

Appendix A
New Jersey Scientific Collection Permit



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 Division of Fish & Wildlife
 P. O. Box 400
 Trenton, N.J. 08625-0400
 David Chanda, Director
 njfishandwildlife.com

Date Issued: 04/23/07
 Number: 0749

JON S. CORZINE
 Governor

LISA P. JACKSON
 Commissioner

03/23/07 to 12/31/076

SCIENTIFIC COLLECTING PERMIT

TO WHOM IT MAY CONCERN:


Under provisions of New Jersey Statutes Annotated Title 23:4-52, permission is hereby given to:

Captain Aleksandr C. Modjeski, ENSR Corporation, 20 New England Avenue, Piscataway, NJ 08854 to collect alewife and blueback herring, white perch and other estuarine fish species that may use the outfall structure (see attached scope of work) from Wreck Pond. Gear to be used will be 1 fyke net with 25' to 30' wings, 5 hoops with 2 throats 4' high with 4' x 4' opening, 1" stretch mesh 15' in length, and one (1) 30' haul seine with 1/4" mesh (nylon) 4' high with a bag 4' x 4' x 4' set in Wreck Pond. No vessels will be used.

This permit is subject, but not limited to, the following conditions:

1. The person(s) named herein shall have this permit in their possession when collecting scientific specimens in marine, fresh, or estuarine waters of the State and must present it upon request to any official or citizen.
2. The holder of this permit shall notify the Marine Law Enforcement Region Office of his/her scientific collecting activities in any of the State's marine, fresh, or estuarine waters at least 24 hours in advance of their activities. Notification can be made in writing to the Marine Enforcement Office, P.O. Box 418, Port Republic, NJ 08241, or by calling 609-748-2050.
3. A report of the organisms collected (species, numbers, specific location where taken, dates of sampling) or a final report for the study for which the permit is requested shall be sent to the Administrator, Marine Fisheries, P.O. Box 400, Trenton, NJ 08625, within four (4) weeks of the expiration date or upon request for permit renewal, whichever is earlier.
4. The provisions of this permit may not apply to any of the species listed by the United States Government as endangered. Special provisions may apply for certain of these endangered species.

5. This permit does not convey the right to trespass.
6. Violation by the permittee or subsidiary permit holders of any condition of the permit or any state law or regulation promulgated pursuant to N.J.S.A. 23 or 50 or N.J.A.C. 7:25 or 7:25A shall render this permit null and void and subject all parties to prosecution in addition to permit revocation upon conviction. Applications for future permits may also be denied.
7. The holder of this Scientific Collecting Permit is also required to have in his/her possession a "Special Permit for Research" from the Division of Watershed Management, Bureau of Marine Water Monitoring, P.O. Box 405, Leeds Point, NJ 08227, prior to the taking of shellfish (clams, oysters, mussels) for scientific purposes from the marine or estuarine waters of the State that are designated "Prohibited," "Special Restricted," or "Seasonal Special Restricted" (N.J.S.A. 58:24-3, and N.J.A.C. 7:12-2). A chart of these designated waters may be obtained from the Bureau of Marine Water Monitoring.


Thomas W. McCloy, Administrator
Marine Fisheries Administration

cc
c: Marine Enforcement Region Office
Mark Doblebower, Chief, Bureau of Law Enforcement
Lt. Roy Bubigkeit, NJ State Police
Marion Petruzzi, Bureau of Marine Water Monitoring

Subsidiary Student or Employee Permit Holders:
Melissa Smith
Mike Hauser
Andrew Hasse
Patrick Swain
Rosario Zaccaro
Jennifer Reed

Appendix B
Photograph Log



Photo 1: View showing sign posted on the south bank of the sample site. Sign states "Scientific Research – Do Not Tamper With Nets", along with contact phone numbers including 1-800-WARN-DEP and the direct contact number for the ENSR project manager.



Photo 2: View of the sign posted on the north bank. Both signs are identical.



Photo 3: View looking west from beneath the railroad bridge showing the typical fyke net set at low tide. The cod end of the net is attached to the anchored post located next to the orange buoy.

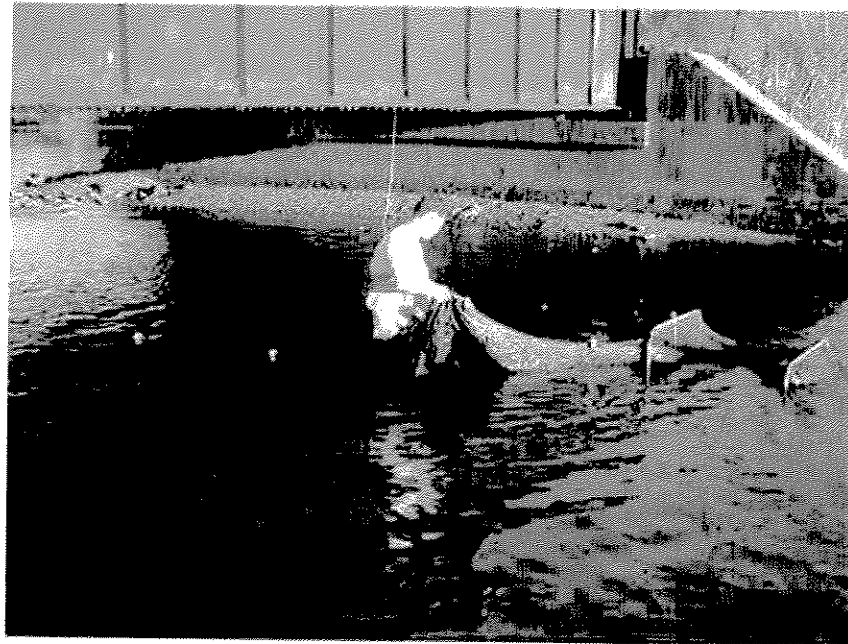


Photo 4: View showing ENSR staff retrieving the fyke net beginning with the wings.

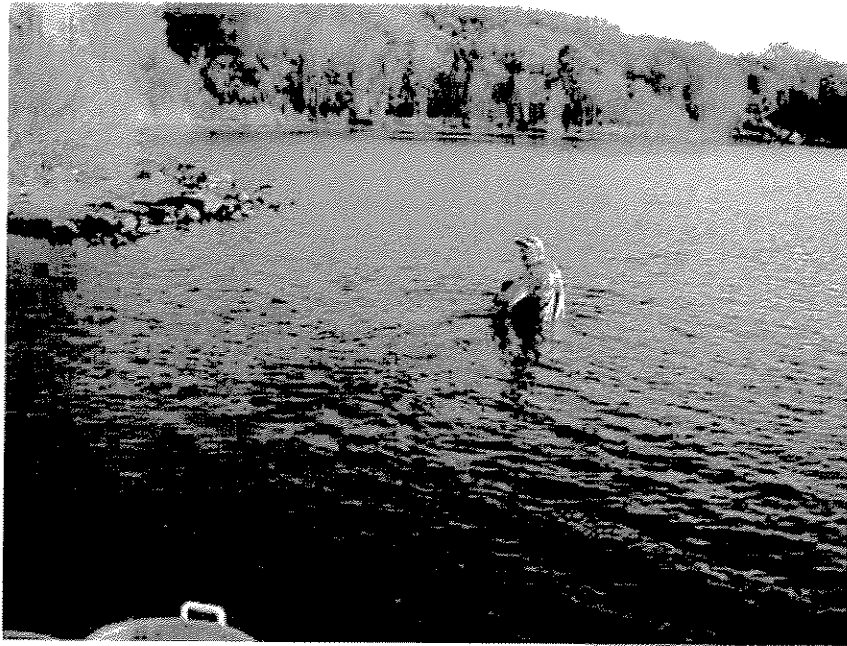


Photo 5: View of ENSR staff fastening the cod end of the net to the stationary post.

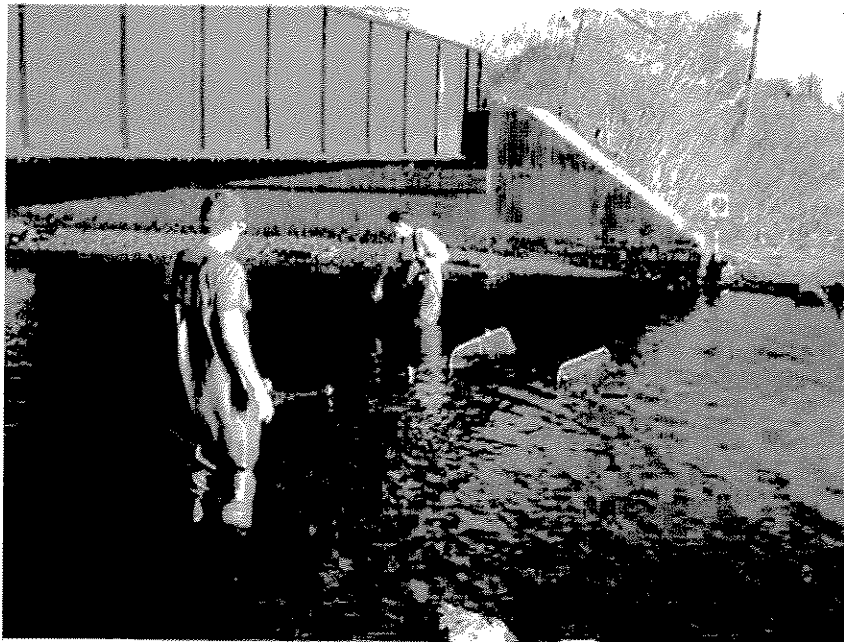


Photo 6: View of ENSR staff positioning the wings of the net.



Photo 7: View looking at rocks placed to anchor the lead-line of wings. Float line was attached to beams of bridge. Lead-line was also staked.



Photo 8: A live alewife collected during sampling prior to release back into Wreck Pond.

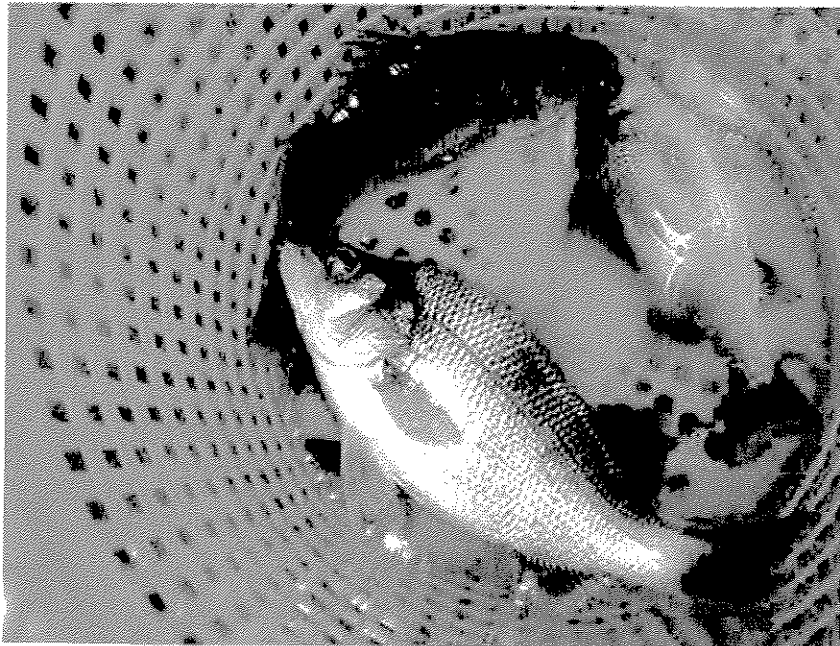


Photo 9: White perch collected during one sampling event. Other species collected included brown trout, largemouth bass, pumpkin seeds, black crappie, and brown bullhead.



Photo 10: White perch were collected throughout the sampling events. Fish handling gloves were worn to protect both the staff and the fish.

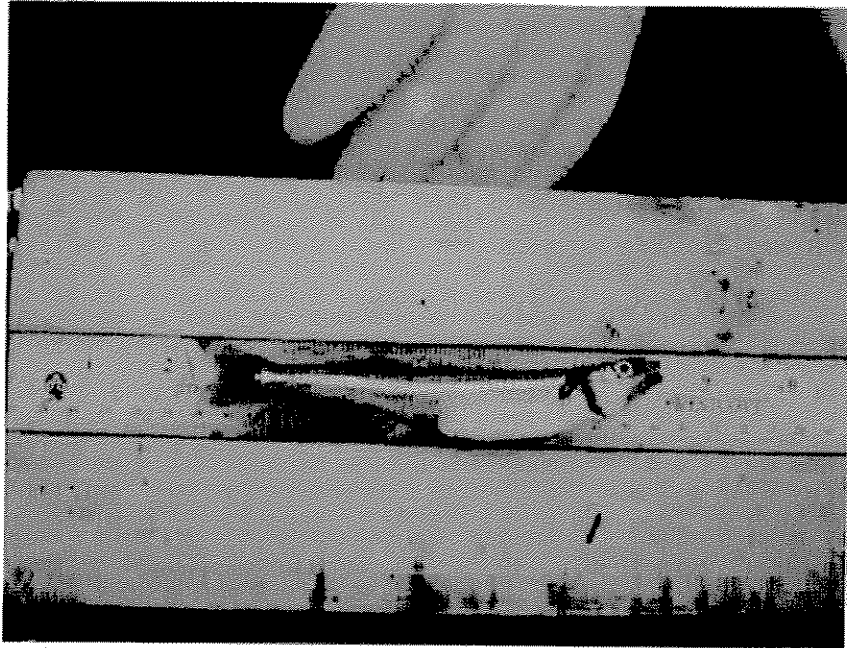


Photo 11: View showing representative size of collected silverside.

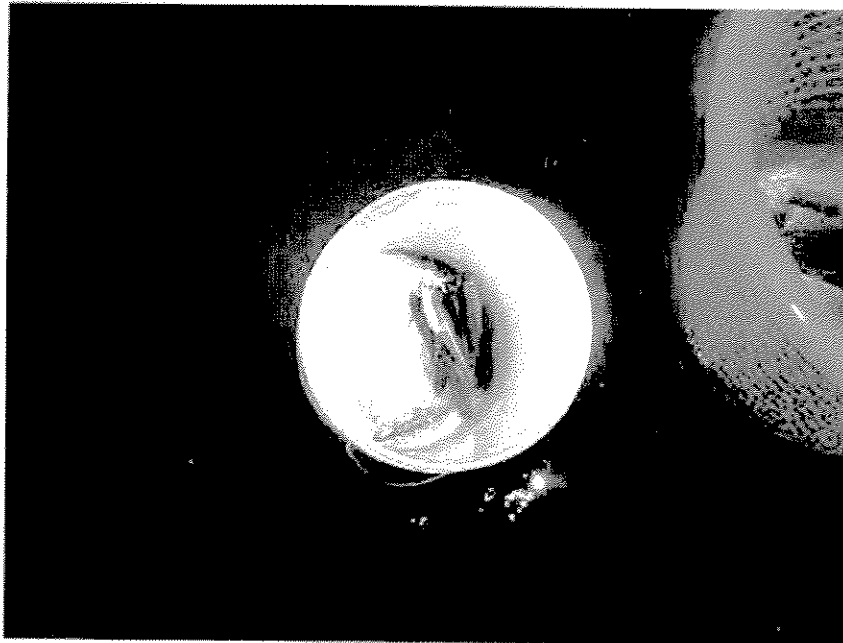


Photo 12: View showing Smaller species collected included Atlantic silversides, mummichogs, and both banded and striped killifish.

ENSR

Appendix C

Data Sheets

Herring Project Data Sheet

Location: Wreck Pond, Spring Lake, NJ Field Crew: A. Hesse, P. Sumai, P. Zaccaro Date: 5/2/07
 Sample Number: WP-050207-AM Weather: 12.0 (clouds), 50% W - N at 5:10, Water Quality Taken (circle) Y N

Net Deployment time: 15:45 (S) Net Retrieval time: 17:22 (S/2) Time Net collecting: 1:37 (S/2)
 Tides (time M) - Low Sea Level High Sea Level Precipitation in Last 24 hrs (circle) Y N

Number of species: 8 Total Number of Individuals: 43 T&E Species Collected (circle)? Y N

Data Recorder: Al Mordenti Signature: _____

SPECIES	Total weight (g)		Length (cm)		Weight (g)		Length (cm)		Weight (g)		Length (cm)		Weight (g)		Length (cm)	
	(g)	(g)	(cm)	(cm)	(g)	(g)	(cm)	(cm)	(g)	(g)	(cm)	(cm)	(g)	(g)	(cm)	(cm)
Pickrel	102.4	2	51	73.4	L	52	86	L	24	26	211	L	23	26	150	175
Alewife	913	3	25	175.9	L	28	149.0	L	24	26	176.8	L	24	26	150	175
Bluey II	195	2	21	142.0	L	6	3.8	L	31	31	31	L	31	31	31	31
Bluey III	691	2	33	249.9	L	21	106.2	L	32	32	32	L	32	32	32	32
White Perch	28503	1	76	170	L	70	170	L	35	35	35	L	35	35	35	35
220456	28	2	35	35	L	32	32	L	29	29	29	L	29	29	29	29
			34	34	L	31	31	L	31	31	31	L	31	31	31	31
			37	37	L	35	35	L	35	35	35	L	35	35	35	35
			35	35	L	35	35	L	31	31	31	L	31	31	31	31
Bass	11.0	1	10	11.6	L			L				L				
Emperors	11.0	1	10	11.6	L			L				L				
60 Bass	430.2	1	1	430.2	L			L				L				

→ check markings at periwinkle

22045
1540
20505

Herring Project Data Sheet

Location: Wreck Pond, Spring Lake, NJ Field Crew: Art, Jim, R.E. Date: 5/3/07
 Sample Number: WP 050307 - AM Weather: Sunny, Lake calm, clear Water Quality Taken (circle) Y N
 Net Deployment time: 1915 (8.2) Net Retrieval time: 0920 Time Net collecting: 12 hrs Precipitation in Last 24 hrs (circle) Y N
 Tides (time ft) - Low 3.6 High 3.8 Total Number of Individuals 192 T&E Species Collected (circle)? Y N
 Number of species: 9 Species Collected (circle)? Y N
 Data Recorder: Art Signature: [Signature]

SPECIES	Total #	Total Count sub 2		Length (cm)		Weight (gm)		Live (L) Front Dead (FD)		Length (cm)		Weight (gm)		Live (L) Front Dead (FD)	
		Length (cm)	Weight (gm)	Length (cm)	Weight (gm)	Length (cm)	Weight (gm)	Length (cm)	Weight (gm)	Length (cm)	Weight (gm)	Length (cm)	Weight (gm)		
White Perch	10	31	448	L	33	601	L	33	617	L	33	420	L	26	320
Pumpkinseed	6	33	595	L	37	762.1	L	39	1041.7	L	35	585	L	37	825
Bass	6	10	25	L	14	261	L	16	91.6	L	13	46	L	7	6.4
Bass	3	13	33	L	7	44	L	10	115	D					
Blue Crab	3	9	49.6	L	11	92.8	L								
Am. Coot	2			L	20	-	L								
Ch. Pike	1			L	38	38	cm	Young	-	wt	unknown				
Bl. Crayfish	1			L	56.5										
Sp. Minnow	2	21	124.9	L	23	168.2	L								
Art. Silverside	9	14	160.3	D	13	15.1	D	13	212	FD	13	M.S	FD	13	15.2
		17	172.6	FD	13	17	D	12	112	D	14	16	D		

no expand @ 60cm

boxed wt. 192 (subtract for ~~front dead~~)
 CIRCLE LENGTH(S) OF SPECIES WITH ABNORMALITIES AND DESCRIBE IN SPACE TO RIGHT

Herring Project Data Sheet

Page 1 of 2

Location: Wreck Pond, Spring Lake, NJ Field Crew: AM, PS, J Reed Date: 5/4
 Sample Number: WP-080407-AM Weather: Sunny 54°F Light Wind Water Quality Taken (circle) Y N
 Net Deployment time: 1930 Net Retrieval time: 0825 Time Net collecting: 1 hr 55 min
 Tides (time ft) - Low: 0216/15.06/10.7 High: 1913/14.0 / 1419/14.9 Precipitation in Last 24 hrs (circle) Y N
 Number of species: 21 Total Number of Individuals: 571 Species Collected (circle)? Y N
 Data Recorder: BRUNET W F Signature: [Signature] 15408

SPECIES	Total Count/Length of		Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)		Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)	
	FLTL	(FD)	(FLTL)	(FD)	(FLTL)	(FD)	(FLTL)	(FD)	(FLTL)	(FD)	(FLTL)	(FD)	(FLTL)	(FD)
Atlantic	127	7	227	170	227	170	L	L	227	170	227	170	L	L
Blueback	1920	10	217	145	217	145	L	L	217	145	217	145	L	L
Bluefish	1124	3	38	40	38	40	L	L	38	40	38	40	L	L
Golden Shiner	552	1	21	37	21	37	L	L	21	37	21	37	L	L
White Back	407	4	17	552	17	552	L	L	17	552	17	552	L	L
Striped	1549	13	27	255	27	255	L	L	27	255	27	255	L	L
Atlantic	717	8	22	144	22	144	L	L	22	144	22	144	L	L
Atlantic	1549	13	27	255	27	255	L	L	27	255	27	255	L	L

think out of domain
 36' - missing
 not for

Herring Project Data Sheet

Location: Wreck Pond, Spring Lake, NJ Field Crew: AM PS RZ Date: 5/16/07
 Sample Number: 1080-05/1607-AM Weather: Cloudy WINDS 5-15-W 65°F Water Quality Taken (circle) (Y) N
 Net Deployment time: 1835 Net Retrieval time: 0645 Time Net collecting: 12 h 10 min Precipitation in Last 24 hrs (circle) (Y) N
 Tides (time M) - Low: 0123 High: 0723-4.9 T&E Species Collected (circle)? (Y) N
 Number of species: 6 Total Number of Individuals: 34 Signature: _____
 Data Recorder: Al Madhesku

SPECIES	Total Count		Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)		Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)							
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)						
Atlantic	170	10	23	178	23	126	L	L	25	236	L	L	26	162	L	L	27	212	L	L
White Back	224	2	26	164	24	201	L	L	24	174	L	L	24	116	L	L	24	201	L	L
Round Gill	138	1	35	580	27	294	L	L	27	236	L	L	27	145	L	L	27	201	L	L
American cat	719	6	56	285	14	149	L	L	10	79	L	L	10	79	L	L	10	70	L	L

Missing chunk of tail (circled) ** chunk from cardboard (circled) ** VOD-ENG turtletie *** upper/lower part of cascade missing (circled)

Herring Project Data Sheet

Page 1 of 1

Location: Wreck Pond, Spring Lake, NJ Field Crew: ANJR/RZ/RS/AH Date: 7/17/07
 Sample Number: 18051107 AM Weather: partly cloudy, 60°F, slight breeze Water Quality Taken (circle) Y N
 Net Deployment time: 0730.5/ie Net Retrieval time: 0720 Time-Net collecting: _____
 Tides (time H) - Low see logbook High see logbook Precipitation in Last 24 hrs (circle) Y N
 Number of species: _____ Total Number of Individuals: 31 T&E Species Collected (circle)? Y N
 Data Recorder: ANJR/RZ Signature: [Signature]

SPECIES	Total Count/Length		Weight (g)		Length (cm)		Live (L) / Dead (D)		Weight (g)		Length (cm)		Live (L) / Dead (D)	
	Count	Length	Count	Length	Count	Length	Count	Length	Count	Length	Count	Length	Count	Length
Alewife	113	113	L											
White perch	194	30	L	33	57	L	34	122	L	27	205	L		
Weakfish	55	55	L											
Bluefish	186	32	L	15	33	L	17	38	L	17	38	L	15	33
Striped bass	1415	115	L	19	30	L	11	27	L	10	21	L	8	11
Pumpkinseed	130	130	L											
Smallmouth bass	2	2	L											
Spottail shiner	64	5	L	10	13	L	11	14	L	10	13	L	11	14
Brook stickleback	1139	139	L											
American sand lance	253	253	L											

1 escaped toke (S)
 2 escaped toke (A)
 Bottom gaudal missing
 Not Escaped
 Max lesion

Herring Project Data Sheet

Location: Wreck Pond, Spring Lake, NJ Field Crew: AH/R2
 Sample Number: 46205107-01 Weather: 2004 breezy Date: 5-17-07
 Net Deployment time: 0800 Net Retrieval time: 1100 Time Net collecting: 3 hr Water Quality Taken (circle) Y N
 Tides (time / H) - Low: 1415/0.4 High: 2033/1.0 Precipitation in Last 24 hrs (circle) Y N
 Number of species: 10 Total Number of Individuals: 38 T&E Specimens Collected (circle) Y N
 Data Recorder: AH/SSC Signature: [Signature]

SPECIES	Total #/Ind	Length (cm)	Weight (g)	Live (L) Fresh Dead (FD)	Length (cm)	Weight (g)	Live (L) Fresh Dead (FD)	Length (cm)	Weight (g)	Live (L) Fresh Dead (FD)	Length (cm)	Weight (g)	Live (L) Fresh Dead (FD)	Length (cm)	Weight (g)	Live (L) Fresh Dead (FD)
<u>KLARINGO</u>	<u>167-167-167</u>	<u>11</u>	<u>11</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>Blue Gill</u>	<u>135</u>	<u>105</u>	<u>105</u>	<u>L</u>	<u>9</u>	<u>9</u>	<u>L</u>	<u>9</u>	<u>9</u>	<u>L</u>	<u>9</u>	<u>9</u>	<u>L</u>	<u>9</u>	<u>9</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>11</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>11</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>Blue Gill</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>	<u>10</u>	<u>10</u>	<u>L</u>
<u>White Perch</u>	<u>135</u>	<u>135</u>	<u>135</u>	<u>L</u>	<u>10</u>	<u>10</u> </										

Herring Project Data Sheet

ENSR | AECOM

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Location: Wreck Pond, Spring Lake, NJ Field Crew: Am 02
 Sample Number: 1177-051807-AM Weather: 46-98°F NE 10-20 mph Date: 5/18/07
 Net Deployment time: 1930 Net Retrieval time: 2145 Time Net collecting: 1 hr 15 min Water Quality Taken (circle) Y N
 Tides (time ft) - Low see ex High see ex Precipitation in Last 24 hrs (circle) Y N
 Number of species: 17 Total Number of Individuals 86 T&E Species Collected (circle)? Y N
 Data Recorder: A. Mundy Signature: _____

SPECIES	Total weight		Total count		Live (L) Fresh Dead (FD)		Weight (g)		Length (cm)		Live (L) Fresh Dead (FD)		Weight (g)		Length (cm)	
	g	g	n	n	g	g	g	g	cm	cm	g	g	cm	cm	cm	cm
<u>Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Striped Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Croaker</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Silverside</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Menhaden</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Herring</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Mummichog</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Killifish</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Sand Goby</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluntnose Minnow</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Golden Shiner</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Striped Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Bluegill</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic Rock Bass</u>	60	18	1	1	60	18	1	1	11	11	60	18	1	1	11	11
<u>Atlantic White Perch</u>	60	18	1	1	60	18	1	1	11	11	60	1				

Herring Project Data Sheet

ENSR AECOM

Page 1 of 1

Location: Wreck Pond, Spring Lake, NJ Field Crew: Am AH, JR Date: 6/1/07
 Sample Number: W.P. 060107-AM Weather: Partly Cloudy Time Net Collecting: 11:55 Water Quality Taken (circle) Y N
 Net Deployment time: 10:35 Net Retrieval time: 06:30 High Sea Seabuck Precipitation in Last 24 hrs (circle) Y N
 Tides (time ft) - Low Sea Seabuck Total Number of Individuals: 38 T&E Species Collected (circle)? Y N
 Number of species: 7 Signature: [Signature]

NO
 Alewife
 OTC
 Blueback

SPECIES	Total #	Total Count	Length (cm)		Live (L) Fresh Dead (FD)		Weight (g)		Length (cm)		Live (L) Fresh Dead (FD)		Weight (g)	
			(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Bluegill	202	5	7	5.4	L	185	136.2	L						
Striped Bass	326	2	22	173	L	22	153	L						
Mummichog	99	1	8.5		D									
Roundnose	126	10	12	37.4	L	9	11.9	L	8.5	14.7	L	8	7.9	L
White Perch	466	9	6	4.0	L	7	6.7	L	7	6.5	L	7.5	7.2	L
Atlantic Eel	401	1	29	37.1	L	29	312	L	35.5	64.6	L	35	66.3	L
Striped Bass	199	14	33	40.9	L	34	55.1	L	27	23.5	L	26.5	83.2	L
			55	46.1	L									
			11	8.6	L	9	6.5	L	9	9.0	L	8	4.5	L
			6	12.5	L	7	21.6	L	13.2	13.2	L	9	4	L
			4	4.4	L	4	5.1	L	4.5	5.4	L	3.5	2.9	L

Herring Data Collection Form 2007

.....CIRCLE LENGTH(S) OF SPECIES WITH ABNORMALITIES AND DESCRIBE IN SPACE TO RIGHT.....

pg. 1 of 1

Herring Project Data Sheet

ENSR AECOM

Page 1 of 1

Location: Wreck Pond, Spring Lake, NJ Field Crew PS/RZ
 Sample Number: 060207-4A Weather Overcast
 Net Deployment time: 1825 Net Retrieval time: 0725 Time Net collecting: 1365
 Tides (time / ft) - Low 2:47 / 0.2 High 8:57 / 4.0 Precipitation in Last 24 hrs (circle) Y N
 Number of species: 60 Total Number of Individuals 31 T&E Species Collected (circle)? Y N
 Data Recorder: P. S. Smith Signature: _____

SPECIES	Total #	Total Length (cm)	Live (L) Fresh Dead (FD)		Live (L) Fresh Dead (FD)		Live (L) Fresh Dead (FD)		Live (L) Fresh Dead (FD)		Live (L) Fresh Dead (FD)	
			Weight (g)	Length (cm)	Weight (g)	Length (cm)	Weight (g)	Length (cm)	Weight (g)	Length (cm)	Weight (g)	Length (cm)
Trout Salmon Perch Crab Shrimp Clam Starfish Sea urchin Sea slug Sea anemone Sea cucumber Sea urchin Sea slug Sea anemone Sea cucumber												
Trout	19	2	10	9	10	9	10	9	10	9	10	9
Salmon	3	3	85	85	85	85	85	85	85	85	85	85
Perch	2	2	70	70	70	70	70	70	70	70	70	70
Crab	13	13	35	35	35	35	35	35	35	35	35	35
Shrimp	1	1	38	38	38	38	38	38	38	38	38	38
Clam	1	1	34	34	34	34	34	34	34	34	34	34
Starfish	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38	38	38	38	38	38
Sea anemone	1	1	38	38	38	38	38	38	38	38	38	38
Sea cucumber	1	1	38	38	38	38	38	38	38	38	38	38
Sea urchin	1	1	38	38	38	38	38	38	38	38	38	38
Sea slug	1	1	38	38	38	38	38					

Herring Project Data Sheet

Location: Wreck Pond, Spring Lake, NJ Field Crew: ALT+RZ Page 1 of 1
 Sample Number: 060807PM Weather: Cloudy 80°F 100% RH Date: 6-2-07
 Net Deployment time: 3:20 Net Retrieval time: 8:20 Time Net collecting: 10:30 Water Quality Taken (circle) Y N
 Tides (time M) - Low 2:57 AM High 8:53 PM Precipitation in Last 24 hrs (circle) Y N
 Number of species: 3 Total Number of Individuals: 4 T&E Species Collected (circle)? Y N
 Data Recorder: AGHARR Signature: [Signature]

SPECIES	Total Weight	Total Count	Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)		Length (cm)		Weight (g)		Live (L) Fresh Dead (FD)	
			(L)	(FD)	(L)	(FD)	(L)	(FD)	(L)	(FD)	(L)	(FD)		
<u>19 North Sea</u>	<u>57.8</u>	<u>1</u>	<u>16.5</u>		<u>9.8</u>									
<u>20 Atlantic</u>	<u>20.0</u>	<u>1</u>	<u>16.0</u>		<u>20.0</u>									
<u>21 Atlantic</u>	<u>58.7</u>	<u>2</u>	<u>19.5</u>		<u>19.6</u>									
			<u>13.5</u>		<u>10.1</u>									

Herring Project Data Sheet

ENSR | AECOM

Page 1 of 1

Location: Wreck Pond, Spring Lake, NJ Field Crew: AHRZ Date: 6-3-07
 Sample Number: 060707A0 Weather: overcast, wind - 6-8 mph Water Quality Taken (circle) (Y) N
 Net Deployment time: 18:35 Net Retrieval time: 19:30 Time Net collecting: 13:05
 Tides (time / ft) - Low: 3:37 AM 0.2 / 3:26 PM 0.7 High: 9:34 AM 0.7 / 9:31 PM 5.0 Precipitation in Last 24 hrs (circle) (Y) N
 Number of species: 6 Total Number of Individuals: 11 T&E Species Collected (circle)? (Y) N
 Data Recorder: A. Hassel Signature: [Signature]

SPECIES	Total Count/No. of	Length (cm)		Weight (g)		Live (L) / Fresh Dead (FD)		Length (cm)		Weight (g)		Live (L) / Fresh Dead (FD)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
<u>Blue Crab</u>	<u>183</u>	<u>3</u>	<u>3</u>	<u>60</u>	<u>45</u>	<u>19</u>	<u>50</u>	<u>70</u>	<u>10</u>	<u>88</u>	<u>162</u>	<u>10</u>	
<u>Am. Fel</u>	<u>195</u>	<u>3</u>	<u>3</u>	<u>38</u>	<u>79</u>	<u>28</u>	<u>46</u>	<u>70</u>	<u>35</u>	<u>70</u>			
<u>White Perch</u>	<u>400</u>	<u>100</u>	<u>100</u>	<u>17</u>	<u>17</u>								
<u>Mummichog</u>	<u>17</u>	<u>1</u>	<u>1</u>	<u>17</u>	<u>17</u>								
<u>Small Killifish</u>	<u>15</u>	<u>1</u>	<u>1</u>	<u>15</u>	<u>15</u>								
<u>Blue Crab</u>	<u>183</u>	<u>3</u>	<u>3</u>	<u>60</u>	<u>45</u>	<u>19</u>	<u>50</u>	<u>70</u>	<u>10</u>	<u>88</u>	<u>162</u>	<u>10</u>	

*6 Mangled
 fish due to
 snapping turtle
 - released
 alive

ENSR

Appendix D

Log Book



"Rite in the Rain"
ALL-WEATHER WRITING PAPER

ALL-WEATHER
ENVIRONMENTAL FIELD BOOK

Author: Capt. AL MOOJESKI

Address: 20 NEW ENGLAND AVE
PISCATAWAY NJ 08854

Phone: 732-981-0200 x3046

Project: WILKES POND LUNEL
HEADING SURVEY

This book is printed on "Rite in the Rain" All-Weather Writing Paper.
It is made of 100% recycled paper with 10% recycled fiber. It is
acid-free and contains no chlorine. It is also 100% recyclable.

Page 1 of 1

Date: 10/1/88

Printed in the U.S.A.

CONTENTS

Page

CONTACTS - BUREAU OF CONSUMER EXH.
BEN KETSOB - DEP. 732-255-0779
GLENN GOLDEN - 732-250..

MARINE LAW ENFORCEMENT
732-609-748-2050
SPRING LAKE POLICE
732-449-1234

ENSIC
CAPT. AL MOOJESKI
973-449-0822

Reference Page Index

2
Location: Wreck Pond, NJ Date: 5/1/07
Project Name: NJDEP

1015 RECEIVED NOTICE TO PROCEED FROM B. KEISER VIA PHONE/FAX. SET UP PAPERWORK FOR TRUSSET, CHECKED FINANCIALS. NOTIFIED 1st crew, and got show together.

1200 Depart Piscataway to meet w/ field crew and to inspect nets, gear, etc.

1340 PER PERMIT, NOTIFIED NJ MARINE LAW ENFORCEMENT OF SAMPLE DATES THIS EVENT. MUST CALL EACH SAMPLING event (Gave 24 hrs notice)

1345 CALLED SPRING LAKE POLICE AND LET THEM KNOW we would be sampling the next few days.

3
Location: WRECK POND, NJ Date: 5/1/07
Project Name: NJDEP

1505 - YSI Deployed slightly north west of paged area - Seeds - 39th Weather - 61°F, winds West - 10-15 mph, clear

1520 - Began net set. Placed a 10.5 - 2" diameter fence post in centerline to anchor end-end of net. drilled 2 holes through pole and inserted 9" carriage bolts to better anchor in substrate and to be used as a cleat to anchor the fyke cod. Attached buoy/base.

1545 Fyke net set. Set looks good. Tide still ebbing though low-tide at ocean is 1330. I think there is an interval of 3 hrs between ocean tide and tide fluctuation under bridge will come back to creek net at 0600.

4 Location: WRECK POND Date: 5/1/07
Project: Client: NJDEP

Redid snare and positioned
it so it is noticeable.
Added dices to make sure
it shows recent sampling

1620 ENSR OFFSITE.

Called BEN KRISER of NJDEP
and let him know NET IS IN THE
WATER, NET IS GOOD.

5 Location: WRECK POND Date: 5/2/07
Project: Client: NJDEP

* RAIN LAST NIGHT

0630 ENSR OFFSITE TO DO 1st
net pull. weather - STIF. PARRY
cloudy, WINDS ~~SW~~ N. Light - Smpth-10g

CREW: P. SWAN, E. ZARERO, A. MARJESTER,
A. HASSE

Tide is ebbing but depth still
approx 4' at end even after
dam under bridge, water net
cascading east at dawn

0640 - Y5T taken
0642 - Y5I DONE

0645: Pulling net. NET SET STILL GOOD.
NO SIGNS OF TAMPERING
0700 NET PULLED ~~OK~~ ~~ENDING~~

Prepared up to switch processing
T. MUSGRAVE. Curious about catch.

0715 Begin processing species
NO Blueback

Alewife - 5 Br. Bullhead - 2
white perch - 28 Banded Killifish - 1
Chain Pickerel - 2 Pumpkinseed - 2
Bluegill - 2 L. Bass - 1

Location WHAZ Pond Date 5/2/07
Project: Client NRDEP

SAMPLE WPOS0207-AM
cm

Alenife - FL TL (XQFD) - wt
23 26cm L 175.9g
25 28cm L 199.0g
24 26cm L 176.8g
24 26cm L 211.1g
* 23 26cm D 150.8g
* had a chunk missing at caudal peduncle.

Alenife - total + 5
total wt - 913.6g
80% survivability

White Perch - all live, batch weighed subsample of 15 + 13. Total 28 fish.
Total wt - 22.045 kg

Orange basket wt - 1540.0g
(Rerweigh during each event)

* THREE white bucket

TIDE AT Balmer 5/2/07
* approx 3.5 to 4 hour difference in tidal movement at RR bridge. At 0750, tide just starting to ebb.

Low - 0158 - 0.2' 99% moon
High 0801 - 4.3' sunrise - 0555
Low - 1356 - 0.4' sunset - 1952
High - 2015 - 5.1'

0750 - Begin deploying net.

0800 - Net deployed.

0915 - ENSR OFFSITE. Will retrieve net at 1830 or so.
Sechs - 38"



8
Location: WEEK POND
Project: Client: NODDP/
Date: 5/2/07

1830 ENSE ON-SITE Crew - AZ
MUDJESU, R. ZANCARO, A. HASSI
Weather - Cool, NNE 5-10 mph
clear.

1838 R.Z. took YSI Data
~~D10 = 20.56~~ 13.05
Temp = 20.56
AHT = 7.66
Sal = 0.11
Turb. = 0.11 3.4
SP Con = 24.2

1900 Retrieve Net. Found 1 dead white
perch from morning sample*
White Perch
1) L = 35 cm WT = 752.5 g
2) L = 37 cm WT = 918.0 g

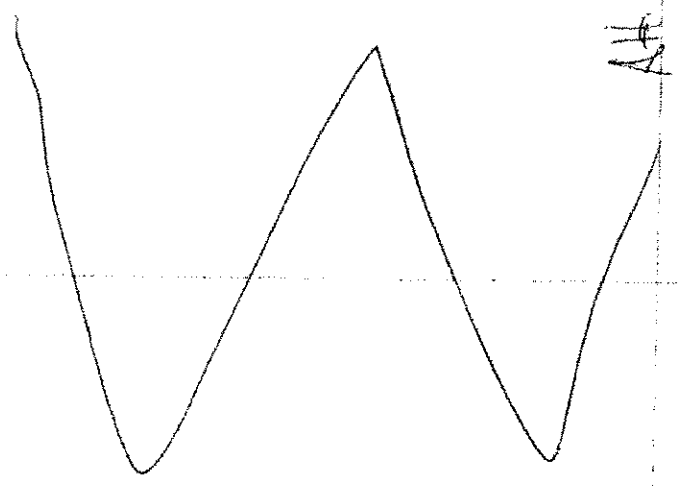
Hold
to dry
5/2/07

Banded Killifish
1) L = 10 cm WT = 11.1 g
1415 Re-set Net, Good Set w/ knots checked.

9
Location: WEEK POND
Project: Client: NODDP/
Date: 5/2/07

1920 Two fishbait pulled up in a
canoe and spoke with us for
several minutes

1930 gathered gear + left site
(R.Z. left AM)
AHT
off site



Location Wreck Pond

Date 5-3-07

Project: Client NSDEP

0700 Address A. Madjeski, R. Zencaro arrive on site @ Wreck Pond. Clear, Sunny, Calm ~ 55°F

Tides for 5-3-07

Low - 02:38 AM
High - 08:37 AM
Low - 14:32 PM
High - 20:46 PM

Sunrise

5:53 am
Sunset
7:53 PM

0712 R.Z tank Water Quality W/YSI

6920
Temp - 14.30 °C
DO - 8.83
Spec. Cond - 361
pH - 7.36
Sal. - 0.17
Turb - 3.0

- White-fending net - 3 ft eel swim right by A.M
- Tide is ebbing

Location Wreck Pond

Date 5-3-07

Project: Client NSDEP

0725 Retrieve net, no sign of tampering

0730 Process Fish
- No Alewife - see data sheet for others
- No Blue back Herring

0810 Reset net, checked knots.
Good Sets,
Tide still ebbing

0815 dis-assemble process site

0830 AH, AM, RZ offsite

0850 AH, JM, RZ onsite
Weather = Sunny, slight breeze,
55°F

1900 Retrieve Net + Take YSI (first)

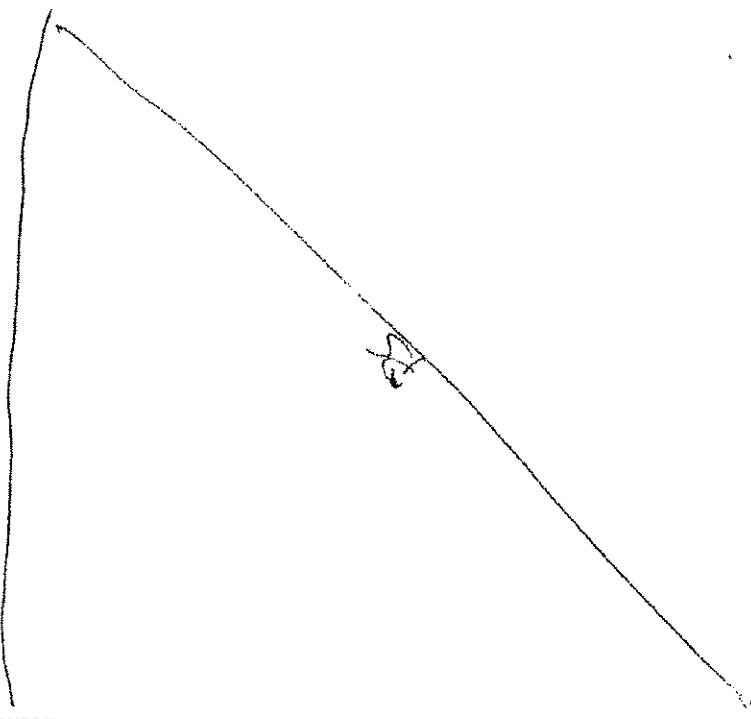
Temp = 21.11 DO = 14.45
Spec. Cond = 258 pH = 8.49
Sal. = 0.12 Turb = 4.8

Date 5-3-07

Location Wreck Pond

Project: Client ATTDED

1930 Processed fish, Recorded on new data sheet.
Took photos of site.
Set NET
1945 AHJM R2 OFFSITE



Date 5/4/07

Location Wreck Pond
Project: Client NJ DEP

0800 - PS, AM, and JR onsite
- Tide has turned, on its way out. Sunny, approx 60°
light breeze.

H₂O -

Temp - 13.29°
Spec. Con - 305
Salinity - 0.15
DO - 9.25
PH - 7.63
Turbidity - 2.6

0825 - Net retrieved
Several fish

0950 - OFFSITE

TIDES	Low	0316	212'
		1506	0.7'
	High	0913	4.0'
		2119	4.9'
MOON	97%	visible	
		7	ALEWIFE

Location Wreck Pond Date 5/4/07
 Project / Client NSDEP - 06352-002-200

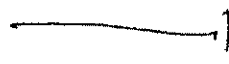
5/4 CATCH FOR AM NET PULL

~~Chum~~ ~~fish~~ ~~and~~ ~~2~~ ^{Am}

Akwife - 7

FL	TL	FL	TL	FL	TL
24	28	L	25	L	23
24	27	L	23	L	26
25	28	L	25	L	26

- white perch - 16
- Brown Trout - 3
- Golden Shiner - 1
- Pumpkinseed - 4
- Brown Bullhead - 13
- Am. Eel - 8
- Banded Killifish - 5
- Blue crabs - 2



Location Wreck Pond Date 5/14/07
 Project / Client NSDEP - 06352-002-200

1400 - ~~Called~~ Pat Swain called Marine law enforcement and Spring Lake Police to notify them of the nets and our scheduled activity for the next few days. Everything was given the OK.

5/14/07
 JS

Location: Wreck pond Date: 5/15/07
 Project / Client: NS DEP - 06352-002-200

0605 - PS + RZ onsite

Breezy, cloud cover, 60°
 Unloaded gear and brought
 down to site

0630 - Fyke net deployed w/ trap/bell
 - stake on left side missing.
 tied lead line to rock. should
 work fine.

0635 - RZ

took H₂O quality
 trap - 18.08 °C
 Spec. Cond - 27463
 Salinity - 16.92
 DO - 5.89
 pH - 7.27
 Turbidity - 3.7

0650 - PS + RZ offsite

1755 - PS + RZ onsite

weather - Sunny, breezy
 80°F

Location: Wreck pond Date: 5-15-07
 Project / Client: NS DEP - 06352-002-200

1805 - YSI Deployed

temp 24.41 °C
 spec. Cond - 1304
 Salinity - 0.65
 DO - 12.75
 pH - 9.12
 turbidity - 4.6

1807 - 4 kids came over with
 nets trying to catch
 crabs. No interference
 with our net.

1812 - Fyke net retrieved.

13 - BANDED killifish
 1 - striped killifish

1835 - Fyke net deployed

1845 - PS + RZ offsite

~~5-15-07~~

PS

Location: WRECK POND Date: 5/16/07
Project/Client: NADER 06352-202-700

0630 - PS/AM/RZ onsite
Weather: 65°F
Breezy (out of west)
Overcast

0642 - YSI Deployed
temp - 19.39
Spec Cond - 2571
Salinity - 1.33
DO - 8.05
pH - 7.72
turbidity - 3.8

Robert T. des - low 1:23 AM
high 7:23 AM
low 1:21 PM
high 7:43 PM

0655 - Fire net retrieved
1 - ~~retrieved~~ turtle

Location: WRECK POND Date: 5/16/07
Project/Client: NADER 06352-002-200

FL	TL	WT	Condition
23	27	178	L
22	25	126	L
25	29	226	L
23	26	162	L
27	30	212	L
24	26	164	L
25	28	201	L
24	27	174	D
21	24	116	L
24	27	201	L

White Herch - 2
TL - 35, 580, L - missing chunk from side
TL - 27, 294, L - missing piece of tail

Brown bullhead - 1
Pumpkinseed - 4 (1 missing for bottom land)
Banded Killifish - 11 - wt - 137.0 g
Am. Bl. - 6

Location: WLECK POND Date: 10/19/07
Project: Client: 06352-052-200 / NJDEP

NUT RESET AT 0720.

0730 Net deployed and in place
Only 1 dead alewife.
Green algae shaken from net

0745 - OFF site

1830 - PS + AH onsite -
Weather - Stormy
lightning + thunder.
waited for 30 mins for
storm to pass but weather
is getting worse. Decided
to leave net in until
morning due to a lightning
hazard.

1900 Called A. Modjeski to see
if we should leave or stay -
He said safety priority #1
and to ram pull.

1915 A Modjeski called Nancy Robinson
and gave update Crewwork's to

Location: WLECK POND Date: 17/11/07
Project: Client: 06352-052-200 / NJDEP

0700 - ENSR onsite. A. Modjeski,
J. Reed, R. Zaccaro Field
Crew. A. Hesse, Pat Swain
on site to assist

Weather - Overcast (partly cloudy)
No wind to light breeze from
west, temp @ 57°F
Big storm w/ thunder last night
Net not retrieved in PM
due to lightning.

TIRES: Low - 0216 - 0.6'
1413 - 0.4'
High - 0816 - 4.9'
2033 - 6.0'

0715 - YSI TAKEN
temp - 18.08°C Turb - 3.7 NTU
SP COND - 27463 µm/cm
COND - 23833 µm/cm
Sal - 16.92 ppt
DO - 6.90%
DO - 5.39 mg/L
pH - 7.27

22

Location Wauke Pond Date 17 May 07
Project / Client 055-200-200 / NJDEP

- 0720 Net Retrieved
- 1 ~~spotted~~ turtle
 - 1 Alewife
 - 5 white perch
 - 1 large mouth bass
 - 7 Brown Bullhead
 - 2 Golden Shiner
 - 6 - pumpkin seeds
 - 1. Sea horse
 - 5 bearded hell
 - 1. Gizzard Shad
 - 2. American Eels

0800 - Net Deployed
0820 - Offsite

1900 AH + RZ on site @ Pond

Sunny, Slight Breeze
Sea tide prev. page.

1910 Took H₂O Quality

(AH)

Location Wauke Pond Date 17 May 07
Project / Client 055-200-200 / NJDEP

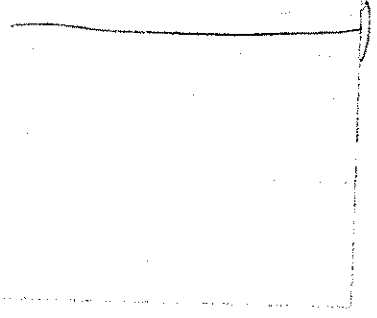
DO = 10.24
pH = 7.39
Sal. = 3.15
Sp/Con = 286.2
Temp °C = 20.073
Turb = 4.0

1915 Retrieve net - net slightly blown down

1920 Process Sample - 1 Very lg Snapping Turtle

1930 Rerun Net - Strong tidal current
* Released both
- turtles live, NO dead fish
- tight as possible

2000 AH + RZ offsite



Location: Wreck Pond Date: 12 MAY 2007
Project / Client: 06352-002-200 / NJDEP

0730 AM: LZ ON-SITE.
Weather: 46-48°F, winds
NE 10-25 mph, RAIN
It has been raining most
of the night.

TIDES - Low 0308 - 0.6'
High 0709 4.9'

0745 YSI TAKEN. TIDE SOMEWHAT
HIGH DUE TO NE WINDS
PUSHING WATER INLAND. RAIN
STARTING TO LET UP. JUST
A DAZZLE NOW

0748 - REMOVE FYKE NET.

WQ
SpCon -
Con -
Sal -
DO% -
DO -
Temp -
PH -
TURB -

Location: Wreck Pond Date: 13 MAY 2007
Project / Client: 06352-002-200 / NJDEP

Mewie - 26 - 1 dead for reference

FL	TL	WT	COND	FL	TL	WT	COND
21	24	115.4	L	24	27	148	D
24	27	139.2	L	24	27	156	L
25	28	208.3	L	22	25	123	L
25	29	222.1	L	23	26	130.7	L
22	24	115	L	25	28	208.3	L
24	27	165	L	23	27	155.8	L
24	26	146.4	L*	24	27	129.2	L
23	26	145	L	23	26	153.6	L
22	24	125	L	23	26	148.1	L

* chunk of dorsum missing
24 | 27 | 159.5 | L | 24 | 27 | 156.4 | L
23 | 26 | 153.8 | L

Blueback: 2 (1 dead) - killed for reference

FL	TL	WT	COND
23	25	112	L
23	26	142.2	D

white perch - 7
Black Crap Pie - 1
Golden shiner - 2
Bluegill - 2 L

Location WRECK POND Date 5/12/07
 Project / Client 06352-002-200 - NJDEP

American eel - 12
 Goldfish - 1
 Chain Pickerel - 1
 Blue crabs - 10 - 422.38
 Brown Killi - 2
 Striped Killi - 1
 Brown Bullhead - 1
 Pumpkinseed - 1

0915 Nest removed from site. All other gear being stored for next event.

0945 Nest sketched to drug at 16th Ave Belmar. Gear w/ At Madgeath. YSF w/ Al Madgeath will take to office on Monday.

1000 - ENSR OFFSITE

Location WRECK POND Date 5/31/07
 Project / Client 06352-002-200 NJDEP

0615 - PS + EZ onsite

PS called local police to notify them of the sampling for the next 3 days. Marine Law Est. was called but no answer.

will try back later

Weather: Sunny, 65°, Moderate breeze

TIDES Low - 1:33 AM - 0.3 ft

High - 8:14 AM - 4.1 ft

Low - 1:25 PM - 0.6 ft

High - 7:46 PM - 5.1 ft

0635 - WQ TAKEN - YSF DEPLOYED

SP Con - 454 TEMP - 19.47°C

Con - 406 pH - 8.75

SAL - 0.22 TURB - 17.9

DO% - 65.7

DO - 6.02

0650 - fyke net set w/ bag ball

0705 - PS + EZ OFFSITE

Location WRECK POND Date 5/31/07
 Project / Client 06352-002-200

1745 - PS onsite

Weather - Sunny, warm 85°
 Breezy

Tide flowing out relatively hard

1755 - YSI Deployed

Sp Con - 485 TEMP - 30.0
 Con - 531 PH - 8.69
 SAL - 0.23 Turb - 20.0
 DO% - 150.3
 DO - 11.35

1825 - fyke net retrieved

5 fish
 1 largemouth bass
 2 Rock bass
 2 blackchin shiner

1835 - fyke net deployed

1845 - PS - RZ OFFSITE

Location WRECK POND Date 6/1/07
 Project / Client 06352-002-200 / NODAP

0600 - AM JIC, ATH on-site
 Weather - PARTLY CLOUDY, 65°F,
 recently rained last night, light
 wind, humid

TIDES - TIDE GAGES, Beach approach
 @ 6'

Low - 2:16 AM, 0.2
 High - 8:14 AM, 4.0
 Low - 14:06 AM, 0.6
 High - 20:22 AM, 5.1

0620 - YSI TAKEN

Sp Con - ~~485~~ 579 μ s/cm
 Con - 460 μ s/cm
 SAL - 0.28 ppt
 DO% - 65.9 %
 DO - 5.68 mg/L
 Temp - 22.3 °C
 PH - 8.25
 Turb - 18.3 NTU

0624 - YSI Complete

0625 - RETRIEVING Fyke Net.

Location Wreck Pond Date 6/1/07
Project/Client 06352-002-ZOO/NIDEP

0630 NET RETRIEVED
0705 PROCESSING COMPLETE

- Bluegill - 2
- Brown Bullhead - 2
- Mummichog - 1
- Pumpkinseed - 10
- White Perch - 9
- Am EEL - 1
- Blue crabs - 14

No Blueback - No Anewife
0710 - Net re-deployed.
0715 - ENSR OFFSITE

Location Wreck Pond Date 6/1/07
Project/Client 06352-002-ZOO/NIDEP

1800 - PS + MS onsite
 weather - 85°F Sunny,
 Tide - Ebbing
 1801 - YSI Deployed
 Sp Con - 1760 Temp - 30.18
 Con - 1940 pH - 7.88
 SAL - 0.88 Turp - 13.0
 DO% - 161.3
 DO - 12.10
 1804 - Fyke net retrieved
 7 Fish
 6 - Pumpkinseed
 1 - BANDED killifish
 1 - blue crab
 1 - L ARGE SNAPPING TURTLE

1825 - fyke Net deployed
 1835 - PS + MS offsite

Location: WRECK POND Date: 6/2/17

Project: Client 06352-002-200

0700 - PS-RZ onsite
 Weather: Overcast, slight breeze
 70°. Rained last night

Tides - Low: 2:57 AM - 0.2
 High: 8:53 AM - 4.0
 Low: 2:47 PM - 0.7
 High: 8:59 PM - 5.1

0718 - YSI Deployed
 SPCon - 6794 pH - 7.48
 Con - 6823 Turb - 16.8
 SAL - 3.72
 DO% - 41.5
 DO - 3.34

0725 - Fyke net retrieved
 1 - Snapping turtle - dead
 2 - Banded killifish
 3 - Pumpkinseed
 2 - Am. Cef
 13 - White perch
 1 - brown Bullhead
 10 - Blue ~~C~~ Crabs

Location: WRECK POND Date: 6/2/17

Project: Client 06352-002-200

0755 - Fyke net deployed
 0810 - PS-RZ off site

1745 - AH+RZ onsite
 weather: Sunny, 83°F, slight breeze, hazy + humid.

1800 - YSI deployed
 SPCon - 5547 pH - 7.71
 Con - 6152 Turb - 105
 Sal = 2.97 Temp = 30.71
 DO% = 138.8
 DO = 10.21

1810 Fyke net retrieved.
 Processed fish
 removed med. Snapper

1830 Re-set Fyke net
 1840 AH+RZ offsite



Location

Check Pond

Date

6-3-07

Project / Client

MINER / Spring Lake

0655a - 0722 - 500

0650 AH + RZ on site * weather = overcast

0700 Take YSI * 58°F Slight NE breeze

SpCon = 2752 pH = 7.98

Con = 2642 Turb = -18.1

Sal = 1.43 Temp = 22.90°C

DO% = 66.0

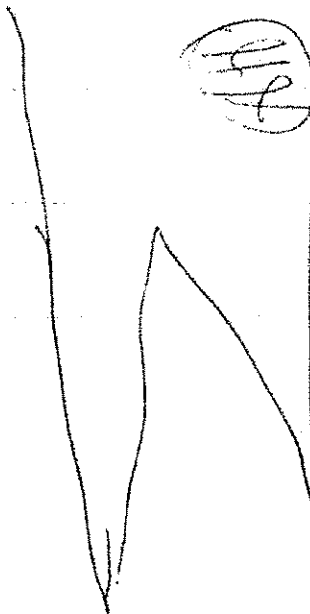
00 = 5.62

0715 Fyke net retrieved + pole removed w/ float ball, gear loaded into truck

0720 Fish processed Snapping turtle mangled 6 fish, released alive

0800 all gear removed from site

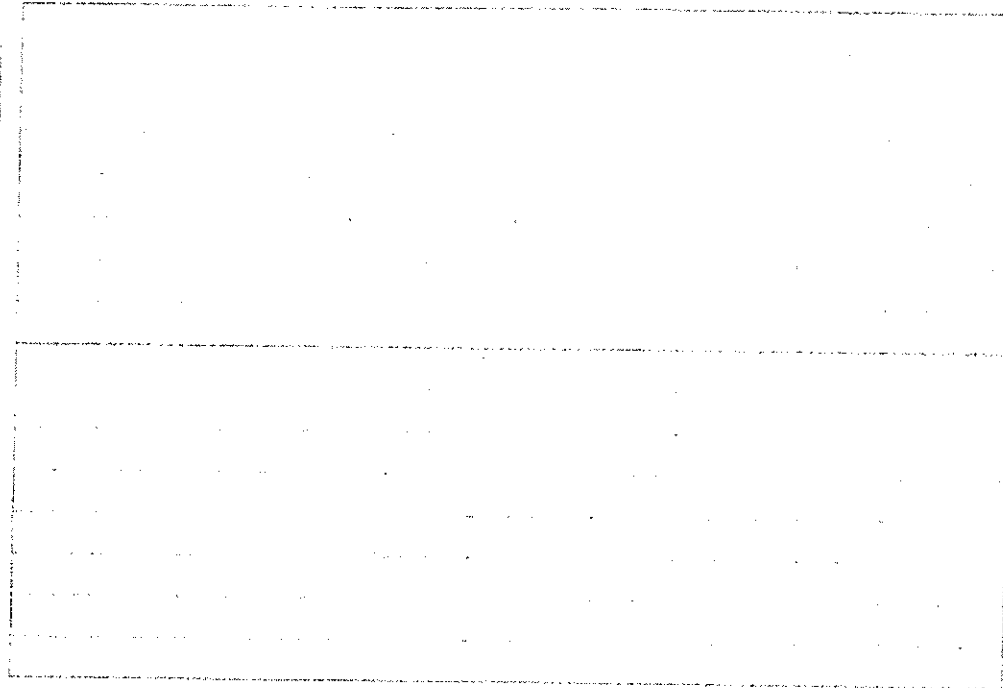
0815 AH + RZ off site.



Location

Date

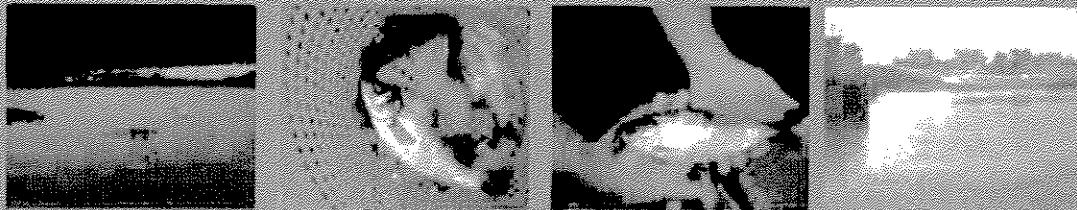
Project / Client



Appendix E

2006 River Herring Field Monitoring and Assessment Final Report

Prepared for:
NJDEP Bureau of Coastal Engineering
1510 Hooper Avenue, Suite 140
Toms River, New Jersey 08753



River Herring Field Monitoring and Assessment Final Report

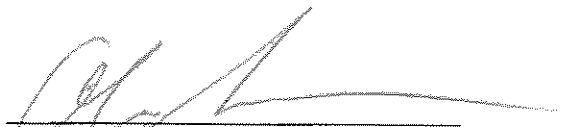
Wreck Pond, Monmouth County, New Jersey
March 15- June 1, 2006

ENSR Corporation
October, 2006
Document No.: 12103-001

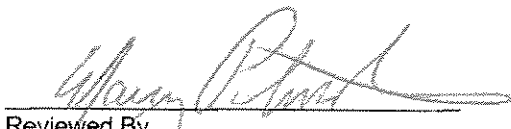
ENSR | AECOM

Prepared for:
NJDEP Bureau of Coastal Engineering
Toms River, New Jersey

Wreck Pond River Herring Monitoring Final Report



Prepared By



Reviewed By

ENSR Corporation
June, 2006
Document No.: 12103-001

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APPENDICES

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1.0 INTRODUCTION

1.1 PURPOSE AND NEED

To improve the overall water quality of the Wreck Pond watershed and reduce adjacent beach area closures, the New Jersey Department of Environmental Protection (NJDEP) Bureau of Coastal Engineering (Bureau) was granted permit 1300-04-0010.1 (WFD 040001) to extend the existing 84" diameter outfall structure seaward an additional three hundred feet (300') and hydraulically dredge various sections of the Pond. The extension of the outfall pipe, by permit, was completed in March 2006. Dredging was scheduled in two Phases (Phase I and Phase II) and currently, two sections of Wreck Pond located east and directly west of First Avenue (Phase I) have been dredged to an approximate depth of eight (8) feet. Phase II of the dredging project will consist of dredging remaining areas of Wreck Pond and will be performed at a later date. The permit issued for the above-mentioned construction included the following permit conditions relative to anadromous clupeid movement at Wreck Pond. These conditions were specifically incorporated into the permit to monitor alewife and blueback herring movement post-construction and to determine if the 300' extension of the existing 500' outfall pipe would physically hinder, obstruct, and/or prevent herring from entering Wreck Pond to spawn.

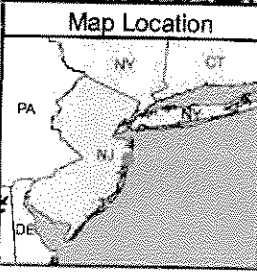
1. River herring monitoring must be conducted prior to and concurrent with construction - annually for a three year period.
2. A qualified biologist must conduct monitoring during the anadromous spawning runs (November 1st to December 31st and March 15th to June 1st).
3. Monitoring will be performed to quantify the herring usage of the pipe.
4. A report documenting the results of the assessment must be submitted within 1 month of the annual assessment to the Program.
5. The results of the monitoring, including the monitoring methods used and the qualifications of the surveyor must be forwarded to the Program for review.

To satisfy the aforementioned conditions of NJDEP Permit 1300-04-0010.1 (WFD 040001), ENSR Corporation (ENSR) was contracted by the NJDEP Bureau of Coastal Engineering (Bureau) to perform the first of a three annual river herring presence/absence field monitoring assessments for blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*) within Wreck Pond, Monmouth County, New Jersey. Collected data will determine if a viable herring run exists within the waterbody and if the extension hinders anadromous fish migration. Results will also be used to determine if further mitigation is necessary. Project location is given in Figure 1.

1.2 SITE LOCATION AND HISTORY

Wreck Pond, a tidally influenced waterbody located in Monmouth County, New Jersey, bisects the boroughs of Sea Girt and Spring Lake and is currently connected directly to the Atlantic Ocean by an 84", 800-foot intake/outfall structure (includes 300' extension). Depth of the system varies tidally, but ranges from one to eight feet at mean low water (MLW). The Pond's watershed area is approximately 11.5 square miles and land use consists of a mix of wooded areas, agricultural areas, low to medium density residential areas, and mixed-use areas. Drainage into the system includes tributary streams and storm water runoff from storm drains located in surrounding residential areas. Potential sources of contamination include storm water flow into the Pond, waterfowl use, pet waste, and residential fertilizer use. Subsequently, the combination of stormwater runoff and nutrient loading within Wreck Pond affect local near shore, coastal water quality. Bacteria-laden

discharges from the Pond reportedly have been responsible for 50 of 59 ocean swimming bans in New Jersey during 2004, and 58 of 80 during 2003. The area near where Wreck Pond interacts with near shore waters is classified as Prohibited for shellfish harvest and ensures a safety zone. In addition to the above classifications, Wreck Pond has been identified and documented as a confirmed anadromous spawning ground for alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) (NJDEP, 2000; Byrne, 1986; Zich 1978).



Location Map
 Borough of Spring Lake
 Borough of Sea Girt
 County of Monmouth, NJ

Scale 1:24,000

0 0.5 1 Miles



ENSR | AECOM

Wreck Pond Figure

Date: June 2006

Project: 12103-001

Y:\Projects\Site-Location\NJ\Wreck_Pond_12103-001-400\Wreck_Pond_12103-001-400.mxd

2.0 RIVER HERRING LIFE HISTORY

2.1 DESCRIPTION

Blueback herring (*Alosa aestivalis*) and alewife (*Alosa pseudoharengus*) are euryhaline, anadromous planktivores externally distinguishable by eye diameter and color (when freshly caught) and internally by the color of their peritoneum and number of gill rakers on the lower limb of the first gill arch. Adult bluebacks usually have a black peritoneum, smaller eye diameter, and approximately 44 to 50 gill rakers on the first limb of the first gill arch, whereas alewife have a more white to silvery coloration of the peritoneum, larger eye diameter, and 39 to 41 gill rakers on the first limb of the first gill arch. Alewife also have a slightly deeper body (Odell 1934; Loesch 1987; Robins, Ray, and Douglass, 1986). Though it may appear that species have discernible characteristics, determinations without internal confirmation between the two species are often difficult due to an overlap in habitat (Smith 1970).

2.2 LIFE HISTORY/SPAWNING CHARACTERISTICS

Juvenile, sub-adult, and adult alewife and blueback herring spend the majority of their life in the open ocean, but it has been documented that some alewife populations remain in freshwater. These populations in turn will migrate up sufficient rivers and streams for spawning (Scott & Crossman 1973). It has also been recorded that New Jersey inshore waters to 8km offshore, are an important over-wintering area for juvenile blueback (Bigelow and Schroeder, 2002). The following describes known spawning for bluebacks and alewife not landlocked in a freshwater system.

Initiation of spawning runs for alewife and blueback is temperature dependent (Bigelow and Schroeder, 2002; Bozeman and Van Den Avyle, 1989; Loesch, 1977). Alewife initiate spawning runs when water temperatures are between 5°-10°C, whereas blueback spawning begins in water temperatures between 10°-15°C (Loesch and Lund 1977). In the mid-Atlantic, alewife may begin spawning in late March early April and continue through May. Blueback initiate spawning runs about a month later, but the spawning peaks can differ by about 2-3 weeks (Hildebrand & Shroeder 1928; Loesch 1987). Ordinarily in New Jersey, there is a three to four week time difference between alewife and blueback spawning runs in sympatric areas (Don Byrne, NJDEP, pers. comm. November, 2005). Spawning times can also extend through August as long as temperatures remain below 27°C. Both species use similar hard ground habitats (gravel, packed sand, stones and sticks) along with relatively swift currents to spawn (Bigelow and Welsh 1925; Marcy 1976b; Loesch and Lund 1977). However when overlap occurs, herring will spawn in the main current flow of a river where the alewife's will favor deeper pools and eddies along the shore bank (Loesch and Lund 1977). When eggs are deposited, they remain sticky and adhere to hard substrate up until about 24 hours when the eggs water hardens. Some eggs remain suspended and are dispersed due to a higher current flow. Eggs require an incubation time of 50 hours at 20-21°C (Kuntz & Radcliffe 1917; Jones et al. 1999).

3.0 SURVEY METHODOLOGY AND MATERIALS

Prior to initiating herring sampling, ENSR forwarded primary surveyor qualifications (Appendix A) and monitoring methodology (Section 3.2) to the Bureau of Coastal Engineering as prescribed in the conditions of NJDEP Permit # 1300-04-0010.1 (WFD 040001). Upon acceptance by the Bureau, ENSR prepared a scientific collections permit application. A New Jersey Scientific Collections Permit (Permit #0630) was received on March 29, 2006 (Appendix B). An ENSR team of qualified biologists was identified and Wreck Pond herring sampling was initiated during three (3) lunar cycles from April 12th to May 15th, 2006. Sample event scheduling was based on the confirmed presence of clupeids in nearshore waters adjacent to Wreck Pond, attainment of inshore water temperatures optimal for herring spawning, and the increased probability of herring movement relative to spring tide levels.

The following describes the equipment and protocol used to sample for presence/absence of clupeid species at Wreck Pond.

3.1 SAMPLING LOCATION

The sample site was located underneath the railroad bridge located directly west of the First Avenue Bridge and east of Route 71 (Figure 1) in Spring Lake, New Jersey. This site is frequented by local anglers who "dart" for herring to be used for live lining for striped bass. Adjacent shoreline perpendicular to the sampling site consisted of sand, riprap, and some vegetation. Shoreline underneath the railroad bridge consisted mostly of riprap and was bounded by the railroad bridge tiers. Water depth varied between four (4) to five (5) feet dependent on tide level and substrate consisted of large rocks and riprap associated with railroad and bridge construction. The channel located underneath the railroad bridge was approximately 25 -30 feet in width and the eastern entrance to the channel was partially obstructed at low tide by a riprap dam approximately 4-6" high. The riprap dam had an observable tendency to prevent passage of mesohaline waters until the tide reached spring tide levels.

3.2 EQUIPMENT

To minimize fish impingement and/or entrainment and maximize catch and fish survivability, ENSR used a fifteen (15) foot long fyke net with a four (4) foot by four (4) opening. The fyke net consisted of a series of five (5) hoops with two funnel-shaped throats with one (1) inch stretch mesh. The net was attached to two 25-foot leaders/wings that were used to guide the fish into the mouth of the net and its throats. Factors influencing gear choice at Wreck Pond included bathymetric contours, water depth, anticipated spring tide levels, fish survivability, anticipated fish size, and tidal current.

Water quality and depth at the sampling station was obtained each sampling event with a multi-probed YSI 6920 Environmental Monitoring System and a 650 MDS data-logger. Parameters measured included depth of water from substrate to surface, conductivity, specific conductivity, salinity, dissolved oxygen, water temperature, pH, and turbidity.

3.3 SAMPLING METHODS

3.3.1 Initial Herring Tracking

As stated previously, initiation of spawning runs for alewife and blueback is temperature dependent (Bigelow and Schroeder, 2002; Bozeman and Van Den Avyle, 1989; Loesch, 1977). Alewife initiate spawning runs when water temperatures are between 5°-10°C, whereas blueback spawning begins in water temperatures between 10°-15°C (approximately 3-4 weeks after initiation of alewife migration in sympatric areas). ENSR monitored water temperatures and preliminary movement of alewife daily along the New Jersey coast via local Internet sites and through marine forecasts. Once an inshore temperature target of 5°C was reached, ENSR initiated contact with local bait shops and fishing clubs located north and south of Wreck Pond (i.e. Long Beach Island, Point Pleasant, Shark River, Brick, Brielle, Belmar, Bradley Beach, Long Branch, and Asbury Park) every two to three days to pinpoint herring movement. In addition, Wreck Pond Watershed Association representatives were contacted to identify an increase in bird activity at the pipe opening or within the open waters of the Pond that may be indicative to an increase in fish activity. ENSR also provided a "24-hour Herring Hotline" to the aforementioned organizations as a further safeguard by providing a direct link to the ENSR Project Manager and the sample team. Once verbal confirmation that alewife were within a 5-10 mile radius of the Wreck Pond outfall pipe and the inshore water temperature remained within documented spawning range, gear and survey team were mobilized.

3.3.2 Preliminary Gear Investigations

On April 11, 2006, ENSR performed a preliminary gear set to determine most effective positioning of gear, evaluate tidal currents and associated gear stress, and to determine proper mesh size (1" stretched). Preliminary gear evaluations were initiated at the beginning of the flooding tide during a lunar cycle when the tide range and incoming water volume was greatest in order to simulate a worst-case scenario for gear integrity. Gear was left in place for approximately three and one-half (3.5) hours, checked periodically, and removed upon completion of evaluation. Gear was staked and set against the incoming flood current on the western side of the railroad bridge with wings extended nearly the entire width of the channel beneath the bridge (Appendix C, Photo Log). This ensured a maximum catch of species migrating upstream. A small gap, roughly 3 feet on either side of each wing was left opened to promote uninhibited waterfowl and mammal access underneath the bridge. This shoreline gap was located above the mean low tide line and therefore only passable by aquatic organisms during a high tide. Gear adjustments were made throughout the preliminary evaluation to ensure gear integrity. Upon completion of the preliminary evaluation, gear was removed off-site. Stakes were left in place in order to expedite sampling set-up once a migratory window for alewife and blueback was identified.

3.3.3 Physical Herring Sampling and Processing

Sampling was scheduled to coincide with appropriate lunar tides and water temperature specific to species migration and spawning. The first sampling event (Sample Event 1) was initiated on April 12, 2006 at 0600 hours and terminated on April 15th, 2006. The remaining two sampling events were performed April 27th - 29th, 2006 (Sample Event 2) and May 11th - 15th, 2006 (Sample Event 3). During Sampling Events 1 and 3, the net sampled continuously, 24 hours a day, except when being processed. The net was deployed, retrieved for processing, and redeployed every 12 hours. To prevent possible net tampering associated with an increase in daytime angling effort during week-end sampling, only night sets were performed during the second sampling event (April 27th - 29th, 2006). Gear was set at approximately 1800 hours each night and retrieved 12 hours later. Collected species were processed on-site, released, and gear was removed off-site until redeployment

the next evening. In addition, signage was posted to alert local residents and anglers that scientific research was being performed and to report any net tampering during the sampling event. Survey related photos depicting signage and net placement are given in Appendix C.

The fyke net was positioned beneath the railroad bridge located immediately west of the First Avenue Bridge and east of Route 71 (Figure 1). For each event, the fyke net was positioned and staked in the same manner as the preliminary evaluation (Appendix C, Photo Log) and checked every 12 hours or slightly after each flood tide as recommended by New Jersey Bureau of Marine Fisheries (Don Byrne, NJDEP, pers. comm. November, 2005). Each sampling event lasted between 3 and 5 days and concluded when NJDEP notified ENSR that sufficient sampling had been done and a noticeable decrease in herring numbers was evident.

The net retrieval process consisted of untying the cod-end of the net from its stationary stake, swinging the southern most wing northward in a counter-clockwise direction, and then pulling the net to the northern shore for fish processing. Once within a foot or two of the shoreline, the net was carefully lifted one hoop at a time to clear each of the five (5) net chambers and allow for sample accumulation within the cod end. Both the net chambers and wing mesh were inspected for tears and cleared of fish. The cod-end remained within the water during processing to increase survivability of collected species. Each team member wore fish sorting gloves, and specimens were removed and sorted by species one at a time and placed in semi-submerged sampling baskets. Smaller species were placed in buckets filled with water. Herring species were processed first to reduce species stress and mortality associated with the handling and collection process. Those species that did not survive were removed off-site.

Processing of herring species included confirmation of taxonomic identification, enumeration, individual length determination, and batch weighing. To show representative size of the collected assemblages and possible age class, fork length (FL) and total length (TL) were recorded for 25 individuals. In addition, species condition at time of release (i.e. live, fresh dead, or dead) for each herring species was recorded on ENSR data sheets (Attachment D). Weight measurements were taken in kilograms or grams depending on number of species collected. Sorting baskets or buckets were tared prior to weight determination. Length measurements were taken to the nearest centimeter. Once individual processing was complete, live specimens were released back into the waterbody upstream of the sample site. Specimen were revived by gently passing water through their gills, when necessary. In addition to processing blueback and alewife, ENSR processed, enumerated, weighed, measured, and identified all other collected species to the lowest practical taxonomical level. Based on previous surveys, net design, and the urgency to minimize mortality, fish processing (to include enumeration and identification of subsidiary species), was expedient and did not require a significant amount of additional time. Other species were identified, measured, and enumerated but not necessarily weighed.

4.0 RESULTS

A total of three fyke net sampling events lasting three (3) to five (5) days in duration were conducted in Wreck Pond April 13th - 15th (Event 1), April 27th - 29th (Event 2), and May 11th - 15th, 2006 (Event 3). Deployment/retrieval times were based on local tide tables for the open Atlantic Ocean in the nearshore waters of Belmar, New Jersey. Due to the landward distance of the sampling site from the outfall and the capacity of the eastern end of the pond to hold water before breaching the elevated riprap beneath the railroad bridge, the timing of the ebb and flood tides were found to lag considerably from published tide charts of the area (approximately 2-3 hours). Net deployment/retrieval times were amended to compensate for this tidal difference. Tidal information for each sampling event is given in Table 4-1. Upon completion of species processing, nets were redeployed and retrieved until that particular sampling event was terminated.

Table 4-1 Tide Tables for Belmar

Tide Table for Belmar, New Jersey									
April 13-15 and 27-29									
May 11-15									
Date	High Tide	High Tide	Low Tide	Low Tide	Sunrise	Sunset	Moonrise	Moonsset	Phase
4/13/06	751am 4.5	810pm 5.0	147am 0.1	155pm 0.2	621am	733pm	750pm	750pm	Full
4/14/06	825am 4.4	841pm 5.1	227am 0.1	229pm 0.3	619am	734pm	855pm	855pm	
4/15/06	859am 4.3	913pm 5.0	306am 0.1	302pm 0.3	618am	735pm	1003pm	1003pm	
4/27/06	729am 5.1	751pm 6.0	126am -0.6	131pm -0.6	600am	747pm	539am	801pm	New
4/28/06	818am 5.0	836pm 5.9	217am -0.6	217pm -0.4	559am	749pm	610am	918pm	
4/29/06	907am 4.8	922pm 5.7	305am -0.5	302pm -0.2	558am	750pm	646am	1033pm	
5/11/06	641am 4.2	702pm 5.1	1236am 0.4	1238pm 0.4	544am	802pm	643pm	436am	
5/12/06	721am 4.3	737pm 5.3	120am 0.2	117pm 0.4	543am	803pm	751pm	500am	
5/13/06	759am 4.3	812pm 5.3	204am 0.1	157pm 0.4	542am	804pm	900pm	530am	Full
5/14/06	838am 4.2	850pm 5.3	246am 0.0	237pm 0.4	541am	805pm	1009pm	607am	
5/15/06	921am 4.1	932pm 5.2	328am 0.0	318pm 0.5	540am	806pm	1113pm	654am	

Note: Tides are measured in feet from MLLW

In total, the fyke net was deployed 17 times for an estimated soak time of 204 hours. A total of 229 alewife and one (1) blueback herring were collected during all three (3) events. Table 4-2 gives number and type of herring caught by event, batch weight, and percent mortality. Sampling incurred a 28% total mortality for clupeid species over the entire sampling period. Individual lengths and species condition prior to release are given in Appendix D, Data Sheets. Further details are in the Field book entries located in Appendix E.

Table 4-2 2006 Herring Data at Wreck Pond by Sampling Event

Sampling Event	Sample Dates	Alewife Collected	Blueback Collected	Number Survived	Mortality (%)	Comments
1	4/13/06 - 4/15/06	113	0	73	35%	
2	4/27/06 - 4/29/06	36	0	15	58%	
3	5/11/06 - 5/15/06	80	1	76	5%	includes 1 blueback
	Total	229	1	164	28%	

In addition to the target collection for alewife and blueback herring, ENSR processed, enumerated, weighed (when applicable), measured, and identified all other collected species to the lowest practical taxonomical level (Appendix D). A total of 16 other fish species, were collected during the surveys and include the following: white perch (*Morone americana*), banded killifish (*Fundulus diaphanus*), striped killifish (*Fundulus majalis*), mummichog (*Fundulus heteroclitus*), American eel (*Anquilla rostrata*), silverside (*Menidia menidia*), black crappie (*Pomoxis nigromaculatus*), golden shiner (*Notemigonus crysoleucas*), pumpkinseed (*Lepomis gibbosus*), yellow perch (*Perca flavescens*), brown bullhead (*Ameiurus nebulosus*), brown trout (*Salmo trutta*), chain pickrel (*Esox niger*), bluegill (*Lepomis macrochirus*), goldfish (*Carassius auratus auratus*), and large-mouth bass (*Micropterus salmoides*). In addition to the above-listed species, one (1) blue crab (*Callinectes sapidus*), one (1) painted turtle (*Chrysemys picta picta*), and one (1) dead female river otter (*Lutra canadensis*) weighing roughly 30 to 35 pounds were collected in the fyke net. The otter was discovered during the morning net retrieval on May 12, 2006. The otter was removed off-site and delivered to the NJDEP at the Nacote Creek Field Station located in Port Republic, New Jersey for further analysis (as requested by Andrew Burnett of the NJDEP Division of Fish and Wildlife). Total species count per net retrieval is displayed on Table 4-3 (Summary of Sampling Results per Event).

Table 4-3 Summary of Species Collected By Sampling Event at Wreck Pond April -May 2006

Sample ID Number	Alowite	Blueback	White Perch	Killifish	Striped Killifish	Mummichog	American eel	Blue Crab	Silverside	Painted Turtle	Black Crayfish	Golden Shiner	Pumpkinseed	River Otter	Yellow Perch	Brown Bullhead	Brown Trout	Chain Pickerel	Bluegill	Goldfish	Largemouth Bass	
Event #1																						
WP041306001	56		1		1			1							2		1	1	1	1		
WP041306002	1		3		1																	
WP041406001	16		7		5	26	1		5			1										
WP041406002						2																
WP041506001	40		3	4	3	3		2	3													
Subtotal	113		14	4	6	31	2	3	8						2		1	1	1	1		
Event 2																						
WP042706001	30		10				1		1													
WP042806001	3		20																			1
WP042906001	3		3				6	1	3													
Subtotal	36		33				7	1	4													1
Event 3																						
WP051106001	12		12		24	1	1	1	5	1												
WP051106002			2		1	1		1														
WP051206001	22		12			1		1			2	1		1								
WP051206002						1		1				1										
WP051306001	33		14			2	1	1	2			1			1							
WP051306002			1					1				1										
WP051406001	8		13				2	3														
WP051406002								1														
WP051506001	5		1	12	2			1														
Subtotal	80		66		29	7	4	11	7	1	2	2	3	1	1	1	1	1	1	1	1	
Total	229		113	4	35	38	13	15	19	1	2	2	5	1	3	1	1	1	1	1	1	

During each event, individual water quality measurements were taken near the cod-end of the net with a YSI 6920 multi-probed water quality meter and 650 MDS data logger. Water Quality Data for each individual sampling event (every 12 hours) is given in Table 4-4.

Table 4-4 Wreck Pond Water Quality Data for Each Sampling Event 2006

Sample ID Number	DateTime M/D/Y	Temp F	SpCond uS/cm	Cond uS/cm	Salinity ppt	DO Conc mg/L	DO% %	pH	Turbidity+ NTU
Preliminary	4/11/2006 16:30	64.90	365.00	318.00	0.18	11.66	124.00	6.96	n/a
1st Net Set	4/12/2006 17:30	63.52	331.00	283.70	0.16	122.5	11.71	7.47	n/a
WP041306001	4/13/2006 6:00	54.04	256.40	193.90	0.12	9.05	84.50	6.62	n/a
WP041306002	4/13/2006 17:39	68.53	457.20	416.10	0.22	9.13	101.10	7.34	10.40
WP041406001	4/14/2006 7:17	56.83	289.30	227.30	0.14	6.59	63.70	7.28	4.00
WP041406002	4/14/2006 18:01	58.86	267.80	216.30	0.13	9.33	92.40	7.34	3.80
WP041506001	4/15/2006 6:05	54.79	283.30	216.50	0.14	7.53	71.00	7.07	3.10
WP042606001	4/26/2006 19:23	62.29	9208.00	7771.00	5.18	8.13	86.50	7.10	24.90
WP042706001	4/27/2006 7:37	57.47	25118.00	19910.00	15.34	5.46	58.40	7.24	14.70
WP042706002	4/27/2006 17:43	66.46	479.00	425.00	0.23	9.32	100.90	6.55	8.60
WP042806001	4/28/2006 6:37	56.27	8510.00	6639.00	4.76	8.28	81.80	7.09	11.80
WP042806002	4/28/2006 19:03	66.60	798.00	710.00	0.39	10.72	116.40	7.00	40.80
WP042906001	4/29/2006 6:08	55.59	555.00	429.00	0.27	8.84	84.30	6.98	11.00
WP051006001	5/10/2006 18:19	67.82	14511.00	13093.00	8.45	11.98	138.10	8.36	11.10
WP051106001	5/11/2006 6:33	61.28	11710.00	9754.00	6.71	8.02	85.10	7.38	31.20
WP051106002	5/11/2006 18:07	62.61	5587.00	4731.00	3.04	10.84	114.20	8.16	18.80
WP051206001	5/12/2006 6:16	59.26	337.00	274.00	0.16	9.02	89.80	7.27	15.10
WP051206002	5/12/2006 16:25	70.58	285.00	266.00	0.14	9.69	109.60	7.06	19.50
WP051306001	5/13/2006 8:59	63.69	1731.00	1486.00	0.88	7.18	75.60	6.85	13.60
WP051306002	5/13/2006 17:48	72.61	369.00	351.00	0.18	10.01	115.70	6.99	12.00
WP051406001	5/14/2006 9:25	61.60	5216.00	4363.00	2.82	8.42	87.60	7.28	11.50
WP051406002	5/14/2006 18:45	68.83	707.00	646.00	0.35	11.16	124.00	7.34	16.80
WP051506001	5/15/2006 8:29	59.95	1586.00	1298.00	0.8	8.74	88.10	7.29	11.40

5.0 CONCLUSIONS

The core objective of ENSR's sampling program was to determine if the newly constructed 300-foot extension of Wreck Pond's existing outfall pipe interrupted or deterred the natal migratory patterns of spawning alewife and blueback herring. Since previous data enumerating alewife and blueback herring movement in Wreck Pond are non-existent or anecdotal, baseline data for clupeid movement, abundance, and potential age/length distribution, as well as useful secondary information of other fish species, was collected during herring spawning as a condition of the aforementioned NJDEP Permit.

Overall, the results and species collected during the Spring 2006 survey indicate presence and movement of alewife and blueback herring within Wreck Pond and most likely the unhindered inshore/offshore passage of both species through the newly extended outfall. However, the presence of alewife does not necessarily verify anadromous migratory movement within a waterbody. Based on the nature of alewife biological life history, this species can exist in a landlocked system (Scott & Crossman 1973). Due to the lack of historical data, it is unknown if Wreck Pond can or does support such year round alewife residency. In contrast, there are no known records of blueback herring existing solely in freshwater environs, and therefore, presence of blueback herring would indicate anadromous clupeid migration into Wreck Pond and use of the outfall structure during spawning season. Since alewife and blueback occur sympatrically, it is reasonable to assume that migratory behavior would also be relatively sympatric. The confirmed presence of one blueback herring in Wreck Pond substantiates that alewife collected are most likely not part of a landlocked population but rather constitute an inshore anadromous assemblage. This confirmation of an anadromous assemblage, in conjunction with presence of both herring species, further demonstrates the unimpeded, inshore migratory movement of clupeids from coastal waters, through the newly extended outfall, and upstream of Wreck Pond to natal spawning grounds.

The collection and abundance of estuarine/marine forage species in areas of low or variable salinity (i.e. 19 Atlantic silversides at the railroad bridge) are usually indicative to the presence of larger marine predatory species in the area (Froese and Pauly, 2001). Due to their limited salinity tolerance, presence and temporal distribution for marine predatory species in areas of variable salinities like those confirmed at the sample site would be restricted by tidal fluctuation. During ebb tide, distribution of predatory species would be limited to the lower portions of the estuary or require unobstructed accessibility to offshore areas of uniform salinities. Salinities recorded at the sample site would not support survivability of some marine predatory species for long periods. Therefore, the presence of an available forage base at the collection site, in conjunction with variable salinities, would indicate the need for larger, salinity dependent species to have access to offshore waters. Their assumed inshore/offshore movement further corroborates that clupeid migration through the newly extended culvert is unimpeded. In addition to the presence of Atlantic silversides, presence of euryhaline or other diadromous species (blue crabs, American eel, and white perch) could also be considered further evidence to uninhibited fish passage through the outfall extension.

Another objective of the survey was to quantify and determine if the amount of alewife or blueback herring collected represented a viable spawning run. A total of 229 alewife and one (1) blueback herring were collected during the survey event. Since pre-construction, baseline data for Wreck Pond did not exist for comparison, it was difficult to determine if the number of alewife or blueback collected differed historically or could be categorized as a viable spawning run. Correspondence received from the New Jersey Bureau of Marine Fisheries in August 2006 indicated the number of alewife collected was sizeable and that the large number collected suggested the extended outfall was not an obstacle or hindrance to alewife migration.

However, since only one blueback was collected, the NJDEP recommended that late season adult runs be monitored in 2007. As stated earlier, in areas of sympatric occurrence, there is a three to four week time difference between alewife and blueback spawning runs. Spawning times can also extend through August as long as temperatures remain below 27°C. Possible reasons why only one blueback was collected could be due to time of sampling, wind direction, water temperature, and the possibility that the pipe extension hinders mass movement of blueback. The presence of a single blueback does indicate the potential for uninhibited passage but does not quantify the number of bluebacks that could potentially transit the area later in the season. Further studies targeting and verifying blueback migration in Wreck Pond using both active and passive collection techniques should be accomplished. Additional annual sampling may provide a comparison for quantifying species presence.

In summary, even though the Spring 2006 survey does not quantify comparable abundance between pre- and post construction of the outfall pipe extension, it does indicate movement of alewife and blueback within the basin and most likely inshore/offshore passage of clupeid species through the outfall. The relatively large number of alewife caught in the fyke net shows that the extended outfall is not an impediment to their migration into Wreck Pond, whereas the collection of a single blueback neither confirms nor denies species mass movement into the waterbody. However, if presence is an indicator to unobstructed migration, then outmigration of both juvenile alewife and blueback herring would follow suit and not be obstructed (Don Byrne, NJDEP, pers. comm. August, 2006). Based on recommendations received from the New Jersey Bureau of Marine Fisheries (Don Byrne, NJDEP, pers. comm. August, 2006), sampling the fall outmigration of juvenile herring is not necessary because such movement can be inferred from the current results. Additional annual studies are necessary to document more completely the abundance, distribution, and migratory success of those herring that may transit the outfall pipe. Further water quality testing to determine head of tide and species extent may be needed to pinpoint poly-, meso-, and oligohaline boundaries and further track spawning success.

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Appendix A

Qualifications

Aleksandr C. Modjeski

Years Experience: 11

Technical Specialties

- Aquatic Science
- Benthic Ecology
- 316(b) Compliance
- Environmental Impact Assessments
- Feasibility Studies
- Monitoring Surveys
- Species Identification and Enumeration
- Threatened and Endangered Species

Professional History

- ENSR Corporation
- The Louis Berger Group, Inc.
- NJDEP Bureau of Marine Fisheries
- Nacote Creek Research Facility
- Forsythe National Refuge (USFWS)

Education

- B.S. (Marine Biology, Richard Stockton College of New Jersey) Richard Stockton College

Training

- Identification and Habitat of Freshwater Fisheries of the Northeast (2003)
- CPR certified/ First Aid
- GPS Mapping Trimble Pro XRS
- YSI 68200/610 DM Environmental Monitoring System
- Methodology of Wetland Delineation Certification
- Threatened and Endangered Species of Southern New Jersey
- Stream Restoration and Bioengineering Concepts
- FERC Environmental Compliance Training (2003)
- Calling Amphibians Vocal Identification Training (2003)

Professional Registrations and Affiliations

- OUPV USCG licensed boat captain (upgrading to 100 ton master's license)
- Coastal America/NJ Corporate Wetlands Restoration Partnership
- Shark River Clean-up Coalition, Chair of Wildlife
- Bradley Beach Environmental Commission (New Jersey)
- Mid-Atlantic Coastal Lakes Commission
- Association of State Wetland Managers – Member
- Northeast Aquatic Plants Management Society – Member
- North American Lake Management Society - Member

Representative Project Experience

Conectiv Power Delivery, Essential Fish Habitat Assessment (EFH), Mullica River, NJ. Task Manager and Senior Marine Ecologist that performed an EFH Assessment along the proposed Cardiff to Oyster Creek 203 kV transmission line crossing for the Mullica River (located within the Jacques Cousteau NERR site) and for five other (5) tidal waterbodies. Duties included analysis of NJDEP GIS Head-of-Tide Information, site visits and field observations, water quality assessment, field report, and correspondence with the NJDEP Bureau of Tidelands and NMFS. Based on his findings, it was determined that proposed work would not impact Essential Fish Habitat or anadromous fish migration/spawning. NMFS concurred with his assessment and "no impact" conclusion.

Kinder Morgan Buckeye Pipeline Expansion Project, Essential Fish Habitat (EFH) Assessment, Rahway River, NJ. As Task Manager and Senior Marine Ecologist, conducted an Essential Fish Habitat (EFH) Assessment for the proposed installation of a 2.14-mile, 16-inch diameter pipeline across the Rahway River and three tidally influenced tributaries (Ralph's Creek, Marshes Creek, and Cross Creek). Conducted a field habitat assessment at each proposed crossing to determine habitat type and general habitat quality, substrate type, locations of fish passage impediments and obstructions, water quality, and extent and variance of salinity. Other duties included coordination with NMFS and USACE, desktop research, and the quick-turn, completion of EFH Assessment report.

Minerals Management Service, Environmental Report for Use of Federal Offshore Sand for Beach Nourishment, New Jersey, Delaware, Maryland, and Virginia. As project fisheries biologist, prepared various sections for an Environmental Report (ER) by identifying and synthesizing all available information and identifying and analyzing environmental issues and possible mitigation for the use of Federal Outer Continental Shelf (OCS) sand, primarily to offset severe coastal storm damage in the States of New Jersey, Delaware, Maryland and Virginia. The compiled information was used during the preparation of required National Environmental Policy Act (NEPA) documents to support the issuance of noncompetitive leases for planned and emergency nourishment projects. The information and analyses was also used to support possible competitive lease sales for offshore aggregate resources.

Hill Wallack Attorneys at Law, Expert Fish Testimony and Litigation Support, Hamilton Township, NJ. Senior Fisheries Scientist, expert witness, and co-author of a Technical Review and Assessment Report addressing permitting issues and fish passage to anadromous and warm water fisheries from the completed construction of single span bridge versus

the proposed construction of a dual cell box culvert over Watering Race Branch located at the US Route 322 and US Route 50 interchange in Hamilton Township, New Jersey. Provided expertise in benthic communities, warm water and anadromous fish passage, regulatory compliance, construction feasibility, fish migration, essential fish habitat (EFH), and stream morphology. In addition, a habitat assessment upstream and downstream of the water crossing was conducted to determine spawning suitability for clupeid species, current speed, existing natural and anthropogenic fish impediments, water quality, and availability of forage habitat.

Middlesex County River, Essential Fish Habitat (EFH) Assessment, Basilone Memorial Bridge, Raritan, NJ. As primary aquatic scientist, conducted an Essential Fish Habitat (EFH) Assessment for proposed modifications to the fender system of the Basilone Memorial Bridge located 10.2 miles from the mouth of the Raritan River. Water quality surveys were conducted to determine the extent of saltwater intrusion in order to determine the possible seasonal presence of juvenile federally managed species.

Hoagland Longo, Kettle Creek Habitat Assessment, Brick, NJ. Task manager and Senior Aquatic Biologist that conducted a general stream characterization and habitat assessment upstream and downstream of the Brick Boulevard Kettle Creek dual culvert crossing in Brick Township, Ocean County, New Jersey. The purpose of the assessment was to determine if Kettle Creek possessed similar morphological and physical characteristics comparable to Watering Race Branch, located in Hamilton Township, Atlantic County, New Jersey (ENSR, 2004), and therefore could have similar roadway crossing culvert structures installed. Analysis of results was conducted to characterize upstream/downstream habitat suitability within the stream corridor relative to warmwater and anadromous fish passage and utilization for spawning.

New Jersey Highway Authority, Pine Creek Mitigation, Essential Fish Habitat (EFH) Assessment, Middlesex County, NJ. As senior aquatic scientist, conducted an Essential Fish Habitat (EFH) Assessment of a proposed mitigation site along the Raritan River. Mitigation was proposed to compensate for various rehabilitations and improvements to the Driscoll Bridge located along the Garden State Parkway. The assessment determined that the proposed project would not adversely affect anadromous fish migration, warmwater fish spawning, or EFH managed species. The USACE and NMFS concurred with these findings.

Conectiv Power Delivery, Environmental Assessment, Cedar to Ship Bottom, NJ. Project Manager/Senior Environmental Scientist and co-author of an EA for the proposed upgrading of two transmission lines originating in

Stafford Township, New Jersey with terminus in Ship Bottom, New Jersey. Primary environmental issues included impacts to SAV habitat, EFH, HAPC, T&E species, navigation, recreational and commercial fisheries, benthic communities, and shore birds. Duties included identifying and synthesizing all existing information, identifying and analyzing environmental issues of concern associated with the installation of the proposed cables, analyzing the possibility of installation alternatives, attending agency and project meetings, and recommending mitigative measures for cable installation. Also addressed NJAC 7:7E special areas (CZM) and prepared/submitted waterfront development permit, one-fee Tideland's License, and USCAE Nationwide #3 and #12.

Hoffman Springs, Fisheries Survey Oversight, Lynn Township, PA.

Ongoing fisheries studies conducted by Hoffman Springs for brook and brown trout along Ontelaunee Creek indicated that the stream classification for this particular stretch was not of "exceptional value". In an attempt to reclassify the stream for "exceptional value", the Pennsylvania Fish and Boat Commission (FBC) conducted Mark/Recapture Surveys for brook and brown trout along Ontelaunee Creek located in Lynn Township, Pennsylvania. Capt. Al Modjeski of ENSR Corporation was present at each sampling event to observe/record collection and fish processing methodology to ensure that data was correct and to relay information on variations in methodology and sampling duration to that of previous studies. Based on the data collected, variations in methodology, and his oversight of sampling, it was determined that the stream was not of "exceptional value" and current plant operations could remain unchanged.

Fish Distribution Study, Southern NC and S.C. Research associate with Dr. Rudolph Arndt and Fred C. Rohde (NC Division of Marine Fisheries). Collected, identified, enumerated, and logged aquatic and herpetological specimens for ongoing research dealing with freshwater fish distribution in the North and South Carolina coastal plain and piedmont regions. Drainages and associated tributaries inventoried included the Waccamaw, Little Pee Dee, Pee Dee, Savannah, and Cape Fear Rivers. Fish species of interest included three species of madtoms, banded pygmy sunfish, and brook silverside. Used electro-shocker and varied sampling techniques. Assisted in identifying and documenting extensions to known ranges for brook silversides.

Athens Generating Plant 316(b) Compliance and Ichthyoplankton Entrainment Survey, Athens, New York. Senior Aquatic Scientist that performed ichthyoplankton entrainment sampling as part of 316(b) compliance for the newly constructed Athens Generating Plant located along the Hudson River. Sampling was conducted on a 24-hour basis. A pump system was constructed to allow for a 2-hour sampling event in which intake water was filtered through a

plankton net to determine entrainment percentage. In addition, water quality was also determined.

Reliant Energy, Inc., 316(b) Proposal for Information Collection (PIC), PA, OH, NY. Senior Aquatic Scientist and major contributor to the development of PICSs for three Generating Plants. To meet IM&E performance goals under the Section 316(b) Phase II Rule for each station, responsibilities included development of impingement and entrainment mortality sampling plans for individual stations, historical background research and ambient data collection, and determination of site-specific Best Technology Available (BTA).

Mad River Relocation Study - Fisheries Analysis, Waterbury, CT. As primary aquatic scientist, conducted a desktop analysis of the potential impacts of rerouting a segment of the Mad River located in Waterbury, Connecticut. Impacts to cold-water fisheries, recreational fisheries, anadromous fish migration and spawning, macroinvertebrate communities, and varied microhabitats associated with riverine ecosystems were identified and analyzed to determine the feasibility for relocation and determine minimal impacts. Possible mitigation and restoration plans for the relocated segment were proposed for the site to help promote a stable environment suitable to anadromous spawning for the Atlantic salmon upon relocation approval.

Great Spring Waters of America Habitat Assessment. Aquatic Biologist for Hoffman Springs habitat evaluation including fish, macroinvertebrates and water chemistry. Targeted species included brook and brown trout. Sampling equipment included D-net and electrofisher. Lehigh County, Pennsylvania

Appendix B

New Jersey Scientific Collections Permit



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date Issued: 03/29/06
Number: 0630

JON S. CORZINE
Governor

Division of Fish & Wildlife
P. O. Box 400
Trenton, N.J. 08625-0400
David Chanda, Acting Director
njfishandwildlife.com

LISA P. JACKSON
Commissioner

03/29/06 to 12/31/06

SCIENTIFIC COLLECTING PERMIT

TO WHOM IT MAY CONCERN:


Under provisions of New Jersey Statutes Annotated Title 23:4-52, permission is hereby given to:

Captain Aleksandr C. Modjeski, ENSR Corporation, 20 New England Avenue, Piscataway, NJ 08854 to collect river herring, (alewife and blueback) and other estuarine fish species that may use the outfall structure (see attached scope of work) from Wreck Pond. Gear to be used will be 1 fyke net with 25' to 30' wings, 5 hoops with 2 throats 4' high with 4'x4' opening, mesh size will be between 1" to 1.5" stretched set in Wreck Pond. No vessels will be used.

This permit is subject, but not limited to, the following conditions:

1. The person(s) named herein shall have this permit in their possession when collecting scientific specimens in marine, fresh, or estuarine waters of the State and must present it upon request to any official or citizen.
2. The holder of this permit shall notify the Marine Law Enforcement Region Office of his/her scientific collecting activities in any of the State's marine, fresh, or estuarine waters at least 24 hours in advance of their activities. Notification can be made in writing to the Marine Enforcement Office, P.O. Box 418, Port Republic, NJ 08241, or by calling 609-748-2050.
3. A report of the organisms collected (species, numbers, specific location where taken, dates of sampling) or a final report for the study for which the permit is requested shall be sent to the Administrator, Marine Fisheries, P.O. Box 400, Trenton, NJ 08625, within four (4) weeks of the expiration date or upon request for permit renewal, whichever is earlier.
4. The provisions of this permit may not apply to any of the species listed by the United States Government as endangered. Special provisions may apply for certain of these endangered species.

5. This permit does not convey the right to trespass.
6. Violation by the permittee or subsidiary permit holders of any condition of the permit or any state law or regulation promulgated pursuant to N.J.S.A. 23 or 50 or N.J.A.C. 7:25 or 7:25A shall render this permit null and void and subject all parties to prosecution in addition to permit revocation upon conviction. Applications for future permits may also be denied.
7. The holder of this Scientific Collecting Permit is also required to have in his/her possession a "Special Permit for Research" from the Division of Watershed Management, Bureau of Marine Water Monitoring, P.O. Box 405, Leeds Point, NJ 08227, prior to the taking of shellfish (clams, oysters, mussels) for scientific purposes from the marine or estuarine waters of the State that are designated "Prohibited," "Special Restricted," or "Seasonal Special Restricted" (N.J.S.A. 58:24-3, and N.J.A.C. 7:12-2). A chart of these designated waters may be obtained from the Bureau of Marine Water Monitoring.



Thomas W. McCloy, Administrator
Marine Fisheries Administration

bd
c: Marine Enforcement Region Office
Mark Doblebower, Chief, Bureau of Law Enforcement
Lt. Roy Bubigkeit, NJ State Police
Marion Petruzzi, Bureau of Marine Water Monitoring

Subsidiary Student or Employee Permit Holders:

Melissa Smith
James Alderson
Jon Senchisen
Gretchen Mattes
Jeff Holzer

Appendix C

Photo Log

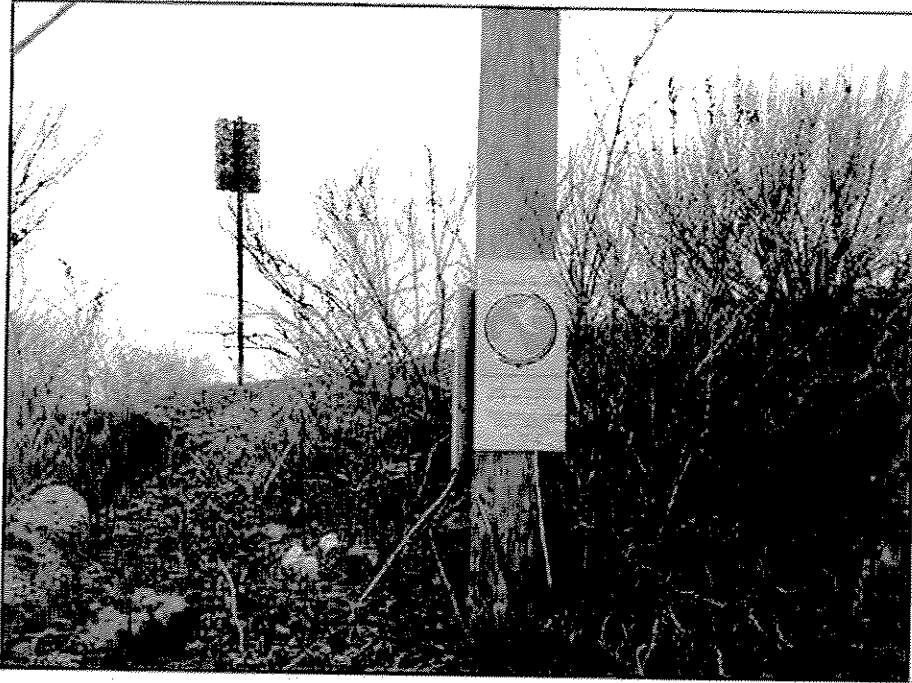


Photo 1: View showing signs posted at sampling location stating "Scientific Research – Do Not Tamper With Nets". Contact phone numbers including 1-800-WARN-DEP and the direct contact number for the ENSR project manager were listed.

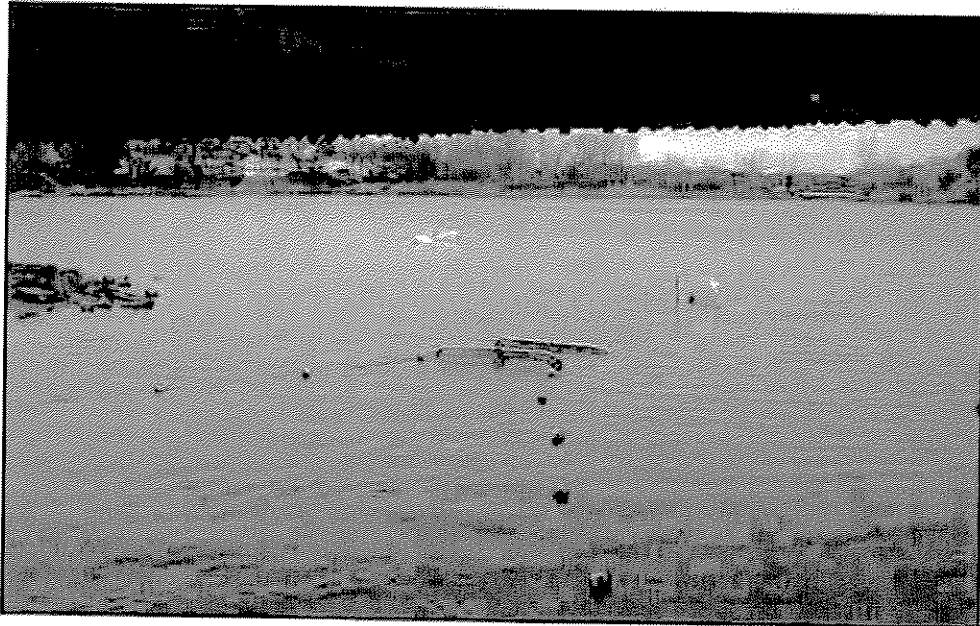


Photo 2: View looking west from beneath the railroad bridge showing a typical fyke net set at low tide. Cod end of the net is attached to the anchored post seen near the orange buoy.



Photo 3: Another view of a typical net set at ebb tide showing the entire width of the fyke net wings and exposed gravel area on sides during low tide to promote unhindered waterfowl passage.



Photo 4: View looking down on net set during a high tide from railroad bridge. Hoops of net are submerged just below water surface. Shoreline adjacent to channel exposed during low tide underneath bridge is submerged and tide line extends to concrete walls on either side.



Photo 5: View looking at rocks placed to anchor the lead-line of net wings. Float line was attached to beams of bridge. White spray paint was used to mark net placement and track net tampering.



Photo 6: View showing ENSR staff deploying net at ebb tide.

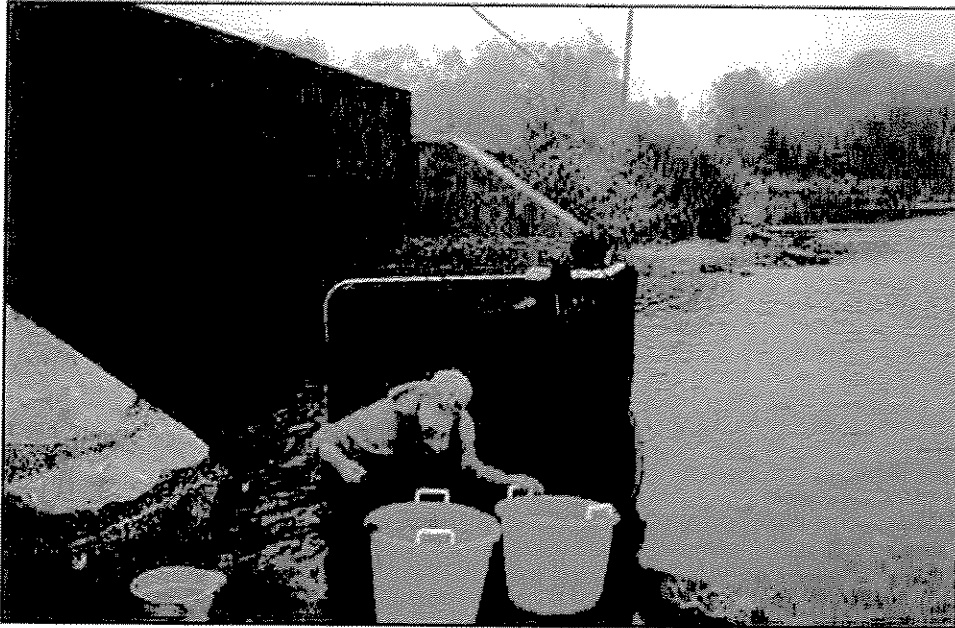


Photo 7: View showing ENSR staff working with fyke net to carefully remove fish from cod end of the net. Fish were placed in semi-submerged orange baskets during processing to increase survivability.

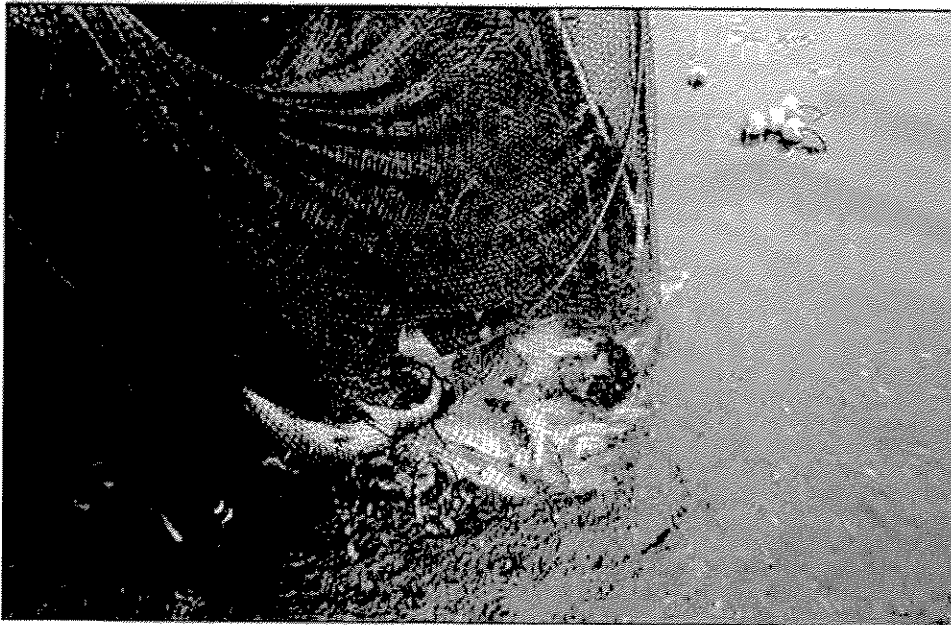


Photo 8: View showing fish collected immediately post net retrieval. Fish were gently shaken into cod end while still remaining partially submerged in order to reduce mortality during processing.



Photo 9: View showing ENSR staff processing collected species and batch weighing like species.



Photo 10: Another view of ENSR staff processing collected species. Same species were sorted into partially submerged orange baskets to increase survivability.

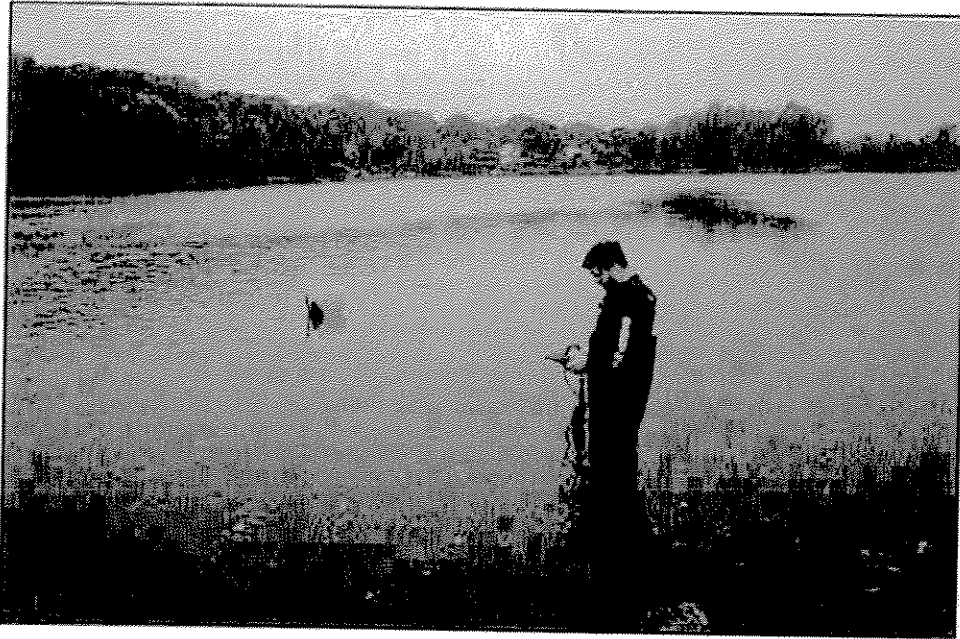


Photo 11: View showing water quality measurements taken via a multi-probed YSI Environmental Monitoring System. Measurement parameters included conductivity, specific conductivity, salinity, dissolved oxygen, temperature, pH, and turbidity.



Photo 12: A live alewife collected during sampling prior to release back into the system.

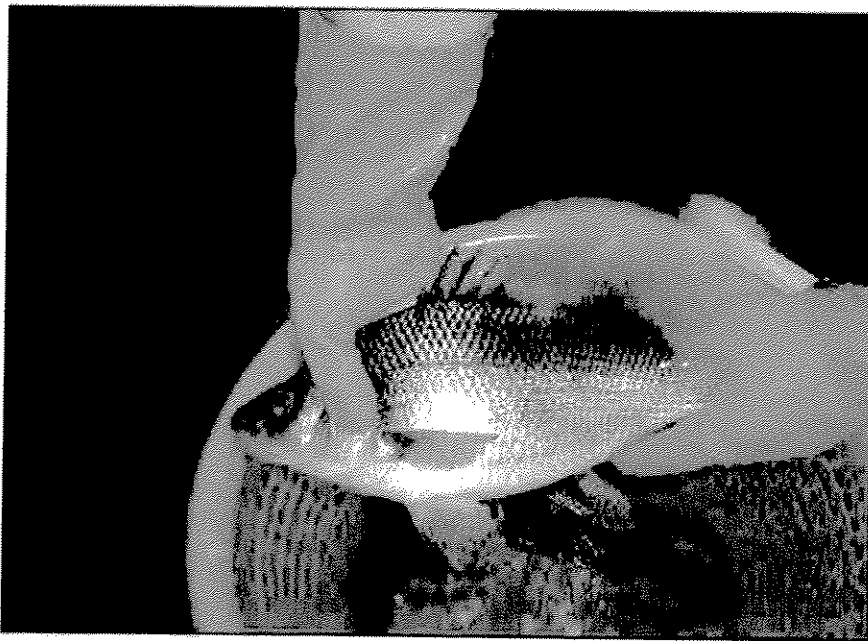


Photo 13: White perch of varying lengths were collected throughout each sampling event. Gloves were worn to protect the surveyor and to decrease loss of scales on clupeid species.



Photo 14: View looking at examples of common species collected including Atlantic silversides, mummichogs, banded killifish, and striped killifish.

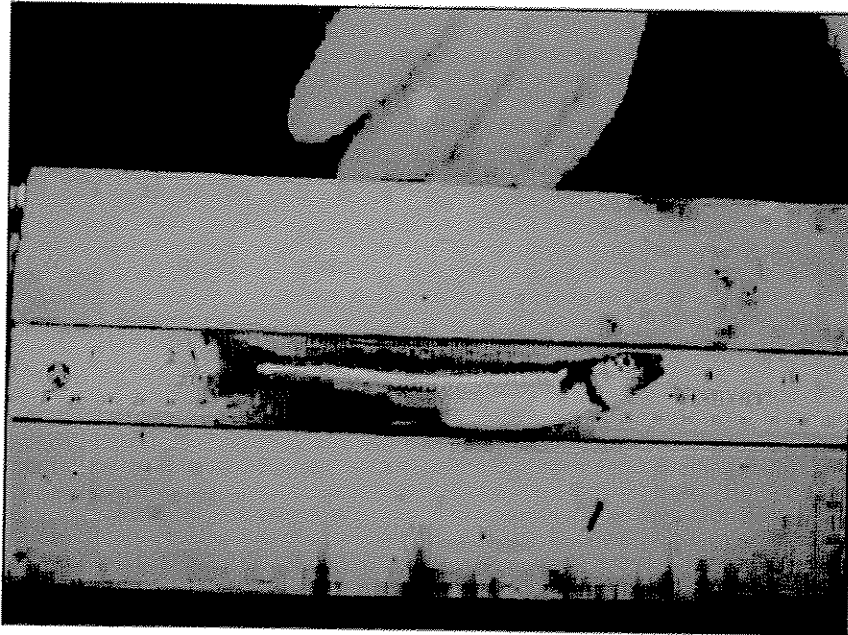


Photo 15: View showing representative size of a collected silverside.



Photo 16: Freshwater species collected included 2 brown bullheads and a yellow perch. Other freshwater species collected included brown trout, largemouth bass, goldfish, pumpkinseed, and black crappie.

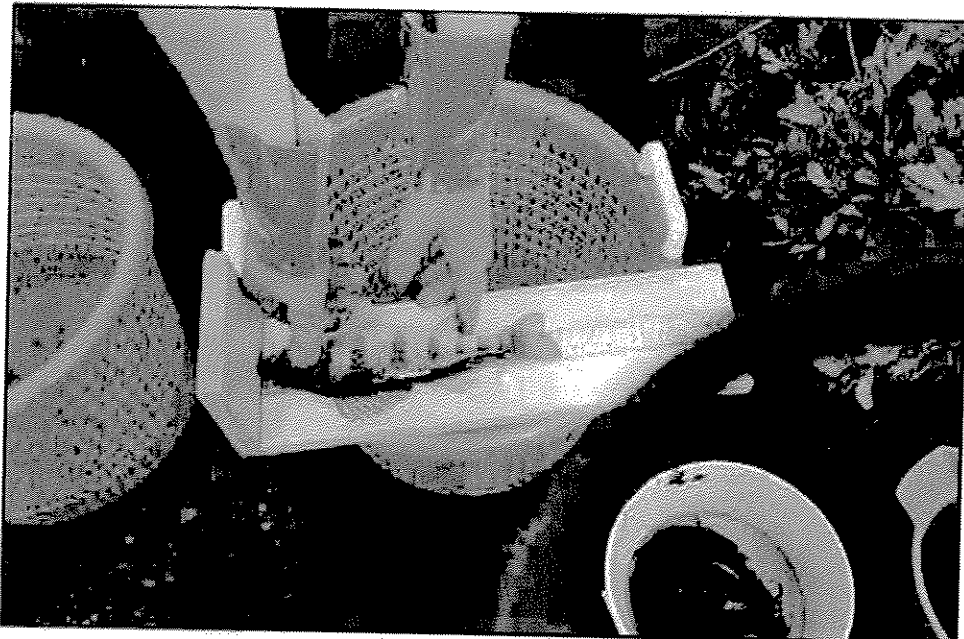


Photo 17: View showing processing of collected specimen (yellow perch).



Photo 18: View showing processing of commonly collected white perch.

Appendix D

Data Sheets

White Buckert 179
(WB)

YSI IN 0615 12103-001-300
YSI OUT 0705 ENSR AF(OM)

Herring Project Data Sheet

Location: Wreck Pond Spring Lake NJ Field Crew A. Madjeski, M. Smita

Page of 2

Sample Number: 1

Weather: 60° Wind SSE @ 10-15 mph, partly cloudy

Date: 4/13/06

Net Deployment time: 1815

Water Quality: _____

Net Retrieval time: 0615

Time collecting: 12 hrs

Number of species: 9

Total Number of Individuals 65 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Striped Killifish		1	8cm 10.5g FD	
Brown Trout		1	26cm .5kg L	
Pickrel (channel)		1	48cm .75kg L	
Yellow Perch		2	23cm 2kg-OB L 18cm	
White Perch		1	26cm 1.75kg L	

Data Recorder: _____ Signature: _____

Station Name: Wreck Pond RR Bridge

Date: 4/13/06

Sample 1

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)		Anomalies / Observations
Goldfish		1	14cm	28.2g	FD
Bluegill		1	7cm	4.0g	FD
Blue Crab		1	3cm	L	
Alewife	Total 13.75kg -OB	56 Total	26cm	26-L	30-FD
	Sub Sample 7kg (5 OB) -OB	25 subtotal	27 28 28 29 29 28 25 29	29 cm 27 28 27 28 25 25 28	
				(Total Length)	

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

ENSR ACCOUNT

Page of 1

YSI IN 0716
YSI OUT 0717

Location: Weeks Road Field Crew: A Modjeski, N. Smith Date: 4/14/06

Sample Number: 3 Weather: 53°F, Wind ^{WSW} 20 mph, Mostly Cloudy Water Quality: _____

Net Deployment time: 1840 Net Retrieval time: 0715 Time collecting: _____

Number of species: 7 Total Number of Individuals: 61 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Alewife	4.75g(w) -0.05	16	FL-27 TL-30 L	
			FL-24 TL-26 L	
			FL-25 TL-28 L	
			FL-25 TL-28 L	
			FL-26 TL-29 L	
			FL-24 TL-27 L	
			FL-24 TL-27 L	
			FL-24 TL-26 L	
			FL-26 TL-29 L	
			FL-25 TL-28 L	
			FL-22 TL-25 L	
			FL-21 TL-23 L	
			FL-22 TL-25 L	
			FL-22 TL-25 L	
			FL-24 TL-27 L	
			FL-24 TL-27 L	
White Perch	5.5 kg WB	7	TL-30 L L	
			TL-35 L L	
			TL-37 L L	
			TL-35 L L	

Data Recorder: _____ Signature: _____

Herring Project Data Sheet

VSI in
VSI out
See data logs ENSR/ARCO

Location: Week Pond, Spring Lake Field Crew M. Smith, J. Holtzer Date: 4/15/06
 Sample Number: 5 Weather: 50° wind Water Quality: _____
 Net Deployment time: 1830 Net Retrieval time: 0615 Time collecting: _____
 Number of species: 6 Total Number of Individuals 55 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Alewife	9.5 kg -OB	Total 40	TL-27 FL-24 TL-29 FL-26 TL-26 TL-28	
			TL-29 FL-26 TL-30 FL-27 FL-25	
			TL-27 FL-24 TL-27 FL-24 TL-29	
			TL-26 FL-24 TL-26 FL-24 FL-26	
			TL-26 FL-24 TL-27 FL-24 FL-26	
			TL-28 FL-25 TL-27 FL-24 FL-26	
			TL-27 FL-24 TL-27 FL-24 FL-26	
			TL-28 FL-26 TL-28 FL-25 TL-25	
			TL-26 FL-23 TL-27 FL-24 TL-22	
			TL-29 FL-26 TL-27 FL-24 TL-24	
White Perch	3.5 kg -OB	3	TL-26 FL-23 TL-27 FL-25 TL-28	
			TL-26 FL-23 TL-25 FL-22 FL-25	
			TL-26 FL-24 TL-25 FL-22 TL-24	
			TL-38	
			TL-28	
			TL-33	

Data Recorder: _____ Signature: _____

Station Name: 5

Date: 4/15/06

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations
Mummichog		3	TL-9 TL-9 TL-10	L L L
Silverside		3	TL-11 TL-12 TL-15	D ↓ L
2-Blue Grabs		2		
Killifish		4	TL-9 TL-10 TL-9 TL-18	D ↓

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

ENSR AFCON

Page 1 of 2

Location: WIRECK POND

Field Crew Amken

Date: 4/27/06

Weather: 43° Clear W at 3mph

Sample Number: WFO42706001

Net Deployment time: 4/27/06 - 1940 Net Retrieval time: 4/27/06 - 0742 Time collecting: 12:02:00

Number of species: 4 Total Number of Individuals 42 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)		Anomalies / Observations (circle if preserved as reference)
Silver side	N/A 135	1	FL-23		
			TL-24		
White perch	6.75 kg -1.5 kg 5.25 kg	10	FL-26	FL-21	FL-23
			TL-28	TL-22	TL-26
			FL-33	FL-31	FL-27
			TL-36	TL-33	TL-28
American Eel	N/A	1			
Mudflat	7.0 kg -1.5 kg 5.5 kg	30	FL-23	FL-21	FL-23
			TL-28	TL-23	TL-26
			FL-24	FL-25	FL-27
			TL-29	TL-28	FL-26
			FL-31	FL-27	FL-27
			TL-24	TL-26	TL-28
			22	FL-25	FL-27
			26	TL-26	TL-28

Data Recorder: Corbett Monica III

Signature: Corbett Monica III

Station Name: WHEEL POOD

Date: 4/27/06

042706001

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)				Anomalies / Observations
Albino cont.	-	-	FL-23	FL-22	FL-24	FL-23	
			TL-26	TL-25	TL-26	TL-26	
			FL-23	FL-23	FL-22	FL-22	
			TL-26	TL-28	TL-24	TL-25	

Notes: 20 albino did not survive.

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

ENSR ACCOUNT

Page 1 of 1

Location: WRECK POND

Field Crew: A. MOORE, J. C. MERRITT

Sample Number: WPO42806001

Date: 4/28/06

Net Deployment time: 1800 4/27/06

Weather: Pamy Cloudy 50°F

Water Quality: 0834

Number of species: 3

Net Retrieval time: 0850 4/28/06

Time collecting: 14:50:00

Total Number of Individuals: 24

T&E Species Collected (circle)? Y (N)

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Alewife	0.04 kg 2.0 kg -1.5 kg	3	FL-24 FL-24 TL-27 TL-28 FL-22 TL-24 TL	
White Perch	13.5 kg -1.5 kg 12.0 kg	3	FL-25 FL-33 TL-34 TL-35 FL-34 FL-34 TL-35 TL-36 TL-32A	FL-37 TL-35 FL-33 FL-23 TL-24
Log. Mouth Bass	.4 kg	1		
White Perch Cont'd.		20	FL-32 FL-36 TL-34 TL-39 FL-33 FL-34 TL-35 TL-39	FL-19 TL-20 FL-18 TL-19

Data Recorder: Cathy Merritt III

Signature: Cathy Merritt III

Herring Project Data Sheet

ENSR | ALCO

Page 1 of 2

Location: WEEK POND Field Crew: Am/can Date: 4/29
 Sample Number: WP042906001 Weather: Clear, NE 10-15 / 41°F Water Quality: C 0003
 Net Deployment time: 2015 Net Retrieval time: 0915 Time collecting: 0020 0:00:00
 Number of species: 6 Total Number of Individuals: 17 T&E Species Collected (circle)? Y (N)

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Silverside	7AA 39g	3	FL-13 3-Dead	
			FL-14 FL-13	
			TL-145 TL-14	
ALEWIRE	1.75 kg 1.5 0.25 kg	3	FL-21 FL-24	
			TL-23 TL-27	1-Dead
			FL-26 TL-28	
white perch	3.5 kg 1.5 kg	3	FL-38 FL-29	
			TL-39 TL-30	0-Dead
			FL-27 TL-28	
American Eel	2.3 kg 1.5 0.8 kg	6	TL-55 TL-26 TL-22	
			TL-29 TL-28 TL-30	
Pumpkin Seed	NA	1	TL-8	

Data Recorder: Corbett Monica Signature: [Signature]

Station Name: Wreck pond

051106001

Date: 5/1/06

2 of 2

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)			Anomalies / Observations
Blue crab	NA	1	Coop	L		
Mummichog	13.8g	1	TL-10cm	L	collected	
Striped Killi	340.8g	24	TL-11	TL-11	TL-10	TL-11
			10	10	11	9
			11	10	10	10
Silverside	82g	5	TL FL	10	10	10
			14-13	11	10	11
			12-11	13-12	10	10
			13-12	14-13	10	11
Painted Turtle	NA	1		Live	Live but collected	

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

Location: Wreck Pond

Field Crew: MS, CM

Date: 5/2/06

Sample Number: 051206001

Weather: 59°F, Sunny, Wind E@9 mph Water Quality: 00610

Net Deployment time: 1910

Net Retrieval time: 0615 Time collecting: _____

Number of species: 7

Total Number of Individuals: 42 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)		Anomalies / Observations (circle if preserved as reference)
			FL	TL	
Alewife	5kg-sub 1.5kg 3.5kg	22	23-26	23-26	All Live
			21-23	21-24	
			22-24		
			20-22		
			23-26		
			23-26		
			21-24		
			22-24		
			21-24		
			23-26		
22-25					
23-26					
22-25					
21-24					
23-25					
22-25					
21-24					
22-25					

ata Recorder: _____

Signature: _____

Station Name: Wreck Pond

051206001

Date: 5/12/06

2 of 3

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations
White Perch	8 kg - db <u>1.5 kg</u> 6.5 kg	12	<u>IL</u>	
			26	
			37	
			35	
			37	
			29	
Black Crappie	2 kg - db <u>1.5 kg</u> 0.5 kg	2	36	
			39	
			29	
			28	
			27	
			28	
Golden Shiner	N/A	1	26	
			19	
			20	
			18 18	

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

ENSR ACCOUNT

Location: Wreck Pond Field Crew: C.M., M.S. Date: 5/13/06 Page 1 of 3
 Sample Number: 051306001 Weather: 66°F, cloudy, wind @ 14 mph E Water Quality: @ 0857
 Net Deployment time: 1639 Net Retrieval time: 0900 Time collecting: _____
 Number of species: 9 Total Number of Individuals: 61 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)				Anomalies / Observations (circle if preserved as reference)
			FL	TL	FL	TL	
Alewife	6.5Kg-ob 1.5Kg 5.0Kg	33	23-25	21-23	All Live		
			25-28	22-26			
			23-26	22-25			
			22-25	22-25			
			24-26	23-27			
			22-25	23-28			
			22-25	21-24			
			22-25	22-26			
			26-29	21-25			
			22-25	21-25			
			22-24	21-24			
			23-26	22-25			
			22-25	21-24			
23-26	21-24	1-FD check stomach lining					
23-26							
24-27							
25-28							
22-25							
26-23							

ata Recorder: _____ Signature: _____

Station Name: Wreck Pond

0513060001

Date: 5/13/06

2 of 3

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations
White Perch	9 kg - ob 1.5 kg 7.5 kg	14	TL 30	All Live
			37	
			30	
			29	
Yellow Perch	2 kg - ob 1.5 kg 0.5 kg	1	TL 29	Live
			36	
			35	
			35	
Catfish	.5 kg - w/10 ob	2	24	Live
			27	

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Station Name: Wreck Pond

051306001

Date: 5/13/06

3 of 3

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)		Anomalies / Observations
			Length (cm)	Weight (grams)	
Mummichog	NA 25.2g	2	10	9.5g	Live
			10	15.7g	
Siverside	NA 23g	2	12	13g	Live
			11	12	
			12	10g	
Bluecrab	NA	5	9	6.6g	Live
			7	6.6g	
			5	6.6g	
			8	6.6g	
Americaneel	NA	1	38	cm	
Pumpkinseed	NA	1	15	cm	Live

Notes:

QA USE ONLY:
 Field Sheet Checked by (TM or PM) _____ Date Entered to Database By: _____ Date Entered: _____ Data Entry QA Checked by: _____
 Date QA Checked: _____ Any QA Problems: _____

Herring Project Data Sheet

ENSR | ACCOM

Page 1 of 2

Location: Wreck Pond

Field Crew: CM, MS

Date: 5/14/06

Sample Number: 051406001

Weather: 54° Partly Cloudy, wind @ 13 mph

Water Quality: @ 0923

Net Deployment time: 1703

Net Retrieval time: 0925

Number of species: 4

Total Number of Individuals: 26 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)			Anomalies / Observations (circle if preserved as reference)
			L	FL	TL	
White Perch	9.5 kg - -1.5 kg 8.0 kg	13	33	-	27	All Live
			24	-	37	
			34	-	38	
			39	-	28	
			33	-	24	
			36	-	-	
Alewife	3 kg - 0.6 kg 1.5 kg 1.5 kg	8	23	-	27	All Live
			22	-	25	
			26	-	29	
			22	-	25	
Blue crab	NA	3	23	-	27	All Live
			22	-	25	
			22	-	25	
			8 ppm			
			7 ppm			
			8 ppm			

ata Recorder: _____ Signature: _____

Herring Project Data Sheet

ENSR | ACCUM

Page 1 of 1

Location: White Pond Field Crew: A.M., C.M., M.S. Date: 5/15/86

Sample Number: 051506001 Weather: 50°F, heavy rain, wind 20-30 mph Water Quality: 0827

Net Deployment time: 1901 Net Retrieval time: 0830 Time collecting: _____

Number of species: 5 Total Number of Individuals: 24 T&E Species Collected (circle)? Y N

Species	Total Weight/Sub	Total Counted / Sub	Length (cm) / Weight (grams) / Live (L), Fresh Dead (FD) or Dead (D)	Anomalies / Observations (circle if preserved as reference)
Alewife	2.3kg - 0.6 -1.5kg 0.8kg	5	IL 28 FL 22 TL 27 FL 23	
			20 23 28 22 27 23	4-Live 1-FD
			IL FL	
			21 24	1-FD
Bluebacks	150g	1		
Striped Killi	14g	2		
Bluecrab	NA	1	64pp	Live
				Live
White Perch	7kg-06 1.5kg 5.5kg	12	IL 34 FL 31 TL 21	
			37 35 31 23	Live
			30 31 23 21	

Data Recorder: _____ Signature: _____

Appendix E

Logbook Notes

2

Location Wax Pond, Spring Lake, NJ Date 4/5/06
Project / Client Herring Project

12103001-300

11448 - A. Madjeski on-site to perform site reconnaissance. Drove shore from Bradley Beach to Wax Pond. No bird activity representing feeding on schooling fish observed. Checked white bridge, Jimmy Burns Property, and RR Bridge for any signs of herring activity. None observed. Did observe a flock of brants foraging along shoreline.

Jan 0

Location Wax Pond, Spring Lake, NJ Date 4/7/06
Project / Client Herring Project

12103001-300

0900 - Site recon. Drove shore from Bradley Beach to Wreck Pond. No bird activity representing feeding on schooling fish observed. Checked white bridge, Jimmy Burns Property, and RR Bridge for any signs of herring activity. None observed. Looks like the full moon is coming in a few days will be the best time to catch alewife. Inshore water temp. is optimal. Scheduling tentative sampling dates. 1426 - Sent an email to (State) K. Donnelly describing scope, possible net tampering, and sampling options if nets need to be manned. 2 hrs/day. Also included tentative sampling dates.

Jan 2

Location: Wreck Pond, Spring Lake, MI Date: 4/14/06
Project: Client: Herring Project

12103-001-300

1215 - Called to confirm permit acceptance. Permit was issued as of March 29th 2006 and sent out over a week ago. Have not received permit via email yet. Tasked to have permit faxed over since we will be on-site today performing our dry run. Permit contains 1230 - Called Enforcement as required by condition 3 of collection permit.

1240 - Called K. Donnelly to confirm options. She will be back off 1310 - Enforcement called back to confirm project. Talked with Tey 1430 - Received call from DE (K. Donnelly, C. Tucker, and Zoltows). Discussed sampling options outlined in the email dated April 15 2006. Based on our discussions, we will keep scope as is without modifications. Chris Tucker will bring scope to better protect our equipment at 1630. Basically, Tey was told that if nets are out then we would have to deal with that as it happens. If nets destroyed, that would be on EBR. We also discussed stopping sampling if large number of birds were caught, in order to prevent depletion of stock. When a large number is reached, I will call K. Donnelly and she will confer with state experts to see if sampling should cease. Otherwise will follow scope if numbers decrease considerably since last catch, by scope we would cease sampling. 1445 - M. Smith as is R. All called MS to say was running late because needed to purchase new waders. 1530 - A.M. online. Gene catches briefing. (3)

Location: Wreck Pond, Spring Lake, MI Date: 4/14/06
Project: Client: Herring Project

12103-001-300

Mean-saltinity: 93%
Weather: Sunny clear, High 57F
Tides: High 0638 and 1904
1600 - M. Smith and A. Madjeski set nets after checking depths at both RR Bridge and wide bridge. Wide bridge too deep. West side of RR Bridge has best. Depth at mid-tide is approximately 4' and when net is set is barely visible. Substrate in middle of basin is soft and easy to set stakes or poles for contend. attachment. Shoreline is rocky due to RR dikes, rip-rap etc. Lead lines dumping on bottom and floats set beautifully for good extension. Space has been left along banks to promote waterfowl movement. Wings of nets are bowing slightly towards east since tidal difference between ocean flood and back estuary flood. The water under the bridge is shallow and rocky and there is a slight drop (approx. 6 inches) on the eastern end that creates a riffle section or small waterfall. Will watch as tide flows to see change in depth and to see if the waters share a common level at peak flood. 1620 MS off-site to help guide in Jeff Holtman 1630 - YSI in water. Start depth of float (surface sample)

6 Location Wreck Pond, Spring Lake, MI Date 4/11/06
Project / Client Herring Project

12103-COAL-300

1645: C. Tucker (NDEP) on-site. Said net set and spread looked great. AM explained that water fowl were unaffected by net placement. We discussed issues related to fisherman AMI, spoke to during reconnaissance. Learning that I had also observed 2 swans + 2 Canada geese that came through the bridge while net set. The swans came over the net and geese walked along the shore line and while I had left a space from the shore line and the net wings for this purpose. C. Tucker brought DEP decals to better post our gear and piped, he'll also make signs and affix the decals to better post and protect our gear and data. Signage will state: Scientific Research Do not Tamper with Nets; Please report any suspicious activity or net tampering: 1877MI910-DEP and 732-259-9401. M. Smith will make signs for site and will post prior to setting nets tomorrow afternoon.

1715 - J. Halton on-site. I had M. Smith retrieve and reset nets a few times to determine best processing area. Bottom near bridge is very rocky and may inhibit a smooth net retrieval. We also went over the protocol for processing Safety. Briefing was given to J.H. (5)

Location Wreck Pond, Spring Lake, MI Date 4/11/06
Project / Client Herring Project

12103-COAL-300

1730 - ~~Arrived~~ off site. AM to Home Depot to get longer pipe for cool end attachment. Pipe will be placed within the substrate and the cool end will be secured to the fire to minimize net extrusion.
1836 - AM back on-site. Secured pipe into substrate and added attachments (2 street 90 elbows) to prevent cool end from becoming unattached from pipe.
1845 - Retrieved net and left stake/pipe in place.

1900 - Spring Lake Police on-site. Officer notified us that we could not park vehicles off road by the RR tracks but could park along side of the road that parallels the Sample site. I told him that I (AM) was going to stop by or call SLPD to let them know we wishers over here + if they saw anyone other than AM or MS, keeping w/ nets to let us know the said behavior pass info on. Verbally gave permit purpose a description of sampling and gave business card w/ cell # on it. He said PD will watch for activity (illegal) or vandalism in of nets.

1945 - AM/MS off site. Water level about even w/ just a west side of bridge. Apparently there (6)

8
Location Wreck Pond Spring Lake, NJ
Project/Client Herring Project

Date 4/1/06

12103-001-300

is about a 1.5 to 2 hour difference in tidal movement from outfall to the RR Bridge.

Location Wreck Pond Spring Lake, NJ
Project/Client Herring Project

Date 4/1/06

12103-001-300

Mean Diss. Salinity 97‰ at 0600
Weather Sunny, Clear, High 54°F Tides High 01:58 MS
0800 - AM/MS onsite

~~0800-0815~~ 1815 - Equipment preparation
~~0815-0830~~ Station Net set at 1815

Signs posted on nearby telephone pole previously made by M. Smith in the area
CATS - YSI Down loaded. Surface water quality stored in appropriate file

1029 - Received a call from K. Donnelly checking status of night's events. Net set went well. Told her we would do our first official set this afternoon for 24 hours. We would be checking net integrity every 6 hours during the 24 hour period and if a run was evident or bag was full we would make the process I let her know

divers was happy with net setting problems with water level measurement and also told her surface water was fresh water and salinity relatively low.

1600 weather thermobath 99%, stowers, high set
Tides High 0751 and 2010.

MS checked nets at 2000 and 2130 tide hadn't yet turned over drop off

no signs of tampering. Net set looks good

Location Waukeg Pond, Spring Lake, Belmar NJ Date 4/13/06
 Project / Client Herring Project
1210.3-001-300

Field Team - A. Madyski, M. Smith
 Arrival on site at 0600
 Equipment preparation until 0615
 Weather - 60° wind SSW at 10-15 mph, cloudy
 Net retrieval time 0615

Sample Zoospores Collected Total 65 (individuals)
 Alewife - T 56, Subsample 25
 Striped Killifish (1)
 Brown Trout (1)
 Pickrel (Crab) (1)
 Yellow Perch (2)
 White Perch (1)
 Goldfish (1)
 Bluegill (1)
 Blue crab (1)

Local Fisherman with dog arrived
 on site at 0630 Dog given 1 Alewife
 left site at 0645

Net redeployed at 0715
 YSI in 0615
 YSI out 0705

Disposed of dead fish at Belmar Fishing Pier
 at 0745

0920- AM called K Donnelly with status of first
 sample.

Location Waukeg Pond, Spring Lake, Belmar NJ Date 4/13/06
 Project / Client Herring Project
1210.3-001-300

Field Team - A. Madyski, M. Smith
 Arrival on site. A. Madyski at 1730
 M. Smith on site at 1735
 Equipment preparation until 1740
 Weather - 67° Wind W at 10 mph, Sunny
 Net retrieval time 1740

Sample Zoospores Collected Total 5 (individuals)
 Alewife (1)
 American eel (1)
 White Perch (3)

J. Tucker (NIPER) arrived on site
 at 1800, left site at 1815
 Net redeployed at 1840
 left site at 1855

Location Wreck Pond, Spring Lake, MS Date 4/14/06
Project/Client Herring Project
12103-001-300

Field Team: A. Madjeski, M. Smith
Arrival on site at 0650 (M Smith), 0705
(A. Madjeski)
Weather - S3; Wind WSW at 4 mph, Mostly cloudy
Equipment preparation until 06:07:15
Net retrieval time 0720
Sample 3's Spence collected Total 60 (individuals)

- Albino (16)
- White Perch (7)
- Pumpkin seed (1)
- Silverides (5)
- Mummichog's (20)
- Striped Killifish (5)

Local Fisherman on site at 0800
and local resident on site at 0820

Resident left at 0835, MS.
Net redeployed at 0854, left site at 0915
YSI in 0716
YSI out 0717

Local Fisherman Jerry (Spring Lake (levelows)) AM gave
business card and hot line number. He may be
back at evening collection. Concerned with Herring
invasivities due to sampling
Resident Glen (lives across pond) interested in
research (gave card and phone number. He offered

Location Wreck Pond, Spring Lake, MS Date 4/14/06
Project/Client Herring Project
12103-001-300

to watch nets for herring
0930 AM, called spare to give a status
Report on am sampling. left message
0945 - K Donnelly called back. Discussed
catch data. She requests one more night
time set. Sampling will conclude after
Saturday AM and we will begin trawling
Bleback morning

[Signature]
(12)

12 14

Location Week Pond

Date 4/14/06

Project / Client Herring Project

12103-001-300

Field Team: A. Madjeski, M. Smith

Arrival on site at 1800

Weather 55°F, Wind SE at 10mph

Equipment Preparation until 1805

Net Retrieval time 1810

Sample 4: Species Collected Total Ind. 2

Mummichog (2)

Jerry and friend from Spring Lake, live-liners on site at 1800. Watch net retrieval

YS1 in 18

YS1 out 18

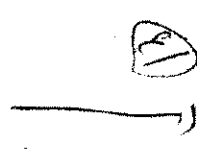
Fisherman left at 1820

- Nets checked for tampering since only minor catch. No obvious signs found

- M. Smith and A. Madjeski left

Site at 1845

Net Deployment 1830



Location Week Pond

Date 4/15/06

Project / Client Herring Project

12103-001-300

Field Team M. Smith, J. Holtzer

Arrival on site at 0550

Weather 50°F

Equipment Preparation until 0605

Net Retrieval time 0615

Sample 5: Species Collected Total Ind. 55

Albino (40)

White Perch (3)

Mummichog (3)

Silver-side (3)

Blue crabs (2)

Killifish (4)

YS1 in 0606

YS1 out 0607

Spring Lake live-liners (Jerry and friend)

Arrived on site at 0650 to 0715

Saw catch and commented that

many died. MS responded that

many were coming around

2 resident fisher arrived on site at

0735 to 0800 - Commented on

size of perch

Equipment Removal 0730 to 0800

Left site at 0800am

(14)

16

Location WRECK POND Date 4/18/06

Project / Client 12-103-001-300

0855 Called F. Donnelly at NUDOP Bureau (answering voice mails left on cell phone). She had received my Saturday 1300 sampling update. She was curious if I could sample the new moon on April 27th since we had an upswing in albatross #'s that was not anticipated and sampling could have been performed (if downword trend was not static) ON EASTER SHE SAID SHE WOULD GET BACK TO ME TO CONFIRM THE NEW MOON SAMPLING VIA CONFERENCE CALL w/ Mr. Superdies.

15

Location WRECK POND Date 4/24/06

Project / Client 12-103-001-300

0955 - Called K. Donnelly to confirm status of new moon sampling. Left a message on her cell phone

1000 - Called RT at Treveon to give him a status update and to let him know that our invoice was on the way for the first sampling event. He said a status update on sampling was not necessary.

1015 - RECEIVED CALL FROM K. Donnelly. New moon sampling is a go. We will sample April 26-28. Meets will be set either the 25th or 26th and gear demob on 28th or 29th.

16

Location Wreck Pond Date 4/24/06
Project / Client 12103-001-300 / NJDEP

0911 Called K. Donnelly to confirm sampling initiation, sampling duration, and if during daytime net sets. Based on budget, night sets would be best. In addition, anglers are fishing until dusk in that area and it may be a good compromise to continue unhooked and set nets at night, pull in early am and remove gear until next night set. This would allow for fishing, reduce risk of gear tampering, and hopefully promote cohesiveness between anglers and the field team. In addition, day sets during last sampling event were somewhat unproductive w/ small numbers of fish. Left voice mail.



Location Wreck Pond Date 4/26/06
Project / Client 12103-001-300 / NJDEP

1035 - K. Donnelly called back Night sets only for the 26th - 29th w/ last net pull on Sat. 29th, Am. Briefly discussed thru May 11-15, 2006 Blueback Sampling as well We will do 12 hour sets and resets (1/for Merrick sampling begin) for that event.

4/24/06
FIELD TEAM - A. Madjeski,
J. Holzer.

1035 SAFETY BRIEFING GIVEN BY A. Madjeski. GEAR LOADED.

1900 FIELD TEAM ON-SITE. UNLOADING GEAR.

1905 Moved net to under water higher than normal (0.4') and a couple meters over gear.

(19)

4/20

Location: Wreck Pond Date: 4/20/06
Project: Client: 12103-001-302 - NSIDER

Weather - 50°F, Partly cloudy,
WINDS S at 9-10 mph.
TIDES (Belmont)

Low - 12:44 PM
High - 1:40 PM
Moon Vis - 4%

1923 YSI Taken

1940 Net set. Lead lines checked.
Cod and sea urchin. No toads
seen. Salinity in 4991-5001
range. Will reschedule net
but earlier tomorrow (@ 1700)
will pull net in AM. Possible
water at a fx at recent rain
and east winds.

 (20)

Location: Wreck Pond Date: 4/27/06
Project: Client: 12103-001-302 - NSIDER

Weather: Clear, 45°F, WINDS
W at 3 mph.
TIDES - (Belmont) - 2 hrs diff at RL Body

Low - 01:26 - 0.6'
High - 07:29 - 5.1'
Moon visibility - 10%
(NEW MOON cycle)

0710 - Safety Briefing given
enroute to project site by
A. Maciejski.

0720 - Field Team ON-SITE

0737 - YSI START
0740 - YSI STOP
0742 - NET RETRIEVAL

 (20)

22

Location WRECK POND


Date 4/27/06

Project / Client 12103-001-300 / NJDEP

0820 Processing complete, no bluebacks
 30 Alewife, 1 PM Silverside
 1 American eel and 10 white perch.
 WTS - Alewife - 7 kg w/ basket
 wh perch - 6.25 kg (w/ basket)
 15 A
 Net removed. Alewife did not survive. Took fish off-site for disposal.

1730 Field Team. A. Macjoda, Corbett Monica III on-site
 Safety Briefing given.
 Weather - Partly cloudy, 61°F, S wind @ 10 mph.

1743 YSI WQ TAKEN. Saw GRASS EEL under.
 1750 START NET DEPLOYMENT. Local cod dog on-site.

1800 NET DEPLOYED. Cod END SECURE
 Lead lines checked, Poly ball secure
 Set LOOSSE GEORGES, 

1810 - off-site.

Location WRECK POND

Date 4/28/06

Project / Client 12103-001-300

4/28/06 FIELD TEAM - A. Macjoda, Corbett Monica III
 Weather: Partly Cloudy, 50°F, W NE at 10-15 mph.
 TIDES - High - 0817 - +5.0'
 Low 1417 - -0.4'
 High - 2036 - +5.9'
 Mean Visibility - 0%

0804 - ARRIVE ON-SITE. GAVE SAFETY BRIEFING (Cpt. A. Macjoda)

0812 - SWIM UP. TALKED WITH MARK HURTH & SHARK DIVER FISHING CLUB. HAD CONCERNS ABOUT HERRING MORTALITY.

0825 - BUSINESS CARD LEFT ON SIGHT FROM R. THOMAS MURPHY FROM BRIDGEPORT. WANTED TO KNOW IF HE COULD GET ANY HERRING.

0834 - YSI START

0835 - YSI STOP

Location Wreck Pond Date 4-28-06
 Project / Client 12103-001-300 / NJDEP

0844 - Start net retrieval

0855 - END NET REMOVAL

* Fish soak down
 * Start processing

0910 - Fish processing complete.

ALEWIC - 3 - 2.0 kg - Orange bucket
 WHITEPERCH - 20 - 13.5 kg - Orange bucket
 G. MOUTH BASS - 1 - 1.4 kg

0 mortality for all species.

0930 - FIELD TEAM OFF SITE. NET LINDSEY AND REMOVED FROM SITE.

0931 Called K. Donnelly at NJDEP. GAVE STATUS REPORT. WE WILL CALL STATUS OF 29 APR OR NET RETRIEVAL EARLY NEXT WEEK.

1530 Prepping gear, checking for tears, checking throat. All good.

Location WRECK POND Date 4/28/06
 Project / Client 12103-001-300 / NJDEP

1850 - ONSITE AT WRECK POND.
 a Fisherman darting at BRUCE. WILL TAKE YSI. and then set net a little later.

1903 - TOOK YSI.

1905 - Collected on site. Field team A. Mudgett, C. Mowca, Weather. Clear, F.

TIDE - High 2036.

1945 -

2015 -

2030 AM / cm off site

Location ... Wreck Pond

Date 4/25/06

Project: Client

0555 - AM / CM ON-SITE

WEATHER 41°F, Clear,

WT NE 10-15 mph

TIDES - Low

High

0600 - Safety Briefing given by AM.

0603 - Begin NET RETRIEVAL AND YSE start.

0605 - YSE Finished

0615 - NET Retrieval complete

- Begin Fish Processing
- 5.1 lbs side Sockeye in net using
- 3 silver side Cornish

White perch - 3 + 3.5 kg

ALEWIFE - 3 - 1.25 kg

American Eel - 6 - 2.3 kg

Pumpkinseed - 1 - NA

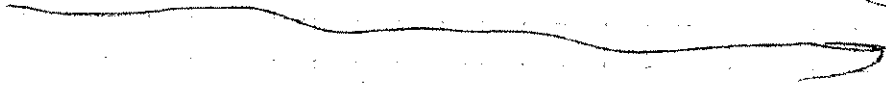
Bl. G. Crab - 1 - NA

Location ... Wreck Pond

Date 4-29-06

Project: Client 13103-001 - 300 / NT DEP

0640 - Field Team off site



CML

Wreck Pond

Location

Date 5/10/06

Date

Project / Client Herring Project / 12103-001-300

Project / Client

Herring Project

12103-001-300

1800 AM/CM on site at RR Bridge

Unknowns: GENE, NET, YST, TD
set net.

Weather - Partly cloudy - 65°F

Light SE wind @ 7-10 mph
TIDES -1815: YST DEPLOYED and RETURNED
Taken at bottom. depth of 3'.1816 - Inspected net prior to
deployment. NET looks good
and there are no tears. Cod
end secure.

1822 Start net deployment.

1843 Net set, head lines checked,
float line checked, AM lines
secure. Net set good.

MS

Wreck Pond

Location

Date 5/11/06

Date

Project / Client Herring Project / 12103-001-300

Project / Client

Herring Project

12103-001-300

0613 - AM/CM/MS on-site

Weather: 50°F Partly cloudy Tide: High 0641 AM

0620: YST TAKEN AND RETURNED

wind @ 12 mph mean 94% visibility

0641 - NET PURCD

0717 - Fish processing complete.

12 AREWIFE - 1 dead (fresh) 3.5 kg

12 white perch - 6.25 kg (op)

1 min eel - no wt.

1 blue crab - CPE-6

1 mummichog - 13.8 g

24 - Striped Killi. - 340.8 g

5 AM silverside - 82 g (Fresh/Dry)

1 - PRINTED TOWNE - LIVE

0720 - Start net set

0730 - NET set complete

0745 - Team off site

MS

Location: Wreck Pond Date: 5/12/06
 Project / Client: Herring Project / NIDEP
12103-001-300

- 1730 MS on site on R.R. Bridge
 1750 J.H. on site - running late due to traffic. MS + JH unload gear. Tides: High 1902, 94% moon visibility. Weather - Cloudy 55° wind from SE @ 10 mph.
- 1805 YSI turbine at 3 feet and retrieved.
- 1825 Net pulled.
- 1842 Fish processing completed
 2 - white perch (2 kg total) live
 1 - Blue crab live (5 spp)
 1 - Mummichog (N/A) live
 1 - Striped Killifish (N/A) live
- 1845 Start net set
- 1850 Lobster fisherman on site (no name)
 Stated he knows Chris Tucker (NIDEP)
 Indicated C.T. told him to stop by and see project. Mentioned that nets may be cut if stripe Bass were caught.
- 1910 Net deployment complete.
- 1915 MS, JH and fisherman off site
- 1920 MS called A.M. & indicated findings ^(MS)

Location: Wreck Pond Date: 5/12/06
 Project / Client: Herring Project / NIDEP
12103-001-300

- 0600 MS on site on on-site
 weather: 59°F Sunny, Wind E @ 9 mph
 Tides: Low 0120 + 0.2' Moon 98% vis
 High 0720 + 4.3' (Belmar NJ)
- 0610 YSI DEPLOYED @ depth of 400
 3'H' to substrate.
- 0615 RETRIEVING NETS UNDERWAY
 RR Barge at Wreck Pond
- 0630: Dead female other found in fyke net. Called Al Modjeski, Field/Project manager to give status update on other in net to determine next steps
- 0641: AM called Nancy Armstrong, nurse, and gave report that other was found in net
- 0645: AM called R. Zinner (nurse) and reported "net - dead" ^(MS)

Location: WEEK POND Date: 5/12/06
 Project / Client: 12103001300 / NIDEP

Female otter was in fake net. Otter was placed off to side momentarily until determination of removal process and protocol could be determined.

0680 AM called field team on-site (MS, CM) and will come on-site immediately w/ contractor bag to remove otter from site. Fish processing started at 0645.

0703 R. ZWIER called field team to assess situation w/ otter removed

0710 Cpt AC on-site to assess situation and give positive ID on otter. Otter ID confirmed. Otter placed in plastic bag and removed off-site to AMS

Location: WEEK POND Date: 5/12/06
 Project / Client: 12103001300 / NIDEP

field vehicle. RZ called Cpt AC and advised that since otter ID positive, contact client to determine disposal protocol.

0721 - AM called K. Donnelly at NIDEP (client) on cell and left msg.

0749 AM received voicemail/call from K. Donnelly who instructed AM/field team to contact D. BYRNE (NIDEP Sr. Biologist). She will also send an e-mail to POWB since field team does not have computer access. NIDEP not open yet will call at 0900 or so.

0843 - Called K. Donnelly and gave catch update. No blueback caught yet, just otherwise. AMS

Location WEEK Pond Date 5/12/06
 Project / Client Herring's Project / NDDP
12103001300

- 0845 - Called NDDP Marine Division at Nacoke Creek. No answer yet. Will wait and call after 0900.
- 0935 Called NDDP WASTE CREEK. D. Byers off today. Got home phone #.
- 0940 Called D. Byers at home. Gave him report that we caught a ♀ otter. He explained that otters can be trapped legally and that odd catches can happen and can be considered accidental. He instructed us to contact Andy Burnett at NDDP Fish and Wildlife (Nacoke Creek) to receive disposal instructions.
- 0950 Called NDDP Andy Burnett of Wildlife. He explained that

Location WEEK Pond Date 5/12/06
 Project / Client 12103001300 / NDDP

- He would be interested to have the otter delivered to him at Nacoke Creek. Ann says not a problem and that MS (ASR field team) would transport to his office. Office located at Nacoke Creek, Rt 9, behind enforcement office on right.
- 1000 Called MS and gave her disposal instructions. She will take otter to DEP at Nacoke Creek and deliver to Andy Burnett.
- 1004 - Called R. Zwieler (ENSR). Gave status update that removal and transfer protocol would be followed as given by NDDP A. Burnett.
- 1006 - Notified N. Rainsman through voice-mail that

Location: WLEEK FINE Date: 5/12/06
 Project: Client: 12103001300 / NJDEP

offer removal was going to be completed according to state request from A. Burnett DEP.

1008 Called D. Kibbe (Evel PA) to let him know status of offer and that protocol for transfer was given by state.

1012 Called K. Donnelly. Gave update on offer and let her know everything was taken care of.

1408 Called Melissa Smith. Offer given to state at Nocate Creek as requested by A. Burnett. M.S. arrived at Nocate Creek to give offer to A. Burnett at 1310.

(Signature)

Location: WLEEK FINE Date: 5/12/06
 Project: Client: Herring Trout / 12103001300
NJDEP

1555 GAVE LOWBOX TO CM TO TAKE TO MS onsite.

Catch Data: 051206001

- 22- Alewife (5 kg - 5 lb) all live
- 12- White Perch (8 kg - 10 lb) all live
- 2- Unknown sunfish to be ID by AM
- all live → Golden Black Crappie
- 2- Unknown killifish (ID by AM)
- all live → Mummichog, Golden Shiner
- 3- Blue Crabs (2 Female, 1 male)

(Signature)

Location Wreck Pond Date 5/12/06
 Project / Client Herring Project, NUDFEP
12103001300

1600 MS on site at RR Bridge
 1615 CM on site at RR Bridge
 Weather: 67°F, E @ 9 mph, sunny
 Tides: Low 1317 @ 0.4'

High 1937 @ 5.3'
 Moon visibility @ 98%
 1624 YSI in at 3' and retrieved
 1635 Net retrieval

1639 Redeployed net, end 1649
 1650 Start fish processing, end 1657
 Sample 051206002

1 - Pumpkinseed weight NA (Live)
 collected - 1 - mummichog - weight NA (Live)
 collected - 1 - unknown - small with deep fin (Live)
 1 - Blue Crap - female
 1715 - MS and CM offsite

Golden shiner

(MS)

(MS)

Location Wreck Pond Date 5/13/06
 Project / Client Herring Project, NUDFEP
203001300

0830 MS on site at RR Bridge
 0832 CM called to say running late.

0850 CM on site
 0857 YSI in
 0859 YSI out

Weather: 61°F, cloudy, wind @ 14 mph
 Tides: Low 0203 @ 0.1'
 High 0759 @ 4.3'

Tides for Belmar, NJ - approximate
 2 hour lag time for Wreck pond
 Moon visibility at 99%

0900 Net retrieval

0910 Fish Processing Start

Sample 051306001

33 - Alewife (Gsky rb) All Live - one

Fresh Pond to check species

14 - White Perch (9kg - ob) all live

2 - catfish (2.5kg)

2 - Mummichog NA live - collected

2 - silverside NA (2 dead) - collected

5 - Bluesnail NA live

1 - American eel NA live yellow

1 - Pumpkinseed NA live / Peck

1 - unknown (to be IDed AM) live

Location: Wreck Pond Date: 5/13/06
 Project / Client: Herring Project, NIDEP
12103-001300

0955 End fish processing
 0958 redeploy nets
 1017 MS + CM off site

Location: Wreck Pond Date: 5/13/06
 Project / Client: Herring Project, NIDEP
12103-001300

1640 on site MS and CM
 1647-YSI in
 1648-YSI out

Weather: 61° cloudy, wind E @ 14 mph
 Tides: Low 14.37 @ +0.4
 High: 20.49 @ +5.3
 Tides for Belmar NJ
 moon visibility 99%

1650 - start net retrieval
 1657 - complete wet retrieval
 1657 - start fish processing
Sample 051306002

1 - white perch Live weight NA
 3 - pumpkinseed Live weight NA
 1 - striped killi Live weight NA
 1 - Blue crab Live weight NA

1702 - end fish processing
 1703 - net set
 1711 - complete net set
 1713 - MS and CM off site

(MS)

Location: Herring Project Date: 5/14/06
Project / Client: Wreck Pond, NIDEP

12103001300

- MS on site 0800
 - 0917 CM on site
 - 0923 YSI in
 - 0924 YSI out
 - 0925 Net retrieval
 - 0937 Fish Processing
 - 051406001 Sample
 - 13 - White Perch 9.5kg db (Live)
 - 8 - Alewife 3kg db (Live)
 - 3 - Bluecrab N/A (All Live)
 - 2 - Americanel NA (Live)
 - 0948 Net Deployment
 - 0957 - Completed net set
 - 1000 - MS, CM offsite
- Weather - 54° Partly cloudy wind E @ 13kph
Tide: Low 0246 @ 0.0'
High 0838 @ 4.2'
moon visibility 99%

(MS)

Location: Wreck Pond Date: 5/14/06
Project / Client: Herring Project, NIDEP

12103001300

- 1838 AM and MS on site
 - Weather: 54° Partly cloudy wind E @ 13kph
 - Tide: Low 1437 @ 0.4'
 - High 2049 @ +5.3'
 - moon visibility 99%
 - 1843 YSI in
 - 1845 YSI out
 - 1847 net retrieval
 - 1901 net set
 - 1903 Fish Process
 - 051406002 Sample
 - 1 - Bluecrab Live
 - 6 - Striped Killi Live - collected
 - 1 - Mummichog Live - collected
- 1909 AM and MS offsite

(MS)

Location: Wreck Pond Date: 5/15/06
 Project: Client: Herring Project, NIDEP
 12103.001.300

0800 MS on site

Weather: S0F, rain, wind NE 15-20

Tides: low 0328 @ 00'

High 0921 @ +4.0'

moon visibility 96%

0827 YSI Deployed; RETR4000

0830 START NET RETRIEVAL

0838 Complete net retrieval

0850 Complete Fish Processing

Sample 031504001

4 - Alewife (7.3kg - ob) 4 - live 1 - FD

1 - Blueback (NA) 600g 1 - FD

2 - Striped killi (NA)

1 - Blue crab (NA) live

12 - White Perch (7 kg - ob) all live

0900 Gear removed from site

because completed final net set

0902 Gary Fitten (NIDEP Law Enforcement)

on site. Expressed concern over

herring numbers and happy research

is being done. Gave card to AM

to contact if ever have a problem with net

(MS)

Location: Wreck Pond Date: 5/15/06 45
 Project: Client: Herring Project, NIDEP
 17103.001.300

0917 AM, CM, MS off site

0922 Arrival at MS apartment

to pass off collected specimens

to AM.

0926 Depart

(MS)