15	1523	G	SO	1	x									
2078083 016	6/18/15	1536	G	SO	1	x									
2078083 017	6/18/15	1545	G	SO	1	x									
2078083 018	6/18/15	1553	G	SO	1	x									
2078083 019	6/18/15	1601	G	SO	1	x									
2078083 020	6/18/15	1609	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Environmental • Industrial Hygiene • Field Services
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:
ALSI Quote #:
3 of 5

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
ANALYSES/METHOD REQUESTED															
Enter Number of Containers Per Sample or Field Results Below.															
2078083 021	6/18/15	1617	G	SO	1	x									Subcontract: ALS Kelso
2078083 022	6/18/15	1627	G	SO	1	x									
2078083 023	6/18/15	1633	G	SO	1	x									
2078083 024	6/18/15	1640	G	SO	1	x									
2078083 025	6/18/15	1649	G	SO	1	x									
2078083 026	6/18/15	1704	G	SO	1	x									
2078083 027	6/18/15	1714	G	SO	1	x									
2078083 028	6/18/15	1723	G	SO	1	x									
2078083 029	6/19/15	0746	G	SO	1	x									
2078083 030	6/19/15	0756	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. In Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor
☐Composite Sampling ☐Rental Equipment
☐Other: _____

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ]
PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 4 of 5

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits	Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.		
Container Type			G				
Container Size			8 oz				
Preservative			none				
2078083 031	6/19/15	0808	G	SO	1	x	Subcontract: ALS Kelso
2078083 032	6/19/15	0821	G	SO	1	x	
2078083 033	6/19/15	0829	G	SO	1	x	
2078083 034	6/19/15	0840	G	SO	1	x	
2078083 035	6/19/15	0850	G	SO	1	x	
2078083 036	6/19/15	0859	G	SO	1	x	
2078083 037	6/19/15	0909	G	SO	1	x	
2078083 037	6/19/15	0922	G	SO	1	x	
2078083 038	6/19/15	0937	G	SO	1	x	
2078083 039	6/19/15	0949	G	SO	1	x	

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:

LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1520	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] other

Reportable to PADEP? Yes [ ]
PWSID # _____

Sample Disposal: Lab [ ] Special [ ]

EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 5 of 5
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits								
Container Type			G											
Container Size			8 oz											
Preservative			none											
ANALYSES/METHOD REQUESTED														
Enter Number of Containers Per Sample or Field Results Below.														
2078083 041	6/19/15	0958	G	SO	1	x								
2078083 042	6/19/15	1008	G	SO	1	x								
2078083 043	6/19/15	1017	G	SO	1	x								
2078083 044	6/19/15	1027	G	SO	1	x								

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

Sample/COC Comments
Subcontract: ALS Kelso

ALSI Field Services: ☐Pickup ☐Labor
☐Composite Sampling ☐Rental Equipment
☐Other: _____

Project Comments:
LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] [ ] other
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

July 22, 2015

Analytical Report for Service Request No: K1506797

Vicki Forney
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

RE:

Dear Vicki,

Enclosed are the results of the sample(s) submitted to our laboratory June 23, 2015
For your reference, these analyses have been assigned our service request number **K1506797.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

Monday, July 27, 2015 9:03:32 AM
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ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Monday, July 27, 2015 9:03:32 AM
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Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

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ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdl.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS Environmental

Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

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ALS ENVIRONMENTAL

Client:	ALS Environmental - US	**Service Request No.:**	K1506797
Project:	NA	**Date Received:**	6/23/2015
Sample Matrix:	Sediment		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), and Laboratory Control Sample (LCS).

Sample Receipt

Twenty-four sediment samples were received for analysis at ALS Environmental on 6/23/2015. The samples were received in good condition and consistent with the accompanying chain of custody form, except as noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Atterberg Limits by Method ASTM D4318:

The Atterberg Limit analysis requires samples to be air dried prior to determination of the liquid and plastic limits used for the calculation. Upon completion of this drying process, it was determined that insufficient sample mass was available for analysis of Atterberg Limits. The client was notified of this deficiency and no further corrective action was available.

No other anomalies associated with the analysis of these samples were observed.

Particle Size by Method ASTM D422M:

Due to a laboratory error, the samples used for Particle Size determination were air dried upon receipt at the lab prior to determination of the moisture content of the samples. The results for the Particle Size determination are reported using the percent moisture calculated from the air dried sample. No further corrective action was possible.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____

ALS Environmental

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K1506797 | 3 of 8

ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y alrndt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier tracking #: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits	Sample/COC Comments
Container Type			G				
Container Size			8 oz				
Preservative			none				
2078083 021	6/18/15	1617	G	SO	1	x	Subcontract: ALS Kelso
2078083 022	6/18/15	1627	G	SO	1	x	
2078083 023	6/18/15	1633	G	SO	1	x	
2078083 024	6/18/15	1640	G	SO	1	x	
2078083 025	6/18/15	1649	G	SO	1	x	
2078083 026	6/18/15	1704	G	SO	1	x	
2078083 027	6/18/15	1714	G	SO	1	x	
2078083 028	6/18/15	1723	G	SO	1	x	
2078083 029	6/19/15	0746	G	SO	1	x	
2078083 030	6/19/15	0756	G	SO	1	x	

Enter Number of Containers Per Sample or Field Results Below.

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY (signature):
REVIEWED BY (signature):

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	6/22/15	1500	2 [signature] / ALS	6/23/15	0920
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE ☐

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC ☐ other

Reportable to PADEP? Yes ☐ PWSID # _____

Sample Disposal: Lab ☐ Special ☐

EDDs: Format Type- _____

* G=Grab, C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe, WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY Rev 5/05

ALS

Analytical Laboratory Services, Inc.
Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717 944 5541 • Fax 717 944 1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K1506797 | 4 of 5
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Receipt Information (completed by Receiving Lab)
Cooler Temp: ____ Therm. ID: ____
No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits	Sample/COC Comments
Container Type			G				
Container Size			8 oz				
Preservative			none				
Enter Number of Containers Per Sample or Field Results Below.							
2078083 031	6/19/15	0808	G	SO	1	x	Subcontract: ALS Kelso
2078083 032	6/19/15	0821	G	SO	1	x	
2078083 033	6/19/15	0829	G	SO	1	x	
2078083 034	6/19/15	0840	G	SO	1	x	
2078083 035	6/19/15	0850	G	SO	1	x	
2078083 036	6/19/15	0859	G	SO	1	x	
2078083 037	6/19/15	0909	G	SO	1	x	
2078083 037	6/19/15	0922	G	SO	1	x	
2078083 038	6/19/15	0937	G	SO	1	x	
2078083 039	6/19/15	0949	G	SO	1	x	

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature):
REVIEWED BY(signature):

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2 ALS	6/23/15	0920
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ]
PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type-

* G=Grab, C=Composite **Matrix - Air=Air, DW=Drinking Water, GW=Groundwater, OI=Oil, OL=Other Liquid, SL=Sludge, SO=Soil, WP=Wipe, WW=Wastewater

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ALS

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K150497 | 5 of 5
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
ANALYSES/METHOD REQUESTED															
Enter Number of Containers Per Sample or Field Results Below.															
2078083 041	6/19/15	0958	G	SO	1	x									Subcontract: ALS Kelso
2078083 042	6/19/15	1008	G	SO	1	x									
2078083 043	6/19/15	1017	G	SO	1	x									
2078083 044	6/19/15	1027	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY (signature): _____ Date: _____ Time: _____
REVIEWED BY (signature): _____ Date: _____ Time: _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	6/22/15	1500	2 [signature] ALS	6/23/15	0920
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐Standard ☐CLP-like ☐USACE ☐
Special Processing: USACE ☐ Navy ☐ ☐
State Samples Collected In: ☐NY ☐NJ ☐PA ☐NC ☐ other
Reportable to PADEP? Yes ☐ PWSID # _____
Sample Disposal: Lab ☐ Special ☐
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY Rev 5/05

ALS

ALS

PC CV

Cooler Receipt and Preservation Form

Client / Project: ALS / Middletown Service Request K15 C6797

Received: 6/23/15 Opened 6/23/15 By: [illegible] Unloaded: 6/23/15 By: [illegible]

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.3	0.3	1.4	1.4	0	340		4738 8865 6471	
4.9	4.8	5.1	5.0	-0.1	347		" " 6333	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was Cl2/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:
Rec'd 2078083-040 not on COC (037 listed twice - assume the rest of that page is off by one on times.

Page ____ *of* ____

ALS Environmental

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

RIGHT SOLUTIONS : RIGHT PARTNER

ALS

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project:
Sample Matrix: Sediment
Analysis Method: 160.3 Modified
Prep Method: None

Service Request: K1506797
Date Collected: 06/18/15 - 06/19/15
Date Received: 06/23/15
Units: Percent
Basis: Air Dried

Solids, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
2078083 021	K1506797-001	100	–	1	07/20/15 16:16	
2078083 022	K1506797-002	100	–	1	07/20/15 16:16	
2078083 023	K1506797-003	99.7	–	1	07/20/15 16:16	
2078083 024	K1506797-004	99.9	–	1	07/20/15 16:16	
2078083 025	K1506797-005	99.8	–	1	07/20/15 16:16	
2078083 026	K1506797-006	99.6	–	1	07/20/15 16:16	
2078083 027	K1506797-007	99.7	–	1	07/20/15 16:16	
2078083 028	K1506797-008	99.6	–	1	07/20/15 16:16	
2078083 029	K1506797-009	99.6	–	1	07/20/15 16:16	
2078083 030	K1506797-010	100	–	1	07/20/15 16:16	
2078083 031	K1506797-011	99.3	–	1	07/20/15 16:16	
2078083 032	K1506797-012	99.5	–	1	07/20/15 16:16	
2078083 033	K1506797-013	99.3	–	1	07/20/15 16:16	
2078083 034	K1506797-014	99.6	–	1	07/20/15 16:16	
2078083 035	K1506797-015	99.6	–	1	07/20/15 16:16	
2078083 036	K1506797-016	99.6	–	1	07/20/15 16:16	
2078083 037	K1506797-017	99.6	–	1	07/20/15 16:16	
2078083 038	K1506797-018	99.6	–	1	07/20/15 16:16	
2078083 039	K1506797-019	99.6	–	1	07/20/15 16:16	
2078083 040	K1506797-020	99.7	–	1	07/20/15 16:16	
2078083 041	K1506797-021	99.8	–	1	07/20/15 16:16	
2078083 042	K1506797-022	99.6	–	1	07/20/15 16:50	
2078083 043	K1506797-023	99.9	–	1	07/20/15 16:50	
2078083 044	K1506797-024	99.6	–	1	07/20/15 16:50	

ALS

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project
Sample Matrix: Sediment

Analysis Method: 160.3 Modified
Prep Method: None

Service Request: K1506797
Date Collected: 06/18/15 - 06/19/15
Date Received: 06/23/15

Units: Percent
Basis: Air Dried

Replicate Sample Summary
Solids, Total

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	J1505686-004DUP	-	99.5	99.5	99.5	<1	10	07/20/15
Batch QC	J1505686-005DUP	-	99.0	98.9	99.0	<1	10	07/20/15
2078083 021	K1506797-001DUP	-	100	99.8	99.9	<1	10	07/20/15
2078083 032	K1506797-012DUP	-	99.5	99.6	99.6	<1	10	07/20/15
Batch QC	K1507431-001DUP	-	99.0	98.9	99.0	<1	10	07/20/15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 021
Lab Code: K1506797-001

Sand Fraction: Weight (Grams)	94.1545
Sand Fraction: Weight Recovered (Grams)	93.7965
Sand Fraction: Percent Recovery	99.62

Weight as received (Grams)	95.6901
Percent Solids	100.0
Weight Oven-Dried (Grams)	95.6901

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.1050	1.15
Gravel, Fine	2.00 mm	10	1.7491	1.83
Sand, Very Coarse	0.850 mm	20	6.1046	6.38
Sand, Coarse	0.425 mm	40	20.7887	21.73
Sand, Medium	0.250 mm	60	48.1963	50.37
Sand, Fine	0.106 mm	140	15.5437	16.24
Sand, Very Fine	0.075 mm	200	0.2688	0.28
Silt			0.3100	0.3
Clay			0.8020	0.8
		Total	94.8682	99.1

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 022
Lab Code: K1506797-002

Sand Fraction: Weight (Grams)	88.8788
Sand Fraction: Weight Recovered (Grams)	88.1826
Sand Fraction: Percent Recovery	99.22

Weight as received (Grams)	91.5291
Percent Solids	100.0
Weight Oven-Dried (Grams)	91.5291

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	37.2795	40.73
Gravel, Fine	2.00 mm	10	15.5274	16.96
Sand, Very Coarse	0.850 mm	20	9.8908	10.81
Sand, Coarse	0.425 mm	40	9.6500	10.54
Sand, Medium	0.250 mm	60	8.0384	8.78
Sand, Fine	0.106 mm	140	6.2741	6.85
Sand, Very Fine	0.075 mm	200	1.0500	1.15
Silt			1.9800	2.2
Clay			0.5820	0.6
		Total	90.2722	98.62

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 023
Lab Code: K1506797-003

Sand Fraction: Weight (Grams)	87.1592
Sand Fraction: Weight Recovered (Grams)	87.0785
Sand Fraction: Percent Recovery	99.91

Weight as received (Grams)	90.2623
Percent Solids	99.7
Weight Oven-Dried (Grams)	89.9915

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	19.4430	21.61
Gravel, Fine	2.00 mm	10	18.1056	20.12
Sand, Very Coarse	0.850 mm	20	12.4001	13.78
Sand, Coarse	0.425 mm	40	13.8296	15.37
Sand, Medium	0.250 mm	60	10.5243	11.69
Sand, Fine	0.106 mm	140	10.5374	11.71
Sand, Very Fine	0.075 mm	200	1.7368	1.93
Silt			1.9100	2.1
Clay			0.6520	0.7
		Total	89.1388	99.05

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 024
Lab Code: K1506797-004

Sand Fraction: Weight (Grams)	101.7780
Sand Fraction: Weight Recovered (Grams)	100.4056
Sand Fraction: Percent Recovery	98.65

Weight as received (Grams)	103.9935
Percent Solids	99.9
Weight Oven-Dried (Grams)	103.8895

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.0327	2.92
Gravel, Fine	2.00 mm	10	10.8146	10.41
Sand, Very Coarse	0.850 mm	20	19.1192	18.40
Sand, Coarse	0.425 mm	40	28.6522	27.58
Sand, Medium	0.250 mm	60	27.1488	26.13
Sand, Fine	0.106 mm	140	10.6179	10.22
Sand, Very Fine	0.075 mm	200	0.8900	0.86
Silt			1.1400	1.1
Clay			0.6770	0.7
		Total	102.0924	98.27

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 025
Lab Code: K1506797-005

Sand Fraction: Weight (Grams)	94.4682
Sand Fraction: Weight Recovered (Grams)	94.1205
Sand Fraction: Percent Recovery	99.63

Weight as received (Grams)	96.3915
Percent Solids	99.8
Weight Oven-Dried (Grams)	96.1987

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	7.7202	8.03
Gravel, Fine	2.00 mm	10	12.1075	12.59
Sand, Very Coarse	0.850 mm	20	14.4310	15.00
Sand, Coarse	0.425 mm	40	24.0720	25.02
Sand, Medium	0.250 mm	60	26.2899	27.33
Sand, Fine	0.106 mm	140	8.8600	9.21
Sand, Very Fine	0.075 mm	200	0.5521	0.57
Silt			0.9350	1.0
Clay			0.5670	0.6
		Total	95.5347	99.31

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 026
Lab Code: K1506797-006

Sand Fraction: Weight (Grams)	104.1417
Sand Fraction: Weight Recovered (Grams)	102.4339
Sand Fraction: Percent Recovery	98.36

Weight as received (Grams)	106.6047
Percent Solids	99.6
Weight Oven-Dried (Grams)	106.1783

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	18.5462	17.47
Gravel, Fine	2.00 mm	10	19.0938	17.98
Sand, Very Coarse	0.850 mm	20	17.1414	16.14
Sand, Coarse	0.425 mm	40	18.3779	17.31
Sand, Medium	0.250 mm	60	18.9946	17.89
Sand, Fine	0.106 mm	140	9.2989	8.76
Sand, Very Fine	0.075 mm	200	0.8280	0.78
Silt			1.1350	1.1
Clay			0.8620	0.8
		Total	104.2778	98.21

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 027
Lab Code: K1506797-007

Sand Fraction: Weight (Grams)	96.6729
Sand Fraction: Weight Recovered (Grams)	96.5620
Sand Fraction: Percent Recovery	99.89

Weight as received (Grams)	99.5261
Percent Solids	99.7
Weight Oven-Dried (Grams)	99.2275

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.2691	3.29
Gravel, Fine	2.00 mm	10	4.2714	4.30
Sand, Very Coarse	0.850 mm	20	5.1323	5.17
Sand, Coarse	0.425 mm	40	5.1578	5.20
Sand, Medium	0.250 mm	60	30.6575	30.90
Sand, Fine	0.106 mm	140	43.4020	43.74
Sand, Very Fine	0.075 mm	200	3.8920	3.92
Silt			1.5250	1.5
Clay			1.0970	1.1
		Total	98.4041	99.17

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 028
Lab Code: K1506797-008

Sand Fraction: Weight (Grams)	101.1349
Sand Fraction: Weight Recovered (Grams)	100.3749
Sand Fraction: Percent Recovery	99.25

Weight as received (Grams)	103.5161
Percent Solids	99.6
Weight Oven-Dried (Grams)	103.1020

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	17.5753	17.05
Gravel, Fine	2.00 mm	10	17.6938	17.16
Sand, Very Coarse	0.850 mm	20	16.5324	16.03
Sand, Coarse	0.425 mm	40	21.2653	20.63
Sand, Medium	0.250 mm	60	19.2590	18.68
Sand, Fine	0.106 mm	140	7.1342	6.92
Sand, Very Fine	0.075 mm	200	0.7798	0.76
Silt			1.1250	1.1
Clay			0.7470	0.7
		Total	102.1118	99.04

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 029
Lab Code: K1506797-009

Sand Fraction: Weight (Grams)	95.5314
Sand Fraction: Weight Recovered (Grams)	95.4315
Sand Fraction: Percent Recovery	99.90

Weight as received (Grams)	97.602
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.2116

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.1200	0.12
Sand, Very Coarse	0.850 mm	20	0.7911	0.81
Sand, Coarse	0.425 mm	40	11.9426	12.29
Sand, Medium	0.250 mm	60	53.2022	54.73
Sand, Fine	0.106 mm	140	28.6018	29.42
Sand, Very Fine	0.075 mm	200	0.6494	0.67
Silt			0.6500	0.7
Clay			0.9570	1.0
		Total	96.9141	99.69

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 030
Lab Code: K1506797-010

Sand Fraction: Weight (Grams)	88.6110
Sand Fraction: Weight Recovered (Grams)	88.2663
Sand Fraction: Percent Recovery	99.61

Weight as received (Grams)	100.4182
Percent Solids	100.0
Weight Oven-Dried (Grams)	100.4182

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.8137	12.76
Gravel, Fine	2.00 mm	10	11.3955	11.35
Sand, Very Coarse	0.850 mm	20	10.7661	10.72
Sand, Coarse	0.425 mm	40	9.3657	9.33
Sand, Medium	0.250 mm	60	16.2277	16.16
Sand, Fine	0.106 mm	140	22.9149	22.82
Sand, Very Fine	0.075 mm	200	3.5545	3.54
Silt			8.2200	8.2
Clay			3.1670	3.2
		Total	98.4251	98.02

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 031
Lab Code: K1506797-011

Sand Fraction: Weight (Grams)	97.8744
Sand Fraction: Weight Recovered (Grams)	97.7397
Sand Fraction: Percent Recovery	99.86

Weight as received (Grams)	105.5474
Percent Solids	99.3
Weight Oven-Dried (Grams)	104.8086

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	18.4988	17.65
Gravel, Fine	2.00 mm	10	8.2402	7.86
Sand, Very Coarse	0.850 mm	20	12.7334	12.15
Sand, Coarse	0.425 mm	40	18.0045	17.18
Sand, Medium	0.250 mm	60	20.6951	19.75
Sand, Fine	0.106 mm	140	16.2442	15.50
Sand, Very Fine	0.075 mm	200	2.2295	2.13
Silt			4.6500	4.4
Clay			2.1620	2.1
		Total	103.4577	98.72

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 032
Lab Code: K1506797-012

Sand Fraction: Weight (Grams)	94.4116
Sand Fraction: Weight Recovered (Grams)	94.2052
Sand Fraction: Percent Recovery	99.78

Weight as received (Grams)	98.345
Percent Solids	99.5
Weight Oven-Dried (Grams)	97.8533

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.4863	0.50
Sand, Very Coarse	0.850 mm	20	1.8368	1.88
Sand, Coarse	0.425 mm	40	13.7899	14.09
Sand, Medium	0.250 mm	60	43.9619	44.93
Sand, Fine	0.106 mm	140	32.4815	33.19
Sand, Very Fine	0.075 mm	200	1.3445	1.37
Silt			1.9550	2.0
Clay			1.2670	1.3
		Total	97.1229	99.25

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 033
Lab Code: K1506797-013

Sand Fraction: Weight (Grams)	92.7467
Sand Fraction: Weight Recovered (Grams)	92.5692
Sand Fraction: Percent Recovery	99.81

Weight as received (Grams)	100.099
Percent Solids	99.3
Weight Oven-Dried (Grams)	99.3983

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	10.4784	10.54
Gravel, Fine	2.00 mm	10	7.1571	7.20
Sand, Very Coarse	0.850 mm	20	10.0322	10.09
Sand, Coarse	0.425 mm	40	16.0841	16.18
Sand, Medium	0.250 mm	60	22.2364	22.37
Sand, Fine	0.106 mm	140	23.9995	24.14
Sand, Very Fine	0.075 mm	200	1.9952	2.01
Silt			4.8500	4.9
Clay			2.1370	2.2
		Total	98.9699	99.56

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 034
Lab Code: K1506797-014

Sand Fraction: Weight (Grams)	93.0760
Sand Fraction: Weight Recovered (Grams)	93.1322
Sand Fraction: Percent Recovery	100.06

Weight as received (Grams)	96.6832
Percent Solids	99.6
Weight Oven-Dried (Grams)	96.2965

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.5707	1.63
Gravel, Fine	2.00 mm	10	0.9986	1.04
Sand, Very Coarse	0.850 mm	20	2.5758	2.67
Sand, Coarse	0.425 mm	40	7.7070	8.00
Sand, Medium	0.250 mm	60	45.2287	46.97
Sand, Fine	0.106 mm	140	33.1717	34.45
Sand, Very Fine	0.075 mm	200	1.4465	1.50
Silt			1.6200	1.7
Clay			1.3220	1.4
		Total	95.6410	99.31

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 035
Lab Code: K1506797-015

Sand Fraction: Weight (Grams)	95.9433
Sand Fraction: Weight Recovered (Grams)	96.0112
Sand Fraction: Percent Recovery	100.07

Weight as received (Grams)	97.4552
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.0654

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.2048	0.21
Sand, Very Coarse	0.850 mm	20	0.9180	0.95
Sand, Coarse	0.425 mm	40	8.1934	8.44
Sand, Medium	0.250 mm	60	52.8367	54.43
Sand, Fine	0.106 mm	140	33.5056	34.52
Sand, Very Fine	0.075 mm	200	0.3240	0.33
Silt			0.2450	0.3
Clay			0.8420	0.9
		Total	97.0695	100.00

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 036
Lab Code: K1506797-016

Sand Fraction: Weight (Grams)	96.8169
Sand Fraction: Weight Recovered (Grams)	96.7739
Sand Fraction: Percent Recovery	99.96

Weight as received (Grams)	98.761
Percent Solids	99.6
Weight Oven-Dried (Grams)	98.3660

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.3552	0.36
Sand, Very Coarse	0.850 mm	20	1.4244	1.45
Sand, Coarse	0.425 mm	40	7.4229	7.55
Sand, Medium	0.250 mm	60	44.7521	45.50
Sand, Fine	0.106 mm	140	42.1588	42.86
Sand, Very Fine	0.075 mm	200	0.5697	0.58
Silt			0.4200	0.4
Clay			0.9270	0.9
		Total	98.0301	99.67

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 037
Lab Code: K1506797-017

Sand Fraction: Weight (Grams)	96.2363
Sand Fraction: Weight Recovered (Grams)	95.9634
Sand Fraction: Percent Recovery	99.72

Weight as received (Grams)	101.1233
Percent Solids	99.6
Weight Oven-Dried (Grams)	100.7188

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.9588	3.93
Gravel, Fine	2.00 mm	10	6.4289	6.38
Sand, Very Coarse	0.850 mm	20	13.5113	13.41
Sand, Coarse	0.425 mm	40	26.6488	26.46
Sand, Medium	0.250 mm	60	31.7538	31.53
Sand, Fine	0.106 mm	140	12.3951	12.31
Sand, Very Fine	0.075 mm	200	1.0531	1.05
Silt			2.5450	2.5
Clay			1.6120	1.6
		Total	99.9068	99.20

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 038
Lab Code: K1506797-018

Sand Fraction: Weight (Grams)	91.3710
Sand Fraction: Weight Recovered (Grams)	90.9853
Sand Fraction: Percent Recovery	99.58

Weight as received (Grams)	97.5185
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.1284

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	20.0600	20.65
Gravel, Fine	2.00 mm	10	11.5285	11.87
Sand, Very Coarse	0.850 mm	20	11.9863	12.34
Sand, Coarse	0.425 mm	40	17.1832	17.69
Sand, Medium	0.250 mm	60	20.4296	21.03
Sand, Fine	0.106 mm	140	7.9828	8.22
Sand, Very Fine	0.075 mm	200	1.5116	1.56
Silt			3.9800	4.1
Clay			1.6170	1.7
		Total	96.2790	99.12

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083-039
Lab Code: K1506797-019

Sand Fraction: Weight (Grams)	96.3150
Sand Fraction: Weight Recovered (Grams)	96.2766
Sand Fraction: Percent Recovery	99.96

Weight as received (Grams)	101.0265
Percent Solids	99.6
Weight Oven-Dried (Grams)	100.6224

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	4.3728	4.35
Gravel, Fine	2.00 mm	10	6.8346	6.79
Sand, Very Coarse	0.850 mm	20	11.1106	11.04
Sand, Coarse	0.425 mm	40	28.3055	28.13
Sand, Medium	0.250 mm	60	32.4830	32.28
Sand, Fine	0.106 mm	140	12.0309	11.96
Sand, Very Fine	0.075 mm	200	0.9016	0.90
Silt			2.5600	2.5
Clay			1.6070	1.6
		Total	100.2060	99.59

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 040
Lab Code: K1506797-020

Sand Fraction: Weight (Grams)	92.9128
Sand Fraction: Weight Recovered (Grams)	92.9032
Sand Fraction: Percent Recovery	99.99

Weight as received (Grams)	95.687
Percent Solids	99.7
Weight Oven-Dried (Grams)	95.3999

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.2662	0.28
Sand, Very Coarse	0.850 mm	20	0.6611	0.69
Sand, Coarse	0.425 mm	40	0.8190	0.86
Sand, Medium	0.250 mm	60	18.7561	19.66
Sand, Fine	0.106 mm	140	66.9953	70.23
Sand, Very Fine	0.075 mm	200	4.7834	5.01
Silt			0.8200	0.9
Clay			1.2570	1.3
		Total	94.3581	98.91

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 041
Lab Code: K1506797-021

Sand Fraction: Weight (Grams)	94.3466
Sand Fraction: Weight Recovered (Grams)	94.0771
Sand Fraction: Percent Recovery	99.71

Weight as received (Grams)	97.4666
Percent Solids	99.8
Weight Oven-Dried (Grams)	97.2717

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.7048	1.75
Gravel, Fine	2.00 mm	10	0.9118	0.94
Sand, Very Coarse	0.850 mm	20	1.1033	1.13
Sand, Coarse	0.425 mm	40	2.2909	2.36
Sand, Medium	0.250 mm	60	6.9237	7.12
Sand, Fine	0.106 mm	140	72.6279	74.67
Sand, Very Fine	0.075 mm	200	6.9974	7.19
Silt			1.5100	1.6
Clay			1.3670	1.4
		Total	95.4368	98.1

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 042
Lab Code: K1506797-022

Sand Fraction: Weight (Grams)	95.6624
Sand Fraction: Weight Recovered (Grams)	95.7486
Sand Fraction: Percent Recovery	100.09

Weight as received (Grams)	97.735
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.3441

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.2012	0.21
Gravel, Fine	2.00 mm	10	0.5791	0.59
Sand, Very Coarse	0.850 mm	20	2.4910	2.56
Sand, Coarse	0.425 mm	40	4.6350	4.76
Sand, Medium	0.250 mm	60	24.8800	25.56
Sand, Fine	0.106 mm	140	60.8125	62.47
Sand, Very Fine	0.075 mm	200	1.8750	1.93
Silt			0.8200	0.8
Clay			1.0720	1.1
		Total	97.3658	100.02

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 043
Lab Code: K1506797-023

Sand Fraction: Weight (Grams)	94.6446
Sand Fraction: Weight Recovered (Grams)	94.4048
Sand Fraction: Percent Recovery	99.75

Weight as received (Grams)	97.3231
Percent Solids	99.9
Weight Oven-Dried (Grams)	97.2258

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.7321	0.75
Gravel, Fine	2.00 mm	10	3.6041	3.71
Sand, Very Coarse	0.850 mm	20	7.8051	8.03
Sand, Coarse	0.425 mm	40	5.5630	5.72
Sand, Medium	0.250 mm	60	18.0158	18.53
Sand, Fine	0.106 mm	140	56.2218	57.83
Sand, Very Fine	0.075 mm	200	2.0739	2.13
Silt			1.2400	1.3
Clay			1.0970	1.1
		Total	96.3528	99.11

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 044
Lab Code: K1506797-024

Sand Fraction: Weight (Grams)	99.7708
Sand Fraction: Weight Recovered (Grams)	99.4235
Sand Fraction: Percent Recovery	99.65

Weight as received (Grams)	102.1427
Percent Solids	99.6
Weight Oven-Dried (Grams)	101.7341

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.5319	0.52
Gravel, Fine	2.00 mm	10	0.2836	0.28
Sand, Very Coarse	0.850 mm	20	0.7918	0.78
Sand, Coarse	0.425 mm	40	1.4028	1.38
Sand, Medium	0.250 mm	60	20.4629	20.11
Sand, Fine	0.106 mm	140	72.7244	71.48
Sand, Very Fine	0.075 mm	200	2.7618	2.71
Silt			0.8600	0.9
Clay			1.1070	1.1
		Total	100.9262	99.20

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 044
Lab Code: K1506797-024DUP

Sand Fraction: Weight (Grams)	99.3044
Sand Fraction: Weight Recovered (Grams)	99.0554
Sand Fraction: Percent Recovery	99.75

Weight as received (Grams)	102.0353
Percent Solids	99.6
Weight Oven-Dried (Grams)	101.6272

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.3056	0.30
Sand, Very Coarse	0.850 mm	20	1.2103	1.19
Sand, Coarse	0.425 mm	40	1.1316	1.11
Sand, Medium	0.250 mm	60	22.7368	22.37
Sand, Fine	0.106 mm	140	71.0624	69.92
Sand, Very Fine	0.075 mm	200	2.3340	2.30
Silt			0.9800	1.0
Clay			1.2620	1.2
		Total	101.0227	99.39

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506797
Date Collected: 6/19/2015
Date Received: 6/23/2015
Date Analyzed: 7/19/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 029
Lab Code: K1506797-009DUP

Sand Fraction: Weight (Grams)	95.5905
Sand Fraction: Weight Recovered (Grams)	94.0111
Sand Fraction: Percent Recovery	98.35

Weight as received (Grams)	97.5892
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.1988

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.1800	0.19
Sand, Very Coarse	0.850 mm	20	1.0905	1.12
Sand, Coarse	0.425 mm	40	16.5005	16.98
Sand, Medium	0.250 mm	60	50.4306	51.88
Sand, Fine	0.106 mm	140	25.3027	26.03
Sand, Very Fine	0.075 mm	200	0.3968	0.41
Silt			0.5550	0.6
Clay			1.0720	1.1
		Total	95.5281	98.28

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July 22, 2015

Analytical Report for Service Request No: K1506794

Vicki Forney
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

RE:

Dear Vicki,

Enclosed are the results of the sample(s) submitted to our laboratory June 23, 2015
For your reference, these analyses have been assigned our service request number **K1506794.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

ALS

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Monday, July 27, 2015 9:03:32 AM
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ALS

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

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ALS Environmental

Case Narrative

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1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

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ALS ENVIRONMENTAL

Client:	ALS Environmental - US	**Service Request No.:**	K1506794
Project:	NA	**Date Received:**	6/23/2015
Sample Matrix:	Sediment		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), and Laboratory Control Sample (LCS).

Sample Receipt

Twenty sediment samples were received for analysis at ALS Environmental on 6/23/2015. The samples were received in good condition and consistent with the accompanying chain of custody form, except as noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Atterberg Limits by Method ASTM D4318:

The Atterberg Limit analysis requires samples to be air dried prior to determination of the liquid and plastic limits used for the calculation. Upon completion of this drying process, it was determined that insufficient sample mass was available for analysis of Atterberg Limits. The client was notified of this deficiency and no further corrective action was available.

No other anomalies associated with the analysis of these samples were observed.

Particle Size by Method ASTM D422M:

Due to a laboratory error, the samples used for Particle Size determination were air dried upon receipt at the lab prior to determination of the moisture content of the samples. The results for the Particle Size determination are reported using the percent moisture calculated from the air dried sample. No further corrective action was possible.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____

ALS Environmental

Chain of Custody

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Phone (360)577- 7222 Fax (360)636- 1068
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Monday, July 27, 2015 9:03:32 AM
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ALS

Analytical Laboratory Services, Inc.
Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717 944 5541 • Fax 717 944 1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K1506794
ALSI Quote #:
1 of 6

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
Enter Number of Containers Per Sample or Field Results Below.															
2078083 001	6/18/15	1257	G	SO	1	x									Subcontract: ALS Kelso
2078083 002	6/18/15	1307	G	SO	1	x									
2078083 003	6/18/15	1316	G	SO	1	x									
2078083 004	6/18/15	1327	G	SO	1	x									
2078083 005	6/18/15	1336	G	SO	1	x									
2078083 006	6/18/15	1345	G	SO	1	x									
2078083 007	6/18/15	1353	G	SO	1	x									
2078083 008	6/18/15	1405	G	SO	1	x									
2078083 009	6/18/15	1423	G	SO	1	x									
2078083 010	6/18/15	1432	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature): _____
REVIEWED BY(signature): _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	6/22/15	1500	2 [signature] / ALS	6/23/15	0920
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE ☐
Special Processing: USACE ☐ Navy ☐ ☐
State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC ☐ other
Reportable to PADEP? Yes ☐
PWSID # _____
Sample Disposal: Lab ☐ Special ☐
EDDs: Format Type- _____

* G=Grab, C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K15061794
ALSI Quote #:
2 of 6

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Container Type: G
Container Size: 8 oz
Preservative: none

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.										
2078083 011	6/18/15	1442	G	SO	1	x									Subcontract: ALS Kelso
2078083 012	6/18/15	1453	G	SO	1	x									
2078083 013	6/18/15	1503	G	SO	1	x									
2078083 014	6/18/15	1512	G	SO	1	x									
2078083 015	6/18/15	1523	G	SO	1	x									
2078083 016	6/18/15	1536	G	SO	1	x									
2078083 017	6/18/15	1545	G	SO	1	x									
2078083 018	6/18/15	1553	G	SO	1	x									
2078083 019	6/18/15	1601	G	SO	1	x									
2078083 020	6/18/15	1609	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature): 1 2
REVIEWED BY(signature): 1 2

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/22/15	1500	2 ALS	6/23/15	0920
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE ☐

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC ☐ other

Reportable to PADEP? Yes ☐ PWSID # _____

Sample Disposal: Lab ☐ Special ☐

EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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PC CV

Cooler Receipt and Preservation Form

Client / Project: ALS / Middletown Service Request K15 06794

Received: 6/23/15 Opened 6/23/15 By: [illegible] Unloaded: 6/23/15 By: [illegible]

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.3	0.3	1.4	1.4	0	310		4938 8863 6471	
4.9	4.8	5.1	5.0	-0.1	347		" " 6333	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was Cl2/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Page _____ *of* _____

ALS Environmental

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1506794
Project:		**Date Collected:**	06/18/15
Sample Matrix:	Sediment	**Date Received:**	06/23/15
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
2078083 001	K1506794-001	**99.7**	-	1	07/20/15 15:40	
2078083 002	K1506794-002	**99.7**	-	1	07/20/15 15:40	
2078083 003	K1506794-003	**99.3**	-	1	07/20/15 15:40	
2078083 004	K1506794-004	**99.5**	-	1	07/20/15 15:40	
2078083 005	K1506794-005	**99.8**	-	1	07/20/15 15:40	
2078083 006	K1506794-006	**99.8**	-	1	07/20/15 15:40	
2078083 007	K1506794-007	**99.9**	-	1	07/20/15 15:40	
2078083 008	K1506794-008	**98.9**	-	1	07/20/15 15:40	
2078083 009	K1506794-009	**99.5**	-	1	07/20/15 15:40	
2078083 010	K1506794-010	**99.8**	-	1	07/20/15 15:40	
2078083 011	K1506794-011	**99.5**	-	1	07/20/15 15:40	
2078083 012	K1506794-012	**99.6**	-	1	07/20/15 15:40	
2078083 013	K1506794-013	**99.5**	-	1	07/20/15 15:40	
2078083 014	K1506794-014	**99.5**	-	1	07/20/15 15:40	
2078083 015	K1506794-015	**99.5**	-	1	07/20/15 15:40	
2078083 016	K1506794-016	**99.7**	-	1	07/20/15 15:40	
2078083 017	K1506794-017	**99.7**	-	1	07/20/15 15:40	
2078083 018	K1506794-018	**99.7**	-	1	07/20/15 15:40	
2078083 019	K1506794-019	**99.5**	-	1	07/20/15 15:40	
2078083 020	K1506794-020	**99.8**	-	1	07/20/15 15:40	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project
Sample Matrix: Sediment

Analysis Method: 160.3 Modified
Prep Method: None

Service Request: K1506794
Date Collected: 06/18/15
Date Received: 06/23/15

Units: Percent
Basis: As Received

Replicate Sample Summary
Solids, Total

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2078083 001	K1506794-001DUP	-	99.7	99.8	99.8	<1	10	07/20/15
2078083 011	K1506794-011DUP	-	99.5	99.8	99.7	<1	10	07/20/15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Superset Reference:15-0000339684 rev 00

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ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 001
Lab Code: K1506794-001

Sand Fraction: Weight (Grams)	97.9673
Sand Fraction: Weight Recovered (Grams)	97.7019
Sand Fraction: Percent Recovery	99.73

Weight as received (Grams)	99.5588
Percent Solids	99.7
Weight Oven-Dried (Grams)	99.2601

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	7.0831	7.14
Gravel, Fine	2.00 mm	10	2.7507	2.77
Sand, Very Coarse	0.850 mm	20	13.3128	13.41
Sand, Coarse	0.425 mm	40	30.0880	30.31
Sand, Medium	0.250 mm	60	36.3499	36.62
Sand, Fine	0.106 mm	140	7.8047	7.86
Sand, Very Fine	0.075 mm	200	0.1929	0.19
Silt			0.4550	0.5
Clay			0.7320	0.7
		Total	98.7691	99.5

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 002
Lab Code: K1506794-002

Sand Fraction: Weight (Grams)	99.6790
Sand Fraction: Weight Recovered (Grams)	99.2609
Sand Fraction: Percent Recovery	99.58

Weight as received (Grams)	101.1596
Percent Solids	99.7
Weight Oven-Dried (Grams)	100.8561

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	5.3275	5.28
Gravel, Fine	2.00 mm	10	10.0013	9.92
Sand, Very Coarse	0.850 mm	20	22.3650	22.18
Sand, Coarse	0.425 mm	40	29.8012	29.55
Sand, Medium	0.250 mm	60	24.9615	24.75
Sand, Fine	0.106 mm	140	6.5351	6.48
Sand, Very Fine	0.075 mm	200	0.1468	0.15
Silt			0.3850	0.4
Clay			0.6020	0.6
		Total	100.1254	99.29

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 003
Lab Code: K1506794-003

Sand Fraction: Weight (Grams)	91.0705
Sand Fraction: Weight Recovered (Grams)	90.9983
Sand Fraction: Percent Recovery	99.92

Weight as received (Grams)	94.1545
Percent Solids	99.3
Weight Oven-Dried (Grams)	93.4954

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	7.1188	7.61
Gravel, Fine	2.00 mm	10	5.2085	5.57
Sand, Very Coarse	0.850 mm	20	12.1358	12.98
Sand, Coarse	0.425 mm	40	24.8339	26.56
Sand, Medium	0.250 mm	60	31.6591	33.86
Sand, Fine	0.106 mm	140	9.3936	10.05
Sand, Very Fine	0.075 mm	200	0.4561	0.49
Silt			1.5250	1.6
Clay			1.1220	1.2
		Total	93.4528	99.95

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 004
Lab Code: K1506794-004

Sand Fraction: Weight (Grams)	97.6950
Sand Fraction: Weight Recovered (Grams)	97.3332
Sand Fraction: Percent Recovery	99.63

Weight as received (Grams)	99.5926
Percent Solids	99.5
Weight Oven-Dried (Grams)	99.0946

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	30.2381	30.51
Gravel, Fine	2.00 mm	10	9.2286	9.31
Sand, Very Coarse	0.850 mm	20	12.2317	12.34
Sand, Coarse	0.425 mm	40	22.2870	22.49
Sand, Medium	0.250 mm	60	18.3764	18.54
Sand, Fine	0.106 mm	140	4.3448	4.38
Sand, Very Fine	0.075 mm	200	0.3630	0.37
Silt			1.0250	1.0
Clay			0.5870	0.6
		Total	98.6816	99.56

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 005
Lab Code: K1506794-005

Sand Fraction: Weight (Grams)	90.9103
Sand Fraction: Weight Recovered (Grams)	90.6665
Sand Fraction: Percent Recovery	99.73

Weight as received (Grams)	92.7279
Percent Solids	99.8
Weight Oven-Dried (Grams)	92.5424

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.5213	0.56
Gravel, Fine	2.00 mm	10	2.9226	3.16
Sand, Very Coarse	0.850 mm	20	15.2669	16.50
Sand, Coarse	0.425 mm	40	29.3979	31.77
Sand, Medium	0.250 mm	60	33.5181	36.22
Sand, Fine	0.106 mm	140	8.7445	9.45
Sand, Very Fine	0.075 mm	200	0.2411	0.26
Silt			0.9350	1.0
Clay			0.6320	0.7
		Total	92.1794	99.61

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 006
Lab Code: K1506794-006

Sand Fraction: Weight (Grams)	91.6391
Sand Fraction: Weight Recovered (Grams)	91.8845
Sand Fraction: Percent Recovery	100.27

Weight as received (Grams)	93.8726
Percent Solids	99.8
Weight Oven-Dried (Grams)	93.6849

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.9615	1.03
Gravel, Fine	2.00 mm	10	3.5909	3.83
Sand, Very Coarse	0.850 mm	20	9.3043	9.93
Sand, Coarse	0.425 mm	40	25.8897	27.63
Sand, Medium	0.250 mm	60	39.7096	42.39
Sand, Fine	0.106 mm	140	12.0557	12.87
Sand, Very Fine	0.075 mm	200	0.2868	0.31
Silt			0.9450	1.0
Clay			0.9720	1.0
		Total	93.7155	100.04

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 007
Lab Code: K1506794-007

Sand Fraction: Weight (Grams)	90.6810
Sand Fraction: Weight Recovered (Grams)	90.8085
Sand Fraction: Percent Recovery	100.14

Weight as received (Grams)	94.2332
Percent Solids	99.9
Weight Oven-Dried (Grams)	94.1390

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.1683	0.18
Gravel, Fine	2.00 mm	10	1.4502	1.54
Sand, Very Coarse	0.850 mm	20	5.5013	5.84
Sand, Coarse	0.425 mm	40	25.1034	26.67
Sand, Medium	0.250 mm	60	43.3182	46.02
Sand, Fine	0.106 mm	140	13.6040	14.45
Sand, Very Fine	0.075 mm	200	1.3523	1.44
Silt			1.7400	1.9
Clay			1.2620	1.3
		Total	93.4997	99.33

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 008
Lab Code: K1506794-008

Sand Fraction: Weight (Grams)	81.5479
Sand Fraction: Weight Recovered (Grams)	81.6824
Sand Fraction: Percent Recovery	100.16

Weight as received (Grams)	95.5898
Percent Solids	98.9
Weight Oven-Dried (Grams)	94.5383

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.7859	13.52
Gravel, Fine	2.00 mm	10	8.9968	9.52
Sand, Very Coarse	0.850 mm	20	10.2533	10.85
Sand, Coarse	0.425 mm	40	6.2969	6.66
Sand, Medium	0.250 mm	60	8.2277	8.70
Sand, Fine	0.106 mm	140	29.7180	31.43
Sand, Very Fine	0.075 mm	200	3.7803	4.00
Silt			9.3450	9.9
Clay			3.3920	3.6
		Total	92.7959	98.15

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 009
Lab Code: K1506794-009

Sand Fraction: Weight (Grams)	91.6304
Sand Fraction: Weight Recovered (Grams)	91.5022
Sand Fraction: Percent Recovery	99.86

Weight as received (Grams)	95.5365
Percent Solids	99.5
Weight Oven-Dried (Grams)	95.0588

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.2268	0.24
Gravel, Fine	2.00 mm	10	2.2438	2.36
Sand, Very Coarse	0.850 mm	20	9.2343	9.71
Sand, Coarse	0.425 mm	40	28.1169	29.58
Sand, Medium	0.250 mm	60	38.8929	40.91
Sand, Fine	0.106 mm	140	11.9212	12.54
Sand, Very Fine	0.075 mm	200	0.6273	0.66
Silt			2.2950	2.4
Clay			1.2770	1.3
		Total	94.8352	99.75

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 010
Lab Code: K1506794-010

Sand Fraction: Weight (Grams)	92.1440
Sand Fraction: Weight Recovered (Grams)	92.0723
Sand Fraction: Percent Recovery	99.92

Weight as received (Grams)	94.5564
Percent Solids	99.8
Weight Oven-Dried (Grams)	94.3673

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.9059	4.14
Gravel, Fine	2.00 mm	10	9.1975	9.75
Sand, Very Coarse	0.850 mm	20	13.7947	14.62
Sand, Coarse	0.425 mm	40	22.8721	24.24
Sand, Medium	0.250 mm	60	32.0709	33.99
Sand, Fine	0.106 mm	140	9.8267	10.41
Sand, Very Fine	0.075 mm	200	0.2873	0.30
Silt			1.0400	1.1
Clay			0.9020	1.0
		Total	93.8971	99.51

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 011
Lab Code: K1506794-011

Sand Fraction: Weight (Grams)	94.4323
Sand Fraction: Weight Recovered (Grams)	94.5057
Sand Fraction: Percent Recovery	100.08

Weight as received (Grams)	97.7494
Percent Solids	99.5
Weight Oven-Dried (Grams)	97.2607

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	9.8595	10.14
Gravel, Fine	2.00 mm	10	13.9462	14.34
Sand, Very Coarse	0.850 mm	20	14.8316	15.25
Sand, Coarse	0.425 mm	40	20.6997	21.28
Sand, Medium	0.250 mm	60	26.9161	27.67
Sand, Fine	0.106 mm	140	7.6050	7.82
Sand, Very Fine	0.075 mm	200	0.4267	0.44
Silt			1.6950	1.7
Clay			0.9820	1.0
		Total	96.9618	99.69

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 012
Lab Code: K1506794-012

Sand Fraction: Weight (Grams)	96.0906
Sand Fraction: Weight Recovered (Grams)	95.8191
Sand Fraction: Percent Recovery	99.72

Weight as received (Grams)	98.2877
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.8945

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	8.9734	9.17
Gravel, Fine	2.00 mm	10	15.1724	15.50
Sand, Very Coarse	0.850 mm	20	26.4882	27.06
Sand, Coarse	0.425 mm	40	28.1114	28.72
Sand, Medium	0.250 mm	60	13.0833	13.36
Sand, Fine	0.106 mm	140	3.5539	3.63
Sand, Very Fine	0.075 mm	200	0.3362	0.34
Silt			1.0400	1.1
Clay			0.6720	0.7
		Total	97.4308	99.53

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 013
Lab Code: K1506794-013

Sand Fraction: Weight (Grams)	93.6263
Sand Fraction: Weight Recovered (Grams)	93.7197
Sand Fraction: Percent Recovery	100.10

Weight as received (Grams)	95.1993
Percent Solids	99.5
Weight Oven-Dried (Grams)	94.7233

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	2.5157	2.66
Gravel, Fine	2.00 mm	10	6.9932	7.38
Sand, Very Coarse	0.850 mm	20	9.4636	9.99
Sand, Coarse	0.425 mm	40	17.4574	18.43
Sand, Medium	0.250 mm	60	38.4441	40.59
Sand, Fine	0.106 mm	140	18.3752	19.40
Sand, Very Fine	0.075 mm	200	0.3927	0.41
Silt			0.4500	0.5
Clay			0.6120	0.7
		Total	94.7039	99.99

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 014
Lab Code: K1506794-014

Sand Fraction: Weight (Grams)	91.6759
Sand Fraction: Weight Recovered (Grams)	91.8145
Sand Fraction: Percent Recovery	100.15

Weight as received (Grams)	94.0903
Percent Solids	99.5
Weight Oven-Dried (Grams)	93.6198

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	29.3158	31.31
Gravel, Fine	2.00 mm	10	11.6429	12.44
Sand, Very Coarse	0.850 mm	20	16.2643	17.37
Sand, Coarse	0.425 mm	40	17.0020	18.16
Sand, Medium	0.250 mm	60	12.9238	13.80
Sand, Fine	0.106 mm	140	4.1537	4.44
Sand, Very Fine	0.075 mm	200	0.3821	0.41
Silt			1.3300	1.4
Clay			0.5520	0.6
		Total	93.5666	99.94

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 015
Lab Code: K1506794-015

Sand Fraction: Weight (Grams)	97.1114
Sand Fraction: Weight Recovered (Grams)	96.9680
Sand Fraction: Percent Recovery	99.85

Weight as received (Grams)	98.4356
Percent Solids	99.5
Weight Oven-Dried (Grams)	97.9434

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	57.3258	58.53
Gravel, Fine	2.00 mm	10	11.6142	11.86
Sand, Very Coarse	0.850 mm	20	10.1220	10.33
Sand, Coarse	0.425 mm	40	7.9590	8.13
Sand, Medium	0.250 mm	60	5.8256	5.95
Sand, Fine	0.106 mm	140	3.5256	3.60
Sand, Very Fine	0.075 mm	200	0.4081	0.42
Silt			0.4950	0.5
Clay			0.4570	0.5
		Total	97.7323	99.80

ALS Group USA, Corp.
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Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 016
Lab Code: K1506794-016

Sand Fraction: Weight (Grams)	96.2832
Sand Fraction: Weight Recovered (Grams)	96.0876
Sand Fraction: Percent Recovery	99.80

Weight as received (Grams)	99.5417
Percent Solids	99.7
Weight Oven-Dried (Grams)	99.2431

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	7.9777	8.04
Gravel, Fine	2.00 mm	10	15.3120	15.43
Sand, Very Coarse	0.850 mm	20	29.9766	30.21
Sand, Coarse	0.425 mm	40	29.1459	29.37
Sand, Medium	0.250 mm	60	10.4656	10.55
Sand, Fine	0.106 mm	140	2.5948	2.61
Sand, Very Fine	0.075 mm	200	0.4324	0.44
Silt			1.9800	2.0
Clay			0.8670	0.9
		Total	98.7520	99.52

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 017
Lab Code: K1506794-017

Sand Fraction: Weight (Grams)	98.1013
Sand Fraction: Weight Recovered (Grams)	98.1332
Sand Fraction: Percent Recovery	100.03

Weight as received (Grams)	100.6303
Percent Solids	99.7
Weight Oven-Dried (Grams)	100.3284

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.6483	3.64
Gravel, Fine	2.00 mm	10	4.6836	4.67
Sand, Very Coarse	0.850 mm	20	12.1471	12.11
Sand, Coarse	0.425 mm	40	29.6974	29.60
Sand, Medium	0.250 mm	60	36.7775	36.66
Sand, Fine	0.106 mm	140	10.7517	10.72
Sand, Very Fine	0.075 mm	200	0.2975	0.30
Silt			1.0750	1.1
Clay			0.9220	0.9
		Total	100.0001	99.69

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 018
Lab Code: K1506794-018

Sand Fraction: Weight (Grams)	92.2509
Sand Fraction: Weight Recovered (Grams)	92.4260
Sand Fraction: Percent Recovery	100.19

Weight as received (Grams)	95.0031
Percent Solids	99.7
Weight Oven-Dried (Grams)	94.7181

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	2.5929	2.74
Gravel, Fine	2.00 mm	10	2.1496	2.27
Sand, Very Coarse	0.850 mm	20	6.8717	7.25
Sand, Coarse	0.425 mm	40	29.7357	31.39
Sand, Medium	0.250 mm	60	27.1738	28.69
Sand, Fine	0.106 mm	140	23.0341	24.32
Sand, Very Fine	0.075 mm	200	0.6524	0.69
Silt			1.2950	1.4
Clay			0.9270	1.0
		Total	94.4322	99.70

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 019
Lab Code: K1506794-019

Sand Fraction: Weight (Grams)	96.7915
Sand Fraction: Weight Recovered (Grams)	96.8448
Sand Fraction: Percent Recovery	100.06

Weight as received (Grams)	100.6946
Percent Solids	99.5
Weight Oven-Dried (Grams)	100.1911

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.0575	3.05
Gravel, Fine	2.00 mm	10	4.2652	4.26
Sand, Very Coarse	0.850 mm	20	7.2105	7.20
Sand, Coarse	0.425 mm	40	20.3272	20.29
Sand, Medium	0.250 mm	60	31.8975	31.84
Sand, Fine	0.106 mm	140	29.2016	29.15
Sand, Very Fine	0.075 mm	200	0.6975	0.70
Silt			2.0500	2.1
Clay			1.2220	1.2
		Total	99.9290	99.76

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 020
Lab Code: K1506794-020

Sand Fraction: Weight (Grams)	96.6156
Sand Fraction: Weight Recovered (Grams)	96.5226
Sand Fraction: Percent Recovery	99.90

Weight as received (Grams)	101.0723
Percent Solids	99.8
Weight Oven-Dried (Grams)	100.8702

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.7902	3.76
Gravel, Fine	2.00 mm	10	10.2740	10.19
Sand, Very Coarse	0.850 mm	20	14.0081	13.89
Sand, Coarse	0.425 mm	40	29.3732	29.12
Sand, Medium	0.250 mm	60	29.8154	29.56
Sand, Fine	0.106 mm	140	8.4174	8.34
Sand, Very Fine	0.075 mm	200	0.6811	0.68
Silt			2.4850	2.5
Clay			1.2870	1.3
		Total	100.1314	99.28

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Sediment

Service Request: K1506794
Date Collected: 6/18/2015
Date Received: 6/23/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2078083 019
Lab Code: K1506794-019 DUP

Sand Fraction: Weight (Grams)	92.3425
Sand Fraction: Weight Recovered (Grams)	92.3346
Sand Fraction: Percent Recovery	99.99

Weight as received (Grams)	95.4589
Percent Solids	99.5
Weight Oven-Dried (Grams)	94.9816

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	9.6539	10.16
Gravel, Fine	2.00 mm	10	2.1115	2.22
Sand, Very Coarse	0.850 mm	20	5.9521	6.27
Sand, Coarse	0.425 mm	40	19.6950	20.74
Sand, Medium	0.250 mm	60	28.9329	30.46
Sand, Fine	0.106 mm	140	25.1812	26.51
Sand, Very Fine	0.075 mm	200	0.5637	0.59
Silt			1.5300	1.6
Clay			1.1420	1.2
		Total	94.7623	99.76

ALS Environmental
34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

July 27, 2015

Mr. Eric Nestler
Normandeau Associates, Inc.- Bedford
25 Nashua Road
Bedford, NH 03110

Certificate of Analysis

Project Name:	**2015PC-Clam**	Workorder:	**2077727**
Purchase Order:		Workorder ID:	**23674.000**

Dear Mr. Nestler:

Enclosed are the analytical results for samples received by the laboratory on Thursday, June 18, 2015.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vicki A. Forney (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Paul Geoghegan

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vicki Forney
Mrs. Vicki A. Forney
Project Coordinator

SAMPLE SUMMARY

Workorder: 2077727 23674.000

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2077727001	HB16	Solid	6/18/2015 07:15	6/18/2015 21:30	Collected by Client
2077727002	HB15	Solid	6/18/2015 07:18	6/18/2015 21:30	Collected by Client
2077727003	HB22	Solid	6/18/2015 07:21	6/18/2015 21:30	Collected by Client
2077727004	HB10	Solid	6/18/2015 07:23	6/18/2015 21:30	Collected by Client
2077727005	B17	Solid	6/18/2015 07:33	6/18/2015 21:30	Collected by Client
2077727006	HB14	Solid	6/18/2015 07:36	6/18/2015 21:30	Collected by Client
2077727007	HB26	Solid	6/18/2015 07:39	6/18/2015 21:30	Collected by Client
2077727008	HB23	Solid	6/18/2015 07:41	6/18/2015 21:30	Collected by Client
2077727009	HB24	Solid	6/18/2015 07:46	6/18/2015 21:30	Collected by Client
2077727010	HB8	Solid	6/18/2015 07:49	6/18/2015 21:30	Collected by Client
2077727011	HB30	Solid	6/18/2015 08:05	6/18/2015 21:30	Collected by Client
2077727012	B5	Solid	6/18/2015 09:56	6/18/2015 21:30	Collected by Client
2077727013	B15	Solid	6/18/2015 11:06	6/18/2015 21:30	Collected by Client
2077727014	B8	Solid	6/18/2015 11:19	6/18/2015 21:30	Collected by Client
2077727015	B13	Solid	6/18/2015 11:36	6/18/2015 21:30	Collected by Client
2077727016	B45	Solid	6/18/2015 11:45	6/18/2015 21:30	Collected by Client

SAMPLE SUMMARY

Workorder: 2077727 23674.000

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)

PROJECT SUMMARY

Workorder: 2077727 23674.000

Workorder Comments

See attached subcontracted atterberg limits and grain size results from ALS-Kelso. VLF 7/24/15

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727001** Date Collected: 6/18/2015 07:15 Matrix: Solid
Sample ID: **HB16** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	27.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2930		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	73.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:43	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727002** Date Collected: 6/18/2015 07:18 Matrix: Solid
Sample ID: **HB15** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.2		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2510		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	77.8		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:43	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727003** Date Collected: 6/18/2015 07:21 Matrix: Solid
Sample ID: **HB22** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	27.6		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2690		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	72.4		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:44	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727004** Date Collected: 6/18/2015 07:23 Matrix: Solid
Sample ID: **HB10** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	25.9		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2210		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	74.1		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:44	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727005** Date Collected: 6/18/2015 07:33 Matrix: Solid
Sample ID: **B17** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	40.3		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	15100		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	59.7		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:44	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727006** Date Collected: 6/18/2015 07:36 Matrix: Solid
Sample ID: **HB14** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	16.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2850		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	84.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:44	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727007** Date Collected: 6/18/2015 07:39 Matrix: Solid
Sample ID: **HB26** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	16.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	5890		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	84.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:45	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727008** Date Collected: 6/18/2015 07:41 Matrix: Solid
Sample ID: **HB23** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	37.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	15800		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	63.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:45	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727009** Date Collected: 6/18/2015 07:46 Matrix: Solid
Sample ID: **HB24** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	52.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	16600		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	48.0		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:45	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727010** Date Collected: 6/18/2015 07:49 Matrix: Solid
Sample ID: **HB8** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	18.1		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	1960		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	81.9		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:46	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727011** Date Collected: 6/18/2015 08:05 Matrix: Solid
Sample ID: **HB30** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.9		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2220		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	77.1		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:46	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727012** Date Collected: 6/18/2015 09:56 Matrix: Solid
Sample ID: **B5** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	44.7		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	16900		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	55.3		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:46	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727013** Date Collected: 6/18/2015 11:06 Matrix: Solid
Sample ID: **B15** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	37.2		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	7780		mg/kg	500	84.8	SW846 9060A		7/1/15 08:31	NK	A
Total Solids	62.8		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:46	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727014** Date Collected: 6/18/2015 11:19 Matrix: Solid
Sample ID: **B8** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	22.4		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	1380		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	77.6		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:47	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727015** Date Collected: 6/18/2015 11:36 Matrix: Solid
Sample ID: **B13** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	27.8		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	2210		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	72.2		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:47	SUB	A

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ANALYTICAL RESULTS

Workorder: 2077727 23674.000

Lab ID: **2077727016** Date Collected: 6/18/2015 11:45 Matrix: Solid
Sample ID: **B45** Date Received: 6/18/2015 21:30

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Moisture	20.1		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
Total Organic Carbon (TOC)	1150		mg/kg	500	84.8	SW846 9060A		6/23/15 12:09	NK	A
Total Solids	79.9		%	0.1	0.01	S2540G-11		6/19/15 09:31	JP	A
SUBCONTRACTED ANALYSIS										
Subcontracted Analysis	See attached					Subcontract		7/24/15 09:47	SUB	A

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QUALITY CONTROL DATA

Workorder: 2077727 23674.000

QC Batch: WETC/155701 **Analysis Method:** S2540G-11

QC Batch Method: S2540G-11

Associated Lab Samples: 2077727001, 2077727002, 2077727003, 2077727004, 2077727005, 2077727006, 2077727007, 2077727008, 2077727009, 2077727010, 2077727011, 2077727012, 2077727013, 2077727014, 2077727015, 2077727016

SAMPLE DUPLICATE: 2194187 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	95.2314	%	95.3296	.1	10	
Total Solids	4.7685	%	4.6703	2.08	5	

SAMPLE DUPLICATE: 2194188 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	45.2762	%	44.5523	1.61	10	
Total Solids	54.7237	%	55.4476	1.31	5	

SAMPLE DUPLICATE: 2194189 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	15.5474	%	15.3986	.96	10	
Total Solids	84.4525	%	84.6013	.18	5	

SAMPLE DUPLICATE: 2194190 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	17.2478	%	17.8317	3.33	10	
Total Solids	82.7521	%	82.1682	.71	5	

SAMPLE DUPLICATE: 2194191 ORIGINAL: 2077727007

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture	15.9584	%	15.4845	3.01	10	
Total Solids	84.0415	%	84.5154	.56	5	

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QUALITY CONTROL DATA

Workorder: 2077727 23674.000

SAMPLE DUPLICATE: 2194192 ORIGINAL:

Parameter	Original Result	Units	DUP Result	RPD	Max RPD	Qualifiers
Moisture		%	94.722	.54	10	
Total Solids	4.7619	%	5.2779	10.3*	5	

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QUALITY CONTROL DATA

Workorder: 2077727 23674.000

QC Batch: WETC/155792 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2077727001, 2077727002, 2077727003, 2077727004, 2077727005, 2077727006, 2077727007, 2077727008, 2077727009, 2077727010, 2077727011, 2077727012, 2077727013, 2077727014, 2077727015, 2077727016

METHOD BLANK: 2195114

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2195115

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	96.4	mg/kg	411000	396000	80 - 120	

MATRIX SPIKE SAMPLE: 2195116 ORIGINAL: 2077727010

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	1960	mg/kg	1720	3450	86.7	80 - 120	

METHOD BLANK: 2195117

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2195118

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	96.7	mg/kg	411000	397000	80 - 120	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077727 23674.000

METHOD BLANK: 2195119

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2195120

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	96.6	mg/kg	411000	397000	80 - 120	

QUALITY CONTROL DATA

Workorder: 2077727 23674.000

QC Batch: WETC/156237 **Analysis Method:** SW846 9060A

QC Batch Method: SW846 9060A

Associated Lab Samples: 2077727005, 2077727008, 2077727009, 2077727012, 2077727013

METHOD BLANK: 2199651

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199652

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	93.4	mg/kg	411000	384000	80 - 120	

METHOD BLANK: 2199653

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	150J	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199654

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	92	mg/kg	411000	378000	80 - 120	

MATRIX SPIKE SAMPLE: 2199655 ORIGINAL:

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	6570	mg/kg	3070	8970	78.2*	80 - 120	

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2077727 23674.000

METHOD BLANK: 2199656

Parameter	Blank Result	Units	Reporting Limit	Qualifiers
Total Organic Carbon (TOC)	500 U	mg/kg	500	

LABORATORY CONTROL SAMPLE: 2199657

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit	Qualifiers
Total Organic Carbon (TOC)	91.2	mg/kg	411000	375000	80 - 120	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077727 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077727001	HB16			S2540G-11	WETC/155701
2077727002	HB15			S2540G-11	WETC/155701
2077727003	HB22			S2540G-11	WETC/155701
2077727004	HB10			S2540G-11	WETC/155701
2077727005	B17			S2540G-11	WETC/155701
2077727006	HB14			S2540G-11	WETC/155701
2077727007	HB26			S2540G-11	WETC/155701
2077727008	HB23			S2540G-11	WETC/155701
2077727009	HB24			S2540G-11	WETC/155701
2077727010	HB8			S2540G-11	WETC/155701
2077727011	HB30			S2540G-11	WETC/155701
2077727012	B5			S2540G-11	WETC/155701
2077727013	B15			S2540G-11	WETC/155701
2077727014	B8			S2540G-11	WETC/155701
2077727015	B13			S2540G-11	WETC/155701
2077727016	B45			S2540G-11	WETC/155701
2077727001	HB16			SW846 9060A	WETC/155792
2077727002	HB15			SW846 9060A	WETC/155792
2077727003	HB22			SW846 9060A	WETC/155792
2077727004	HB10			SW846 9060A	WETC/155792
2077727006	HB14			SW846 9060A	WETC/155792
2077727007	HB26			SW846 9060A	WETC/155792
2077727010	HB8			SW846 9060A	WETC/155792
2077727011	HB30			SW846 9060A	WETC/155792
2077727014	B8			SW846 9060A	WETC/155792
2077727015	B13			SW846 9060A	WETC/155792
2077727016	B45			SW846 9060A	WETC/155792
2077727005	B17			SW846 9060A	WETC/156237
2077727008	HB23			SW846 9060A	WETC/156237
2077727009	HB24			SW846 9060A	WETC/156237

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2077727 23674.000

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2077727012	B5			SW846 9060A	WETC/156237
2077727013	B15			SW846 9060A	WETC/156237

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 2

Courier:

Tracking #:

2077727

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495330

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] -Y enestler@normandeau.com

Fax? [ ] -Y No.:

***Container Type	PL	PL	CG	CG
***Container Size		100mL	4oz	8oz
***Preservative	H_2SO_4	$Na_2S_2O_3$		

ANALYSES/METHOD REQUESTED

SUB OUT TO GALDEN STATE

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TKN, Nitrate, TP	Total Coliform	TOC	Grain Size/Atterberg							
1 HB 16		6/18/15	0715			1		1	1	(2)						
2 HB 15			0718			1		1	1							
3 HB 22			0721			1		1	1							
4 HB 10			0723			1		1	1							
5 B 17			0733			1		1	1							
6 HB 14			0736			1		1	1							
7 HB 26	Rmk 6/19		0739			1		1	1							
8 HB 23	24b		0741			1		1	1							

Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiver)

Performed by: Rmk

Cooler Temp:

Therm. ID: 291

No. of Coolers:

Notes:

	Y	Y	Y	Y	Y
Correct containers?	Y	Y	Y	Y	Y
Correct sample volume?	Y	Y	Y	Y	Y
Correct preservation?	Y	Y	Y	Y	Y
Headspace/Volatiles?	Y	Y	Y	Y	Y
Circle appropriate Y or N					

	Y	Y	Y	Y	Y
Custody seals Present?	Y	Y	Y	Y	Y
(If present) Seals intact?	Y	Y	Y	Y	Y
Received on ice?	Y	Y	Y	Y	Y
COC/Labels complete/accurate?	Y	Y	Y	Y	Y
Container in good condition?	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Chris Burnett

Project Comments: ON SEPARATE COC @ 7.6°C FOC

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Normandeau	6/18/15	1230	2	6/18	1230
3	6/18/15	1350	4 Benjamin McFadden	6/18/15	13:50
5	6/18	1915	6	6/18	1925
7	6/18	2230	8 Rmk	6/18	2230
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In excel

DOD Criteria Required?

ALS FIELD SERVICES: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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ALS Environmental

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Middletown, PA 17057
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 2 of 2

Courier:

Tracking #:

727

Co. Name: Normandeau Associates, Inc.

Contact (Report to): Eric Nestler

Phone: (603) 472-5191

Address: 25 Nashua Rd. Bedford, NH 03110

Bill to (if different than Report to):

PO#:

Project Name/#: 23674.000

ALS Quote #: 40-495303

TAT: [ ] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required:

Approved By:

Email? [X] Y enestler@normandeau.com

Fax? [ ] Y No.:

	***Container Type	PL	PL	CG	CG
	***Container Size		100 mL	4 oz	8 oz
	*** Preservative	H_2SO_4	$Na_2S_2O_3$		
	ANALYSES/METHOD REQUESTED	TKN, Nitrate, TN	Fecal Coliform	TOC	Grain Size/Atterberg
	Enter Number of Containers Per Analysis				
1 HB 24	6/18/15 0746		1	1	1
2 HB 8	0749		1	1	1
3 HB 30	0805		1	1	1
4 B 5	0956		1	1	1
5 B 15	1106		1	1	1
6 B 8	1119		1	1	1
7 B13 Rush 6/19	1136		1	1	1
8 B45 248	1145		1	1	1

SUBCONT OUT TO GANDY STATE

Sample Description/Location (as it will appear on the lab report) | COC Comments | Sample Date | Military Time | *G or C | **Matrix

SAMPLED BY (Please Print): Chris Burnett

Project Comments: ON SEPARATE COC @ 7.6°C EOC

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Chris Normandeau	6/18/15	1230	2 [illegible]	6/18	1234
3 [illegible]	6/18/15	1250	4 Bernight McFadden	6/18/15	1350
5 [illegible]	6/18	1915	6 [illegible]	6/18	1915
7 [illegible]	6/18	2130	8 [illegible]	6/18	2130
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] New: yes

SDWA Forms? yes yes yes

State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ] Other

EDDs Required? [X] If yes, format type: In Excel

DOD Criteria Required?

Receipt Information (completed by Sample Receiving)

Performed by:

Cooler Temp: 1

Therm. ID: 291

No. of Coolers:

Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N	N	N	Y	
	Y	Y	Y		
	N	N	N	N	N
	Y				Y

Custody seals Present?	(If present) Seals Intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?

ALS FIELD SERVICES

[X] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: Air=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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Environmental • Industrial Hygiene • Field Services
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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 1 of 2
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
ANALYSES/METHOD REQUESTED															
Enter Number of Containers Per Sample or Field Results Below.															
2077727 001	6/18/15	0715	G	SO	1	x									Subcontract: ALS Kelso
2077727 002	6/18/15	0718	G	SO	1	x									
2077727 003	6/18/15	0721	G	SO	1	x									
2077727 004	6/18/15	0723	G	SO	1	x									
2077727 005	6/18/15	0733	G	SO	1	x									
2077727 006	6/18/15	0736	G	SO	1	x									
2077727 007	6/18/15	0739	G	SO	1	x									
2077727 008	6/18/15	0741	G	SO	1	x									
2077727 009	6/18/15	0746	G	SO	1	x									
2077727 010	6/18/15	0749	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature]	6/18/15	1500	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] [ ] other
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oi=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	2 of 2
ALSI Quote #:	

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Fomey
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT [x] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
					Enter Number of Containers Per Sample or Field Results Below.										
2077727 011	6/18/15	0805	G	SO	1	x									Subcontract: ALS Kelso
2077727 012	6/18/15	0956	G	SO	1	x									
2077727 013	6/18/15	1106	G	SO	1	x									
2077727 014	6/18/15	1119	G	SO	1	x									
2077727 015	6/18/15	1136	G	SO	1	x									
2077727 016	6/18/15	1145	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: _____ Therm. ID: _____
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. In Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY(signature): DATE
REVIEWED BY(signature): DATE

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/15	1000	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ] [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ] PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDs: Format Type- Call Vicki

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

July 22, 2015

Analytical Report for Service Request No: K1506724

Vicki Forney
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

RE:

Dear Vicki,

Enclosed are the results of the sample(s) submitted to our laboratory June 20, 2015
For your reference, these analyses have been assigned our service request number **K1506724.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

ALS

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

Table of Contents

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General Chemistry

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Monday, July 27, 2015 9:02:57 AM
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ALS

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS Environmental

Case Narrative

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ALS

ALS ENVIRONMENTAL

Client:	ALS Environmental – US	**Service Request No.:**	K1506724
Project:	NA	**Date Received:**	6/20/2015
Sample Matrix:	Soil		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), and Laboratory Control Sample (LCS).

Sample Receipt

Sixteen soil samples were received for analysis at ALS Environmental on 6/20/2015. The samples were received in good condition and consistent with the accompanying chain of custody form, except as noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Atterberg Limits by Method ASTM D4318:

The Atterberg Limit analysis requires samples to be air dried prior to determination of the liquid and plastic limits used for the calculation. Upon completion of this drying process, it was determined that insufficient sample mass was available for analysis of Atterberg Limits. The client was notified of this deficiency and no further corrective action was available.

No other anomalies associated with the analysis of these samples were observed.

Particle Size by Method ASTM D422M:

Due to a laboratory error, the samples used for Particle Size determination were air dried upon receipt at the lab prior to determination of the moisture content of the samples. The results for the Particle Size determination are reported using the percent moisture calculated from the air dried sample. No further corrective action was possible.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____

ALS Environmental

Chain of Custody

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1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K1506724
ALSI Quote #:
1 of 2

Client Name: ALS Environmental
Address: 34 Dogwood Lane
Middletown, PA 17057
Contact: Vicki Fomey
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.: _____

Receipt Information (completed by Receiving Lab)
Cooler Temp: ____ Therm. ID: ____
No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(If present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #: _____

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
					Container Type		G								
					Container Size		8 oz								
					Preservative		none								
					Enter Number of Containers Per Sample or Field Results Below.										
2077727 001	6/18/15	0715	G	SO	1	x									Subcontract: ALS Kelso
2077727 002	6/18/15	0718	G	SO	1	x									
2077727 003	6/18/15	0721	G	SO	1	x									
2077727 004	6/18/15	0723	G	SO	1	x									
2077727 005	6/18/15	0733	G	SO	1	x									
2077727 006	6/18/15	0736	G	SO	1	x									
2077727 007	6/18/15	0739	G	SO	1	x									
2077727 008	6/18/15	0741	G	SO	1	x									
2077727 009	6/18/15	0746	G	SO	1	x									
2077727 010	6/18/15	0749	G	SO	1	x									

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other: _____

Project Comments:
LOGGED BY (signature): Date: Time:
REVIEWED BY (signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/18/15	1500	2 MS	6/20/15	1040
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE ☐
Special Processing: USACE ☐ Navy ☐ ☐
State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC ☐ other
Reportable to PADEP? Yes ☐ PWSID # _____
Sample Disposal: Lab ☐ Special ☐
EDDs: Format Type- _____

* G=Grab; C=Composite **Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil, WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY Rev 5/05

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: K1506724 — 2 of 2
ALSI Quote #:

Client Name: ALS Environmental
Address: 34 Dogwood Lane, Middletown, PA 17057
Contact: Vicki Forney
Phone#: (717) 944-5541
Project Name/#:
Bill To: ALS Environmental

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges.
Date Required: _____ Approved By: _____
Email? [x] -Y almdt.subcontract@ALSGlobal.com
Fax? [ ] -Y No.:

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Grain Size	Atterberg Limits									Sample/COC Comments
Container Type			G												
Container Size			8 oz												
Preservative			none												
Enter Number of Containers Per Sample or Field Results Below.															
2077727 011	6/18/15	0805	G	SO	1	x									Subcontract: ALS Kelso
2077727 012	6/18/15	0956	G	SO	1	x									
2077727 013	6/18/15	1106	G	SO	1	x									
2077727 014	6/18/15	1119	G	SO	1	x									
2077727 015	6/18/15	1136	G	SO	1	x									
2077727 016	6/18/15	1145	G	SO	1	x									

Receipt Information (completed by Receiving Lab)
Cooler Temp: ____ Therm. ID: ____
No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier tracking #:

ALSI Field Services: ☐Pickup ☐Labor ☐Composite Sampling ☐Rental Equipment ☐Other:

Project Comments:
LOGGED BY (signature): DATE
REVIEWED BY (signature): DATE

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/19/15	1000	2 ALS	6/20/15	1040
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE ☐
Special Processing: USACE ☐ Navy ☐ ☐
State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ NC ☐ other
Reportable to PADEP? Yes ☐ PWSID #
Sample Disposal: Lab ☐ Special ☐
EDDs: Format Type- Call Vicki

* G=Grab; C=Composite ** Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER MAILING PINK - FILE GOLDENROD - CUSTOMER COPY

Rev 5/05

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PC CMRS

Cooler Receipt and Preservation Form

Client / Project: ALS VS Service Request K15 04727

Received: 6/20/15 Opened: 6/20/15 By: Unloaded: 6/20/15 By:

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where?
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
3.5	3.5	10.1	10.1	0	298		773876195232	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves*
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was Cl2/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: Confirmed test requires condensed to reach volt, no hydrometer via email 6/29/15 - CL

Page ____ *of* ____

ALS Environmental

General Chemistry

ALS Environmental—Kelso Laboratory
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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1506724
Project:		**Date Collected:**	06/18/15
Sample Matrix:	Soil	**Date Received:**	06/20/15
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Air Dried

Solids, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
2077727 001	K1506724-001	100	-	1	07/15/15 08:29	
2077727 002	K1506724-002	100	-	1	07/15/15 08:29	
2077727 003	K1506724-003	99.2	-	1	07/15/15 08:29	
2077727 004	K1506724-004	99.6	-	1	07/15/15 08:29	
2077727 005	K1506724-005	97.7	-	1	07/15/15 08:29	
2077727 006	K1506724-006	99.6	-	1	07/15/15 08:29	
2077727 007	K1506724-007	99.3	-	1	07/15/15 08:29	
2077727 008	K1506724-008	99.4	-	1	07/15/15 08:29	
2077727 009	K1506724-009	98.5	-	1	07/15/15 08:29	
2077727 010	K1506724-010	99.5	-	1	07/15/15 08:29	
2077727 011	K1506724-011	100	-	1	07/15/15 08:29	
2077727 012	K1506724-012	97.8	-	1	07/15/15 08:29	
2077727 013	K1506724-013	98.3	-	1	07/15/15 08:29	
2077727 014	K1506724-014	99.7	-	1	07/15/15 08:29	
2077727 015	K1506724-015	100	-	1	07/15/15 08:29	
2077727 016	K1506724-016	99.4	-	1	07/15/15 08:29	

ALS

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project
Sample Matrix: Soil

Analysis Method: 160.3 Modified
Prep Method: None

Service Request: K1506724
Date Collected: 06/18/15
Date Received: 06/20/15

Units: Percent
Basis: Air Dried

Replicate Sample Summary
Solids, Total

Sample Name:	Lab Code:	MRL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2077727 001	K1506724-001DUP	-	100	99.3	99.7	<1	10	07/15/15
2077727 011	K1506724-011DUP	–	100	100	100	<1	10	07/15/15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

Printed 7/20/2015 2:00:19 PM

Superset Reference: 15-0000339149 rev 00

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 001
Lab Code: K1506724-001

Sand Fraction: Weight (Grams)	92.4557
Sand Fraction: Weight Recovered (Grams)	92.5475
Sand Fraction: Percent Recovery	100.10

Weight as received (Grams)	95.2126
Percent Solids	100.0
Weight Oven-Dried (Grams)	95.2126

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	14.6038	15.34
Gravel, Fine	2.00 mm	10	2.9119	3.06
Sand, Very Coarse	0.850 mm	20	3.9256	4.12
Sand, Coarse	0.425 mm	40	17.6089	18.49
Sand, Medium	0.250 mm	60	34.4658	36.20
Sand, Fine	0.106 mm	140	16.6960	17.54
Sand, Very Fine	0.075 mm	200	1.6829	1.77
Silt			1.5650	1.6
Clay			0.9870	1.0
		Total	94.4469	99.2

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 002
Lab Code: K1506724-002

Sand Fraction: Weight (Grams)	98.7253
Sand Fraction: Weight Recovered (Grams)	98.6227
Sand Fraction: Percent Recovery	99.90

Weight as received (Grams)	100.1246
Percent Solids	100.0
Weight Oven-Dried (Grams)	100.1246

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	5.8413	5.83
Gravel, Fine	2.00 mm	10	4.6538	4.65
Sand, Very Coarse	0.850 mm	20	10.3983	10.39
Sand, Coarse	0.425 mm	40	28.8101	28.77
Sand, Medium	0.250 mm	60	34.1462	34.10
Sand, Fine	0.106 mm	140	12.6427	12.63
Sand, Very Fine	0.075 mm	200	1.7078	1.71
Silt			0.4550	0.5
Clay			0.6670	0.7
		Total	99.3222	99.20

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental – US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 003
Lab Code: K1506724-003

Sand Fraction: Weight (Grams)	92.1271
Sand Fraction: Weight Recovered (Grams)	92.0467
Sand Fraction: Percent Recovery	99.91

Weight as received (Grams)	94.5055
Percent Solids	99.2
Weight Oven-Dried (Grams)	93.7495

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	11.2829	12.04
Gravel, Fine	2.00 mm	10	4.4424	4.74
Sand, Very Coarse	0.850 mm	20	8.8661	9.46
Sand, Coarse	0.425 mm	40	21.9607	23.42
Sand, Medium	0.250 mm	60	27.7045	29.55
Sand, Fine	0.106 mm	140	15.3926	16.42
Sand, Very Fine	0.075 mm	200	1.8087	1.93
Silt			1.4800	1.6
Clay			0.8920	1.0
		Total	93.8299	100.09

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 004
Lab Code: K1506724-004

Sand Fraction: Weight (Grams)	95.8010
Sand Fraction: Weight Recovered (Grams)	95.7367
Sand Fraction: Percent Recovery	99.93

Weight as received (Grams)	97.8853
Percent Solids	99.6
Weight Oven-Dried (Grams)	97.4938

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.6894	13.02
Gravel, Fine	2.00 mm	10	2.4253	2.49
Sand, Very Coarse	0.850 mm	20	5.7599	5.91
Sand, Coarse	0.425 mm	40	24.1570	24.78
Sand, Medium	0.250 mm	60	36.3359	37.27
Sand, Fine	0.106 mm	140	12.0083	12.32
Sand, Very Fine	0.075 mm	200	1.8408	1.89
Silt			1.0700	1.1
Clay			0.7520	0.8
		Total	97.0386	99.55

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 005
Lab Code: K1506724-005

Sand Fraction: Weight (Grams)	26.1678
Sand Fraction: Weight Recovered (Grams)	26.1092
Sand Fraction: Percent Recovery	99.78

Weight as received (Grams)	38.244
Percent Solids	97.7
Weight Oven-Dried (Grams)	37.3644

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.1233	0.33
Gravel, Fine	2.00 mm	10	0.1777	0.48
Sand, Very Coarse	0.850 mm	20	0.3138	0.84
Sand, Coarse	0.425 mm	40	0.6749	1.81
Sand, Medium	0.250 mm	60	0.8253	2.21
Sand, Fine	0.106 mm	140	10.5701	28.29
Sand, Very Fine	0.075 mm	200	6.8695	18.39
Silt			14.9800	40.1
Clay			2.2670	6.1
		Total	36.8016	98.51

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 006
Lab Code: K1506724-006

Sand Fraction: Weight (Grams)	107.5689
Sand Fraction: Weight Recovered (Grams)	107.4691
Sand Fraction: Percent Recovery	99.91

Weight as received (Grams)	109.6718
Percent Solids	99.6
Weight Oven-Dried (Grams)	109.2331

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	32.9261	30.14
Gravel, Fine	2.00 mm	10	13.2377	12.12
Sand, Very Coarse	0.850 mm	20	12.7930	11.71
Sand, Coarse	0.425 mm	40	17.9371	16.42
Sand, Medium	0.250 mm	60	20.0894	18.39
Sand, Fine	0.106 mm	140	9.4120	8.62
Sand, Very Fine	0.075 mm	200	0.7033	0.64
Silt			1.3150	1.2
Clay			0.5970	0.6
		Total	109.0106	99.79

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 007
Lab Code: K1506724-007

Sand Fraction: Weight (Grams)	74.6567
Sand Fraction: Weight Recovered (Grams)	74.4427
Sand Fraction: Percent Recovery	99.71

Weight as received (Grams)	75.583
Percent Solids	99.3
Weight Oven-Dried (Grams)	75.0539

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.2383	16.31
Gravel, Fine	2.00 mm	10	11.3682	15.15
Sand, Very Coarse	0.850 mm	20	14.1260	18.82
Sand, Coarse	0.425 mm	40	18.3870	24.50
Sand, Medium	0.250 mm	60	10.5873	14.11
Sand, Fine	0.106 mm	140	7.2054	9.60
Sand, Very Fine	0.075 mm	200	0.3769	0.50
Silt			0.4350	0.6
Clay			0.3270	0.4
		Total	75.0511	100.01

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 008
Lab Code: K1506724-008

Sand Fraction: Weight (Grams)	33.7281
Sand Fraction: Weight Recovered (Grams)	33.5997
Sand Fraction: Percent Recovery	99.62

Weight as received (Grams)	42.1885
Percent Solids	99.4
Weight Oven-Dried (Grams)	41.9354

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	4.9313	11.76
Gravel, Fine	2.00 mm	10	0.1841	0.44
Sand, Very Coarse	0.850 mm	20	0.1547	0.37
Sand, Coarse	0.425 mm	40	0.2086	0.50
Sand, Medium	0.250 mm	60	0.2767	0.66
Sand, Fine	0.106 mm	140	6.1849	14.75
Sand, Very Fine	0.075 mm	200	13.5528	32.32
Silt			12.9650	30.9
Clay			1.2220	2.9
		Total	39.6801	94.63

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 009
Lab Code: K1506724-009

Sand Fraction: Weight (Grams)	33.4713
Sand Fraction: Weight Recovered (Grams)	32.3120
Sand Fraction: Percent Recovery	96.54

Weight as received (Grams)	39.6485
Percent Solids	98.5
Weight Oven-Dried (Grams)	39.0538

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	2.9062	7.44
Gravel, Fine	2.00 mm	10	0.3293	0.84
Sand, Very Coarse	0.850 mm	20	1.2846	3.29
Sand, Coarse	0.425 mm	40	1.3532	3.46
Sand, Medium	0.250 mm	60	2.1589	5.53
Sand, Fine	0.106 mm	140	11.2080	28.70
Sand, Very Fine	0.075 mm	200	7.6333	19.55
Silt			9.0350	23.1
Clay			1.4120	3.6
		Total	37.3205	95.56

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 010
Lab Code: K1506724-010

Sand Fraction: Weight (Grams)	61.8794
Sand Fraction: Weight Recovered (Grams)	61.7406
Sand Fraction: Percent Recovery	99.78

Weight as received (Grams)	62.8605
Percent Solids	99.5
Weight Oven-Dried (Grams)	62.5462

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	6.1692	9.86
Gravel, Fine	2.00 mm	10	9.1940	14.70
Sand, Very Coarse	0.850 mm	20	14.0383	22.44
Sand, Coarse	0.425 mm	40	11.6824	18.68
Sand, Medium	0.250 mm	60	10.4834	16.76
Sand, Fine	0.106 mm	140	9.0956	14.54
Sand, Very Fine	0.075 mm	200	0.7642	1.22
Silt			0.8750	1.4
Clay			0.3670	0.6
		Total	62.6691	100.19

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 011
Lab Code: K1506724-011

Sand Fraction: Weight (Grams)	94.1633
Sand Fraction: Weight Recovered (Grams)	93.7512
Sand Fraction: Percent Recovery	99.56

Weight as received (Grams)	95.324
Percent Solids	100.0
Weight Oven-Dried (Grams)	95.3240

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	14.1704	14.87
Gravel, Fine	2.00 mm	10	9.4587	9.92
Sand, Very Coarse	0.850 mm	20	9.1310	9.58
Sand, Coarse	0.425 mm	40	13.9531	14.64
Sand, Medium	0.250 mm	60	25.9122	27.18
Sand, Fine	0.106 mm	140	19.2168	20.16
Sand, Very Fine	0.075 mm	200	1.5211	1.60
Silt			0.5200	0.6
Clay			0.5120	0.5
		Total	94.3953	99.04

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 012
Lab Code: K1506724-012

Sand Fraction: Weight (Grams)	29.4094
Sand Fraction: Weight Recovered (Grams)	29.2787
Sand Fraction: Percent Recovery	99.56

Weight as received (Grams)	35.8765
Percent Solids	97.8
Weight Oven-Dried (Grams)	35.0872

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	
Gravel, Fine	2.00 mm	10	0.4894	1.39
Sand, Very Coarse	0.850 mm	20	0.6149	1.75
Sand, Coarse	0.425 mm	40	0.5179	1.48
Sand, Medium	0.250 mm	60	0.7522	2.14
Sand, Fine	0.106 mm	140	13.8692	39.53
Sand, Very Fine	0.075 mm	200	7.4061	21.11
Silt			9.2800	26.5
Clay			1.4470	4.1
		Total	34.3767	97.97

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 013
Lab Code: K1506724-013

Sand Fraction: Weight (Grams)	86.6994
Sand Fraction: Weight Recovered (Grams)	86.5324
Sand Fraction: Percent Recovery	99.81

Weight as received (Grams)	93.0614
Percent Solids	98.3
Weight Oven-Dried (Grams)	91.4794

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	19.1167	20.90
Gravel, Fine	2.00 mm	10	7.1384	7.80
Sand, Very Coarse	0.850 mm	20	10.8702	11.88
Sand, Coarse	0.425 mm	40	10.7096	11.71
Sand, Medium	0.250 mm	60	10.4376	11.41
Sand, Fine	0.106 mm	140	22.3390	24.42
Sand, Very Fine	0.075 mm	200	2.6765	2.93
Silt			6.7800	7.4
Clay			1.7120	1.9
		Total	91.7800	100.33

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 014
Lab Code: K1506724-014

Sand Fraction: Weight (Grams)	96.8788
Sand Fraction: Weight Recovered (Grams)	96.5995
Sand Fraction: Percent Recovery	99.71

Weight as received (Grams)	97.9175
Percent Solids	99.7
Weight Oven-Dried (Grams)	97.6237

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.3144	12.61
Gravel, Fine	2.00 mm	10	7.4093	7.59
Sand, Very Coarse	0.850 mm	20	6.7598	6.92
Sand, Coarse	0.425 mm	40	13.4215	13.75
Sand, Medium	0.250 mm	60	28.8211	29.52
Sand, Fine	0.106 mm	140	27.3671	28.03
Sand, Very Fine	0.075 mm	200	0.3837	0.39
Silt			0.4750	0.5
Clay			0.5320	0.5
		Total	97.4839	99.84

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 015
Lab Code: K1506724-015

Sand Fraction: Weight (Grams)	90.9989
Sand Fraction: Weight Recovered (Grams)	90.9806
Sand Fraction: Percent Recovery	99.98

Weight as received (Grams)	92.4487
Percent Solids	100.0
Weight Oven-Dried (Grams)	92.4487

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	17.8846	19.35
Gravel, Fine	2.00 mm	10	4.2505	4.60
Sand, Very Coarse	0.850 mm	20	9.6882	10.48
Sand, Coarse	0.425 mm	40	11.1786	12.09
Sand, Medium	0.250 mm	60	15.0991	16.33
Sand, Fine	0.106 mm	140	32.0866	34.71
Sand, Very Fine	0.075 mm	200	0.4136	0.45
Silt			0.7700	0.8
Clay			0.7520	0.8
		Total	92.1232	99.65

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 016
Lab Code: K1506724-016

Sand Fraction: Weight (Grams)	101.1531
Sand Fraction: Weight Recovered (Grams)	100.9291
Sand Fraction: Percent Recovery	99.78

Weight as received (Grams)	102.2951
Percent Solids	99.4
Weight Oven-Dried (Grams)	101.6813

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	4.9476	4.87
Gravel, Fine	2.00 mm	10	15.4144	15.16
Sand, Very Coarse	0.850 mm	20	23.6996	23.31
Sand, Coarse	0.425 mm	40	33.8282	33.27
Sand, Medium	0.250 mm	60	16.3074	16.04
Sand, Fine	0.106 mm	140	6.4485	6.34
Sand, Very Fine	0.075 mm	200	0.1933	0.19
Silt			0.4250	0.4
Clay			0.5020	0.5
		Total	101.7660	100.09

ALS

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client: ALS Environmental - US
Project: NA
Sample Matrix: Soil

Service Request: K1506724
Date Collected: 6/18/2015
Date Received: 6/20/2015
Date Analyzed: 7/15/2015

Particle Size Determination
ASTM D422M

Sample Name: 2077727 012
Lab Code: K1506724-012 DUP

Sand Fraction: Weight (Grams)	32.8617
Sand Fraction: Weight Recovered (Grams)	32.7680
Sand Fraction: Percent Recovery	99.71

Weight as received (Grams)	41.285
Percent Solids	97.8
Weight Oven-Dried (Grams)	40.3767

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.6130	1.52
Gravel, Fine	2.00 mm	10	0.6653	1.65
Sand, Very Coarse	0.850 mm	20	1.2754	3.16
Sand, Coarse	0.425 mm	40	0.8198	2.03
Sand, Medium	0.250 mm	60	0.7420	1.84
Sand, Fine	0.106 mm	140	14.8606	36.80
Sand, Very Fine	0.075 mm	200	8.4597	20.95
Silt			10.7700	26.7
Clay			1.7770	4.4
		Total	39.9828	99.02

Assessment of Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects: June 2015 Survey Results

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October 2015
(Updated March 2016)

www.normandeau.com

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1.0 Introduction

1.1 Background

The New York State Governor's Office of Storm Recovery (GOSR) proposes to build the "Living Breakwaters and Tottenville Dune Projects" (Breakwaters Project), which includes construction of a breakwater in the shallow waters of Raritan Bay, along the south shore of Staten Island, NY. The GOSR, acting under authority of the U.S. Department of Housing and Urban Development, and in cooperation with other involved and interested agencies, is preparing an Environmental Impact Statement (EIS) to analyze potential impacts of this project. Environmental review for the proposed actions will require additional data to characterize existing benthic and fish communities in the project area.

Normandeau Associates, Inc. (Normandeau), as a subcontractor to AKRF, Inc (AKRF), was contracted to collect ecological data to satisfy requirements for the Breakwaters Project EIS. Work on this project includes ecological surveys to support a "Fish Study" and a "Benthic Macroinvertebrate Study" in Raritan Bay. These studies were designed to assess both the spatial distribution of fish and invertebrate communities within the project area, and the temporal variation in those communities during summer and fall.

The Fish Study was designed to include collection of fish and epibenthic invertebrates using beach seines, fish traps, beam and otter trawls. The Benthic Macroinvertebrate Study includes surveys of water quality, sediment conditions, soft-bottom macroinvertebrate communities, and hard clams (*Mercenaria mercenaria*). The hard clam studies comprise an assessment of chemical contaminants in clam tissues, and in the sediments where clams are collected, along with characterization of clam distributions in the project area. After isolated areas of hard substrate were identified on the seafloor in the project area, sampling by SCUBA divers was added to the overall study plan to characterize hard-bottom benthic communities.

Sampling for these studies was conducted during the summer and early fall of 2015. Surveys for the Fish Study were conducted during June, July and September; and for the Benthic Macroinvertebrate Study, during June and September only. Sampling to characterize hard-bottom communities was conducted in July and September. Results for each of these seasonal surveys will be reported separately as laboratory results and quality-checked data become available.

This report presents results for the surveys conducted during June 2015. An overview of the June surveys, including the dates and locations of sampling activities, is presented below in Section 1.2. Field, laboratory, and data handling methods are described in Section 2.0. Survey results are provided in Sections 3.0 (Fish Study) and 4.0 (Benthic Macroinvertebrate Study). Section 5.0 provides a brief summary of the June surveys.

1.2 June 2015 Surveys

Normandeau conducted ecological surveys in Raritan Bay from 16 to 26 June, 2015. Surveys were conducted for the Fish Study using beach seines, fish traps, beam and otter trawls. Surveys for the Benthic Macroinvertebrate Study included the collection of water quality

data, water samples, sediment samples, soft-bottom macroinvertebrate samples, and hard clams.

Samples were collected at locations identified by AKRF based on a stratified random sampling design. The list of randomly-selected locations included alternate locations that were used if sampling could not be conducted at the primary locations (i.e., due to depth, obstructions, etc.). Station information including sampling coordinates, bottom depth, and the date and collection time for each sample, are provided in Appendices A (Fish Study) and B (Benthic Macroinvertebrate Study).

Normandeau conducted beach seine sampling at 20 locations along the south shore of Staten Island on June 22nd, collecting one sample at each location (Figure 1-1, Appendix A-1). Fish trap samples were collected at 10 locations in Raritan Bay from 16 to 18 June (Figure 1-1, Appendix A-2). Paired fish traps were deployed on consecutive days at each location. Two traps were found to be missing (apparently lost due to theft or vandalism) on 17 June, and additional traps were deployed in an attempt to replace lost samples. One trap was recovered on 18 June, for a total of 39 out of 40 fish trap samples collected during the survey. Beam and otter trawl sampling was conducted at 10 locations on 16 June, with one haul for each gear type collected at each location (Figure 1-1, Appendices A-3 and A-4). Except for the loss of one fish trap sample, all samples for the June fish surveys were collected as planned.

Benthic sampling for sediment characterization (total organic carbon and grain size) and macroinvertebrates was conducted from 18 to 19 June, at 60 locations in Raritan Bay (Figure 1-2, Appendix B-1). One macroinvertebrate grab sample, and one set of samples for sediment characterization, was collected at each location. Water quality data and samples for total nitrogen and fecal coliform analyses were collected at the same 60 benthic stations from 17 to 18 June (Figure 1-2, Appendix B-2). Laboratory couriers met Normandeau field sampling crews at the dock in Laurence Harbor, New Jersey, to pick up samples for water and sediments. Copies of the Chain of Custody (COC) forms are provided in Appendix C for water and sediment samples delivered to ALS Environmental laboratories (Appendix C-1), and for macroinvertebrate grab samples transferred to Normandeau's Bedford, NH biological laboratory (Appendix C-2) for processing. Photographs of each macroinvertebrate grab sample, before and after shipboard sieving, are provided in Appendix D.

Sampling for hard clam was conducted on 19 and 26 June using a towed clam dredge. Samples were collected at each of 30 benthic stations selected by the field crew as the most likely locations to support hard clam based on clams found in the benthic grab samples (Figure 1-3, Appendix B-3). Sufficient numbers of clams for tissue chemistry analyses (which require at least 70 grams of clam tissue) were not collected at any one of the 30 stations sampled. As per the study plan, this triggered the requirement for additional clam sampling during the September surveys in order to collect clams for tissue chemistry. No sediment chemistry samples were collected in June since collection of those samples was dependent upon collecting clams for tissue chemistry at a sampling location. All other samples for the June benthic surveys were collected as planned.

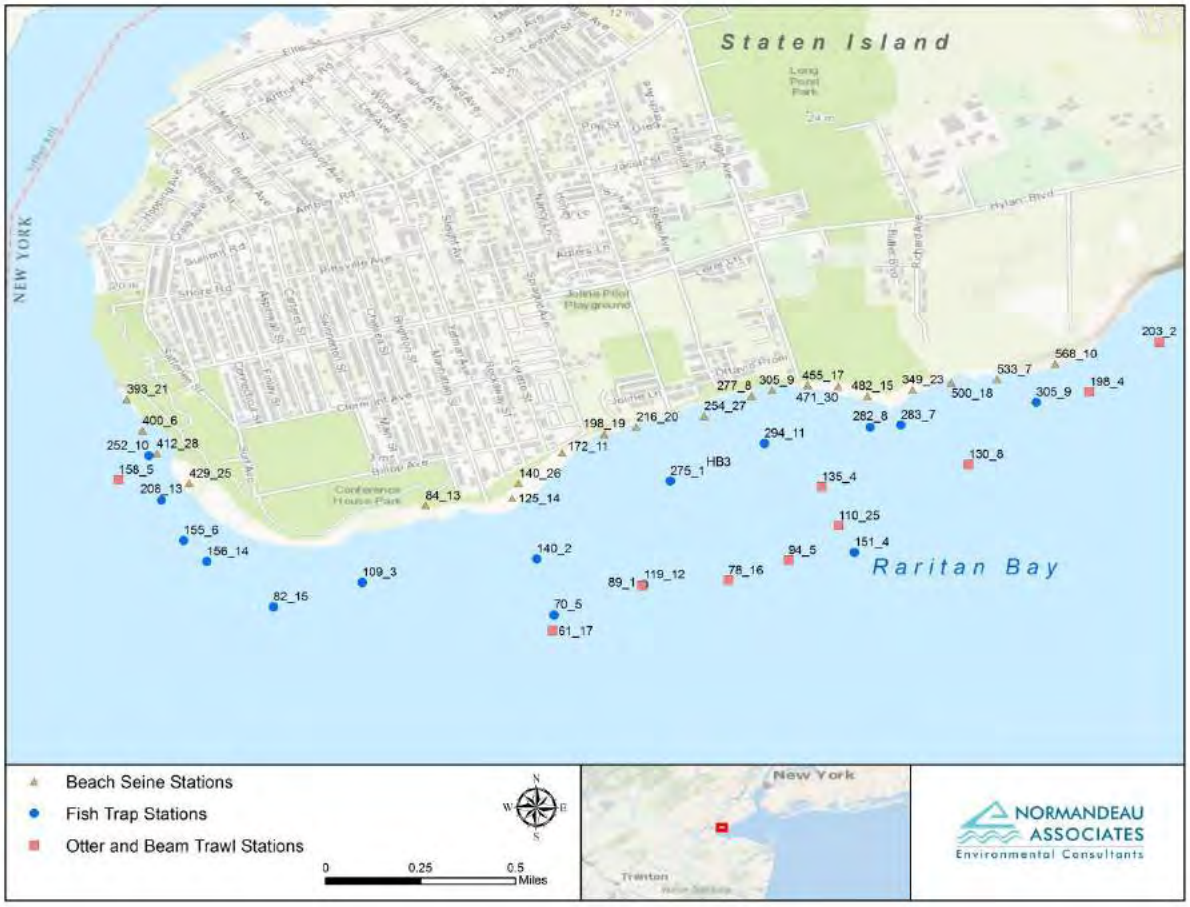

Figure 1-1. Location of fish sampling stations in Raritan Bay; June 2015 Fish Study.

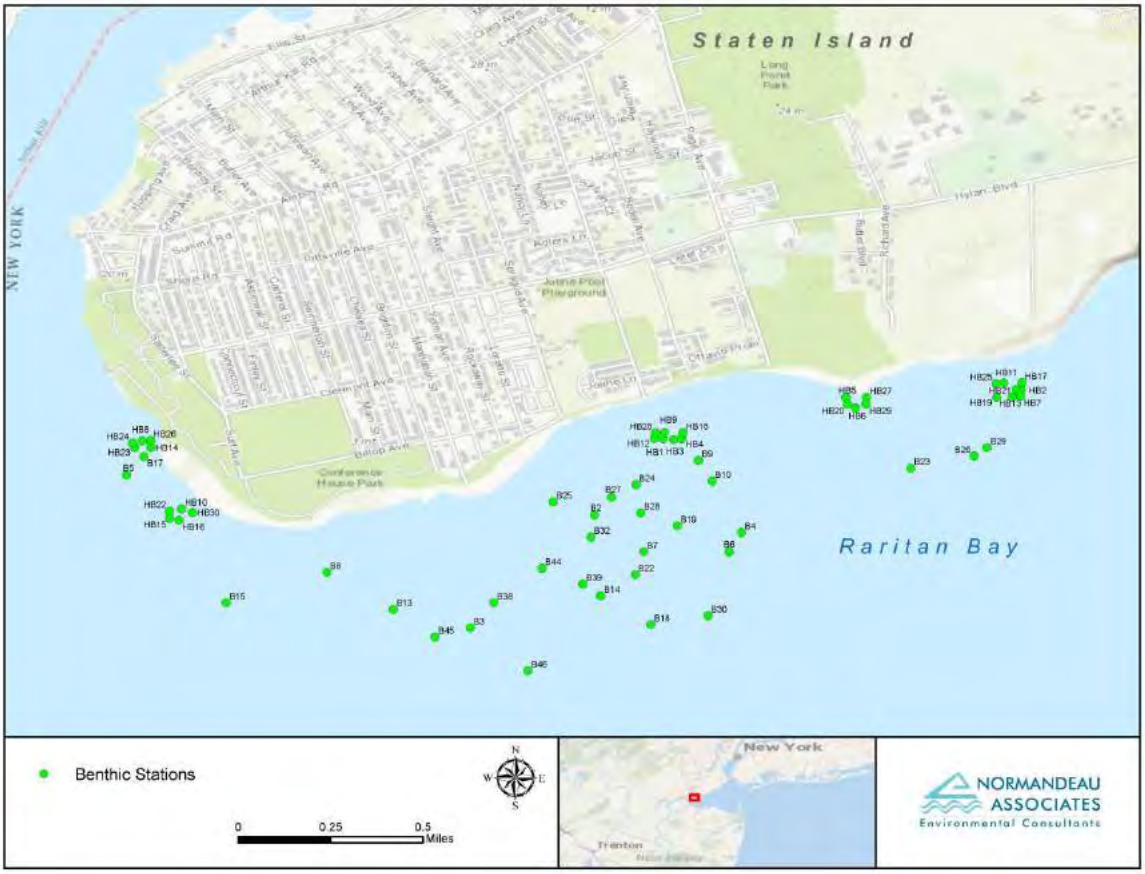

Figure 1-2. Location of benthic sampling stations in Raritan Bay; June 2015 Benthic Macroinvertebrate Study.

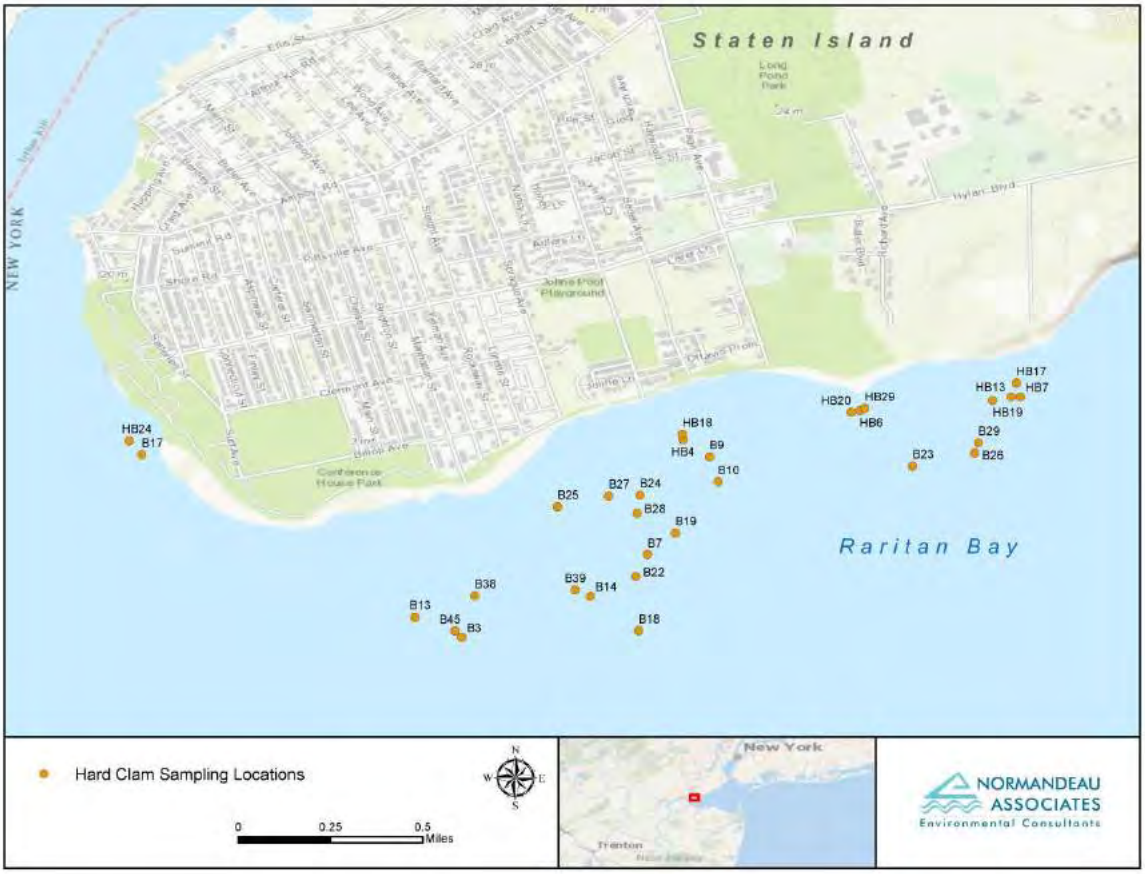

Figure 1-3. Location of hard clam sampling stations in Raritan Bay; June 2015 Benthic Macroinvertebrate Study.

2.0 Methods

2.1 Field Methods

Field collection methods for the Fish and Benthic Macroinvertebrate Studies, including quality assurance and quality control procedures, are described in the project Field SOP ("Field Standard Operating Procedures for an Ecological Survey in Raritan Bay to Assess Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects"; Appendix E).

2.2 Laboratory Methods

Water and Sediment

Laboratory processing of water and sediment samples was conducted by ALS Environmental (ALS). In order to meet an 8-hour holding time requirement for fecal coliform samples, ALS subcontracted with Garden State Labs, Inc. (Hillside, NJ) to analyze coliform samples. ALS laboratories, located in Middletown, PA, processed water samples, while ALS in Kelso, WA processed sediment samples. All laboratories processed samples according to standard methodologies (e.g., EPA methods) for each parameter and sample matrix.

Water samples were analyzed for fecal coliform using method 9222D and for total nitrogen using methods 300 (Nitrate/Nitrite) and 351.2 (Total Kjeldahl Nitrogen). All fecal coliform samples were processed immediately upon receipt by the laboratory to ensure processing within the 8-hr holding time. Sediment grain size analyses were conducted using standard methods following ASTM D422, while Atterberg Limits were analyzed using ASTM D4318. Total organic carbon (TOC) was also analyzed for each sediment sample. TOC analyses were conducted by ALS in Kelso, WA, using method 9060A.

All laboratory analyses were monitored under the ALS Environmental Quality Assurance/Quality Control (QA/QC) program. This program includes: instrument calibration, the analysis of spiked samples, quality control samples, laboratory blanks, replicate analyses, and comparison of QA/QC data with accepted limits. ALS provided Normandeau with quality checked analytical results in electronic data deliverables (EDDs) in PDF and Excel formats.

Macroinvertebrate Abundance

Soft-bottom macroinvertebrate samples were processed by Normandeau's Bedford, NH laboratory following standard processing protocols. Upon arrival at the laboratory, all samples were rinsed with fresh water through a 0.5 mm mesh screen. Macroinvertebrates were sorted from the debris into major taxonomic groups using a dissecting microscope. Organisms removed from each sample were placed in vials with 70% ethanol for preservation. To facilitate sorting, samples were elutriated to separate heavy and light materials and those with heterogeneously sized debris or organisms were washed through a series of graduated sieves down to a 0.5 mm mesh. All organisms were identified to the lowest practical taxon (usually species) and enumerated, with the following exceptions: oligochaete annelids were identified to class, and meiofauna (e.g., nematodes, benthic copepods, ostracods) were not enumerated.

Quality control protocols were followed for both sorting and identification. At least the first three samples undertaken by each new macroinvertebrate sample sorter were re-checked by the Quality Control Supervisor. The first sample sorted by each experienced sorter was also re-checked by the Quality Control Supervisor. Regardless of experience level, a minimum of 10% of each sorter's subsequent samples in a batch was resorted. Any work found to be of insufficient quality resulted in re-checking that sorter's samples (from that batch) and retraining the sorter. In addition, 10% of the taxonomists' samples were re-identified. Any work found to be of insufficient quality resulted in re-checking that batch and retraining of the taxonomist.

Macroinvertebrate Biomass

Dry Weight (DW) and Ash Free Dry Mass (AFDM) were calculated on a per sample basis. Clam shells were included in the biomass weights with shells of large clams being opened to facilitate complete drying. Biomass of large, hard-bodied specimens (e.g., clams, snails, crabs), greater than 1 cm in length, was measured separately from the remaining sample material (which was a composite of all smaller specimens in the sample). All weights were measured in grams using a Sartorius analytical balance (to 0.0001 g). DW was measured as the dried weight of a sample (including shells and other inorganic material). AFDM provides a sample weight without the inorganic material.

DW was measured as the dried weight of a sample in grams. It included the organic components (organisms and detritus) and the inorganic components (sand, silt, shells and other inorganic material that may be found in or on specimens). DW was calculated as the pre-ignition dry weight of sample material minus the tare weight of the aluminum tray in which the material was weighed. The tare weight of each tray was determined first by weighing the tray after it had been ignited in a pre-heated muffle furnace for 0.5 hour at 500°C. The pre-ignition dry weight of sample material was then measured after the material was completely dried. Sample material was dried through a repetitive process of drying the material in an oven at 105°C for 1.0 hour, then weighing the sample (at least twice) until the difference between the first and second weights was less than 0.001 g or less than 5% of the sample weight.

After DW was determined, AFDM was then measured. AFDM was measured as the weight of a sample (in grams) without the inorganic component (sand, silt, shells, exuviae and inorganic compounds). AFDM was measured by placing sample trays with dried material into a pre-heated muffle furnace and igniting the sample at 500°C for 1.0 hour. Sample material was then re-hydrated and then dried through a repetitive process of drying the ash material in an oven at 105°C for 1.0 hour, then weighing the sample (at least twice) until the difference between the first and second weights was less than 0.001 g or less than 5% of the sample weight. Ash weight was calculated as the post-ignition dry weight minus tare weight. Once ash weight was determined, the AFDM was calculated as the dry weight minus the ash weight.

All biomass equipment was thoroughly cleaned between uses. Aluminum trays and pans were handled with tweezers or forceps, and were etched with unique identifiers for tracking samples (ink and marker are consumed during the ignition process). Quality control protocols for biomass determination included the processing of laboratory blanks and re-

processing 10% of samples. Weight of the blank must not differ from tare by more than 0.0009 g.

2.3 Data Handling and Reduction Methods

Data handling methods, including data entry and quality control procedures, are described in the project Field SOP ("Field Standard Operating Procedures for an Ecological Survey in Raritan Bay to Assess Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects"; Appendix E).

Data preparation, reduction, and univariate analyses including summary statistics were run in SAS system software (version 9.3). Catch per unit effort (CPUE) for both beam trawl and otter trawl was calculated as the number of specimens per five-minute haul. CPUE for fish trap was calculated as the number of specimens per trap set. CPUE for beach seine was calculated as the number of specimens per haul. Summary statistics for total nitrogen and fecal coliform were prepared using data for undetected results included at half the detection limit (i.e., 0.5 mg/L for total nitrogen, and 5 organisms/100 mL for fecal coliform). Sediment grain size data were summarized in texture classes (clay; silt; fine, medium and coarse sand; and gravel). macroinvertebrate community structure parameters were calculated based on the biotic data for each station. Abundance values were computed based on the total counts from both species and higher taxonomic groups in each sample, while diversity measures were based on the species-level identifications only. Summary statistics for the macroinvertebrate community included: total abundance, number of species, Shannon diversity index (H' per sample, log base e), Pielou's evenness index (J' per sample), and Log-series Alpha (Magurran 1988). Diversity indices were calculated using PRIMER v6 (Plymouth Routines in Multivariate Ecological Research) software (Clarke and Warwick 2001).

3.0 Results for the Fish Study

Of the four types of gear used during the June Fish Survey, the beach seine collected the highest abundance and diversity of species (2,145 organisms and 12 species; Table 3-1). A total of 11 species of fish and one species of invertebrate (Blue crab) were collected from the 20 beach seine hauls. Atlantic Silverside was the most abundant, with a total count of 1,810, followed by Atlantic Menhaden (177), and American Eel (47). Five species of invertebrates were collected from the 39 fish traps (Table 3-1). Portly spider crab was most abundant (67) followed by Blue crab (21 crabs). No fish were collected in the trapping effort. One Winter Flounder and no invertebrates were collected in the ten beam trawl hauls (Table 3-1). Ten otter trawl hauls yielded five fish species and five invertebrate species (Table 3-1). Winter Flounder was the most abundant fish (18) followed by Scup (7). Lady crab was the most abundant invertebrate species (25) followed by Say mud crab (22). Catch data for each gear type and sample are presented in Appendix F.

Catch per unit effort (CPUE) results reflect the abundance data standardized for each gear type. Beach seine samples had the highest total CPUE for fish, 107.2/haul (Table 3-2). For the invertebrates, the otter trawl had the highest CPUE of 7.7/haul (Table 3-2). In beach seine hauls, Atlantic Silverside had the highest CPUE, with an average of 90.5/haul, a minimum of 5 and maximum of 422/haul. Atlantic Menhaden had the second highest mean and

maximum CPUE of 8.8 and 87/haul. Otter trawl collections had the third-most abundance fish CPUE. Total mean and maximum CPUE was 2.9 and 7/haul. Winter Flounder was collected at the highest mean and maximum CPUE of 1.8 and 6/haul and Scup followed with mean and maximum CPUE of 0.7 and 3/haul. CPUE for invertebrates was highest for the otter trawl hauls at a minimum, mean and maximum of 0, 7.7, and 13/haul. Lady crabs had the highest mean and maximum CPUE of 2.5 and 7/haul followed by Say mud crabs with 2.2 and 6/haul. The beam trawl collected one Winter Flounder out of 10 tows, resulting in a minimum, mean, and maximum CPUE of 0.0, 0.09, and 0.85/haul. CPUE was lowest for fish traps, with no fish collected and CPUE (invertebrates only) ranging from 0.0 to 8/trap and averaging 2.4/trap. Portly spider crab had the highest mean and maximum CPUE of 1.7 and 7/trap followed by blue crab with mean and maximum CPUE of 0.5 and 3/trap.

Length frequency measurements from the June survey are presented in Table 3-3. Atlantic Silverside, the most abundant species, had a modal length of 30-39 mm and minimum, mean and maximum length measurements of 18, 43, and 128 mm, respectively. Atlantic Menhaden, the second-most abundant species, ranged from 32-75 mm in length, with a modal length of 60-69 mm and a an average length of 61 mm. American Eel had a modal length of 80-89 mm, averaging 81 mm in length and ranged from 65 to 105 mm in length. Winter Flounder averaged 73 mm in length, had a total modal length of 60-69 mm and ranged in size from 52 to 171 mm. There was no difference in Winter Flounder modal length between gear types.

Table 3-1. Fish and invertebrate species collected during the June 2015 Fish Survey; total abundance by gear type.

Common and scientific names			Beach seine (n=20)	Fish trap (n=39)	Beam trawl (n=10)	Otter trawl (n=10)
Fish	American Eel	*Anguilla rostrata*	47			
	Atlantic Menhaden	*Brevoortia tyrannus*	177			
	Atlantic Silverside	*Menidia menidia*	1810			
	Fourspine Stickleback	*Apeltes quadracus*	2			
	Mummichog	*Fundulus heteroclitus*	40			
	Northern Puffer	*Sphoeroides maculatus*	6			
	Sheepshead Minnow	*Cyprinodon variegatus*	1			
	White Mullet	*Mugil curema*	22			
	White Perch	*Morone americana*	1			
	Windowpane	*Scophthalmus aquosus*	1			
	Winter Flounder	*Pseudopleuronectes americanus*	36		1	18
	Atlantic Tomcod	*Microgadus tomcod*				1
	Northern Pipefish	*Syngnathus fuscus*				1
	Scup	*Stenotomus chrysops*				7
	Summer Flounder	*Paralichthys dentatus*				2
Invertebrates	Blue crab	*Callinectes sapidus*	2	21		6
	Horseshoe crab	*Limulus polyphemus*		1		
	Lady crab	*Ovalipes ocellatus*		1		25
	Portly spider crab	*Libinia emarginata*		67		12
	Say mud crab	*Dyspanopeus sayi*		6		22
	Longwrist hermit crab	*Pagurus longicarpus*				12

Table 3-2. Summary statistics on CPUE* by gear type, taxonomic group, and species; June 2015 Fish Survey.

Gear, Group, and Species			CPUE			
			N	Min	Mean	Max
Beach seine	**Fish**	**American Eel**	20	0	2.4	45
		Atlantic Menhaden	20	0	8.9	87
		Atlantic Silverside	20	5	90.5	422
		Fourspine Stickleback	20	0	0.1	1
		Mummichog	20	0	2.0	23
		Northern Puffer	20	0	0.3	4
		Sheepshead Minnow	20	0	0.1	1
		White Mullet	20	0	1.1	8
		White Perch	20	0	0.1	1
		Windowpane	20	0	0.1	1
		Winter Flounder	20	0	1.8	5
		Total	**20**	**5**	**107.2**	**425**
	Invertebrates	Blue crab	20	0	0.1	1
		Total	**20**	**0**	**0.1**	**1**
Fish trap	Invertebrates	Blue crab	39	0	0.5	3
		Horseshoe crab	39	0	0.0	1
		Lady crab	39	0	0.0	1
		Portly spider crab	39	0	1.7	7
		Say mud crab	39	0	0.2	2
		Total	**39**	**0**	**2.5**	**8**
Beam trawl	Fish	Winter Flounder	10	0	0.1	0.8
		Total	**10**	**0**	**0.1**	**0.8**
Otter trawl	Fish	Atlantic Tomcod	10	0	0.1	1
		Northern Pipefish	10	0	0.1	1
		Scup	10	0	0.7	3
		Summer Flounder	10	0	0.2	1
		Winter Flounder	10	0	1.8	6
		Total	**10**	**0**	**2.9**	**7**
	Invertebrates	Blue crab	10	0	0.6	2
		Lady crab	10	0	2.5	7
		Longwrist hermit crab	10	0	1.2	3
		Portly spider crab	10	0	1.2	3
		Say mud crab	10	0	2.2	6
		Total	**10**	**0**	**7.7**	**13**

* Catch per unit effort (CPUE) for both beam trawl and otter trawl was calculated as the number of specimens per five minute haul. CPUE for fish trap was calculated as the number of specimens per trap set. CPUE for beach seine was calculated as the number of specimens per haul.

Table 3-3. Length distribution by species and gear type for fish collected during the June 2015 Fish Survey.

Common name, Gear type		Frequency by length group (mm)															
		10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	=>120	N	Min	Mean	Max
American Eel	Beach seine						3	6	8	4	1			22	65	81	105
Atlantic Menhaden	Beach seine			2	6	5	29	6						48	32	61	75
Atlantic Silverside	Beach seine	1	37	187	66	19	2		5	10	10	6	6	349	18	43	128
Atlantic Tomcod	Otter trawl							1						1	72	72	72
Fourspine Stickleback	Beach seine			2										2	34	35	35
Mummichog	Beach seine		1	10	9		2	5	7	1	2			37	23	57	109
Northern Pipefish	Otter trawl												1	1	190	190	190
Northern Puffer	Beach seine												6	6	139	170	181
Scup	Otter trawl										1	2	4	7	102	125	161
Sheepshead Minnow	Beach seine				1									1	49	49	49
Summer Flounder	Otter trawl												2	2	425	450	475
White Mullet	Beach seine			22										22	31	35	38
White Perch	Beach seine				1									1	40	40	40
Windowpane	Beach seine					1								1	53	53	53
Winter Flounder	Beach seine					8	26	2						36	53	62	71
	Beam trawl												1	1	171	171	171
	Otter trawl					5	7						6	18	52	88	160
	Total					13	33	2					7	55	52	73	171

4.0 Results for the Benthic Macroinvertebrate Study

Water quality, sediment characteristics, soft-bottom macroinvertebrates, and hard clams, were sampled during the June surveys for the Benthic Macroinvertebrate Study. Samples were collected from 60 sites in Raritan Bay, located either in "open water" or "near hard-bottom." Thirty locations, with "HB" in the sample name, were sites in close proximity to hard-bottom features on the seafloor. The other 30 locations, with only "B" in the sample name, were in open water areas away from hard-bottom features. Data summaries for the benthic surveys, including data by sample for each component of the study, are provided in Appendix G.

4.1 Water Quality

Water quality parameters measured from the locations in Raritan Bay that were sampled during June included secchi depth, pH, total nitrogen, fecal coliform, temperature, dissolved oxygen, and salinity. Summary statistics for these parameters are presented in Table 4-1, and data by sample are provided in Appendix G-1. Laboratory reports for fecal coliform and total nitrogen data are provided in Appendix H.

Temperature, dissolved oxygen (DO), and salinity were measured in both the surface and bottom waters at each sampling location. Waters were generally mixed. Most stations had slightly higher temperatures at the surface (from 22.0 to 23.4 °C), than at the bottom (from 21.0 to 22.8 °C; Table 4-1, Appendix G-1). DO and salinity were also generally similar at surface and bottom. Salinity values, averaging 20.8 (surface) and 21.3 (bottom) would be classified as polyhaline (18- 30 PSU). Surface and bottom dissolved oxygen averaged 6.3 mg/L; the minimum values exceed the acute (3.0 mg/L) and chronic (daily average of 4.8 mg/L) criteria for SA waters established by the New York State Department of Environmental Conservation (6 NYCRR part 701). Secchi depth ranged from 1.7 to 3.6 feet, and pH was 7.0 or 7.1 at all 60 sampling locations. The highest fecal coliform counts were not clustered in any particular area; they were found at sampling locations throughout the survey area (e.g., B2, HB22, HB6, HB7; Appendix G-1). In contrast, the highest total nitrogen results were from samples collected near the center of the survey area (e.g., HB9, B44, B28; Appendix G-1).

Table 4-1. Summary statistics for water quality parameters; June 2015 Benthic Macroinvertebrate Study.

Water Quality Parameters	N	Min	Mean	Max
Secchi Depth (ft)	60	1.7	2.7	3.6
pH	60	7.0	7.1	7.1
Total Nitrogen (mg/L)	60	1.0	1.5	4.4
Fecal Coliform (organisms/100mL)	60	<10	23.3	99.0
Surface Temperature (°C)	60	22.0	22.4	23.4
Bottom Temperature (°C)	60	21.0	22.1	22.8
Surface Dissolved Oxygen (mg/L)	60	5.3	6.3	7.2
Bottom Dissolved Oxygen (mg/L)	60	5.5	6.3	7.1
Surface Salinity (PSU)	60	18.0	20.8	22.5
Bottom Salinity (PSU)	60	18.0	21.3	22.0

4.2 Sediment Characteristics

Total Organic Carbon (TOC) and sediment grain size were analyzed from samples collected at each of the benthic sampling locations in Raritan Bay during June. Summary statistics for these parameters are presented in Table 4-2, and data by sample are provided in Appendix G-2. Laboratory reports for TOC and grain size are provided in Appendix I.

TOC concentrations were highest in Sample B30 (Table 4-2, Appendix G-2), and exceeded 2% at only one other sampling location (B24; Appendix G-2). TOC concentrations were higher than 1% at six additional locations, most of which had a relatively high percentage of silt (e.g., B17, HB23, HB24 and B5; Appendix G-2).

Predominantly sandy sediments were found at most of the 60 sampling locations (Appendix G-2). Fine, medium and coarse sand together comprised over half of the sediments at all but three sampling locations (B24, HB4, and HB23). Sediments with over 50% gravel were reported for two sampling locations (B24 and HB4). Three sampling locations had sediments with over 25% silt, and over 40% fine sand (B17, HB23 and B5).

Table 4-2. Summary statistics for Total Organic Carbon (TOC) and sediment grain size; June 2015 Benthic Macroinvertebrate Study.

Sediment Parameters	N	Min	Mean	Max
TOC (%)	60	0.1	0.6	4.2
Clay (%)	60	0.4	1.3	6.1
Silt (%)	60	0.3	3.7	40.1
Sand, Fine (%)	60	3.1	23.9	81.9
Sand, Medium (%)	60	0.7	25.5	54.7
Sand, Coarse (%)	60	0.9	28.1	59.6
Gravel (%)	60	0.1	16.8	70.4

4.3 Soft-bottom Macroinvertebrates

A total of over 106,000 macroinvertebrate organisms were counted from the 60 grab samples collected during June in the project area. Counts by taxon for each sample are provided in Appendix G-3. Organisms were classified into 151 discrete taxa from 7 different phyla and 73 families; 127 of those taxa were species-level identifications (Appendix G-4). (Note that abundance values reported herein reflect the total counts from both species and higher taxonomic groups, while all other parameters are based on the species-level identifications only).

Nine dominant taxa accounted for at least 75% of the total abundance at the sampling locations in "open water" or "near hard-bottom" (Table 4-3). The capitellid polychaete, *Mediomastus ambiseta* was the most abundant organism across all samples, followed by the amphipod *Unciola serrata*. On average, both species were found in higher numbers at open water locations than

near hard-bottom. Five of the nine numerical dominants were polychaetes, two were amphipods, and the remainders were unidentified oligochaetes and gastropods (Table 4-3).

Macroinvertebrate abundance averaged 2,107 individuals per 0.04 m^2 grab (52,675 per square meter) at the open water locations, and 1,451 per grab (36,275 per square meter) at the locations near hard-bottom (Table 4-4). The lowest abundance (153 individuals) was in Sample HB17 and the highest abundance (5,037 individuals) was in Sample B32 (Appendix G-5). The numbers of species per sample were also lowest (17 species) in Sample HB17 and highest (62 species) in Sample B32 (Appendix G-5). Sixty-two species were also found in Sample B30. Mean numbers of species per sample were slightly higher at the open water locations (44 species) than near hard-bottom (36 species; Table 4-4). Measures of species diversity were lowest (H' = 1.19, Log series alpha = 4.04) in Sample B5 and highest (H' = 2.75, Log series alpha = 10.87) in Sample HB20 (Appendix G-5). The sample with the lowest abundance and numbers of species (HB17) also had the highest evenness (J' = 0.75) whereas the lowest eveness occurred in sample B15 (J'=0.37; Appendix G-5).

Comparisons of abundance and numbers of species by phyla indicated overall dominance of the soft-bottom macroinvertebrate community by annelid worms (Tables 4-5 and 4-6, Appendices G-6 and G-7). Annelid worms were numerically dominant accounting for over 70% of total macroinvertebrate abundance across all samples at locations in open water and near hard-bottom (Table 4-5). The Phylum Arthropoda accounted for the next highest number of individuals, followed by Mollusca, and all other phyla combined (Table 4-5). Annelid worms also made up the greatest proportion of species, accounting for half of all taxa identified to the species level. Arthropods were next in terms of diversity, followed by molluscs, and all other phyla combined (Table 4-6). Patterns of abundance and numbers of species across phyla were comparable at locations in open water compared to those near hard-bottom.

Biomass

Dry Weight (DW) and Ash Free Dry Mass (AFDM) were calculated on a per sample basis for each macroinvertebrate grab sample (Appendix G-8). DW and AFDM have typically been used as a measure of biomass or standing crop in biological samples. The difference between dry weight before and after ignition (AFDM) is generally considered the organic component of the sample, which is assumed to be the biomass of all organisms. Total AFDM ranged from 0.03 g to 14.85 g, with a mean of 1.97 g across all 60 samples (Table 4-7). Total sample biomass can be strongly influenced by small numbers of large individual specimens in a sample. Excluding large specimens, such as clams or crabs greater than 1 cm in diameter, AFDM ranged from 0.03 g to 2.05 g, with a mean of 0.60 g across all samples (Table 4-7). Sample HB11 had the lowest AFDM (Appendix G-8), and was third lowest in abundance (Appendix G-5). The majority of large specimens, influencing the highest total biomass values in benthic grab samples, were hard clam (Table 4-8). Large specimens of blood ark clam and longnose spider crab were also present in two samples, and were weighed separately from other specimens (Table 4-8).

Table 4-3. Mean abundance per sample of dominant taxa for each location and for both locations combined; June 2015 Benthic Macroinvertebrate Study. Dominant taxa were identified as those composing 75% of total abundance for each location.

Phylum	Higher taxon	Family	Species/Taxon	Open water	Near hard-bottom	Both locations
Annelida	Polychaeta	Capitellidae	*Mediomastus ambiseta*	811.8	389.8	600.8
Arthropoda	Amphipoda	Unciolidae	*Unciola serrata*	285.3	118.1	201.7
Annelida	Oligochaeta		Oligochaeta	254.6	119.9	187.2
Annelida	Polychaeta	Spionidae	*Polydora cornuta*	87.7	157.8	122.8
Annelida	Polychaeta	Phyllodocidae	*Eumida sanguinea*	101.7	49.0	75.4
Annelida	Polychaeta	Spionidae	*Streblospio benedicti*	45.5	81.0	63.3
Annelida	Polychaeta	Phyllodocidae	*Hypereteone heteropoda*	50.5	58.9	54.7
Mollusca	Gastropoda		Gastropoda	13.8	66.0	39.9
Arthropoda	Amphipoda	Aoridae	*Grandidierella japonica*	28.1	50.1	39.1

Table 4-4. Summary statistics for soft-bottom macroinvertebrate community parameters by location; June 2015 Benthic Macroinvertebrate Study.

Location, Community Parameters		Summary Statistics			
		N	Min	Mean	Max
Open water	Total Abundance	30	486	2106.6	5037
	Number of Species	30	22	44.4	62
	Pielou's Evenness (J')	30	0.37	0.54	0.67
	Shannon-Wiener Diversity (H')	30	1.19	2.02	2.46
	Log-series alpha	30	4.04	8.19	10.52
Near hard-bottom	Total Abundance	30	153	1451.4	3892
	Number of Species	30	17	36.4	57
	Pielou's Evenness (J')	30	0.42	0.60	0.75
	Shannon-Wiener Diversity (H')	30	1.31	2.13	2.75
	Log-series alpha	30	4.16	7.32	10.87

Table 4-5. Summary statistics for the contribution to macroinvertebrate abundance by sample for each numerically-dominant phylum and all other phyla combined; June 2015 Benthic Macroinvertebrate Study.

Location, Phylum		Summary Statistics			
		N	Min	Mean	Max
Open water	Annelida	30	436	1631.0	4147
	Arthropoda	30	20	369.0	870
	Mollusca	30	9	100.5	528
	Other phyla	30	0	6.1	15
	Total Abundance	**30**	**486**	**2106.6**	**5037**
Near hard-bottom	Annelida	30	90	1034.2	2885
	Arthropoda	30	12	226.0	684
	Mollusca	30	11	187.6	1330
	Other phyla	30	0	3.7	19
	Total Abundance	**30**	**153**	**1451.4**	**3892**

Table 4-6. Summary statistics for the contribution to species richness by sample for each numerically-dominant phylum and all other phyla combined; June 2015 Benthic Macroinvertebrate Study.

Location, Phylum		Summary Statistics			
		N	Min	Mean	Max
Open water	Annelida	30	10	23.7	32
	Arthropoda	30	3	10.1	18
	Mollusca	30	3	7.8	12
	Other phyla	30	0	2.8	5
	Total Number of Species	30	22	44.4	62
Near hard-bottom	Annelida	30	10	18.9	28
	Arthropoda	30	3	10.1	18
	Mollusca	30	1	6.0	10
	Other phyla	30	0	1.3	3
	Total Number of Species	30	17	36.4	57

Table 4-7. Summary statistics for macroinvertebrate biomass by sample; June 2015 Benthic Macroinvertebrate Study.

Measurement type and fraction		Summary Statistics			
		N	Min	Mean	Max
Dry Weight (g)	Small Specimens	60	0.10	5.56	22.07
	Large Specimens	13	50.14	105.78	184.31
	Total	**60**	**0.10**	**28.48**	**202.35**
Ash Free Dry Mass (g)	Small Specimens	60	0.03	0.60	2.05
	Large Specimens	13	2.83	6.32	14.67
	Total	**60**	**0.03**	**1.97**	**14.85**

Table 4-8. Biomass of large specimens in benthic grab samples; June 2015 Benthic Macroinvertebrate Study.

Common Name, Species, Sample, and Number of Specimens				Dry Weight (g)	Ash Free Dry Mass (g)
Blood ark clam	*Lunarca ovalis*	**B17**	1	15.92	1.67
Hard clam	*Mercenaria mercenaria*	**B15**	3	180.28	9.66
		B17	2	168.39	13.00
		B18	1	65.33	3.17
		B29	1	112.65	4.53
		B30	1	96.78	4.72
		B5	1	50.14	2.83
		B8	2	146.77	8.10
		HB1	1	87.31	6.67
		HB15	2	103.45	5.82
		HB19	1	72.38	3.07
		HB21	1	150.21	7.26
		HB22	1	64.75	4.74
		HB23	1	54.08	3.75
Longnose spider crab	*Libinia dubia*	**B30**	1	6.76	3.19

4.4 Hard Clam and Sediment Chemistry

4.4.1 Hard Clams

Sampling for hard clam (*Mercenaria mercenaria*) was conducted using a towed clam dredge at each of 30 benthic stations in the project area of Raritan Bay. Live clams were collected at only

12 of the 30 sampling locations (Appendix G-9). A total of 12 clams were collected in the 30 dredge samples, with no more than one clam in any sample. Clams collected in the dredge samples ranged in size from 65 to 88 mm, with a mean length of 74.9 mm (Table 4-9). Wet weights for whole clams weighed shipboard ranged from 100 to 230 g, with a mean of 154 g.

Hard clam occur near the sediment and water interface and were collected effectively in the macroinvertebrate grab samples. Counts from the grab samples provided the most accurate data for assessing the distribution and density of hard clams in the project area. Clams were collected in grabs throughout the project area, with the highest numbers of clams per grab at some of the deepest sampling locations (Figure 4-1). A total of 27 hard clam were collected in 60 grab samples (Table 4-10). Thus, throughout the project area, hard clam abundance averaged 0.45 individuals per 0.04 m2 grab (11.3 per square meter). Large specimens, greater than 1 cm in length, were collected in higher numbers (18 clams) than smaller specimens (9 clams). Biomass of large hard clam collected in grab samples is provided in Table 4-8.

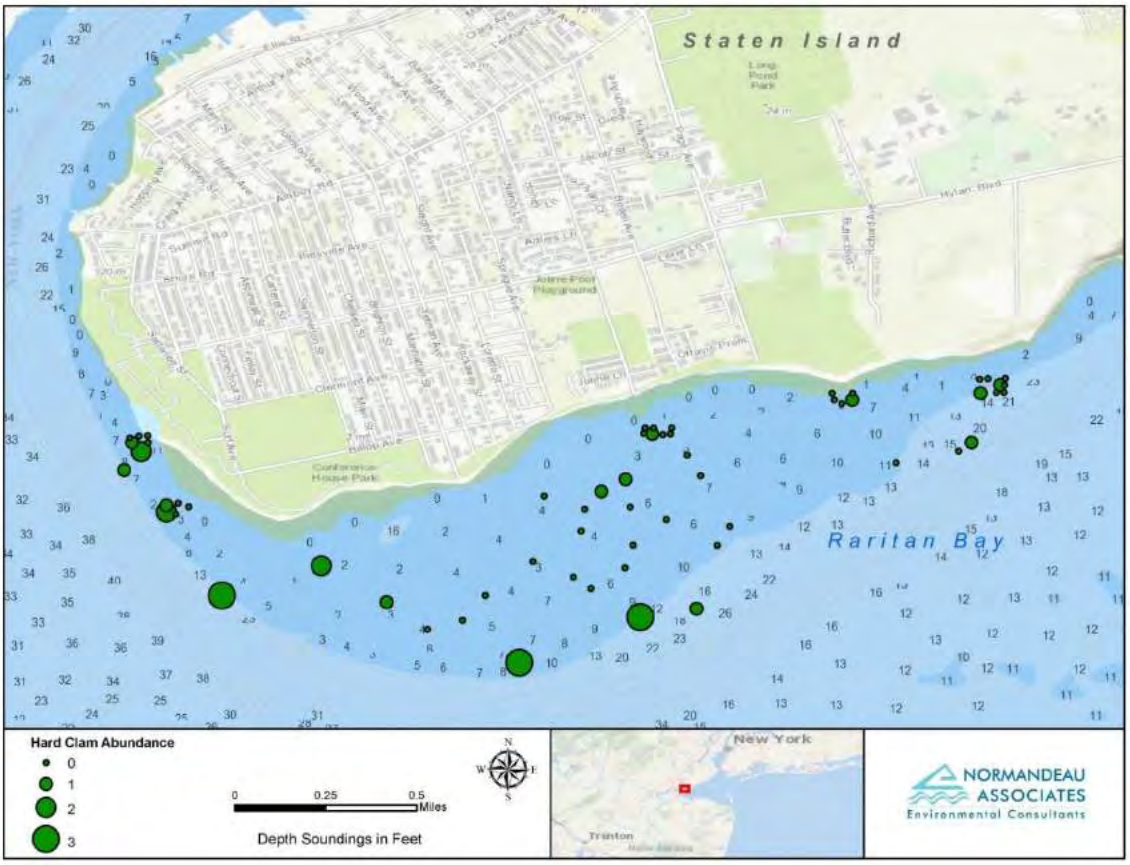

Figure 4-1. Hard clam abundance per sample in macroinvertebrate grab samples; June 2015 Macroinvertebrate Study.

Table 4-9. Summary statistics for hard clam collected by clam dredge; June 2015 Benthic Macroinvertebrate Study.

Hard Clam Parameters	N	Min	Mean	Max
Total Count	30	0	0.4	1
Mean clam wet weight (g)	12	100	153.8	230
Mean clam length (mm)	12	65	74.9	88

Table 4-10. Hard clam collected in macroinvertebrate grab samples; June 2015 Benthic Macroinvertebrate Study.

Sample	Small Specimens	Large Specimens	Total
B13	1	0	1
B15	0	3	3
B17	0	2	2
B18	2	1	3
B24	1	0	1
B27	1	0	1
B29	0	1	1
B30	0	1	1
B46	3	0	3
B5	0	1	1
B8	0	2	2
HB1	0	1	1
HB15	0	2	2
HB19	0	1	1
HB21	0	1	1
HB22	0	1	1
HB23	0	1	1
HB29	1	0	1
Total Counts:	**9**	**18**	**27**

4.4.2 Sediment Chemistry

Sediment chemistry samples were not collected during the June 2015 survey. In order to ensure paired data for clam tissue contaminants and sediment contaminants at a particular location, the collection of sediment chemistry samples was dependent upon collection of clams. Sufficient numbers of clams to conduct tissue contaminant analyses were not collected at any station.

5.0 Summary

The June 2015 ecological surveys in Raritan Bay included sampling to support both the Fish Study and the Benthic Macroinvertebrate Study. Biological surveys using beach seines, fish traps, beam and otter trawls to collect fish and epibenthic invertebrates, along with surveys of water quality, sediment conditions, soft-bottom macroinvertebrate communities, and hard clams provided complementary sources of data to characterize the habitats and fauna occurring in the vicinity of the project area.

Fifteen fish species and six invertebrate species were collected in surveys to support the Fish Study. The highest abundance and diversity of fish species (2,143 organisms and 11 species) were collected in the beach seine samples. Atlantic Silverside was the most abundant fish species (1,810) in seine samples, followed by Atlantic Menhaden (177). Winter Flounder was the most abundant fish species (18) collected in the otter trawl samples, followed by Scup (7). A combined total of six invertebrate species, all arthropods (horseshoe crab and five decapod crabs), were collected in the otter trawl and fish trap samples. No fish were collected in the fish traps. Only one individual specimen (a Winter Flounder) was collected using the beam trawl.

Water temperatures, DO and salinity all indicated that waters were generally mixed, with similar conditions at the surface and bottom. Across all depths and locations, temperatures ranged from 21.0 to 23.4 °C, DO values ranged from 5.3 to 7.2 mg/L, and salinity from 18.0 to 22.5 PSU. Sediments were predominantly sandy at the 60 benthic sampling locations, and TOC concentrations exceeded 2% in only two samples.

A total of over 106,000 macroinvertebrate organisms were counted from the 60 benthic grab samples collected during June in the project area. Faunal assemblages in the grab samples were highly dominated by polychaete worms. In addition to these annelids, arthropods and molluscs were consistently among the numerically dominant taxonomic groups. The overall faunal composition across all samples included 151 discrete taxa from 7 different phyla and 73 families, with an average abundance of 2,107 individuals per 0.04 m2 grab (52,675 per square meter) at the open water locations, and 1,451 per grab (36,275 per square meter) at the locations near hard-bottom.

Hard clam were widely distributed in the project area with mean densities of 11.3 per square meter, based on clams collected in the benthic grab samples. Hard clam densities were highest at several of the deeper stations along the shipping channel.

Combined, the June surveys have documented fish communities, water quality conditions, sediment characteristics, macroinvertebrate communities, and hard clam distributions throughout the project area of Raritan Bay during early summer. These data provide a valuable resource to support an in-depth evaluation of the potential ecological impacts of the Living Breakwaters and Tottenville Dune Projects, as required by an Environmental Impact Statement.

6.0 References

Clarke, K. R. and R. M. Warwick (2001). Change in marine communities: an approach to statistical analysis and interpretation. Plymouth: Plymouth Marine Laboratory; 144 pp.

Magurran, AE. 1988. Ecological Diversity and Its Measurement. Princeton University Press. Princeton, NJ. 179 pp.

Appendices

Appendix A

Sampling Coordinates and Other Station Information for the June 2015 Fish Study.

Appendix Table A-1 Station information for beach seine samples collected during the June 2015 Fish Study.

Site ID	Sample ID	Station	Sample	Date	Time	Latitude (degrees N)	Longitude (degrees W)
393	21	393_21	393_21	6/22/2015	10:02	40.5017	74.2539
400	6	400_6	400_6	6/22/2015	10:49	40.5005	74.2533
412	28	412_28	412_28	6/22/2015	11:20	40.4997	74.2528
429	25	429_25	429_25	6/22/2015	11:47	40.4985	74.2515
84	13	84_13	84_13	6/22/2015	12:16	40.4977	74.2425
125	14	125_14	125_14	6/22/2015	12:40	40.4980	74.2392
140	26	140_26	140_26	6/22/2015	13:06	40.4985	74.2390
172	11	172_11	172_11	6/22/2015	13:31	40.4997	74.2373
198	19	198_19	198_19	6/22/2015	13:46	40.5004	74.2357
216	20	216_20	216_20	6/22/2015	14:00	40.5007	74.2345
254	27	254_27	254_27	6/22/2015	14:18	40.5011	74.2319
277	8	277_8	277_8	6/22/2015	14:30	40.5019	74.2301
305	9	305_9	305_9	6/22/2015	14:40	40.5021	74.2293
455	17	455_17	455_17	6/22/2015	14:55	40.5023	74.2280
471	30	471_30	471_30	6/22/2015	15:05	40.5022	74.2268
482	15	482_15	482_15	6/22/2015	15:25	40.5019	74.2257
349	23	349_23	349_23	6/22/2015	15:42	40.5021	74.2240
500	18	500_18	500_18	6/22/2015	15:59	40.5024	74.2225
533	7	533_7	533_7	6/22/2015	16:17	40.5025	74.2207
568	10	568_10	568_10	6/22/2015	16:37	40.5031	74.2185

Appendix Table A-2 Station information for fish trap samples collected during the June 2015 Fish Study.

Site ID	Sample ID	Station	Trap number	Sample	Depth (ft)	Date	Time	Soak time (hrs)	Latitude (degrees N)	Longitude (degrees W)	Comment
70	5	70_5	1	70_5_1	6.4	6/16/2015	15:28	24.78	40.4935	74.2376	
70	5	70_5	2	70_5_2	6.3	6/16/2015	15:31	24.85	40.4934	74.2375	
82	15	82_15	1	82_15_1	4.7	6/17/2015	14:36	22.88	40.4938	74.2483	
82	15	82_15	2	82_15_2	4.3	6/17/2015	14:39	22.92	40.4936	74.2483	
109	3	109_3	1	109_3_1	3.0	6/16/2015	15:36	24.67	40.4947	74.2449	
109	3	109_3	2	109_3_2	2.9	6/16/2015	15:39	24.70	40.4946	74.2450	
119	12	119_12	1	119_12_1	6.4	6/17/2015	14:24	23.40	40.4947	74.2342	
119	12	119_12	2	119_12_2	7.0	6/17/2015	14:29	23.47	40.4945	74.2342	
140	2	140_2	1	140_2_1	4.7	6/16/2015	15:22	24.57	40.4956	74.2383	
140	2	140_2	2	140_2_2	4.9	6/16/2015	15:24	24.58	40.4957	74.2384	
151	4	151_4	1	151_4_1	13.6	6/16/2015	14:52	24.37	40.4959	74.2262	
151	4	151_4	2	151_4_2	13.4	6/16/2015	14:54	24.37	40.4959	74.2265	
155	6	155_6	1	155_6_1	4.8	6/16/2015	15:52	24.72	40.4963	74.2517	
155	6	155_6	1	155_6_1	5.0	6/17/2015	15:44	23.83	40.4963	74.2518	
155	6	155_6	2	155_6_2	6.2	6/16/2015	15:55	24.75	40.4963	74.2518	
155	6	155_6	2	155_6_2	8.7	6/17/2015	15:47	23.83	40.4962	74.2520	
156	14	156_14	1	156_14_1	3.6	6/17/2015	15:39	23.87	40.4955	74.2508	
156	14	156_14	2	156_14_2	5.6	6/17/2015	15:42	23.90	40.4954	74.2510	
208	13	208_13	1	208_13_1	6.5	6/17/2015	15:51	23.83	40.4979	74.2526	
208	13	208_13	2	208_13_2	7.0	6/17/2015	15:54	23.87	40.4978	74.2527	
252	10	252_10	1	252_10_1	5.7	6/16/2015	16:05	24.75	40.4996	74.2531	
252	10	252_10	1	252_10_1	5.5	6/17/2015	15:58	23.85	40.4996	74.2533	
252	10	252_10	2	252_10_2	6.3	6/16/2015	16:08	24.78	40.4997	74.2532	
252	10	252_10	2	252_10_2	6.0	6/17/2015	16:01	23.87	40.4999	74.2533	
275	1	275_1	1	275_1_1	3.7	6/16/2015	15:05	25.72	40.4986	74.2332	
275	1	275_1	2	275_1_2	3.5	6/16/2015	15:10	25.73	40.4997	74.2322	
282	8	282_8	1	282_8_1	5.0	6/16/2015	14:38	24.28	40.5007	74.2256	
282	8	282_8	1	282_8_1	4.3	6/17/2015	14:10	23.48	40.5023	74.2257	
282	8	282_8	2	282_8_2	5.2	6/16/2015	14:43	24.38	40.5007	74.2259	

(continued)

Appendix Table A-2. (Continued)

Site ID	Sample ID	Station	Trap number	Sample	Depth (ft)	Date	Time	Soak time (hrs)	Latitude (degrees N)	Longitude (degrees W)	Comment
282	8	282_8	2	282_8_2	4.1	6/17/2015	14:12	23.45	40.5006	74.2257	
283	7	283_7	1	283_7_1	5.2	6/16/2015	13:53	23.72	40.5007	74.2244	
283	7	283_7	1	283_7_1	4.6	6/17/2015	14:06	23.7	40.5006	74.2246	
283	7	283_7	2	283_7_2	.	.	.	.	40.5005	74.2247	Trap missing, no sample collected
283	7	283_7	2	283_7_2	5.5	6/18/2015	17:34	27.43	40.5006	74.2246	
294	11	294_11	1	294_11_1	4.4	6/17/2015	14:17	23.03	40.5000	74.2296	
294	11	294_11	2	294_11_2	4.8	6/17/2015	14:20	23.07	40.4999	74.2297	
305	9	305_9	1	305_9_1	7.3	6/16/2015	14:28	24.65	40.5016	74.2192	
305	9	305_9	1	305_9_1	6.4	6/17/2015	13:57	23.45	40.5015	74.2190	
305	9	305_9	2	305_9_2	7.3	6/16/2015	14:32	24.65	40.5016	74.2192	
305	9	305_9	2	305_9_2	6.4	6/17/2015	14:01	23.47	40.5015	74.2191	

Appendix Table A-3 Station information for beam trawl samples collected during the June 2015 Fish Study.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Volume (cubic meters)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
203	2	203_2	203_2	25	6/16/2015	7:18	7.0	792.7	40.5027	74.2156	40.5036	74.2141
198	4	198_4	198_4	15	6/16/2015	7:35	6.0	567.9	40.5020	74.2181	40.5024	74.2172
130	8	130_8	130_8	17	6/16/2015	7:51	6.2	751.6	40.4972	74.2238	40.4989	74.2215
135	4	135_4	135_4	12	6/16/2015	8:09	5.8	868.8	40.4972	74.2312	40.4979	74.2272
110	25	110_25	110_25	15	6/16/2015	8:24	6.0	667.7	40.4955	74.2298	40.4967	74.227
94	5	94_5	94_5	12	6/16/2015	8:37	5.8	691.7	40.4950	74.2317	40.4959	74.2287
78	16	78_16	78_16	12	6/16/2015	8:50	5.8	601.3	40.4938	74.2351	40.4947	74.2318
89	1	89_1	89_1	9	6/16/2015	9:03	5.6	578.3	40.4947	74.2379	40.4952	74.2343
61	17	61_17	61_17	11	6/16/2015	9:14	5.7	568.5	40.4935	74.2377	40.4929	74.2412
158	5	158_5	158_5	14	6/16/2015	9:32	5.9	711.6	40.4992	74.2538	40.5013	74.255

Appendix Table A-4 Station information for otter trawl samples collected during the June 2015 Fish Study.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
203	2	203_2	203_2	20	6/16/2015	10:59	5	40.5039	74.2146	40.5023	74.2169
198	4	198_4	198_4	20	6/16/2015	11:28	5	40.5020	74.2172	40.5005	74.2193
130	8	130_8	130_8	15	6/16/2015	11:41	5	40.4992	74.2218	40.4978	74.2241
135	4	135_4	135_4	10	6/16/2015	12:01	5	40.4984	74.2274	40.4975	74.2308
110	25	110_25	110_25	12	6/16/2015	12:18	5	40.4969	74.2268	40.4965	74.2304
94	5	94_5	94_5	12	6/16/2015	12:34	5	40.4956	74.2287	40.4945	74.2311
78	16	78_16	78_16	9	6/16/2015	12:49	5	40.4948	74.2310	40.4940	74.2341
89	1	89_1	89_1	6	6/16/2015	13:05	5	40.4946	74.2343	40.4946	74.2374
61	17	61_17	61_17	6	6/16/2015	13:20	5	40.4929	74.2377	40.4925	74.2412
158	5	158_5	158_5	30	6/16/2015	13:36	5	40.4987	74.2542	40.5013	74.2555

Appendix B

Sampling Coordinates and Other Station Information for the June 2015 Benthic Macroinvertebrate Study

Appendix Table B-1 Station information for benthic samples collected during the June 2015 Benthic Macroinvertebrate Study.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Latitude (degrees N)	Longitude (degrees W)
HB	24	HB24	HB24	10.8	6/18/2015	8:20	40.4994	74.2533
HB	23	HB23	HB23	11.5	6/18/2015	8:48	40.4992	74.2532
HB	8	HB8	HB8	5.3	6/18/2015	9:02	40.4995	74.2529
B	17	B17	B17	10.6	6/18/2015	9:20	40.4989	74.2528
HB	14	HB14	HB14	7.5	6/18/2015	9:33	40.4992	74.2525
HB	26	HB26	HB26	6.7	6/18/2015	9:45	40.4995	74.2526
B	5	B5	B5	25.0	6/18/2015	9:56	40.4982	74.2535
HB	30	HB30	HB30	6.7	6/18/2015	10:09	40.4967	74.2509
HB	16	HB16	HB16	7.6	6/18/2015	10:20	40.4964	74.2514
HB	10	HB10	HB10	5.9	6/18/2015	10:34	40.4968	74.2513
HB	15	HB15	HB15	8.7	6/18/2015	10:45	40.4965	74.2518
HB	22	HB22	HB22	7.0	6/18/2015	10:54	40.4968	74.2518
B	15	B15	B15	22.5	6/18/2015	11:06	40.4932	74.2496
B	8	B8	B8	6.7	6/18/2015	11:19	40.4944	74.2456
B	13	B13	B13	8.3	6/18/2015	11:36	40.4929	74.243
B	45	B45	B45	9.8	6/18/2015	11:45	40.4918	74.2414
B	3	B3	B3	8.7	6/18/2015	12:57	40.4922	74.24
B	38	B38	B38	8.0	6/18/2015	13:07	40.4932	74.2391
B	46	B46	B46	10.6	6/18/2015	13:16	40.4905	74.2378
B	44	B44	B44	6.5	6/18/2015	13:27	40.4945	74.2372
B	39	B39	B39	8.6	6/18/2015	13:36	40.4939	74.2356
B	14	B14	B14	9.4	6/18/2015	13:45	40.4934	74.2349
B	18	B18	B18	13.2	6/18/2015	13:53	40.4923	74.2329
B	30	B30	B30	24.0	6/18/2015	14:05	40.4927	74.2307
B	22	B22	B22	8.3	6/18/2015	14:23	40.4943	74.2336
B	7	B7	B7	7.9	6/18/2015	14:32	40.4952	74.2332
B	32	B32	B32	6.3	6/18/2015	14:42	40.4957	74.2353
B	2	B2	B2	5.5	6/18/2015	14:53	40.4966	74.2352
B	25	B25	B25	4.4	6/18/2015	15:03	40.4971	74.2368
B	27	B27	B27	5.1	6/18/2015	15:12	40.4973	74.2345
B	24	B24	B24	5.0	6/18/2015	15:23	40.4978	74.2335
B	28	B28	B28	5.6	6/18/2015	15:36	40.4967	74.2333
B	19	B19	B19	7.4	6/18/2015	15:45	40.4962	74.2319
B	6	B6	B6	9.8	6/18/2015	15:53	40.4952	74.2299
B	4	B4	B4	9.9	6/18/2015	16:01	40.4959	74.2294

(continued)

Appendix Table B-1. (Continued)

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Latitude (degrees N)	Longitude (degrees W)
B	10	B10	B10	6.7	6/18/2015	16:09	40.4979	74.2305
B	9	B9	B9	4.9	6/18/2015	16:17	40.4987	74.2311
HB	4	HB4	HB4	4.5	6/18/2015	16:27	40.4996	74.2317
HB	18	HB18	HB18	4.7	6/18/2015	16:33	40.4998	74.2317
HB	3	HB3	HB3	4.6	6/18/2015	16:40	40.4996	74.232
HB	1	HB1	HB1	4.2	6/18/2015	16:49	40.4996	74.2325
HB	12	HB12	HB12	4.0	6/18/2015	17:04	40.4996	74.2328
HB	28	HB28	HB28	4.3	6/18/2015	17:14	40.4998	74.2328
HB	9	HB9	HB9	4.5	6/18/2015	17:23	40.4998	74.2324
HB	17	HB17	HB17	10.1	6/19/2015	7:46	40.5018	74.2184
HB	2	HB2	HB2	19.3	6/19/2015	7:56	40.5015	74.2184
HB	7	HB7	HB7	20.4	6/19/2015	8:08	40.5012	74.2185
HB	21	HB21	HB21	14.0	6/19/2015	8:21	40.5015	74.2186
HB	13	HB13	HB13	19.6	6/19/2015	8:29	40.5012	74.2188
HB	19	HB19	HB19	14.9	6/19/2015	8:40	40.5012	74.2194
HB	11	HB11	HB11	8.9	6/19/2015	8:50	40.5018	74.2191
HB	25	HB25	HB25	8.6	6/19/2015	8:59	40.5018	74.2194
B	29	B29	B29	26.9	6/19/2015	9:09	40.4992	74.2198
B	26	B26	B26	38.8	6/19/2015	9:22	40.4989	74.2203
B	23	B23	B23	16.7	6/19/2015	9:37	40.4984	74.2228
HB	27	HB27	HB27	7.9	6/19/2015	9:49	40.5012	74.2245
HB	29	HB29	HB29	9.0	6/19/2015	9:58	40.5009	74.2245
HB	6	HB6	HB6	8.6	6/19/2015	10:08	40.5008	74.2249
HB	20	HB20	HB20	8.3	6/19/2015	10:17	40.5009	74.2252
HB	5	HB5	HB5	7.0	6/19/2015	10:27	40.5012	74.2253

Appendix Table B-2 Station information for water samples collected during the June 2015 Benthic Macroinvertebrate Study.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Latitude (degrees N)	Longitude (degrees W)
HB	17	HB17	HB17	10.5	6/17/2015	7:42	40.5018	74.2183
HB	2	HB2	HB2	21.0	6/17/2015	8:09	40.5015	74.2184
HB	7	HB7	HB7	23.9	6/17/2015	8:13	40.5012	74.2184
HB	21	HB21	HB21	16.7	6/17/2015	8:17	40.5015	74.2187
HB	13	HB13	HB13	20.2	6/17/2015	8:21	40.5012	74.2187
HB	11	HB11	HB11	9.1	6/17/2015	8:25	40.5018	74.2191
HB	25	HB25	HB25	9.4	6/17/2015	8:28	40.5018	74.2195
HB	19	HB19	HB19	13.9	6/17/2015	8:32	40.5012	74.2195
B	29	B29	B29	23.2	6/17/2015	8:36	40.4993	74.2198
B	26	B26	B26	39.2	6/17/2015	8:41	40.499	74.2202
B	23	B23	B23	17.4	6/17/2015	8:46	40.4985	74.2227
HB	29	HB29	HB29	9.6	6/17/2015	8:51	40.501	74.2244
HB	27	HB27	HB27	7.7	6/17/2015	8:55	40.5012	74.2244
HB	6	HB6	HB6	8.9	6/17/2015	8:59	40.5008	74.2249
HB	20	HB20	HB20	8.7	6/17/2015	9:02	40.5009	74.2253
HB	5	HB5	HB5	7.0	6/17/2015	9:05	40.5012	74.2252
HB	18	HB18	HB18	9.6	6/17/2015	9:12	40.4999	74.2316
HB	4	HB4	HB4	9.5	6/17/2015	9:15	40.4995	74.2317
HB	3	HB3	HB3	9.4	6/17/2015	9:19	40.4996	74.232
HB	1	HB1	HB1	8.7	6/17/2015	9:22	40.4996	74.2325
HB	12	HB12	HB12	8.3	6/17/2015	9:25	40.4995	74.2329
HB	9	HB9	HB9	8.4	6/17/2015	9:28	40.4998	74.2324
HB	28	HB28	HB28	8.4	6/17/2015	9:39	40.4997	74.2328
B	9	B9	B9	9.8	6/17/2015	9:44	40.4987	74.2306
B	10	B10	B10	11.4	6/17/2015	9:48	40.4979	74.2306
B	4	B4	B4	14.4	6/17/2015	9:54	40.496	74.229
B	6	B6	B6	15.9	6/17/2015	9:58	40.4952	74.2298
B	30	B30	B30	25.4	6/17/2015	10:04	40.4925	74.2305
B	18	B18	B18	16.6	6/17/2015	10:07	40.4922	74.2331
B	19	B19	B19	11.8	6/17/2015	10:12	40.4962	74.2318
B	7	B7	B7	11.6	6/17/2015	10:16	40.4952	74.2331
B	22	B22	B22	11.5	6/17/2015	10:19	40.4943	74.2335
B	28	B28	B28	9.9	6/17/2015	10:22	40.4969	74.2334
B	24	B24	B24	9.6	6/17/2015	10:26	40.4976	74.2335
B	27	B27	B27	9.3	6/17/2015	10:30	40.4973	74.2346
B	2	B2	B2	8.8	6/17/2015	10:32	40.4966	74.2353

(continued)

Appendix Table B-2. (Continued)

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Latitude (degrees N)	Longitude (degrees W)
B	25	B25	B25	8.2	6/17/2015	10:35	40.4971	74.2366
B	32	B32	B32	9.4	6/17/2015	10:38	40.4956	74.2352
B	14	B14	B14	11.7	6/17/2015	10:43	40.4933	74.2352
B	39	B39	B39	11.2	6/17/2015	10:46	40.4937	74.2355
B	44	B44	B44	8.7	6/17/2015	10:50	40.4946	74.2371
B	46	B46	B46	12.8	6/17/2015	10:56	40.4906	74.2384
B	38	B38	B38	9.8	6/17/2015	10:59	40.4932	74.239
B	3	B3	B3	10.5	6/17/2015	11:03	40.4921	74.2403
B	45	B45	B45	9.7	6/17/2015	11:06	40.4919	74.2417
B	13	B13	B13	7.8	6/17/2015	11:16	40.4929	74.2433
B	8	B8	B8	5.9	6/17/2015	11:19	40.4941	74.2458
B	15	B15	B15	20.7	6/17/2015	11:22	40.4932	74.2499
B	5	B5	B5	25.4	6/17/2015	11:28	40.4983	74.2537
HB	16	HB16	HB16	4.7	6/18/2015	7:15	40.4964	74.2515
HB	15	HB15	HB15	6.8	6/18/2015	7:18	40.4964	74.252
HB	22	HB22	HB22	5.8	6/18/2015	7:21	40.4968	74.2518
HB	10	HB10	HB10	4.5	6/18/2015	7:23	40.4967	74.2512
B	17	B17	B17	9.5	6/18/2015	7:33	40.4989	74.2528
HB	14	HB14	HB14	6.0	6/18/2015	7:36	40.4993	74.2524
HB	26	HB26	HB26	3.8	6/18/2015	7:39	40.4994	74.2525
HB	23	HB23	HB23	10.1	6/18/2015	7:41	40.4992	74.2533
HB	24	HB24	HB24	10.1	6/18/2015	7:46	40.4995	74.2533
HB	8	HB8	HB8	7.3	6/18/2015	7:49	40.4996	74.253
HB	30	HB30	HB30	4.7	6/18/2015	8:05	40.4969	74.2511

Appendix Table B-3 Station information for hard clam samples collected during the June 2015 Benthic Macroinvertebrate Study.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
B	17	B17	B17	10.5	6/19/2015	11:18	2.5	40.499	74.2529	40.4995	74.2533
HB	24	HB24	HB24	12.0	6/19/2015	11:33	5	40.4995	74.2534	40.5009	74.2544
B	13	B13	B13	9.0	6/19/2015	11:56	5	40.4926	74.2422	40.4929	74.2445
B	45	B45	B45	10.4	6/19/2015	12:07	5	40.492	74.2406	40.4919	74.2431
B	23	B23	B23	16.1	6/19/2015	12:23	5	40.4985	74.2226	40.4975	74.2247
B	29	B29	B29	28.0	6/19/2015	12:43	5	40.4994	74.22	40.4987	74.2216
B	26	B26	B26	23.0	6/19/2015	12:58	5	40.499	74.2202	40.4978	74.222
HB	29	HB29	HB29	7.6	6/19/2015	13:12	5	40.5008	74.2245	40.5004	74.2274
HB	6	HB6	HB6	7.4	6/19/2015	13:21	5	40.5007	74.2247	40.5005	74.2261
HB	20	HB20	HB20	6.7	6/19/2015	13:31	5	40.5006	74.225	40.5001	74.2272
HB	7	HB7	HB7	18.0	6/19/2015	13:42	5	40.5012	74.2184	40.5000	74.2211
HB	13	HB13	HB13	19.4	6/19/2015	13:59	5	40.5012	74.2187	40.5002	74.2203
HB	19	HB19	HB19	14.3	6/19/2015	14:12	5	40.5011	74.2195	40.4998	74.2218
B	10	B10	B10	8.0	6/19/2015	14:26	5	40.4979	74.2303	40.4976	74.2323
B	9	B9	B9	6.6	6/19/2015	14:36	5	40.4989	74.2306	40.4987	74.2322
HB	4	HB4	HB4	5.8	6/19/2015	14:46	5	40.4995	74.2316	40.4986	74.2337
B	19	B19	B19	8.7	6/19/2015	14:57	5	40.4959	74.2319	40.4947	74.2351
B	7	B7	B7	8.2	6/19/2015	15:07	5	40.495	74.233	40.4940	74.2353
B	22	B22	B22	8.6	6/19/2015	15:18	5	40.4942	74.2335	40.4932	74.2369
B	18	B18	B18	12.0	6/19/2015	15:31	5	40.4921	74.2334	40.4917	74.2352
HB	17	HB17	HB17	12.0	6/26/2015	8:41	5	40.5018	74.2185	40.5037	74.2148
B	24	B24	B24	6.4	6/26/2015	8:54	5	40.4974	74.2333	40.4981	74.2307
B	28	B28	B28	6.9	6/26/2015	9:05	5	40.4967	74.2334	40.4971	74.2305

(continued)

Appendix Table B-3. (Continued)

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
B	27	B27	B27	5.9	6/26/2015	9:16	5	40.4973	74.2346	40.4979	74.2314
HB	18	HB18	HB18	5.3	6/26/2015	9:26	5	40.4998	74.2317	40.5050	74.2292
B	25	B25	B25	5.3	6/26/2015	9:38	5	40.4969	74.2366	40.4980	74.2334
B	14	B14	B14	8.8	6/26/2015	9:49	5	40.4934	74.2353	40.4944	74.2327
B	39	B39	B39	6.8	6/26/2015	9:59	5	40.4937	74.2359	40.4947	74.2328
B	38	B38	B38	6.3	6/26/2015	10:10	5	40.4934	74.2398	40.4936	74.2365
B	3	B3	B3	7.1	6/26/2015	10:20	5	40.4918	74.2403	40.4927	74.2377

Appendix C

Chain of Custody Forms;
June 2015 Benthic Macroinvertebrate Study.

(Provided as a separate document.)

Appendix D

Photographs of each Macroinvertebrate Grab Sample before and after Sieving; June 2015 Benthic Macroinvertebrate Study.

(Provided as a separate document.)

Appendix E

Field Standard Operating Procedures; June 2015 Fish and Benthic Macroinvertebrate Studies.

(Provided as a separate document.)

Appendix F

Species composition by sample for each gear type; June 2015 Fish Study.

Appendix Table F. Species composition by sample for each gear type; June 2015 Fish Survey.

Sample	Date	Common name	Scientific name	Count
Gear type=Beach Siene				
84_13	6/22/2015	Atlantic Menhaden	*Brevoortia tyrannus*	87
		Atlantic Silverside	*Menidia menidia*	170
		Mummichog	*Fundulus heteroclitus*	4
		White Mullet	*Mugil curema*	2
		Winter Flounder	*Pseudopleuronectes americanus*	1
125_14	6/22/2015	Atlantic Menhaden	*Brevoortia tyrannus*	1
		Atlantic Silverside	*Menidia menidia*	28
		Winter Flounder	*Pseudopleuronectes americanus*	5
140_26	6/22/2015	Atlantic Menhaden	*Brevoortia tyrannus*	1
		Atlantic Silverside	*Menidia menidia*	72
		Mummichog	*Fundulus heteroclitus*	2
		Northern Puffer	*Sphoeroides maculatus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	2
172_11	6/22/2015	Atlantic Silverside	*Menidia menidia*	24
		White Mullet	*Mugil curema*	7
		Winter Flounder	*Pseudopleuronectes americanus*	2
198_19	6/22/2015	Atlantic Silverside	*Menidia menidia*	55
		White Mullet	*Mugil curema*	1
		White Perch	*Morone americana*	1
		Winter Flounder	*Pseudopleuronectes americanus*	1
216_20	6/22/2015	Atlantic Menhaden	*Brevoortia tyrannus*	1
		Atlantic Silverside	*Menidia menidia*	14
		Fourspine Stickleback	*Apeltes quadracus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	5
254_27	6/22/2015	Atlantic Silverside	*Menidia menidia*	55
277_8	6/22/2015	Atlantic Silverside	*Menidia menidia*	146
		Fourspine Stickleback	*Apeltes quadracus*	1
		Northern Puffer	*Sphoeroides maculatus*	4
		Winter Flounder	*Pseudopleuronectes americanus*	3
305_9	6/22/2015	American Eel	*Anguilla rostrata*	1
		Atlantic Silverside	*Menidia menidia*	65
		Winter Flounder	*Pseudopleuronectes americanus*	1
349_23	6/22/2015	Atlantic Silverside	*Menidia menidia*	8
		Mummichog	*Fundulus heteroclitus*	1
		White Mullet	*Mugil curema*	1
		Winter Flounder	*Pseudopleuronectes americanus*	1
393_21	6/22/2015	American Eel	*Anguilla rostrata*	1
		Atlantic Silverside	*Menidia menidia*	5
		Winter Flounder	*Pseudopleuronectes americanus*	1
		Blue crab	*Callinectes sapidus*	1

(continued)

Appendix Table F. (Continued)

Sample	Date	Common name	Scientific name	Count
400_6	6/22/2015	Atlantic Silverside	*Menidia menidia*	17
412_28	6/22/2015	American Eel	*Anguilla rostrata*	45
		Atlantic Menhaden	*Brevoortia tyrannus*	82
		Atlantic Silverside	*Menidia menidia*	125
		White Mullet	*Mugil curema*	8
		Windowpane	*Scophthalmus aquosus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	1
429_25	6/22/2015	Atlantic Menhaden	*Brevoortia tyrannus*	5
		Atlantic Silverside	*Menidia menidia*	304
		Mummichog	*Fundulus heteroclitus*	23
		White Mullet	*Mugil curema*	3
455_17	6/22/2015	Atlantic Silverside	*Menidia menidia*	146
		Mummichog	*Fundulus heteroclitus*	2
		Sheepshead Minnow	*Cyprinodon variegatus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	1
		Blue crab	*Callinectes sapidus*	1
471_30	6/22/2015	Atlantic Silverside	*Menidia menidia*	422
		Northern Puffer	*Sphoeroides maculatus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	2
482_15	6/22/2015	Atlantic Silverside	*Menidia menidia*	5
500_18	6/22/2015	Atlantic Silverside	*Menidia menidia*	44
		Winter Flounder	*Pseudopleuronectes americanus*	2
533_7	6/22/2015	Atlantic Silverside	*Menidia menidia*	67
		Winter Flounder	*Pseudopleuronectes americanus*	4
568_10	6/22/2015	Atlantic Silverside	*Menidia menidia*	38
		Mummichog	*Fundulus heteroclitus*	8
		Winter Flounder	*Pseudopleuronectes americanus*	4
Total				**2145**
Gear type=Beam trawl				
61_17	6/16/2015	No catch	No catch	0
78_16	6/16/2015	No catch	No catch	0
89_1	6/16/2015	No catch	No catch	0
94_5	6/16/2015	No catch	No catch	0
110_25	6/16/2015	No catch	No catch	0
130_8	6/16/2015	No catch	No catch	0
135_4	6/16/2015	No catch	No catch	0
158_5	6/16/2015	Winter Flounder	*Pseudopleuronectes americanus*	1
198_4	6/16/2015	No catch	No catch	0
203_2	6/16/2015	No catch	No catch	0
Total				**1**

(continued)

Appendix Table F. (Continued)

Sample	Date	Common name	Scientific name	Count
Gear type=Fish trap				
70_5_1	6/16/2015	Portly spider crab	*Libinia emarginata*	2
70_5_2	6/16/2015	No catch	No catch	0
82_15_1	6/17/2015	Blue crab	*Callinectes sapidus*	1
82_15_2	6/17/2015	Blue crab	*Callinectes sapidus*	2
		Portly spider crab	*Libinia emarginata*	1
		Say mud crab	*Dyspanopeus sayi*	1
109_3_1	6/16/2015	Blue crab	*Callinectes sapidus*	2
		Portly spider crab	*Libinia emarginata*	1
109_3_2	6/16/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	1
119_12_1	6/17/2015	No catch	No catch	0
119_12_2	6/17/2015	Portly spider crab	*Libinia emarginata*	4
		Say mud crab	*Dyspanopeus sayi*	1
140_2_1	6/16/2015	Portly spider crab	*Libinia emarginata*	4
140_2_2	6/16/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	1
151_4_1	6/16/2015	Lady crab	*Ovalipes ocellatus*	1
		Portly spider crab	*Libinia emarginata*	2
151_4_2	6/16/2015	No catch	No catch	0
155_6_1	6/16/2015	Blue crab	*Callinectes sapidus*	1
	6/17/2015	Portly spider crab	*Libinia emarginata*	1
		Say mud crab	*Dyspanopeus sayi*	2
155_6_2	6/16/2015	Portly spider crab	*Libinia emarginata*	1
	6/17/2015	Portly spider crab	*Libinia emarginata*	3
		Say mud crab	*Dyspanopeus sayi*	1
156_14_1	6/17/2015	Portly spider crab	*Libinia emarginata*	4
		Say mud crab	*Dyspanopeus sayi*	1
156_14_2	6/17/2015	Portly spider crab	*Libinia emarginata*	4
208_13_1	6/17/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	7
208_13_2	6/17/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	5
252_10_1	6/16/2015	No catch	No catch	0
	6/17/2015	Blue crab	*Callinectes sapidus*	3
		Horseshoe crab	*Limulus polyphemus*	1
252_10_2	6/16/2015	No catch	No catch	0
	6/17/2015	Portly spider crab	*Libinia emarginata*	2
275_1_1	6/16/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	1
275_1_2	6/16/2015	Portly spider crab	*Libinia emarginata*	1

(continued)

Appendix Table F. (Continued)

Sample	Date	Common name	Scientific name	Count
282_8_1	6/16/2015	Blue crab	*Callinectes sapidus*	2
	6/17/2015	Blue crab	*Callinectes sapidus*	2
		Portly spider crab	*Libinia emarginata*	3
282_8_2	6/16/2015	Portly spider crab	*Libinia emarginata*	2
	6/17/2015	No catch	No catch	0
283_7_1	6/16/2015	Portly spider crab	*Libinia emarginata*	5
	6/17/2015	Portly spider crab	*Libinia emarginata*	4
283_7_2	6/18/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	2
294_11_1	6/17/2015	Blue crab	*Callinectes sapidus*	2
294_11_2	6/17/2015	Portly spider crab	*Libinia emarginata*	2
305_9_1	6/16/2015	Portly spider crab	*Libinia emarginata*	1
	6/17/2015	Portly spider crab	*Libinia emarginata*	3
305_9_2	6/16/2015	No catch	No catch	0
	6/17/2015	No catch	No catch	0
Total				96
Gear type=Otter trawl				
61_17	6/16/2015	Blue crab	*Callinectes sapidus*	1
		Lady crab	*Ovalipes ocellatus*	1
		Longwrist hermit crab	*Pagurus longicarpus*	2
		Portly spider crab	*Libinia emarginata*	2
78_16	6/16/2015	Summer Flounder	*Paralichthys dentatus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	3
		Blue crab	*Callinectes sapidus*	2
		Lady crab	*Ovalipes ocellatus*	4
		Longwrist hermit crab	*Pagurus longicarpus*	1
		Portly spider crab	*Libinia emarginata*	3
		Say mud crab	*Dyspanopeus sayi*	3
89_1	6/16/2015	Blue crab	*Callinectes sapidus*	1
		Portly spider crab	*Libinia emarginata*	2
		Say mud crab	*Dyspanopeus sayi*	6
94_5	6/16/2015	Scup	*Stenotomus chrysops*	1
		Winter Flounder	*Pseudopleuronectes americanus*	6
		Lady crab	*Ovalipes ocellatus*	7
		Portly spider crab	*Libinia emarginata*	2
		Say mud crab	*Dyspanopeus sayi*	4
110_25	6/16/2015	Northern Pipefish	*Syngnathus fuscus*	1
		Scup	*Stenotomus chrysops*	2
		Blue crab	*Callinectes sapidus*	1
		Lady crab	*Ovalipes ocellatus*	4
		Say mud crab	*Dyspanopeus sayi*	4

(continued)

Appendix Table F. (Continued)

Sample	Date	Common name	Scientific name	Count
130_8	6/16/2015	Scup	*Stenotomus chrysops*	1
		Summer Flounder	*Paralichthys dentatus*	1
		Winter Flounder	*Pseudopleuronectes americanus*	5
		Blue crab	*Callinectes sapidus*	1
		Lady crab	*Ovalipes ocellatus*	7
		Longwrist hermit crab	*Pagurus longicarpus*	3
135_4	6/16/2015	Winter Flounder	*Pseudopleuronectes americanus*	1
		Lady crab	*Ovalipes ocellatus*	2
		Portly spider crab	*Libinia emarginata*	3
		Say mud crab	*Dyspanopeus sayi*	2
158_5	6/16/2015	No catch	No catch	0
198_4	6/16/2015	Winter Flounder	*Pseudopleuronectes americanus*	1
		Longwrist hermit crab	*Pagurus longicarpus*	3
203_2	6/16/2015	Atlantic Tomcod	*Microgadus tomcod*	1
		Scup	*Stenotomus chrysops*	3
		Winter Flounder	*Pseudopleuronectes americanus*	2
		Longwrist hermit crab	*Pagurus longicarpus*	3
Total				**106**

Appendix G

Data Summaries for the June 2015 Benthic Macroinvertebrate Study

Appendix Table G-1 Data Listing by Sample for Water Quality Data Collected during June 2015

Sample	Secchi Depth (ft)	pH	Total Nitrogen (mg/L)	Fecal Coliform (organisms/100mL)	Surface Temperature (°C)	Bottom Temperature (°C)	Surface Dissolved Oxygen (mg/L)	Bottom Dissolved Oxygen (mg/L)	Surface Salinity (PSU)	Bottom Salinity (PSU)
B10	2.7	7.1	1.50	10	22.3	21.8	6.3	5.8	21.9997	22.0137
B13	2.5	7.0	1.00	18	23.4	22.6	7.1	6.7	19.8383	20.4138
B14	2.8	7.0	2.73	18	22.7	22.4	5.3	5.9	20.4344	21.9927
B15	2.9	7.0	1.00	<10	23.2	22.2	7.2	6.6	19.6335	21.6096
B17	2.8	7.1	1.00	10	22.4	22.4	6.7	6.8	17.7426	19.7495
B18	3.1	7.1	2.50	36	22.6	22.0	5.3	5.8	21.4359	21.9299
B19	2.7	7.1	2.06	<10	22.7	22.0	6.0	5.8	21.9230	21.9718
B2	3.0	7.1	2.33	99	22.4	22.1	6.1	6.0	21.8045	22.0346
B22	2.6	7.1	2.46	<10	22.6	22.2	6.1	5.9	22.0067	22.0346
B23	2.8	7.1	1.00	<10	22.1	21.9	6.5	6.2	21.8951	21.9927
B24	2.6	7.1	2.75	18	22.9	22.2	5.7	6.0	21.3249	22.0207
B25	3.3	7.1	2.73	27	22.6	22.2	5.5	5.8	20.7855	21.9997
B26	2.8	7.1	1.00	<10	22.1	21.2	6.5	6.1	21.9509	21.9578
B27	2.8	7.1	3.42	45	22.7	22.2	6.0	5.9	21.5748	22.0277
B28	2.2	7.1	3.51	18	22.7	22.1	6.3	6.1	22.0067	22.0137
B29	2.9	7.1	1.00	27	22.1	21.8	6.6	6.3	21.9369	21.9997
B3	2.4	7.0	1.00	18	23.0	22.4	7.1	6.7	19.7700	21.5123
B30	3.3	7.1	2.39	18	22.6	22.0	5.3	6.1	21.5192	21.9230
B32	2.3	7.0	2.82	15	22.8	22.4	5.3	6.0	20.4344	21.9927
B38	2.4	7.0	1.00	54	22.9	22.3	6.4	6.5	20.5031	21.2486
B39	2.4	7.0	2.83	18	22.8	22.3	5.6	5.8	20.4138	22.0067
B4	2.6	7.1	1.56	<10	22.6	22.1	5.6	5.9	21.7139	21.9578
B44	2.2	7.0	3.73	18	22.6	22.3	6.9	6.9	20.7855	21.7766
B45	2.6	7.0	1.00	27	23.0	22.5	7.1	6.8	19.7563	20.6545
B46	2.7	7.0	3.33	50	23.0	22.4	6.4	6.9	20.9926	21.5123
B5	2.6	7.0	1.00	27	23.0	22.3	6.8	6.3	20.3725	20.7855
B6	2.8	7.1	2.17	<10	22.6	22.1	5.7	6.1	21.6582	21.9648

(continued)

Appendix Table G-1. (Continued)

Sample	Secchi Depth (ft)	pH	Total Nitrogen (mg/L)	Fecal Coliform (organisms/100mL)	Surface Temperature (°C)	Bottom Temperature (°C)	Surface Dissolved Oxygen (mg/L)	Bottom Dissolved Oxygen (mg/L)	Surface Salinity (PSU)	Bottom Salinity (PSU)
B7	3.1	7.1	2.46	10	22.7	22.2	5.9	6.2	21.7836	22.0207
B8	3.3	7.0	1.00	10	23.0	22.8	7.1	7.0	20.2627	20.2902
B9	1.7	7.1	1.90	10	22.2	21.8	6.0	5.9	22.0277	21.9648
HB1	2.9	7.0	1.90	<10	22.2	21.8	6.0	5.9	21.902	21.9788
HB10	3.3	7.1	1.00	18	22.4	22.4	6.8	6.6	18.2658	19.1439
HB11	2.7	7.1	1.00	18	21.8	21.8	6.5	6.3	21.9718	21.9788
HB12	3.1	7.0	2.51	10	22.3	21.8	6.3	6.2	21.9369	21.9648
HB13	2.3	7.1	1.60	45	22.0	22.0	6.9	7.0	21.9997	21.9997
HB14	2.7	7.1	1.00	27	21.9	22.2	6.9	6.8	17.6891	19.6608
HB15	3.3	7.1	1.00	10	22.4	22.5	6.9	6.8	18.3398	18.9067
HB16	3.0	7.1	1.00	45	22.3	22.4	7.0	6.9	18.3600	18.3936
HB17	2.2	7.1	1.00	38	22.2	22.0	6.9	6.9	21.7627	21.9439
HB18	2.6	7.0	1.90	<10	22.2	21.8	5.5	5.9	21.9299	21.9648
HB19	2.8	7.1	1.00	18	22.0	21.9	6.7	6.8	21.9997	22.0137
HB2	2.8	7.1	1.00	10	22.0	22.0	6.7	6.7	21.8741	21.923.
HB20	2.8	7.0	2.30	27	22.0	21.7	5.8	5.6	21.8323	21.9718
HB21	1.9	7.1	1.00	10	21.9	21.8	6.7	6.9	21.9578	21.9578
HB22	3.4	7.1	1.00	64	22.4	22.5	6.8	6.8	18.4677	19.2796
HB23	3.2	7.1	1.00	18	22.3	22.5	6.7	6.6	17.7627	20.0571
HB24	2.8	7.1	1.00	27	22.0	22.4	6.5	6.8	18.9947	19.9408
HB25	3.1	7.1	1.00	27	21.8	21.8	6.2	6.5	21.8672	21.9927
HB26	3.1	7.1	1.00	10	22.1	22.4	6.9	6.8	17.7292	19.9203
HB27	2.9	7.0	1.00	27	21.9	21.8	6.0	5.8	22.5106	21.9090
HB28	3.4	7.0	2.51	<10	22.4	21.8	6.2	6.0	21.9718	21.9788
HB29	2.2	7.0	1.00	54	22.1	22.7	5.9	5.6	21.7975	21.8672
HB3	2.5	7.0	1.60	18	22.2	21.8	6.0	5.8	21.9299	21.9788

(continued)

Appendix Table G-1. (Continued)

Sample	Secchi Depth (ft)	pH	Total Nitrogen (mg/L)	Fecal Coliform (organisms/100mL)	Surface Temperature (°C)	Bottom Temperature (°C)	Surface Dissolved Oxygen (mg/L)	Bottom Dissolved Oxygen (mg/L)	Surface Salinity (PSU)	Bottom Salinity (PSU)
HB30	2.8	7.1	1.00	55	22.2	22.2	6.1	6.2	18.4879	18.4879
HB4	2.9	7.0	1.90	10	22.2	21.8	5.9	5.7	21.9369	21.9997
HB5	2.8	7.0	1.80	10	22.2	22.0	5.7	5.7	21.8393	21.8811
HB6	2.3	7.0	1.80	63	22.1	21.8	5.8	5.5	21.8463	21.9997
HB7	1.8	7.1	1.00	63	22.0	21.9	6.7	7.1	21.8951	19.2049
HB8	3.6	7.1	1.00	18	22.0	22.2	6.7	6.7	17.8162	18.5823
HB9	2.6	7.0	4.41	<10	22.3	21.7	6.1	5.9	21.9648	21.9648

Appendix Table G-2. Data Listing by Sample for Sediment Characteristics Data Collected during June 2015

Sample	TOC (%)	Clay (%)	Silt (%)	Sand, Fine (%)	Sand, Medium (%)	Sand, Coarse (%)	Gravel (%)
B10	0.3	1.3	2.5	9.0	29.6	43.0	14.0
B13	0.2	0.8	0.8	35.2	16.3	22.6	24.0
B14	0.4	1.0	1.0	13.2	42.4	37.6	4.9
B15	0.8	1.9	7.4	27.4	11.4	23.6	28.7
B17	1.5	6.1	40.1	46.7	2.2	2.7	0.8
B18	1.0	1.3	1.9	15.9	46.0	32.5	1.7
B19	0.2	0.9	1.1	11.0	36.7	41.7	8.3
B2	0.4	0.7	1.1	4.0	13.4	55.8	24.7
B22	0.3	1.3	2.4	13.2	40.9	39.3	2.6
B23	0.7	1.6	2.5	12.9	32.3	39.2	11.1
B24	2.4	0.5	0.5	4.0	6.0	18.5	70.4
B25	0.3	0.7	0.5	19.8	40.6	28.4	10.0
B26	0.4	1.7	4.1	9.8	21.0	30.0	32.5
B27	1.0	0.6	1.4	4.9	13.8	35.5	43.8
B28	0.3	0.9	2.0	3.1	10.6	59.6	23.5
B29	0.3	1.6	2.5	13.4	31.5	39.9	10.3
B3	0.3	0.7	0.5	8.1	36.6	43.7	9.9
B30	4.2	3.6	9.9	35.4	8.7	17.5	23.0
B32	0.9	1.0	1.7	8.3	27.7	36.5	24.5
B38	0.2	0.6	0.4	6.6	24.8	51.7	15.2
B39	0.2	0.7	1.0	9.7	36.2	48.3	3.7
B4	0.8	1.2	2.1	29.9	31.8	27.5	7.3
B44	0.2	0.6	1.0	4.8	18.5	34.8	39.8
B45	0.1	0.5	0.4	6.5	16.0	56.6	20.0
B46	0.6	1.2	1.6	10.5	33.9	39.5	13.2
B5	1.7	4.1	26.5	60.6	2.1	3.2	1.4
B6	0.8	1.0	1.4	25.0	28.7	38.6	5.0
B7	0.7	1.0	1.1	10.7	34.0	38.9	13.9
B8	0.1	0.5	0.5	28.4	29.5	20.7	20.2
B9	0.2	0.8	0.3	16.5	50.4	28.1	3.0
HB1	0.2	0.6	1.0	9.8	27.3	40.0	20.6
HB10	0.2	0.8	1.1	14.2	37.3	30.7	15.5
HB11	0.2	0.9	0.3	34.9	54.4	9.4	0.2
HB12	0.3	0.8	1.1	9.5	17.9	33.5	35.5

(continued)

Appendix Table G-2. (Continued)

Sample	TOC (%)	Clay (%)	Silt (%)	Sand, Fine (%)	Sand, Medium (%)	Sand, Coarse (%)	Gravel (%)
HB13	1.2	2.2	4.9	26.2	22.4	26.3	17.7
HB14	0.3	0.6	1.2	9.3	18.4	28.1	42.3
HB15	0.3	0.7	0.5	14.3	34.1	39.2	10.5
HB16	0.3	1.0	1.6	19.3	36.2	22.6	18.4
HB17	0.2	1.0	0.7	30.1	54.7	13.1	0.1
HB18	0.9	0.7	2.1	13.6	11.7	29.2	41.7
HB19	0.4	1.4	1.7	36.0	47.0	10.7	2.7
HB2	1.0	3.2	8.2	26.4	16.2	20.1	24.1
HB20	1.4	1.1	1.3	60.0	18.5	13.8	4.5
HB21	0.4	1.3	2.0	34.6	44.9	16.0	0.5
HB22	0.3	1.0	1.6	18.4	29.6	32.9	16.8
HB23	1.6	2.9	30.9	47.1	0.7	0.9	12.2
HB24	1.7	3.6	23.1	48.3	5.5	6.8	8.3
HB25	0.2	0.9	0.4	43.4	45.5	9.0	0.4
HB26	0.6	0.4	0.6	10.1	14.1	43.3	31.5
HB27	0.3	1.3	0.9	75.2	19.7	1.6	0.3
HB28	0.3	1.1	1.5	47.7	30.9	10.4	7.6
HB29	0.5	1.4	1.6	81.9	7.1	3.5	2.7
HB3	0.1	0.7	1.1	11.1	26.1	46.0	13.3
HB30	0.2	0.5	0.6	21.8	27.2	24.2	24.8
HB4	0.4	0.6	2.2	8.0	8.8	21.4	57.7
HB5	0.5	1.1	0.9	74.2	20.1	2.2	0.8
HB6	0.5	1.1	0.8	64.4	25.6	7.3	0.8
HB7	0.4	2.1	4.4	17.6	19.8	29.3	25.5
HB8	0.2	0.6	1.4	15.8	16.8	41.1	24.6
HB9	0.3	0.7	1.1	7.7	18.7	36.7	34.2

Appendix Table G-3 Taxon Counts by Sample for Soft-bottom Benthic Grab Samples Collected during the June 2015 Macroinvertebrate Study.

Sample	Phylum	Family	Species/Taxon	Count
B10	Arthropoda	Unciolidae	*Unciola serrata*	704
B10	Annelida	Capitellidae	*Mediomastus ambiseta*	261
B10	Annelida	Phyllodocidae	*Eumida sanguinea*	78
B10	Annelida		Oligochaeta	73
B10	Annelida	Spionidae	*Polydora cornuta*	71
B10	Annelida	Sabellariidae	*Sabellaria vulgaris*	50
B10	Annelida	Polynoidae	*Harmothoe* sp.	29
B10	Annelida	Terebellidae	*Polycirrus* sp.	26
B10	Annelida	Cirratulidae	*Caulleriella venefica*	21
B10	Annelida	Polynoidae	*Harmothoe imbricata*	19
B10	Annelida	Capitellidae	*Heteromastus filiformis*	19
B10	Annelida	Nereididae	*Alitta succinea*	19
B10	Annelida	Spionidae	*Streblospio benedicti*	15
B10	Annelida	Syllidae	*Opisthodonta longocirrata*	15
B10	Annelida	Phyllodocidae	*Hypereteone heteropoda*	13
B10	Annelida	Hesionidae	*Oxydromus obscurus*	12
B10	Mollusca	Calyptraeidae	*Crepidula* sp.	12
B10	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	11
B10	Mollusca	Pyramidellidae	*Boonea bisuturalis*	11
B10	Mollusca	Nassariidae	*Ilyanassa obsoleta*	10
B10	Annelida	Polynoidae	*Lepidonotus* sp.	9
B10	Arthropoda	Aoridae	*Grandidierella japonica*	8
B10	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	7
B10	Annelida	Maldanidae	*Euclymene collaris*	5
B10	Arthropoda	Ampeliscidae	*Ampelisca abdita*	5
B10	Annelida	Polynoidae	*Harmothoe extenuata*	5
B10	Arthropoda	Paguridae	*Pagurus longicarpus*	5
B10	Annelida	Cirratulidae	Cirratulidae	4
B10	Annelida	Syllidae	*Syllides verrilli*	4
B10	Mollusca	Calyptraeidae	*Crepidula fornicata*	3
B10	Annelida	Syllidae	*Salvatoria clavata*	3
B10	Annelida	Syllidae	*Brania wellfleetensis*	3
B10	Mollusca	Lyonsiidae	*Lyonsia arenosa*	3
B10	Annelida	Polynoidae	*Lepidonotus squamatus*	2
B10	Annelida	Glyceridae	*Glycera dibranchiata*	2
B10	Annelida	Sabellidae	*Parasabella microphthalma*	2
B10	Annelida	Spionidae	*Dipolydora socialis*	2
B10	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B10	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
B10	Annelida	Spionidae	*Marenzelleria viridis*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B10	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B10	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
B10	Arthropoda	Corophiidae	*Apocorophium acutum*	1
B10	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B10	Annelida	Syllidae	*Myrianida prolifera*	1
B10	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B10	Annelida	Goniadidae	Goniadidae	1
B10	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B10	Arthropoda	Bateidae	*Batea catharinensis*	1
B10	Annelida	Hesionidae	*Gyptis vittata*	1
B10	Annelida	Syllidae	*Exogone dispar*	1
B10	Nemertea	Lineidae	*Lineus ruber*	1
B13	Annelida	Capitellidae	*Mediomastus ambiseta*	602
B13	Arthropoda	Unciolidae	*Unciola serrata*	354
B13	Annelida		Oligochaeta	172
B13	Annelida	Phyllodocidae	*Eumida sanguinea*	111
B13	Annelida	Spionidae	*Polydora cornuta*	51
B13	Annelida	Polynoidae	*Harmothoe imbricata*	47
B13	Annelida	Syllidae	*Opisthodonta longocirrata*	43
B13	Annelida	Polynoidae	*Lepidonotus* sp.	40
B13	Annelida	Phyllodocidae	*Hypereteone heteropoda*	34
B13	Annelida	Syllidae	*Syllides verrilli*	33
B13	Annelida	Polynoidae	*Harmothoe* sp.	32
B13	Annelida	Syllidae	*Salvatoria clavata*	18
B13	Arthropoda	Aoridae	*Grandidierella japonica*	17
B13	Annelida	Terebellidae	*Polycirrus* sp.	15
B13	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	10
B13	Mollusca	Corambidae	*Corambe obscura*	10
B13	Mollusca	Calyptraeidae	*Crepidula* sp.	9
B13	Annelida	Cirratulidae	*Caulleriella venefica*	9
B13	Mollusca	Nassariidae	*Ilyanassa obsoleta*	8
B13	Arthropoda	Ampeliscidae	*Ampelisca abdita*	7
B13	Annelida	Syllidae	*Exogone dispar*	7
B13	Mollusca	Calyptraeidae	*Crepidula fornicata*	6
B13	Annelida	Capitellidae	*Heteromastus filiformis*	6
B13	Annelida	Nereididae	*Alitta succinea*	6
B13	Mollusca		Gastropoda	6
B13	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	5
B13	Arthropoda	Caprellidae	*Caprella penantis*	5
B13	Mollusca	Solenidae	Solenidae	5
B13	Annelida	Glyceridae	Glyceridae	5

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B13	Arthropoda	Paguridae	*Pagurus longicarpus*	4
B13	Annelida	Cirratulidae	Cirratulidae	4
B13	Mollusca	Lyonsiidae	*Lyonsia arenosa*	4
B13	Annelida	Spionidae	*Streblospio benedicti*	3
B13	Arthropoda	Caprellidae	*Paracaprella tenuis*	3
B13	Mollusca	Pyramidellidae	*Boonea bisuturalis*	3
B13	Annelida	Nereididae	Nereididae	3
B13	Annelida	Spionidae	*Spio filicornis*	2
B13	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
B13	Arthropoda	Gammaridae	*Gammarus* sp.	2
B13	Annelida	Hesionidae	*Oxydromus obscurus*	2
B13	Mollusca		Nudibranchia	2
B13	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B13	Annelida	Cirratulidae	*Tharyx acutus*	2
B13	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B13	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
B13	Cnidaria		Actiniaria	2
B13	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B13	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
B13	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B13	Annelida	Glyceridae	*Glycera americana*	1
B13	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
B13	Arthropoda	Maeridae	*Elasmopus levis*	1
B13	Annelida	Pectinariidae	*Pectinaria gouldii*	1
B13	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B13	Arthropoda	Amphilochidae	*Ampithoe valida*	1
B13	Annelida	Spionidae	*Dipolydora socialis*	1
B13	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
B13	Annelida	Sigalionidae	*Sigalion arenicola*	1
B13	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
B13	Annelida	Syllidae	*Syllides* sp.	1
B13	Arthropoda	Gammaridae	*Gammarus daiberi*	1
B14	Annelida	Capitellidae	*Mediomastus ambiseta*	976
B14	Arthropoda	Unciolidae	*Unciola serrata*	360
B14	Annelida		Oligochaeta	260
B14	Annelida	Cirratulidae	*Caulleriella venefica*	190
B14	Annelida	Phyllodocidae	*Eumida sanguinea*	125
B14	Annelida	Syllidae	*Opisthodonta longocirrata*	65
B14	Annelida	Spionidae	*Polydora cornuta*	59
B14	Annelida	Spionidae	*Streblospio benedicti*	47
B14	Annelida	Terebellidae	*Polycirrus* sp.	42

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B14	Annelida	Polynoidae	*Harmothoe imbricata*	37
B14	Annelida	Syllidae	*Syllides verrilli*	37
B14	Annelida	Polynoidae	*Lepidonotus* sp.	36
B14	Annelida	Phyllodocidae	*Hypereteone heteropoda*	33
B14	Annelida	Glyceridae	Glyceridae	27
B14	Annelida	Polynoidae	*Harmothoe* sp.	19
B14	Arthropoda	Aoridae	*Grandidierella japonica*	15
B14	Annelida	Syllidae	*Salvatoria clavata*	12
B14	Annelida	Sabellariidae	*Sabellaria vulgaris*	12
B14	Mollusca	Calyptraeidae	*Crepidula fornicata*	10
B14	Mollusca	Pyramidellidae	*Boonea bisuturalis*	9
B14	Annelida	Capitellidae	*Heteromastus filiformis*	8
B14	Mollusca	Lyonsiidae	*Lyonsia arenosa*	8
B14	Annelida	Hesionidae	*Oxydromus obscurus*	6
B14	Annelida	Maldanidae	*Euclymene collaris*	5
B14	Annelida	Glyceridae	*Glycera dibranchiata*	5
B14	Annelida	Sabellidae	*Parasabella microphthalma*	5
B14	Annelida	Spionidae	*Dipolydora socialis*	5
B14	Mollusca	Calyptraeidae	*Crepidula* sp.	5
B14	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
B14	Annelida	Nereididae	*Alitta succinea*	4
B14	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	3
B14	Mollusca	Nassariidae	*Ilyanassa obsoleta*	3
B14	Annelida	Syllidae	*Myrianida prolifera*	3
B14	Arthropoda	Paguridae	*Pagurus longicarpus*	3
B14	Annelida	Nereididae	Nereididae	3
B14	Annelida	Syllidae	*Exogone dispar*	3
B14	Arthropoda	Ampeliscidae	*Ampelisca abdita*	2
B14	Annelida	Polynoidae	*Harmothoe extenuata*	2
B14	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	2
B14	Annelida	Goniadidae	Goniadidae	2
B14	Annelida	Cirratulidae	Cirratulidae	2
B14	Annelida	Hesionidae	*Gyptis vittata*	2
B14	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B14	Nemertea	Lineidae	*Lineus ruber*	2
B14	Cnidaria		Actiniaria	2
B14	Mollusca	Solenidae	Solenidae	2
B14	Annelida	Spionidae	*Spio filicornis*	1
B14	Annelida	Spionidae	*Spiophanes bombyx*	1
B14	Mollusca	Calyptraeidae	*Crepidula plana*	1
B14	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B14	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B14	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B14	Annelida	Cirratulidae	*Cirratulus grandis*	1
B14	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B14	Mollusca	Corambidae	*Corambe obscura*	1
B14	Annelida	Sigalionidae	*Sigalion arenicola*	1
B14	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B14	Annelida	Cirratulidae	*Tharyx acutus*	1
B14	Nemertea	Amphiporidae	*Amphiporus ochraceus*	1
B15	Annelida	Capitellidae	*Mediomastus ambiseta*	2853
B15	Arthropoda	Ampeliscidae	*Ampelisca abdita*	244
B15	Annelida	Spionidae	*Polydora cornuta*	171
B15	Annelida		Oligochaeta	117
B15	Annelida	Phyllodocidae	*Hypereteone heteropoda*	100
B15	Arthropoda	Aoridae	*Grandidierella japonica*	81
B15	Annelida	Spionidae	*Streblospio benedicti*	78
B15	Arthropoda	Unciolidae	*Unciola serrata*	78
B15	Annelida	Phyllodocidae	*Eumida sanguinea*	61
B15	Annelida	Capitellidae	*Heteromastus filiformis*	57
B15	Mollusca	Nassariidae	*Ilyanassa obsoleta*	34
B15	Mollusca	Calyptraeidae	*Crepidula* sp.	27
B15	Annelida	Polynoidae	*Harmothoe* sp.	26
B15	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	26
B15	Mollusca		Gastropoda	19
B15	Annelida	Nereididae	*Alitta succinea*	17
B15	Annelida	Polynoidae	*Lepidonotus* sp.	17
B15	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	15
B15	Annelida	Hesionidae	*Oxydromus obscurus*	15
B15	Mollusca	Muricidae	*Urosalpinx cinerea*	15
B15	Mollusca	Lyonsiidae	*Lyonsia arenosa*	13
B15	Annelida	Polynoidae	*Harmothoe imbricata*	11
B15	Mollusca	Calyptraeidae	*Crepidula fornicata*	11
B15	Mollusca	Pyramidellidae	*Boonea bisuturalis*	10
B15	Annelida	Cirratulidae	*Tharyx acutus*	10
B15	Arthropoda	Anthuridae	*Cyathura burbancki*	9
B15	Arthropoda	Caprellidae	*Paracaprella tenuis*	8
B15	Annelida	Terebellidae	*Polycirrus* sp.	7
B15	Annelida	Cirratulidae	Cirratulidae	7
B15	Mollusca	Myidae	*Mya arenaria*	6
B15	Annelida	Glyceridae	*Glycera americana*	6
B15	Arthropoda	Amphilochidae	*Ampithoe valida*	6

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B15	Annelida	Nereididae	Nereididae	6
B15	Annelida	Sabellariidae	*Sabellaria vulgaris*	6
B15	Annelida	Glyceridae	Glyceridae	6
B15	Arthropoda	Paguridae	*Pagurus longicarpus*	5
B15	Annelida	Cirratulidae	*Caulleriella venefica*	5
B15	Arthropoda	Mysidae	*Neomysis americana*	3
B15	Mollusca	Veneridae	*Mercenaria mercenaria*	3
B15	Annelida	Syllidae	*Salvatoria clavata*	3
B15	Annelida	Syllidae	*Syllides verrilli*	3
B15	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
B15	Annelida	Pectinariidae	*Pectinaria gouldii*	2
B15	Annelida	Hesionidae	*Microphthalmus sczelkowii*	2
B15	Annelida	Goniadidae	Goniadidae	2
B15	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B15	Annelida	Hesionidae	*Gyptis vittata*	2
B15	Annelida	Syllidae	*Exogone dispar*	2
B15	Annelida	Polynoidae	*Lepidonotus squamatus*	1
B15	Annelida	Pholoidae	*Pholoe minuta*	1
B15	Mollusca	Tellinidae	*Angulus agilis*	1
B15	Arthropoda	Diastylidae	*Diastylis sculpta*	1
B15	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
B15	Arthropoda	Idoteidae	*Edotia triloba*	1
B15	Arthropoda	Corophiidae	*Apocorophium acutum*	1
B15	Arthropoda	Panopeidae	*Dyspanopeus sayi*	1
B15	Annelida	Spionidae	*Dipolydora socialis*	1
B15	Annelida	Syllidae	*Odontosyllis fulgurans*	1
B15	Annelida	Syllidae	*Opisthodonta longocirrata*	1
B15	Mollusca	Corambidae	*Corambe obscura*	1
B15	Annelida	Oenonidae	*Drilonereis longa*	1
B15	Cnidaria		Actiniaria	1
B17	Annelida	Spionidae	*Polydora cornuta*	312
B17	Annelida	Capitellidae	*Mediomastus ambiseta*	191
B17	Arthropoda	Ampeliscidae	*Ampelisca abdita*	56
B17	Annelida	Spionidae	*Streblospio benedicti*	47
B17	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	16
B17	Annelida	Phyllodocidae	*Eumida sanguinea*	13
B17	Annelida	Capitellidae	*Heteromastus filiformis*	12
B17	Annelida		Oligochaeta	11
B17	Mollusca	Pyramidellidae	*Boonea bisuturalis*	9
B17	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	6
B17	Mollusca	Veneridae	*Gemma gemma*	6

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B17	Mollusca	Pyramidellidae	*Odostomia eburnea*	6
B17	Arthropoda	Caprellidae	*Paracaprella tenuis*	5
B17	Arthropoda	Aoridae	*Grandidierella japonica*	5
B17	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
B17	Arthropoda	Maeridae	*Elasmopus levis*	4
B17	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
B17	Mollusca	Nassariidae	*Ilyanassa obsoleta*	2
B17	Mollusca	Veneridae	*Mercenaria mercenaria*	2
B17	Annelida	Hesionidae	*Microphthalmus sczelkowii*	2
B17	Annelida	Cirratulidae	Cirratulidae	2
B17	Annelida	Nereididae	Nereididae	2
B17	Arthropoda	Idoteidae	*Edotia triloba*	1
B17	Annelida	Nereididae	*Alitta succinea*	1
B17	Arthropoda	Corophiidae	*Apocorophium acutum*	1
B17	Mollusca	Mactridae	*Mulinia lateralis*	1
B17	Mollusca	Arcidae	*Lunarca ovalis*	1
B17	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
B18	Annelida	Capitellidae	*Mediomastus ambiseta*	1752
B18	Arthropoda	Unciolidae	*Unciola serrata*	307
B18	Annelida		Oligochaeta	151
B18	Annelida	Spionidae	*Polydora cornuta*	96
B18	Annelida	Phyllodocidae	*Eumida sanguinea*	79
B18	Annelida	Phyllodocidae	*Hypereteone heteropoda*	71
B18	Annelida	Spionidae	*Streblospio benedicti*	55
B18	Arthropoda	Ampeliscidae	*Ampelisca abdita*	33
B18	Annelida	Cirratulidae	Cirratulidae	31
B18	Mollusca		Gastropoda	29
B18	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	28
B18	Annelida	Syllidae	*Syllides verrilli*	28
B18	Annelida	Polynoidae	*Harmothoe imbricata*	27
B18	Arthropoda	Aoridae	*Grandidierella japonica*	27
B18	Mollusca	Calyptraeidae	*Crepidula* sp.	23
B18	Annelida	Terebellidae	*Polycirrus* sp.	22
B18	Annelida	Capitellidae	*Heteromastus filiformis*	21
B18	Annelida	Glyceridae	Glyceridae	20
B18	Mollusca	Pyramidellidae	*Boonea bisuturalis*	15
B18	Mollusca	Myidae	*Mya arenaria*	14
B18	Annelida	Polynoidae	*Lepidonotus* sp.	14
B18	Annelida	Cirratulidae	*Tharyx acutus*	14
B18	Annelida	Syllidae	*Exogone dispar*	13
B18	Annelida	Polynoidae	*Harmothoe* sp.	10

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B18	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
B18	Annelida	Sabellariidae	*Sabellaria vulgaris*	9
B18	Annelida	Nereididae	*Alitta succinea*	8
B18	Mollusca	Nuculidae	*Nucula proxima*	7
B18	Arthropoda	Paguridae	*Pagurus longicarpus*	7
B18	Annelida	Syllidae	*Opisthodonta longocirrata*	7
B18	Annelida	Syllidae	*Salvatoria clavata*	6
B18	Annelida	Maldanidae	*Euclymene collaris*	5
B18	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	5
B18	Mollusca	Nassariidae	*Ilyanassa obsoleta*	5
B18	Annelida	Hesionidae	*Oxydromus obscurus*	5
B18	Mollusca	Muricidae	*Urosalpinx cinerea*	5
B18	Annelida	Cirratulidae	*Caulleriella venefica*	5
B18	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
B18	Annelida	Pectinariidae	*Pectinaria gouldii*	4
B18	Annelida	Glyceridae	*Glycera dibranchiata*	3
B18	Mollusca	Veneridae	*Mercenaria mercenaria*	3
B18	Annelida	Hesionidae	*Microphthalmus sczelkowii*	3
B18	Mollusca	Calyptraeidae	*Crepidula convexa*	3
B18	Annelida	Hesionidae	*Gyptis vittata*	3
B18	Nemertea	Amphiporidae	*Amphiporus bioculatus*	3
B18	Annelida	Glyceridae	*Glycera americana*	2
B18	Annelida	Sabellidae	*Parasabella microphthalma*	2
B18	Annelida	Goniadidae	Goniadidae	2
B18	Annelida	Spionidae	*Dipolydora socialis*	2
B18	Cnidaria		Actiniaria	2
B18	Mollusca	Solenidae	Solenidae	2
B18	Annelida	Pholoidae	*Pholoe minuta*	1
B18	Annelida	Spionidae	*Spiophanes bombyx*	1
B18	Annelida	Ampharetidae	*Ampharete oculata*	1
B18	Mollusca	Calyptraeidae	*Crepidula plana*	1
B18	Mollusca	Tellinidae	*Angulus agilis*	1
B18	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B18	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
B18	Mollusca	Corambidae	*Corambe obscura*	1
B18	Nemertea	Carinomidae	*Carinoma tremaphoros*	1
B18	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B18	Nemertea	Lineidae	*Lineus ruber*	1
B19	Arthropoda	Unciolidae	*Unciola serrata*	482
B19	Annelida	Capitellidae	*Mediomastus ambiseta*	415
B19	Annelida		Oligochaeta	140

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B19	Annelida	Phyllodocidae	*Eumida sanguinea*	76
B19	Annelida	Cirratulidae	*Caulleriella venefica*	73
B19	Annelida	Phyllodocidae	*Hypereteone heteropoda*	66
B19	Annelida	Syllidae	*Opisthodonta longocirrata*	60
B19	Annelida	Spionidae	*Streblospio benedicti*	52
B19	Annelida	Sabellariidae	*Sabellaria vulgaris*	48
B19	Annelida	Spionidae	*Polydora cornuta*	39
B19	Annelida	Terebellidae	*Polycirrus* sp.	30
B19	Annelida	Polynoidae	*Harmothoe imbricata*	20
B19	Mollusca	Calyptraeidae	*Crepidula* sp.	16
B19	Annelida	Glyceridae	Glyceridae	13
B19	Annelida	Polynoidae	*Harmothoe* sp.	12
B19	Annelida	Syllidae	*Syllides verrilli*	12
B19	Annelida	Nereididae	*Alitta succinea*	10
B19	Annelida	Hesionidae	*Oxydromus obscurus*	10
B19	Mollusca	Calyptraeidae	*Crepidula fornicata*	9
B19	Annelida	Maldanidae	*Euclymene collaris*	6
B19	Annelida	Polynoidae	*Lepidonotus* sp.	6
B19	Mollusca	Pyramidellidae	*Boonea bisuturalis*	6
B19	Arthropoda	Aoridae	*Grandidierella japonica*	6
B19	Mollusca	Nassariidae	*Ilyanassa obsoleta*	5
B19	Annelida	Capitellidae	*Heteromastus filiformis*	5
B19	Annelida	Sabellidae	*Parasabella microphthalma*	5
B19	Annelida	Nereididae	Nereididae	5
B19	Mollusca		Gastropoda	5
B19	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	4
B19	Annelida	Syllidae	*Salvatoria clavata*	4
B19	Mollusca	Lyonsiidae	*Lyonsia arenosa*	4
B19	Mollusca	Tellinidae	*Angulus agilis*	3
B19	Arthropoda	Ampeliscidae	*Ampelisca abdita*	3
B19	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	3
B19	Annelida	Glyceridae	*Glycera dibranchiata*	2
B19	Mollusca	Muricidae	*Urosalpinx cinerea*	2
B19	Platyhelminthes		Turbellaria	2
B19	Arthropoda	Paguridae	*Pagurus longicarpus*	2
B19	Annelida	Cirratulidae	Cirratulidae	2
B19	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B19	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
B19	Annelida	Polynoidae	*Lepidonotus squamatus*	1
B19	Annelida	Sigalionidae	*Sthenelais limicola*	1
B19	Annelida	Spionidae	*Marenzelleria viridis*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B19	Annelida	Spionidae	*Spiophanes bombyx*	1
B19	Arthropoda	Idoteidae	*Edotia triloba*	1
B19	Arthropoda	Maeridae	*Elasmopus levis*	1
B19	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
B19	Mollusca		Bivalvia	1
B19	Annelida	Spionidae	*Dipolydora socialis*	1
B19	Mollusca	Solenidae	Solenidae	1
B2	Annelida	Capitellidae	*Mediomastus ambiseta*	690
B2	Annelida		Oligochaeta	468
B2	Arthropoda	Unciolidae	*Unciola serrata*	227
B2	Annelida	Capitellidae	*Heteromastus filiformis*	72
B2	Arthropoda	Aoridae	*Grandidierella japonica*	59
B2	Mollusca	Calyptraeidae	*Crepidula fornicata*	48
B2	Annelida	Spionidae	*Streblospio benedicti*	31
B2	Annelida	Phyllodocidae	*Eumida sanguinea*	30
B2	Mollusca	Nassariidae	*Ilyanassa trivittata*	23
B2	Annelida	Phyllodocidae	*Hypereteone heteropoda*	22
B2	Annelida	Polynoidae	*Lepidonotus* sp.	22
B2	Mollusca	Pyramidellidae	*Boonea bisuturalis*	22
B2	Mollusca	Corambidae	*Corambe obscura*	21
B2	Annelida	Polynoidae	*Harmothoe imbricata*	20
B2	Arthropoda	Lysianassidae	*Lysianopsis alba*	17
B2	Annelida	Polynoidae	*Harmothoe* sp.	16
B2	Annelida	Syllidae	*Opisthodonta longocirrata*	16
B2	Mollusca	Calyptraeidae	*Crepidula* sp.	16
B2	Annelida	Polynoidae	*Harmothoe extenuata*	14
B2	Annelida	Spionidae	*Polydora cornuta*	13
B2	Annelida	Hesionidae	*Oxydromus obscurus*	12
B2	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	10
B2	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	10
B2	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
B2	Arthropoda	Ampeliscidae	*Ampelisca abdita*	8
B2	Annelida	Terebellidae	Terebellidae	8
B2	Mollusca	Myidae	*Mya arenaria*	7
B2	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	7
B2	Annelida	Terebellidae	*Polycirrus* sp.	6
B2	Annelida	Syllidae	*Brania wellfleetensis*	5
B2	Arthropoda	Caprellidae	*Paracaprella tenuis*	4
B2	Platyhelminthes		Turbellaria	4
B2	Annelida	Syllidae	*Syllides verrilli*	4
B2	Cnidaria		Actiniaria	4

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B2	Annelida	Syllidae	*Myrianida prolifera*	3
B2	Annelida	Cirratulidae	Cirratulidae	3
B2	Annelida	Hesionidae	*Gyptis vittata*	3
B2	Annelida	Cirratulidae	*Caulleriella venefica*	3
B2	Annelida	Glyceridae	*Glycera americana*	2
B2	Annelida	Nereididae	*Alitta succinea*	2
B2	Arthropoda	Anthuridae	*Cyathura burbancki*	2
B2	Mollusca	Muricidae	*Urosalpinx cinerea*	2
B2	Mollusca		Nudibranchia	2
B2	Annelida	Syllidae	*Salvatoria clavata*	2
B2	Mollusca		Gastropoda	2
B2	Mollusca	Solemyidae	*Solemya* sp.	2
B2	Annelida	Cirratulidae	*Tharyx acutus*	2
B2	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B2	Annelida	Sigalionidae	*Sthenelais limicola*	1
B2	Annelida	Maldanidae	*Euclymene collaris*	1
B2	Mollusca	Calyptraeidae	*Crepidula plana*	1
B2	Mollusca	Nuculidae	*Nucula proxima*	1
B2	Mollusca	Tellinidae	*Angulus agilis*	1
B2	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B2	Arthropoda	Corophiidae	*Apocorophium acutum*	1
B2	Arthropoda	Maeridae	*Elasmopus levis*	1
B2	Mollusca	Mactridae	*Mulinia lateralis*	1
B2	Annelida	Dorvilleidae	*Schistomeringos annulata*	1
B2	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
B2	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B2	Arthropoda	Bateidae	*Batea catharinensis*	1
B2	Annelida	Oenonidae	*Drilonereis longa*	1
B2	Nemertea	Lineidae	*Lineus ruber*	1
B2	Annelida	Glyceridae	Glyceridae	1
B22	Annelida	Capitellidae	*Mediomastus ambiseta*	844
B22	Arthropoda	Unciolidae	*Unciola serrata*	811
B22	Annelida		Oligochaeta	370
B22	Annelida	Phyllodocidae	*Eumida sanguinea*	147
B22	Annelida	Cirratulidae	*Caulleriella venefica*	112
B22	Annelida	Terebellidae	*Polycirrus* sp.	69
B22	Annelida	Polynoidae	*Harmothoe imbricata*	50
B22	Annelida	Syllidae	*Opisthodonta longocirrata*	50
B22	Annelida	Sabellariidae	*Sabellaria vulgaris*	48
B22	Annelida	Phyllodocidae	*Hypereteone heteropoda*	37
B22	Annelida	Polynoidae	*Harmothoe* sp.	35

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B22	Annelida	Polynoidae	*Lepidonotus* sp.	30
B22	Annelida	Hesionidae	*Oxydromus obscurus*	26
B22	Arthropoda	Lysianassidae	*Lysianopsis alba*	23
B22	Annelida	Capitellidae	*Heteromastus filiformis*	15
B22	Arthropoda	Aoridae	*Grandidierella japonica*	15
B22	Annelida	Syllidae	*Salvatoria clavata*	14
B22	Mollusca	Nassariidae	*Ilyanassa obsoleta*	10
B22	Annelida	Spionidae	*Streblospio benedicti*	9
B22	Annelida	Nereididae	*Alitta succinea*	9
B22	Annelida	Maldanidae	*Euclymene collaris*	7
B22	Mollusca	Lyonsiidae	*Lyonsia arenosa*	7
B22	Annelida	Glyceridae	Glyceridae	7
B22	Annelida	Spionidae	*Polydora cornuta*	6
B22	Arthropoda	Ampeliscidae	*Ampelisca abdita*	6
B22	Annelida	Cirratulidae	Cirratulidae	6
B22	Mollusca	Calyptraeidae	*Crepidula* sp.	6
B22	Annelida	Polynoidae	*Harmothoe extenuata*	5
B22	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	5
B22	Annelida	Cirratulidae	*Tharyx acutus*	5
B22	Nemertea	Amphiporidae	*Amphiporus bioculatus*	5
B22	Annelida	Syllidae	*Syllides verrilli*	5
B22	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
B22	Nemertea	Amphiporidae	*Zygonemertes virescens*	4
B22	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	3
B22	Platyhelminthes		Turbellaria	3
B22	Arthropoda	Paguridae	*Pagurus longicarpus*	3
B22	Annelida	Goniadidae	Goniadidae	3
B22	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
B22	Annelida	Glyceridae	*Glycera dibranchiata*	2
B22	Annelida	Polynoidae	*Lepidonotus sublevis*	2
B22	Mollusca	Pyramidellidae	*Boonea bisuturalis*	2
B22	Annelida	Nereididae	Nereididae	2
B22	Annelida	Syllidae	*Exogone dispar*	2
B22	Nemertea	Lineidae	*Lineus ruber*	2
B22	Annelida	Spionidae	*Spiophanes bombyx*	1
B22	Mollusca	Calyptraeidae	*Crepidula plana*	1
B22	Mollusca	Nassariidae	*Ilyanassa trivittata*	1
B22	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
B22	Arthropoda	Panopeidae	*Dyspanopeus sayi*	1
B22	Annelida	Syllidae	*Myrianida prolifera*	1
B22	Mollusca	Muricidae	*Urosalpinx cinerea*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B22	Mollusca	Veneridae	*Petricolaria pholadiformis*	1
B22	Annelida	Spionidae	*Dipolydora socialis*	1
B22	Mollusca		Gastropoda	1
B22	Annelida	Oenonidae	*Drilonereis longa*	1
B22	Annelida	Capitellidae	*Capitella capitata* complex	1
B22	Mollusca	Solenidae	Solenidae	1
B23	Annelida	Capitellidae	*Mediomastus ambiseta*	1058
B23	Arthropoda	Unciolidae	*Unciola serrata*	403
B23	Annelida		Oligochaeta	146
B23	Annelida	Phyllodocidae	*Eumida sanguinea*	143
B23	Annelida	Sabellariidae	*Sabellaria vulgaris*	80
B23	Annelida	Polynoidae	*Harmothoe imbricata*	66
B23	Mollusca	Calyptraeidae	*Crepidula* sp.	33
B23	Annelida	Hesionidae	*Oxydromus obscurus*	29
B23	Annelida	Terebellidae	*Polycirrus* sp.	28
B23	Annelida	Capitellidae	*Heteromastus filiformis*	21
B23	Annelida	Polynoidae	*Harmothoe* sp.	20
B23	Annelida	Spionidae	*Polydora cornuta*	19
B23	Mollusca	Calyptraeidae	*Crepidula fornicata*	18
B23	Annelida	Polynoidae	*Lepidonotus squamatus*	16
B23	Annelida	Phyllodocidae	*Hypereteone heteropoda*	16
B23	Annelida	Cirratulidae	Cirratulidae	16
B23	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	12
B23	Arthropoda	Paguridae	*Pagurus longicarpus*	12
B23	Arthropoda	Lysianassidae	*Lysianopsis alba*	12
B23	Annelida	Nereididae	*Alitta succinea*	9
B23	Mollusca	Calyptraeidae	*Crepidula convexa*	9
B23	Annelida	Syllidae	*Myrianida prolifera*	7
B23	Annelida	Polynoidae	*Harmothoe extenuata*	5
B23	Annelida	Polynoidae	*Lepidonotus* sp.	5
B23	Annelida	Cirratulidae	*Tharyx acutus*	5
B23	Annelida	Maldanidae	*Euclymene collaris*	4
B23	Annelida	Spionidae	*Streblospio benedicti*	4
B23	Annelida	Glyceridae	*Glycera americana*	4
B23	Annelida	Syllidae	*Salvatoria clavata*	4
B23	Annelida	Glyceridae	*Glycera dibranchiata*	3
B23	Mollusca	Muricidae	*Urosalpinx cinerea*	3
B23	Platyhelminthes		Turbellaria	3
B23	Nemertea	Lineidae	*Lineus ruber*	3
B23	Arthropoda	Aoridae	*Grandidierella japonica*	3
B23	Annelida	Syllidae	*Syllides verrilli*	3

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B23	Mollusca	Pyramidellidae	*Boonea bisuturalis*	2
B23	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	1
B23	Mollusca	Nassariidae	*Ilyanassa obsoleta*	1
B23	Mollusca	Veneridae	*Gemma gemma*	1
B23	Annelida	Sabellidae	*Parasabella microphthalma*	1
B23	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
B23	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B23	Annelida	Nereididae	Nereididae	1
B23	Mollusca		Gastropoda	1
B23	Annelida	Goniadidae	*Glycinde solitaria*	1
B23	Mollusca	Muricidae	*Eupleura caudata*	1
B23	Annelida	Oenonidae	*Drilonereis longa*	1
B23	Annelida	Syllidae	*Exogone dispar*	1
B23	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
B24	Annelida	Capitellidae	*Mediomastus ambiseta*	664
B24	Annelida		Oligochaeta	464
B24	Annelida	Phyllodocidae	*Eumida sanguinea*	258
B24	Arthropoda	Unciolidae	*Unciola serrata*	258
B24	Annelida	Spionidae	*Polydora cornuta*	179
B24	Annelida	Phyllodocidae	*Hypereteone heteropoda*	175
B24	Annelida	Spionidae	*Streblospio benedicti*	78
B24	Mollusca	Calyptraeidae	*Crepidula fornicata*	65
B24	Annelida	Capitellidae	*Heteromastus filiformis*	61
B24	Mollusca		Gastropoda	47
B24	Annelida	Polynoidae	*Harmothoe* sp.	44
B24	Mollusca	Nassariidae	*Ilyanassa obsoleta*	43
B24	Annelida	Polynoidae	*Harmothoe imbricata*	42
B24	Annelida	Polynoidae	*Lepidonotus squamatus*	40
B24	Arthropoda	Aoridae	*Grandidierella japonica*	37
B24	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	20
B24	Mollusca	Calyptraeidae	*Crepidula* sp.	19
B24	Annelida	Cirratulidae	Cirratulidae	15
B24	Annelida	Syllidae	*Opisthodonta longocirrata*	15
B24	Annelida	Hesionidae	*Oxydromus obscurus*	13
B24	Arthropoda	Corophiidae	*Apocorophium acutum*	12
B24	Annelida	Terebellidae	*Polycirrus* sp.	10
B24	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
B24	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	9
B24	Arthropoda	Maeridae	*Elasmopus levis*	9
B24	Annelida	Cirratulidae	*Tharyx acutus*	9
B24	Annelida	Syllidae	*Syllides verrilli*	9

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B24	Annelida	Nereididae	*Alitta succinea*	7
B24	Annelida	Sigalionidae	*Sigalion arenicola*	7
B24	Annelida	Syllidae	*Salvatoria clavata*	6
B24	Mollusca	Pyramidellidae	*Boonea bisuturalis*	6
B24	Mollusca	Solenidae	Solenidae	6
B24	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	5
B24	Annelida	Sabellariidae	*Sabellaria vulgaris*	5
B24	Mollusca	Corambidae	*Corambe obscura*	5
B24	Mollusca	Calyptraeidae	*Crepidula convexa*	5
B24	Arthropoda	Idoteidae	*Erichsonella filiformis*	4
B24	Annelida	Maldanidae	*Euclymene collaris*	3
B24	Arthropoda	Ampeliscidae	*Ampelisca abdita*	3
B24	Annelida	Polynoidae	*Harmothoe extenuata*	3
B24	Annelida	Goniadidae	Goniadidae	3
B24	Annelida	Pectinariidae	Pectinariidae	3
B24	Annelida	Nereididae	Nereididae	3
B24	Arthropoda	Lysianassidae	*Lysianopsis alba*	3
B24	Annelida	Syllidae	*Exogone dispar*	3
B24	Mollusca	Myidae	*Mya arenaria*	2
B24	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
B24	Annelida	Glyceridae	*Glycera americana*	2
B24	Arthropoda	Panopeidae	*Dyspanopeus sayi*	2
B24	Annelida	Syllidae	*Myrianida prolifera*	2
B24	Mollusca	Muricidae	*Urosalpinx cinerea*	2
B24	Arthropoda	Paguridae	*Pagurus longicarpus*	2
B24	Nemertea	Lineidae	*Lineus ruber*	2
B24	Annelida	Glyceridae	Glyceridae	2
B24	Mollusca	Calyptraeidae	*Crepidula plana*	1
B24	Arthropoda	Ischyroceridae	*Jassa marmorata*	1
B24	Arthropoda	Mysidae	*Neomysis americana*	1
B24	Arthropoda	Anthuridae	*Cyathura burbancki*	1
B24	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B24	Mollusca		Bivalvia	1
B24	Platyhelminthes		Turbellaria	1
B24	Arthropoda	Caprellidae	*Caprella penantis*	1
B24	Annelida	Syllidae	*Brania wellfleetensis*	1
B24	Annelida	Hesionidae	*Gyptis vittata*	1
B24	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B24	Arthropoda	Pleustidae	*Incisocalliope aestuarius*	1
B24	Cnidaria		Actiniaria	1
B25	Annelida	Capitellidae	*Mediomastus ambiseta*	234

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B25	Annelida		Oligochaeta	86
B25	Annelida	Spionidae	*Streblospio benedicti*	25
B25	Arthropoda	Aoridae	*Grandidierella japonica*	18
B25	Annelida	Terebellidae	*Polycirrus* sp.	15
B25	Annelida	Syllidae	*Syllides verrilli*	15
B25	Annelida	Syllidae	*Opisthodonta longocirrata*	12
B25	Arthropoda	Unciolidae	*Unciola serrata*	12
B25	Annelida	Phyllodocidae	*Hypereteone heteropoda*	11
B25	Annelida	Glyceridae	Glyceridae	9
B25	Annelida	Spionidae	*Polydora cornuta*	7
B25	Annelida	Polynoidae	*Harmothoe imbricata*	5
B25	Mollusca	Nassariidae	*Ilyanassa obsoleta*	4
B25	Arthropoda	Paguridae	*Pagurus longicarpus*	4
B25	Mollusca	Calyptraeidae	*Crepidula* sp.	4
(B25	Annelida	Cirratulidae	*Caulleriella venefica*	4
B25	Annelida	Phyllodocidae	*Eumida sanguinea*	3
B25	Annelida	Cirratulidae	*Tharyx acutus*	3
B25	Annelida	Spionidae	*Spio filicornis*	2
B25	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
B25	Mollusca	Tellinidae	*Angulus agilis*	1
B25	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B25	Annelida	Glyceridae	*Glycera dibranchiata*	1
B25	Annelida	Capitellidae	*Heteromastus filiformis*	1
B25	Annelida	Nereididae	*Alitta succinea*	1
B25	Arthropoda	Maeridae	*Elasmopus levis*	1
B25	Annelida	Polynoidae	*Lepidonotus* sp.	1
B25	Annelida	Syllidae	*Salvatoria clavata*	1
B25	Mollusca		Gastropoda	1
B25	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
B25	Mollusca	Muricidae	*Eupleura caudata*	1
B25	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
B26	Annelida	Capitellidae	*Mediomastus ambiseta*	1019
B26	Arthropoda	Unciolidae	*Unciola serrata*	350
B26	Annelida		Oligochaeta	260
B26	Annelida	Phyllodocidae	*Eumida sanguinea*	113
B26	Mollusca	Calyptraeidae	*Crepidula* sp.	92
B26	Annelida	Sabellariidae	*Sabellaria vulgaris*	51
B26	Annelida	Polynoidae	*Harmothoe imbricata*	30
B26	Annelida	Phyllodocidae	*Hypereteone heteropoda*	28
B26	Annelida	Cirratulidae	Cirratulidae	23
B26	Annelida	Capitellidae	*Heteromastus filiformis*	22

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B26	Annelida	Terebellidae	*Polycirrus* sp.	21
B26	Annelida	Spionidae	*Streblospio benedicti*	16
B26	Annelida	Polynoidae	*Lepidonotus* sp.	16
B26	Annelida	Cirratulidae	*Tharyx acutus*	15
B26	Arthropoda	Paguridae	*Pagurus longicarpus*	13
B26	Annelida	Maldanidae	*Euclymene collaris*	11
B26	Mollusca	Nassariidae	*Ilyanassa obsoleta*	11
B26	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	9
B26	Annelida	Polynoidae	*Harmothoe* sp.	9
B26	Nemertea	Lineidae	*Lineus ruber*	8
B26	Annelida	Spionidae	*Polydora cornuta*	7
B26	Mollusca	Tellinidae	*Angulus agilis*	5
B26	Nemertea	Amphiporidae	*Amphiporus bioculatus*	5
B26	Mollusca	Calyptraeidae	*Crepidula convexa*	4
B26	Arthropoda	Ampeliscidae	*Ampelisca abdita*	2
B26	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
B26	Annelida	Nereididae	*Alitta succinea*	2
B26	Mollusca	Muricidae	*Urosalpinx cinerea*	2
B26	Annelida	Syllidae	*Salvatoria clavata*	2
B26	Platyhelminthes		Turbellaria	2
B26	Annelida	Goniadidae	Goniadidae	2
B26	Arthropoda	Lysianassidae	*Lysianopsis alba*	2
B26	Mollusca	Lyonsiidae	*Lyonsia arenosa*	2
B26	Annelida	Glyceridae	Glyceridae	2
B26	Annelida	Glyceridae	*Glycera dibranchiata*	1
B26	Annelida	Polynoidae	*Harmothoe extenuata*	1
B26	Annelida	Glyceridae	*Glycera americana*	1
B26	Annelida	Cirratulidae	*Cirratulus grandis*	1
B26	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	1
B26	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B26	Annelida	Syllidae	*Myrianida prolifera*	1
B26	Annelida	Oenonidae	*Drilonereis longa*	1
B26	Annelida	Syllidae	*Exogone dispar*	1
B26	Annelida	Cirratulidae	*Caulleriella venefica*	1
B26	Annelida	Capitellidae	*Capitella capitata* complex	1
B26	Annelida	Syllidae	*Syllides verrilli*	1
B27	Annelida	Capitellidae	*Mediomastus ambiseta*	918
B27	Annelida		Oligochaeta	430
B27	Arthropoda	Unciolidae	*Unciola serrata*	320
B27	Annelida	Phyllodocidae	*Eumida sanguinea*	131
B27	Annelida	Spionidae	*Streblospio benedicti*	102

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B27	Annelida	Phyllodocidae	*Hypereteone heteropoda*	83
B27	Annelida	Capitellidae	*Heteromastus filiformis*	73
B27	Annelida	Spionidae	*Polydora cornuta*	60
B27	Arthropoda	Aoridae	*Grandidierella japonica*	47
B27	Mollusca	Calyptraeidae	*Crepidula fornicata*	46
B27	Annelida	Polynoidae	*Harmothoe imbricata*	45
B27	Annelida	Polynoidae	*Lepidonotus* sp.	36
B27	Annelida	Polynoidae	*Harmothoe* sp.	33
B27	Mollusca		Gastropoda	23
B27	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	19
B27	Mollusca	Calyptraeidae	*Crepidula* sp.	17
B27	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	16
B27	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	15
B27	Mollusca	Nassariidae	*Ilyanassa obsoleta*	14
B27	Annelida	Terebellidae	*Polycirrus* sp.	12
B27	Annelida	Glyceridae	Glyceridae	12
B27	Arthropoda	Lysianassidae	*Lysianopsis alba*	10
B27	Annelida	Cirratulidae	Cirratulidae	8
B27	Annelida	Syllidae	*Opisthodonta longocirrata*	8
B27	Mollusca	Corambidae	*Corambe obscura*	8
B27	Arthropoda	Ampeliscidae	*Ampelisca abdita*	7
B27	Mollusca	Muricidae	*Urosalpinx cinerea*	7
B27	Annelida	Syllidae	*Exogone dispar*	7
B27	Mollusca	Myidae	*Mya arenaria*	6
B27	Annelida	Syllidae	*Salvatoria clavata*	6
B27	Arthropoda	Caprellidae	*Caprella penantis*	6
B27	Annelida	Cirratulidae	*Tharyx acutus*	6
B27	Mollusca	Lyonsiidae	*Lyonsia arenosa*	6
B27	Mollusca	Solenidae	Solenidae	6
B27	Annelida	Hesionidae	*Gyptis vittata*	5
B27	Annelida	Nereididae	*Alitta succinea*	4
B27	Annelida	Hesionidae	*Oxydromus obscurus*	4
B27	Mollusca	Pyramidellidae	*Boonea bisuturalis*	4
B27	Annelida	Nereididae	Nereididae	4
B27	Annelida	Polynoidae	*Harmothoe extenuata*	3
B27	Arthropoda	Paguridae	*Pagurus longicarpus*	3
B27	Annelida	Goniadidae	Goniadidae	3
B27	Annelida	Syllidae	*Syllides verrilli*	3
B27	Cnidaria		Actiniaria	3
B27	Annelida	Maldanidae	*Euclymene collaris*	2
B27	Mollusca	Calyptraeidae	*Crepidula plana*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B27	Arthropoda	Mysidae	*Neomysis americana*	2
B27	Arthropoda	Corophiidae	*Apocorophium acutum*	2
B27	Arthropoda	Maeridae	*Elasmopus levis*	2
B27	Annelida	Sabellariidae	*Sabellaria vulgaris*	2
B27	Annelida	Sigalionidae	*Sigalion arenicola*	2
B27	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B27	Annelida	Cirratulidae	*Caulleriella venefica*	2
B27	Annelida	Pholoidae	*Pholoe minuta*	1
B27	Annelida	Sigalionidae	*Sthenelais limicola*	1
B27	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
B27	Annelida	Glyceridae	*Glycera dibranchiata*	1
B27	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B27	Annelida	Glyceridae	*Glycera americana*	1
B27	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
B27	Annelida	Syllidae	*Myrianida prolifera*	1
B27	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B27	Platyhelminthes		Turbellaria	1
B27	Arthropoda	Panopeidae	*Panopeus herbstii*	1
B27	Annelida	Pectinariidae	Pectinariidae	1
B27	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
B27	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B27	Nemertea	Lineidae	*Lineus ruber*	1
B28	Annelida	Capitellidae	*Mediomastus ambiseta*	862
B28	Arthropoda	Unciolidae	*Unciola serrata*	606
B28	Annelida		Oligochaeta	423
B28	Annelida	Phyllodocidae	*Eumida sanguinea*	173
B28	Annelida	Capitellidae	*Heteromastus filiformis*	84
B28	Annelida	Spionidae	*Polydora cornuta*	71
B28	Annelida	Phyllodocidae	*Hypereteone heteropoda*	57
B28	Annelida	Polynoidae	*Harmothoe* sp.	57
B28	Annelida	Syllidae	*Opisthodonta longocirrata*	56
B28	Annelida	Polynoidae	*Harmothoe imbricata*	51
B28	Annelida	Terebellidae	*Polycirrus* sp.	49
B28	Annelida	Polynoidae	*Lepidonotus* sp.	35
B28	Mollusca	Calyptraeidae	*Crepidula* sp.	25
B28	Annelida	Syllidae	*Salvatoria clavata*	21
B28	Annelida	Sabellariidae	*Sabellaria vulgaris*	21
B28	Annelida	Nereididae	*Alitta succinea*	17
B28	Annelida	Spionidae	*Streblospio benedicti*	16
B28	Annelida	Hesionidae	*Oxydromus obscurus*	16
B28	Mollusca		Gastropoda	15

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B28	Arthropoda	Aoridae	*Grandidierella japonica*	13
B28	Arthropoda	Lysianassidae	*Lysianopsis alba*	12
B28	Mollusca	Nassariidae	*Ilyanassa obsoleta*	11
B28	Mollusca	Calyptraeidae	*Crepidula fornicata*	10
B28	Annelida	Polynoidae	*Harmothoe extenuata*	8
B28	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	7
B28	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	6
B28	Mollusca	Muricidae	*Urosalpinx cinerea*	6
B28	Annelida	Syllidae	*Syllides verrilli*	6
B28	Annelida	Maldanidae	*Euclymene collaris*	5
B28	Mollusca	Pyramidellidae	*Boonea bisuturalis*	5
B28	Annelida	Syllidae	*Brania wellfleetensis*	5
B28	Arthropoda	Corophiidae	*Apocorophium acutum*	4
B28	Annelida	Cirratulidae	Cirratulidae	4
B28	Annelida	Sigalionidae	*Sigalion arenicola*	4
B28	Nemertea	Amphiporidae	*Zygonemertes virescens*	4
B28	Mollusca	Lyonsiidae	*Lyonsia arenosa*	4
B28	Annelida	Glyceridae	*Glycera dibranchiata*	3
B28	Annelida	Sabellidae	*Parasabella microphthalma*	3
B28	Platyhelminthes		Turbellaria	3
B28	Annelida	Nereididae	Nereididae	3
B28	Mollusca	Calyptraeidae	*Crepidula convexa*	3
B28	Nemertea	Amphiporidae	*Amphiporus bioculatus*	3
B28	Annelida	Cirratulidae	*Caulleriella venefica*	3
B28	Annelida	Glyceridae	Glyceridae	3
B28	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
B28	Annelida	Syllidae	*Syllides* sp.	2
B28	Annelida	Syllidae	*Exogone dispar*	2
B28	Cnidaria		Actiniaria	2
B28	Mollusca	Calyptraeidae	*Crepidula plana*	1
B28	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
B28	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
B28	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B28	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
B28	Annelida	Glyceridae	*Glycera americana*	1
B28	Arthropoda	Anthuridae	*Cyathura burbancki*	1
B28	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
B28	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B28	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
B28	Annelida	Goniadidae	Goniadidae	1
B28	Annelida	Spionidae	*Dipolydora socialis*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B28	Annelida	Phyllodocidae	Phyllodocidae	1
B28	Mollusca	Corambidae	*Corambe obscura*	1
B28	Annelida	Goniadidae	*Glycinde solitaria*	1
B28	Mollusca	Muricidae	*Eupleura caudata*	1
B28	Arthropoda	Pleustidae	*Incisocalliope aestuarius*	1
B28	Mollusca	Solenidae	Solenidae	1
B29	Annelida	Capitellidae	*Mediomastus ambiseta*	717
B29	Arthropoda	Unciolidae	*Unciola serrata*	276
B29	Annelida	Phyllodocidae	*Eumida sanguinea*	212
B29	Annelida	Phyllodocidae	*Hypereteone heteropoda*	105
B29	Annelida	Cirratulidae	Cirratulidae	99
B29	Annelida		Oligochaeta	75
B29	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	67
B29	Annelida	Sabellariidae	*Sabellaria vulgaris*	67
B29	Mollusca	Calyptraeidae	*Crepidula* sp.	47
B29	Annelida	Spionidae	*Streblospio benedicti*	45
B29	Arthropoda	Ampeliscidae	*Ampelisca abdita*	44
B29	Annelida	Spionidae	*Polydora cornuta*	36
B29	Mollusca	Calyptraeidae	*Crepidula fornicata*	28
B29	Annelida	Capitellidae	*Heteromastus filiformis*	23
B29	Annelida	Polynoidae	*Harmothoe* sp.	23
B29	Annelida	Polynoidae	*Harmothoe imbricata*	19
B29	Annelida	Maldanidae	*Euclymene collaris*	19
B29	Annelida	Terebellidae	*Polycirrus* sp.	19
B29	Annelida	Cirratulidae	*Tharyx acutus*	17
B29	Annelida	Polynoidae	*Lepidonotus* sp.	16
B29	Arthropoda	Paguridae	*Pagurus longicarpus*	12
B29	Arthropoda	Aoridae	*Grandidierella japonica*	11
B29	Nemertea	Lineidae	*Lineus ruber*	7
B29	Mollusca		Gastropoda	5
B29	Annelida	Glyceridae	Glyceridae	5
B29	Arthropoda	Corophiidae	*Monocorophium acherusicum*	4
B29	Mollusca	Myidae	*Mya arenaria*	3
B29	Annelida	Glyceridae	*Glycera dibranchiata*	3
B29	Mollusca	Nassariidae	*Ilyanassa obsoleta*	3
B29	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	3
B29	Mollusca	Muricidae	*Urosalpinx cinerea*	3
B29	Mollusca	Lyonsiidae	*Lyonsia arenosa*	3
B29	Annelida	Syllidae	*Syllides verrilli*	3
B29	Mollusca	Tellinidae	*Angulus agilis*	2
B29	Annelida	Nereididae	*Alitta succinea*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B29	Annelida	Hesionidae	*Oxydromus obscurus*	2
B29	Annelida	Syllidae	*Opisthodonta longocirrata*	2
B29	Annelida	Syllidae	*Exogone dispar*	2
B29	Mollusca	Nuculidae	*Nucula proxima*	1
B29	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B29	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B29	Annelida	Glyceridae	*Glycera americana*	1
B29	Annelida	Nereididae	*Neanthes arenaceodentata*	1
B29	Annelida	Sabellidae	*Parasabella microphthalma*	1
B29	Annelida	Pectinariidae	*Pectinaria gouldii*	1
B29	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B29	Platyhelminthes		Turbellaria	1
B29	Mollusca	Corambidae	*Corambe obscura*	1
B29	Annelida	Syllidae	*Syllides* sp.	1
B29	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
B29	Annelida	Chaetopteridae	*Spiochaetopterus costarum oculatus*	1
B29	Annelida	Cirratulidae	*Caulleriella venefica*	1
B29	Annelida	Capitellidae	*Capitella capitata* complex	1
B29	Cnidaria		Actiniaria	1
B3	Annelida	Capitellidae	*Mediomastus ambiseta*	422
B3	Annelida		Oligochaeta	313
B3	Arthropoda	Aoridae	*Grandidierella japonica*	163
B3	Annelida	Cirratulidae	*Caulleriella venefica*	156
B3	Arthropoda	Unciolidae	*Unciola serrata*	138
B3	Mollusca	Lyonsiidae	*Lyonsia arenosa*	93
B3	Annelida	Syllidae	*Opisthodonta longocirrata*	58
B3	Annelida	Terebellidae	*Polycirrus* sp.	34
B3	Annelida	Syllidae	*Syllides verrilli*	31
B3	Annelida	Spionidae	*Polydora cornuta*	17
B3	Annelida	Spionidae	*Streblospio benedicti*	14
B3	Annelida	Phyllodocidae	*Eumida sanguinea*	12
B3	Annelida	Syllidae	*Salvatoria clavata*	12
B3	Annelida	Syllidae	*Exogone dispar*	12
B3	Annelida	Capitellidae	*Heteromastus filiformis*	11
B3	Annelida	Phyllodocidae	*Hypereteone heteropoda*	10
B3	Annelida	Polynoidae	*Harmothoe imbricata*	9
B3	Mollusca	Myidae	*Mya arenaria*	8
B3	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	8
B3	Annelida	Polynoidae	*Lepidonotus* sp.	7
B3	Annelida	Glyceridae	Glyceridae	6

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B3	Annelida	Maldanidae	*Euclymene collaris*	5
B3	Annelida	Glyceridae	*Glycera dibranchiata*	5
B3	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
B3	Arthropoda	Ampeliscidae	*Ampelisca abdita*	4
B3	Mollusca	Veneridae	*Gemma gemma*	4
B3	Annelida	Spionidae	*Spio filicornis*	3
B3	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
B3	Annelida	Polynoidae	*Harmothoe* sp.	3
B3	Annelida	Hesionidae	*Oxydromus obscurus*	3
B3	Arthropoda	Paguridae	*Pagurus longicarpus*	3
B3	Mollusca	Calyptraeidae	*Crepidula* sp.	3
B3	Annelida	Orbiniidae	*Leitoscoloplos* sp.	2
B3	Annelida	Polynoidae	*Harmothoe extenuata*	2
B3	Mollusca		Gastropoda	2
B3	Mollusca	Corambidae	*Corambe obscura*	2
B3	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B3	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B3	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
B3	Mollusca	Solenidae	Solenidae	2
B3	Annelida	Spionidae	*Spiophanes bombyx*	1
B3	Mollusca	Tellinidae	*Angulus agilis*	1
B3	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	1
B3	Chordata	Molgulidae	*Molgula* sp.	1
B3	Mollusca	Nassariidae	*Ilyanassa obsoleta*	1
B3	Annelida	Hesionidae	*Microphthalmus* sp.	1
B3	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
B3	Mollusca	Veneridae	*Petricolaria pholadiformis*	1
B3	Annelida	Spionidae	*Dipolydora socialis*	1
B3	Annelida	Cirratulidae	Cirratulidae	1
B3	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
B3	Mollusca	Muricidae	*Eupleura caudata*	1
B3	Nemertea	Carinomidae	*Carinoma tremaphoros*	1
B3	Cnidaria		Actiniaria	1
B30	Annelida	Capitellidae	*Mediomastus ambiseta*	2559
B30	Arthropoda	Caprellidae	*Paracaprella tenuis*	372
B30	Annelida	Spionidae	*Polydora cornuta*	226
B30	Mollusca	Nassariidae	*Ilyanassa obsoleta*	202
B30	Annelida		Oligochaeta	148
B30	Arthropoda	Ampeliscidae	*Ampelisca abdita*	119
B30	Annelida	Spionidae	*Streblospio benedicti*	86
B30	Annelida	Phyllodocidae	*Hypereteone heteropoda*	67

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B30	Mollusca		Gastropoda	62
B30	Annelida	Phyllodocidae	*Eumida sanguinea*	60
B30	Annelida	Capitellidae	*Heteromastus filiformis*	57
B30	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	55
B30	Annelida	Polynoidae	*Lepidonotus* sp.	44
B30	Mollusca	Calyptraeidae	*Crepidula fornicata*	31
B30	Annelida	Cirratulidae	Cirratulidae	30
B30	Annelida	Polynoidae	*Harmothoe* sp.	26
B30	Arthropoda	Unciolidae	*Unciola serrata*	21
B30	Annelida	Polynoidae	*Harmothoe imbricata*	20
B30	Arthropoda	Anthuridae	*Cyathura burbancki*	12
B30	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	11
B30	Arthropoda	Stenothoidae	*Stenothoe* sp.	11
B30	Annelida	Syllidae	*Exogone dispar*	10
B30	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
B30	Annelida	Nereididae	*Alitta succinea*	9
B30	Mollusca	Solenidae	Solenidae	9
B30	Annelida	Maldanidae	*Euclymene collaris*	7
B30	Annelida	Cirratulidae	*Tharyx acutus*	7
B30	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	6
B30	Annelida	Glyceridae	*Glycera americana*	6
B30	Annelida	Spionidae	*Dipolydora socialis*	6
B30	Annelida	Sabellariidae	*Sabellaria vulgaris*	6
B30	Cnidaria		Actiniaria	6
B30	Mollusca	Mactridae	*Mulinia lateralis*	5
B30	Arthropoda	Aoridae	*Grandidierella japonica*	5
B30	Annelida	Syllidae	*Syllides verrilli*	5
B30	Arthropoda	Stenothoidae	*Parametopella cypris*	5
B30	Annelida	Polynoidae	*Harmothoe extenuata*	4
B30	Arthropoda	Paguridae	*Pagurus longicarpus*	4
B30	Annelida	Syllidae	*Proceraea cornuta*	4
B30	Mollusca	Calyptraeidae	*Crepidula* sp.	4
B30	Annelida	Sigalionidae	*Sthenelais limicola*	3
B30	Mollusca	Myidae	*Mya arenaria*	3
B30	Annelida	Hesionidae	*Oxydromus obscurus*	3
B30	Mollusca	Muricidae	*Urosalpinx cinerea*	3
B30	Platyhelminthes		Turbellaria	3
B30	Annelida	Goniadidae	*Glycinde solitaria*	3
B30	Annelida	Glyceridae	Glyceridae	3
B30	Annelida	Pholoidae	*Pholoe minuta*	2
B30	Mollusca	Tellinidae	*Angulus agilis*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B30	Arthropoda	Mysidae	*Neomysis americana*	2
B30	Arthropoda	Mysidae	*Heteromysis formosa*	2
B30	Annelida	Syllidae	*Salvatoria clavata*	2
B30	Annelida	Nereididae	Nereididae	2
B30	Annelida	Syllidae	*Opisthodonta longocirrata*	2
B30	Annelida	Phyllodocidae	*Paranaitis speciosa*	2
B30	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
B30	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
B30	Mollusca	Mytilidae	*Mytilus edulis*	1
B30	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B30	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B30	Annelida	Polynoidae	*Lepidonotus sublevis*	1
B30	Arthropoda	Panopeidae	*Dyspanopeus sayi*	1
B30	Annelida	Pectinariidae	*Pectinaria gouldii*	1
B30	Annelida	Syllidae	*Myrianida prolifera*	1
B30	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B30	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
B30	Annelida	Pectinariidae	Pectinariidae	1
B30	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
B30	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B30	Mollusca	Muricidae	*Eupleura caudata*	1
B30	Annelida	Hesionidae	*Gyptis vittata*	1
B30	Annelida	Onuphidae	Onuphidae	1
B30	Arthropoda	Epialtidae	*Libinia dubia*	1
B30	Nemertea	Lineidae	*Lineus ruber*	1
B32	Annelida	Capitellidae	*Mediomastus ambiseta*	1720
B32	Annelida	Phyllodocidae	*Eumida sanguinea*	684
B32	Annelida		Oligochaeta	616
B32	Arthropoda	Unciolidae	*Unciola serrata*	612
B32	Annelida	Spionidae	*Polydora cornuta*	200
B32	Annelida	Phyllodocidae	*Hypereteone heteropoda*	197
B32	Annelida	Spionidae	*Streblospio benedicti*	175
B32	Annelida	Capitellidae	*Heteromastus filiformis*	93
B32	Mollusca	Calyptraeidae	*Crepidula fornicata*	67
B32	Arthropoda	Aoridae	*Grandidierella japonica*	57
B32	Annelida	Syllidae	*Opisthodonta longocirrata*	55
B32	Annelida	Polynoidae	*Lepidonotus* sp.	54
B32	Annelida	Terebellidae	*Polycirrus* sp.	49
B32	Annelida	Glyceridae	Glyceridae	46
B32	Mollusca	Calyptraeidae	*Crepidula* sp.	45
B32	Annelida	Polynoidae	*Harmothoe imbricata*	43

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B32	Annelida	Cirratulidae	*Caulleriella venefica*	36
B32	Annelida	Syllidae	*Salvatoria clavata*	33
B32	Annelida	Polynoidae	*Harmothoe* sp.	30
B32	Mollusca		Gastropoda	30
B32	Annelida	Syllidae	*Syllides verrilli*	24
B32	Mollusca	Lyonsiidae	*Lyonsia arenosa*	21
B32	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	19
B32	Annelida	Sabellariidae	*Sabellaria vulgaris*	17
B32	Mollusca	Nassariidae	*Ilyanassa obsoleta*	15
B32	Annelida	Nereididae	*Alitta succinea*	13
B32	Mollusca	Pyramidellidae	*Boonea bisuturalis*	13
B32	Annelida	Nereididae	Nereididae	11
B32	Annelida	Sigalionidae	*Sthenelais limicola*	8
B32	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	8
B32	Annelida	Hesionidae	*Oxydromus obscurus*	8
B32	Arthropoda	Paguridae	*Pagurus longicarpus*	7
B32	Mollusca	Corambidae	*Corambe obscura*	7
B32	Annelida	Syllidae	*Brania wellfleetensis*	7
B32	Arthropoda	Lysianassidae	*Lysianopsis alba*	7
B32	Mollusca	Solenidae	Solenidae	7
B32	Arthropoda	Ampeliscidae	*Ampelisca abdita*	6
B32	Annelida	Goniadidae	Goniadidae	6
B32	Mollusca	Calyptraeidae	*Crepidula convexa*	6
B32	Annelida	Cirratulidae	*Tharyx acutus*	6
B32	Mollusca	Calyptraeidae	*Crepidula plana*	4
B32	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
B32	Annelida	Glyceridae	*Glycera dibranchiata*	4
B32	Annelida	Spionidae	*Dipolydora socialis*	4
B32	Annelida	Cirratulidae	Cirratulidae	4
B32	Platyhelminthes		Turbellaria	3
B32	Annelida	Syllidae	*Exogone dispar*	3
B32	Cnidaria		Actiniaria	3
B32	Annelida	Maldanidae	*Euclymene collaris*	2
B32	Annelida	Spionidae	*Spio filicornis*	2
B32	Annelida	Spionidae	*Spiophanes bombyx*	2
B32	Mollusca	Myidae	*Mya arenaria*	2
B32	Annelida	Orbiniidae	*Leitoscoloplos robustus*	2
B32	Arthropoda	Mysidae	*Neomysis americana*	2
B32	Arthropoda	Maeridae	*Elasmopus levis*	2
B32	Mollusca	Muricidae	*Urosalpinx cinerea*	2
B32	Mollusca	Mactridae	*Mulinia lateralis*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B32	Annelida	Phyllodocidae	*Paranaitis speciosa*	2
B32	Nemertea	Lineidae	*Lineus ruber*	2
B32	Annelida	Pholoidae	*Pholoe minuta*	1
B32	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B32	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B32	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B32	Annelida	Glyceridae	*Glycera americana*	1
B32	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B32	Annelida	Syllidae	*Myrianida prolifera*	1
B32	Arthropoda	Amphilochidae	*Ampithoe valida*	1
B32	Annelida	Syllidae	Syllidae	1
B32	Annelida	Goniadidae	*Glycinde solitaria*	1
B32	Mollusca	Muricidae	*Eupleura caudata*	1
B32	Annelida	Hesionidae	*Gyptis vittata*	1
B32	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
B32	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B32	Annelida	Hesionidae	*Microphthalmus fragilis*	1
B32	Arthropoda	Pleustidae	*Incisocalliope aestuarius*	1
B38	Annelida	Capitellidae	*Mediomastus ambiseta*	411
B38	Annelida		Oligochaeta	373
B38	Arthropoda	Unciolidae	*Unciola serrata*	227
B38	Annelida	Spionidae	*Polydora cornuta*	185
B38	Annelida	Syllidae	*Opisthodonta longocirrata*	127
B38	Annelida	Spionidae	*Streblospio benedicti*	80
B38	Annelida	Phyllodocidae	*Eumida sanguinea*	79
B38	Annelida	Cirratulidae	*Caulleriella venefica*	71
B38	Annelida	Phyllodocidae	*Hypereteone heteropoda*	58
B38	Annelida	Syllidae	*Salvatoria clavata*	43
B38	Annelida	Glyceridae	Glyceridae	38
B38	Arthropoda	Aoridae	*Grandidierella japonica*	37
B38	Annelida	Terebellidae	*Polycirrus* sp.	36
B38	Annelida	Syllidae	*Syllides verrilli*	30
B38	Mollusca	Lyonsiidae	*Lyonsia arenosa*	17
B38	Annelida	Capitellidae	*Heteromastus filiformis*	16
B38	Mollusca	Calyptraeidae	*Crepidula* sp.	15
B38	Annelida	Polynoidae	*Lepidonotus* sp.	10
B38	Annelida	Polynoidae	*Harmothoe imbricata*	7
B38	Mollusca	Calyptraeidae	*Crepidula fornicata*	6
B38	Annelida	Syllidae	*Exogone dispar*	6
B38	Mollusca	Myidae	*Mya arenaria*	5
B38	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	5

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B38	Annelida	Maldanidae	*Euclymene collaris*	3
B38	Arthropoda	Ampeliscidae	*Ampelisca abdita*	3
B38	Annelida	Glyceridae	*Glycera dibranchiata*	3
B38	Annelida	Spionidae	*Spio filicornis*	2
B38	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
B38	Mollusca	Nassariidae	*Ilyanassa obsoleta*	2
B38	Annelida	Orbiniidae	*Leitoscoloplos robustus*	2
B38	Mollusca	Veneridae	*Gemma gemma*	2
B38	Arthropoda	Corophiidae	*Apocorophium acutum*	2
B38	Arthropoda	Paguridae	*Pagurus longicarpus*	2
B38	Annelida	Spionidae	*Dipolydora socialis*	2
B38	Mollusca	Corambidae	*Corambe obscura*	2
B38	Annelida	Syllidae	*Brania wellfleetensis*	2
B38	Annelida	Cirratulidae	*Tharyx acutus*	2
B38	Annelida	Sigalionidae	*Sthenelais limicola*	1
B38	Mollusca	Tellinidae	*Angulus agilis*	1
B38	Annelida	Polynoidae	*Harmothoe* sp.	1
B38	Annelida	Nereididae	*Alitta succinea*	1
B38	Arthropoda	Melitidae	*Melita nitida*	1
B38	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B38	Annelida	Hesionidae	*Oxydromus obscurus*	1
B38	Platyhelminthes		Turbellaria	1
B38	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
B38	Annelida	Goniadidae	Goniadidae	1
B38	Annelida	Cirratulidae	Cirratulidae	1
B38	Annelida	Nereididae	Nereididae	1
B38	Mollusca		Gastropoda	1
B38	Mollusca	Muricidae	*Eupleura caudata*	1
B38	Mollusca	Solenidae	Solenidae	1
B39	Annelida	Capitellidae	*Mediomastus ambiseta*	349
B39	Annelida		Oligochaeta	225
B39	Annelida	Syllidae	*Opisthodonta longocirrata*	97
B39	Annelida	Cirratulidae	*Caulleriella venefica*	82
B39	Arthropoda	Unciolidae	*Unciola serrata*	58
B39	Annelida	Phyllodocidae	*Eumida sanguinea*	34
B39	Annelida	Glyceridae	Glyceridae	32
B39	Annelida	Spionidae	*Streblospio benedicti*	24
B39	Annelida	Capitellidae	*Heteromastus filiformis*	23
B39	Annelida	Terebellidae	*Polycirrus* sp.	16
B39	Arthropoda	Aoridae	*Grandidierella japonica*	14
B39	Annelida	Spionidae	*Polydora cornuta*	9

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B39	Annelida	Phyllodocidae	*Hypereteone heteropoda*	9
B39	Mollusca	Calyptraeidae	*Crepidula* sp.	8
B39	Mollusca	Lyonsiidae	*Lyonsia arenosa*	6
B39	Annelida	Syllidae	*Syllides verrilli*	6
B39	Annelida	Syllidae	*Salvatoria clavata*	5
B39	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	3
B39	Annelida	Glyceridae	*Glycera dibranchiata*	3
B39	Annelida	Spionidae	*Spio* sp.	3
B39	Platyhelminthes		Turbellaria	3
B39	Arthropoda	Paguridae	*Pagurus longicarpus*	3
B39	Annelida	Maldanidae	*Euclymene collaris*	2
B39	Annelida	Polynoidae	*Harmothoe* sp.	2
B39	Annelida	Cirratulidae	Cirratulidae	2
B39	Annelida	Capitellidae	*Capitella capitata* complex	2
B39	Annelida	Polynoidae	*Harmothoe imbricata*	1
B39	Annelida	Spionidae	*Spio filicornis*	1
B39	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B39	Arthropoda	Ischyroceridae	*Jassa marmorata*	1
B39	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B39	Mollusca	Nassariidae	*Ilyanassa obsoleta*	1
B39	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
B39	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B39	Annelida	Polynoidae	*Lepidonotus* sp.	1
B39	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
B39	Annelida	Syllidae	*Syllides* sp.	1
B39	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B39	Annelida	Syllidae	*Exogone dispar*	1
B39	Mollusca	Solenidae	Solenidae	1
B4	Arthropoda	Unciolidae	*Unciola serrata*	600
B4	Annelida	Capitellidae	*Mediomastus ambiseta*	431
B4	Annelida	Sabellariidae	*Sabellaria vulgaris*	50
B4	Annelida		Oligochaeta	46
B4	Annelida	Capitellidae	*Heteromastus filiformis*	30
B4	Annelida	Phyllodocidae	*Eumida sanguinea*	23
B4	Annelida	Polynoidae	*Harmothoe imbricata*	23
B4	Annelida	Polynoidae	*Harmothoe* sp.	23
B4	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	20
B4	Annelida	Terebellidae	*Polycirrus* sp.	12
B4	Annelida	Polynoidae	*Harmothoe extenuata*	11
B4	Mollusca	Calyptraeidae	*Crepidula* sp.	11
B4	Arthropoda	Aoridae	*Grandidierella japonica*	11

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B4	Annelida	Hesionidae	*Oxydromus obscurus*	10
B4	Annelida	Spionidae	*Polydora cornuta*	9
B4	Annelida	Maldanidae	*Euclymene collaris*	8
B4	Arthropoda	Ampeliscidae	*Ampelisca abdita*	8
B4	Annelida	Nereididae	*Alitta succinea*	8
B4	Annelida	Sabellidae	*Parasabella microphthalma*	8
B4	Annelida	Polynoidae	*Lepidonotus squamatus*	6
B4	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	5
B4	Annelida	Spionidae	*Dipolydora socialis*	5
B4	Annelida	Cirratulidae	*Caulleriella venefica*	5
B4	Annelida	Spionidae	*Streblospio benedicti*	4
B4	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
B4	Annelida	Polynoidae	*Lepidonotus* sp.	3
B4	Mollusca	Muricidae	*Urosalpinx cinerea*	3
B4	Annelida	Cirratulidae	Cirratulidae	3
B4	Mollusca	Tellinidae	*Angulus agilis*	2
B4	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
B4	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
B4	Arthropoda	Paguridae	*Pagurus longicarpus*	2
B4	Annelida	Nereididae	Nereididae	2
B4	Annelida	Cirratulidae	*Tharyx acutus*	2
B4	Nemertea	Lineidae	*Lineus ruber*	2
B4	Annelida	Spionidae	*Spio filicornis*	1
B4	Mollusca	Calyptraeidae	*Crepidula fornicata*	1
B4	Mollusca	Calyptraeidae	*Crepidula plana*	1
B4	Arthropoda	Idoteidae	*Edotia triloba*	1
B4	Annelida	Phyllodocidae	*Hypereteone heteropoda*	1
B4	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
B4	Arthropoda	Panopeidae	*Dyspanopeus sayi*	1
B4	Annelida	Sigalionidae	Sigalionidae	1
B4	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
B4	Annelida	Goniadidae	*Glycinde solitaria*	1
B4	Annelida	Oenonidae	*Drilonereis longa*	1
B4	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
B4	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B4	Annelida	Syllidae	*Exogone dispar*	1
B4	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
B4	Annelida	Syllidae	*Syllides verrilli*	1
B4	Cnidaria		Actiniaria	1
B44	Annelida	Capitellidae	*Mediomastus ambiseta*	1255
B44	Annelida		Oligochaeta	582

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B44	Arthropoda	Unciolidae	*Unciola serrata*	225
B44	Annelida	Phyllodocidae	*Hypereteone heteropoda*	115
B44	Annelida	Syllidae	*Opisthodonta longocirrata*	90
B44	Annelida	Capitellidae	*Heteromastus filiformis*	72
B44	Annelida	Phyllodocidae	*Eumida sanguinea*	64
B44	Annelida	Spionidae	*Polydora cornuta*	54
B44	Annelida	Spionidae	*Streblospio benedicti*	34
B44	Arthropoda	Aoridae	*Grandidierella japonica*	34
B44	Annelida	Terebellidae	*Polycirrus* sp.	22
B44	Annelida	Syllidae	*Syllides verrilli*	22
B44	Annelida	Cirratulidae	*Caulleriella venefica*	20
B44	Annelida	Polynoidae	*Lepidonotus* sp.	18
B44	Annelida	Polynoidae	*Harmothoe imbricata*	17
B44	Mollusca	Calyptraeidae	*Crepidula* sp.	16
B44	Annelida	Glyceridae	Glyceridae	15
B44	Annelida	Syllidae	*Salvatoria clavata*	14
B44	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	10
B44	Mollusca		Gastropoda	10
B44	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
B44	Annelida	Polynoidae	*Harmothoe* sp.	9
B44	Annelida	Hesionidae	*Oxydromus obscurus*	9
B44	Mollusca	Solenidae	Solenidae	8
B44	Mollusca	Calyptraeidae	*Crepidula fornicata*	7
B44	Mollusca	Nassariidae	*Ilyanassa obsoleta*	6
B44	Mollusca	Myidae	*Mya arenaria*	5
B44	Annelida	Maldanidae	*Euclymene collaris*	4
B44	Annelida	Nereididae	*Alitta succinea*	4
B44	Annelida	Cirratulidae	Cirratulidae	4
B44	Annelida	Sabellariidae	*Sabellaria vulgaris*	4
B44	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	3
B44	Annelida	Glyceridae	*Glycera americana*	3
B44	Arthropoda	Maeridae	*Elasmopus levis*	3
B44	Platyhelminthes		Turbellaria	3
B44	Annelida	Cirratulidae	*Tharyx acutus*	3
B44	Mollusca	Veneridae	*Gemma gemma*	2
B44	Annelida	Polynoidae	*Harmothoe extenuata*	2
B44	Arthropoda	Caprellidae	*Paracaprella tenuis*	2
B44	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
B44	Annelida	Syllidae	*Brania wellfleetensis*	2
B44	Annelida	Syllidae	*Exogone dispar*	2
B44	Mollusca	Tellinidae	*Angulus agilis*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B44	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
B44	Arthropoda	Mysidae	*Neomysis americana*	1
B44	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
B44	Arthropoda	Anthuridae	*Cyathura burbancki*	1
B44	Arthropoda	Paguridae	*Pagurus longicarpus*	1
B44	Annelida	Goniadidae	Goniadidae	1
B44	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
B44	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B44	Mollusca	Muricidae	*Eupleura caudata*	1
B44	Annelida	Hesionidae	*Gyptis vittata*	1
B44	Annelida	Syllidae	*Syllides* sp.	1
B44	Annelida	Sphaerodoridae	Sphaerodoridae	1
B44	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B45	Annelida		Oligochaeta	546
B45	Annelida	Capitellidae	*Mediomastus ambiseta*	436
B45	Annelida	Syllidae	*Opisthodonta longocirrata*	201
B45	Annelida	Phyllodocidae	*Eumida sanguinea*	125
B45	Arthropoda	Unciolidae	*Unciola serrata*	106
B45	Annelida	Phyllodocidae	*Hypereteone heteropoda*	85
B45	Mollusca	Lyonsiidae	*Lyonsia arenosa*	78
B45	Annelida	Glyceridae	Glyceridae	69
B45	Annelida	Spionidae	*Streblospio benedicti*	53
B45	Arthropoda	Aoridae	*Grandidierella japonica*	46
B45	Annelida	Spionidae	*Polydora cornuta*	43
B45	Annelida	Syllidae	*Syllides verrilli*	35
B45	Annelida	Capitellidae	*Heteromastus filiformis*	34
B45	Annelida	Syllidae	*Salvatoria clavata*	26
B45	Annelida	Hesionidae	*Microphthalmus* sp.	22
B45	Annelida	Syllidae	*Exogone dispar*	21
B45	Mollusca	Calyptraeidae	*Crepidula* sp.	13
B45	Annelida	Terebellidae	*Polycirrus* sp.	12
B45	Annelida	Cirratulidae	*Caulleriella venefica*	12
B45	Annelida	Polynoidae	*Lepidonotus* sp.	10
B45	Mollusca		Gastropoda	9
B45	Mollusca	Myidae	*Mya arenaria*	8
B45	Mollusca	Nassariidae	*Ilyanassa obsoleta*	8
B45	Platyhelminthes		Turbellaria	7
B45	Arthropoda	Paguridae	*Pagurus longicarpus*	7
B45	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
B45	Arthropoda	Ampeliscidae	*Ampelisca abdita*	4
B45	Mollusca	Solenidae	Solenidae	4

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B45	Annelida	Polynoidae	*Harmothoe imbricata*	3
B45	Annelida	Spionidae	*Spio filicornis*	3
B45	Annelida	Sigalionidae	*Sthenelais limicola*	2
B45	Annelida	Maldanidae	*Euclymene collaris*	2
B45	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	2
B45	Annelida	Syllidae	*Myrianida* sp.	2
B45	Annelida	Hesionidae	*Microphthalmus sczelkowii*	2
B45	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	2
B45	Nemertea	Amphiporidae	*Amphiporus ochraceus*	2
B45	Cnidaria		Actiniaria	2
B45	Annelida	Spionidae	*Spiophanes bombyx*	1
B45	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
B45	Mollusca	Tellinidae	*Angulus agilis*	1
B45	Mollusca	Hiatellidae	*Hiatella* sp.	1
B45	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
B45	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B45	Annelida	Glyceridae	*Glycera dibranchiata*	1
B45	Mollusca	Veneridae	*Gemma gemma*	1
B45	Annelida	Polynoidae	*Harmothoe* sp.	1
B45	Arthropoda	Maeridae	*Elasmopus levis*	1
B45	Annelida	Spionidae	*Scolelepis* sp.	1
B45	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
B45	Nemertea	Lineidae	*Lineus ruber*	1
B45	Arthropoda	Stenothoidae	*Parametopella cypris*	1
B46	Annelida	Capitellidae	*Mediomastus ambiseta*	899
B46	Annelida		Oligochaeta	574
B46	Mollusca	Myidae	*Mya arenaria*	329
B46	Mollusca	Lyonsiidae	*Lyonsia arenosa*	135
B46	Arthropoda	Unciolidae	*Unciola serrata*	129
B46	Annelida	Phyllodocidae	*Eumida sanguinea*	127
B46	Annelida	Spionidae	*Streblospio benedicti*	97
B46	Annelida	Phyllodocidae	*Hypereteone heteropoda*	80
B46	Arthropoda	Caprellidae	*Paracaprella tenuis*	61
B46	Annelida	Spionidae	*Polydora cornuta*	42
B46	Annelida	Glyceridae	Glyceridae	40
B46	Annelida	Syllidae	*Opisthodonta longocirrata*	34
B46	Arthropoda	Aoridae	*Grandidierella japonica*	27
B46	Mollusca	Nassariidae	*Ilyanassa obsoleta*	23
B46	Annelida	Capitellidae	*Heteromastus filiformis*	20
B46	Annelida	Syllidae	*Syllides verrilli*	19
B46	Annelida	Polynoidae	*Lepidonotus* sp.	18

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B46	Annelida	Cirratulidae	*Caulleriella venefica*	18
B46	Mollusca	Veneridae	*Gemma gemma*	13
B46	Annelida	Polynoidae	*Harmothoe imbricata*	12
B46	Arthropoda	Stenothoidae	*Stenothoe* sp.	12
B46	Mollusca	Calyptraeidae	*Crepidula fornicata*	10
B46	Mollusca		Gastropoda	9
B46	Annelida	Terebellidae	*Polycirrus* sp.	8
B46	Annelida	Syllidae	*Exogone dispar*	8
B46	Arthropoda	Ampeliscidae	*Ampelisca abdita*	7
B46	Arthropoda	Paguridae	*Pagurus longicarpus*	7
B46	Arthropoda	Stenothoidae	*Parametopella cypris*	6
B46	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	5
B46	Annelida	Glyceridae	*Glycera dibranchiata*	4
B46	Annelida	Polynoidae	*Harmothoe* sp.	4
B46	Mollusca	Calyptraeidae	*Crepidula* sp.	4
B46	Arthropoda	Crangonidae	*Crangon septemspinosa*	3
B46	Annelida	Nereididae	*Alitta succinea*	3
B46	Mollusca	Veneridae	*Mercenaria mercenaria*	3
B46	Mollusca		Bivalvia	3
B46	Platyhelminthes		Turbellaria	3
B46	Annelida	Goniadidae	Goniadidae	3
B46	Annelida	Cirratulidae	Cirratulidae	3
B46	Annelida	Sabellariidae	*Sabellaria vulgaris*	3
B46	Annelida	Cirratulidae	*Tharyx acutus*	3
B46	Nemertea	Amphiporidae	*Amphiporus bioculatus*	3
B46	Annelida	Polynoidae	*Lepidonotus squamatus*	2
B46	Mollusca	Mactridae	*Spisula solidissima*	2
B46	Annelida	Hesionidae	*Oxydromus obscurus*	2
B46	Annelida	Syllidae	*Salvatoria clavata*	2
B46	Mollusca	Pyramidellidae	*Boonea bisuturalis*	2
B46	Arthropoda	Caprellidae	*Caprella penantis*	2
B46	Annelida	Nereididae	Nereididae	2
B46	Mollusca	Corambidae	*Corambe obscura*	2
B46	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
B46	Mollusca	Solenidae	Solenidae	2
B46	Annelida	Maldanidae	*Euclymene collaris*	1
B46	Annelida	Spionidae	*Spio filicornis*	1
B46	Annelida	Spionidae	*Spiophanes bombyx*	1
B46	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
B46	Arthropoda	Maeridae	*Elasmopus levis*	1
B46	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B46	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B46	Annelida	Sabellidae	Sabellidae	1
B46	Annelida	Onuphidae	Onuphidae	1
B46	Annelida	Syllidae	*Syllides* sp.	1
B46	Nemertea	Lineidae	*Lineus ruber*	1
B5	Annelida	Spionidae	*Polydora cornuta*	537
B5	Annelida	Capitellidae	*Mediomastus ambiseta*	277
B5	Annelida	Spionidae	*Streblospio benedicti*	56
B5	Annelida	Capitellidae	*Heteromastus filiformis*	18
B5	Arthropoda	Ampeliscidae	*Ampelisca abdita*	17
B5	Annelida		Oligochaeta	6
B5	Mollusca	Pyramidellidae	*Boonea bisuturalis*	6
B5	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
B5	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
B5	Annelida	Glyceridae	*Glycera dibranchiata*	2
B5	Annelida	Glyceridae	*Glycera americana*	2
B5	Annelida	Cirratulidae	Cirratulidae	2
B5	Annelida	Phyllodocidae	*Eumida sanguinea*	1
B5	Annelida	Pholoidae	*Pholoe* minuta	1
B5	Annelida	Spionidae	*Spio filicornis*	1
B5	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
B5	Mollusca	Veneridae	*Gemma gemma*	1
B5	Annelida	Spionidae	*Pygospio elegans*	1
B5	Annelida	Phyllodocidae	*Hypereteone heteropoda*	1
B5	Mollusca	Veneridae	*Mercenaria mercenaria*	1
B5	Mollusca	Pyramidellidae	*Fargoa bartschi*	1
B5	Arthropoda	Paguridae	*Pagurus longicarpus*	1
B5	Annelida	Spionidae	*Dipolydora socialis*	1
B5	Annelida	Cirratulidae	*Caulleriella venefica*	1
B6	Arthropoda	Unciolidae	*Unciola serrata*	686
B6	Annelida	Capitellidae	*Mediomastus ambiseta*	423
B6	Annelida	Sabellariidae	*Sabellaria vulgaris*	53
B6	Annelida		Oligochaeta	48
B6	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	37
B6	Mollusca	Calyptraeidae	*Crepidula* sp.	36
B6	Annelida	Phyllodocidae	*Eumida sanguinea*	25
B6	Annelida	Polynoidae	*Harmothoe imbricata*	25
B6	Annelida	Terebellidae	*Polycirrus* sp.	24
B6	Annelida	Capitellidae	*Heteromastus filiformis*	23
B6	Annelida	Polynoidae	*Harmothoe* sp.	22
B6	Mollusca	Calyptraeidae	*Crepidula fornicata*	21

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B6	Arthropoda	Aoridae	*Grandidierella japonica*	19
B6	Annelida	Cirratulidae	*Caulleriella venefica*	18
B6	Mollusca	Lyonsiidae	*Lyonsia arenosa*	15
B6	Arthropoda	Ampeliscidae	*Ampelisca abdita*	12
B6	Annelida	Spionidae	*Polydora cornuta*	11
B6	Annelida	Polynoidae	*Lepidonotus* sp.	8
B6	Arthropoda	Paguridae	*Pagurus longicarpus*	8
B6	Annelida	Spionidae	*Streblospio benedicti*	7
B6	Annelida	Spionidae	*Dipolydora socialis*	7
B6	Annelida	Maldanidae	*Euclymene collaris*	6
B6	Annelida	Nereididae	*Alitta succinea*	6
B6	Annelida	Hesionidae	*Oxydromus obscurus*	6
B6	Mollusca	Nassariidae	*Ilyanassa obsoleta*	5
B6	Mollusca	Calyptraeidae	*Crepidula plana*	4
B6	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
B6	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	4
B6	Mollusca	Pyramidellidae	*Boonea bisuturalis*	4
B6	Annelida	Cirratulidae	Cirratulidae	4
B6	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
B6	Annelida	Glyceridae	*Glycera dibranchiata*	3
B6	Annelida	Phyllodocidae	*Hypereteone heteropoda*	2
B6	Annelida	Sabellidae	*Parasabella microphthalma*	2
B6	Mollusca		Gastropoda	2
B6	Annelida	Syllidae	*Opisthodonta longocirrata*	2
B6	Annelida	Cirratulidae	*Tharyx acutus*	2
B6	Nemertea	Lineidae	*Lineus ruber*	2
B6	Annelida	Pholoidae	*Pholoe minuta*	1
B6	Annelida	Sigalionidae	*Sthenelais limicola*	1
B6	Annelida	Polynoidae	*Harmothoe extenuata*	1
B6	Annelida	Cirratulidae	*Cirratulus grandis*	1
B6	Arthropoda	Mysidae	*Neomysis americana*	1
B6	Annelida	Sigalionidae	*Sthenelais boa*	1
B6	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B6	Annelida	Syllidae	*Salvatoria clavata*	1
B6	Annelida	Sigalionidae	*Sigalion arenicola*	1
B6	Mollusca	Calyptraeidae	*Crepidula convexa*	1
B6	Annelida	Goniadidae	*Glycinde solitaria*	1
B6	Mollusca	Muricidae	*Eupleura caudata*	1
B6	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B6	Annelida	Syllidae	*Exogone dispar*	1
B6	Annelida	Syllidae	*Syllides verrilli*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B6	Cnidaria		Actiniaria	1
B6	Mollusca	Solenidae	Solenidae	1
B6	Annelida	Glyceridae	Glyceridae	1
B7	Annelida	Capitellidae	*Mediomastus ambiseta*	278
B7	Arthropoda	Unciolidae	*Unciola serrata*	141
B7	Annelida	Cirratulidae	*Caulleriella venefica*	49
B7	Annelida		Oligochaeta	40
B7	Annelida	Polynoidae	*Harmothoe imbricata*	34
B7	Annelida	Phyllodocidae	*Eumida sanguinea*	32
B7	Annelida	Polynoidae	*Harmothoe* sp.	29
B7	Mollusca	Calyptraeidae	*Crepidula fornicata*	27
B7	Annelida	Spionidae	*Polydora cornuta*	15
B7	Annelida	Polynoidae	*Lepidonotus* sp.	14
B7	Annelida	Sabellariidae	*Sabellaria vulgaris*	13
B7	Annelida	Capitellidae	*Heteromastus filiformis*	12
B7	Annelida	Terebellidae	*Polycirrus* sp.	12
B7	Annelida	Phyllodocidae	*Hypereteone heteropoda*	9
B7	Arthropoda	Caprellidae	*Paracaprella tenuis*	9
B7	Annelida	Hesionidae	*Oxydromus obscurus*	9
B7	Annelida	Polynoidae	*Lepidonotus squamatus*	6
B7	Arthropoda	Ampeliscidae	*Ampelisca abdita*	5
B7	Annelida	Polynoidae	*Harmothoe extenuata*	5
B7	Annelida	Nereididae	*Alitta succinea*	5
B7	Mollusca	Calyptraeidae	*Crepidula* sp.	5
B7	Arthropoda	Aoridae	*Grandidierella japonica*	4
B7	Annelida	Syllidae	*Syllides verrilli*	4
B7	Annelida	Maldanidae	*Euclymene collaris*	3
B7	Arthropoda	Diastylidae	*Oxyurostylis smithi*	3
B7	Mollusca	Nassariidae	*Ilyanassa obsoleta*	3
B7	Annelida	Syllidae	*Myrianida prolifera*	3
B7	Nemertea	Lineidae	*Lineus ruber*	3
B7	Annelida	Spionidae	*Streblospio benedicti*	2
B7	Mollusca	Calyptraeidae	*Crepidula plana*	2
B7	Arthropoda	Panopeidae	*Dyspanopeus sayi*	2
B7	Annelida	Syllidae	*Salvatoria clavata*	2
B7	Arthropoda	Stenothoidae	*Stenothoe* sp.	2
B7	Mollusca		Gastropoda	2
B7	Annelida	Syllidae	*Opisthodonta longocirrata*	2
B7	Arthropoda	Lysianassidae	*Lysianopsis alba*	2
B7	Mollusca	Calyptraeidae	*Crepidula convexa*	2
B7	Mollusca	Lyonsiidae	*Lyonsia arenosa*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B7	Mollusca	Tellinidae	*Angulus agilis*	1
B7	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B7	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
B7	Annelida	Glyceridae	*Glycera americana*	1
B7	Arthropoda	Corophiidae	*Apocorophium acutum*	1
B7	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B7	Annelida	Syllidae	*Proceraea cornuta*	1
B7	Annelida	Nereididae	Nereididae	1
B7	Annelida	Sigalionidae	Sigalionidae	1
B7	Mollusca	Corambidae	*Corambe obscura*	1
B7	Mollusca	Muricidae	*Eupleura caudata*	1
B7	Annelida	Cirratulidae	*Tharyx acutus*	1
B7	Annelida	Oenonidae	*Drilonereis longa*	1
B7	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
B7	Mollusca	Solenidae	Solenidae	1
B7	Arthropoda	Stenothoidae	*Parametopella cypris*	1
B8	Annelida	Capitellidae	*Mediomastus ambiseta*	418
B8	Annelida		Oligochaeta	257
B8	Mollusca	Nassariidae	*Ilyanassa obsoleta*	158
B8	Annelida	Syllidae	*Syllides verrilli*	149
B8	Annelida	Syllidae	*Opisthodonta longocirrata*	144
B8	Mollusca		Gastropoda	129
B8	Annelida	Glyceridae	Glyceridae	57
B8	Annelida	Spionidae	*Streblospio benedicti*	56
B8	Mollusca	Veneridae	*Gemma gemma*	56
B8	Arthropoda	Aoridae	*Grandidierella japonica*	49
B8	Annelida	Spionidae	*Polydora cornuta*	44
B8	Arthropoda	Unciolidae	*Unciola serrata*	38
B8	Mollusca	Calyptraeidae	*Crepidula fornicata*	30
B8	Annelida	Terebellidae	*Polycirrus* sp.	28
B8	Annelida	Phyllodocidae	*Hypereteone heteropoda*	20
B8	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	19
B8	Annelida	Spionidae	*Spio filicornis*	16
B8	Annelida	Phyllodocidae	*Eumida sanguinea*	15
B8	Mollusca	Calyptraeidae	*Crepidula* sp.	10
B8	Annelida	Cirratulidae	*Tharyx acutus*	10
B8	Annelida	Polynoidae	*Lepidonotus* sp.	9
B8	Annelida	Syllidae	*Exogone dispar*	8
B8	Mollusca	Pyramidellidae	*Boonea bisuturalis*	7
B8	Annelida	Spionidae	*Spiophanes bombyx*	6
B8	Mollusca	Myidae	*Mya arenaria*	6

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B8	Annelida	Capitellidae	*Heteromastus filiformis*	4
B8	Annelida	Syllidae	*Salvatoria clavata*	4
B8	Annelida	Sabellariidae	*Sabellaria vulgaris*	4
B8	Mollusca	Calyptraeidae	*Crepidula convexa*	4
B8	Mollusca	Lyonsiidae	*Lyonsia arenosa*	4
B8	Annelida	Cirratulidae	*Caulleriella venefica*	4
B8	Annelida	Polynoidae	*Harmothoe imbricata*	2
B8	Annelida	Glyceridae	*Glycera dibranchiata*	2
B8	Annelida	Nereididae	*Alitta succinea*	2
B8	Mollusca	Veneridae	*Mercenaria mercenaria*	2
B8	Arthropoda	Paguridae	*Pagurus longicarpus*	2
B8	Annelida	Spionidae	*Dipolydora socialis*	2
B8	Annelida	Nereididae	Nereididae	2
B8	Annelida	Syllidae	*Syllides* sp.	2
B8	Annelida	Maldanidae	*Euclymene collaris*	1
B8	Mollusca	Tellinidae	*Angulus agilis*	1
B8	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
B8	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B8	Annelida	Polynoidae	*Harmothoe* sp.	1
B8	Annelida	Sabellidae	*Parasabella microphthalma*	1
B8	Arthropoda	Maeridae	*Elasmopus levis*	1
B8	Mollusca	Muricidae	*Urosalpinx cinerea*	1
B8	Annelida	Oenonidae	*Drilonereis longa*	1
B9	Annelida	Capitellidae	*Mediomastus ambiseta*	419
B9	Annelida		Oligochaeta	218
B9	Annelida	Spionidae	*Streblospio benedicti*	54
B9	Annelida	Cirratulidae	*Caulleriella venefica*	42
B9	Annelida	Spionidae	*Polydora cornuta*	41
B9	Annelida	Glyceridae	Glyceridae	32
B9	Arthropoda	Unciolidae	*Unciola serrata*	31
B9	Annelida	Terebellidae	*Polycirrus* sp.	29
B9	Annelida	Syllidae	*Syllides verrilli*	27
B9	Annelida	Capitellidae	*Heteromastus filiformis*	24
B9	Annelida	Syllidae	*Opisthodonta longocirrata*	24
B9	Annelida	Phyllodocidae	*Eumida sanguinea*	16
B9	Arthropoda	Aoridae	*Grandidierella japonica*	15
B9	Annelida	Phyllodocidae	*Hypereteone heteropoda*	10
B9	Mollusca	Veneridae	*Gemma gemma*	7
B9	Annelida	Cirratulidae	Cirratulidae	5
B9	Mollusca	Lyonsiidae	*Lyonsia arenosa*	5
B9	Annelida	Spionidae	*Spio filicornis*	4

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
B9	Mollusca		Gastropoda	4
B9	Annelida	Syllidae	*Brania wellfleetensis*	4
B9	Mollusca	Calyptraeidae	*Crepidula* sp.	4
B9	Annelida	Polynoidae	*Harmothoe imbricata*	3
B9	Mollusca	Nassariidae	*Ilyanassa obsoleta*	3
B9	Mollusca	Muricidae	*Urosalpinx cinerea*	3
B9	Annelida	Cirratulidae	*Tharyx acutus*	3
B9	Annelida	Nereididae	*Alitta succinea*	2
B9	Annelida	Spionidae	*Scolelepis* sp.	2
B9	Annelida	Syllidae	*Salvatoria clavata*	2
B9	Mollusca	Pyramidellidae	*Boonea bisuturalis*	2
B9	Annelida	Sabellariidae	*Sabellaria vulgaris*	2
B9	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
B9	Mollusca	Calyptraeidae	*Crepidula fornicata*	1
B9	Mollusca	Tellinidae	*Angulus agilis*	1
B9	Mollusca	Myidae	*Mya arenaria*	1
B9	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
B9	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
B9	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
B9	Annelida	Glyceridae	*Glycera dibranchiata*	1
B9	Annelida	Polynoidae	*Harmothoe* sp.	1
B9	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
B9	Annelida	Hesionidae	*Oxydromus obscurus*	1
B9	Arthropoda	Paguridae	*Pagurus longicarpus*	1
B9	Annelida	Nereididae	Nereididae	1
B9	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
B9	Annelida	Syllidae	*Exogone dispar*	1
HB1	Annelida	Capitellidae	*Mediomastus ambiseta*	765
HB1	Annelida		Oligochaeta	492
HB1	Arthropoda	Unciolidae	*Unciola serrata*	333
HB1	Annelida	Phyllodocidae	*Hypereteone heteropoda*	233
HB1	Mollusca		Gastropoda	229
HB1	Annelida	Syllidae	*Opisthodonta longocirrata*	94
HB1	Annelida	Capitellidae	*Heteromastus filiformis*	87
HB1	Arthropoda	Aoridae	*Grandidierella japonica*	86
HB1	Annelida	Spionidae	*Polydora cornuta*	71
HB1	Annelida	Spionidae	*Streblospio benedicti*	59
HB1	Annelida	Phyllodocidae	*Eumida sanguinea*	56
HB1	Mollusca	Calyptraeidae	*Crepidula* sp.	54
HB1	Mollusca	Calyptraeidae	*Crepidula fornicata*	42
HB1	Mollusca	Lyonsiidae	*Lyonsia arenosa*	42

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB1	Mollusca	Nassariidae	*Ilyanassa obsoleta*	32
HB1	Annelida	Glyceridae	Glyceridae	31
HB1	Annelida	Syllidae	*Syllides verrilli*	26
HB1	Annelida	Polynoidae	*Harmothoe imbricata*	23
HB1	Annelida	Cirratulidae	Cirratulidae	15
HB1	Annelida	Syllidae	*Exogone dispar*	15
HB1	Annelida	Polynoidae	*Harmothoe* sp.	13
HB1	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	12
HB1	Annelida	Terebellidae	*Polycirrus* sp.	10
HB1	Platyhelminthes		Turbellaria	9
HB1	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	8
HB1	Annelida	Cirratulidae	*Caulleriella venefica*	8
HB1	Annelida	Syllidae	*Salvatoria clavata*	7
HB1	Arthropoda	Corophiidae	*Apocorophium acutum*	6
HB1	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	6
HB1	Annelida	Polynoidae	*Lepidonotus* sp.	6
HB1	Mollusca	Pyramidellidae	*Boonea bisuturalis*	6
HB1	Annelida	Goniadidae	Goniadidae	5
HB1	Annelida	Nereididae	Nereididae	5
HB1	Annelida	Sabellariidae	*Sabellaria vulgaris*	5
HB1	Annelida	Nereididae	*Alitta succinea*	4
HB1	Arthropoda	Maeridae	*Elasmopus levis*	4
HB1	Arthropoda	Amphilochidae	*Ampithoe valida*	4
HB1	Annelida	Cirratulidae	*Tharyx acutus*	4
HB1	Mollusca	Myidae	*Mya arenaria*	3
HB1	Arthropoda	Ampeliscidae	*Ampelisca abdita*	3
HB1	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	3
HB1	Annelida	Hesionidae	*Gyptis vittata*	3
HB1	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
HB1	Annelida	Spionidae	*Spio* sp.	2
HB1	Annelida	Sigalionidae	*Sthenelais boa*	2
HB1	Mollusca		Bivalvia	2
HB1	Arthropoda	Paguridae	*Pagurus longicarpus*	2
HB1	Arthropoda	Caprellidae	*Caprella penantis*	2
HB1	Annelida	Spionidae	*Dipolydora socialis*	2
HB1	Mollusca	Calyptraeidae	*Crepidula convexa*	2
HB1	Mollusca	Nassariidae	*Ilyanassa* sp.	2
HB1	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB1	Annelida	Spionidae	*Pygospio elegans*	1
HB1	Annelida	Polynoidae	*Harmothoe extenuata*	1
HB1	Annelida	Sabellidae	*Parasabella microphthalma*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB1	Arthropoda	Idoteidae	*Erichsonella filiformis*	1
HB1	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB1	Annelida	Pectinariidae	Pectinariidae	1
HB1	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
HB1	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB1	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB1	Annelida	Polygordiidae	*Polygordius jouinae*	1
HB10	Annelida	Spionidae	*Streblospio benedicti*	389
HB10	Annelida	Capitellidae	*Mediomastus ambiseta*	349
HB10	Arthropoda	Aoridae	*Grandidierella japonica*	176
HB10	Annelida		Oligochaeta	172
HB10	Annelida	Syllidae	*Syllides verrilli*	162
HB10	Arthropoda	Unciolidae	*Unciola serrata*	117
HB10	Annelida	Spionidae	*Polydora cornuta*	96
HB10	Mollusca	Calyptraeidae	*Crepidula* sp.	84
HB10	Mollusca	Calyptraeidae	*Crepidula fornicata*	72
HB10	Annelida	Phyllodocidae	*Eumida sanguinea*	70
HB10	Annelida	Glyceridae	Glyceridae	59
HB10	Annelida	Phyllodocidae	*Hypereteone heteropoda*	38
HB10	Annelida	Spionidae	*Spio filicornis*	35
HB10	Mollusca		Gastropoda	25
HB10	Annelida	Terebellidae	*Polycirrus* sp.	21
HB10	Arthropoda	Ampeliscidae	*Ampelisca abdita*	17
HB10	Mollusca	Lyonsiidae	*Lyonsia arenosa*	14
HB10	Mollusca	Pyramidellidae	*Boonea bisuturalis*	13
HB10	Arthropoda	Paguridae	*Pagurus longicarpus*	11
HB10	Mollusca	Nassariidae	*Ilyanassa obsoleta*	10
HB10	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	10
HB10	Mollusca	Myidae	*Mya arenaria*	9
HB10	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	9
HB10	Arthropoda	Corophiidae	*Monocorophium acherusicum*	8
HB10	Platyhelminthes		Turbellaria	6
HB10	Annelida	Cirratulidae	*Tharyx acutus*	6
HB10	Annelida	Capitellidae	*Heteromastus filiformis*	5
HB10	Annelida	Polynoidae	*Harmothoe* sp.	5
HB10	Annelida	Polynoidae	*Lepidonotus* sp.	5
HB10	Annelida	Sabellariidae	*Sabellaria vulgaris*	5
HB10	Annelida	Glyceridae	*Glycera dibranchiata*	4
HB10	Annelida	Syllidae	*Salvatoria clavata*	4
HB10	Annelida	Spionidae	*Dipolydora socialis*	4
HB10	Annelida	Syllidae	*Opisthodonta longocirrata*	4

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB10	Mollusca	Veneridae	*Gemma gemma*	3
HB10	Annelida	Nereididae	*Alitta succinea*	3
HB10	Mollusca	Calyptraeidae	*Crepidula plana*	2
HB10	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
HB10	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
HB10	Annelida	Hesionidae	*Microphthalmus sczelkowii*	2
HB10	Annelida	Nereididae	Nereididae	2
HB10	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
HB10	Annelida	Polynoidae	*Harmothoe imbricata*	1
HB10	Annelida	Maldanidae	*Euclymene collaris*	1
HB10	Mollusca	Lacunidae	*Lacuna vincta*	1
HB10	Mollusca	Tellinidae	*Angulus agilis*	1
HB10	Arthropoda	Idoteidae	*Edotia triloba*	1
HB10	Annelida	Spionidae	*Pygospio elegans*	1
HB10	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
HB10	Arthropoda	Amphilochidae	*Ampithoe valida*	1
HB10	Arthropoda	Caprellidae	*Caprella penantis*	1
HB10	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB10	Nemertea	Lineidae	*Lineus ruber*	1
HB11	Annelida	Capitellidae	*Mediomastus ambiseta*	71
HB11	Annelida		Oligochaeta	61
HB11	Mollusca	Veneridae	*Gemma gemma*	51
HB11	Annelida	Cirratulidae	Cirratulidae	23
HB11	Annelida	Cirratulidae	*Tharyx acutus*	23
HB11	Annelida	Glyceridae	Glyceridae	12
HB11	Annelida	Spionidae	*Streblospio benedicti*	9
HB11	Annelida	Syllidae	*Syllides verrilli*	7
HB11	Annelida	Spionidae	*Scolelepis* sp.	6
HB11	Annelida	Cirratulidae	*Caulleriella venefica*	6
HB11	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	4
HB11	Annelida	Phyllodocidae	*Eumida sanguinea*	3
HB11	Arthropoda	Paguridae	*Pagurus longicarpus*	3
HB11	Annelida	Spionidae	*Spio filicornis*	2
HB11	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	2
HB11	Annelida	Capitellidae	*Heteromastus filiformis*	2
HB11	Annelida	Phyllodocidae	*Hypereteone heteropoda*	2
HB11	Arthropoda	Maeridae	*Elasmopus levis*	2
HB11	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
HB11	Arthropoda	Aoridae	*Grandidierella japonica*	2
HB11	Annelida	Spionidae	*Polydora cornuta*	1
HB11	Mollusca	Calyptraeidae	*Crepidula fornicata*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB11	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB11	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB11	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
HB11	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
HB11	Arthropoda	Amphilochidae	*Ampithoe valida*	1
HB11	Mollusca		Gastropoda	1
HB11	Mollusca	Calyptraeidae	*Crepidula* sp.	1
HB11	Arthropoda	Unciolidae	*Unciola serrata*	1
HB11	Annelida	Oenonidae	*Drilonereis longa*	1
HB11	Mollusca	Nassariidae	*Ilyanassa* sp.	1
HB12	Annelida	Capitellidae	*Mediomastus ambiseta*	324
HB12	Arthropoda	Unciolidae	*Unciola serrata*	276
HB12	Mollusca		Gastropoda	258
HB12	Annelida		Oligochaeta	172
HB12	Mollusca	Calyptraeidae	*Crepidula fornicata*	35
HB12	Annelida	Phyllodocidae	*Hypereteone heteropoda*	33
HB12	Annelida	Capitellidae	*Heteromastus filiformis*	31
HB12	Annelida	Spionidae	*Polydora cornuta*	23
HB12	Mollusca	Calyptraeidae	*Crepidula* sp.	23
HB12	Arthropoda	Aoridae	*Grandidierella japonica*	22
HB12	Annelida	Phyllodocidae	*Eumida sanguinea*	21
HB12	Annelida	Polynoidae	*Harmothoe imbricata*	15
HB12	Annelida	Syllidae	*Syllides verrilli*	13
HB12	Mollusca	Nassariidae	*Ilyanassa obsoleta*	12
HB12	Annelida	Polynoidae	*Harmothoe* sp.	11
HB12	Annelida	Spionidae	*Streblospio benedicti*	10
HB12	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	10
HB12	Annelida	Syllidae	*Exogone dispar*	10
HB12	Annelida	Syllidae	*Opisthodonta longocirrata*	9
HB12	Annelida	Cirratulidae	Cirratulidae	7
HB12	Annelida	Terebellidae	*Polycirrus* sp.	6
HB12	Annelida	Polynoidae	*Lepidonotus* sp.	5
HB12	Annelida	Hesionidae	*Oxydromus obscurus*	5
HB12	Mollusca	Lyonsiidae	*Lyonsia arenosa*	5
HB12	Arthropoda	Corophiidae	*Apocorophium acutum*	4
HB12	Annelida	Syllidae	*Salvatoria clavata*	4
HB12	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
HB12	Arthropoda	Idoteidae	*Erichsonella filiformis*	3
HB12	Arthropoda	Maeridae	*Elasmopus levis*	3
HB12	Annelida	Sabellariidae	*Sabellaria vulgaris*	3
HB12	Annelida	Sigalionidae	*Sthenelais limicola*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB12	Mollusca	Myidae	*Mya arenaria*	2
HB12	Annelida	Nereididae	*Alitta succinea*	2
HB12	Mollusca	Pyramidellidae	*Boonea bisuturalis*	2
HB12	Annelida	Cirratulidae	*Tharyx acutus*	2
HB12	Mollusca	Nassariidae	*Ilyanassa* sp.	2
HB12	Annelida	Maldanidae	*Euclymene collaris*	1
HB12	Mollusca	Mytilidae	*Mytilus edulis*	1
HB12	Mollusca	Veneridae	*Gemma gemma*	1
HB12	Annelida	Polynoidae	*Harmothoe extenuata*	1
HB12	Annelida	Sabellidae	*Parasabella microphthalma*	1
HB12	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	1
HB12	Annelida	Pectinariidae	*Pectinaria gouldii*	1
HB12	Platyhelminthes		Turbellaria	1
HB12	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB12	Annelida	Goniadidae	Goniadidae	1
HB12	Annelida	Nereididae	Nereididae	1
HB12	Arthropoda	Lysianassidae	*Lysianopsis alba*	1
HB12	Annelida	Goniadidae	*Glycinde solitaria*	1
HB12	Cnidaria		Actiniaria	1
HB12	Mollusca	Solenidae	Solenidae	1
HB13	Annelida	Capitellidae	*Mediomastus ambiseta*	862
HB13	Arthropoda	Unciolidae	*Unciola serrata*	308
HB13	Annelida	Phyllodocidae	*Hypereteone heteropoda*	70
HB13	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	61
HB13	Annelida	Phyllodocidae	*Eumida sanguinea*	55
HB13	Arthropoda	Ampeliscidae	*Ampelisca abdita*	49
HB13	Annelida		Oligochaeta	43
HB13	Annelida	Polynoidae	*Harmothoe imbricata*	34
HB13	Annelida	Capitellidae	*Heteromastus filiformis*	27
HB13	Annelida	Polynoidae	*Harmothoe* sp.	25
HB13	Annelida	Spionidae	*Streblospio benedicti*	24
HB13	Annelida	Polynoidae	*Lepidonotus* sp.	23
HB13	Annelida	Maldanidae	*Euclymene collaris*	12
HB13	Mollusca	Nassariidae	*Ilyanassa obsoleta*	12
HB13	Annelida	Cirratulidae	*Tharyx acutus*	12
HB13	Annelida	Cirratulidae	Cirratulidae	11
HB13	Arthropoda	Caprellidae	*Paracaprella tenuis*	10
HB13	Annelida	Syllidae	*Myrianida prolifera*	9
HB13	Mollusca	Calyptraeidae	*Crepidula* sp.	8
HB13	Annelida	Spionidae	*Polydora cornuta*	7
HB13	Annelida	Hesionidae	*Oxydromus obscurus*	7

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB13	Annelida	Terebellidae	*Polycirrus* sp.	7
HB13	Annelida	Nereididae	*Alitta succinea*	6
HB13	Annelida	Sabellariidae	*Sabellaria vulgaris*	6
HB13	Arthropoda	Aoridae	*Grandidierella japonica*	6
HB13	Arthropoda	Stenothoidae	*Stenothoe* sp.	5
HB13	Arthropoda	Paguridae	*Pagurus longicarpus*	5
HB13	Arthropoda	Lysianassidae	*Lysianopsis alba*	5
HB13	Mollusca	Lyonsiidae	*Lyonsia arenosa*	4
HB13	Annelida	Syllidae	*Syllides verrilli*	4
HB13	Arthropoda	Corophiidae	*Apocorophium acutum*	3
HB13	Mollusca		Gastropoda	3
HB13	Arthropoda	Stenothoidae	*Parametopella cypris*	3
HB13	Mollusca	Myidae	*Mya arenaria*	2
HB13	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
HB13	Annelida	Glyceridae	*Glycera dibranchiata*	2
HB13	Annelida	Glyceridae	*Glycera americana*	2
HB13	Arthropoda	Maeridae	*Elasmopus levis*	2
HB13	Annelida	Goniadidae	Goniadidae	2
HB13	Annelida	Spionidae	*Dipolydora socialis*	2
HB13	Annelida	Nereididae	Nereididae	2
HB13	Nemertea	Lineidae	*Lineus ruber*	2
HB13	Cnidaria		Actiniaria	2
HB13	Annelida	Spionidae	*Spio filicornis*	1
HB13	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
HB13	Mollusca	Calyptraeidae	*Crepidula fornicata*	1
HB13	Mollusca	Nassariidae	*Ilyanassa trivittata*	1
HB13	Mollusca	Tellinidae	*Angulus agilis*	1
HB13	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
HB13	Arthropoda	Idoteidae	*Edotia triloba*	1
HB13	Annelida	Cirratulidae	*Cirratulus grandis*	1
HB13	Arthropoda	Anthuridae	*Cyathura burbancki*	1
HB13	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	1
HB13	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
HB13	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB13	Annelida	Oenonidae	*Drilonereis longa*	1
HB13	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
HB13	Arthropoda	Epialtidae	*Libinia dubia*	1
HB13	Annelida	Glyceridae	Glyceridae	1
HB14	Annelida	Spionidae	*Polydora cornuta*	992
HB14	Annelida	Spionidae	*Streblospio benedicti*	245
HB14	Arthropoda	Aoridae	*Grandidierella japonica*	158

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB14	Annelida	Phyllodocidae	*Hypereteone heteropoda*	149
HB14	Mollusca		Gastropoda	92
HB14	Annelida	Phyllodocidae	*Eumida sanguinea*	71
HB14	Annelida	Capitellidae	*Mediomastus ambiseta*	44
HB14	Arthropoda	Ampeliscidae	*Ampelisca abdita*	42
HB14	Annelida	Spionidae	*Spio filicornis*	27
HB14	Mollusca	Myidae	*Mya arenaria*	25
HB14	Mollusca	Nassariidae	*Ilyanassa obsoleta*	24
HB14	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	19
HB14	Mollusca	Calyptraeidae	*Crepidula* sp.	15
HB14	Mollusca	Calyptraeidae	*Crepidula fornicata*	11
HB14	Annelida	Sabellariidae	*Sabellaria vulgaris*	11
HB14	Mollusca	Lyonsiidae	*Lyonsia arenosa*	11
HB14	Annelida	Glyceridae	Glyceridae	10
HB14	Annelida		Oligochaeta	9
HB14	Mollusca	Pyramidellidae	*Boonea bisuturalis*	8
HB14	Arthropoda	Corophiidae	*Monocorophium acherusicum*	7
HB14	Annelida	Capitellidae	*Heteromastus filiformis*	6
HB14	Annelida	Syllidae	*Salvatoria clavata*	6
HB14	Annelida	Nereididae	Nereididae	6
HB14	Annelida	Syllidae	*Syllides verrilli*	6
HB14	Annelida	Polynoidae	*Harmothoe* sp.	5
HB14	Annelida	Cirratulidae	Cirratulidae	5
HB14	Arthropoda	Unciolidae	*Unciola serrata*	5
HB14	Annelida	Polynoidae	*Harmothoe imbricata*	2
HB14	Annelida	Spionidae	*Pygospio elegans*	2
HB14	Annelida	Nereididae	*Alitta succinea*	2
HB14	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
HB14	Mollusca	Nassariidae	*Ilyanassa* sp.	2
HB14	Arthropoda	Idoteidae	*Edotia triloba*	1
HB14	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
HB14	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB14	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
HB14	Arthropoda	Corophiidae	*Apocorophium acutum*	1
HB14	Arthropoda	Maeridae	*Elasmopus levis*	1
HB14	Arthropoda	Melitidae	*Melita nitida*	1
HB14	Annelida	Hesionidae	*Oxydromus obscurus*	1
HB14	Mollusca	Muricidae	*Urosalpinx cinerea*	1
HB14	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
HB14	Mollusca		Bivalvia	1
HB14	Annelida	Capitellidae	*Capitella capitata* complex	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB15	Annelida		Oligochaeta	370
HB15	Annelida	Capitellidae	*Mediomastus ambiseta*	363
HB15	Annelida	Spionidae	*Polydora cornuta*	159
HB15	Annelida	Spionidae	*Streblospio benedicti*	152
HB15	Annelida	Syllidae	*Syllides verrilli*	135
HB15	Arthropoda	Aoridae	*Grandidierella japonica*	129
HB15	Arthropoda	Unciolidae	*Unciola serrata*	63
HB15	Mollusca	Calyptraeidae	*Crepidula fornicata*	62
HB15	Annelida	Terebellidae	*Polycirrus* sp.	59
HB15	Annelida	Phyllodocidae	*Eumida sanguinea*	30
HB15	Mollusca	Calyptraeidae	*Crepidula* sp.	29
HB15	Annelida	Glyceridae	Glyceridae	26
HB15	Annelida	Phyllodocidae	*Hypereteone heteropoda*	25
HB15	Annelida	Sabellariidae	*Sabellaria vulgaris*	21
HB15	Mollusca	Myidae	*Mya arenaria*	20
HB15	Annelida	Nereididae	*Alitta succinea*	15
HB15	Mollusca		Gastropoda	14
HB15	Mollusca	Lyonsiidae	*Lyonsia arenosa*	14
HB15	Annelida	Spionidae	*Dipolydora socialis*	13
HB15	Arthropoda	Amphilochidae	*Ampithoe valida*	10
HB15	Annelida	Cirratulidae	*Tharyx acutus*	9
HB15	Annelida	Spionidae	*Spio filicornis*	8
HB15	Arthropoda	Maeridae	*Elasmopus levis*	8
HB15	Mollusca	Pyramidellidae	*Boonea bisuturalis*	8
HB15	Arthropoda	Paguridae	*Pagurus longicarpus*	8
HB15	Annelida	Polynoidae	*Lepidonotus* sp.	7
HB15	Arthropoda	Ampeliscidae	*Ampelisca abdita*	6
HB15	Mollusca	Nassariidae	*Ilyanassa obsoleta*	5
HB15	Annelida	Nereididae	Nereididae	5
HB15	Annelida	Syllidae	*Exogone dispar*	5
HB15	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
HB15	Annelida	Sabellidae	*Parasabella microphthalma*	4
HB15	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	4
HB15	Annelida	Syllidae	*Salvatoria clavata*	4
HB15	Annelida	Syllidae	*Opisthodonta longocirrata*	4
HB15	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	4
HB15	Annelida	Capitellidae	*Heteromastus filiformis*	3
HB15	Arthropoda	Caprellidae	*Paracaprella tenuis*	3
HB15	Nemertea	Amphiporidae	*Zygonemertes virescens*	3
HB15	Arthropoda	Corophiidae	*Monocorophium acherusicum*	2
HB15	Arthropoda	Corophiidae	*Apocorophium acutum*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB15	Mollusca	Veneridae	*Mercenaria mercenaria*	2
HB15	Annelida	Hesionidae	*Oxydromus obscurus*	2
HB15	Arthropoda	Caprellidae	*Caprella penantis*	2
HB15	Mollusca	Corambidae	*Corambe obscura*	2
HB15	Mollusca	Veneridae	*Gemma gemma*	1
HB15	Annelida	Spionidae	*Pygospio elegans*	1
HB15	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB15	Annelida	Polynoidae	*Harmothoe* sp.	1
HB15	Platyhelminthes		Turbellaria	1
HB15	Annelida	Dorvilleidae	*Schistomeringos annulata*	1
HB15	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB15	Nemertea	Lineidae	*Lineus ruber*	1
HB15	Mollusca	Nassariidae	*Ilyanassa* sp.	1
HB16	Annelida	Capitellidae	*Mediomastus ambiseta*	352
HB16	Arthropoda	Unciolidae	*Unciola serrata*	155
HB16	Annelida		Oligochaeta	104
HB16	Mollusca	Calyptraeidae	*Crepidula* sp.	100
HB16	Arthropoda	Aoridae	*Grandidierella japonica*	76
HB16	Annelida	Spionidae	*Streblospio benedicti*	73
HB16	Annelida	Phyllodocidae	*Eumida sanguinea*	44
HB16	Arthropoda	Ampeliscidae	*Ampelisca abdita*	40
HB16	Mollusca	Calyptraeidae	*Crepidula fornicata*	36
HB16	Annelida	Polynoidae	*Harmothoe* sp.	26
HB16	Annelida	Spionidae	*Polydora cornuta*	25
HB16	Annelida	Phyllodocidae	*Hypereteone heteropoda*	25
HB16	Annelida	Syllidae	*Syllides verrilli*	25
HB16	Mollusca		Gastropoda	20
HB16	Annelida	Sabellariidae	*Sabellaria vulgaris*	20
HB16	Mollusca	Myidae	*Mya arenaria*	13
HB16	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	12
HB16	Arthropoda	Paguridae	*Pagurus longicarpus*	10
HB16	Annelida	Terebellidae	*Polycirrus* sp.	10
HB16	Mollusca	Lyonsiidae	*Lyonsia arenosa*	10
HB16	Annelida	Nereididae	*Alitta succinea*	8
HB16	Annelida	Polynoidae	*Lepidonotus* sp.	7
HB16	Annelida	Polynoidae	*Harmothoe imbricata*	6
HB16	Annelida	Spionidae	*Spio filicornis*	6
HB16	Arthropoda	Maeridae	*Elasmopus levis*	6
HB16	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	6
HB16	Annelida	Syllidae	*Salvatoria clavata*	6
HB16	Arthropoda	Corophiidae	*Monocorophium acherusicum*	5

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB16	Annelida	Glyceridae	Glyceridae	5
HB16	Mollusca	Calyptraeidae	*Crepidula plana*	4
HB16	Annelida	Capitellidae	*Heteromastus filiformis*	4
HB16	Annelida	Cirratulidae	Cirratulidae	4
HB16	Annelida	Glyceridae	*Glycera dibranchiata*	3
HB16	Annelida	Hesionidae	*Oxydromus obscurus*	3
HB16	Annelida	Syllidae	*Opisthodonta longocirrata*	3
HB16	Annelida	Cirratulidae	*Tharyx acutus*	3
HB16	Annelida	Syllidae	*Exogone dispar*	3
HB16	Mollusca	Tellinidae	*Angulus agilis*	2
HB16	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
HB16	Mollusca	Muricidae	*Urosalpinx cinerea*	2
HB16	Annelida	Terebellidae	Terebellidae	2
HB16	Annelida	Nereididae	Nereididae	2
HB16	Mollusca	Corambidae	*Corambe obscura*	2
HB16	Mollusca	Calyptraeidae	*Crepidula convexa*	2
HB16	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
HB16	Mollusca	Nassariidae	*Ilyanassa obsoleta*	1
HB16	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
HB16	Mollusca	Veneridae	*Gemma gemma*	1
HB16	Annelida	Spionidae	*Spio* sp.	1
HB16	Arthropoda	Mysidae	*Neomysis americana*	1
HB16	Arthropoda	Idoteidae	*Erichsonella filiformis*	1
HB16	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
HB16	Mollusca		Bivalvia	1
HB16	Platyhelminthes		Turbellaria	1
HB16	Arthropoda	Amphilochidae	*Ampithoe valida*	1
HB16	Annelida	Spionidae	*Dipolydora socialis*	1
HB16	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB16	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB16	Annelida	Chaetopteridae	*Spiochaetopterus costarum oculatus*	1
HB16	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
HB16	Mollusca	Solenidae	Solenidae	1
HB17	Mollusca	Veneridae	*Gemma gemma*	38
HB17	Annelida	Capitellidae	*Mediomastus ambiseta*	30
HB17	Annelida	Cirratulidae	Cirratulidae	15
HB17	Annelida		Oligochaeta	14
HB17	Arthropoda	Paguridae	*Pagurus longicarpus*	12
HB17	Annelida	Spionidae	*Streblospio benedicti*	7
HB17	Mollusca	Calyptraeidae	*Crepidula convexa*	7

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB17	Annelida	Cirratulidae	*Tharyx acutus*	7
HB17	Mollusca	Calyptraeidae	*Crepidula plana*	6
HB17	Mollusca	Calyptraeidae	*Crepidula* sp.	4
HB17	Annelida	Syllidae	*Syllides verrilli*	3
HB17	Annelida	Spionidae	*Spio filicornis*	2
HB17	Annelida	Spionidae	*Polydora cornuta*	2
HB17	Annelida	Phyllodocidae	*Hypereteone heteropoda*	2
HB17	Annelida	Spionidae	*Scolelepis* sp.	2
HB17	Annelida	Phyllodocidae	*Eumida sanguinea*	1
HB17	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB17	Annelida	Nereididae	Nereididae	1
HB17	Arthropoda	Unciolidae	*Unciola serrata*	1
HB17	Annelida	Oenonidae	*Drilonereis longa*	1
HB17	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB17	Arthropoda	Aoridae	*Grandidierella japonica*	1
HB17	Annelida	Glyceridae	Glyceridae	1
HB18	Annelida	Capitellidae	*Mediomastus ambiseta*	380
HB18	Arthropoda	Unciolidae	*Unciola serrata*	260
HB18	Mollusca	Calyptraeidae	*Crepidula fornicata*	237
HB18	Annelida	Spionidae	*Polydora cornuta*	98
HB18	Annelida		Oligochaeta	95
HB18	Mollusca	Calyptraeidae	*Crepidula* sp.	88
HB18	Annelida	Capitellidae	*Heteromastus filiformis*	69
HB18	Annelida	Phyllodocidae	*Eumida sanguinea*	54
HB18	Mollusca	Nassariidae	*Ilyanassa obsoleta*	50
HB18	Annelida	Polynoidae	*Harmothoe imbricata*	49
HB18	Mollusca		Gastropoda	39
HB18	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	31
HB18	Annelida	Polynoidae	*Harmothoe* sp.	24
HB18	Arthropoda	Aoridae	*Grandidierella japonica*	17
HB18	Annelida	Sabellariidae	*Sabellaria vulgaris*	14
HB18	Annelida	Terebellidae	*Polycirrus* sp.	10
HB18	Annelida	Phyllodocidae	*Hypereteone heteropoda*	9
HB18	Annelida	Hesionidae	*Oxydromus obscurus*	7
HB18	Annelida	Syllidae	*Salvatoria clavata*	7
HB18	Annelida	Syllidae	*Syllides verrilli*	7
HB18	Mollusca	Myidae	*Mya arenaria*	5
HB18	Annelida	Polynoidae	*Lepidonotus* sp.	5
HB18	Annelida	Nereididae	Nereididae	5
HB18	Mollusca	Calyptraeidae	*Crepidula plana*	4
HB18	Arthropoda	Corophiidae	*Monocorophium acherusicum*	4

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB18	Arthropoda	Idoteidae	*Erichsonella filiformis*	4
HB18	Annelida	Cirratulidae	Cirratulidae	4
HB18	Arthropoda	Lysianassidae	*Lysianopsis alba*	4
HB18	Mollusca	Calyptraeidae	*Crepidula convexa*	4
HB18	Annelida	Hesionidae	*Gyptis vittata*	4
HB18	Annelida	Nereididae	*Alitta succinea*	3
HB18	Mollusca	Pyramidellidae	*Boonea bisuturalis*	3
HB18	Annelida	Syllidae	*Opisthodonta longocirrata*	3
HB18	Annelida	Syllidae	*Exogone dispar*	3
HB18	Mollusca	Lyonsiidae	*Lyonsia arenosa*	3
HB18	Annelida	Maldanidae	*Euclymene collaris*	2
HB18	Annelida	Spionidae	*Streblospio benedicti*	2
HB18	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	2
HB18	Arthropoda	Corophiidae	*Apocorophium acutum*	2
HB18	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
HB18	Annelida	Pectinariidae	*Pectinaria gouldii*	2
HB18	Mollusca	Corambidae	*Corambe obscura*	2
HB18	Annelida	Glyceridae	Glyceridae	2
HB18	Annelida	Pholoidae	*Pholoe minuta*	1
HB18	Annelida	Sigalionidae	*Sthenelais limicola*	1
HB18	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
HB18	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB18	Annelida	Glyceridae	*Glycera americana*	1
HB18	Annelida	Sabellidae	*Parasabella microphthalma*	1
HB18	Arthropoda	Anthuridae	*Cyathura burbancki*	1
HB18	Mollusca	Muricidae	*Urosalpinx cinerea*	1
HB18	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB18	Arthropoda	Caprellidae	*Caprella penantis*	1
HB18	Annelida	Goniadidae	Goniadidae	1
HB18	Mollusca	Muricidae	*Eupleura caudata*	1
HB18	Cnidaria		Actiniaria	1
HB18	Mollusca	Solenidae	Solenidae	1
HB19	Annelida	Capitellidae	*Mediomastus ambiseta*	228
HB19	Arthropoda	Unciolidae	*Unciola serrata*	49
HB19	Arthropoda	Paguridae	*Pagurus longicarpus*	30
HB19	Annelida	Spionidae	*Streblospio benedicti*	17
HB19	Annelida		Oligochaeta	16
HB19	Mollusca	Calyptraeidae	*Crepidula convexa*	16
HB19	Annelida	Phyllodocidae	*Eumida sanguinea*	14
HB19	Annelida	Cirratulidae	Cirratulidae	14
HB19	Mollusca	Calyptraeidae	*Crepidula* sp.	13

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB19	Annelida	Spionidae	*Polydora cornuta*	9
HB19	Annelida	Capitellidae	*Heteromastus filiformis*	9
HB19	Mollusca	Calyptraeidae	*Crepidula fornicata*	7
HB19	Annelida	Sabellariidae	*Sabellaria vulgaris*	6
HB19	Annelida	Spionidae	*Spio filicornis*	4
HB19	Mollusca	Calyptraeidae	*Crepidula plana*	4
HB19	Annelida	Cirratulidae	*Tharyx acutus*	4
HB19	Annelida	Polynoidae	*Harmothoe imbricata*	3
HB19	Annelida	Terebellidae	*Polycirrus* sp.	3
HB19	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
HB19	Annelida	Polynoidae	*Harmothoe* sp.	2
HB19	Mollusca		Gastropoda	2
HB19	Arthropoda	Lysianassidae	*Lysianopsis alba*	2
HB19	Annelida	Polynoidae	*Lepidonotus squamatus*	1
HB19	Annelida	Maldanidae	*Euclymene collaris*	1
HB19	Mollusca	Nassariidae	*Ilyanassa trivittata*	1
HB19	Mollusca	Tellinidae	*Angulus agilis*	1
HB19	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB19	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
HB19	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB19	Mollusca	Veneridae	*Gemma gemma*	1
HB19	Annelida	Glyceridae	*Glycera americana*	1
HB19	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
HB19	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	1
HB19	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB2	Annelida	Capitellidae	*Mediomastus ambiseta*	962
HB2	Annelida	Phyllodocidae	*Eumida sanguinea*	170
HB2	Annelida	Phyllodocidae	*Hypereteone heteropoda*	161
HB2	Annelida		Oligochaeta	123
HB2	Arthropoda	Unciolidae	*Unciola serrata*	113
HB2	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	89
HB2	Arthropoda	Ampeliscidae	*Ampelisca abdita*	83
HB2	Annelida	Cirratulidae	Cirratulidae	54
HB2	Annelida	Spionidae	*Streblospio benedicti*	42
HB2	Annelida	Capitellidae	*Heteromastus filiformis*	37
HB2	Annelida	Polynoidae	*Harmothoe imbricata*	36
HB2	Mollusca	Nassariidae	*Ilyanassa obsoleta*	30
HB2	Annelida	Polynoidae	*Harmothoe* sp.	22
HB2	Annelida	Spionidae	*Polydora cornuta*	20
HB2	Mollusca		Gastropoda	16
HB2	Annelida	Polynoidae	*Lepidonotus* sp.	15

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB2	Arthropoda	Paguridae	*Pagurus longicarpus*	14
HB2	Annelida	Sabellariidae	*Sabellaria vulgaris*	14
HB2	Arthropoda	Aoridae	*Grandidierella japonica*	12
HB2	Annelida	Maldanidae	*Euclymene collaris*	11
HB2	Annelida	Cirratulidae	*Tharyx acutus*	10
HB2	Mollusca	Calyptraeidae	*Crepidula* sp.	9
HB2	Annelida	Hesionidae	*Oxydromus obscurus*	8
HB2	Annelida	Terebellidae	*Polycirrus* sp.	8
HB2	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	6
HB2	Annelida	Syllidae	*Salvatoria clavata*	5
HB2	Mollusca	Lyonsiidae	*Lyonsia arenosa*	5
HB2	Mollusca	Nassariidae	*Ilyanassa trivittata*	4
HB2	Mollusca	Myidae	*Mya arenaria*	4
HB2	Annelida	Glyceridae	*Glycera americana*	4
HB2	Arthropoda	Lysianassidae	*Lysianopsis alba*	4
HB2	Annelida	Hesionidae	*Gyptis vittata*	4
HB2	Mollusca	Calyptraeidae	*Crepidula fornicata*	3
HB2	Annelida	Nereididae	*Alitta succinea*	3
HB2	Annelida	Pectinariidae	Pectinariidae	3
HB2	Cnidaria		Actiniaria	3
HB2	Annelida	Sigalionidae	*Sthenelais limicola*	2
HB2	Annelida	Polynoidae	*Lepidonotus sublevis*	2
HB2	Arthropoda	Caprellidae	*Paracaprella tenuis*	2
HB2	Annelida	Pectinariidae	*Pectinaria gouldii*	2
HB2	Mollusca	Muricidae	*Urosalpinx cinerea*	2
HB2	Annelida	Hesionidae	*Microphthalmus sczelkowii*	2
HB2	Annelida	Cirratulidae	*Caulleriella venefica*	2
HB2	Annelida	Syllidae	*Syllides verrilli*	2
HB2	Annelida	Pholoidae	*Pholoe minuta*	1
HB2	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
HB2	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	1
HB2	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
HB2	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB2	Annelida	Cirratulidae	*Cirratulus grandis*	1
HB2	Arthropoda	Mysidae	*Neomysis americana*	1
HB2	Arthropoda	Anthuridae	*Cyathura burbancki*	1
HB2	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	1
HB2	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
HB2	Annelida	Goniadidae	Goniadidae	1
HB2	Annelida	Nereididae	Nereididae	1
HB2	Annelida	Syllidae	*Opisthodonta longocirrata*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB2	Annelida	Spionidae	*Dipolydora commensalis*	1
HB2	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB2	Mollusca	Muricidae	*Eupleura caudata*	1
HB2	Annelida	Oenonidae	*Drilonereis longa*	1
HB2	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
HB2	Arthropoda	Oedicerotidae	*Ameroculodes edwardsi*	1
HB2	Annelida	Syllidae	*Exogone dispar*	1
HB2	Mollusca	Solenidae	Solenidae	1
HB2	Annelida	Glyceridae	Glyceridae	1
HB20	Annelida	Spionidae	*Polydora cornuta*	173
HB20	Arthropoda	Aoridae	*Grandidierella japonica*	125
HB20	Annelida	Capitellidae	*Mediomastus ambiseta*	111
HB20	Annelida	Phyllodocidae	*Eumida sanguinea*	99
HB20	Annelida	Cirratulidae	Cirratulidae	65
HB20	Annelida	Spionidae	*Spio filicornis*	54
HB20	Annelida	Spionidae	*Streblospio benedicti*	48
HB20	Arthropoda	Unciolidae	*Unciola serrata*	35
HB20	Annelida		Oligochaeta	32
HB20	Annelida	Phyllodocidae	*Hypereteone heteropoda*	30
HB20	Arthropoda	Maeridae	*Elasmopus levis*	28
HB20	Annelida	Cirratulidae	*Tharyx acutus*	22
HB20	Mollusca	Calyptraeidae	*Crepidula fornicata*	19
HB20	Annelida	Syllidae	*Syllides verrilli*	16
HB20	Mollusca		Gastropoda	14
HB20	Arthropoda	Idoteidae	*Erichsonella filiformis*	11
HB20	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	10
HB20	Annelida	Glyceridae	Glyceridae	10
HB20	Arthropoda	Amphilochidae	*Ampithoe valida*	9
HB20	Arthropoda	Paguridae	*Pagurus longicarpus*	9
HB20	Arthropoda	Lysianassidae	*Lysianopsis alba*	9
HB20	Mollusca	Calyptraeidae	*Crepidula* sp.	9
HB20	Annelida	Sabellariidae	*Sabellaria vulgaris*	8
HB20	Annelida	Polynoidae	*Lepidonotus* sp.	7
HB20	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	6
HB20	Annelida	Polynoidae	*Harmothoe imbricata*	5
HB20	Mollusca	Myidae	*Mya arenaria*	4
HB20	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	4
HB20	Annelida	Capitellidae	*Heteromastus filiformis*	4
HB20	Mollusca	Muricidae	*Urosalpinx cinerea*	4
HB20	Mollusca	Calyptraeidae	*Crepidula plana*	3
HB20	Arthropoda	Diastylidae	*Oxyurostylis smithi*	3

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB20	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
HB20	Annelida	Spionidae	*Pygospio elegans*	3
HB20	Arthropoda	Mysidae	*Neomysis americana*	3
HB20	Mollusca	Pyramidellidae	*Boonea bisuturalis*	3
HB20	Arthropoda	Ampeliscidae	*Ampelisca abdita*	2
HB20	Mollusca	Nassariidae	*Ilyanassa obsoleta*	2
HB20	Mollusca	Veneridae	*Gemma gemma*	2
HB20	Annelida	Polynoidae	*Harmothoe* sp.	2
HB20	Mollusca	Calyptraeidae	*Crepidula convexa*	2
HB20	Mollusca	Lyonsiidae	*Lyonsia arenosa*	2
HB20	Annelida	Maldanidae	*Euclymene collaris*	1
HB20	Annelida	Spionidae	*Spiophanes bombyx*	1
HB20	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
HB20	Arthropoda	Idoteidae	*Edotia triloba*	1
HB20	Arthropoda	Ischyroceridae	*Jassa marmorata*	1
HB20	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB20	Annelida	Nereididae	*Alitta succinea*	1
HB20	Arthropoda	Caprellidae	*Paracaprella tenuis*	1
HB20	Arthropoda	Corophiidae	*Apocorophium acutum*	1
HB20	Annelida	Spionidae	*Scolelepis* sp.	1
HB20	Annelida	Hesionidae	*Oxydromus obscurus*	1
HB20	Annelida	Terebellidae	*Polycirrus* sp.	1
HB20	Annelida	Syllidae	*Opisthodonta longocirrata*	1
HB20	Mollusca	Muricidae	*Eupleura caudata*	1
HB20	Annelida	Oenonidae	*Drilonereis longa*	1
HB20	Annelida	Sphaerodoridae	Sphaerodoridae	1
HB20	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB20	Mollusca	Nassariidae	*Ilyanassa* sp.	1
HB21	Annelida	Capitellidae	*Mediomastus ambiseta*	57
HB21	Annelida	Spionidae	*Spio filicornis*	51
HB21	Annelida	Spionidae	*Streblospio benedicti*	39
HB21	Annelida	Cirratulidae	Cirratulidae	14
HB21	Arthropoda	Unciolidae	*Unciola serrata*	13
HB21	Mollusca	Veneridae	*Gemma gemma*	11
HB21	Annelida		Oligochaeta	9
HB21	Annelida	Spionidae	*Polydora cornuta*	6
HB21	Mollusca		Gastropoda	6
HB21	Arthropoda	Paguridae	*Pagurus longicarpus*	5
HB21	Annelida	Phyllodocidae	*Eumida sanguinea*	4
HB21	Mollusca	Calyptraeidae	*Crepidula* sp.	4
HB21	Annelida	Phyllodocidae	*Hypereteone heteropoda*	3

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB21	Arthropoda	Aoridae	*Grandidierella japonica*	3
HB21	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
HB21	Annelida	Capitellidae	*Heteromastus filiformis*	2
HB21	Annelida	Syllidae	*Syllides verrilli*	2
HB21	Mollusca	Calyptraeidae	*Crepidula fornicata*	1
HB21	Mollusca	Nassariidae	*Ilyanassa trivittata*	1
HB21	Mollusca	Nassariidae	*Ilyanassa obsoleta*	1
HB21	Annelida	Glyceridae	*Glycera americana*	1
HB21	Arthropoda	Mysidae	*Neomysis americana*	1
HB21	Arthropoda	Maeridae	*Elasmopus levis*	1
HB21	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB21	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
HB21	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
HB21	Annelida	Glyceridae	Glyceridae	1
HB22	Annelida	Capitellidae	*Mediomastus ambiseta*	1135
HB22	Annelida	Spionidae	*Streblospio benedicti*	489
HB22	Annelida		Oligochaeta	412
HB22	Arthropoda	Unciolidae	*Unciola serrata*	244
HB22	Arthropoda	Aoridae	*Grandidierella japonica*	231
HB22	Annelida	Phyllodocidae	*Hypereteone heteropoda*	167
HB22	Mollusca	Calyptraeidae	*Crepidula* sp.	163
HB22	Annelida	Phyllodocidae	*Eumida sanguinea*	152
HB22	Annelida	Spionidae	*Polydora cornuta*	147
HB22	Mollusca	Calyptraeidae	*Crepidula fornicata*	112
HB22	Annelida	Syllidae	*Syllides verrilli*	106
HB22	Annelida	Glyceridae	Glyceridae	76
HB22	Arthropoda	Ampeliscidae	*Ampelisca abdita*	75
HB22	Mollusca	Nassariidae	*Ilyanassa* sp.	73
HB22	Mollusca	Myidae	*Mya arenaria*	36
HB22	Mollusca	Nassariidae	*Ilyanassa obsoleta*	34
HB22	Annelida	Sabellariidae	*Sabellaria vulgaris*	32
HB22	Annelida	Terebellidae	*Polycirrus* sp.	30
HB22	Annelida	Polynoidae	*Lepidonotus* sp.	26
HB22	Annelida	Polynoidae	*Harmothoe imbricata*	25
HB22	Arthropoda	Paguridae	*Pagurus longicarpus*	25
HB22	Mollusca	Lyonsiidae	*Lyonsia arenosa*	22
HB22	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	21
HB22	Mollusca	Pyramidellidae	*Boonea bisuturalis*	21
HB22	Annelida	Polynoidae	*Harmothoe* sp.	18
HB22	Annelida	Cirratulidae	Cirratulidae	18
HB22	Annelida	Cirratulidae	*Tharyx acutus*	17

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB22	Platyhelminthes		Turbellaria	16
HB22	Annelida	Syllidae	*Salvatoria clavata*	11
HB22	Annelida	Capitellidae	*Heteromastus filiformis*	7
HB22	Annelida	Hesionidae	*Oxydromus obscurus*	7
HB22	Annelida	Spionidae	*Spio filicornis*	6
HB22	Annelida	Nereididae	*Alitta succinea*	6
HB22	Mollusca	Calyptraeidae	*Crepidula convexa*	6
HB22	Mollusca	Solenidae	Solenidae	6
HB22	Annelida	Glyceridae	*Glycera dibranchiata*	5
HB22	Mollusca	Veneridae	*Gemma gemma*	5
HB22	Annelida	Spionidae	*Dipolydora socialis*	5
HB22	Arthropoda	Diastylidae	*Oxyurostylis smithi*	4
HB22	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	4
HB22	Annelida	Sigalionidae	*Sthenelais limicola*	3
HB22	Arthropoda	Idoteidae	*Edotia triloba*	3
HB22	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
HB22	Arthropoda	Maeridae	*Elasmopus levis*	3
HB22	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	3
HB22	Annelida	Nereididae	Nereididae	3
HB22	Annelida	Syllidae	*Exogone dispar*	3
HB22	Mollusca	Calyptraeidae	*Crepidula plana*	2
HB22	Annelida	Glyceridae	*Glycera americana*	2
HB22	Annelida	Spionidae	*Spio* sp.	2
HB22	Annelida	Terebellidae	Terebellidae	2
HB22	Mollusca	Corambidae	*Corambe obscura*	2
HB22	Nemertea	Amphiporidae	*Zygonemertes virescens*	2
HB22	Annelida	Maldanidae	*Euclymene collaris*	1
HB22	Arthropoda	Calliopiidae	*Calliopius laeviusculus*	1
HB22	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB22	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB22	Mollusca	Muricidae	*Urosalpinx cinerea*	1
HB22	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
HB22	Arthropoda	Caprellidae	*Caprella penantis*	1
HB22	Annelida	Syllidae	*Opisthodonta longocirrata*	1
HB22	Nemertea	Lineidae	*Lineus ruber*	1
HB22	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB23	Annelida	Capitellidae	*Mediomastus ambiseta*	563
HB23	Annelida	Spionidae	*Polydora cornuta*	318
HB23	Arthropoda	Ampeliscidae	*Ampelisca abdita*	38
HB23	Annelida	Spionidae	*Streblospio benedicti*	25
HB23	Annelida	Cirratulidae	*Tharyx acutus*	23

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB23	Mollusca	Nassariidae	*Ilyanassa obsoleta*	15
HB23	Annelida		Oligochaeta	15
HB23	Mollusca	Pyramidellidae	*Boonea bisuturalis*	14
HB23	Annelida	Sabellariidae	*Sabellaria vulgaris*	10
HB23	Annelida	Capitellidae	*Heteromastus filiformis*	8
HB23	Annelida	Polynoidae	*Lepidonotus* sp.	8
HB23	Arthropoda	Aoridae	*Grandidierella japonica*	6
HB23	Annelida	Polynoidae	*Harmothoe imbricata*	5
HB23	Mollusca	Pyramidellidae	*Asmunda elegantula*	3
HB23	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
HB23	Annelida	Glyceridae	*Glycera dibranchiata*	2
HB23	Annelida	Polynoidae	*Harmothoe* sp.	2
HB23	Platyhelminthes		Turbellaria	2
HB23	Annelida	Cirratulidae	Cirratulidae	2
HB23	Annelida	Spionidae	*Spio filicornis*	1
HB23	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	1
HB23	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB23	Annelida	Glyceridae	*Glycera americana*	1
HB23	Annelida	Nereididae	*Alitta succinea*	1
HB23	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB23	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB23	Annelida	Terebellidae	*Polycirrus* sp.	1
HB23	Annelida	Spionidae	Spionidae	1
HB23	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB23	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB24	Annelida	Spionidae	*Polydora cornuta*	384
HB24	Annelida	Capitellidae	*Mediomastus ambiseta*	314
HB24	Annelida		Oligochaeta	39
HB24	Annelida	Spionidae	*Streblospio benedicti*	28
HB24	Arthropoda	Ampeliscidae	*Ampelisca abdita*	11
HB24	Annelida	Capitellidae	*Heteromastus filiformis*	9
HB24	Mollusca	Pyramidellidae	*Boonea bisuturalis*	8
HB24	Annelida	Sabellariidae	*Sabellaria vulgaris*	5
HB24	Arthropoda	Aoridae	*Grandidierella japonica*	5
HB24	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	4
HB24	Annelida	Cirratulidae	Cirratulidae	3
HB24	Mollusca	Nassariidae	*Ilyanassa obsoleta*	2
HB24	Annelida	Orbiniidae	*Leitoscoloplos* sp.	2
HB24	Annelida	Phyllodocidae	*Eumida sanguinea*	1
HB24	Mollusca	Myidae	*Mya arenaria*	1
HB24	Arthropoda	Crangonidae	*Crangon septemspinosa*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB24	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB24	Annelida	Glyceridae	*Glycera americana*	1
HB24	Arthropoda	Mysidae	*Neomysis americana*	1
HB24	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
HB24	Annelida	Nereididae	*Alitta succinea*	1
HB24	Annelida	Goniadidae	Goniadidae	1
HB24	Mollusca		Gastropoda	1
HB24	Annelida	Syllidae	*Opisthodonta longocirrata*	1
HB24	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB24	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
HB24	Annelida	Syllidae	*Syllides verrilli*	1
HB24	Annelida	Glyceridae	Glyceridae	1
HB25	Mollusca	Veneridae	*Gemma gemma*	193
HB25	Annelida	Capitellidae	*Mediomastus ambiseta*	167
HB25	Annelida	Cirratulidae	Cirratulidae	56
HB25	Annelida		Oligochaeta	44
HB25	Annelida	Spionidae	*Streblospio benedicti*	38
HB25	Arthropoda	Aoridae	*Grandidierella japonica*	25
HB25	Annelida	Cirratulidae	*Tharyx acutus*	12
HB25	Arthropoda	Paguridae	*Pagurus longicarpus*	9
HB25	Annelida	Glyceridae	Glyceridae	9
HB25	Annelida	Spionidae	*Scolelepis* sp.	8
HB25	Annelida	Spionidae	*Spio filicornis*	7
HB25	Arthropoda	Unciolidae	*Unciola serrata*	7
HB25	Annelida	Cirratulidae	*Caulleriella venefica*	6
HB25	Nemertea	Lineidae	*Lineus ruber*	5
HB25	Annelida	Syllidae	*Syllides verrilli*	4
HB25	Annelida	Spionidae	*Polydora cornuta*	3
HB25	Annelida	Orbiniidae	*Leitoscoloplos fragilis*	3
HB25	Mollusca	Calyptraeidae	*Crepidula convexa*	3
HB25	Mollusca	Calyptraeidae	*Crepidula* sp.	3
HB25	Annelida	Phyllodocidae	*Eumida sanguinea*	2
HB25	Mollusca	Calyptraeidae	*Crepidula fornicata*	2
HB25	Annelida	Glyceridae	*Glycera dibranchiata*	2
HB25	Annelida	Capitellidae	*Heteromastus filiformis*	2
HB25	Annelida	Phyllodocidae	*Hypereteone heteropoda*	2
HB25	Mollusca	Lyonsiidae	*Lyonsia arenosa*	2
HB25	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
HB25	Annelida	Nereididae	Nereididae	1
HB25	Annelida	Syllidae	*Opisthodonta longocirrata*	1
HB25	Annelida	Phyllodocidae	*Paranaitis speciosa*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB25	Annelida	Oenonidae	*Drilonereis longa*	1
HB25	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
HB25	Arthropoda	Pleustidae	*Incisocalliope aestuarius*	1
HB25	Mollusca	Nassariidae	*Ilyanassa* sp.	1
HB26	Annelida	Spionidae	*Polydora cornuta*	1103
HB26	Mollusca	Nassariidae	*Ilyanassa obsoleta*	394
HB26	Mollusca	Nassariidae	*Ilyanassa* sp.	126
HB26	Annelida	Phyllodocidae	*Hypereteone heteropoda*	92
HB26	Annelida	Capitellidae	*Mediomastus ambiseta*	61
HB26	Annelida	Spionidae	*Spio filicornis*	42
HB26	Annelida	Spionidae	*Streblospio benedicti*	42
HB26	Annelida		Oligochaeta	41
HB26	Mollusca		Gastropoda	21
HB26	Mollusca	Myidae	*Mya arenaria*	18
HB26	Arthropoda	Aoridae	*Grandidierella japonica*	16
HB26	Annelida	Phyllodocidae	*Eumida sanguinea*	11
HB26	Annelida	Spionidae	*Pygospio elegans*	10
HB26	Mollusca	Calyptraeidae	*Crepidula fornicata*	9
HB26	Mollusca	Veneridae	*Gemma gemma*	6
HB26	Annelida	Nereididae	Nereididae	6
HB26	Annelida	Glyceridae	*Glycera dibranchiata*	3
HB26	Annelida	Nereididae	*Alitta succinea*	3
HB26	Mollusca	Pyramidellidae	*Boonea bisuturalis*	3
HB26	Annelida	Cirratulidae	Cirratulidae	3
HB26	Arthropoda	Ampeliscidae	*Ampelisca abdita*	2
HB26	Platyhelminthes		Turbellaria	2
HB26	Arthropoda	Amphilochidae	*Ampithoe valida*	2
HB26	Mollusca	Lyonsiidae	*Lyonsia arenosa*	2
HB26	Mollusca	Calyptraeidae	*Crepidula plana*	1
HB26	Annelida	Capitellidae	*Heteromastus filiformis*	1
HB26	Annelida	Glyceridae	*Glycera americana*	1
HB26	Arthropoda	Idoteidae	*Erichsonella filiformis*	1
HB26	Annelida	Spionidae	*Scolelepis* sp.	1
HB26	Annelida	Polynoidae	*Lepidonotus* sp.	1
HB26	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB26	Annelida	Terebellidae	*Polycirrus* sp.	1
HB26	Annelida	Sabellariidae	*Sabellaria vulgaris*	1
HB26	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB26	Arthropoda	Unciolidae	*Unciola serrata*	1
HB26	Annelida	Cirratulidae	*Tharyx acutus*	1
HB26	Annelida	Glyceridae	Glyceridae	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB27	Annelida	Spionidae	*Polydora cornuta*	152
HB27	Annelida	Capitellidae	*Mediomastus ambiseta*	70
HB27	Annelida	Spionidae	*Streblospio benedicti*	60
HB27	Mollusca	Veneridae	*Gemma gemma*	42
HB27	Mollusca	Nassariidae	*Ilyanassa obsoleta*	33
HB27	Annelida	Cirratulidae	Cirratulidae	31
HB27	Mollusca	Nassariidae	*Ilyanassa* sp.	25
HB27	Annelida	Phyllodocidae	*Hypereteone heteropoda*	18
HB27	Annelida	Capitellidae	*Heteromastus filiformis*	15
HB27	Annelida		Oligochaeta	14
HB27	Annelida	Spionidae	*Spio filicornis*	12
HB27	Annelida	Glyceridae	Glyceridae	8
HB27	Annelida	Cirratulidae	*Tharyx acutus*	5
HB27	Annelida	Glyceridae	*Glycera dibranchiata*	4
HB27	Arthropoda	Paguridae	*Pagurus longicarpus*	4
HB27	Arthropoda	Aoridae	*Grandidierella japonica*	4
HB27	Annelida	Syllidae	*Syllides verrilli*	4
HB27	Arthropoda	Mysidae	*Neomysis americana*	3
HB27	Arthropoda	Crangonidae	*Crangon septemspinosa*	2
HB27	Arthropoda	Unciolidae	*Unciola serrata*	2
HB27	Annelida	Phyllodocidae	*Eumida sanguinea*	1
HB27	Mollusca	Calyptraeidae	*Crepidula fornicata*	1
HB27	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB27	Mollusca	Pyramidellidae	*Odostomia eburnea*	1
HB27	Annelida	Spionidae	*Scolelepis* sp.	1
HB27	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
HB27	Annelida	Syllidae	*Opisthodonta longocirrata*	1
HB27	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB27	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
HB27	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB28	Annelida	Capitellidae	*Mediomastus ambiseta*	556
HB28	Arthropoda	Unciolidae	*Unciola serrata*	420
HB28	Annelida		Oligochaeta	184
HB28	Annelida	Phyllodocidae	*Eumida sanguinea*	127
HB28	Mollusca	Nassariidae	*Ilyanassa* sp.	120
HB28	Mollusca	Nassariidae	*Ilyanassa obsoleta*	115
HB28	Mollusca	Calyptraeidae	*Crepidula fornicata*	112
HB28	Annelida	Spionidae	*Polydora cornuta*	95
HB28	Annelida	Capitellidae	*Heteromastus filiformis*	93
HB28	Arthropoda	Aoridae	*Grandidierella japonica*	84
HB28	Annelida	Phyllodocidae	*Hypereteone heteropoda*	77

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB28	Annelida	Spionidae	*Streblospio benedicti*	76
HB28	Annelida	Polynoidae	*Harmothoe imbricata*	66
HB28	Annelida	Syllidae	*Syllides verrilli*	56
HB28	Mollusca	Myidae	*Mya arenaria*	54
HB28	Annelida	Terebellidae	*Polycirrus* sp.	33
HB28	Annelida	Cirratulidae	Cirratulidae	29
HB28	Annelida	Polynoidae	*Harmothoe* sp.	28
HB28	Mollusca	Pyramidellidae	*Boonea bisuturalis*	19
HB28	Annelida	Sabellariidae	*Sabellaria vulgaris*	19
HB28	Mollusca	Calyptraeidae	*Crepidula* sp.	17
HB28	Annelida	Syllidae	*Exogone dispar*	16
HB28	Arthropoda	Corophiidae	*Apocorophium acutum*	15
HB28	Arthropoda	Idoteidae	*Erichsonella filiformis*	14
HB28	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	13
HB28	Annelida	Polynoidae	*Lepidonotus* sp.	13
HB28	Annelida	Syllidae	*Opisthodonta longocirrata*	12
HB28	Mollusca	Lyonsiidae	*Lyonsia arenosa*	11
HB28	Annelida	Syllidae	*Salvatoria clavata*	10
HB28	Annelida	Glyceridae	Glyceridae	10
HB28	Annelida	Nereididae	*Alitta succinea*	9
HB28	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	8
HB28	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	8
HB28	Arthropoda	Lysianassidae	*Lysianopsis alba*	8
HB28	Mollusca	Calyptraeidae	*Crepidula convexa*	8
HB28	Annelida	Hesionidae	*Oxydromus obscurus*	7
HB28	Arthropoda	Mysidae	*Neomysis americana*	6
HB28	Annelida	Cirratulidae	*Tharyx acutus*	6
HB28	Annelida	Spionidae	*Spio filicornis*	5
HB28	Mollusca	Calyptraeidae	*Crepidula plana*	4
HB28	Arthropoda	Amphilochidae	*Ampithoe valida*	4
HB28	Annelida	Spionidae	*Dipolydora socialis*	4
HB28	Annelida	Sigalionidae	*Sthenelais limicola*	3
HB28	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	3
HB28	Mollusca	Muricidae	*Urosalpinx cinerea*	3
HB28	Arthropoda	Diastylidae	*Oxyurostylis smithi*	2
HB28	Annelida	Glyceridae	*Glycera dibranchiata*	2
HB28	Mollusca	Pyramidellidae	*Odostomia eburnea*	2
HB28	Arthropoda	Maeridae	*Elasmopus levis*	2
HB28	Annelida	Nereididae	Nereididae	2
HB28	Annelida	Oenonidae	*Drilonereis longa*	2
HB28	Mollusca	Columbellidae	*Astyris lunata*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB28	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB28	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB28	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB28	Annelida	Polynoidae	*Harmothoe extenuata*	1
HB28	Annelida	Glyceridae	*Glycera americana*	1
HB28	Annelida	Polynoidae	*Lepidonotus sublevis*	1
HB28	Arthropoda	Anthuridae	*Cyathura burbancki*	1
HB28	Annelida	Spionidae	*Scolelepis* sp.	1
HB28	Platyhelminthes		Turbellaria	1
HB28	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB28	Arthropoda	Caprellidae	*Caprella penantis*	1
HB28	Annelida	Goniadidae	Goniadidae	1
HB28	Annelida	Spionidae	Spionidae	1
HB28	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB28	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB28	Annelida	Hesionidae	*Gyptis vittata*	1
HB28	Nemertea	Amphiporidae	*Amphiporus bioculatus*	1
HB28	Nemertea	Amphiporidae	*Zygonemertes virescens*	1
HB29	Annelida	Capitellidae	*Mediomastus ambiseta*	196
HB29	Annelida	Spionidae	*Polydora cornuta*	130
HB29	Annelida	Spionidae	*Spio filicornis*	70
HB29	Annelida	Spionidae	*Streblospio benedicti*	56
HB29	Arthropoda	Aoridae	*Grandidierella japonica*	38
HB29	Mollusca	Calyptraeidae	*Crepidula fornicata*	19
HB29	Annelida	Cirratulidae	Cirratulidae	19
HB29	Annelida	Capitellidae	*Heteromastus filiformis*	17
HB29	Annelida	Phyllodocidae	*Eumida sanguinea*	12
HB29	Annelida		Oligochaeta	11
HB29	Arthropoda	Paguridae	*Pagurus longicarpus*	11
HB29	Mollusca	Nassariidae	*Ilyanassa obsoleta*	9
HB29	Arthropoda	Unciolidae	*Unciola serrata*	9
HB29	Arthropoda	Ampeliscidae	*Ampelisca abdita*	8
HB29	Annelida	Phyllodocidae	*Hypereteone heteropoda*	7
HB29	Arthropoda	Maeridae	*Elasmopus levis*	7
HB29	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	5
HB29	Annelida	Glyceridae	*Glycera dibranchiata*	4
HB29	Mollusca	Pyramidellidae	*Boonea bisuturalis*	4
HB29	Annelida	Syllidae	*Syllides verrilli*	4
HB29	Mollusca	Calyptraeidae	*Crepidula plana*	3
HB29	Arthropoda	Caprellidae	*Paracaprella tenuis*	3
HB29	Annelida	Cirratulidae	*Tharyx acutus*	3

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB29	Annelida	Glyceridae	Glyceridae	3
HB29	Annelida	Polynoidae	*Harmothoe imbricata*	2
HB29	Arthropoda	Idoteidae	*Erichsonella filiformis*	2
HB29	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	2
HB29	Mollusca	Calyptraeidae	*Crepidula* sp.	2
HB29	Annelida	Spionidae	*Spiophanes bombyx*	1
HB29	Mollusca	Tellinidae	*Angulus agilis*	1
HB29	Arthropoda	Diastylidae	*Oxyurostylis smithi*	1
HB29	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB29	Mollusca	Veneridae	*Gemma gemma*	1
HB29	Annelida	Nereididae	*Alitta succinea*	1
HB29	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
HB29	Annelida	Polynoidae	*Lepidonotus* sp.	1
HB29	Mollusca	Veneridae	*Mercenaria mercenaria*	1
HB29	Annelida	Syllidae	*Salvatoria clavata*	1
HB29	Arthropoda	Caprellidae	*Caprella penantis*	1
HB29	Annelida	Nereididae	Nereididae	1
HB29	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB29	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB29	Annelida	Chaetopteridae	*Spiochaetopterus costarum oculatus*	1
HB29	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
HB3	Annelida	Capitellidae	*Mediomastus ambiseta*	649
HB3	Arthropoda	Unciolidae	*Unciola serrata*	436
HB3	Annelida		Oligochaeta	258
HB3	Annelida	Phyllodocidae	*Hypereteone heteropoda*	180
HB3	Annelida	Phyllodocidae	*Eumida sanguinea*	128
HB3	Mollusca		Gastropoda	101
HB3	Annelida	Spionidae	*Streblospio benedicti*	79
HB3	Annelida	Spionidae	*Polydora cornuta*	71
HB3	Annelida	Syllidae	*Opisthodonta longocirrata*	70
HB3	Arthropoda	Aoridae	*Grandidierella japonica*	57
HB3	Annelida	Capitellidae	*Heteromastus filiformis*	55
HB3	Annelida	Glyceridae	Glyceridae	53
HB3	Mollusca	Calyptraeidae	*Crepidula* sp.	45
HB3	Annelida	Syllidae	*Syllides verrilli*	33
HB3	Annelida	Syllidae	*Salvatoria clavata*	23
HB3	Mollusca	Lyonsiidae	*Lyonsia arenosa*	23
HB3	Mollusca	Calyptraeidae	*Crepidula fornicata*	20
HB3	Annelida	Polynoidae	*Harmothoe* sp.	19
HB3	Mollusca	Nassariidae	*Ilyanassa obsoleta*	15

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB3	Annelida	Terebellidae	*Polycirrus* sp.	14
HB3	Platyhelminthes		Turbellaria	13
HB3	Annelida	Cirratulidae	Cirratulidae	13
HB3	Annelida	Polynoidae	*Harmothoe imbricata*	12
HB3	Mollusca	Solenidae	Solenidae	9
HB3	Mollusca	Pyramidellidae	*Boonea bisuturalis*	8
HB3	Arthropoda	Paguridae	*Pagurus longicarpus*	6
HB3	Annelida	Goniadidae	Goniadidae	6
HB3	Annelida	Syllidae	*Exogone dispar*	6
HB3	Arthropoda	Crangonidae	*Crangon septemspinosa*	5
HB3	Annelida	Nereididae	Nereididae	5
HB3	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	4
HB3	Annelida	Cirratulidae	*Caulleriella venefica*	4
HB3	Arthropoda	Idoteidae	*Erichsonella filiformis*	3
HB3	Annelida	Hesionidae	*Oxydromus obscurus*	3
HB3	Annelida	Sabellariidae	*Sabellaria vulgaris*	3
HB3	Mollusca	Calyptraeidae	*Crepidula convexa*	3
HB3	Arthropoda	Diastylidae	*Oxyurostylis smithi*	2
HB3	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	2
HB3	Annelida	Nereididae	*Alitta succinea*	2
HB3	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	2
HB3	Annelida	Polynoidae	*Lepidonotus* sp.	2
HB3	Annelida	Spionidae	*Dipolydora socialis*	2
HB3	Arthropoda	Lysianassidae	*Lysianopsis alba*	2
HB3	Annelida	Sigalionidae	*Sthenelais limicola*	1
HB3	Mollusca	Myidae	*Mya arenaria*	1
HB3	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB3	Arthropoda	Corophiidae	*Monocorophium acherusicum*	1
HB3	Arthropoda	Mysidae	*Neomysis americana*	1
HB3	Arthropoda	Maeridae	*Elasmopus levis*	1
HB3	Mollusca	Muricidae	*Urosalpinx cinerea*	1
HB3	Annelida	Hesionidae	*Microphthalmus sczelkowii*	1
HB3	Mollusca		Bivalvia	1
HB3	Arthropoda	Caprellidae	*Caprella penantis*	1
HB3	Annelida	Pectinariidae	Pectinariidae	1
HB3	Annelida	Syllidae	Syllidae	1
HB3	Annelida	Syllidae	*Brania wellfleetensis*	1
HB3	Annelida	Spionidae	*Scolelepis (parascolelepis) texana*	1
HB3	Annelida	Phyllodocidae	*Paranaitis speciosa*	1
HB3	Annelida	Cirratulidae	*Tharyx acutus*	1
HB3	Nemertea	Amphiporidae	*Zygonemertes virescens*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB3	Annelida	Hesionidae	*Microphthalmus fragilis*	1
HB30	Annelida	Capitellidae	*Mediomastus ambiseta*	204
HB30	Annelida	Spionidae	*Spio filicornis*	148
HB30	Annelida		Oligochaeta	148
HB30	Annelida	Spionidae	*Polydora cornuta*	95
HB30	Annelida	Spionidae	*Streblospio benedicti*	80
HB30	Annelida	Syllidae	*Syllides verrilli*	64
HB30	Arthropoda	Aoridae	*Grandidierella japonica*	49
HB30	Mollusca	Nassariidae	*Ilyanassa* sp.	30
HB30	Mollusca	Nassariidae	*Ilyanassa obsoleta*	29
HB30	Annelida	Glyceridae	Glyceridae	21
HB30	Mollusca	Calyptraeidae	*Crepidula* sp.	13
HB30	Mollusca	Veneridae	*Gemma gemma*	10
HB30	Annelida	Spionidae	*Scolelepis* sp.	8
HB30	Annelida	Cirratulidae	*Tharyx acutus*	7
HB30	Mollusca	Calyptraeidae	*Crepidula fornicata*	5
HB30	Annelida	Phyllodocidae	*Hypereteone heteropoda*	4
HB30	Annelida	Syllidae	*Opisthodonta longocirrata*	4
HB30	Mollusca	Calyptraeidae	*Crepidula convexa*	4
HB30	Mollusca	Myidae	*Mya arenaria*	3
HB30	Annelida	Glyceridae	*Glycera dibranchiata*	3
HB30	Annelida	Capitellidae	*Heteromastus filiformis*	3
HB30	Annelida	Hesionidae	*Microphthalmus sczelkowii*	3
HB30	Annelida	Cirratulidae	Cirratulidae	3
HB30	Annelida	Spionidae	*Pygospio elegans*	2
HB30	Arthropoda	Paguridae	*Pagurus longicarpus*	2
HB30	Annelida	Polynoidae	*Harmothoe imbricata*	1
HB30	Mollusca	Tellinidae	*Angulus agilis*	1
HB30	Arthropoda	Idoteidae	*Edotia triloba*	1
HB30	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB30	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB30	Annelida	Orbiniidae	*Leitoscoloplos robustus*	1
HB30	Annelida	Orbiniidae	*Leitoscoloplos* sp.	1
HB30	Annelida	Glyceridae	*Glycera americana*	1
HB30	Mollusca	Acteocinidae	*Acteocina canaliculata*	1
HB30	Arthropoda	Idoteidae	*Erichsonella filiformis*	1
HB4	Annelida	Capitellidae	*Mediomastus ambiseta*	213
HB4	Mollusca	Nassariidae	*Ilyanassa obsoleta*	120
HB4	Arthropoda	Unciolidae	*Unciola serrata*	110
HB4	Annelida		Oligochaeta	73
HB4	Mollusca	Calyptraeidae	*Crepidula fornicata*	54

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB4	Mollusca	Calyptraeidae	*Crepidula* sp.	37
HB4	Annelida	Capitellidae	*Heteromastus filiformis*	36
HB4	Annelida	Spionidae	*Polydora cornuta*	35
HB4	Annelida	Polynoidae	*Harmothoe imbricata*	27
HB4	Annelida	Terebellidae	*Polycirrus* sp.	19
HB4	Annelida	Phyllodocidae	*Eumida sanguinea*	18
HB4	Mollusca		Gastropoda	14
HB4	Annelida	Phyllodocidae	*Hypereteone heteropoda*	12
HB4	Arthropoda	Aoridae	*Grandidierella japonica*	11
HB4	Annelida	Polynoidae	*Harmothoe* sp.	8
HB4	Annelida	Polynoidae	*Lepidonotus* sp.	8
HB4	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	7
HB4	Mollusca	Pyramidellidae	*Boonea bisuturalis*	6
HB4	Annelida	Spionidae	*Streblospio benedicti*	5
HB4	Annelida	Sabellariidae	*Sabellaria vulgaris*	5
HB4	Arthropoda	Lysianassidae	*Lysianopsis alba*	5
HB4	Annelida	Syllidae	*Exogone dispar*	5
HB4	Annelida	Syllidae	*Syllides verrilli*	5
HB4	Arthropoda	Corophiidae	*Apocorophium acutum*	4
HB4	Arthropoda	Idoteidae	*Erichsonella filiformis*	3
HB4	Annelida	Syllidae	*Opisthodonta longocirrata*	3
HB4	Annelida	Sigalionidae	*Sthenelais limicola*	2
HB4	Arthropoda	Ampeliscidae	*Ampelisca abdita*	2
HB4	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	2
HB4	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	2
HB4	Annelida	Nereididae	*Alitta succinea*	2
HB4	Annelida	Hesionidae	*Oxydromus obscurus*	2
HB4	Annelida	Cirratulidae	Cirratulidae	2
HB4	Annelida	Nereididae	Nereididae	2
HB4	Nemertea	Amphiporidae	*Amphiporus bioculatus*	2
HB4	Cnidaria		Actiniaria	2
HB4	Mollusca	Myidae	*Mya arenaria*	1
HB4	Mollusca	Hydrobiidae	*Ecrobia truncata*	1
HB4	Annelida	Glyceridae	*Glycera americana*	1
HB4	Mollusca	Muricidae	*Urosalpinx cinerea*	1
HB4	Annelida	Syllidae	*Salvatoria clavata*	1
HB4	Mollusca	Muricidae	*Eupleura caudata*	1
HB4	Annelida	Hesionidae	*Gyptis vittata*	1
HB4	Annelida	Cirratulidae	*Tharyx acutus*	1
HB4	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
HB4	Mollusca	Nassariidae	*Ilyanassa* sp.	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB5	Annelida	Capitellidae	*Mediomastus ambiseta*	147
HB5	Mollusca	Veneridae	*Gemma gemma*	70
HB5	Annelida	Cirratulidae	Cirratulidae	38
HB5	Annelida		Oligochaeta	29
HB5	Annelida	Spionidae	*Spio filicornis*	25
HB5	Mollusca	Nassariidae	*Ilyanassa obsoleta*	24
HB5	Annelida	Spionidae	*Polydora cornuta*	19
HB5	Annelida	Spionidae	*Streblospio benedicti*	11
HB5	Annelida	Syllidae	*Syllides verrilli*	10
HB5	Annelida	Capitellidae	*Heteromastus filiformis*	7
HB5	Annelida	Phyllodocidae	*Hypereteone heteropoda*	5
HB5	Annelida	Cirratulidae	*Tharyx acutus*	5
HB5	Arthropoda	Mysidae	*Neomysis americana*	3
HB5	Arthropoda	Idoteidae	*Erichsonella filiformis*	3
HB5	Arthropoda	Unciolidae	*Unciola serrata*	3
HB5	Arthropoda	Aoridae	*Grandidierella japonica*	3
HB5	Annelida	Spionidae	*Scolelepis* sp.	2
HB5	Arthropoda	Paguridae	*Pagurus longicarpus*	2
HB5	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
HB5	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB5	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB5	Annelida	Spionidae	*Pygospio elegans*	1
HB5	Mollusca	Calyptraeidae	*Crepidula* sp.	1
HB5	Annelida	Oenonidae	*Drilonereis longa*	1
HB5	Annelida	Cirratulidae	*Caulleriella venefica*	1
HB5	Annelida	Glyceridae	Glyceridae	1
HB6	Annelida	Capitellidae	*Mediomastus ambiseta*	93
HB6	Annelida	Spionidae	*Polydora cornuta*	86
HB6	Annelida	Cirratulidae	Cirratulidae	34
HB6	Annelida	Spionidae	*Streblospio benedicti*	28
HB6	Annelida	Spionidae	*Spio filicornis*	20
HB6	Arthropoda	Aoridae	*Grandidierella japonica*	14
HB6	Annelida		Oligochaeta	8
HB6	Mollusca	Veneridae	*Gemma gemma*	6
HB6	Annelida	Phyllodocidae	*Hypereteone heteropoda*	6
HB6	Annelida	Cirratulidae	*Caulleriella venefica*	5
HB6	Arthropoda	Crangonidae	*Crangon septemspinosa*	4
HB6	Mollusca	Nassariidae	*Ilyanassa obsoleta*	4
HB6	Annelida	Capitellidae	*Heteromastus filiformis*	4
HB6	Annelida	Glyceridae	*Glycera dibranchiata*	3
HB6	Annelida	Spionidae	*Marenzelleria viridis*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB6	Annelida	Spionidae	*Pygospio elegans*	2
HB6	Arthropoda	Paguridae	*Pagurus longicarpus*	2
HB6	Annelida	Cirratulidae	*Tharyx acutus*	2
HB6	Annelida	Chaetopteridae	*Spiochaetopterus costarum oculatus*	2
HB6	Annelida	Syllidae	*Syllides verrilli*	2
HB6	Annelida	Glyceridae	Glyceridae	2
HB6	Annelida	Phyllodocidae	*Eumida sanguinea*	1
HB6	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB6	Annelida	Spionidae	*Scolelepis* sp.	1
HB6	Arthropoda	Caprellidae	*Caprella penantis*	1
HB6	Annelida	Oenonidae	*Drilonereis longa*	1
HB6	Mollusca	Lyonsiidae	*Lyonsia arenosa*	1
HB7	Annelida	Capitellidae	*Mediomastus ambiseta*	1527
HB7	Arthropoda	Unciolidae	*Unciola serrata*	312
HB7	Annelida	Phyllodocidae	*Hypereteone heteropoda*	270
HB7	Annelida	Phyllodocidae	*Eumida sanguinea*	230
HB7	Arthropoda	Ampeliscidae	*Ampelisca abdita*	157
HB7	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	136
HB7	Annelida		Oligochaeta	131
HB7	Annelida	Polynoidae	*Lepidonotus* sp.	87
HB7	Annelida	Cirratulidae	Cirratulidae	64
HB7	Annelida	Polynoidae	*Harmothoe imbricata*	59
HB7	Mollusca	Calyptraeidae	*Crepidula* sp.	55
HB7	Annelida	Spionidae	*Streblospio benedicti*	50
HB7	Annelida	Capitellidae	*Heteromastus filiformis*	47
HB7	Annelida	Polynoidae	*Harmothoe* sp.	42
HB7	Annelida	Spionidae	*Polydora cornuta*	41
HB7	Arthropoda	Caprellidae	*Paracaprella tenuis*	23
HB7	Mollusca		Gastropoda	23
HB7	Annelida	Sabellariidae	*Sabellaria vulgaris*	23
HB7	Annelida	Syllidae	*Myrianida prolifera*	19
HB7	Annelida	Cirratulidae	*Tharyx acutus*	17
HB7	Arthropoda	Corophiidae	*Apocorophium acutum*	15
HB7	Arthropoda	Aoridae	*Grandidierella japonica*	14
HB7	Annelida	Hesionidae	*Oxydromus obscurus*	13
HB7	Mollusca	Nassariidae	*Ilyanassa obsoleta*	12
HB7	Annelida	Nereididae	*Alitta succinea*	12
HB7	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	11
HB7	Annelida	Terebellidae	*Polycirrus* sp.	11
HB7	Arthropoda	Lysianassidae	*Lysianopsis alba*	10

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB7	Annelida	Maldanidae	*Euclymene collaris*	9
HB7	Annelida	Glyceridae	Glyceridae	9
HB7	Nemertea	Lineidae	*Lineus ruber*	7
HB7	Mollusca	Lyonsiidae	*Lyonsia arenosa*	7
HB7	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	6
HB7	Cnidaria		Actiniaria	6
HB7	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	5
HB7	Annelida	Syllidae	*Salvatoria clavata*	5
HB7	Arthropoda	Stenothoidae	*Stenothoe* sp.	5
HB7	Mollusca	Calyptraeidae	*Crepidula fornicata*	4
HB7	Arthropoda	Paguridae	*Pagurus longicarpus*	4
HB7	Annelida	Polynoidae	*Lepidonotus squamatus*	3
HB7	Annelida	Polynoidae	*Harmothoe extenuata*	3
HB7	Annelida	Polynoidae	*Lepidonotus sublevis*	3
HB7	Mollusca	Muricidae	*Urosalpinx cinerea*	3
HB7	Annelida	Nereididae	Nereididae	3
HB7	Nemertea	Amphiporidae	*Zygonemertes virescens*	3
HB7	Annelida	Syllidae	*Exogone dispar*	3
HB7	Annelida	Syllidae	*Syllides verrilli*	3
HB7	Mollusca	Solenidae	Solenidae	3
HB7	Mollusca	Calyptraeidae	*Crepidula plana*	2
HB7	Mollusca	Tellinidae	*Angulus agilis*	2
HB7	Mollusca	Myidae	*Mya arenaria*	2
HB7	Arthropoda	Diastylidae	*Oxyurostylis smithi*	2
HB7	Arthropoda	Idoteidae	*Edotia triloba*	2
HB7	Annelida	Glyceridae	*Glycera americana*	2
HB7	Arthropoda	Panopeidae	*Dyspanopeus sayi*	2
HB7	Mollusca		Bivalvia	2
HB7	Annelida	Syllidae	*Proceraea cornuta*	2
HB7	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB7	Annelida	Sabellidae	*Parasabella microphthalma*	1
HB7	Arthropoda	Anthuridae	*Cyathura burbancki*	1
HB7	Annelida	Pectinariidae	*Pectinaria gouldii*	1
HB7	Annelida	Spionidae	*Scolelepis* sp.	1
HB7	Annelida	Hesionidae	*Microphthalmus* sp.	1
HB7	Mollusca	Pyramidellidae	*Boonea bisuturalis*	1
HB7	Annelida	Goniadidae	Goniadidae	1
HB7	Annelida	Spionidae	*Dipolydora socialis*	1
HB7	Annelida	Pectinariidae	Pectinariidae	1
HB7	Annelida	Spionidae	Spionidae	1
HB7	Annelida	Syllidae	*Opisthodonta longocirrata*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB7	Mollusca	Calyptraeidae	*Crepidula convexa*	1
HB7	Annelida	Goniadidae	*Glycinde solitaria*	1
HB7	Mollusca	Muricidae	*Eupleura caudata*	1
HB7	Annelida	Capitellidae	*Capitella capitata* complex	1
HB7	Arthropoda	Stenothoidae	*Parametopella cypris*	1
HB8	Mollusca		Gastropoda	1060
HB8	Annelida	Spionidae	*Polydora cornuta*	314
HB8	Annelida		Oligochaeta	218
HB8	Mollusca	Myidae	*Mya arenaria*	191
HB8	Annelida	Spionidae	*Streblospio benedicti*	135
HB8	Annelida	Phyllodocidae	*Hypereteone heteropoda*	77
HB8	Arthropoda	Aoridae	*Grandidierella japonica*	51
HB8	Annelida	Phyllodocidae	*Eumida sanguinea*	40
HB8	Mollusca	Nassariidae	*Ilyanassa obsoleta*	39
HB8	Annelida	Capitellidae	*Mediomastus ambiseta*	31
HB8	Annelida	Glyceridae	Glyceridae	21
HB8	Mollusca	Calyptraeidae	*Crepidula* sp.	18
HB8	Mollusca	Lyonsiidae	*Lyonsia arenosa*	13
HB8	Annelida	Nereididae	Nereididae	11
HB8	Annelida	Capitellidae	*Heteromastus filiformis*	9
HB8	Arthropoda	Ampeliscidae	*Ampelisca abdita*	8
HB8	Mollusca	Pyramidellidae	*Boonea bisuturalis*	4
HB8	Annelida	Spionidae	*Spio filicornis*	3
HB8	Mollusca	Calyptraeidae	*Crepidula fornicata*	3
HB8	Annelida	Syllidae	*Opisthodonta longocirrata*	3
HB8	Annelida	Syllidae	*Syllides verrilli*	3
HB8	Arthropoda	Aoridae	*Microdeutopus gryllotalpa*	2
HB8	Annelida	Polynoidae	*Harmothoe* sp.	2
HB8	Arthropoda	Panopeidae	*Dyspanopeus sayi*	2
HB8	Mollusca	Calyptraeidae	*Crepidula convexa*	2
HB8	Mollusca	Nassariidae	*Ilyanassa* sp.	2
HB8	Mollusca	Calyptraeidae	*Crepidula plana*	1
HB8	Mollusca	Tellinidae	*Angulus agilis*	1
HB8	Arthropoda	Cancridae	*Cancer irroratus*	1
HB8	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	1
HB8	Arthropoda	Crangonidae	*Crangon septemspinosa*	1
HB8	Arthropoda	Gammaridae	*Gammarus* sp.	1
HB8	Annelida	Spionidae	*Pygospio elegans*	1
HB8	Arthropoda	Mysidae	*Neomysis americana*	1
HB8	Annelida	Nereididae	*Alitta succinea*	1
HB8	Arthropoda	Maeridae	*Elasmopus levis*	1

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB8	Annelida	Pectinariidae	*Pectinaria gouldii*	1
HB8	Platyhelminthes		Turbellaria	1
HB8	Arthropoda	Paguridae	*Pagurus longicarpus*	1
HB8	Annelida	Goniadidae	Goniadidae	1
HB8	Annelida	Cirratulidae	*Tharyx acutus*	1
HB9	Annelida	Capitellidae	*Mediomastus ambiseta*	870
HB9	Arthropoda	Unciolidae	*Unciola serrata*	269
HB9	Annelida		Oligochaeta	259
HB9	Annelida	Spionidae	*Streblospio benedicti*	112
HB9	Arthropoda	Aoridae	*Grandidierella japonica*	81
HB9	Annelida	Phyllodocidae	*Hypereteone heteropoda*	70
HB9	Annelida	Spionidae	*Polydora cornuta*	60
HB9	Annelida	Phyllodocidae	*Eumida sanguinea*	56
HB9	Mollusca	Nassariidae	*Ilyanassa obsoleta*	54
HB9	Annelida	Syllidae	*Opisthodonta longocirrata*	43
HB9	Mollusca		Gastropoda	41
HB9	Annelida	Capitellidae	*Heteromastus filiformis*	39
HB9	Annelida	Syllidae	*Syllides verrilli*	27
HB9	Mollusca	Calyptraeidae	*Crepidula fornicata*	26
HB9	Annelida	Glyceridae	Glyceridae	26
HB9	Mollusca	Calyptraeidae	*Crepidula* sp.	20
HB9	Annelida	Cirratulidae	Cirratulidae	19
HB9	Annelida	Syllidae	*Salvatoria clavata*	18
HB9	Annelida	Polynoidae	*Harmothoe imbricata*	12
HB9	Mollusca	Pyramidellidae	*Boonea bisuturalis*	12
HB9	Mollusca	Lyonsiidae	*Lyonsia arenosa*	12
HB9	Annelida	Terebellidae	*Polycirrus* sp.	11
HB9	Arthropoda	Ampeliscidae	*Ampelisca vadorum*	9
HB9	Annelida	Hesionidae	*Oxydromus obscurus*	9
HB9	Mollusca	Nassariidae	*Ilyanassa* sp.	8
HB9	Mollusca	Myidae	*Mya arenaria*	5
HB9	Annelida	Polynoidae	*Lepidonotus* sp.	5
HB9	Annelida	Nereididae	Nereididae	5
HB9	Arthropoda	Corophiidae	*Monocorophium acherusicum*	3
HB9	Arthropoda	Crangonidae	*Crangon septemspinosa*	3
HB9	Annelida	Polynoidae	*Harmothoe* sp.	3
HB9	Arthropoda	Ischyroceridae	*Ericthonius brasiliensis*	3
HB9	Annelida	Goniadidae	Goniadidae	3
HB9	Annelida	Syllidae	*Exogone dispar*	3
HB9	Annelida	Maldanidae	*Euclymene collaris*	2
HB9	Arthropoda	Caprellidae	*Paracaprella tenuis*	2

(continued)

Appendix Table G-3. (Continued)

Sample	Phylum	Family	Species/Taxon	Count
HB9	Arthropoda	Corophiidae	*Apocorophium acutum*	2
HB9	Mollusca	Muricidae	*Urosalpinx cinerea*	2
HB9	Arthropoda	Paguridae	*Pagurus longicarpus*	2
HB9	Annelida	Sabellariidae	*Sabellaria vulgaris*	2
HB9	Annelida	Cirratulidae	*Tharyx acutus*	2
HB9	Cnidaria		Actiniaria	2
HB9	Annelida	Spionidae	*Spio filicornis*	1
HB9	Arthropoda	Ampeliscidae	*Ampelisca abdita*	1
HB9	Annelida	Glyceridae	*Glycera dibranchiata*	1
HB9	Annelida	Spionidae	*Spio* sp.	1
HB9	Annelida	Nereididae	*Alitta succinea*	1
HB9	Arthropoda	Phoxocephalidae	*Eobrolgus spinosus*	1
HB9	Annelida	Pectinariidae	*Pectinaria gouldii*	1
HB9	Platyhelminthes		Turbellaria	1
HB9	Annelida	Syllidae	*Brania wellfleetensis*	1
HB9	Annelida	Hesionidae	*Gyptis vittata*	1
HB9	Nemertea	Carinomidae	*Carinoma tremaphoros*	1

Appendix Table G-4 Phylogenetic Listing of Macroinvertebrate Taxa Collected in Benthic Grab Samples during the June 2015 Macroinvertebrate Study. Taxa with Exclude code = 'B' were not included in diversity and richness calculations.

Phylum	Higher taxon	Family	Species/Taxon	Exclude code
Cnidaria	Cnidaria		Actiniaria	G
Platyhelminthes	Turbellaria		Turbellaria	G
Nemertea	Nemertea	Amphiporidae	*Amphiporus bioculatus*	G
			Amphiporus ochraceus	G
			Zygonemertes virescens	G
		Carinomidae	*Carinoma tremaphoros*	G
		Lineidae	*Lineus ruber*	G
Mollusca	Gastropoda		Gastropoda	B
			Nudibranchia	G
		Acteocinidae	*Acteocina canaliculata*	G
		Calyptraeidae	*Crepidula convexa*	G
			Crepidula sp.	B
		Columbellidae	*Astyris lunata*	G
		Corambidae	*Corambe obscura*	G
		Hydrobiidae	*Ecrobia truncata*	G
		Lacunidae	*Lacuna vincta*	G
		Muricidae	*Eupleura caudata*	G
			Urosalpinx cinerea	G
		Nassariidae	*Ilyanassa obsoleta*	G
			Ilyanassa sp.	B
			Ilyanassa trivittata	G
		Pyramidellidae	*Asmunda elegantula*	G
			Boonea bisuturalis	G
			Fargoa bartschi	G
			Odostomia eburnea	G
Mollusca	Bivalvia		Bivalvia	B
		Arcidae	*Lunarca ovalis*	G
		Hiatellidae	*Hiatella* sp.	G
		Lyonsiidae	*Lyonsia arenosa*	G
		Mactridae	*Mulinia lateralis*	G
			Spisula solidissima	G
		Myidae	*Mya arenaria*	G
		Nuculidae	*Nucula proxima*	G
		Solemyidae	*Solemya* sp.	G
		Solenidae	Solenidae	G
		Tellinidae	*Angulus agilis*	G

(continued)

Appendix Table G-4. (Continued)

Phylum	Higher taxon	Family	Species/Taxon	Exclude code
Mollusca (cont'd)	Bivalvia (cont'd)	Veneridae	*Gemma gemma*	G
			Mercenaria mercenaria	G
			Petricolaria pholadiformis	G
Annelida	Polychaeta	Ampharetidae	*Ampharete oculata*	G
		Capitellidae	*Capitella capitata* complex	G
			Heteromastus filiformis	G
			Mediomastus ambiseta	G
		Chaetopteridae	*Spiochaetopterus costarum oculatus*	G
		Cirratulidae	*Caulleriella venefica*	G
			Cirratulidae	B
			Cirratulus grandis	G
			Tharyx acutus	G
		Dorvilleidae	*Schistomeringos annulata*	G
		Glyceridae	*Glycera americana*	G
			Glycera dibranchiata	G
			Glyceridae	B
		Goniadidae	*Glycinde solitaria*	G
			Goniadidae	B
		Hesionidae	*Gyptis vittata*	G
			Microphthalmus fragilis	G
			Microphthalmus sczelkowii	G
			Microphthalmus sp.	B
			Oxydromus obscurus	G
		Maldanidae	*Euclymene collaris*	G
		Nereididae	*Alitta succinea*	G
			Neanthes arenaceodentata	G
			Nereididae	B
		Oenonidae	*Drilonereis longa*	G
		Onuphidae	Onuphidae	G
		Orbiniidae	*Leitoscoloplos fragilis*	G
			Leitoscoloplos robustus	G
			Leitoscoloplos sp.	B
		Pectinariidae	*Pectinaria gouldii*	G
			Pectinariidae	B
		Pholoidae	*Pholoe minuta*	G
		Phyllodocidae	*Eumida sanguinea*	G
			Hypereteone heteropoda	G

(continued)

Appendix Table G-4. (Continued)

Phylum	Higher taxon	Family	Species/Taxon	Exclude code
Annelida (cont'd)	Polychaeta (cont'd)		*Paranaitis speciosa*	G
			Phyllodocidae	B
		Polygordiidae	*Polygordius jouinae*	G
		Polynoidae	*Harmothoe extenuata*	G
			Harmothoe imbricata	G
			Harmothoe sp.	B
			Lepidonotus sp.	B
			Lepidonotus squamatus	G
			Lepidonotus sublevis	G
		Sabellidae	*Parasabella microphthalma*	G
			Sabellidae	B
		Sigalionidae	*Sigalion arenicola*	G
			Sigalionidae	B
			Sthenelais boa	G
			Sthenelais limicola	G
		Sphaerodoridae	Sphaerodoridae	G
		Spionidae	*Dipolydora socialis*	G
			Marenzelleria viridis	G
			Polydora cornuta	G
			Pygospio elegans	G
			Scolelepis (parascolelepis) texana	G
			Scolelepis sp.	B
			Spio filicornis	G
			Spio sp.	B
			Spionidae	B
			Spiophanes bombyx	G
			Streblospio benedicti	G
		Syllidae	*Brania wellfleetensis*	G
			Exogone dispar	G
			Myrianida prolifera	G
			Myrianida sp.	B
			Odontosyllis fulgurans	G
			Opisthodonta longocirrata	G
			Proceraea cornuta	G
			Salvatoria clavata	G
			Syllidae	B
			Syllides sp.	B
			Syllides verrilli	G

(continued)

Appendix Table G-4. (Continued)

Phylum	Higher taxon	Family	Species/Taxon	Exclude code
Annelida (cont'd)	Polychaeta (cont'd)	Terebellidae	*Polycirrus* sp.	G
			Terebellidae	B
Annelida	Oligochaeta		Oligochaeta	G
Arthropoda	Mysidacea	Mysidae	*Heteromysis formosa*	G
			Neomysis americana	G
Arthropoda	Amphipoda	Ampeliscidae	*Ampelisca abdita*	G
			Ampelisca vadorum	G
		Amphilochidae	*Ampithoe valida*	G
		Aoridae	*Grandidierella japonica*	G
			Microdeutopus gryllotalpa	G
		Bateidae	*Batea catharinensis*	G
		Calliopiidae	*Calliopius laeviusculus*	G
		Caprellidae	*Caprella penantis*	G
		Corophiidae	*Apocorophium acutum*	G
			Monocorophium acherusicum	G
		Gammaridae	*Gammarus daiberi*	G
			Gammarus sp.	B
		Ischyroceridae	*Ericthonius brasiliensis*	G
			Jassa marmorata	G
		Lysianassidae	*Lysianopsis alba*	G
		Maeridae	*Elasmopus levis*	G
		Melitidae	*Melita nitida*	G
		Oedicerotidae	*Ameroculodes edwardsi*	G
		Phoxocephalidae	*Eobrolgus spinosus*	G
		Pleustidae	*Incisocalliope aestuarius*	G
		Stenothoidae	*Parametopella cypris*	G
			Stenothoe sp.	G
		Unciolidae	*Unciola serrata*	G
Arthropoda	Isopoda	Anthuridae	*Cyathura burbancki*	G
		Idoteidae	*Edotia triloba*	G
			Erichsonella filiformis	G
Arthropoda	Cumacea	Diastylidae	*Diastylis sculpta*	G
			Oxyurostylis smithi	G
Arthropoda	Decapoda	Cancridae	*Cancer irroratus*	G
		Crangonidae	*Crangon septemspinosa*	G
		Epialtidae	*Libinia dubia*	G
		Paguridae	*Pagurus longicarpus*	G
		Panopeidae	*Dyspanopeus sayi*	G
			Panopeus herbstii	G
Chordata	Urochordata	Molgulidae	*Molgula* sp.	G

Appendix Table G-5 Macroinvertebrate Community Parameters for Benthic Grab Samples Collected during the June 2015 Macroinvertebrate Study

Location, Sample		Total Abundance	Log-series alpha	Shannon-Wiener Diversity (H')	Pielou's Evenness (J')	Number of Species
Open water	B10	1505	8.81	2.01	0.53	45
	B13	1722	9.29	2.17	0.56	48
	B14	2454	8.75	2.12	0.55	49
	B15	4198	8.21	1.46	0.37	51
	B17	716	5.04	1.78	0.55	25
	B18	2999	9.02	1.75	0.44	52
	B19	1620	7.72	2.22	0.60	41
	B2	1940	10.15	2.15	0.54	53
	B22	2788	8.08	2.03	0.53	47
	B23	2138	7.04	1.76	0.48	40
	B24	2645	9.94	2.46	0.61	55
	B25	486	6.22	1.89	0.57	27
	B26	2119	6.89	1.68	0.46	39
	B27	2561	9.79	2.21	0.55	54
	B28	2786	9.18	2.16	0.55	52
	B29	1950	8.19	2.13	0.56	44
	B3	1599	8.40	2.37	0.63	44
	B30	3984	10.52	1.56	0.38	62
	B32	5037	10.04	2.21	0.54	62
	B38	1922	7.87	2.45	0.65	43
	B39	1034	6.33	2.08	0.60	32
	B4	1358	8.28	1.72	0.46	42
	B44	2787	7.66	1.91	0.50	45
	B45	2056	7.80	2.35	0.62	43
	B46	2768	8.51	2.23	0.57	49
	B5	937	4.04	1.19	0.38	22
	B6	1529	9.29	1.80	0.47	47
	B7	757	10.10	2.23	0.59	43
	B8	1754	7.27	2.44	0.67	39
	B9	1049	7.31	2.08	0.58	36

(continued)

Appendix Table G-5. (Continued)

Location, Sample		Total Abundance	Log-series alpha	Shannon-Wiener Diversity (H')	Pielou's Evenness (J')	Number of Species
Near hard-bottom	HB1	2901	8.40	2.33	0.60	48
	HB10	1964	8.16	2.49	0.66	44
	HB11	304	6.82	2.13	0.66	25
	HB12	1344	8.27	2.13	0.58	40
	HB13	1745	9.22	1.90	0.49	48
	HB14	2008	5.69	1.77	0.51	33
	HB15	1746	8.06	2.47	0.66	43
	HB16	1228	10.07	2.47	0.64	47
	HB17	153	5.23	2.13	0.75	17
	HB18	1378	9.47	2.32	0.61	46
	HB19	448	6.14	1.80	0.55	26
	HB2	2125	9.99	2.11	0.53	53
	HB20	997	10.87	2.75	0.71	48
	HB21	239	5.77	2.15	0.71	21
	HB22	3892	8.26	2.40	0.61	50
	HB23	1062	4.38	1.37	0.43	24
	HB24	824	4.16	1.31	0.42	22
	HB25	620	5.69	1.92	0.59	26
	HB26	2020	4.48	1.41	0.43	27
	HB27	517	5.41	2.18	0.68	24
	HB28	2476	10.40	2.69	0.67	56
	HB29	647	8.32	2.29	0.64	36
	HB3	2441	8.67	2.35	0.61	48
	HB30	947	5.53	2.21	0.66	28
	HB4	814	8.19	2.39	0.66	37
	HB5	414	5.12	2.06	0.67	22
	HB6	335	6.15	2.11	0.66	24
	HB7	3488	9.85	2.10	0.52	57
	HB8	2273	5.86	2.16	0.63	31
	HB9	2193	7.04	2.14	0.58	40

Appendix Table G-6 Contribution to Macroinvertebrate Abundance by Benthic Grab Sample for each Numerically Dominant Phyla and all Other Phyla Combined; June 2015 Macroinvertebrate Study

Location, Sample		Annelida	Arthropoda	Mollusca	Other phyla	Total Abundance
Open water	B10	717	744	39	5	1505
	B13	1254	411	51	6	1722
	B14	2025	392	30	7	2454
	B15	3592	474	131	1	4198
	B17	600	89	27	0	716
	B18	2464	408	119	8	2999
	B19	1069	502	45	4	1620
	B2	1474	344	111	11	1940
	B22	1874	870	30	14	2788
	B23	1636	444	52	6	2138
	B24	2122	371	147	5	2645
	B25	436	38	12	0	486
	B26	1608	380	116	15	2119
	B27	2010	451	94	6	2561
	B28	2046	656	72	12	2786
	B29	1453	418	69	10	1950
	B3	1152	320	120	7	1599
	B30	3410	258	304	12	3984
	B32	4147	729	151	10	5037
	B38	1593	280	48	1	1922
	B39	932	81	17	4	1034
	B4	679	657	17	5	1358
	B44	2440	282	61	4	2787
	B45	1751	169	123	13	2056
	B46	2030	201	528	9	2768
	B5	908	20	9	0	937
	B6	685	774	66	4	1529
	B7	572	162	19	4	757
	B8	1284	92	378	0	1754
	B9	967	52	30	0	1049

(continued)

Appendix Table G-6. (Continued)

Location, Sample		Annelida	Arthropoda	Mollusca	Other phyla	Total Abundance
Near hard-bottom	HB1	2045	474	373	9	2901
	HB10	1448	345	162	9	1964
	HB11	238	12	54	0	304
	HB12	712	324	306	2	1344
	HB13	1254	455	31	5	1745
	HB14	1590	237	179	2	2008
	HB15	1406	238	97	5	1746
	HB16	755	316	155	2	1228
	HB17	90	14	49	0	153
	HB18	849	331	197	1	1378
	HB19	327	86	35	0	448
	HB2	1719	329	73	4	2125
	HB20	693	260	44	0	997
	HB21	189	25	25	0	239
	HB22	2885	618	370	19	3892
	HB23	979	47	34	2	1062
	HB24	791	18	14	1	824
	HB25	369	43	202	6	620
	HB26	1424	23	571	2	2020
	HB27	399	15	103	0	517
	HB28	1531	592	350	3	2476
	HB29	541	86	20	0	647
	HB3	1696	524	207	14	2441
	HB30	801	55	91	0	947
	HB4	481	146	183	4	814
	HB5	303	16	95	0	414
	HB6	302	22	11	0	335
	HB7	2676	684	112	16	3488
	HB8	872	70	1330	1	2273
	HB9	1661	374	154	4	2193

Appendix Table G-7 Contribution to Macroinvertebrate Species Richness by Benthic Grab Sample for each Numerically Dominant Phyla and all Other Phyla Combined; June 2015 Macroinvertebrate Study

Location, Sample		Annelida	Arthropoda	Mollusca	Other phyla	Total Number of Species
Open water	B10	26	10	6	3	45
	B13	23	13	9	3	48
	B14	28	10	7	4	49
	B15	26	15	9	1	51
	B17	10	8	7	0	25
	B18	28	7	12	5	52
	B19	24	8	7	2	41
	B2	25	12	12	4	53
	B22	26	10	7	4	47
	B23	24	7	7	2	40
	B24	24	18	9	4	55
	B25	17	6	4	0	27
	B26	23	8	5	3	39
	B27	27	14	9	4	54
	B28	27	13	8	4	52
	B29	24	8	8	4	44
	B3	22	7	10	5	44
	B30	30	17	11	4	62
	B32	32	15	10	5	62
	B38	24	9	9	1	43
	B39	19	7	4	2	32
	B4	23	12	3	4	42
	B44	23	11	9	2	45
	B45	22	9	7	5	43
	B46	23	12	10	4	49
	B5	15	3	4	0	22
	B6	28	9	7	3	47
	B7	23	10	8	2	43
	B8	24	6	9	0	39
	B9	21	8	7	0	36

(continued)

Appendix Table G-7. (Continued)

Location, Sample		Annelida	Arthropoda	Mollusca	Other phyla	Total Number of Species
Near hard-bottom	HB1	25	16	6	1	48
	HB10	21	11	9	3	44
	HB11	17	7	1	0	25
	HB12	22	10	6	2	40
	HB13	23	17	5	3	48
	HB14	16	11	5	1	33
	HB15	21	11	8	3	43
	HB16	23	13	9	2	47
	HB17	12	3	2	0	17
	HB18	22	14	9	1	46
	HB19	14	7	5	0	26
	HB2	28	15	8	2	53
	HB20	23	17	8	0	48
	HB21	10	6	5	0	21
	HB22	24	13	10	3	50
	HB23	14	4	5	1	24
	HB24	12	4	5	1	22
	HB25	16	5	3	2	26
	HB26	14	6	6	1	27
	HB27	14	5	5	0	24
	HB28	27	18	8	3	56
	HB29	17	12	7	0	36
	HB3	24	15	7	2	48
	HB30	16	6	6	0	28
	HB4	19	9	7	2	37
	HB5	13	7	2	0	22
	HB6	16	5	3	0	24
	HB7	28	17	9	3	57
	HB8	14	10	6	1	31
	HB9	22	10	5	3	40

Appendix Table G-8 Macroinvertebrate Biomass for Benthic Grab Samples Collected during the June 2015 Macroinvertebrate Study

Sample	Dry Weight (g)			Ash Free Dry Mass (g)		
	Small Specimens	Large Specimens	Total	Small Specimens	Large Specimens	Total
B10	5.017	0	5.017	0.562	0	0.562
B13	6.769	0	6.769	0.606	0	0.606
B14	1.906	0	1.906	0.321	0	0.321
B15	22.070	180.279	202.348	1.845	9.660	11.505
B17	1.104	184.312	185.416	0.179	14.672	14.851
B18	5.465	65.326	70.791	0.638	3.170	3.807
B19	2.781	0	2.781	0.331	0	0.331
B2	7.733	0	7.733	0.808	0	0.808
B22	3.974	0	3.974	0.526	0	0.526
B23	5.412	0	5.412	0.850	0	0.850
B24	18.391	0	18.391	2.054	0	2.054
B25	1.665	0	1.665	0.149	0	0.149
B26	3.095	0	3.095	0.585	0	0.585
B27	5.688	0	5.688	0.469	0	0.469
B28	8.333	0	8.333	0.801	0	0.801
B29	2.138	112.649	114.787	0.357	4.530	4.887
B3	1.184	0	1.184	0.209	0	0.209
B30	6.991	103.539	110.529	0.783	7.910	8.693
B32	7.146	0	7.146	0.836	0	0.836
B38	1.700	0	1.700	0.199	0	0.199
B39	0.849	0	0.849	0.107	0	0.107
B4	0.473	0	0.473	0.193	0	0.193
B44	4.267	0	4.267	0.436	0	0.436
B45	4.280	0	4.28	0.480	0	0.480
B46	13.673	0	13.673	1.374	0	1.374
B5	0.264	50.137	50.400	0.127	2.833	2.960
B6	1.456	0	1.456	0.301	0	0.301
B7	4.142	0	4.142	0.869	0	0.869
B8	6.141	146.766	152.907	0.578	8.097	8.674
B9	1.681	0	1.681	0.157	0	0.157
HB1	9.896	87.313	97.209	0.903	6.670	7.573
HB10	5.305	0	5.305	0.532	0	0.532
HB11	0.103	0	0.103	0.025	0	0.025
HB12	2.678	0	2.678	0.252	0	0.252
HB13	3.321	0	3.321	0.537	0	0.537

(continued)

Appendix Table G-8. (Continued)

Sample	Dry Weight (g)			Ash Free Dry Mass (g)		
	Small Specimens	Large Specimens	Total	Small Specimens	Large Specimens	Total
HB14	3.747	0	3.747	0.300	0	0.300
HB15	1.867	103.453	105.319	0.266	5.820	6.087
HB16	1.032	0	1.032	0.173	0	0.173
HB17	0.624	0	0.624	0.559	0	0.559
HB18	3.625	0	3.625	0.403	0	0.403
HB19	1.679	72.383	74.062	0.591	3.068	3.658
HB2	16.060	0	16.060	1.580	0	1.580
HB20	2.671	0	2.671	0.262	0	0.262
HB21	1.094	150.206	151.300	0.133	7.261	7.394
HB22	8.350	64.750	73.099	0.862	4.736	5.598
HB23	7.486	54.076	61.561	0.597	3.751	4.348
HB24	1.062	0	1.062	0.127	0	0.127
HB25	0.299	0	0.299	0.087	0	0.087
HB26	16.525	0	16.525	1.335	0	1.335
HB27	18.896	0	18.896	1.619	0	1.619
HB28	12.299	0	12.299	1.108	0	1.108
HB29	4.460	0	4.460	0.411	0	0.411
HB3	2.736	0	2.736	0.328	0	0.328
HB30	5.829	0	5.829	0.529	0	0.529
HB4	11.930	0	11.930	0.990	0	0.990
HB5	10.094	0	10.094	0.780	0	0.780
HB6	2.016	0	2.016	0.143	0	0.143
HB7	9.611	0	9.611	1.677	0	1.677
HB8	2.385	0	2.385	0.294	0	0.294
HB9	10.111	0	10.111	0.910	0	0.910

Appendix Table G-9. Hard Clam Collected by Clam Dredge Sample during the June 2015 Macroinvertebrate Study.

Sample	Total Count	Mean clam wet weight (g)	Mean clam length (mm)
B10	1	230	81
B13	0		
B14	1	190	82
B17	0		
B18	0		
B19	0		
B22	0		
B23	1	130	79
B24	1	110	69
B25	0		
B26	1	100	67
B27	0		
B28	0		
B29	1	160	77
B3	1	110	67
B38	1	200	78
B39	0		
B45	0		
B7	0		
B9	0		
HB13	1	180	80
HB17	1	100	65
HB18	0		
HB19	1	225	88
HB20	0		
HB24	0		
HB29	0		
HB4	0		
HB6	0		
HB7	1	110	66

Appendix H

Laboratory Reports for Water Analyses; June 2015 Benthic Macroinvertebrate Study.

(Provided as a separate document.)

Appendix I

Laboratory Reports for Sediment TOC and Grain Size Analyses; June 2015 Benthic Macroinvertebrate Study.

(Provided as a separate document.)

Assessment of Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects: September 2015 Fish Survey Results

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December 2015

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1.0 Introduction

1.1 Background

The New York State Governor's Office of Storm Recovery (GOSR) proposes to build the "Living Breakwaters and Tottenville Dune Projects" (Breakwaters Project), which includes construction of a breakwater in the shallow waters of Raritan Bay along the south shore of Staten Island, NY. The GOSR, acting under authority of the U.S. Department of Housing and Urban Development, and in cooperation with other involved and interested agencies, is preparing an Environmental Impact Statement (EIS) to analyze potential impacts of this project. Environmental review for the proposed actions will require additional data to characterize existing benthic and fish communities in the project area.

Normandeau Associates, Inc. (Normandeau), as a subcontractor to AKRF, Inc (AKRF), was contracted to collect ecological data to satisfy requirements for the Breakwaters Project EIS. Work on this project includes ecological surveys to support a "Fish Study" and a "Benthic Macroinvertebrate Study" in Raritan Bay. These studies were designed to assess both the spatial distribution of fish and invertebrate communities within the project area, and the temporal variation in those communities during summer and fall.

The Fish Study was designed to include collection of fish and epibenthic invertebrates using beach seines, fish traps, beam and otter trawls. The Benthic Macroinvertebrate Study includes surveys of water quality, sediment conditions, soft-bottom macroinvertebrate communities, and hard clams (*Mercenaria mercenaria*). The hard clam studies comprise an assessment of chemical contaminants in clam tissues, and in the sediments where clams are collected, along with characterization of clam distributions in the project area. After isolated areas of hard substrate were identified on the seafloor in the project area, sampling by SCUBA divers was added to the overall study plan to characterize hard-bottom benthic communities.

Sampling for these studies was conducted during the summer and early fall of 2015. Surveys for the Fish Study were conducted during June, July and September; and for the Benthic Macroinvertebrate Study, during June and September only. Sampling to characterize hard-bottom communities was conducted in July and September. Results for each of these seasonal surveys will be reported separately as laboratory results and quality-checked data become available.

This report presents results for surveys conducted during September 2015 to support the Fish Study. The contents of this report provide the raw data, data summaries, and other supporting materials and information that were delineated in the project work scope. Results reported herein provide the basis for analyses of these data as part of an in-depth environmental review for the Breakwaters Project EIS. An overview of the September fish surveys, including the dates and locations of sampling activities, is presented below in Section 1.2. Field and data handling methods are described in Section 2.0. Survey results are provided in Section 3.0, and Section 4.0 provides a brief summary of the September fish surveys.

1.2 September 2015 Fish Survey

Normandeau conducted surveys from 4 to 22 September, 2015, to support the Fish Study in Raritan Bay. Surveys were conducted using beach seines, fish traps, beam and otter trawls, at locations identified by AKRF based on a stratified random sampling design. The list of randomly-selected locations included alternate locations that were used if sampling could not be conducted at the primary locations (i.e., due to depth, obstructions, etc.). Station information including sampling coordinates, bottom depth, and the date and collection time for each sample, are provided in Appendix A.

Normandeau conducted beach seine sampling at 20 locations along the south shore of Staten Island on 4 and 18 September, collecting one sample at each location (Figure 1-1, Appendix A-1). Due to strong winds on 4 September, only 12 of the 20 samples could be collected that day; the remaining 8 samples were collected on 18 September (Appendix A-1). Fish trap samples were collected at 20 locations in Raritan Bay from 10 to 22 September (Figure 1-1, Appendix A-2). Paired fish traps were deployed at each location, with a total of 40 fish trap samples collected during the September survey. Beam and otter trawl sampling was conducted at 10 locations on 10 and 11 September, with one haul for each gear type collected at each location (Figure 1-1, Appendices A-3 and A-4). All samples for the September Fish Study were collected as planned.

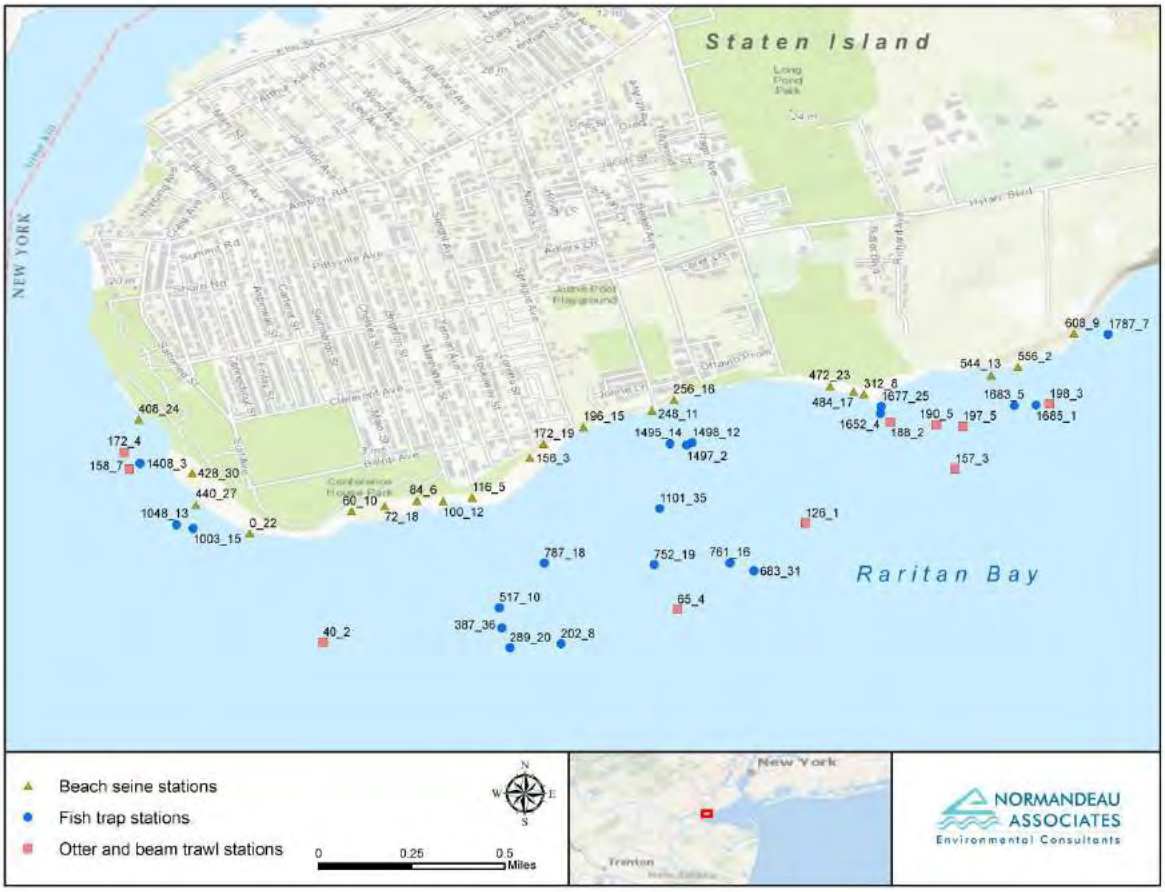

Figure 1-1. Location of fish sampling stations in Raritan Bay for the September 2015 Fish Survey.

2.0 Methods

2.1 Field Methods

Field collection methods for the Fish Study, including quality assurance and quality control procedures, are described in the project Field SOP ("Field Standard Operating Procedures for an Ecological Survey in Raritan Bay to Assess Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects"; Appendix B).

2.2 Data Handling and Reduction Methods

Data handling methods, including data entry and quality control procedures, are described in the project Field SOP (Appendix B).

Data preparation, reduction, and univariate analyses including summary statistics were run in SAS system software (version 9.3). Catch per unit effort (CPUE) for both beam trawl and otter trawl was standardized to the number of specimens per five-minute tow. Volumetric density was calculated for the beam trawl as the number of specimens per 500 cubic meters of water passing through the trawl net. CPUE for fish trap was calculated as the number of specimens per trap set. CPUE for beach seine was calculated as the number of specimens per haul.

3.0 Results

Four gear types were used during the September Fish Study: beach siene, fish traps, beam trawl and otter trawl. The beach seine collected the highest abundance and number of species (10,631 organisms and 26 species; Table 3-1). A total of 20 species of fish and 6 species of invertebrate were collected from the 20 beach seine hauls. Atlantic Silverside was the most abundant, with a total count of 10,079 followed by Striped Killifish (166), and Bay Anchovy (75). Longwrist hermit crab was the most abundant invertebrate sampled with the beach seine (6), followed by lady crab (5) and blue crab (4). One Black Sea Bass was collected from the 40 fish trap samples; this was the only fish collected in the fish traps (Table 3-1). The portly spider crab was the most abundant invertebrate collected from the fish traps (117) followed by blue crab and Say mud crab (3 each). Two fish species, Bay Anchovy (126) and Striped Anchovy (2), were collected in the 10 beam trawl hauls (Table 3-1). Say mud crab and lady crab (22 and 1, respectively) were also collected in the beam trawl. Ten otter trawl samples yielded 15 fish species and 5 invertebrate species (Table 3-1). Scup was the most abundant fish (204) followed by Bay Anchovy (132), and Tautog (28). Say mud crab was the most abundant invertebrate species (130) followed by lady crab and portly spider crab (23 each). Catch data for each gear type and sample are in Appendix C.

Catch per unit effort (CPUE) results reflect the abundance data standardized for each gear type (Table 3-2). In the beach seine hauls, Atlantic Silverside had the highest mean CPUE, with an average of 504.0/haul, a minimum of 59 and maximum of 1,064/haul. In the beam trawl samples, Bay Anchovy had the highest mean and maximum CPUE of 11.8 and 58.7/tow. In the otter trawl collections, Scup had the highest mean and maximum CPUE of 20.4 and 54/tow. Portly spider crab had the highest CPUE in the fish traps with a mean and maximum of 2.9 and 15/trap.

Volumetric density, calculated for the beam trawl, provides a standardized measure of the number of specimens per volume of water sampled by the trawl net (Table 3-3). Densities of fish and invertebrates followed similar patterns to CPUE for beam trawl (Tables 3-2 and 3-3). Bay Anchovy had the highest mean density across all samples (8.9/500 m^3), followed by Say mud crab (1.6/500 m^3).

Length frequency measurements for fish collected during the September survey are in Table 3-4. Atlantic Silverside, the most abundant species, had a modal length of 70-79 mm and minimum, mean and maximum length measurements of 45, 71, and 124 mm, respectively. Bay Anchovy, the second-most abundant species, ranged from 24-59 mm in length, with a modal length of 40-49 mm and an average length of 42 mm. Striped Killifish had a modal length of 70-79 mm with a mean length of 73 mm. Maximum and minimum lengths were 48 and 133 mm. Scup had a modal length of 80-89 mm, averaging 91 mm in length and ranged from 68 to 199 mm in length.

Table 3-1. Total abundance of fish and invertebrate species by gear type during the September 2015 Fish Survey.

Common and scientific names			Beach seine (n=20)	Fish trap (n=40)	Beam trawl (n=10)	Otter trawl (n=10)
Fish	Atlantic Menhaden	*Brevoortia tyrannus*	8			
	Atlantic Silverside	*Menidia menidia*	10,079			
	Bay Anchovy	*Anchoa mitchilli*	75		126	132
	Black Drum	*Pogonias cromis*	11			
	Black Sea Bass	*Centropristis striata*	1	1		
	Bluefish	*Pomatomus saltatrix*	59			3
	Crevalle Jack	*Caranx hippos*	4			
	Mummichog	*Fundulus heteroclitus*	4			
	Northern Kingfish	*Menticirrhus saxatilis*	23			3
	Northern Pipefish	*Syngnathus fuscus*	8			3
	Northern Puffer	*Sphoeroides maculatus*	17			1
	Striped Anchovy	*Anchoa hepsetus*	6		2	4
	Striped Bass	*Morone saxatilis*	7			
	Striped Killifish	*Fundulus majalis*	166			
	Striped Mullet	*Mugil cephalus*	1			
	Summer Flounder	*Paralichthys dentatus*	3			9
	Tautog	*Tautoga onitis*	54			28
	Weakfish	*Cynoscion regalis*	1			
	White Mullet	*Mugil curema*	41			
	Winter Flounder	*Pseudopleuronectes americanus*	44			16
	Gag Grouper	*Mycteroperca microlepis*				1
	Inshore Lizardfish	*Synodus foetens*				1
	Oyster Toadfish	*Opsanus tau*				2
	Scup	*Stenotomus chrysops*				204
	Spotfin Butterflyfish	*Chaetodon ocellatus*				12
	Striped Searobin	*Prionotus evolans*				5
Invertebrates	Blue crab	*Callinectes sapidus*	4	3		18
	Horseshoe crab	*Limulus polyphemus*	1			
	Lady crab	*Ovalipes ocellatus*	5		1	23
	Longwrist hermit crab	*Pagurus longicarpus*	6			2
	Portly spider crab	*Libinia emarginata*	1	117		23
	Say mud crab	*Dyspanopeus sayi*	2	3	22	130

Table 3-2. Summary statistics on CPUE[a] by gear type, species and sample total[b] for the September 2015 Fish Survey.

Gear, Group, and Species			CPUE			
			N	Min	Mean	Max
Beach seine	Fish	Atlantic Menhaden	20	0	0.4	5
		Atlantic Silverside	20	59	504.0	1,064
		Bay Anchovy	20	0	3.8	28
		Black Drum	20	0	0.6	4
		Black Sea Bass	20	0	0.1	1
		Bluefish	20	0	3.0	13
		Crevalle Jack	20	0	0.2	3
		Mummichog	20	0	0.2	2
		Northern Kingfish	20	0	1.2	5
		Northern Pipefish	20	0	0.4	3
		Northern Puffer	20	0	0.9	4
		Striped Anchovy	20	0	0.3	4
		Striped Bass	20	0	0.4	4
		Striped Killifish	20	0	8.3	49
		Striped Mullet	20	0	0.1	1
		Summer Flounder	20	0	0.2	1
		Tautog	20	0	2.7	22
		Weakfish	20	0	0.1	1
		White Mullet	20	0	2.1	13
		Winter Flounder	20	0	2.2	22
		Total	**20**	**82**	**530.6**	**1,083**
	Invertebrates	Blue crab	20	0	0.2	1
		Horseshoe crab	20	0	0.1	1
		Lady crab	20	0	0.3	4
		Longwrist hermit crab	20	0	0.3	3
		Portly spider crab	20	0	0.1	1
		Say mud crab	20	0	0.1	2
		Total	**20**	**0**	**1.0**	**5**
Fish trap	Fish	Black Sea Bass	40	0	<0.05	1
		Total	**40**	**0**	**<0.05**	**1**
	Invertebrates	Blue crab	40	0	0.1	1
		Portly spider crab	40	0	2.9	15
		Say mud crab	40	0	0.1	1
		Total	**40**	**0**	**3.1**	**15**
Beam trawl	Fish	Bay Anchovy	10	0	11.8	58.7
		Striped Anchovy	10	0	0.2	1.0
		Total	**10**	**0**	**12.0**	**58.7**
	Invertebrates	Lady crab	10	0	0.1	0.9
		Say mud crab	10	0	2.1	14.7
		Total	**10**	**0**	**2.2**	**14.7**

(continued)

Table 3-2. (Continued)

Gear, Group, and Species			CPUE			
			N	Min	Mean	Max
Otter trawl	Fish	Bay Anchovy	10	0	13.2	124
		Bluefish	10	0	0.3	2
		Gag Grouper	10	0	0.1	1
		Inshore Lizardfish	10	0	0.1	1
		Northern Kingfish	10	0	0.3	2
		Northern Pipefish	10	0	0.3	2
		Northern Puffer	10	0	0.1	1
		Oyster Toadfish	10	0	0.2	2
		Scup	10	0	20.4	54
		Spotfin Butterflyfish	10	0	1.2	5
		Striped Anchovy	10	0	0.4	2
		Striped Searobin	10	0	0.5	2
		Summer Flounder	10	0	0.9	3
		Tautog	10	0	2.8	21
		Winter Flounder	10	0	1.6	7
		Total	**10**	**11**	**42.4**	**124**
	Invertebrates	Blue crab	10	0	1.8	6
		Lady crab	10	0	2.3	7
		Longwrist hermit crab	10	0	0.2	1
		Portly spider crab	10	0	2.3	15
		Say mud crab	10	0	13.0	27
		Total	**10**	**0**	**19.6**	**38**

[a] Catch per unit effort (CPUE) for both beam trawl and otter trawl was calculated as the number of specimens per five minute haul. CPUE for fish trap was calculated as the number of specimens per trap set. CPUE for beach seine was calculated as the number of specimens per haul.

[b] Total = CPUE across all species combined (by taxonomic group) in a sample (i.e., Min = Minimum CPUE across all fish or invertebrate species combined in a sample; Max = Maximum CPUE across all fish or invertebrate species combined in a sample.).

Table 3-3. Summary statistics on volumetric density[a] by species and sample total[b] for beam trawl samples collected during the September 2015 Fish Survey.

Gear, Group, and Species			Volumetric Density (number/500 m³)			
			N	Min	Mean	Max
Beam trawl	Fish	Bay Anchovy	10	0	8.9	43.2
		Striped Anchovy	10	0	0.1	0.7
		Total	**10**	**0**	**9.0**	**43.2**
	Invertebrates	Lady crab	10	0	0.1	0.7
		Say mud crab	10	0	1.6	11.2
		Total	**10**	**0**	**1.7**	**11.2**

[a] Volumetric density was calculated as the number of specimens per 500 cubic meters of water passing through the beam trawl.

[b] Total = Volumetric density across all species combined (by taxonomic group) in a sample.

Table 3-4. Length distribution by species and gear type for fish collected during the September 2015 Fish Survey

Common name, Gear type		Frequency by length group (mm)														
		20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	=>120	N	Min	Mean	Max
Atlantic Menhaden	Beach seine				6	2							8	51	55	61
Atlantic Silverside	Beach seine			22	68	74	110	103	22			1	400	45	71	124
Bay Anchovy	Beach seine		31	36									67	32	40	46
	Beam trawl	1	25	30	17								73	24	43	59
	Otter trawl	1	6	16	5								28	29	44	55
	Total	**2**	**62**	**82**	**22**								**168**	**24**	**42**	**59**
Black Drum	Beach seine										3	8	11	110	140	161
Black Sea Bass	Beach seine					1							1	65	65	65
	Fish trap											1	1	204	204	204
	Total					**1**						**1**	**2**	**65**	**135**	**204**
Bluefish	Beach seine										3	56	59	114	168	291
	Otter trawl											3	3	225	251	295
	Total										**3**	**59**	**62**	**114**	**172**	**295**
Crevalle Jack	Beach seine										2	2	4	114	132	166
Gag Grouper	Otter trawl											1	1	168	168	168
Inshore Lizardfish	Otter trawl											1	1	243	243	243
Mummichog	Beach seine			1	1			1	1				4	49	74	99
Northern Kingfish	Beach seine			1	1		2	1				18	23	47	160	250
	Otter trawl							1				2	3	87	126	163
	Total			**1**	**1**		**2**	**2**				**20**	**26**	**47**	**156**	**250**
Northern Pipefish	Beach seine								1		1	6	8	98	122	139
	Otter trawl											3	3	139	155	168
	Total								**1**		**1**	**9**	**11**	**98**	**131**	**168**
Northern Puffer	Beach seine									1	3	13	17	106	139	220
	Otter trawl										1		1	117	117	117
	Total									**1**	**4**	**13**	**18**	**106**	**137**	**220**

continued)

Table 3-4. (Continued)

Common name, Gear type		Frequency by length group (mm)														
		20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	=>120	N	Min	Mean	Max
Oyster Toadfish	Otter trawl			2									2	45	47	48
Scup	Otter trawl					1	28	66	9	1		9	114	68	91	199
Spotfin Butterflyfish	Otter trawl		3	5	4								12	34	47	59
Striped Anchovy	Beach seine					2	4						6	68	73	79
	Beam trawl					1					1		2	66	89	111
	Otter trawl						1	1			1	1	4	73	100	128
	Total					**3**	**5**	**1**			**2**	**1**	**12**	**66**	**85**	**128**
Striped Bass	Beach seine											7	7	134	244	325
Striped Killifish	Beach seine			3	18	31	47	20	3		2	3	127	48	73	133
Striped Mullet	Beach seine											1	1	189	189	189
Striped Searobin	Otter trawl								1		1	3	5	98	142	177
Summer Flounder	Beach seine											3	3	350	372	387
	Otter trawl											9	9	285	363	425
	Total											**12**	**12**	**285**	**365**	**425**
Tautog	Beach seine			2	13	14	7	11	4			1	52	47	71	175
	Otter trawl					3	6	4	4	2	1	7	27	60	112	238
	Total			**2**	**13**	**17**	**13**	**15**	**8**	**2**	**1**	**8**	**79**	**47**	**85**	**238**
Weakfish	Beach seine											1	1	191	191	191
White Mullet	Beach seine										2	39	41	117	142	164
Winter Flounder	Beach seine				1	17	21	3					42	56	70	88
	Otter trawl						7	5	1			3	16	71	97	190
	Total				**1**	**17**	**28**	**8**	**1**			**3**	**58**	**56**	**78**	**190**

4.0 Summary

The September 2015 surveys to support the Fish Study in Raritan Bay were designed to characterize the fish and epibenthic invertebrates occurring in the vicinity of the project area during early fall. These surveys were conducted using beach seines, fish traps, beam and otter trawls.

Twenty-six fish species and six invertebrate species were collected during the September surveys. The highest abundance and number of fish species (10,631 organisms and 20 species) were collected in the beach seine samples. Atlantic Silverside was the most abundant fish (10,079) in seine samples, followed by Striped Killifish (166) and Bay Anchovy (75). Six species of crab were also collected in beach seine samples. The otter trawl captured 15 fish species and five invertebrate species; the beam trawl captured two fish species and two invertebrate species. Scup was the most abundant fish collected in the otter trawl (204), while Bay Anchovy was the most abundant fish collected in the beam trawl (126). One individual Black Sea Bass was the only fish collected in fish traps, which captured three species of crabs: portly spider crab (117), blue crab and Say mud crab (3 each).

The September surveys have documented fish and epibenthic invertebrate communities in the project area of Raritan Bay during early fall. These were the last of three seasonal survey events that were conducted as part of the Fish Study to provide data to support an in-depth evaluation of the potential ecological impacts of the Living Breakwaters and Tottenville Dune Projects, as required by an Environmental Impact Statement.

Appendices

Appendix A

Sampling Coordinates and Other Station Information for the September 2015 Fish Study.

Appendix Table A-1. Station information for beach seine samples collected during the September 2015 Fish Surveys.

Site ID	Sample ID	Station	Sample	Date	Time	Latitude (degrees N)	Longitude (degrees W)
608	9	608_9	608_9	9/4/2015	8:00	40.5040	74.2170
556	2	556_2	556_2	9/4/2015	8:20	40.5027	74.2191
544	13	544_13	544_13	9/4/2015	8:56	40.5024	74.2202
116	5	116_5	116_5	9/4/2015	9:25	40.4977	74.2403
0	22	0_22	0_22	9/4/2015	10:30	40.4963	74.2490
440	27	440_27	440_27	9/4/2015	10:53	40.4974	74.2511
428	30	428_30	428_30	9/4/2015	11:29	40.4986	74.2512
408	24	408_24	408_24	9/4/2015	11:59	40.5007	74.2533
60	10	60_10	60_10	9/4/2015	12:39	40.4971	74.2450
72	18	72_18	72_18	9/4/2015	13:20	40.4973	74.2437
84	6	84_6	84_6	9/4/2015	13:30	40.4975	74.2425
100	12	100_12	100_12	9/4/2015	13:50	40.4975	74.2415
156	3	156_3	156_3	9/18/2015	8:40	40.4992	74.2381
172	19	172_19	172_19	9/18/2015	9:06	40.4997	74.2376
196	15	196_15	196_15	9/18/2015	9:33	40.5004	74.2360
248	11	248_11	248_11	9/18/2015	9:55	40.5010	74.2334
256	16	256_16	256_16	9/18/2015	10:10	40.5015	74.2325
472	23	472_23	472_23	9/18/2015	10:43	40.5020	74.2264
484	17	484_17	484_17	9/18/2015	11:09	40.5018	74.2255
312	8	312_8	312_8	9/18/2015	11:45	40.5017	74.2251

Appendix Table A-2. Station information for fish trap samples collected during the September 2015 Fish Surveys. (Date, time and depth when traps were pulled.)

Site ID	Sample ID	Station	Trap number	Sample	Depth (ft)	Date	Time	Soak time (hrs)	Latitude (degrees N)	Longitude (degrees W)	Comment
202	8	202_8	1	202_8_1	8.4	9/10/2015	13:17	24.95	40.4920	74.2369	
202	8	202_8	2	202_8_2	8.3	9/10/2015	13:18	24.95	40.4919	74.2370	
289	20	289_20	1	289_20_1	7.6	9/11/2015	13:47	24.42	40.4918	74.2389	
289	20	289_20	2	289_20_2	7.6	9/11/2015	13:49	24.43	40.4919	74.2390	
387	36	387_36	1	387_36_1	9.6	9/22/2015	13:02	26.18	40.4926	74.2392	Alternate station sampled
387	36	387_36	2	387_36_2	10.1	9/22/2015	13:04	26.17	40.4926	74.2393	Alternate station sampled
517	10	517_10	1	517_10_1	6.0	9/10/2015	13:24	24.98	40.4934	74.2393	
517	10	517_10	2	517_10_2	5.9	9/10/2015	13:26	25.00	40.4935	74.2393	
683	31	683_31	1	683_31_1	17.3	9/22/2015	12:43	26.33	40.4948	74.2294	Alternate station sampled
683	31	683_31	2	683_31_2	17.8	9/22/2015	12:46	26.35	40.4949	74.2298	Alternate station sampled
752	19	752_19	1	752_19_1	11.3	9/22/2015	12:49	26.28	40.4951	74.2333	
752	19	752_19	2	752_19_2	11.2	9/22/2015	12:52	26.27	40.4950	74.2335	
761	16	761_16	1	761_16_1	10.5	9/11/2015	13:02	24.05	40.4951	74.2303	
761	16	761_16	2	761_16_2	10.4	9/11/2015	13:05	24.08	40.4951	74.2305	
787	18	787_18	1	787_18_1	9.3	9/22/2015	12:56	26.23	40.4951	74.2375	
787	18	787_18	2	787_18_2	9.2	9/22/2015	12:58	26.22	40.4951	74.2377	
1003	15	1003_15	1	1003_15_1	2.9	9/11/2015	13:56	24.37	40.4965	74.2512	
1003	15	1003_15	2	1003_15_2	2.8	9/11/2015	13:58	24.38	40.4965	74.2512	
1048	13	1048_13	1	1048_13_1	4.4	9/11/2015	14:01	24.23	40.4966	74.2518	
1048	13	1048_13	2	1048_13_2	4.2	9/11/2015	14:03	24.25	40.4966	74.2519	
1101	35	1101_35	1	1101_35_1	7.0	9/11/2015	12:56	24.02	40.4972	74.2331	Alternate station sampled
1101	35	1101_35	2	1101_35_2	7.1	9/11/2015	12:58	24.03	40.4971	74.2331	Alternate station sampled
1408	3	1408_3	1	1408_3_1	8.9	9/10/2015	13:43	25.18	40.4990	74.2533	
1408	3	1408_3	2	1408_3_2	9.7	9/10/2015	13:41	25.13	40.4990	74.2534	
1495	14	1495_14	1	1495_14_1	4.7	9/11/2015	12:51	24.00	40.4997	74.2327	
1495	14	1495_14	2	1495_14_2	4.7	9/11/2015	12:53	24.02	40.4997	74.2327	
1497	2	1497_2	1	1497_2_1	5.1	9/10/2015	12:44	25.10	40.4997	74.2320	
1497	2	1497_2	2	1497_2_2	5.1	9/10/2015	12:46	25.12	40.4997	74.2319	
1498	12	1498_12	1	1498_12_1	5.5	9/11/2015	12:41	24.00	40.4998	74.2318	

(continued)

Appendix Table A-2. (Continued)

Site ID	Sample ID	Station	Trap number	Sample	Depth (ft)	Date	Time	Soak time (hrs)	Latitude (degrees N)	Longitude (degrees W)	Comment
1498	12	1498_12	2	1498_12_2	5.7	9/11/2015	12:44	24.03	40.4997	74.2319	
1652	4	1652_4	1	1652_4_1	5.9	9/10/2015	12:33	25.02	40.5009	74.2245	
1652	4	1652_4	2	1652_4_2	5.0	9/10/2015	12:35	25.02	40.5009	74.2244	
1677	25	1677_25	1	1677_25_1	4.3	9/11/2015	12:32	24.02	40.5012	74.2244	Alternate station sampled
1677	25	1677_25	2	1677_25_2	4.7	9/11/2015	12:35	24.05	40.5011	74.2245	Alternate station sampled
1683	5	1683_5	1	1683_5_1	13.5	9/10/2015	12:22	24.92	40.5012	74.2193	
1683	5	1683_5	2	1683_5_2	14.3	9/10/2015	12:25	24.93	40.5013	74.2192	
1685	1	1685_1	1	1685_1_1	18.0	9/10/2015	12:17	24.90	40.5012	74.2184	
1685	1	1685_1	2	1685_1_2	19.0	9/10/2015	12:20	24.93	40.5014	74.2182	
1787	7	1787_7	1	1787_7_1	5.9	9/10/2015	12:11	24.95	40.5040	74.2156	
1787	7	1787_7	2	1787_7_2	6.6	9/10/2015	12:13	24.95	40.5039	74.2155	

Appendix Table A-3. Station information for beam trawl samples collected during the September 2015 Fish Surveys.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Volume (cubic meters)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
198	3	198_3	198_3	24.0	9/10/2015	8:08	5.7	528.0	40.5017	74.2179	40.5038	74.2146
197	5	197_5	197_5	10.0	9/10/2015	8:23	5.3	666.4	40.5014	74.2194	40.5009	74.2226
190	5	190_5	190_5	14.2	9/10/2015	8:35	5.5	699.8	40.5006	74.2220	40.4998	74.2251
188	2	188_2	188_2	13.2	9/10/2015	8:54	5.5	729.3	40.5007	74.2236	40.4996	74.2268
157	3	157_3	157_3	20.0	9/10/2015	9:11	5.7	799.8	40.4985	74.2214	40.4970	74.2242
126	1	126_1	126_1	13.9	9/10/2015	9:24	5.5	710.6	40.4967	74.2279	40.4957	74.2309
65	4	65_4	65_4	12.5	9/10/2015	9:45	5.5	738.3	40.4936	74.2325	40.4925	74.2357
40	2	40_2	40_2	6.2	9/10/2015	10:01	5.1	668.6	40.4923	74.2455	40.4942	74.2474
158	7	158_7	158_7	11.7	9/10/2015	10:19	5.4	701.1	40.4988	74.2537	40.5013	74.2548
172	4	172_4	172_4	9.6	9/10/2015	10:35	5.2	706.3	40.4999	74.2539	40.5027	74.2553

Appendix Table A-4. Station information for otter trawl samples collected during the September 2015 Fish Surveys.

Site ID	Sample ID	Station	Sample	Depth (ft)	Date	Time	Duration (min)	Start Latitude (degrees N)	Start Longitude (degrees W)	End Latitude (degrees N)	End Longitude (degrees W)
198	3	198_3	198_3	23.0	9/11/2015	7:48	5.0	40.5013	74.2179	40.5029	74.2159
197	5	197_5	197_5	17.0	9/11/2015	8:07	5.0	40.5004	74.2213	40.5016	74.2179
190	5	190_5	190_5	15.8	9/11/2015	8:26	5.0	40.5005	74.2223	40.4993	74.2249
157	3	157_3	157_3	19.3	9/11/2015	8:59	5.0	40.4988	74.2216	40.4972	74.2238
188	2	188_2	188_2	13.9	9/11/2015	9:21	5.0	40.5006	74.2241	40.4997	74.2259
126	1	126_1	126_1	14.6	9/11/2015	9:45	5.0	40.4967	74.2274	40.4954	74.2292
65	4	65_4	65_4	14.3	9/11/2015	10:07	5.0	40.4933	74.2324	40.4924	74.2345
40	2	40_2	40_2	7.6	9/11/2015	10:28	5.0	40.4921	74.2461	40.4925	74.2480
158	7	158_7	158_7	11.8	9/11/2015	10:54	5.0	40.4988	74.2537	40.5002	74.2545
172	4	172_4	172_4	10.7	9/11/2015	11:19	5.0	40.4994	74.2539	40.5011	74.2547

Appendix B

Field Standard Operating Procedures; Fish and Benthic Macroinvertebrate Studies.

(Provided as a separate document.)

Appendix C

Species composition by sample for each gear type; September 2015 Fish Survey.

Appendix Table C. Species composition by sample for each gear type; September 2015 Fish Surveys.

Gear type=Beach seine

Sample	Date	Scientific name	Common name	Count
0_22	9/4/2015	*Brevoortia tyrannus*	Atlantic Menhaden	5
		Menidia menidia	Atlantic Silverside	287
		Anchoa mitchilli	Bay Anchovy	28
		Syngnathus fuscus	Northern Pipefish	3
		Anchoa hepsetus	Striped Anchovy	1
		Fundulus majalis	Striped Killifish	5
		Pseudopleuronectes americanus	Winter Flounder	4
			Sample Total	**333**
60_10	9/4/2015	*Menidia menidia*	Atlantic Silverside	599
		Pomatomus saltatrix	Bluefish	10
		Syngnathus fuscus	Northern Pipefish	1
		Sphoeroides maculatus	Northern Puffer	2
		Fundulus majalis	Striped Killifish	1
			Sample Total	**613**
72_18	9/4/2015	*Menidia menidia*	Atlantic Silverside	313
		Callinectes sapidus	Blue crab	1
		Pomatomus saltatrix	Bluefish	3
		Limulus polyphemus	Horseshoe crab	1
		Sphoeroides maculatus	Northern Puffer	1
		Fundulus majalis	Striped Killifish	1
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**321**
84_6	9/4/2015	*Menidia menidia*	Atlantic Silverside	426
		Sphoeroides maculatus	Northern Puffer	1
		Fundulus majalis	Striped Killifish	2
		Pseudopleuronectes americanus	Winter Flounder	4
			Sample Total	**433**
100_12	9/4/2015	*Menidia menidia*	Atlantic Silverside	815
		Centropristis striata	Black Sea Bass	1
		Callinectes sapidus	Blue crab	1
		Pomatomus saltatrix	Bluefish	3
		Fundulus heteroclitus	Mummichog	2
		Menticirrhus saxatilis	Northern Kingfish	4
		Syngnathus fuscus	Northern Pipefish	1
		Fundulus majalis	Striped Killifish	1
		Mugil curema	White Mullet	3
			Sample Total	**831**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
116_5	9/4/2015	*Menidia menidia*	Atlantic Silverside	458
		Anchoa mitchilli	Bay Anchovy	5
		Pogonias cromis	Black Drum	3
		Pomatomus saltatrix	Bluefish	1
		Caranx hippos	Crevalle Jack	3
		Fundulus heteroclitus	Mummichog	1
		Menticirrhus saxatilis	Northern Kingfish	2
		Sphoeroides maculatus	Northern Puffer	4
		Fundulus majalis	Striped Killifish	15
		Mugil cephalus	Striped Mullet	1
		Tautoga onitis	Tautog	22
		Cynoscion regalis	Weakfish	1
		Mugil curema	White Mullet	13
		Pseudopleuronectes americanus	Winter Flounder	22
			Sample Total	**551**
156_3	9/18/2015	*Menidia menidia*	Atlantic Silverside	404
		Pomatomus saltatrix	Bluefish	2
		Ovalipes ocellatus	Lady crab	1
		Sphoeroides maculatus	Northern Puffer	2
		Dyspanopeus sayi	Say mud crab	2
		Morone saxatilis	Striped Bass	1
		Paralichthys dentatus	Summer Flounder	1
		Mugil curema	White Mullet	12
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**426**
172_19	9/18/2015	*Menidia menidia*	Atlantic Silverside	719
		Callinectes sapidus	Blue crab	1
		Pomatomus saltatrix	Bluefish	3
		Fundulus majalis	Striped Killifish	3
		Tautoga onitis	Tautog	1
			Sample Total	**727**
196_15	9/18/2015	*Menidia menidia*	Atlantic Silverside	387
		Pomatomus saltatrix	Bluefish	1
		Pagurus longicarpus	Longwrist hermit crab	3
		Fundulus majalis	Striped Killifish	18
		Tautoga onitis	Tautog	1
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**411**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
248_11	9/18/2015	*Menidia menidia*	Atlantic Silverside	929
		Pomatomus saltatrix	Bluefish	2
		Fundulus majalis	Striped Killifish	4
		Paralichthys dentatus	Summer Flounder	1
		Tautoga onitis	Tautog	2
			Sample Total	**938**
256_16	9/18/2015	*Menidia menidia*	Atlantic Silverside	215
		Pagurus longicarpus	Longwrist hermit crab	1
		Menticirrhus saxatilis	Northern Kingfish	1
		Sphoeroides maculatus	Northern Puffer	1
		Fundulus majalis	Striped Killifish	3
		Paralichthys dentatus	Summer Flounder	1
		Tautoga onitis	Tautog	1
			Sample Total	**223**
312_8	9/18/2015	*Menidia menidia*	Atlantic Silverside	307
		Pomatomus saltatrix	Bluefish	13
		Fundulus heteroclitus	Mummichog	1
		Menticirrhus saxatilis	Northern Kingfish	4
		Sphoeroides maculatus	Northern Puffer	1
		Fundulus majalis	Striped Killifish	11
		Tautoga onitis	Tautog	1
			Sample Total	**338**
408_24	9/4/2015	*Menidia menidia*	Atlantic Silverside	880
		Anchoa mitchilli	Bay Anchovy	5
		Pogonias cromis	Black Drum	1
		Pomatomus saltatrix	Bluefish	4
		Syngnathus fuscus	Northern Pipefish	1
		Fundulus majalis	Striped Killifish	3
			Sample Total	**894**
428_30	9/4/2015	*Menidia menidia*	Atlantic Silverside	696
		Anchoa mitchilli	Bay Anchovy	12
		Pomatomus saltatrix	Bluefish	1
		Menticirrhus saxatilis	Northern Kingfish	1
		Fundulus majalis	Striped Killifish	30
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**741**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
440_27	9/4/2015	*Brevoortia tyrannus*	Atlantic Menhaden	2
		Menidia menidia	Atlantic Silverside	918
		Anchoa mitchilli	Bay Anchovy	16
		Pogonias cromis	Black Drum	4
		Syngnathus fuscus	Northern Pipefish	1
		Sphoeroides maculatus	Northern Puffer	1
		Anchoa hepsetus	Striped Anchovy	4
		Fundulus majalis	Striped Killifish	49
		Mugil curema	White Mullet	1
		Pseudopleuronectes americanus	Winter Flounder	2
			Sample Total	**998**
472_23	9/18/2015	*Menidia menidia*	Atlantic Silverside	467
		Pomatomus saltatrix	Bluefish	2
		Caranx hippos	Crevalle Jack	1
		Fundulus majalis	Striped Killifish	1
		Tautoga onitis	Tautog	4
			Sample Total	**475**
484_17	9/18/2015	*Menidia menidia*	Atlantic Silverside	1064
		Pomatomus saltatrix	Bluefish	11
		Menticirrhus saxatilis	Northern Kingfish	1
		Sphoeroides maculatus	Northern Puffer	1
		Morone saxatilis	Striped Bass	4
		Fundulus majalis	Striped Killifish	1
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**1083**
544_13	9/4/2015	*Menidia menidia*	Atlantic Silverside	77
		Anchoa mitchilli	Bay Anchovy	1
		Pogonias cromis	Black Drum	2
		Callinectes sapidus	Blue crab	1
		Pagurus longicarpus	Longwrist hermit crab	2
		Menticirrhus saxatilis	Northern Kingfish	1
		Syngnathus fuscus	Northern Pipefish	1
		Anchoa hepsetus	Striped Anchovy	1
		Fundulus majalis	Striped Killifish	13
		Tautoga onitis	Tautog	8
		Pseudopleuronectes americanus	Winter Flounder	3
			Sample Total	**110**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
556_2	9/4/2015	*Menidia menidia*	Atlantic Silverside	59
		Anchoa mitchilli	Bay Anchovy	8
		Pogonias cromis	Black Drum	1
		Pomatomus saltatrix	Bluefish	3
		Menticirrhus saxatilis	Northern Kingfish	5
		Sphoeroides maculatus	Northern Puffer	3
		Morone saxatilis	Striped Bass	2
		Fundulus majalis	Striped Killifish	5
		Tautoga onitis	Tautog	7
		Mugil curema	White Mullet	4
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**98**
608_9	9/4/2015	*Brevoortia tyrannus*	Atlantic Menhaden	1
		Menidia menidia	Atlantic Silverside	59
		Ovalipes ocellatus	Lady crab	4
		Menticirrhus saxatilis	Northern Kingfish	4
		Libinia emarginata	Portly spider crab	1
		Tautoga onitis	Tautog	7
		Mugil curema	White Mullet	8
		Pseudopleuronectes americanus	Winter Flounder	3
			Sample Total	**87**
Gear Total				**10631**

Gear type=Beam trawl

40_2	9/10/2015	*Dyspanopeus sayi*	Say mud crab	15
		Anchoa hepsetus	Striped Anchovy	1
			Sample Total	**16**
65_4	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	9
		Ovalipes ocellatus	Lady crab	1
		Dyspanopeus sayi	Say mud crab	7
			Sample Total	**17**
126_1	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	32
			Sample Total	**32**
157_3	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	2
			Sample Total	**2**
158_7	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	19
			Sample Total	**19**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
172_4	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	61
			Sample Total	**61**
188_2	9/10/2015	*Anchoa hepsetus*	Striped Anchovy	1
			Sample Total	**1**
190_5	9/10/2015	*Anchoa mitchilli*	Bay Anchovy	3
			Sample Total	**3**
197_5	9/10/2015	No catch	No catch	0
			Sample Total	**0**
198_3	9/10/2015	No catch	No catch	0
			Sample Total	**0**
Gear Total				**151**

Gear type=Fish trap

202_8_1	9/10/2015	No catch	No catch	0
			Sample Total	**0**
202_8_2	9/10/2015	*Libinia emarginata*	Portly spider crab	3
			Sample Total	**3**
289_20_1	9/11/2015	*Libinia emarginata*	Portly spider crab	4
			Sample Total	**4**
289_20_2	9/11/2015	*Libinia emarginata*	Portly spider crab	2
		Dyspanopeus sayi	Say mud crab	1
			Sample Total	**3**
387_36_1	9/22/2015	*Libinia emarginata*	Portly spider crab	5
			Sample Total	**5**
387_36_2	9/22/2015	*Libinia emarginata*	Portly spider crab	3
			Sample Total	**3**
517_10_1	9/10/2015	*Libinia emarginata*	Portly spider crab	2
			Sample Total	**2**
517_10_2	9/10/2015	*Libinia emarginata*	Portly spider crab	11
			Sample Total	**11**
683_31_1	9/22/2015	*Libinia emarginata*	Portly spider crab	3
		Dyspanopeus sayi	Say mud crab	1
			Sample Total	**4**
683_31_2	9/22/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
752_19_1	9/22/2015	*Libinia emarginata*	Portly spider crab	6
			Sample Total	**6**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
752_19_2	9/22/2015	*Libinia emarginata*	Portly spider crab	7
			Sample Total	**7**
761_16_1	9/11/2015	No catch	No catch	0
			Sample Total	**0**
761_16_2	9/11/2015	*Libinia emarginata*	Portly spider crab	6
			Sample Total	**6**
787_18_1	9/22/2015	*Libinia emarginata*	Portly spider crab	6
			Sample Total	**6**
787_18_2	9/22/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1003_15_1	9/11/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1003_15_2	9/11/2015	*Libinia emarginata*	Portly spider crab	4
			Sample Total	**4**
1048_13_1	9/11/2015	*Libinia emarginata*	Portly spider crab	15
			Sample Total	**15**
1048_13_2	9/11/2015	*Callinectes sapidus*	Blue crab	1
		Libinia emarginata	Portly spider crab	12
			Sample Total	**13**
1101_35_1	9/11/2015	*Libinia emarginata*	Portly spider crab	5
		Dyspanopeus sayi	Say mud crab	1
			Sample Total	**6**
1101_35_2	9/11/2015	*Libinia emarginata*	Portly spider crab	2
			Sample Total	**2**
1408_3_1	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1408_3_2	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1495_14_1	9/11/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1495_14_2	9/11/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1497_2_1	9/10/2015	No catch	No catch	0
			Sample Total	**0**
1497_2_2	9/10/2015	*Callinectes sapidus*	Blue crab	1
		Libinia emarginata	Portly spider crab	5
			Sample Total	**6**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
1498_12_1	9/11/2015	No catch	No catch	0
			Sample Total	**0**
1498_12_2	9/11/2015	*Callinectes sapidus*	Blue crab	1
		Libinia emarginata	Portly spider crab	5
			Sample Total	**6**
1652_4_1	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1652_4_2	9/10/2015	No catch	No catch	0
			Sample Total	**0**
1677_25_1	9/11/2015	No catch	No catch	0
			Sample Total	**0**
1677_25_2	9/11/2015	No catch	No catch	0
			Sample Total	**0**
1683_5_1	9/10/2015	No catch	No catch	0
			Sample Total	**0**
1683_5_2	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1685_1_1	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1685_1_2	9/10/2015	*Libinia emarginata*	Portly spider crab	1
			Sample Total	**1**
1787_7_1	9/10/2015	*Centropristis striata*	Black Sea Bass	1
			Sample Total	**1**
1787_7_2	9/10/2015	No catch	No catch	0
			Sample Total	**0**
Gear Total				**124**

Gear type=Otter trawl

40_2	9/11/2015	*Callinectes sapidus*	Blue crab	1
		Ovalipes ocellatus	Lady crab	5
		Libinia emarginata	Portly spider crab	5
		Dyspanopeus sayi	Say mud crab	27
		Stenotomus chrysops	Scup	2
		Chaetodon ocellatus	Spotfin Butterflyfish	1
		Paralichthys dentatus	Summer Flounder	1
		Pseudopleuronectes americanus	Winter Flounder	7
			Sample Total	**49**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
65_4	9/11/2015	*Ovalipes ocellatus*	Lady crab	4
		Syngnathus fuscus	Northern Pipefish	2
		Dyspanopeus sayi	Say mud crab	9
		Stenotomus chrysops	Scup	51
		Chaetodon ocellatus	Spotfin Butterflyfish	2
		Anchoa hepsetus	Striped Anchovy	2
		Paralichthys dentatus	Summer Flounder	1
			Sample Total	**71**
126_1	9/11/2015	*Anchoa mitchilli*	Bay Anchovy	1
		Synodus foetens	Inshore Lizardfish	1
		Ovalipes ocellatus	Lady crab	7
		Libinia emarginata	Portly spider crab	1
		Dyspanopeus sayi	Say mud crab	19
		Stenotomus chrysops	Scup	36
		Prionotus evolans	Striped Searobin	1
		Tautoga onitis	Tautog	1
		Pseudopleuronectes americanus	Winter Flounder	1
			Sample Total	**68**
157_3	9/11/2015	*Callinectes sapidus*	Blue crab	3
		Pomatomus saltatrix	Bluefish	2
		Ovalipes ocellatus	Lady crab	4
		Dyspanopeus sayi	Say mud crab	12
		Stenotomus chrysops	Scup	7
		Chaetodon ocellatus	Spotfin Butterflyfish	5
		Anchoa hepsetus	Striped Anchovy	1
		Prionotus evolans	Striped Searobin	1
		Tautoga onitis	Tautog	2
			Sample Total	**37**
158_7	9/11/2015	*Callinectes sapidus*	Blue crab	4
		Pomatomus saltatrix	Bluefish	1
		Menticirrhus saxatilis	Northern Kingfish	2
		Libinia emarginata	Portly spider crab	15
		Dyspanopeus sayi	Say mud crab	13
		Stenotomus chrysops	Scup	9
		Prionotus evolans	Striped Searobin	1
		Paralichthys dentatus	Summer Flounder	3
		Pseudopleuronectes americanus	Winter Flounder	4
			Sample Total	**52**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
172_4	9/11/2015	*Callinectes sapidus*	Blue crab	6
		Pagurus longicarpus	Longwrist hermit crab	1
		Menticirrhus saxatilis	Northern Kingfish	1
		Opsanus tau	Oyster Toadfish	2
		Libinia emarginata	Portly spider crab	2
		Dyspanopeus sayi	Say mud crab	27
		Stenotomus chrysops	Scup	54
		Chaetodon ocellatus	Spotfin Butterflyfish	1
		Paralichthys dentatus	Summer Flounder	3
		Pseudopleuronectes americanus	Winter Flounder	2
			Sample Total	**99**
188_2	9/11/2015	*Callinectes sapidus*	Blue crab	2
		Ovalipes ocellatus	Lady crab	3
		Syngnathus fuscus	Northern Pipefish	1
		Sphoeroides maculatus	Northern Puffer	1
		Dyspanopeus sayi	Say mud crab	5
		Stenotomus chrysops	Scup	13
		Chaetodon ocellatus	Spotfin Butterflyfish	1
		Prionotus evolans	Striped Searobin	2
		Paralichthys dentatus	Summer Flounder	1
		Tautoga onitis	Tautog	3
		Pseudopleuronectes americanus	Winter Flounder	2
			Sample Total	**34**
190_5	9/11/2015	*Callinectes sapidus*	Blue crab	2
		Mycteroperca microlepis	Gag Grouper	1
		Dyspanopeus sayi	Say mud crab	10
		Stenotomus chrysops	Scup	29
		Chaetodon ocellatus	Spotfin Butterflyfish	1
		Anchoa hepsetus	Striped Anchovy	1
		Tautoga onitis	Tautog	21
			Sample Total	**65**
197_5	9/11/2015	*Anchoa mitchilli*	Bay Anchovy	7
		Pagurus longicarpus	Longwrist hermit crab	1
		Dyspanopeus sayi	Say mud crab	8
		Stenotomus chrysops	Scup	3
		Chaetodon ocellatus	Spotfin Butterflyfish	1
		Tautoga onitis	Tautog	1
			Sample Total	**21**

(continued)

Appendix Table C. (Continued)

Sample	Date	Scientific name	Common name	Count
198_3	9/11/2015	*Anchoa mitchilli*	Bay Anchovy	124
			Sample Total	**124**
Gear Total				**620**

Appendix E-4
Field Sampling Reports
(Part 3)

Field Standard Operating Procedures for Ecological Surveys during 2017 in Raritan Bay to Assess Existing Condition of Benthic and Fish Communities for the Living Breakwaters and Tottenville Dune Projects

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I. General Information

1.0 Introduction

The objective of this survey is to collect ecological data that will satisfy requirements for an environmental review to analyze impacts of a proposed project in Raritan Bay, along the south shore of Staten Island, NY. This survey will be performed for the Governor's Office of Storm Recovery (GOSR) by Normandeau Associates, Inc. (Normandeau), as a subcontractor to AKRF, Inc (AKRF).

The GOSR, acting under authority of the U.S. Department of Housing and Urban Development's (HUD) regulations at 24 CFR Part 58, and in cooperation with other involved and interested agencies, has prepared an Environmental Impact Statement (EIS) to analyze potential impacts of the Living Breakwaters and Tottenville Dune Projects. Normandeau conducted ecological surveys during the summer and fall of 2015 to provide the required data for the preparation of that EIS.

Environmental review for the proposed actions will require additional data to characterize existing benthic and fish communities in the project area. Normandeau will collect and process benthic macroinvertebrates, fish and sediment samples to provide the needed data. Sampling will be conducted during three separate surveys, in June, July and September, 2017.

This document constitutes the Standard Operating Procedures (SOP) manual for the field tasks of this ecological survey in Raritan Bay. The goals of this SOP are to (1) provide sufficiently detailed instructions to enable field technicians to follow consistent and technically valid protocols, and to (2) document the field procedures used in the survey.

2.0 Technical Approach

This ecological survey in Raritan Bay will include sampling to support a benthic macroinvertebrate study and a fish community study. The approach to conducting sampling for these studies is described below in Sections 2.1 (benthic) and 2.2 (fish).

All ecological sampling activities performed by Normandeau for this survey effort will be conducted following the provisions of: (1) NYSDEC License to Collect or Possess: Scientific # 121 (Appendix 1); (2) City of New York, Parks & Recreation, Permit to Conduct Research in Parks (Appendix 2), and (3) City of New York, Parks & Recreation, Permit to Perform Work on Park Property (Appendix 3).

2.1 Benthic Macroinvertebrate Study

Normandeau will conduct sampling during June and September to support the benthic macroinvertebrate study. Samples for benthic macrofauna and sediment characteristics (grain size and total organic carbon) will be collected at 60 locations during both June and September surveys. Samples will be collected at locations identified by AKRF based on a stratified random sampling design.

Benthic Macrofauna and Sediment Characteristics

Sediment samples (for benthic macrofauna, sediment characteristics) will be collected using a 0.04-m^2 Young-modified van Veen grab. Normandeau will locate the benthic stations using marine navigation grade GPS with coordinates provided by AKRF in latitude and longitude. Along with the collection of the benthic samples, the crew will also complete the field processing of those samples. Prior to processing the benthic macrofauna samples, field scientists will photograph each sample. Macrofauna samples will be gently washed through a 0.500 mm-mesh sieve, preserved in buffered formalin, and stained with rose bengal. Samples will be kept in the custody of the field crew chief and transferred with appropriate Chain-of-Custody forms to Normandeau's Bedford NH laboratory for processing.

Additional grab samples will be collected for grain size analysis and total organic carbon at each of the 60 sampling stations during both surveys.

2.2 Fish Study

Fish sampling will take place in conjunction with the benthic sampling in June and September and as a stand-alone effort in July. Fish and macroinvertebrates will be collected using fish traps, otter trawl, and beach seine.

Baited sea bass traps will be set at 10 randomly selected sites (20 total traps) with coordinates provided by AKRF, Inc. in latitude and longitude. Approximately 24 hours after setting fish traps, the crew will retrieve and process the traps. The contents of each trap will be emptied into shallow container filled with water. All fish and invertebrates will be identified, counted, and 20 individuals of each fish species will be measured to the nearest mm. After processing, all organisms will be returned to the bay alive if possible. All sample information for each pair of traps will be recorded on field data sheets for each sample. The crew will then re-set the pair of traps for a second 24-hour set at each fish trap station. Fish traps will be retrieved the following day as described above.

Otter trawl will be conducted at 10 randomly selected sites with coordinates provided by AKRF. An otter trawl with an 11-m foot rope and chain sweep and a 3.2 cm stretch mesh throughout will be used. The otter trawl will have wood doors measuring 0.3 m by 0.6 m. The otter trawl will be towed at approximately 1.5 meters per second for duration of 5 minutes. At the end of each tow the trawls will be retrieved and the contents of the cod-end emptied into a shallow container filled with water. All fish and epibenthic invertebrates will be identified and counted. Twenty individuals of each fish species will be measured to the nearest mm. After processing, the fish and invertebrates will be returned to the bay alive if possible, unless retained as a voucher specimen. All sample information for each trawl will be recorded on field data sheets for each sample.

Beach seine sampling will be conducted at 20 randomly selected sites with coordinates provided by AKRF, Inc. in latitude and longitude. The 30-m by 2.4-m deep beach seine will be towed in a counter clockwise sweep along each selected beach. The wings of the beach seine will have 1.0 cm bar mesh and the bag mesh will be 0.5 cm bar mesh. Any collected fish and epibenthic invertebrates will be gathered to the bag of the net and emptied into a shallow container filled with water. All specimens will be identified to species, counted and 20 individuals of each fish species will be measured to the nearest mm. After processing,

the fish and invertebrates will be returned to the bay alive if possible. All sample information for each beach seine will be recorded on field data sheets for each sample.

3.0 Sampling Schedule and Logistics

Normandeau will conduct sampling during June, July and September, 2017. Samples to support the fish study will be collected during each of these three surveys. Samples to support the benthic macroinvertebrate study will be collected during the June and September surveys, only. Table I-1 lists the number of stations that will be sampled during each survey.

For each survey, the Normandeau field team will set up a base of operations in Laurence Harbor, New Jersey to reduce daily travel time. The field team will move one of Normandeau's 25-foot research vessels to a local marina prior to each of the three sampling events. Sampling will be conducted from Normandeau's 25- foot R/V *Parker* or R/V *Privateer*. For each of the three sampling events Normandeau will assign a three person field team to the project. The field team will be led by a USCG licensed captain who will be responsible for all sampling activities.

Table I-1. Numbers of stations sampled by survey and gear type during June, July, and September 2017.

Sample Type	Sampling gear	Stations sampled in June	Stations sampled in July	Stations sampled in September	Total # of stations sampled	Number of samples per station	Parameters
Fish (trap)	fish trap	10	10	10	30	4	Fish community (and epibenthos). Paired traps deployed for 2 consecutive 24 hr. periods
Fish (trawl)	otter trawl net	10	10	10	30	1	Fish community (and epibenthos). One five minute haul per station
Fish (seine)	beach seine net	20	20	20	60	1	Fish community (and epibenthos). One haul at each location.
Soft-bottom macrofauna	van Veen grab	60	None	60	120	1	Benthic macroinvertebrate community. One grab sample for macroinvertebrates.
Sediment characteristics	van Veen grab	60	None	60	120	1	Sediment grain size and Total Organic Carbon (TOC). One grab sample for sediments, from which one grain size and one TOC subsample is collected.

4.0 Sample Site Selection

Samples will be collected at locations identified by AKRF based on a stratified random sampling design. Prior to each survey, field crews will receive a listing of sampling locations that includes the Site ID, Sample ID, Latitude and Longitude for each location, along with a map of sampling locations. The list of sampling locations will include Alternate locations that will be used if sampling cannot be conducted at the Primary locations.

Sampling sites will be located by the field crew using shipboard differential Global Positioning Systems (GPS).

5.0 Quality Assurance

5.1 Normandeau's Quality Assurance Program

It is Normandeau's policy to supply quality services, information, data, and products in a superior manner, at a fair cost, and with timely delivery. To accomplish this policy, Normandeau's QA program has been designed to meet or exceed the guidance criteria of the U.S. Environmental Protection Agency and be consistent with the intent of federal regulations (10 CFR 50) which require that QA be separated from operational and budgetary concerns. Normandeau has a full time QA Director who supervises the implementation and documentation of QA Programs and reports directly to the President of the Company.

Normandeau's QA program comprises two systems: a quality control (QC) system and a quality assurance system (Figure I-1). The principal strengths of the QA Program are the functional independence of the systems and the common collection and interpretation point for quality related information, the QA Director. The QC system is managed by the Program Manager and conducted by operational personnel. The QA system is managed by Normandeau's QA Director and utilizes project-independent technical personnel during performance and system audits.

5.1.1 Quality Control System

The function of the QC system is to continually monitor the reliability and validity (accuracy, precision, and completeness) of data produced on a daily basis. The QC system is approved by the QA Director and any changes to the procedures must be coordinated through Normandeau's QA Department. For the Ecological Survey in Raritan Bay, field managers and lab managers will act as quality control supervisors who will:

- monitor performance and results of quality control procedures;
- monitor instrument maintenance, calibration, and reliability;
- monitor document control and conduct audits of documentation resulting from sample analysis, instrument maintenance and calibration and data processing;
- monitor sample control procedures and documentation; and
- monitor training of technicians.

Specific sample control procedures including packaging, preservation and Chain-of-Custody (COC) for each task is documented in Sections II and III of this SOP. In general, each sample is given a unique sample number. Each sample is then tracked by its sample number from field collection and throughout the laboratory and data processing functions. Daily collection of samples is tracked from the field site to the laboratory for final analysis by means of a COC form. At Normandeau's laboratory each sample is tracked through each storage and analysis step by means of sample control logs. The function of this system is to provide a paper trail of who performed each step in the analysis of a sample from collection to storage, when each step occurred, what condition the samples were in and where each step took place.

CLIENT REQUIREMENTS

NORMANDEAU ASSOCIATES, INC. QUALITY ASSURANCE PLAN

- General Guidance to Operating Entities
- Focus for Establishment of Project-Specific Data Quality Goals
- Management Commitment in the Person of the Quality Assurance Director

QUALITY CONTROL SYSTEM

- **Standard Procedures**
  - Methods selected are EPA-approved and/or specified by authoritative source (e.g., ASTM)
  - Documentation of all procedures and any modifications employed due to special conditions
- **Precision and Accuracy Inspections**
  - Rejection criteria
  - At least 10% replication
  - Standard additions – "spikes"
  - Control charts
  - Calibration standards
  - Reagent purity
  - External quality control samples
- **Instrument Calibration and Reliability**
  - Calibrated to manufacturer and/or EPA specifications
  - Review of equipment performance history conducted prior to use
  - Preventive maintenance schedule
- **Data Traceability**
  - Specification of data reduction scheme
  - "Chain of Custody" review
- **Documentation**
  - Systematic filing of data records, procedures, correspondence, contractual papers, laboratory notes
  - Evidence of inspections for control purposes
- **Personnel Training**
  - Detailed orientation and training procedures
  - Intensive inspection of early work
- **Corrective Action Assignments**

QUALITY ASSURANCE SYSTEM

- **Periodic Audits**
  - Independent monitoring of program functions on a regular basis
  - Review of all procedures to ensure conformity to written project procedure manuals
  - Documentations of observations
- **Classification of Program Deficiencies and Nonconformities**
  - Severity of effect on project quality goals
  - Evaluation of appropriate corrective action
- **Reporting**
  - Audit results to project and staff management
  - Assignment of corrective action responsibility and date for completion
  - Thorough documentation
- **Follow-Up Audit**
  - Review of correction actions by Quality Assurance Director
- **Client-Normandeau Associates, Inc. Audit Review**

Figure I-1. Normandeau QA Plan.

Data Control Procedures

Specific data control procedures for each task, including procedures for completing data sheets, storage, and chain of custody, are documented in the *Data Handling* elements of this SOP. In general, all completed data sheets are maintained in a master project file at the Bedford, NH, facility. At the Bedford, NH, facility each data sheet is tracked by means of data control logs. The project files contain the following documentation:

- calibration records of all instrumentation,
- procedures for all operations,
- copies of all data sheets,
- sample and data control logs,
- data tabulations and working tables,
- copies of all correspondence associated with the program, and
- copies of all official contracts and communications.

Training of Technicians

To assure the standardization of field and data processing procedures, Normandeau has developed a two level system for training technicians: the first level is documented standard operating procedures; the second level is a training program for all new project personnel. At a minimum, this training program consists of:

- A complete reading and explanation of the project SOP.
- The Field Manager will observe the first two or more times a new procedure is performed.
- Personnel assigned to unfamiliar tasks are accompanied by an experienced technician for at least their first two attempts.
- On tasks requiring identification of fish or invertebrates in the field, the Field Manager has final approval as to who is qualified to make these identifications.

5.1.2 Quality Assurance System

It is the responsibility of the QA Department to verify the achievement of quality through all phases of a project. This responsibility is accomplished primarily by audits, tests, and surveys that provide objective evidence that quality control programs are being implemented. Field, laboratory and data processing tasks are subject to at least one audit per year. They are conducted by an audit team of technically qualified personnel familiar with, but independent of and not responsible for, the work or activities under evaluation. The audit team reviews the operations, specifications, QC systems, plans, and project objectives and examines the acquisition and transfer of data from field to report.

Audit results are presented orally to the appropriate project or facility management by the audit team after the audit has been completed. At this time, specific findings are presented and recommended courses of corrective action developed. Subsequently, the audit results are documented in a written audit report and reviewed by management having responsibility in the areas audited. These reports include a summary of audit results,

observations made with a listing of non-conformities, recommendations and corrective action taken.

The QA Director maintains a file of all project and facility audits. This file includes copies of the audit checklists, audit reports, written replies, the record of completion of corrective action and follow-up action. Further copies of the audit reports, written responses and records of completion of corrective actions are sent to Normandeau's President.

5.2 Non-Conforming Items and Corrective Action

Documentation of problems or unusual events occurring during a survey is accomplished using Extraordinary Event/Nonconformity (EE/NC) Forms (Figure I-2). The EE/NC Form is designed to dispense information to the Program Manager and the QA Director and to obtain necessary action on items that are critical to technical operations and management of programs. The EE/NC Report is used to report results from observations such as:

- losing a sample
- noting samples that are grossly different from expected (content, preservation, labels)
- quality control samples that exceed acceptable limits.

The EE/NC Report is designed for use by any person who identifies a problem or discovers information that is germane to a program scope of work. The originator's supervisor is responsible for delivery of the completed form to the appropriate action addressee. Action addressees must respond within the time frame indicated by the originator (normally ten working days). The QA Director is informed of each report and maintains an awareness of the status of follow-up on a weekly basis.

Items, samples, data, or information not in conformity with specifications or which do not meet preconditions for the next step in processing or use, are set aside until the problem is resolved and documented via the EE/NC Report procedure.

EXTRAORDINARY EVENT/NONCONFORMITY REPORT

EE/NC Report Number: Date:_____ From:_____

Respond by (date): _____ Project No.: _____ Title:_____

Date closed: _____

ADDRESSEES:
QA: ✓ Project Mgr.: _____ Field Mgr.: _____ Lab Mgr.: _____ Technical Mgr.: _____ Others: _____

PROBLEM DEFINITION (e.g., Sample ID, Activity, Data, Standard, etc. Not in Conformity) :

RECOMMENDATIONS FOR or CORRECTIVE ACTION TAKEN:

Signed:

ACTION ADDRESSEE RESPONSE:

CORRECTIVE ACTION COMPLETED: Date: _____ Signed:_____

Distribution: ORIGINAL QA, COPIES OF ORIGINAL: Originator, Addressees
RESPONSES: QA (responses are to be made on copies)

Figure I-2. EE/NC Form.

II. Field Standard Operating Procedures for the Benthic Macroinvertebrate Study

Benthic sample collection will be conducted in the following order:

(1) collect macrofauna sample;

(2) collect sediment sample for TOC and grain size

1.0 Sampling Equipment

1.1 Soft-Bottom Sediment Sampling

A 0.04-m^2 Ted Young-modified van Veen grab sampler will be used to collect soft-bottom sediment samples for benthic macrofauna and sediment characteristics (TOC and grain size) analyses.

2.0 Gear Deployment

2.1 Soft-Bottom Sediment Sampling

The van Veen grab sampler will be used to collect sediment samples for benthic macrofauna and sediment characteristics. One grab sample for macrofauna and one for sediment characteristics, will be collected from each benthic station.

Once the survey vessel is on station and coordinates have been verified, the sediment grab will be deployed. When slack in the winch wire indicates that the grab is on the bottom, the grab and captured sample will be brought back to the surface. Upon retrieval of the grab, the sample will be inspected for acceptability (sufficient quantity, undisturbed, not washed out). If the sample is unacceptable, the grab will be emptied, rinsed, and redeployed.

Precautions will be taken during the deployment and retrieval of the grab sampler to prevent contamination of samples between stations. Sampling for infauna, TOC, and grain size all require that the grab and associated sampling equipment be washed and thoroughly rinsed between sampling stations.

3.0 Collection Methods

3.1 Use Code

3.1.1 All Fish Study samples are either Use Code 1, 2 or 5. Use code definitions are as follows:

Use Code Definitions

Use Codes	Definition
1	Assigned to samples when there are no sampling problems

2	Assigned to a sampling location when a sample cannot be collected at the Primary location and an Alternate location must be used.
5	Assigned to samples when sampling problems are encountered and a sample must be retaken.

3.1.2 The Crew Leader may retake a sample if he or she feels any problems have prevented a valid sample.

3.1.3 An explanation for use code 2 and 5 is recorded under "comments" on the data sheet.

3.2 Field Processing of Benthic Macrofauna Samples

If the macrofauna grab sample is acceptable, the sample will be processed. For the macrofauna samples only, photographs of the grab will be taken before and after the sample has been sieved, and measurements of penetration depth will be taken. Sampling labels (including Site_ID, Sample_ID, date) will be included in each photograph to identify the sample. The first photograph of the macrofaunal sample will be taken prior to sieving the sample. The penetration depth of the sample will then be measured using a plastic ruler (marked in millimeters) pushed into the sediment. Any sediment adhering to the surface of the ruler will be rinsed back into the grab for processing with the remainder of the sample. The grab will then be placed over a bucket, the jaws opened, and the sample emptied into the bucket. Filtered seawater will be used to gently wash the sample into the bucket. Grab samples for macrofaunal analyses will be rinsed through 500-µm-mesh sieves. Once the sample has been sieved, a second photograph of the sample will be taken. The portion retained on the screens will then be transferred to labeled jars and fixed in 10% buffered formalin. Sample jars will be Nalgene or other sturdy plastic jars with screw-capped lids. Each sample jar will be filled no more than half full of material. The jar will be gently turned around on its side to distribute the formalin evenly throughout the sample. Sieves will be washed between samples.

All benthic macrofaunal samples must be handled gently during the sieving process, fixed in 10% formalin as quickly as possible to prevent deterioration of the fauna, and all sample jars must be labeled accurately.

Following each benthic survey, the macrofaunal samples (stored in sturdy coolers) will be driven to the Normandeau office in Bedford, NH. The samples to be processed, while still preserved in 10% formalin, can be shipped by FedEx ground or 2-day express delivery (if courier delivery is not feasible). The lids on the plastic sample jars will be taped and the jars inserted individually into large zip-locked or tied plastic bags lined with absorbent padding.

3.3 Field Processing of Sediment Samples

If the grab sample to be used for sediment characteristics meets the acceptability criteria, the water overlying the sample will be siphoned or gently decanted from the grab. The surface sediment (0 to 2 cm) will then be collected with a scoop and transferred to appropriate storage containers provided by the laboratory. Laboratory instructions regarding fill levels and sample handling will be followed. The sediment samples must be kept cold or frozen. All samples will be kept on ice in coolers during transport. Samples labels will be checked to ensure that all station information is complete and matches the field data sheet and COC.

III. FIELD STANDARD OPERATING PROCEDURES FOR THE FISH STUDY

1.0 Sampling Equipment

1.1 Beach Seine

Samples will be collected using a beach seine (Table III-1). The total length of the beach seine net will be 100 feet (40 feet for each of two wings, plus 20 feet for the net bag). The depth of the net wings will be 8 feet; the depth of the bag in the center of the net will be 10 feet.

Table III-1. Specifications of the beach seine

Gear Code = 12	
Number of wings	2
Length of wings	40 ft (12.2 m)
Depth of wings	8 ft (2.4 m)
Wing mesh (bar mesh)	3/8 in. (1.0 cm)
Length of bag	20 ft (6.1 m)
Depth of bag	10 ft (3.0 m)
Bag mesh (bar mesh)	3/16 in. (0.5 cm)

1.2 Otter Trawl

An otter trawl with an 11-m foot rope and chain sweep and a 3.2 cm stretch mesh throughout will be used. The cod end of the otter trawl will have a liner with a 0.95 cm mesh. The otter trawl will have wood doors measuring 0.3 m by 0.6 m.

1.3 Fish Trap

Sea bass traps measuring approximately 4 feet (40.5" to 48") long, 15" high, and approximately 2 feet (21" to 24") wide, will be deployed. Trap construction includes 1.5" mesh wire, with 1.5" mesh twine funnel net at the entry, and an opening at the entry funnel of 12"x10". Each trap weighs 50 lbs., weighted by two 25 lb. cement skids, one on each side of the trap bottom.

2.0 Gear Deployment

2.1 Beach Seine

2.1.1 One end of the seine is attached to the boat by a line and the other end is held on shore, while the net is paid out over the bow and stretched out perpendicular to shore.

2.1.2 The seine is then hauled in a clockwise direction towards shore in a semicircular path unless the current is such that it is not feasible to do so.

2.1.3 When both ends are on shore, the seine is hauled onto the beach while care is exercised to ensure that the lead line remains in contact with the bottom at all times and the bag is always centered. Bottom depth will not be recorded for the beach seine samples since depths are limited by the dimensions of this gear. Sampling will be conducted at locations where bottom depth is less than 10 feet at the deepest point where the net is fishing. Therefore, the beach seine net will sample an area of beach that ranges in depth from less than one foot (i.e., up to the shoreline) to a maximum of 10 feet deep.

2.2 Otter Trawl

The otter trawl will be towed at approximately 1.5 meters per second (approximately 3 knots) for a duration of 5 minutes.

2.3 Fish Trap

Two fish traps will be deployed at each fish trap station, for two, 24-hour sets (i.e., four samples per station). On the first day of sampling at each fish trap station, a pair of sea bass traps will be deployed. Each trap will be baited (e.g., with crushed clams or menhaden in the bait bag). After a set time of about 24 hours, the crew will haul and process the sea bass traps. Once the contents of each trap have been processed, the crew will then re-set the pair of traps for a second 24-hour set at each fish trap station. Fish traps will be retrieved the following day with the contents of each processed as a separate sample.

3.0 Collection Methods

3.1 Use Code

3.1.1 All Fish Study samples are either Use Code 1, 2 or 5. Use code definitions are as follows:

Use Code Definitions

Use Codes	Definition
1	Assigned to samples when there are no sampling problems
2	Assigned to a sampling location when a sample cannot be collected at the Primary location and an Alternate location must be used.
5	Assigned to samples when sampling problems are encountered and a sample must be retaken or is not usable.

3.1.2 The Crew Leader may retake a sample if he or she feels any problems have prevented a valid sample.

3.1.3 An explanation for use code 2 and 5 is recorded under "comments" on the data sheet.

3.2 Field Processing of Samples

3.2.1 The contents of each beach seine, trawl, or fish trap sample will be collected and transferred into a high-sided collection pan filled with water.

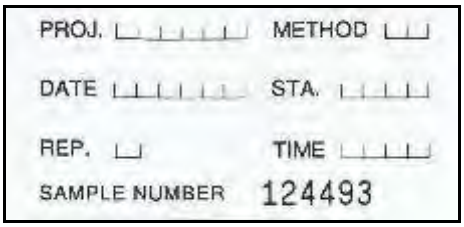
The contents of the sample will be kept continually immersed in water to maximize survival of the fish and invertebrates.

3.2.2. All fish and invertebrates will be sorted, identified and counted. Twenty fish of each species, in each sample, will be measured to the nearest millimeter (all lengths are measured in centimeters total length, to one decimal place):

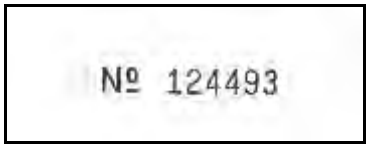
3.2.3 Fish and invertebrates will be processed, recorded on the field data sheets, and returned to the bay alive (except for invertebrate vouchers) unless the taxonomy is uncertain.

3.2.4 Fish and invertebrates of uncertain identification will be placed in a sample container, preserved with 10% formalin, and taken to the laboratory for positive identification. In addition, at least one specimen of each invertebrate species collected during this project will be retained as a representative voucher specimen.

3.2.5 Each sample container taken to the laboratory will be labeled externally with a printed label and an internal label containing sample number is placed inside the sample jar (see examples of external and internal labels for sample number 124493 shown below in Figure III-1). The number of samples returned to laboratory will be recorded on field data sheets. Sample custody will be documented using a COC form.



External Label



Internal Label

Figure III-1. Examples of external (a) and internal (b) labels used to identify samples in containers that are taken to the laboratory.

IV. DATA HANDLING AND DATA CENTER PROCEDURES

1.0 Data Handling Field Data Sheets

Data from sample processing that occurs in the field for all field tasks will be recorded on a field data sheet. The field data sheets will be printed on an 8-1/2" x 11" sheet of weatherproof paper. Specific coding instructions for each variable on the field data sheets are provided below.

All completed data sheets will be reviewed for completeness and legibility by the originator. Data sheets will then be transferred to the Field Operations Manager for quality control checks.

Field data sheets for each sampling type are provided in Appendix 4.

1.1 Field Data Sheet Coding

VARIABLE NAME	INSTRUCTIONS
YR	Preprinted
DATE:	Record date (Mo/Day) of sample collection
TIME:	Record time of the collection using 24-hour clock
GPS POSITION	Record the GPS position of the vessel at the time of sample collection to the nearest degree and minute (decimal minutes with three significant places to the right of the decimal point) of latitude and longitude.
SITE_ID:	Record Site Identification number
SAMPLE_ID:	Record Sample Identification number
DURATION	Record the duration of the sampling effort in minutes to the nearest tenth
BOTTOM DEPTH (ft)	Enter bottom depth in feet
TOW_	
SPD:	Enter vessel tow speed for trawls or clam dredge. Record tow speed to the nearest 0.1 meter per second
DIR	Enter tow direction code: 1 = north 2 = south 3 = east 4 = west
TIDE STG:	Enter code for tidal stage 1 = low slack 2 = flood 3 = high slack

VARIABLE NAME	INSTRUCTIONS
	4 = ebb
WAVE HT:	Enter code for estimated wave height: 1 = calm to 1/2 ft 2 = light chop (>1/2 ft to 1 ft) 3 = heavy chop (>1 ft to 2 ft) 4 = large waves (>2 ft)
BOTM TYP:	Enter code for bottom type: 1 = sand 2 = mud 3 = vegetation 4 = debris 5 = brick 6 = gravel (less than 3") 7 = cobble (greater than 3") 8 = mussel/oyster bed 9 = other
VESL CD:	N/A
USE CODE:	Enter appropriate use code
CREW:	Record name or initials of individuals responsible for sample collection
COMMENTS:	Record any pertinent information not recorded elsewhere on the data sheet. Check comment block if comments may affect data interpretation.

2.0 Data Center Procedures

Normandeau's Data Center in Bedford, NH, will keypunch, verify and error check all field and laboratory data collected by Normandeau as part of this survey effort. "Error-free" data files will be "mapped" to Statistical Analysis System (SAS) compatible files for delivery to AKRF (Figure IV-1).

2.1 Keypunch and Verify

1. Field and laboratory data sheets will be duplicated by the originator.
2. Original data sheets will be sent to the data center for keypunching and subsequent placement in a project file.
3. Copies of each data sheet will be retained by the originator.
4. All data will be double keypunched using Normandeau's keypunch verification software. This software requires keypunching of an original file for each data set. The data set is then keypunched a second time and this second set is simultaneously compared with the original file. Any discrepancies between the two copies causes the keyboard to lock on the discrepancy. Discrepancies must be resolved by the entry clerk before keypunching of the second data set can proceed.

2.2 Error Checking QC Inspections

1. Error checking software available on Normandeau's computer system will be used to systematically inspect raw data files and provide the following types of error resolution: Univariate, bivariate, and multivariate.
2. Results of each error checking audit are summarized as tabular output which identifies the type of error and its location in each raw data file.
3. Errors identified by an error checking software must be resolved by a QC inspector who compares the original data sheet and the raw data file.
4. Error resolutions are initialed by the QC inspector and dated on both the original data sheet (in red pencil or ink) and on a hard copy of the raw data file.
5. SAS data mapping to create data files will not proceed until all errors are resolved and error checking audits are "error free".
6. SAS mapping software is then used to transfer "error-free" field and laboratory data sets into Excel files for submittal to AKRF.

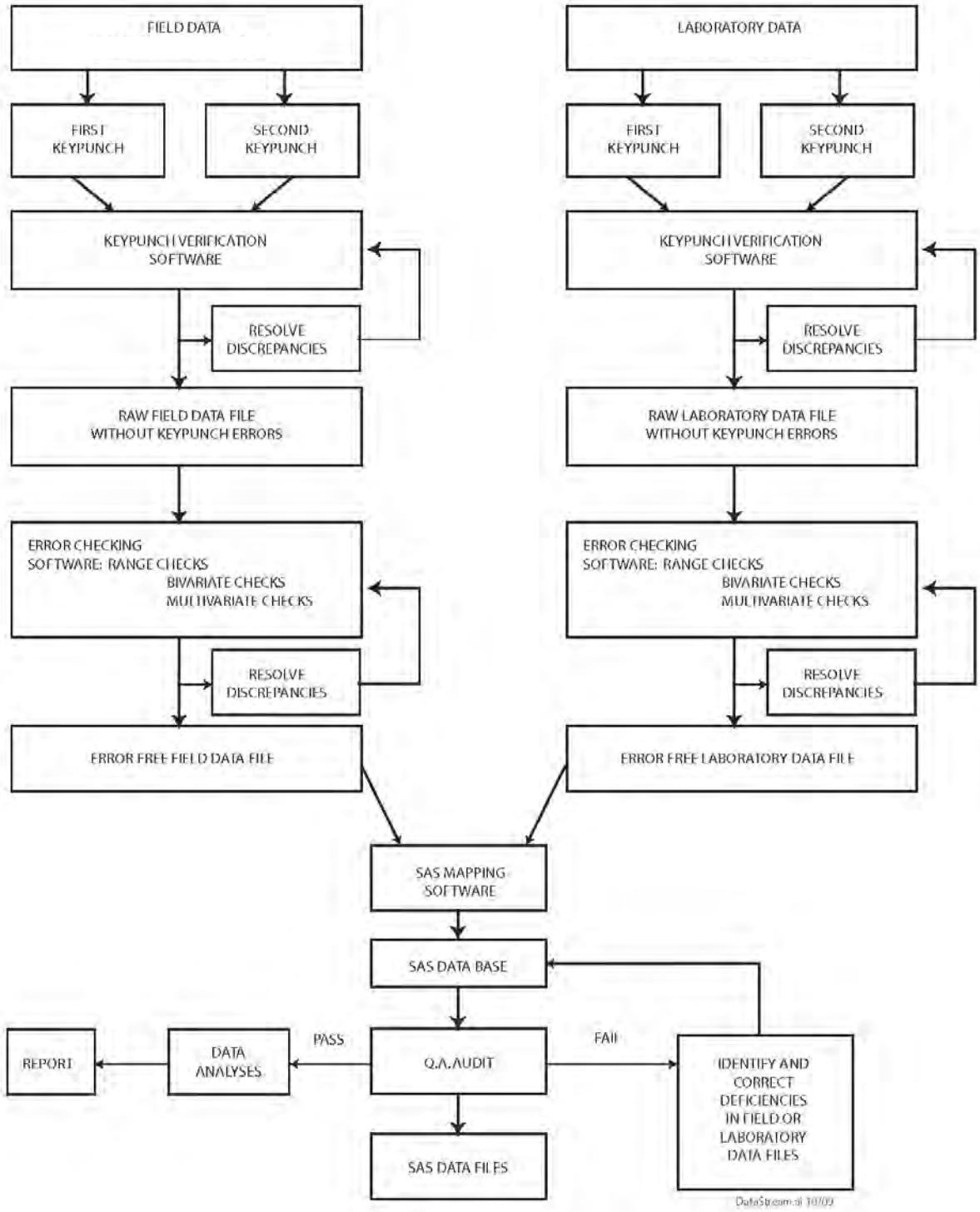


Figure IV-1. Data stream for the ecological data collected in Raritan Bay.

Appendix 1

New York State Department of Environmental Conservation

License to Collect or Possess: Scientific #121

(Provided as a separate document.)

Appendix 2

City of New York, Parks & Recreation, Natural Resources Group, Permit to Conduct Research in Parks

(Provided as a separate document.)

Appendix 3

City of New York, Parks & Recreation, Permit to Perform Work on Park Property

(Provided as a separate document.)

Appendix 4

Field Data Sheets and Chain-of-Custody Form

Appendix 4-1. Field Data Sheet for the Soft-Bottom Macrofauna Survey.

Page ____ of _____

AKRF Staten Island Breakwater Survey - 23674.002 Task 2
Soft-Bottom Benthic Samples Field data sheet

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE MO	DATE DAY	TIME (24 hr)	Use code	VESL_ CD	Tide stage	Wave ht	Btm_ Type	Com-ments
0 2			0 0 2	1 7									

GPS LOCATION N ☐☐°☐☐.☐☐☐ W ☐☐°☐☐.☐☐☐

BOTTOM DEPTH(ft)

CREW: _____

MACROFAUNA GRAB SAMPLE (0.04m^2 Van Veen)

Check box to verify

- ☐ Picture Taken Before Seiving
- ☐ Picture Taken After Seiving
- ☐ 0.5mm Mesh Seive

GRAB PENETRATION (cm)

☐☐☐

COMMENTS: _____

SEDIMENT CHARACTERISTICS GRAB SAMPLE (0.04m^2 Van Veen)

Check box to verify

- ☐ TOC Sample Collected
- ☐ Grain Size Sample Collected

COMMENTS: _____

S1_FIELD1 Benthic AI Jun 2017

Appendix 4-2. Field Data Sheet for Beach Seine Sampling.

Page ____ of _____

AKRF Staten Island Breakwater Survey - 23674.002 Task 2
Beach Seine Field data sheet

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE		TIME		Tide stage	Wave ht	Use code	Comment
					MO	DAY	h h	m m				
2 3			0 1 2	1 7								

GPS LOCATION N ☐☐° ☐☐.☐☐☐ W ☐☐° ☐☐.☐☐☐

CREW: _____

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

S1_FIELD1 Beach Seine AI Jun 2017

Appendix 4-3. Field Data Sheet for Otter Trawl Sampling.

AKRF Staten Island Breakwater Survey - 23674.002 Task 2

Otter Trawl Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	GEAR	YR	DATE		TOW_		Use code	VESL_ CD	Tide stage	Wave ht	Com-ments
					MO	DAY	SPD	DIR					
5 3			0 4 9	1 7									

		TIME (24 hr)	BOTTOM DEPTH(ft)	DURATION
FLO_N				
FLO_END				
FLO_STRT				
FLO_DIF				

CREW: _____

START GPS LOCATION N ___° ___.____ W ___° ___.____

END GPS LOCATION N ___° ___.____ W ___° ___.____

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

S1_FIELD1 Otter Trawl AI Jun 2017

Appendix 4-4. Field Data Sheet for Fish Trap Sampling.

AKRF Staten Island Breakwater Survey - 23674.002 Task 2
Fish Trap Field data sheet

Page ____ of _____

S1

TASK CODE	SITE_ID	SAMPLE_ID	TRAP	GEAR	YR	Use Code	Comments
4 3				0 3 6	1 7		

	DATE		TIME (24 hr)		BOTTOM DEPTH (ft)	Tide stage	Wave ht
	MO	DAY	h h	m m			
SET							
PULL							

CREW: _____

Bait Used: _____

GPS LOCATION N ___ ° ___ . ___ W ___ ° ___ . ___

C1

SPECIES NAME	TAXA CODE	TOTAL COUNT

COMMENTS: _____

S: FIELD | Fish Trap Ad Jan 2017

Appendix 4-5. Field Data Sheet for Fish Measurements.

AKRF Staten Island Breakwater Survey - 23674.002 Task 2
Field Length data sheet

Page ____ of _____

L2

TASK CODE	SITE_ID	SAMPLE_ID

DATE		
MO	DAY	YR
		1 7

SPECIES _____ SPECIES _____ SPECIES _____

TAXA CODE _____ TAXA CODE _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)
1		11		1		11		1		11	
2		12		2		12		2		12	
3		13		3		13		3		13	
4		14		4		14		4		14	
5		15		5		15		5		15	
6		16		6		16		6		16	
7		17		7		17		7		17	
8		18		8		18		8		18	
9		19		9		19		9		19	
10		20		10		20		10		20	

SPECIES _____ SPECIES _____ SPECIES _____

TAXA CODE _____ TAXA CODE _____ TAXA CODE _____

	LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)		LENGTH (cm)
1		11		1		11		1		11	
2		12		2		12		2		12	
3		13		3		13		3		13	
4		14		4		14		4		14	
5		15		5		15		5		15	
6		16		6		16		6		16	
7		17		7		17		7		17	
8		18		8		18		8		18	
9		19		9		19		9		19	
10		20		10		20		10		20	

COMMENTS: _____

_____

Appendix 4-6. Normandeau Chain-of-Custody Form.

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS
www.normandeau.com (603) 472-5191

Chain of Custody Form

Project Name:
Project Number:
Originating Contact:
Originator Location:
Final Destination:
Sampler(s):

Presv. | Parameters | Page of

Method of Shipment:

Sample		Collection		Containers		Grab.	Comp.	Presv.		Parameters				Comments Below:
No.	Identification	Date	Time	No.	Type									
			Total											

Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)
Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Date:	Date:	Date:	Date:	Date:	Date:

Appendix 4-8_Chain of custody.doc 1/12/07

ABUN

SURVEY	GEAR_TYPE	LOCATION	SITE_ ID	SAMPLE _ID	SAMP _ID	DATE	NODC	SCODE	SPECIES	COUNT
June	van Veen grab	B	1	18	1_18	6/20/2017	5001600401	1779	Mediomastus ambiseta	600
June	van Veen grab	B	1	18	1_18	6/20/2017	6169020108	252	Ampelisca abdita	526
June	van Veen grab	B	1	18	1_18	6/20/2017	5001431801	88	Streblospio benedicti	374
June	van Veen grab	B	1	18	1_18	6/20/2017	5004000000	466	Oligochaeta	339
June	van Veen grab	B	1	18	1_18	6/20/2017	5517010201	205	Mya arenaria	240
June	van Veen grab	B	1	18	1_18	6/20/2017	5001130207	393	Hypereteone heteropoda	194
June	van Veen grab	B	1	18	1_18	6/20/2017	5001430498	91	Polydora cornuta	122
June	van Veen grab	B	1	18	1_18	6/20/2017	5001500000	2066	Cirratulidae	108
June	van Veen grab	B	1	18	1_18	6/20/2017	5001500305	4624	Tharyx acutus	103
June	van Veen grab	B	1	18	1_18	6/20/2017	6169150998	6161	Grandidierella japonica	94
June	van Veen grab	B	1	18	1_18	6/20/2017	5001239598	3535	Opisthodonta longocirrata	78
June	van Veen grab	B	1	18	1_18	6/20/2017	500127	9112720	Glyceridae	74
June	van Veen grab	B	1	18	1_18	6/20/2017	5001430701	86	Spio filicornis	56
June	van Veen grab	B	1	18	1_18	6/20/2017	5001230701	4998	Exogone dispar	37
June	van Veen grab	B	1	18	1_18	6/20/2017	5001500297	5841	Caulleriella venefica	36
June	van Veen grab	B	1	18	1_18	6/20/2017	6153011508	577	Neomysis americana	29
June	van Veen grab	B	1	18	1_18	6/20/2017	5103640204	149	Crepidula fornicata	28
June	van Veen grab	B	1	18	1_18	6/20/2017	6169421598	714	Eobrolgus spinosus	28
June	van Veen grab	B	1	18	1_18	6/20/2017	5131070198	3590	Corambe obscura	25
June	van Veen grab	B	1	18	1_18	6/20/2017	6169210301	698	Elasmopus levis	21
June	van Veen grab	B	1	18	1_18	6/20/2017	5001631102	83	Euclymene collaris	13
June	van Veen grab	B	1	18	1_18	6/20/2017	6169159795	260	Monocorophium acherusicum	13
June	van Veen grab	B	1	18	1_18	6/20/2017	5515290398	209	Ensis leei	12
June	van Veen grab	B	1	18	1_18	6/20/2017	5001231698	6231	Streptosyllis verrilli	11
June	van Veen grab	B	1	18	1_18	6/20/2017	5520050201	5564	Lyonsia arenosa	10
June	van Veen grab	B	1	18	1_18	6/20/2017	6169150704	4610	Unciola serrata	9
June	van Veen grab	B	1	18	1_18	6/20/2017	5001131101	57	Eumida sanguinea	7
June	van Veen grab	B	1	18	1_18	6/20/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	B	1	18	1_18	6/20/2017	5105089897	377	Tritia obsoleta	7
June	van Veen grab	B	1	18	1_18	6/20/2017	5110040103	600	Acteocina canaliculata	6
June	van Veen grab	B	1	18	1_18	6/20/2017	5105089898	162	Tritia trivittata	4
June	van Veen grab	B	1	18	1_18	6/20/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	B	1	18	1_18	6/20/2017	6169159896	695	Apocorophium acutum	4
June	van Veen grab	B	1	18	1_18	6/20/2017	4303020209	3587	Cerebratulus lacteus	4
June	van Veen grab	B	1	18	1_18	6/20/2017	5001270105	368	Glycera dibranchiata	3

ABUN

June	van Veen grab	B	1	18	1_18	6/20/2017	6189029798	769	Dyspanopeus sayi	3
June	van Veen grab	B	1	18	1_18	6/20/2017	5105010301	1146	Urosalpinx cinerea	3
June	van Veen grab	B	1	18	1_18	6/20/2017	5001210201	1199	Microphthalmus sczelkowii	3
June	van Veen grab	B	1	18	1_18	6/20/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	B	1	18	1_18	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	2
June	van Veen grab	B	1	18	1_18	6/20/2017	6169211006	706	Melita nitida	2
June	van Veen grab	B	1	18	1_18	6/20/2017	3906030101	1098	Stylochus ellipticus	2
June	van Veen grab	B	1	18	1_18	6/20/2017	5515250301	1321	Mulinia lateralis	2
June	van Veen grab	B	1	18	1_18	6/20/2017	5001680899	1826	Polycirrus sp.	2
June	van Veen grab	B	1	18	1_18	6/20/2017	500124	2071	Nereididae	2
June	van Veen grab	B	1	18	1_18	6/20/2017	5001650202	3586	Sabellaria vulgaris	2
June	van Veen grab	B	1	18	1_18	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	B	1	18	1_18	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	2
June	van Veen grab	B	1	18	1_18	6/20/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	B	1	18	1_18	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001020899	432	Harmothoe sp.	1
June	van Veen grab	B	1	18	1_18	6/20/2017	6169150302	699	Ericthonius brasiliensis	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001230104	1028	Myrianida prolifera	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	B	1	18	1_18	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001230193	1908	Proceraea cornuta	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001060399	1923	Sthenelais sp.	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001231304	1934	Odontosyllis fulgurans	1
June	van Veen grab	B	1	18	1_18	6/20/2017	500102	2077	Polynoidae	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001060401	3664	Sigalion arenicola	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5103640299	4514	Crepidula sp.	1
June	van Veen grab	B	1	18	1_18	6/20/2017	6169100101	4547	Batea catharinensis	1
June	van Veen grab	B	1	18	1_18	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	B	1	18	1_18	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	1	18	1_18	6/20/2017	4306050302	4949	Zygonemertes virescens	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5004000000	466	Oligochaeta	491
June	van Veen grab	B	12	12	12_12	6/20/2017	5001600401	1779	Mediomastus ambiseta	132
June	van Veen grab	B	12	12	12_12	6/20/2017	5001430498	91	Polydora cornuta	111
June	van Veen grab	B	12	12	12_12	6/20/2017	5001500297	5841	Caulleriella venefica	96
June	van Veen grab	B	12	12	12_12	6/20/2017	5001130207	393	Hypereteone heteropoda	81
June	van Veen grab	B	12	12	12_12	6/20/2017	5001431801	88	Streblospio benedicti	51

ABUN

June	van Veen grab	B	12	12	12_12	6/20/2017	5517010201	205	Mya arenaria	47
June	van Veen grab	B	12	12	12_12	6/20/2017	5001500000	2066	Cirratulidae	46
June	van Veen grab	B	12	12	12_12	6/20/2017	5103640204	149	Crepidula fornicata	39
June	van Veen grab	B	12	12	12_12	6/20/2017	5001680899	1826	Polycirrus sp.	34
June	van Veen grab	B	12	12	12_12	6/20/2017	5001239598	3535	Opisthodonta longocirrata	29
June	van Veen grab	B	12	12	12_12	6/20/2017	500127	9112720	Glyceridae	26
June	van Veen grab	B	12	12	12_12	6/20/2017	5001231698	6231	Streptosyllis verrilli	20
June	van Veen grab	B	12	12	12_12	6/20/2017	5001230701	4998	Exogone dispar	15
June	van Veen grab	B	12	12	12_12	6/20/2017	6169210709	389	Gammarus mucronatus	14
June	van Veen grab	B	12	12	12_12	6/20/2017	6169020108	252	Ampelisca abdita	13
June	van Veen grab	B	12	12	12_12	6/20/2017	6160010202	679	Cyathura burbancki	11
June	van Veen grab	B	12	12	12_12	6/20/2017	6169210301	698	Elasmopus levis	10
June	van Veen grab	B	12	12	12_12	6/20/2017	5001131101	57	Eumida sanguinea	7
June	van Veen grab	B	12	12	12_12	6/20/2017	5131070198	3590	Corambe obscura	7
June	van Veen grab	B	12	12	12_12	6/20/2017	6169349898	3954	Lysianopsis alba	7
June	van Veen grab	B	12	12	12_12	6/20/2017	5520050201	5564	Lyonsia arenosa	7
June	van Veen grab	B	12	12	12_12	6/20/2017	5001430701	86	Spio filicornis	6
June	van Veen grab	B	12	12	12_12	6/20/2017	5001409899	411	Leitoscoloplos sp.	4
June	van Veen grab	B	12	12	12_12	6/20/2017	6153011508	577	Neomysis americana	4
June	van Veen grab	B	12	12	12_12	6/20/2017	6169421598	714	Eobrolgus spinosus	3
June	van Veen grab	B	12	12	12_12	6/20/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	B	12	12	12_12	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	B	12	12	12_12	6/20/2017	5001409898	381	Leitoscoloplos robustus	2
June	van Veen grab	B	12	12	12_12	6/20/2017	6169211006	706	Melita nitida	2
June	van Veen grab	B	12	12	12_12	6/20/2017	55	1202	Bivalvia	2
June	van Veen grab	B	12	12	12_12	6/20/2017	500168	1338	Terebellidae	2
June	van Veen grab	B	12	12	12_12	6/20/2017	5001210103	4609	Gyptis vittata	2
June	van Veen grab	B	12	12	12_12	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	B	12	12	12_12	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5127	1147	Nudibranchia	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001650202	3586	Sabellaria vulgaris	1

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June	van Veen grab	B	12	12	12_12	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001060401	3664	Sigalion arenicola	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	B	12	12	12_12	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	12	12	12_12	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	B	12	12	12_12	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001431801	88	Streblospio benedicti	500
June	van Veen grab	B	17	6	17_6	6/20/2017	5001600401	1779	Mediomastus ambiseta	314
June	van Veen grab	B	17	6	17_6	6/20/2017	5001500297	5841	Caulleriella venefica	276
June	van Veen grab	B	17	6	17_6	6/20/2017	5004000000	466	Oligochaeta	268
June	van Veen grab	B	17	6	17_6	6/20/2017	5001239598	3535	Opisthodonta longocirrata	139
June	van Veen grab	B	17	6	17_6	6/20/2017	5001130207	393	Hypereteone heteropoda	49
June	van Veen grab	B	17	6	17_6	6/20/2017	500127	9112720	Glyceridae	49
June	van Veen grab	B	17	6	17_6	6/20/2017	5001680899	1826	Polycirrus sp.	39
June	van Veen grab	B	17	6	17_6	6/20/2017	5001231698	6231	Streptosyllis verrilli	36
June	van Veen grab	B	17	6	17_6	6/20/2017	5001631102	83	Euclymene collaris	27
June	van Veen grab	B	17	6	17_6	6/20/2017	5001430701	86	Spio filicornis	25
June	van Veen grab	B	17	6	17_6	6/20/2017	5001230701	4998	Exogone dispar	23
June	van Veen grab	B	17	6	17_6	6/20/2017	5001430498	91	Polydora cornuta	22
June	van Veen grab	B	17	6	17_6	6/20/2017	5001500000	2066	Cirratulidae	21
June	van Veen grab	B	17	6	17_6	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	14
June	van Veen grab	B	17	6	17_6	6/20/2017	5001500305	4624	Tharyx acutus	12
June	van Veen grab	B	17	6	17_6	6/20/2017	6169150998	6161	Grandidierella japonica	12
June	van Veen grab	B	17	6	17_6	6/20/2017	6169020108	252	Ampelisca abdita	8
June	van Veen grab	B	17	6	17_6	6/20/2017	5520050201	5564	Lyonsia arenosa	8
June	van Veen grab	B	17	6	17_6	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	8
June	van Veen grab	B	17	6	17_6	6/20/2017	6169150704	4610	Unciola serrata	7
June	van Veen grab	B	17	6	17_6	6/20/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	17	6	17_6	6/20/2017	500123	2064	Syllidae	6
June	van Veen grab	B	17	6	17_6	6/20/2017	5110040103	600	Acteocina canaliculata	5
June	van Veen grab	B	17	6	17_6	6/20/2017	5001270105	368	Glycera dibranchiata	4
June	van Veen grab	B	17	6	17_6	6/20/2017	5103640204	149	Crepidula fornicata	3
June	van Veen grab	B	17	6	17_6	6/20/2017	6153011508	577	Neomysis americana	3
June	van Veen grab	B	17	6	17_6	6/20/2017	3901000000	1279	Turbellaria	3
June	van Veen grab	B	17	6	17_6	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	B	17	6	17_6	6/20/2017	6169020109	253	Ampelisca vadorum	2

June	van Veen grab	B	17	6	17_6	6/20/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	B	17	6	17_6	6/20/2017	5001230903	3920	Brania wellfleetensis	2
June	van Veen grab	B	17	6	17_6	6/20/2017	4302020101	4804	Carinoma tremaphoros	2
June	van Veen grab	B	17	6	17_6	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	B	17	6	17_6	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	B	17	6	17_6	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	B	17	6	17_6	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	17	6	17_6	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	17	6	17_6	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001231304	1934	Odontosyllis fulgurans	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	B	17	6	17_6	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	17	6	17_6	6/20/2017	6169379898	4956	Ameroculodes edwardsi	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	B	17	6	17_6	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5001431801	88	Streblospio benedicti	486
June	van Veen grab	B	18	28	18_28	6/20/2017	5001600401	1779	Mediomastus ambiseta	333
June	van Veen grab	B	18	28	18_28	6/20/2017	5004000000	466	Oligochaeta	259
June	van Veen grab	B	18	28	18_28	6/20/2017	5001239598	3535	Opisthodonta longocirrata	233
June	van Veen grab	B	18	28	18_28	6/20/2017	5001680899	1826	Polycirrus sp.	124
June	van Veen grab	B	18	28	18_28	6/20/2017	5001500297	5841	Caulleriella venefica	109
June	van Veen grab	B	18	28	18_28	6/20/2017	5001130207	393	Hypereteone heteropoda	68
June	van Veen grab	B	18	28	18_28	6/20/2017	5001500000	2066	Cirratulidae	63
June	van Veen grab	B	18	28	18_28	6/20/2017	500127	9112720	Glyceridae	54
June	van Veen grab	B	18	28	18_28	6/20/2017	5001500305	4624	Tharyx acutus	50
June	van Veen grab	B	18	28	18_28	6/20/2017	5001430701	86	Spio filicornis	40
June	van Veen grab	B	18	28	18_28	6/20/2017	5001430498	91	Polydora cornuta	39
June	van Veen grab	B	18	28	18_28	6/20/2017	5001631102	83	Euclymene collaris	36
June	van Veen grab	B	18	28	18_28	6/20/2017	5001230701	4998	Exogone dispar	34
June	van Veen grab	B	18	28	18_28	6/20/2017	6169150998	6161	Grandidierella japonica	22
June	van Veen grab	B	18	28	18_28	6/20/2017	5001231698	6231	Streptosyllis verrilli	22
June	van Veen grab	B	18	28	18_28	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	18
June	van Veen grab	B	18	28	18_28	6/20/2017	6169020108	252	Ampelisca abdita	14

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June	van Veen grab	B	18	28	18_28	6/20/2017	6169150704	4610	Unciola serrata	13
June	van Veen grab	B	18	28	18_28	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	10
June	van Veen grab	B	18	28	18_28	6/20/2017	5515319898	203	Ameritella agilis	9
June	van Veen grab	B	18	28	18_28	6/20/2017	5515290398	209	Ensis leei	6
June	van Veen grab	B	18	28	18_28	6/20/2017	5520050201	5564	Lyonsia arenosa	5
June	van Veen grab	B	18	28	18_28	6/20/2017	6169210709	389	Gammarus mucronatus	4
June	van Veen grab	B	18	28	18_28	6/20/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	B	18	28	18_28	6/20/2017	6169020109	253	Ampelisca vadorum	3
June	van Veen grab	B	18	28	18_28	6/20/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	B	18	28	18_28	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	18	28	18_28	6/20/2017	6169421598	714	Eobrolgus spinosus	3
June	van Veen grab	B	18	28	18_28	6/20/2017	5001230903	3920	Brania wellfleetensis	3
June	van Veen grab	B	18	28	18_28	6/20/2017	4306050110	4805	Amphiporus bioculatus	3
June	van Veen grab	B	18	28	18_28	6/20/2017	5105089897	377	Tritia obsoleta	2
June	van Veen grab	B	18	28	18_28	6/20/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	B	18	28	18_28	6/20/2017	3901000000	1279	Turbellaria	2
June	van Veen grab	B	18	28	18_28	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	18	28	18_28	6/20/2017	5001210103	4609	Gyptis vittata	2
June	van Veen grab	B	18	28	18_28	6/20/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	18	28	18_28	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	18	28	18_28	6/20/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5001432099	774	Scolelepis sp.	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	18	28	18_28	6/20/2017	500123	2064	Syllidae	1
June	van Veen grab	B	18	28	18_28	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	B	18	28	18_28	6/20/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	B	18	28	18_28	6/20/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	19	11	19_11	6/20/2017	5001431801	88	Streblospio benedicti	969
June	van Veen grab	B	19	11	19_11	6/20/2017	5001600401	1779	Mediomastus ambiseta	503
June	van Veen grab	B	19	11	19_11	6/20/2017	5004000000	466	Oligochaeta	336
June	van Veen grab	B	19	11	19_11	6/20/2017	5001500297	5841	Caulleriella venefica	262
June	van Veen grab	B	19	11	19_11	6/20/2017	5001239598	3535	Opisthodonta longocirrata	141
June	van Veen grab	B	19	11	19_11	6/20/2017	500127	9112720	Glyceridae	90
June	van Veen grab	B	19	11	19_11	6/20/2017	5001130207	393	Hypereteone heteropoda	31
June	van Veen grab	B	19	11	19_11	6/20/2017	5001680899	1826	Polycirrus sp.	29

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June	van Veen grab	B	19	11	19_11	6/20/2017	5001430701	86	Spio filicornis	25
June	van Veen grab	B	19	11	19_11	6/20/2017	5001231698	6231	Streptosyllis verrilli	25
June	van Veen grab	B	19	11	19_11	6/20/2017	5001631102	83	Euclymene collaris	19
June	van Veen grab	B	19	11	19_11	6/20/2017	6169020108	252	Ampelisca abdita	14
June	van Veen grab	B	19	11	19_11	6/20/2017	3901000000	1279	Turbellaria	14
June	van Veen grab	B	19	11	19_11	6/20/2017	5001500000	2066	Cirratulidae	13
June	van Veen grab	B	19	11	19_11	6/20/2017	5515319898	203	Ameritella agilis	12
June	van Veen grab	B	19	11	19_11	6/20/2017	5001230701	4998	Exogone dispar	11
June	van Veen grab	B	19	11	19_11	6/20/2017	5001500305	4624	Tharyx acutus	10
June	van Veen grab	B	19	11	19_11	6/20/2017	5001430498	91	Polydora cornuta	9
June	van Veen grab	B	19	11	19_11	6/20/2017	5002050197	5842	Polygordius jouinae	8
June	van Veen grab	B	19	11	19_11	6/20/2017	5515290398	209	Ensis leei	6
June	van Veen grab	B	19	11	19_11	6/20/2017	5001210299	1124	Microphthalmus sp.	6
June	van Veen grab	B	19	11	19_11	6/20/2017	6169150704	4610	Unciola serrata	6
June	van Veen grab	B	19	11	19_11	6/20/2017	5001270105	368	Glycera dibranchiata	4
June	van Veen grab	B	19	11	19_11	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	19	11	19_11	6/20/2017	6169421598	714	Eobrolgus spinosus	3
June	van Veen grab	B	19	11	19_11	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	3
June	van Veen grab	B	19	11	19_11	6/20/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	B	19	11	19_11	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	19	11	19_11	6/20/2017	4302020101	4804	Carinoma tremaphoros	2
June	van Veen grab	B	19	11	19_11	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	B	19	11	19_11	6/20/2017	6169150998	6161	Grandidierella japonica	2
June	van Veen grab	B	19	11	19_11	6/20/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	B	19	11	19_11	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	19	11	19_11	6/20/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	B	19	11	19_11	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	B	19	11	19_11	6/20/2017	5001230903	3920	Brania wellfleetensis	1
June	van Veen grab	B	19	11	19_11	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5001431801	88	Streblospio benedicti	514
June	van Veen grab	B	2	22	2_22	6/20/2017	5004000000	466	Oligochaeta	322
June	van Veen grab	B	2	22	2_22	6/20/2017	5001600401	1779	Mediomastus ambiseta	271
June	van Veen grab	B	2	22	2_22	6/20/2017	5001239598	3535	Opisthodonta longocirrata	137
June	van Veen grab	B	2	22	2_22	6/20/2017	500127	9112720	Glyceridae	67
June	van Veen grab	B	2	22	2_22	6/20/2017	5001130207	393	Hypereteone heteropoda	36
June	van Veen grab	B	2	22	2_22	6/20/2017	5001430701	86	Spio filicornis	27
June	van Veen grab	B	2	22	2_22	6/20/2017	5001500297	5841	Caulleriella venefica	18

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June	van Veen grab	B	2	22	2_22	6/20/2017	5001680899	1826	Polycirrus sp.	17
June	van Veen grab	B	2	22	2_22	6/20/2017	6169150998	6161	Grandidierella japonica	16
June	van Veen grab	B	2	22	2_22	6/20/2017	5001430498	91	Polydora cornuta	15
June	van Veen grab	B	2	22	2_22	6/20/2017	5001230701	4998	Exogone dispar	15
June	van Veen grab	B	2	22	2_22	6/20/2017	5520050201	5564	Lyonsia arenosa	12
June	van Veen grab	B	2	22	2_22	6/20/2017	5001231698	6231	Streptosyllis verrilli	12
June	van Veen grab	B	2	22	2_22	6/20/2017	5001500000	2066	Cirratulidae	8
June	van Veen grab	B	2	22	2_22	6/20/2017	5517010201	205	Mya arenaria	6
June	van Veen grab	B	2	22	2_22	6/20/2017	5515290398	209	Ensis leei	6
June	van Veen grab	B	2	22	2_22	6/20/2017	5515471301	387	Gemma gemma	4
June	van Veen grab	B	2	22	2_22	6/20/2017	5103640204	149	Crepidula fornicata	3
June	van Veen grab	B	2	22	2_22	6/20/2017	5515319898	203	Ameritella agilis	3
June	van Veen grab	B	2	22	2_22	6/20/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	2	22	2_22	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	2	22	2_22	6/20/2017	6169020108	252	Ampelisca abdita	2
June	van Veen grab	B	2	22	2_22	6/20/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	B	2	22	2_22	6/20/2017	5001409898	381	Leitoscoloplos robustus	2
June	van Veen grab	B	2	22	2_22	6/20/2017	6169421598	714	Eobrolgus spinosus	2
June	van Veen grab	B	2	22	2_22	6/20/2017	5001210299	1124	Microphthalmus sp.	2
June	van Veen grab	B	2	22	2_22	6/20/2017	5002050197	5842	Polygordius jouinae	2
June	van Veen grab	B	2	22	2_22	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	B	2	22	2_22	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	2
June	van Veen grab	B	2	22	2_22	6/20/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	2	22	2_22	6/20/2017	500143	2068	Spionidae	1
June	van Veen grab	B	2	22	2_22	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	B	2	22	2_22	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	2	22	2_22	6/20/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5001431801	88	Streblospio benedicti	391
June	van Veen grab	B	20	8	20_8	6/20/2017	5004000000	466	Oligochaeta	388
June	van Veen grab	B	20	8	20_8	6/20/2017	5001600401	1779	Mediomastus ambiseta	357
June	van Veen grab	B	20	8	20_8	6/20/2017	5001500297	5841	Caulleriella venefica	248
June	van Veen grab	B	20	8	20_8	6/20/2017	5001239598	3535	Opisthodonta longocirrata	149
June	van Veen grab	B	20	8	20_8	6/20/2017	6169020108	252	Ampelisca abdita	77

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June	van Veen grab	B	20	8	20_8	6/20/2017	5001500305	4624	Tharyx acutus	64
June	van Veen grab	B	20	8	20_8	6/20/2017	5001130207	393	Hypereteone heteropoda	48
June	van Veen grab	B	20	8	20_8	6/20/2017	500127	9112720	Glyceridae	42
June	van Veen grab	B	20	8	20_8	6/20/2017	5001500000	2066	Cirratulidae	39
June	van Veen grab	B	20	8	20_8	6/20/2017	5001230701	4998	Exogone dispar	22
June	van Veen grab	B	20	8	20_8	6/20/2017	5001231698	6231	Streptosyllis verrilli	20
June	van Veen grab	B	20	8	20_8	6/20/2017	5001680899	1826	Polycirrus sp.	19
June	van Veen grab	B	20	8	20_8	6/20/2017	5001430498	91	Polydora cornuta	15
June	van Veen grab	B	20	8	20_8	6/20/2017	5001631102	83	Euclymene collaris	14
June	van Veen grab	B	20	8	20_8	6/20/2017	5001430701	86	Spio filicornis	14
June	van Veen grab	B	20	8	20_8	6/20/2017	5515319898	203	Ameritella agilis	12
June	van Veen grab	B	20	8	20_8	6/20/2017	5001230903	3920	Brania wellfleetensis	9
June	van Veen grab	B	20	8	20_8	6/20/2017	5520050201	5564	Lyonsia arenosa	9
June	van Veen grab	B	20	8	20_8	6/20/2017	5002050197	5842	Polygordius jouinae	7
June	van Veen grab	B	20	8	20_8	6/20/2017	5515290398	209	Ensis leei	4
June	van Veen grab	B	20	8	20_8	6/20/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	B	20	8	20_8	6/20/2017	5105089897	377	Tritia obsoleta	2
June	van Veen grab	B	20	8	20_8	6/20/2017	5001432006	4544	Scolelepis (parascolelepis) texana	2
June	van Veen grab	B	20	8	20_8	6/20/2017	6169150704	4610	Unciola serrata	2
June	van Veen grab	B	20	8	20_8	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	20	8	20_8	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	20	8	20_8	6/20/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	B	20	8	20_8	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	20	8	20_8	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	20	8	20_8	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	B	20	8	20_8	6/20/2017	6169349898	3954	Lysianopsis alba	1
June	van Veen grab	B	20	8	20_8	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	B	20	8	20_8	6/20/2017	4302020101	4804	Carinoma tremaphoros	1
June	van Veen grab	B	20	8	20_8	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	B	20	8	20_8	6/20/2017	3901000010	6238	Turbellaria sp. 10 nai	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5001431801	88	Streblospio benedicti	362
June	van Veen grab	B	24	19	24_19	6/20/2017	5001600401	1779	Mediomastus ambiseta	325

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June	van Veen grab	B	24	19	24_19	6/20/2017	5004000000	466	Oligochaeta	262
June	van Veen grab	B	24	19	24_19	6/20/2017	5001500297	5841	Caulleriella venefica	146
June	van Veen grab	B	24	19	24_19	6/20/2017	5001631102	83	Euclymene collaris	63
June	van Veen grab	B	24	19	24_19	6/20/2017	500127	9112720	Glyceridae	63
June	van Veen grab	B	24	19	24_19	6/20/2017	5001239598	3535	Opisthodonta longocirrata	59
June	van Veen grab	B	24	19	24_19	6/20/2017	5001500000	2066	Cirratulidae	46
June	van Veen grab	B	24	19	24_19	6/20/2017	5001500305	4624	Tharyx acutus	46
June	van Veen grab	B	24	19	24_19	6/20/2017	5001130207	393	Hypereteone heteropoda	38
June	van Veen grab	B	24	19	24_19	6/20/2017	5001231698	6231	Streptosyllis verrilli	28
June	van Veen grab	B	24	19	24_19	6/20/2017	5001430701	86	Spio filicornis	26
June	van Veen grab	B	24	19	24_19	6/20/2017	5001680899	1826	Polycirrus sp.	20
June	van Veen grab	B	24	19	24_19	6/20/2017	5001230701	4998	Exogone dispar	17
June	van Veen grab	B	24	19	24_19	6/20/2017	5515319898	203	Ameritella agilis	12
June	van Veen grab	B	24	19	24_19	6/20/2017	5001430498	91	Polydora cornuta	8
June	van Veen grab	B	24	19	24_19	6/20/2017	5515290398	209	Ensis leei	8
June	van Veen grab	B	24	19	24_19	6/20/2017	5001230903	3920	Brania wellfleetensis	8
June	van Veen grab	B	24	19	24_19	6/20/2017	5002050197	5842	Polygordius jouinae	5
June	van Veen grab	B	24	19	24_19	6/20/2017	3901000010	6238	Turbellaria sp. 10 nai	4
June	van Veen grab	B	24	19	24_19	6/20/2017	6169020108	252	Ampelisca abdita	3
June	van Veen grab	B	24	19	24_19	6/20/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	B	24	19	24_19	6/20/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	B	24	19	24_19	6/20/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	B	24	19	24_19	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	B	24	19	24_19	6/20/2017	6169150998	6161	Grandidierella japonica	2
June	van Veen grab	B	24	19	24_19	6/20/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5001360597	3497	Schistomeringos annulata	1
June	van Veen grab	B	24	19	24_19	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	B	24	19	24_19	6/20/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001431801	88	Streblospio benedicti	827
June	van Veen grab	B	25	20	25_20	6/20/2017	5001600401	1779	Mediomastus ambiseta	789
June	van Veen grab	B	25	20	25_20	6/20/2017	6169020108	252	Ampelisca abdita	680
June	van Veen grab	B	25	20	25_20	6/20/2017	5001130207	393	Hypereteone heteropoda	251

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June	van Veen grab	B	25	20	25_20	6/20/2017	5001430498	91	Polydora cornuta	100
June	van Veen grab	B	25	20	25_20	6/20/2017	5004000000	466	Oligochaeta	74
June	van Veen grab	B	25	20	25_20	6/20/2017	5001631102	83	Euclymene collaris	63
June	van Veen grab	B	25	20	25_20	6/20/2017	5001430701	86	Spio filicornis	46
June	van Veen grab	B	25	20	25_20	6/20/2017	5515290398	209	Ensis leei	26
June	van Veen grab	B	25	20	25_20	6/20/2017	5517010201	205	Mya arenaria	24
June	van Veen grab	B	25	20	25_20	6/20/2017	500127	9112720	Glyceridae	24
June	van Veen grab	B	25	20	25_20	6/20/2017	5001230701	4998	Exogone dispar	22
June	van Veen grab	B	25	20	25_20	6/20/2017	5001650202	3586	Sabellaria vulgaris	21
June	van Veen grab	B	25	20	25_20	6/20/2017	5001500305	4624	Tharyx acutus	17
June	van Veen grab	B	25	20	25_20	6/20/2017	5515319898	203	Ameritella agilis	16
June	van Veen grab	B	25	20	25_20	6/20/2017	5001500297	5841	Caulleriella venefica	16
June	van Veen grab	B	25	20	25_20	6/20/2017	5520050201	5564	Lyonsia arenosa	15
June	van Veen grab	B	25	20	25_20	6/20/2017	6169020109	253	Ampelisca vadorum	14
June	van Veen grab	B	25	20	25_20	6/20/2017	5001500000	2066	Cirratulidae	13
June	van Veen grab	B	25	20	25_20	6/20/2017	6169150998	6161	Grandidierella japonica	11
June	van Veen grab	B	25	20	25_20	6/20/2017	5001670802	112	Ampharete oculata	10
June	van Veen grab	B	25	20	25_20	6/20/2017	5001680899	1826	Polycirrus sp.	8
June	van Veen grab	B	25	20	25_20	6/20/2017	5001231698	6231	Streptosyllis verrilli	8
June	van Veen grab	B	25	20	25_20	6/20/2017	6169150704	4610	Unciola serrata	7
June	van Veen grab	B	25	20	25_20	6/20/2017	5001131101	57	Eumida sanguinea	6
June	van Veen grab	B	25	20	25_20	6/20/2017	5001210103	4609	Gyptis vittata	4
June	van Veen grab	B	25	20	25_20	6/20/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	25	20	25_20	6/20/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	B	25	20	25_20	6/20/2017	6160010202	679	Cyathura burbancki	3
June	van Veen grab	B	25	20	25_20	6/20/2017	5001239698	1153	Salvatoria clavata	3
June	van Veen grab	B	25	20	25_20	6/20/2017	500128	1856	Goniadidae	3
June	van Veen grab	B	25	20	25_20	6/20/2017	5001600197	6083	Capitella capitata complex	3
June	van Veen grab	B	25	20	25_20	6/20/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	25	20	25_20	6/20/2017	6169421598	714	Eobrolgus spinosus	2
June	van Veen grab	B	25	20	25_20	6/20/2017	6169349898	3954	Lysianopsis alba	2
June	van Veen grab	B	25	20	25_20	6/20/2017	5001280104	4519	Glycinde solitaria	2
June	van Veen grab	B	25	20	25_20	6/20/2017	5001330198	4665	Drilonereis longa	2
June	van Veen grab	B	25	20	25_20	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
June	van Veen grab	B	25	20	25_20	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	2
June	van Veen grab	B	25	20	25_20	6/20/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001270104	450	Glycera americana	1

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June	van Veen grab	B	25	20	25_20	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001660302	770	Pectinaria gouldii	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5515250301	1321	Mulinia lateralis	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001439698	1893	Dipolydora socialis	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001239598	3535	Opisthodonta longocirrata	1
June	van Veen grab	B	25	20	25_20	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	B	25	20	25_20	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	B	25	20	25_20	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	26	7	26_7	6/20/2017	5001431801	88	Streblospio benedicti	1017
June	van Veen grab	B	26	7	26_7	6/20/2017	5001600401	1779	Mediomastus ambiseta	751
June	van Veen grab	B	26	7	26_7	6/20/2017	5004000000	466	Oligochaeta	340
June	van Veen grab	B	26	7	26_7	6/20/2017	500127	9112720	Glyceridae	117
June	van Veen grab	B	26	7	26_7	6/20/2017	5001130207	393	Hypereteone heteropoda	62
June	van Veen grab	B	26	7	26_7	6/20/2017	5001231698	6231	Streptosyllis verrilli	53
June	van Veen grab	B	26	7	26_7	6/20/2017	5515471301	387	Gemma gemma	52
June	van Veen grab	B	26	7	26_7	6/20/2017	6169150998	6161	Grandidierella japonica	52
June	van Veen grab	B	26	7	26_7	6/20/2017	5001430498	91	Polydora cornuta	33
June	van Veen grab	B	26	7	26_7	6/20/2017	5001430701	86	Spio filicornis	32
June	van Veen grab	B	26	7	26_7	6/20/2017	5105089897	377	Tritia obsoleta	30
June	van Veen grab	B	26	7	26_7	6/20/2017	5001500297	5841	Caulleriella venefica	27
June	van Veen grab	B	26	7	26_7	6/20/2017	5001131101	57	Eumida sanguinea	18
June	van Veen grab	B	26	7	26_7	6/20/2017	5001230701	4998	Exogone dispar	17
June	van Veen grab	B	26	7	26_7	6/20/2017	5517010201	205	Mya arenaria	15
June	van Veen grab	B	26	7	26_7	6/20/2017	6169020108	252	Ampelisca abdita	10
June	van Veen grab	B	26	7	26_7	6/20/2017	5001239598	3535	Opisthodonta longocirrata	9
June	van Veen grab	B	26	7	26_7	6/20/2017	5001500305	4624	Tharyx acutus	8
June	van Veen grab	B	26	7	26_7	6/20/2017	5001270105	368	Glycera dibranchiata	7
June	van Veen grab	B	26	7	26_7	6/20/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	26	7	26_7	6/20/2017	5001500000	2066	Cirratulidae	6
June	van Veen grab	B	26	7	26_7	6/20/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	B	26	7	26_7	6/20/2017	5103640204	149	Crepidula fornicata	4

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June	van Veen grab	B	26	7	26_7	6/20/2017	3901000000	1279	Turbellaria	4
June	van Veen grab	B	26	7	26_7	6/20/2017	5001600197	6083	Capitella capitata complex	4
June	van Veen grab	B	26	7	26_7	6/20/2017	6154050801	235	Oxyurostylis smithi	3
June	van Veen grab	B	26	7	26_7	6/20/2017	6169210709	389	Gammarus mucronatus	3
June	van Veen grab	B	26	7	26_7	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	26	7	26_7	6/20/2017	500143	2068	Spionidae	3
June	van Veen grab	B	26	7	26_7	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	3
June	van Veen grab	B	26	7	26_7	6/20/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5103640207	150	Crepidula plana	2
June	van Veen grab	B	26	7	26_7	6/20/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5001409898	381	Leitoscoloplos robustus	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5001680899	1826	Polycirrus sp.	2
June	van Veen grab	B	26	7	26_7	6/20/2017	4303020209	3587	Cerebratulus lacteus	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5105010601	4579	Eupleura caudata	2
June	van Veen grab	B	26	7	26_7	6/20/2017	5515290398	209	Ensis leei	1
June	van Veen grab	B	26	7	26_7	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	B	26	7	26_7	6/20/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	26	7	26_7	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	26	7	26_7	6/20/2017	500128	1856	Goniadidae	1
June	van Veen grab	B	26	7	26_7	6/20/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	B	26	7	26_7	6/20/2017	6169379898	4956	Ameroculodes edwardsi	1
June	van Veen grab	B	26	7	26_7	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	26	7	26_7	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001431801	88	Streblospio benedicti	722
June	van Veen grab	B	27	47	27_47	6/20/2017	5001600401	1779	Mediomastus ambiseta	459
June	van Veen grab	B	27	47	27_47	6/20/2017	5004000000	466	Oligochaeta	268
June	van Veen grab	B	27	47	27_47	6/20/2017	500127	9112720	Glyceridae	128
June	van Veen grab	B	27	47	27_47	6/20/2017	5001239598	3535	Opisthodonta longocirrata	31
June	van Veen grab	B	27	47	27_47	6/20/2017	5001500297	5841	Caulleriella venefica	31
June	van Veen grab	B	27	47	27_47	6/20/2017	5001430701	86	Spio filicornis	27
June	van Veen grab	B	27	47	27_47	6/20/2017	6169150998	6161	Grandidierella japonica	22
June	van Veen grab	B	27	47	27_47	6/20/2017	5515471301	387	Gemma gemma	21
June	van Veen grab	B	27	47	27_47	6/20/2017	5001230701	4998	Exogone dispar	21
June	van Veen grab	B	27	47	27_47	6/20/2017	6169020108	252	Ampelisca abdita	16
June	van Veen grab	B	27	47	27_47	6/20/2017	5001130207	393	Hypereteone heteropoda	13
June	van Veen grab	B	27	47	27_47	6/20/2017	5001231698	6231	Streptosyllis verrilli	13

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June	van Veen grab	B	27	47	27_47	6/20/2017	5001680899	1826	Polycirrus sp.	12
June	van Veen grab	B	27	47	27_47	6/20/2017	5001430498	91	Polydora cornuta	7
June	van Veen grab	B	27	47	27_47	6/20/2017	5001270105	368	Glycera dibranchiata	6
June	van Veen grab	B	27	47	27_47	6/20/2017	5105089897	377	Tritia obsoleta	6
June	van Veen grab	B	27	47	27_47	6/20/2017	5001500000	2066	Cirratulidae	5
June	van Veen grab	B	27	47	27_47	6/20/2017	5001500305	4624	Tharyx acutus	5
June	van Veen grab	B	27	47	27_47	6/20/2017	5515319898	203	Ameritella agilis	4
June	van Veen grab	B	27	47	27_47	6/20/2017	5515290398	209	Ensis leei	3
June	van Veen grab	B	27	47	27_47	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	27	47	27_47	6/20/2017	5515471101	1116	Mercenaria mercenaria	3
June	van Veen grab	B	27	47	27_47	6/20/2017	6183060230	1619	Pagurus longicarpus	3
June	van Veen grab	B	27	47	27_47	6/20/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	B	27	47	27_47	6/20/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	27	47	27_47	6/20/2017	5001409899	411	Leitoscoloplos sp.	2
June	van Veen grab	B	27	47	27_47	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	B	27	47	27_47	6/20/2017	5002050197	5842	Polygordius jouinae	2
June	van Veen grab	B	27	47	27_47	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001409898	381	Leitoscoloplos robustus	1
June	van Veen grab	B	27	47	27_47	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001130000	2069	Phyllodocidae	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001432006	4544	Scolelepis (parascolelepis) texana	1
June	van Veen grab	B	27	47	27_47	6/20/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	B	27	47	27_47	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	27	47	27_47	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5004000000	466	Oligochaeta	1027
June	van Veen grab	B	28	14	28_14	6/20/2017	5001431801	88	Streblospio benedicti	1007
June	van Veen grab	B	28	14	28_14	6/20/2017	5001600401	1779	Mediomastus ambiseta	983
June	van Veen grab	B	28	14	28_14	6/20/2017	500127	9112720	Glyceridae	140
June	van Veen grab	B	28	14	28_14	6/20/2017	5001130207	393	Hypereteone heteropoda	99
June	van Veen grab	B	28	14	28_14	6/20/2017	5001500297	5841	Caulleriella venefica	86
June	van Veen grab	B	28	14	28_14	6/20/2017	5001430498	91	Polydora cornuta	83
June	van Veen grab	B	28	14	28_14	6/20/2017	5001239598	3535	Opisthodonta longocirrata	78
June	van Veen grab	B	28	14	28_14	6/20/2017	5001231698	6231	Streptosyllis verrilli	69
June	van Veen grab	B	28	14	28_14	6/20/2017	5001230701	4998	Exogone dispar	48
June	van Veen grab	B	28	14	28_14	6/20/2017	5517010201	205	Mya arenaria	45

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June	van Veen grab	B	28	14	28_14	6/20/2017	6169150998	6161	Grandidierella japonica	36
June	van Veen grab	B	28	14	28_14	6/20/2017	5001430701	86	Spio filicornis	32
June	van Veen grab	B	28	14	28_14	6/20/2017	5001680899	1826	Polycirrus sp.	26
June	van Veen grab	B	28	14	28_14	6/20/2017	5001500000	2066	Cirratulidae	21
June	van Veen grab	B	28	14	28_14	6/20/2017	5001131101	57	Eumida sanguinea	17
June	van Veen grab	B	28	14	28_14	6/20/2017	5103640204	149	Crepidula fornicata	14
June	van Veen grab	B	28	14	28_14	6/20/2017	6169020108	252	Ampelisca abdita	14
June	van Veen grab	B	28	14	28_14	6/20/2017	5520050201	5564	Lyonsia arenosa	12
June	van Veen grab	B	28	14	28_14	6/20/2017	5105089897	377	Tritia obsoleta	9
June	van Veen grab	B	28	14	28_14	6/20/2017	6169421598	714	Eobrolgus spinosus	9
June	van Veen grab	B	28	14	28_14	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	8
June	van Veen grab	B	28	14	28_14	6/20/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	B	28	14	28_14	6/20/2017	3901000010	6238	Turbellaria sp. 10 nai	7
June	van Veen grab	B	28	14	28_14	6/20/2017	5001500305	4624	Tharyx acutus	6
June	van Veen grab	B	28	14	28_14	6/20/2017	430302	6159	Lineidae	6
June	van Veen grab	B	28	14	28_14	6/20/2017	5001631102	83	Euclymene collaris	5
June	van Veen grab	B	28	14	28_14	6/20/2017	5515290398	209	Ensis leei	4
June	van Veen grab	B	28	14	28_14	6/20/2017	5001409899	411	Leitoscoloplos sp.	4
June	van Veen grab	B	28	14	28_14	6/20/2017	6153011508	577	Neomysis americana	4
June	van Veen grab	B	28	14	28_14	6/20/2017	5515471301	387	Gemma gemma	3
June	van Veen grab	B	28	14	28_14	6/20/2017	5131070198	3590	Corambe obscura	3
June	van Veen grab	B	28	14	28_14	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	3
June	van Veen grab	B	28	14	28_14	6/20/2017	6169210799	367	Gammarus sp.	2
June	van Veen grab	B	28	14	28_14	6/20/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	B	28	14	28_14	6/20/2017	5105010301	1146	Urosalpinx cinerea	2
June	van Veen grab	B	28	14	28_14	6/20/2017	500168	1338	Terebellidae	2
June	van Veen grab	B	28	14	28_14	6/20/2017	5002050197	5842	Polygordius jouinae	2
June	van Veen grab	B	28	14	28_14	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5001409898	381	Leitoscoloplos robustus	1
June	van Veen grab	B	28	14	28_14	6/20/2017	6169150302	699	Ericthonius brasiliensis	1
June	van Veen grab	B	28	14	28_14	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	28	14	28_14	6/20/2017	3906030101	1098	Stylochus ellipticus	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5515250301	1321	Mulinia lateralis	1
June	van Veen grab	B	28	14	28_14	6/20/2017	6183060230	1619	Pagurus longicarpus	1

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June	van Veen grab	B	28	14	28_14	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	B	28	14	28_14	6/20/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	B	28	14	28_14	6/20/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	28	14	28_14	6/20/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001600401	1779	Mediomastus ambiseta	1000
June	van Veen grab	B	32	26	32_26	6/20/2017	5001431801	88	Streblospio benedicti	570
June	van Veen grab	B	32	26	32_26	6/20/2017	5004000000	466	Oligochaeta	345
June	van Veen grab	B	32	26	32_26	6/20/2017	500127	9112720	Glyceridae	74
June	van Veen grab	B	32	26	32_26	6/20/2017	5001430498	91	Polydora cornuta	72
June	van Veen grab	B	32	26	32_26	6/20/2017	5001130207	393	Hypereteone heteropoda	58
June	van Veen grab	B	32	26	32_26	6/20/2017	5001239598	3535	Opisthodonta longocirrata	47
June	van Veen grab	B	32	26	32_26	6/20/2017	5001231698	6231	Streptosyllis verrilli	43
June	van Veen grab	B	32	26	32_26	6/20/2017	5001131101	57	Eumida sanguinea	34
June	van Veen grab	B	32	26	32_26	6/20/2017	5001230701	4998	Exogone dispar	31
June	van Veen grab	B	32	26	32_26	6/20/2017	6169421598	714	Eobrolgus spinosus	30
June	van Veen grab	B	32	26	32_26	6/20/2017	5001430701	86	Spio filicornis	27
June	van Veen grab	B	32	26	32_26	6/20/2017	5001500000	2066	Cirratulidae	26
June	van Veen grab	B	32	26	32_26	6/20/2017	5001680899	1826	Polycirrus sp.	20
June	van Veen grab	B	32	26	32_26	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	19
June	van Veen grab	B	32	26	32_26	6/20/2017	5001500297	5841	Caulleriella venefica	15
June	van Veen grab	B	32	26	32_26	6/20/2017	5001500305	4624	Tharyx acutus	12
June	van Veen grab	B	32	26	32_26	6/20/2017	6169020108	252	Ampelisca abdita	11
June	van Veen grab	B	32	26	32_26	6/20/2017	5105089897	377	Tritia obsoleta	11
June	van Veen grab	B	32	26	32_26	6/20/2017	5103640204	149	Crepidula fornicata	9
June	van Veen grab	B	32	26	32_26	6/20/2017	5515319898	203	Ameritella agilis	9
June	van Veen grab	B	32	26	32_26	6/20/2017	5517010201	205	Mya arenaria	7
June	van Veen grab	B	32	26	32_26	6/20/2017	5001409899	411	Leitoscoloplos sp.	5
June	van Veen grab	B	32	26	32_26	6/20/2017	6169211006	706	Melita nitida	5
June	van Veen grab	B	32	26	32_26	6/20/2017	5515471101	1116	Mercenaria mercenaria	5
June	van Veen grab	B	32	26	32_26	6/20/2017	5515290398	209	Ensis leei	3
June	van Veen grab	B	32	26	32_26	6/20/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	B	32	26	32_26	6/20/2017	5105010301	1146	Urosalpinx cinerea	3
June	van Veen grab	B	32	26	32_26	6/20/2017	5131070198	3590	Corambe obscura	3
June	van Veen grab	B	32	26	32_26	6/20/2017	5103640299	4514	Crepidula sp.	3
June	van Veen grab	B	32	26	32_26	6/20/2017	6169150704	4610	Unciola serrata	3
June	van Veen grab	B	32	26	32_26	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	3
June	van Veen grab	B	32	26	32_26	6/20/2017	5001631102	83	Euclymene collaris	2

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June	van Veen grab	B	32	26	32_26	6/20/2017	6169210709	389	Gammarus mucronatus	2
June	van Veen grab	B	32	26	32_26	6/20/2017	500128	1856	Goniadidae	2
June	van Veen grab	B	32	26	32_26	6/20/2017	5001060401	3664	Sigalion arenicola	2
June	van Veen grab	B	32	26	32_26	6/20/2017	6169349898	3954	Lysianopsis alba	2
June	van Veen grab	B	32	26	32_26	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	B	32	26	32_26	6/20/2017	6169439898	6142	Incisocalliope aestuarius	2
June	van Veen grab	B	32	26	32_26	6/20/2017	6169150998	6161	Grandidierella japonica	2
June	van Veen grab	B	32	26	32_26	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	B	32	26	32_26	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5515471301	387	Gemma gemma	1
June	van Veen grab	B	32	26	32_26	6/20/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	B	32	26	32_26	6/20/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	B	32	26	32_26	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001230104	1028	Myrianida prolifera	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	B	32	26	32_26	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	B	32	26	32_26	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	B	32	26	32_26	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	33	10	33_10	6/20/2017	5001431801	88	Streblospio benedicti	1510
June	van Veen grab	B	33	10	33_10	6/20/2017	5004000000	466	Oligochaeta	931
June	van Veen grab	B	33	10	33_10	6/20/2017	5001600401	1779	Mediomastus ambiseta	504
June	van Veen grab	B	33	10	33_10	6/20/2017	5001500297	5841	Caulleriella venefica	202
June	van Veen grab	B	33	10	33_10	6/20/2017	5001680899	1826	Polycirrus sp.	154
June	van Veen grab	B	33	10	33_10	6/20/2017	5001239598	3535	Opisthodonta longocirrata	142
June	van Veen grab	B	33	10	33_10	6/20/2017	5001130207	393	Hypereteone heteropoda	89
June	van Veen grab	B	33	10	33_10	6/20/2017	500127	9112720	Glyceridae	63
June	van Veen grab	B	33	10	33_10	6/20/2017	5001231698	6231	Streptosyllis verrilli	56
June	van Veen grab	B	33	10	33_10	6/20/2017	6169020108	252	Ampelisca abdita	45
June	van Veen grab	B	33	10	33_10	6/20/2017	5001210299	1124	Microphthalmus sp.	41
June	van Veen grab	B	33	10	33_10	6/20/2017	5001631102	83	Euclymene collaris	40
June	van Veen grab	B	33	10	33_10	6/20/2017	5001430498	91	Polydora cornuta	36
June	van Veen grab	B	33	10	33_10	6/20/2017	5001500305	4624	Tharyx acutus	36
June	van Veen grab	B	33	10	33_10	6/20/2017	5001230903	3920	Brania wellfleetensis	33

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June	van Veen grab	B	33	10	33_10	6/20/2017	5520050201	5564	Lyonsia arenosa	22
June	van Veen grab	B	33	10	33_10	6/20/2017	5001500000	2066	Cirratulidae	20
June	van Veen grab	B	33	10	33_10	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	16
June	van Veen grab	B	33	10	33_10	6/20/2017	5001430701	86	Spio filicornis	15
June	van Veen grab	B	33	10	33_10	6/20/2017	5002050197	5842	Polygordius jouinae	12
June	van Veen grab	B	33	10	33_10	6/20/2017	5001131101	57	Eumida sanguinea	11
June	van Veen grab	B	33	10	33_10	6/20/2017	5001230701	4998	Exogone dispar	9
June	van Veen grab	B	33	10	33_10	6/20/2017	6169150998	6161	Grandidierella japonica	8
June	van Veen grab	B	33	10	33_10	6/20/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	B	33	10	33_10	6/20/2017	5001600201	391	Heteromastus filiformis	5
June	van Veen grab	B	33	10	33_10	6/20/2017	4300000000	462	Nemertea	5
June	van Veen grab	B	33	10	33_10	6/20/2017	6169150704	4610	Unciola serrata	4
June	van Veen grab	B	33	10	33_10	6/20/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	B	33	10	33_10	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	33	10	33_10	6/20/2017	500123	2064	Syllidae	3
June	van Veen grab	B	33	10	33_10	6/20/2017	5131070198	3590	Corambe obscura	3
June	van Veen grab	B	33	10	33_10	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	33	10	33_10	6/20/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	33	10	33_10	6/20/2017	5515290398	209	Ensis leei	1
June	van Veen grab	B	33	10	33_10	6/20/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	33	10	33_10	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	33	10	33_10	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	33	10	33_10	6/20/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	B	33	10	33_10	6/20/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	B	33	10	33_10	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	33	10	33_10	6/20/2017	4302020101	4804	Carinoma tremaphoros	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001431801	88	Streblospio benedicti	691
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001600401	1779	Mediomastus ambiseta	602
June	van Veen grab	HB	35	12	35_12	6/20/2017	5004000000	466	Oligochaeta	482
June	van Veen grab	HB	35	12	35_12	6/20/2017	500127	9112720	Glyceridae	112
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001430498	91	Polydora cornuta	94
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169020108	252	Ampelisca abdita	89
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169150998	6161	Grandidierella japonica	63
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001430701	86	Spio filicornis	55
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001500305	4624	Tharyx acutus	34
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001130207	393	Hypereteone heteropoda	24
June	van Veen grab	HB	35	12	35_12	6/20/2017	5515319898	203	Ameritella agilis	11

June	van Veen grab	HB	35	12	35_12	6/20/2017	6169159795	260	Monocorophium acherusicum	10
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169210709	389	Gammarus mucronatus	9
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001231698	6231	Streptosyllis verrilli	9
June	van Veen grab	HB	35	12	35_12	6/20/2017	5131070198	3590	Corambe obscura	7
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001230701	4998	Exogone dispar	7
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001500000	2066	Cirratulidae	6
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001650202	3586	Sabellaria vulgaris	6
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169211006	706	Melita nitida	5
June	van Veen grab	HB	35	12	35_12	6/20/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001270105	368	Glycera dibranchiata	4
June	van Veen grab	HB	35	12	35_12	6/20/2017	5105089897	377	Tritia obsoleta	4
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001680899	1826	Polycirrus sp.	4
June	van Veen grab	HB	35	12	35_12	6/20/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	5105089898	162	Tritia trivittata	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	6162020798	247	Edotia triloba	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169210301	698	Elasmopus levis	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169150302	699	Ericthonius brasiliensis	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001130801	4562	Paranaitis speciosa	2
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001409898	381	Leitoscoloplos robustus	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001020899	432	Harmothoe sp.	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169159797	522	Monocorophium insidiosum	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6171010901	685	Paracaprella tenuis	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5515250301	1321	Mulinia lateralis	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6171010727	1655	Caprella penantis	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	500124	2071	Nereididae	1

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June	van Veen grab	HB	35	12	35_12	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169349898	3954	Lysianopsis alba	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001500297	5841	Caulleriella venefica	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	HB	35	12	35_12	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001600401	1779	Mediomastus ambiseta	1287
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001431801	88	Streblospio benedicti	565
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169020108	252	Ampelisca abdita	359
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001130207	393	Hypereteone heteropoda	152
June	van Veen grab	HB	36	10	36_10	6/20/2017	5004000000	466	Oligochaeta	135
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001430498	91	Polydora cornuta	129
June	van Veen grab	HB	36	10	36_10	6/20/2017	500127	9112720	Glyceridae	43
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169150998	6161	Grandidierella japonica	33
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001430701	86	Spio filicornis	17
June	van Veen grab	HB	36	10	36_10	6/20/2017	5105089897	377	Tritia obsoleta	12
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001500305	4624	Tharyx acutus	11
June	van Veen grab	HB	36	10	36_10	6/20/2017	5103640204	149	Crepidula fornicata	9
June	van Veen grab	HB	36	10	36_10	6/20/2017	5517010201	205	Mya arenaria	9
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001500000	2066	Cirratulidae	6
June	van Veen grab	HB	36	10	36_10	6/20/2017	5131070198	3590	Corambe obscura	6
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001631102	83	Euclymene collaris	5
June	van Veen grab	HB	36	10	36_10	6/20/2017	5515319898	203	Ameritella agilis	5
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169159795	260	Monocorophium acherusicum	5
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001230701	4998	Exogone dispar	5
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001249798	651	Alitta succinea	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	6171010901	685	Paracaprella tenuis	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001680899	1826	Polycirrus sp.	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169349898	3954	Lysianopsis alba	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169150704	4610	Unciola serrata	4
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	HB	36	10	36_10	6/20/2017	6153011508	577	Neomysis americana	3
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169211006	706	Melita nitida	3
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001660000	2063	Pectinariidae	3
June	van Veen grab	HB	36	10	36_10	6/20/2017	5103640299	4514	Crepidula sp.	3

June	van Veen grab	HB	36	10	36_10	6/20/2017	5001500297	5841	Caulleriella venefica	3
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001409899	411	Leitoscoloplos sp.	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001270104	450	Glycera americana	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5105010301	1146	Urosalpinx cinerea	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001231304	1934	Odontosyllis fulgurans	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	500124	2071	Nereididae	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001650202	3586	Sabellaria vulgaris	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5103640207	150	Crepidula plana	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001020899	432	Harmothoe sp.	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001709798	668	Parasabella microphthalma	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169481002	720	Stenothoe minuta	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001239598	3535	Opisthodonta longocirrata	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	5520050201	5564	Lyonsia arenosa	1
June	van Veen grab	HB	36	10	36_10	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001431801	88	Streblospio benedicti	1016
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001600401	1779	Mediomastus ambiseta	620
June	van Veen grab	HB	41	20	41_20	6/20/2017	5004000000	466	Oligochaeta	416
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001430498	91	Polydora cornuta	151
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169150998	6161	Grandidierella japonica	150
June	van Veen grab	HB	41	20	41_20	6/20/2017	500127	9112720	Glyceridae	89
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169020108	252	Ampelisca abdita	47

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June	van Veen grab	HB	41	20	41_20	6/20/2017	5001130207	393	Hypereteone heteropoda	32
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169159795	260	Monocorophium acherusicum	23
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001231698	6231	Streptosyllis verrilli	23
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001430701	86	Spio filicornis	16
June	van Veen grab	HB	41	20	41_20	6/20/2017	5103640204	149	Crepidula fornicata	15
June	van Veen grab	HB	41	20	41_20	6/20/2017	5515471301	387	Gemma gemma	13
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001230701	4998	Exogone dispar	11
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001500297	5841	Caulleriella venefica	10
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001131101	57	Eumida sanguinea	9
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001680899	1826	Polycirrus sp.	9
June	van Veen grab	HB	41	20	41_20	6/20/2017	5517010201	205	Mya arenaria	8
June	van Veen grab	HB	41	20	41_20	6/20/2017	5105089897	377	Tritia obsoleta	8
June	van Veen grab	HB	41	20	41_20	6/20/2017	5108019897	1324	Boonea bisuturalis	8
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001500305	4624	Tharyx acutus	7
June	van Veen grab	HB	41	20	41_20	6/20/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001239598	3535	Opisthodonta longocirrata	6
June	van Veen grab	HB	41	20	41_20	6/20/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169210709	389	Gammarus mucronatus	4
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169150302	699	Ericthonius brasiliensis	4
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001500000	2066	Cirratulidae	4
June	van Veen grab	HB	41	20	41_20	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	4
June	van Veen grab	HB	41	20	41_20	6/20/2017	5105010301	1146	Urosalpinx cinerea	3
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	6154050801	235	Oxyurostylis smithi	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	6171010901	685	Paracaprella tenuis	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	4303020209	3587	Cerebratulus lacteus	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	5002050197	5842	Polygordius jouinae	2
June	van Veen grab	HB	41	20	41_20	6/20/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001409898	381	Leitoscoloplos robustus	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169481002	720	Stenothoe minuta	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	500128	1856	Goniadidae	1

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June	van Veen grab	HB	41	20	41_20	6/20/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	HB	41	20	41_20	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001431801	88	Streblospio benedicti	965
June	van Veen grab	HB	42	27	42_27	6/20/2017	5004000000	466	Oligochaeta	716
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001600401	1779	Mediomastus ambiseta	624
June	van Veen grab	HB	42	27	42_27	6/20/2017	500127	9112720	Glyceridae	134
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169020108	252	Ampelisca abdita	133
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001430498	91	Polydora cornuta	96
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169150998	6161	Grandidierella japonica	93
June	van Veen grab	HB	42	27	42_27	6/20/2017	5515471301	387	Gemma gemma	20
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001430701	86	Spio filicornis	19
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001130207	393	Hypereteone heteropoda	16
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001231698	6231	Streptosyllis verrilli	12
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001409897	102	Leitoscoloplos fragilis	9
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001500305	4624	Tharyx acutus	9
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001650202	3586	Sabellaria vulgaris	8
June	van Veen grab	HB	42	27	42_27	6/20/2017	5517010201	205	Mya arenaria	7
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001500297	5841	Caulleriella venefica	7
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001680899	1826	Polycirrus sp.	6
June	van Veen grab	HB	42	27	42_27	6/20/2017	5103640204	149	Crepidula fornicata	5
June	van Veen grab	HB	42	27	42_27	6/20/2017	5105089897	377	Tritia obsoleta	5
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001239598	3535	Opisthodonta longocirrata	5
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001230701	4998	Exogone dispar	5
June	van Veen grab	HB	42	27	42_27	6/20/2017	5515319898	203	Ameritella agilis	4
June	van Veen grab	HB	42	27	42_27	6/20/2017	5515290398	209	Ensis leei	4
June	van Veen grab	HB	42	27	42_27	6/20/2017	4303020209	3587	Cerebratulus lacteus	4
June	van Veen grab	HB	42	27	42_27	6/20/2017	6154050801	235	Oxyurostylis smithi	3
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	HB	42	27	42_27	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	3
June	van Veen grab	HB	42	27	42_27	6/20/2017	6171010901	685	Paracaprella tenuis	2
June	van Veen grab	HB	42	27	42_27	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	HB	42	27	42_27	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169210709	389	Gammarus mucronatus	1

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June	van Veen grab	HB	42	27	42_27	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001250117	652	Nephtys picta	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5515250301	1321	Mulinia lateralis	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001500000	2066	Cirratulidae	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169349898	3954	Lysianopsis alba	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169100101	4547	Batea catharinensis	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	6169379898	4956	Ameroculodes edwardsi	1
June	van Veen grab	HB	42	27	42_27	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5001600401	1779	Mediomastus ambiseta	826
June	van Veen grab	B	43	17	43_17	6/20/2017	5004000000	466	Oligochaeta	793
June	van Veen grab	B	43	17	43_17	6/20/2017	5001431801	88	Streblospio benedicti	765
June	van Veen grab	B	43	17	43_17	6/20/2017	5001239598	3535	Opisthodonta longocirrata	96
June	van Veen grab	B	43	17	43_17	6/20/2017	5001500297	5841	Caulleriella venefica	83
June	van Veen grab	B	43	17	43_17	6/20/2017	5001430498	91	Polydora cornuta	73
June	van Veen grab	B	43	17	43_17	6/20/2017	5001130207	393	Hypereteone heteropoda	69
June	van Veen grab	B	43	17	43_17	6/20/2017	500127	9112720	Glyceridae	59
June	van Veen grab	B	43	17	43_17	6/20/2017	5001430701	86	Spio filicornis	44
June	van Veen grab	B	43	17	43_17	6/20/2017	5001680899	1826	Polycirrus sp.	28
June	van Veen grab	B	43	17	43_17	6/20/2017	5001231698	6231	Streptosyllis verrilli	22
June	van Veen grab	B	43	17	43_17	6/20/2017	5001131101	57	Eumida sanguinea	17
June	van Veen grab	B	43	17	43_17	6/20/2017	5001500000	2066	Cirratulidae	14
June	van Veen grab	B	43	17	43_17	6/20/2017	5001500305	4624	Tharyx acutus	14
June	van Veen grab	B	43	17	43_17	6/20/2017	6169150998	6161	Grandidierella japonica	14
June	van Veen grab	B	43	17	43_17	6/20/2017	6169020108	252	Ampelisca abdita	10
June	van Veen grab	B	43	17	43_17	6/20/2017	5105089897	377	Tritia obsoleta	10
June	van Veen grab	B	43	17	43_17	6/20/2017	500168	1338	Terebellidae	10

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June	van Veen grab	B	43	17	43_17	6/20/2017	5105089898	162	Tritia trivittata	7
June	van Veen grab	B	43	17	43_17	6/20/2017	5001230701	4998	Exogone dispar	7
June	van Veen grab	B	43	17	43_17	6/20/2017	5520050201	5564	Lyonsia arenosa	7
June	van Veen grab	B	43	17	43_17	6/20/2017	5110040103	600	Acteocina canaliculata	6
June	van Veen grab	B	43	17	43_17	6/20/2017	5515319898	203	Ameritella agilis	5
June	van Veen grab	B	43	17	43_17	6/20/2017	6160010202	679	Cyathura burbancki	5
June	van Veen grab	B	43	17	43_17	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	5
June	van Veen grab	B	43	17	43_17	6/20/2017	5517010201	205	Mya arenaria	4
June	van Veen grab	B	43	17	43_17	6/20/2017	6153011508	577	Neomysis americana	4
June	van Veen grab	B	43	17	43_17	6/20/2017	3901000000	1279	Turbellaria	4
June	van Veen grab	B	43	17	43_17	6/20/2017	4306050110	4805	Amphiporus bioculatus	4
June	van Veen grab	B	43	17	43_17	6/20/2017	5515290398	209	Ensis leei	3
June	van Veen grab	B	43	17	43_17	6/20/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	B	43	17	43_17	6/20/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001409899	411	Leitoscoloplos sp.	2
June	van Veen grab	B	43	17	43_17	6/20/2017	500124	2071	Nereididae	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001650202	3586	Sabellaria vulgaris	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001230903	3920	Brania wellfleetensis	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001210103	4609	Gyptis vittata	2
June	van Veen grab	B	43	17	43_17	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	43	17	43_17	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	43	17	43_17	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	43	17	43_17	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5103640205	4502	Crepidula convexa	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	B	43	17	43_17	6/20/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	B	43	17	43_17	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	43	17	43_17	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001431801	88	Streblospio benedicti	471
June	van Veen grab	B	44	23	44_23	6/20/2017	5004000000	466	Oligochaeta	386
June	van Veen grab	B	44	23	44_23	6/20/2017	5001600401	1779	Mediomastus ambiseta	336

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June	van Veen grab	B	44	23	44_23	6/20/2017	5001430498	91	Polydora cornuta	177
June	van Veen grab	B	44	23	44_23	6/20/2017	5001130207	393	Hypereteone heteropoda	63
June	van Veen grab	B	44	23	44_23	6/20/2017	500127	9112720	Glyceridae	41
June	van Veen grab	B	44	23	44_23	6/20/2017	5001500297	5841	Caulleriella venefica	40
June	van Veen grab	B	44	23	44_23	6/20/2017	5001430701	86	Spio filicornis	36
June	van Veen grab	B	44	23	44_23	6/20/2017	5001631102	83	Euclymene collaris	35
June	van Veen grab	B	44	23	44_23	6/20/2017	5001239598	3535	Opisthodonta longocirrata	35
June	van Veen grab	B	44	23	44_23	6/20/2017	6169020108	252	Ampelisca abdita	29
June	van Veen grab	B	44	23	44_23	6/20/2017	5001500305	4624	Tharyx acutus	24
June	van Veen grab	B	44	23	44_23	6/20/2017	6153011508	577	Neomysis americana	21
June	van Veen grab	B	44	23	44_23	6/20/2017	5001230903	3920	Brania wellfleetensis	13
June	van Veen grab	B	44	23	44_23	6/20/2017	5001500000	2066	Cirratulidae	12
June	van Veen grab	B	44	23	44_23	6/20/2017	6169150998	6161	Grandidierella japonica	12
June	van Veen grab	B	44	23	44_23	6/20/2017	5001680899	1826	Polycirrus sp.	10
June	van Veen grab	B	44	23	44_23	6/20/2017	5517010201	205	Mya arenaria	8
June	van Veen grab	B	44	23	44_23	6/20/2017	5105089897	377	Tritia obsoleta	7
June	van Veen grab	B	44	23	44_23	6/20/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	44	23	44_23	6/20/2017	6169210301	698	Elasmopus levis	6
June	van Veen grab	B	44	23	44_23	6/20/2017	6169421598	714	Eobrolgus spinosus	6
June	van Veen grab	B	44	23	44_23	6/20/2017	5001231698	6231	Streptosyllis verrilli	6
June	van Veen grab	B	44	23	44_23	6/20/2017	6169481002	720	Stenothoe minuta	5
June	van Veen grab	B	44	23	44_23	6/20/2017	6169150704	4610	Unciola serrata	5
June	van Veen grab	B	44	23	44_23	6/20/2017	5001230701	4998	Exogone dispar	5
June	van Veen grab	B	44	23	44_23	6/20/2017	5520050201	5564	Lyonsia arenosa	5
June	van Veen grab	B	44	23	44_23	6/20/2017	6169480702	9566280	Parametopella cypris	5
June	van Veen grab	B	44	23	44_23	6/20/2017	5001131101	57	Eumida sanguinea	4
June	van Veen grab	B	44	23	44_23	6/20/2017	6169159796	696	Monocorophium tuberculatum	3
June	van Veen grab	B	44	23	44_23	6/20/2017	5001650202	3586	Sabellaria vulgaris	3
June	van Veen grab	B	44	23	44_23	6/20/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	B	44	23	44_23	6/20/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	44	23	44_23	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	B	44	23	44_23	6/20/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	B	44	23	44_23	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	B	44	23	44_23	6/20/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	B	44	23	44_23	6/20/2017	6189029798	769	Dyspanopeus sayi	2
June	van Veen grab	B	44	23	44_23	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	44	23	44_23	6/20/2017	4306050110	4805	Amphiporus bioculatus	2

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June	van Veen grab	B	44	23	44_23	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001709798	668	Parasabella microphthalma	1
June	van Veen grab	B	44	23	44_23	6/20/2017	6171010901	685	Paracaprella tenuis	1
June	van Veen grab	B	44	23	44_23	6/20/2017	6169150302	699	Ericthonius brasiliensis	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	B	44	23	44_23	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	B	44	23	44_23	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	B	44	23	44_23	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	B	44	23	44_23	6/20/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	44	23	44_23	6/20/2017	3901000010	6238	Turbellaria sp. 10 nai	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5001600401	1779	Mediomastus ambiseta	496
June	van Veen grab	B	45	30	45_30	6/20/2017	5001500000	2066	Cirratulidae	366
June	van Veen grab	B	45	30	45_30	6/20/2017	5004000000	466	Oligochaeta	239
June	van Veen grab	B	45	30	45_30	6/20/2017	5001431801	88	Streblospio benedicti	227
June	van Veen grab	B	45	30	45_30	6/20/2017	5001500305	4624	Tharyx acutus	205
June	van Veen grab	B	45	30	45_30	6/20/2017	5001130207	393	Hypereteone heteropoda	173
June	van Veen grab	B	45	30	45_30	6/20/2017	5001430701	86	Spio filicornis	62
June	van Veen grab	B	45	30	45_30	6/20/2017	5001631102	83	Euclymene collaris	44
June	van Veen grab	B	45	30	45_30	6/20/2017	5001430498	91	Polydora cornuta	30
June	van Veen grab	B	45	30	45_30	6/20/2017	5001680899	1826	Polycirrus sp.	27
June	van Veen grab	B	45	30	45_30	6/20/2017	5001131101	57	Eumida sanguinea	19
June	van Veen grab	B	45	30	45_30	6/20/2017	500127	9112720	Glyceridae	18
June	van Veen grab	B	45	30	45_30	6/20/2017	5515319898	203	Ameritella agilis	16
June	van Veen grab	B	45	30	45_30	6/20/2017	5515290398	209	Ensis leei	14
June	van Veen grab	B	45	30	45_30	6/20/2017	5520050201	5564	Lyonsia arenosa	9
June	van Veen grab	B	45	30	45_30	6/20/2017	5001650202	3586	Sabellaria vulgaris	8
June	van Veen grab	B	45	30	45_30	6/20/2017	5001231698	6231	Streptosyllis verrilli	8
June	van Veen grab	B	45	30	45_30	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	7
June	van Veen grab	B	45	30	45_30	6/20/2017	5517010201	205	Mya arenaria	6
June	van Veen grab	B	45	30	45_30	6/20/2017	5108019895	1240	Fargoa bartschi	6
June	van Veen grab	B	45	30	45_30	6/20/2017	6169150704	4610	Unciola serrata	6

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June	van Veen grab	B	45	30	45_30	6/20/2017	6169020108	252	Ampelisca abdita	5
June	van Veen grab	B	45	30	45_30	6/20/2017	6169421598	714	Eobrolgus spinosus	5
June	van Veen grab	B	45	30	45_30	6/20/2017	5001330198	4665	Drilonereis longa	5
June	van Veen grab	B	45	30	45_30	6/20/2017	5103640204	149	Crepidula fornicata	4
June	van Veen grab	B	45	30	45_30	6/20/2017	500128	1856	Goniadidae	4
June	van Veen grab	B	45	30	45_30	6/20/2017	4303020209	3587	Cerebratulus lacteus	4
June	van Veen grab	B	45	30	45_30	6/20/2017	5001230701	4998	Exogone dispar	4
June	van Veen grab	B	45	30	45_30	6/20/2017	5001500297	5841	Caulleriella venefica	4
June	van Veen grab	B	45	30	45_30	6/20/2017	6169020109	253	Ampelisca vadorum	3
June	van Veen grab	B	45	30	45_30	6/20/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	B	45	30	45_30	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	B	45	30	45_30	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	45	30	45_30	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	B	45	30	45_30	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5103640207	150	Crepidula plana	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5502020204	178	Nucula proxima	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	B	45	30	45_30	6/20/2017	6171010901	685	Paracaprella tenuis	1
June	van Veen grab	B	45	30	45_30	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5001230104	1028	Myrianida prolifera	1
June	van Veen grab	B	45	30	45_30	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	45	30	45_30	6/20/2017	6169349898	3954	Lysianopsis alba	1
June	van Veen grab	B	45	30	45_30	6/20/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5001431801	88	Streblospio benedicti	318
June	van Veen grab	B	46	15	46_15	6/20/2017	5001600401	1779	Mediomastus ambiseta	239
June	van Veen grab	B	46	15	46_15	6/20/2017	6169020108	252	Ampelisca abdita	196
June	van Veen grab	B	46	15	46_15	6/20/2017	5001430498	91	Polydora cornuta	86
June	van Veen grab	B	46	15	46_15	6/20/2017	5004000000	466	Oligochaeta	40
June	van Veen grab	B	46	15	46_15	6/20/2017	5001130207	393	Hypereteone heteropoda	6
June	van Veen grab	B	46	15	46_15	6/20/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	46	15	46_15	6/20/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	B	46	15	46_15	6/20/2017	5001270104	450	Glycera americana	3
June	van Veen grab	B	46	15	46_15	6/20/2017	500127	9112720	Glyceridae	3
June	van Veen grab	B	46	15	46_15	6/20/2017	5001670802	112	Ampharete oculata	2
June	van Veen grab	B	46	15	46_15	6/20/2017	5515319898	203	Ameritella agilis	2
June	van Veen grab	B	46	15	46_15	6/20/2017	5515471101	1116	Mercenaria mercenaria	2

June	van Veen grab	B	46	15	46_15	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	46	15	46_15	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	46	15	46_15	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	46	15	46_15	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	B	46	15	46_15	6/20/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5001280104	4519	Glycinde solitaria	1
June	van Veen grab	B	46	15	46_15	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	B	46	15	46_15	6/20/2017	5520050201	5564	Lyonsia arenosa	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001600401	1779	Mediomastus ambiseta	542
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001431801	88	Streblospio benedicti	316
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169020108	252	Ampelisca abdita	197
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001430498	91	Polydora cornuta	49
June	van Veen grab	HB	48	29	48_29	6/20/2017	5004000000	466	Oligochaeta	13
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001130207	393	Hypereteone heteropoda	12
June	van Veen grab	HB	48	29	48_29	6/20/2017	5515319898	203	Ameritella agilis	5
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001409897	102	Leitoscoloplos fragilis	4
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001430701	86	Spio filicornis	3
June	van Veen grab	HB	48	29	48_29	6/20/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	HB	48	29	48_29	6/20/2017	500127	9112720	Glyceridae	3
June	van Veen grab	HB	48	29	48_29	6/20/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169159796	696	Monocorophium tuberculatum	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001500000	2066	Cirratulidae	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	500143	2068	Spionidae	1

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June	van Veen grab	HB	48	29	48_29	6/20/2017	500140	2072	Orbiniidae	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001431901	3659	Dispio uncinata	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	HB	48	29	48_29	6/20/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169020108	252	Ampelisca abdita	1594
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001600401	1779	Mediomastus ambiseta	1511
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001431801	88	Streblospio benedicti	754
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001430498	91	Polydora cornuta	221
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001130207	393	Hypereteone heteropoda	97
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001430701	86	Spio filicornis	25
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169150998	6161	Grandidierella japonica	22
June	van Veen grab	HB	49	3	49_3	6/20/2017	5004000000	466	Oligochaeta	19
June	van Veen grab	HB	49	3	49_3	6/20/2017	500127	9112720	Glyceridae	18
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169159795	260	Monocorophium acherusicum	12
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169210709	389	Gammarus mucronatus	8
June	van Veen grab	HB	49	3	49_3	6/20/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	HB	49	3	49_3	6/20/2017	5105089897	377	Tritia obsoleta	7
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169349898	3954	Lysianopsis alba	7
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001670802	112	Ampharete oculata	6
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001280104	4519	Glycinde solitaria	6
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001500305	4624	Tharyx acutus	6
June	van Veen grab	HB	49	3	49_3	6/20/2017	4306050110	4805	Amphiporus bioculatus	6
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001600201	391	Heteromastus filiformis	5
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001409898	381	Leitoscoloplos robustus	4
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169211006	706	Melita nitida	4
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169040116	1323	Ampithoe valida	4
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169439898	6142	Incisocalliope aestuarius	4
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	3
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001409899	411	Leitoscoloplos sp.	3
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169150302	699	Ericthonius brasiliensis	3
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001500000	2066	Cirratulidae	3
June	van Veen grab	HB	49	3	49_3	6/20/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001249798	651	Alitta succinea	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169210301	698	Elasmopus levis	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	5108019897	1324	Boonea bisuturalis	2

June	van Veen grab	HB	49	3	49_3	6/20/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	HB	49	3	49_3	6/20/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169159896	695	Apocorophium acutum	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	5108019895	1240	Fargoa bartschi	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	49	3	49_3	6/20/2017	6169480702	9566280	Parametopella cypris	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001600401	1779	Mediomastus ambiseta	448
June	van Veen grab	B	5	27	5_27	6/20/2017	6169020108	252	Ampelisca abdita	332
June	van Veen grab	B	5	27	5_27	6/20/2017	5001431801	88	Streblospio benedicti	210
June	van Veen grab	B	5	27	5_27	6/20/2017	5004000000	466	Oligochaeta	199
June	van Veen grab	B	5	27	5_27	6/20/2017	5001130207	393	Hypereteone heteropoda	132
June	van Veen grab	B	5	27	5_27	6/20/2017	5001500297	5841	Caulleriella venefica	99
June	van Veen grab	B	5	27	5_27	6/20/2017	5001239598	3535	Opisthodonta longocirrata	73
June	van Veen grab	B	5	27	5_27	6/20/2017	5001500305	4624	Tharyx acutus	49
June	van Veen grab	B	5	27	5_27	6/20/2017	500127	9112720	Glyceridae	47
June	van Veen grab	B	5	27	5_27	6/20/2017	5001500000	2066	Cirratulidae	34
June	van Veen grab	B	5	27	5_27	6/20/2017	5001631102	83	Euclymene collaris	29
June	van Veen grab	B	5	27	5_27	6/20/2017	5001680899	1826	Polycirrus sp.	26
June	van Veen grab	B	5	27	5_27	6/20/2017	5001230701	4998	Exogone dispar	26
June	van Veen grab	B	5	27	5_27	6/20/2017	5001231698	6231	Streptosyllis verrilli	25
June	van Veen grab	B	5	27	5_27	6/20/2017	5515290398	209	Ensis leei	24
June	van Veen grab	B	5	27	5_27	6/20/2017	5001430701	86	Spio filicornis	22
June	van Veen grab	B	5	27	5_27	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	19
June	van Veen grab	B	5	27	5_27	6/20/2017	5515319898	203	Ameritella agilis	13
June	van Veen grab	B	5	27	5_27	6/20/2017	6169150998	6161	Grandidierella japonica	8
June	van Veen grab	B	5	27	5_27	6/20/2017	5001430498	91	Polydora cornuta	6
June	van Veen grab	B	5	27	5_27	6/20/2017	5110040103	600	Acteocina canaliculata	5
June	van Veen grab	B	5	27	5_27	6/20/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	B	5	27	5_27	6/20/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	B	5	27	5_27	6/20/2017	4306050110	4805	Amphiporus bioculatus	3
June	van Veen grab	B	5	27	5_27	6/20/2017	5520050201	5564	Lyonsia arenosa	3

June	van Veen grab	B	5	27	5_27	6/20/2017	5105089898	162	Tritia trivittata	2
June	van Veen grab	B	5	27	5_27	6/20/2017	5001650202	3586	Sabellaria vulgaris	2
June	van Veen grab	B	5	27	5_27	6/20/2017	5131070198	3590	Corambe obscura	2
June	van Veen grab	B	5	27	5_27	6/20/2017	6169150704	4610	Unciola serrata	2
June	van Veen grab	B	5	27	5_27	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	B	5	27	5_27	6/20/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	5	27	5_27	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	B	5	27	5_27	6/20/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	B	5	27	5_27	6/20/2017	500123	2064	Syllidae	1
June	van Veen grab	B	5	27	5_27	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001230903	3920	Brania wellfleetensis	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	B	5	27	5_27	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	5	27	5_27	6/20/2017	3901000010	6238	Turbellaria sp. 10 nai	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001600401	1779	Mediomastus ambiseta	1167
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001431801	88	Streblospio benedicti	813
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169020108	252	Ampelisca abdita	319
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001430498	91	Polydora cornuta	140
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001130207	393	Hypereteone heteropoda	68
June	van Veen grab	HB	50	14	50_14	6/20/2017	500127	9112720	Glyceridae	42
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001430701	86	Spio filicornis	40
June	van Veen grab	HB	50	14	50_14	6/20/2017	5004000000	466	Oligochaeta	25
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169150998	6161	Grandidierella japonica	18
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169210709	389	Gammarus mucronatus	15
June	van Veen grab	HB	50	14	50_14	6/20/2017	5105089897	377	Tritia obsoleta	11
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169040116	1323	Ampithoe valida	7
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001409897	102	Leitoscoloplos fragilis	6
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001600201	391	Heteromastus filiformis	6
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	5
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001500000	2066	Cirratulidae	4

June	van Veen grab	HB	50	14	50_14	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	4
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001670802	112	Ampharete oculata	3
June	van Veen grab	HB	50	14	50_14	6/20/2017	5515319898	203	Ameritella agilis	3
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169210301	698	Elasmopus levis	3
June	van Veen grab	HB	50	14	50_14	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	HB	50	14	50_14	6/20/2017	6171010901	685	Paracaprella tenuis	2
June	van Veen grab	HB	50	14	50_14	6/20/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	HB	50	14	50_14	6/20/2017	500143	2068	Spionidae	2
June	van Veen grab	HB	50	14	50_14	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169211006	706	Melita nitida	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	5001280104	4519	Glycinde solitaria	1
June	van Veen grab	HB	50	14	50_14	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001431801	88	Streblospio benedicti	906
June	van Veen grab	B	51	3	51_3	6/21/2017	5004000000	466	Oligochaeta	533
June	van Veen grab	B	51	3	51_3	6/21/2017	5001600401	1779	Mediomastus ambiseta	358
June	van Veen grab	B	51	3	51_3	6/21/2017	5001500297	5841	Caulleriella venefica	97
June	van Veen grab	B	51	3	51_3	6/21/2017	500127	9112720	Glyceridae	64
June	van Veen grab	B	51	3	51_3	6/21/2017	5001239598	3535	Opisthodonta longocirrata	39
June	van Veen grab	B	51	3	51_3	6/21/2017	5001130207	393	Hypereteone heteropoda	29
June	van Veen grab	B	51	3	51_3	6/21/2017	5001210297	5449	Microphthalmus fragilis	24
June	van Veen grab	B	51	3	51_3	6/21/2017	5001680899	1826	Polycirrus sp.	21
June	van Veen grab	B	51	3	51_3	6/21/2017	5001231698	6231	Streptosyllis verrilli	13
June	van Veen grab	B	51	3	51_3	6/21/2017	5002050197	5842	Polygordius jouinae	10
June	van Veen grab	B	51	3	51_3	6/21/2017	5001500305	4624	Tharyx acutus	9
June	van Veen grab	B	51	3	51_3	6/21/2017	5105089897	377	Tritia obsoleta	5
June	van Veen grab	B	51	3	51_3	6/21/2017	5001500000	2066	Cirratulidae	4
June	van Veen grab	B	51	3	51_3	6/21/2017	5001430498	91	Polydora cornuta	3
June	van Veen grab	B	51	3	51_3	6/21/2017	5515290398	209	Ensis leei	3
June	van Veen grab	B	51	3	51_3	6/21/2017	5001270105	368	Glycera dibranchiata	3

June	van Veen grab	B	51	3	51_3	6/21/2017	6153011508	577	Neomysis americana	3
June	van Veen grab	B	51	3	51_3	6/21/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	B	51	3	51_3	6/21/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001431001	92	Spiophanes bombyx	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5515319898	203	Ameritella agilis	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001409898	381	Leitoscoloplos robustus	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001210299	1124	Microphthalmus sp.	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	B	51	3	51_3	6/21/2017	6169150998	6161	Grandidierella japonica	2
June	van Veen grab	B	51	3	51_3	6/21/2017	5001409897	102	Leitoscoloplos fragilis	1
June	van Veen grab	B	51	3	51_3	6/21/2017	6169020108	252	Ampelisca abdita	1
June	van Veen grab	B	51	3	51_3	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	51	3	51_3	6/21/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5515471301	387	Gemma gemma	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	B	51	3	51_3	6/21/2017	5001230903	3920	Brania wellfleetensis	1
June	van Veen grab	B	51	3	51_3	6/21/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	B	51	3	51_3	6/21/2017	4302020101	4804	Carinoma tremaphoros	1
June	van Veen grab	B	51	3	51_3	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001130207	393	Hypereteone heteropoda	375
June	van Veen grab	B	52	24	52_24	6/21/2017	5004000000	466	Oligochaeta	342
June	van Veen grab	B	52	24	52_24	6/21/2017	5001600401	1779	Mediomastus ambiseta	300
June	van Veen grab	B	52	24	52_24	6/21/2017	5001431801	88	Streblospio benedicti	213
June	van Veen grab	B	52	24	52_24	6/21/2017	5001430498	91	Polydora cornuta	113
June	van Veen grab	B	52	24	52_24	6/21/2017	6169020108	252	Ampelisca abdita	90
June	van Veen grab	B	52	24	52_24	6/21/2017	5517010201	205	Mya arenaria	82
June	van Veen grab	B	52	24	52_24	6/21/2017	6153011508	577	Neomysis americana	73
June	van Veen grab	B	52	24	52_24	6/21/2017	6169150998	6161	Grandidierella japonica	56
June	van Veen grab	B	52	24	52_24	6/21/2017	51	2097	Gastropoda	46
June	van Veen grab	B	52	24	52_24	6/21/2017	6169150704	4610	Unciola serrata	46
June	van Veen grab	B	52	24	52_24	6/21/2017	5001131101	57	Eumida sanguinea	27
June	van Veen grab	B	52	24	52_24	6/21/2017	5103640204	149	Crepidula fornicata	25

June	van Veen grab	B	52	24	52_24	6/21/2017	5001239598	3535	Opisthodonta longocirrata	22
June	van Veen grab	B	52	24	52_24	6/21/2017	5105089897	377	Tritia obsoleta	21
June	van Veen grab	B	52	24	52_24	6/21/2017	6169211006	706	Melita nitida	20
June	van Veen grab	B	52	24	52_24	6/21/2017	500168	1338	Terebellidae	17
June	van Veen grab	B	52	24	52_24	6/21/2017	5001650202	3586	Sabellaria vulgaris	14
June	van Veen grab	B	52	24	52_24	6/21/2017	5001500297	5841	Caulleriella venefica	13
June	van Veen grab	B	52	24	52_24	6/21/2017	5131070198	3590	Corambe obscura	10
June	van Veen grab	B	52	24	52_24	6/21/2017	500127	9112720	Glyceridae	10
June	van Veen grab	B	52	24	52_24	6/21/2017	6169421598	714	Eobrolgus spinosus	6
June	van Veen grab	B	52	24	52_24	6/21/2017	5001631102	83	Euclymene collaris	5
June	van Veen grab	B	52	24	52_24	6/21/2017	5001231698	6231	Streptosyllis verrilli	5
June	van Veen grab	B	52	24	52_24	6/21/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	B	52	24	52_24	6/21/2017	6189029798	769	Dyspanopeus sayi	4
June	van Veen grab	B	52	24	52_24	6/21/2017	5001660000	2063	Pectinariidae	4
June	van Veen grab	B	52	24	52_24	6/21/2017	500124	2071	Nereididae	4
June	van Veen grab	B	52	24	52_24	6/21/2017	5001230701	4998	Exogone dispar	4
June	van Veen grab	B	52	24	52_24	6/21/2017	6169159795	260	Monocorophium acherusicum	3
June	van Veen grab	B	52	24	52_24	6/21/2017	6183060230	1619	Pagurus longicarpus	3
June	van Veen grab	B	52	24	52_24	6/21/2017	5103640205	4502	Crepidula convexa	3
June	van Veen grab	B	52	24	52_24	6/21/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	B	52	24	52_24	6/21/2017	5001500000	2066	Cirratulidae	2
June	van Veen grab	B	52	24	52_24	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	2
June	van Veen grab	B	52	24	52_24	6/21/2017	5001020806	61	Harmothoe imbricata	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001430701	86	Spio filicornis	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001700601	119	Potamilla neglecta	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5515319898	203	Ameritella agilis	1
June	van Veen grab	B	52	24	52_24	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001020803	444	Harmothoe extenuata	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	B	52	24	52_24	6/21/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	52	24	52_24	6/21/2017	500123	2064	Syllidae	1
June	van Veen grab	B	52	24	52_24	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	52	24	52_24	6/21/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5001600401	1779	Mediomastus ambiseta	274
June	van Veen grab	B	53	40	53_40	6/21/2017	5001431801	88	Streblospio benedicti	216

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June	van Veen grab	B	53	40	53_40	6/21/2017	5004000000	466	Oligochaeta	55
June	van Veen grab	B	53	40	53_40	6/21/2017	5001631102	83	Euclymene collaris	35
June	van Veen grab	B	53	40	53_40	6/21/2017	5001500305	4624	Tharyx acutus	35
June	van Veen grab	B	53	40	53_40	6/21/2017	5001130207	393	Hypereteone heteropoda	32
June	van Veen grab	B	53	40	53_40	6/21/2017	5001430701	86	Spio filicornis	27
June	van Veen grab	B	53	40	53_40	6/21/2017	5001430498	91	Polydora cornuta	22
June	van Veen grab	B	53	40	53_40	6/21/2017	5001680899	1826	Polycirrus sp.	16
June	van Veen grab	B	53	40	53_40	6/21/2017	5001650202	3586	Sabellaria vulgaris	14
June	van Veen grab	B	53	40	53_40	6/21/2017	500127	9112720	Glyceridae	13
June	van Veen grab	B	53	40	53_40	6/21/2017	5001500000	2066	Cirratulidae	9
June	van Veen grab	B	53	40	53_40	6/21/2017	6169150704	4610	Unciola serrata	9
June	van Veen grab	B	53	40	53_40	6/21/2017	6169020108	252	Ampelisca abdita	8
June	van Veen grab	B	53	40	53_40	6/21/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	53	40	53_40	6/21/2017	5515290398	209	Ensis leei	6
June	van Veen grab	B	53	40	53_40	6/21/2017	5517010201	205	Mya arenaria	4
June	van Veen grab	B	53	40	53_40	6/21/2017	6183060230	1619	Pagurus longicarpus	4
June	van Veen grab	B	53	40	53_40	6/21/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	B	53	40	53_40	6/21/2017	5001500297	5841	Caulleriella venefica	3
June	van Veen grab	B	53	40	53_40	6/21/2017	5001131101	57	Eumida sanguinea	2
June	van Veen grab	B	53	40	53_40	6/21/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	53	40	53_40	6/21/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	B	53	40	53_40	6/21/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	B	53	40	53_40	6/21/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	B	53	40	53_40	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5001020803	444	Harmothoe extenuata	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5001270104	450	Glycera americana	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	B	53	40	53_40	6/21/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	B	53	40	53_40	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	B	53	40	53_40	6/21/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	53	40	53_40	6/21/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	B	53	40	53_40	6/21/2017	6169150998	6161	Grandidierella japonica	1

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June	van Veen grab	HB	54	7	54_7	6/20/2017	5001600401	1779	Mediomastus ambiseta	1809
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169020108	252	Ampelisca abdita	1323
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001431801	88	Streblospio benedicti	1300
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001130207	393	Hypereteone heteropoda	186
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001430498	91	Polydora cornuta	122
June	van Veen grab	HB	54	7	54_7	6/20/2017	5004000000	466	Oligochaeta	122
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169150998	6161	Grandidierella japonica	46
June	van Veen grab	HB	54	7	54_7	6/20/2017	500127	9112720	Glyceridae	16
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001430701	86	Spio filicornis	10
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001600201	391	Heteromastus filiformis	10
June	van Veen grab	HB	54	7	54_7	6/20/2017	5105089897	377	Tritia obsoleta	6
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001409897	102	Leitoscoloplos fragilis	5
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001280104	4519	Glycinde solitaria	5
June	van Veen grab	HB	54	7	54_7	6/20/2017	5515319898	203	Ameritella agilis	4
June	van Veen grab	HB	54	7	54_7	6/20/2017	5517010201	205	Mya arenaria	4
June	van Veen grab	HB	54	7	54_7	6/20/2017	6171010901	685	Paracaprella tenuis	4
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001631102	83	Euclymene collaris	3
June	van Veen grab	HB	54	7	54_7	6/20/2017	5515250301	1321	Mulinia lateralis	3
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001500000	2066	Cirratulidae	3
June	van Veen grab	HB	54	7	54_7	6/20/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001600197	6083	Capitella capitata complex	3
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001670802	112	Ampharete oculata	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001249798	651	Alitta succinea	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169211006	706	Melita nitida	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001650202	3586	Sabellaria vulgaris	2
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6162020798	247	Edotia triloba	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001431302	392	Pygospio elegans	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5515471101	1116	Mercenaria mercenaria	1

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June	van Veen grab	HB	54	7	54_7	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	HB	54	7	54_7	6/20/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169020108	252	Ampelisca abdita	1124
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001600401	1779	Mediomastus ambiseta	760
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001431801	88	Streblospio benedicti	506
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001430498	91	Polydora cornuta	280
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001130207	393	Hypereteone heteropoda	107
June	van Veen grab	HB	55	11	55_11	6/20/2017	5004000000	466	Oligochaeta	33
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169150998	6161	Grandidierella japonica	18
June	van Veen grab	HB	55	11	55_11	6/20/2017	500127	9112720	Glyceridae	18
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001430701	86	Spio filicornis	12
June	van Veen grab	HB	55	11	55_11	6/20/2017	5517010201	205	Mya arenaria	10
June	van Veen grab	HB	55	11	55_11	6/20/2017	5105089897	377	Tritia obsoleta	10
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169159795	260	Monocorophium acherusicum	8
June	van Veen grab	HB	55	11	55_11	6/20/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169210301	698	Elasmopus levis	7
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	6
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001600201	391	Heteromastus filiformis	6
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001409897	102	Leitoscoloplos fragilis	4
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169211006	706	Melita nitida	4
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001230701	4998	Exogone dispar	4
June	van Veen grab	HB	55	11	55_11	6/20/2017	6171010901	685	Paracaprella tenuis	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169159896	695	Apocorophium acutum	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	5131070198	3590	Corambe obscura	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001280104	4519	Glycinde solitaria	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001130801	4562	Paranaitis speciosa	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	HB	55	11	55_11	6/20/2017	6162020798	247	Edotia triloba	2
June	van Veen grab	HB	55	11	55_11	6/20/2017	5110040103	600	Acteocina canaliculata	2

June	van Veen grab	HB	55	11	55_11	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001500297	5841	Caulleriella venefica	2
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169439898	6142	Incisocalliope aestuarius	2
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5105039898	157	Astyris lunata	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169270302	272	Jassa marmorata	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001660302	770	Pectinaria gouldii	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5108019895	1240	Fargoa bartschi	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169040116	1323	Ampithoe valida	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5103640205	4502	Crepidula convexa	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5108019798	4842	Asmunda elegantula	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6169159799	4990	Monocorophium sp.	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	HB	55	11	55_11	6/20/2017	6179110303	8573661	Palaemonetes pugio	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001431801	88	Streblospio benedicti	469
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001600401	1779	Mediomastus ambiseta	338
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169020108	252	Ampelisca abdita	242
June	van Veen grab	HB	56	2	56_2	6/20/2017	5105089897	377	Tritia obsoleta	127
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001130207	393	Hypereteone heteropoda	72
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001430498	91	Polydora cornuta	63
June	van Veen grab	HB	56	2	56_2	6/20/2017	5004000000	466	Oligochaeta	33
June	van Veen grab	HB	56	2	56_2	6/20/2017	500127	9112720	Glyceridae	19
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001430701	86	Spio filicornis	16
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169150998	6161	Grandidierella japonica	15
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169210709	389	Gammarus mucronatus	12

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June	van Veen grab	HB	56	2	56_2	6/20/2017	6169349898	3954	Lysianopsis alba	6
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169210301	698	Elasmopus levis	5
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169040116	1323	Ampithoe valida	5
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	HB	56	2	56_2	6/20/2017	5108019897	1324	Boonea bisuturalis	4
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001670802	112	Ampharete oculata	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5103640204	149	Crepidula fornicata	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5515319898	203	Ameritella agilis	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5517010201	205	Mya arenaria	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169060401	257	Microdeutopus gryllotalpa	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169211006	706	Melita nitida	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5515250301	1321	Mulinia lateralis	3
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	6162020798	247	Edotia triloba	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	6153011508	577	Neomysis americana	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	500128	1856	Goniadidae	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	HB	56	2	56_2	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	6162020602	680	Erichsonella filiformis	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001500000	2066	Cirratulidae	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	500143	2068	Spionidae	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	500124	2071	Nereididae	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	5001280104	4519	Glycinde solitaria	1
June	van Veen grab	HB	56	2	56_2	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001431801	88	Streblospio benedicti	1539
June	van Veen grab	HB	57	15	57_15	6/21/2017	5004000000	466	Oligochaeta	690
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001600401	1779	Mediomastus ambiseta	447
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001500297	5841	Caulleriella venefica	195
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001430498	91	Polydora cornuta	126

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June	van Veen grab	HB	57	15	57_15	6/21/2017	5001130207	393	Hypereteone heteropoda	110
June	van Veen grab	HB	57	15	57_15	6/21/2017	500127	9112720	Glyceridae	101
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001239598	3535	Opisthodonta longocirrata	79
June	van Veen grab	HB	57	15	57_15	6/21/2017	6153011508	577	Neomysis americana	44
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001231698	6231	Streptosyllis verrilli	36
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001680899	1826	Polycirrus sp.	32
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001430701	86	Spio filicornis	31
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169150998	6161	Grandidierella japonica	27
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001500305	4624	Tharyx acutus	20
June	van Veen grab	HB	57	15	57_15	6/21/2017	5002050197	5842	Polygordius jouinae	18
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001500000	2066	Cirratulidae	10
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001230903	3920	Brania wellfleetensis	10
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169150704	4610	Unciola serrata	10
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001210299	1124	Microphthalmus sp.	9
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001230701	4998	Exogone dispar	9
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169020108	252	Ampelisca abdita	6
June	van Veen grab	HB	57	15	57_15	6/21/2017	5520050201	5564	Lyonsia arenosa	6
June	van Veen grab	HB	57	15	57_15	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	5
June	van Veen grab	HB	57	15	57_15	6/21/2017	5515319898	203	Ameritella agilis	4
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169159795	260	Monocorophium acherusicum	4
June	van Veen grab	HB	57	15	57_15	6/21/2017	5105089897	377	Tritia obsoleta	4
June	van Veen grab	HB	57	15	57_15	6/21/2017	5103640204	149	Crepidula fornicata	3
June	van Veen grab	HB	57	15	57_15	6/21/2017	5103640207	150	Crepidula plana	3
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001409899	411	Leitoscoloplos sp.	3
June	van Veen grab	HB	57	15	57_15	6/21/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	HB	57	15	57_15	6/21/2017	500124	2071	Nereididae	3
June	van Veen grab	HB	57	15	57_15	6/21/2017	5517010201	205	Mya arenaria	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169421598	714	Eobrolgus spinosus	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001432099	774	Scolelepis sp.	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	4303020209	3587	Cerebratulus lacteus	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001631102	83	Euclymene collaris	1

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June	van Veen grab	HB	57	15	57_15	6/21/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	57	15	57_15	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001431801	88	Streblospio benedicti	963
June	van Veen grab	HB	59	17	59_17	6/21/2017	5004000000	466	Oligochaeta	746
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001600401	1779	Mediomastus ambiseta	270
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001500297	5841	Caulleriella venefica	123
June	van Veen grab	HB	59	17	59_17	6/21/2017	500127	9112720	Glyceridae	67
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001239598	3535	Opisthodonta longocirrata	41
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001130207	393	Hypereteone heteropoda	20
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001430701	86	Spio filicornis	19
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001430498	91	Polydora cornuta	18
June	van Veen grab	HB	59	17	59_17	6/21/2017	5105089897	377	Tritia obsoleta	12
June	van Veen grab	HB	59	17	59_17	6/21/2017	6169150998	6161	Grandidierella japonica	11
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001231698	6231	Streptosyllis verrilli	11
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001680899	1826	Polycirrus sp.	9
June	van Veen grab	HB	59	17	59_17	6/21/2017	5520050201	5564	Lyonsia arenosa	7
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001631102	83	Euclymene collaris	6
June	van Veen grab	HB	59	17	59_17	6/21/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	HB	59	17	59_17	6/21/2017	6153011508	577	Neomysis americana	6
June	van Veen grab	HB	59	17	59_17	6/21/2017	5002050197	5842	Polygordius jouinae	6
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001500305	4624	Tharyx acutus	5
June	van Veen grab	HB	59	17	59_17	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	4
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	HB	59	17	59_17	6/21/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001230701	4998	Exogone dispar	3
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001219798	1118	Oxydromus obscurus	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001500000	2066	Cirratulidae	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	500124	2071	Nereididae	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001230903	3920	Brania wellfleetensis	2

June	van Veen grab	HB	59	17	59_17	6/21/2017	5103640299	4514	Crepidula sp.	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	6169150704	4610	Unciola serrata	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	4306050112	4961	Amphiporus ochraceus	2
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	6169020108	252	Ampelisca abdita	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001409898	381	Leitoscoloplos robustus	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5515471301	387	Gemma gemma	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5103640205	4502	Crepidula convexa	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	HB	59	17	59_17	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001431801	88	Streblospio benedicti	883
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001430498	91	Polydora cornuta	144
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001600401	1779	Mediomastus ambiseta	139
June	van Veen grab	HB	62	22	62_22	6/21/2017	5004000000	466	Oligochaeta	129
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001239598	3535	Opisthodonta longocirrata	82
June	van Veen grab	HB	62	22	62_22	6/21/2017	500127	9112720	Glyceridae	79
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001500297	5841	Caulleriella venefica	50
June	van Veen grab	HB	62	22	62_22	6/21/2017	6153011508	577	Neomysis americana	28
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001231698	6231	Streptosyllis verrilli	8
June	van Veen grab	HB	62	22	62_22	6/21/2017	5002050197	5842	Polygordius jouinae	6
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001130207	393	Hypereteone heteropoda	5
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001680899	1826	Polycirrus sp.	4
June	van Veen grab	HB	62	22	62_22	6/21/2017	5515319898	203	Ameritella agilis	3
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001500000	2066	Cirratulidae	3
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001230701	4998	Exogone dispar	3
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	HB	62	22	62_22	6/21/2017	5515290398	209	Ensis leei	2

June	van Veen grab	HB	62	22	62_22	6/21/2017	4306050199	4827	Amphiporus sp.	2
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001430701	86	Spio filicornis	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	6169020108	252	Ampelisca abdita	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	500163	2075	Maldanidae	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	4302020101	4804	Carinoma tremaphoros	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	5001210297	5449	Microphthalmus fragilis	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	6169150998	6161	Grandidierella japonica	1
June	van Veen grab	HB	62	22	62_22	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001431801	88	Streblospio benedicti	456
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001600401	1779	Mediomastus ambiseta	442
June	van Veen grab	HB	63	19	63_19	6/21/2017	5004000000	466	Oligochaeta	386
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001500297	5841	Caulleriella venefica	93
June	van Veen grab	HB	63	19	63_19	6/21/2017	500127	9112720	Glyceridae	51
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001239598	3535	Opisthodonta longocirrata	41
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001130207	393	Hypereteone heteropoda	26
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001430498	91	Polydora cornuta	20
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001430701	86	Spio filicornis	15
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001500305	4624	Tharyx acutus	12
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001680899	1826	Polycirrus sp.	11
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001231698	6231	Streptosyllis verrilli	10
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001500000	2066	Cirratulidae	9
June	van Veen grab	HB	63	19	63_19	6/21/2017	5002050197	5842	Polygordius jouinae	9
June	van Veen grab	HB	63	19	63_19	6/21/2017	5105089897	377	Tritia obsoleta	7
June	van Veen grab	HB	63	19	63_19	6/21/2017	6153011508	577	Neomysis americana	7
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001131101	57	Eumida sanguinea	6
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001210299	1124	Microphthalmus sp.	4
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001230903	3920	Brania wellfleetensis	4
June	van Veen grab	HB	63	19	63_19	6/21/2017	4302020101	4804	Carinoma tremaphoros	4
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001210297	5449	Microphthalmus fragilis	4
June	van Veen grab	HB	63	19	63_19	6/21/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	HB	63	19	63_19	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	4

June	van Veen grab	HB	63	19	63_19	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	3
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001230701	4998	Exogone dispar	3
June	van Veen grab	HB	63	19	63_19	6/21/2017	5515319898	203	Ameritella agilis	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	3901000000	1279	Turbellaria	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001409897	102	Leitoscoloplos fragilis	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	6169020108	252	Ampelisca abdita	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	HB	63	19	63_19	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5001600401	1779	Mediomastus ambiseta	578
June	van Veen grab	B	66	1	66_1	6/21/2017	5001431801	88	Streblospio benedicti	436
June	van Veen grab	B	66	1	66_1	6/21/2017	5004000000	466	Oligochaeta	179
June	van Veen grab	B	66	1	66_1	6/21/2017	5001130207	393	Hypereteone heteropoda	106
June	van Veen grab	B	66	1	66_1	6/21/2017	5001500305	4624	Tharyx acutus	22
June	van Veen grab	B	66	1	66_1	6/21/2017	5001430498	91	Polydora cornuta	14
June	van Veen grab	B	66	1	66_1	6/21/2017	5001430701	86	Spio filicornis	13
June	van Veen grab	B	66	1	66_1	6/21/2017	5001500000	2066	Cirratulidae	13
June	van Veen grab	B	66	1	66_1	6/21/2017	5001631102	83	Euclymene collaris	11
June	van Veen grab	B	66	1	66_1	6/21/2017	6169020108	252	Ampelisca abdita	11
June	van Veen grab	B	66	1	66_1	6/21/2017	500127	9112720	Glyceridae	8
June	van Veen grab	B	66	1	66_1	6/21/2017	6189029798	769	Dyspanopeus sayi	6
June	van Veen grab	B	66	1	66_1	6/21/2017	6169150704	4610	Unciola serrata	6
June	van Veen grab	B	66	1	66_1	6/21/2017	5515471301	387	Gemma gemma	5
June	van Veen grab	B	66	1	66_1	6/21/2017	6153011508	577	Neomysis americana	5
June	van Veen grab	B	66	1	66_1	6/21/2017	5131070198	3590	Corambe obscura	5
June	van Veen grab	B	66	1	66_1	6/21/2017	5001680899	1826	Polycirrus sp.	4
June	van Veen grab	B	66	1	66_1	6/21/2017	5001650202	3586	Sabellaria vulgaris	4

June	van Veen grab	B	66	1	66_1	6/21/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	B	66	1	66_1	6/21/2017	5515319898	203	Ameritella agilis	3
June	van Veen grab	B	66	1	66_1	6/21/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	66	1	66_1	6/21/2017	6169211006	706	Melita nitida	3
June	van Veen grab	B	66	1	66_1	6/21/2017	5001270104	450	Glycera americana	2
June	van Veen grab	B	66	1	66_1	6/21/2017	6169349898	3954	Lysianopsis alba	2
June	van Veen grab	B	66	1	66_1	6/21/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5001020803	444	Harmothoe extenuata	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	B	66	1	66_1	6/21/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	66	1	66_1	6/21/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	B	66	1	66_1	6/21/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	66	1	66_1	6/21/2017	500124	2071	Nereididae	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5520050201	5564	Lyonsia arenosa	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	66	1	66_1	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001130207	393	Hypereteone heteropoda	159
June	van Veen grab	B	68	39	68_39	6/21/2017	5001600401	1779	Mediomastus ambiseta	102
June	van Veen grab	B	68	39	68_39	6/21/2017	5004000000	466	Oligochaeta	97
June	van Veen grab	B	68	39	68_39	6/21/2017	5001431801	88	Streblospio benedicti	70
June	van Veen grab	B	68	39	68_39	6/21/2017	6169150998	6161	Grandidierella japonica	69
June	van Veen grab	B	68	39	68_39	6/21/2017	5001430498	91	Polydora cornuta	28
June	van Veen grab	B	68	39	68_39	6/21/2017	5517010201	205	Mya arenaria	26
June	van Veen grab	B	68	39	68_39	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	15
June	van Veen grab	B	68	39	68_39	6/21/2017	6153011508	577	Neomysis americana	11
June	van Veen grab	B	68	39	68_39	6/21/2017	6169020108	252	Ampelisca abdita	7
June	van Veen grab	B	68	39	68_39	6/21/2017	5001239598	3535	Opisthodonta longocirrata	7
June	van Veen grab	B	68	39	68_39	6/21/2017	5001131101	57	Eumida sanguinea	6
June	van Veen grab	B	68	39	68_39	6/21/2017	5001430701	86	Spio filicornis	4
June	van Veen grab	B	68	39	68_39	6/21/2017	5105089897	377	Tritia obsoleta	4
June	van Veen grab	B	68	39	68_39	6/21/2017	500127	9112720	Glyceridae	4
June	van Veen grab	B	68	39	68_39	6/21/2017	5105089898	162	Tritia trivittata	3
June	van Veen grab	B	68	39	68_39	6/21/2017	6169210709	389	Gammarus mucronatus	3
June	van Veen grab	B	68	39	68_39	6/21/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	68	39	68_39	6/21/2017	5001600201	391	Heteromastus filiformis	2

June	van Veen grab	B	68	39	68_39	6/21/2017	5001249798	651	Alitta succinea	2
June	van Veen grab	B	68	39	68_39	6/21/2017	5001500000	2066	Cirratulidae	2
June	van Veen grab	B	68	39	68_39	6/21/2017	500124	2071	Nereididae	2
June	van Veen grab	B	68	39	68_39	6/21/2017	6169159799	4990	Monocorophium sp.	2
June	van Veen grab	B	68	39	68_39	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	2
June	van Veen grab	B	68	39	68_39	6/21/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	B	68	39	68_39	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	68	39	68_39	6/21/2017	6169210799	367	Gammarus sp.	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	68	39	68_39	6/21/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	B	68	39	68_39	6/21/2017	6169211006	706	Melita nitida	1
June	van Veen grab	B	68	39	68_39	6/21/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	B	68	39	68_39	6/21/2017	3901000000	1279	Turbellaria	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001680899	1826	Polycirrus sp.	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001230903	3920	Brania wellfleetensis	1
June	van Veen grab	B	68	39	68_39	6/21/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	B	68	39	68_39	6/21/2017	5001500297	5841	Caulleriella venefica	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001431801	88	Streblospio benedicti	875
June	van Veen grab	B	69	25	69_25	6/20/2017	5001600401	1779	Mediomastus ambiseta	537
June	van Veen grab	B	69	25	69_25	6/20/2017	5001130207	393	Hypereteone heteropoda	157
June	van Veen grab	B	69	25	69_25	6/20/2017	5001500305	4624	Tharyx acutus	153
June	van Veen grab	B	69	25	69_25	6/20/2017	5001430701	86	Spio filicornis	89
June	van Veen grab	B	69	25	69_25	6/20/2017	5004000000	466	Oligochaeta	64
June	van Veen grab	B	69	25	69_25	6/20/2017	5001631102	83	Euclymene collaris	43
June	van Veen grab	B	69	25	69_25	6/20/2017	5001430498	91	Polydora cornuta	41
June	van Veen grab	B	69	25	69_25	6/20/2017	5001500000	2066	Cirratulidae	38
June	van Veen grab	B	69	25	69_25	6/20/2017	500127	9112720	Glyceridae	35
June	van Veen grab	B	69	25	69_25	6/20/2017	5001650202	3586	Sabellaria vulgaris	16
June	van Veen grab	B	69	25	69_25	6/20/2017	5515290398	209	Ensis leei	14
June	van Veen grab	B	69	25	69_25	6/20/2017	6169150704	4610	Unciola serrata	9
June	van Veen grab	B	69	25	69_25	6/20/2017	5515319898	203	Ameritella agilis	8
June	van Veen grab	B	69	25	69_25	6/20/2017	5001280104	4519	Glycinde solitaria	4
June	van Veen grab	B	69	25	69_25	6/20/2017	5001670802	112	Ampharete oculata	3

June	van Veen grab	B	69	25	69_25	6/20/2017	6169020108	252	Ampelisca abdita	3
June	van Veen grab	B	69	25	69_25	6/20/2017	6169421598	714	Eobrolgus spinosus	3
June	van Veen grab	B	69	25	69_25	6/20/2017	4303020209	3587	Cerebratulus lacteus	3
June	van Veen grab	B	69	25	69_25	6/20/2017	4306050110	4805	Amphiporus bioculatus	3
June	van Veen grab	B	69	25	69_25	6/20/2017	5001500297	5841	Caulleriella venefica	3
June	van Veen grab	B	69	25	69_25	6/20/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	B	69	25	69_25	6/20/2017	5001131101	57	Eumida sanguinea	2
June	van Veen grab	B	69	25	69_25	6/20/2017	5105089898	162	Tritia trivittata	2
June	van Veen grab	B	69	25	69_25	6/20/2017	5131070198	3590	Corambe obscura	2
June	van Veen grab	B	69	25	69_25	6/20/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	69	25	69_25	6/20/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001270104	450	Glycera americana	1
June	van Veen grab	B	69	25	69_25	6/20/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	69	25	69_25	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001680899	1826	Polycirrus sp.	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	B	69	25	69_25	6/20/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001431801	88	Streblospio benedicti	558
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001600401	1779	Mediomastus ambiseta	155
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001430701	86	Spio filicornis	58
June	van Veen grab	HB	72	25	72_25	6/21/2017	500127	9112720	Glyceridae	46
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001430498	91	Polydora cornuta	32
June	van Veen grab	HB	72	25	72_25	6/21/2017	5515471301	387	Gemma gemma	31
June	van Veen grab	HB	72	25	72_25	6/21/2017	5004000000	466	Oligochaeta	22
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001500297	5841	Caulleriella venefica	19
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001500305	4624	Tharyx acutus	15
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001631102	83	Euclymene collaris	7
June	van Veen grab	HB	72	25	72_25	6/21/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001130207	393	Hypereteone heteropoda	7
June	van Veen grab	HB	72	25	72_25	6/21/2017	6153011508	577	Neomysis americana	7
June	van Veen grab	HB	72	25	72_25	6/21/2017	6169020108	252	Ampelisca abdita	4

June	van Veen grab	HB	72	25	72_25	6/21/2017	5105089897	377	Tritia obsoleta	4
June	van Veen grab	HB	72	25	72_25	6/21/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001431001	92	Spiophanes bombyx	3
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	HB	72	25	72_25	6/21/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001239598	3535	Opisthodonta longocirrata	2
June	van Veen grab	HB	72	25	72_25	6/21/2017	5001432006	4544	Scolelepis (parascolelepis) texana	2
June	van Veen grab	HB	72	25	72_25	6/21/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	72	25	72_25	6/21/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	6169211006	706	Melita nitida	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	5108019897	1324	Boonea bisuturalis	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	HB	72	25	72_25	6/21/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001431801	88	Streblospio benedicti	1816
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001600401	1779	Mediomastus ambiseta	1036
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001430498	91	Polydora cornuta	249
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169020108	252	Ampelisca abdita	114
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001130207	393	Hypereteone heteropoda	94
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001500305	4624	Tharyx acutus	93
June	van Veen grab	HB	73	13	73_13	6/21/2017	500127	9112720	Glyceridae	69
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001430701	86	Spio filicornis	46
June	van Veen grab	HB	73	13	73_13	6/21/2017	5004000000	466	Oligochaeta	34
June	van Veen grab	HB	73	13	73_13	6/21/2017	5515319898	203	Ameritella agilis	17
June	van Veen grab	HB	73	13	73_13	6/21/2017	5110040103	600	Acteocina canaliculata	17
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001500000	2066	Cirratulidae	16
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001631102	83	Euclymene collaris	11
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001500297	5841	Caulleriella venefica	10
June	van Veen grab	HB	73	13	73_13	6/21/2017	5515290398	209	Ensis leei	7
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169020109	253	Ampelisca vadorum	7
June	van Veen grab	HB	73	13	73_13	6/21/2017	6153011508	577	Neomysis americana	6
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169150704	4610	Unciola serrata	6
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001650202	3586	Sabellaria vulgaris	5
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169150998	6161	Grandidierella japonica	5
June	van Veen grab	HB	73	13	73_13	6/21/2017	5520050201	5564	Lyonsia arenosa	4

June	van Veen grab	HB	73	13	73_13	6/21/2017	5105089898	162	Tritia trivittata	3
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169159795	260	Monocorophium acherusicum	3
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5131070198	3590	Corambe obscura	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5105010601	4579	Eupleura caudata	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001600197	6083	Capitella capitata complex	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001130108	642	Phyllodoce arenae	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	6169150302	699	Ericthonius brasiliensis	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	73	13	73_13	6/21/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001431801	88	Streblospio benedicti	1376
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001600401	1779	Mediomastus ambiseta	422
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001430498	91	Polydora cornuta	284
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169020108	252	Ampelisca abdita	80
June	van Veen grab	HB	74	18	74_18	6/21/2017	6153011508	577	Neomysis americana	74
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001130207	393	Hypereteone heteropoda	56
June	van Veen grab	HB	74	18	74_18	6/21/2017	500127	9112720	Glyceridae	36
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001430701	86	Spio filicornis	27
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001631102	83	Euclymene collaris	15
June	van Veen grab	HB	74	18	74_18	6/21/2017	5110040103	600	Acteocina canaliculata	12
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001500305	4624	Tharyx acutus	12
June	van Veen grab	HB	74	18	74_18	6/21/2017	5004000000	466	Oligochaeta	9
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001600201	391	Heteromastus filiformis	8
June	van Veen grab	HB	74	18	74_18	6/21/2017	5103640204	149	Crepidula fornicata	7

June	van Veen grab	HB	74	18	74_18	6/21/2017	5515290398	209	Ensis leei	6
June	van Veen grab	HB	74	18	74_18	6/21/2017	5108019897	1324	Boonea bisuturalis	6
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169150998	6161	Grandidierella japonica	6
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169159795	260	Monocorophium acherusicum	5
June	van Veen grab	HB	74	18	74_18	6/21/2017	5105089897	377	Tritia obsoleta	5
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001670802	112	Ampharete oculata	4
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169159796	696	Monocorophium tuberculatum	4
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001500000	2066	Cirratulidae	4
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001280104	4519	Glycinde solitaria	4
June	van Veen grab	HB	74	18	74_18	6/21/2017	5105089898	162	Tritia trivittata	3
June	van Veen grab	HB	74	18	74_18	6/21/2017	5517010201	205	Mya arenaria	3
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169150704	4610	Unciola serrata	3
June	van Veen grab	HB	74	18	74_18	6/21/2017	5515319898	203	Ameritella agilis	2
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	HB	74	18	74_18	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001500297	5841	Caulleriella venefica	2
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5502040599	516	Yoldia sp.	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169150302	699	Ericthonius brasiliensis	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001680899	1826	Polycirrus sp.	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	HB	74	18	74_18	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001431801	88	Streblospio benedicti	666
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001600401	1779	Mediomastus ambiseta	237
June	van Veen grab	HB	75	28	75_28	6/21/2017	500127	9112720	Glyceridae	107
June	van Veen grab	HB	75	28	75_28	6/21/2017	5515471301	387	Gemma gemma	67
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001500297	5841	Caulleriella venefica	59
June	van Veen grab	HB	75	28	75_28	6/21/2017	5004000000	466	Oligochaeta	45
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001430701	86	Spio filicornis	42
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001430498	91	Polydora cornuta	24

June	van Veen grab	HB	75	28	75_28	6/21/2017	5001500305	4624	Tharyx acutus	7
June	van Veen grab	HB	75	28	75_28	6/21/2017	5105089898	162	Tritia trivittata	6
June	van Veen grab	HB	75	28	75_28	6/21/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	HB	75	28	75_28	6/21/2017	5110040103	600	Acteocina canaliculata	5
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	HB	75	28	75_28	6/21/2017	6153011508	577	Neomysis americana	4
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001631102	83	Euclymene collaris	3
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001432006	4544	Scolelepis (parascolelepis) texana	3
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001130207	393	Hypereteone heteropoda	2
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001500000	2066	Cirratulidae	2
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001680899	1826	Polycirrus sp.	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	75	28	75_28	6/21/2017	6169150998	6161	Grandidierella japonica	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001600401	1779	Mediomastus ambiseta	314
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001431801	88	Streblospio benedicti	200
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001130207	393	Hypereteone heteropoda	111
June	van Veen grab	HB	78	26	78_26	6/21/2017	5004000000	466	Oligochaeta	101
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001500305	4624	Tharyx acutus	92
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001430701	86	Spio filicornis	62
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001500000	2066	Cirratulidae	53
June	van Veen grab	HB	78	26	78_26	6/21/2017	6153011508	577	Neomysis americana	37
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001631102	83	Euclymene collaris	27
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001430498	91	Polydora cornuta	25
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169020108	252	Ampelisca abdita	23
June	van Veen grab	HB	78	26	78_26	6/21/2017	500127	9112720	Glyceridae	23
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169150704	4610	Unciola serrata	17
June	van Veen grab	HB	78	26	78_26	6/21/2017	5515319898	203	Ameritella agilis	13
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001680899	1826	Polycirrus sp.	12
June	van Veen grab	HB	78	26	78_26	6/21/2017	5103640204	149	Crepidula fornicata	8
June	van Veen grab	HB	78	26	78_26	6/21/2017	5515290398	209	Ensis leei	7
June	van Veen grab	HB	78	26	78_26	6/21/2017	5105089897	377	Tritia obsoleta	7

June	van Veen grab	HB	78	26	78_26	6/21/2017	5001231698	6231	Streptosyllis verrilli	6
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001131101	57	Eumida sanguinea	4
June	van Veen grab	HB	78	26	78_26	6/21/2017	5105089898	162	Tritia trivittata	4
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	HB	78	26	78_26	6/21/2017	6154050801	235	Oxyurostylis smithi	3
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	HB	78	26	78_26	6/21/2017	5517010201	205	Mya arenaria	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5515471301	387	Gemma gemma	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001020899	432	Harmothoe sp.	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001270104	450	Glycera americana	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	6160010202	679	Cyathura burbancki	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	6171010901	685	Paracaprella tenuis	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001330198	4665	Drilonereis longa	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5520050201	5564	Lyonsia arenosa	2
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001650202	3586	Sabellaria vulgaris	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	HB	78	26	78_26	6/21/2017	5001500297	5841	Caulleriella venefica	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001600401	1779	Mediomastus ambiseta	1098
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001431801	88	Streblospio benedicti	629
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001130207	393	Hypereteone heteropoda	223
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001430498	91	Polydora cornuta	141
June	van Veen grab	HB	79	21	79_21	6/21/2017	5004000000	466	Oligochaeta	124
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169020108	252	Ampelisca abdita	102
June	van Veen grab	HB	79	21	79_21	6/21/2017	5515319898	203	Ameritella agilis	59
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001631102	83	Euclymene collaris	43
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001680899	1826	Polycirrus sp.	14

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June	van Veen grab	HB	79	21	79_21	6/21/2017	6169150704	4610	Unciola serrata	13
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001430701	86	Spio filicornis	12
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169020109	253	Ampelisca vadorum	12
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001500000	2066	Cirratulidae	8
June	van Veen grab	HB	79	21	79_21	6/21/2017	5103640204	149	Crepidula fornicata	7
June	van Veen grab	HB	79	21	79_21	6/21/2017	5517010201	205	Mya arenaria	7
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001600201	391	Heteromastus filiformis	7
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001650202	3586	Sabellaria vulgaris	7
June	van Veen grab	HB	79	21	79_21	6/21/2017	5105089898	162	Tritia trivittata	6
June	van Veen grab	HB	79	21	79_21	6/21/2017	6153011508	577	Neomysis americana	6
June	van Veen grab	HB	79	21	79_21	6/21/2017	5520050201	5564	Lyonsia arenosa	6
June	van Veen grab	HB	79	21	79_21	6/21/2017	5515290398	209	Ensis leei	5
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169421598	714	Eobrolgus spinosus	5
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001230701	4998	Exogone dispar	5
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001020899	432	Harmothoe sp.	4
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001210103	4609	Gyptis vittata	4
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001600197	6083	Capitella capitata complex	4
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001670802	112	Ampharete oculata	3
June	van Veen grab	HB	79	21	79_21	6/21/2017	6189029798	769	Dyspanopeus sayi	3
June	van Veen grab	HB	79	21	79_21	6/21/2017	6183060230	1619	Pagurus longicarpus	3
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001500297	5841	Caulleriella venefica	3
June	van Veen grab	HB	79	21	79_21	6/21/2017	5502020204	178	Nucula proxima	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001270104	450	Glycera americana	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	6171010901	685	Paracaprella tenuis	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001660302	770	Pectinaria gouldii	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001230104	1028	Myrianida prolifera	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001219798	1118	Oxydromus obscurus	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5105010301	1146	Urosalpinx cinerea	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169349898	3954	Lysianopsis alba	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001130801	4562	Paranaitis speciosa	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	500127	9112720	Glyceridae	2
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	6179220103	301	Crangon septemspinosa	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001020803	444	Harmothoe extenuata	1

June	van Veen grab	HB	79	21	79_21	6/21/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001639898	664	Sabaco elongatus	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169481002	720	Stenothoe minuta	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001021199	1094	Lepidonotus sp.	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5103640299	4514	Crepidula sp.	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	79	21	79_21	6/21/2017	6169480702	9566280	Parametopella cypris	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5001600401	1779	Mediomastus ambiseta	513
June	van Veen grab	B	8	4	8_4	6/20/2017	5001431801	88	Streblospio benedicti	249
June	van Veen grab	B	8	4	8_4	6/20/2017	5004000000	466	Oligochaeta	187
June	van Veen grab	B	8	4	8_4	6/20/2017	500127	9112720	Glyceridae	55
June	van Veen grab	B	8	4	8_4	6/20/2017	5001500297	5841	Caulleriella venefica	34
June	van Veen grab	B	8	4	8_4	6/20/2017	5001430701	86	Spio filicornis	33
June	van Veen grab	B	8	4	8_4	6/20/2017	5001239598	3535	Opisthodonta longocirrata	17
June	van Veen grab	B	8	4	8_4	6/20/2017	6169150998	6161	Grandidierella japonica	12
June	van Veen grab	B	8	4	8_4	6/20/2017	6169020108	252	Ampelisca abdita	9
June	van Veen grab	B	8	4	8_4	6/20/2017	5515319898	203	Ameritella agilis	8
June	van Veen grab	B	8	4	8_4	6/20/2017	5001230701	4998	Exogone dispar	6
June	van Veen grab	B	8	4	8_4	6/20/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	B	8	4	8_4	6/20/2017	5001231698	6231	Streptosyllis verrilli	4
June	van Veen grab	B	8	4	8_4	6/20/2017	5001130207	393	Hypereteone heteropoda	3
June	van Veen grab	B	8	4	8_4	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	8	4	8_4	6/20/2017	5001680899	1826	Polycirrus sp.	3
June	van Veen grab	B	8	4	8_4	6/20/2017	4303020209	3587	Cerebratulus lacteus	3
June	van Veen grab	B	8	4	8_4	6/20/2017	5105089898	162	Tritia trivittata	2
June	van Veen grab	B	8	4	8_4	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	B	8	4	8_4	6/20/2017	5105089897	377	Tritia obsoleta	2
June	van Veen grab	B	8	4	8_4	6/20/2017	5001409899	411	Leitoscoloplos sp.	2
June	van Veen grab	B	8	4	8_4	6/20/2017	5001500000	2066	Cirratulidae	2
June	van Veen grab	B	8	4	8_4	6/20/2017	5001500305	4624	Tharyx acutus	2

June	van Veen grab	B	8	4	8_4	6/20/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5001631102	83	Euclymene collaris	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5001430498	91	Polydora cornuta	1
June	van Veen grab	B	8	4	8_4	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	8	4	8_4	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	B	8	4	8_4	6/20/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	8	4	8_4	6/20/2017	6169150704	4610	Unciola serrata	1
June	van Veen grab	B	8	4	8_4	6/20/2017	5002050197	5842	Polygordius jouinae	1
June	van Veen grab	B	8	4	8_4	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001431801	88	Streblospio benedicti	552
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001600401	1779	Mediomastus ambiseta	347
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001130207	393	Hypereteone heteropoda	113
June	van Veen grab	HB	80	30	80_30	6/21/2017	5004000000	466	Oligochaeta	91
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001500305	4624	Tharyx acutus	64
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001430498	91	Polydora cornuta	58
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001650202	3586	Sabellaria vulgaris	31
June	van Veen grab	HB	80	30	80_30	6/21/2017	6169150704	4610	Unciola serrata	27
June	van Veen grab	HB	80	30	80_30	6/21/2017	5515319898	203	Ameritella agilis	21
June	van Veen grab	HB	80	30	80_30	6/21/2017	6169020108	252	Ampelisca abdita	14
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001631102	83	Euclymene collaris	10
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001500000	2066	Cirratulidae	10
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001680899	1826	Polycirrus sp.	9
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001131101	57	Eumida sanguinea	7
June	van Veen grab	HB	80	30	80_30	6/21/2017	5105089898	162	Tritia trivittata	6
June	van Veen grab	HB	80	30	80_30	6/21/2017	6153011508	577	Neomysis americana	5
June	van Veen grab	HB	80	30	80_30	6/21/2017	6160010202	679	Cyathura burbancki	5
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001430701	86	Spio filicornis	4
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001600201	391	Heteromastus filiformis	4
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001270104	450	Glycera americana	4
June	van Veen grab	HB	80	30	80_30	6/21/2017	5103640204	149	Crepidula fornicata	3
June	van Veen grab	HB	80	30	80_30	6/21/2017	6169020109	253	Ampelisca vadorum	3
June	van Veen grab	HB	80	30	80_30	6/21/2017	6183060230	1619	Pagurus longicarpus	3
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	3
June	van Veen grab	HB	80	30	80_30	6/21/2017	5515290398	209	Ensis leei	2
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001130801	4562	Paranaitis speciosa	2

June	van Veen grab	HB	80	30	80_30	6/21/2017	500127	9112720	Glyceridae	2
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001020803	444	Harmothoe extenuata	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	6169159796	696	Monocorophium tuberculatum	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001230903	3920	Brania wellfleetensis	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001210103	4609	Gyptis vittata	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	HB	80	30	80_30	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001600401	1779	Mediomastus ambiseta	1313
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001431801	88	Streblospio benedicti	716
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001130207	393	Hypereteone heteropoda	305
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169020108	252	Ampelisca abdita	199
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001430498	91	Polydora cornuta	151
June	van Veen grab	HB	81	8	81_8	6/21/2017	5004000000	466	Oligochaeta	137
June	van Veen grab	HB	81	8	81_8	6/21/2017	6171010901	685	Paracaprella tenuis	88
June	van Veen grab	HB	81	8	81_8	6/21/2017	6153011508	577	Neomysis americana	62
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001631102	83	Euclymene collaris	35
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001680899	1826	Polycirrus sp.	32
June	van Veen grab	HB	81	8	81_8	6/21/2017	5517010201	205	Mya arenaria	26
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001500305	4624	Tharyx acutus	21
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001500000	2066	Cirratulidae	13
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001600201	391	Heteromastus filiformis	12
June	van Veen grab	HB	81	8	81_8	6/21/2017	6160010202	679	Cyathura burbancki	11
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001430701	86	Spio filicornis	10
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001270104	450	Glycera americana	9
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001219798	1118	Oxydromus obscurus	9
June	van Veen grab	HB	81	8	81_8	6/21/2017	6171010727	1655	Caprella penantis	9
June	van Veen grab	HB	81	8	81_8	6/21/2017	5103640204	149	Crepidula fornicata	8
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001210103	4609	Gyptis vittata	8

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June	van Veen grab	HB	81	8	81_8	6/21/2017	5001650202	3586	Sabellaria vulgaris	7
June	van Veen grab	HB	81	8	81_8	6/21/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169150704	4610	Unciola serrata	6
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169020109	253	Ampelisca vadorum	5
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169481002	720	Stenothoe minuta	5
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001670802	112	Ampharete oculata	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5105089898	162	Tritia trivittata	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001020899	432	Harmothoe sp.	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001249798	651	Alitta succinea	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	4303020209	3587	Cerebratulus lacteus	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5103640299	4514	Crepidula sp.	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5520050201	5564	Lyonsia arenosa	4
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001020803	444	Harmothoe extenuata	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169150302	699	Ericthonius brasiliensis	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	6189029798	769	Dyspanopeus sayi	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001280104	4519	Glycinde solitaria	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001130801	4562	Paranaitis speciosa	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001231698	6231	Streptosyllis verrilli	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	500127	9112720	Glyceridae	3
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001131101	57	Eumida sanguinea	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	6154050801	235	Oxyurostylis smithi	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	5105089897	377	Tritia obsoleta	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169421598	714	Eobrolgus spinosus	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	5105010301	1146	Urosalpinx cinerea	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169349898	3954	Lysianopsis alba	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	6171010298	4646	Deutella incerta	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001020806	61	Harmothoe imbricata	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169159697	569	Crassicorophium bonellii	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001660302	770	Pectinaria gouldii	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001230193	1908	Proceraea cornuta	1

June	van Veen grab	HB	81	8	81_8	6/21/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001439695	4478	Dipolydora commensalis	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001439898	4817	Boccardiella hamata	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001500297	5841	Caulleriella venefica	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	5001600197	6083	Capitella capitata complex	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	6169439898	6142	Incisocalliope aestuarius	1
June	van Veen grab	HB	81	8	81_8	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	1
June	van Veen grab	B	82	29	82_29	6/21/2017	5001431801	88	Streblospio benedicti	160
June	van Veen grab	B	82	29	82_29	6/21/2017	5001600401	1779	Mediomastus ambiseta	54
June	van Veen grab	B	82	29	82_29	6/21/2017	5515471301	387	Gemma gemma	34
June	van Veen grab	B	82	29	82_29	6/21/2017	500127	9112720	Glyceridae	25
June	van Veen grab	B	82	29	82_29	6/21/2017	5001430701	86	Spio filicornis	15
June	van Veen grab	B	82	29	82_29	6/21/2017	5004000000	466	Oligochaeta	11
June	van Veen grab	B	82	29	82_29	6/21/2017	5515319898	203	Ameritella agilis	9
June	van Veen grab	B	82	29	82_29	6/21/2017	5105089897	377	Tritia obsoleta	9
June	van Veen grab	B	82	29	82_29	6/21/2017	5001500297	5841	Caulleriella venefica	9
June	van Veen grab	B	82	29	82_29	6/21/2017	5001500000	2066	Cirratulidae	7
June	van Veen grab	B	82	29	82_29	6/21/2017	5001430498	91	Polydora cornuta	6
June	van Veen grab	B	82	29	82_29	6/21/2017	6169020108	252	Ampelisca abdita	4
June	van Veen grab	B	82	29	82_29	6/21/2017	500124	2071	Nereididae	4
June	van Veen grab	B	82	29	82_29	6/21/2017	5001500305	4624	Tharyx acutus	3
June	van Veen grab	B	82	29	82_29	6/21/2017	5001130207	393	Hypereteone heteropoda	2
June	van Veen grab	B	82	29	82_29	6/21/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	B	82	29	82_29	6/21/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	82	29	82_29	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	B	82	29	82_29	6/21/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	82	29	82_29	6/21/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	B	82	29	82_29	6/21/2017	6153011508	577	Neomysis americana	1
June	van Veen grab	B	82	29	82_29	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	B	82	29	82_29	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001600401	1779	Mediomastus ambiseta	253
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001130207	393	Hypereteone heteropoda	169
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001431801	88	Streblospio benedicti	144

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June	van Veen grab	HB	83	24	83_24	6/21/2017	5004000000	466	Oligochaeta	128
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001430498	91	Polydora cornuta	99
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001500305	4624	Tharyx acutus	42
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001430701	86	Spio filicornis	39
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001500000	2066	Cirratulidae	35
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001650202	3586	Sabellaria vulgaris	33
June	van Veen grab	HB	83	24	83_24	6/21/2017	6153011508	577	Neomysis americana	30
June	van Veen grab	HB	83	24	83_24	6/21/2017	6169150704	4610	Unciola serrata	19
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001631102	83	Euclymene collaris	18
June	van Veen grab	HB	83	24	83_24	6/21/2017	6169020108	252	Ampelisca abdita	16
June	van Veen grab	HB	83	24	83_24	6/21/2017	500127	9112720	Glyceridae	13
June	van Veen grab	HB	83	24	83_24	6/21/2017	5515319898	203	Ameritella agilis	7
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001680899	1826	Polycirrus sp.	7
June	van Veen grab	HB	83	24	83_24	6/21/2017	5108019895	1240	Fargoa bartschi	6
June	van Veen grab	HB	83	24	83_24	6/21/2017	5103640204	149	Crepidula fornicata	5
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001600201	391	Heteromastus filiformis	5
June	van Veen grab	HB	83	24	83_24	6/21/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	HB	83	24	83_24	6/21/2017	5131070198	3590	Corambe obscura	4
June	van Veen grab	HB	83	24	83_24	6/21/2017	5520050201	5564	Lyonsia arenosa	4
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	HB	83	24	83_24	6/21/2017	5515290398	209	Ensis leei	3
June	van Veen grab	HB	83	24	83_24	6/21/2017	6160010202	679	Cyathura burbancki	3
June	van Veen grab	HB	83	24	83_24	6/21/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001270104	450	Glycera americana	2
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001219798	1118	Oxydromus obscurus	2
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001500297	5841	Caulleriella venefica	2
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001239698	1153	Salvatoria clavata	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	3901000000	1279	Turbellaria	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	500128	1856	Goniadidae	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5103640205	4502	Crepidula convexa	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	HB	83	24	83_24	6/21/2017	5001231698	6231	Streptosyllis verrilli	1

June	van Veen grab	HB	84	1	84_1	6/21/2017	5001600401	1779	Mediomastus ambiseta	115
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001431801	88	Streblospio benedicti	77
June	van Veen grab	HB	84	1	84_1	6/21/2017	5004000000	466	Oligochaeta	42
June	van Veen grab	HB	84	1	84_1	6/21/2017	6169020108	252	Ampelisca abdita	19
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001130207	393	Hypereteone heteropoda	4
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001631102	83	Euclymene collaris	3
June	van Veen grab	HB	84	1	84_1	6/21/2017	5515319898	203	Ameritella agilis	2
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001600201	391	Heteromastus filiformis	2
June	van Veen grab	HB	84	1	84_1	6/21/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001430498	91	Polydora cornuta	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001431701	3905	Paraprionospio pinnata	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	5001500305	4624	Tharyx acutus	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	500127	9112720	Glyceridae	1
June	van Veen grab	HB	84	1	84_1	6/21/2017	6169480702	9566280	Parametopella cypris	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001431801	88	Streblospio benedicti	428
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001600401	1779	Mediomastus ambiseta	371
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001130207	393	Hypereteone heteropoda	92
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001430498	91	Polydora cornuta	79
June	van Veen grab	HB	85	9	85_9	6/21/2017	5004000000	466	Oligochaeta	34
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001500305	4624	Tharyx acutus	32
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001650202	3586	Sabellaria vulgaris	28
June	van Veen grab	HB	85	9	85_9	6/21/2017	5515319898	203	Ameritella agilis	23
June	van Veen grab	HB	85	9	85_9	6/21/2017	6169150704	4610	Unciola serrata	12
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001500000	2066	Cirratulidae	11
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001430701	86	Spio filicornis	9
June	van Veen grab	HB	85	9	85_9	6/21/2017	6183060230	1619	Pagurus longicarpus	8
June	van Veen grab	HB	85	9	85_9	6/21/2017	6169020108	252	Ampelisca abdita	7
June	van Veen grab	HB	85	9	85_9	6/21/2017	6153011508	577	Neomysis americana	7
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001631102	83	Euclymene collaris	6
June	van Veen grab	HB	85	9	85_9	6/21/2017	5105089898	162	Tritia trivittata	5
June	van Veen grab	HB	85	9	85_9	6/21/2017	5103640204	149	Crepidula fornicata	4
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001680899	1826	Polycirrus sp.	4
June	van Veen grab	HB	85	9	85_9	6/21/2017	6160010202	679	Cyathura burbancki	3
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001600201	391	Heteromastus filiformis	2

June	van Veen grab	HB	85	9	85_9	6/21/2017	5001500297	5841	Caulleriella venefica	2
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5105089897	377	Tritia obsoleta	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001660302	770	Pectinaria gouldii	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5103640299	4514	Crepidula sp.	1
June	van Veen grab	HB	85	9	85_9	6/21/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001600401	1779	Mediomastus ambiseta	1681
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001431801	88	Streblospio benedicti	1249
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169020108	252	Ampelisca abdita	613
June	van Veen grab	HB	86	5	86_5	6/21/2017	5004000000	466	Oligochaeta	366
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001130207	393	Hypereteone heteropoda	125
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001430498	91	Polydora cornuta	119
June	van Veen grab	HB	86	5	86_5	6/21/2017	6171010901	685	Paracaprella tenuis	51
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001500305	4624	Tharyx acutus	47
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169150302	699	Ericthonius brasiliensis	30
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001631102	83	Euclymene collaris	26
June	van Veen grab	HB	86	5	86_5	6/21/2017	5517010201	205	Mya arenaria	19
June	van Veen grab	HB	86	5	86_5	6/21/2017	6153011508	577	Neomysis americana	15
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001680899	1826	Polycirrus sp.	15
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001650202	3586	Sabellaria vulgaris	15
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169020109	253	Ampelisca vadorum	11
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001600197	6083	Capitella capitata complex	11
June	van Veen grab	HB	86	5	86_5	6/21/2017	5515319898	203	Ameritella agilis	10
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001600201	391	Heteromastus filiformis	6
June	van Veen grab	HB	86	5	86_5	6/21/2017	6160010202	679	Cyathura burbancki	6
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001500000	2066	Cirratulidae	6

June	van Veen grab	HB	86	5	86_5	6/21/2017	5105089897	377	Tritia obsoleta	5
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169481002	720	Stenothoe minuta	4
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001219798	1118	Oxydromus obscurus	4
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001210103	4609	Gyptis vittata	4
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001131101	57	Eumida sanguinea	3
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169159799	4990	Monocorophium sp.	3
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001670802	112	Ampharete oculata	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001270104	450	Glycera americana	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	6189029798	769	Dyspanopeus sayi	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5515471101	1116	Mercenaria mercenaria	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5515250301	1321	Mulinia lateralis	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	6171010727	1655	Caprella penantis	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	4303020209	3587	Cerebratulus lacteus	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5131070198	3590	Corambe obscura	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001130801	4562	Paranaitis speciosa	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169150704	4610	Unciola serrata	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001430701	86	Spio filicornis	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5103640204	149	Crepidula fornicata	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5515290398	209	Ensis leei	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169060401	257	Microdeutopus gryllotalpa	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5110040103	600	Acteocina canaliculata	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169159796	696	Monocorophium tuberculatum	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5127	1147	Nudibranchia	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5520050201	5564	Lyonsia arenosa	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001500297	5841	Caulleriella venefica	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	4302010198	6030	Tubulanus sp. 1	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	5001231698	6231	Streptosyllis verrilli	1
June	van Veen grab	HB	86	5	86_5	6/21/2017	6169480702	9566280	Parametopella cypris	1

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June	van Veen grab	HB	88	6	88_6	6/21/2017	5001600401	1779	Mediomastus ambiseta	296
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001130207	393	Hypereteone heteropoda	251
June	van Veen grab	HB	88	6	88_6	6/21/2017	5004000000	466	Oligochaeta	181
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001431801	88	Streblospio benedicti	169
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001430498	91	Polydora cornuta	121
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001500305	4624	Tharyx acutus	89
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001430701	86	Spio filicornis	81
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001500000	2066	Cirratulidae	50
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001600197	6083	Capitella capitata complex	48
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001631102	83	Euclymene collaris	41
June	van Veen grab	HB	88	6	88_6	6/21/2017	6153011508	577	Neomysis americana	36
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001680899	1826	Polycirrus sp.	36
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001650202	3586	Sabellaria vulgaris	36
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169150704	4610	Unciola serrata	35
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169020108	252	Ampelisca abdita	30
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169481002	720	Stenothoe minuta	21
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169150302	699	Ericthonius brasiliensis	17
June	van Veen grab	HB	88	6	88_6	6/21/2017	5515319898	203	Ameritella agilis	13
June	van Veen grab	HB	88	6	88_6	6/21/2017	6171010901	685	Paracaprella tenuis	13
June	van Veen grab	HB	88	6	88_6	6/21/2017	500127	9112720	Glyceridae	13
June	van Veen grab	HB	88	6	88_6	6/21/2017	5105089898	162	Tritia trivittata	12
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001131101	57	Eumida sanguinea	11
June	van Veen grab	HB	88	6	88_6	6/21/2017	5515290398	209	Ensis leei	10
June	van Veen grab	HB	88	6	88_6	6/21/2017	5103640204	149	Crepidula fornicata	9
June	van Veen grab	HB	88	6	88_6	6/21/2017	6160010202	679	Cyathura burbancki	8
June	van Veen grab	HB	88	6	88_6	6/21/2017	5517010201	205	Mya arenaria	7
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001230701	4998	Exogone dispar	7
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001020899	432	Harmothoe sp.	6
June	van Veen grab	HB	88	6	88_6	6/21/2017	5520050201	5564	Lyonsia arenosa	6
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169349898	3954	Lysianopsis alba	5
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001231698	6231	Streptosyllis verrilli	5
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169480702	9566280	Parametopella cypris	5
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001020803	444	Harmothoe extenuata	4
June	van Veen grab	HB	88	6	88_6	6/21/2017	6189029798	769	Dyspanopeus sayi	4
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001210103	4609	Gyptis vittata	4
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001330198	4665	Drilonereis longa	4
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001500297	5841	Caulleriella venefica	4

June	van Veen grab	HB	88	6	88_6	6/21/2017	5001270105	368	Glycera dibranchiata	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	6183060230	1619	Pagurus longicarpus	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001230193	1908	Proceraea cornuta	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	4303020209	3587	Cerebratulus lacteus	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169150998	6161	Grandidierella japonica	3
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001670802	112	Ampharete oculata	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	6154050801	235	Oxyurostylis smithi	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169020109	253	Ampelisca vadorum	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5105089897	377	Tritia obsoleta	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169421598	714	Eobrolgus spinosus	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001230104	1028	Myrianida prolifera	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001219798	1118	Oxydromus obscurus	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001239698	1153	Salvatoria clavata	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001210201	1199	Microphthalmus sczelkowii	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5108019895	1240	Fargoa bartschi	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5131070198	3590	Corambe obscura	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5103640299	4514	Crepidula sp.	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	4306050112	4961	Amphiporus ochraceus	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169439898	6142	Incisocalliope aestuarius	2
June	van Veen grab	HB	88	6	88_6	6/21/2017	5103640207	150	Crepidula plana	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169060401	257	Microdeutopus gryllotalpa	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001021104	637	Lepidonotus sublevis	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169211006	706	Melita nitida	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	6169379598	721	Americhelidium americanum	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5105010301	1146	Urosalpinx cinerea	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	3901000000	1279	Turbellaria	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001231304	1934	Odontosyllis fulgurans	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001660000	2063	Pectinariidae	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001400307	3959	Scoloplos (leodamus) rubra	1
June	van Veen grab	HB	88	6	88_6	6/21/2017	5001130801	4562	Paranaitis speciosa	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001130207	393	Hypereteone heteropoda	311
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001600401	1779	Mediomastus ambiseta	297

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June	van Veen grab	HB	89	23	89_23	6/21/2017	6169020108	252	Ampelisca abdita	233
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001431801	88	Streblospio benedicti	228
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001430498	91	Polydora cornuta	110
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001500305	4624	Tharyx acutus	73
June	van Veen grab	HB	89	23	89_23	6/21/2017	5004000000	466	Oligochaeta	59
June	van Veen grab	HB	89	23	89_23	6/21/2017	6153011508	577	Neomysis americana	41
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169150704	4610	Unciola serrata	29
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001650202	3586	Sabellaria vulgaris	22
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001430701	86	Spio filicornis	17
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001631102	83	Euclymene collaris	14
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169020109	253	Ampelisca vadorum	14
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001680899	1826	Polycirrus sp.	14
June	van Veen grab	HB	89	23	89_23	6/21/2017	5515319898	203	Ameritella agilis	13
June	van Veen grab	HB	89	23	89_23	6/21/2017	500127	9112720	Glyceridae	9
June	van Veen grab	HB	89	23	89_23	6/21/2017	6183060230	1619	Pagurus longicarpus	8
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001131101	57	Eumida sanguinea	6
June	van Veen grab	HB	89	23	89_23	6/21/2017	5105089898	162	Tritia trivittata	5
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001500000	2066	Cirratulidae	5
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001500297	5841	Caulleriella venefica	5
June	van Veen grab	HB	89	23	89_23	6/21/2017	5108019897	1324	Boonea bisuturalis	4
June	van Veen grab	HB	89	23	89_23	6/21/2017	4306050110	4805	Amphiporus bioculatus	4
June	van Veen grab	HB	89	23	89_23	6/21/2017	5520050201	5564	Lyonsia arenosa	4
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001231698	6231	Streptosyllis verrilli	4
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001670802	112	Ampharete oculata	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	5517010201	205	Mya arenaria	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	5515290398	209	Ensis leei	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	6154050801	235	Oxyurostylis smithi	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169349898	3954	Lysianopsis alba	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	4306050112	4961	Amphiporus ochraceus	3
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169159795	260	Monocorophium acherusicum	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001020899	432	Harmothoe sp.	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169150302	699	Ericthonius brasiliensis	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001219798	1118	Oxydromus obscurus	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169449898	1220	Dyopedos monacanthus	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001230701	4998	Exogone dispar	2
June	van Veen grab	HB	89	23	89_23	6/21/2017	6179220103	301	Crangon septemspinosa	1

June	van Veen grab	HB	89	23	89_23	6/21/2017	5001020803	444	Harmothoe extenuata	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	3901000000	1279	Turbellaria	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001239598	3535	Opisthodonta longocirrata	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001280104	4519	Glycinde solitaria	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	HB	89	23	89_23	6/21/2017	6169150998	6161	Grandidierella japonica	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5001239598	3535	Opisthodonta longocirrata	136
June	van Veen grab	B	9	21	9_21	6/20/2017	5001431801	88	Streblospio benedicti	97
June	van Veen grab	B	9	21	9_21	6/20/2017	5001130207	393	Hypereteone heteropoda	63
June	van Veen grab	B	9	21	9_21	6/20/2017	5004000000	466	Oligochaeta	56
June	van Veen grab	B	9	21	9_21	6/20/2017	5001600401	1779	Mediomastus ambiseta	40
June	van Veen grab	B	9	21	9_21	6/20/2017	5001210299	1124	Microphthalmus sp.	36
June	van Veen grab	B	9	21	9_21	6/20/2017	500127	9112720	Glyceridae	30
June	van Veen grab	B	9	21	9_21	6/20/2017	5001409899	411	Leitoscoloplos sp.	27
June	van Veen grab	B	9	21	9_21	6/20/2017	5515471301	387	Gemma gemma	23
June	van Veen grab	B	9	21	9_21	6/20/2017	6169429897	3505	Rhepoxynius hudsoni	18
June	van Veen grab	B	9	21	9_21	6/20/2017	5001230701	4998	Exogone dispar	12
June	van Veen grab	B	9	21	9_21	6/20/2017	5001210297	5449	Microphthalmus fragilis	12
June	van Veen grab	B	9	21	9_21	6/20/2017	5001500000	2066	Cirratulidae	9
June	van Veen grab	B	9	21	9_21	6/20/2017	4302020101	4804	Carinoma tremaphoros	7
June	van Veen grab	B	9	21	9_21	6/20/2017	5001500297	5841	Caulleriella venefica	7
June	van Veen grab	B	9	21	9_21	6/20/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	9	21	9_21	6/20/2017	5001231698	6231	Streptosyllis verrilli	6
June	van Veen grab	B	9	21	9_21	6/20/2017	5001409897	102	Leitoscoloplos fragilis	4
June	van Veen grab	B	9	21	9_21	6/20/2017	5002050197	5842	Polygordius jouinae	4
June	van Veen grab	B	9	21	9_21	6/20/2017	5110040103	600	Acteocina canaliculata	3
June	van Veen grab	B	9	21	9_21	6/20/2017	5001131101	57	Eumida sanguinea	2
June	van Veen grab	B	9	21	9_21	6/20/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	B	9	21	9_21	6/20/2017	5001270105	368	Glycera dibranchiata	2
June	van Veen grab	B	9	21	9_21	6/20/2017	5001239698	1153	Salvatoria clavata	2
June	van Veen grab	B	9	21	9_21	6/20/2017	5001500305	4624	Tharyx acutus	2
June	van Veen grab	B	9	21	9_21	6/20/2017	6169150998	6161	Grandidierella japonica	2
June	van Veen grab	B	9	21	9_21	6/20/2017	5001430498	91	Polydora cornuta	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	9	21	9_21	6/20/2017	6169020108	252	Ampelisca abdita	1

June	van Veen grab	B	9	21	9_21	6/20/2017	5515471101	1116	Mercenaria mercenaria	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5001680899	1826	Polycirrus sp.	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	B	9	21	9_21	6/20/2017	4306050110	4805	Amphiporus bioculatus	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5001259897	4909	Bipalponephtys neotena	1
June	van Veen grab	B	9	21	9_21	6/20/2017	6169379898	4956	Ameroculodes edwardsi	1
June	van Veen grab	B	9	21	9_21	6/20/2017	5520050201	5564	Lyonsia arenosa	1
June	van Veen grab	B	9	21	9_21	6/20/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001431801	88	Streblospio benedicti	1148
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001130207	393	Hypereteone heteropoda	222
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001600401	1779	Mediomastus ambiseta	184
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001430498	91	Polydora cornuta	181
June	van Veen grab	HB	90	16	90_16	6/21/2017	5004000000	466	Oligochaeta	128
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001500305	4624	Tharyx acutus	80
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001600201	391	Heteromastus filiformis	74
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001430701	86	Spio filicornis	67
June	van Veen grab	HB	90	16	90_16	6/21/2017	6169020108	252	Ampelisca abdita	53
June	van Veen grab	HB	90	16	90_16	6/21/2017	500127	9112720	Glyceridae	46
June	van Veen grab	HB	90	16	90_16	6/21/2017	6153011508	577	Neomysis americana	44
June	van Veen grab	HB	90	16	90_16	6/21/2017	6169150704	4610	Unciola serrata	43
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001500000	2066	Cirratulidae	27
June	van Veen grab	HB	90	16	90_16	6/21/2017	6169159795	260	Monocorophium acherusicum	22
June	van Veen grab	HB	90	16	90_16	6/21/2017	5515471301	387	Gemma gemma	16
June	van Veen grab	HB	90	16	90_16	6/21/2017	5515319898	203	Ameritella agilis	13
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001680899	1826	Polycirrus sp.	13
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001650202	3586	Sabellaria vulgaris	13
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001631102	83	Euclymene collaris	11
June	van Veen grab	HB	90	16	90_16	6/21/2017	5515290398	209	Ensis leei	9
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001131101	57	Eumida sanguinea	7
June	van Veen grab	HB	90	16	90_16	6/21/2017	5105089898	162	Tritia trivittata	5
June	van Veen grab	HB	90	16	90_16	6/21/2017	5105089897	377	Tritia obsoleta	5
June	van Veen grab	HB	90	16	90_16	6/21/2017	6171010901	685	Paracaprella tenuis	5
June	van Veen grab	HB	90	16	90_16	6/21/2017	6183060230	1619	Pagurus longicarpus	5
June	van Veen grab	HB	90	16	90_16	6/21/2017	5103640204	149	Crepidula fornicata	4
June	van Veen grab	HB	90	16	90_16	6/21/2017	6169210301	698	Elasmopus levis	4
June	van Veen grab	HB	90	16	90_16	6/21/2017	5520050201	5564	Lyonsia arenosa	3
June	van Veen grab	HB	90	16	90_16	6/21/2017	5517010201	205	Mya arenaria	2

June	van Veen grab	HB	90	16	90_16	6/21/2017	6169150302	699	Ericthonius brasiliensis	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	6189029798	769	Dyspanopeus sayi	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	5108019897	1324	Boonea bisuturalis	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001130801	4562	Paranaitis speciosa	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001500297	5841	Caulleriella venefica	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	5002050197	5842	Polygordius jouinae	2
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001431001	92	Spiophanes bombyx	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001670802	112	Ampharete oculata	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5103640207	150	Crepidula plana	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001270104	450	Glycera americana	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	6160010202	679	Cyathura burbancki	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5131070198	3590	Corambe obscura	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001439695	4478	Dipolydora commensalis	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5103640299	4514	Crepidula sp.	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001432006	4544	Scolelepis (parascolelepis) texana	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5105010601	4579	Eupleura caudata	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5103769898	4630	Neverita duplicata	1
June	van Veen grab	HB	90	16	90_16	6/21/2017	5001230701	4998	Exogone dispar	1
June	van Veen grab	B	91	13	91_13	6/20/2017	5001431801	88	Streblospio benedicti	253
June	van Veen grab	B	91	13	91_13	6/20/2017	5001600401	1779	Mediomastus ambiseta	245
June	van Veen grab	B	91	13	91_13	6/20/2017	6169020108	252	Ampelisca abdita	123
June	van Veen grab	B	91	13	91_13	6/20/2017	5001430498	91	Polydora cornuta	88
June	van Veen grab	B	91	13	91_13	6/20/2017	500127	9112720	Glyceridae	58
June	van Veen grab	B	91	13	91_13	6/20/2017	5001430701	86	Spio filicornis	28
June	van Veen grab	B	91	13	91_13	6/20/2017	5004000000	466	Oligochaeta	17
June	van Veen grab	B	91	13	91_13	6/20/2017	5515319898	203	Ameritella agilis	10
June	van Veen grab	B	91	13	91_13	6/20/2017	6153011508	577	Neomysis americana	10
June	van Veen grab	B	91	13	91_13	6/20/2017	5105089897	377	Tritia obsoleta	8
June	van Veen grab	B	91	13	91_13	6/20/2017	5001270105	368	Glycera dibranchiata	5
June	van Veen grab	B	91	13	91_13	6/20/2017	5001500305	4624	Tharyx acutus	4
June	van Veen grab	B	91	13	91_13	6/20/2017	5001490302	4887	Spiochaetopterus costarum oculatus	4
June	van Veen grab	B	91	13	91_13	6/20/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	B	91	13	91_13	6/20/2017	5001670802	112	Ampharete oculata	3

June	van Veen grab	B	91	13	91_13	6/20/2017	5001500000	2066	Cirratulidae	3
June	van Veen grab	B	91	13	91_13	6/20/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5001409897	102	Leitoscoloplos fragilis	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5517010201	205	Mya arenaria	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5515290398	209	Ensis leei	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5001130207	393	Hypereteone heteropoda	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5110040103	600	Acteocina canaliculata	2
June	van Veen grab	B	91	13	91_13	6/20/2017	5001280104	4519	Glycinde solitaria	2
June	van Veen grab	B	91	13	91_13	6/20/2017	4306050110	4805	Amphiporus bioculatus	2
June	van Veen grab	B	91	13	91_13	6/20/2017	6154050801	235	Oxyurostylis smithi	1
June	van Veen grab	B	91	13	91_13	6/20/2017	6169159795	260	Monocorophium acherusicum	1
June	van Veen grab	B	91	13	91_13	6/20/2017	5103130101	372	Ecrobia truncata	1
June	van Veen grab	B	91	13	91_13	6/20/2017	6169210709	389	Gammarus mucronatus	1
June	van Veen grab	B	91	13	91_13	6/20/2017	5001600201	391	Heteromastus filiformis	1
June	van Veen grab	B	91	13	91_13	6/20/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	91	13	91_13	6/20/2017	6169349898	3954	Lysianopsis alba	1
June	van Veen grab	B	95	5	95_5	6/21/2017	5001431801	88	Streblospio benedicti	402
June	van Veen grab	B	95	5	95_5	6/21/2017	5001430498	91	Polydora cornuta	148
June	van Veen grab	B	95	5	95_5	6/21/2017	5001600401	1779	Mediomastus ambiseta	104
June	van Veen grab	B	95	5	95_5	6/21/2017	5004000000	466	Oligochaeta	96
June	van Veen grab	B	95	5	95_5	6/21/2017	5515471301	387	Gemma gemma	67
June	van Veen grab	B	95	5	95_5	6/21/2017	5001650202	3586	Sabellaria vulgaris	59
June	van Veen grab	B	95	5	95_5	6/21/2017	5001500305	4624	Tharyx acutus	58
June	van Veen grab	B	95	5	95_5	6/21/2017	500127	9112720	Glyceridae	39
June	van Veen grab	B	95	5	95_5	6/21/2017	5001130207	393	Hypereteone heteropoda	31
June	van Veen grab	B	95	5	95_5	6/21/2017	5001500000	2066	Cirratulidae	27
June	van Veen grab	B	95	5	95_5	6/21/2017	5001131101	57	Eumida sanguinea	25
June	van Veen grab	B	95	5	95_5	6/21/2017	6169150704	4610	Unciola serrata	23
June	van Veen grab	B	95	5	95_5	6/21/2017	5001430701	86	Spio filicornis	17
June	van Veen grab	B	95	5	95_5	6/21/2017	5001500297	5841	Caulleriella venefica	12
June	van Veen grab	B	95	5	95_5	6/21/2017	5515319898	203	Ameritella agilis	6
June	van Veen grab	B	95	5	95_5	6/21/2017	5002050197	5842	Polygordius jouinae	6
June	van Veen grab	B	95	5	95_5	6/21/2017	5515290398	209	Ensis leei	5
June	van Veen grab	B	95	5	95_5	6/21/2017	6169020108	252	Ampelisca abdita	4
June	van Veen grab	B	95	5	95_5	6/21/2017	3901000000	1279	Turbellaria	4
June	van Veen grab	B	95	5	95_5	6/21/2017	5001239598	3535	Opisthodonta longocirrata	4
June	van Veen grab	B	95	5	95_5	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	4

June	van Veen grab	B	95	5	95_5	6/21/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	95	5	95_5	6/21/2017	5001432006	4544	Scolelepis (parascolelepis) texana	3
June	van Veen grab	B	95	5	95_5	6/21/2017	5001631102	83	Euclymene collaris	2
June	van Veen grab	B	95	5	95_5	6/21/2017	5103640204	149	Crepidula fornicata	2
June	van Veen grab	B	95	5	95_5	6/21/2017	6154050801	235	Oxyurostylis smithi	2
June	van Veen grab	B	95	5	95_5	6/21/2017	6153011508	577	Neomysis americana	2
June	van Veen grab	B	95	5	95_5	6/21/2017	5105010301	1146	Urosalpinx cinerea	2
June	van Veen grab	B	95	5	95_5	6/21/2017	6183060230	1619	Pagurus longicarpus	2
June	van Veen grab	B	95	5	95_5	6/21/2017	5001231698	6231	Streptosyllis verrilli	2
June	van Veen grab	B	95	5	95_5	6/21/2017	5105089898	162	Tritia trivittata	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6169020109	253	Ampelisca vadorum	1
June	van Veen grab	B	95	5	95_5	6/21/2017	5001270105	368	Glycera dibranchiata	1
June	van Veen grab	B	95	5	95_5	6/21/2017	5001409899	411	Leitoscoloplos sp.	1
June	van Veen grab	B	95	5	95_5	6/21/2017	5001249798	651	Alitta succinea	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6169211006	706	Melita nitida	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6169421598	714	Eobrolgus spinosus	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6189029798	769	Dyspanopeus sayi	1
June	van Veen grab	B	95	5	95_5	6/21/2017	500128	1856	Goniadidae	1
June	van Veen grab	B	95	5	95_5	6/21/2017	4306050112	4961	Amphiporus ochraceus	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6169150998	6161	Grandidierella japonica	1
June	van Veen grab	B	95	5	95_5	6/21/2017	6169480702	9566280	Parametopella cypris	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5001600401	1779	Mediomastus ambiseta	307
June	van Veen grab	B	96	9	96_9	6/21/2017	5001431801	88	Streblospio benedicti	205
June	van Veen grab	B	96	9	96_9	6/21/2017	5004000000	466	Oligochaeta	196
June	van Veen grab	B	96	9	96_9	6/21/2017	5001500000	2066	Cirratulidae	118
June	van Veen grab	B	96	9	96_9	6/21/2017	5001130207	393	Hypereteone heteropoda	109
June	van Veen grab	B	96	9	96_9	6/21/2017	5001500305	4624	Tharyx acutus	72
June	van Veen grab	B	96	9	96_9	6/21/2017	6169150704	4610	Unciola serrata	42
June	van Veen grab	B	96	9	96_9	6/21/2017	5001430701	86	Spio filicornis	30
June	van Veen grab	B	96	9	96_9	6/21/2017	500127	9112720	Glyceridae	30
June	van Veen grab	B	96	9	96_9	6/21/2017	6153011508	577	Neomysis americana	20
June	van Veen grab	B	96	9	96_9	6/21/2017	5001631102	83	Euclymene collaris	18
June	van Veen grab	B	96	9	96_9	6/21/2017	6169020108	252	Ampelisca abdita	15
June	van Veen grab	B	96	9	96_9	6/21/2017	5001230903	3920	Brania wellfleetensis	11
June	van Veen grab	B	96	9	96_9	6/21/2017	5001430498	91	Polydora cornuta	10
June	van Veen grab	B	96	9	96_9	6/21/2017	5103640204	149	Crepidula fornicata	8
June	van Veen grab	B	96	9	96_9	6/21/2017	6169421598	714	Eobrolgus spinosus	6

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June	van Veen grab	B	96	9	96_9	6/21/2017	5515290398	209	Ensis leei	5
June	van Veen grab	B	96	9	96_9	6/21/2017	5515319898	203	Ameritella agilis	4
June	van Veen grab	B	96	9	96_9	6/21/2017	5001650202	3586	Sabellaria vulgaris	4
June	van Veen grab	B	96	9	96_9	6/21/2017	6169349898	3954	Lysianopsis alba	4
June	van Veen grab	B	96	9	96_9	6/21/2017	5520050201	5564	Lyonsia arenosa	4
June	van Veen grab	B	96	9	96_9	6/21/2017	6169150998	6161	Grandidierella japonica	4
June	van Veen grab	B	96	9	96_9	6/21/2017	5001231698	6231	Streptosyllis verrilli	4
June	van Veen grab	B	96	9	96_9	6/21/2017	5105089897	377	Tritia obsoleta	3
June	van Veen grab	B	96	9	96_9	6/21/2017	5001600201	391	Heteromastus filiformis	3
June	van Veen grab	B	96	9	96_9	6/21/2017	5001500297	5841	Caulleriella venefica	3
June	van Veen grab	B	96	9	96_9	6/21/2017	5105089898	162	Tritia trivittata	2
June	van Veen grab	B	96	9	96_9	6/21/2017	5001230104	1028	Myrianida prolifera	2
June	van Veen grab	B	96	9	96_9	6/21/2017	5001680899	1826	Polycirrus sp.	2
June	van Veen grab	B	96	9	96_9	6/21/2017	5001239598	3535	Opisthodonta longocirrata	2
June	van Veen grab	B	96	9	96_9	6/21/2017	5001131101	57	Eumida sanguinea	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5517010201	205	Mya arenaria	1
June	van Veen grab	B	96	9	96_9	6/21/2017	6169159797	522	Monocorophium insidiosum	1
June	van Veen grab	B	96	9	96_9	6/21/2017	6169210301	698	Elasmopus levis	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5001219798	1118	Oxydromus obscurus	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5001210299	1124	Microphthalmus sp.	1
June	van Veen grab	B	96	9	96_9	6/21/2017	6183060230	1619	Pagurus longicarpus	1
June	van Veen grab	B	96	9	96_9	6/21/2017	500102	2077	Polynoidae	1
June	van Veen grab	B	96	9	96_9	6/21/2017	4303020209	3587	Cerebratulus lacteus	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5001060401	3664	Sigalion arenicola	1
June	van Veen grab	B	96	9	96_9	6/21/2017	5001330198	4665	Drilonereis longa	1
June	van Veen grab	B	96	9	96_9	6/21/2017	3901000008	6035	Turbellaria sp. 5 nai	1
June	van Veen grab	B	96	9	96_9	6/21/2017	3901000009	6237	Turbellaria sp. 9 nai	1

BIOMASS

SURVEY	GEAR_TYPE	LOCATION	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	SAMPLE_DW	SAMPLE_AFDM
June	van Veen grab	B	1	18	1_18	6/20/2017	7.9629	0.9677
June	van Veen grab	B	12	12	12_12	6/20/2017	6.4057	0.6117
June	van Veen grab	B	17	6	17_6	6/20/2017	1.1901	0.1833
June	van Veen grab	B	18	28	18_28	6/20/2017	0.6816	0.193
June	van Veen grab	B	19	11	19_11	6/20/2017	0.4449	0.1427
June	van Veen grab	B	2	22	2_22	6/20/2017	2.8044	0.3012
June	van Veen grab	B	20	8	20_8	6/20/2017	143.6693	6.4962
June	van Veen grab	B	24	19	24_19	6/20/2017	86.0367	3.6598
June	van Veen grab	B	25	20	25_20	6/20/2017	3.8207	0.4763
June	van Veen grab	B	26	7	26_7	6/20/2017	137.8826	6.7485
June	van Veen grab	B	27	47	27_47	6/20/2017	4.2076	0.3563
June	van Veen grab	B	28	14	28_14	6/20/2017	5.4503	0.4866
June	van Veen grab	B	32	26	32_26	6/20/2017	7.4958	0.8233
June	van Veen grab	B	33	10	33_10	6/20/2017	0.3882	0.2139
June	van Veen grab	B	43	17	43_17	6/20/2017	5.787	0.4665
June	van Veen grab	B	44	23	44_23	6/20/2017	4.3742	0.4563
June	van Veen grab	B	45	30	45_30	6/20/2017	1.2427	0.3525
June	van Veen grab	B	46	15	46_15	6/20/2017	21.5417	1.3184
June	van Veen grab	B	5	27	5_27	6/20/2017	1.5017	0.2693
June	van Veen grab	B	51	3	51_3	6/21/2017	2.2945	0.2417
June	van Veen grab	B	52	24	52_24	6/21/2017	11.4648	1.0543
June	van Veen grab	B	53	40	53_40	6/21/2017	58.5216	2.6481
June	van Veen grab	B	66	1	66_1	6/21/2017	2.3577	0.3738
June	van Veen grab	B	68	39	68_39	6/21/2017	2.9557	0.2492
June	van Veen grab	B	69	25	69_25	6/20/2017	0.8332	0.2354
June	van Veen grab	B	8	4	8_4	6/20/2017	1.8228	0.1943
June	van Veen grab	B	82	29	82_29	6/21/2017	5.4208	0.3523
June	van Veen grab	B	9	21	9_21	6/20/2017	0.3875	0.0658
June	van Veen grab	B	91	13	91_13	6/20/2017	3.599	0.3011
June	van Veen grab	B	95	5	95_5	6/21/2017	2.7098	0.3402
June	van Veen grab	B	96	9	96_9	6/21/2017	2.8782	0.3494
June	van Veen grab	HB	35	12	35_12	6/20/2017	1.9692	0.2629
June	van Veen grab	HB	36	10	36_10	6/20/2017	147.6404	8.4902
June	van Veen grab	HB	41	20	41_20	6/20/2017	2.892	0.2778
June	van Veen grab	HB	42	27	42_27	6/20/2017	139.8624	7.8649
June	van Veen grab	HB	48	29	48_29	6/20/2017	2.0269	0.1518

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June	van Veen grab	HB	49	3	49_3	6/20/2017	3.6399	0.3414
June	van Veen grab	HB	50	14	50_14	6/20/2017	3.064	0.389
June	van Veen grab	HB	54	7	54_7	6/20/2017	56.0133	2.6995
June	van Veen grab	HB	55	11	55_11	6/20/2017	4.681	0.5335
June	van Veen grab	HB	56	2	56_2	6/20/2017	24.723	1.6567
June	van Veen grab	HB	57	15	57_15	6/21/2017	239.9853	9.5149
June	van Veen grab	HB	59	17	59_17	6/21/2017	6.8448	0.6963
June	van Veen grab	HB	62	22	62_22	6/21/2017	0.6079	0.1004
June	van Veen grab	HB	63	19	63_19	6/21/2017	4.3059	0.3759
June	van Veen grab	HB	72	25	72_25	6/21/2017	2.4845	0.2597
June	van Veen grab	HB	73	13	73_13	6/21/2017	1.4908	0.2925
June	van Veen grab	HB	74	18	74_18	6/21/2017	3.8207	0.3914
June	van Veen grab	HB	75	28	75_28	6/21/2017	1.1482	0.1159
June	van Veen grab	HB	78	26	78_26	6/21/2017	5.2604	0.614
June	van Veen grab	HB	79	21	79_21	6/21/2017	92.0019	3.5957
June	van Veen grab	HB	80	30	80_30	6/21/2017	122.7325	4.6409
June	van Veen grab	HB	81	8	81_8	6/21/2017	4.3049	0.8326
June	van Veen grab	HB	83	24	83_24	6/21/2017	0.5173	0.2304
June	van Veen grab	HB	84	1	84_1	6/21/2017	0.0317	0.0153
June	van Veen grab	HB	85	9	85_9	6/21/2017	95.1191	4.0387
June	van Veen grab	HB	86	5	86_5	6/21/2017	192.6861	8.5887
June	van Veen grab	HB	88	6	88_6	6/21/2017	3.285	0.5079
June	van Veen grab	HB	89	23	89_23	6/21/2017	80.2515	3.5372
June	van Veen grab	HB	90	16	90_16	6/21/2017	26.2949	1.9569

GRAB

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	TIME	LATITUDE	LONGITUDE	DEPTH_FT	TIDE_STAGE	BOTTOM_TYPE	USE_CODE
June	van Veen grab	91	13	91_13	6/20/2017	8:08	40.50195	74.25375	4.4	ebb	mud	1
June	van Veen grab	54	7	54_7	6/20/2017	8:35	40.4995	74.25325	8.1	ebb	mud	1
June	van Veen grab	55	11	55_11	6/20/2017	8:51	40.49948333	74.25288333	4.5	ebb	mud	1
June	van Veen grab	56	2	56_2	6/20/2017	9:11	40.4995	74.25253333	4	ebb	mud	1
June	van Veen grab	50	14	50_14	6/20/2017	9:34	40.49921667	74.25251667	4.2	ebb	mud	1
June	van Veen grab	49	3	49_3	6/20/2017	9:47	40.49923333	74.25283333	4.8	ebb	mud	1
June	van Veen grab	48	29	48_29	6/20/2017	9:59	40.49923333	74.25325	6.8	ebb	mud	1
June	van Veen grab	46	15	46_15	6/20/2017	10:14	40.49868333	74.25371667	8.9	ebb	mud	1
June	van Veen grab	41	20	41_20	6/20/2017	10:36	40.49675	74.25145	2.1	ebb	sand	1
June	van Veen grab	69	25	69_25	6/20/2017	17:50	40.50026667	74.22293333	16	flood	sand	1
June	van Veen grab	42	27	42_27	6/20/2017	10:46	40.49675	74.25108333	4.8	ebb	mud	1
June	van Veen grab	35	12	35_12	6/20/2017	11:01	40.49648333	74.25145	2.7	ebb	sand	1
June	van Veen grab	36	10	36_10	6/20/2017	11:12	40.49645	74.25118333	2.7	ebb	sand	1
June	van Veen grab	27	47	27_47	6/20/2017	11:31	40.4952	74.24636667	2.3	ebb	sand	1
June	van Veen grab	26	7	26_7	6/20/2017	11:45	40.49485	74.24676667	2.6	ebb	sand	1
June	van Veen grab	28	14	28_14	6/20/2017	12:11	40.49516667	74.24321667	2.5	ebb	sand	1
June	van Veen grab	32	26	32_26	6/20/2017	12:26	40.49565	74.24405	2.6	ebb	sand	1
June	van Veen grab	8	4	8_4	6/20/2017	12:37	40.49293333	74.2464	5.8	ebb	sand	1
June	van Veen grab	9	21	9_21	6/20/2017	12:48	40.49301667	74.24591667	4.1	ebb	sand	1
June	van Veen grab	43	17	43_17	6/20/2017	13:02	40.49706667	74.23921667	3	ebb	sand	1
June	van Veen grab	12	12	12_12	6/20/2017	13:16	40.49348333	74.24136667	5.4	ebb	sand	1
June	van Veen grab	2	22	2_22	6/20/2017	13:26	40.49233333	74.2408	6.7	ebb	sand	1
June	van Veen grab	1	18	1_18	6/20/2017	13:36	40.491	74.24078333	7.3	ebb	sand	1
June	van Veen grab	17	6	17_6	6/20/2017	13:46	40.49376667	74.23525	9.3	ebb	sand	1
June	van Veen grab	18	28	18_28	6/20/2017	14:01	40.49381667	74.23483333	10.1	ebb	sand	1
June	van Veen grab	19	11	19_11	6/20/2017	14:08	40.49378333	74.23416667	10.4	ebb	sand	1
June	van Veen grab	5	27	5_27	6/20/2017	14:17	40.49235	74.234	12	ebb	sand	1
June	van Veen grab	20	8	20_8	6/20/2017	14:22	40.49381667	74.23266667	12	ebb	sand	1
June	van Veen grab	24	19	24_19	6/20/2017	14:36	40.49458333	74.23188333	11.4	ebb	sand	1
June	van Veen grab	25	20	25_20	6/20/2017	14:52	40.49461667	74.22915	18.4	ebb	sand	1
June	van Veen grab	33	10	33_10	6/20/2017	14:59	40.49625	74.23105	11.2	ebb	sand	1
June	van Veen grab	44	23	44_23	6/20/2017	15:09	40.4984	74.23111667	10.1	flood	sand	1
June	van Veen grab	45	30	45_30	6/20/2017	17:36	40.4985	74.22418333	16.6	flood	sand	1
June	van Veen grab	51	3	51_3	6/21/2017	7:39	40.49923333	74.2335	7	ebb	sand	1
June	van Veen grab	57	15	57_15	6/21/2017	7:50	40.49955	74.23265	7.4	ebb	sand	1

GRAB

June	van Veen grab	62	22	62_22	6/21/2017	8:00	40.49978333	74.23286667	6.1	ebb	sand	1
June	van Veen grab	63	19	63_19	6/21/2017	8:07	40.49978333	74.23243333	6.6	ebb	sand	1
June	van Veen grab	68	39	68_39	6/21/2017	8:17	40.4995	74.2325	7	ebb	sand	1
June	van Veen grab	59	17	59_17	6/21/2017	8:27	40.49948333	74.23203333	7	ebb	sand	1
June	van Veen grab	52	24	52_24	6/21/2017	8:37	40.49926667	74.23131667	6.7	ebb	gravel	1
June	van Veen grab	72	25	72_25	6/21/2017	8:50	40.50081667	74.22533333	5.9	ebb	sand	1
June	van Veen grab	75	28	75_28	6/21/2017	8:56	40.50108333	74.22523333	3	ebb	sand	1
June	van Veen grab	73	13	73_13	6/21/2017	9:04	40.50085	74.22498333	5.4	ebb	sand	1
June	van Veen grab	74	18	74_18	6/21/2017	9:14	40.50093333	74.22448333	9.1	ebb	sand	1
June	van Veen grab	53	40	53_40	6/21/2017	9:19	40.50048333	74.22245	11.4	ebb	sand	1
June	van Veen grab	82	29	82_29	6/21/2017	9:28	40.5014	74.22245	5	ebb	sand	1
June	van Veen grab	66	1	66_1	6/21/2017	9:40	40.49975	74.22063333	14.5	ebb	sand	1
June	van Veen grab	78	26	78_26	6/21/2017	9:53	40.50121667	74.21945	11.9	ebb	sand	1
June	van Veen grab	83	24	83_24	6/21/2017	10:00	40.50145	74.21948333	5.9	ebb	sand	1
June	van Veen grab	79	21	79_21	6/21/2017	10:08	40.50291667	74.21913333	16.2	ebb	sand	1
June	van Veen grab	84	1	84_1	6/21/2017	10:18	40.50148333	74.21915	7.7	ebb	mud	1
June	van Veen grab	88	6	88_6	6/21/2017	10:27	40.50181667	74.21911667	5.3	ebb	sand	1
June	van Veen grab	80	30	80_30	6/21/2017	10:44	40.5012	74.21876667	16.6	ebb	sand	1
June	van Veen grab	85	9	85_9	6/21/2017	10:51	40.50153333	74.21878333	8.7	ebb	sand	1
June	van Veen grab	89	23	89_23	6/21/2017	11:01	40.50171667	74.21865	5.9	ebb	sand	1
June	van Veen grab	81	8	81_8	6/21/2017	11:16	40.50121667	74.21846667	18.3	ebb	mud	1
June	van Veen grab	86	5	86_5	6/21/2017	11:26	40.5016	74.21843333	12.1	ebb	mud	1
June	van Veen grab	90	16	90_16	6/21/2017	11:37	40.50173333	74.2185	9.8	ebb	sand	1
June	van Veen grab	95	5	95_5	6/21/2017	11:45	40.5026	74.21695	5.8	ebb	sand	1
June	van Veen grab	96	9	96_9	6/21/2017	11:55	40.50396667	74.21515	8.1	ebb	sand	1

Living Breakwaters Benthic Survey in Raritan Bay; June 2017

Photographs of each macrofaunal grab sample before and after sieving

Figure 1. Photograph of macrofauna sample 1_18 before sieving, June 2017.

Figure 2. Photograph of macrofauna sample 1_18 after sieving, June 2017.

Figure 3. Photograph of macrofauna sample 2_22 before sieving, June 2017.

Figure 4. Photograph of macrofauna sample 2_22 after sieving, June 2017.

Figure 5. Photograph of macrofauna sample 5_27 before sieving, June 2017.

Figure 6. Photograph of macrofauna sample 5_27 after sieving, June 2017.

Figure 7. Photograph of macrofauna sample 8_4 before sieving, June 2017.

Figure 8. Photograph of macrofauna sample 8_4 after sieving, June 2017.

Figure 9. Photograph of macrofauna sample 9_21 before sieving, June 2017.

Figure 10. Photograph of macrofauna sample 9_21 after sieving, June 2017.

Figure 11. Photograph of macrofauna sample 12_12 before sieving, June 2017.

Figure 12. Photograph of macrofauna sample 12_12 after sieving, June 2017.

Figure 13. Photograph of macrofauna sample 17_6 before sieving, June 2017.

Figure 14. Photograph of macrofauna sample 17_6 after sieving, June 2017.

Figure 15. Photograph of macrofauna sample 18_28 before sieving, June 2017.

Figure 16. Photograph of macrofauna sample 18_28 after sieving, June 2017.

Figure 17. Photograph of macrofauna sample 19_11 before sieving, June 2017.

Figure 18. Photograph of macrofauna sample 19_11 after sieving, June 2017.

Figure 19. Photograph of macrofauna sample 20_8 before sieving, June 2017.

Figure 20. Photograph of macrofauna sample 20_8 after sieving, June 2017.

Figure 21. Photograph of macrofauna sample 24_19 before sieving, June 2017.

Figure 22. Photograph of macrofauna sample 24_19 after sieving, June 2017.

Figure 23. Photograph of macrofauna sample 25_20 before sieving, June 2017.

Figure 24. Photograph of macrofauna sample 25_20 after sieving, June 2017.

Figure 25. Photograph of macrofauna sample 26_7 before sieving, June 2017.

Figure 26. Photograph of macrofauna sample 26_7 after sieving, June 2017.

Figure 27. Photograph of macrofauna sample 27_47 before sieving, June 2017.

Figure 28. Photograph of macrofauna sample 27_47 after sieving, June 2017.

Figure 29. Photograph of macrofauna sample 28_14 before sieving, June 2017.

Figure 30. Photograph of macrofauna sample 28_14 after sieving, June 2017.

Figure 31. Photograph of macrofauna sample 32_26 before sieving, June 2017.

Figure 32. Photograph of macrofauna sample 32_26 after sieving, June 2017.

Figure 33. Photograph of macrofauna sample 33_10 before sieving, June 2017.

Figure 34. Photograph of macrofauna sample 33_10 after sieving, June 2017.

Figure 35. Photograph of macrofauna sample 35_12 before sieving, June 2017.

Figure 36. Photograph of macrofauna sample 35_12 after sieving, June 2017.

Figure 37. Photograph of macrofauna sample 36_10 before sieving, June 2017.

Figure 38. Photograph of macrofauna sample 36_10 after sieving, June 2017.

Figure 39. Photograph of macrofauna sample 41_20 before sieving, June 2017.

Figure 40. Photograph of macrofauna sample 41_20 after sieving, June 2017.

Figure 41. Photograph of macrofauna sample 42_27 before sieving, June 2017.

Figure 42. Photograph of macrofauna sample 42_27 after sieving, June 2017.

Figure 43. Photograph of macrofauna sample 43_17 before sieving, June 2017.

Figure 44. Photograph of macrofauna sample 43_17 after sieving, June 2017.

Figure 45. Photograph of macrofauna sample 44_23 before sieving, June 2017.

Figure 46. Photograph of macrofauna sample 44_23 after sieving, June 2017.

Figure 47. Photograph of macrofauna sample 45_30 before sieving, June 2017.

Figure 48. Photograph of macrofauna sample 45_30 after sieving, June 2017.

Figure 49. Photograph of macrofauna sample 46_15 before sieving, June 2017.

Figure 50. Photograph of macrofauna sample 46_15 after sieving, June 2017.

Figure 51. Photograph of macrofauna sample 48_29 before sieving, June 2017.

Figure 52. Photograph of macrofauna sample 48_29 after sieving, June 2017.

Figure 53. Photograph of macrofauna sample 49_3 before sieving, June 2017.

Figure 54. Photograph of macrofauna sample 49_3 after sieving, June 2017.

Figure 55. Photograph of macrofauna sample 50_14 before sieving, June 2017.

Figure 56. Photograph of macrofauna sample 50_14 after sieving, June 2017.

Figure 57. Photograph of macrofauna sample 51_3 before sieving, June 2017.

Figure 58. Photograph of macrofauna sample 51_3 after sieving, June 2017.

Figure 59. Photograph of macrofauna sample 52_24 before sieving, June 2017.

Figure 60. Photograph of macrofauna sample 52_24 after sieving, June 2017.

Figure 61. Photograph of macrofauna sample 53_40 before sieving, June 2017.

Figure 62. Photograph of macrofauna sample 53_40 after sieving, June 2017.

Figure 63. Photograph of macrofauna sample 54_7 before sieving, June 2017.

Figure 64. Photograph of macrofauna sample 54_7 after sieving, June 2017.

Figure 65. Photograph of macrofauna sample 55_11 before sieving, June 2017.

Figure 66. Photograph of macrofauna sample 55_11 after sieving, June 2017.

Figure 67. Photograph of macrofauna sample 56_2 before sieving, June 2017.

Figure 68. Photograph of macrofauna sample 56_2 after sieving, June 2017.

Figure 69. Photograph of macrofauna sample 57_15 before sieving, June 2017.

Figure 70. Photograph of macrofauna sample 57_15 after sieving, June 2017.

Figure 71. Photograph of macrofauna sample 59_17 before sieving, June 2017.

Figure 72. Photograph of macrofauna sample 59_17 after sieving, June 2017.

Figure 73. Photograph of macrofauna sample 62_22 before sieving, June 2017.

Figure 74. Photograph of macrofauna sample 62_22 after sieving, June 2017.

Figure 75. Photograph of macrofauna sample 63_19 before sieving, June 2017.

Figure 76. Photograph of macrofauna sample 63_19 after sieving, June 2017.

Figure 77. Photograph of macrofauna sample 66_1 before sieving, June 2017.

Figure 78. Photograph of macrofauna sample 66_1 after sieving, June 2017.

Figure 79. Photograph of macrofauna sample 68_39 before sieving, June 2017.

Figure 80. Photograph of macrofauna sample 68_39 after sieving, June 2017.

Figure 81. Photograph of macrofauna sample 69_25 before sieving, June 2017.

Figure 82. Photograph of macrofauna sample 69_25 after sieving, June 2017.

Figure 83. Photograph of macrofauna sample 72_25 before sieving, June 2017.

Figure 84. Photograph of macrofauna sample 72_25 after sieving, June 2017.

Figure 85. Photograph of macrofauna sample 73_13 before sieving, June 2017.

Figure 86. Photograph of macrofauna sample 73_13 after sieving, June 2017.

Figure 87. Photograph of macrofauna sample 74_18 before sieving, June 2017.

Figure 88. Photograph of macrofauna sample 74_18 after sieving, June 2017.

Figure 89. Photograph of macrofauna sample 75_28 before sieving, June 2017.

Figure 90. Photograph of macrofauna sample 75_28 after sieving, June 2017.

Figure 91. Photograph of macrofauna sample 78_26 before sieving, June 2017.

Figure 92. Photograph of macrofauna sample 78_26 after sieving, June 2017.

Figure 93. Photograph of macrofauna sample 79_21 before sieving, June 2017.

Figure 94. Photograph of macrofauna sample 79_21 after sieving, June 2017.

Figure 95. Photograph of macrofauna sample 80_30 before sieving, June 2017.

Figure 96. Photograph of macrofauna sample 80_30 after sieving, June 2017.

Figure 97. Photograph of macrofauna sample 81_8 before sieving, June 2017.

Figure 98. Photograph of macrofauna sample 81_8 after sieving, June 2017.

Figure 99. Photograph of macrofauna sample 82_29 before sieving, June 2017.

Figure 100. Photograph of macrofauna sample 82_29 after sieving, June 2017.

Figure 101. Photograph of macrofauna sample 83_24 before sieving, June 2017.

Figure 102. Photograph of macrofauna sample 83_24 after sieving, June 2017.

Figure 103. Photograph of macrofauna sample 84_1 before sieving, June 2017.

Figure 104. Photograph of macrofauna sample 84_1 after sieving, June 2017.

Figure 105. Photograph of macrofauna sample 85_9 before sieving, June 2017.

Figure 106. Photograph of macrofauna sample 85_9 after sieving, June 2017.

Figure 107. Photograph of macrofauna sample 86_5 before sieving, June 2017.

Figure 108. Photograph of macrofauna sample 86_5 after sieving, June 2017.

Figure 109. Photograph of macrofauna sample 88_6 before sieving, June 2017.

Figure 110. Photograph of macrofauna sample 88_6 after sieving, June 2017.

Figure 111. Photograph of macrofauna sample 89_23 before sieving, June 2017.

Figure 112. Photograph of macrofauna sample 89_23 after sieving, June 2017.

Figure 113. Photograph of macrofauna sample 90_16 before sieving, June 2017.

Figure 114. Photograph of macrofauna sample 90_16 after sieving, June 2017.

Figure 115. Photograph of macrofauna sample 91_13 before sieving, June 2017.

Figure 116. Photograph of macrofauna sample 91_13 after sieving, June 2017.

Figure 117. Photograph of macrofauna sample 95_5 before sieving, June 2017.

Figure 118. Photograph of macrofauna sample 95_5 after sieving, June 2017.

Figure 119. Photograph of macrofauna sample 96_9 before sieving, June 2017.

Figure 120. Photograph of macrofauna sample 96_9 after sieving, June 2017.

SEINE

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19
June	Beach seine	0	5	0_5	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	2
June	Beach seine	0	5	0_5	6/22/2017	62	Labridae	Tautoga onitis	Tautog	2
June	Beach seine	0	5	0_5	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	11
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17
June	Beach seine	1	20	1_20	6/22/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1
June	Beach seine	1	20	1_20	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2
June	Beach seine	1	20	1_20	6/22/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1
June	Beach seine	1	20	1_20	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	7
June	Beach seine	5	10	5_10	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1
June	Beach seine	5	10	5_10	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4
June	Beach seine	5	10	5_10	6/22/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18
June	Beach seine	5	10	5_10	6/22/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1
June	Beach seine	5	10	5_10	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4
June	Beach seine	5	10	5_10	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	7
June	Beach seine	7	26	7_26	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	26
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	41
June	Beach seine	7	26	7_26	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19
June	Beach seine	7	26	7_26	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	9
June	Beach seine	7	26	7_26	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6
June	Beach seine	8	36	8_36	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Beach seine	8	36	8_36	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	10	1	10_1	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	26
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	46
June	Beach seine	10	1	10_1	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	1
June	Beach seine	10	1	10_1	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10
June	Beach seine	10	1	10_1	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9
June	Beach seine	11	11	11_11	6/22/2017	700	Limulidae	Limulus polyphemus	Horseshoe crab	1
June	Beach seine	11	11	11_11	6/22/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1
June	Beach seine	11	11	11_11	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	3

June	Beach seine	17	14	17_14	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2
June	Beach seine	17	14	17_14	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
June	Beach seine	21	21	21_21	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3
June	Beach seine	21	21	21_21	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
June	Beach seine	21	21	21_21	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	119
June	Beach seine	22	6	22_6	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	1
June	Beach seine	22	6	22_6	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
June	Beach seine	28	30	28_30	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2
June	Beach seine	38	9	38_9	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2
June	Beach seine	38	9	38_9	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
June	Beach seine	39	18	39_18	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
June	Beach seine	39	18	39_18	6/22/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1
June	Beach seine	39	18	39_18	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Beach seine	51	16	51_16	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	210
June	Beach seine	51	16	51_16	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2
June	Beach seine	51	16	51_16	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	136
June	Beach seine	67	12	67_12	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	34
June	Beach seine	67	12	67_12	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	700
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	110
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5
June	Beach seine	71	19	71_19	6/22/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1
June	Beach seine	71	19	71_19	6/22/2017	700	Limulidae	Limulus polyphemus	Horseshoe crab	1
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6
June	Beach seine	71	19	71_19	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9
June	Beach seine	76	24	76_24	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	2
June	Beach seine	76	24	76_24	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	1
June	Beach seine	76	24	76_24	6/22/2017	30	Moronidae	Morone saxatilis	Striped Bass	2
June	Beach seine	76	24	76_24	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2
June	Beach seine	76	24	76_24	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5
June	Beach seine	78	22	78_22	6/22/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1
June	Beach seine	78	22	78_22	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13

SEINE

June	Beach seine	78	22	78_22	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2
June	Beach seine	78	22	78_22	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	834
June	Beach seine	79	4	79_4	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	51
June	Beach seine	79	4	79_4	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
June	Beach seine	79	4	79_4	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1

TRAP

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	TRAP_NUM	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
June	Fish trap	5	4	1	5_4_1	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	7
June	Fish trap	5	4	2	5_4_2	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	6
June	Fish trap	7	8	1	7_8_1	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	7	8	2	7_8_2	6/23/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	7	8	2	7_8_2	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	5
June	Fish trap	15	7	1	15_7_1	6/21/2017	71	Sparidae	Stenotomus chrysops	Scup	1
June	Fish trap	15	7	2	15_7_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
June	Fish trap	15	7	2	15_7_2	6/21/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
June	Fish trap	19	9	1	19_9_1	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	7
June	Fish trap	19	9	2	19_9_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	4
June	Fish trap	19	9	2	19_9_2	6/21/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
June	Fish trap	27	19	1	27_19_1	6/23/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
June	Fish trap	27	19	1	27_19_1	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	27	19	2	27_19_2	6/23/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	27	19	2	27_19_2	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	29	2	1	29_2_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	29	2	2	29_2_2	6/20/2017	999	No catch	No catch	No catch	
June	Fish trap	30	3	1	30_3_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	30	3	2	30_3_2	6/20/2017	999	No catch	No catch	No catch	
June	Fish trap	34	13	1	34_13_1	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	34	13	1	34_13_1	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Fish trap	34	13	1	34_13_1	6/22/2017	71	Sparidae	Stenotomus chrysops	Scup	3
June	Fish trap	34	13	2	34_13_2	6/22/2017	62	Labridae	Tautoga onitis	Tautog	3
June	Fish trap	41	3	1	41_3_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	41	3	2	41_3_2	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	41	3	2	41_3_2	6/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	5
June	Fish trap	43	10	1	43_10_1	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	43	10	1	43_10_1	6/21/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Fish trap	43	10	2	43_10_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	43	10	2	43_10_2	6/21/2017	71	Sparidae	Stenotomus chrysops	Scup	3
June	Fish trap	45	6	1	45_6_1	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	45	6	2	45_6_2	6/21/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1
June	Fish trap	45	6	2	45_6_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	4
June	Fish trap	45	6	2	45_6_2	6/21/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	47	1	1	47_1_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
June	Fish trap	47	1	1	47_1_1	6/20/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Fish trap	47	1	2	47_1_2	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
June	Fish trap	47	1	2	47_1_2	6/20/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Fish trap	47	1	2	47_1_2	6/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	50	5	1	50_5_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2

TRAP

June	Fish trap	50	5	1	50_5_1	6/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	50	5	2	50_5_2	6/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	51	10	1	51_10_1	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	51	10	2	51_10_2	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	51	10	2	51_10_2	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	52	8	1	52_8_1	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	52	8	1	52_8_1	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1
June	Fish trap	52	8	2	52_8_2	6/22/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	7
June	Fish trap	52	8	2	52_8_2	6/22/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	53	2	1	53_2_1	6/20/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
June	Fish trap	53	2	2	53_2_2	6/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
June	Fish trap	54	8	1	54_8_1	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
June	Fish trap	54	8	2	54_8_2	6/23/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	54	8	2	54_8_2	6/23/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
June	Fish trap	55	7	1	55_7_1	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
June	Fish trap	55	7	2	55_7_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	56	9	1	56_9_1	6/21/2017	71	Sparidae	Stenotomus chrysops	Scup	3
June	Fish trap	56	9	2	56_9_2	6/21/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
June	Fish trap	56	9	2	56_9_2	6/21/2017	71	Sparidae	Stenotomus chrysops	Scup	6
June	Fish trap	57	10	1	57_10_1	6/23/2017	999	No catch	No catch	No catch	
June	Fish trap	57	10	2	57_10_2	6/23/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1

OTTER_TRAWL

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME
June	Otter trawl	5	3	5_3	6/23/2017	2	Engraulidae	Anchoa mitchilli
June	Otter trawl	5	3	5_3	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	5	3	5_3	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	5	3	5_3	6/23/2017	80	Stromateidae	Peprilus triacanthus
June	Otter trawl	6	17	6_17	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	7	5	7_5	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	7	5	7_5	6/23/2017	4	Pomatomidae	Pomatomus saltatrix
June	Otter trawl	7	5	7_5	6/23/2017	754	Portunidae	Callinectes sapidus
June	Otter trawl	7	5	7_5	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli
June	Otter trawl	9	4	9_4	6/23/2017	700	Limulidae	Limulus polyphemus
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	9	4	9_4	6/23/2017	763	Polybiidae	Ovalipes ocellatus
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	12	1	12_1	6/23/2017	763	Polybiidae	Ovalipes ocellatus
June	Otter trawl	12	1	12_1	6/23/2017	4	Pomatomidae	Pomatomus saltatrix
June	Otter trawl	12	1	12_1	6/23/2017	754	Portunidae	Callinectes sapidus
June	Otter trawl	12	1	12_1	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	12	1	12_1	6/23/2017	54	Syngnathidae	Hippocampus erectus
June	Otter trawl	12	1	12_1	6/23/2017	111	Triglidae	Prionotus carolinus
June	Otter trawl	16	3	16_3	6/23/2017	700	Limulidae	Limulus polyphemus
June	Otter trawl	16	3	16_3	6/23/2017	106	Paralichthyidae	Paralichthys dentatus
June	Otter trawl	16	3	16_3	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	16	3	16_3	6/23/2017	754	Portunidae	Callinectes sapidus
June	Otter trawl	16	3	16_3	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	17	5	17_5	6/23/2017	54	Syngnathidae	Hippocampus erectus
June	Otter trawl	17	5	17_5	6/23/2017	39	Syngnathidae	Syngnathus fuscus
June	Otter trawl	18	7	18_7	6/23/2017	106	Paralichthyidae	Paralichthys dentatus
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	18	7	18_7	6/23/2017	754	Portunidae	Callinectes sapidus
June	Otter trawl	18	7	18_7	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	22	1	22_1	6/23/2017	853	Epialtidae	Libinia emarginata
June	Otter trawl	22	1	22_1	6/23/2017	106	Paralichthyidae	Paralichthys dentatus
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	22	1	22_1	6/23/2017	4	Pomatomidae	Pomatomus saltatrix
June	Otter trawl	22	1	22_1	6/23/2017	754	Portunidae	Callinectes sapidus

OTTER_TRAWL

June	Otter trawl	22	1	22_1	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	23	2	23_2	6/23/2017	2	Engraulidae	Anchoa mitchilli
June	Otter trawl	23	2	23_2	6/23/2017	106	Paralichthyidae	Paralichthys dentatus
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus
June	Otter trawl	23	2	23_2	6/23/2017	754	Portunidae	Callinectes sapidus
June	Otter trawl	23	2	23_2	6/23/2017	71	Sparidae	Stenotomus chrysops
June	Otter trawl	23	2	23_2	6/23/2017	86	Tetraodontidae	Sphoeroides maculatus

OTTER_TRAWL

COMMON_NAME	COUNT
Bay Anchovy	2
Winter Flounder	1
Scup	1
Butterfish	1
Winter Flounder	1
Winter Flounder	4
Bluefish	1
Blue crab	1
Scup	1
Bay Anchovy	7
Horseshoe crab	1
Winter Flounder	8
Lady crab	2
Winter Flounder	9
Lady crab	1
Bluefish	2
Blue crab	2
Scup	1
Lined Seahorse	1
Northern Searobin	1
Horseshoe crab	1
Summer Flounder	1
Winter Flounder	1
Blue crab	3
Scup	1
Lined Seahorse	1
Northern Pipefish	1
Summer Flounder	1
Winter Flounder	6
Blue crab	1
Scup	1
Portly spider crab	1
Summer Flounder	1
Winter Flounder	7
Bluefish	1
Blue crab	4

OTTER_TRAWL

Scup	3
Bay Anchovy	4
Summer Flounder	1
Winter Flounder	10
Blue crab	4
Scup	1
Northern Puffer	1

SEINE

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ID	LENGTH_CM
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10.2
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.6
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	2.2
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	2.3
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	3.2
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	3
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	3.6
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	2.8
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	2.4
June	Beach seine	0	5	0_5	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	2.7
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	5.2
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.6
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5.3
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	4.9
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	5.6
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	5.1
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5.4
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	5
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	5.5
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	5.3
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	5.3
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	5.4
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	5.4
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	4.2
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	5.6
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	4
June	Beach seine	0	5	0_5	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	3.9
June	Beach seine	0	5	0_5	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine	1	3.6
June	Beach seine	0	5	0_5	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine	2	2.8
June	Beach seine	0	5	0_5	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1	11.8
June	Beach seine	0	5	0_5	6/22/2017	62	Labridae	Tautoga onitis	Tautog	2	8.6
June	Beach seine	0	5	0_5	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8.1
June	Beach seine	0	5	0_5	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	9.8
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	17.2

SEINE

June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	18.9
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3	14.6
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	4	18.3
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	5	17.4
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	6	13.8
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	7	15.9
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	8	15.4
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	9	16.3
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	10	13.7
June	Beach seine	0	5	0_5	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	11	7.3
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	10.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	11.1
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	12.3
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	11.3
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	10.3
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	10.6
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	10.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	12.1
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	10.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	11
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	11.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	11.1
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	12.5
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	11
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	11
June	Beach seine	1	20	1_20	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	11.1
June	Beach seine	1	20	1_20	6/22/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1	4.9
June	Beach seine	1	20	1_20	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	5
June	Beach seine	1	20	1_20	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.3
June	Beach seine	1	20	1_20	6/22/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1	10.3
June	Beach seine	1	20	1_20	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8.5
June	Beach seine	1	20	1_20	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	7
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	15
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	17.1
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3	14.8
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	4	20.9
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	5	15.5

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June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	6	14
June	Beach seine	1	20	1_20	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	7	16.3
June	Beach seine	5	10	5_10	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1	6
June	Beach seine	5	10	5_10	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	13
June	Beach seine	5	10	5_10	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	3.5
June	Beach seine	5	10	5_10	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	3.1
June	Beach seine	5	10	5_10	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	3.1
June	Beach seine	5	10	5_10	6/22/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1	5.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	5
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5.4
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	4.6
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	4.2
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	4.3
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	4.1
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	4.3
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5.1
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	3.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	4
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	4.4
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	4.2
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	4
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	3.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	3.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	3.9
June	Beach seine	5	10	5_10	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	4.4
June	Beach seine	5	10	5_10	6/22/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1	4.5
June	Beach seine	5	10	5_10	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.3
June	Beach seine	5	10	5_10	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	7.4
June	Beach seine	5	10	5_10	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	5.9
June	Beach seine	5	10	5_10	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	5.6
June	Beach seine	7	26	7_26	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1	6.5
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.3
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.7

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June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	2.8
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	2.5
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	2.3
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	3.1
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	3.1
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	2.3
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	2.1
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	2.3
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	2.2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	2
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	2.5
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	2.9
June	Beach seine	7	26	7_26	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	2.8
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	5.3
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	5.1
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	6.5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5.5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	4
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	6
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	4.3
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	5.3
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	6
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	5.4
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	6.1
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	5.2
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	4.3
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	5
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	5.1
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	4.2
June	Beach seine	7	26	7_26	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	5

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June	Beach seine	7	26	7_26	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1	11
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.3
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	6.1
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	6.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	6.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.3
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	5.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	5.9
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	6.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	6.6
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	4.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	5.3
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	4.5
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	5.3
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	6
June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	5

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June	Beach seine	7	26	7_26	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	2.3
June	Beach seine	7	26	7_26	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	22.5
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4.1
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	4.3
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5.4
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	5.2
June	Beach seine	8	36	8_36	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5.5
June	Beach seine	8	36	8_36	6/22/2017	62	Labridae	Tautoga onitis	Tautog	1	11.1
June	Beach seine	8	36	8_36	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.3
June	Beach seine	10	1	10_1	6/22/2017	13	Achiridae	Trinectes maculatus	Hogchoker	1	7.2
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.6
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.9
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	3.4
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	3.6
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	2.9
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	3.3
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	3.2
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	3.1
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	3.3
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	3.7
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	4
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	3.8
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	3.6
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	2.5
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	3.3
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	3.1
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	3.8
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	3.4
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	3.2
June	Beach seine	10	1	10_1	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	2.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	5.7
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	5.4
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	4.8
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	5.4
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	4.2

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June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	4.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	3.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	4.7
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	5.4
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	5.1
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	4.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	4.9
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	5.5
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	5.7
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	5.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	4.1
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	5.1
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	4.6
June	Beach seine	10	1	10_1	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	4.5
June	Beach seine	10	1	10_1	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine	1	3.7
June	Beach seine	10	1	10_1	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.9
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.7
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	8.2
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	7.2
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	8.6
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	7.9
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	7.7
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	7.5
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	7.6
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	7.7
June	Beach seine	10	1	10_1	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	7.7
June	Beach seine	10	1	10_1	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	20.9
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.9
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.8
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8.4
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.9
June	Beach seine	11	11	11_11	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	10.3
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	5.4
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.7
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5.1
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5.4
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	6.8

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June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5.6
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	4.8
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	5.1
June	Beach seine	11	11	11_11	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5.6
June	Beach seine	11	11	11_11	6/22/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1	10.1
June	Beach seine	11	11	11_11	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	22.5
June	Beach seine	11	11	11_11	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	2	15.4
June	Beach seine	11	11	11_11	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	3	17.9
June	Beach seine	17	14	17_14	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	3.2
June	Beach seine	17	14	17_14	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	3.1
June	Beach seine	17	14	17_14	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.9
June	Beach seine	21	21	21_21	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4.4
June	Beach seine	21	21	21_21	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.1
June	Beach seine	21	21	21_21	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	6.6
June	Beach seine	21	21	21_21	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	16.4
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	6.7
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.8
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	6.5
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	6.8
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	6.7
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	6.6
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	5
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	7.3
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	6.5
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	5
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	6.2
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	5.9
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	5.8
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	6
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	6.1
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	5.9
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	6
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	5.9
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	6.6
June	Beach seine	22	6	22_6	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	6.3
June	Beach seine	22	6	22_6	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine	1	3.9

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June	Beach seine	22	6	22_6	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.2
June	Beach seine	28	30	28_30	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	3.2
June	Beach seine	28	30	28_30	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	3
June	Beach seine	38	9	38_9	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	3.1
June	Beach seine	38	9	38_9	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	2.6
June	Beach seine	39	18	39_18	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	9.2
June	Beach seine	39	18	39_18	6/22/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	9.2
June	Beach seine	51	16	51_16	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	1.8
June	Beach seine	51	16	51_16	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	3.1
June	Beach seine	51	16	51_16	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	2.6
June	Beach seine	51	16	51_16	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	2.9
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4.6
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	4.7
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	4.8
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5.4
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	4.5
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	4.9
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	5.2
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	4.8
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	4.6
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	4.5
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	4.7
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	4.7
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	4.5
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	4.6
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	4.4
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	4.3
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	4.6
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	4.4
June	Beach seine	51	16	51_16	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	4.7
June	Beach seine	51	16	51_16	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	10.4
June	Beach seine	51	16	51_16	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	9.6
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.9
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.3
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.7
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	11

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June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.3
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	11.3
June	Beach seine	67	12	67_12	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	9.2
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	9.6
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	8.1
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	8.2
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	7.9
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	8.7
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	8.4
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	7.8
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	8.1
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	8.6
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	9.1
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	8.6
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	9
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	9.9
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	8.3
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	8.1
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	8.8
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	8.5
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	9.5
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	7.6
June	Beach seine	67	12	67_12	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	8.3
June	Beach seine	67	12	67_12	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	7.7
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8.2
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	7.6
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	7.7
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	7.8
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	7.7
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	7.6
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	7.9
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	8.1
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	7.2
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	7.4
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	8.4
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	7.9
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	7.5
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	6.8

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June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	8.4
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	8
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	7.3
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	7.9
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	8.5
June	Beach seine	67	12	67_12	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	8.6
June	Beach seine	67	12	67_12	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	7.1
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	12.5
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	11.1
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	12.1
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	11.5
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	11.6
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	11.6
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	10.3
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	12
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	10.2
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9.3
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.1
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	9.6
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	11.4
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	9.4
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	9.2
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	9.4
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	9.3
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	8.6
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	8.5
June	Beach seine	70	17	70_17	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	9
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	7
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.2
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5.4
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	7.2
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	6.5
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	6.7
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	6.3
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	6.4
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	6.6
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	6.2
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	6.2

SEINE

June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	6.1
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	7.1
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	7
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	6.6
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	7.2
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	5.6
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	5.1
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	7.3
June	Beach seine	70	17	70_17	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	6.2
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	8.6
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	7.9
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	8.5
June	Beach seine	70	17	70_17	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	7.5
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10.5
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	11.5
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.7
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	2.3
June	Beach seine	71	19	71_19	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	2.6
June	Beach seine	71	19	71_19	6/22/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1	6.5
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8.3
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	10
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	7.5
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	7.6
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	8.4
June	Beach seine	71	19	71_19	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	8.6
June	Beach seine	71	19	71_19	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	16.3
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	5.1
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	5.4
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	5.2
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	4.9
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5.2
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	5.3
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	4.2
June	Beach seine	76	24	76_24	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5
June	Beach seine	76	24	76_24	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	6.9
June	Beach seine	76	24	76_24	6/22/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	2	7.4

SEINE

June	Beach seine	76	24	76_24	6/22/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine	1	3.9
June	Beach seine	76	24	76_24	6/22/2017	30	Moronidae	Morone saxatilis	Striped Bass	1	33.7
June	Beach seine	76	24	76_24	6/22/2017	30	Moronidae	Morone saxatilis	Striped Bass	2	32.3
June	Beach seine	76	24	76_24	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.8
June	Beach seine	76	24	76_24	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	6.4
June	Beach seine	76	24	76_24	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	15.6
June	Beach seine	76	24	76_24	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	15.9
June	Beach seine	76	24	76_24	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3	16.4
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	11.9
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	11.8
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	12
June	Beach seine	78	22	78_22	6/22/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.5
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	3.6
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	4.5
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	3.5
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	4
June	Beach seine	78	22	78_22	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	3.8
June	Beach seine	78	22	78_22	6/22/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	3.4
June	Beach seine	78	22	78_22	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.1
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.6
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	7.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	8.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	8.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	7.2
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	8.6
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	7.3
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	7.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	7.7
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	8.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	8.5
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	8.4
June	Beach seine	78	22	78_22	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	8.4
June	Beach seine	78	22	78_22	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	15
June	Beach seine	78	22	78_22	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	7
June	Beach seine	78	22	78_22	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	18.5
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	6.3

SEINE

June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	6.6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	6.4
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	5	5.9
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	6	5.6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	7	6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	8	6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	9	5.6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	10	5.4
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	11	6.5
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	12	6.8
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	13	6.2
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	14	8.2
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	15	5.7
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	16	5.1
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	17	6
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	18	6.1
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	19	6.4
June	Beach seine	79	4	79_4	6/22/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	20	7.3
June	Beach seine	79	4	79_4	6/22/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.2
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8.4
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	8.9
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	7.8
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	8.6
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	7.5
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	8
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	8.3
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	7.8
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	8.4
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	7.4
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	8
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	8.1
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	7
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	7.6
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	8.1
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	8
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	9.1

SEINE

June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	8.4
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	8.7
June	Beach seine	79	4	79_4	6/22/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	7.8
June	Beach seine	79	4	79_4	6/22/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	15
June	Beach seine	79	4	79_4	6/22/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	13.7

TRAP

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	TRAP_NUM	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ID	LENGTH_CM
June	Fish trap	15	7	1	15_7_1		71	Sparidae	Stenotomus chrysops	Scup	1	22.1
June	Fish trap	34	13	1	34_13_1		62	Labridae	Tautoga onitis	Tautog	1	25.1
June	Fish trap	34	13	1	34_13_1		71	Sparidae	Stenotomus chrysops	Scup	1	21.4
June	Fish trap	34	13	1	34_13_1		71	Sparidae	Stenotomus chrysops	Scup	2	28.9
June	Fish trap	34	13	1	34_13_1		71	Sparidae	Stenotomus chrysops	Scup	3	21.5
June	Fish trap	34	13	2	34_13_2		62	Labridae	Tautoga onitis	Tautog	1	33.8
June	Fish trap	34	13	2	34_13_2		62	Labridae	Tautoga onitis	Tautog	2	26.7
June	Fish trap	34	13	2	34_13_2		62	Labridae	Tautoga onitis	Tautog	3	39.1
June	Fish trap	43	10	1	43_10_1		62	Labridae	Tautoga onitis	Tautog	1	33
June	Fish trap	43	10	2	43_10_2		71	Sparidae	Stenotomus chrysops	Scup	1	21
June	Fish trap	43	10	2	43_10_2		71	Sparidae	Stenotomus chrysops	Scup	2	20.9
June	Fish trap	43	10	2	43_10_2		71	Sparidae	Stenotomus chrysops	Scup	3	24.7
June	Fish trap	45	6	2	45_6_2		213	Batrachoididae	Opsanus tau	Oyster Toadfish	1	29.4
June	Fish trap	47	1	1	47_1_1		62	Labridae	Tautoga onitis	Tautog	1	19.5
June	Fish trap	47	1	2	47_1_2		62	Labridae	Tautoga onitis	Tautog	1	37.5
June	Fish trap	52	8	1	52_8_1		62	Labridae	Tautoga onitis	Tautog	1	38.3
June	Fish trap	56	9	1	56_9_1		71	Sparidae	Stenotomus chrysops	Scup	1	22
June	Fish trap	56	9	1	56_9_1		71	Sparidae	Stenotomus chrysops	Scup	2	22.5
June	Fish trap	56	9	1	56_9_1		71	Sparidae	Stenotomus chrysops	Scup	3	21.8
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	1	27.7
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	2	21
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	3	21.5
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	4	21.3
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	5	22.6
June	Fish trap	56	9	2	56_9_2		71	Sparidae	Stenotomus chrysops	Scup	6	22.1

June 2017 Fish Length: Otter Trawl
Source: Normandeau Associates, Inc.

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ID	LENGTH_CM
June	Otter trawl	5	3	5_3	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	7.6
June	Otter trawl	5	3	5_3	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	7.4
June	Otter trawl	5	3	5_3	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.1
June	Otter trawl	5	3	5_3	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	12.2
June	Otter trawl	5	3	5_3	6/23/2017	80	Stromateidae	Peprilus triacanthus	Butterfish	1	7.6
June	Otter trawl	6	17	6_17	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.4
June	Otter trawl	7	5	7_5	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.6
June	Otter trawl	7	5	7_5	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	5.3
June	Otter trawl	7	5	7_5	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.4
June	Otter trawl	7	5	7_5	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	5.8
June	Otter trawl	7	5	7_5	6/23/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.1
June	Otter trawl	7	5	7_5	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	12.7
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	6.4
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	7.6
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	8.4
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	7.9
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	8.6
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	7.6
June	Otter trawl	9	4	9_4	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	7.6
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.8
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	6.6
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.4
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.6
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	7.9
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7.1
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.8
June	Otter trawl	9	4	9_4	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	6.6
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.1
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	7.9
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.4
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	5.1
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	8.4
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	6.9
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.8
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	6.6
June	Otter trawl	12	1	12_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.6
June	Otter trawl	12	1	12_1	6/23/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.1
June	Otter trawl	12	1	12_1	6/23/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	7.6
June	Otter trawl	12	1	12_1	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	12.7

June	Otter trawl	12	1	12_1	6/23/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1	10.9
June	Otter trawl	12	1	12_1	6/23/2017	111	Triglidae	Prionotus carolinus	Northern Searobin	1	9.1
June	Otter trawl	16	3	16_3	6/23/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	30.5
June	Otter trawl	16	3	16_3	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.1
June	Otter trawl	16	3	16_3	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	41.9
June	Otter trawl	17	5	17_5	6/23/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1	10.2
June	Otter trawl	17	5	17_5	6/23/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	20.1
June	Otter trawl	18	7	18_7	6/23/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	33.5
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.6
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	6.1
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	5.3
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	4.1
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	5.3
June	Otter trawl	18	7	18_7	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	6.4
June	Otter trawl	18	7	18_7	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	12.4
June	Otter trawl	22	1	22_1	6/23/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	35.6
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.6
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	7.4
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.6
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.1
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	6.6
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	6.4
June	Otter trawl	22	1	22_1	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.6
June	Otter trawl	22	1	22_1	6/23/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	7.1
June	Otter trawl	22	1	22_1	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	13
June	Otter trawl	22	1	22_1	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	2	11.4
June	Otter trawl	22	1	22_1	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	3	12.2
June	Otter trawl	23	2	23_2	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	9.7
June	Otter trawl	23	2	23_2	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	8.9
June	Otter trawl	23	2	23_2	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	8.9
June	Otter trawl	23	2	23_2	6/23/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	6.6
June	Otter trawl	23	2	23_2	6/23/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	48.5
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.1
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	6.9
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	6.9
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.9
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	5.6
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7.1
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.3
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	6.6
June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	6.6

June	Otter trawl	23	2	23_2	6/23/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	7.1
June	Otter trawl	23	2	23_2	6/23/2017	71	Sparidae	Stenotomus chrysops	Scup	1	11.2
June	Otter trawl	23	2	23_2	6/23/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	16

SEINE

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	TIME	LATITUDE	LONGITUDE	DEPTH_FT	TIDE_STAGE	USE_CODE
June	Beach seine	79	4	79_4	6/22/2017	8:32	40.50208333	74.22786667	1	ebb	1
June	Beach seine	51	16	51_16	6/22/2017	9:05	40.50211667	74.22873333	1	ebb	1
June	Beach seine	39	18	39_18	6/22/2017	9:31	40.5008	74.23358333	1	ebb	1
June	Beach seine	38	9	38_9	6/22/2017	9:50	40.50071667	74.23416667	1	ebb	1
June	Beach seine	28	30	28_30	6/22/2017	10:01	40.49886667	74.2383	1	ebb	1
June	Beach seine	22	6	22_6	6/22/2017	10:18	40.49775	74.23953333	1	ebb	1
June	Beach seine	21	21	21_21	6/22/2017	10:35	40.49755	74.24116667	1	ebb	1
June	Beach seine	17	14	17_14	6/22/2017	10:45	40.4975	74.2428	1	ebb	1
June	Beach seine	11	11	11_11	6/22/2017	11:00	40.49716667	74.2447	1	ebb	1
June	Beach seine	10	1	10_1	6/22/2017	11:16	40.49693333	74.24525	1	ebb	1
June	Beach seine	8	36	8_36	6/22/2017	11:29	40.49646667	74.24593333	1	ebb	1
June	Beach seine	7	26	7_26	6/22/2017	11:49	40.49643333	74.24616667	1	ebb	1
June	Beach seine	5	10	5_10	6/22/2017	12:15	40.496	74.24725	1	ebb	1
June	Beach seine	1	20	1_20	6/22/2017	13:04	40.49638333	74.24886667	1	ebb	1
June	Beach seine	0	5	0_5	6/22/2017	13:18	40.49656667	74.24931667	1	ebb	1
June	Beach seine	78	22	78_22	6/22/2017	13:29	40.4971	74.24973333	1	ebb	1
June	Beach seine	76	24	76_24	6/22/2017	13:49	40.49715	74.25005	1	flood	1
June	Beach seine	71	19	71_19	6/22/2017	14:28	40.49866667	74.25128333	1	flood	1
June	Beach seine	70	17	70_17	6/22/2017	14:46	40.49896667	74.25165	1	flood	1
June	Beach seine	67	12	67_12	6/22/2017	15:01	40.49951667	74.25246667	1	flood	1

June 2017 Fish Trap Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_TYPE	Site _ID	Sample _ID	TRAP _NUM	SAMP_ID	DATE	LATITUDE	LONGITUDE	SET_DEPTH_ FT	SET_TIDE _STAGE	SET_DATE	SET_TIME	PULL_DEPTH_ FT	PULL_TIDE _STAGE	PULL_DATE	PULL_ TIME	SOAK_TIME _HRS	USE_ CODE
June	Fish trap	5	4	1	5_4_1	6/22/2017	40.49188333	74.2342	15.9	flood	6/21/2017	16:35	12	flood	6/22/2017	15:38	23.05	1
June	Fish trap	5	4	2	5_4_2	6/22/2017	40.49211667	74.2342	15.9	flood	6/21/2017	16:36	14	flood	6/22/2017	15:42	23.1	1
June	Fish trap	7	8	1	7_8_1	6/23/2017	40.49246667	74.23728333	10	flood	6/22/2017	15:45	8.7	ebb	6/23/2017	15:16	23.51666667	1
June	Fish trap	7	8	2	7_8_2	6/23/2017	40.4924	74.23705	10	flood	6/22/2017	15:46	8.7	ebb	6/23/2017	15:19	23.55	1
June	Fish trap	15	7	1	15_7_1	6/21/2017	40.49463333	74.2353	11.2	flood	6/20/2017	17:09	11.6	flood	6/21/2017	17:16	24.11666667	1
June	Fish trap	15	7	2	15_7_2	6/21/2017	40.49468333	74.23521667	11.2	flood	6/20/2017	17:10	11.7	flood	6/21/2017	17:18	24.13333333	1
June	Fish trap	19	9	1	19_9_1	6/21/2017	40.49553333	74.2291	17	flood	6/20/2017	16:58	17.3	flood	6/21/2017	16:44	23.76666667	1
June	Fish trap	19	9	2	19_9_2	6/21/2017	40.49568333	74.22925	17	flood	6/20/2017	16:59	17.4	flood	6/21/2017	16:47	23.8	1
June	Fish trap	27	19	1	27_19_1	6/23/2017	40.49886667	74.22166667	17	flood	6/22/2017	16:07	12.8	ebb	6/23/2017	15:30	23.38333333	1
June	Fish trap	27	19	2	27_19_2	6/23/2017	40.49881667	74.22168333	16.5	flood	6/22/2017	16:09	12.8	ebb	6/23/2017	15:32	23.38333333	1
June	Fish trap	29	2	1	29_2_1	6/20/2017	40.49871667	74.22843333	12	flood	6/19/2017	16:16	12.6	flood	6/20/2017	17:06	24.83333333	1
June	Fish trap	29	2	2	29_2_2	6/20/2017	40.49853333	74.22856667	12	flood	6/19/2017	16:17	12.6	flood	6/20/2017	17:10	24.88333333	1
June	Fish trap	30	3	1	30_3_1	6/20/2017	40.49873333	74.22231667	17.5	flood	6/19/2017	15:29	18.3	flood	6/20/2017	16:53	25.4	1
June	Fish trap	30	3	2	30_3_2	6/20/2017	40.49865	74.22266667	17.5	flood	6/19/2017	15:36	18.3	flood	6/20/2017	16:57	25.35	1
June	Fish trap	34	13	1	34_13_1	6/22/2017	40.49928333	74.22591667	13.4	flood	6/21/2017	16:57	12.2	flood	6/22/2017	15:58	23.01666667	1
June	Fish trap	34	13	2	34_13_2	6/22/2017	40.49938333	74.226	13.4	flood	6/21/2017	16:58	12	flood	6/22/2017	16:00	23.03333333	1
June	Fish trap	41	3	1	41_3_1	6/20/2017	40.49981667	74.23166667	9.7	flood	6/19/2017	16:21	10.2	flood	6/20/2017	17:20	24.98333333	1
June	Fish trap	41	3	2	41_3_2	6/20/2017	40.49966667	74.23183333	9.7	flood	6/19/2017	16:22	10.2	flood	6/20/2017	17:24	25.03333333	1
June	Fish trap	43	10	1	43_10_1	6/21/2017	40.50065	74.22038333	18.1	flood	6/20/2017	16:49	18.4	flood	6/21/2017	16:15	23.43333333	1
June	Fish trap	43	10	2	43_10_2	6/21/2017	40.50066667	74.22053333	18.1	flood	6/20/2017	16:50	18.4	flood	6/21/2017	16:18	23.46666667	1
June	Fish trap	45	6	1	45_6_1	6/21/2017	40.50093333	74.22448333	12.1	flood	6/20/2017	17:31	12.4	flood	6/21/2017	17:01	23.5	1
June	Fish trap	45	6	2	45_6_2	6/21/2017	40.50083333	74.22448333	12.1	flood	6/20/2017	17:32	12.4	flood	6/21/2017	17:04	23.53333333	1
June	Fish trap	47	1	1	47_1_1	6/20/2017	40.50093333	74.22196667	14.7	flood	6/19/2017	15:42	16.2	flood	6/20/2017	16:41	24.98333333	1
June	Fish trap	47	1	2	47_1_2	6/20/2017	40.50083333	74.22171667	14.7	flood	6/19/2017	15:45	16.1	flood	6/20/2017	16:44	24.98333333	1
June	Fish trap	50	5	1	50_5_1	6/20/2017	40.50121667	74.21945	18.5	flood	6/19/2017	15:53	19	flood	6/20/2017	16:14	24.35	1
June	Fish trap	50	5	2	50_5_2	6/20/2017	40.5012	74.21945	18.5	flood	6/19/2017	15:57	18.7	flood	6/20/2017	16:18	24.35	1
June	Fish trap	51	10	1	51_10_1	6/22/2017	40.50173333	74.21841667	13	flood	6/21/2017	16:06	11	flood	6/22/2017	16:15	24.15	1
June	Fish trap	51	10	2	51_10_2	6/22/2017	40.50175	74.2185	13	flood	6/21/2017	16:07	11	flood	6/22/2017	16:18	24.18333333	1
June	Fish trap	52	8	1	52_8_1	6/22/2017	40.50163333	74.21841667	20.8	flood	6/21/2017	15:55	20	flood	6/22/2017	16:31	24.6	1
June	Fish trap	52	8	2	52_8_2	6/22/2017	40.50145	74.2184	20.9	flood	6/21/2017	15:56	19.9	flood	6/22/2017	16:34	24.63333333	1
June	Fish trap	53	2	1	53_2_1	6/20/2017	40.50148333	74.2191	18.5	flood	6/19/2017	16:07	19.7	flood	6/20/2017	16:29	24.36666667	1
June	Fish trap	53	2	2	53_2_2	6/20/2017	40.50148333	74.21908333	18.5	flood	6/19/2017	16:08	19.7	flood	6/20/2017	16:33	24.41666667	1
June	Fish trap	54	8	1	54_8_1	6/23/2017	40.5015	74.21845	9	flood	6/22/2017	16:24	5.2	ebb	6/23/2017	15:41	23.28333333	1
June	Fish trap	54	8	2	54_8_2	6/23/2017	40.50146667	74.2184	8.8	flood	6/22/2017	16:26	5.2	ebb	6/23/2017	15:43	23.28333333	1
June	Fish trap	55	7	1	55_7_1	6/21/2017	40.50176667	74.2191	9.1	flood	6/20/2017	16:27	9.5	flood	6/21/2017	15:59	23.53333333	1
June	Fish trap	55	7	2	55_7_2	6/21/2017	40.50175	74.2191	9.1	flood	6/20/2017	16:28	9.5	flood	6/21/2017	16:04	23.6	1
June	Fish trap	56	9	1	56_9_1	6/21/2017	40.50176667	74.21873333	21	flood	6/20/2017	16:35	20.2	flood	6/21/2017	15:43	23.13333333	1
June	Fish trap	56	9	2	56_9_2	6/21/2017	40.50175	74.21873333	21	flood	6/20/2017	16:36	24.2	flood	6/21/2017	15:47	23.18333333	1
June	Fish trap	57	10	1	57_10_1	6/23/2017	40.5017	74.21838333	9	flood	6/22/2017	16:30	4.7	ebb	6/23/2017	15:51	23.35	1
June	Fish trap	57	10	2	57_10_2	6/23/2017	40.50171667	74.21838333	8.9	flood	6/22/2017	16:33	4.7	ebb	6/23/2017	15:48	23.25	1

June 2017 Otter Trawl Sampling Stations
Source: Normandeau Associates, Inc.

OTTER_TRAWL

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP _ID	DATE	TIME	START_ LATITUDE	START_ LONGITUDE	END_ LATITUDE	END_ LONGITUDE	DEPTH_ FT	TIDE_ STAGE	TOW_ DIRECTION	TOW_ SPEED	duration	USE_ CODE
June	Otter trawl	7	5	7_5	6/23/2017	7:48	40.49391667	74.23943333	40.49458333	74.23591667	10	flood	east	1.5	5	1
June	Otter trawl	5	3	5_3	6/23/2017	8:11	40.49331667	74.23795	40.49438333	74.234	11.2	flood	east	1.5	5	1
June	Otter trawl	6	17	6_17	6/23/2017	8:34	40.49431667	74.23203333	40.49623333	74.22785	12.4	flood	east	1.5	5	1
June	Otter trawl	16	3	16_3	6/23/2017	9:04	40.49978333	74.25436667	40.50263333	74.2556	18	ebb	west	1.5	5	1
June	Otter trawl	18	7	18_7	6/23/2017	9:20	40.49995	74.25376667	40.50185	74.25461667	11.2	ebb	west	1.5	5	1
June	Otter trawl	17	5	17_5	6/23/2017	9:46	40.49938333	74.25323333	40.50253333	74.25516667	10.5	ebb	west	1.5	5	1
June	Otter trawl	12	1	12_1	6/23/2017	11:04	40.49676667	74.23168333	40.4955	74.23588333	10.6	ebb	west	1.5	5	1
June	Otter trawl	9	4	9_4	6/23/2017	10:28	40.49496667	74.22748333	40.49338333	74.23176667	20.1	ebb	west	1.5	5	1
June	Otter trawl	22	1	22_1	6/23/2017	10:55	40.50065	74.22555	40.49951667	74.22993333	6.1	ebb	west	1.5	5	1
June	Otter trawl	23	2	23_2	6/23/2017	11:16	40.50086667	74.22411667	40.49941667	74.2286	7.3	ebb	west	1.5	5	1

June 2017 Sediment Grain Size
Source: Normandeau Associates, Inc.

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	12	12	12_12	6/20/2017	1816582	9063169	Sediment	% Gravel	13.7	%	1	0.5	ASTM D422	n.a.		
June	12	12	12_12	6/20/2017	1816582	9063169	Sediment	% Sand	84.6	%	1	0.5	ASTM D422	n.a.		
June	12	12	12_12	6/20/2017	1816582	9063169	Sediment	% Silt	1.8	%	1	0.5	ASTM D422	n.a.		
June	12	12	12_12	6/20/2017	1816582	9063169	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	17	6	17_6	6/20/2017	1816582	9063167	Sediment	% Gravel	4.5	%	1	0.5	ASTM D422	n.a.		
June	17	6	17_6	6/20/2017	1816582	9063167	Sediment	% Sand	92.5	%	1	0.5	ASTM D422	n.a.		
June	17	6	17_6	6/20/2017	1816582	9063167	Sediment	% Silt	3	%	1	0.5	ASTM D422	n.a.		
June	17	6	17_6	6/20/2017	1816582	9063167	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	18	28	18_28	6/20/2017	1816582	9063165	Sediment	% Gravel	2.2	%	1	0.5	ASTM D422	n.a.		
June	18	28	18_28	6/20/2017	1816582	9063165	Sediment	% Sand	94.8	%	1	0.5	ASTM D422	n.a.		
June	18	28	18_28	6/20/2017	1816582	9063165	Sediment	% Silt	3	%	1	0.5	ASTM D422	n.a.		
June	18	28	18_28	6/20/2017	1816582	9063165	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	19	11	19_11	6/20/2017	1816582	9063162	Sediment	% Gravel	0.88	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	19	11	19_11	6/20/2017	1816582	9063162	Sediment	% Sand	94.8	%	1	0.5	ASTM D422	n.a.		
June	19	11	19_11	6/20/2017	1816582	9063162	Sediment	% Silt	4.3	%	1	0.5	ASTM D422	n.a.		
June	19	11	19_11	6/20/2017	1816582	9063162	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	1	18	1_18	6/20/2017	1816582	9063161	Sediment	% Gravel	11	%	1	0.5	ASTM D422	n.a.		
June	1	18	1_18	6/20/2017	1816582	9063161	Sediment	% Sand	86.7	%	1	0.5	ASTM D422	n.a.		
June	1	18	1_18	6/20/2017	1816582	9063161	Sediment	% Silt	2.3	%	1	0.5	ASTM D422	n.a.		
June	1	18	1_18	6/20/2017	1816582	9063161	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	20	8	20_8	6/20/2017	1816582	9063163	Sediment	% Gravel	0.91	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	20	8	20_8	6/20/2017	1816582	9063163	Sediment	% Sand	96.3	%	1	0.5	ASTM D422	n.a.		
June	20	8	20_8	6/20/2017	1816582	9063163	Sediment	% Silt	2.8	%	1	0.5	ASTM D422	n.a.		
June	20	8	20_8	6/20/2017	1816582	9063163	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	24	19	24_19	6/20/2017	1816598	9063265	Sediment	% Gravel	0.87	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	24	19	24_19	6/20/2017	1816598	9063265	Sediment	% Sand	96.6	%	1	0.5	ASTM D422	n.a.		

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	24	19	24_19	6/20/2017	1816598	9063265	Sediment	% Silt	1.5	%	1	0.5	ASTM D422	n.a.		
June	24	19	24_19	6/20/2017	1816598	9063265	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	25	20	25_20	6/20/2017	1816582	9063160	Sediment	% Gravel	2	%	1	0.5	ASTM D422	n.a.		
June	25	20	25_20	6/20/2017	1816582	9063160	Sediment	% Sand	95.4	%	1	0.5	ASTM D422	n.a.		
June	25	20	25_20	6/20/2017	1816582	9063160	Sediment	% Silt	2.6	%	1	0.5	ASTM D422	n.a.		
June	25	20	25_20	6/20/2017	1816582	9063160	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	26	7	26_7	6/20/2017	1816582	9063159	Sediment	% Gravel	12.2	%	1	0.5	ASTM D422	n.a.		
June	26	7	26_7	6/20/2017	1816582	9063159	Sediment	% Sand	86.3	%	1	0.5	ASTM D422	n.a.		
June	26	7	26_7	6/20/2017	1816582	9063159	Sediment	% Silt	1.5	%	1	0.5	ASTM D422	n.a.		
June	26	7	26_7	6/20/2017	1816582	9063159	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	27	47	27_47	6/20/2017	1816582	9063156	Sediment	% Gravel	2.2	%	1	0.5	ASTM D422	n.a.		
June	27	47	27_47	6/20/2017	1816582	9063156	Sediment	% Sand	93.7	%	1	0.5	ASTM D422	n.a.		
June	27	47	27_47	6/20/2017	1816582	9063156	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
June	27	47	27_47	6/20/2017	1816582	9063156	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	28	14	28_14	6/20/2017	1816587	9063185	Sediment	% Gravel	35.3	%	1	0.5	ASTM D422	n.a.		
June	28	14	28_14	6/20/2017	1816587	9063185	Sediment	% Sand	62.6	%	1	0.5	ASTM D422	n.a.		
June	28	14	28_14	6/20/2017	1816587	9063185	Sediment	% Silt	1.6	%	1	0.5	ASTM D422	n.a.		
June	28	14	28_14	6/20/2017	1816587	9063185	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	2	22	2_22	6/20/2017	1816598	9063271	Sediment	% Gravel	12.8	%	1	0.5	ASTM D422	n.a.		
June	2	22	2_22	6/20/2017	1816598	9063271	Sediment	% Sand	83.8	%	1	0.5	ASTM D422	n.a.		
June	2	22	2_22	6/20/2017	1816598	9063271	Sediment	% Silt	1.5	%	1	0.5	ASTM D422	n.a.		
June	2	22	2_22	6/20/2017	1816598	9063271	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	32	26	32_26	6/20/2017	1816587	9063183	Sediment	% Gravel	26.1	%	1	0.5	ASTM D422	n.a.		
June	32	26	32_26	6/20/2017	1816587	9063183	Sediment	% Sand	71.7	%	1	0.5	ASTM D422	n.a.		
June	32	26	32_26	6/20/2017	1816587	9063183	Sediment	% Silt	2.3	%	1	0.5	ASTM D422	n.a.		
June	32	26	32_26	6/20/2017	1816587	9063183	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	33	10	33_10	6/20/2017	1816598	9063267	Sediment	% Gravel	3.6	%	1	0.5	ASTM D422	n.a.		
June	33	10	33_10	6/20/2017	1816598	9063267	Sediment	% Sand	93.9	%	1	0.5	ASTM D422	n.a.		
June	33	10	33_10	6/20/2017	1816598	9063267	Sediment	% Silt	1.6	%	1	0.5	ASTM D422	n.a.		
June	33	10	33_10	6/20/2017	1816598	9063267	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	35	12	35_12	6/20/2017	1816587	9063177	Sediment	% Gravel	6.9	%	1	0.5	ASTM D422	n.a.		
June	35	12	35_12	6/20/2017	1816587	9063177	Sediment	% Sand	91.5	%	1	0.5	ASTM D422	n.a.		
June	35	12	35_12	6/20/2017	1816587	9063177	Sediment	% Silt	1.6	%	1	0.5	ASTM D422	n.a.		
June	35	12	35_12	6/20/2017	1816587	9063177	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	36	10	36_10	6/20/2017	1816582	9063155	Sediment	% Gravel	2.4	%	1	0.5	ASTM D422	n.a.		
June	36	10	36_10	6/20/2017	1816582	9063155	Sediment	% Sand	88.2	%	1	0.5	ASTM D422	n.a.		
June	36	10	36_10	6/20/2017	1816582	9063155	Sediment	% Silt	7.4	%	1	0.5	ASTM D422	n.a.		
June	36	10	36_10	6/20/2017	1816582	9063155	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	41	20	41_20	6/20/2017	1816582	9063153	Sediment	% Gravel	17.9	%	1	0.5	ASTM D422	n.a.		
June	41	20	41_20	6/20/2017	1816582	9063153	Sediment	% Sand	80.4	%	1	0.5	ASTM D422	n.a.		
June	41	20	41_20	6/20/2017	1816582	9063153	Sediment	% Silt	1.2	%	1	0.5	ASTM D422	n.a.		
June	41	20	41_20	6/20/2017	1816582	9063153	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	42	27	42_27	6/20/2017	1816587	9063181	Sediment	% Gravel	36.3	%	1	0.5	ASTM D422	n.a.		
June	42	27	42_27	6/20/2017	1816587	9063181	Sediment	% Sand	58.9	%	1	0.5	ASTM D422	n.a.		
June	42	27	42_27	6/20/2017	1816587	9063181	Sediment	% Silt	3.8	%	1	0.5	ASTM D422	n.a.		
June	42	27	42_27	6/20/2017	1816587	9063181	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	43	17	43_17	6/20/2017	1816582	9063158	Sediment	% Gravel	15	%	1	0.5	ASTM D422	n.a.		
June	43	17	43_17	6/20/2017	1816582	9063158	Sediment	% Sand	82.4	%	1	0.5	ASTM D422	n.a.		
June	43	17	43_17	6/20/2017	1816582	9063158	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
June	43	17	43_17	6/20/2017	1816582	9063158	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	44	23	44_23	6/20/2017	1816598	9063273	Sediment	% Gravel	3.5	%	1	0.5	ASTM D422	n.a.		
June	44	23	44_23	6/20/2017	1816598	9063273	Sediment	% Sand	94.1	%	1	0.5	ASTM D422	n.a.		
June	44	23	44_23	6/20/2017	1816598	9063273	Sediment	% Silt	2.4	%	1	0.5	ASTM D422	n.a.		
June	44	23	44_23	6/20/2017	1816598	9063273	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	45	30	45_30	6/20/2017	1816582	9063151	Sediment	% Gravel	11.2	%	1	0.5	ASTM D422	n.a.		
June	45	30	45_30	6/20/2017	1816582	9063151	Sediment	% Sand	84.5	%	1	0.5	ASTM D422	n.a.		
June	45	30	45_30	6/20/2017	1816582	9063151	Sediment	% Silt	2.3	%	1	0.5	ASTM D422	n.a.		
June	45	30	45_30	6/20/2017	1816582	9063151	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	46	15	46_15	6/20/2017	1816587	9063182	Sediment	% Gravel	1.5	%	1	0.5	ASTM D422	n.a.		
June	46	15	46_15	6/20/2017	1816587	9063182	Sediment	% Sand	52.9	%	1	0.5	ASTM D422	n.a.		
June	46	15	46_15	6/20/2017	1816587	9063182	Sediment	% Silt	19.6	%	1	0.5	ASTM D422	n.a.		
June	46	15	46_15	6/20/2017	1816587	9063182	Sediment	% Clay	26	%	1	0.5	ASTM D422	n.a.		
June	48	29	48_29	6/20/2017	1816587	9063184	Sediment	% Gravel	1.8	%	1	0.5	ASTM D422	n.a.		
June	48	29	48_29	6/20/2017	1816587	9063184	Sediment	% Sand	50	%	1	0.5	ASTM D422	n.a.		
June	48	29	48_29	6/20/2017	1816587	9063184	Sediment	% Silt	45.7	%	1	0.5	ASTM D422	n.a.		
June	48	29	48_29	6/20/2017	1816587	9063184	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	49	3	49_3	6/20/2017	1816582	9063154	Sediment	% Gravel	0.81	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	49	3	49_3	6/20/2017	1816582	9063154	Sediment	% Sand	63.1	%	1	0.5	ASTM D422	n.a.		
June	49	3	49_3	6/20/2017	1816582	9063154	Sediment	% Silt	31.6	%	1	0.5	ASTM D422	n.a.		

June 2017 Sediment Grain Size
Source: Normandeau Associates, Inc.

SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING _ LIMIT_ LOQ	DETECTION_ LIMIT_MDL	METHOD	CAS_ NUMBER	QUALIFIER	QUALIFIER_ DESCRIPTION
June	49	3	49_3	6/20/2017	1816582	9063154	Sediment	% Clay	4.5	%	1	0.5	ASTM D422	n.a.		
June	50	14	50_14	6/20/2017	1816582	9063157	Sediment	% Gravel	7.9	%	1	0.5	ASTM D422	n.a.		
June	50	14	50_14	6/20/2017	1816582	9063157	Sediment	% Sand	64.8	%	1	0.5	ASTM D422	n.a.		
June	50	14	50_14	6/20/2017	1816582	9063157	Sediment	% Silt	21.8	%	1	0.5	ASTM D422	n.a.		
June	50	14	50_14	6/20/2017	1816582	9063157	Sediment	% Clay	5.5	%	1	0.5	ASTM D422	n.a.		
June	51	3	51_3	6/21/2017	1816582	9063164	Sediment	% Gravel	5	%	1	0.5	ASTM D422	n.a.		
June	51	3	51_3	6/21/2017	1816582	9063164	Sediment	% Sand	92.5	%	1	0.5	ASTM D422	n.a.		
June	51	3	51_3	6/21/2017	1816582	9063164	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
June	51	3	51_3	6/21/2017	1816582	9063164	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	52	24	52_24	6/21/2017	1816598	9063272	Sediment	% Gravel	67.6	%	1	0.5	ASTM D422	n.a.		
June	52	24	52_24	6/21/2017	1816598	9063272	Sediment	% Sand	30.9	%	1	0.5	ASTM D422	n.a.		
June	52	24	52_24	6/21/2017	1816598	9063272	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	52	24	52_24	6/21/2017	1816598	9063272	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	53	40	53_40	6/21/2017	1816598	9063283	Sediment	% Gravel	8.8	%	1	0.5	ASTM D422	n.a.		
June	53	40	53_40	6/21/2017	1816598	9063283	Sediment	% Sand	88.1	%	1	0.5	ASTM D422	n.a.		
June	53	40	53_40	6/21/2017	1816598	9063283	Sediment	% Silt	1.1	%	1	0.5	ASTM D422	n.a.		
June	53	40	53_40	6/21/2017	1816598	9063283	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	54	7	54_7	6/20/2017	1816587	9063180	Sediment	% Gravel	11.6	%	1	0.5	ASTM D422	n.a.		
June	54	7	54_7	6/20/2017	1816587	9063180	Sediment	% Sand	52.2	%	1	0.5	ASTM D422	n.a.		
June	54	7	54_7	6/20/2017	1816587	9063180	Sediment	% Silt	31.2	%	1	0.5	ASTM D422	n.a.		
June	54	7	54_7	6/20/2017	1816587	9063180	Sediment	% Clay	5	%	1	0.5	ASTM D422	n.a.		
June	55	11	55_11	6/20/2017	1816587	9063176	Sediment	% Gravel	13.5	%	1	0.5	ASTM D422	n.a.		
June	55	11	55_11	6/20/2017	1816587	9063176	Sediment	% Sand	61.9	%	1	0.5	ASTM D422	n.a.		
June	55	11	55_11	6/20/2017	1816587	9063176	Sediment	% Silt	22.6	%	1	0.5	ASTM D422	n.a.		
June	55	11	55_11	6/20/2017	1816587	9063176	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	56	2	56_2	6/20/2017	1816587	9063178	Sediment	% Gravel	15.5	%	1	0.5	ASTM D422	n.a.		
June	56	2	56_2	6/20/2017	1816587	9063178	Sediment	% Sand	59.9	%	1	0.5	ASTM D422	n.a.		
June	56	2	56_2	6/20/2017	1816587	9063178	Sediment	% Silt	21.7	%	1	0.5	ASTM D422	n.a.		
June	56	2	56_2	6/20/2017	1816587	9063178	Sediment	% Clay	3	%	1	0.5	ASTM D422	n.a.		
June	57	15	57_15	6/21/2017	1816582	9063168	Sediment	% Gravel	2.6	%	1	0.5	ASTM D422	n.a.		
June	57	15	57_15	6/21/2017	1816582	9063168	Sediment	% Sand	94.9	%	1	0.5	ASTM D422	n.a.		
June	57	15	57_15	6/21/2017	1816582	9063168	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
June	57	15	57_15	6/21/2017	1816582	9063168	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	59	17	59_17	6/21/2017	1816598	9063270	Sediment	% Gravel	1.6	%	1	0.5	ASTM D422	n.a.		
June	59	17	59_17	6/21/2017	1816598	9063270	Sediment	% Sand	96.9	%	1	0.5	ASTM D422	n.a.		
June	59	17	59_17	6/21/2017	1816598	9063270	Sediment	% Silt	1.4	%	1	0.5	ASTM D422	n.a.		
June	59	17	59_17	6/21/2017	1816598	9063270	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	5	27	5_27	6/20/2017	1816598	9063269	Sediment	% Gravel	4.6	%	1	0.5	ASTM D422	n.a.		
June	5	27	5_27	6/20/2017	1816598	9063269	Sediment	% Sand	93.2	%	1	0.5	ASTM D422	n.a.		
June	5	27	5_27	6/20/2017	1816598	9063269	Sediment	% Silt	2.2	%	1	0.5	ASTM D422	n.a.		
June	5	27	5_27	6/20/2017	1816598	9063269	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	62	22	62_22	6/21/2017	1816598	9063264	Sediment	% Gravel	4.8	%	1	0.5	ASTM D422	n.a.		

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	62	22	62_22	6/21/2017	1816598	9063264	Sediment	% Sand	92.2	%	1	0.5	ASTM D422	n.a.		
June	62	22	62_22	6/21/2017	1816598	9063264	Sediment	% Silt	2	%	1	0.5	ASTM D422	n.a.		
June	62	22	62_22	6/21/2017	1816598	9063264	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	63	19	63_19	6/21/2017	1816598	9063266	Sediment	% Gravel	12.6	%	1	0.5	ASTM D422	n.a.		
June	63	19	63_19	6/21/2017	1816598	9063266	Sediment	% Sand	85.8	%	1	0.5	ASTM D422	n.a.		
June	63	19	63_19	6/21/2017	1816598	9063266	Sediment	% Silt	0.68	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	63	19	63_19	6/21/2017	1816598	9063266	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	66	1	66_1	6/21/2017	1816587	9063191	Sediment	% Gravel	2.6	%	1	0.5	ASTM D422	n.a.		
June	66	1	66_1	6/21/2017	1816587	9063191	Sediment	% Sand	80	%	1	0.5	ASTM D422	n.a.		
June	66	1	66_1	6/21/2017	1816587	9063191	Sediment	% Silt	15.9	%	1	0.5	ASTM D422	n.a.		
June	66	1	66_1	6/21/2017	1816587	9063191	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	68	39	68_39	6/21/2017	1816598	9063268	Sediment	% Gravel	3.7	%	1	0.5	ASTM D422	n.a.		
June	68	39	68_39	6/21/2017	1816598	9063268	Sediment	% Sand	92.1	%	1	0.5	ASTM D422	n.a.		
June	68	39	68_39	6/21/2017	1816598	9063268	Sediment	% Silt	1.7	%	1	0.5	ASTM D422	n.a.		
June	68	39	68_39	6/21/2017	1816598	9063268	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	69	25	69_25	6/20/2017	1816582	9063166	Sediment	% Gravel	12.4	%	1	0.5	ASTM D422	n.a.		
June	69	25	69_25	6/20/2017	1816582	9063166	Sediment	% Sand	82.4	%	1	0.5	ASTM D422	n.a.		
June	69	25	69_25	6/20/2017	1816582	9063166	Sediment	% Silt	5.2	%	1	0.5	ASTM D422	n.a.		
June	69	25	69_25	6/20/2017	1816582	9063166	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	72	25	72_25	6/21/2017	1816598	9063275	Sediment	% Gravel	2.3	%	1	0.5	ASTM D422	n.a.		
June	72	25	72_25	6/21/2017	1816598	9063275	Sediment	% Sand	86	%	1	0.5	ASTM D422	n.a.		
June	72	25	72_25	6/21/2017	1816598	9063275	Sediment	% Silt	9.2	%	1	0.5	ASTM D422	n.a.		
June	72	25	72_25	6/21/2017	1816598	9063275	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	73	13	73_13	6/21/2017	1816598	9063279	Sediment	% Gravel	1	%	1	0.5	ASTM D422	n.a.		
June	73	13	73_13	6/21/2017	1816598	9063279	Sediment	% Sand	92	%	1	0.5	ASTM D422	n.a.		
June	73	13	73_13	6/21/2017	1816598	9063279	Sediment	% Silt	5.6	%	1	0.5	ASTM D422	n.a.		
June	73	13	73_13	6/21/2017	1816598	9063279	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	74	18	74_18	6/21/2017	1816598	9063278	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	74	18	74_18	6/21/2017	1816598	9063278	Sediment	% Sand	97	%	1	0.5	ASTM D422	n.a.		
June	74	18	74_18	6/21/2017	1816598	9063278	Sediment	% Silt	2.2	%	1	0.5	ASTM D422	n.a.		
June	74	18	74_18	6/21/2017	1816598	9063278	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	75	28	75_28	6/21/2017	1816598	9063274	Sediment	% Gravel	0.51	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	75	28	75_28	6/21/2017	1816598	9063274	Sediment	% Sand	96.7	%	1	0.5	ASTM D422	n.a.		
June	75	28	75_28	6/21/2017	1816598	9063274	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	75	28	75_28	6/21/2017	1816598	9063274	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	78	26	78_26	6/21/2017	1816587	9063190	Sediment	% Gravel	4.2	%	1	0.5	ASTM D422	n.a.		
June	78	26	78_26	6/21/2017	1816587	9063190	Sediment	% Sand	92.4	%	1	0.5	ASTM D422	n.a.		
June	78	26	78_26	6/21/2017	1816587	9063190	Sediment	% Silt	1.9	%	1	0.5	ASTM D422	n.a.		
June	78	26	78_26	6/21/2017	1816587	9063190	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	79	21	79_21	6/21/2017	1816587	9063192	Sediment	% Gravel	8.3	%	1	0.5	ASTM D422	n.a.		
June	79	21	79_21	6/21/2017	1816587	9063192	Sediment	% Sand	77.3	%	1	0.5	ASTM D422	n.a.		
June	79	21	79_21	6/21/2017	1816587	9063192	Sediment	% Silt	12	%	1	0.5	ASTM D422	n.a.		
June	79	21	79_21	6/21/2017	1816587	9063192	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	80	30	80_30	6/21/2017	1816598	9063281	Sediment	% Gravel	7.3	%	1	0.5	ASTM D422	n.a.		
June	80	30	80_30	6/21/2017	1816598	9063281	Sediment	% Sand	88.5	%	1	0.5	ASTM D422	n.a.		
June	80	30	80_30	6/21/2017	1816598	9063281	Sediment	% Silt	2.2	%	1	0.5	ASTM D422	n.a.		
June	80	30	80_30	6/21/2017	1816598	9063281	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
June	81	8	81_8	6/21/2017	1816587	9063186	Sediment	% Gravel	2	%	1	0.5	ASTM D422	n.a.		
June	81	8	81_8	6/21/2017	1816587	9063186	Sediment	% Sand	68.8	%	1	0.5	ASTM D422	n.a.		
June	81	8	81_8	6/21/2017	1816587	9063186	Sediment	% Silt	22.3	%	1	0.5	ASTM D422	n.a.		
June	81	8	81_8	6/21/2017	1816587	9063186	Sediment	% Clay	7	%	1	0.5	ASTM D422	n.a.		
June	82	29	82_29	6/21/2017	1816598	9063282	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	82	29	82_29	6/21/2017	1816598	9063282	Sediment	% Sand	97.8	%	1	0.5	ASTM D422	n.a.		
June	82	29	82_29	6/21/2017	1816598	9063282	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
June	82	29	82_29	6/21/2017	1816598	9063282	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	83	24	83_24	6/21/2017	1816587	9063193	Sediment	% Gravel	8	%	1	0.5	ASTM D422	n.a.		
June	83	24	83_24	6/21/2017	1816587	9063193	Sediment	% Sand	88.3	%	1	0.5	ASTM D422	n.a.		
June	83	24	83_24	6/21/2017	1816587	9063193	Sediment	% Silt	2.2	%	1	0.5	ASTM D422	n.a.		
June	83	24	83_24	6/21/2017	1816587	9063193	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	84	1	84_1	6/21/2017	1816598	9063277	Sediment	% Gravel	9.6	%	1	0.5	ASTM D422	n.a.		
June	84	1	84_1	6/21/2017	1816598	9063277	Sediment	% Sand	62.2	%	1	0.5	ASTM D422	n.a.		
June	84	1	84_1	6/21/2017	1816598	9063277	Sediment	% Silt	21.2	%	1	0.5	ASTM D422	n.a.		
June	84	1	84_1	6/21/2017	1816598	9063277	Sediment	% Clay	7	%	1	0.5	ASTM D422	n.a.		
June	85	9	85_9	6/21/2017	1816598	9063280	Sediment	% Gravel	9.6	%	1	0.5	ASTM D422	n.a.		
June	85	9	85_9	6/21/2017	1816598	9063280	Sediment	% Sand	85	%	1	0.5	ASTM D422	n.a.		
June	85	9	85_9	6/21/2017	1816598	9063280	Sediment	% Silt	4.4	%	1	0.5	ASTM D422	n.a.		
June	85	9	85_9	6/21/2017	1816598	9063280	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
June	86	5	86_5	6/21/2017	1816587	9063189	Sediment	% Gravel	7.3	%	1	0.5	ASTM D422	n.a.		
June	86	5	86_5	6/21/2017	1816587	9063189	Sediment	% Sand	71.4	%	1	0.5	ASTM D422	n.a.		
June	86	5	86_5	6/21/2017	1816587	9063189	Sediment	% Silt	15.4	%	1	0.5	ASTM D422	n.a.		

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	86	5	86_5	6/21/2017	1816587	9063189	Sediment	% Clay	6	%	1	0.5	ASTM D422	n.a.		
June	88	6	88_6	6/21/2017	1816598	9063276	Sediment	% Gravel	9.3	%	1	0.5	ASTM D422	n.a.		
June	88	6	88_6	6/21/2017	1816598	9063276	Sediment	% Sand	86.5	%	1	0.5	ASTM D422	n.a.		
June	88	6	88_6	6/21/2017	1816598	9063276	Sediment	% Silt	2.7	%	1	0.5	ASTM D422	n.a.		
June	88	6	88_6	6/21/2017	1816598	9063276	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	89	23	89_23	6/21/2017	1816587	9063187	Sediment	% Gravel	5.3	%	1	0.5	ASTM D422	n.a.		
June	89	23	89_23	6/21/2017	1816587	9063187	Sediment	% Sand	84.3	%	1	0.5	ASTM D422	n.a.		
June	89	23	89_23	6/21/2017	1816587	9063187	Sediment	% Silt	7.9	%	1	0.5	ASTM D422	n.a.		
June	89	23	89_23	6/21/2017	1816587	9063187	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
June	8	4	8_4	6/20/2017	1816587	9063179	Sediment	% Gravel	1.1	%	1	0.5	ASTM D422	n.a.		
June	8	4	8_4	6/20/2017	1816587	9063179	Sediment	% Sand	91.4	%	1	0.5	ASTM D422	n.a.		
June	8	4	8_4	6/20/2017	1816587	9063179	Sediment	% Silt	7.5	%	1	0.5	ASTM D422	n.a.		
June	8	4	8_4	6/20/2017	1816587	9063179	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	90	16	90_16	6/21/2017	1816587	9063188	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	90	16	90_16	6/21/2017	1816587	9063188	Sediment	% Sand	93	%	1	0.5	ASTM D422	n.a.		
June	90	16	90_16	6/21/2017	1816587	9063188	Sediment	% Silt	5.5	%	1	0.5	ASTM D422	n.a.		
June	90	16	90_16	6/21/2017	1816587	9063188	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	91	13	91_13	6/20/2017	1816582	9063150	Sediment	% Gravel	0.6	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	91	13	91_13	6/20/2017	1816582	9063150	Sediment	% Sand	83.6	%	1	0.5	ASTM D422	n.a.		
June	91	13	91_13	6/20/2017	1816582	9063150	Sediment	% Silt	12.3	%	1	0.5	ASTM D422	n.a.		
June	91	13	91_13	6/20/2017	1816582	9063150	Sediment	% Clay	3.5	%	1	0.5	ASTM D422	n.a.		
June	95	5	95_5	6/21/2017	1816587	9063195	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
June	95	5	95_5	6/21/2017	1816587	9063195	Sediment	% Sand	94.5	%	1	0.5	ASTM D422	n.a.		
June	95	5	95_5	6/21/2017	1816587	9063195	Sediment	% Silt	3.9	%	1	0.5	ASTM D422	n.a.		
June	95	5	95_5	6/21/2017	1816587	9063195	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	96	9	96_9	6/21/2017	1816587	9063194	Sediment	% Gravel	0.59	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
June	96	9	96_9	6/21/2017	1816587	9063194	Sediment	% Sand	95.5	%	1	0.5	ASTM D422	n.a.		
June	96	9	96_9	6/21/2017	1816587	9063194	Sediment	% Silt	2.4	%	1	0.5	ASTM D422	n.a.		
June	96	9	96_9	6/21/2017	1816587	9063194	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
June	9	21	9_21	6/20/2017	1816582	9063152	Sediment	% Gravel	2.9	%	1	0.5	ASTM D422	n.a.		
June	9	21	9_21	6/20/2017	1816582	9063152	Sediment	% Sand	95.3	%	1	0.5	ASTM D422	n.a.		
June	9	21	9_21	6/20/2017	1816582	9063152	Sediment	% Silt	1.3	%	1	0.5	ASTM D422	n.a.		

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT_LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
June	9	21	9_21	6/20/2017	1816582	9063152	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)

June 2017 Sediment Total Organic Carbon
Source: Normandeau Associates, Inc.

SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING_ LIMIT_ LOQ	DETECTION_ LIMIT_ MDL	METHOD	CAS_ NUMBER
June	12	12	12_12	6/20/2017	1816574	9063106	Sediment	Moisture	25	%	0.5	0.5	SM 2540 G-1997	n.a.
June	12	12	12_12	6/20/2017	1816574	9063106	Sediment	Total Organic Carbon (TOC)	1820	mg/kg	608	203	SW-846 9060A modified	n.a.
June	17	6	17_6	6/20/2017	1816574	9063109	Sediment	Moisture	26.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	17	6	17_6	6/20/2017	1816574	9063109	Sediment	Total Organic Carbon (TOC)	1150	mg/kg	980	327	SW-846 9060A modified	n.a.
June	18	28	18_28	6/20/2017	1816574	9063110	Sediment	Moisture	26.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	18	28	18_28	6/20/2017	1816574	9063110	Sediment	Total Organic Carbon (TOC)	1340	mg/kg	697	232	SW-846 9060A modified	n.a.
June	19	11	19_11	6/20/2017	1816574	9063111	Sediment	Moisture	25.7	%	0.5	0.5	SM 2540 G-1997	n.a.
June	19	11	19_11	6/20/2017	1816574	9063111	Sediment	Total Organic Carbon (TOC)	1130	mg/kg	719	240	SW-846 9060A modified	n.a.
June	1	18	1_18	6/20/2017	1816574	9063108	Sediment	Moisture	21.6	%	0.5	0.5	SM 2540 G-1997	n.a.
June	1	18	1_18	6/20/2017	1816574	9063108	Sediment	Total Organic Carbon (TOC)	1210	mg/kg	605	202	SW-846 9060A modified	n.a.
June	20	8	20_8	6/20/2017	1816574	9063113	Sediment	Moisture	26.6	%	0.5	0.5	SM 2540 G-1997	n.a.
June	20	8	20_8	6/20/2017	1816574	9063113	Sediment	Total Organic Carbon (TOC)	1120	mg/kg	723	241	SW-846 9060A modified	n.a.
June	24	19	24_19	6/20/2017	1816574	9063114	Sediment	Moisture	27.9	%	0.5	0.5	SM 2540 G-1997	n.a.
June	24	19	24_19	6/20/2017	1816574	9063114	Sediment	Total Organic Carbon (TOC)	1690	mg/kg	716	239	SW-846 9060A modified	n.a.
June	25	20	25_20	6/20/2017	1816574	9063115	Sediment	Moisture	32.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	25	20	25_20	6/20/2017	1816574	9063115	Sediment	Total Organic Carbon (TOC)	3200	mg/kg	2480	826	SW-846 9060A modified	n.a.
June	26	7	26_7	6/20/2017	1816569	9063082	Sediment	Moisture	27	%	0.5	0.5	SM 2540 G-1997	n.a.
June	26	7	26_7	6/20/2017	1816569	9063082	Sediment	Total Organic Carbon (TOC)	1580	mg/kg	612	204	SW-846 9060A modified	n.a.
June	27	47	27_47	6/20/2017	1816532	9062841	Sediment	Moisture	30.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	27	47	27_47	6/20/2017	1816532	9062841	Sediment	Total Organic Carbon (TOC)	2850	mg/kg	662	221	SW-846 9060A modified	n.a.
June	28	14	28_14	6/20/2017	1816532	9062842	Sediment	Moisture	26.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	28	14	28_14	6/20/2017	1816532	9062842	Sediment	Total Organic Carbon (TOC)	2150	mg/kg	664	221	SW-846 9060A modified	n.a.
June	2	22	2_22	6/20/2017	1816574	9063107	Sediment	Moisture	22.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	2	22	2_22	6/20/2017	1816574	9063107	Sediment	Total Organic Carbon (TOC)	853	mg/kg	498	166	SW-846 9060A modified	n.a.
June	32	26	32_26	6/20/2017	1816532	9062843	Sediment	Moisture	27	%	0.5	0.5	SM 2540 G-1997	n.a.
June	32	26	32_26	6/20/2017	1816532	9062843	Sediment	Total Organic Carbon (TOC)	1740	mg/kg	604	201	SW-846 9060A modified	n.a.
June	33	10	33_10	6/20/2017	1816574	9063116	Sediment	Moisture	23	%	0.5	0.5	SM 2540 G-1997	n.a.

June 2017 Sediment Total Organic Carbon
Source: Normandeau Associates, Inc.

SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING_ LIMIT_ LOQ	DETECTION_ LIMIT_ MDL	METHOD	CAS_ NUMBER
June	33	10	33_10	6/20/2017	1816574	9063116	Sediment	Total Organic Carbon (TOC)	1160	mg/kg	631	210	SW-846 9060A modified	n.a.
June	35	12	35_12	6/20/2017	1816569	9063084	Sediment	Moisture	14.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	35	12	35_12	6/20/2017	1816569	9063084	Sediment	Total Organic Carbon (TOC)	1930	mg/kg	860	287	SW-846 9060A modified	n.a.
June	36	10	36_10	6/20/2017	1816532	9062840	Sediment	Moisture	29.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	36	10	36_10	6/20/2017	1816532	9062840	Sediment	Total Organic Carbon (TOC)	2130	mg/kg	1950	649	SW-846 9060A modified	n.a.
June	41	20	41_20	6/20/2017	1816574	9063120	Sediment	Moisture	25.9	%	0.5	0.5	SM 2540 G-1997	n.a.
June	41	20	41_20	6/20/2017	1816574	9063120	Sediment	Total Organic Carbon (TOC)	1600	mg/kg	611	204	SW-846 9060A modified	n.a.
June	42	27	42_27	6/20/2017	1816569	9063083	Sediment	Moisture	32.9	%	0.5	0.5	SM 2540 G-1997	n.a.
June	42	27	42_27	6/20/2017	1816569	9063083	Sediment	Total Organic Carbon (TOC)	5460	mg/kg	738	246	SW-846 9060A modified	n.a.
June	43	17	43_17	6/20/2017	1816574	9063105	Sediment	Moisture	22.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	43	17	43_17	6/20/2017	1816574	9063105	Sediment	Total Organic Carbon (TOC)	1600	mg/kg	929	310	SW-846 9060A modified	n.a.
June	44	23	44_23	6/20/2017	1816574	9063117	Sediment	Moisture	25.7	%	0.5	0.5	SM 2540 G-1997	n.a.
June	44	23	44_23	6/20/2017	1816574	9063117	Sediment	Total Organic Carbon (TOC)	2900	mg/kg	501	167	SW-846 9060A modified	n.a.
June	45	30	45_30	6/20/2017	1816574	9063118	Sediment	Moisture	27.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	45	30	45_30	6/20/2017	1816574	9063118	Sediment	Total Organic Carbon (TOC)	2040	mg/kg	778	259	SW-846 9060A modified	n.a.
June	46	15	46_15	6/20/2017	1816569	9063087	Sediment	Moisture	44.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	46	15	46_15	6/20/2017	1816569	9063087	Sediment	Total Organic Carbon (TOC)	19900	mg/kg	3320	1110	SW-846 9060A modified	n.a.
June	48	29	48_29	6/20/2017	1816569	9063086	Sediment	Moisture	45.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	48	29	48_29	6/20/2017	1816569	9063086	Sediment	Total Organic Carbon (TOC)	18400	mg/kg	2620	872	SW-846 9060A modified	n.a.
June	49	3	49_3	6/20/2017	1816569	9063085	Sediment	Moisture	32.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	49	3	49_3	6/20/2017	1816569	9063085	Sediment	Total Organic Carbon (TOC)	4010	mg/kg	1780	593	SW-846 9060A modified	n.a.
June	50	14	50_14	6/20/2017	1816532	9062838	Sediment	Moisture	39.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	50	14	50_14	6/20/2017	1816532	9062838	Sediment	Total Organic Carbon (TOC)	4570	mg/kg	2470	822	SW-846 9060A modified	n.a.
June	51	3	51_3	6/21/2017	1816574	9063121	Sediment	Moisture	23.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	51	3	51_3	6/21/2017	1816574	9063121	Sediment	Total Organic Carbon (TOC)	1100	mg/kg	610	203	SW-846 9060A modified	n.a.
June	52	24	52_24	6/21/2017	1816569	9063068	Sediment	Moisture	24	%	0.5	0.5	SM 2540 G-1997	n.a.

June 2017 Sediment Total Organic Carbon
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SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING_ LIMIT_ LOQ	DETECTION_ LIMIT_ MDL	METHOD	CAS_ NUMBER
June	52	24	52_24	6/21/2017	1816569	9063068	Sediment	Total Organic Carbon (TOC)	1560	mg/kg	892	297	SW-846 9060A modified	n.a.
June	53	40	53_40	6/21/2017	1816569	9063073	Sediment	Moisture	30.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	53	40	53_40	6/21/2017	1816569	9063073	Sediment	Total Organic Carbon (TOC)	2290	mg/kg	1420	472	SW-846 9060A modified	n.a.
June	54	7	54_7	6/20/2017	1816532	9062836	Sediment	Moisture	55.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	54	7	54_7	6/20/2017	1816532	9062836	Sediment	Total Organic Carbon (TOC)	5650	mg/kg	4220	1410	SW-846 9060A modified	n.a.
June	55	11	55_11	6/20/2017	1816532	9062837	Sediment	Moisture	36	%	0.5	0.5	SM 2540 G-1997	n.a.
June	55	11	55_11	6/20/2017	1816532	9062837	Sediment	Total Organic Carbon (TOC)	4500	mg/kg	2730	909	SW-846 9060A modified	n.a.
June	56	2	56_2	6/20/2017	1816532	9062839	Sediment	Moisture	39.6	%	0.5	0.5	SM 2540 G-1997	n.a.
June	56	2	56_2	6/20/2017	1816532	9062839	Sediment	Total Organic Carbon (TOC)	10800	mg/kg	2360	786	SW-846 9060A modified	n.a.
June	57	15	57_15	6/21/2017	1816574	9063122	Sediment	Moisture	22.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	57	15	57_15	6/21/2017	1816574	9063122	Sediment	Total Organic Carbon (TOC)	1160	mg/kg	517	172	SW-846 9060A modified	n.a.
June	59	17	59_17	6/21/2017	1816569	9063081	Sediment	Moisture	24.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	59	17	59_17	6/21/2017	1816569	9063081	Sediment	Total Organic Carbon (TOC)	1540	mg/kg	602	201	SW-846 9060A modified	n.a.
June	5	27	5_27	6/20/2017	1816574	9063112	Sediment	Moisture	32.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	5	27	5_27	6/20/2017	1816574	9063112	Sediment	Total Organic Carbon (TOC)	2720	mg/kg	814	271	SW-846 9060A modified	n.a.
June	62	22	62_22	6/21/2017	1816569	9063078	Sediment	Moisture	23.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	62	22	62_22	6/21/2017	1816569	9063078	Sediment	Total Organic Carbon (TOC)	776	mg/kg	582	194	SW-846 9060A modified	n.a.
June	63	19	63_19	6/21/2017	1816569	9063079	Sediment	Moisture	25.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	63	19	63_19	6/21/2017	1816569	9063079	Sediment	Total Organic Carbon (TOC)	1150	mg/kg	615	205	SW-846 9060A modified	n.a.
June	66	1	66_1	6/21/2017	1816569	9063075	Sediment	Moisture	30.4	%	0.5	0.5	SM 2540 G-1997	n.a.
June	66	1	66_1	6/21/2017	1816569	9063075	Sediment	Total Organic Carbon (TOC)	2360	mg/kg	1040	346	SW-846 9060A modified	n.a.
June	68	39	68_39	6/21/2017	1816569	9063080	Sediment	Moisture	23.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	68	39	68_39	6/21/2017	1816569	9063080	Sediment	Total Organic Carbon (TOC)	1000	mg/kg	584	195	SW-846 9060A modified	n.a.
June	69	25	69_25	6/20/2017	1816574	9063119	Sediment	Moisture	29.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	69	25	69_25	6/20/2017	1816574	9063119	Sediment	Total Organic Carbon (TOC)	4030	mg/kg	635	212	SW-846 9060A modified	n.a.
June	72	25	72_25	6/21/2017	1816569	9063069	Sediment	Moisture	29.2	%	0.5	0.5	SM 2540 G-1997	n.a.

June 2017 Sediment Total Organic Carbon
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SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING_ LIMIT_ LOQ	DETECTION_ LIMIT_ MDL	METHOD	CAS_ NUMBER
June	72	25	72_25	6/21/2017	1816569	9063069	Sediment	Total Organic Carbon (TOC)	2190	mg/kg	1030	342	SW-846 9060A modified	n.a.
June	73	13	73_13	6/21/2017	1816569	9063071	Sediment	Moisture	28.7	%	0.5	0.5	SM 2540 G-1997	n.a.
June	73	13	73_13	6/21/2017	1816569	9063071	Sediment	Total Organic Carbon (TOC)	2160	mg/kg	652	217	SW-846 9060A modified	n.a.
June	74	18	74_18	6/21/2017	1816569	9063072	Sediment	Moisture	35.7	%	0.5	0.5	SM 2540 G-1997	n.a.
June	74	18	74_18	6/21/2017	1816569	9063072	Sediment	Total Organic Carbon (TOC)	4610	mg/kg	1810	603	SW-846 9060A modified	n.a.
June	75	28	75_28	6/21/2017	1816569	9063070	Sediment	Moisture	29	%	0.5	0.5	SM 2540 G-1997	n.a.
June	75	28	75_28	6/21/2017	1816569	9063070	Sediment	Total Organic Carbon (TOC)	1970	mg/kg	1010	337	SW-846 9060A modified	n.a.
June	78	26	78_26	6/21/2017	1816569	9063076	Sediment	Moisture	28.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	78	26	78_26	6/21/2017	1816569	9063076	Sediment	Total Organic Carbon (TOC)	1550	mg/kg	1130	378	SW-846 9060A modified	n.a.
June	79	21	79_21	6/21/2017	1816532	9062844	Sediment	Moisture	29.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	79	21	79_21	6/21/2017	1816532	9062844	Sediment	Total Organic Carbon (TOC)	5380	mg/kg	792	264	SW-846 9060A modified	n.a.
June	80	30	80_30	6/21/2017	1816532	9062847	Sediment	Moisture	27.5	%	0.5	0.5	SM 2540 G-1997	n.a.
June	80	30	80_30	6/21/2017	1816532	9062847	Sediment	Total Organic Carbon (TOC)	4850	mg/kg	1200	399	SW-846 9060A modified	n.a.
June	81	8	81_8	6/21/2017	1816532	9062850	Sediment	Moisture	32.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	81	8	81_8	6/21/2017	1816532	9062850	Sediment	Total Organic Carbon (TOC)	4140	mg/kg	1830	611	SW-846 9060A modified	n.a.
June	82	29	82_29	6/21/2017	1816569	9063074	Sediment	Moisture	31.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	82	29	82_29	6/21/2017	1816569	9063074	Sediment	Total Organic Carbon (TOC)	2550	mg/kg	1010	335	SW-846 9060A modified	n.a.
June	83	24	83_24	6/21/2017	1816569	9063077	Sediment	Moisture	29.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	83	24	83_24	6/21/2017	1816569	9063077	Sediment	Total Organic Carbon (TOC)	1850	mg/kg	1030	342	SW-846 9060A modified	n.a.
June	84	1	84_1	6/21/2017	1816532	9062845	Sediment	Moisture	66	%	0.5	0.5	SM 2540 G-1997	n.a.
June	84	1	84_1	6/21/2017	1816532	9062845	Sediment	Total Organic Carbon (TOC)	30400	mg/kg	3860	1290	SW-846 9060A modified	n.a.
June	85	9	85_9	6/21/2017	1816532	9062848	Sediment	Moisture	24.4	%	0.5	0.5	SM 2540 G-1997	n.a.
June	85	9	85_9	6/21/2017	1816532	9062848	Sediment	Total Organic Carbon (TOC)	2880	mg/kg	663	221	SW-846 9060A modified	n.a.
June	86	5	86_5	6/21/2017	1816532	9062851	Sediment	Moisture	46.9	%	0.5	0.5	SM 2540 G-1997	n.a.
June	86	5	86_5	6/21/2017	1816532	9062851	Sediment	Total Organic Carbon (TOC)	18200	mg/kg	2550	849	SW-846 9060A modified	n.a.
June	88	6	88_6	6/21/2017	1816532	9062846	Sediment	Moisture	27.2	%	0.5	0.5	SM 2540 G-1997	n.a.

June 2017 Sediment Total Organic Carbon
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SURVEY	SITE _ID	SAMPLE _ID	SAMP _ID	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX_ DESC	ANALYTE_ NAME	RESULT	UNITS	REPORTING_ LIMIT_ LOQ	DETECTION_ LIMIT_ MDL	METHOD	CAS_ NUMBER
June	88	6	88_6	6/21/2017	1816532	9062846	Sediment	Total Organic Carbon (TOC)	2490	mg/kg	853	284	SW-846 9060A modified	n.a.
June	89	23	89_23	6/21/2017	1816532	9062849	Sediment	Moisture	19.2	%	0.5	0.5	SM 2540 G-1997	n.a.
June	89	23	89_23	6/21/2017	1816532	9062849	Sediment	Total Organic Carbon (TOC)	2510	mg/kg	598	199	SW-846 9060A modified	n.a.
June	8	4	8_4	6/20/2017	1816574	9063103	Sediment	Moisture	24.4	%	0.5	0.5	SM 2540 G-1997	n.a.
June	8	4	8_4	6/20/2017	1816574	9063103	Sediment	Total Organic Carbon (TOC)	800	mg/kg	512	171	SW-846 9060A modified	n.a.
June	90	16	90_16	6/21/2017	1816532	9062852	Sediment	Moisture	27.9	%	0.5	0.5	SM 2540 G-1997	n.a.
June	90	16	90_16	6/21/2017	1816532	9062852	Sediment	Total Organic Carbon (TOC)	1780	mg/kg	687	229	SW-846 9060A modified	n.a.
June	91	13	91_13	6/20/2017	1816532	9062835	Sediment	Moisture	28.3	%	0.5	0.5	SM 2540 G-1997	n.a.
June	91	13	91_13	6/20/2017	1816532	9062835	Sediment	Total Organic Carbon (TOC)	2770	mg/kg	477	159	SW-846 9060A modified	n.a.
June	95	5	95_5	6/21/2017	1816532	9062853	Sediment	Moisture	26.8	%	0.5	0.5	SM 2540 G-1997	n.a.
June	95	5	95_5	6/21/2017	1816532	9062853	Sediment	Total Organic Carbon (TOC)	897	mg/kg	615	205	SW-846 9060A modified	n.a.
June	96	9	96_9	6/21/2017	1816532	9062834	Sediment	Moisture	25.1	%	0.5	0.5	SM 2540 G-1997	n.a.
June	96	9	96_9	6/21/2017	1816532	9062834	Sediment	Total Organic Carbon (TOC)	1830	mg/kg	489	163	SW-846 9060A modified	n.a.
June	9	21	9_21	6/20/2017	1816574	9063104	Sediment	Moisture	24.6	%	0.5	0.5	SM 2540 G-1997	n.a.
June	9	21	9_21	6/20/2017	1816574	9063104	Sediment	Total Organic Carbon (TOC)	899	mg/kg	481	160	SW-846 9060A modified	n.a.

July 2017 Fish Abundance: Beach Seine
Source: Normandeau Associates, Inc.

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
July	Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7
July	Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	40
July	Beach seine	106	19	106_19	7/20/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2
July	Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5
July	Beach seine	106	19	106_19	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
July	Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10
July	Beach seine	106	19	106_19	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9
July	Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17
July	Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	22
July	Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	106
July	Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	35
July	Beach seine	124	10	124_10	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4
July	Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	205
July	Beach seine	124	10	124_10	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15
July	Beach seine	128	8	128_8	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1
July	Beach seine	128	8	128_8	7/20/2017	62	Labridae	Tautoga onitis	Tautog	1
July	Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18
July	Beach seine	128	8	128_8	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	10
July	Beach seine	128	8	128_8	7/20/2017	223	Sparidae	Lagodon rhomboides	Pinfish	1
July	Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5
July	Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7
July	Beach seine	137	20	137_20	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
July	Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	38
July	Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	33
July	Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	44
July	Beach seine	148	9	148_9	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
July	Beach seine	148	9	148_9	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1
July	Beach seine	148	9	148_9	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	148	9	148_9	7/20/2017	223	Sparidae	Lagodon rhomboides	Pinfish	1
July	Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	134
July	Beach seine	155	24	155_24	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2
July	Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5
July	Beach seine	155	24	155_24	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	257
July	Beach seine	158	7	158_7	7/20/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1
July	Beach seine	158	7	158_7	7/20/2017	232	Cyprinodontidae	Cyprinodon variegatus	Sheepshead Minnow	1

July	Beach seine	158	7	158_7	7/20/2017	700	Limulidae	Limulus polyphemus	Horseshoe crab	1
July	Beach seine	158	7	158_7	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
July	Beach seine	158	7	158_7	7/20/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
July	Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	283
July	Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	30
July	Beach seine	160	6	160_6	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	4
July	Beach seine	160	6	160_6	7/19/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
July	Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	137
July	Beach seine	163	2	163_2	7/19/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1
July	Beach seine	163	2	163_2	7/19/2017	35	Moronidae	Morone americana	White Perch	1
July	Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	52
July	Beach seine	163	2	163_2	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	44
July	Beach seine	164	32	164_32	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2
July	Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10
July	Beach seine	164	32	164_32	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
July	Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	54
July	Beach seine	165	22	165_22	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
July	Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5
July	Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	254
July	Beach seine	166	13	166_13	7/19/2017	30	Moronidae	Morone saxatilis	Striped Bass	1
July	Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20
July	Beach seine	166	13	166_13	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
July	Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	28
July	Beach seine	169	35	169_35	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2
July	Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17
July	Beach seine	169	35	169_35	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	258
July	Beach seine	178	5	178_5	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	2
July	Beach seine	178	5	178_5	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2
July	Beach seine	178	5	178_5	7/20/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
July	Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12
July	Beach seine	178	5	178_5	7/20/2017	754	Portunidae	Callinectes sapidus	Blue crab	1

TRAP

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	TRAP_ NUM	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
July	Fish trap	63	6	1	63_6_1	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	63	6	2	63_6_2	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	66	8	1	66_8_1	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	66	8	2	66_8_2	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
July	Fish trap	66	8	2	66_8_2	7/19/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Fish trap	69	1	1	69_1_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	69	1	2	69_1_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	72	13	1	72_13_1	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	72	13	2	72_13_2	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	75	4	1	75_4_1	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	75	4	2	75_4_2	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
July	Fish trap	84	9	1	84_9_1	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	84	9	2	84_9_2	7/19/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	5
July	Fish trap	86	6	1	86_6_1	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	86	6	2	86_6_2	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	88	18	1	88_18_1	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	8
July	Fish trap	88	18	1	88_18_1	7/19/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	2
July	Fish trap	88	18	2	88_18_2	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	92	3	1	92_3_1	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Fish trap	92	3	2	92_3_2	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	96	14	1	96_14_1	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	96	14	2	96_14_2	7/19/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	5
July	Fish trap	97	1	1	97_1_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	97	1	1	97_1_1	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	97	1	2	97_1_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
July	Fish trap	99	10	1	99_10_1	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	99	10	2	99_10_2	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	101	17	1	101_17_1	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	101	17	2	101_17_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
July	Fish trap	101	17	2	101_17_2	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	103	2	1	103_2_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	103	2	2	103_2_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	103	2	2	103_2_2	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Fish trap	105	4	1	105_4_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	105	4	2	105_4_2	7/18/2017	999	No catch	No catch	No catch	

TRAP

July	Fish trap	106	8	1	106_8_1	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	106	8	2	106_8_2	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	107	10	1	107_10_1	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	107	10	2	107_10_2	7/19/2017	30	Moronidae	Morone saxatilis	Striped Bass	1
July	Fish trap	107	10	2	107_10_2	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
July	Fish trap	108	9	1	108_9_1	7/19/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Fish trap	108	9	2	108_9_2	7/19/2017	999	No catch	No catch	No catch	
July	Fish trap	112	2	1	112_2_1	7/18/2017	999	No catch	No catch	No catch	
July	Fish trap	112	2	2	112_2_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
July	Fish trap	114	5	1	114_5_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Fish trap	114	5	2	114_5_2	7/18/2017	999	No catch	No catch	No catch	

July 2017 Fish Abundance: Otter Trawl
Source: Normandeau Associates, Inc.

SURVEY	GEAR_ TYPE	Site_ID	Sample _ID	SAMP _ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18
July	Otter trawl	32	1	32_1	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
July	Otter trawl	32	1	32_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2
July	Otter trawl	33	7	33_7	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	67
July	Otter trawl	33	7	33_7	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1
July	Otter trawl	33	7	33_7	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	4
July	Otter trawl	33	7	33_7	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	71
July	Otter trawl	35	5	35_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3
July	Otter trawl	35	5	35_5	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Otter trawl	35	5	35_5	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	48
July	Otter trawl	35	5	35_5	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	48
July	Otter trawl	40	4	40_4	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	61
July	Otter trawl	40	4	40_4	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
July	Otter trawl	40	4	40_4	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6
July	Otter trawl	40	4	40_4	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
July	Otter trawl	40	4	40_4	7/18/2017	111	Triglidae	Prionotus carolinus	Northern Searobin	1
July	Otter trawl	41	6	41_6	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Otter trawl	41	6	41_6	7/18/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1
July	Otter trawl	41	6	41_6	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	2
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	24
July	Otter trawl	41	6	41_6	7/18/2017	763	Polybiidae	Ovalipes ocellatus	Lady crab	1
July	Otter trawl	41	6	41_6	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2
July	Otter trawl	41	6	41_6	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	8
July	Otter trawl	41	6	41_6	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5
July	Otter trawl	44	1	44_1	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3
July	Otter trawl	44	1	44_1	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1

July	Otter trawl	44	1	44_1	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Otter trawl	44	1	44_1	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	3
July	Otter trawl	44	1	44_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
July	Otter trawl	44	1	44_1	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1
July	Otter trawl	44	1	44_1	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	8
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	9
July	Otter trawl	44	1	44_1	7/18/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1
July	Otter trawl	44	1	44_1	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2
July	Otter trawl	45	2	45_2	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
July	Otter trawl	45	2	45_2	7/18/2017	62	Labridae	Tautoga onitis	Tautog	1
July	Otter trawl	45	2	45_2	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
July	Otter trawl	45	2	45_2	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	4
July	Otter trawl	47	3	47_3	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4
July	Otter trawl	47	3	47_3	7/18/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1
July	Otter trawl	47	3	47_3	7/18/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2
July	Otter trawl	47	3	47_3	7/18/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9
July	Otter trawl	47	3	47_3	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
July	Otter trawl	47	3	47_3	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	2
July	Otter trawl	47	3	47_3	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4
July	Otter trawl	47	3	47_3	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
July	Otter trawl	50	4	50_4	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4
July	Otter trawl	50	4	50_4	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
July	Otter trawl	50	4	50_4	7/18/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1
July	Otter trawl	50	4	50_4	7/18/2017	62	Labridae	Tautoga onitis	Tautog	1
July	Otter trawl	50	4	50_4	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	27
July	Otter trawl	50	4	50_4	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
July	Otter trawl	50	4	50_4	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1
July	Otter trawl	50	4	50_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3
July	Otter trawl	50	4	50_4	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
July	Otter trawl	51	5	51_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3
July	Otter trawl	51	5	51_5	7/18/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	4
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	75
July	Otter trawl	51	5	51_5	7/18/2017	763	Polybiidae	Ovalipes ocellatus	Lady crab	2
July	Otter trawl	51	5	51_5	7/18/2017	754	Portunidae	Callinectes sapidus	Blue crab	9

July	Otter trawl	51	5	51_5	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	10
July	Otter trawl	51	5	51_5	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1

SEINE

GEAR_TYPE	Site _ID	Sample _ID	SAMP_ ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_ NAME	FISH _ID	LENGTH _CM
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.6
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	14.6
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	14.8
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	15.2
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.1
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	13.2
Beach seine	102	37	102_37	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.4
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	4
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.1
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.8
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	3.1
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.5
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.1
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.3
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.4
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	7.5
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.8
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	4.9
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.3
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	4.3
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.5
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	4.2
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.1
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.4
Beach seine	106	19	106_19	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	2.8
Beach seine	106	19	106_19	7/20/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	4
Beach seine	106	19	106_19	7/20/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	3.4
Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	3.8
Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	4.1
Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	4.3
Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	3.8
Beach seine	106	19	106_19	7/20/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	3.9
Beach seine	106	19	106_19	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	8.9

SEINE

Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14.6
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.4
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	18.9
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	14.6
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	14.8
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	15
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	14.3
Beach seine	106	19	106_19	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	14.1
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.2
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.9
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	3.4
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	5.6
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.2
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.6
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	5.3
Beach seine	114	15	114_15	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	4.4
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	18.9
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	14.3
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.3
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	15.8
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	12.9
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	14
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	14.3
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	13.4
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	13.6
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.7
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	11.4
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	12.2
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	11.9
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	11.7
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	13.6
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	13.4
Beach seine	114	15	114_15	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	12.8
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11.9

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Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.1
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.8
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	4.3
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	4.4
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	4.5
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	3.1
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	4.2
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.3
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7.5
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	3.7
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	4.1
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	4.4
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	5
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	5.6
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.8
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.5
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	4
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	4.6
Beach seine	115	17	115_17	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	3.3
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	4.5
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	3.8
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	3.5
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	3
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	3.1
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	4
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	3.8
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	3.6
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	4
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	3.3
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	4.5
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	4.1
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	4.3
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	4
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	3.8
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	3.3
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	3.9
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	3.9

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Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	4.9
Beach seine	118	11	118_11	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	3.8
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.8
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	14.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	12.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	12.9
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.8
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	13.8
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	14
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	13
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	12
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	12.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	13.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	12.8
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	15
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	12.1
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	13.7
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	12.5
Beach seine	118	11	118_11	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	13.8
Beach seine	124	10	124_10	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.1
Beach seine	124	10	124_10	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	5.2
Beach seine	124	10	124_10	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	4.7
Beach seine	124	10	124_10	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	4.3
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14.7
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	15
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.4
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	13.2
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	12.1
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	12.8
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.3
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.9
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	13.8
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.4
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	13.1

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Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	14.1
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	13.3
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	9.6
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	12.2
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	14.7
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	13
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.6
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	13.3
Beach seine	124	10	124_10	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	12.2
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	5
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	5.6
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	5.3
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.6
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	4.5
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.5
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	4.9
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	4.1
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	3.6
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	3.1
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	4.5
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.5
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	3.6
Beach seine	128	8	128_8	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	3.8
Beach seine	128	8	128_8	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	9.1
Beach seine	128	8	128_8	7/20/2017	62	Labridae	Tautoga onitis	Tautog	1	4
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.9
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.5
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.6
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	12.6
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	12.7
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	12.6
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	13.1
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.8
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	12.4
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	14.2
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	12.5

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Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	13.7
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	12.6
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	13.3
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	12.7
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	14.1
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	13.3
Beach seine	128	8	128_8	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.2
Beach seine	128	8	128_8	7/20/2017	223	Sparidae	Lagodon rhomboides	Pinfish	1	6
Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.8
Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.8
Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.4
Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.2
Beach seine	129	4	129_4	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	4.1
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	5.1
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.2
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	5
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	4.8
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	5.7
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	3.6
Beach seine	137	20	137_20	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	5
Beach seine	137	20	137_20	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	7.3
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.7
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.4
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.1
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	13
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	14.1
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	13.6
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	14.6
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	15.2
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	14.1
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	14.3
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	14.2
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	15.6
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	12.7
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	13.1
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	13.7
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	13

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Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	12.6
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.7
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	14.6
Beach seine	137	20	137_20	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	14.3
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.6
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.7
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.4
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.2
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.5
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.6
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.8
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.6
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.7
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	5.2
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.5
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.4
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.9
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	4.7
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.2
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.3
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.7
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	4.2
Beach seine	146	1	146_1	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.9
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.5
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.5
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.5
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	4.6
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.1
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.3
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.2
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.9
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7.5
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.3
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.6
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	4.5

Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.2
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	7.5
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	4.7
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.1
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.8
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.1
Beach seine	148	9	148_9	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	3.1
Beach seine	148	9	148_9	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	8.6
Beach seine	148	9	148_9	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.2
Beach seine	148	9	148_9	7/20/2017	223	Sparidae	Lagodon rhomboides	Pinfish	1	6.8
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11.1
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.5
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.1
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.1
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.3
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.2
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.2
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7.3
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.1
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.4
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	7.2
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.6
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.1
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7.3
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.6
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.5
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.2
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5.5
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	4.3
Beach seine	155	24	155_24	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.9
Beach seine	155	24	155_24	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	9.9
Beach seine	155	24	155_24	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	7.8
Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.6
Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	15.7
Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	14.2
Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	13.6
Beach seine	155	24	155_24	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.1

Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.5
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7.5
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.1
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.5
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	7.1
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.8
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	4.5
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.9
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.4
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	8.1
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	11.1
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.3
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.1
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	4.6
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.2
Beach seine	158	7	158_7	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.3
Beach seine	158	7	158_7	7/20/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	8
Beach seine	158	7	158_7	7/20/2017	232	Cyprinodontidae	Cyprinodon variegatus	Sheepshead Minnow	1	2.3
Beach seine	158	7	158_7	7/20/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	1
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.9
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.3
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.4
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.4
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.3
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	5.2
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	12.9
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	11.8
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.6
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.9
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	7.5

Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7.2
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	8.4
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.3
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7.6
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	7.4
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.6
Beach seine	160	6	160_6	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.8
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	11
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.8
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	12.6
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	12.7
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.9
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	13.1
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.9
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.9
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	12.4
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	11.9
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	13.4
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	14.2
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	11.6
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	13.2
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	13.1
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	12.6
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	13.3
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.7
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	8.4
Beach seine	160	6	160_6	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	11.6
Beach seine	160	6	160_6	7/19/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	17.9
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.6
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.2
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.1
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.4
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.5

Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.2
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.6
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.1
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7.5
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.2
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.6
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.9
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.7
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.9
Beach seine	163	2	163_2	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.1
Beach seine	163	2	163_2	7/19/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	12.4
Beach seine	163	2	163_2	7/19/2017	35	Moronidae	Morone americana	White Perch	1	8.1
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14.1
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.2
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	12.9
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	13.3
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.7
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	12.3
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.9
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	13.1
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	14
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	14.2
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	12.2
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	13.4
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	13.5
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	13.6
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	12.8
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	13.8
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	12.6
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.5
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	13.9
Beach seine	163	2	163_2	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	13
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11.4
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	11.2
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.7

Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7.2
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.9
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.4
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.3
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.1
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.2
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.3
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.4
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.1
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.3
Beach seine	164	32	164_32	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.4
Beach seine	164	32	164_32	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7
Beach seine	164	32	164_32	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.5
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14.8
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	12.5
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	14
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.2
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	14
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	13.7
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	8.4
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	13
Beach seine	164	32	164_32	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.5
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	11.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.1
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.7
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.4
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	5.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.2

Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.3
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.5
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	5.9
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.7
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.2
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.1
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.4
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	4.6
Beach seine	165	22	165_22	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.7
Beach seine	165	22	165_22	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.1
Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	12.7
Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.6
Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.1
Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	11.4
Beach seine	165	22	165_22	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	12.1
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.9
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	5.2
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	5.9
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7.1
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.3
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	5.6
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7.4
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.6
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.9
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.4
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.1
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.7
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	4.8
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	5.2
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.6

SEINE

Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.4
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5.7
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.8
Beach seine	166	13	166_13	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.4
Beach seine	166	13	166_13	7/19/2017	30	Moronidae	Morone saxatilis	Striped Bass	1	40.3
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.9
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.6
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	11.7
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	12.9
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.8
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	11.7
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.8
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.2
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	13.1
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.9
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	15
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	13.1
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	12.7
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	12.2
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	12.6
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	12.4
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	13
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	18	12.8
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	19	12.1
Beach seine	166	13	166_13	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	20	15.5
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	3.5
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	10.9
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.7
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.4
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.6
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.9
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.5
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	5.4
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.1
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	4.7
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	5.4
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.5

Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.1
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.6
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	4
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	4.6
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	3.3
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	4.1
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.2
Beach seine	169	35	169_35	7/19/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.6
Beach seine	169	35	169_35	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.1
Beach seine	169	35	169_35	7/19/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	7.3
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	13.4
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	15
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	13.1
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	12.8
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.3
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	13
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	14
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.5
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	12.7
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.3
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	13.7
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	12.5
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	12.7
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	14	12.1
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	15	11.5
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	16	13
Beach seine	169	35	169_35	7/19/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	17	12.6
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.6
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	12.4
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	10.8
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	12.4
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.3
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8.4
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.7
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7.8

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Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	7.6
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.9
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	5.9
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.3
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	7.4
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7.5
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	4.9
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.1
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.6
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	7
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.8
Beach seine	178	5	178_5	7/20/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.2
Beach seine	178	5	178_5	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	8.2
Beach seine	178	5	178_5	7/20/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	2	9
Beach seine	178	5	178_5	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	8.4
Beach seine	178	5	178_5	7/20/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	9.5
Beach seine	178	5	178_5	7/20/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	9.3
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14.3
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.5
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	12.6
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	11.1
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	13.7
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	15.6
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	12.3
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	12.4
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	12.4
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	13.5
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	13.1
Beach seine	178	5	178_5	7/20/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	12.1

TRAP

SURVEY	GEAR_ TYPE	Site_ ID	Sample_ ID	TRAP_ NUM	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ID	LENGTH_CM
July	Fish trap	66	8	2	66_8_2		141	Serranidae	Centropristis striata	Black Sea Bass	1	16.8
July	Fish trap	92	3	1	92_3_1		141	Serranidae	Centropristis striata	Black Sea Bass	1	13.4
July	Fish trap	103	2	2	103_2_2		141	Serranidae	Centropristis striata	Black Sea Bass	1	9.6
July	Fish trap	107	10	2	107_10_2		30	Moronidae	Morone saxatilis	Striped Bass	1	39.5

OTTER_TRAWL

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP _ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ID	LENGTH_CM
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	8.4
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	7.5
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	6.7
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	6.8
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	8.8
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	8.6
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	7.5
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7.4
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.3
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	8.2
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	6.7
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	6.9
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	7
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	8
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	8.1
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	8.3
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	8.1
July	Otter trawl	32	1	32_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	7.2

OTTER_TRAWL

July	Otter trawl	32	1	32_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	14.5
July	Otter trawl	32	1	32_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	14.2
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	9.1
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.2
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	8.6
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.6
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	9.1
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7.6
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	7.8
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7.7
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.7
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	6.8
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	9.3
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	7
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	8.5
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	8.6
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	9.8
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	7.9
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	8.1
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	8

OTTER_TRAWL

July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	7.4
July	Otter trawl	33	7	33_7	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	8.5
July	Otter trawl	33	7	33_7	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	14
July	Otter trawl	33	7	33_7	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	9.5
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	12.1
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	13.6
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	13.2
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	13.3
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	14.1
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6	12.5
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	7	13.4
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	8	13.6
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	9	13.8
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	10	14
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	11	13.8
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	12	14.1
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	13	13.5
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	14	13.9
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	15	13.4
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	16	14.7
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	17	13.1
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	18	12.9
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	19	12.8
July	Otter trawl	33	7	33_7	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	20	12.4
July	Otter trawl	35	5	35_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	5.6
July	Otter trawl	35	5	35_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	5.9
July	Otter trawl	35	5	35_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.8
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	8.3
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	9
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	9.1

OTTER_TRAWL

July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	7.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	8.1
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	8
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7.7
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	6.3
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	7.9
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	8.3
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	8.4
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	7.5
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	6.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	7.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	7.5
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	6.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	7.6
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	7.7
July	Otter trawl	35	5	35_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	6.9
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	13.9
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	13.6
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	12.9
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	12.7
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	13
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6	12.5

July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	7	12.3
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	8	13.8
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	9	13
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	10	12.8
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	11	12.2
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	12	12.1
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	13	12.5
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	14	12.7
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	15	12.6
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	16	13.9
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	17	12.7
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	18	13.2
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	19	12.2
July	Otter trawl	35	5	35_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	20	12.6
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.1
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.4
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.2
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	8.1
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	7
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	8.5
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	7.1
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.5
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	7.6
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	7.3
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	7.6

OTTER_TRAWL

July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	8
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	7.6
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	7.7
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	8
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	7.2
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	7
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	7.1
July	Otter trawl	40	4	40_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	6.9
July	Otter trawl	40	4	40_4	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1	11.5
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	16
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	12
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	15.4
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	12.4
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	14.5
July	Otter trawl	40	4	40_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6	14.1
July	Otter trawl	40	4	40_4	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.1
July	Otter trawl	40	4	40_4	7/18/2017	111	Triglidae	Prionotus carolinus	Northern Searobin	1	13
July	Otter trawl	41	6	41_6	7/18/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1	4.1
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	8.4
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.7
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	8
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	8
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	8
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7.4

OTTER_TRAWL

July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	8.9
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7.2
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.3
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	7.6
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	6.9
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	7.1
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	8.3
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	7.6
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	7
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	7.2
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	7.5
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	8.3
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	8.6
July	Otter trawl	41	6	41_6	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	10.4
July	Otter trawl	41	6	41_6	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	12.9
July	Otter trawl	41	6	41_6	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	13.7
July	Otter trawl	41	6	41_6	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	13.2
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	15
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	13.2
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	12.9
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	12.5
July	Otter trawl	41	6	41_6	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	13
July	Otter trawl	44	1	44_1	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.6
July	Otter trawl	44	1	44_1	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.5

July	Otter trawl	44	1	44_1	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.2
July	Otter trawl	44	1	44_1	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	6.1
July	Otter trawl	44	1	44_1	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	39.8
July	Otter trawl	44	1	44_1	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2	41
July	Otter trawl	44	1	44_1	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	3	32
July	Otter trawl	44	1	44_1	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.5
July	Otter trawl	44	1	44_1	7/18/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	8
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	14.3
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	13.9
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	13.7
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	13.5
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	14.3
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6	15.5
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	7	14.3
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	8	14
July	Otter trawl	44	1	44_1	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	9	13.5
July	Otter trawl	44	1	44_1	7/18/2017	54	Syngnathidae	Hippocampus erectus	Lined Seahorse	1	10.1
July	Otter trawl	44	1	44_1	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	10.2
July	Otter trawl	44	1	44_1	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	12.3
July	Otter trawl	45	2	45_2	7/18/2017	62	Labridae	Tautoga onitis	Tautog	1	22.5
July	Otter trawl	47	3	47_3	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	3.4
July	Otter trawl	47	3	47_3	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	3.5
July	Otter trawl	47	3	47_3	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	3.1
July	Otter trawl	47	3	47_3	7/18/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	4	4
July	Otter trawl	47	3	47_3	7/18/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1	7.8
July	Otter trawl	47	3	47_3	7/18/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	3.3
July	Otter trawl	47	3	47_3	7/18/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	3.5
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	9.1
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.2
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	9.1
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	8.2
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	8.4

OTTER_TRAWL

July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	8.5
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	8.4
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	6.4
July	Otter trawl	47	3	47_3	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.5
July	Otter trawl	47	3	47_3	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1	10.5
July	Otter trawl	47	3	47_3	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	2	9.9
July	Otter trawl	47	3	47_3	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	15
July	Otter trawl	47	3	47_3	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	13.1
July	Otter trawl	47	3	47_3	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	14.4
July	Otter trawl	47	3	47_3	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	15.1
July	Otter trawl	47	3	47_3	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	13.4
July	Otter trawl	50	4	50_4	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.4
July	Otter trawl	50	4	50_4	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.1
July	Otter trawl	50	4	50_4	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.3
July	Otter trawl	50	4	50_4	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6
July	Otter trawl	50	4	50_4	7/18/2017	130	Gobiidae	Gobiosoma bosc	Naked Goby	1	4.1
July	Otter trawl	50	4	50_4	7/18/2017	62	Labridae	Tautoga onitis	Tautog	1	13.5
July	Otter trawl	50	4	50_4	7/18/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	35
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.3
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8.2
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	7.1
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.4
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	7.7
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	7.4
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7.6

July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.6
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	6.8
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	6.7
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	8.1
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	8.3
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	6.4
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	6.6
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	7.5
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	7.2
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	8.4
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	8.1
July	Otter trawl	50	4	50_4	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	8
July	Otter trawl	50	4	50_4	7/18/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1	9.3
July	Otter trawl	50	4	50_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	14.5
July	Otter trawl	50	4	50_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	14
July	Otter trawl	50	4	50_4	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	13.9
July	Otter trawl	50	4	50_4	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.7
July	Otter trawl	51	5	51_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.2
July	Otter trawl	51	5	51_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	5.4
July	Otter trawl	51	5	51_5	7/18/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	5.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	8.2
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	9.2
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	9.3

July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	4	7.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	5	6.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	6	7.2
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	7	5.4
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	8	7
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	9	7.3
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	10	7.4
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	11	7.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	12	6.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	13	7.1
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	14	7.5
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	15	8
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	16	8.8
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	17	8.5
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	18	8.6
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	19	9.1
July	Otter trawl	51	5	51_5	7/18/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	20	7.7
July	Otter trawl	51	5	51_5	7/18/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	12
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	1	14.8
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	2	14.6
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	3	14.2

OTTER_TRAWL

July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	4	14
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	5	14.7
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	6	14.2
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	7	11.9
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	8	13.1
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	9	14.5
July	Otter trawl	51	5	51_5	7/18/2017	71	Sparidae	Stenotomus chrysops	Scup	10	12.8
July	Otter trawl	51	5	51_5	7/18/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	13.9

SEINE

SURVEY	GEAR_TYPE	Site_ID	Sample_ ID	SAMP_ ID	DATE	TIME	LATITUDE	LONGITUDE	DEPTH_ FT	TIDE_ STAGE	USE_ CODE
July	Beach seine	160	6	160_6	7/19/2017	14:50	40.50156667	74.25381667	1	flood	1
July	Beach seine	163	2	163_2	7/19/2017	15:24	40.50056667	74.25318333	1	flood	1
July	Beach seine	165	22	165_22	7/19/2017	15:45	40.50016667	74.25303333	1	flood	1
July	Beach seine	164	32	164_32	7/19/2017	16:02	40.49981667	74.2528	1	flood	1
July	Beach seine	166	13	166_13	7/19/2017	16:30	40.49941667	74.25235	1	flood	1
July	Beach seine	169	35	169_35	7/19/2017	16:55	40.49888333	74.25133333	1	flood	1
July	Beach seine	158	7	158_7	7/20/2017	13:30	40.5025	74.22266667	1	flood	1
July	Beach seine	155	24	155_24	7/20/2017	13:45	40.50211667	74.22393333	1	flood	1
July	Beach seine	178	5	178_5	7/20/2017	14:05	40.50213333	74.2268	1	flood	1
July	Beach seine	148	9	148_9	7/20/2017	14:25	40.502	74.22966667	1	flood	1
July	Beach seine	146	1	146_1	7/20/2017	14:40	40.50185	74.2305	1	flood	1
July	Beach seine	137	20	137_20	7/20/2017	15:01	40.50066667	74.23416667	1	flood	1
July	Beach seine	128	8	128_8	7/20/2017	15:22	40.49965	74.23778333	1	flood	1
July	Beach seine	129	4	129_4	7/20/2017	15:57	40.49966667	74.23716667	1	flood	1
July	Beach seine	124	10	124_10	7/20/2017	16:12	40.49866667	74.23883333	1	flood	1
July	Beach seine	118	11	118_11	7/20/2017	16:30	40.49766667	74.24133333	1	flood	1
July	Beach seine	115	17	115_17	7/20/2017	16:46	40.4975	74.24233333	1	flood	1
July	Beach seine	114	15	114_15	7/20/2017	17:00	40.49733333	74.24316667	1	flood	1
July	Beach seine	106	19	106_19	7/20/2017	17:20	40.496	74.24675	1	flood	1
July	Beach seine	102	37	102_37	7/20/2017	17:46	40.49616667	74.2485	1	flood	1

July 2017 Fish Trap Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	TRAP_ NUM	SAMP_ID	DATE	LATITUDE	LONGITUDE	SET_ DEPTH _ FT	SET_ TIDE_ STAGE	SET_ DATE	SET_ TIME	PULL_ DEPTH_ FT	PULL_ TIDE_ STAGE	PULL_ DATE	PULL_ TIME	SOAK_ TIME_ HRS	USE_ CODE
July	Fish trap	63	6	1	63_6_1	7/19/2017	40.49101667	74.23811667	13.1	flood	7/18/2017	14:25	10.2	ebb	7/19/2017	13:15	22.833333	1
July	Fish trap	63	6	2	63_6_2	7/19/2017	40.49105	74.23838333	13.1	flood	7/18/2017	14:27	10.2	ebb	7/19/2017	13:17	22.833333	1
July	Fish trap	66	8	1	66_8_1	7/19/2017	40.4927	74.2356	12.1	flood	7/18/2017	14:10	9.6	ebb	7/19/2017	13:08	22.966667	1
July	Fish trap	66	8	2	66_8_2	7/19/2017	40.49266667	74.23551667	12.1	flood	7/18/2017	14:11	9.6	ebb	7/19/2017	13:12	23.016667	1
July	Fish trap	69	1	1	69_1_1	7/18/2017	40.49295	74.23453333	12.1	flood	7/17/2017	12:44	11.7	flood	7/18/2017	14:04	25.333333	1
July	Fish trap	69	1	2	69_1_2	7/18/2017	40.49295	74.23453333	11.7	flood	7/17/2017	12:47	11.3	flood	7/18/2017	14:06	25.316667	1
July	Fish trap	72	13	1	72_13_1	7/18/2017	40.49318333	74.24276667	9.8	high slack	7/17/2017	13:50	10.2	flood	7/18/2017	14:29	24.65	1
July	Fish trap	72	13	2	72_13_2	7/18/2017	40.49386667	74.24071667	9.9	high slack	7/17/2017	13:52	10.3	flood	7/18/2017	14:31	24.65	1
July	Fish trap	75	4	1	75_4_1	7/18/2017	40.49431667	74.24065	8.7	high slack	7/17/2017	13:45	9.1	flood	7/18/2017	14:15	24.5	1
July	Fish trap	75	4	2	75_4_2	7/18/2017	40.49431667	74.24065	9.4	high slack	7/17/2017	13:47	9.8	flood	7/18/2017	14:17	24.5	1
July	Fish trap	84	9	1	84_9_1	7/19/2017	40.49636667	74.22895	12.8	flood	7/18/2017	13:22	9.4	ebb	7/19/2017	12:05	22.716667	1
July	Fish trap	84	9	2	84_9_2	7/19/2017	40.49625	74.22878333	11.8	flood	7/18/2017	13:23	9.4	ebb	7/19/2017	12:07	22.733333	1
July	Fish trap	86	6	1	86_6_1	7/19/2017	40.4963	74.25153333	8.6	high slack	7/18/2017	15:01	5.2	ebb	7/19/2017	13:50	22.816667	1
July	Fish trap	86	6	2	86_6_2	7/19/2017	40.49621667	74.25156667	8.6	high slack	7/18/2017	15:04	5.2	ebb	7/19/2017	13:51	22.783333	1
July	Fish trap	88	18	1	88_18_1	7/19/2017	40.49653333	74.22735	15	flood	7/18/2017	13:57	10.6	ebb	7/19/2017	12:13	22.266667	1
July	Fish trap	88	18	2	88_18_2	7/19/2017	40.49653333	74.2274	15	flood	7/18/2017	13:58	10.6	ebb	7/19/2017	12:19	22.35	1
July	Fish trap	92	3	1	92_3_1	7/18/2017	40.49663333	74.25108333	6.8	high slack	7/17/2017	13:37	7.3	high slack	7/18/2017	14:58	25.35	1
July	Fish trap	92	3	2	92_3_2	7/18/2017	40.49675	74.25108333	6.8	high slack	7/17/2017	13:39	7.3	high slack	7/18/2017	15:00	25.35	1
July	Fish trap	96	14	1	96_14_1	7/19/2017	40.49876667	74.25321667	12.2	high slack	7/18/2017	14:54	9	ebb	7/19/2017	13:41	22.783333	1
July	Fish trap	96	14	2	96_14_2	7/19/2017	40.49935	74.2534	12.2	high slack	7/18/2017	14:56	9	ebb	7/19/2017	13:44	22.8	1
July	Fish trap	97	1	1	97_1_1	7/18/2017	40.49923333	74.25288333	12.1	flood	7/17/2017	13:33	12.7	high slack	7/18/2017	14:50	25.283333	1
July	Fish trap	97	1	2	97_1_2	7/18/2017	40.49923333	74.25288333	11.6	flood	7/17/2017	13:35	12.2	high slack	7/18/2017	14:52	25.283333	1
July	Fish trap	99	10	1	99_10_1	7/19/2017	40.49955	74.23203333	8.1	flood	7/18/2017	13:07	4.8	ebb	7/19/2017	11:51	22.733333	1
July	Fish trap	99	10	2	99_10_2	7/19/2017	40.49945	74.23195	8.1	flood	7/18/2017	13:08	4.8	ebb	7/19/2017	11:53	22.75	1
July	Fish trap	101	17	1	101_17_1	7/18/2017	40.49983333	74.22413333	14.4	flood	7/17/2017	12:37	13.6	flood	7/18/2017	13:27	24.833333	1
July	Fish trap	101	17	2	101_17_2	7/18/2017	40.49961667	74.22401667	14	flood	7/17/2017	12:40	13.2	flood	7/18/2017	13:29	24.816667	1
July	Fish trap	103	2	1	103_2_1	7/18/2017	40.50038333	74.2209	15.9	flood	7/17/2017	12:19	15.1	flood	7/18/2017	13:21	25.033333	1
July	Fish trap	103	2	2	103_2_2	7/18/2017	40.50041667	74.22091667	16.1	flood	7/17/2017	12:22	15.1	flood	7/18/2017	13:23	25.016667	1
July	Fish trap	105	4	1	105_4_1	7/18/2017	40.50093333	74.22521667	6.9	flood	7/17/2017	12:27	6.5	flood	7/18/2017	13:02	24.583333	1
July	Fish trap	105	4	2	105_4_2	7/18/2017	40.50093333	74.2254	7.4	flood	7/17/2017	12:29	6.5	flood	7/18/2017	13:04	24.583333	1
July	Fish trap	106	8	1	106_8_1	7/19/2017	40.50093333	74.22448333	7.8	flood	7/18/2017	12:56	4.4	ebb	7/19/2017	11:28	22.533333	1
July	Fish trap	106	8	2	106_8_2	7/19/2017	40.50093333	74.2244	7.8	flood	7/18/2017	12:57	4.4	ebb	7/19/2017	11:29	22.533333	1
July	Fish trap	107	10	1	107_10_1	7/19/2017	40.50106667	74.25498333	24.5	flood	7/18/2017	14:41	21.1	ebb	7/19/2017	13:28	22.783333	1
July	Fish trap	107	10	2	107_10_2	7/19/2017	40.50106667	74.2547	24.5	flood	7/18/2017	14:42	21.1	ebb	7/19/2017	13:30	22.8	1
July	Fish trap	108	9	1	108_9_1	7/19/2017	40.50113333	74.22536667	5.3	flood	7/18/2017	12:58	2.2	ebb	7/19/2017	11:41	22.716667	1
July	Fish trap	108	9	2	108_9_2	7/19/2017	40.50116667	74.22538333	5.3	flood	7/18/2017	12:59	2.2	ebb	7/19/2017	11:43	22.733333	1
July	Fish trap	112	2	1	112_2_1	7/18/2017	40.50128333	74.2183	21.6	flood	7/17/2017	12:01	15.9	flood	7/18/2017	12:35	24.566667	1
July	Fish trap	112	2	2	112_2_2	7/18/2017	40.50121667	74.21838333	18.3	flood	7/17/2017	12:04	15.9	flood	7/18/2017	12:37	24.55	1
July	Fish trap	114	5	1	114_5_1	7/18/2017	40.50148333	74.2191	11.7	flood	7/17/2017	12:12	8.2	flood	7/18/2017	12:42	24.5	1
July	Fish trap	114	5	2	114_5_2	7/18/2017	40.50148333	74.2191	11.5	flood	7/17/2017	12:15	9.2	flood	7/18/2017	12:44	24.483333	1

July 2017 Otter Trawl Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP _ID	DATE	TIME	START_ LATITUDE	START_ LONGITUDE	END_ LATITUDE	END_ LONGITUDE	DEPTH _FT	TIDE_ STAGE	TOW_ DIRECTION	TOW_ SPEED	duration	USE_ CODE
July	Otter trawl	44	1	44_1	7/18/2017	7:25	40.49895	74.25361667	40.50198333	74.25515	8.9	low slack	west	1.5	5	1
July	Otter trawl	45	2	45_2	7/18/2017	7:55	40.49895	74.25253333	40.50166667	74.25425	5	low slack	west	1.5	5	1
July	Otter trawl	47	3	47_3	7/18/2017	8:22	40.49971667	74.25373333	40.5031	74.25546667	8.7	low slack	west	1.5	5	1
July	Otter trawl	33	7	33_7	7/18/2017	8:57	40.49263333	74.2365	40.49173333	74.24196667	8.1	low slack	west	1.5	5	1
July	Otter trawl	32	1	32_1	7/18/2017	9:24	40.49113333	74.2345	40.49105	74.23956667	14	low slack	west	1.5	5	1
July	Otter trawl	35	5	35_5	7/18/2017	9:43	40.496	74.23483333	40.4946	74.24023333	5.1	ebb	west	1.5	5	1
July	Otter trawl	41	6	41_6	7/18/2017	10:11	40.49756667	74.2271	40.49651667	74.23021667	13.2	ebb	west	1.5	5	1
July	Otter trawl	40	4	40_4	7/18/2017	10:41	40.49706667	74.22445	40.49516667	74.22941667	13.5	ebb	west	1.5	5	1
July	Otter trawl	50	4	50_4	7/18/2017	11:05	40.50038333	74.22588333	40.49883333	74.2312	6.6	ebb	west	1.5	5	1
July	Otter trawl	51	5	51_5	7/18/2017	11:29	40.50065	74.22448333	40.49885	74.22941667	6.8	ebb	west	1.5	5	1

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SURVEY	GEAR_TYPE	LOCATION	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	NODC	SCODE	SPECIES	COUNT
September	van Veen grab	B	101	10	101_10	9/12/2017	5004000000	466	Oligochaeta	230
September	van Veen grab	B	101	10	101_10	9/12/2017	5001600401	1779	Mediomastus ambiseta	123
September	van Veen grab	B	101	10	101_10	9/12/2017	5001230701	4998	Exogone dispar	65
September	van Veen grab	B	101	10	101_10	9/12/2017	5001680899	1826	Polycirrus sp.	38
September	van Veen grab	B	101	10	101_10	9/12/2017	6169150704	4610	Unciola serrata	34
September	van Veen grab	B	101	10	101_10	9/12/2017	5001239598	3535	Opisthodonta longocirrata	33
September	van Veen grab	B	101	10	101_10	9/12/2017	5001431801	88	Streblospio benedicti	31
September	van Veen grab	B	101	10	101_10	9/12/2017	5001650202	3586	Sabellaria vulgaris	30
September	van Veen grab	B	101	10	101_10	9/12/2017	6169150998	6161	Grandidierella japonica	27
September	van Veen grab	B	101	10	101_10	9/12/2017	5001600201	391	Heteromastus filiformis	25
September	van Veen grab	B	101	10	101_10	9/12/2017	5001270105	368	Glycera dibranchiata	24
September	van Veen grab	B	101	10	101_10	9/12/2017	5110040103	600	Acteocina canaliculata	24
September	van Veen grab	B	101	10	101_10	9/12/2017	6169421598	714	Eobrolgus spinosus	20
September	van Veen grab	B	101	10	101_10	9/12/2017	5001500305	4624	Tharyx acutus	19
September	van Veen grab	B	101	10	101_10	9/12/2017	5001500297	5841	Caulleriella venefica	17
September	van Veen grab	B	101	10	101_10	9/12/2017	5001131101	57	Eumida sanguinea	11
September	van Veen grab	B	101	10	101_10	9/12/2017	6169159796	696	Monocorophium tuberculatum	7
September	van Veen grab	B	101	10	101_10	9/12/2017	5001239698	1153	Salvatoria clavata	7
September	van Veen grab	B	101	10	101_10	9/12/2017	6169159795	260	Monocorophium acherusicum	6
September	van Veen grab	B	101	10	101_10	9/12/2017	5001219798	1118	Oxydromus obscurus	6
September	van Veen grab	B	101	10	101_10	9/12/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	B	101	10	101_10	9/12/2017	5108019897	1324	Boonea bisuturalis	6
September	van Veen grab	B	101	10	101_10	9/12/2017	6169210301	698	Elasmopus levis	4
September	van Veen grab	B	101	10	101_10	9/12/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	B	101	10	101_10	9/12/2017	4302020101	4804	Carinoma tremaphoros	4
September	van Veen grab	B	101	10	101_10	9/12/2017	6171010901	685	Paracaprella tenuis	3
September	van Veen grab	B	101	10	101_10	9/12/2017	6169150302	699	Ericthonius brasiliensis	3
September	van Veen grab	B	101	10	101_10	9/12/2017	6169349898	3954	Lysianopsis alba	3
September	van Veen grab	B	101	10	101_10	9/12/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	B	101	10	101_10	9/12/2017	3901000010	6238	Turbellaria sp. 10 nai	3
September	van Veen grab	B	101	10	101_10	9/12/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	B	101	10	101_10	9/12/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	B	101	10	101_10	9/12/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	B	101	10	101_10	9/12/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	B	101	10	101_10	9/12/2017	5001330198	4665	Drilonereis longa	2
September	van Veen grab	B	101	10	101_10	9/12/2017	4306050110	4805	Amphiporus bioculatus	2

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September	van Veen grab	B	101	10	101_10	9/12/2017	5002050197	5842	Polygordius jouinae	2
September	van Veen grab	B	101	10	101_10	9/12/2017	5001060303	64	Sthenelais limicola	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	B	101	10	101_10	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5105089897	377	Tritia obsoleta	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	B	101	10	101_10	9/12/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	B	101	10	101_10	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	101	10	101_10	9/12/2017	3906030101	1098	Stylochus ellipticus	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	B	101	10	101_10	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	101	10	101_10	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001409895	3977	Leitoscoloplos acutus	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5103769898	4630	Neverita duplicata	1
September	van Veen grab	B	101	10	101_10	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5004000000	466	Oligochaeta	305
September	van Veen grab	B	102	26	102_26	9/12/2017	5001600401	1779	Mediomastus ambiseta	115
September	van Veen grab	B	102	26	102_26	9/12/2017	5001600201	391	Heteromastus filiformis	91
September	van Veen grab	B	102	26	102_26	9/12/2017	5001680899	1826	Polycirrus sp.	79
September	van Veen grab	B	102	26	102_26	9/12/2017	5001431801	88	Streblospio benedicti	64
September	van Veen grab	B	102	26	102_26	9/12/2017	5001239598	3535	Opisthodonta longocirrata	51
September	van Veen grab	B	102	26	102_26	9/12/2017	5001230701	4998	Exogone dispar	31
September	van Veen grab	B	102	26	102_26	9/12/2017	5110040103	600	Acteocina canaliculata	30
September	van Veen grab	B	102	26	102_26	9/12/2017	6169150998	6161	Grandidierella japonica	21
September	van Veen grab	B	102	26	102_26	9/12/2017	5001270105	368	Glycera dibranchiata	18
September	van Veen grab	B	102	26	102_26	9/12/2017	5001500297	5841	Caulleriella venefica	16
September	van Veen grab	B	102	26	102_26	9/12/2017	5001210103	4609	Gyptis vittata	9
September	van Veen grab	B	102	26	102_26	9/12/2017	5001231698	6231	Streptosyllis verrilli	9
September	van Veen grab	B	102	26	102_26	9/12/2017	5515471101	1116	Mercenaria mercenaria	8
September	van Veen grab	B	102	26	102_26	9/12/2017	5001631102	83	Euclymene collaris	7
September	van Veen grab	B	102	26	102_26	9/12/2017	5515471301	387	Gemma gemma	6
September	van Veen grab	B	102	26	102_26	9/12/2017	6160010202	679	Cyathura burbancki	6
September	van Veen grab	B	102	26	102_26	9/12/2017	5001131101	57	Eumida sanguinea	5
September	van Veen grab	B	102	26	102_26	9/12/2017	5001409898	381	Leitoscoloplos robustus	5
September	van Veen grab	B	102	26	102_26	9/12/2017	5001709798	668	Parasabella microphthalma	5

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September	van Veen grab	B	102	26	102_26	9/12/2017	5001650202	3586	Sabellaria vulgaris	5
September	van Veen grab	B	102	26	102_26	9/12/2017	5002050197	5842	Polygordius jouinae	5
September	van Veen grab	B	102	26	102_26	9/12/2017	5001239698	1153	Salvatoria clavata	4
September	van Veen grab	B	102	26	102_26	9/12/2017	6169159795	260	Monocorophium acherusicum	3
September	van Veen grab	B	102	26	102_26	9/12/2017	6169150704	4610	Unciola serrata	3
September	van Veen grab	B	102	26	102_26	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	102	26	102_26	9/12/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	B	102	26	102_26	9/12/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	B	102	26	102_26	9/12/2017	5001432006	4544	Scolelepis (parascolelepis) texana	2
September	van Veen grab	B	102	26	102_26	9/12/2017	4306050302	4949	Zygonemertes virescens	2
September	van Veen grab	B	102	26	102_26	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5515290398	209	Ensis leei	1
September	van Veen grab	B	102	26	102_26	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5105089897	377	Tritia obsoleta	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	B	102	26	102_26	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	B	102	26	102_26	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001230903	3920	Brania wellfleetensis	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001409895	3977	Leitoscoloplos acutus	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5001500305	4624	Tharyx acutus	1
September	van Veen grab	B	102	26	102_26	9/12/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5004000000	466	Oligochaeta	327
September	van Veen grab	B	103	18	103_18	9/12/2017	5001600401	1779	Mediomastus ambiseta	152
September	van Veen grab	B	103	18	103_18	9/12/2017	5001230701	4998	Exogone dispar	138
September	van Veen grab	B	103	18	103_18	9/12/2017	5515471301	387	Gemma gemma	90
September	van Veen grab	B	103	18	103_18	9/12/2017	5001239598	3535	Opisthodonta longocirrata	66
September	van Veen grab	B	103	18	103_18	9/12/2017	5105089897	377	Tritia obsoleta	60
September	van Veen grab	B	103	18	103_18	9/12/2017	5001600201	391	Heteromastus filiformis	41
September	van Veen grab	B	103	18	103_18	9/12/2017	5001680899	1826	Polycirrus sp.	40
September	van Veen grab	B	103	18	103_18	9/12/2017	6169150998	6161	Grandidierella japonica	39
September	van Veen grab	B	103	18	103_18	9/12/2017	500127	9112720	Glyceridae	33
September	van Veen grab	B	103	18	103_18	9/12/2017	5001500297	5841	Caulleriella venefica	32
September	van Veen grab	B	103	18	103_18	9/12/2017	5108019897	1324	Boonea bisuturalis	25

September	van Veen grab	B	103	18	103_18	9/12/2017	5001431801	88	Streblospio benedicti	17
September	van Veen grab	B	103	18	103_18	9/12/2017	5002050197	5842	Polygordius jouinae	14
September	van Veen grab	B	103	18	103_18	9/12/2017	6169421598	714	Eobrolgus spinosus	10
September	van Veen grab	B	103	18	103_18	9/12/2017	5001231698	6231	Streptosyllis verrilli	8
September	van Veen grab	B	103	18	103_18	9/12/2017	5110040103	600	Acteocina canaliculata	6
September	van Veen grab	B	103	18	103_18	9/12/2017	5001650202	3586	Sabellaria vulgaris	6
September	van Veen grab	B	103	18	103_18	9/12/2017	5001500305	4624	Tharyx acutus	6
September	van Veen grab	B	103	18	103_18	9/12/2017	5001131101	57	Eumida sanguinea	5
September	van Veen grab	B	103	18	103_18	9/12/2017	6169159796	696	Monocorophium tuberculatum	4
September	van Veen grab	B	103	18	103_18	9/12/2017	6169150302	699	Ericthonius brasiliensis	4
September	van Veen grab	B	103	18	103_18	9/12/2017	5001210297	5449	Microphthalmus fragilis	4
September	van Veen grab	B	103	18	103_18	9/12/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	B	103	18	103_18	9/12/2017	5001270105	368	Glycera dibranchiata	3
September	van Veen grab	B	103	18	103_18	9/12/2017	5001409898	381	Leitoscoloplos robustus	3
September	van Veen grab	B	103	18	103_18	9/12/2017	6160010202	679	Cyathura burbancki	3
September	van Veen grab	B	103	18	103_18	9/12/2017	6169210301	698	Elasmopus levis	3
September	van Veen grab	B	103	18	103_18	9/12/2017	6169481002	720	Stenothoe minuta	3
September	van Veen grab	B	103	18	103_18	9/12/2017	5001219798	1118	Oxydromus obscurus	3
September	van Veen grab	B	103	18	103_18	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	103	18	103_18	9/12/2017	3901000010	6238	Turbellaria sp. 10 nai	3
September	van Veen grab	B	103	18	103_18	9/12/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	B	103	18	103_18	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	B	103	18	103_18	9/12/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	B	103	18	103_18	9/12/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	B	103	18	103_18	9/12/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5103640204	149	Crepidula fornicata	1
September	van Veen grab	B	103	18	103_18	9/12/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	B	103	18	103_18	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5001431302	392	Pygospio elegans	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	103	18	103_18	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	B	103	18	103_18	9/12/2017	6169211006	706	Melita nitida	1
September	van Veen grab	B	103	18	103_18	9/12/2017	3901000000	1279	Turbellaria	1
September	van Veen grab	B	103	18	103_18	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5001360598	1828	Parougia caeca	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5001230903	3920	Brania wellfleetensis	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5131020299	4516	Polycera sp.	1
September	van Veen grab	B	103	18	103_18	9/12/2017	5520050201	5564	Lyonsia arenosa	1

September	van Veen grab	B	105	9	105_9	9/12/2017	5001600401	1779	Mediomastus ambiseta	190
September	van Veen grab	B	105	9	105_9	9/12/2017	5004000000	466	Oligochaeta	185
September	van Veen grab	B	105	9	105_9	9/12/2017	5001500305	4624	Tharyx acutus	70
September	van Veen grab	B	105	9	105_9	9/12/2017	5001431801	88	Streblospio benedicti	40
September	van Veen grab	B	105	9	105_9	9/12/2017	5001600201	391	Heteromastus filiformis	26
September	van Veen grab	B	105	9	105_9	9/12/2017	5001239598	3535	Opisthodonta longocirrata	26
September	van Veen grab	B	105	9	105_9	9/12/2017	5001680899	1826	Polycirrus sp.	24
September	van Veen grab	B	105	9	105_9	9/12/2017	5001270105	368	Glycera dibranchiata	22
September	van Veen grab	B	105	9	105_9	9/12/2017	5001230701	4998	Exogone dispar	22
September	van Veen grab	B	105	9	105_9	9/12/2017	5001500297	5841	Caulleriella venefica	11
September	van Veen grab	B	105	9	105_9	9/12/2017	4306050302	4949	Zygonemertes virescens	7
September	van Veen grab	B	105	9	105_9	9/12/2017	6169150704	4610	Unciola serrata	4
September	van Veen grab	B	105	9	105_9	9/12/2017	6169159795	260	Monocorophium acherusicum	3
September	van Veen grab	B	105	9	105_9	9/12/2017	5001650202	3586	Sabellaria vulgaris	3
September	van Veen grab	B	105	9	105_9	9/12/2017	4302020101	4804	Carinoma tremaphoros	3
September	van Veen grab	B	105	9	105_9	9/12/2017	5002050197	5842	Polygordius jouinae	3
September	van Veen grab	B	105	9	105_9	9/12/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	B	105	9	105_9	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	B	105	9	105_9	9/12/2017	5001409895	3977	Leitoscoloplos acutus	2
September	van Veen grab	B	105	9	105_9	9/12/2017	5001330198	4665	Drilonereis longa	2
September	van Veen grab	B	105	9	105_9	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	B	105	9	105_9	9/12/2017	5001131101	57	Eumida sanguinea	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6162020798	247	Edotia triloba	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6169349898	3954	Lysianopsis alba	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	B	105	9	105_9	9/12/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	B	105	9	105_9	9/12/2017	6169150998	6161	Grandidierella japonica	1
September	van Veen grab	B	105	9	105_9	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001600401	1779	Mediomastus ambiseta	734

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September	van Veen grab	B	110	5	110_5	9/12/2017	5001431801	88	Streblospio benedicti	280
September	van Veen grab	B	110	5	110_5	9/12/2017	5001650202	3586	Sabellaria vulgaris	84
September	van Veen grab	B	110	5	110_5	9/12/2017	5004000000	466	Oligochaeta	79
September	van Veen grab	B	110	5	110_5	9/12/2017	5001500305	4624	Tharyx acutus	40
September	van Veen grab	B	110	5	110_5	9/12/2017	5001631102	83	Euclymene collaris	38
September	van Veen grab	B	110	5	110_5	9/12/2017	5001230701	4998	Exogone dispar	37
September	van Veen grab	B	110	5	110_5	9/12/2017	5001680899	1826	Polycirrus sp.	32
September	van Veen grab	B	110	5	110_5	9/12/2017	5001600201	391	Heteromastus filiformis	31
September	van Veen grab	B	110	5	110_5	9/12/2017	5001430498	91	Polydora cornuta	30
September	van Veen grab	B	110	5	110_5	9/12/2017	6160010202	679	Cyathura burbancki	30
September	van Veen grab	B	110	5	110_5	9/12/2017	5001280104	4519	Glycinde solitaria	30
September	van Veen grab	B	110	5	110_5	9/12/2017	6169020109	253	Ampelisca vadorum	19
September	van Veen grab	B	110	5	110_5	9/12/2017	6169159796	696	Monocorophium tuberculatum	17
September	van Veen grab	B	110	5	110_5	9/12/2017	6169020108	252	Ampelisca abdita	16
September	van Veen grab	B	110	5	110_5	9/12/2017	5001131101	57	Eumida sanguinea	11
September	van Veen grab	B	110	5	110_5	9/12/2017	6169159795	260	Monocorophium acherusicum	11
September	van Veen grab	B	110	5	110_5	9/12/2017	5001219798	1118	Oxydromus obscurus	10
September	van Veen grab	B	110	5	110_5	9/12/2017	5001210103	4609	Gyptis vittata	10
September	van Veen grab	B	110	5	110_5	9/12/2017	5001660302	770	Pectinaria gouldii	9
September	van Veen grab	B	110	5	110_5	9/12/2017	5001130207	393	Hypereteone heteropoda	7
September	van Veen grab	B	110	5	110_5	9/12/2017	6169211006	706	Melita nitida	7
September	van Veen grab	B	110	5	110_5	9/12/2017	5001500000	2066	Cirratulidae	7
September	van Veen grab	B	110	5	110_5	9/12/2017	5517010201	205	Mya arenaria	6
September	van Veen grab	B	110	5	110_5	9/12/2017	5103640205	4502	Crepidula convexa	6
September	van Veen grab	B	110	5	110_5	9/12/2017	5515319898	203	Ameritella agilis	5
September	van Veen grab	B	110	5	110_5	9/12/2017	5105089897	377	Tritia obsoleta	4
September	van Veen grab	B	110	5	110_5	9/12/2017	5001249798	651	Alitta succinea	4
September	van Veen grab	B	110	5	110_5	9/12/2017	6169421598	714	Eobrolgus spinosus	4
September	van Veen grab	B	110	5	110_5	9/12/2017	5131070198	3590	Corambe obscura	4
September	van Veen grab	B	110	5	110_5	9/12/2017	6169150998	6161	Grandidierella japonica	4
September	van Veen grab	B	110	5	110_5	9/12/2017	6183060230	1619	Pagurus longicarpus	3
September	van Veen grab	B	110	5	110_5	9/12/2017	6169349898	3954	Lysianopsis alba	3
September	van Veen grab	B	110	5	110_5	9/12/2017	6169150704	4610	Unciola serrata	3
September	van Veen grab	B	110	5	110_5	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	110	5	110_5	9/12/2017	5103640207	150	Crepidula plana	2
September	van Veen grab	B	110	5	110_5	9/12/2017	5001270105	368	Glycera dibranchiata	2
September	van Veen grab	B	110	5	110_5	9/12/2017	6169210301	698	Elasmopus levis	2
September	van Veen grab	B	110	5	110_5	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2

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September	van Veen grab	B	110	5	110_5	9/12/2017	5001231698	6231	Streptosyllis verrilli	2
September	van Veen grab	B	110	5	110_5	9/12/2017	500127	9112720	Glyceridae	2
September	van Veen grab	B	110	5	110_5	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	110	5	110_5	9/12/2017	6153011508	577	Neomysis americana	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5110040103	600	Acteocina canaliculata	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001130108	642	Phyllodoce arenae	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	B	110	5	110_5	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	110	5	110_5	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	B	110	5	110_5	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	B	110	5	110_5	9/12/2017	5001500297	5841	Caulleriella venefica	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5001600401	1779	Mediomastus ambiseta	159
September	van Veen grab	B	111	30	111_30	9/12/2017	5515471301	387	Gemma gemma	114
September	van Veen grab	B	111	30	111_30	9/12/2017	5004000000	466	Oligochaeta	93
September	van Veen grab	B	111	30	111_30	9/12/2017	5110040103	600	Acteocina canaliculata	57
September	van Veen grab	B	111	30	111_30	9/12/2017	6169150998	6161	Grandidierella japonica	42
September	van Veen grab	B	111	30	111_30	9/12/2017	5001270105	368	Glycera dibranchiata	31
September	van Veen grab	B	111	30	111_30	9/12/2017	5105089897	377	Tritia obsoleta	29
September	van Veen grab	B	111	30	111_30	9/12/2017	5001230701	4998	Exogone dispar	24
September	van Veen grab	B	111	30	111_30	9/12/2017	5108019897	1324	Boonea bisuturalis	17
September	van Veen grab	B	111	30	111_30	9/12/2017	5001680899	1826	Polycirrus sp.	14
September	van Veen grab	B	111	30	111_30	9/12/2017	5001431801	88	Streblospio benedicti	9
September	van Veen grab	B	111	30	111_30	9/12/2017	5001500297	5841	Caulleriella venefica	8
September	van Veen grab	B	111	30	111_30	9/12/2017	5001600201	391	Heteromastus filiformis	7
September	van Veen grab	B	111	30	111_30	9/12/2017	5105089898	162	Tritia trivittata	5
September	van Veen grab	B	111	30	111_30	9/12/2017	5001131101	57	Eumida sanguinea	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5103640207	150	Crepidula plana	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5515319898	203	Ameritella agilis	4
September	van Veen grab	B	111	30	111_30	9/12/2017	6169159796	696	Monocorophium tuberculatum	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5001219798	1118	Oxydromus obscurus	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5001239598	3535	Opisthodonta longocirrata	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5103640205	4502	Crepidula convexa	4
September	van Veen grab	B	111	30	111_30	9/12/2017	5002050197	5842	Polygordius jouinae	4

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September	van Veen grab	B	111	30	111_30	9/12/2017	5001130207	393	Hypereteone heteropoda	3
September	van Veen grab	B	111	30	111_30	9/12/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	B	111	30	111_30	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	111	30	111_30	9/12/2017	5001431001	92	Spiophanes bombyx	2
September	van Veen grab	B	111	30	111_30	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	B	111	30	111_30	9/12/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	B	111	30	111_30	9/12/2017	5001409899	411	Leitoscoloplos sp.	2
September	van Veen grab	B	111	30	111_30	9/12/2017	6160010202	679	Cyathura burbancki	2
September	van Veen grab	B	111	30	111_30	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	111	30	111_30	9/12/2017	5001650202	3586	Sabellaria vulgaris	2
September	van Veen grab	B	111	30	111_30	9/12/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	B	111	30	111_30	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5001021104	637	Lepidonotus sublevis	1
September	van Veen grab	B	111	30	111_30	9/12/2017	6169260901	709	Microprotopus raneyi	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	B	111	30	111_30	9/12/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	B	111	30	111_30	9/12/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	B	111	30	111_30	9/12/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5004000000	466	Oligochaeta	232
September	van Veen grab	B	114	2	114_2	9/12/2017	5001600401	1779	Mediomastus ambiseta	191
September	van Veen grab	B	114	2	114_2	9/12/2017	5515471301	387	Gemma gemma	62
September	van Veen grab	B	114	2	114_2	9/12/2017	6169150998	6161	Grandidierella japonica	59
September	van Veen grab	B	114	2	114_2	9/12/2017	5105089897	377	Tritia obsoleta	46
September	van Veen grab	B	114	2	114_2	9/12/2017	5001270105	368	Glycera dibranchiata	30
September	van Veen grab	B	114	2	114_2	9/12/2017	5001230701	4998	Exogone dispar	26
September	van Veen grab	B	114	2	114_2	9/12/2017	5001431801	88	Streblospio benedicti	23
September	van Veen grab	B	114	2	114_2	9/12/2017	5001500297	5841	Caulleriella venefica	23
September	van Veen grab	B	114	2	114_2	9/12/2017	5108019897	1324	Boonea bisuturalis	17
September	van Veen grab	B	114	2	114_2	9/12/2017	5001231698	6231	Streptosyllis verrilli	16
September	van Veen grab	B	114	2	114_2	9/12/2017	5110040103	600	Acteocina canaliculata	13
September	van Veen grab	B	114	2	114_2	9/12/2017	6169210301	698	Elasmopus levis	10
September	van Veen grab	B	114	2	114_2	9/12/2017	6171010727	1655	Caprella penantis	7
September	van Veen grab	B	114	2	114_2	9/12/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	B	114	2	114_2	9/12/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	B	114	2	114_2	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	3
September	van Veen grab	B	114	2	114_2	9/12/2017	6169159795	260	Monocorophium acherusicum	3

September	van Veen grab	B	114	2	114_2	9/12/2017	6169159796	696	Monocorophium tuberculatum	3
September	van Veen grab	B	114	2	114_2	9/12/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001600201	391	Heteromastus filiformis	2
September	van Veen grab	B	114	2	114_2	9/12/2017	6169150302	699	Ericthonius brasiliensis	2
September	van Veen grab	B	114	2	114_2	9/12/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	B	114	2	114_2	9/12/2017	3906030101	1098	Stylochus ellipticus	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5515471101	1116	Mercenaria mercenaria	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001680899	1826	Polycirrus sp.	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001239598	3535	Opisthodonta longocirrata	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001409895	3977	Leitoscoloplos acutus	2
September	van Veen grab	B	114	2	114_2	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	114	2	114_2	9/12/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	B	114	2	114_2	9/12/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	B	114	2	114_2	9/12/2017	6169040116	1323	Ampithoe valida	1
September	van Veen grab	B	114	2	114_2	9/12/2017	500143	2068	Spionidae	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5001210103	4609	Gyptis vittata	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	114	2	114_2	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5001600401	1779	Mediomastus ambiseta	474
September	van Veen grab	B	116	11	116_11	9/12/2017	5001431801	88	Streblospio benedicti	263
September	van Veen grab	B	116	11	116_11	9/12/2017	5001650202	3586	Sabellaria vulgaris	135
September	van Veen grab	B	116	11	116_11	9/12/2017	6169150704	4610	Unciola serrata	73
September	van Veen grab	B	116	11	116_11	9/12/2017	5001500305	4624	Tharyx acutus	72
September	van Veen grab	B	116	11	116_11	9/12/2017	5004000000	466	Oligochaeta	58
September	van Veen grab	B	116	11	116_11	9/12/2017	5001230701	4998	Exogone dispar	56
September	van Veen grab	B	116	11	116_11	9/12/2017	5001631102	83	Euclymene collaris	53
September	van Veen grab	B	116	11	116_11	9/12/2017	5001600201	391	Heteromastus filiformis	49
September	van Veen grab	B	116	11	116_11	9/12/2017	6169020108	252	Ampelisca abdita	28
September	van Veen grab	B	116	11	116_11	9/12/2017	6169159796	696	Monocorophium tuberculatum	27
September	van Veen grab	B	116	11	116_11	9/12/2017	5001680899	1826	Polycirrus sp.	27
September	van Veen grab	B	116	11	116_11	9/12/2017	5001131101	57	Eumida sanguinea	22
September	van Veen grab	B	116	11	116_11	9/12/2017	6169349898	3954	Lysianopsis alba	22

September	van Veen grab	B	116	11	116_11	9/12/2017	5001280104	4519	Glycinde solitaria	22
September	van Veen grab	B	116	11	116_11	9/12/2017	6160010202	679	Cyathura burbancki	21
September	van Veen grab	B	116	11	116_11	9/12/2017	6169159795	260	Monocorophium acherusicum	19
September	van Veen grab	B	116	11	116_11	9/12/2017	6169421598	714	Eobrolgus spinosus	18
September	van Veen grab	B	116	11	116_11	9/12/2017	5001210103	4609	Gyptis vittata	18
September	van Veen grab	B	116	11	116_11	9/12/2017	6169020109	253	Ampelisca vadorum	16
September	van Veen grab	B	116	11	116_11	9/12/2017	5001430498	91	Polydora cornuta	15
September	van Veen grab	B	116	11	116_11	9/12/2017	5001230104	1028	Myrianida prolifera	15
September	van Veen grab	B	116	11	116_11	9/12/2017	6169210301	698	Elasmopus levis	14
September	van Veen grab	B	116	11	116_11	9/12/2017	6169211006	706	Melita nitida	11
September	van Veen grab	B	116	11	116_11	9/12/2017	5001219798	1118	Oxydromus obscurus	11
September	van Veen grab	B	116	11	116_11	9/12/2017	5001500000	2066	Cirratulidae	8
September	van Veen grab	B	116	11	116_11	9/12/2017	5001239698	1153	Salvatoria clavata	7
September	van Veen grab	B	116	11	116_11	9/12/2017	5001709798	668	Parasabella microphthalma	6
September	van Veen grab	B	116	11	116_11	9/12/2017	5001270105	368	Glycera dibranchiata	5
September	van Veen grab	B	116	11	116_11	9/12/2017	5131070198	3590	Corambe obscura	5
September	van Veen grab	B	116	11	116_11	9/12/2017	5515471101	1116	Mercenaria mercenaria	4
September	van Veen grab	B	116	11	116_11	9/12/2017	5103640205	4502	Crepidula convexa	4
September	van Veen grab	B	116	11	116_11	9/12/2017	6169150998	6161	Grandidierella japonica	4
September	van Veen grab	B	116	11	116_11	9/12/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	B	116	11	116_11	9/12/2017	6153010802	768	Heteromysis formosa	3
September	van Veen grab	B	116	11	116_11	9/12/2017	4303020209	3587	Cerebratulus lacteus	3
September	van Veen grab	B	116	11	116_11	9/12/2017	5001270104	450	Glycera americana	2
September	van Veen grab	B	116	11	116_11	9/12/2017	5110040103	600	Acteocina canaliculata	2
September	van Veen grab	B	116	11	116_11	9/12/2017	5001249798	651	Alitta succinea	2
September	van Veen grab	B	116	11	116_11	9/12/2017	6189029798	769	Dyspanopeus sayi	2
September	van Veen grab	B	116	11	116_11	9/12/2017	5108019897	1324	Boonea bisuturalis	2
September	van Veen grab	B	116	11	116_11	9/12/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	116	11	116_11	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	116	11	116_11	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	B	116	11	116_11	9/12/2017	6169150302	699	Ericthonius brasiliensis	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	B	116	11	116_11	9/12/2017	3906030101	1098	Stylochus ellipticus	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5127	1147	Nudibranchia	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1

September	van Veen grab	B	116	11	116_11	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	1
September	van Veen grab	B	116	11	116_11	9/12/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	B	116	11	116_11	9/12/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	116	11	116_11	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5004000000	466	Oligochaeta	188
September	van Veen grab	B	120	12	120_12	9/12/2017	5001600401	1779	Mediomastus ambiseta	57
September	van Veen grab	B	120	12	120_12	9/12/2017	5105089897	377	Tritia obsoleta	50
September	van Veen grab	B	120	12	120_12	9/12/2017	5001270105	368	Glycera dibranchiata	46
September	van Veen grab	B	120	12	120_12	9/12/2017	5001500297	5841	Caulleriella venefica	21
September	van Veen grab	B	120	12	120_12	9/12/2017	5515471301	387	Gemma gemma	18
September	van Veen grab	B	120	12	120_12	9/12/2017	5108019897	1324	Boonea bisuturalis	12
September	van Veen grab	B	120	12	120_12	9/12/2017	6169150998	6161	Grandidierella japonica	11
September	van Veen grab	B	120	12	120_12	9/12/2017	5001231698	6231	Streptosyllis verrilli	11
September	van Veen grab	B	120	12	120_12	9/12/2017	5001239598	3535	Opisthodonta longocirrata	10
September	van Veen grab	B	120	12	120_12	9/12/2017	5001431801	88	Streblospio benedicti	8
September	van Veen grab	B	120	12	120_12	9/12/2017	6169159795	260	Monocorophium acherusicum	6
September	van Veen grab	B	120	12	120_12	9/12/2017	6169210301	698	Elasmopus levis	6
September	van Veen grab	B	120	12	120_12	9/12/2017	6169040116	1323	Ampithoe valida	6
September	van Veen grab	B	120	12	120_12	9/12/2017	5520050201	5564	Lyonsia arenosa	6
September	van Veen grab	B	120	12	120_12	9/12/2017	5002050197	5842	Polygordius jouinae	6
September	van Veen grab	B	120	12	120_12	9/12/2017	5001130207	393	Hypereteone heteropoda	5
September	van Veen grab	B	120	12	120_12	9/12/2017	6171010901	685	Paracaprella tenuis	4
September	van Veen grab	B	120	12	120_12	9/12/2017	5001230701	4998	Exogone dispar	4
September	van Veen grab	B	120	12	120_12	9/12/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	B	120	12	120_12	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	B	120	12	120_12	9/12/2017	5001600201	391	Heteromastus filiformis	2
September	van Veen grab	B	120	12	120_12	9/12/2017	6169159796	696	Monocorophium tuberculatum	2
September	van Veen grab	B	120	12	120_12	9/12/2017	6169150302	699	Ericthonius brasiliensis	2
September	van Veen grab	B	120	12	120_12	9/12/2017	5515471101	1116	Mercenaria mercenaria	2
September	van Veen grab	B	120	12	120_12	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	2
September	van Veen grab	B	120	12	120_12	9/12/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	B	120	12	120_12	9/12/2017	4302020101	4804	Carinoma tremaphoros	2
September	van Veen grab	B	120	12	120_12	9/12/2017	616102	6323	Sphaeromatidae	2
September	van Veen grab	B	120	12	120_12	9/12/2017	5001131101	57	Eumida sanguinea	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001409897	102	Leitoscoloplos fragilis	1
September	van Veen grab	B	120	12	120_12	9/12/2017	6169210709	389	Gammarus mucronatus	1

September	van Veen grab	B	120	12	120_12	9/12/2017	6160010202	679	Cyathura burbancki	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	120	12	120_12	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5131070198	3590	Corambe obscura	1
September	van Veen grab	B	120	12	120_12	9/12/2017	6169349898	3954	Lysianopsis alba	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	B	120	12	120_12	9/12/2017	5001210297	5449	Microphthalmus fragilis	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5001600401	1779	Mediomastus ambiseta	1144
September	van Veen grab	B	121	29	121_29	9/12/2017	5004000000	466	Oligochaeta	281
September	van Veen grab	B	121	29	121_29	9/12/2017	6169150998	6161	Grandidierella japonica	109
September	van Veen grab	B	121	29	121_29	9/12/2017	5001230701	4998	Exogone dispar	95
September	van Veen grab	B	121	29	121_29	9/12/2017	6169349898	3954	Lysianopsis alba	86
September	van Veen grab	B	121	29	121_29	9/12/2017	5001131101	57	Eumida sanguinea	77
September	van Veen grab	B	121	29	121_29	9/12/2017	5001600201	391	Heteromastus filiformis	64
September	van Veen grab	B	121	29	121_29	9/12/2017	6169421598	714	Eobrolgus spinosus	64
September	van Veen grab	B	121	29	121_29	9/12/2017	5108019897	1324	Boonea bisuturalis	63
September	van Veen grab	B	121	29	121_29	9/12/2017	5110040103	600	Acteocina canaliculata	57
September	van Veen grab	B	121	29	121_29	9/12/2017	5001431801	88	Streblospio benedicti	54
September	van Veen grab	B	121	29	121_29	9/12/2017	6169211006	706	Melita nitida	51
September	van Veen grab	B	121	29	121_29	9/12/2017	5105089897	377	Tritia obsoleta	46
September	van Veen grab	B	121	29	121_29	9/12/2017	5001680899	1826	Polycirrus sp.	45
September	van Veen grab	B	121	29	121_29	9/12/2017	5001650202	3586	Sabellaria vulgaris	38
September	van Veen grab	B	121	29	121_29	9/12/2017	5001270105	368	Glycera dibranchiata	27
September	van Veen grab	B	121	29	121_29	9/12/2017	6169210301	698	Elasmopus levis	25
September	van Veen grab	B	121	29	121_29	9/12/2017	5001230104	1028	Myrianida prolifera	19
September	van Veen grab	B	121	29	121_29	9/12/2017	5001500297	5841	Caulleriella venefica	16
September	van Veen grab	B	121	29	121_29	9/12/2017	5131070198	3590	Corambe obscura	15
September	van Veen grab	B	121	29	121_29	9/12/2017	5001219798	1118	Oxydromus obscurus	14
September	van Veen grab	B	121	29	121_29	9/12/2017	6169150704	4610	Unciola serrata	14
September	van Veen grab	B	121	29	121_29	9/12/2017	5001709798	668	Parasabella microphthalma	12
September	van Veen grab	B	121	29	121_29	9/12/2017	6169159796	696	Monocorophium tuberculatum	12
September	van Veen grab	B	121	29	121_29	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	11
September	van Veen grab	B	121	29	121_29	9/12/2017	6162020602	680	Erichsonella filiformis	11
September	van Veen grab	B	121	29	121_29	9/12/2017	5001130207	393	Hypereteone heteropoda	10
September	van Veen grab	B	121	29	121_29	9/12/2017	6169150302	699	Ericthonius brasiliensis	10
September	van Veen grab	B	121	29	121_29	9/12/2017	5001430498	91	Polydora cornuta	9

September	van Veen grab	B	121	29	121_29	9/12/2017	5001660302	770	Pectinaria gouldii	9
September	van Veen grab	B	121	29	121_29	9/12/2017	5001249798	651	Alitta succinea	8
September	van Veen grab	B	121	29	121_29	9/12/2017	6171010901	685	Paracaprella tenuis	8
September	van Veen grab	B	121	29	121_29	9/12/2017	5103640205	4502	Crepidula convexa	8
September	van Veen grab	B	121	29	121_29	9/12/2017	5001500305	4624	Tharyx acutus	8
September	van Veen grab	B	121	29	121_29	9/12/2017	5001231304	1934	Odontosyllis fulgurans	6
September	van Veen grab	B	121	29	121_29	9/12/2017	4306050110	4805	Amphiporus bioculatus	6
September	van Veen grab	B	121	29	121_29	9/12/2017	6169159795	260	Monocorophium acherusicum	5
September	van Veen grab	B	121	29	121_29	9/12/2017	5001240396	650	Neanthes arenaceodentata	5
September	van Veen grab	B	121	29	121_29	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	5
September	van Veen grab	B	121	29	121_29	9/12/2017	5001280104	4519	Glycinde solitaria	5
September	van Veen grab	B	121	29	121_29	9/12/2017	5001430701	86	Spio filicornis	4
September	van Veen grab	B	121	29	121_29	9/12/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	B	121	29	121_29	9/12/2017	6163020198	4818	Ianiropsis serricaudis	4
September	van Veen grab	B	121	29	121_29	9/12/2017	5001231698	6231	Streptosyllis verrilli	4
September	van Veen grab	B	121	29	121_29	9/12/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	B	121	29	121_29	9/12/2017	6189029798	769	Dyspanopeus sayi	3
September	van Veen grab	B	121	29	121_29	9/12/2017	5001239698	1153	Salvatoria clavata	3
September	van Veen grab	B	121	29	121_29	9/12/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	B	121	29	121_29	9/12/2017	5131020299	4516	Polycera sp.	3
September	van Veen grab	B	121	29	121_29	9/12/2017	5001431001	92	Spiophanes bombyx	2
September	van Veen grab	B	121	29	121_29	9/12/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	B	121	29	121_29	9/12/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	B	121	29	121_29	9/12/2017	5515250301	1321	Mulinia lateralis	2
September	van Veen grab	B	121	29	121_29	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	121	29	121_29	9/12/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	B	121	29	121_29	9/12/2017	5103640299	4514	Crepidula sp.	2
September	van Veen grab	B	121	29	121_29	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5515471301	387	Gemma gemma	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	B	121	29	121_29	9/12/2017	3906050601	1628	Euplana gracilis	1
September	van Veen grab	B	121	29	121_29	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	121	29	121_29	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	122	1	122_1	9/12/2017	5001431801	88	Streblospio benedicti	135
September	van Veen grab	B	122	1	122_1	9/12/2017	5001600401	1779	Mediomastus ambiseta	91

September	van Veen grab	B	122	1	122_1	9/12/2017	5001500305	4624	Tharyx acutus	52
September	van Veen grab	B	122	1	122_1	9/12/2017	5001631102	83	Euclymene collaris	34
September	van Veen grab	B	122	1	122_1	9/12/2017	5001650202	3586	Sabellaria vulgaris	34
September	van Veen grab	B	122	1	122_1	9/12/2017	5004000000	466	Oligochaeta	32
September	van Veen grab	B	122	1	122_1	9/12/2017	6169150704	4610	Unciola serrata	29
September	van Veen grab	B	122	1	122_1	9/12/2017	6169159796	696	Monocorophium tuberculatum	21
September	van Veen grab	B	122	1	122_1	9/12/2017	5001600201	391	Heteromastus filiformis	18
September	van Veen grab	B	122	1	122_1	9/12/2017	6169159795	260	Monocorophium acherusicum	17
September	van Veen grab	B	122	1	122_1	9/12/2017	5001500000	2066	Cirratulidae	16
September	van Veen grab	B	122	1	122_1	9/12/2017	6169421598	714	Eobrolgus spinosus	15
September	van Veen grab	B	122	1	122_1	9/12/2017	6169020109	253	Ampelisca vadorum	13
September	van Veen grab	B	122	1	122_1	9/12/2017	5001270105	368	Glycera dibranchiata	13
September	van Veen grab	B	122	1	122_1	9/12/2017	6169020108	252	Ampelisca abdita	12
September	van Veen grab	B	122	1	122_1	9/12/2017	6169349898	3954	Lysianopsis alba	9
September	van Veen grab	B	122	1	122_1	9/12/2017	5001680899	1826	Polycirrus sp.	8
September	van Veen grab	B	122	1	122_1	9/12/2017	5103640207	150	Crepidula plana	7
September	van Veen grab	B	122	1	122_1	9/12/2017	5103640205	4502	Crepidula convexa	7
September	van Veen grab	B	122	1	122_1	9/12/2017	6169150998	6161	Grandidierella japonica	7
September	van Veen grab	B	122	1	122_1	9/12/2017	5001131101	57	Eumida sanguinea	6
September	van Veen grab	B	122	1	122_1	9/12/2017	5001330198	4665	Drilonereis longa	6
September	van Veen grab	B	122	1	122_1	9/12/2017	5001230701	4998	Exogone dispar	6
September	van Veen grab	B	122	1	122_1	9/12/2017	5001280104	4519	Glycinde solitaria	5
September	van Veen grab	B	122	1	122_1	9/12/2017	5001130207	393	Hypereteone heteropoda	4
September	van Veen grab	B	122	1	122_1	9/12/2017	5001219798	1118	Oxydromus obscurus	4
September	van Veen grab	B	122	1	122_1	9/12/2017	6160010202	679	Cyathura burbancki	3
September	van Veen grab	B	122	1	122_1	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	3
September	van Veen grab	B	122	1	122_1	9/12/2017	5520050201	5564	Lyonsia arenosa	3
September	van Veen grab	B	122	1	122_1	9/12/2017	5001240396	650	Neanthes arenaceodentata	2
September	van Veen grab	B	122	1	122_1	9/12/2017	500163	2075	Maldanidae	2
September	van Veen grab	B	122	1	122_1	9/12/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	122	1	122_1	9/12/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	B	122	1	122_1	9/12/2017	6169210301	698	Elasmopus levis	1
September	van Veen grab	B	122	1	122_1	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	122	1	122_1	9/12/2017	5131070198	3590	Corambe obscura	1
September	van Veen grab	B	122	1	122_1	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	122	1	122_1	9/12/2017	5001210103	4609	Gyptis vittata	1
September	van Veen grab	B	122	1	122_1	9/12/2017	4306050112	4961	Amphiporus ochraceus	1
September	van Veen grab	B	122	1	122_1	9/12/2017	5001231698	6231	Streptosyllis verrilli	1

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September	van Veen grab	B	123	20	123_20	9/12/2017	5001600401	1779	Mediomastus ambiseta	926
September	van Veen grab	B	123	20	123_20	9/12/2017	5004000000	466	Oligochaeta	216
September	van Veen grab	B	123	20	123_20	9/12/2017	5001431801	88	Streblospio benedicti	124
September	van Veen grab	B	123	20	123_20	9/12/2017	5001600201	391	Heteromastus filiformis	55
September	van Veen grab	B	123	20	123_20	9/12/2017	5105089897	377	Tritia obsoleta	50
September	van Veen grab	B	123	20	123_20	9/12/2017	5108019897	1324	Boonea bisuturalis	35
September	van Veen grab	B	123	20	123_20	9/12/2017	5001650202	3586	Sabellaria vulgaris	22
September	van Veen grab	B	123	20	123_20	9/12/2017	6169150998	6161	Grandidierella japonica	21
September	van Veen grab	B	123	20	123_20	9/12/2017	6169211006	706	Melita nitida	14
September	van Veen grab	B	123	20	123_20	9/12/2017	5001230701	4998	Exogone dispar	14
September	van Veen grab	B	123	20	123_20	9/12/2017	5001131101	57	Eumida sanguinea	13
September	van Veen grab	B	123	20	123_20	9/12/2017	5001270105	368	Glycera dibranchiata	13
September	van Veen grab	B	123	20	123_20	9/12/2017	6169210301	698	Elasmopus levis	13
September	van Veen grab	B	123	20	123_20	9/12/2017	5001500305	4624	Tharyx acutus	12
September	van Veen grab	B	123	20	123_20	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	9
September	van Veen grab	B	123	20	123_20	9/12/2017	5001430701	86	Spio filicornis	8
September	van Veen grab	B	123	20	123_20	9/12/2017	5001280104	4519	Glycinde solitaria	8
September	van Veen grab	B	123	20	123_20	9/12/2017	5103640205	4502	Crepidula convexa	7
September	van Veen grab	B	123	20	123_20	9/12/2017	6169150704	4610	Unciola serrata	7
September	van Veen grab	B	123	20	123_20	9/12/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	B	123	20	123_20	9/12/2017	6169159796	696	Monocorophium tuberculatum	6
September	van Veen grab	B	123	20	123_20	9/12/2017	6169349898	3954	Lysianopsis alba	5
September	van Veen grab	B	123	20	123_20	9/12/2017	5001231698	6231	Streptosyllis verrilli	5
September	van Veen grab	B	123	20	123_20	9/12/2017	6169159795	260	Monocorophium acherusicum	4
September	van Veen grab	B	123	20	123_20	9/12/2017	5110040103	600	Acteocina canaliculata	4
September	van Veen grab	B	123	20	123_20	9/12/2017	6169421598	714	Eobrolgus spinosus	4
September	van Veen grab	B	123	20	123_20	9/12/2017	5001680899	1826	Polycirrus sp.	4
September	van Veen grab	B	123	20	123_20	9/12/2017	5001231304	1934	Odontosyllis fulgurans	4
September	van Veen grab	B	123	20	123_20	9/12/2017	6162020798	247	Edotia triloba	3
September	van Veen grab	B	123	20	123_20	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	B	123	20	123_20	9/12/2017	5001660302	770	Pectinaria gouldii	3
September	van Veen grab	B	123	20	123_20	9/12/2017	5001500297	5841	Caulleriella venefica	3
September	van Veen grab	B	123	20	123_20	9/12/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	B	123	20	123_20	9/12/2017	5001409899	411	Leitoscoloplos sp.	2
September	van Veen grab	B	123	20	123_20	9/12/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	B	123	20	123_20	9/12/2017	5001239598	3535	Opisthodonta longocirrata	2
September	van Veen grab	B	123	20	123_20	9/12/2017	5001210103	4609	Gyptis vittata	2
September	van Veen grab	B	123	20	123_20	9/12/2017	5001330198	4665	Drilonereis longa	2

September	van Veen grab	B	123	20	123_20	9/12/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	B	123	20	123_20	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	123	20	123_20	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	123	20	123_20	9/12/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	B	123	20	123_20	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	123	20	123_20	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	B	123	20	123_20	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	123	20	123_20	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	123	20	123_20	9/12/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	B	123	20	123_20	9/12/2017	5001439898	4817	Boccardiella hamata	1
September	van Veen grab	B	123	20	123_20	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001600401	1779	Mediomastus ambiseta	197
September	van Veen grab	B	124	16	124_16	9/12/2017	5105089897	377	Tritia obsoleta	158
September	van Veen grab	B	124	16	124_16	9/12/2017	5004000000	466	Oligochaeta	97
September	van Veen grab	B	124	16	124_16	9/12/2017	6169150998	6161	Grandidierella japonica	59
September	van Veen grab	B	124	16	124_16	9/12/2017	5001270105	368	Glycera dibranchiata	36
September	van Veen grab	B	124	16	124_16	9/12/2017	5001431801	88	Streblospio benedicti	27
September	van Veen grab	B	124	16	124_16	9/12/2017	5001231698	6231	Streptosyllis verrilli	20
September	van Veen grab	B	124	16	124_16	9/12/2017	5515471301	387	Gemma gemma	19
September	van Veen grab	B	124	16	124_16	9/12/2017	6169210301	698	Elasmopus levis	18
September	van Veen grab	B	124	16	124_16	9/12/2017	5103640205	4502	Crepidula convexa	17
September	van Veen grab	B	124	16	124_16	9/12/2017	6169150302	699	Ericthonius brasiliensis	16
September	van Veen grab	B	124	16	124_16	9/12/2017	5001500297	5841	Caulleriella venefica	16
September	van Veen grab	B	124	16	124_16	9/12/2017	6169159796	696	Monocorophium tuberculatum	15
September	van Veen grab	B	124	16	124_16	9/12/2017	6169040116	1323	Ampithoe valida	14
September	van Veen grab	B	124	16	124_16	9/12/2017	5108019897	1324	Boonea bisuturalis	12
September	van Veen grab	B	124	16	124_16	9/12/2017	6171010727	1655	Caprella penantis	11
September	van Veen grab	B	124	16	124_16	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	10
September	van Veen grab	B	124	16	124_16	9/12/2017	6169159795	260	Monocorophium acherusicum	9
September	van Veen grab	B	124	16	124_16	9/12/2017	6171010901	685	Paracaprella tenuis	7
September	van Veen grab	B	124	16	124_16	9/12/2017	6169159896	695	Apocorophium acutum	6
September	van Veen grab	B	124	16	124_16	9/12/2017	6183060230	1619	Pagurus longicarpus	6
September	van Veen grab	B	124	16	124_16	9/12/2017	5103640299	4514	Crepidula sp.	5
September	van Veen grab	B	124	16	124_16	9/12/2017	5001430701	86	Spio filicornis	4
September	van Veen grab	B	124	16	124_16	9/12/2017	5001600201	391	Heteromastus filiformis	4
September	van Veen grab	B	124	16	124_16	9/12/2017	5001430498	91	Polydora cornuta	3
September	van Veen grab	B	124	16	124_16	9/12/2017	6162020798	247	Edotia triloba	3
September	van Veen grab	B	124	16	124_16	9/12/2017	5001130207	393	Hypereteone heteropoda	3

September	van Veen grab	B	124	16	124_16	9/12/2017	5001709798	668	Parasabella microphthalma	3
September	van Veen grab	B	124	16	124_16	9/12/2017	5002050197	5842	Polygordius jouinae	3
September	van Veen grab	B	124	16	124_16	9/12/2017	6179220103	301	Crangon septemspinosa	2
September	van Veen grab	B	124	16	124_16	9/12/2017	6169210709	389	Gammarus mucronatus	2
September	van Veen grab	B	124	16	124_16	9/12/2017	6169260901	709	Microprotopus raneyi	2
September	van Veen grab	B	124	16	124_16	9/12/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	B	124	16	124_16	9/12/2017	5001131101	57	Eumida sanguinea	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	B	124	16	124_16	9/12/2017	6162020308	244	Idotea balthica	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	124	16	124_16	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	B	124	16	124_16	9/12/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001500305	4624	Tharyx acutus	1
September	van Veen grab	B	124	16	124_16	9/12/2017	5001230701	4998	Exogone dispar	1
September	van Veen grab	B	124	16	124_16	9/12/2017	6169439898	6142	Incisocalliope aestuarius	1
September	van Veen grab	B	124	16	124_16	9/12/2017	616102	6323	Sphaeromatidae	1
September	van Veen grab	B	125	19	125_19	9/12/2017	5001600401	1779	Mediomastus ambiseta	421
September	van Veen grab	B	125	19	125_19	9/12/2017	5004000000	466	Oligochaeta	391
September	van Veen grab	B	125	19	125_19	9/12/2017	5001431801	88	Streblospio benedicti	105
September	van Veen grab	B	125	19	125_19	9/12/2017	6169150998	6161	Grandidierella japonica	73
September	van Veen grab	B	125	19	125_19	9/12/2017	5108019897	1324	Boonea bisuturalis	66
September	van Veen grab	B	125	19	125_19	9/12/2017	5001270105	368	Glycera dibranchiata	63
September	van Veen grab	B	125	19	125_19	9/12/2017	5105089897	377	Tritia obsoleta	40
September	van Veen grab	B	125	19	125_19	9/12/2017	5001500297	5841	Caulleriella venefica	36
September	van Veen grab	B	125	19	125_19	9/12/2017	5001600201	391	Heteromastus filiformis	32
September	van Veen grab	B	125	19	125_19	9/12/2017	6169159896	695	Apocorophium acutum	26
September	van Veen grab	B	125	19	125_19	9/12/2017	6169210301	698	Elasmopus levis	26
September	van Veen grab	B	125	19	125_19	9/12/2017	6169159795	260	Monocorophium acherusicum	23
September	van Veen grab	B	125	19	125_19	9/12/2017	5103640205	4502	Crepidula convexa	20
September	van Veen grab	B	125	19	125_19	9/12/2017	6171010901	685	Paracaprella tenuis	19
September	van Veen grab	B	125	19	125_19	9/12/2017	6169159796	696	Monocorophium tuberculatum	16
September	van Veen grab	B	125	19	125_19	9/12/2017	6171010727	1655	Caprella penantis	16
September	van Veen grab	B	125	19	125_19	9/12/2017	5515471301	387	Gemma gemma	12
September	van Veen grab	B	125	19	125_19	9/12/2017	5110040103	600	Acteocina canaliculata	12
September	van Veen grab	B	125	19	125_19	9/12/2017	5001231698	6231	Streptosyllis verrilli	12

September	van Veen grab	B	125	19	125_19	9/12/2017	6162020798	247	Edotia triloba	11
September	van Veen grab	B	125	19	125_19	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	11
September	van Veen grab	B	125	19	125_19	9/12/2017	6169150302	699	Ericthonius brasiliensis	9
September	van Veen grab	B	125	19	125_19	9/12/2017	5001430701	86	Spio filicornis	6
September	van Veen grab	B	125	19	125_19	9/12/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	B	125	19	125_19	9/12/2017	4306050110	4805	Amphiporus bioculatus	6
September	van Veen grab	B	125	19	125_19	9/12/2017	5001230701	4998	Exogone dispar	6
September	van Veen grab	B	125	19	125_19	9/12/2017	5001131101	57	Eumida sanguinea	5
September	van Veen grab	B	125	19	125_19	9/12/2017	6169040116	1323	Ampithoe valida	5
September	van Veen grab	B	125	19	125_19	9/12/2017	5001650202	3586	Sabellaria vulgaris	4
September	van Veen grab	B	125	19	125_19	9/12/2017	616102	6323	Sphaeromatidae	4
September	van Veen grab	B	125	19	125_19	9/12/2017	5001430498	91	Polydora cornuta	3
September	van Veen grab	B	125	19	125_19	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	B	125	19	125_19	9/12/2017	5001709798	668	Parasabella microphthalma	3
September	van Veen grab	B	125	19	125_19	9/12/2017	6169211006	706	Melita nitida	3
September	van Veen grab	B	125	19	125_19	9/12/2017	6183060230	1619	Pagurus longicarpus	3
September	van Veen grab	B	125	19	125_19	9/12/2017	3906050601	1628	Euplana gracilis	3
September	van Veen grab	B	125	19	125_19	9/12/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	B	125	19	125_19	9/12/2017	5001660302	770	Pectinaria gouldii	2
September	van Veen grab	B	125	19	125_19	9/12/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	B	125	19	125_19	9/12/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	B	125	19	125_19	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	B	125	19	125_19	9/12/2017	5103640299	4514	Crepidula sp.	2
September	van Veen grab	B	125	19	125_19	9/12/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	B	125	19	125_19	9/12/2017	5002050197	5842	Polygordius jouinae	2
September	van Veen grab	B	125	19	125_19	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	125	19	125_19	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	125	19	125_19	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	125	19	125_19	9/12/2017	5001210103	4609	Gyptis vittata	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5004000000	466	Oligochaeta	1037
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001600401	1779	Mediomastus ambiseta	971
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001500297	5841	Caulleriella venefica	153
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169150998	6161	Grandidierella japonica	148
September	van Veen grab	HB	127	17	127_17	9/11/2017	5108019897	1324	Boonea bisuturalis	76
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001230701	4998	Exogone dispar	55
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001270105	368	Glycera dibranchiata	39
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001431801	88	Streblospio benedicti	34
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001600201	391	Heteromastus filiformis	31

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September	van Veen grab	HB	127	17	127_17	9/11/2017	6169159795	260	Monocorophium acherusicum	30
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169150302	699	Ericthonius brasiliensis	28
September	van Veen grab	HB	127	17	127_17	9/11/2017	5110040103	600	Acteocina canaliculata	18
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001231698	6231	Streptosyllis verrilli	17
September	van Veen grab	HB	127	17	127_17	9/11/2017	5105089897	377	Tritia obsoleta	16
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169159796	696	Monocorophium tuberculatum	16
September	van Veen grab	HB	127	17	127_17	9/11/2017	6171010727	1655	Caprella penantis	16
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001130207	393	Hypereteone heteropoda	15
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001131101	57	Eumida sanguinea	14
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169349898	3954	Lysianopsis alba	13
September	van Veen grab	HB	127	17	127_17	9/11/2017	5105089898	162	Tritia trivittata	11
September	van Veen grab	HB	127	17	127_17	9/11/2017	4306050110	4805	Amphiporus bioculatus	11
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001219798	1118	Oxydromus obscurus	10
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	9
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169210301	698	Elasmopus levis	9
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001239598	3535	Opisthodonta longocirrata	9
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001500305	4624	Tharyx acutus	9
September	van Veen grab	HB	127	17	127_17	9/11/2017	6171010901	685	Paracaprella tenuis	8
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169421598	714	Eobrolgus spinosus	8
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169159896	695	Apocorophium acutum	7
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001239698	1153	Salvatoria clavata	7
September	van Veen grab	HB	127	17	127_17	9/11/2017	5103640205	4502	Crepidula convexa	7
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169040116	1323	Ampithoe valida	5
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001680899	1826	Polycirrus sp.	5
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001231304	1934	Odontosyllis fulgurans	5
September	van Veen grab	HB	127	17	127_17	9/11/2017	6183060230	1619	Pagurus longicarpus	4
September	van Veen grab	HB	127	17	127_17	9/11/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001409898	381	Leitoscoloplos robustus	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001709798	668	Parasabella microphthalma	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5515471101	1116	Mercenaria mercenaria	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001650202	3586	Sabellaria vulgaris	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5002050197	5842	Polygordius jouinae	3
September	van Veen grab	HB	127	17	127_17	9/11/2017	5103640207	150	Crepidula plana	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	6162020798	247	Edotia triloba	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169020108	252	Ampelisca abdita	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001249798	651	Alitta succinea	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169211006	706	Melita nitida	2

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September	van Veen grab	HB	127	17	127_17	9/11/2017	5001210201	1199	Microphthalmus sczelkowii	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	5105010601	4579	Eupleura caudata	2
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5103640204	149	Crepidula fornicata	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5105039898	157	Astyris lunata	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001409899	411	Leitoscoloplos sp.	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001270104	450	Glycera americana	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	HB	127	17	127_17	9/11/2017	3901000010	6238	Turbellaria sp. 10 nai	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5004000000	466	Oligochaeta	573
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001600401	1779	Mediomastus ambiseta	551
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169150998	6161	Grandidierella japonica	185
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001500297	5841	Caulleriella venefica	89
September	van Veen grab	HB	128	21	128_21	9/11/2017	6171010727	1655	Caprella penantis	77
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001431801	88	Streblospio benedicti	66
September	van Veen grab	HB	128	21	128_21	9/11/2017	5515471301	387	Gemma gemma	54
September	van Veen grab	HB	128	21	128_21	9/11/2017	5108019897	1324	Boonea bisuturalis	53
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001230701	4998	Exogone dispar	53
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001600201	391	Heteromastus filiformis	36
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001239598	3535	Opisthodonta longocirrata	36
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169210301	698	Elasmopus levis	32
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169349898	3954	Lysianopsis alba	32
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001270105	368	Glycera dibranchiata	27
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169150302	699	Ericthonius brasiliensis	24
September	van Veen grab	HB	128	21	128_21	9/11/2017	6171010901	685	Paracaprella tenuis	15
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001231698	6231	Streptosyllis verrilli	14
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169159796	696	Monocorophium tuberculatum	13
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169421598	714	Eobrolgus spinosus	12

September	van Veen grab	HB	128	21	128_21	9/11/2017	5001131101	57	Eumida sanguinea	11
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169159795	260	Monocorophium acherusicum	11
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001680899	1826	Polycirrus sp.	11
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169211006	706	Melita nitida	9
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001219798	1118	Oxydromus obscurus	9
September	van Veen grab	HB	128	21	128_21	9/11/2017	5105089897	377	Tritia obsoleta	6
September	van Veen grab	HB	128	21	128_21	9/11/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001650202	3586	Sabellaria vulgaris	6
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	5
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001130207	393	Hypereteone heteropoda	5
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001239698	1153	Salvatoria clavata	5
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001500305	4624	Tharyx acutus	5
September	van Veen grab	HB	128	21	128_21	9/11/2017	4306050110	4805	Amphiporus bioculatus	5
September	van Veen grab	HB	128	21	128_21	9/11/2017	6162020602	680	Erichsonella filiformis	4
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	HB	128	21	128_21	9/11/2017	6189029798	769	Dyspanopeus sayi	3
September	van Veen grab	HB	128	21	128_21	9/11/2017	3906050601	1628	Euplana gracilis	3
September	van Veen grab	HB	128	21	128_21	9/11/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	6179220103	301	Crangon septemspinosa	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	5110040103	600	Acteocina canaliculata	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	6160010202	679	Cyathura burbancki	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169040116	1323	Ampithoe valida	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	5110019898	3580	Japonactaeon punctostriatus	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001060303	64	Sthenelais limicola	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001409899	411	Leitoscoloplos sp.	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169481099	1221	Stenothoe sp.	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	500124	2071	Nereididae	1

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September	van Veen grab	HB	128	21	128_21	9/11/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	4306050302	4949	Zygonemertes virescens	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	128	21	128_21	9/11/2017	6179160199	8373500	Hippolyte sp.	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001600401	1779	Mediomastus ambiseta	841
September	van Veen grab	HB	129	10	129_10	9/12/2017	5004000000	466	Oligochaeta	689
September	van Veen grab	HB	129	10	129_10	9/12/2017	5515471301	387	Gemma gemma	274
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001500297	5841	Caulleriella venefica	248
September	van Veen grab	HB	129	10	129_10	9/12/2017	6171010727	1655	Caprella penantis	142
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169150998	6161	Grandidierella japonica	136
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001431801	88	Streblospio benedicti	134
September	van Veen grab	HB	129	10	129_10	9/12/2017	5108019897	1324	Boonea bisuturalis	96
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169159896	695	Apocorophium acutum	83
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001231698	6231	Streptosyllis verrilli	44
September	van Veen grab	HB	129	10	129_10	9/12/2017	5105089897	377	Tritia obsoleta	43
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001270105	368	Glycera dibranchiata	33
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001600201	391	Heteromastus filiformis	33
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001239598	3535	Opisthodonta longocirrata	27
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169159795	260	Monocorophium acherusicum	25
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169150302	699	Ericthonius brasiliensis	13
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001130207	393	Hypereteone heteropoda	10
September	van Veen grab	HB	129	10	129_10	9/12/2017	3906050601	1628	Euplana gracilis	10
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001500305	4624	Tharyx acutus	10
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169040116	1323	Ampithoe valida	8
September	van Veen grab	HB	129	10	129_10	9/12/2017	5103640205	4502	Crepidula convexa	8
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001680899	1826	Polycirrus sp.	7
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001230701	4998	Exogone dispar	7
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001131101	57	Eumida sanguinea	6
September	van Veen grab	HB	129	10	129_10	9/12/2017	6171010901	685	Paracaprella tenuis	6
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001239698	1153	Salvatoria clavata	6
September	van Veen grab	HB	129	10	129_10	9/12/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	HB	129	10	129_10	9/12/2017	6183060230	1619	Pagurus longicarpus	6
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169349898	3954	Lysianopsis alba	5
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001210103	4609	Gyptis vittata	5
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001249798	651	Alitta succinea	3

September	van Veen grab	HB	129	10	129_10	9/12/2017	6169159796	696	Monocorophium tuberculatum	3
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001230104	1028	Myrianida prolifera	3
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	HB	129	10	129_10	9/12/2017	5103640207	150	Crepidula plana	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	6162020798	247	Edotia triloba	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169210301	698	Elasmopus levis	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	3901000008	6035	Turbellaria sp. 5 nai	2
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001021104	637	Lepidonotus sublevis	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169211006	706	Melita nitida	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	6169421598	714	Eobrolgus spinosus	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001432099	774	Scolelepis sp.	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001210299	1124	Microphthalmus sp.	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001650202	3586	Sabellaria vulgaris	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	4306050302	4949	Zygonemertes virescens	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	5001210297	5449	Microphthalmus fragilis	1
September	van Veen grab	HB	129	10	129_10	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001600401	1779	Mediomastus ambiseta	200
September	van Veen grab	B	131	17	131_17	9/12/2017	5004000000	466	Oligochaeta	187
September	van Veen grab	B	131	17	131_17	9/12/2017	5001431801	88	Streblospio benedicti	75
September	van Veen grab	B	131	17	131_17	9/12/2017	5515471301	387	Gemma gemma	57
September	van Veen grab	B	131	17	131_17	9/12/2017	6169150998	6161	Grandidierella japonica	49
September	van Veen grab	B	131	17	131_17	9/12/2017	5001500297	5841	Caulleriella venefica	47
September	van Veen grab	B	131	17	131_17	9/12/2017	5001270105	368	Glycera dibranchiata	33
September	van Veen grab	B	131	17	131_17	9/12/2017	5105089897	377	Tritia obsoleta	24
September	van Veen grab	B	131	17	131_17	9/12/2017	5108019897	1324	Boonea bisuturalis	20
September	van Veen grab	B	131	17	131_17	9/12/2017	5110040103	600	Acteocina canaliculata	15
September	van Veen grab	B	131	17	131_17	9/12/2017	5001600201	391	Heteromastus filiformis	12
September	van Veen grab	B	131	17	131_17	9/12/2017	5001680899	1826	Polycirrus sp.	12

September	van Veen grab	B	131	17	131_17	9/12/2017	5103640205	4502	Crepidula convexa	7
September	van Veen grab	B	131	17	131_17	9/12/2017	5001231698	6231	Streptosyllis verrilli	6
September	van Veen grab	B	131	17	131_17	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	5
September	van Veen grab	B	131	17	131_17	9/12/2017	6169349898	3954	Lysianopsis alba	5
September	van Veen grab	B	131	17	131_17	9/12/2017	5001131101	57	Eumida sanguinea	4
September	van Veen grab	B	131	17	131_17	9/12/2017	6169210301	698	Elasmopus levis	4
September	van Veen grab	B	131	17	131_17	9/12/2017	5001230701	4998	Exogone dispar	4
September	van Veen grab	B	131	17	131_17	9/12/2017	6169150302	699	Ericthonius brasiliensis	3
September	van Veen grab	B	131	17	131_17	9/12/2017	5001500305	4624	Tharyx acutus	3
September	van Veen grab	B	131	17	131_17	9/12/2017	5001430498	91	Polydora cornuta	2
September	van Veen grab	B	131	17	131_17	9/12/2017	6169020108	252	Ampelisca abdita	2
September	van Veen grab	B	131	17	131_17	9/12/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	B	131	17	131_17	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	131	17	131_17	9/12/2017	5001650202	3586	Sabellaria vulgaris	2
September	van Veen grab	B	131	17	131_17	9/12/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	B	131	17	131_17	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6169421598	714	Eobrolgus spinosus	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6169040116	1323	Ampithoe valida	1
September	van Veen grab	B	131	17	131_17	9/12/2017	5001660000	2063	Pectinariidae	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	B	131	17	131_17	9/12/2017	6189010301	9378760	Callinectes sapidus	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	5004000000	466	Oligochaeta	1238
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001600401	1779	Mediomastus ambiseta	843
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169150998	6161	Grandidierella japonica	132
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001431801	88	Streblospio benedicti	117
September	van Veen grab	HB	133	8	133_8	9/12/2017	5108019897	1324	Boonea bisuturalis	49
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001500297	5841	Caulleriella venefica	48
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001270105	368	Glycera dibranchiata	36
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001600201	391	Heteromastus filiformis	35

September	van Veen grab	HB	133	8	133_8	9/12/2017	5001230701	4998	Exogone dispar	35
September	van Veen grab	HB	133	8	133_8	9/12/2017	5105089897	377	Tritia obsoleta	29
September	van Veen grab	HB	133	8	133_8	9/12/2017	5110040103	600	Acteocina canaliculata	24
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001219798	1118	Oxydromus obscurus	24
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169210301	698	Elasmopus levis	19
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	17
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001239598	3535	Opisthodonta longocirrata	16
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001131101	57	Eumida sanguinea	13
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001130207	393	Hypereteone heteropoda	12
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001210103	4609	Gyptis vittata	11
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169159795	260	Monocorophium acherusicum	10
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169349898	3954	Lysianopsis alba	10
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001231698	6231	Streptosyllis verrilli	10
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001239698	1153	Salvatoria clavata	9
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001500305	4624	Tharyx acutus	9
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169150302	699	Ericthonius brasiliensis	8
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001709798	668	Parasabella microphthalma	7
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169421598	714	Eobrolgus spinosus	7
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169020108	252	Ampelisca abdita	6
September	van Veen grab	HB	133	8	133_8	9/12/2017	5515471301	387	Gemma gemma	6
September	van Veen grab	HB	133	8	133_8	9/12/2017	5108019898	610	Boonea seminuda	6
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169211006	706	Melita nitida	6
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001650202	3586	Sabellaria vulgaris	6
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169159796	696	Monocorophium tuberculatum	5
September	van Veen grab	HB	133	8	133_8	9/12/2017	6171010727	1655	Caprella penantis	5
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001680899	1826	Polycirrus sp.	5
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001660302	770	Pectinaria gouldii	3
September	van Veen grab	HB	133	8	133_8	9/12/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	HB	133	8	133_8	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	HB	133	8	133_8	9/12/2017	5103640204	149	Crepidula fornicata	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	6154050801	235	Oxyurostylis smithi	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	6162020798	247	Edotia triloba	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	6160010202	679	Cyathura burbancki	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	5105010301	1146	Urosalpinx cinerea	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	5520050201	5564	Lyonsia arenosa	2
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001430701	86	Spio filicornis	1

September	van Veen grab	HB	133	8	133_8	9/12/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169040116	1323	Ampithoe valida	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	6189020901	1342	Rhithropanopeus harrisii	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	HB	133	8	133_8	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5004000000	466	Oligochaeta	755
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001600401	1779	Mediomastus ambiseta	755
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001431801	88	Streblospio benedicti	104
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001500297	5841	Caulleriella venefica	63
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001230701	4998	Exogone dispar	52
September	van Veen grab	HB	134	20	134_20	9/12/2017	5108019897	1324	Boonea bisuturalis	49
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169150998	6161	Grandidierella japonica	48
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001270105	368	Glycera dibranchiata	34
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001600201	391	Heteromastus filiformis	31
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169150302	699	Ericthonius brasiliensis	31
September	van Veen grab	HB	134	20	134_20	9/12/2017	5105089897	377	Tritia obsoleta	21
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001131101	57	Eumida sanguinea	20
September	van Veen grab	HB	134	20	134_20	9/12/2017	6171010901	685	Paracaprella tenuis	20
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001239598	3535	Opisthodonta longocirrata	20
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001650202	3586	Sabellaria vulgaris	20
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001680899	1826	Polycirrus sp.	17
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169421598	714	Eobrolgus spinosus	14
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001130207	393	Hypereteone heteropoda	13
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169210301	698	Elasmopus levis	13
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169349898	3954	Lysianopsis alba	13
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001430701	86	Spio filicornis	12
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	11
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169159795	260	Monocorophium acherusicum	11
September	van Veen grab	HB	134	20	134_20	9/12/2017	6171010727	1655	Caprella penantis	11
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169159796	696	Monocorophium tuberculatum	10
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001231698	6231	Streptosyllis verrilli	10
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001219798	1118	Oxydromus obscurus	9

September	van Veen grab	HB	134	20	134_20	9/12/2017	5103640205	4502	Crepidula convexa	8
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001210103	4609	Gyptis vittata	8
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169040116	1323	Ampithoe valida	7
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	HB	134	20	134_20	9/12/2017	4306050110	4805	Amphiporus bioculatus	7
September	van Veen grab	HB	134	20	134_20	9/12/2017	5517010201	205	Mya arenaria	6
September	van Veen grab	HB	134	20	134_20	9/12/2017	5515471301	387	Gemma gemma	6
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001709798	668	Parasabella microphthalma	5
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001231304	1934	Odontosyllis fulgurans	5
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001239698	1153	Salvatoria clavata	4
September	van Veen grab	HB	134	20	134_20	9/12/2017	6183060230	1619	Pagurus longicarpus	4
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001280104	4519	Glycinde solitaria	4
September	van Veen grab	HB	134	20	134_20	9/12/2017	5105089898	162	Tritia trivittata	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001409899	411	Leitoscoloplos sp.	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001249798	651	Alitta succinea	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	6160010202	679	Cyathura burbancki	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	6162020602	680	Erichsonella filiformis	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	500124	2071	Nereididae	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	5103640299	4514	Crepidula sp.	2
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	3906050601	1628	Euplana gracilis	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	HB	134	20	134_20	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5004000000	466	Oligochaeta	736
September	van Veen grab	B	135	6	135_6	9/12/2017	5001600401	1779	Mediomastus ambiseta	623
September	van Veen grab	B	135	6	135_6	9/12/2017	5001431801	88	Streblospio benedicti	59
September	van Veen grab	B	135	6	135_6	9/12/2017	5001500297	5841	Caulleriella venefica	43
September	van Veen grab	B	135	6	135_6	9/12/2017	5105089897	377	Tritia obsoleta	31

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September	van Veen grab	B	135	6	135_6	9/12/2017	5001600201	391	Heteromastus filiformis	29
September	van Veen grab	B	135	6	135_6	9/12/2017	6169150998	6161	Grandidierella japonica	27
September	van Veen grab	B	135	6	135_6	9/12/2017	5001270105	368	Glycera dibranchiata	26
September	van Veen grab	B	135	6	135_6	9/12/2017	5515471301	387	Gemma gemma	24
September	van Veen grab	B	135	6	135_6	9/12/2017	5001680899	1826	Polycirrus sp.	24
September	van Veen grab	B	135	6	135_6	9/12/2017	5001230701	4998	Exogone dispar	24
September	van Veen grab	B	135	6	135_6	9/12/2017	5001650202	3586	Sabellaria vulgaris	20
September	van Veen grab	B	135	6	135_6	9/12/2017	5103640204	149	Crepidula fornicata	18
September	van Veen grab	B	135	6	135_6	9/12/2017	5001430701	86	Spio filicornis	16
September	van Veen grab	B	135	6	135_6	9/12/2017	5001239598	3535	Opisthodonta longocirrata	12
September	van Veen grab	B	135	6	135_6	9/12/2017	5108019897	1324	Boonea bisuturalis	11
September	van Veen grab	B	135	6	135_6	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	9
September	van Veen grab	B	135	6	135_6	9/12/2017	5001130207	393	Hypereteone heteropoda	9
September	van Veen grab	B	135	6	135_6	9/12/2017	5110040103	600	Acteocina canaliculata	9
September	van Veen grab	B	135	6	135_6	9/12/2017	6169210301	698	Elasmopus levis	9
September	van Veen grab	B	135	6	135_6	9/12/2017	5103640205	4502	Crepidula convexa	8
September	van Veen grab	B	135	6	135_6	9/12/2017	4306050110	4805	Amphiporus bioculatus	7
September	van Veen grab	B	135	6	135_6	9/12/2017	6169159796	696	Monocorophium tuberculatum	6
September	van Veen grab	B	135	6	135_6	9/12/2017	5001660302	770	Pectinaria gouldii	6
September	van Veen grab	B	135	6	135_6	9/12/2017	6169150302	699	Ericthonius brasiliensis	5
September	van Veen grab	B	135	6	135_6	9/12/2017	6169040116	1323	Ampithoe valida	5
September	van Veen grab	B	135	6	135_6	9/12/2017	5001219798	1118	Oxydromus obscurus	4
September	van Veen grab	B	135	6	135_6	9/12/2017	5001500305	4624	Tharyx acutus	4
September	van Veen grab	B	135	6	135_6	9/12/2017	6162020798	247	Edotia triloba	3
September	van Veen grab	B	135	6	135_6	9/12/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	B	135	6	135_6	9/12/2017	6171010901	685	Paracaprella tenuis	3
September	van Veen grab	B	135	6	135_6	9/12/2017	5127	1147	Nudibranchia	3
September	van Veen grab	B	135	6	135_6	9/12/2017	5001231304	1934	Odontosyllis fulgurans	3
September	van Veen grab	B	135	6	135_6	9/12/2017	5103640299	4514	Crepidula sp.	3
September	van Veen grab	B	135	6	135_6	9/12/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	B	135	6	135_6	9/12/2017	5001430498	91	Polydora cornuta	2
September	van Veen grab	B	135	6	135_6	9/12/2017	6162020602	680	Erichsonella filiformis	2
September	van Veen grab	B	135	6	135_6	9/12/2017	6169211006	706	Melita nitida	2
September	van Veen grab	B	135	6	135_6	9/12/2017	500124	2071	Nereididae	2
September	van Veen grab	B	135	6	135_6	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	B	135	6	135_6	9/12/2017	5001131101	57	Eumida sanguinea	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6169159795	260	Monocorophium acherusicum	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5001409898	381	Leitoscoloplos robustus	1

September	van Veen grab	B	135	6	135_6	9/12/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6169421598	714	Eobrolgus spinosus	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6179160197	4025	Hippolyte zostericola	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	135	6	135_6	9/12/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	B	135	6	135_6	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	140	3	140_3	9/12/2017	5004000000	466	Oligochaeta	457
September	van Veen grab	B	140	3	140_3	9/12/2017	5001600401	1779	Mediomastus ambiseta	369
September	van Veen grab	B	140	3	140_3	9/12/2017	5001680899	1826	Polycirrus sp.	147
September	van Veen grab	B	140	3	140_3	9/12/2017	5001431801	88	Streblospio benedicti	111
September	van Veen grab	B	140	3	140_3	9/12/2017	5001500297	5841	Caulleriella venefica	54
September	van Veen grab	B	140	3	140_3	9/12/2017	5110040103	600	Acteocina canaliculata	49
September	van Veen grab	B	140	3	140_3	9/12/2017	5001600201	391	Heteromastus filiformis	48
September	van Veen grab	B	140	3	140_3	9/12/2017	5001650202	3586	Sabellaria vulgaris	36
September	van Veen grab	B	140	3	140_3	9/12/2017	5001270105	368	Glycera dibranchiata	34
September	van Veen grab	B	140	3	140_3	9/12/2017	5001631102	83	Euclymene collaris	28
September	van Veen grab	B	140	3	140_3	9/12/2017	6169020108	252	Ampelisca abdita	23
September	van Veen grab	B	140	3	140_3	9/12/2017	6169150704	4610	Unciola serrata	23
September	van Veen grab	B	140	3	140_3	9/12/2017	5001230701	4998	Exogone dispar	21
September	van Veen grab	B	140	3	140_3	9/12/2017	5001280104	4519	Glycinde solitaria	18
September	van Veen grab	B	140	3	140_3	9/12/2017	6169349898	3954	Lysianopsis alba	17
September	van Veen grab	B	140	3	140_3	9/12/2017	5001239598	3535	Opisthodonta longocirrata	16
September	van Veen grab	B	140	3	140_3	9/12/2017	5001500305	4624	Tharyx acutus	15
September	van Veen grab	B	140	3	140_3	9/12/2017	5103640205	4502	Crepidula convexa	14
September	van Veen grab	B	140	3	140_3	9/12/2017	5001219798	1118	Oxydromus obscurus	12
September	van Veen grab	B	140	3	140_3	9/12/2017	6169159796	696	Monocorophium tuberculatum	11
September	van Veen grab	B	140	3	140_3	9/12/2017	5001210103	4609	Gyptis vittata	11
September	van Veen grab	B	140	3	140_3	9/12/2017	6169150998	6161	Grandidierella japonica	9
September	van Veen grab	B	140	3	140_3	9/12/2017	5001709798	668	Parasabella microphthalma	7
September	van Veen grab	B	140	3	140_3	9/12/2017	5515471301	387	Gemma gemma	6
September	van Veen grab	B	140	3	140_3	9/12/2017	6169210301	698	Elasmopus levis	6
September	van Veen grab	B	140	3	140_3	9/12/2017	5108019897	1324	Boonea bisuturalis	6

September	van Veen grab	B	140	3	140_3	9/12/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	B	140	3	140_3	9/12/2017	5001249798	651	Alitta succinea	5
September	van Veen grab	B	140	3	140_3	9/12/2017	4306050110	4805	Amphiporus bioculatus	5
September	van Veen grab	B	140	3	140_3	9/12/2017	5001430701	86	Spio filicornis	4
September	van Veen grab	B	140	3	140_3	9/12/2017	5001430498	91	Polydora cornuta	4
September	van Veen grab	B	140	3	140_3	9/12/2017	6169159795	260	Monocorophium acherusicum	4
September	van Veen grab	B	140	3	140_3	9/12/2017	6169421598	714	Eobrolgus spinosus	4
September	van Veen grab	B	140	3	140_3	9/12/2017	5131070198	3590	Corambe obscura	4
September	van Veen grab	B	140	3	140_3	9/12/2017	5001231698	6231	Streptosyllis verrilli	4
September	van Veen grab	B	140	3	140_3	9/12/2017	5001131101	57	Eumida sanguinea	3
September	van Veen grab	B	140	3	140_3	9/12/2017	6169020109	253	Ampelisca vadorum	3
September	van Veen grab	B	140	3	140_3	9/12/2017	5001060302	640	Sthenelais boa	3
September	van Veen grab	B	140	3	140_3	9/12/2017	6160010202	679	Cyathura burbancki	3
September	van Veen grab	B	140	3	140_3	9/12/2017	5001230903	3920	Brania wellfleetensis	3
September	van Veen grab	B	140	3	140_3	9/12/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	B	140	3	140_3	9/12/2017	6169150302	699	Ericthonius brasiliensis	2
September	van Veen grab	B	140	3	140_3	9/12/2017	6169211006	706	Melita nitida	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5001660302	770	Pectinaria gouldii	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	B	140	3	140_3	9/12/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5520050201	5564	Lyonsia arenosa	2
September	van Veen grab	B	140	3	140_3	9/12/2017	5515290398	209	Ensis leei	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	B	140	3	140_3	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	B	140	3	140_3	9/12/2017	5001432099	774	Scolelepis sp.	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	B	140	3	140_3	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	140	3	140_3	9/12/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	B	140	3	140_3	9/12/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	B	140	3	140_3	9/12/2017	4306050112	4961	Amphiporus ochraceus	1
September	van Veen grab	B	140	3	140_3	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	140	3	140_3	9/12/2017	3901000010	6238	Turbellaria sp. 10 nai	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001650202	3586	Sabellaria vulgaris	231

September	van Veen grab	B	141	21	141_21	9/12/2017	6169159796	696	Monocorophium tuberculatum	93
September	van Veen grab	B	141	21	141_21	9/12/2017	6169349898	3954	Lysianopsis alba	92
September	van Veen grab	B	141	21	141_21	9/12/2017	5004000000	466	Oligochaeta	67
September	van Veen grab	B	141	21	141_21	9/12/2017	5001431801	88	Streblospio benedicti	58
September	van Veen grab	B	141	21	141_21	9/12/2017	5131070198	3590	Corambe obscura	53
September	van Veen grab	B	141	21	141_21	9/12/2017	6169210301	698	Elasmopus levis	47
September	van Veen grab	B	141	21	141_21	9/12/2017	6169150704	4610	Unciola serrata	42
September	van Veen grab	B	141	21	141_21	9/12/2017	5001131101	57	Eumida sanguinea	41
September	van Veen grab	B	141	21	141_21	9/12/2017	5001500305	4624	Tharyx acutus	26
September	van Veen grab	B	141	21	141_21	9/12/2017	5001600401	1779	Mediomastus ambiseta	24
September	van Veen grab	B	141	21	141_21	9/12/2017	6169159795	260	Monocorophium acherusicum	23
September	van Veen grab	B	141	21	141_21	9/12/2017	5001600201	391	Heteromastus filiformis	23
September	van Veen grab	B	141	21	141_21	9/12/2017	6169421598	714	Eobrolgus spinosus	21
September	van Veen grab	B	141	21	141_21	9/12/2017	5001230104	1028	Myrianida prolifera	17
September	van Veen grab	B	141	21	141_21	9/12/2017	5001631102	83	Euclymene collaris	16
September	van Veen grab	B	141	21	141_21	9/12/2017	6169100101	4547	Batea catharinensis	16
September	van Veen grab	B	141	21	141_21	9/12/2017	5001230701	4998	Exogone dispar	16
September	van Veen grab	B	141	21	141_21	9/12/2017	5103640205	4502	Crepidula convexa	15
September	van Veen grab	B	141	21	141_21	9/12/2017	5001709798	668	Parasabella microphthalma	12
September	van Veen grab	B	141	21	141_21	9/12/2017	5001219798	1118	Oxydromus obscurus	12
September	van Veen grab	B	141	21	141_21	9/12/2017	6169150302	699	Ericthonius brasiliensis	9
September	van Veen grab	B	141	21	141_21	9/12/2017	5103640207	150	Crepidula plana	8
September	van Veen grab	B	141	21	141_21	9/12/2017	6183060230	1619	Pagurus longicarpus	8
September	van Veen grab	B	141	21	141_21	9/12/2017	5001680899	1826	Polycirrus sp.	8
September	van Veen grab	B	141	21	141_21	9/12/2017	5001210103	4609	Gyptis vittata	8
September	van Veen grab	B	141	21	141_21	9/12/2017	5001430498	91	Polydora cornuta	7
September	van Veen grab	B	141	21	141_21	9/12/2017	5001500297	5841	Caulleriella venefica	6
September	van Veen grab	B	141	21	141_21	9/12/2017	6169020109	253	Ampelisca vadorum	5
September	van Veen grab	B	141	21	141_21	9/12/2017	5001249798	651	Alitta succinea	5
September	van Veen grab	B	141	21	141_21	9/12/2017	6171010901	685	Paracaprella tenuis	5
September	van Veen grab	B	141	21	141_21	9/12/2017	6153010802	768	Heteromysis formosa	5
September	van Veen grab	B	141	21	141_21	9/12/2017	5105010301	1146	Urosalpinx cinerea	5
September	van Veen grab	B	141	21	141_21	9/12/2017	3906050601	1628	Euplana gracilis	5
September	van Veen grab	B	141	21	141_21	9/12/2017	5105089897	377	Tritia obsoleta	4
September	van Veen grab	B	141	21	141_21	9/12/2017	5001021104	637	Lepidonotus sublevis	4
September	van Veen grab	B	141	21	141_21	9/12/2017	5001270105	368	Glycera dibranchiata	3
September	van Veen grab	B	141	21	141_21	9/12/2017	5001231304	1934	Odontosyllis fulgurans	3
September	van Veen grab	B	141	21	141_21	9/12/2017	5103640299	4514	Crepidula sp.	3

September	van Veen grab	B	141	21	141_21	9/12/2017	5131020299	4516	Polycera sp.	3
September	van Veen grab	B	141	21	141_21	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	141	21	141_21	9/12/2017	5520050201	5564	Lyonsia arenosa	3
September	van Veen grab	B	141	21	141_21	9/12/2017	6169150998	6161	Grandidierella japonica	3
September	van Veen grab	B	141	21	141_21	9/12/2017	500127	9112720	Glyceridae	3
September	van Veen grab	B	141	21	141_21	9/12/2017	6169020108	252	Ampelisca abdita	2
September	van Veen grab	B	141	21	141_21	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	B	141	21	141_21	9/12/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	B	141	21	141_21	9/12/2017	4306050112	4961	Amphiporus ochraceus	2
September	van Veen grab	B	141	21	141_21	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5502020204	178	Nucula proxima	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	B	141	21	141_21	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001020803	444	Harmothoe extenuata	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	141	21	141_21	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	B	141	21	141_21	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	141	21	141_21	9/12/2017	4306050302	4949	Zygonemertes virescens	1
September	van Veen grab	B	141	21	141_21	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001600401	1779	Mediomastus ambiseta	228
September	van Veen grab	B	142	24	142_24	9/12/2017	5004000000	466	Oligochaeta	187
September	van Veen grab	B	142	24	142_24	9/12/2017	5001500297	5841	Caulleriella venefica	74
September	van Veen grab	B	142	24	142_24	9/12/2017	5105089897	377	Tritia obsoleta	51
September	van Veen grab	B	142	24	142_24	9/12/2017	5001431801	88	Streblospio benedicti	47
September	van Veen grab	B	142	24	142_24	9/12/2017	5515471301	387	Gemma gemma	42
September	van Veen grab	B	142	24	142_24	9/12/2017	5001270105	368	Glycera dibranchiata	37
September	van Veen grab	B	142	24	142_24	9/12/2017	6169150998	6161	Grandidierella japonica	19
September	van Veen grab	B	142	24	142_24	9/12/2017	5110040103	600	Acteocina canaliculata	18
September	van Veen grab	B	142	24	142_24	9/12/2017	5001430701	86	Spio filicornis	13
September	van Veen grab	B	142	24	142_24	9/12/2017	5103640205	4502	Crepidula convexa	10
September	van Veen grab	B	142	24	142_24	9/12/2017	5001231698	6231	Streptosyllis verrilli	6
September	van Veen grab	B	142	24	142_24	9/12/2017	5001600201	391	Heteromastus filiformis	3

September	van Veen grab	B	142	24	142_24	9/12/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	B	142	24	142_24	9/12/2017	5001500305	4624	Tharyx acutus	3
September	van Veen grab	B	142	24	142_24	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	142	24	142_24	9/12/2017	5002050197	5842	Polygordius jouinae	3
September	van Veen grab	B	142	24	142_24	9/12/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	B	142	24	142_24	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	142	24	142_24	9/12/2017	5001680899	1826	Polycirrus sp.	2
September	van Veen grab	B	142	24	142_24	9/12/2017	5001230701	4998	Exogone dispar	2
September	van Veen grab	B	142	24	142_24	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	142	24	142_24	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	142	24	142_24	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	142	24	142_24	9/12/2017	6169210301	698	Elasmopus levis	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001432006	4544	Scolelepis (parascolelepis) texana	1
September	van Veen grab	B	142	24	142_24	9/12/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5001600401	1779	Mediomastus ambiseta	289
September	van Veen grab	B	144	4	144_4	9/12/2017	5004000000	466	Oligochaeta	163
September	van Veen grab	B	144	4	144_4	9/12/2017	5001500297	5841	Caulleriella venefica	137
September	van Veen grab	B	144	4	144_4	9/12/2017	5001431801	88	Streblospio benedicti	66
September	van Veen grab	B	144	4	144_4	9/12/2017	5105089897	377	Tritia obsoleta	63
September	van Veen grab	B	144	4	144_4	9/12/2017	5001270105	368	Glycera dibranchiata	29
September	van Veen grab	B	144	4	144_4	9/12/2017	5515471301	387	Gemma gemma	24
September	van Veen grab	B	144	4	144_4	9/12/2017	6169150998	6161	Grandidierella japonica	20
September	van Veen grab	B	144	4	144_4	9/12/2017	6169150302	699	Ericthonius brasiliensis	18
September	van Veen grab	B	144	4	144_4	9/12/2017	6169421598	714	Eobrolgus spinosus	13
September	van Veen grab	B	144	4	144_4	9/12/2017	5108019897	1324	Boonea bisuturalis	11
September	van Veen grab	B	144	4	144_4	9/12/2017	5001231698	6231	Streptosyllis verrilli	10
September	van Veen grab	B	144	4	144_4	9/12/2017	5110040103	600	Acteocina canaliculata	7
September	van Veen grab	B	144	4	144_4	9/12/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	B	144	4	144_4	9/12/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	B	144	4	144_4	9/12/2017	5001239598	3535	Opisthodonta longocirrata	5
September	van Veen grab	B	144	4	144_4	9/12/2017	5001131101	57	Eumida sanguinea	4

September	van Veen grab	B	144	4	144_4	9/12/2017	5001600201	391	Heteromastus filiformis	4
September	van Veen grab	B	144	4	144_4	9/12/2017	5001500305	4624	Tharyx acutus	4
September	van Veen grab	B	144	4	144_4	9/12/2017	5001409898	381	Leitoscoloplos robustus	3
September	van Veen grab	B	144	4	144_4	9/12/2017	6171010901	685	Paracaprella tenuis	3
September	van Veen grab	B	144	4	144_4	9/12/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	B	144	4	144_4	9/12/2017	6169159796	696	Monocorophium tuberculatum	2
September	van Veen grab	B	144	4	144_4	9/12/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	B	144	4	144_4	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	144	4	144_4	9/12/2017	6171010727	1655	Caprella penantis	2
September	van Veen grab	B	144	4	144_4	9/12/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	B	144	4	144_4	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	B	144	4	144_4	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	B	144	4	144_4	9/12/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	144	4	144_4	9/12/2017	5002050197	5842	Polygordius jouinae	2
September	van Veen grab	B	144	4	144_4	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	B	144	4	144_4	9/12/2017	6169159795	260	Monocorophium acherusicum	1
September	van Veen grab	B	144	4	144_4	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	B	144	4	144_4	9/12/2017	6169210301	698	Elasmopus levis	1
September	van Veen grab	B	144	4	144_4	9/12/2017	6169211006	706	Melita nitida	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5001680899	1826	Polycirrus sp.	1
September	van Veen grab	B	144	4	144_4	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	144	4	144_4	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001650202	3586	Sabellaria vulgaris	280
September	van Veen grab	B	145	15	145_15	9/13/2017	5001431801	88	Streblospio benedicti	93
September	van Veen grab	B	145	15	145_15	9/13/2017	5001600401	1779	Mediomastus ambiseta	85
September	van Veen grab	B	145	15	145_15	9/13/2017	5004000000	466	Oligochaeta	73
September	van Veen grab	B	145	15	145_15	9/13/2017	6169150704	4610	Unciola serrata	58
September	van Veen grab	B	145	15	145_15	9/13/2017	6169210301	698	Elasmopus levis	48
September	van Veen grab	B	145	15	145_15	9/13/2017	5001600201	391	Heteromastus filiformis	33
September	van Veen grab	B	145	15	145_15	9/13/2017	6169159796	696	Monocorophium tuberculatum	19
September	van Veen grab	B	145	15	145_15	9/13/2017	5001131101	57	Eumida sanguinea	18
September	van Veen grab	B	145	15	145_15	9/13/2017	5001680899	1826	Polycirrus sp.	17
September	van Veen grab	B	145	15	145_15	9/13/2017	6169100101	4547	Batea catharinensis	17
September	van Veen grab	B	145	15	145_15	9/13/2017	5001230701	4998	Exogone dispar	16

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September	van Veen grab	B	145	15	145_15	9/13/2017	5001219798	1118	Oxydromus obscurus	13
September	van Veen grab	B	145	15	145_15	9/13/2017	5001631102	83	Euclymene collaris	12
September	van Veen grab	B	145	15	145_15	9/13/2017	6169421598	714	Eobrolgus spinosus	12
September	van Veen grab	B	145	15	145_15	9/13/2017	5001270105	368	Glycera dibranchiata	9
September	van Veen grab	B	145	15	145_15	9/13/2017	5001280104	4519	Glycinde solitaria	9
September	van Veen grab	B	145	15	145_15	9/13/2017	6169211006	706	Melita nitida	8
September	van Veen grab	B	145	15	145_15	9/13/2017	6169349898	3954	Lysianopsis alba	8
September	van Veen grab	B	145	15	145_15	9/13/2017	6169159795	260	Monocorophium acherusicum	7
September	van Veen grab	B	145	15	145_15	9/13/2017	5001709798	668	Parasabella microphthalma	7
September	van Veen grab	B	145	15	145_15	9/13/2017	5105089897	377	Tritia obsoleta	6
September	van Veen grab	B	145	15	145_15	9/13/2017	5001249798	651	Alitta succinea	6
September	van Veen grab	B	145	15	145_15	9/13/2017	5001430498	91	Polydora cornuta	5
September	van Veen grab	B	145	15	145_15	9/13/2017	5001230903	3920	Brania wellfleetensis	5
September	van Veen grab	B	145	15	145_15	9/13/2017	5001130207	393	Hypereteone heteropoda	4
September	van Veen grab	B	145	15	145_15	9/13/2017	5001230104	1028	Myrianida prolifera	4
September	van Veen grab	B	145	15	145_15	9/13/2017	5001330198	4665	Drilonereis longa	4
September	van Veen grab	B	145	15	145_15	9/13/2017	5001500297	5841	Caulleriella venefica	4
September	van Veen grab	B	145	15	145_15	9/13/2017	6169150998	6161	Grandidierella japonica	4
September	van Veen grab	B	145	15	145_15	9/13/2017	6169020109	253	Ampelisca vadorum	3
September	van Veen grab	B	145	15	145_15	9/13/2017	5001239698	1153	Salvatoria clavata	3
September	van Veen grab	B	145	15	145_15	9/13/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	B	145	15	145_15	9/13/2017	5105089898	162	Tritia trivittata	2
September	van Veen grab	B	145	15	145_15	9/13/2017	5001210103	4609	Gyptis vittata	2
September	van Veen grab	B	145	15	145_15	9/13/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	B	145	15	145_15	9/13/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	145	15	145_15	9/13/2017	4306050302	4949	Zygonemertes virescens	2
September	van Veen grab	B	145	15	145_15	9/13/2017	4303020402	5264	Lineus ruber	2
September	van Veen grab	B	145	15	145_15	9/13/2017	5001060303	64	Sthenelais limicola	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	B	145	15	145_15	9/13/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	145	15	145_15	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001500104	469	Cirratulus grandis	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	B	145	15	145_15	9/13/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	B	145	15	145_15	9/13/2017	6153010802	768	Heteromysis formosa	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	B	145	15	145_15	9/13/2017	6169481099	1221	Stenothoe sp.	1

September	van Veen grab	B	145	15	145_15	9/13/2017	500167	2076	Ampharetidae	1
September	van Veen grab	B	145	15	145_15	9/13/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	B	145	15	145_15	9/13/2017	4306050112	4961	Amphiporus ochraceus	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5001650202	3586	Sabellaria vulgaris	261
September	van Veen grab	B	146	22	146_22	9/13/2017	5004000000	466	Oligochaeta	75
September	van Veen grab	B	146	22	146_22	9/13/2017	6169150704	4610	Unciola serrata	64
September	van Veen grab	B	146	22	146_22	9/13/2017	6169349898	3954	Lysianopsis alba	62
September	van Veen grab	B	146	22	146_22	9/13/2017	5001431801	88	Streblospio benedicti	47
September	van Veen grab	B	146	22	146_22	9/13/2017	6169421598	714	Eobrolgus spinosus	41
September	van Veen grab	B	146	22	146_22	9/13/2017	5001600401	1779	Mediomastus ambiseta	41
September	van Veen grab	B	146	22	146_22	9/13/2017	5001680899	1826	Polycirrus sp.	31
September	van Veen grab	B	146	22	146_22	9/13/2017	5001230701	4998	Exogone dispar	25
September	van Veen grab	B	146	22	146_22	9/13/2017	5108019895	1240	Fargoa bartschi	24
September	van Veen grab	B	146	22	146_22	9/13/2017	5001600201	391	Heteromastus filiformis	20
September	van Veen grab	B	146	22	146_22	9/13/2017	5001631102	83	Euclymene collaris	18
September	van Veen grab	B	146	22	146_22	9/13/2017	6169210301	698	Elasmopus levis	16
September	van Veen grab	B	146	22	146_22	9/13/2017	5001131101	57	Eumida sanguinea	14
September	van Veen grab	B	146	22	146_22	9/13/2017	6169159796	696	Monocorophium tuberculatum	13
September	van Veen grab	B	146	22	146_22	9/13/2017	5001219798	1118	Oxydromus obscurus	12
September	van Veen grab	B	146	22	146_22	9/13/2017	5001709798	668	Parasabella microphthalma	11
September	van Veen grab	B	146	22	146_22	9/13/2017	5001270105	368	Glycera dibranchiata	10
September	van Veen grab	B	146	22	146_22	9/13/2017	5001500297	5841	Caulleriella venefica	10
September	van Veen grab	B	146	22	146_22	9/13/2017	5001430498	91	Polydora cornuta	8
September	van Veen grab	B	146	22	146_22	9/13/2017	6169020109	253	Ampelisca vadorum	8
September	van Veen grab	B	146	22	146_22	9/13/2017	5001230104	1028	Myrianida prolifera	8
September	van Veen grab	B	146	22	146_22	9/13/2017	5108019897	1324	Boonea bisuturalis	7
September	van Veen grab	B	146	22	146_22	9/13/2017	5001230903	3920	Brania wellfleetensis	7
September	van Veen grab	B	146	22	146_22	9/13/2017	5001210103	4609	Gyptis vittata	7
September	van Veen grab	B	146	22	146_22	9/13/2017	5001249798	651	Alitta succinea	6
September	van Veen grab	B	146	22	146_22	9/13/2017	5001330198	4665	Drilonereis longa	6
September	van Veen grab	B	146	22	146_22	9/13/2017	6169020108	252	Ampelisca abdita	5
September	van Veen grab	B	146	22	146_22	9/13/2017	5105089898	162	Tritia trivittata	4
September	van Veen grab	B	146	22	146_22	9/13/2017	6169211006	706	Melita nitida	4
September	van Veen grab	B	146	22	146_22	9/13/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	B	146	22	146_22	9/13/2017	6163020198	4818	Ianiropsis serricaudis	3
September	van Veen grab	B	146	22	146_22	9/13/2017	5520050201	5564	Lyonsia arenosa	3
September	van Veen grab	B	146	22	146_22	9/13/2017	6169150998	6161	Grandidierella japonica	3
September	van Veen grab	B	146	22	146_22	9/13/2017	5001021103	60	Lepidonotus squamatus	2

September	van Veen grab	B	146	22	146_22	9/13/2017	5515290398	209	Ensis leei	2
September	van Veen grab	B	146	22	146_22	9/13/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	B	146	22	146_22	9/13/2017	5001240396	650	Neanthes arenaceodentata	2
September	van Veen grab	B	146	22	146_22	9/13/2017	6169150302	699	Ericthonius brasiliensis	2
September	van Veen grab	B	146	22	146_22	9/13/2017	6153010802	768	Heteromysis formosa	2
September	van Veen grab	B	146	22	146_22	9/13/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	B	146	22	146_22	9/13/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	146	22	146_22	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	B	146	22	146_22	9/13/2017	5105089897	377	Tritia obsoleta	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5001500104	469	Cirratulus grandis	1
September	van Veen grab	B	146	22	146_22	9/13/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	B	146	22	146_22	9/13/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	B	146	22	146_22	9/13/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5131070198	3590	Corambe obscura	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	B	146	22	146_22	9/13/2017	6183040102	4538	Upogebia affinis	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	146	22	146_22	9/13/2017	5001500305	4624	Tharyx acutus	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001600401	1779	Mediomastus ambiseta	161
September	van Veen grab	B	147	27	147_27	9/13/2017	5004000000	466	Oligochaeta	59
September	van Veen grab	B	147	27	147_27	9/13/2017	5001431801	88	Streblospio benedicti	45
September	van Veen grab	B	147	27	147_27	9/13/2017	6169210301	698	Elasmopus levis	36
September	van Veen grab	B	147	27	147_27	9/13/2017	6171010901	685	Paracaprella tenuis	34
September	van Veen grab	B	147	27	147_27	9/13/2017	6169159796	696	Monocorophium tuberculatum	31
September	van Veen grab	B	147	27	147_27	9/13/2017	5001631102	83	Euclymene collaris	23
September	van Veen grab	B	147	27	147_27	9/13/2017	5001280104	4519	Glycinde solitaria	22
September	van Veen grab	B	147	27	147_27	9/13/2017	5001230104	1028	Myrianida prolifera	21
September	van Veen grab	B	147	27	147_27	9/13/2017	5001600201	391	Heteromastus filiformis	20
September	van Veen grab	B	147	27	147_27	9/13/2017	5001650202	3586	Sabellaria vulgaris	17
September	van Veen grab	B	147	27	147_27	9/13/2017	6169150302	699	Ericthonius brasiliensis	14
September	van Veen grab	B	147	27	147_27	9/13/2017	6169020108	252	Ampelisca abdita	12
September	van Veen grab	B	147	27	147_27	9/13/2017	6169159795	260	Monocorophium acherusicum	10
September	van Veen grab	B	147	27	147_27	9/13/2017	5001230701	4998	Exogone dispar	10
September	van Veen grab	B	147	27	147_27	9/13/2017	6169150704	4610	Unciola serrata	9
September	van Veen grab	B	147	27	147_27	9/13/2017	6169421598	714	Eobrolgus spinosus	8
September	van Veen grab	B	147	27	147_27	9/13/2017	6169349898	3954	Lysianopsis alba	7

September	van Veen grab	B	147	27	147_27	9/13/2017	5001131101	57	Eumida sanguinea	6
September	van Veen grab	B	147	27	147_27	9/13/2017	5001219798	1118	Oxydromus obscurus	6
September	van Veen grab	B	147	27	147_27	9/13/2017	5001709798	668	Parasabella microphthalma	5
September	van Veen grab	B	147	27	147_27	9/13/2017	5131070198	3590	Corambe obscura	5
September	van Veen grab	B	147	27	147_27	9/13/2017	6169020109	253	Ampelisca vadorum	4
September	van Veen grab	B	147	27	147_27	9/13/2017	5001270105	368	Glycera dibranchiata	4
September	van Veen grab	B	147	27	147_27	9/13/2017	5001680899	1826	Polycirrus sp.	4
September	van Veen grab	B	147	27	147_27	9/13/2017	5001230903	3920	Brania wellfleetensis	3
September	van Veen grab	B	147	27	147_27	9/13/2017	5001330198	4665	Drilonereis longa	3
September	van Veen grab	B	147	27	147_27	9/13/2017	5001500297	5841	Caulleriella venefica	3
September	van Veen grab	B	147	27	147_27	9/13/2017	5001021103	60	Lepidonotus squamatus	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5001430498	91	Polydora cornuta	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5110040103	600	Acteocina canaliculata	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5105010301	1146	Urosalpinx cinerea	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5131020299	4516	Polycera sp.	2
September	van Veen grab	B	147	27	147_27	9/13/2017	6169100101	4547	Batea catharinensis	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5001210103	4609	Gyptis vittata	2
September	van Veen grab	B	147	27	147_27	9/13/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5105089897	377	Tritia obsoleta	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001270104	450	Glycera americana	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	147	27	147_27	9/13/2017	3906030101	1098	Stylochus ellipticus	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5515480102	1317	Petricolaria pholadiformis	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001660000	2063	Pectinariidae	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001500305	4624	Tharyx acutus	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6179119998	4671	Palaemon vulgaris	1
September	van Veen grab	B	147	27	147_27	9/13/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1

September	van Veen grab	B	147	27	147_27	9/13/2017	3901000003	5558	Turbellaria sp. 8 nai	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	147	27	147_27	9/13/2017	550909	6138	Anomiidae	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6169150998	6161	Grandidierella japonica	1
September	van Veen grab	B	147	27	147_27	9/13/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	147	27	147_27	9/13/2017	6169480702	9566280	Parametopella cypris	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5001650202	3586	Sabellaria vulgaris	597
September	van Veen grab	B	148	36	148_36	9/13/2017	6169349898	3954	Lysianopsis alba	217
September	van Veen grab	B	148	36	148_36	9/13/2017	5001431801	88	Streblospio benedicti	170
September	van Veen grab	B	148	36	148_36	9/13/2017	5001600401	1779	Mediomastus ambiseta	125
September	van Veen grab	B	148	36	148_36	9/13/2017	5001500305	4624	Tharyx acutus	113
September	van Veen grab	B	148	36	148_36	9/13/2017	6169150704	4610	Unciola serrata	106
September	van Veen grab	B	148	36	148_36	9/13/2017	5004000000	466	Oligochaeta	105
September	van Veen grab	B	148	36	148_36	9/13/2017	6169421598	714	Eobrolgus spinosus	72
September	van Veen grab	B	148	36	148_36	9/13/2017	5001631102	83	Euclymene collaris	55
September	van Veen grab	B	148	36	148_36	9/13/2017	6171010901	685	Paracaprella tenuis	48
September	van Veen grab	B	148	36	148_36	9/13/2017	6169159796	696	Monocorophium tuberculatum	48
September	van Veen grab	B	148	36	148_36	9/13/2017	5001600201	391	Heteromastus filiformis	46
September	van Veen grab	B	148	36	148_36	9/13/2017	6169210301	698	Elasmopus levis	46
September	van Veen grab	B	148	36	148_36	9/13/2017	5001131101	57	Eumida sanguinea	42
September	van Veen grab	B	148	36	148_36	9/13/2017	6169150302	699	Ericthonius brasiliensis	37
September	van Veen grab	B	148	36	148_36	9/13/2017	5001230701	4998	Exogone dispar	37
September	van Veen grab	B	148	36	148_36	9/13/2017	5001680899	1826	Polycirrus sp.	28
September	van Veen grab	B	148	36	148_36	9/13/2017	5001230104	1028	Myrianida prolifera	27
September	van Veen grab	B	148	36	148_36	9/13/2017	6169211006	706	Melita nitida	25
September	van Veen grab	B	148	36	148_36	9/13/2017	5001219798	1118	Oxydromus obscurus	18
September	van Veen grab	B	148	36	148_36	9/13/2017	5001500000	2066	Cirratulidae	15
September	van Veen grab	B	148	36	148_36	9/13/2017	6169481002	720	Stenothoe minuta	14
September	van Veen grab	B	148	36	148_36	9/13/2017	5001430498	91	Polydora cornuta	13
September	van Veen grab	B	148	36	148_36	9/13/2017	5001709798	668	Parasabella microphthalma	12
September	van Veen grab	B	148	36	148_36	9/13/2017	3906050601	1628	Euplana gracilis	12
September	van Veen grab	B	148	36	148_36	9/13/2017	6153010802	768	Heteromysis formosa	11
September	van Veen grab	B	148	36	148_36	9/13/2017	5131070198	3590	Corambe obscura	11
September	van Veen grab	B	148	36	148_36	9/13/2017	5001439698	1893	Dipolydora socialis	9
September	van Veen grab	B	148	36	148_36	9/13/2017	6169020108	252	Ampelisca abdita	7
September	van Veen grab	B	148	36	148_36	9/13/2017	6169159795	260	Monocorophium acherusicum	7
September	van Veen grab	B	148	36	148_36	9/13/2017	5001249798	651	Alitta succinea	7
September	van Veen grab	B	148	36	148_36	9/13/2017	5131020299	4516	Polycera sp.	7

September	van Veen grab	B	148	36	148_36	9/13/2017	5001210103	4609	Gyptis vittata	7
September	van Veen grab	B	148	36	148_36	9/13/2017	5001270105	368	Glycera dibranchiata	6
September	van Veen grab	B	148	36	148_36	9/13/2017	3906030101	1098	Stylochus ellipticus	5
September	van Veen grab	B	148	36	148_36	9/13/2017	5105010301	1146	Urosalpinx cinerea	5
September	van Veen grab	B	148	36	148_36	9/13/2017	5001330198	4665	Drilonereis longa	5
September	van Veen grab	B	148	36	148_36	9/13/2017	5001500297	5841	Caulleriella venefica	5
September	van Veen grab	B	148	36	148_36	9/13/2017	5515319898	203	Ameritella agilis	4
September	van Veen grab	B	148	36	148_36	9/13/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	B	148	36	148_36	9/13/2017	6163020198	4818	Ianiropsis serricaudis	3
September	van Veen grab	B	148	36	148_36	9/13/2017	5001021103	60	Lepidonotus squamatus	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001430701	86	Spio filicornis	2
September	van Veen grab	B	148	36	148_36	9/13/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	B	148	36	148_36	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5105089897	377	Tritia obsoleta	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001130207	393	Hypereteone heteropoda	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001020803	444	Harmothoe extenuata	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001701301	502	Fabricia stellaris	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001021104	637	Lepidonotus sublevis	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001240396	650	Neanthes arenaceodentata	2
September	van Veen grab	B	148	36	148_36	9/13/2017	6189029798	769	Dyspanopeus sayi	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	B	148	36	148_36	9/13/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001231698	6231	Streptosyllis verrilli	2
September	van Veen grab	B	148	36	148_36	9/13/2017	5001060303	64	Sthenelais limicola	1
September	van Veen grab	B	148	36	148_36	9/13/2017	6160010202	679	Cyathura burbancki	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5001210299	1124	Microphthalmus sp.	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5103640299	4514	Crepidula sp.	1
September	van Veen grab	B	148	36	148_36	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5004000000	466	Oligochaeta	707
September	van Veen grab	B	150	28	150_28	9/12/2017	5001600401	1779	Mediomastus ambiseta	473
September	van Veen grab	B	150	28	150_28	9/12/2017	5001431801	88	Streblospio benedicti	123
September	van Veen grab	B	150	28	150_28	9/12/2017	5001680899	1826	Polycirrus sp.	82
September	van Veen grab	B	150	28	150_28	9/12/2017	5001600201	391	Heteromastus filiformis	80
September	van Veen grab	B	150	28	150_28	9/12/2017	5110040103	600	Acteocina canaliculata	60

September	van Veen grab	B	150	28	150_28	9/12/2017	5108019897	1324	Boonea bisuturalis	48
September	van Veen grab	B	150	28	150_28	9/12/2017	5001230701	4998	Exogone dispar	37
September	van Veen grab	B	150	28	150_28	9/12/2017	6160010202	679	Cyathura burbancki	23
September	van Veen grab	B	150	28	150_28	9/12/2017	5001650202	3586	Sabellaria vulgaris	18
September	van Veen grab	B	150	28	150_28	9/12/2017	5001131101	57	Eumida sanguinea	17
September	van Veen grab	B	150	28	150_28	9/12/2017	6169150704	4610	Unciola serrata	16
September	van Veen grab	B	150	28	150_28	9/12/2017	5001500305	4624	Tharyx acutus	15
September	van Veen grab	B	150	28	150_28	9/12/2017	6169150998	6161	Grandidierella japonica	15
September	van Veen grab	B	150	28	150_28	9/12/2017	6169150302	699	Ericthonius brasiliensis	14
September	van Veen grab	B	150	28	150_28	9/12/2017	5001280104	4519	Glycinde solitaria	14
September	van Veen grab	B	150	28	150_28	9/12/2017	5001430498	91	Polydora cornuta	12
September	van Veen grab	B	150	28	150_28	9/12/2017	5001270105	368	Glycera dibranchiata	12
September	van Veen grab	B	150	28	150_28	9/12/2017	6169159796	696	Monocorophium tuberculatum	12
September	van Veen grab	B	150	28	150_28	9/12/2017	6169210301	698	Elasmopus levis	9
September	van Veen grab	B	150	28	150_28	9/12/2017	5001239598	3535	Opisthodonta longocirrata	9
September	van Veen grab	B	150	28	150_28	9/12/2017	5105089897	377	Tritia obsoleta	7
September	van Veen grab	B	150	28	150_28	9/12/2017	6169211006	706	Melita nitida	7
September	van Veen grab	B	150	28	150_28	9/12/2017	5001219798	1118	Oxydromus obscurus	7
September	van Veen grab	B	150	28	150_28	9/12/2017	5001631102	83	Euclymene collaris	6
September	van Veen grab	B	150	28	150_28	9/12/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	B	150	28	150_28	9/12/2017	5001709798	668	Parasabella microphthalma	6
September	van Veen grab	B	150	28	150_28	9/12/2017	5103640299	4514	Crepidula sp.	6
September	van Veen grab	B	150	28	150_28	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	5
September	van Veen grab	B	150	28	150_28	9/12/2017	5001231698	6231	Streptosyllis verrilli	5
September	van Veen grab	B	150	28	150_28	9/12/2017	6183060230	1619	Pagurus longicarpus	4
September	van Veen grab	B	150	28	150_28	9/12/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	B	150	28	150_28	9/12/2017	5001500297	5841	Caulleriella venefica	4
September	van Veen grab	B	150	28	150_28	9/12/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	B	150	28	150_28	9/12/2017	6169020109	253	Ampelisca vadorum	3
September	van Veen grab	B	150	28	150_28	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	3
September	van Veen grab	B	150	28	150_28	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	B	150	28	150_28	9/12/2017	5001239698	1153	Salvatoria clavata	3
September	van Veen grab	B	150	28	150_28	9/12/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	B	150	28	150_28	9/12/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	B	150	28	150_28	9/12/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	B	150	28	150_28	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	B	150	28	150_28	9/12/2017	5001230903	3920	Brania wellfleetensis	2
September	van Veen grab	B	150	28	150_28	9/12/2017	6169349898	3954	Lysianopsis alba	2

September	van Veen grab	B	150	28	150_28	9/12/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	B	150	28	150_28	9/12/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	B	150	28	150_28	9/12/2017	5103640204	149	Crepidula fornicata	1
September	van Veen grab	B	150	28	150_28	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	150	28	150_28	9/12/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	B	150	28	150_28	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	B	150	28	150_28	9/12/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	150	28	150_28	9/12/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	B	150	28	150_28	9/12/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	B	150	28	150_28	9/12/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001600401	1779	Mediomastus ambiseta	281
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169020108	252	Ampelisca abdita	96
September	van Veen grab	HB	151	16	151_16	9/11/2017	5108019897	1324	Boonea bisuturalis	52
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169349898	3954	Lysianopsis alba	46
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169150998	6161	Grandidierella japonica	41
September	van Veen grab	HB	151	16	151_16	9/11/2017	5105089897	377	Tritia obsoleta	38
September	van Veen grab	HB	151	16	151_16	9/11/2017	5004000000	466	Oligochaeta	33
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001210103	4609	Gyptis vittata	24
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169210301	698	Elasmopus levis	19
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001431801	88	Streblospio benedicti	12
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	11
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001600201	391	Heteromastus filiformis	9
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001219798	1118	Oxydromus obscurus	9
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001650202	3586	Sabellaria vulgaris	8
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001131101	57	Eumida sanguinea	7
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001430498	91	Polydora cornuta	7
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169211006	706	Melita nitida	7
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169210709	389	Gammarus mucronatus	4
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001249798	651	Alitta succinea	4
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001130207	393	Hypereteone heteropoda	3
September	van Veen grab	HB	151	16	151_16	9/11/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	HB	151	16	151_16	9/11/2017	5110040103	600	Acteocina canaliculata	2
September	van Veen grab	HB	151	16	151_16	9/11/2017	5515471101	1116	Mercenaria mercenaria	2

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September	van Veen grab	HB	151	16	151_16	9/11/2017	5110019898	3580	Japonactaeon punctostriatus	2
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001270105	368	Glycera dibranchiata	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001270104	450	Glycera americana	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001680102	561	Amphitrite ornata	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5515310199	1194	Macoma sp.	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	151	16	151_16	9/11/2017	5001210701	5715	Parahesione luteola	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5004000000	466	Oligochaeta	228
September	van Veen grab	HB	153	30	153_30	9/11/2017	5108019897	1324	Boonea bisuturalis	102
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169150998	6161	Grandidierella japonica	53
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169210301	698	Elasmopus levis	42
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169020108	252	Ampelisca abdita	38
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001430498	91	Polydora cornuta	32
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001600401	1779	Mediomastus ambiseta	26
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001600201	391	Heteromastus filiformis	24
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	22
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001131101	57	Eumida sanguinea	21
September	van Veen grab	HB	153	30	153_30	9/11/2017	6171010901	685	Paracaprella tenuis	16
September	van Veen grab	HB	153	30	153_30	9/11/2017	5105089897	377	Tritia obsoleta	11
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169040116	1323	Ampithoe valida	8
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001239698	1153	Salvatoria clavata	7
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001709798	668	Parasabella microphthalma	6
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169159796	696	Monocorophium tuberculatum	6
September	van Veen grab	HB	153	30	153_30	9/11/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001431801	88	Streblospio benedicti	5
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169159896	695	Apocorophium acutum	5
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001230104	1028	Myrianida prolifera	4
September	van Veen grab	HB	153	30	153_30	9/11/2017	6162020798	247	Edotia triloba	3

September	van Veen grab	HB	153	30	153_30	9/11/2017	5001130207	393	Hypereteone heteropoda	3
September	van Veen grab	HB	153	30	153_30	9/11/2017	3906050601	1628	Euplana gracilis	3
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	HB	153	30	153_30	9/11/2017	6169211006	706	Melita nitida	2
September	van Veen grab	HB	153	30	153_30	9/11/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001230701	4998	Exogone dispar	2
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001270105	368	Glycera dibranchiata	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001680899	1826	Polycirrus sp.	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	500124	2071	Nereididae	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5110019898	3580	Japonactaeon punctostriatus	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001650202	3586	Sabellaria vulgaris	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	5001210103	4609	Gyptis vittata	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	HB	153	30	153_30	9/11/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169020108	252	Ampelisca abdita	663
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001600401	1779	Mediomastus ambiseta	359
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169150998	6161	Grandidierella japonica	39
September	van Veen grab	HB	156	4	156_4	9/11/2017	5004000000	466	Oligochaeta	15
September	van Veen grab	HB	156	4	156_4	9/11/2017	4306050110	4805	Amphiporus bioculatus	14
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001270104	450	Glycera americana	6
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169210301	698	Elasmopus levis	6
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001210103	4609	Gyptis vittata	6
September	van Veen grab	HB	156	4	156_4	9/11/2017	5108019897	1324	Boonea bisuturalis	5
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001660302	770	Pectinaria gouldii	4
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169349898	3954	Lysianopsis alba	4
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001280104	4519	Glycinde solitaria	4
September	van Veen grab	HB	156	4	156_4	9/11/2017	5105089897	377	Tritia obsoleta	3
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001600201	391	Heteromastus filiformis	3
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001130207	393	Hypereteone heteropoda	3
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001500305	4624	Tharyx acutus	3
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001430498	91	Polydora cornuta	2
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169421598	714	Eobrolgus spinosus	2

September	van Veen grab	HB	156	4	156_4	9/11/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	HB	156	4	156_4	9/11/2017	5520050201	5564	Lyonsia arenosa	2
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001131101	57	Eumida sanguinea	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001409897	102	Leitoscoloplos fragilis	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001409899	411	Leitoscoloplos sp.	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5110040103	600	Acteocina canaliculata	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	6169211006	706	Melita nitida	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001230701	4998	Exogone dispar	1
September	van Veen grab	HB	156	4	156_4	9/11/2017	5001500297	5841	Caulleriella venefica	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001431801	88	Streblospio benedicti	1257
September	van Veen grab	HB	157	9	157_9	9/11/2017	6169020108	252	Ampelisca abdita	810
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001600401	1779	Mediomastus ambiseta	601
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001430498	91	Polydora cornuta	70
September	van Veen grab	HB	157	9	157_9	9/11/2017	6169150998	6161	Grandidierella japonica	62
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001130207	393	Hypereteone heteropoda	47
September	van Veen grab	HB	157	9	157_9	9/11/2017	5110019898	3580	Japonactaeon punctostriatus	32
September	van Veen grab	HB	157	9	157_9	9/11/2017	5105089897	377	Tritia obsoleta	19
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001131101	57	Eumida sanguinea	11
September	van Veen grab	HB	157	9	157_9	9/11/2017	5103640205	4502	Crepidula convexa	8
September	van Veen grab	HB	157	9	157_9	9/11/2017	5108019897	1324	Boonea bisuturalis	6
September	van Veen grab	HB	157	9	157_9	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	5
September	van Veen grab	HB	157	9	157_9	9/11/2017	6169349898	3954	Lysianopsis alba	5
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001210103	4609	Gyptis vittata	5
September	van Veen grab	HB	157	9	157_9	9/11/2017	4306050110	4805	Amphiporus bioculatus	5
September	van Veen grab	HB	157	9	157_9	9/11/2017	6169159796	696	Monocorophium tuberculatum	4
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001500000	2066	Cirratulidae	3
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001500305	4624	Tharyx acutus	3
September	van Veen grab	HB	157	9	157_9	9/11/2017	5004000000	466	Oligochaeta	2
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001249798	651	Alitta succinea	2

September	van Veen grab	HB	157	9	157_9	9/11/2017	4303020209	3587	Cerebratulus lacteus	2
September	van Veen grab	HB	157	9	157_9	9/11/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001270104	450	Glycera americana	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	6153011508	577	Neomysis americana	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5110040103	600	Acteocina canaliculata	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001709798	668	Parasabella microphthalma	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5802010101	771	Limulus polyphemus	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	500124	2071	Nereididae	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001650202	3586	Sabellaria vulgaris	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5131070198	3590	Corambe obscura	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	6179119998	4671	Palaemon vulgaris	1
September	van Veen grab	HB	157	9	157_9	9/11/2017	5001230701	4998	Exogone dispar	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001600401	1779	Mediomastus ambiseta	336
September	van Veen grab	HB	158	2	158_2	9/11/2017	5004000000	466	Oligochaeta	103
September	van Veen grab	HB	158	2	158_2	9/11/2017	5105089897	377	Tritia obsoleta	75
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169020108	252	Ampelisca abdita	21
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001600201	391	Heteromastus filiformis	15
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169060401	257	Microdeutopus gryllotalpa	8
September	van Veen grab	HB	158	2	158_2	9/11/2017	5103640205	4502	Crepidula convexa	6
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169150998	6161	Grandidierella japonica	6
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001131101	57	Eumida sanguinea	5
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169210301	698	Elasmopus levis	4
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001650202	3586	Sabellaria vulgaris	4
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169210709	389	Gammarus mucronatus	3
September	van Veen grab	HB	158	2	158_2	9/11/2017	5802010101	771	Limulus polyphemus	3
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001431801	88	Streblospio benedicti	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001430498	91	Polydora cornuta	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001270105	368	Glycera dibranchiata	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169159796	696	Monocorophium tuberculatum	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169211006	706	Melita nitida	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	HB	158	2	158_2	9/11/2017	6162020798	247	Edotia triloba	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001130207	393	Hypereteone heteropoda	1

September	van Veen grab	HB	158	2	158_2	9/11/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5127	1147	Nudibranchia	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5108019897	1324	Boonea bisuturalis	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	51	2097	Gastropoda	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5103640299	4514	Crepidula sp.	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	HB	158	2	158_2	9/11/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5004000000	466	Oligochaeta	586
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001600401	1779	Mediomastus ambiseta	180
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001230701	4998	Exogone dispar	152
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169210301	698	Elasmopus levis	149
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001680899	1826	Polycirrus sp.	130
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169349898	3954	Lysianopsis alba	95
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001600201	391	Heteromastus filiformis	86
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001500297	5841	Caulleriella venefica	76
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001131101	57	Eumida sanguinea	73
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001650202	3586	Sabellaria vulgaris	67
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001431801	88	Streblospio benedicti	46
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001219798	1118	Oxydromus obscurus	36
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169421598	714	Eobrolgus spinosus	21
September	van Veen grab	HB	160	29	160_29	9/12/2017	5110040103	600	Acteocina canaliculata	19
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001249798	651	Alitta succinea	18
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169150998	6161	Grandidierella japonica	18
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169150704	4610	Unciola serrata	14
September	van Veen grab	HB	160	29	160_29	9/12/2017	5105089897	377	Tritia obsoleta	13
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001709798	668	Parasabella microphthalma	12
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001270105	368	Glycera dibranchiata	11
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001130207	393	Hypereteone heteropoda	9
September	van Veen grab	HB	160	29	160_29	9/12/2017	6160010202	679	Cyathura burbancki	9
September	van Veen grab	HB	160	29	160_29	9/12/2017	5131070198	3590	Corambe obscura	8
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001239598	3535	Opisthodonta longocirrata	7
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001280104	4519	Glycinde solitaria	7
September	van Veen grab	HB	160	29	160_29	9/12/2017	6163020198	4818	Ianiropsis serricaudis	7
September	van Veen grab	HB	160	29	160_29	9/12/2017	6171010901	685	Paracaprella tenuis	6

September	van Veen grab	HB	160	29	160_29	9/12/2017	5103640205	4502	Crepidula convexa	6
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169020108	252	Ampelisca abdita	5
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169159795	260	Monocorophium acherusicum	5
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001240396	650	Neanthes arenaceodentata	5
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169150302	699	Ericthonius brasiliensis	5
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001660302	770	Pectinaria gouldii	5
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001430498	91	Polydora cornuta	4
September	van Veen grab	HB	160	29	160_29	9/12/2017	6189029798	769	Dyspanopeus sayi	4
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169211006	706	Melita nitida	3
September	van Veen grab	HB	160	29	160_29	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	HB	160	29	160_29	9/12/2017	4306050302	4949	Zygonemertes virescens	3
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001230104	1028	Myrianida prolifera	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	6171010727	1655	Caprella penantis	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169100101	4547	Batea catharinensis	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5520050201	5564	Lyonsia arenosa	2
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001021104	637	Lepidonotus sublevis	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	160	29	160_29	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5004000000	466	Oligochaeta	684
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001600401	1779	Mediomastus ambiseta	425
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001431801	88	Streblospio benedicti	145
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001680899	1826	Polycirrus sp.	112
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001230701	4998	Exogone dispar	86
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001600201	391	Heteromastus filiformis	82

September	van Veen grab	HB	161	26	161_26	9/12/2017	5108019897	1324	Boonea bisuturalis	62
September	van Veen grab	HB	161	26	161_26	9/12/2017	5110040103	600	Acteocina canaliculata	56
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001131101	57	Eumida sanguinea	43
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001500297	5841	Caulleriella venefica	43
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169210301	698	Elasmopus levis	33
September	van Veen grab	HB	161	26	161_26	9/12/2017	5105089897	377	Tritia obsoleta	22
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169150998	6161	Grandidierella japonica	19
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001650202	3586	Sabellaria vulgaris	18
September	van Veen grab	HB	161	26	161_26	9/13/2017	6160010202	679	Cyathura burbancki	15
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001280104	4519	Glycinde solitaria	14
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001430498	91	Polydora cornuta	13
September	van Veen grab	HB	161	26	161_26	9/12/2017	5103640205	4502	Crepidula convexa	11
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001130207	393	Hypereteone heteropoda	10
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169150302	699	Ericthonius brasiliensis	10
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001219798	1118	Oxydromus obscurus	10
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169020108	252	Ampelisca abdita	9
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001270105	368	Glycera dibranchiata	9
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169421598	714	Eobrolgus spinosus	9
September	van Veen grab	HB	161	26	161_26	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	9
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001500305	4624	Tharyx acutus	9
September	van Veen grab	HB	161	26	161_26	9/13/2017	6163020198	4818	Ianiropsis serricaudis	9
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001709798	668	Parasabella microphthalma	8
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169159796	696	Monocorophium tuberculatum	8
September	van Veen grab	HB	161	26	161_26	9/12/2017	5131070198	3590	Corambe obscura	8
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001210103	4609	Gyptis vittata	8
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001631102	83	Euclymene collaris	7
September	van Veen grab	HB	161	26	161_26	9/12/2017	5103640299	4514	Crepidula sp.	7
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169020109	253	Ampelisca vadorum	6
September	van Veen grab	HB	161	26	161_26	9/12/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001239598	3535	Opisthodonta longocirrata	6
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169150704	4610	Unciola serrata	6
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001231698	6231	Streptosyllis verrilli	6
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001660302	770	Pectinaria gouldii	5
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169211006	706	Melita nitida	4
September	van Veen grab	HB	161	26	161_26	9/13/2017	6183060230	1619	Pagurus longicarpus	4
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169159795	260	Monocorophium acherusicum	3
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001270104	450	Glycera americana	3
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001231304	1934	Odontosyllis fulgurans	3

September	van Veen grab	HB	161	26	161_26	9/12/2017	5001240396	650	Neanthes arenaceodentata	2
September	van Veen grab	HB	161	26	161_26	9/13/2017	6162020602	680	Erichsonella filiformis	2
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001230104	1028	Myrianida prolifera	2
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	HB	161	26	161_26	9/13/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	HB	161	26	161_26	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001130108	642	Phyllodoce arenae	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	HB	161	26	161_26	9/13/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	51	2097	Gastropoda	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5001230903	3920	Brania wellfleetensis	1
September	van Veen grab	HB	161	26	161_26	9/13/2017	4306050112	4961	Amphiporus ochraceus	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	161	26	161_26	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5004000000	466	Oligochaeta	599
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001500297	5841	Caulleriella venefica	126
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001600401	1779	Mediomastus ambiseta	90
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001600201	391	Heteromastus filiformis	64
September	van Veen grab	HB	163	28	163_28	9/12/2017	5110040103	600	Acteocina canaliculata	48
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001431801	88	Streblospio benedicti	46
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001131101	57	Eumida sanguinea	44
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001230701	4998	Exogone dispar	44
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001680899	1826	Polycirrus sp.	34
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169150998	6161	Grandidierella japonica	31
September	van Veen grab	HB	163	28	163_28	9/12/2017	5108019897	1324	Boonea bisuturalis	30
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001650202	3586	Sabellaria vulgaris	21
September	van Veen grab	HB	163	28	163_28	9/12/2017	5105089897	377	Tritia obsoleta	20
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169150302	699	Ericthonius brasiliensis	18
September	van Veen grab	HB	163	28	163_28	9/12/2017	6160010202	679	Cyathura burbancki	13
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001270105	368	Glycera dibranchiata	11
September	van Veen grab	HB	163	28	163_28	9/12/2017	6171010901	685	Paracaprella tenuis	9
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169210301	698	Elasmopus levis	8
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001239598	3535	Opisthodonta longocirrata	8
September	van Veen grab	HB	163	28	163_28	9/12/2017	5108019895	1240	Fargoa bartschi	6

September	van Veen grab	HB	163	28	163_28	9/12/2017	5001130207	393	Hypereteone heteropoda	5
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169421598	714	Eobrolgus spinosus	5
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001280104	4519	Glycinde solitaria	5
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001210103	4609	Gyptis vittata	5
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001219798	1118	Oxydromus obscurus	4
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001500305	4624	Tharyx acutus	4
September	van Veen grab	HB	163	28	163_28	9/12/2017	4306050110	4805	Amphiporus bioculatus	4
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001430498	91	Polydora cornuta	3
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001709798	668	Parasabella microphthalma	3
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001430701	86	Spio filicornis	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169211006	706	Melita nitida	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	5131020299	4516	Polycera sp.	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169150704	4610	Unciola serrata	2
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169159795	260	Monocorophium acherusicum	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001409899	411	Leitoscoloplos sp.	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001270104	450	Glycera americana	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001432099	774	Scolelepis sp.	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	8178010201	1935	Leptosynapta inhaerens	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001230903	3920	Brania wellfleetensis	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	HB	163	28	163_28	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5004000000	466	Oligochaeta	404
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001600401	1779	Mediomastus ambiseta	203
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001431801	88	Streblospio benedicti	76
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001600201	391	Heteromastus filiformis	66
September	van Veen grab	HB	164	12	164_12	9/12/2017	5110040103	600	Acteocina canaliculata	36
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001680899	1826	Polycirrus sp.	29

September	van Veen grab	HB	164	12	164_12	9/12/2017	5108019897	1324	Boonea bisuturalis	26
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001131101	57	Eumida sanguinea	21
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001650202	3586	Sabellaria vulgaris	20
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001500297	5841	Caulleriella venefica	20
September	van Veen grab	HB	164	12	164_12	9/12/2017	6160010202	679	Cyathura burbancki	16
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169150302	699	Ericthonius brasiliensis	14
September	van Veen grab	HB	164	12	164_12	9/12/2017	5105089897	377	Tritia obsoleta	13
September	van Veen grab	HB	164	12	164_12	9/12/2017	5517010201	205	Mya arenaria	12
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169421598	714	Eobrolgus spinosus	11
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001219798	1118	Oxydromus obscurus	11
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169150998	6161	Grandidierella japonica	10
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001280104	4519	Glycinde solitaria	8
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001210103	4609	Gyptis vittata	8
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169210301	698	Elasmopus levis	7
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001270105	368	Glycera dibranchiata	6
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001230701	4998	Exogone dispar	6
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001130207	393	Hypereteone heteropoda	4
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001709798	668	Parasabella microphthalma	4
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169150704	4610	Unciola serrata	4
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001430498	91	Polydora cornuta	3
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	HB	164	12	164_12	9/12/2017	6171010901	685	Paracaprella tenuis	3
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001231698	6231	Streptosyllis verrilli	3
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169020108	252	Ampelisca abdita	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6162020602	680	Erichsonella filiformis	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169159796	696	Monocorophium tuberculatum	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169040116	1323	Ampithoe valida	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001239598	3535	Opisthodonta longocirrata	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	5131070198	3590	Corambe obscura	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169100101	4547	Batea catharinensis	2
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169159795	260	Monocorophium acherusicum	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169211006	706	Melita nitida	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	3901000000	1279	Turbellaria	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	3906050601	1628	Euplana gracilis	1

September	van Veen grab	HB	164	12	164_12	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	6169349898	3954	Lysianopsis alba	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	164	12	164_12	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5004000000	466	Oligochaeta	815
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001600401	1779	Mediomastus ambiseta	678
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001431801	88	Streblospio benedicti	126
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001600201	391	Heteromastus filiformis	124
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001680899	1826	Polycirrus sp.	114
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169210301	698	Elasmopus levis	63
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001230701	4998	Exogone dispar	57
September	van Veen grab	HB	165	24	165_24	9/12/2017	5110040103	600	Acteocina canaliculata	51
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001131101	57	Eumida sanguinea	47
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001219798	1118	Oxydromus obscurus	45
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169211006	706	Melita nitida	39
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169150302	699	Ericthonius brasiliensis	35
September	van Veen grab	HB	165	24	165_24	9/12/2017	6160010202	679	Cyathura burbancki	32
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001500305	4624	Tharyx acutus	32
September	van Veen grab	HB	165	24	165_24	9/12/2017	5108019897	1324	Boonea bisuturalis	30
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169349898	3954	Lysianopsis alba	30
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001210103	4609	Gyptis vittata	29
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001500297	5841	Caulleriella venefica	28
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001130207	393	Hypereteone heteropoda	25
September	van Veen grab	HB	165	24	165_24	9/12/2017	5105089897	377	Tritia obsoleta	20
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169150998	6161	Grandidierella japonica	19
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169421598	714	Eobrolgus spinosus	17
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001650202	3586	Sabellaria vulgaris	17
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001280104	4519	Glycinde solitaria	16
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001270105	368	Glycera dibranchiata	13
September	van Veen grab	HB	165	24	165_24	9/12/2017	5515471101	1116	Mercenaria mercenaria	12
September	van Veen grab	HB	165	24	165_24	9/12/2017	5103640205	4502	Crepidula convexa	10
September	van Veen grab	HB	165	24	165_24	9/12/2017	4306050110	4805	Amphiporus bioculatus	10
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169159796	696	Monocorophium tuberculatum	9
September	van Veen grab	HB	165	24	165_24	9/12/2017	5110019898	3580	Japonactaeon punctostriatus	9
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001631102	83	Euclymene collaris	7
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001430498	91	Polydora cornuta	7

September	van Veen grab	HB	165	24	165_24	9/12/2017	5001709798	668	Parasabella microphthalma	7
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001239698	1153	Salvatoria clavata	7
September	van Veen grab	HB	165	24	165_24	9/12/2017	5131070198	3590	Corambe obscura	7
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169150704	4610	Unciola serrata	7
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169159795	260	Monocorophium acherusicum	6
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001231698	6231	Streptosyllis verrilli	5
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	4
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001660302	770	Pectinaria gouldii	4
September	van Veen grab	HB	165	24	165_24	9/12/2017	6183060230	1619	Pagurus longicarpus	3
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001231304	1934	Odontosyllis fulgurans	3
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	HB	165	24	165_24	9/12/2017	5131020299	4516	Polycera sp.	3
September	van Veen grab	HB	165	24	165_24	9/12/2017	5105010601	4579	Eupleura caudata	3
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001409899	411	Leitoscoloplos sp.	2
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001249798	651	Alitta succinea	2
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169481002	720	Stenothoe minuta	2
September	van Veen grab	HB	165	24	165_24	9/12/2017	3906030101	1098	Stylochus ellipticus	2
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001670802	112	Ampharete oculata	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	3906050601	1628	Euplana gracilis	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	6171010727	1655	Caprella penantis	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001230903	3920	Brania wellfleetensis	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5103640299	4514	Crepidula sp.	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	HB	165	24	165_24	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5004000000	466	Oligochaeta	297
September	van Veen grab	B	168	53	168_53	9/12/2017	5001600401	1779	Mediomastus ambiseta	161
September	van Veen grab	B	168	53	168_53	9/12/2017	5108019897	1324	Boonea bisuturalis	83

September	van Veen grab	B	168	53	168_53	9/12/2017	5001431801	88	Streblospio benedicti	65
September	van Veen grab	B	168	53	168_53	9/12/2017	5001600201	391	Heteromastus filiformis	42
September	van Veen grab	B	168	53	168_53	9/12/2017	5105089897	377	Tritia obsoleta	37
September	van Veen grab	B	168	53	168_53	9/12/2017	5001680899	1826	Polycirrus sp.	30
September	van Veen grab	B	168	53	168_53	9/12/2017	5001650202	3586	Sabellaria vulgaris	28
September	van Veen grab	B	168	53	168_53	9/12/2017	6169150998	6161	Grandidierella japonica	21
September	van Veen grab	B	168	53	168_53	9/12/2017	5110040103	600	Acteocina canaliculata	19
September	van Veen grab	B	168	53	168_53	9/12/2017	5001131101	57	Eumida sanguinea	17
September	van Veen grab	B	168	53	168_53	9/12/2017	6169159796	696	Monocorophium tuberculatum	15
September	van Veen grab	B	168	53	168_53	9/12/2017	5103640205	4502	Crepidula convexa	12
September	van Veen grab	B	168	53	168_53	9/12/2017	5001500297	5841	Caulleriella venefica	12
September	van Veen grab	B	168	53	168_53	9/12/2017	5001430498	91	Polydora cornuta	10
September	van Veen grab	B	168	53	168_53	9/12/2017	5001280104	4519	Glycinde solitaria	10
September	van Veen grab	B	168	53	168_53	9/12/2017	5001230701	4998	Exogone dispar	10
September	van Veen grab	B	168	53	168_53	9/12/2017	6169210301	698	Elasmopus levis	9
September	van Veen grab	B	168	53	168_53	9/12/2017	5001219798	1118	Oxydromus obscurus	9
September	van Veen grab	B	168	53	168_53	9/12/2017	6169159795	260	Monocorophium acherusicum	8
September	van Veen grab	B	168	53	168_53	9/12/2017	6169150302	699	Ericthonius brasiliensis	8
September	van Veen grab	B	168	53	168_53	9/12/2017	6169421598	714	Eobrolgus spinosus	8
September	van Veen grab	B	168	53	168_53	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	7
September	van Veen grab	B	168	53	168_53	9/12/2017	5001270105	368	Glycera dibranchiata	7
September	van Veen grab	B	168	53	168_53	9/12/2017	5001249798	651	Alitta succinea	7
September	van Veen grab	B	168	53	168_53	9/12/2017	6171010901	685	Paracaprella tenuis	7
September	van Veen grab	B	168	53	168_53	9/12/2017	6160010202	679	Cyathura burbancki	6
September	van Veen grab	B	168	53	168_53	9/12/2017	6169211006	706	Melita nitida	6
September	van Veen grab	B	168	53	168_53	9/12/2017	5001500305	4624	Tharyx acutus	6
September	van Veen grab	B	168	53	168_53	9/12/2017	5001130207	393	Hypereteone heteropoda	5
September	van Veen grab	B	168	53	168_53	9/12/2017	6169150704	4610	Unciola serrata	5
September	van Veen grab	B	168	53	168_53	9/12/2017	5001660302	770	Pectinaria gouldii	4
September	van Veen grab	B	168	53	168_53	9/12/2017	6171010727	1655	Caprella penantis	4
September	van Veen grab	B	168	53	168_53	9/12/2017	5131070198	3590	Corambe obscura	4
September	van Veen grab	B	168	53	168_53	9/12/2017	6169349898	3954	Lysianopsis alba	3
September	van Veen grab	B	168	53	168_53	9/12/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	B	168	53	168_53	9/12/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	B	168	53	168_53	9/12/2017	5001709798	668	Parasabella microphthalma	2
September	van Veen grab	B	168	53	168_53	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	168	53	168_53	9/12/2017	5001239598	3535	Opisthodonta longocirrata	2
September	van Veen grab	B	168	53	168_53	9/12/2017	6187010901	5225	Libinia dubia	2

September	van Veen grab	B	168	53	168_53	9/12/2017	5001631102	83	Euclymene collaris	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	B	168	53	168_53	9/12/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001230104	1028	Myrianida prolifera	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5131020299	4516	Polycera sp.	1
September	van Veen grab	B	168	53	168_53	9/12/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	168	53	168_53	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5004000000	466	Oligochaeta	705
September	van Veen grab	B	169	33	169_33	9/12/2017	5001600401	1779	Mediomastus ambiseta	601
September	van Veen grab	B	169	33	169_33	9/12/2017	5001431801	88	Streblospio benedicti	160
September	van Veen grab	B	169	33	169_33	9/12/2017	5001600201	391	Heteromastus filiformis	51
September	van Veen grab	B	169	33	169_33	9/12/2017	5001500297	5841	Caulleriella venefica	36
September	van Veen grab	B	169	33	169_33	9/12/2017	5001230701	4998	Exogone dispar	22
September	van Veen grab	B	169	33	169_33	9/12/2017	5001270105	368	Glycera dibranchiata	17
September	van Veen grab	B	169	33	169_33	9/12/2017	5001680899	1826	Polycirrus sp.	17
September	van Veen grab	B	169	33	169_33	9/12/2017	5110040103	600	Acteocina canaliculata	13
September	van Veen grab	B	169	33	169_33	9/12/2017	5108019897	1324	Boonea bisuturalis	12
September	van Veen grab	B	169	33	169_33	9/12/2017	5001130207	393	Hypereteone heteropoda	11
September	van Veen grab	B	169	33	169_33	9/12/2017	5001131101	57	Eumida sanguinea	10
September	van Veen grab	B	169	33	169_33	9/12/2017	5105089897	377	Tritia obsoleta	9
September	van Veen grab	B	169	33	169_33	9/12/2017	6169150302	699	Ericthonius brasiliensis	9
September	van Veen grab	B	169	33	169_33	9/12/2017	5001500305	4624	Tharyx acutus	9
September	van Veen grab	B	169	33	169_33	9/12/2017	6160010202	679	Cyathura burbancki	8
September	van Veen grab	B	169	33	169_33	9/12/2017	5001280104	4519	Glycinde solitaria	7
September	van Veen grab	B	169	33	169_33	9/12/2017	6169159796	696	Monocorophium tuberculatum	6
September	van Veen grab	B	169	33	169_33	9/12/2017	5001219798	1118	Oxydromus obscurus	6
September	van Veen grab	B	169	33	169_33	9/12/2017	5001650202	3586	Sabellaria vulgaris	5
September	van Veen grab	B	169	33	169_33	9/12/2017	6169150998	6161	Grandidierella japonica	5
September	van Veen grab	B	169	33	169_33	9/12/2017	5001430498	91	Polydora cornuta	4
September	van Veen grab	B	169	33	169_33	9/12/2017	5001709798	668	Parasabella microphthalma	4
September	van Veen grab	B	169	33	169_33	9/12/2017	6169211006	706	Melita nitida	4
September	van Veen grab	B	169	33	169_33	9/12/2017	5001660302	770	Pectinaria gouldii	4
September	van Veen grab	B	169	33	169_33	9/12/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	B	169	33	169_33	9/12/2017	6171010727	1655	Caprella penantis	3

September	van Veen grab	B	169	33	169_33	9/12/2017	5001239598	3535	Opisthodonta longocirrata	3
September	van Veen grab	B	169	33	169_33	9/12/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	B	169	33	169_33	9/12/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	B	169	33	169_33	9/12/2017	4306050110	4805	Amphiporus bioculatus	3
September	van Veen grab	B	169	33	169_33	9/12/2017	5001430701	86	Spio filicornis	2
September	van Veen grab	B	169	33	169_33	9/12/2017	6169020108	252	Ampelisca abdita	2
September	van Veen grab	B	169	33	169_33	9/12/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	B	169	33	169_33	9/12/2017	6169349898	3954	Lysianopsis alba	2
September	van Veen grab	B	169	33	169_33	9/12/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	B	169	33	169_33	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6169421598	714	Eobrolgus spinosus	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6189029798	769	Dyspanopeus sayi	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6169040116	1323	Ampithoe valida	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	169	33	169_33	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5001432006	4544	Scolelepis (parascolelepis) texana	1
September	van Veen grab	B	169	33	169_33	9/12/2017	6163020198	4818	Ianiropsis serricaudis	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	B	169	33	169_33	9/12/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	B	169	33	169_33	9/12/2017	500127	9112720	Glyceridae	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	500127	9112720	Glyceridae	21
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001431801	88	Streblospio benedicti	14
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001270105	368	Glycera dibranchiata	12
September	van Veen grab	HB	170	15	170_15	9/13/2017	6169150998	6161	Grandidierella japonica	9
September	van Veen grab	HB	170	15	170_15	9/13/2017	5515471301	387	Gemma gemma	8
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001500297	5841	Caulleriella venefica	5
September	van Veen grab	HB	170	15	170_15	9/13/2017	5105089897	377	Tritia obsoleta	4
September	van Veen grab	HB	170	15	170_15	9/13/2017	5110040103	600	Acteocina canaliculata	4
September	van Veen grab	HB	170	15	170_15	9/13/2017	6169159795	260	Monocorophium acherusicum	3
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001500305	4624	Tharyx acutus	3
September	van Veen grab	HB	170	15	170_15	9/13/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	HB	170	15	170_15	9/13/2017	5108019897	1324	Boonea bisuturalis	2
September	van Veen grab	HB	170	15	170_15	9/13/2017	5520050201	5564	Lyonsia arenosa	2
September	van Veen grab	HB	170	15	170_15	9/13/2017	5105089898	162	Tritia trivittata	1

September	van Veen grab	HB	170	15	170_15	9/13/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5004000000	466	Oligochaeta	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001600401	1779	Mediomastus ambiseta	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001500000	2066	Cirratulidae	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5001409895	3977	Leitoscoloplos acutus	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	170	15	170_15	9/13/2017	5103640299	4514	Crepidula sp.	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001431801	88	Streblospio benedicti	42
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001500297	5841	Caulleriella venefica	39
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001270105	368	Glycera dibranchiata	37
September	van Veen grab	HB	171	14	171_14	9/13/2017	5110040103	600	Acteocina canaliculata	27
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001600401	1779	Mediomastus ambiseta	21
September	van Veen grab	HB	171	14	171_14	9/13/2017	5004000000	466	Oligochaeta	10
September	van Veen grab	HB	171	14	171_14	9/13/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	HB	171	14	171_14	9/13/2017	6169150998	6161	Grandidierella japonica	5
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001500305	4624	Tharyx acutus	4
September	van Veen grab	HB	171	14	171_14	9/13/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	HB	171	14	171_14	9/13/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001600201	391	Heteromastus filiformis	2
September	van Veen grab	HB	171	14	171_14	9/13/2017	6153011508	577	Neomysis americana	2
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001500000	2066	Cirratulidae	2
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5502020204	178	Nucula proxima	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5515290398	209	Ensis leei	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5515471301	387	Gemma gemma	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5108019897	1324	Boonea bisuturalis	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	HB	171	14	171_14	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001270105	368	Glycera dibranchiata	27
September	van Veen grab	HB	172	3	172_3	9/13/2017	5110040103	600	Acteocina canaliculata	24
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001600401	1779	Mediomastus ambiseta	10

September	van Veen grab	HB	172	3	172_3	9/13/2017	5105089897	377	Tritia obsoleta	8
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001431801	88	Streblospio benedicti	7
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001600201	391	Heteromastus filiformis	5
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	5
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001280104	4519	Glycinde solitaria	4
September	van Veen grab	HB	172	3	172_3	9/13/2017	6169150998	6161	Grandidierella japonica	4
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001631102	83	Euclymene collaris	3
September	van Veen grab	HB	172	3	172_3	9/13/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	HB	172	3	172_3	9/13/2017	5108019897	1324	Boonea bisuturalis	2
September	van Veen grab	HB	172	3	172_3	9/13/2017	5001500297	5841	Caulleriella venefica	2
September	van Veen grab	HB	172	3	172_3	9/13/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	6169020108	252	Ampelisca abdita	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	5515471301	387	Gemma gemma	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	HB	172	3	172_3	9/13/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001270105	368	Glycera dibranchiata	26
September	van Veen grab	HB	176	22	176_22	9/13/2017	5105089897	377	Tritia obsoleta	26
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001431801	88	Streblospio benedicti	17
September	van Veen grab	HB	176	22	176_22	9/13/2017	5515471301	387	Gemma gemma	14
September	van Veen grab	HB	176	22	176_22	9/13/2017	5110040103	600	Acteocina canaliculata	7
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001500000	2066	Cirratulidae	5
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001500297	5841	Caulleriella venefica	5
September	van Veen grab	HB	176	22	176_22	9/13/2017	5108019897	1324	Boonea bisuturalis	2
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	176	22	176_22	9/13/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	176	22	176_22	9/13/2017	5001600401	1779	Mediomastus ambiseta	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001650202	3586	Sabellaria vulgaris	259
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001431801	88	Streblospio benedicti	226
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169159796	696	Monocorophium tuberculatum	159
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169349898	3954	Lysianopsis alba	149
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169150704	4610	Unciola serrata	141
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169210301	698	Elasmopus levis	99
September	van Veen grab	HB	178	27	178_27	9/13/2017	6171010901	685	Paracaprella tenuis	92
September	van Veen grab	HB	178	27	178_27	9/13/2017	5004000000	466	Oligochaeta	85

September	van Veen grab	HB	178	27	178_27	9/13/2017	6169150302	699	Ericthonius brasiliensis	73
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001131101	57	Eumida sanguinea	69
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001600401	1779	Mediomastus ambiseta	60
September	van Veen grab	HB	178	27	178_27	9/13/2017	6163020198	4818	Ianiropsis serricaudis	57
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169421598	714	Eobrolgus spinosus	49
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169481002	720	Stenothoe minuta	28
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001500305	4624	Tharyx acutus	21
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001709798	668	Parasabella microphthalma	13
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169211006	706	Melita nitida	13
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001500000	2066	Cirratulidae	13
September	van Veen grab	HB	178	27	178_27	9/12/2017	5108019897	1324	Boonea bisuturalis	12
September	van Veen grab	HB	178	27	178_27	9/13/2017	3906050601	1628	Euplana gracilis	10
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001600201	391	Heteromastus filiformis	9
September	van Veen grab	HB	178	27	178_27	9/12/2017	5131070198	3590	Corambe obscura	8
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001330198	4665	Drilonereis longa	8
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001130207	393	Hypereteone heteropoda	7
September	van Veen grab	HB	178	27	178_27	9/13/2017	6171010727	1655	Caprella penantis	7
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001430498	91	Polydora cornuta	6
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169159795	260	Monocorophium acherusicum	6
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001270105	368	Glycera dibranchiata	6
September	van Veen grab	HB	178	27	178_27	9/12/2017	5515471301	387	Gemma gemma	6
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001249798	651	Alitta succinea	6
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001631102	83	Euclymene collaris	5
September	van Veen grab	HB	178	27	178_27	9/12/2017	5103640205	4502	Crepidula convexa	5
September	van Veen grab	HB	178	27	178_27	9/12/2017	5105089898	162	Tritia trivittata	4
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	4
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001219798	1118	Oxydromus obscurus	4
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001231304	1934	Odontosyllis fulgurans	4
September	van Veen grab	HB	178	27	178_27	9/13/2017	500124	2071	Nereididae	4
September	van Veen grab	HB	178	27	178_27	9/12/2017	5131020299	4516	Polycera sp.	4
September	van Veen grab	HB	178	27	178_27	9/13/2017	4306050110	4805	Amphiporus bioculatus	4
September	van Veen grab	HB	178	27	178_27	9/12/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	HB	178	27	178_27	9/13/2017	6189029798	769	Dyspanopeus sayi	3
September	van Veen grab	HB	178	27	178_27	9/13/2017	6183060230	1619	Pagurus longicarpus	3
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001210103	4609	Gyptis vittata	3
September	van Veen grab	HB	178	27	178_27	9/12/2017	5520050201	5564	Lyonsia arenosa	3
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169020109	253	Ampelisca vadorum	2

September	van Veen grab	HB	178	27	178_27	9/12/2017	5105089897	377	Tritia obsoleta	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	3906030101	1098	Stylochus ellipticus	2
September	van Veen grab	HB	178	27	178_27	9/12/2017	5105010301	1146	Urosalpinx cinerea	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001239698	1153	Salvatoria clavata	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001680899	1826	Polycirrus sp.	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001239598	3535	Opisthodonta longocirrata	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	4303020209	3587	Cerebratulus lacteus	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001230701	4998	Exogone dispar	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001500297	5841	Caulleriella venefica	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169150998	6161	Grandidierella japonica	2
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001680199	560	Amphitrite sp.	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001021104	637	Lepidonotus sublevis	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	6160010202	679	Cyathura burbancki	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001432099	774	Scolelepis sp.	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	4306050302	4949	Zygonemertes virescens	1
September	van Veen grab	HB	178	27	178_27	9/13/2017	3901000003	5558	Turbellaria sp. 8 nai	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001650202	3586	Sabellaria vulgaris	168
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001431801	88	Streblospio benedicti	126
September	van Veen grab	HB	179	5	179_5	9/13/2017	5004000000	466	Oligochaeta	69
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001600401	1779	Mediomastus ambiseta	53
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169150704	4610	Unciola serrata	53
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001600201	391	Heteromastus filiformis	47
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001500305	4624	Tharyx acutus	42
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001131101	57	Eumida sanguinea	28
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169159796	696	Monocorophium tuberculatum	26
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001631102	83	Euclymene collaris	21
September	van Veen grab	HB	179	5	179_5	9/13/2017	6163020198	4818	Ianiropsis serricaudis	20
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169210301	698	Elasmopus levis	14
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001270105	368	Glycera dibranchiata	8
September	van Veen grab	HB	179	5	179_5	9/13/2017	5105089897	377	Tritia obsoleta	8
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169421598	714	Eobrolgus spinosus	8
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169349898	3954	Lysianopsis alba	8

September	van Veen grab	HB	179	5	179_5	9/13/2017	5001709798	668	Parasabella microphthalma	7
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	HB	179	5	179_5	9/13/2017	5103640205	4502	Crepidula convexa	6
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169159795	260	Monocorophium acherusicum	5
September	van Veen grab	HB	179	5	179_5	9/13/2017	3906050601	1628	Euplana gracilis	5
September	van Veen grab	HB	179	5	179_5	9/13/2017	5131070198	3590	Corambe obscura	5
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169020108	252	Ampelisca abdita	4
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169211006	706	Melita nitida	4
September	van Veen grab	HB	179	5	179_5	9/13/2017	4306050110	4805	Amphiporus bioculatus	4
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169020109	253	Ampelisca vadorum	3
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001249798	651	Alitta succinea	3
September	van Veen grab	HB	179	5	179_5	9/13/2017	3906030101	1098	Stylochus ellipticus	3
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001680899	1826	Polycirrus sp.	3
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001500000	2066	Cirratulidae	3
September	van Veen grab	HB	179	5	179_5	9/13/2017	5105089898	162	Tritia trivittata	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	6160010202	679	Cyathura burbancki	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	5515471101	1116	Mercenaria mercenaria	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	5105010301	1146	Urosalpinx cinerea	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001210103	4609	Gyptis vittata	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001330198	4665	Drilonereis longa	2
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5515290398	209	Ensis leei	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5515471301	387	Gemma gemma	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001020803	444	Harmothoe extenuata	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001500104	469	Cirratulus grandis	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	3901000003	5558	Turbellaria sp. 8 nai	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5001500297	5841	Caulleriella venefica	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	179	5	179_5	9/13/2017	6169150998	6161	Grandidierella japonica	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001431801	88	Streblospio benedicti	120
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169159796	696	Monocorophium tuberculatum	101
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001500305	4624	Tharyx acutus	49
September	van Veen grab	HB	180	23	180_23	9/13/2017	5004000000	466	Oligochaeta	40
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001600401	1779	Mediomastus ambiseta	31

September	van Veen grab	HB	180	23	180_23	9/13/2017	5001600201	391	Heteromastus filiformis	29
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001500000	2066	Cirratulidae	28
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169159795	260	Monocorophium acherusicum	20
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169150704	4610	Unciola serrata	15
September	van Veen grab	HB	180	23	180_23	9/13/2017	6160010202	679	Cyathura burbancki	10
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001270105	368	Glycera dibranchiata	7
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001650202	3586	Sabellaria vulgaris	7
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001131101	57	Eumida sanguinea	6
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001631102	83	Euclymene collaris	5
September	van Veen grab	HB	180	23	180_23	9/13/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001130207	393	Hypereteone heteropoda	4
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001330198	4665	Drilonereis longa	4
September	van Veen grab	HB	180	23	180_23	9/13/2017	5103640207	150	Crepidula plana	3
September	van Veen grab	HB	180	23	180_23	9/13/2017	5105089898	162	Tritia trivittata	3
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	HB	180	23	180_23	9/13/2017	5131070198	3590	Corambe obscura	3
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169210301	698	Elasmopus levis	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	6171010727	1655	Caprella penantis	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001680899	1826	Polycirrus sp.	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	5103640205	4502	Crepidula convexa	2
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	6153010802	768	Heteromysis formosa	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	4306050110	4805	Amphiporus bioculatus	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001500297	5841	Caulleriella venefica	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	180	23	180_23	9/13/2017	6169480702	9566280	Parametopella cypris	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001650202	3586	Sabellaria vulgaris	380
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001600401	1779	Mediomastus ambiseta	249
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001431801	88	Streblospio benedicti	158
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169159796	696	Monocorophium tuberculatum	158
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169150704	4610	Unciola serrata	98

September	van Veen grab	HB	181	1	181_1	9/13/2017	5004000000	466	Oligochaeta	65
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001500305	4624	Tharyx acutus	33
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001131101	57	Eumida sanguinea	28
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001430498	91	Polydora cornuta	28
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001500000	2066	Cirratulidae	21
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169159795	260	Monocorophium acherusicum	19
September	van Veen grab	HB	181	1	181_1	9/13/2017	5131070198	3590	Corambe obscura	17
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169211006	706	Melita nitida	15
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001130207	393	Hypereteone heteropoda	12
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001680899	1826	Polycirrus sp.	11
September	van Veen grab	HB	181	1	181_1	9/13/2017	6160010202	679	Cyathura burbancki	9
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001600201	391	Heteromastus filiformis	8
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001280104	4519	Glycinde solitaria	8
September	van Veen grab	HB	181	1	181_1	9/13/2017	5103640207	150	Crepidula plana	6
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001709798	668	Parasabella microphthalma	6
September	van Veen grab	HB	181	1	181_1	9/13/2017	6183060230	1619	Pagurus longicarpus	6
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169210301	698	Elasmopus levis	5
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001210103	4609	Gyptis vittata	5
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169020109	253	Ampelisca vadorum	4
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001270105	368	Glycera dibranchiata	4
September	van Veen grab	HB	181	1	181_1	9/13/2017	3906050601	1628	Euplana gracilis	4
September	van Veen grab	HB	181	1	181_1	9/13/2017	6163020198	4818	Ianiropsis serricaudis	4
September	van Veen grab	HB	181	1	181_1	9/13/2017	5515319898	203	Ameritella agilis	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169020108	252	Ampelisca abdita	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001020803	444	Harmothoe extenuata	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	3906030101	1098	Stylochus ellipticus	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	4303020209	3587	Cerebratulus lacteus	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001631102	83	Euclymene collaris	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	5105089898	162	Tritia trivittata	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	6169421598	714	Eobrolgus spinosus	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001219798	1118	Oxydromus obscurus	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	500124	2071	Nereididae	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001230701	4998	Exogone dispar	2
September	van Veen grab	HB	181	1	181_1	9/13/2017	5105089897	377	Tritia obsoleta	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001021104	637	Lepidonotus sublevis	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001060302	640	Sthenelais boa	1

September	van Veen grab	HB	181	1	181_1	9/13/2017	6169481002	720	Stenothoe minuta	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5108019895	1240	Fargoa bartschi	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001439698	1893	Dipolydora socialis	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	181	1	181_1	9/13/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5515471301	387	Gemma gemma	339
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001270105	368	Glycera dibranchiata	20
September	van Veen grab	HB	183	19	183_19	9/13/2017	5105089897	377	Tritia obsoleta	9
September	van Veen grab	HB	183	19	183_19	9/13/2017	6169159796	696	Monocorophium tuberculatum	7
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001500297	5841	Caulleriella venefica	7
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001500305	4624	Tharyx acutus	5
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001431801	88	Streblospio benedicti	4
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001600401	1779	Mediomastus ambiseta	2
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001430498	91	Polydora cornuta	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5004000000	466	Oligochaeta	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001432099	774	Scolelepis sp.	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	HB	183	19	183_19	9/13/2017	6169150998	6161	Grandidierella japonica	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5515471301	387	Gemma gemma	49
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001500297	5841	Caulleriella venefica	31
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001431801	88	Streblospio benedicti	27
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001270105	368	Glycera dibranchiata	21
September	van Veen grab	HB	184	13	184_13	9/13/2017	5004000000	466	Oligochaeta	14
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001500000	2066	Cirratulidae	13
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001500305	4624	Tharyx acutus	12
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001600401	1779	Mediomastus ambiseta	11
September	van Veen grab	HB	184	13	184_13	9/13/2017	6163020198	4818	Ianiropsis serricaudis	9
September	van Veen grab	HB	184	13	184_13	9/13/2017	5108019895	1240	Fargoa bartschi	6
September	van Veen grab	HB	184	13	184_13	9/13/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001600201	391	Heteromastus filiformis	5

September	van Veen grab	HB	184	13	184_13	9/13/2017	6169150998	6161	Grandidierella japonica	4
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001330198	4665	Drilonereis longa	3
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	HB	184	13	184_13	9/13/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	HB	184	13	184_13	9/13/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	HB	184	13	184_13	9/13/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5110040103	600	Acteocina canaliculata	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	6160010202	679	Cyathura burbancki	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	6169210301	698	Elasmopus levis	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	4302020101	4804	Carinoma tremaphoros	1
September	van Veen grab	HB	184	13	184_13	9/13/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001650202	3586	Sabellaria vulgaris	280
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001600401	1779	Mediomastus ambiseta	183
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001431801	88	Streblospio benedicti	129
September	van Veen grab	HB	186	6	186_6	9/13/2017	6171010901	685	Paracaprella tenuis	113
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169159796	696	Monocorophium tuberculatum	82
September	van Veen grab	HB	186	6	186_6	9/13/2017	5004000000	466	Oligochaeta	64
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001600201	391	Heteromastus filiformis	63
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169150704	4610	Unciola serrata	58
September	van Veen grab	HB	186	6	186_6	9/13/2017	6163020198	4818	Ianiropsis serricaudis	49
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001131101	57	Eumida sanguinea	39
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001430498	91	Polydora cornuta	37
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169150302	699	Ericthonius brasiliensis	36
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001500305	4624	Tharyx acutus	35
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001680899	1826	Polycirrus sp.	30
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169210301	698	Elasmopus levis	28
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001631102	83	Euclymene collaris	20
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001230104	1028	Myrianida prolifera	20
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001500000	2066	Cirratulidae	20
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169481002	720	Stenothoe minuta	19
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169421598	714	Eobrolgus spinosus	16
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001709798	668	Parasabella microphthalma	12
September	van Veen grab	HB	186	6	186_6	9/13/2017	6160010202	679	Cyathura burbancki	11

September	van Veen grab	HB	186	6	186_6	9/13/2017	6169349898	3954	Lysianopsis alba	11
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001249798	651	Alitta succinea	10
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001219798	1118	Oxydromus obscurus	10
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169211006	706	Melita nitida	8
September	van Veen grab	HB	186	6	186_6	9/13/2017	5131020299	4516	Polycera sp.	8
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169159795	260	Monocorophium acherusicum	7
September	van Veen grab	HB	186	6	186_6	9/13/2017	6153010802	768	Heteromysis formosa	7
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	6
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169020108	252	Ampelisca abdita	5
September	van Veen grab	HB	186	6	186_6	9/13/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001130207	393	Hypereteone heteropoda	4
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001210103	4609	Gyptis vittata	4
September	van Veen grab	HB	186	6	186_6	9/13/2017	5105089898	162	Tritia trivittata	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	3906030101	1098	Stylochus ellipticus	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	5515471101	1116	Mercenaria mercenaria	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	5108019897	1324	Boonea bisuturalis	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001439698	1893	Dipolydora socialis	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001430701	86	Spio filicornis	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001021104	637	Lepidonotus sublevis	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	6189029798	769	Dyspanopeus sayi	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	6171010727	1655	Caprella penantis	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001230701	4998	Exogone dispar	2
September	van Veen grab	HB	186	6	186_6	9/13/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169420702	282	Phoxocephalus holbolli	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001270105	368	Glycera dibranchiata	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001020803	444	Harmothoe extenuata	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001500104	469	Cirratulus grandis	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001060302	640	Sthenelais boa	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	6162020602	680	Erichsonella filiformis	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	186	6	186_6	9/13/2017	3901000003	5558	Turbellaria sp. 8 nai	1

September	van Veen grab	HB	186	6	186_6	9/13/2017	6179160199	8373500	Hippolyte sp.	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5515471301	387	Gemma gemma	248
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001270105	368	Glycera dibranchiata	13
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001500297	5841	Caulleriella venefica	13
September	van Veen grab	HB	189	7	189_7	9/13/2017	5105089897	377	Tritia obsoleta	12
September	van Veen grab	HB	189	7	189_7	9/13/2017	500127	9112720	Glyceridae	8
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001500305	4624	Tharyx acutus	7
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001600401	1779	Mediomastus ambiseta	5
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001409898	381	Leitoscoloplos robustus	3
September	van Veen grab	HB	189	7	189_7	9/13/2017	5110040103	600	Acteocina canaliculata	3
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001431801	88	Streblospio benedicti	2
September	van Veen grab	HB	189	7	189_7	9/13/2017	5515319898	203	Ameritella agilis	2
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001280104	4519	Glycinde solitaria	2
September	van Veen grab	HB	189	7	189_7	9/12/2017	4302020101	4804	Carinoma tremaphoros	2
September	van Veen grab	HB	189	7	189_7	9/13/2017	5004000000	466	Oligochaeta	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001432006	4544	Scolelepis (parascolelepis) texana	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	189	7	189_7	9/13/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5515471301	387	Gemma gemma	120
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001500297	5841	Caulleriella venefica	35
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001270105	368	Glycera dibranchiata	17
September	van Veen grab	HB	190	11	190_11	9/13/2017	5105089897	377	Tritia obsoleta	13
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001600401	1779	Mediomastus ambiseta	8
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001500305	4624	Tharyx acutus	6
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001431801	88	Streblospio benedicti	5
September	van Veen grab	HB	190	11	190_11	9/13/2017	6169159796	696	Monocorophium tuberculatum	5
September	van Veen grab	HB	190	11	190_11	9/13/2017	5004000000	466	Oligochaeta	4
September	van Veen grab	HB	190	11	190_11	9/13/2017	5108019895	1240	Fargoa bartschi	3
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001330198	4665	Drilonereis longa	3
September	van Veen grab	HB	190	11	190_11	9/13/2017	4302020101	4804	Carinoma tremaphoros	3
September	van Veen grab	HB	190	11	190_11	9/13/2017	6169150998	6161	Grandidierella japonica	3
September	van Veen grab	HB	190	11	190_11	9/13/2017	5103640207	150	Crepidula plana	2
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001409898	381	Leitoscoloplos robustus	2
September	van Veen grab	HB	190	11	190_11	9/13/2017	5110040103	600	Acteocina canaliculata	2
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001432006	4544	Scolelepis (parascolelepis) texana	2
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001631102	83	Euclymene collaris	1

September	van Veen grab	HB	190	11	190_11	9/13/2017	5001431001	92	Spiophanes bombyx	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	6169421598	714	Eobrolgus spinosus	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5108019897	1324	Boonea bisuturalis	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001280104	4519	Glycinde solitaria	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	6169150704	4610	Unciola serrata	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	190	11	190_11	9/13/2017	5002050197	5842	Polygordius jouinae	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001600401	1779	Mediomastus ambiseta	325
September	van Veen grab	HB	191	25	191_25	9/13/2017	5004000000	466	Oligochaeta	173
September	van Veen grab	HB	191	25	191_25	9/13/2017	6171010901	685	Paracaprella tenuis	154
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001650202	3586	Sabellaria vulgaris	138
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169159796	696	Monocorophium tuberculatum	127
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001431801	88	Streblospio benedicti	105
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001500305	4624	Tharyx acutus	65
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001430498	91	Polydora cornuta	64
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169150704	4610	Unciola serrata	61
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001600201	391	Heteromastus filiformis	50
September	van Veen grab	HB	191	25	191_25	9/13/2017	5108019897	1324	Boonea bisuturalis	49
September	van Veen grab	HB	191	25	191_25	9/13/2017	6163020198	4818	Ianiropsis serricaudis	42
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169210301	698	Elasmopus levis	39
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001500000	2066	Cirratulidae	39
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001680899	1826	Polycirrus sp.	37
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001131101	57	Eumida sanguinea	35
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169150302	699	Ericthonius brasiliensis	33
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001631102	83	Euclymene collaris	26
September	van Veen grab	HB	191	25	191_25	9/13/2017	3906050601	1628	Euplana gracilis	21
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169421598	714	Eobrolgus spinosus	19
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169481002	720	Stenothoe minuta	19
September	van Veen grab	HB	191	25	191_25	9/13/2017	6160010202	679	Cyathura burbancki	16
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001219798	1118	Oxydromus obscurus	16
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169159795	260	Monocorophium acherusicum	15
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169211006	706	Melita nitida	14
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001210103	4609	Gyptis vittata	13
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169100101	4547	Batea catharinensis	11
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001130207	393	Hypereteone heteropoda	10

September	van Veen grab	HB	191	25	191_25	9/13/2017	6169020108	252	Ampelisca abdita	9
September	van Veen grab	HB	191	25	191_25	9/13/2017	6171010727	1655	Caprella penantis	7
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169150998	6161	Grandidierella japonica	6
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001249798	651	Alitta succinea	5
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001709798	668	Parasabella microphthalma	5
September	van Veen grab	HB	191	25	191_25	9/13/2017	6153010802	768	Heteromysis formosa	4
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001230104	1028	Myrianida prolifera	4
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169349898	3954	Lysianopsis alba	4
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001280104	4519	Glycinde solitaria	4
September	van Veen grab	HB	191	25	191_25	9/13/2017	4306050110	4805	Amphiporus bioculatus	4
September	van Veen grab	HB	191	25	191_25	9/13/2017	5105089897	377	Tritia obsoleta	3
September	van Veen grab	HB	191	25	191_25	9/13/2017	5131070198	3590	Corambe obscura	3
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001660302	770	Pectinaria gouldii	2
September	van Veen grab	HB	191	25	191_25	9/13/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001231304	1934	Odontosyllis fulgurans	2
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001360597	3497	Schistomeringos annulata	2
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169480702	9566280	Parametopella cypris	2
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001020806	61	Harmothoe imbricata	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5103640207	150	Crepidula plana	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5105089898	162	Tritia trivittata	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169020109	253	Ampelisca vadorum	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001270105	368	Glycera dibranchiata	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001270104	450	Glycera americana	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169159896	695	Apocorophium acutum	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001239598	3535	Opisthodonta longocirrata	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6187010901	5225	Libinia dubia	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	6169439898	6142	Incisocalliope aestuarius	1
September	van Veen grab	HB	191	25	191_25	9/13/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001650202	3586	Sabellaria vulgaris	255
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001431801	88	Streblospio benedicti	212
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001600401	1779	Mediomastus ambiseta	127
September	van Veen grab	HB	192	18	192_18	9/13/2017	5004000000	466	Oligochaeta	72

September	van Veen grab	HB	192	18	192_18	9/13/2017	6169159796	696	Monocorophium tuberculatum	64
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169150704	4610	Unciola serrata	55
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001600201	391	Heteromastus filiformis	47
September	van Veen grab	HB	192	18	192_18	9/13/2017	6163020198	4818	Ianiropsis serricaudis	45
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001131101	57	Eumida sanguinea	40
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001500305	4624	Tharyx acutus	38
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001500000	2066	Cirratulidae	29
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001430498	91	Polydora cornuta	24
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001680899	1826	Polycirrus sp.	20
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001631102	83	Euclymene collaris	19
September	van Veen grab	HB	192	18	192_18	9/13/2017	5108019897	1324	Boonea bisuturalis	18
September	van Veen grab	HB	192	18	192_18	9/13/2017	5131070198	3590	Corambe obscura	18
September	van Veen grab	HB	192	18	192_18	9/13/2017	5105089897	377	Tritia obsoleta	14
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169349898	3954	Lysianopsis alba	13
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169159795	260	Monocorophium acherusicum	12
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169421598	714	Eobrolgus spinosus	12
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001270105	368	Glycera dibranchiata	10
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001249798	651	Alitta succinea	10
September	van Veen grab	HB	192	18	192_18	9/13/2017	5105089898	162	Tritia trivittata	7
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169020108	252	Ampelisca abdita	7
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169210301	698	Elasmopus levis	7
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001130207	393	Hypereteone heteropoda	6
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169211006	706	Melita nitida	6
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001210103	4609	Gyptis vittata	6
September	van Veen grab	HB	192	18	192_18	9/13/2017	6160010202	679	Cyathura burbancki	5
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001230104	1028	Myrianida prolifera	4
September	van Veen grab	HB	192	18	192_18	9/13/2017	6183060230	1619	Pagurus longicarpus	4
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001021104	637	Lepidonotus sublevis	3
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001280104	4519	Glycinde solitaria	3
September	van Veen grab	HB	192	18	192_18	9/13/2017	5103640207	150	Crepidula plana	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001709798	668	Parasabella microphthalma	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	5105010301	1146	Urosalpinx cinerea	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	3906050601	1628	Euplana gracilis	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	500124	2071	Nereididae	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169100101	4547	Batea catharinensis	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	4306050110	4805	Amphiporus bioculatus	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001230701	4998	Exogone dispar	2

September	van Veen grab	HB	192	18	192_18	9/13/2017	6169150998	6161	Grandidierella japonica	2
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001020806	61	Harmothoe imbricata	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	6154050801	235	Oxyurostylis smithi	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169060401	257	Microdeutopus gryllotalpa	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5110040103	600	Acteocina canaliculata	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	6171010901	685	Paracaprella tenuis	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	6169150302	699	Ericthonius brasiliensis	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001660302	770	Pectinaria gouldii	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	3906030101	1098	Stylochus ellipticus	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001219798	1118	Oxydromus obscurus	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001210201	1199	Microphthalmus sczelkowii	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001439698	1893	Dipolydora socialis	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5103640205	4502	Crepidula convexa	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5520050201	5564	Lyonsia arenosa	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	5001231698	6231	Streptosyllis verrilli	1
September	van Veen grab	HB	192	18	192_18	9/13/2017	500127	9112720	Glyceridae	1
September	van Veen grab	B	193	23	193_23	9/13/2017	5001270105	368	Glycera dibranchiata	26
September	van Veen grab	B	193	23	193_23	9/13/2017	5001431801	88	Streblospio benedicti	19
September	van Veen grab	B	193	23	193_23	9/13/2017	5105089897	377	Tritia obsoleta	16
September	van Veen grab	B	193	23	193_23	9/13/2017	5001500297	5841	Caulleriella venefica	12
September	van Veen grab	B	193	23	193_23	9/13/2017	5004000000	466	Oligochaeta	6
September	van Veen grab	B	193	23	193_23	9/13/2017	5001600401	1779	Mediomastus ambiseta	5
September	van Veen grab	B	193	23	193_23	9/12/2017	6169150998	6161	Grandidierella japonica	5
September	van Veen grab	B	193	23	193_23	9/13/2017	5515319898	203	Ameritella agilis	4
September	van Veen grab	B	193	23	193_23	9/13/2017	5001500000	2066	Cirratulidae	4
September	van Veen grab	B	193	23	193_23	9/13/2017	5108019897	1324	Boonea bisuturalis	3
September	van Veen grab	B	193	23	193_23	9/13/2017	5103640205	4502	Crepidula convexa	3
September	van Veen grab	B	193	23	193_23	9/12/2017	6169159795	260	Monocorophium acherusicum	2
September	van Veen grab	B	193	23	193_23	9/13/2017	5001432099	774	Scolelepis sp.	2
September	van Veen grab	B	193	23	193_23	9/12/2017	6183060230	1619	Pagurus longicarpus	2
September	van Veen grab	B	193	23	193_23	9/13/2017	5001500305	4624	Tharyx acutus	2
September	van Veen grab	B	193	23	193_23	9/13/2017	5001490302	4887	Spiochaetopterus costarum oculatus	2
September	van Veen grab	B	193	23	193_23	9/13/2017	5515471301	387	Gemma gemma	1
September	van Veen grab	B	193	23	193_23	9/12/2017	6169159796	696	Monocorophium tuberculatum	1
September	van Veen grab	B	193	23	193_23	9/13/2017	5001280104	4519	Glycinde solitaria	1

September	van Veen grab	B	98	8	98_8	9/12/2017	5001600401	1779	Mediomastus ambiseta	425
September	van Veen grab	B	98	8	98_8	9/12/2017	5004000000	466	Oligochaeta	374
September	van Veen grab	B	98	8	98_8	9/12/2017	5001500305	4624	Tharyx acutus	195
September	van Veen grab	B	98	8	98_8	9/12/2017	5001431801	88	Streblospio benedicti	143
September	van Veen grab	B	98	8	98_8	9/12/2017	5001500297	5841	Caulleriella venefica	109
September	van Veen grab	B	98	8	98_8	9/12/2017	5001230701	4998	Exogone dispar	73
September	van Veen grab	B	98	8	98_8	9/12/2017	5001600201	391	Heteromastus filiformis	64
September	van Veen grab	B	98	8	98_8	9/12/2017	6169421598	714	Eobrolgus spinosus	44
September	van Veen grab	B	98	8	98_8	9/12/2017	5001650202	3586	Sabellaria vulgaris	39
September	van Veen grab	B	98	8	98_8	9/12/2017	5001680899	1826	Polycirrus sp.	27
September	van Veen grab	B	98	8	98_8	9/12/2017	6169481002	720	Stenothoe minuta	26
September	van Veen grab	B	98	8	98_8	9/12/2017	5001239598	3535	Opisthodonta longocirrata	23
September	van Veen grab	B	98	8	98_8	9/12/2017	5001210103	4609	Gyptis vittata	21
September	van Veen grab	B	98	8	98_8	9/12/2017	5001270105	368	Glycera dibranchiata	19
September	van Veen grab	B	98	8	98_8	9/12/2017	6171010901	685	Paracaprella tenuis	15
September	van Veen grab	B	98	8	98_8	9/12/2017	6169150998	6161	Grandidierella japonica	15
September	van Veen grab	B	98	8	98_8	9/12/2017	5110040103	600	Acteocina canaliculata	12
September	van Veen grab	B	98	8	98_8	9/12/2017	6169349898	3954	Lysianopsis alba	12
September	van Veen grab	B	98	8	98_8	9/12/2017	6169150302	699	Ericthonius brasiliensis	11
September	van Veen grab	B	98	8	98_8	9/12/2017	6169210301	698	Elasmopus levis	9
September	van Veen grab	B	98	8	98_8	9/12/2017	5001280104	4519	Glycinde solitaria	9
September	van Veen grab	B	98	8	98_8	9/12/2017	6169150704	4610	Unciola serrata	9
September	van Veen grab	B	98	8	98_8	9/12/2017	5001131101	57	Eumida sanguinea	8
September	van Veen grab	B	98	8	98_8	9/12/2017	5001500000	2066	Cirratulidae	8
September	van Veen grab	B	98	8	98_8	9/12/2017	5520050201	5564	Lyonsia arenosa	8
September	van Veen grab	B	98	8	98_8	9/12/2017	4306050110	4805	Amphiporus bioculatus	7
September	van Veen grab	B	98	8	98_8	9/12/2017	5001231698	6231	Streptosyllis verrilli	7
September	van Veen grab	B	98	8	98_8	9/12/2017	5001631102	83	Euclymene collaris	6
September	van Veen grab	B	98	8	98_8	9/12/2017	5001219798	1118	Oxydromus obscurus	6
September	van Veen grab	B	98	8	98_8	9/12/2017	5103640299	4514	Crepidula sp.	6
September	van Veen grab	B	98	8	98_8	9/12/2017	5105089897	377	Tritia obsoleta	5
September	van Veen grab	B	98	8	98_8	9/12/2017	5001709798	668	Parasabella microphthalma	5
September	van Veen grab	B	98	8	98_8	9/12/2017	6169159796	696	Monocorophium tuberculatum	5
September	van Veen grab	B	98	8	98_8	9/12/2017	6160010202	679	Cyathura burbancki	4
September	van Veen grab	B	98	8	98_8	9/12/2017	6169211006	706	Melita nitida	4
September	van Veen grab	B	98	8	98_8	9/12/2017	6169159795	260	Monocorophium acherusicum	3
September	van Veen grab	B	98	8	98_8	9/12/2017	5001230104	1028	Myrianida prolifera	3
September	van Veen grab	B	98	8	98_8	9/12/2017	5515290398	209	Ensis leei	2

September	van Veen grab	B	98	8	98_8	9/12/2017	6169020109	253	Ampelisca vadorum	2
September	van Veen grab	B	98	8	98_8	9/12/2017	6169060401	257	Microdeutopus gryllotalpa	2
September	van Veen grab	B	98	8	98_8	9/12/2017	5001210201	1199	Microphthalmus sczelkowii	2
September	van Veen grab	B	98	8	98_8	9/12/2017	3901000000	1279	Turbellaria	2
September	van Veen grab	B	98	8	98_8	9/12/2017	5001060303	64	Sthenelais limicola	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5515319898	203	Ameritella agilis	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5517010201	205	Mya arenaria	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001130207	393	Hypereteone heteropoda	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001240396	650	Neanthes arenaceodentata	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001249798	651	Alitta succinea	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001239698	1153	Salvatoria clavata	1
September	van Veen grab	B	98	8	98_8	9/12/2017	6169040116	1323	Ampithoe valida	1
September	van Veen grab	B	98	8	98_8	9/12/2017	6183060230	1619	Pagurus longicarpus	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	B	98	8	98_8	9/12/2017	4303020209	3587	Cerebratulus lacteus	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5131070198	3590	Corambe obscura	1
September	van Veen grab	B	98	8	98_8	9/12/2017	6169100101	4547	Batea catharinensis	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001130801	4562	Paranaitis speciosa	1
September	van Veen grab	B	98	8	98_8	9/12/2017	5001330198	4665	Drilonereis longa	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5004000000	466	Oligochaeta	304
September	van Veen grab	B	99	13	99_13	9/12/2017	5001600401	1779	Mediomastus ambiseta	211
September	van Veen grab	B	99	13	99_13	9/12/2017	5001230701	4998	Exogone dispar	53
September	van Veen grab	B	99	13	99_13	9/12/2017	5001431801	88	Streblospio benedicti	52
September	van Veen grab	B	99	13	99_13	9/12/2017	5001600201	391	Heteromastus filiformis	30
September	van Veen grab	B	99	13	99_13	9/12/2017	5001680899	1826	Polycirrus sp.	29
September	van Veen grab	B	99	13	99_13	9/12/2017	5001270105	368	Glycera dibranchiata	28
September	van Veen grab	B	99	13	99_13	9/12/2017	5001500297	5841	Caulleriella venefica	25
September	van Veen grab	B	99	13	99_13	9/12/2017	5001239598	3535	Opisthodonta longocirrata	19
September	van Veen grab	B	99	13	99_13	9/12/2017	6169421598	714	Eobrolgus spinosus	16
September	van Veen grab	B	99	13	99_13	9/12/2017	5001500305	4624	Tharyx acutus	13
September	van Veen grab	B	99	13	99_13	9/12/2017	5001231698	6231	Streptosyllis verrilli	13
September	van Veen grab	B	99	13	99_13	9/12/2017	5110040103	600	Acteocina canaliculata	12
September	van Veen grab	B	99	13	99_13	9/12/2017	5001131101	57	Eumida sanguinea	9
September	van Veen grab	B	99	13	99_13	9/12/2017	5108019897	1324	Boonea bisuturalis	9
September	van Veen grab	B	99	13	99_13	9/12/2017	6169150998	6161	Grandidierella japonica	9

ABUN

September	van Veen grab	B	99	13	99_13	9/12/2017	3901000010	6238	Turbellaria sp. 10 nai	9
September	van Veen grab	B	99	13	99_13	9/12/2017	6160010202	679	Cyathura burbancki	8
September	van Veen grab	B	99	13	99_13	9/12/2017	5001650202	3586	Sabellaria vulgaris	7
September	van Veen grab	B	99	13	99_13	9/12/2017	5001239698	1153	Salvatoria clavata	4
September	van Veen grab	B	99	13	99_13	9/12/2017	5105089898	162	Tritia trivittata	3
September	van Veen grab	B	99	13	99_13	9/12/2017	5001219798	1118	Oxydromus obscurus	3
September	van Veen grab	B	99	13	99_13	9/12/2017	6171010727	1655	Caprella penantis	3
September	van Veen grab	B	99	13	99_13	9/12/2017	6169349898	3954	Lysianopsis alba	3
September	van Veen grab	B	99	13	99_13	9/12/2017	5001631102	83	Euclymene collaris	2
September	van Veen grab	B	99	13	99_13	9/12/2017	5001431001	92	Spiophanes bombyx	2
September	van Veen grab	B	99	13	99_13	9/12/2017	5105089897	377	Tritia obsoleta	2
September	van Veen grab	B	99	13	99_13	9/12/2017	5001249798	651	Alitta succinea	2
September	van Veen grab	B	99	13	99_13	9/12/2017	5001230104	1028	Myrianida prolifera	2
September	van Veen grab	B	99	13	99_13	9/12/2017	5001430701	86	Spio filicornis	1
September	van Veen grab	B	99	13	99_13	9/12/2017	6169159795	260	Monocorophium acherusicum	1
September	van Veen grab	B	99	13	99_13	9/12/2017	6179220103	301	Crangon septemspinosa	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5001409898	381	Leitoscoloplos robustus	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5515471101	1116	Mercenaria mercenaria	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5105010301	1146	Urosalpinx cinerea	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5001439698	1893	Dipolydora socialis	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5001231304	1934	Odontosyllis fulgurans	1
September	van Veen grab	B	99	13	99_13	9/12/2017	500124	2071	Nereididae	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5001360597	3497	Schistomeringos annulata	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5001409895	3977	Leitoscoloplos acutus	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5103640299	4514	Crepidula sp.	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5105010601	4579	Eupleura caudata	1
September	van Veen grab	B	99	13	99_13	9/12/2017	3901000003	5558	Turbellaria sp. 8 nai	1
September	van Veen grab	B	99	13	99_13	9/12/2017	5002050197	5842	Polygordius jouinae	1

BIOMASS

SURVEY	GEAR_TYPE	LOCATION	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	SAMPLE_DW	SAMPLE_AFDM
September	van Veen grab	B	101	10	101_10	9/12/2017	0.2712	0.136
September	van Veen grab	B	102	26	102_26	9/12/2017	137.9612	7.0825
September	van Veen grab	B	103	18	103_18	9/12/2017	5.5042	0.4279
September	van Veen grab	B	105	9	105_9	9/12/2017	0.1332	0.0846
September	van Veen grab	B	110	5	110_5	9/12/2017	48.1537	2.0432
September	van Veen grab	B	111	30	111_30	9/12/2017	10.1809	0.8027
September	van Veen grab	B	114	2	114_2	9/12/2017	79.5627	3.8239
September	van Veen grab	B	116	11	116_11	9/12/2017	250.3768	10.5228
September	van Veen grab	B	120	12	120_12	9/12/2017	182.2673	9.1386
September	van Veen grab	B	121	29	121_29	9/12/2017	28.5432	2.2105
September	van Veen grab	B	122	1	122_1	9/12/2017	0.5352	0.1288
September	van Veen grab	B	123	20	123_20	9/12/2017	12.6159	0.8756
September	van Veen grab	B	124	16	124_16	9/12/2017	35.0815	2.5756
September	van Veen grab	B	125	19	125_19	9/12/2017	4.6532	0.4497
September	van Veen grab	HB	127	17	127_17	9/11/2017	72.5373	3.7019
September	van Veen grab	HB	128	21	128_21	9/11/2017	2.7786	0.3137
September	van Veen grab	HB	129	10	129_10	9/12/2017	14.9072	1.2046
September	van Veen grab	B	131	17	131_17	9/12/2017	8.7381	0.7095
September	van Veen grab	HB	133	8	133_8	9/12/2017	3.021	0.3308
September	van Veen grab	HB	134	20	134_20	9/12/2017	6.8933	0.5559
September	van Veen grab	B	135	6	135_6	9/12/2017	10.9619	0.9175
September	van Veen grab	B	140	3	140_3	9/12/2017	3.9586	0.5662
September	van Veen grab	B	141	21	141_21	9/12/2017	4.0542	0.5953
September	van Veen grab	B	142	24	142_24	9/12/2017	18.6352	1.4144
September	van Veen grab	B	144	4	144_4	9/12/2017	21.5648	1.5184
September	van Veen grab	B	145	15	145_15	9/13/2017	5.0371	0.6866
September	van Veen grab	B	146	22	146_22	9/13/2017	3.0818	0.6428
September	van Veen grab	B	147	27	147_27	9/13/2017	3.9434	0.4725
September	van Veen grab	B	148	36	148_36	9/13/2017	145.0861	6.4995
September	van Veen grab	B	150	28	150_28	9/12/2017	3.0039	0.3513
September	van Veen grab	HB	151	16	151_16	9/11/2017	26.6364	1.7075
September	van Veen grab	HB	153	30	153_30	9/11/2017	2.9225	0.2267
September	van Veen grab	HB	156	4	156_4	9/11/2017	0.6974	0.1182
September	van Veen grab	HB	157	9	157_9	9/11/2017	1.8087	0.27
September	van Veen grab	HB	158	2	158_2	9/11/2017	92.2788	4.4439
September	van Veen grab	HB	160	29	160_29	9/12/2017	4.6649	0.5709

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September	van Veen grab	HB	161	26	161_26	9/12/2017	7.5405	0.6342
September	van Veen grab	HB	163	28	163_28	9/12/2017	4.8331	0.426
September	van Veen grab	HB	164	12	164_12	9/12/2017	2.9393	0.2061
September	van Veen grab	HB	165	24	165_24	9/12/2017	10.9942	0.9986
September	van Veen grab	B	168	53	168_53	9/12/2017	15.1035	1.0611
September	van Veen grab	B	169	33	169_33	9/12/2017	3.1073	0.3207
September	van Veen grab	HB	170	15	170_15	9/13/2017	2.1886	0.1707
September	van Veen grab	HB	171	14	171_14	9/13/2017	2.1217	0.2014
September	van Veen grab	HB	172	3	172_3	9/13/2017	3.1613	0.3243
September	van Veen grab	HB	176	22	176_22	9/13/2017	40.1762	9.3514
September	van Veen grab	HB	178	27	178_27	9/13/2017	3.5649	0.6761
September	van Veen grab	HB	179	5	179_5	9/13/2017	170.8783	8.2905
September	van Veen grab	HB	180	23	180_23	9/13/2017	1.8429	0.1835
September	van Veen grab	HB	181	1	181_1	9/13/2017	0.8276	0.3056
September	van Veen grab	HB	183	19	183_19	9/13/2017	4.1826	0.2903
September	van Veen grab	HB	184	13	184_13	9/13/2017	2.4205	0.2068
September	van Veen grab	HB	186	6	186_6	9/13/2017	217.5953	9.5283
September	van Veen grab	HB	189	7	189_7	9/13/2017	5.5712	0.483
September	van Veen grab	HB	190	11	190_11	9/13/2017	7.5324	0.5947
September	van Veen grab	HB	191	25	191_25	9/13/2017	2.5068	0.4606
September	van Veen grab	HB	192	18	192_18	9/13/2017	128.0028	5.4612
September	van Veen grab	B	193	23	193_23	9/13/2017	4.5843	0.306
September	van Veen grab	B	98	8	98_8	9/12/2017	4.6547	0.7958
September	van Veen grab	B	99	13	99_13	9/12/2017	102.7399	5.3817

GRAB

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	TIME	LATITUDE	LONGITUDE	DEPTH_FT	TIDE_STAGE	BOTTOM_TYPE	USE_CODE
September	van Veen grab	156	4	156_4	9/11/2017	15:20	40.49948333	74.25325	10.3	ebb	mud	1
September	van Veen grab	151	16	151_16	9/11/2017	15:46	40.49923333	74.25323333	8.8	ebb	mud	1
September	van Veen grab	157	9	157_9	9/11/2017	16:05	40.49945	74.25298333	5.9	ebb	mud	1
September	van Veen grab	158	2	158_2	9/11/2017	16:18	40.49938333	74.25263333	4.9	ebb	mud	1
September	van Veen grab	153	30	153_30	9/11/2017	16:35	40.49911667	74.25238333	5.1	ebb	mud	1
September	van Veen grab	127	17	127_17	9/11/2017	16:44	40.49643333	74.25173333	5.4	ebb	mud	1
September	van Veen grab	128	21	128_21	9/11/2017	17:01	40.49653333	74.25155	3.5	ebb	mud	1
September	van Veen grab	133	8	133_8	9/12/2017	8:08	40.49676667	74.25151667	4.4	low slack	sand	1
September	van Veen grab	134	20	134_20	9/12/2017	8:24	40.49676667	74.25098333	2.5	low slack	sand	1
September	van Veen grab	129	10	129_10	9/12/2017	8:36	40.4968	74.2515	2.4	low slack	sand	1
September	van Veen grab	114	2	114_2	9/12/2017	8:55	40.49456667	74.2474	3.6	flood	sand	1
September	van Veen grab	99	13	99_13	9/12/2017	9:09	40.49138333	74.24545	7.8	flood	sand	1
September	van Veen grab	103	18	103_18	9/12/2017	9:21	40.49295	74.24471667	5.9	flood	sand	1
September	van Veen grab	120	12	120_12	9/12/2017	9:38	40.4954	74.24606667	4.4	flood	sand	1
September	van Veen grab	124	16	124_16	9/12/2017	9:55	40.49583333	74.24606667	4.4	flood	sand	1
September	van Veen grab	125	19	125_19	9/12/2017	10:14	40.49621667	74.24603333	4.2	flood	sand	1
September	van Veen grab	135	6	135_6	9/12/2017	10:30	40.49676667	74.24425	4.4	flood	sand	1
September	van Veen grab	123	20	123_20	9/12/2017	10:47	40.49565	74.24328333	10.1	flood	sand	1
September	van Veen grab	121	29	121_29	9/12/2017	11:01	40.49523333	74.24286667	9.7	flood	sand	1
September	van Veen grab	131	17	131_17	9/12/2017	11:11	40.49645	74.24228333	7.3	flood	sand	1
September	van Veen grab	111	30	111_30	9/12/2017	11:25	40.49431667	74.24171667	8.3	flood	sand	1
September	van Veen grab	102	26	102_26	9/12/2017	13:54	40.49243333	74.23916667	10.5	ebb	sand	1
September	van Veen grab	98	8	98_8	9/12/2017	14:07	40.48991667	74.23915	13.9	ebb	gravel	1
September	van Veen grab	101	10	101_10	9/12/2017	14:21	40.49188333	74.23733333	12.9	ebb	sand	1
September	van Veen grab	105	9	105_9	9/12/2017	14:39	40.49306667	74.23588333	12.7	ebb	sand	1
September	van Veen grab	142	24	142_24	9/12/2017	14:51	40.49758333	74.23751667	7.7	ebb	sand	1
September	van Veen grab	144	4	144_4	9/12/2017	15:07	40.49825	74.23565	6.7	ebb	gravel	1
September	van Veen grab	140	3	140_3	9/12/2017	15:17	40.49736667	74.23208333	10.8	ebb	sand	1
September	van Veen grab	150	28	150_28	9/12/2017	15:32	40.49885	74.23206667	7.8	ebb	sand	1
September	van Veen grab	161	26	161_26	9/12/2017	15:44	40.49951667	74.2321	8.5	ebb	sand	1
September	van Veen grab	165	24	165_24	9/12/2017	15:52	40.49973333	74.23216667	5.6	ebb	sand	1
September	van Veen grab	164	12	164_12	9/12/2017	16:02	40.49976667	74.23248333	7.1	ebb	gravel	1
September	van Veen grab	163	28	163_28	9/12/2017	16:12	40.49975	74.23288333	6.4	ebb	sand	1
September	van Veen grab	160	29	160_29	9/12/2017	16:28	40.4994	74.2325	6.8	ebb	sand	1
September	van Veen grab	169	33	169_33	9/12/2017	16:37	40.50091667	74.22946667	6.3	ebb	sand	1

GRAB

September	van Veen grab	168	53	168_53	9/12/2017	16:47	40.5009	74.22835	6.3	ebb	sand	1
September	van Veen grab	110	5	110_5	9/12/2017	17:00	40.49376667	74.22955	18.4	ebb	sand	1
September	van Veen grab	116	11	116_11	9/12/2017	17:17	40.49471667	74.2295	15.7	ebb	sand	1
September	van Veen grab	122	1	122_1	9/12/2017	17:34	40.49541667	74.22691667	15.8	ebb	sand	1
September	van Veen grab	141	21	141_21	9/12/2017	17:48	40.49748333	74.22396667	14	ebb	sand	1
September	van Veen grab	145	15	145_15	9/13/2017	7:45	40.49818333	74.22628333	10.2	ebb	sand	1
September	van Veen grab	146	22	146_22	9/13/2017	7:55	40.4981	74.22553333	12	ebb	sand	1
September	van Veen grab	147	27	147_27	9/13/2017	8:11	40.49831667	74.22541667	11.6	ebb	sand	1
September	van Veen grab	148	36	148_36	9/13/2017	8:34	40.49846667	74.22263333	12.1	ebb	sand	1
September	van Veen grab	181	1	181_1	9/13/2017	8:46	40.50126667	74.21826667	18.7	ebb	sand	1
September	van Veen grab	186	6	186_6	9/13/2017	9:01	40.50145	74.2185	17.7	ebb	sand	1
September	van Veen grab	192	18	192_18	9/13/2017	9:14	40.50173333	74.21833333	12.2	ebb	sand	1
September	van Veen grab	191	25	191_25	9/13/2017	9:27	40.50176667	74.21873333	6.2	low slack	sand	1
September	van Veen grab	180	23	180_23	9/13/2017	9:37	40.50121667	74.21865	17.2	low slack	sand	1
September	van Veen grab	179	5	179_5	9/13/2017	9:51	40.50115	74.21911667	17.3	low slack	sand	1
September	van Veen grab	178	27	178_27	9/13/2017	10:02	40.50115	74.21948333	10.6	flood	sand	1
September	van Veen grab	184	13	184_13	9/13/2017	10:15	40.5015	74.21911667	9.5	flood	sand	1
September	van Veen grab	183	19	183_19	9/13/2017	10:27	40.50148333	74.21935	7.4	flood	sand	1
September	van Veen grab	190	11	190_11	9/13/2017	10:41	40.50176667	74.21925	7.4	flood	sand	1
September	van Veen grab	189	7	189_7	9/13/2017	10:52	40.50176667	74.2193	7.2	flood	sand	1
September	van Veen grab	193	23	193_23	9/13/2017	11:04	40.50198333	74.22065	7.2	flood	sand	1
September	van Veen grab	172	3	172_3	9/13/2017	11:16	40.50085	74.22443333	8	flood	sand	1
September	van Veen grab	171	14	171_14	9/13/2017	11:28	40.50076667	74.22496667	7.6	flood	sand	1
September	van Veen grab	170	15	170_15	9/13/2017	11:37	40.50093333	74.22521667	7.7	flood	sand	1
September	van Veen grab	176	22	176_22	9/13/2017	11:56	40.50126667	74.22453333	6.4	flood	sand	1

OTTER_TRAWL

SURVEY	GEAR_ TYPE	Site_ ID	Sample _ID	SAMP _ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
September	Otter trawl	57	7	57_7	9/14/2017	762	Carcinidae	Carcinus maenas	Green crab	1
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9
September	Otter trawl	57	7	57_7	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1
September	Otter trawl	57	7	57_7	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	11
September	Otter trawl	57	7	57_7	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
September	Otter trawl	57	7	57_7	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
September	Otter trawl	57	7	57_7	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	3
September	Otter trawl	67	1	67_1	9/14/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1
September	Otter trawl	67	1	67_1	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Otter trawl	67	1	67_1	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1
September	Otter trawl	67	1	67_1	9/14/2017	700	Limulidae	Limulus polyphemus	Horseshoe crab	2
September	Otter trawl	67	1	67_1	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	10
September	Otter trawl	67	1	67_1	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1
September	Otter trawl	67	1	67_1	9/14/2017	763	Polybiidae	Ovalipes ocellatus	Lady crab	1
September	Otter trawl	67	1	67_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Otter trawl	69	9	69_9	9/14/2017	762	Carcinidae	Carcinus maenas	Green crab	1
September	Otter trawl	69	9	69_9	9/14/2017	177	Chaetodontidae	Chaetodon ocellatus	Spotfin Butterflyfish	1
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	13
September	Otter trawl	69	9	69_9	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
September	Otter trawl	69	9	69_9	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1
September	Otter trawl	69	9	69_9	9/14/2017	763	Polybiidae	Ovalipes ocellatus	Lady crab	1
September	Otter trawl	69	9	69_9	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
September	Otter trawl	69	9	69_9	9/14/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Otter trawl	70	3	70_3	9/14/2017	10	Anguillidae	Anguilla rostrata	American Eel	1
September	Otter trawl	70	3	70_3	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	45
September	Otter trawl	70	3	70_3	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1
September	Otter trawl	70	3	70_3	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	5
September	Otter trawl	70	3	70_3	9/14/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	6
September	Otter trawl	70	3	70_3	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1
September	Otter trawl	73	6	73_6	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6

OTTER_TRAWL

September	Otter trawl	73	6	73_6	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1
September	Otter trawl	73	6	73_6	9/14/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	7
September	Otter trawl	74	1	74_1	9/14/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	296
September	Otter trawl	74	1	74_1	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	2
September	Otter trawl	74	1	74_1	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1
September	Otter trawl	74	1	74_1	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	10
September	Otter trawl	74	1	74_1	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2
September	Otter trawl	74	1	74_1	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3
September	Otter trawl	74	1	74_1	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	5
September	Otter trawl	74	1	74_1	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1
September	Otter trawl	74	1	74_1	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
September	Otter trawl	74	1	74_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	4
September	Otter trawl	74	1	74_1	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	86
September	Otter trawl	77	3	77_3	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	2
September	Otter trawl	77	3	77_3	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
September	Otter trawl	77	3	77_3	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	3
September	Otter trawl	77	3	77_3	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	5
September	Otter trawl	77	3	77_3	9/14/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Otter trawl	77	3	77_3	9/14/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
September	Otter trawl	79	4	79_4	9/14/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1
September	Otter trawl	79	4	79_4	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Otter trawl	79	4	79_4	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1
September	Otter trawl	79	4	79_4	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1
September	Otter trawl	79	4	79_4	9/14/2017	62	Labridae	Tautoga onitis	Tautog	2
September	Otter trawl	79	4	79_4	9/14/2017	829	Panopeidae	Dyspanopeus sayi	Say mud crab	1
September	Otter trawl	79	4	79_4	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
September	Otter trawl	79	4	79_4	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	2
September	Otter trawl	79	4	79_4	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
September	Otter trawl	79	4	79_4	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	2
September	Otter trawl	79	4	79_4	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1
September	Otter trawl	80	5	80_5	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1

OTTER_TRAWL

September	Otter trawl	80	5	80_5	9/14/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
September	Otter trawl	80	5	80_5	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	2
September	Otter trawl	80	5	80_5	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1
September	Otter trawl	80	5	80_5	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1
September	Otter trawl	81	6	81_6	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Otter trawl	81	6	81_6	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2
September	Otter trawl	81	6	81_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1

TRAP

SURVEY	GEAR_ TYPE	Site_ ID	Sample _ID	TRAP_ NUM	SAMP_ ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
September	Fish trap	121	6	1	121_6_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	30
September	Fish trap	121	6	2	121_6_2	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	121	6	2	121_6_2	9/13/2017	71	Sparidae	Stenotomus chrysops	Scup	3
September	Fish trap	124	18	1	124_18_1	9/13/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Fish trap	124	18	2	124_18_2	9/13/2017	999	No catch	No catch	No catch	
September	Fish trap	128	4	1	128_4_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	8
September	Fish trap	128	4	2	128_4_2	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	129	3	1	129_3_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	129	3	2	129_3_2	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	137	5	1	137_5_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	137	5	2	137_5_2	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
September	Fish trap	141	8	1	141_8_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	9
September	Fish trap	141	8	2	141_8_2	9/13/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Fish trap	147	10	1	147_10_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
September	Fish trap	147	10	2	147_10_2	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	8
September	Fish trap	151	1	1	151_1_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	2
September	Fish trap	151	1	1	151_1_1	9/12/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Fish trap	151	1	2	151_1_2	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	6
September	Fish trap	151	1	2	151_1_2	9/12/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Fish trap	152	2	1	152_2_1	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	152	2	2	152_2_2	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	152	2	2	152_2_2	9/12/2017	754	Portunidae	Callinectes sapidus	Blue crab	2
September	Fish trap	156	13	1	156_13_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	156	13	2	156_13_2	9/13/2017	999	No catch	No catch	No catch	
September	Fish trap	157	6	1	157_6_1	9/13/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1
September	Fish trap	157	6	2	157_6_2	9/13/2017	71	Sparidae	Stenotomus chrysops	Scup	2
September	Fish trap	158	2	1	158_2_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	34
September	Fish trap	158	2	2	158_2_2	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	160	5	1	160_5_1	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3

TRAP

September	Fish trap	160	5	1	160_5_1	9/12/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Fish trap	160	5	2	160_5_2	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	161	7	1	161_7_1	9/13/2017	71	Sparidae	Stenotomus chrysops	Scup	2
September	Fish trap	161	7	2	161_7_2	9/13/2017	999	No catch	No catch	No catch	
September	Fish trap	163	8	1	163_8_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	24
September	Fish trap	163	8	2	163_8_2	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	3
September	Fish trap	170	19	1	170_19_1	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	6
September	Fish trap	170	19	2	170_19_2	9/13/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	171	9	1	171_9_1	9/13/2017	71	Sparidae	Stenotomus chrysops	Scup	1
September	Fish trap	171	9	2	171_9_2	9/13/2017	999	No catch	No catch	No catch	
September	Fish trap	172	4	1	172_4_1	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	172	4	2	172_4_2	9/12/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Fish trap	174	1	1	174_1_1	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	174	1	2	174_1_2	9/12/2017	71	Sparidae	Stenotomus chrysops	Scup	4
September	Fish trap	175	3	1	175_3_1	9/12/2017	999	No catch	No catch	No catch	
September	Fish trap	175	3	2	175_3_2	9/12/2017	999	No catch	No catch	No catch	

SEINE

SURVEY	GEAR_TYPE	Site_ID	Sample_ID	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	COUNT
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	61
September	Beach seine	205	3	205_3	9/15/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	3
September	Beach seine	205	3	205_3	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13
September	Beach seine	205	3	205_3	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	205	3	205_3	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	4
September	Beach seine	205	3	205_3	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10
September	Beach seine	217	10	217_10	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1
September	Beach seine	217	10	217_10	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	42
September	Beach seine	219	31	219_31	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1
September	Beach seine	219	31	219_31	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
September	Beach seine	219	31	219_31	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	219	31	219_31	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2
September	Beach seine	219	31	219_31	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	55
September	Beach seine	222	5	222_5	9/15/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1
September	Beach seine	222	5	222_5	9/15/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1
September	Beach seine	222	5	222_5	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1
September	Beach seine	222	5	222_5	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
September	Beach seine	222	5	222_5	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	111
September	Beach seine	223	15	223_15	9/15/2017	41	Belonidae	Strongylura marina	Atlantic Needlefish	3
September	Beach seine	223	15	223_15	9/15/2017	853	Epialtidae	Libinia emarginata	Portly spider crab	1
September	Beach seine	223	15	223_15	9/15/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	14
September	Beach seine	223	15	223_15	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
September	Beach seine	223	15	223_15	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	53
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	23
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	53

SEINE

September	Beach seine	226	17	226_17	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1
September	Beach seine	226	17	226_17	9/15/2017	62	Labridae	Tautoga onitis	Tautog	1
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	47
September	Beach seine	227	9	227_9	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	3
September	Beach seine	227	9	227_9	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	87
September	Beach seine	228	16	228_16	9/15/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1
September	Beach seine	228	16	228_16	9/15/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1
September	Beach seine	228	16	228_16	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2
September	Beach seine	228	16	228_16	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2
September	Beach seine	228	16	228_16	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	430
September	Beach seine	241	14	241_14	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	3
September	Beach seine	241	14	241_14	9/15/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1
September	Beach seine	241	14	241_14	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	548
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	6
September	Beach seine	243	13	243_13	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	70
September	Beach seine	254	1	254_1	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	5
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	177
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	6
September	Beach seine	257	2	257_2	9/15/2017	62	Labridae	Tautoga onitis	Tautog	1
September	Beach seine	257	2	257_2	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	4
September	Beach seine	257	2	257_2	9/15/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1
September	Beach seine	257	2	257_2	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	30
September	Beach seine	265	4	265_4	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	389
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	129
September	Beach seine	268	23	268_23	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1
September	Beach seine	268	23	268_23	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	164
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	55
September	Beach seine	275	6	275_6	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3

SEINE

September	Beach seine	275	6	275_6	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	593
September	Beach seine	278	18	278_18	9/15/2017	754	Portunidae	Callinectes sapidus	Blue crab	1
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	6
September	Beach seine	278	18	278_18	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	248
September	Beach seine	279	34	279_34	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	2

OTTER_TRAWL

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP _ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH _ ID	LENGTH _ CM
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	6
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	7.3
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	6.8
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	6.6
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	5.9
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	4.2
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	6.1
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	8	6.3
September	Otter trawl	57	7	57_7	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9	5.3
September	Otter trawl	57	7	57_7	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	5.2
September	Otter trawl	57	7	57_7	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7
September	Otter trawl	57	7	57_7	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1	17.5
September	Otter trawl	57	7	57_7	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	2	5.5
September	Otter trawl	57	7	57_7	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	3	6.1
September	Otter trawl	67	1	67_1	9/14/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1	4.4
September	Otter trawl	67	1	67_1	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	8.3
September	Otter trawl	67	1	67_1	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	5.2
September	Otter trawl	67	1	67_1	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	42
September	Otter trawl	67	1	67_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1	5.2
September	Otter trawl	69	9	69_9	9/14/2017	177	Chaetodontidae	Chaetodon ocellatus	Spotfin Butterflyfish	1	5.4
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	5.5
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	4.5
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	4.6
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	4.1
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	4.6
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	4.2
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	4.1
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	8	5.3
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9	4.8
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	10	4.2
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	11	4.2
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	12	5.2
September	Otter trawl	69	9	69_9	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	13	4.8

OTTER_TRAWL

September	Otter trawl	69	9	69_9	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	34.7
September	Otter trawl	69	9	69_9	9/14/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.4
September	Otter trawl	70	3	70_3	9/14/2017	10	Anguillidae	Anguilla rostrata	American Eel	1	31.1
September	Otter trawl	70	3	70_3	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	7.4
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	4.1
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	5.2
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	5.3
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	4.5
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	6.6
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	4.5
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	3.8
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	8	3.2
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9	3.7
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	10	3.8
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	11	5
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	12	3.7
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	13	4.6
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	14	4.6
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	15	4.1
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	16	3.5
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	17	4.2
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	18	4.5
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	19	4.8
September	Otter trawl	70	3	70_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	20	4.1
September	Otter trawl	70	3	70_3	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1	9.8
September	Otter trawl	70	3	70_3	9/14/2017	62	Labridae	Tautoga onitis	Tautog	2	10.5
September	Otter trawl	70	3	70_3	9/14/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1	14.5
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	15.3
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	2	16.8
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	3	19.5
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	4	15.7
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	5	5.7
September	Otter trawl	70	3	70_3	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	6	8.1
September	Otter trawl	70	3	70_3	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1	20.3
September	Otter trawl	73	6	73_6	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	8.8
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	6

OTTER_TRAWL

September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	5.8
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	5.2
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	6.1
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	6.3
September	Otter trawl	73	6	73_6	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	5.7
September	Otter trawl	73	6	73_6	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	42.8
September	Otter trawl	73	6	73_6	9/14/2017	132	Scophthalmidae	Scophthalmus aquosus	Windowpane	1	13.8
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	18.5
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	2	12.5
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	3	12.2
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	4	15.9
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	5	14.2
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	6	7.8
September	Otter trawl	73	6	73_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	7	7.2
September	Otter trawl	74	1	74_1	9/14/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	8.2
September	Otter trawl	74	1	74_1	9/14/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	2	6.7
September	Otter trawl	74	1	74_1	9/14/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	3	7.1
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	7.4
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	7
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	6.8
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	6.8
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	6.3
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	6.7
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	7.4
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	8	6.2
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9	7.2
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	10	7.3
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	11	5.3
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	12	7.7
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	13	6.1
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	14	5.8
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	15	8
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	16	7.9
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	17	6.3
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	18	4.6
September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	19	6.2

OTTER_TRAWL

September	Otter trawl	74	1	74_1	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	20	7.3
September	Otter trawl	74	1	74_1	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	5.2
September	Otter trawl	74	1	74_1	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	2	5.3
September	Otter trawl	74	1	74_1	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1	16.5
September	Otter trawl	74	1	74_1	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	46.8
September	Otter trawl	74	1	74_1	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2	59
September	Otter trawl	74	1	74_1	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	8.5
September	Otter trawl	74	1	74_1	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	5.5
September	Otter trawl	74	1	74_1	9/14/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	3	9.4
September	Otter trawl	74	1	74_1	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1	6.2
September	Otter trawl	74	1	74_1	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	6.1
September	Otter trawl	74	1	74_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1	17.5
September	Otter trawl	74	1	74_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	2	18.4
September	Otter trawl	74	1	74_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	3	18
September	Otter trawl	74	1	74_1	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	4	19
September	Otter trawl	74	1	74_1	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1	17.9
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	5.7
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	5.9
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	3	5.6
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	4	5.1
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	5	5.9
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	6	6
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	7	5.2
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	8	6.8
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	9	6.7
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	10	4.7
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	11	5.1
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	12	5.3
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	13	6.2
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	14	6
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	15	4.8
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	16	5.5
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	17	5.3
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	18	7.3

OTTER_TRAWL

September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	19	4.7
September	Otter trawl	77	3	77_3	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	20	5.1
September	Otter trawl	77	3	77_3	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	5.5
September	Otter trawl	77	3	77_3	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	2	5.8
September	Otter trawl	77	3	77_3	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	45
September	Otter trawl	77	3	77_3	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2	25.5
September	Otter trawl	77	3	77_3	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	3	36
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1	18.7
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	2	16.8
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	3	17.9
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	4	18.2
September	Otter trawl	77	3	77_3	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	5	18
September	Otter trawl	77	3	77_3	9/14/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.9
September	Otter trawl	77	3	77_3	9/14/2017	86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	4.9
September	Otter trawl	79	4	79_4	9/14/2017	101	Cottidae	Myoxocephalus aenaeus	Grubby	1	9
September	Otter trawl	79	4	79_4	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	9.2
September	Otter trawl	79	4	79_4	9/14/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	3.5
September	Otter trawl	79	4	79_4	9/14/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	4
September	Otter trawl	79	4	79_4	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1	24.1
September	Otter trawl	79	4	79_4	9/14/2017	62	Labridae	Tautoga onitis	Tautog	2	26.8
September	Otter trawl	79	4	79_4	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1	19.2
September	Otter trawl	79	4	79_4	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	2	13
September	Otter trawl	79	4	79_4	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	7.8
September	Otter trawl	79	4	79_4	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	1	18
September	Otter trawl	79	4	79_4	9/14/2017	71	Sparidae	Stenotomus chrysops	Scup	2	18.2
September	Otter trawl	79	4	79_4	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1	16.2
September	Otter trawl	80	5	80_5	9/14/2017	62	Labridae	Tautoga onitis	Tautog	1	23.5
September	Otter trawl	80	5	80_5	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1	15.8
September	Otter trawl	80	5	80_5	9/14/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	2	16.5
September	Otter trawl	80	5	80_5	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	19
September	Otter trawl	80	5	80_5	9/14/2017	144	Synodontidae	Synodus foetens	Inshore Lizardfish	1	18.8
September	Otter trawl	81	6	81_6	9/14/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	8.1
September	Otter trawl	81	6	81_6	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	1	45.2
September	Otter trawl	81	6	81_6	9/14/2017	106	Paralichthyidae	Paralichthys dentatus	Summer Flounder	2	50.1
September	Otter trawl	81	6	81_6	9/14/2017	141	Serranidae	Centropristis striata	Black Sea Bass	1	18.9

TRAP

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	TRAP_ NUM	SAMP_ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_ NAME	FISH_ ID	LENGTH_ CM
September	Fish trap	121	6	2	121_6_2		71	Sparidae	Stenotomus chrysops	Scup	1	26.5
September	Fish trap	121	6	2	121_6_2		71	Sparidae	Stenotomus chrysops	Scup	2	23.5
September	Fish trap	121	6	2	121_6_2		71	Sparidae	Stenotomus chrysops	Scup	3	23.9
September	Fish trap	141	8	2	141_8_2		71	Sparidae	Stenotomus chrysops	Scup	1	26
September	Fish trap	151	1	1	151_1_1		71	Sparidae	Stenotomus chrysops	Scup	1	17.4
September	Fish trap	151	1	2	151_1_2		71	Sparidae	Stenotomus chrysops	Scup	1	25.6
September	Fish trap	157	6	1	157_6_1		86	Tetraodontidae	Sphoeroides maculatus	Northern Puffer	1	19.8
September	Fish trap	157	6	2	157_6_2		71	Sparidae	Stenotomus chrysops	Scup	1	19.8
September	Fish trap	157	6	2	157_6_2		71	Sparidae	Stenotomus chrysops	Scup	2	25.8
September	Fish trap	160	5	1	160_5_1		71	Sparidae	Stenotomus chrysops	Scup	1	15.9
September	Fish trap	161	7	1	161_7_1		71	Sparidae	Stenotomus chrysops	Scup	1	18.5
September	Fish trap	161	7	1	161_7_1		71	Sparidae	Stenotomus chrysops	Scup	2	18.6
September	Fish trap	171	9	1	171_9_1		71	Sparidae	Stenotomus chrysops	Scup	1	25.8
September	Fish trap	174	1	2	174_1_2		71	Sparidae	Stenotomus chrysops	Scup	1	25.1
September	Fish trap	174	1	2	174_1_2		71	Sparidae	Stenotomus chrysops	Scup	2	24
September	Fish trap	174	1	2	174_1_2		71	Sparidae	Stenotomus chrysops	Scup	3	26.4
September	Fish trap	174	1	2	174_1_2		71	Sparidae	Stenotomus chrysops	Scup	4	24.8

SEINE

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP_ ID	DATE	SCODE	FAMILY	SCI_NAME	COMMON_NAME	FISH_ ID	LENGTH_ CM
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7.7
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.2
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8.6
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.1
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.6
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8.5
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.6
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	10.1
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	8.5
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.3
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.7
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8.8
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.3
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	5.3
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	7.8
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.2
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.7
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.8
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.2
September	Beach seine	205	3	205_3	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.3
September	Beach seine	205	3	205_3	9/15/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	1	4.4
September	Beach seine	205	3	205_3	9/15/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	2	4.2
September	Beach seine	205	3	205_3	9/15/2017	31	Gasterosteidae	Apeltes quadracus	Fourspine Stickleback	3	4.3
September	Beach seine	205	3	205_3	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1	12.4
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	17.6
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	21.2
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	17.3
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	4	17.6
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	5	17.7
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	6	18.2
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	7	17.8
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	8	18.6
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	9	17.9
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	10	17.6
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	11	18.4
September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	12	19.1

September	Beach seine	205	3	205_3	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	13	17.8
September	Beach seine	205	3	205_3	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1	3.1
September	Beach seine	205	3	205_3	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	2	2.3
September	Beach seine	205	3	205_3	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	3	4.4
September	Beach seine	205	3	205_3	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	4	4.1
September	Beach seine	205	3	205_3	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.5
September	Beach seine	205	3	205_3	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	12.4
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.4
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.4
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.2
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.2
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.1
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.9
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.3
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	5.4
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.6
September	Beach seine	217	10	217_10	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.7
September	Beach seine	217	10	217_10	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1	8.8
September	Beach seine	217	10	217_10	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.9
September	Beach seine	217	10	217_10	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	2	9.6
September	Beach seine	217	10	217_10	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	3	9.1
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.9
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	13.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.8
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.2
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.1
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7.8
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	8.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.8
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.3
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.2
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	7.3
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	9.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	9
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	8.2
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7

September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.6
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.5
September	Beach seine	219	31	219_31	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6
September	Beach seine	219	31	219_31	9/15/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	3.9
September	Beach seine	219	31	219_31	9/15/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	2	3.7
September	Beach seine	219	31	219_31	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1	11.2
September	Beach seine	219	31	219_31	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	6.6
September	Beach seine	219	31	219_31	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	6.9
September	Beach seine	219	31	219_31	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	17.2
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.5
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.4
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.3
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.3
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	7.2
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.6
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.4
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	5.5
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	7.7
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.7
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.6
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.4
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.4
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.1
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.3
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.9
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.4
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.2
September	Beach seine	222	5	222_5	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.3
September	Beach seine	222	5	222_5	9/15/2017	19	Clupeidae	Brevoortia tyrannus	Atlantic Menhaden	1	13.6
September	Beach seine	222	5	222_5	9/15/2017	2	Engraulidae	Anchoa mitchilli	Bay Anchovy	1	5
September	Beach seine	222	5	222_5	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	6.1
September	Beach seine	222	5	222_5	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.4
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	5.6
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.4

SEINE

September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8.6
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.6
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	5.9
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	9.5
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	9.2
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.9
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9.1
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.5
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	9.4
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	4.6
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	8
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	5.8
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	10
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	8.9
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	9.5
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.5
September	Beach seine	223	15	223_15	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.4
September	Beach seine	223	15	223_15	9/15/2017	41	Belonidae	Strongylura marina	Atlantic Needlefish	1	31.1
September	Beach seine	223	15	223_15	9/15/2017	41	Belonidae	Strongylura marina	Atlantic Needlefish	2	27.2
September	Beach seine	223	15	223_15	9/15/2017	41	Belonidae	Strongylura marina	Atlantic Needlefish	3	31.8
September	Beach seine	223	15	223_15	9/15/2017	18	Fundulidae	Fundulus heteroclitus	Mummichog	1	9.1
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	11.6
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	9.2
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	3	4.1
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	4	4.3
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	5	11.3
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	6	9.1
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	7	8.7
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	8	9.4
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	9	8.7
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	10	7
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	11	6.4
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	12	5.6
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	13	7
September	Beach seine	223	15	223_15	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	14	5
September	Beach seine	223	15	223_15	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.6

SEINE

September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.4
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.4
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.9
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	5
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	5
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	4.9
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	4.6
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	4.5
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.1
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	5
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.9
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	9.3
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	9.3
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.1
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.6
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	6.2
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	9.3
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.4
September	Beach seine	225	20	225_20	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.9
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	5.1
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	5.5
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	3	6.5
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	4	4.4
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	5	5.4
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	6	10.7
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	7	10.4
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	8	5.1
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	9	5.8
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	10	5.6
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	11	5.7
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	12	5.2
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	13	5.6
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	14	4.9
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	15	4.2
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	16	6.4
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	17	6.5
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	18	6.4

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September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	19	7.1
September	Beach seine	225	20	225_20	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	20	5.4
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.6
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	11.7
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.8
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.2
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.3
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.1
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.2
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.4
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.5
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	10.4
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	10.1
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8.1
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	9.3
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	9.1
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.8
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.5
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	8.7
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	8.6
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.5
September	Beach seine	226	17	226_17	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.2
September	Beach seine	226	17	226_17	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	11.3
September	Beach seine	226	17	226_17	9/15/2017	62	Labridae	Tautoga onitis	Tautog	1	6.6
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.5
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.5
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.4
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.9
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.9
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	6.3
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.1
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.7
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	7.9
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	5.8

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September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	5.9
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	8.5
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.7
September	Beach seine	227	9	227_9	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.7
September	Beach seine	227	9	227_9	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	11.8
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10.6
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.4
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.7
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.6
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	9.1
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	9.2
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	8.9
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.2
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8.6
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	9.1
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.9
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.1
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	8.9
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	9
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	8.4
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.4
September	Beach seine	228	16	228_16	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	8.6
September	Beach seine	228	16	228_16	9/15/2017	213	Batrachoididae	Opsanus tau	Oyster Toadfish	1	20.4
September	Beach seine	228	16	228_16	9/15/2017	119	Engraulidae	Anchoa hepsetus	Striped Anchovy	1	10.1
September	Beach seine	228	16	228_16	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	4.9
September	Beach seine	228	16	228_16	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	6.4
September	Beach seine	228	16	228_16	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	5.5
September	Beach seine	228	16	228_16	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	2	8
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.2
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.9
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.5

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September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7.1
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	5.6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.7
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	8.5
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.1
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.5
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7.9
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	8.6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	8.1
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.7
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.7
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.6
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	8.1
September	Beach seine	241	14	241_14	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.9
September	Beach seine	241	14	241_14	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	11.8
September	Beach seine	241	14	241_14	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	7.2
September	Beach seine	241	14	241_14	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	3	6.9
September	Beach seine	241	14	241_14	9/15/2017	244	Gobiesocidae	Gobiesox strumosus	Skilletfish	1	2.6
September	Beach seine	241	14	241_14	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1	6.6
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.1
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	7.7
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.6
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.7
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.1
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8.6
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.2
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.4
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9.5
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	8.9
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.6
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.4
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	8.2
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	7.1
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	8.1

September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.7
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	7.2
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.1
September	Beach seine	243	13	243_13	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.9
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	1	12
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	2	11.4
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	3	12.2
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	4	11.9
September	Beach seine	243	13	243_13	9/15/2017	125	Mugilidae	Mugil curema	White Mullet	5	12
September	Beach seine	243	13	243_13	9/15/2017	72	Pleuronectidae	Pseudopleuronectes americanus	Winter Flounder	1	7.7
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	10.1
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.2
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	7.3
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.6
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	9.4
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.9
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.5
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9.5
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9.1
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.3
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.7
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	8.6
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.6
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.4
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.1
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	8.6
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5.7
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	5.9
September	Beach seine	254	1	254_1	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.2
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.9
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.8
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.5
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	9.7
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.6
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	9.2

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September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	9.9
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9.1
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9.1
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.2
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8.2
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.4
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.8
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.7
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.7
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	7.6
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.2
September	Beach seine	257	2	257_2	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.7
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	7
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	2	6.5
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	3	6.7
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	4	5.8
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	5	6.3
September	Beach seine	257	2	257_2	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	6	6.5
September	Beach seine	257	2	257_2	9/15/2017	62	Labridae	Tautoga onitis	Tautog	1	9
September	Beach seine	257	2	257_2	9/15/2017	66	Sciaenidae	Menticirrhus saxatilis	Northern Kingfish	1	3.6
September	Beach seine	257	2	257_2	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	14.9
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	7
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.9
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	7.5
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	6.6
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.8
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	9.6
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	6.8
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.1
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.1
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9.2
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.6
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8.6
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.2
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	5.8
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.2
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.3

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September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.7
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	7.7
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.8
September	Beach seine	265	4	265_4	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.4
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.6
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.7
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8.2
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.1
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	8.7
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.8
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.6
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	7.7
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7.6
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.1
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	7
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	5.1
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.4
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.9
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	7.6
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7.5
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5.1
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.2
September	Beach seine	267	19	267_19	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.8
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.2
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.8
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.9
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	10.4
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	9.7
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	11.7
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	9.6
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	8.7
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	9.1
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9.9
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.6
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	9.2
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	8.5
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	8.8

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September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	9.6
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	9.3
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	8.9
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	8.5
September	Beach seine	268	23	268_23	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	7.2
September	Beach seine	268	23	268_23	9/15/2017	121	Fundulidae	Fundulus majalis	Striped Killifish	1	8.2
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.5
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.6
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.2
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.2
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.6
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	6.3
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.1
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	5.2
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	6.7
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7.4
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.8
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	8
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	8.7
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	10.3
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	8.8
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	8.5
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	8.6
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.6
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	8.3
September	Beach seine	274	7	274_7	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.6
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	9.9
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	8.6
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	9.1
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.2
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.7
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.3
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	8.3
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	6.6
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	10.4
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	7
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	9.3

SEINE

September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6.1
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	11.2
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	9
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	5.7
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	5.8
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	8
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.6
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	6.4
September	Beach seine	275	6	275_6	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.7
September	Beach seine	275	6	275_6	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	1	17.6
September	Beach seine	275	6	275_6	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	2	18.1
September	Beach seine	275	6	275_6	9/15/2017	4	Pomatomidae	Pomatomus saltatrix	Bluefish	3	18.9
September	Beach seine	275	6	275_6	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1	4.4
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	6.6
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	6.5
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	6.7
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	5.8
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	6.4
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.8
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	5.5
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	5.6
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	5.7
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	6.7
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	6
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	6.4
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	6.6
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	6.7
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	7.2
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	6.5
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.1
September	Beach seine	278	18	278_18	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	5.8
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1	3.6
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	2	5.1
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	3	4
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	4	4.8
September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	5	7

SEINE

September	Beach seine	278	18	278_18	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	6	9.5
September	Beach seine	278	18	278_18	9/15/2017	39	Syngnathidae	Syngnathus fuscus	Northern Pipefish	1	12.2
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	1	8.3
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	2	9.6
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	3	8.9
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	4	8.2
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	5	8.7
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	6	7.2
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	7	7.3
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	8	7.8
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	9	7.3
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	10	9
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	11	8.9
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	12	5.4
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	13	9.1
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	14	7.9
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	15	6.4
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	16	10.5
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	17	5.6
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	18	5.6
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	19	7.3
September	Beach seine	279	34	279_34	9/15/2017	24	Atherinopsidae	Menidia menidia	Atlantic Silverside	20	6.2
September	Beach seine	279	34	279_34	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	1	9.5
September	Beach seine	279	34	279_34	9/15/2017	85	Sciaenidae	Bairdiella chrysoura	Silver Perch	2	7

September 2017 Otter Trawl Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	SAMP _ID	DATE	TIME	START _ LATITUDE	START _ LONGITUDE	END _ LATITUDE	END _ LONGITUDE	DEPTH _FT	TIDE_ STAGE	TOW_ DIRECTION	TOW_ SPEED	duration	USE_ CODE
September	Otter trawl	74	1	74_1	9/14/2017	7:43	40.4989833	74.25368333	40.5014333	74.25491667	10.7	ebb	west	1.5	5	1
September	Otter trawl	77	3	77_3	9/14/2017	8:23	40.4998	74.25406667	40.4977667	74.2529	9.9	low slack	east	1.5	5	1
September	Otter trawl	69	9	69_9	9/14/2017	8:51	40.4947167	74.23825	40.4960667	74.2352	5.3	low slack	east	1.5	5	1
September	Otter trawl	67	1	67_1	9/14/2017	9:16	40.4925	74.23503333	40.4941	74.23296667	9	low slack	east	1.5	5	1
September	Otter trawl	57	7	57_7	9/14/2017	11:29	40.4901667	74.23593333	40.4905833	74.23491667	21	flood	east	1.5	5	1
September	Otter trawl	70	3	70_3	9/14/2017	11:51	40.4964	74.22586667	40.4978333	74.22383333	15.7	flood	east	1.5	5	1
September	Otter trawl	73	6	73_6	9/14/2017	12:13	40.4983333	74.2255	40.4995333	74.2232	14	flood	east	1.5	5	1
September	Otter trawl	79	4	79_4	9/14/2017	12:36	40.5003	74.22601667	40.5009	74.2228	9.7	flood	east	1.5	5	1
September	Otter trawl	80	5	80_5	9/14/2017	12:51	40.50035	74.22471667	40.5011667	74.22245	11.8	flood	east	1.5	5	1
September	Otter trawl	81	6	81_6	9/14/2017	13:14	40.5009667	74.21838333	40.5025667	74.21673333	24.4	flood	east	1.5	5	1

September 2017 Fish Trap Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_ TYPE	Site _ID	Sample _ID	TRAP_ NUM	SAMP _ID	DATE	LATITUDE	LONGITUDE	SET_ DEPTH _ FT	SET_ TIDE_ STAGE	SET_ DATE	SET_ TIME	PULL_ DEPTH _ FT	PULL_ TIDE_ STAGE	PULL_ DATE	PULL_ TIME	SOAK_ TIME_ HRS	USE_ CODE
September	Fish trap	121	6	1	121_6_1	9/13/2017	40.4902	74.23666667	15.4	flood	9/12/2017	12:13	16	flood	9/13/2017	13:19	25.1	1
September	Fish trap	121	6	2	121_6_2	9/13/2017	40.49015	74.23665	15.4	flood	9/12/2017	12:14	16	flood	9/13/2017	13:16	25.0333333	1
September	Fish trap	124	18	1	124_18_1	9/13/2017	40.49088333	74.24381667	9.5	flood	9/12/2017	12:03	10.2	flood	9/13/2017	13:09	25.1	1
September	Fish trap	124	18	2	124_18_2	9/13/2017	40.4908	74.24398333	10.1	flood	9/12/2017	12:04	10.8	flood	9/13/2017	13:11	25.1166667	1
September	Fish trap	128	4	1	128_4_1	9/12/2017	40.49235	74.24688333	10	ebb	9/11/2017	13:48	10.7	flood	9/12/2017	12:08	22.3333333	1
September	Fish trap	128	4	2	128_4_2	9/12/2017	40.49236667	74.24675	10	ebb	9/11/2017	13:50	10.7	flood	9/12/2017	12:06	22.2666667	1
September	Fish trap	129	3	1	129_3_1	9/12/2017	40.49218333	74.2389	12	ebb	9/11/2017	13:43	12.3	flood	9/12/2017	12:18	22.5833333	1
September	Fish trap	129	3	2	129_3_2	9/12/2017	40.49233333	74.23865	12	ebb	9/11/2017	13:44	12.3	flood	9/12/2017	12:20	22.6	1
September	Fish trap	137	5	1	137_5_1	9/12/2017	40.495	74.25018333	8.7	ebb	9/11/2017	13:52	8.5	flood	9/12/2017	11:55	22.05	1
September	Fish trap	137	5	2	137_5_2	9/12/2017	40.49503333	74.25	8.2	ebb	9/11/2017	13:54	7.8	flood	9/12/2017	11:52	21.9666667	1
September	Fish trap	141	8	1	141_8_1	9/13/2017	40.49568333	74.22841667	17.6	flood	9/12/2017	12:25	17.3	flood	9/13/2017	13:28	25.05	1
September	Fish trap	141	8	2	141_8_2	9/13/2017	40.49575	74.22846667	16.9	flood	9/12/2017	12:27	16.9	flood	9/13/2017	13:31	25.0666667	1
September	Fish trap	147	10	1	147_10_1	9/13/2017	40.49791667	74.22941667	12.4	flood	9/12/2017	12:44	12.5	flood	9/13/2017	13:40	24.9333333	1
September	Fish trap	147	10	2	147_10_2	9/13/2017	40.49796667	74.22948333	12.4	flood	9/12/2017	12:46	12.5	flood	9/13/2017	13:37	24.85	1
September	Fish trap	151	1	1	151_1_1	9/12/2017	40.49876667	74.23085	10.3	flood	9/11/2017	12:20	10.4	flood	9/12/2017	12:35	24.25	1
September	Fish trap	151	1	2	151_1_2	9/12/2017	40.49886667	74.23095	10.3	flood	9/11/2017	12:23	10.4	flood	9/12/2017	12:34	24.1833333	1
September	Fish trap	152	2	1	152_2_1	9/12/2017	40.49898333	74.2271	12.7	flood	9/11/2017	12:15	12.7	flood	9/12/2017	12:55	24.6666667	1
September	Fish trap	152	2	2	152_2_2	9/12/2017	40.49896667	74.22726667	12.7	flood	9/11/2017	12:17	12.7	flood	9/12/2017	12:58	24.6833333	1
September	Fish trap	156	13	1	156_13_1	9/13/2017	40.4996	74.23236667	9.3	high slack	9/12/2017	13:15	9.3	flood	9/13/2017	13:52	24.6166667	1
September	Fish trap	156	13	2	156_13_2	9/13/2017	40.49956667	74.23231667	9.7	high slack	9/12/2017	13:16	9.7	flood	9/13/2017	13:49	24.55	1
September	Fish trap	157	6	1	157_6_1	9/13/2017	40.49953333	74.23166667	10	flood	9/12/2017	12:51	10.3	flood	9/13/2017	13:44	24.8833333	1
September	Fish trap	157	6	2	157_6_2	9/13/2017	40.49948333	74.23168333	10.1	flood	9/12/2017	12:53	10.4	flood	9/13/2017	13:47	24.9	1
September	Fish trap	158	2	1	158_2_1	9/12/2017	40.49981667	74.2324	9.1	flood	9/11/2017	12:31	8.9	high slack	9/12/2017	13:12	24.6833333	1
September	Fish trap	158	2	2	158_2_2	9/12/2017	40.49971667	74.23231667	9.1	flood	9/11/2017	12:34	8.9	high slack	9/12/2017	13:10	24.6	1
September	Fish trap	160	5	1	160_5_1	9/12/2017	40.49976667	74.2316	10	flood	9/11/2017	12:27	9.9	flood	9/12/2017	12:46	24.3166667	1
September	Fish trap	160	5	2	160_5_2	9/12/2017	40.49981667	74.23165	9.8	flood	9/11/2017	12:29	9.8	flood	9/12/2017	12:47	24.3	1
September	Fish trap	161	7	1	161_7_1	9/13/2017	40.49981667	74.22288333	17.1	flood	9/12/2017	13:08	17.5	high slack	9/13/2017	14:40	25.5333333	1
September	Fish trap	161	7	2	161_7_2	9/13/2017	40.49986667	74.22303333	16.8	flood	9/12/2017	13:10	17.2	high slack	9/13/2017	14:36	25.4333333	1
September	Fish trap	163	8	1	163_8_1	9/13/2017	40.50068333	74.22505	9.7	ebb	9/12/2017	13:44	10.1	high slack	9/13/2017	14:32	24.8	1
September	Fish trap	163	8	2	163_8_2	9/13/2017	40.50088333	74.2252	10.3	ebb	9/12/2017	13:46	10.7	high slack	9/13/2017	14:35	24.8166667	1
September	Fish trap	170	19	1	170_19_1	9/13/2017	40.5012	74.21945	12.1	ebb	9/12/2017	13:34	12.5	high slack	9/13/2017	14:47	25.2166667	1
September	Fish trap	170	19	2	170_19_2	9/13/2017	40.50115	74.21921667	12.3	ebb	9/12/2017	13:26	12.7	high slack	9/13/2017	14:44	25.3	1
September	Fish trap	171	9	1	171_9_1	9/13/2017	40.50121667	74.21913333	19.8	ebb	9/12/2017	13:26	20.2	high slack	9/13/2017	14:50	25.4	1
September	Fish trap	171	9	2	171_9_2	9/13/2017	40.50118333	74.21895	19.8	ebb	9/12/2017	13:28	20.2	high slack	9/13/2017	14:52	25.4	1
September	Fish trap	172	4	1	172_4_1	9/12/2017	40.50148333	74.21903333	11.5	high slack	9/11/2017	13:36	9.9	ebb	9/12/2017	13:21	23.75	1
September	Fish trap	172	4	2	172_4_2	9/12/2017	40.5015	74.21911667	11.4	high slack	9/11/2017	13:38	9.9	ebb	9/12/2017	13:23	23.75	1
September	Fish trap	174	1	1	174_1_1	9/12/2017	40.50148333	74.21838333	21.4	flood	9/11/2017	12:00	21.2	ebb	9/12/2017	13:38	25.6333333	1
September	Fish trap	174	1	2	174_1_2	9/12/2017	40.5012	74.21875	21.2	flood	9/11/2017	12:05	21.5	ebb	9/12/2017	13:40	25.5833333	1
September	Fish trap	175	3	1	175_3_1	9/12/2017	40.50165	74.21918333	10.3	flood	9/11/2017	12:09	12.3	ebb	9/12/2017	13:33	25.4	1
September	Fish trap	175	3	2	175_3_2	9/12/2017	40.50173333	74.2192	9.6	flood	9/11/2017	12:11	11.8	ebb	9/12/2017	13:31	25.3333333	1

September 2017 Beach Seine Sampling Stations
Source: Normandeau Associates, Inc.

SURVEY	GEAR_TYPE	Site _ID	Sample _ID	SAMP_ ID	DATE	TIME	LATITUDE	LONGITUDE	DEPTH _FT	TIDE_ STAGE	USE_ CODE
September	Beach seine	257	2	257_2	9/15/2017	7:40	40.50233333	74.223	1	ebb	1
September	Beach seine	254	1	254_1	9/15/2017	7:57	40.50196667	74.224	1	ebb	1
September	Beach seine	279	34	279_34	9/15/2017	8:20	40.50215	74.22763333	1	ebb	1
September	Beach seine	278	18	278_18	9/15/2017	8:43	40.50213333	74.228	1	ebb	1
September	Beach seine	243	13	243_13	9/15/2017	9:03	40.50126667	74.23248333	1	ebb	1
September	Beach seine	241	14	241_14	9/15/2017	9:23	40.50083333	74.23301667	1	ebb	1
September	Beach seine	228	16	228_16	9/15/2017	9:43	40.49833333	74.23891667	1	ebb	1
September	Beach seine	227	9	227_9	9/15/2017	10:01	40.49816667	74.239	1	ebb	1
September	Beach seine	226	17	226_17	9/15/2017	10:19	40.49783333	74.2395	1	ebb	1
September	Beach seine	225	20	225_20	9/15/2017	10:37	40.49765	74.23963333	1	low slack	1
September	Beach seine	223	15	223_15	9/15/2017	10:48	40.49758333	74.24065	1	low slack	1
September	Beach seine	222	5	222_5	9/15/2017	11:08	40.49761667	74.24096667	1	low slack	1
September	Beach seine	219	31	219_31	9/15/2017	11:19	40.49741667	74.24246667	1	low slack	1
September	Beach seine	217	10	217_10	9/15/2017	11:39	40.49751667	74.24313333	1	flood	1
September	Beach seine	205	3	205_3	9/15/2017	11:48	40.49591667	74.24755	1	flood	1
September	Beach seine	275	6	275_6	9/15/2017	12:09	40.49741667	74.25065	1	flood	1
September	Beach seine	274	7	274_7	9/15/2017	12:20	40.49766667	74.25066667	1	flood	1
September	Beach seine	268	23	268_23	9/15/2017	12:31	40.49915	74.25216667	1	flood	1
September	Beach seine	267	19	267_19	9/15/2017	12:45	40.49928333	74.25231667	1	flood	1
September	Beach seine	265	4	265_4	9/15/2017	12:58	40.49968333	74.25301667	1	flood	1

Living Breakwaters Benthic Survey in Raritan Bay; September 2017

Photographs of each macrofaunal grab sample before and after sieving

Figure 1. Photograph of macrofauna sample 98_8 before sieving, September 2017.

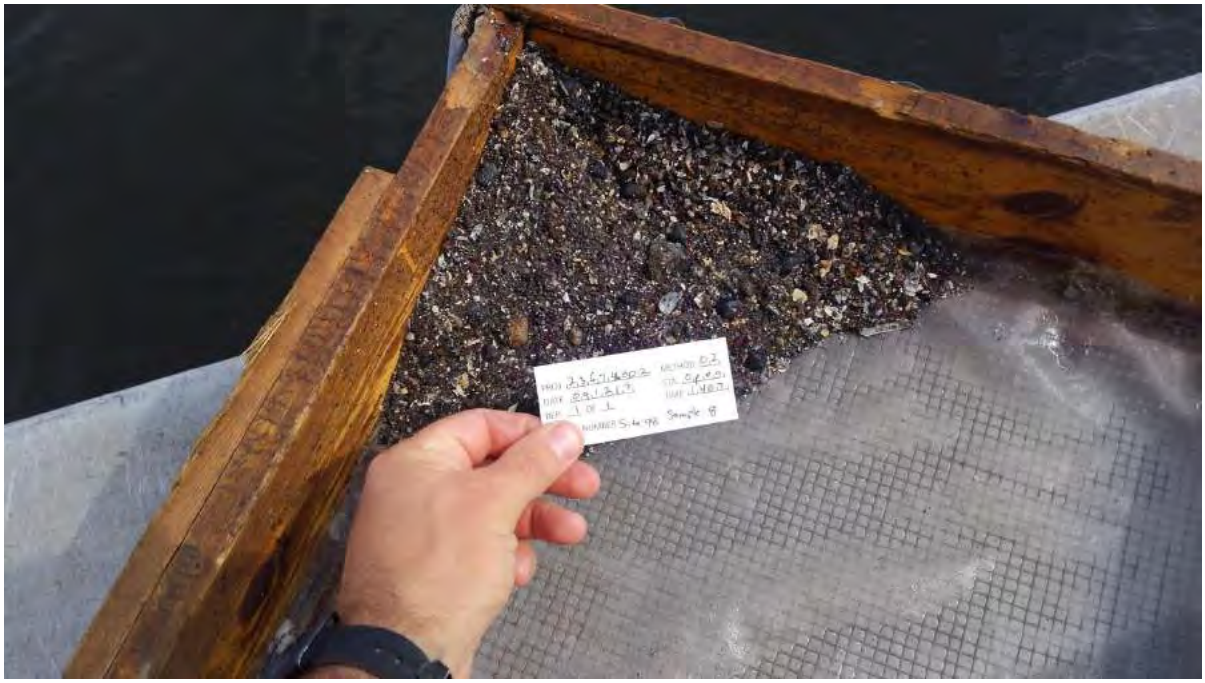

Figure 2. Photograph of macrofauna sample 98_8 after sieving, September 2017.

Figure 3. Photograph of macrofauna sample 99_13 before sieving, September 2017.

Figure 4. Photograph of macrofauna sample 99_13 after sieving, September 2017.

Figure 5. Photograph of macrofauna sample 101_10 before sieving, September 2017.

Figure 6. Photograph of macrofauna sample 101_10 after sieving, September 2017.

Figure 7. Photograph of macrofauna sample 102_26 before sieving, September 2017.

Figure 8. Photograph of macrofauna sample 102_26 after sieving, September 2017.

Figure 9. Photograph of macrofauna sample 103_18 before sieving, September 2017.

Figure 10. Photograph of macrofauna sample 103_18 after sieving, September 2017.

Figure 11. Photograph of macrofauna sample 105_9 before sieving, September 2017.

Figure 12. Photograph of macrofauna sample 105_9 after sieving, September 2017.

Figure 13. Photograph of macrofauna sample 110_5 before sieving, September 2017.

Figure 14. Photograph of macrofauna sample 110_5 after sieving, September 2017.

Figure 15. Photograph of macrofauna sample 111_30 before sieving, September 2017.

Figure 16. Photograph of macrofauna sample 111_30 after sieving, September 2017.

Figure 17. Photograph of macrofauna sample 114_2 before sieving, September 2017.

Figure 18. Photograph of macrofauna sample 114_2 after sieving, September 2017.

Figure 19. Photograph of macrofauna sample 116_11 before sieving, September 2017.

Figure 20. Photograph of macrofauna sample 116_11 after sieving, September 2017.

Figure 21. Photograph of macrofauna sample 120_12 before sieving, September 2017.

Figure 22. Photograph of macrofauna sample 120_12 after sieving, September 2017.

Figure 23. Photograph of macrofauna sample 121_29 before sieving, September 2017.

Figure 24. Photograph of macrofauna sample 121_29 after sieving, September 2017.

Figure 25. Photograph of macrofauna sample 122_1 before sieving, September 2017.

Figure 26. Photograph of macrofauna sample 122_1 after sieving, September 2017.

Figure 27. Photograph of macrofauna sample 123_20 before sieving, September 2017.

Figure 28. Photograph of macrofauna sample 123_20 after sieving, September 2017.

Figure 29. Photograph of macrofauna sample 124_16 before sieving, September 2017.

Figure 30. Photograph of macrofauna sample 124_16 after sieving, September 2017.

Figure 31. Photograph of macrofauna sample 125_19 before sieving, September 2017.

Figure 32. Photograph of macrofauna sample 125_19 after sieving, September 2017.

Figure 33. Photograph of macrofauna sample 127_17 before sieving, September 2017.

Figure 34. Photograph of macrofauna sample 127_17 after sieving, September 2017.

Figure 35. Photograph of macrofauna sample 128_21 before sieving, September 2017.

Figure 36. Photograph of macrofauna sample 128_21 after sieving, September 2017.

Figure 37. Photograph of macrofauna sample 129_10 before sieving, September 2017.

Figure 38. Photograph of macrofauna sample 129_10 after sieving, September 2017.

Figure 39. Photograph of macrofauna sample 131_17 before sieving, September 2017.

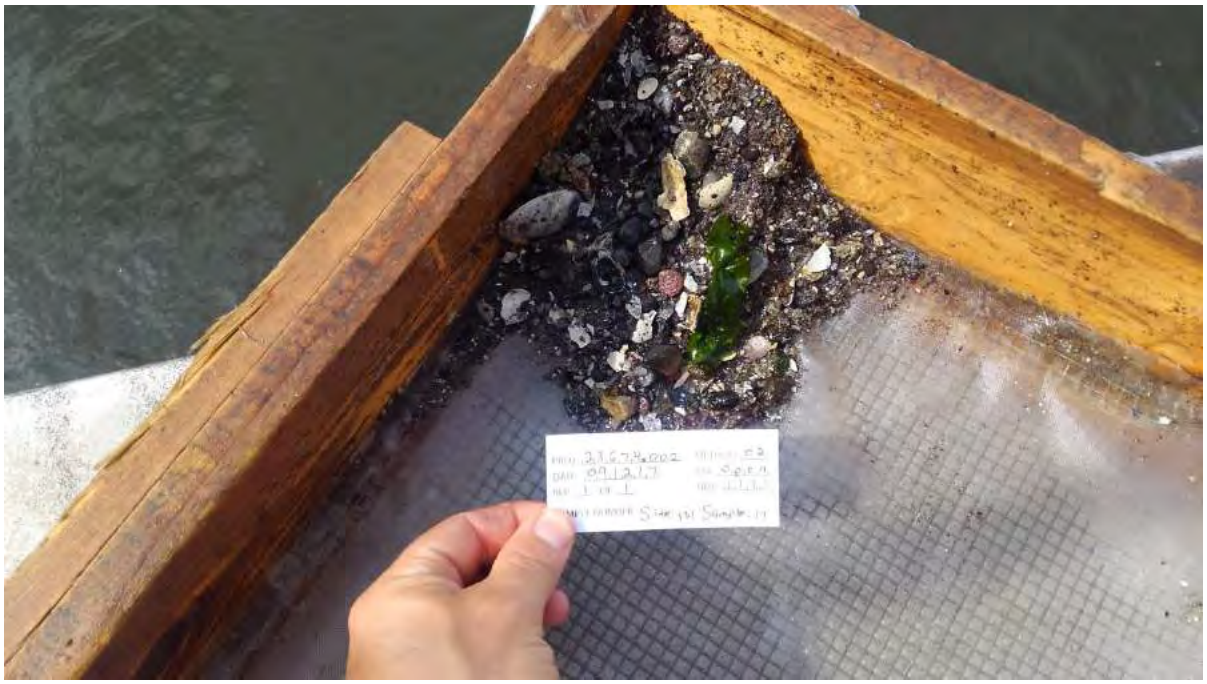

Figure 40. Photograph of macrofauna sample 131_17 after sieving, September 2017.

Figure 41. Photograph of macrofauna sample 133_8 before sieving, September 2017.

Figure 42. Photograph of macrofauna sample 133_8 after sieving, September 2017.

Figure 43. Photograph of macrofauna sample 134_20 before sieving, September 2017.

Figure 44. Photograph of macrofauna sample 134_20 after sieving, September 2017.

Figure 45. Photograph of macrofauna sample 135_6 before sieving, September 2017.

Figure 46. Photograph of macrofauna sample 135_6 after sieving, September 2017.

Figure 47. Photograph of macrofauna sample 140_3 before sieving, September 2017.

Figure 48. Photograph of macrofauna sample 140_3 after sieving, September 2017.

Figure 49. Photograph of macrofauna sample 141_21 before sieving, September 2017.

Figure 50. Photograph of macrofauna sample 141_21 after sieving, September 2017.

Figure 51. Photograph of macrofauna sample 142_24 before sieving, September 2017.

Figure 52. Photograph of macrofauna sample 142_24 after sieving, September 2017.

Figure 53. Photograph of macrofauna sample 144_4 before sieving, September 2017.

Figure 54. Photograph of macrofauna sample 144_4 after sieving, September 2017.

Figure 55. Photograph of macrofauna sample 145_15 before sieving, September 2017.

Figure 56. Photograph of macrofauna sample 145_15 after sieving, September 2017.

Figure 57. Photograph of macrofauna sample 146_22 before sieving, September 2017.

Figure 58. Photograph of macrofauna sample 146_22 after sieving, September 2017.

Figure 59. Photograph of macrofauna sample 147_27 before sieving, September 2017.

Figure 60. Photograph of macrofauna sample 147_27 after sieving, September 2017.

Figure 61. Photograph of macrofauna sample 148_36 before sieving, September 2017.

Figure 62. Photograph of macrofauna sample 148_36 after sieving, September 2017.

Figure 63. Photograph of macrofauna sample 150_28 before sieving, September 2017.

Figure 64. Photograph of macrofauna sample 150_28 after sieving, September 2017.

Figure 65. Photograph of macrofauna sample 151_16 before sieving, September 2017.

Figure 66. Photograph of macrofauna sample 151_16 after sieving, September 2017.

Figure 67. Photograph of macrofauna sample 153_30 before sieving, September 2017.

Figure 68. Photograph of macrofauna sample 153_30 after sieving, September 2017.

Figure 69. Photograph of macrofauna sample 156_4 before sieving, September 2017.

Figure 70. Photograph of macrofauna sample 156_4 after sieving, September 2017.

Figure 71. Photograph of macrofauna sample 157_9 before sieving, September 2017.

Figure 72. Photograph of macrofauna sample 157_9 after sieving, September 2017.

Figure 73. Photograph of macrofauna sample 158_2 before sieving, September 2017.

Figure 74. Photograph of macrofauna sample 158_2 after sieving, September 2017.

Figure 75. Photograph of macrofauna sample 160_29 before sieving, September 2017.

Figure 76. Photograph of macrofauna sample 160_29 after sieving, September 2017.

Figure 77. Photograph of macrofauna sample 161_26 before sieving, September 2017.

Figure 78. Photograph of macrofauna sample 161_26 after sieving, September 2017.

Figure 79. Photograph of macrofauna sample 163_28 before sieving, September 2017.

Figure 80. Photograph of macrofauna sample 163_28 after sieving, September 2017.

Figure 81. Photograph of macrofauna sample 164_12 before sieving, September 2017.

Figure 82. Photograph of macrofauna sample 164_12 after sieving, September 2017.

Figure 83. Photograph of macrofauna sample 165_24 before sieving, September 2017.

Figure 84. Photograph of macrofauna sample 165_24 after sieving, September 2017.

Figure 85. Photograph of macrofauna sample 168_53 before sieving, September 2017.

Figure 86. Photograph of macrofauna sample 168_53 after sieving, September 2017.

Figure 87. Photograph of macrofauna sample 169_33 before sieving, September 2017.

Figure 88. Photograph of macrofauna sample 169_33 after sieving, September 2017.

Figure 89. Photograph of macrofauna sample 170_15 before sieving, September 2017.

Figure 90. Photograph of macrofauna sample 170_15 after sieving, September 2017.

Figure 91. Photograph of macrofauna sample 171_14 before sieving, September 2017.

Figure 92. Photograph of macrofauna sample 171_14 after sieving, September 2017.

Figure 93. Photograph of macrofauna sample 172_3 before sieving, September 2017.

Figure 94. Photograph of macrofauna sample 172_3 after sieving, September 2017.

Figure 95. Photograph of macrofauna sample 176_22 before sieving, September 2017.

Figure 96. Photograph of macrofauna sample 176_22 after sieving, September 2017.

Figure 97. Photograph of macrofauna sample 178_27 before sieving, September 2017.

Figure 98. Photograph of macrofauna sample 78_27 after sieving, September 2017.

Figure 99. Photograph of macrofauna sample 179_5 before sieving, September 2017.

Figure 100. Photograph of macrofauna sample 179_5 after sieving, September 2017.

Figure 101. Photograph of macrofauna sample 180_23 before sieving, September 2017.

Figure 102. Photograph of macrofauna sample 180_23 after sieving, September 2017.

Figure 103. Photograph of macrofauna sample 181_1 before sieving, September 2017.

Figure 104. Photograph of macrofauna sample 181_1 after sieving, September 2017.

Figure 105. Photograph of macrofauna sample 183_19 before sieving, September 2017.

Figure 106. Photograph of macrofauna sample 183_19 after sieving, September 2017.

Figure 107. Photograph of macrofauna sample 184_13 before sieving, September 2017.

Figure 108. Photograph of macrofauna sample 184_13 after sieving, September 2017.

Figure 109. Photograph of macrofauna sample 186_6 before sieving, September 2017.

Figure 110. Photograph of macrofauna sample 186_6 after sieving, September 2017.

Figure 111. Photograph of macrofauna sample 189_7 before sieving, September 2017.

Figure 112. Photograph of macrofauna sample 189_7 after sieving, September 2017.

Figure 113. Photograph of macrofauna sample 190_11 before sieving, September 2017.

Figure 114. Photograph of macrofauna sample 190_11 after sieving, September 2017.

Figure 115. Photograph of macrofauna sample 191_25 before sieving, September 2017.

Figure 116. Photograph of macrofauna sample 191_25 after sieving, September 2017.

Figure 117. Photograph of macrofauna sample 192_18 before sieving, September 2017.

Figure 118. Photograph of macrofauna sample 192_18 after sieving, September 2017.

Figure 119. Photograph of macrofauna sample 193_23 before sieving, September 2017.

Figure 120. Photograph of macrofauna sample 193_23 after sieving, September 2017.

September 2017 Sediment Grain Size
Source: Normandeau Associates, Inc.

SURVEY	SITE_ID	SAMPLE_ID	SAMP_ID	DATE	LAB_GROUP	LAB_SAMPLE	MATRIX_DESC	ANALYTE_NAME	RESULT	UNITS	REPORTING_LIMIT _LOQ	DETECTION_LIMIT_MDL	METHOD	CAS_NUMBER	QUALIFIER	QUALIFIER_DESCRIPTION
September	101	10	101_10	9/12/2017	1850543	9209342	Sediment	% Gravel	1.2	%	1	0.5	ASTM D422	n.a.		
September	101	10	101_10	9/12/2017	1850543	9209342	Sediment	% Sand	97.2	%	1	0.5	ASTM D422	n.a.		
September	101	10	101_10	9/12/2017	1850543	9209342	Sediment	% Silt	1.6	%	1	0.5	ASTM D422	n.a.		
September	101	10	101_10	9/12/2017	1850543	9209342	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	102	26	102_26	9/12/2017	1850543	9209340	Sediment	% Gravel	0.51	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	102	26	102_26	9/12/2017	1850543	9209340	Sediment	% Sand	98.1	%	1	0.5	ASTM D422	n.a.		
September	102	26	102_26	9/12/2017	1850543	9209340	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	102	26	102_26	9/12/2017	1850543	9209340	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
September	103	18	103_18	9/12/2017	1850543	9209331	Sediment	% Gravel	6.4	%	1	0.5	ASTM D422	n.a.		
September	103	18	103_18	9/12/2017	1850543	9209331	Sediment	% Sand	90.4	%	1	0.5	ASTM D422	n.a.		
September	103	18	103_18	9/12/2017	1850543	9209331	Sediment	% Silt	0.74	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	103	18	103_18	9/12/2017	1850543	9209331	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
September	105	9	105_9	9/12/2017	1850543	9209343	Sediment	% Gravel	1.6	%	1	0.5	ASTM D422	n.a.		
September	105	9	105_9	9/12/2017	1850543	9209343	Sediment	% Sand	96.2	%	1	0.5	ASTM D422	n.a.		
September	105	9	105_9	9/12/2017	1850543	9209343	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
September	105	9	105_9	9/12/2017	1850543	9209343	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	110	5	110_5	9/12/2017	1850543	9209355	Sediment	% Gravel	24	%	1	0.5	ASTM D422	n.a.		
September	110	5	110_5	9/12/2017	1850543	9209355	Sediment	% Sand	65.5	%	1	0.5	ASTM D422	n.a.		
September	110	5	110_5	9/12/2017	1850543	9209355	Sediment	% Silt	8	%	1	0.5	ASTM D422	n.a.		
September	110	5	110_5	9/12/2017	1850543	9209355	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
September	111	30	111_30	9/12/2017	1850543	9209339	Sediment	% Gravel	5.5	%	1	0.5	ASTM D422	n.a.		
September	111	30	111_30	9/12/2017	1850543	9209339	Sediment	% Sand	92.9	%	1	0.5	ASTM D422	n.a.		
September	111	30	111_30	9/12/2017	1850543	9209339	Sediment	% Silt	0.63	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	111	30	111_30	9/12/2017	1850543	9209339	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
September	114	2	114_2	9/12/2017	1850543	9209329	Sediment	% Gravel	13.7	%	1	0.5	ASTM D422	n.a.		
September	114	2	114_2	9/12/2017	1850543	9209329	Sediment	% Sand	79.7	%	1	0.5	ASTM D422	n.a.		
September	114	2	114_2	9/12/2017	1850543	9209329	Sediment	% Silt	4.5	%	1	0.5	ASTM D422	n.a.		
September	114	2	114_2	9/12/2017	1850543	9209329	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	116	11	116_11	9/12/2017	1850543	9209356	Sediment	% Gravel	7.8	%	1	0.5	ASTM D422	n.a.		
September	116	11	116_11	9/12/2017	1850543	9209356	Sediment	% Sand	79.9	%	1	0.5	ASTM D422	n.a.		
September	116	11	116_11	9/12/2017	1850543	9209356	Sediment	% Silt	10.3	%	1	0.5	ASTM D422	n.a.		
September	116	11	116_11	9/12/2017	1850543	9209356	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	120	12	120_12	9/12/2017	1850543	9209332	Sediment	% Gravel	4.1	%	1	0.5	ASTM D422	n.a.		
September	120	12	120_12	9/12/2017	1850543	9209332	Sediment	% Sand	93.4	%	1	0.5	ASTM D422	n.a.		

September	120	12	120_12	9/12/2017	1850543	9209332	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	120	12	120_12	9/12/2017	1850543	9209332	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
September	121	29	121_29	9/12/2017	1850543	9209337	Sediment	% Gravel	1.3	%	1	0.5	ASTM D422	n.a.		
September	121	29	121_29	9/12/2017	1850543	9209337	Sediment	% Sand	96	%	1	0.5	ASTM D422	n.a.		
September	121	29	121_29	9/12/2017	1850543	9209337	Sediment	% Silt	1.2	%	1	0.5	ASTM D422	n.a.		
September	121	29	121_29	9/12/2017	1850543	9209337	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	122	1	122_1	9/12/2017	1850543	9209357	Sediment	% Gravel	2.1	%	1	0.5	ASTM D422	n.a.		
September	122	1	122_1	9/12/2017	1850543	9209357	Sediment	% Sand	87.8	%	1	0.5	ASTM D422	n.a.		
September	122	1	122_1	9/12/2017	1850543	9209357	Sediment	% Silt	6.6	%	1	0.5	ASTM D422	n.a.		
September	122	1	122_1	9/12/2017	1850543	9209357	Sediment	% Clay	3.5	%	1	0.5	ASTM D422	n.a.		
September	123	20	123_20	9/12/2017	1850543	9209336	Sediment	% Gravel	8.1	%	1	0.5	ASTM D422	n.a.		
September	123	20	123_20	9/12/2017	1850543	9209336	Sediment	% Sand	87.4	%	1	0.5	ASTM D422	n.a.		
September	123	20	123_20	9/12/2017	1850543	9209336	Sediment	% Silt	2	%	1	0.5	ASTM D422	n.a.		
September	123	20	123_20	9/12/2017	1850543	9209336	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
September	124	16	124_16	9/12/2017	1850543	9209333	Sediment	% Gravel	4.2	%	1	0.5	ASTM D422	n.a.		
September	124	16	124_16	9/12/2017	1850543	9209333	Sediment	% Sand	92.8	%	1	0.5	ASTM D422	n.a.		
September	124	16	124_16	9/12/2017	1850543	9209333	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
September	124	16	124_16	9/12/2017	1850543	9209333	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
September	125	19	125_19	9/12/2017	1850543	9209334	Sediment	% Gravel	40.8	%	1	0.5	ASTM D422	n.a.		
September	125	19	125_19	9/12/2017	1850543	9209334	Sediment	% Sand	57.4	%	1	0.5	ASTM D422	n.a.		
September	125	19	125_19	9/12/2017	1850543	9209334	Sediment	% Silt	1.3	%	1	0.5	ASTM D422	n.a.		
September	125	19	125_19	9/12/2017	1850543	9209334	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	127	17	127_17	9/11/2017	1850543	9209324	Sediment	% Gravel	16.6	%	1	0.5	ASTM D422	n.a.		
September	127	17	127_17	9/11/2017	1850543	9209324	Sediment	% Sand	81.4	%	1	0.5	ASTM D422	n.a.		
September	127	17	127_17	9/11/2017	1850543	9209324	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	127	17	127_17	9/11/2017	1850543	9209324	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	128	21	128_21	9/11/2017	1850543	9209325	Sediment	% Gravel	16.7	%	1	0.5	ASTM D422	n.a.		
September	128	21	128_21	9/11/2017	1850543	9209325	Sediment	% Sand	79.5	%	1	0.5	ASTM D422	n.a.		
September	128	21	128_21	9/11/2017	1850543	9209325	Sediment	% Silt	1.8	%	1	0.5	ASTM D422	n.a.		
September	128	21	128_21	9/11/2017	1850543	9209325	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	129	10	129_10	9/12/2017	1850543	9209328	Sediment	% Gravel	25.3	%	1	0.5	ASTM D422	n.a.		
September	129	10	129_10	9/12/2017	1850543	9209328	Sediment	% Sand	72.1	%	1	0.5	ASTM D422	n.a.		
September	129	10	129_10	9/12/2017	1850543	9209328	Sediment	% Silt	0.62	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	129	10	129_10	9/12/2017	1850543	9209328	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	131	17	131_17	9/12/2017	1850543	9209338	Sediment	% Gravel	4.9	%	1	0.5	ASTM D422	n.a.		
September	131	17	131_17	9/12/2017	1850543	9209338	Sediment	% Sand	92.6	%	1	0.5	ASTM D422	n.a.		
September	131	17	131_17	9/12/2017	1850543	9209338	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	131	17	131_17	9/12/2017	1850543	9209338	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		
September	133	8	133_8	9/12/2017	1850543	9209326	Sediment	% Gravel	17.4	%	1	0.5	ASTM D422	n.a.		
September	133	8	133_8	9/12/2017	1850543	9209326	Sediment	% Sand	80.2	%	1	0.5	ASTM D422	n.a.		

September	133	8	133_8	9/12/2017	1850543	9209326	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	133	8	133_8	9/12/2017	1850543	9209326	Sediment	% Clay	2	%	1	0.5	ASTM D422	n.a.		
September	134	20	134_20	9/12/2017	1850543	9209327	Sediment	% Gravel	39.7	%	1	0.5	ASTM D422	n.a.		
September	134	20	134_20	9/12/2017	1850543	9209327	Sediment	% Sand	54.5	%	1	0.5	ASTM D422	n.a.		
September	134	20	134_20	9/12/2017	1850543	9209327	Sediment	% Silt	4.3	%	1	0.5	ASTM D422	n.a.		
September	134	20	134_20	9/12/2017	1850543	9209327	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	135	6	135_6	9/12/2017	1850543	9209335	Sediment	% Gravel	18.1	%	1	0.5	ASTM D422	n.a.		
September	135	6	135_6	9/12/2017	1850543	9209335	Sediment	% Sand	79.5	%	1	0.5	ASTM D422	n.a.		
September	135	6	135_6	9/12/2017	1850543	9209335	Sediment	% Silt	1.4	%	1	0.5	ASTM D422	n.a.		
September	135	6	135_6	9/12/2017	1850543	9209335	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
September	140	3	140_3	9/12/2017	1850543	9209346	Sediment	% Gravel	15	%	1	0.5	ASTM D422	n.a.		
September	140	3	140_3	9/12/2017	1850543	9209346	Sediment	% Sand	83	%	1	0.5	ASTM D422	n.a.		
September	140	3	140_3	9/12/2017	1850543	9209346	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	140	3	140_3	9/12/2017	1850543	9209346	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	141	21	141_21	9/12/2017	1850543	9209358	Sediment	% Gravel	2.9	%	1	0.5	ASTM D422	n.a.		
September	141	21	141_21	9/12/2017	1850543	9209358	Sediment	% Sand	93.7	%	1	0.5	ASTM D422	n.a.		
September	141	21	141_21	9/12/2017	1850543	9209358	Sediment	% Silt	3.4	%	1	0.5	ASTM D422	n.a.		
September	141	21	141_21	9/12/2017	1850543	9209358	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	142	24	142_24	9/12/2017	1850543	9209344	Sediment	% Gravel	3.7	%	1	0.5	ASTM D422	n.a.		
September	142	24	142_24	9/12/2017	1850543	9209344	Sediment	% Sand	93.8	%	1	0.5	ASTM D422	n.a.		
September	142	24	142_24	9/12/2017	1850543	9209344	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
September	142	24	142_24	9/12/2017	1850543	9209344	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	144	4	144_4	9/12/2017	1850543	9209345	Sediment	% Gravel	17	%	1	0.5	ASTM D422	n.a.		
September	144	4	144_4	9/12/2017	1850543	9209345	Sediment	% Sand	81.7	%	1	0.5	ASTM D422	n.a.		
September	144	4	144_4	9/12/2017	1850543	9209345	Sediment	% Silt	1.4	%	1	0.5	ASTM D422	n.a.		
September	144	4	144_4	9/12/2017	1850543	9209345	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	145	15	145_15	9/13/2017	1850543	9209359	Sediment	% Gravel	10.7	%	1	0.5	ASTM D422	n.a.		
September	145	15	145_15	9/13/2017	1850543	9209359	Sediment	% Sand	86.6	%	1	0.5	ASTM D422	n.a.		
September	145	15	145_15	9/13/2017	1850543	9209359	Sediment	% Silt	1.2	%	1	0.5	ASTM D422	n.a.		
September	145	15	145_15	9/13/2017	1850543	9209359	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	146	22	146_22	9/13/2017	1850543	9209360	Sediment	% Gravel	12.6	%	1	0.5	ASTM D422	n.a.		
September	146	22	146_22	9/13/2017	1850543	9209360	Sediment	% Sand	84.8	%	1	0.5	ASTM D422	n.a.		
September	146	22	146_22	9/13/2017	1850543	9209360	Sediment	% Silt	2.6	%	1	0.5	ASTM D422	n.a.		
September	146	22	146_22	9/13/2017	1850543	9209360	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	147	27	147_27	9/13/2017	1850543	9209361	Sediment	% Gravel	6.5	%	1	0.5	ASTM D422	n.a.		
September	147	27	147_27	9/13/2017	1850543	9209361	Sediment	% Sand	91	%	1	0.5	ASTM D422	n.a.		
September	147	27	147_27	9/13/2017	1850543	9209361	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
September	147	27	147_27	9/13/2017	1850543	9209361	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	148	36	148_36	9/13/2017	1850543	9209362	Sediment	% Gravel	10.6	%	1	0.5	ASTM D422	n.a.		
September	148	36	148_36	9/13/2017	1850543	9209362	Sediment	% Sand	86.9	%	1	0.5	ASTM D422	n.a.		
September	148	36	148_36	9/13/2017	1850543	9209362	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
September	148	36	148_36	9/13/2017	1850543	9209362	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	150	28	150_28	9/12/2017	1850543	9209347	Sediment	% Gravel	8	%	1	0.5	ASTM D422	n.a.		

September	150	28	150_28	9/12/2017	1850543	9209347	Sediment	% Sand	90.1	%	1	0.5	ASTM D422	n.a.		
September	150	28	150_28	9/12/2017	1850543	9209347	Sediment	% Silt	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	150	28	150_28	9/12/2017	1850543	9209347	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	151	16	151_16	9/11/2017	1850543	9209320	Sediment	% Gravel	1.8	%	1	0.5	ASTM D422	n.a.		
September	151	16	151_16	9/11/2017	1850543	9209320	Sediment	% Sand	47.7	%	1	0.5	ASTM D422	n.a.		
September	151	16	151_16	9/11/2017	1850543	9209320	Sediment	% Silt	40.5	%	1	0.5	ASTM D422	n.a.		
September	151	16	151_16	9/11/2017	1850543	9209320	Sediment	% Clay	10	%	1	0.5	ASTM D422	n.a.		
September	153	30	153_30	9/11/2017	1850543	9209323	Sediment	% Gravel	23.9	%	1	0.5	ASTM D422	n.a.		
September	153	30	153_30	9/11/2017	1850543	9209323	Sediment	% Sand	73.8	%	1	0.5	ASTM D422	n.a.		
September	153	30	153_30	9/11/2017	1850543	9209323	Sediment	% Silt	0.87	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	153	30	153_30	9/11/2017	1850543	9209323	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	156	4	156_4	9/11/2017	1850543	9209319	Sediment	% Gravel	1.8	%	1	0.5	ASTM D422	n.a.		
September	156	4	156_4	9/11/2017	1850543	9209319	Sediment	% Sand	51.6	%	1	0.5	ASTM D422	n.a.		
September	156	4	156_4	9/11/2017	1850543	9209319	Sediment	% Silt	40.1	%	1	0.5	ASTM D422	n.a.		
September	156	4	156_4	9/11/2017	1850543	9209319	Sediment	% Clay	6.5	%	1	0.5	ASTM D422	n.a.		
September	157	9	157_9	9/11/2017	1850543	9209321	Sediment	% Gravel	34.1	%	1	0.5	ASTM D422	n.a.		
September	157	9	157_9	9/11/2017	1850543	9209321	Sediment	% Sand	52.2	%	1	0.5	ASTM D422	n.a.		
September	157	9	157_9	9/11/2017	1850543	9209321	Sediment	% Silt	10.7	%	1	0.5	ASTM D422	n.a.		
September	157	9	157_9	9/11/2017	1850543	9209321	Sediment	% Clay	3	%	1	0.5	ASTM D422	n.a.		
September	158	2	158_2	9/11/2017	1850543	9209322	Sediment	% Gravel	12.2	%	1	0.5	ASTM D422	n.a.		
September	158	2	158_2	9/11/2017	1850543	9209322	Sediment	% Sand	45.3	%	1	0.5	ASTM D422	n.a.		
September	158	2	158_2	9/11/2017	1850543	9209322	Sediment	% Silt	37	%	1	0.5	ASTM D422	n.a.		
September	158	2	158_2	9/11/2017	1850543	9209322	Sediment	% Clay	5.5	%	1	0.5	ASTM D422	n.a.		
September	160	29	160_29	9/12/2017	1850543	9209352	Sediment	% Gravel	10.6	%	1	0.5	ASTM D422	n.a.		
September	160	29	160_29	9/12/2017	1850543	9209352	Sediment	% Sand	87.8	%	1	0.5	ASTM D422	n.a.		
September	160	29	160_29	9/12/2017	1850543	9209352	Sediment	% Silt	1.6	%	1	0.5	ASTM D422	n.a.		
September	160	29	160_29	9/12/2017	1850543	9209352	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	161	26	161_26	9/12/2017	1850543	9209348	Sediment	% Gravel	11	%	1	0.5	ASTM D422	n.a.		
September	161	26	161_26	9/12/2017	1850543	9209348	Sediment	% Sand	86.9	%	1	0.5	ASTM D422	n.a.		
September	161	26	161_26	9/12/2017	1850543	9209348	Sediment	% Silt	2.1	%	1	0.5	ASTM D422	n.a.		
September	161	26	161_26	9/12/2017	1850543	9209348	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	163	28	163_28	9/12/2017	1850543	9209351	Sediment	% Gravel	7.3	%	1	0.5	ASTM D422	n.a.		
September	163	28	163_28	9/12/2017	1850543	9209351	Sediment	% Sand	90.8	%	1	0.5	ASTM D422	n.a.		
September	163	28	163_28	9/12/2017	1850543	9209351	Sediment	% Silt	1.9	%	1	0.5	ASTM D422	n.a.		
September	163	28	163_28	9/12/2017	1850543	9209351	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	164	12	164_12	9/12/2017	1850543	9209350	Sediment	% Gravel	30.4	%	1	0.5	ASTM D422	n.a.		
September	164	12	164_12	9/12/2017	1850543	9209350	Sediment	% Sand	67.7	%	1	0.5	ASTM D422	n.a.		
September	164	12	164_12	9/12/2017	1850543	9209350	Sediment	% Silt	0.92	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	164	12	164_12	9/12/2017	1850543	9209350	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		

September	165	24	165_24	9/12/2017	1850543	9209349	Sediment	% Gravel	15.3	%	1	0.5	ASTM D422	n.a.		
September	165	24	165_24	9/12/2017	1850543	9209349	Sediment	% Sand	82.4	%	1	0.5	ASTM D422	n.a.		
September	165	24	165_24	9/12/2017	1850543	9209349	Sediment	% Silt	1.8	%	1	0.5	ASTM D422	n.a.		
September	165	24	165_24	9/12/2017	1850543	9209349	Sediment	% Clay	0.5	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	168	53	168_53	9/12/2017	1850543	9209354	Sediment	% Gravel	11.6	%	1	0.5	ASTM D422	n.a.		
September	168	53	168_53	9/12/2017	1850543	9209354	Sediment	% Sand	85.8	%	1	0.5	ASTM D422	n.a.		
September	168	53	168_53	9/12/2017	1850543	9209354	Sediment	% Silt	2.6	%	1	0.5	ASTM D422	n.a.		
September	168	53	168_53	9/12/2017	1850543	9209354	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	169	33	169_33	9/12/2017	1850543	9209353	Sediment	% Gravel	2.2	%	1	0.5	ASTM D422	n.a.		
September	169	33	169_33	9/12/2017	1850543	9209353	Sediment	% Sand	95.1	%	1	0.5	ASTM D422	n.a.		
September	169	33	169_33	9/12/2017	1850543	9209353	Sediment	% Silt	2.8	%	1	0.5	ASTM D422	n.a.		
September	169	33	169_33	9/12/2017	1850543	9209353	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	170	15	170_15	9/13/2017	1850543	9209377	Sediment	% Gravel	0.68	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	170	15	170_15	9/13/2017	1850543	9209377	Sediment	% Sand	96.8	%	1	0.5	ASTM D422	n.a.		
September	170	15	170_15	9/13/2017	1850543	9209377	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
September	170	15	170_15	9/13/2017	1850543	9209377	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	171	14	171_14	9/13/2017	1850543	9209376	Sediment	% Gravel	1.1	%	1	0.5	ASTM D422	n.a.		
September	171	14	171_14	9/13/2017	1850543	9209376	Sediment	% Sand	96.3	%	1	0.5	ASTM D422	n.a.		
September	171	14	171_14	9/13/2017	1850543	9209376	Sediment	% Silt	2.6	%	1	0.5	ASTM D422	n.a.		
September	171	14	171_14	9/13/2017	1850543	9209376	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	172	3	172_3	9/13/2017	1850543	9209375	Sediment	% Gravel	2.2	%	1	0.5	ASTM D422	n.a.		
September	172	3	172_3	9/13/2017	1850543	9209375	Sediment	% Sand	94.2	%	1	0.5	ASTM D422	n.a.		
September	172	3	172_3	9/13/2017	1850543	9209375	Sediment	% Silt	3.7	%	1	0.5	ASTM D422	n.a.		
September	172	3	172_3	9/13/2017	1850543	9209375	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	176	22	176_22	9/13/2017	1850543	9209378	Sediment	% Gravel	0.62	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	176	22	176_22	9/13/2017	1850543	9209378	Sediment	% Sand	95.9	%	1	0.5	ASTM D422	n.a.		
September	176	22	176_22	9/13/2017	1850543	9209378	Sediment	% Silt	3.5	%	1	0.5	ASTM D422	n.a.		
September	176	22	176_22	9/13/2017	1850543	9209378	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	178	27	178_27	9/13/2017	1850543	9209369	Sediment	% Gravel	3	%	1	0.5	ASTM D422	n.a.		
September	178	27	178_27	9/13/2017	1850543	9209369	Sediment	% Sand	92.7	%	1	0.5	ASTM D422	n.a.		
September	178	27	178_27	9/13/2017	1850543	9209369	Sediment	% Silt	4.3	%	1	0.5	ASTM D422	n.a.		
September	178	27	178_27	9/13/2017	1850543	9209369	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.

September	179	5	179_5	9/13/2017	1850543	9209368	Sediment	% Gravel	3.5	%	1	0.5	ASTM D422	n.a.		
September	179	5	179_5	9/13/2017	1850543	9209368	Sediment	% Sand	93.1	%	1	0.5	ASTM D422	n.a.		
September	179	5	179_5	9/13/2017	1850543	9209368	Sediment	% Silt	3.4	%	1	0.5	ASTM D422	n.a.		
September	179	5	179_5	9/13/2017	1850543	9209368	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	180	23	180_23	9/13/2017	1850543	9209367	Sediment	% Gravel	17.9	%	1	0.5	ASTM D422	n.a.		
September	180	23	180_23	9/13/2017	1850543	9209367	Sediment	% Sand	78.6	%	1	0.5	ASTM D422	n.a.		
September	180	23	180_23	9/13/2017	1850543	9209367	Sediment	% Silt	3.5	%	1	0.5	ASTM D422	n.a.		
September	180	23	180_23	9/13/2017	1850543	9209367	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	181	1	181_1	9/13/2017	1850543	9209363	Sediment	% Gravel	9.4	%	1	0.5	ASTM D422	n.a.		
September	181	1	181_1	9/13/2017	1850543	9209363	Sediment	% Sand	84.4	%	1	0.5	ASTM D422	n.a.		
September	181	1	181_1	9/13/2017	1850543	9209363	Sediment	% Silt	4.7	%	1	0.5	ASTM D422	n.a.		
September	181	1	181_1	9/13/2017	1850543	9209363	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	183	19	183_19	9/13/2017	1850543	9209371	Sediment	% Gravel	0.67	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	183	19	183_19	9/13/2017	1850543	9209371	Sediment	% Sand	96.8	%	1	0.5	ASTM D422	n.a.		
September	183	19	183_19	9/13/2017	1850543	9209371	Sediment	% Silt	2.5	%	1	0.5	ASTM D422	n.a.		
September	183	19	183_19	9/13/2017	1850543	9209371	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	184	13	184_13	9/13/2017	1850543	9209370	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	184	13	184_13	9/13/2017	1850543	9209370	Sediment	% Sand	98.5	%	1	0.5	ASTM D422	n.a.		
September	184	13	184_13	9/13/2017	1850543	9209370	Sediment	% Silt	1.5	%	1	0.5	ASTM D422	n.a.		
September	184	13	184_13	9/13/2017	1850543	9209370	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	186	6	186_6	9/13/2017	1850543	9209364	Sediment	% Gravel	3.8	%	1	0.5	ASTM D422	n.a.		
September	186	6	186_6	9/13/2017	1850543	9209364	Sediment	% Sand	84.3	%	1	0.5	ASTM D422	n.a.		
September	186	6	186_6	9/13/2017	1850543	9209364	Sediment	% Silt	8.9	%	1	0.5	ASTM D422	n.a.		
September	186	6	186_6	9/13/2017	1850543	9209364	Sediment	% Clay	3	%	1	0.5	ASTM D422	n.a.		
September	189	7	189_7	9/13/2017	1850543	9209373	Sediment	% Gravel	3.5	%	1	0.5	ASTM D422	n.a.		
September	189	7	189_7	9/13/2017	1850543	9209373	Sediment	% Sand	94.6	%	1	0.5	ASTM D422	n.a.		
September	189	7	189_7	9/13/2017	1850543	9209373	Sediment	% Silt	1.8	%	1	0.5	ASTM D422	n.a.		
September	189	7	189_7	9/13/2017	1850543	9209373	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	190	11	190_11	9/13/2017	1850543	9209372	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	190	11	190_11	9/13/2017	1850543	9209372	Sediment	% Sand	97.6	%	1	0.5	ASTM D422	n.a.		
September	190	11	190_11	9/13/2017	1850543	9209372	Sediment	% Silt	2	%	1	0.5	ASTM D422	n.a.		
September	190	11	190_11	9/13/2017	1850543	9209372	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	191	25	191_25	9/13/2017	1850543	9209366	Sediment	% Gravel	17.7	%	1	0.5	ASTM D422	n.a.		
September	191	25	191_25	9/13/2017	1850543	9209366	Sediment	% Sand	77.3	%	1	0.5	ASTM D422	n.a.		
September	191	25	191_25	9/13/2017	1850543	9209366	Sediment	% Silt	3.5	%	1	0.5	ASTM D422	n.a.		
September	191	25	191_25	9/13/2017	1850543	9209366	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	192	18	192_18	9/13/2017	1850543	9209365	Sediment	% Gravel	14.7	%	1	0.5	ASTM D422	n.a.		
September	192	18	192_18	9/13/2017	1850543	9209365	Sediment	% Sand	78.9	%	1	0.5	ASTM D422	n.a.		
September	192	18	192_18	9/13/2017	1850543	9209365	Sediment	% Silt	4.9	%	1	0.5	ASTM D422	n.a.		

September	192	18	192_18	9/13/2017	1850543	9209365	Sediment	% Clay	1.5	%	1	0.5	ASTM D422	n.a.		
September	193	23	193_23	9/13/2017	1850543	9209374	Sediment	% Gravel	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	193	23	193_23	9/13/2017	1850543	9209374	Sediment	% Sand	97.6	%	1	0.5	ASTM D422	n.a.		
September	193	23	193_23	9/13/2017	1850543	9209374	Sediment	% Silt	2.2	%	1	0.5	ASTM D422	n.a.		
September	193	23	193_23	9/13/2017	1850543	9209374	Sediment	% Clay	0	%	1	0.5	ASTM D422	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	98	8	98_8	9/12/2017	1850543	9209341	Sediment	% Gravel	37	%	1	0.5	ASTM D422	n.a.		
September	98	8	98_8	9/12/2017	1850543	9209341	Sediment	% Sand	61.3	%	1	0.5	ASTM D422	n.a.		
September	98	8	98_8	9/12/2017	1850543	9209341	Sediment	% Silt	0.7	%	1	0.5	ASTM D422	n.a.	J	J = Estimated value >= the Method Detection Limit (MDL) and < the Reporting Limit or Limit of Quantitation (LOQ)
September	98	8	98_8	9/12/2017	1850543	9209341	Sediment	% Clay	1	%	1	0.5	ASTM D422	n.a.		
September	99	13	99_13	9/12/2017	1850543	9209330	Sediment	% Gravel	5.7	%	1	0.5	ASTM D422	n.a.		
September	99	13	99_13	9/12/2017	1850543	9209330	Sediment	% Sand	89.9	%	1	0.5	ASTM D422	n.a.		
September	99	13	99_13	9/12/2017	1850543	9209330	Sediment	% Silt	1.9	%	1	0.5	ASTM D422	n.a.		
September	99	13	99_13	9/12/2017	1850543	9209330	Sediment	% Clay	2.5	%	1	0.5	ASTM D422	n.a.		

September 2017 Sediment Total Organic Carbon
Source: Normandeau Associates, Inc.

SURVEY	SITE_ ID	SAMPLE _ID	SAMP_I D	DATE	LAB_ GROUP	LAB_ SAMPLE	MATRIX _DESC	ANALYTE _NAME	RESULT	UNITS	REPORTING _LIMIT _LOQ	DETECTION _LIMIT_MDL	METHOD	CAS_ NUMBER	QUALIFIER	QUALIFIER _DESCRIPTION
September	101	10	101_10	9/12/2017	1850541	9209281	Sediment	Moisture	23.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	101	10	101_10	9/12/2017	1850541	9209281	Sediment	Total Organic Carbon (TOC)	513	mg/kg	686	229	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	102	26	102_26	9/12/2017	1850541	9209279	Sediment	Moisture	25.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	102	26	102_26	9/12/2017	1850541	9209279	Sediment	Total Organic Carbon (TOC)	349	mg/kg	951	317	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	103	18	103_18	9/12/2017	1850541	9209270	Sediment	Moisture	26.4	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	103	18	103_18	9/12/2017	1850541	9209270	Sediment	Total Organic Carbon (TOC)	1860	mg/kg	558	186	SW-846 9060A modified	n.a.		
September	105	9	105_9	9/12/2017	1850541	9209282	Sediment	Moisture	25.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	105	9	105_9	9/12/2017	1850541	9209282	Sediment	Total Organic Carbon (TOC)	524	mg/kg	894	298	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	110	5	110_5	9/12/2017	1850541	9209294	Sediment	Moisture	35.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	110	5	110_5	9/12/2017	1850541	9209294	Sediment	Total Organic Carbon (TOC)	4300	mg/kg	969	323	SW-846 9060A modified	n.a.		
September	111	30	111_30	9/12/2017	1850541	9209278	Sediment	Moisture	27.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	111	30	111_30	9/12/2017	1850541	9209278	Sediment	Total Organic Carbon (TOC)	604	mg/kg	821	274	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	114	2	114_2	9/12/2017	1850541	9209268	Sediment	Moisture	28.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	114	2	114_2	9/12/2017	1850541	9209268	Sediment	Total Organic Carbon (TOC)	3140	mg/kg	644	215	SW-846 9060A modified	n.a.		
September	116	11	116_11	9/12/2017	1850541	9209295	Sediment	Moisture	28.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	116	11	116_11	9/12/2017	1850541	9209295	Sediment	Total Organic Carbon (TOC)	0	mg/kg	929	310	SW-846 9060A modified	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	120	12	120_12	9/12/2017	1850541	9209271	Sediment	Moisture	26.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	120	12	120_12	9/12/2017	1850541	9209271	Sediment	Total Organic Carbon (TOC)	998	mg/kg	596	199	SW-846 9060A modified	n.a.		
September	121	29	121_29	9/12/2017	1850541	9209276	Sediment	Moisture	29.4	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	121	29	121_29	9/12/2017	1850541	9209276	Sediment	Total Organic Carbon (TOC)	3110	mg/kg	639	213	SW-846 9060A modified	n.a.		
September	122	1	122_1	9/12/2017	1850541	9209296	Sediment	Moisture	31.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	122	1	122_1	9/12/2017	1850541	9209296	Sediment	Total Organic Carbon (TOC)	0	mg/kg	971	324	SW-846 9060A modified	n.a.	N.D.	N.D. = Non-detect, Result is 0%.
September	123	20	123_20	9/12/2017	1850541	9209275	Sediment	Moisture	31.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	123	20	123_20	9/12/2017	1850541	9209275	Sediment	Total Organic Carbon (TOC)	4410	mg/kg	727	242	SW-846 9060A modified	n.a.		
September	124	16	124_16	9/12/2017	1850541	9209272	Sediment	Moisture	28.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	124	16	124_16	9/12/2017	1850541	9209272	Sediment	Total Organic Carbon (TOC)	1430	mg/kg	567	189	SW-846 9060A modified	n.a.		

September	125	19	125_19	9/12/2017	1850541	9209273	Sediment	Moisture	20	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	125	19	125_19	9/12/2017	1850541	9209273	Sediment	Total Organic Carbon (TOC)	897	mg/kg	394	131	SW-846 9060A modified	n.a.		
September	127	17	127_17	9/11/2017	1850541	9209263	Sediment	Moisture	24.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	127	17	127_17	9/11/2017	1850541	9209263	Sediment	Total Organic Carbon (TOC)	1390	mg/kg	452	151	SW-846 9060A modified	n.a.		
September	128	21	128_21	9/11/2017	1850541	9209264	Sediment	Moisture	24.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	128	21	128_21	9/11/2017	1850541	9209264	Sediment	Total Organic Carbon (TOC)	1750	mg/kg	432	144	SW-846 9060A modified	n.a.		
September	129	10	129_10	9/12/2017	1850541	9209267	Sediment	Moisture	23.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	129	10	129_10	9/12/2017	1850541	9209267	Sediment	Total Organic Carbon (TOC)	6330	mg/kg	572	191	SW-846 9060A modified	n.a.		
September	131	17	131_17	9/12/2017	1850541	9209277	Sediment	Moisture	26.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	131	17	131_17	9/12/2017	1850541	9209277	Sediment	Total Organic Carbon (TOC)	1870	mg/kg	459	153	SW-846 9060A modified	n.a.		
September	133	8	133_8	9/12/2017	1850541	9209265	Sediment	Moisture	20.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	133	8	133_8	9/12/2017	1850541	9209265	Sediment	Total Organic Carbon (TOC)	929	mg/kg	501	167	SW-846 9060A modified	n.a.		
September	134	20	134_20	9/12/2017	1850541	9209266	Sediment	Moisture	22.5	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	134	20	134_20	9/12/2017	1850541	9209266	Sediment	Total Organic Carbon (TOC)	897	mg/kg	404	135	SW-846 9060A modified	n.a.		
September	135	6	135_6	9/12/2017	1850541	9209274	Sediment	Moisture	21.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	135	6	135_6	9/12/2017	1850541	9209274	Sediment	Total Organic Carbon (TOC)	1170	mg/kg	493	164	SW-846 9060A modified	n.a.		
September	140	3	140_3	9/12/2017	1850541	9209285	Sediment	Moisture	24.4	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	140	3	140_3	9/12/2017	1850541	9209285	Sediment	Total Organic Carbon (TOC)	1040	mg/kg	782	261	SW-846 9060A modified	n.a.		
September	141	21	141_21	9/12/2017	1850541	9209297	Sediment	Moisture	27.7	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	141	21	141_21	9/12/2017	1850541	9209297	Sediment	Total Organic Carbon (TOC)	1670	mg/kg	830	277	SW-846 9060A modified	n.a.		
September	142	24	142_24	9/12/2017	1850541	9209283	Sediment	Moisture	28.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	142	24	142_24	9/12/2017	1850541	9209283	Sediment	Total Organic Carbon (TOC)	2030	mg/kg	1250	418	SW-846 9060A modified	n.a.		
September	144	4	144_4	9/12/2017	1850541	9209284	Sediment	Moisture	28.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	144	4	144_4	9/12/2017	1850541	9209284	Sediment	Total Organic Carbon (TOC)	729	mg/kg	1080	361	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	145	15	145_15	9/13/2017	1850541	9209298	Sediment	Moisture	27.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	145	15	145_15	9/13/2017	1850541	9209298	Sediment	Total Organic Carbon (TOC)	4550	mg/kg	722	241	SW-846 9060A modified	n.a.		
September	146	22	146_22	9/13/2017	1850541	9209299	Sediment	Moisture	24.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	146	22	146_22	9/13/2017	1850541	9209299	Sediment	Total Organic Carbon (TOC)	1830	mg/kg	703	234	SW-846 9060A modified	n.a.		
September	147	27	147_27	9/13/2017	1850541	9209300	Sediment	Moisture	23.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	147	27	147_27	9/13/2017	1850541	9209300	Sediment	Total Organic Carbon (TOC)	1100	mg/kg	730	243	SW-846 9060A modified	n.a.		
September	148	36	148_36	9/13/2017	1850541	9209301	Sediment	Moisture	24.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	148	36	148_36	9/13/2017	1850541	9209301	Sediment	Total Organic Carbon (TOC)	1420	mg/kg	601	200	SW-846 9060A modified	n.a.		
September	150	28	150_28	9/12/2017	1850541	9209286	Sediment	Moisture	23.4	%	0.5	0.5	SM 2540 G-1997	n.a.		

September	150	28	150_28	9/12/2017	1850541	9209286	Sediment	Total Organic Carbon (TOC)	633	mg/kg	956	319	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	151	16	151_16	9/11/2017	1850541	9209259	Sediment	Moisture	42	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	151	16	151_16	9/11/2017	1850541	9209259	Sediment	Total Organic Carbon (TOC)	15900	mg/kg	1160	387	SW-846 9060A modified	n.a.		
September	153	30	153_30	9/11/2017	1850541	9209262	Sediment	Moisture	17.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	153	30	153_30	9/11/2017	1850541	9209262	Sediment	Total Organic Carbon (TOC)	1210	mg/kg	420	140	SW-846 9060A modified	n.a.		
September	156	4	156_4	9/11/2017	1850541	9209258	Sediment	Moisture	44.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	156	4	156_4	9/11/2017	1850541	9209258	Sediment	Total Organic Carbon (TOC)	16600	mg/kg	863	288	SW-846 9060A modified	n.a.		
September	157	9	157_9	9/11/2017	1850541	9209260	Sediment	Moisture	33.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	157	9	157_9	9/11/2017	1850541	9209260	Sediment	Total Organic Carbon (TOC)	11000	mg/kg	858	286	SW-846 9060A modified	n.a.		
September	158	2	158_2	9/11/2017	1850541	9209261	Sediment	Moisture	41	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	158	2	158_2	9/11/2017	1850541	9209261	Sediment	Total Organic Carbon (TOC)	13400	mg/kg	852	284	SW-846 9060A modified	n.a.		
September	160	29	160_29	9/12/2017	1850541	9209291	Sediment	Moisture	24	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	160	29	160_29	9/12/2017	1850541	9209291	Sediment	Total Organic Carbon (TOC)	717	mg/kg	762	254	SW-846 9060A modified	n.a.	J	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
September	161	26	161_26	9/12/2017	1850541	9209287	Sediment	Moisture	26.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	161	26	161_26	9/12/2017	1850541	9209287	Sediment	Total Organic Carbon (TOC)	1010	mg/kg	981	327	SW-846 9060A modified	n.a.		
September	163	28	163_28	9/12/2017	1850541	9209290	Sediment	Moisture	23.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	163	28	163_28	9/12/2017	1850541	9209290	Sediment	Total Organic Carbon (TOC)	865	mg/kg	789	263	SW-846 9060A modified	n.a.		
September	164	12	164_12	9/12/2017	1850541	9209289	Sediment	Moisture	21.7	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	164	12	164_12	9/12/2017	1850541	9209289	Sediment	Total Organic Carbon (TOC)	1380	mg/kg	778	259	SW-846 9060A modified	n.a.		
September	165	24	165_24	9/12/2017	1850541	9209288	Sediment	Moisture	22.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	165	24	165_24	9/12/2017	1850541	9209288	Sediment	Total Organic Carbon (TOC)	1730	mg/kg	809	270	SW-846 9060A modified	n.a.		
September	168	53	168_53	9/12/2017	1850541	9209293	Sediment	Moisture	25.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	168	53	168_53	9/12/2017	1850541	9209293	Sediment	Total Organic Carbon (TOC)	1140	mg/kg	924	308	SW-846 9060A modified	n.a.		
September	169	33	169_33	9/12/2017	1850541	9209292	Sediment	Moisture	25.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	169	33	169_33	9/12/2017	1850541	9209292	Sediment	Total Organic Carbon (TOC)	913	mg/kg	761	254	SW-846 9060A modified	n.a.		
September	170	15	170_15	9/13/2017	1850541	9209316	Sediment	Moisture	26.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	170	15	170_15	9/13/2017	1850541	9209316	Sediment	Total Organic Carbon (TOC)	1840	mg/kg	712	237	SW-846 9060A modified	n.a.		
September	171	14	171_14	9/13/2017	1850541	9209315	Sediment	Moisture	31.5	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	171	14	171_14	9/13/2017	1850541	9209315	Sediment	Total Organic Carbon (TOC)	2490	mg/kg	731	244	SW-846 9060A modified	n.a.		
September	172	3	172_3	9/13/2017	1850541	9209314	Sediment	Moisture	29.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	172	3	172_3	9/13/2017	1850541	9209314	Sediment	Total Organic Carbon (TOC)	3080	mg/kg	699	233	SW-846 9060A modified	n.a.		

September 2017 Sediment Total Organic Carbon
Source: Normandeau Associates, Inc.

September	176	22	176_22	9/13/2017	1850541	9209317	Sediment	Moisture	25.8	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	176	22	176_22	9/13/2017	1850541	9209317	Sediment	Total Organic Carbon (TOC)	1920	mg/kg	675	225	SW-846 9060A modified	n.a.		
September	178	27	178_27	9/13/2017	1850541	9209308	Sediment	Moisture	30.6	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	178	27	178_27	9/13/2017	1850541	9209308	Sediment	Total Organic Carbon (TOC)	5910	mg/kg	774	258	SW-846 9060A modified	n.a.		
September	179	5	179_5	9/13/2017	1850541	9209307	Sediment	Moisture	26.9	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	179	5	179_5	9/13/2017	1850541	9209307	Sediment	Total Organic Carbon (TOC)	3200	mg/kg	607	202	SW-846 9060A modified	n.a.		
September	180	23	180_23	9/13/2017	1850541	9209306	Sediment	Moisture	26.2	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	180	23	180_23	9/13/2017	1850541	9209306	Sediment	Total Organic Carbon (TOC)	3000	mg/kg	760	253	SW-846 9060A modified	n.a.		
September	181	1	181_1	9/13/2017	1850541	9209302	Sediment	Moisture	23.8	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	181	1	181_1	9/13/2017	1850541	9209302	Sediment	Total Organic Carbon (TOC)	5530	mg/kg	654	218	SW-846 9060A modified	n.a.		
September	183	19	183_19	9/13/2017	1850541	9209310	Sediment	Moisture	29.3	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	183	19	183_19	9/13/2017	1850541	9209310	Sediment	Total Organic Carbon (TOC)	4070	mg/kg	781	260	SW-846 9060A modified	n.a.		
September	184	13	184_13	9/13/2017	1850541	9209309	Sediment	Moisture	27.8	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	184	13	184_13	9/13/2017	1850541	9209309	Sediment	Total Organic Carbon (TOC)	2240	mg/kg	785	262	SW-846 9060A modified	n.a.		
September	186	6	186_6	9/13/2017	1850541	9209303	Sediment	Moisture	36.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	186	6	186_6	9/13/2017	1850541	9209303	Sediment	Total Organic Carbon (TOC)	17300	mg/kg	873	291	SW-846 9060A modified	n.a.		
September	189	7	189_7	9/13/2017	1850541	9209312	Sediment	Moisture	30	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	189	7	189_7	9/13/2017	1850541	9209312	Sediment	Total Organic Carbon (TOC)	1520	mg/kg	754	251	SW-846 9060A modified	n.a.		
September	190	11	190_11	9/13/2017	1850541	9209311	Sediment	Moisture	26.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	190	11	190_11	9/13/2017	1850541	9209311	Sediment	Total Organic Carbon (TOC)	1280	mg/kg	528	176	SW-846 9060A modified	n.a.		
September	191	25	191_25	9/13/2017	1850541	9209305	Sediment	Moisture	33.4	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	191	25	191_25	9/13/2017	1850541	9209305	Sediment	Total Organic Carbon (TOC)	10400	mg/kg	2020	674	SW-846 9060A modified	n.a.		
September	192	18	192_18	9/13/2017	1850541	9209304	Sediment	Moisture	34.4	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	192	18	192_18	9/13/2017	1850541	9209304	Sediment	Total Organic Carbon (TOC)	10200	mg/kg	713	238	SW-846 9060A modified	n.a.		
September	193	23	193_23	9/13/2017	1850541	9209313	Sediment	Moisture	31	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	193	23	193_23	9/13/2017	1850541	9209313	Sediment	Total Organic Carbon (TOC)	1690	mg/kg	770	257	SW-846 9060A modified	n.a.		
September	98	8	98_8	9/12/2017	1850541	9209280	Sediment	Moisture	26.5	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	98	8	98_8	9/12/2017	1850541	9209280	Sediment	Total Organic Carbon (TOC)	1460	mg/kg	1370	456	SW-846 9060A modified	n.a.		
September	99	13	99_13	9/12/2017	1850541	9209269	Sediment	Moisture	25.1	%	0.5	0.5	SM 2540 G-1997	n.a.		
September	99	13	99_13	9/12/2017	1850541	9209269	Sediment	Total Organic Carbon (TOC)	1570	mg/kg	407	136	SW-846 9060A modified	n.a.		

Appendix E-5
Adjacent Artificial Habitat Survey Report

December 9th, 2015

Adjacent Artificial Habitat Survey Report

Tottenville, Southern Waterfront

SeArc – Ecological Marine Consulting LTD

PROJECT: Staten Island Living Breakwaters – Adjacent Artificial Habitat Survey

TASK ORDER I – Submission

LOCATION: Raritan Bay- Tottenville, Staten Island, NY, United States

ORDERING ENTITY: Governor's Office of Storm Recovery (GOSR)

Dr. Shimrit Perkol-Finkel Dr. Ido Sella

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1 Executive Summary

This report summarizes the findings of a survey conducted as a part of the schematic design phase (30% design) for the Living Breakwaters Rebuild by Design Project being implemented by the New York Governor's Office of Storm Recovery (GOSR). The project site is on the South Shore of Staten Island in the waters of Raritan Bay, which is a shallow estuary that contains a variety of habitats and supports commercial fisheries. The Living Breakwaters project is a layered approach to increase coastal resilience by constructing breakwater structures made of stone and bio-enhancing concrete units, with the aim to reduce risk, increase habitat diversity, restore habitats, and prove opportunities for shellfish (oyster) restoration and education.

'SeArc Ecological Marine Consulting' (SeArc), a member of the SCAPE Landscape Architecture team, was commissioned in September 2015 to perform a baseline survey of "Adjacent Artificial Habitats" within the proposed project area for characterizing the fouling communities inhabiting artificial structures and provide input to the breakwater's design process for maximizing ecological performance. Sampling included a visual survey and quadrates sampling.

The survey revealed rich hard substrate habitats, with a total of 43 taxa including algae, invertebrates, fish, and birds. Algae dominated the shallows, while in the deeper water the most abundant taxa were tube worms (Polychaetes).

The average dry weight of fouling communities scraped from the surveyed artificial substrates habitat reached nearly 1 kg per m^2, which consisted of 75 percent inorganic material and 25 percent organic material. These values present noteworthy biogenic buildup capabilities, as supported by some of the species found during the survey which are known for their significant calcium carbonate deposition (such as barnacles, tube worms, and oysters). The fact that the youngest station sampled (2.5 y) presented high dry weight values suggests overall deposition rates in the area are quite high and comparable to values found in the literature for regions supporting biogenic reef formation in temperate environments.

Input for Design:

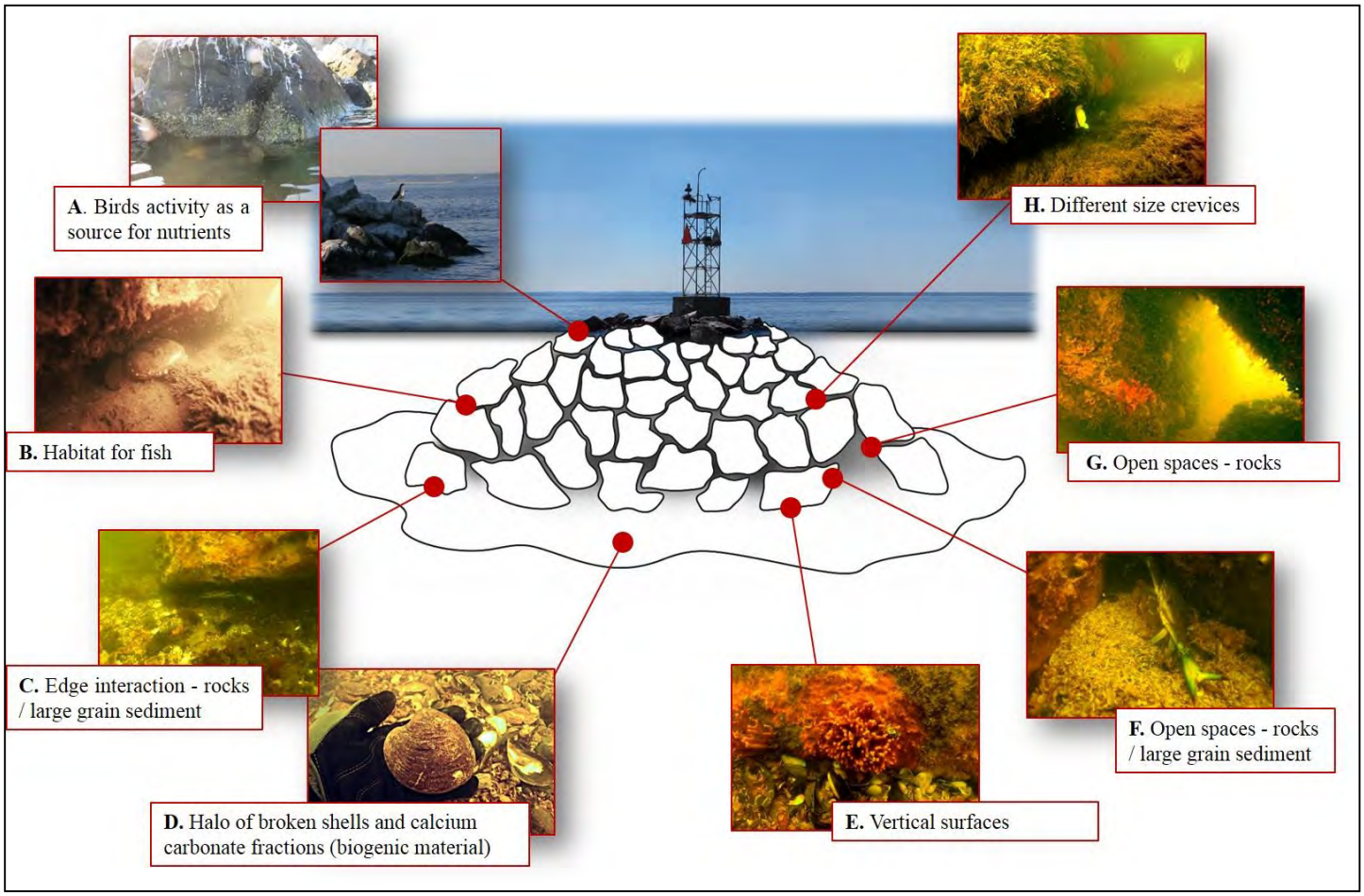
Spacing Between Building Units – Different spacing sizes between rocks corresponded to different species assemblages. Rock spacing varied from 1cm (0.5-inches) to 1m (40 inches). Some of the formed spaces had more than one opening to the water column. Areas that had a variety of spacing sizes had the greatest diversity and abundance of both fish communities and motile invertebrates.

Orientation of Substrate – Within the intertidal zone, horizontal surfaces had a larger quantity and more diverse observed benthic cover than vertical and steeply inclined surfaces. Below the intertidal zone, the opposite was noted, with vertical or steeply inclined surfaces presenting higher cover and diversity than horizontal ones.

Structure's Sediment "Halo" – All hard substrate structures sampled were surrounded by a belt of broken shells and other calcium carbonate fractions originating from marine organisms. This should to be addressed with respect to benthic habitats in the vicinity of the proposed structures.

Birds – Nesting and feeding birds were observed on protruding surfaces of the structures, and were noted as a source for nutrients within the intertidal zone. Increased nutrients, combined with high light penetration in the shallows, are regarded as the key reason for the high species richness and cover of algae in the intertidal area. Future design of protruding structures should address bird habitat creation that can support increased biodiversity, more complex food chains, and increased nutrients flux.

Fishing Activity – Fishing activities and associated debris were noted around hard structures in the area. The design will need to address fishing activities in terms of reducing the amount of debris, impact of selective fishing, and issues of user safety. In addition, any monitoring activity should address fishing activities that might affect data quality.



Adjacent Artificial Habitat, September 2015. Observations of biological community on artificial structures in the area. [A] Nesting and feeding birds; [B] Different sizes of sheltered habitats; [C-D] Interactions of hard structure with halo of broken shells and calcium carbonate fractions originating from detached marine organisms; [E] Sublittoral vertical or steeply inclined surfaces presenting high cover and diversity; [F-H] Different size spacing between rocks corresponded to different species assemblages.

2 Background

This report summarize the findings of a survey conducted as a part of the schematic design phase (30% design) for the Living Breakwaters Rebuild by Design Project, being implemented by the New York Governor's Office of Storm Recovery (GOSR). The Living Breakwaters project is a layered approach to increase coastal resilience by constructing breakwater structures made of stone and bio-enhancing concrete units, with the aim to reduce risk, increase habitat diversity, restore habitats, and providing opportunities for oyster restoration and education.

'SeArc Ecological Marine Consulting' (SeArc), a member of the SCAPE Landscape Architecture team, was commissioned in September 2015 to perform a baseline survey of "Adjacent Artificial Habitats" within the proposed project area for characterizing the fouling communities inhabiting artificial structures and provide input to the breakwater's design process for maximizing ecological performance. The project site is located on the South Shore of Staten Island and in the adjacent waters of Raritan Bay. Raritan Bay is a shallow estuary that contains a variety of habitats for invertebrates and fish. It supports commercial fisheries, as well as the harvest of hard clams.

2.1 Purpose and Need

Staten Island is exposed to extreme wave action and coastal flooding during hurricane and other severe storm events due to its location at the mouth of the New York Bight, which funnels and increases the intensity of storm surge into New York Harbor, Raritan Bay, and the shoreline of Staten Island. The South Shore of Staten Island is vulnerable to coastal erosion and land loss. Consistent with the City's Coastal Protection Initiatives and planning studies for the Tottenville area, the goal of the Living Breakwaters Project is to reduce risk and coastal erosion along the shoreline in Tottenville, while enhancing ecosystems and shoreline accessibility and use. This goal would be achieved using a layered approach that would address wave action, impacts of coastal flooding and event-based (i.e., short-term/storm-related) and long-term shoreline erosion, while restoring and enhancing ecosystems, improving waterfront access and engaging with the community through educational programs directly related to the coastal resiliency actions.

Specifically, the goals and objectives related to the project's purpose and need are:

Risk reduction

- Attenuate wave energy.
- Address both event-based and long-term shoreline erosion / preserve beach width.

Social resiliency

- Foster community education on coastal resiliency directly tied to and building off the structural components of this resiliency initiative.
- Increase physical and visual access to the water's edge.
- Enhance community stewardship of on-shore and in-water ecosystems.
- Increase access to recreational opportunities.

Ecological enhancement

- Increasing diversity of aquatic habitats consistent with the Hudson-Raritan Estuary plan priorities (e.g., oyster reefs and fish and shellfish habitat).

2.2 Study Goals

The main goal of this study is to provide field data on fouling communities on artificial structures, within the proposed project area. The acquired data will be used to maximize the ecological performance and habitat creation opportunities of the Living Breakwaters, and provide science based input to the design and future planned monitoring program. The results of the study constitute a database of existing conditions with respect to the recruitment potential and biological assemblages on existing artificial habitats in the area – piles of rock and pier piles. The results of the study include species lists, microhabitat characteristics, and accumulation of biogenic growth, which will assist in the overall planning of the breakwaters with respect to distance from the shoreline, internal design, spacing of building units, and 3D underwater design.

The study area extends from the mouth of the Arthur Kill for approximately 2.5 miles east along the shoreline of Tottenville on the south shore of Staten Island, and from the shoreline out to the navigation channel.

In order to allow efficient ecological design of the Living Breakwaters that would provide maximal biological and ecological benefits (e.g., in terms of habitat creation opportunities, enhanced biodiversity, and provision of ecosystem services) data was gathered in two complementary surveys:

1) Describing the natural benthic assemblages in the immediate project area: communities of algae, invertebrates, and fish found on natural habitats in the region (rocky reef formations, soft bottom habitats etc.). This information was collected under the EIS and coordinated by AKRF.
2) Describing the fouling assemblages inhabiting man-made/artificial structures in the area: communities of algae, invertebrates, and fish found on artificial habitats such as pier piles / rock piles and buoys. This information was collected under the schematic design phase (30% design) by SeArc, and the following report summarizes these results (Table 1).

Together, results from the two surveys provide a full picture of the communities in the area on both natural and artificial habitats. Moreover, the two types of surveys will allow for more accurate definitions of biological and ecological targets/ goals from the Living Breakwaters system.

Table 1. General outline of work procedure.

Dates	Assignment	Location	Executed by
Sept 17th – 21st 2015	Field survey – sample collection, taxonomic sorting and identification, dry weight and ash free dry weight.	Staten Island	Dr. Ido Sella Tomer Hadary
Oct – Nov 2015	Data analysis – Point and Count, species identification, statistical analysis.	SeArc lab	Dr. Ido Sella Dr. Shimrit Perkol-Finkel Raviv Shirazi Tomer Hadary
Nov 30th 2015	Draft 1 submission	SeArc lab	Dr. Ido Sella Dr. Shimrit Perkol-Finkel Raviv Shirazi Tomer Hadary
Dec 9th 2015	Final submission		

2.3 Meteorology and Oceanography

Timing the survey in late summer/early fall was selected purposefully, as this is the period during which the majority of benthic organisms are at the peak phase of recruitment. Moreover, it was important to obtain and analyze the data before the end of 2015 in order to have the information and conclusions available for the planning and design stages of the Living Breakwater tasked for 2016.

The survey was conducted on Sep 17th – 19th onboard the Survey-Diving Vessel – *Angler II* chartered out of Great Kills Marina. Sea conditions varied during the survey: wave height 0.1-0.3m (<1ft); water temperature 25-26°C (~78°F); air temperature 25-26°C (~78°F); wind speed 10-20 knots; wind direction S (http://www.ndbc.noaa.gov/station_history.php?station=44065).

3 Material and methods

In order to examine the benthic communities developing on non-enhanced, typical, man-made structures (piles of rock and pier piles) in the area, six stations (AR1-AR6) were sampled for species richness, percent live cover, biodiversity, benthic biomass and biogenic buildup, within the study area (Table 2, Figure 1). Sampling stations for this survey included fully submerged artificial rock structures identified during the bathymetric survey (presumably an old sewage pipe, contact 0028), rock piles serving as foundations for the shipping canal lighthouses (Red 42, 52, and 58) and concrete pier piles (Dorothy Fitzpatrick Fishing Pier in Lemon Creek Park). These stations were the only locations identified as hard bottom habitat, adjacent to the proposed project area, from the Side Scan Sonar survey results conducted by 'Hill International' (Hill) and their subcontractor Aqua Survey International (ASI).

Red 50 Light steel buoy was sampled as a reference station. However, the buoy was apparently recently maintained (painted with antifouling coat) and its anchoring unit was within the dragged area of the shipping channel (deeper than 40 feet), therefore only a quick visual survey was conducted to determine a lack of habitat and data from this station was excluded from all analyses.

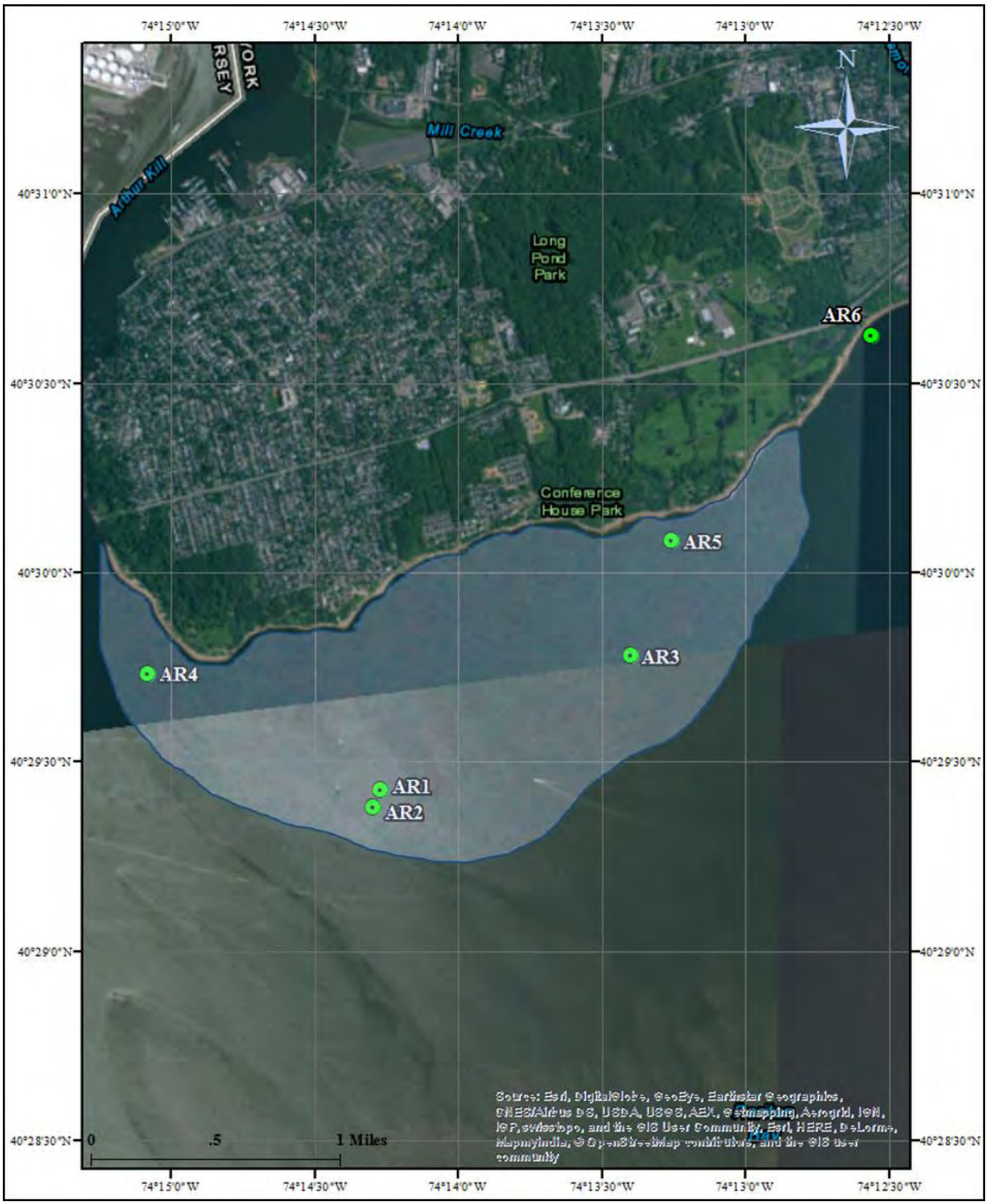


Figure 1. Adjacent Artificial Habitat, September 2015, Tottenville, SI, NY. Location of sampling stations – Green points, derived from the preliminary bathymetric survey. Station AR6, piles of a fishing pier, is a control station out of the proposed project area; Blue polygon is the area sampled by AKRF/ Normandeau in June and July 2015.

Table 2. Location, depth (bottom) and structure age of sampling stations. Note – station AR2 (highlighted in red) was sampled only visually, with no scraping. 'Contact' refers to numbers from bathymetric survey. Age information courtesy of Christopher Hudak and Jeff Yunker of the USCG.

Station	Map Identification	Longitude [W]	Latitude [N]	Depth [feet]	Age [years]	Structure
AR1	Red 52 Light	74.237765	40.490455	18	16	Rock Pile
AR2	Red 50 Light	74.238212	40.489700	>30	2.5	Steel Buoy
AR3	Red 42 Light	74.223290	40.496361	18	16	Rock Pile
AR4	Red 58 Light (contact 0015)	74.251265	40.495573	18	11	Rock Pile
AR5	Rock Pile (contact 0028)	74.220911	40.501436	4	Unknown	Rock Pile
AR6	Dorothy Fitzpatrick Fishing Pier	74.209307	40.510445	5	2.5	Pier pile

Sampling was conducted following the Hewitt and Martin (2001) protocols for detecting and quantifying species in ports and docks. In each station the work was conducted by 2 SeArc personnel (Principal Investigator (PI) + Scientific Diver) using SCUBA. Sampling began with a visual survey by both divers in order to locate the areas with the highest and most diverse benthic cover, and to identify and document motile invertebrates and fish that were not sampled within the quadrats (see below).

When the visual survey was complete, within each station 6 replicate samples of quadrats (metal frame) with a total surface area of 0.1m^2 (32cm X 32cm / 1.04'x1.04') were sampled at two depths: ~1m (~3') below MLW and ~1-2m (~3-7') above seabed. In shallow stations with <3m (10') bottom depth, only 6 quadrats in shallow depth were sampled. Quadrats were photographed using a Canon G15 digital camera with a fisheye lens and then scraped into a nylon bag (Ziploc) using a metal scraper. Large or fragile organisms were placed separately according to the instructions of the PI (Figure 2). The scraped material was sorted onboard and preserved on ice. Shortly thereafter, the preserved samples underwent enumeration and identification of the benthic organisms to the lowest practical taxon. Dry weight (60°C / 140°F for 72 hours) and ash free dry weight (450°C / 842°F for 6 hours) were measured for the biomass and biogenic growth analyses following Perkol-Finkel et al. (2006) (Figure 3 & Figure 4).

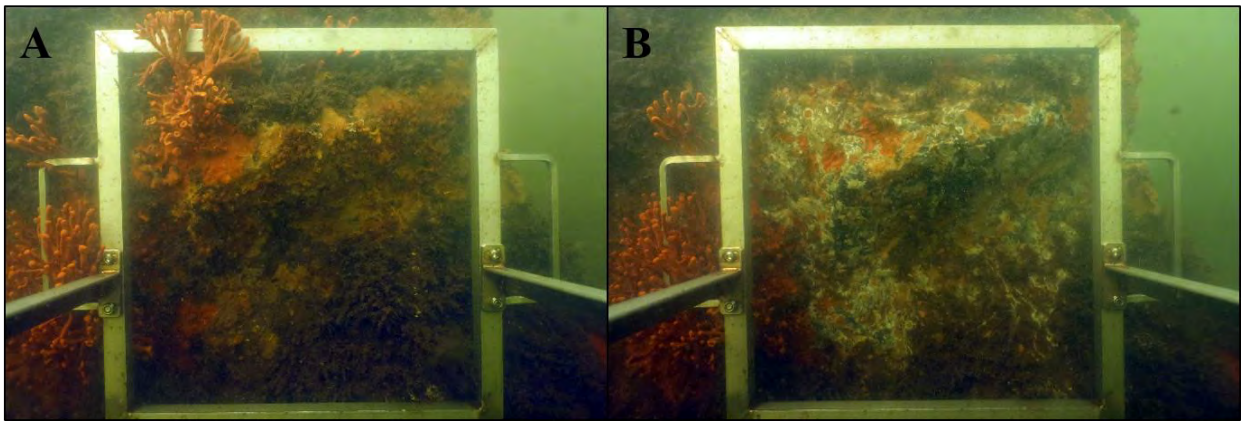


Figure 2. Example of quadrat scraping – [A] pre scraping; [B] post scraping.

Figure 3. An example of scraped mass from one of the stations.

Figure 4. Samples packed and marked for dry weight process.

At the lab, the fisheye lens distortion was corrected using Adobe Photoshop CS6 and the images were analyzed by CoralNet, a point and count software (Beijbom et al., 2012). The point generation method was a 10x10 grid of cells with one randomly generated point at each cell, thus creating 100 scattered points and avoiding "clouds" of points (Figure 5 & Figure 6). When photos annotation was completed, percent cover of different taxa and bare substrate were calculated. Taxa identification was done to species level when possible, or to a higher taxonomic levels or functional groups; organisms that could not be identified using photos (e.g., macro-algae or oysters) were divided into functional groups. In addition, each taxon was evaluated as to whether it is an introduced (alien) species, and if so, its degree of invasiveness, following the below EPA definitions:

Introduced Species – A species that has been intentionally or inadvertently brought into a region or area. Also called an exotic or non-native species.

Invasive Species – A type of plant, animal, or other organism that does not naturally live in a certain area but has been introduced there, often by people. An invasive species can spread quickly, especially if it has no natural predators in its new home. An invasive species can hurt native species, disrupt ecosystems, and create problems for people. (http://www3.epa.gov/)

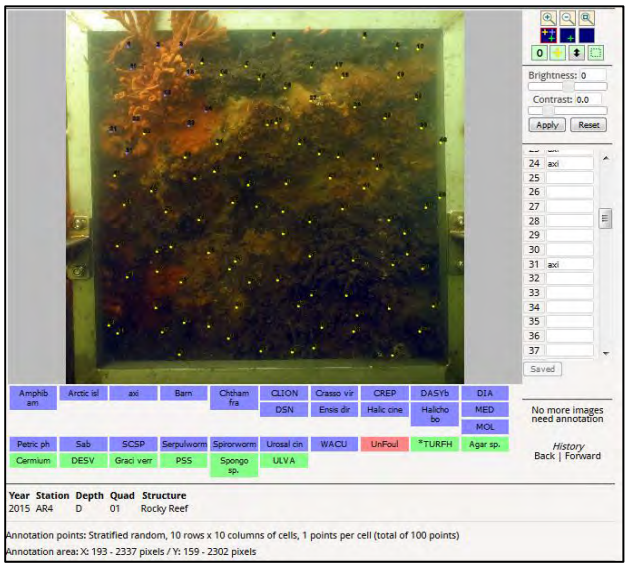


Figure 5. A screenshot of the point & count work process in CoralNet.

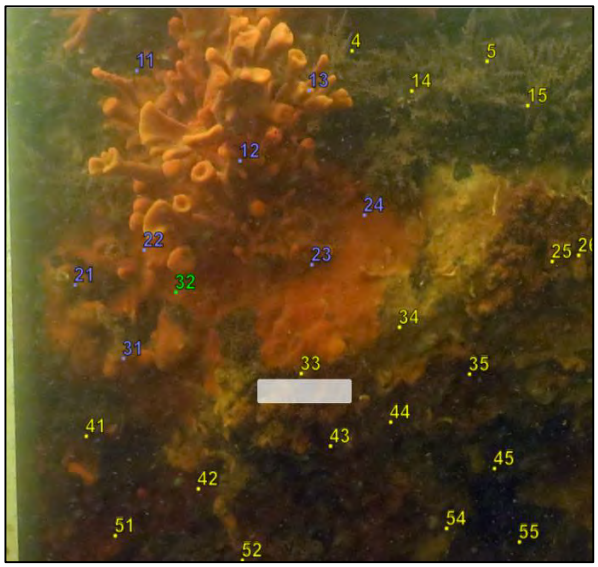


Figure 6. Zoom-in on the left corner of figure 5, showing annotation points: purple – annotated; yellow – not annotated; green – under review.

3.1 Statistical Analysis

Average cover of each taxon per site from the 6-12 replicate quadrats was calculated. Each sample underwent a sample-specific census profile of the number of identified taxa. The resemblance among the census profiles from the monitoring underwent statistical analyses using the PRIMER V6.1.13 (Clarke and Gorley, 2006) and PERMANOVA+ V1.0.3 programs (Anderson et al., 2008; Clarke et al., 2008).

Statistical analyses included univariate 1-way PERMONOVA tests, based on Euclidian Distances similarity index for species count, biomass and Shannon Wiener biodiversity index, as well as multivariate data analyses of taxa assemblages by a-parametric PERMANOVA tests, based on the Bray-Curtis Similarity Index. Post-hoc pair wise tests were applied where relevant.

MDS and Cluster plots were used to graphically represent trends in the multivariate data. Cluster analyses included a SIMPROF test that indicates the statistical significance of the various clusters in the plot. In addition, SIMPER analyses were conducted, highlighting the taxa responsible for the similarity within each station and for taxa differentiating between stations.

4 Results

This section summarizes the detailed Adjacent Artificial Habitat sampling results, taxonomic analyses, biomass accumulation, percent live cover, and a general species list. A total of 48 quadrats were sampled in the September 2015 survey. In stations AR1, AR3 and AR4 both 6 shallow quadrats and 6 deep quadrats were analyzed; and at AR5 and AR6 only 6 shallow quadrats were analyzed due to the shallow water depth at the sites. As mentioned above, station AR2 did not have a structure that could be sampled using quadrats, thus only a general survey was conducted.

4.1 Live Cover, Biodiversity, Species Richness and Biomass

A total of 43 taxa were observed in the six sampling stations – 8 algal species, 29 invertebrates, 4 fish, and 2 birds (Table 3, Figure 7). Seven of the invertebrate species were identified as introduced (alien) species, out of which one is classified as invasive, two are non-invasive, and the rest are uncertain. Full statistical analysis can be found in Appendix B.

Out of the total of 43 taxa, only those that were physically found in the scraped mass are referred to in all analyses.

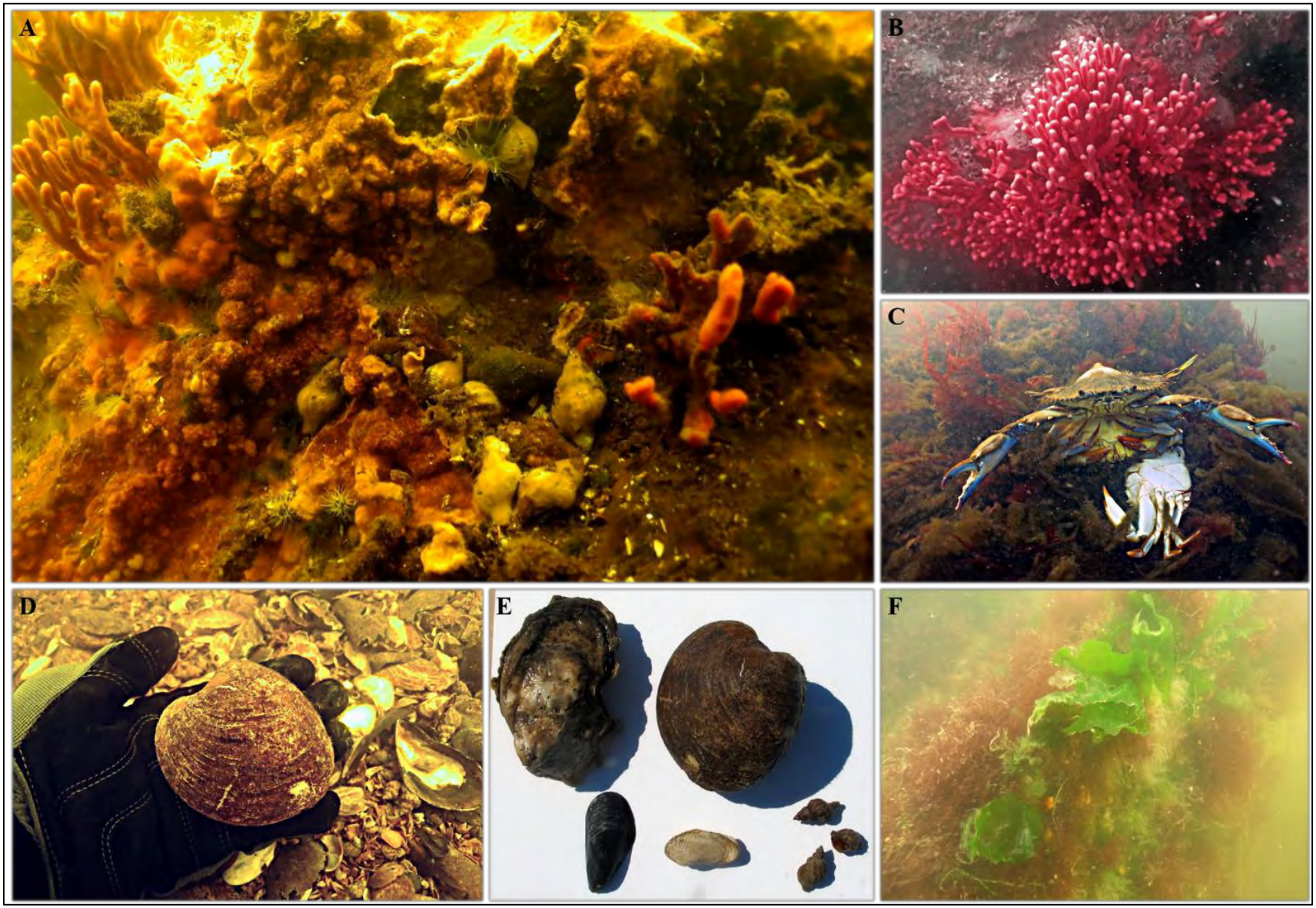


Figure 7. Adjacent Artificial Habitat, September 2015, Tottenville, SI, NY. Taxa that were identified at all stations. [A] General view of the habitat on the rock piles in the various stations, including – sponges, anemones, shellfish bryozoans and other invertebrates; [B] Branching sponge – *Axinella* sp.; [C] Blue crab – *Callinectes sapidus* [D] Black clam – *Arctica islandica*; [E] Assorted shellfish; [F] Sea lettuce – *Ulva* sp. and Agardh's red weed – *Agardhiella* sp.

Table 3. Adjacent Artificial Habitat, September 2015, Tottenville, SI, NY. Complete list of taxa identified at all six stations. Markings: [*] – alien species with uncertain invasiveness; [*$^{-}$] – non-invasive alien species; [*$^{+}$] – invasive alien species; [V] – presence of the taxa inside the scraped area of the quadrat; [O] – presence of the taxa at the visual survey only; empty cells indicate that the taxa was not found at that station. Species invasiveness information from Pagad et al. (2015).

Taxa	Common Name	Species	AR1 D	AR1 S	AR2	AR3 D	AR3 S	AR4 D	AR4 S	AR5 S	AR6 S
Algae	Agardh's red weed	*Agardhiella* sp.			O					V	V
Algae	Banded weeds	*Ceramium* sp.		V	O		V				
Algae	Turf	*Turf algae*		V	O	V					V
Algae	Stringy acid kelp	*Desmarestia viridis*		V					V		
Algae	Ceylon moss	*Gracilaria verrucosa*					V				
Algae	Pitcher Siphon Weed	*Polysiphonia stricta*						V			
Algae	Green sea fern	*Spongomorpha* sp.					V				
Algae	Sea lettuce	*Ulva* sp.		V	O		V		V	V	
Invertebrates											
Arthropoda	Horseshoe crab	*Limulus polyphemus*$^{*-}$									O
Ascidiacea	White crusts	*Didemnum* sp.*			O						V
Ascidiacea	Sea Grape	*Molgula manhattensis*			O						
Bivalve	Black clam	*Arctica islandica*	O			O		O		O	O
Bivalve	Common oyster	*Crassostrea virginica**	O								
Bivalve	Common razor clam	*Ensis directus*	O								
Bivalve	Blue mussel	*Mytilus edulis*	V		O	V					
Bivalve	Angel wing	*Petricola pholadiformis*	V							V	
Bryozoa	Red crust	*Schizoporella* sp.	V		O	V				V	V
Bryozoa	Bryozoa	*Watersipora cucullata*	V		O	V	V	V	V	V	V
Cnidaria	Orangestriped green anemone	*Diadumene lineata*$^{*-}$	V		O			V		V	
Crustacea	Barnacles	*Amphibalanus* sp.*$^{+}$	V	V	O	V		V	V	V	V
Crustacea	Little gray barnacle	*Chthamalus fragilis*		V		V		V	V	V	V
Crustacea	Short belly crab (juv)	*Short belly crab (juv)*	V								

Crustacea	Blue crab	*Callinectes sapidus**	O	O	O	O	O	O	O	O	O
Crustacea	Green crab	*Carcinus maenas**	V								
Gastropoda	Common Atlantic slippersnail	*Crepidula fornicata*		V	O						
Gastropoda	Common Limpet	*Testudinalia testudinalis*			O						V
Gastropoda	Mud dog whelk	*Nassarius obsoletus*	V	V		V	V	V	V	V	V
Gastropoda	Oyster drill	*Urosalpinx cinerea*	V	V		V	V	V	V	V	V
Polychaeta	Tube worm	*Dasychone bairdi*	V	V	O			V	V		V
Polychaeta	Bristle worms	*Polychaeta worm (mobile)*		V		V	V			V	V
Polychaeta	Fan worms	*Sabellidae*				V		V	V	V	
Polychaeta	Calcareous tubeworm	*Serpulidae worm*	V		O	V		V		V	V
Polychaeta	Hard tube worms	*Spirorbid worms*						V			
Porifera	Branching sponge	*Axinella* sp.	V		O	V		V		V	
Porifera	Boring sponge	*Cliona* sp.	V								
Porifera	Bowerbank's halichondria	*Halichondria bowerbanki*			O					V	V
Porifera	Haliclona	*Haliclona (Reniera) cinerea*	V		O						
Fish											
Actinopteri (Fish)	Inland silverside	*Menidia beryllina*		O					O		
Actinopteri (Fish)	Oyster toadfish	*Opsanus tau*						O			
Actinopteri (Fish)	Spotfin butterflyfish	*Chaetodon ocellatus*	O		O			O			
Actinopteri (Fish)	Tautog	*Tautoga onitis*						O			
Birds											
Laridae	Seagulls	*Larus* sp.	O	O	O	O	O	O	O		
Phalacrocoracida	Cormorant	*Phalacrocorax* sp.	O	O	O	O	O	O	O		

A total of 30 taxa were identified and sorted from the scraped mass (8 algae and 22 invertebrates). In the shallow sampling 25 taxa were found, whereas in the deep sampling only 21 taxa were found. Apart from clear differences in the total number of taxa, there were significant differences in the taxa composition between the two sampled depths (PERMANOVA, *df*=1, Pseudo F=4.8699, P=0.006; Figure 8). For example, the most abundant taxa in the shallow samples were algae, while in the deep samples the most abundant taxa were polychaetes, with only two algae taxa being found.

Statistical analyses of the dry weight samples revealed significant differences between the sampled stations (PERMANOVA, *df*=4, Pseudo F=11.394, P=0.001) and the sampled depths (PERMANOVA, *df*=1, Pseudo F=6.519, P=0.015). Post-hoc analysis did not indicate any specific station as being responsible for the differences in dry weight; moreover, 3 pairs out of 10 showed no significant differences (Pair-wise: AR1, AR6 P(MC)=0.12; AR3, AR4 P(MC)=0.399; AR5, AR6 P(MC)=0.141).

Cross examination of the taxa richness and biomass data per station did not reveal any specific trend (Figure 9). For example, station AR3 S that offered the lowest dry weight (10.76±5.49), had a relatively high taxa number (12). The highest values, both for dry weight (210.82±115.05) and taxa number (15) were found in station AR5 S. This station, was the only one to offer shallow water areas with horizontal sampling surfaces (as opposed to other stations with only vertical or steeply inclined shallow water sampling area). This issue is further discussed below in the 'Discussion and General Observations' chapter.

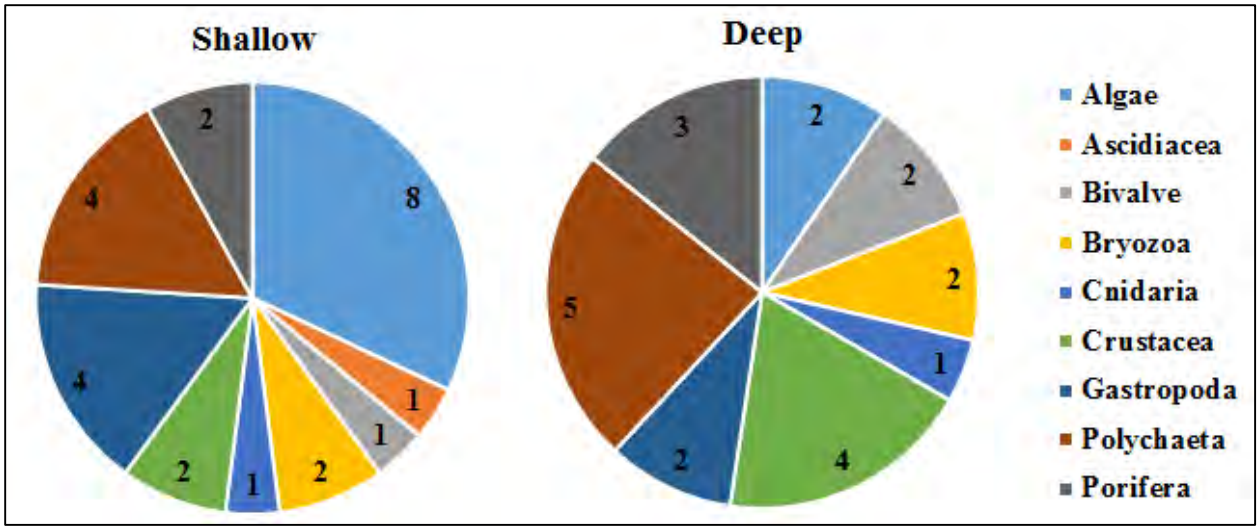


Figure 8. Adjacent Artificial Habitat, September 2015. Relative abundance of each taxa at the two sampling depths.

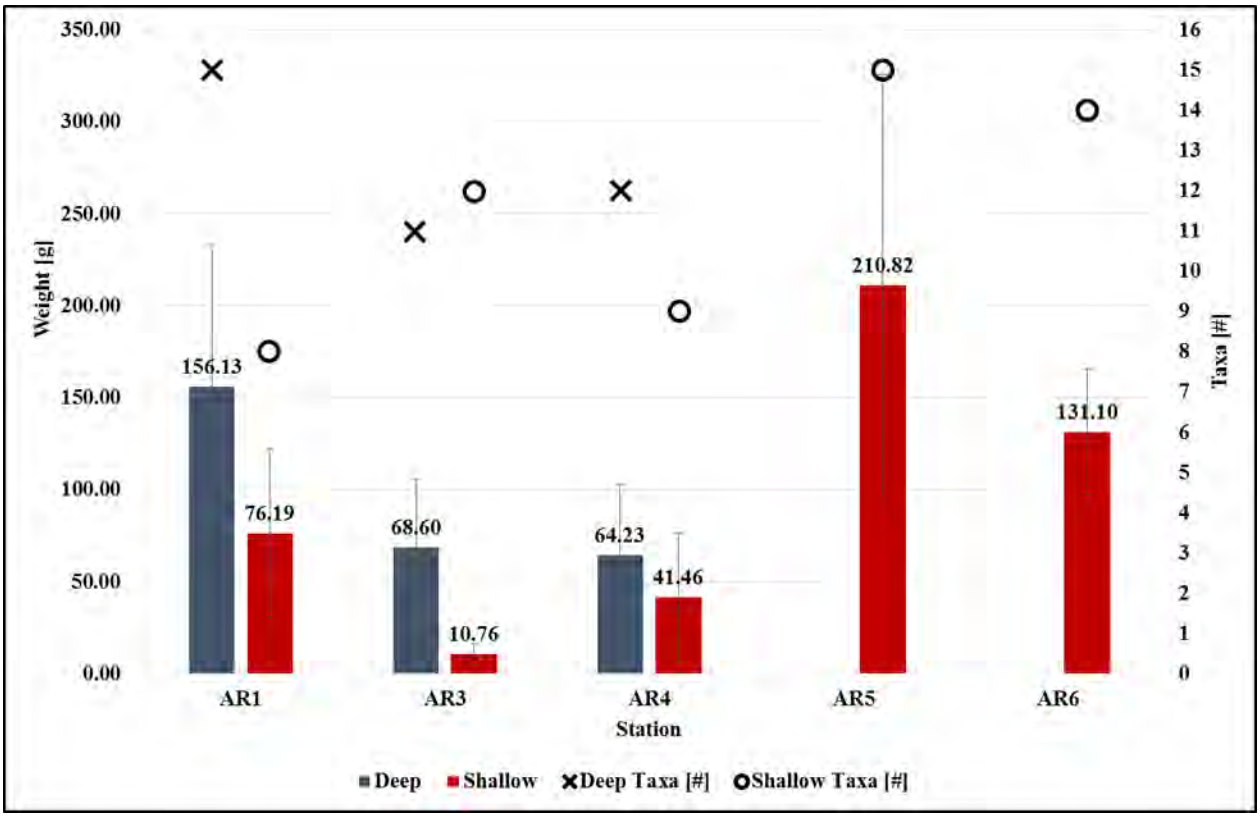


Figure 9. Adjacent Artificial Habitat, September 2015. Average dry weight and total number of taxa in the sampled stations. Error bars represent standard deviation.

Dry weight vs organic and inorganic (ash) weights are presented (Table 4) as a pool from all stations, in order to provide a datum that can be used during the design process. A total of 4,458.06 gr in dry weight were collected from a total area of 4.5 m^2 (48.672 ft^2). From this,

3,410.5 gr were inorganic weight (ash) and 1047.56 gr consisted of organic material. This inorganic-organic ratio of approximately3:1, translates to nearly 1 kg (990.68gr) of material per m^2 (20.35gr/ft^2) composed of 757.89 gr of inorganic weight (15.57gr/ft^2) and 232.79 gr (4.78gr/ft^2) of organic substance.

Table 4. Total dry, organic and ash weights.

Weights [gr]	Dry Weight	Ash	Organic
Total	4458.06	3410.5	1047.56
Per Square Meter	990.68	757.89	232.79
Per Square Foot	20.35	15.57	4.78

4.2 Point and Count

The average number of species (S values, Figure 10) differed significantly among stations (PERMANOVA, *df*=4, Pseudo F=2.8891, P=0.032) and between sampling depths (PERMANOVA, *df*=1, Pseudo F=27.605, P=0.001) with deep samples presenting higher values.

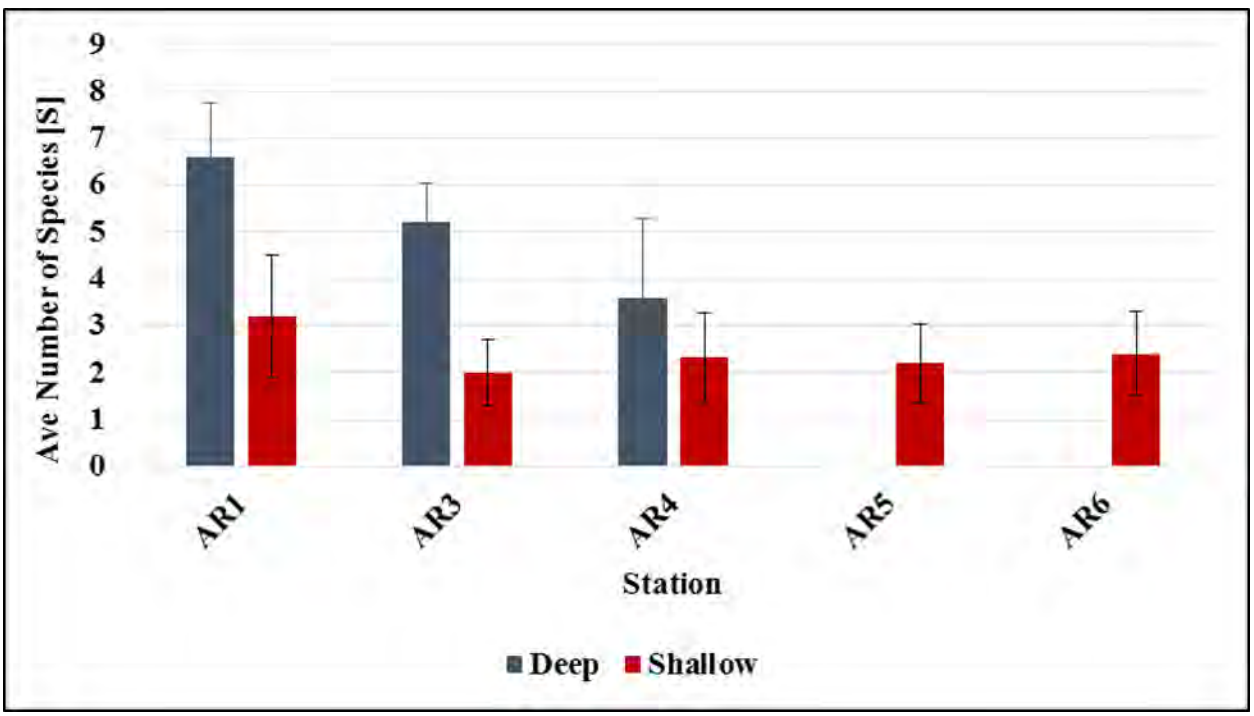


Figure 10. Adjacent Artificial Habitat, September 2015. Average number of species per station. Error bars represent standard deviation.

Species diversity (Shannon Weiner Index – H', Figure 11) differed significantly between sampling depths (PERMANOVA, *df*=1, Pseudo F=37.678, P=0.001) with deep samples presenting higher values; however, there were only marginal differences in H' values between

sampling stations, (PERMANOVA, *df*=4, Pseudo F=2.7645, P=0.05). Further analyses revealed significant differences only between stations AR1 and AR3 (Pair-wise, t=2.7074, P(MC)= 0.015) and between stations AR3 and AR6 (Pair-wise, t=2.8399, P(MC)= 0.02). Full statistical analysis can be found in Appendix B.

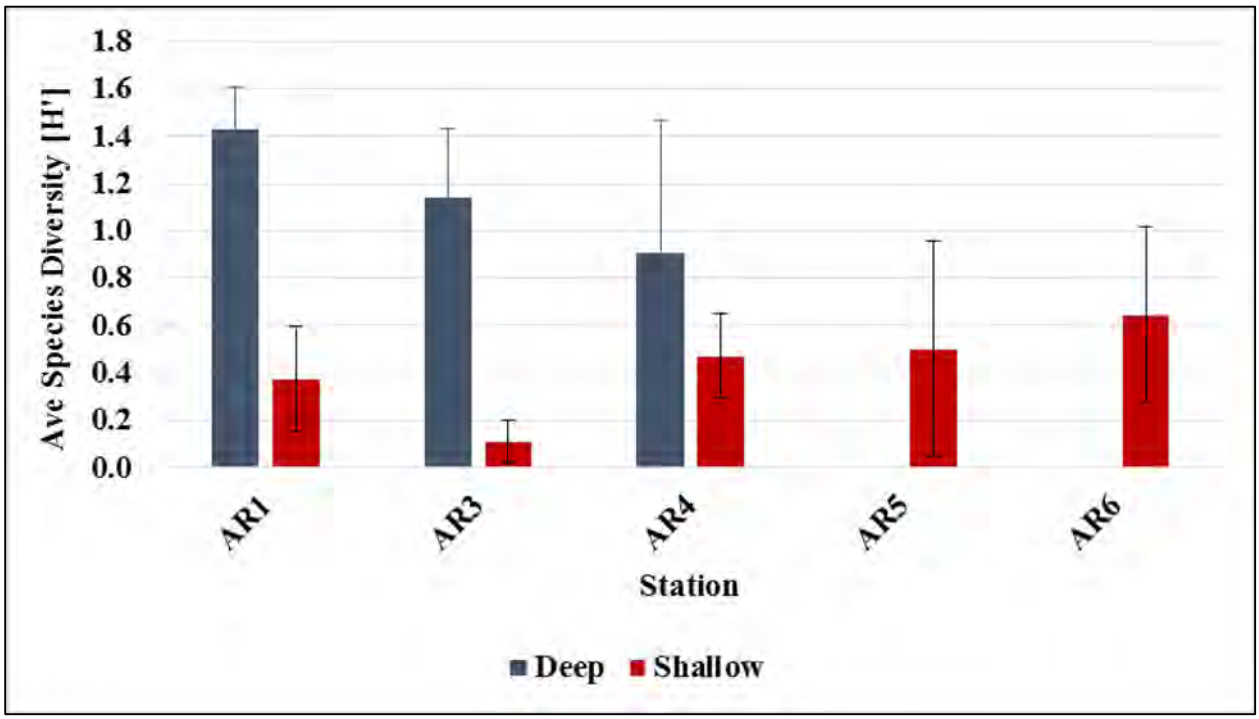


Figure 11. Adjacent Artificial Habitat, September 2015. Average species diversity index (Shannon H') per station. Error bars represent standard deviation.

When examining the full community structure of the sampled stations, significant differences are found between stations and sampling depths (PERMANOVA, P=0.001 for both). Furthermore, there was no trend in the differences of the community structure, as indicated by the "station X depth" analysis (PERMANOVA, *df*=2, Pseudo F=5.243, P=0.002). It is also evident that all stations differ significantly from one another, except to AR1 and AR4 (Pair-wise, t=1.4453, P(MC)= 0.149). The differences are clearly illustrated in the MDS plot and in the cluster dendrogram (Figure 12 and Figure 13, respectively). Full statistical analysis can be found in Appendix B.

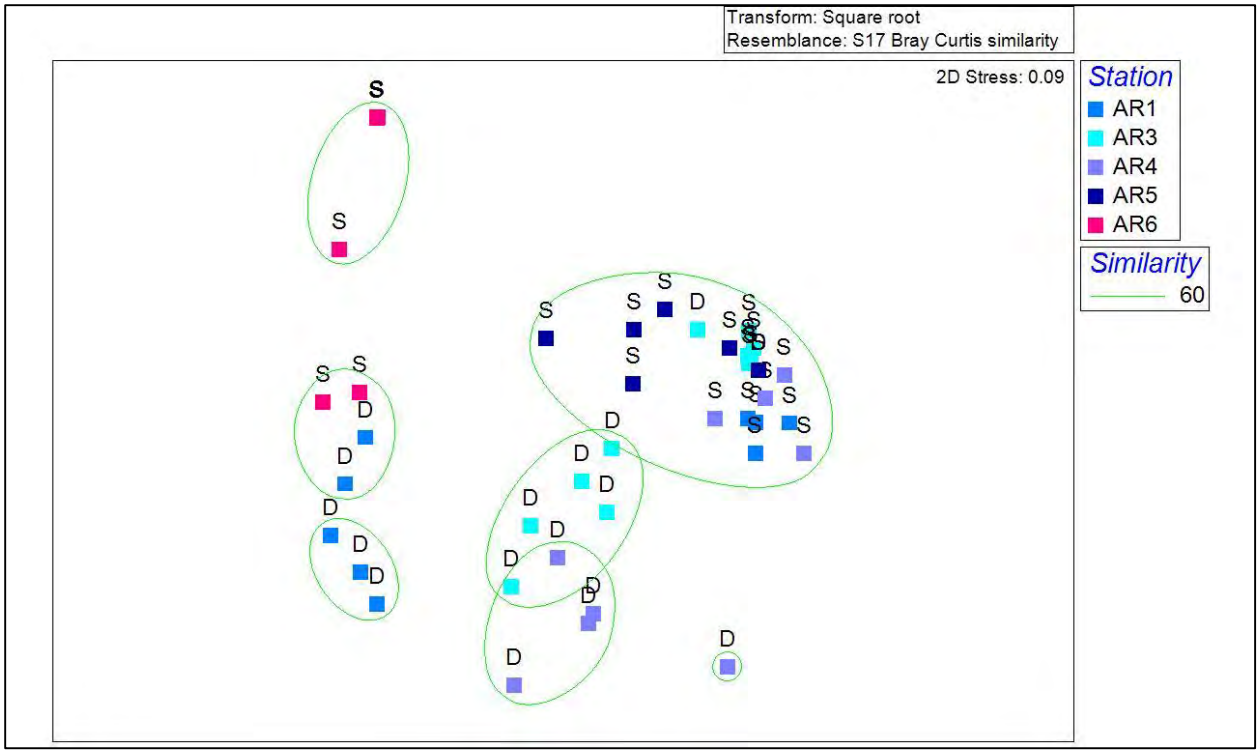


Figure 12. Adjacent Artificial Habitat, September 2015. 2D MSD analysis of each station. Superimposed: 60% similarity level clustering.

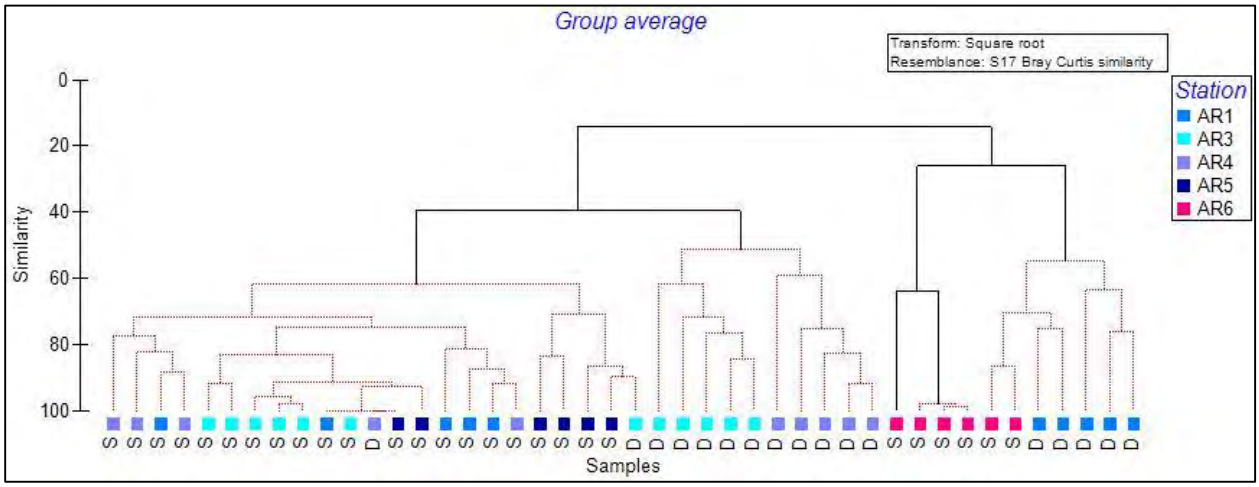


Figure 13. Adjacent Artificial Habitat, September 2015. Cluster analysis. SIMPROF analysis indicates all significant differences (P <0.05) between each of the samples, red being non-significant and black being significant difference.

5 Discussion and General Observations

The survey revealed rich, hard substrate, man-made habitats, with a total of 43 taxa in the six sampling stations including algae, invertebrates, fish, and birds. Only marginal differences in species diversity (Shannon Weiner Index – H') between sampling stations were found, however species diversity differed significantly between deep and shallow stations. Shallow habitats offered higher species richness than deep ones (25 vs 21 species), from total species count of scraped material that was analyzed after retrieving from the water, including mobile organisms that are not included in the point& count analysis. The opposite trend was noted from the point & count analysis (deeper>shallow), which only reflect sessile organisms on the substrate surface, and cannot identify organisms that are covered by algae or other organisms. Algae were dominant in the shallow areas while in deep ones, the most abundant taxa were Polychaetes. The algal abundance in the shallow stations is most likely due to greater light penetration in this zone, combined with a noted supply of nutrients from bird activity on the structures (see below).

Dry weight samples revealed significant differences between stations and depth, with no apparent relation between values of dry weight and the number of taxa. These differences can be attributed to environmental differences between the sampled sites, and due to the range of structures sampled (breaching lighthouses, pier piles and underwater rock pile). Examination of the organic/inorganic ratio in the samples reveled an overall ratio of approximately1:3 with almost 1kg of dry weight per m^2, of which 75 percent were of inorganic material and only 25 percent of organic. Although not all inorganic material is calcium carbonate deposition on the substrate which directly contributes to biogenic build up, these values present noteworthy biogenic buildup capabilities in the area. This is supported by the fact that the most common species found during the survey are known for their significant calcium carbonate deposition capabilities, such as barnacles, bryozoans, tube worms, and oysters.

The age of the structures sampled varied from 2.5 to 16 years, and no clear data on maintenance was available. As a result, obtaining values for rates of biogenic build up was difficult. Nonetheless, the fact that AR6 (Dorothy Fitzpatrick Fishing Pier), the youngest station sampled (2.5 y), presented one of the highest dry weight values found in shallow waters suggests that rates are generally quite high in the area. Furthermore, dry weight values obtained in the current survey are comparable to values found in the literature from areas characterized by the

formation of biogenic reefs both in the tropics (coral based) and in temperate environment (mostly bivalves based) (Perkol-Finkel and Sella, 2014).

5.1 General Observations

The following are observations made by the survey team during the field work, and were recognized as important input for the design process. Only observations that were repeated at more than 60% of the stations were included below, and although these are not a quantitative data, they are considered as important input yielded from the restricted sampling effort.

Due to the basic rock-mound design of the planned breakwaters, most of the observations below came from the four rock pile structures which were inspected in this survey (AR1, AR3, AR4 and AR5; Figure 14), three surface protruding structures (shipping canal lighthouses- Red 42, Red 52, and Red 58) and one fully submerged artificial rock structure (that appears to be the remains of an old sewage pipe- contact 0028).

5.2 Spacing between Building Units

In all rock piles surveyed, surveyors noted clear differences in the composition of species associated with different size spacing between rocks (Figure 14B, F-H). This observation was repeatedly noted at the base of the shipping canal lighthouses. Different size crevices and caves that create sheltered habitats for different size organisms and provided overhangs and ledges were utilized by cryptic species. Rock spacing varied from 1-30 cm (0.5-12 inches) to 0.5-1 m (20-40 inches), with some locations that had more than one opening exposed to the open waters. The larger crevices were especially rich in abundance and richness of fish species as well as motile invertebrates. The bases of the lighthouses were made of larger rocks than the top portions, resulting in more open spaces between units in the deeper portions of the structure. This area also presented divers a larger range of space sizes, as smaller rocks from the top settled between the larger rocks and served to increase complexity. It is important to note that no detached rocks were noted around the structures, suggesting an appropriate design and/or a well maintained structure.

5.3 Orientation of Substrate

According to the sampling protocol, sampling of quadrates was conducted in areas with the highest and most diverse observed benthic cover. At the end of the survey it was noted that 42 out of the 48 quadrates sampled were from vertical or steeply inclined surfaces (Figure 14E). Only station AR5, an underwater rock pile with no vertical surfaces, was large enough for the sampling quadrate, vertical quadrates were not chosen for sampling and horizontal ones were photographed. This is a clear indication for the effect of substrate orientation on the diversity of benthic cover in the area.

Apart from the diversity of the observed benthic cover, one of the most noted differences between substrate orientations was sediment accumulation. It seems that vertical surfaces accumulate less sediment then horizontal ones (the term "vertical" is referring to the overall orientation of substrate, which is an uneven rock surface with different micro habitats – cracks, ledges, indentations and overhangs). At the time of the survey (Sep 15), the most heavily sedimented areas were in the first few feet of water (1-3 ft. deep). This is mainly due to the high algal cover at these depths, which captures the sediment more effectively than the fouling community deeper in the water column. This finding is probably a temporal phase as sediment loads in the area vary with the seasonal changes in wind and currents, as is the algae cover.

Although vertical surfaces showed higher cover in general, it is important to note that the highest values, both for dry weight and taxa number (15), were found in shallow water at horizontal sampling areas of station AR5 S. This station was the only site that presented horizontal shallow substrates as opposed to the lighthouses stations that had vertical or steeply inclined shallow water habitat due to their structural design. The dominance of near vertical surfaces in manmade coastal structures is well documented (Dugan et al., 2011; Firth et al., 2014 and reference therein), as moderate sloped / horizontal habitats are usually poorly represented in man-made coastal and marine infrastructure. Since these habitats are known for supporting high biodiversity and species richness, their presence should be addressed during the breakwaters design process.

5.4 Structure's Sediment "Halo"

All fixed hard substrate stations sampled in this survey had a distinct halo around them, composed of broken shells and other calcium carbonate fractions originating from marine

organisms (Figure 14D). Such a halo or mound is typical to offshore structures and can be seen on breakwaters, jetties, and oil rigs (Schroeder and Love, 2004). The width of the "calcium fractions belt" differed between stations, where the lighthouses presented roughly the same width of ~10m (30f), the concrete pier piles ~3m (9f) and the underwater rock pile (AR5) ~1m (3f). This belt creates a unique habitat where the edge of the hard substrate connects with the sediment. Due to the relatively large grain size within this halo, biogenic material does not seem to clog the crevices in the structure (as might have been the case if finer grain size sediment was found in the area). Therefore, this halo seems to provide additional habitat for cryptic species (Figure 14C), and potentially contributes to reducing the overall sedimentation of the structure, which is often found near the bottom. This, in effect, opens the lower parts of the structure to colonization of organisms which are less tolerant to high sedimentation loads, such as encrusting bryozoans and calcium carbonate secreting tube worms (Serpulidae), both of which are high contributors to biogenic buildup processes.

5.5 Birds

Nesting and feeding birds were observed in all surveyed stations that had protruding surfaces (Figure 14A). This was especially noted on the three lighthouses that had fishing and nesting Cormorants (*Phalacrocorax* sp.) and Seagulls (*Larus* sp.). It seems that bird activity (droppings and carcasses) is a major source for nutrients flushed from the top of the structure, through the intertidal zone and into the water. This nutrient flush, together with high light penetration in the shallow waters around the lighthouses, can potentially account for the high species richness and cover of algae and incrusting sponges that was noted in shallow waters. During the design phase, protruding structures in the area should be designed in order to reduce risk on one hand, and increase the habitat availability on the other, especially for targets species like osprey, boobies, and gannets.

5.6 Fishing Activity

All surveyed stations had notable fishing debris such as fishing lines, hooks, and torn mooring lines. Fishing activities onshore and from boats were noted over the course of the survey, with a distinct increase over the weekend (during the day), when fishing boats (up to 3 at the same time) were moored around each of stations AR1-5, and over a dozen fishermen (at the

same time) were present on AR6 (Dorothy Fitzpatrick Fishing Pier). During the design phase this aspect of recreational fishing activity will need to addressed, in terms of reducing the risk of fishing debris to the developing biological communities, the potential impact of selective fishing on different species, and the safety of users.

Input for Design:

Spacing Between Building Units – Different spacing sizes between rocks corresponded to different species assemblages. Rock spacing varied from 1cm (0.5-inches) to 1m (40 inches). Some of the formed spaces had more than one opening to the water column. Areas that had a variety of spacing sizes had the greatest diversity and abundance of both fish communities and motile invertebrates.

Orientation of Substrate – Within the intertidal zone, horizontal surfaces had a larger quantity and more diverse observed benthic cover than vertical and steeply inclined surfaces. Below the intertidal zone, the opposite was noted, with vertical or steeply inclined surfaces presenting higher cover and diversity than horizontal ones.

Structure's Sediment "Halo" – All hard substrate structures sampled were surrounded by a belt of broken shells and other calcium carbonate fractions originating from marine organisms. This should to be addressed with respect to benthic habitats in the vicinity of the proposed structures.

Birds – Nesting and feeding birds were observed on protruding surfaces of the structures, and were noted as a source for nutrients within the intertidal zone. Increased nutrients, combined with high light penetration in the shallows, are regarded as the key reason for the high species richness and cover of algae in the intertidal area. Future design of protruding structures should address bird habitat creation that can support increased biodiversity, more complex food chains, and increased nutrients flux.

Fishing Activity – Fishing activities and associated debris were noted around hard structures in the area. The design will need to address fishing activities in terms of reducing the amount of debris, impact of selective fishing, and issues of user safety. In addition, any monitoring activity should address fishing activities that might affect data quality.

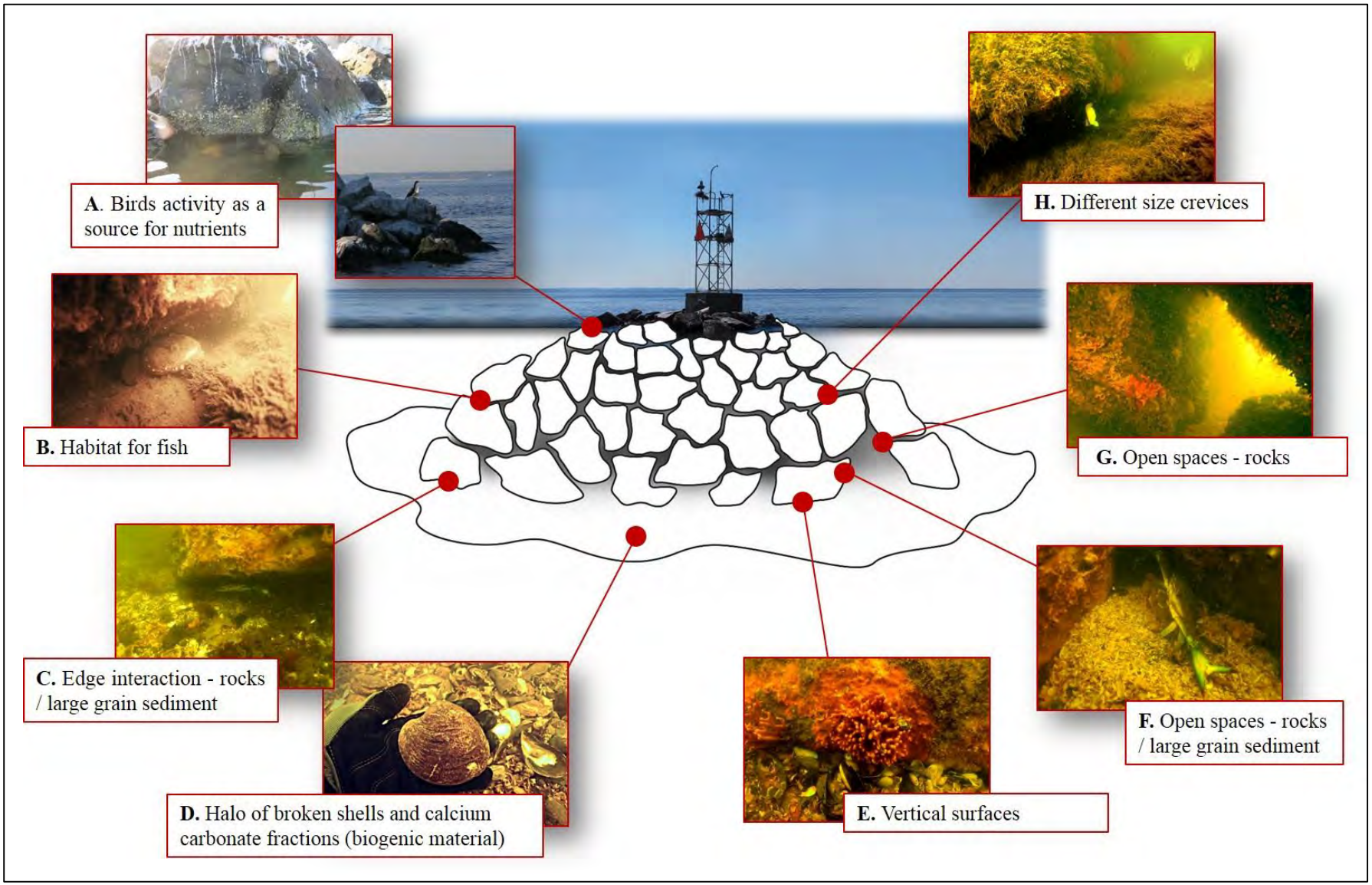


Figure 14. Adjacent Artificial Habitat, September 2015. Observations of biological community on artificial structures in the area. [A] Nesting and feeding birds; [B] Different size sheltered habitats; [C-D] Interactions of hard structure with halo of broken shells and calcium carbonate fractions originated from dethatched marine organisms; [E] Sublittoral vertical or steeply inclined surfaces presenting high cover and diversity; [F-H] Different size spacing between rocks corresponded to different species assemblages.

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