Dredging and Pile Driving Monitoring Plan
Quarterly Monitoring Pile Driving Report
1/21/2014 – 5/20/2014

for the

New NY Bridge Project

Revision 0
November 12, 2014

Prepared by
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Tarrytown, NY 10591

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1.0 Introduction

This report summarizes the methods and results of sturgeon monitoring during permanent pile driving of [redacted] piles for the period of January 21, 2014 through May 20, 2014. Sturgeon monitoring was conducted per the Dredging and Pile Driving Monitoring Plan, Revision 2 (Plan) for the New NY Bridge Project (the Project). This Plan was developed to comply with applicable requirements of the New York State Department of Environmental Conservation (NYSDEC) Permit DEC ID 3-9903-00043/00012 issued on March 25, 2013 (NYSDEC Permit) and the April 2013 Endangered Species Act Section 7 Consultation Biological Opinion (BO) (NER—2013-9592) issued by the National Marine Fisheries Service (NMFS).

2.0 Monitoring Methods

Tappan Zee Constructors, LLC (TZC) conducted impact pile driving monitoring for permanent [redacted] piles at [redacted] the pile driving barge and a small vessel per the Plan. A barge-based monitor was on site for all piles driven during the reporting period. A vessel-based monitor was on site for all piles driven during the reporting period except when conditions (e.g., ice, high winds) precluded small vessel operation and observations on:

- February 27, 2014 [redacted] Ice Conditions; and
- March 7, 2014 [redacted] Ice conditions;

3.0 Results

A total of [redacted] were impact driven from January 21, 2014 through May 20, 2014. [redacted] piles were installed at [redacted] and [redacted] piles were installed at [redacted]

A total of [redacted] piles were impact driven from January 21, 2014 through May 20, 2014. [redacted] piles were installed at [redacted], [redacted] piles were installed at [redacted], [redacted] piles were installed at [redacted], [redacted] piles were installed at [redacted], t[redacted] piles were installed at [redacted], [redacted] piles were installed at [redacted], and [redacted] piles were installed at [redacted]. Monitoring activities and results from both [redacted] piles are summarized in Appendix A.

3.1 Observed Sturgeon

During the reporting period one shortnose sturgeon was observed during impact pile driving. The sturgeon was observed on May 15, 2014 at 10:25 by a TZC monitoring vessel. The sturgeon was deceased at the time of observation. The fish was collected and processed per the Plan. A copy of all documentation completed is provided in Appendix B. The fish was transferred to the NYSTA for necropsy per the approved Necropsy Plan specified in the NMFS BO and the Plan. The results of the necropsy are presented in Appendix C.

3.2 Observed Non-sturgeon Species

A total of twenty-six fish, not including sturgeon, were observed during the reporting period. Observed species and quantities include eight white perch, seven gizzard shad, three unidentified to species (but were confirmed in the field not to be sturgeon), two common carp, two striped bass, two catfish, one

Atlantic menhaden, and one American eel. A summary of the dates, times, condition, and location of fish observed is provided in Appendix A.

Figure 1. Sturgeon Observed on May 15, 2014

APPENDIX A

Summary of Pile Driving Sturgeon Monitoring Activities

Quarterly Report

Appendix A
Summary of Pile Driving Sturgeon Monitoring Activities
New NY Bridge Project
NMFS 120-Day Report
1/21/2014 - 5/20/2014

TAPPAN ZEE CONSTRUCTORS, LLC

Report Date: 11/12/2014
Reporting Period: 1/21/2014 - 5/20/2014
Number of Sturgeon Observed: 1

Date	Pier-Pile No.	Barge-Based Monitoring Time	Vessel-Based Monitoring Time	Number of Fish Observed	Species	Sturgeon Specimen Log Number[a]	Condition (Stunned / Dead)	Time Observed	Location Observed (Lat/Long or Barge Name)
2/19/2014		12:10 - 14:45	12:08 - 15:40	2	Unidentified	NA	Stunned	13:41	4600 Hank Hummel Crane
					Unidentified	NA	Unknown	13:57	North of Bridge
				0	NA	NA	NA	NA	NA
2/20/2014		8:32 - 17:00	08:38 - 16:50	0	NA	NA	NA	NA	NA
2/21/2014		11:37 - 16:35	11:36 - 16:50	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
2/24/2014		8:40 - 11:50	8:44 - 12:35	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	Gizzard Shad	NA	Dead	12:25	South of Bridge
2/27/2014		15:47 - 18:04	15:47 - 17:30	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	Gizzard Shad	NA	Dead	16:50	41 04.0428° N / 073 52.132° W
			b	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/1/2014		12:00 - 14:30	12:05 - 15:05	1	Gizzard Shad	NA	Dead	12:40	41.07298° N / 73.88343° W
				1	Gizzard Shad	NA	Dead	13:35	41.06762° N / 73.87856° W
				0	NA	NA	NA	NA	NA
3/7/2014		10:21 - 18:11	b	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/10/2014		14:29 - 18:16	14:26 -18:57	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/11/2014		7:56 - 9:16	7:56 - 10:33	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/12/2014		8:40 - 13:06	8:40 - 13:38	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/18/2014		15:44 - 18:04	15:43 - 18:33	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/19/2014		7:40 - 13:47	7:38 - 14:27	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/20/2014		9:29 - 13:57	9:29 - 14:15	0	NA	NA	NA	NA	NA
				1	Carp	NA	Dead	10:26	41 04.302° N / 073 52.262° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/20/2014		16:08 - 17:52	16:10 - 17:58	0	NA	NA	NA	NA	NA
3/21/2014		9:39 - 16:08	9:40 - 16:50	0	NA	NA	NA	NA	NA
				1	Gizzard Shad	NA	Dead	11:54	41 04.653° N / 073 54.609° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
3/24/2014		8:35 - 11:10	8:35 - 11:48	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	Gizzard Shad	NA	Dead	10:20	41 04.241° N / 073 52.215° W
3/25/2014		17:06 - 18:04	17:07 - 18:33	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA

Appendix A
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1/21/2014 - 5/20/2014

TAPPAN ZEE CONSTRUCTORS, LLC

Report Date: 11/12/2014
Reporting Period: 1/21/2014 - 5/20/2014
Number of Sturgeon Observed: 1

Date	Pier-Pile No.	Barge-Based Monitoring Time	Vessel-Based Monitoring Time	Number of Fish Observed	Species	Sturgeon Specimen Log Number[a]	Condition (Stunned / Dead)	Time Observed	Location Observed (Lat/Long or Barge Name)
3/27/2014		8:44-12:59	8:44 - 13:58	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				3	White Perch	NA	Dead	11:05	Thomas W
				1	Catfish	NA	Dead	12:06	41 04.025° N / 073 52.756° W
				0	NA	NA	NA	NA	NA
4/1/2014		10:19 - 16:11	10:19 - 16:40	1	White Perch	NA	Stunned	11:10	41 04.693° N / 073 52.392° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/2/2014		10:39 - 15:50	10:40 - 16:30	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/3/2014		8:07 - 11:52	8:07 - 17:55	1	White Perch	NA	Dead	8:45	4100 Hoosier Crane
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		9:55 - 17:18		0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/4/2014		7:55 - 10:25	7:54 - 10:56	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		14:58 - 18:03	14:21 - 18:30	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/7/2014		NA	NA	1	Gizzard Shad[c]	NA	Dead	9:23	Hudson Harbor Docks
4/9/2014		11:00 - 16:23	11:02 - 17:01	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/10/2014		10:17 - 18:08	10:17 - 18:31	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	Eel	NA	Stunned[d]	14:03	41 04.5480° N / 073 54.8788° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/14/2014		16:38 - 17:04	16:41 - 17:11[e]	0	NA	NA	NA	NA	NA
4/15/2014		7:37 - 11:03	7:36 - 11:30	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/16/2014		10:18 - 11:35	10:19 - 13:23	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/17/2014		12:15 - 12:45	12:16 - 13:50	0	NA	NA	NA	NA	NA
4/18/2014		10:43 - 12:16	10:42-13:34	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/21/2014		8:54 - 13:22	8:54 - 14:27	1	Unidentified	NA	Unknown	8:58	4100 Hoosier Crane
				1	Catfish	NA	Dead	9:08	41 04.2265° N / 073 54.9462° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/22/2014		14:01 - 17:25	14:01 - 18:21	0	NA	NA	NA	NA	NA
				1	White Perch	NA	Dead	14:57	Thomas W Crane
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	White Perch	NA	Dead	17:19	Thomas W Crane

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Date	Pier-Pile No.	Barge-Based Monitoring Time	Vessel-Based Monitoring Time	Number of Fish Observed	Species	Sturgeon Specimen Log Number[a]	Condition (Stunned / Dead)	Time Observed	Location Observed (Lat/Long or Barge Name)
4/23/2014		7:00 - 8:37	7:02 - 10:43	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
4/25/2014		8:01 - 12:47	8:01 - 13:57	1	White Perch	NA	Dead	10:22	4600 Hank Hummel Crane
				1	Striped Bass	NA	Dead	10:33	41.06393° N / 73.88105° W
				0	NA	NA	NA	NA	NA
4/28/2014		8:00 - 16:39	8:00 - 17:45	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/2/2014		7:29 - 14:23	7:29 - 15:23	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/5/2014		12:51 - 14:05	12:51 - 14:48	0	NA	NA	NA	NA	NA
5/6/2014		08:34 - 12:27	8:33 - 16:40	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		12:45 - 16:09		0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/7/2014		9:47 - 14:20	9:44 - 15:49	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/12/2014		8:38 - 13:57	8:39 - 15:00	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				1	Carp	NA	Dead	13:22	41 03.808° N / 73 52.806° W
				0	NA	NA	NA	NA	NA
5/13/2014		12:15 - 14:57	12:08 - 15:54	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/14/2014		8:00 - 12:15	8:04 - 12:41	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		8:28 - 11:30		0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
5/15/2014		7:39 - 10:13	7:34 - 15:10	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		8:08 - 10:50		0	NA	NA	NA	NA	NA
				1	Atlantic Menhaden	NA	Dead	9:23	41 04.616° N / 73 52.763° W
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		9:43 - 14:03		1	Shortnose Sturgeon	201405150101	Dead	10:25	41 06.0594° N / 73 54.0966° W
				1	Striped Bass	NA	Dead	11:55	41 04.575° N / 73 53.667° W
				0	NA	NA	NA	NA	NA
5/19/2014		14:04 - 16:27	14:04 - 17:29	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA

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Date	Pier-Pile No.	Barge-Based Monitoring Time	Vessel-Based Monitoring Time	Number of Fish Observed	Species	Sturgeon Specimen Log Number[a]	Condition (Stunned / Dead)	Time Observed	Location Observed (Lat/Long or Barge Name)
5/20/2014		7:25 - 12:22	7:26 - 17:06	0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
		8:18 - 16:04		0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA
				0	NA	NA	NA	NA	NA

Notes:
[a] Non-sturgeon species are not recovered for data collection.
[b] Monitoring suspended due to ice conditions in the river.
[c] Fish observed incidentally by member of TZC and notified ECT, time provided is the time an ECT member identified the fish.
[d] Observation indicate the eel was predated upon by cormorant and gull rather than impacted by pile driving.
[e] All water operations suspended by TZC safety due to high winds at 17:11

APPENDIX B

Vessel-Based Monitoring Data Form, Sturgeon Chain of Custody, Sturgeon Take Report, Sturgeon Data Collection Form, Summary Sheet for Genetic Tissue Samples

Tappan Zee Hudson River Crossing
Vessel-Based Monitoring Data Form

Survey Information — Observation type (circle): (Survey) Response

Date: 5/15/14	Crew: DJE/DMS/SJN/MHH	Vessel: MC-6
Construction Activity: IH@ [redacted]	Survey Start Time: 0600	Survey End Time: 1700

Weather/Water Conditions (Survey Only)

Air Temperature (°C): 20	Wind Direction: SE	Wind Speed (mph): 0-8
Cloud Cover: Overcast	Precipitation: Rain	
Wave height: 0	Tide stage: Flood / Ebb	
Water Temperature (°C): 15.5	Water Salinity (ppt): 4.7	

GPS Transect Information

Transect ID Number	Start Time	Finish Time	Starting Loc.	Finish Loc.
20140515-1	0734	0836	41° 04.377, 73° 52.378	41° 04.177, 73° 52.778
20140515-2	0836	0946	41° 04.177, 73° 52.778	41° 04.849, 73° 52.906
20140515-3	0940	1006	41° 04.849, 73° 52.906	41° 04.379, 73° 52.697
20140515-4	1006	1027	41° 04.379, 73° 52.697	41° 04.369, 73° 52.713
20140515-5	1027	1134	41° 04.369, 73° 52.713	41° 04.463, 73° 52.525
20140515-6	1134	1250	41° 04.463, 73° 52.525	41° 04.322, 73° 54.581
20140515-7	1250	1301	41° 04.322, 73° 54.581	41° 04.313, 73° 54.528
20140515-8	1301	1339	41° 04.313, 73° 54.528	41° 04.191, 73° 54.601
20140515-9	1339	1502	41° 04.191, 73° 54.601	41° 03.724, 73° 54.733
20140515-10	1502	1510	41° 03.724, 73° 54.733	41° 04.245, 73° 54.929

Observations (Survey Only)

Other Fish Species:

Species ID	Quantity	Time Observed	Transect Number	Location Observed (Lat/Long)	Condition (stunned, freshly dead, decaying)
AMN	1	0923	20140515-2	41° 04.616, 73° 52.763	freshly dead
SB	1	1155	20140515-6	41° 04.575, 73° 53.667	decaying

*YYYYMMDDXXZZ (XX = Chronological sample # for ea. date, ZZ = Chronological fish # in ea. sample

Tappan Zee Hudson River Crossing
Vessel-Based Monitoring Data Form

Piscivorous/Scavenging Bird Activity Observed (Circle):	(Y)	N

Comments/Additional Observations:

0659- Arrived @ [redacted], hammers @ [redacted] lifted
0726- Hammer placed on pile [redacted] @ [redacted]
0734 - Hammering started on pile [redacted]
0752 - Hammer on pile [redacted] @ [redacted]
0808 - Hammering started on pile [redacted]
0839 - Hammer vertical @ [redacted]
0848 - Hammer placed on pile [redacted] @ [redacted]
0851 - Hammer lifted off of pile [redacted]
0856 - Hammering started @ [redacted] for pile [redacted]
0858 - Hammer placed on pile [redacted] @ [redacted]
0910 - Hammer lifted @ [redacted]
0926 - Hammering started on pile [redacted]
0928 - Hammer lifted off of pile [redacted]
0938 - Hammer on pile [redacted]
0942 - Hammering on pile [redacted] started
0946 - Hammer lifted off of pile [redacted]
0955 - Hammer placed on pile [redacted]
0959 - Hammering started on pile [redacted]
1020 - Hammer lifted off of pile [redacted]
1025 - Hammer on pile [redacted] @ [redacted]
1034 - Hammering started on pile [redacted]

[redacted] [redacted] [redacted]
58 - 0 - 57
54 - 0 - 53
6 0 0
1 1 1
11 10 9
0 0
1 1
1 2
N ↑

1035 - Hammer on pile [redacted]
1039 - Hammering started on pile [redacted]
1056 - Hammer lifted off of pile [redacted]
1115 - P32 Hammer placed on cradle
1149 - P36 Hammer placed on cradle
1200 - Hammer lifted off of pile [redacted]
1212 - Hammering on pile [redacted] started again
1218 - Hammer lifted off of pile [redacted] again
1247 - Hammer on pile [redacted]
1250 - Hammering started on pile [redacted]
1400 - Hammer lifted off of pile [redacted]
1435 - Hammer @ [redacted] placed on cradle
1510 - Depart for launching dock

Sturgeon Information

Sturgeon Observed (circle):	(Y)	N	Recovered (circle):	(Y)	N
Time Observed: 1025		Species (SN/AT): SN		Fish ID*: 20140515 0101	
Location Recovered (Lat/Lon): 41° 06.059		73° 54.096		Time Recovered: 1030	
Water Depth @ Recovery Loc. (ft): 15'		Recovery Method: Net			
Recovered From (circle): (River)	Scow				
Condition/Dispostion: Dead / no head					
Photo #s:		Photo Descriptions: Photos of wound and Fish			
Weight (g): 5165 4/02		TL (mm): 780		FL (mm): 680	
Interorbital Width (mm): NA		Mouth Width (mm): NA		Fin Clip? (Y)	N
PIT Tag Present? Y (N)		PIT Tag Fitted? Y (N)		PIT Tag #: —	
Location Returned (Lat/Lon): Not Returned				Time Returned: —	
Water Depth @ Return Loc. (ft): Not Returned		Return Method: Not Returned			
Sturgeon Forms Completed (circle): (Sample Collection)		(Incident Report)	Salvage		

*YYYYMMDDXXZZ (XX = Chronological sample # for ea. date, ZZ = Chronological fish # in ea. sample

[redacted]

Appendix C - Part 2

Certification, Identification and Chain of Custody Form for Submitting Sturgeon Genetic Tissue Samples.[1,2]

(A) CERTIFICATION OF SPECIES (Collector)

I, Stephen Niero (Full Name), hereby certify that I have positively identified the fish or fishes sampled in this shipment as: ☒ shortnose sturgeon; ☐ Atlantic sturgeon; ☐ other ☐ unknown based on my knowledge and experience as a Environmental Scientist (Position Job Title).

Signature: [signature] Date Identified: 5/15/14

Address: 404 Airport Executive Park Nanuet NY 10954

Phone Number: 845-596-8424

(B) SAMPLE IDENTIFICATION

Species Identification: ☒ shortnose sturgeon; ☐ Atlantic sturgeon; ☐ unknown

Unique ID No: 20140515010 1 ; Tissue Type: FinClip ; Preservative: Ethanol ;

Location: (River: Hudson River ; River-km: ; Lat/Long: 41°06.0594 73°54.6966

River Location Description: Nyack NY. Outside Peterson boat yard);

Total Length (TL) of Specimen (mm): 780 Weight of Specimen (g): 5lbs 402 ; Sex (if known) ____

Specific comments on take: Estimates (length & weight) found/recovered w/o head

☐ Check here if multiple samples are submitted and use *Field Collection Report* (Appendix 3b) with the data fields listed in this section.

(C) EVIDENCE OF CHAIN OF CUSTODY

1. [signature] Release Signature	TZD Replacement BD NER-2013-10768 NMFS Permit No. 4/2/14	____ Method of Transfer	5/15/14 1645 Date	
[signature] Receipt Signature	NMFS Permit No.		Date	
2. ____ Release Signature	NMFS Permit No.	Method of Transfer	Date	
____ Receipt Signature	NMFS Permit No.		Date	
3. ____ Release Signature	NMFS Permit No.	Method of Transfer	Date	
____ Receipt Signature	NMFS Permit No.		Date	

[1] Instructions on next page.

[2] If multiple samples are shipped, attach summary sheet in Appendix 3b.

Appendix C - Part 3

Instructions: Collecting, Certifying, Identifying &Shipping Tissue Samples Collected from Sturgeon.

1. **Species Certification**:
For each shipment a "*Certification of Species Identification*" (Section A) must be provided. This form documents the collector has identified the fish or fishes sampled in the shipment as either a shortnose or Atlantic sturgeon. If there is any doubt about the identity of a sample, then mark unknown and include comments on the take.

2. **Sample Identification**:
Assign a unique number identifying each individual fish captured and subsequently sampled. This number must be recorded in Section B and on the collection vial for each sample taken. Record tissue type; preservative used; date of capture; location of capture (river & description, lat/long, river km, and nearest city); length of specimen; weight; and sex, if known. Check the box provided if you are submitting multiple samples, and provide a hard-copy and/or email a copy of the sample spreadsheet with information for each of the data fields listed above.

3. **Tissue Sampling Instructions:**
a. Cleanliness of Samples: Cross contamination should be avoided. For each fish, use a clean cutting tool, syringe, etc. for collecting and handling samples.

b. Preserving & Packaging Samples:
   i. Label vial with fish's unique ID number.
   ii. Place a 1-2 cm^2 section of pelvic fin clip in vial with preservative (95% absolute ETOH (un-denatured), recommended).
   iii. Seal individual vials or containers with leak proof positive measure (e.g., tape).
   iv. Package vials and absorbent within a double sealed container (e.g., zip lock baggie).
   v. Label air package properly identifying ETOH warning label (**See Appendix 3c**).

c. Shipping Instructions:
When shipping samples, place separately Appendix 3a, 3b and 3c (Sample ID and Chain of Custody Forms and Shipping Training Form) in container and seal the shipping box to maintain the chain of custody. (Note: A copy of the ESA permit authorizing the collection of the sample(s) must also accompany the sample(s)).

Important Notice: You must be certified before shipping tissue samples preserved with 95% ETOH in "excepted quantities" (A Class 3 Hazardous Material Due to Flammable Nature). See Appendix 3c: "NMFS Guidelines for Air-Shipment of Excepted Quantities of Ethanol Solutions" to comply with the DOT/IATA federal regulations.

4. **Chain of Custody Instructions:**
The "*Chain of Custody*" (Section C) should be maintained for each shipment of tissue samples and must accompany the sample(s) at all times. To maintain the chain of custody, when sample(s) are transferred, the sample(s) and the documentation should be packaged and sealed together to ensure that no tampering has occurred. All subsequent handlers breaking the seal must also sign and document the chain of custody section.

5. **Contact Information:**
A. NMFS, Office of Protected Resources:
i. Primary Contact: (Greater Atlantic Regional Fisheries Office) Shortnose Sturgeon Recovery Coordinator (Jessica Pruden, jessica.pruden@noaa.gov, 978/282-8482); Atlantic Sturgeon Recovery Coordinator (Lynn Lankshear, lynn.lankshear@noaa.gov, 978/282-8473)
ii. Primary Contact: (Southeast) Shortnose Sturgeon and Atlantic Sturgeon Recovery Coordinator (Kelly Shotts, kelly.shotts@noaa.gov, 727/551-5603)
i. Secondary Contact: Malcolm Mohead (malcolm.mohead@noaa.gov) Phone: 301/713-2289
ii. Secondary Contact: Jennifer Skidmore (jennifer.skidmore@noaa.gov) Phone: 301/713-2289
B. NOS Archive:
i. Primary Contact: Julie Carter (julie.carter@noaa.gov) Phone: 843/762-8547

APPENDIX E

Sturgeon Take Report - Part A

Photographs should be taken and the following information should be collected from all sturgeon (alive and dead). Please submit all necropsy results (including sex and stomach contents) to NMFS upon receipt. You must also complete and submit the "Sturgeon Data Collection Form"

Observer's full name: Stephen Nieva / Marc Hecht
Reporter's full name: Stephen Nieva / Marc Hecht

Species Identification :

Site of Collection: Hudson River

Date animal observed: 5/15/14 Time animal observed: 1025
Date animal collected: 5/15/14 Time animal collected: 1030

Environmental conditions at time of observation (i.e., tidal stage, weather):
Flooding, foggy, overcast

Project-related activities on going at time of observation (e.g., pile driving, dredging, etc.):
Pile driving

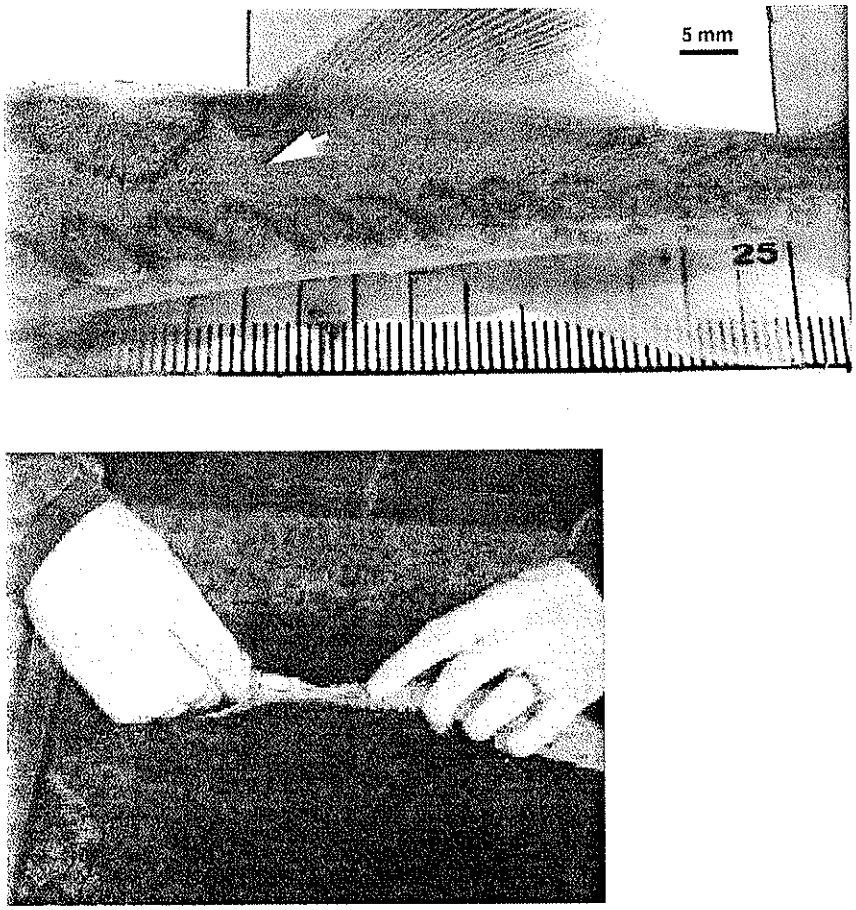

Figure 5. (from Damon-Randall *et al.* 2010). Illustration of PIT tag location (indicated by white arrow; top), and photo of a juvenile Atlantic sturgeon being injected with a PIT tag (bottom). *Photos courtesy of James Henne, US FWS.*

STURGEON DATA COLLECTION FORM

For use in documenting sturgeon injury or mortality incidental to a federal action and exempted pursuant to a NMFS issued incidental take statement

OBSERVER'S CONTACT INFORMATION
Name: First Stephen Last Nviero
Agency Affiliation HDR Email snviero@hdrinc.com
Address 401 Airport Executive Park
Nanuet NY 10954
Area code/Phone number

SEC 7 UNIQUE IDENTIFIER (PCTS No. Assigned by NMFS)

DATE REPORTED: Month 05 Day 15 Year 2014
DATE EXAMINED: Month ☐☐ Day ☐☐ Year 20☐☐

SPECIES: (check one)
- ☐ shortnose sturgeon
- ☐ Atlantic sturgeon
- ☒ Unidentified *Acipenser* species

Check "Unidentified" if uncertain . **See reverse side of this form for aid in identification.**

LOCATION FOUND: ☐ Offshore (Atlantic) ☒ Inshore (bay, river, sound, inlet, etc)
River/Body of Water Hudson River City Nyack State NY
Descriptive location (be specific) just north of Petersens Boat Yard in Nyack, NY
Latitude 41°06.0544 N (Dec. Degrees) Longitude 73°54.6966 W (Dec. Degrees)

CARCASS CONDITION at time examined: (check one)
- ☒ 1 = Fresh dead
- ☐ 2 = Moderately decomposed
- ☐ 3 = Severely decomposed
- ☐ 4 = Dried carcass
- ☐ 5 = Skeletal, scutes & cartilage

SEX:
- ☒ Undetermined
- ☐ Female ☐ Male

How was sex determined?
- ☐ Necropsy
- ☐ Eggs/milt present when pressed
- ☐ Borescope

MEASUREMENTS: circle unit
Fork length 68 cm / in
Total length 78 cm / in
Length ☐ actual ☒ estimate
Mouth width (inside lips, see reverse side) _____ cm / in
Interorbital width (see reverse side) _____ cm / in
Weight ☐ actual ☒ estimate 5lb 10.2 kg (lb)

TAGS PRESENT? Examined for external tags including fin clips? ☒ Yes ☐ No Scanned for PIT tags? ☒ Yes ☐ No

Tag #	Tag Type	Location of tag on carcass
No tags		

CARCASS DISPOSITION: (check one or more)
- ☐ 1 = Left where found
- ☐ 2 = Buried
- ☒ 3 = Collected for necropsy/salvage
- ☐ 4 = Frozen for later examination
- ☐ 5 = Other (describe) _____

Carcass Necropsied? ☐ Yes ☒ No
Date Necropsied: _____
Necropsy Lead: _____

PHOTODOCUMENTATION:
Photos/vide taken? ☒ Yes ☐ No
Disposition of Photos/Video: _____

SAMPLES COLLECTED? ☒ Yes ☐ No

Sample	How preserved	Disposition (person, affiliation, use)
Fin Clip	Ethanol	Marc Hecht-HDR

Comments:

Distinguishing Characteristics of Atlantic and Shortnose Sturgeon

Characteristic	Atlantic Sturgeon, *Acipenser oxyrinchus*	Shortnose Sturgeon, *Acipenser brevirostrum*
Maximum length	> 9 feet/ 274 cm	4 feet/ 122 cm
Mouth	Football shaped and small. Width inside lips < 55% of bony interorbital width	Wide and oval in shape. Width inside lips > 62% of bony interorbital width
*Pre-anal plates	Paired plates posterior to the rectum & anterior to the anal fin.	1-3 pre-anal plates almost always occurring as median structures (occurring singly)
Plates along the anal fin	Rhombic, bony plates found along the lateral base of the anal fin (see diagram below)	No plates along the base of anal fin
Habitat/Range	Anadromous; spawn in freshwater but primarily lead a marine existence	Freshwater amphidromous; found primarily in fresh water but does make some coastal migrations

* From Vecsei and Peterson, 2004

Describe any wounds / abnormalities (note tar or oil, gear or debris entanglement, propeller damage, etc.). **Please note if no wounds / abnormalities are found.**

Missing head

gills (remaining) brownish in color

Data Access Policy: Upon written request, information submitted to National Marine Fisheries Service (NOAA Fisheries) on this form will be released to the requestor provided that the requestor credit the collector of the information and NOAA Fisheries. NOAA Fisheries will notify the collector that these data have been requested and the intent of their use.

Submit completed forms (within 24 hours of observation of fish): by email to Incidental.Take@noaa.gov or by fax (978-281-9394). Questions can be directed to NMFS Protected Resources Division at 978-281-9328.

Appendix C - Part 4

[redacted]

Summary Sheet for Genetic Tissue Samples Collected[1,2]

Date	Species	Unique ID No.	Genetic Tissue Type	Preservative	Location: (River)	Location (River-km)	Location (Lat/Long)	Total Length (mm)	Weight (g)/lb	Sex	Comments
5/15/14	sturgeon	20140515010I	Fin clip	Ethanol	Hudson River		41°06.054 73°54.696W	760	5 lbs 4 oz		found w/o head

1. Please coordinate with NMFS to receive a file copy of this appendix in spreadsheet format and include file on disk with shipment.
2. If multiple samples are shipped, attach this form to supplement Appendix 3a.

Appendix C - Part 5

NMFS Guidelines for Air-Shipment of "Excepted Quantities" of Ethanol Solutions

These guidelines have been adapted with permission from the University of New Hampshire-Office of Environmental Health & Safety; our appreciation is to Andy Glode for providing reference materials upon which this guide was created.

The U.S. Department of Transportation (DOT: 49 CFR 173.4) and the International Air Transport Association (IATA: 2007 Dangerous Goods Regulations, Sec. 2.7) regulate shipments of ethanol (ETOH) in *excepted quantities*. As a result, specific procedures must be followed as well as certifying proper training of individuals prior to packaging and shipping specimens preserved in ETOH. These guidelines will inform proper shipping and also satisfy certifying requirements. Failure to meet such requirements could result in regulatory fines and/or imprisonment.

Therefore, prior to submitting ETOH preserved samples and appropriate documentation (*e.g.*, a FedEx Airbill) to a carrier, please read, initial and sign this document, affirming you have understood the requirements as outlined. Please include this document in the shipping package and retain a copy for your records.

1) Packages and documents submitted to a carrier must not contain any materials other than those described in this document (*i.e.* containers holding ethanol-preserved specimens and related absorbent and packaging materials). Also, laboratory or sampling equipment, *unrelated documents*, or other goods must be packaged and shipped in separate boxes. (Note: ETOH solutions are not permitted to be transported in checked baggage, carry-on baggage, or airmail.) I understand (_____)

2) Please read the manufacturer's Material Safety Data Sheet (MSDS) for ETOH recognizing ETOH (55 - 100%) is classed as hazardous flammable material (NFPA Rating = 3). Note also, its vapor is capable of traveling a considerable distance to an ignition source causing "flashback." Properly packaging and labeling shipments of ethanol solutions will minimize the chance of leakage, and would also communicate the potential hazard to transport workers in the event of a leak. I understand (_____)

   a) Quantity Limits: Small quantities (inner container less than 30 ml, with a maximum net quantity of 500 ml for the entire package) of ETOH can be shipped with "Excepted Quantities" labels without completion of a Dangerous Goods Declaration. (e.g., If shipping vials having a maximum volume of 10 ml each, you may put up to 50 vials in one box.) I understand (_____)

   b) Package Components:

      i. *Inner (primary) packaging (e.g., vial, tube, jar, etc.)*: Do not completely fill inner packaging; allow 10% head-space for liquid expansion. Liquids must not completely fill inner packaging at a temperature of 55°C (130°F). Closures of inner packaging (e.g., vials with tops) must be held securely in place with tape or other positive means. I understand (_____)

      ii. *Intermediate (secondary) packaging (e.g. Ziplock or other plastic bag)*: Place inner container(s) (*e.g.*, vials with ETOH) into a high-quality plastic bag. Then add an absorbent material cable of absorbing any spillage without reacting with the ethanol. Seal the first bag tightly and then tape the locking seals. Next, seal the inner bag within a second bag for added safety. I understand (_____)

      iii. *Outer packaging (e.g., cardboard box)*: Ethanol solutions may not be shipped in envelopes, Tyvek® sleaves, or other non-rigid mailers. The dimensions of the outer box must be at least 100 mm (~4 inches) on two sides. Any space between the inner packing containers placed in the outer packaging should be eliminated with additional filler. I understand (_____)

   c) Package Labels:

      i. *Dangerous Goods in Excepted Quantities Label* (Figure 1.): The label must display a "3" as the ethanol hazard class number using a black marker. You may obtain self-adhesive labels from NMFS, or else, order online. I understand (_____)

      ii. *Name and Address:* The outer container must display the name and address of the shipper and consignee. When re-using shipping boxes, completely remove or black out all unnecessary labels or marks. I understand (_____)

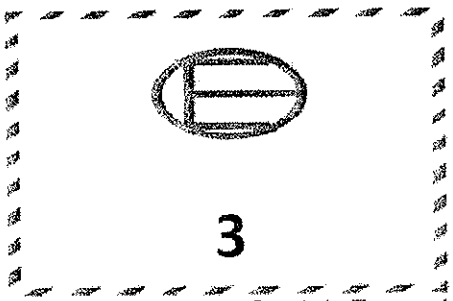

Figure 1. Dangerous Goods in Excepted Quantities label

APPENDIX C

Sturgeon Necropsy Report

Cornell University

Aquatic Animal Health Program
Dept. of Microbiology and Immunology
College of Veterinary Medicine
Cornell University
Ithaca, NY 14853-6401
Tel: (607) 253-4028 Fax: (607) 253-3384

Case number:	FPL2014-006	**Report Date:**	5/16/2014
Date received:	5/15/2014	**Diagnosticians:**	Getchell, Wooster

Client Name:	Justin Krebs	**Type of sample:**	1 partial fish carcass
		Species:	Shortnose Sturgeon (*Acipenser brevirostrum*)

History: On Thursday May 15, 2014, a dead sturgeon was discovered by Tappan Zee Constructors (TZC) in the vicinity of the construction zone for the New NY Bridge. The Thruway Authority was notified and the fish was determined to have been killed within the previous 24 hours and to be in suitable condition for necropsy. The fish was placed on ice and transported to Cornell the same day. The delivery to Cornell University occurred at 8:45PM on May 15, 2014.

Presentation: The fish was delivered to Cornell AAHP on 15 May 2014 by Steve Schmidt of AKRF.

Gross examination: The Shortnose Sturgeon weighed 2233 grams, but was missing its head, so total and fork length were unmeasurable. An estimate of the total length is approximately 870 mm.

External and internal gross pathological lesions were as follows: The most obvious observation was the missing head, which appeared to have been disarticulated from the rest of the body. From the attached photos (Fig 1-4) it can be seen that the posterior region of the gill chamber was present, with only a small portion of the pseudobranch remaining. Only the posterior region of brain case was remaining. There was minimal damage posterior to the site of disarticulation with only a minor displacement of one of the dorsal scutes (Fig 4). There was minor damage to right pectoral fin with three mild 5 mm circular abraded areas on the skin dorsal to this fin, which may have occurred post mortem (Fig 4&5); a fin clip appeared to have been taken from left pelvic fin; and a 1 cm tear at anterior edge of dorsal fin was observed, possibly from handling/holding the tail (Fig 6). Significant force was necessary to decapitate this specimen. It is possible based on these gross pathological observations that the injuries were due to interactions with the dredge bucket. The injury does not appear to be due to a ship strike or propeller impacts. This conclusion is based on the gross appearance of the carcass where no significant lacerations were observed. It appears from the condition of the carcass that the decapitation occurred while the fish was alive. The freshness of the carcass was determined by the color and microscopic observation of the remaining pseudobranch and the condition of the internal organs (Figs 7-9). There was red blood-tinged fluid pooled in the coelomic cavity (Fig 7), probably partially due to the complete tears in the atrium and conus arteriosis that likely occurred during decapitation (Fig 8&9). It is likely the sturgeon mortality was due to decapitation and not exposure to elevated sound pressure levels. There were some hematomas observed on the anterior end of the stomach (Fig 10); some hemorrhaging where the collapsed swim bladder joined the esophagus; diffuse erythema on the distal esophagus (Fig 11); some hemorrhages noted on the liver (Fig 12); and finally, hemorrhaging in the ovaries (Fig 13). These lesions may be related to the decapitation. Histological analyses may determine if these lesions are related to elevated sound levels. Finally, for completeness, photos of the digestive system and kidneys are included (Fig 14&15).

Histological examination: Examination of fixed tissues is pending.

Laboratory results:

Bacteriology: Kidney loop samples were inoculated onto TSA/5%SB and marine agar and incubated at room temperature. Both plates will be monitored for significant growth.

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Toxicology: None performed.

Virology: Kidney/spleen/liver homogenates will be prepared, filtered, and inoculated onto white sturgeon cells if necessary. Cells will be monitored for cytopathic effect. Frozen aliquots of cell culture supernatant will be archived.

Diagnosis:
Pending

Comments: This is an interim report. Histopathogical analyses and bacteriology are still pending.

Images: Fig. 1

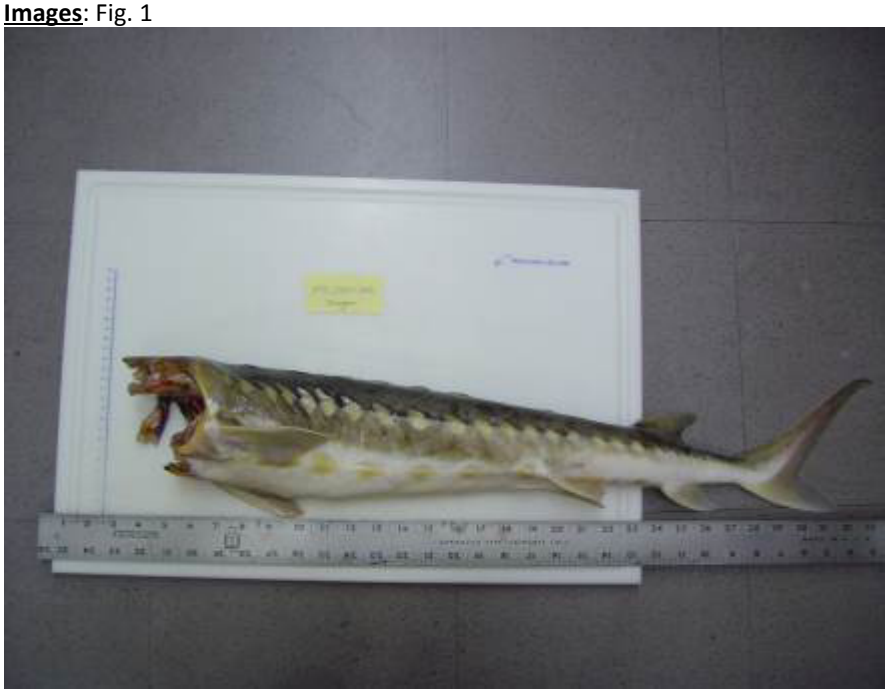

Fig. 2

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Fig 3

Fig 4

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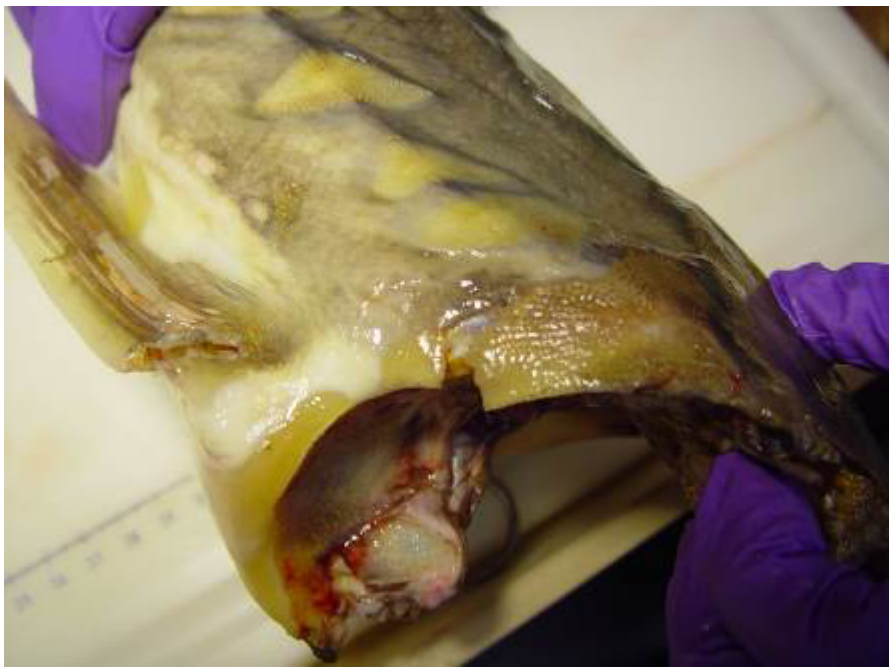

Fig 5

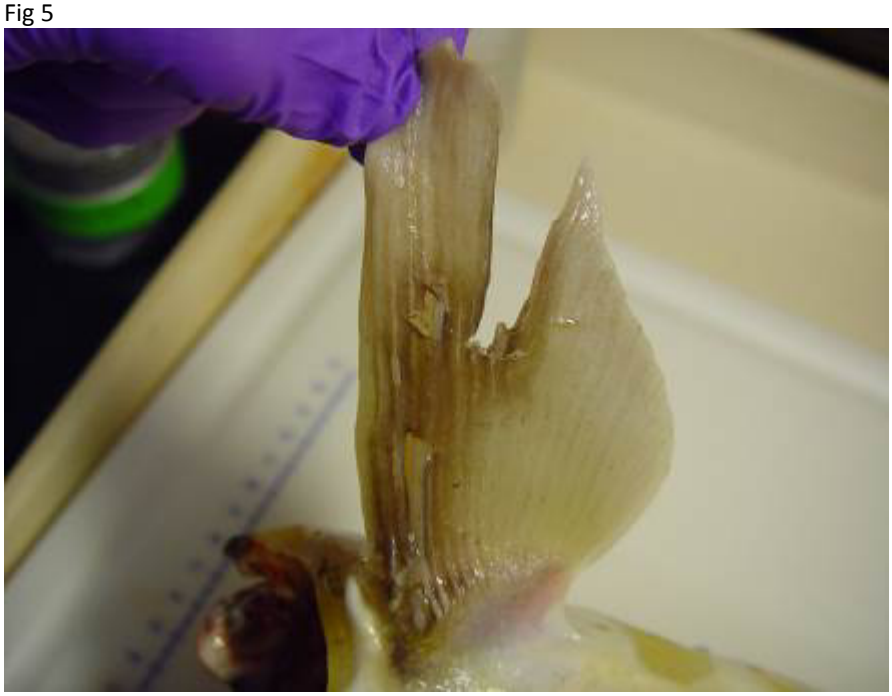

Fig 6

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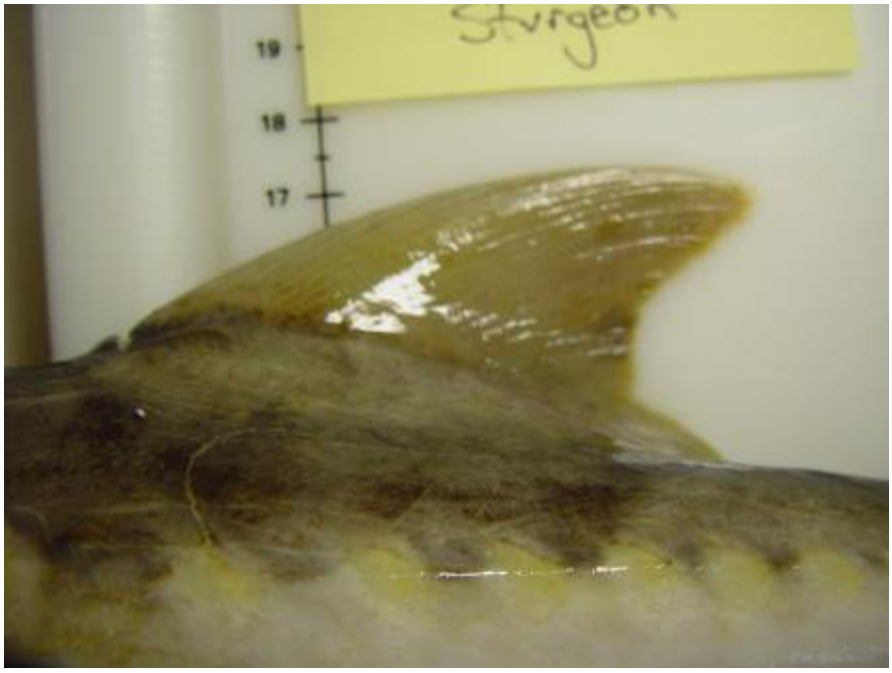

Fig 7

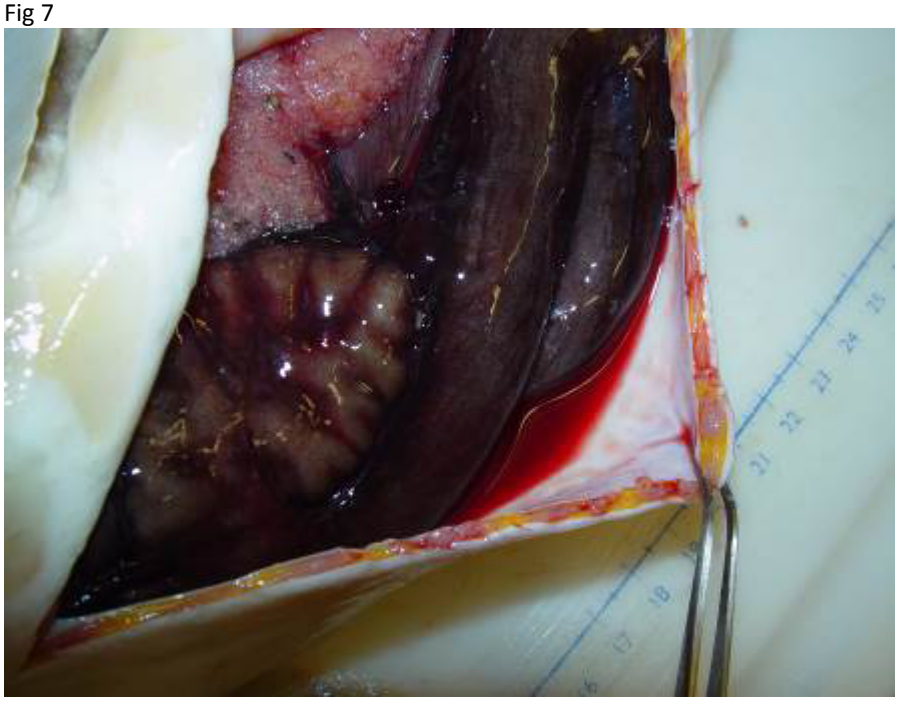

Fig 8

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Fig 9

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Fig 10

Fig 11

Fig 12

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Fig 13

Fig 14

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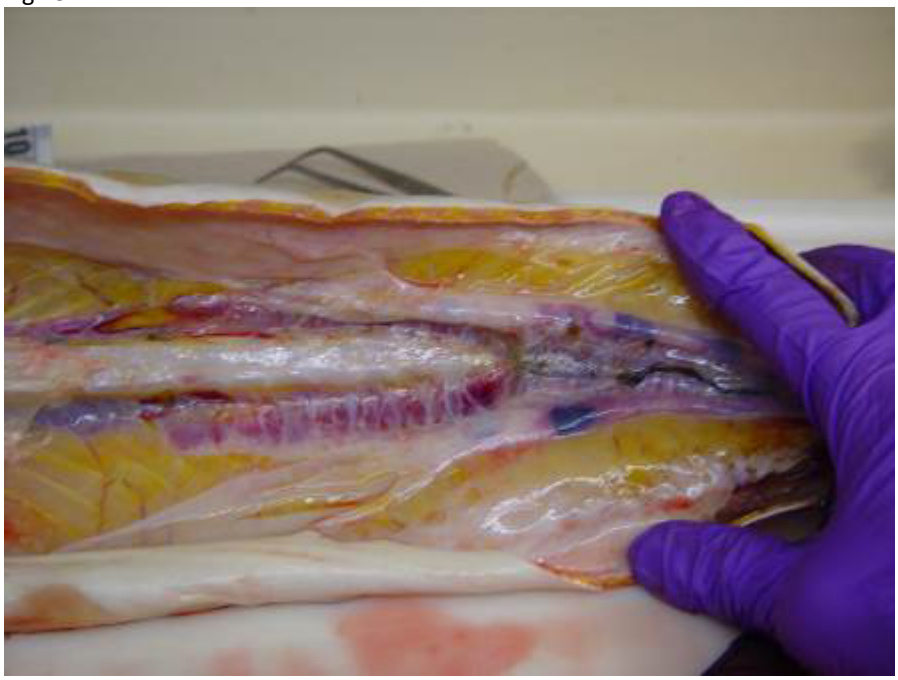
Fig 15



Rod Getchell, PhD
Research Scientist

Paul Bowser, PhD
Professor