Dredging and Pile Driving Monitoring Plan *for the* **Tappan Zee Hudson River Crossing**

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TAPPAN ZEE CONSTRUCTORS, LLC

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Attachments

Attachment A. New York State Thruway Authority (NYSTA) Sturgeon Sighting Protocol

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Attachment C. Pile Driving Monitoring Forms

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Attachment E. Environmental Performance Commitment Responsibility Matrix

1.0 Introduction

This Dredging and Pile Driving Monitoring Plan has been developed by Tappan Zee Constructors, LLC (TZC) for the Tappan Zee Hudson River Crossing Project (the Project) according to the applicable conditions 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 September 2014 Endangered Species Act Section 7 Consultation Biological Opinion (BO) issued by the National Marine Fisheries Service (NMFS). This plan includes the monitoring of dredging and pile driving operations and the handling of sturgeon recovered during these operations. It does not include the handling of sturgeon reported by the public or by NYSDEC in the project area. Handling of sturgeon reported in those situations is addressed in the Sturgeon Sighting Protocol (Attachment A) and Necropsy Plan (Attachment B). Additionally, underwater noise monitoring and the acoustic telemetry monitoring of sturgeon are addressed in separate plans. See the Dredged Materials Management Plan for additional information regarding dredging specifications as appropriate.

2.0 Monitoring Objectives

The primary objectives of the monitoring are to demonstrate consistency with the NYSDEC permit conditions and the NMFS BO Resonable and Prudent Measures (RPMs), terms and conditions, applicable contract requirements, and to locate stunned or dead sturgeon within the construction zone during pile driving and dredging activities. The construction zone is waters across (east-west) the entire width of the river from approximately 1.0 miles north and south of the existing and proposed bridges. The plan includes monitoring pile driving and dredging activities and associated sturgeon handling. The observers will document observations of sturgeon and other non-sturgeon species in accordance with the BO.

3.0 Notification

Communication between the project and NMFS will be initiated by FHWA. The Environmental Point of Contact (EPOC) will coordinate with appropriate parties regarding construction activities to be monitored. Topics to be discussed will include:

- Dates and times of dredging and pile driving activities
- · Access location and time
- Contact details of relevant liaison personnel

This coordination will allow for 100% observer coverage each year for the monitoring of dredging and pile driving activities.

Prior to the commencement of dredging, the Oversight Environmental Compliance Monitor (OECM) (Kristine Edwards, NYSTA) will be notified of the commencement of dredging operations at least one week prior to the actual start date. Information provided will include:

- Number of dredges to be used,
- Documentation that dredged material barges and scows have been inspected and found to be properly sealed;
- Area within the river to be dredged,
- Volume of material to be removed,
- Expected duration of dredging, and
- Means of transport of dredged material and disposal site to be used.

FHWA will provide this information to NMFS at least one week before dredging begins.

4.0 Dredging Observer Qualifications

Sturgeon monitoring during dredging will be conducted by a NYSTA NMFS-approved observer. At least two weeks prior to each three-month dredge window (August 1 to November 1), the NYSTA will submit the names and qualifications of any observers to be used on board the dredge(s) to the OECM for approval by NMFS. The NYSTA will notify the OECM if substitute observers are required during dredging operations. The NYSTA will provide enough advanced notification so that the OECM can obtain written approval from NMFS for the substitute observers; however the OECM may receive approval over the phone for a susbstitute observer to be followed up with written approval. No observers will be deployed to the dredge site until the OECM has confirmation from NMFS that they have met the qualifications to be a "NMFS-approved observer."

Dredging observers will meet the qualifications outlined in Appendix B. Qualifications and experience will include a background in biology, general experience aboard marine vessels and dredges, and hands-on experience with sturgeon identification and handling. Observers will be able to differentiate shortnose and Atlantic sturgeon, handle live sturgeon, and correctly measure total length and width of live and dead sturgeon.

5.0 Monitoring Plan

5.1 Pile Driving Monitoring

Pile driving monitoring will be performed by TZC. Daily monitoring during pile driving of permanent piles 4 feet or greater in diameter will occur from a barge next to each pile being driven and a small boat. The observer on the barge will record actual time of pile driving (including the beginning and end times and pile size) for impact hammering. These observers will maintain radio communication with the observers conducting the vessel-based monitoring. Observers on the barges will search for stunned, injured, or dead sturgeon and non-sturgeon species continuously during active pile driving. Observers on the barge will use binoculars to the extent possible.

A small vessel will be used as an observation platform during pile driving activities to search for stunned or dead sturgeon and non-sturgeon species within 1.0 mile down-current of the operation, based on anticipated pile driving times and peak current velocities. The vessels will be equipped with a Global Positioning System (GPS), VHF radios, and depth sounders. The vessel-based monitors will search transects within 1 mile downcurrent of pile driving activity during and up to one hour after pile driving has been completed, conditions permitting. The vessel will run a pattern around pile driving activities that will allow visual observation of the construction zone and down-current of the construction zone, including shoreline areas as appropriate depending on the water depth at the time of inspection. Each transect will be recorded by GPS. Location and vessel speed will take into account physical conditions such as tide, wind, visibility, and precipitation, in order to maintain adequate visual coverage within the 1-mile radius downcurrent of the pile driving activities. Surveys could include patterns such as sawtooth or circular patterns, to provide adequate coverage of the activity. The observers from the vessel will scan the water with binoculars, as practicable. When vessel-based monitoring occurs, one scientist will be a designated look out. Vessel-based monitoring may be temporatily suspended due to weather or other safety concerns and will not occur prior to sunrise or after sunset.

The vessel-based observers will remain in radio contact with the monitors on the pile driving barges. This will allow monitors to communicate observations of sturgeon or other fish and to work together to locate and recover a possible surfaced sturgeon. The vessel-based observers will also make observations of piscivorous bird activity such as potential fish predation/scavenging.

Sturgeon sightings and captures (including injuries or mortalities) will be reported immediately to the Environmental Compliance Manager (ECM) or designee, who will report it to the OECM. Sturgeon observed will be collected and handled appropriately, according to Section 5.3 of this plan.

The barge-based pile driving observer will also document the following, such that pile driving is consistent with the permit, BO, and applicable contract requirements:

- Impact Pile driving occurs from 7AM to 7PM only. If pile driving for later than 7 PM is required in order to complete a pile begun that day, EPOC for construction should notify the OECM for approval prior to pile driving after 7 PM.
- Pile driving times. (These will be reported to the OECM on a weekly basis (to comply with Term and Condition 6 of the BO).
- Location of the pile driving.
- A noise attenuation system is deployed and operating to specifications during impact pile driving.
- Soft-start (pile tapping or series of minimal energy strikes) is used at the start of impact pile installation to encourage fish to move from the immediate area of the pile driving activity.
- That pile driving does not result in an increase in turbidity that results in a substantial visible contrast to the Hudson River outside the pile driving or cofferdam.

5.2 Dredge Monitoring

A NMFS-approved observer will be onboard the dredge platforms(s) to monitor all dredging activity everyday that dredging occurs (see Appendix A). NMFS-approved observers will be provided by NYSTA. The observer will monitor the dredge bucket as it comes out of the water, and as the load is deposited into the scow during each dredge cycle. The dredge bucket and scow will be observed for sturgeon and/or sturgeon parts. The dredger will provide adequate time in between dredge cycles to allow the monitor to examine the scow and dredge bucket for sturgeon and document findings. The dredger will provide sufficient lighting for all dredging activities that occur at night or in poor visibility, to allow the monitor to properly inspect the dredge bucket and scow. The observer will monitor 100% of the dredge cycles. All sturgeon observed will be collected and handled appropriately, according to Section 5.3 of this plan.

Additionally, the observer will document the following, so that dredging is consistent with the NYSDEC permit conditions: ensure adequate time has been provided to make and record observations.

Observing the Dredge Bucket. NMFS-approved observers will be onboard each dredge scow where they can have clear visual view of the entire surface inside the scow. The observer will have access to both port and starboard sides of the scow and also fore and aft of the scows, within safety constraints identified by the dredger. The first shift of the project on the scows receiving the dredge material will be completed by the NMFS-approved observer supervisor and the project coordinator to determine the best vantage points to observe. This will be communicated to the remaining staff. Safety will be the priority and personal protective equipment will be utilized (e.g., Type III PFD, hard hat, hearing protection, eye protection, gloves and steel toed boots, or other as required). The observer will have to change positions throughout the loading of each scow to allow for unobstructed viewing and should position themselves to the side of the scow where they can see the bucket hoisted and lowered into the water. At night the observers will use headlamps and high powered flashlights along with the illumination provided by the dredge boom lights to optimize clear viewing within the scow.

Dredge Cycles. The dredge cycles are estimated to be about one minute in the shallow depths and slightly longer in deeper areas. A one minute cycle should provide adequate time for the observer to scan the entire surface of the scow. When the dredg cycle is shorter than the anticipated one-minute cycle, the dredge observer will record this occurrence, the approximate amount of time of the shortened cycle, whether or not the shortened cycle allowed adequate time to inspect for sturgeon. Observers will be issued VHF hand held radios tuned to the same frequency being utilized by the dredge operator

enabling the observer to communicate if a sturgeon is observed and to cease loading the scow until the sturgeon is recovered.

Decant Barge Observer. One observer will be assigned to the decant barge at appropriate times to examine each scow that is being dewatered. They will observe the entire contents of the scow(s) as they are being dewatered until dewatering is complete.

Sturgeon Recovery from the Dredge. If positively identified as a sturgeon, the dredger will attempt to remove all sturgeon from the scow(s) with the bucket. Bucket removal is the only safe method to remove the sturgeon from the scow. If a sturgeon cannot be safely removed from a scow, the observer will take photos, record the event, and explain the reason why it was not retrieved in the comments section on the data logs and on the Sturgeon Data Collection Form (Appendix E). The sturgeon will be transferred into a tank or live car using a stretcher/cradle. Live fish up to approximately 4 to 5 ft. can be held in a tank. Fish larger than 4 or 5 ft will be held in a stretcher or a live car. The NMFS-approved observer will sample the fish and TZC will release the fish. The NMFS-approved observer will communicate with TZC to determine the site to transfer the sturgeon for release.

Live sturgeon will be transferred via stretchers/cradles to a transport vessel, if conditions allow. If the sturgeon is being held in a live car, the live car will be transferred to the transport vessel equipped with a holding tank with flow through circulation. The transport vessel will only operate if safe weather and river conditions permit.

5.3 Sturgeon Handling

Observed sturgeon will be collected and handled appropriately depending on condition (e.g., dead or alive). They will be identified and handled using the following procedures:

For live sturgeon:

- 1. Sturgeon will be removed as quickly and carefully as possible. Note that a net will be used, if possible; however, some sturgeon might be too large to collect with a net. In all cases, the safety of the observer will be given the highest priority.
- 2. Live sturgeon will be placed into tubs filled and overflowing with ambient river water, which will be continuously supplied to the tubs while they contain fish.
- 3. Each sturgeon will then be placed on the measuring board where the sturgeon will be kept wet throughout the data collection procedure. The following measurements will be quickly recorded:
 - Total length (mm)
 - Fork length (mm)
- 4. After making sure that the fish is wet enough, three photographs will be quickly taken to aid in species identification (determined using distinguishing characteristics provided in Appendix F) and document the condition of the fish. One will be taken of the top of the fish, one will be taken of the bottom of the fish (a good view of the mouth is important), and one will be taken of the side of the fish. A ruler will be included in the photograph for scale of the dorsal and ventral surface of the head. Injuries and physical abnormalities will also be photographed.
- 5. After the requisite data has been collected, live fish will be returned to the river away from the project site as quickly and as gently as possible.

A tank or live car and stretchers for sturgeon handling will be available to be used on the dredging barges and transport vessel. Tanks will be filled with ambient river water via bucket or pumps, live cars would be deployed next to the vessel. Live fish up to approximately 4 to 5 ft. can be held in a tank. If a live sturgeon cannot be contained in a tank or live car, it would be transported in a stretcher/cradle and would be continually wetted during transport. The tank will have flow-through circulation to provide water quality that is consistent with the ambient river water. A meter will be used to measure ambient salinity and

temperature when handling live sturgeon. Additional tanks or live cars on the transport vessel will be made available in the event multiple sturgeon are collected.

In the event that observers are occupied processing recovered sturgeon, multiple sturgeon are observed and/or sturgeon are too large (i.e., larger than 8 feet in length or greater than 200 lbs) to be handled using the procedures described above, the observer will record the event in the comments section on the data logs and on the Sturgeon Data Collection Form (Appendix E). Observers may be unable to make observations during this period.

For dead sturgeon: Note: Immediately upon retrieval, each sturgeon will be assessed to confirm status (live/dead).

- Sturgeon will be removed as quickly and carefully as possible. Note that a net will be used, if
 possible; however, some sturgeon might be too large to collect with a net. In all cases, the safety
 of the observer will be given the highest priority.
- 2. Each sturgeon will be checked for a Passive Integrated Transponder (PIT) tag.
- 3. Each sturgeon will then be placed on the measuring board. The following measurements will be recorded:
 - Total length (mm)
 - Fork length (mm)
- 4. Three photographs will be taken to aid in species identification and document the condition of the fish. One will be taken of the top of the fish, one will be taken of the bottom of the fish (a good view of the mouth is important), and one will be taken of the side of the fish. A ruler will be included in the photograph for scale of the dorsal and ventral surface of the head. Injuries and physical abnormalities will also be photographed.
- 5. After the requisite data has been collected the fish will be prepared for necropsy, provided that is it is a viable candidate based on guidance from the OECM based on the Necropsy Plan (Attachment B), and transferred to the OECM.
- 6. If the sturgeon is determined not to be an appropriate candidate for necropsy as directed by the OECM the fish will be placed above the high tide line and marked with orange spray paint.

Sturgeon captures, injuries or mortalities, and sturgeon sightings in the Project area will be immediately reported to the ECM or designee, who will report it to the OECM and FHWA. FHWA will report the sturgeon take to NMFS within 24 hours.

- By phone at 978-281-9328
- By email to <u>incidental.take@noaa.gov</u>

The observer will photograph sturgeon specimens and record information for the Sturgeon Data Collection Form for live and dead sturgeon (Appendices E). Sturgeon Data Collection Forms will be reviewed by the ECM or designee and submitted to the OECM for submittal to NMFS, within 24 hours of the take. The Sturgeon Data Collection Forms will be transmitted to NMFS within 24 hours of the take as follows:

- By fax to NMFS at 978-281-9394 or
- By email to incidental.take@noaa.gov

All sturgeon will be examined for a Passive Integrated Transponder (PIT) tag prior to taking a genetic sample. The observer will scan the entire dorsal surface of each sturgeon with a PIT tag reader to detect fish tagged in other studies.

The observer will obtain a fin clip for genetic analysis from sturgeon that do not contain PIT tags. The observer will follow the procedures and complete the forms required by NMFS (Appendices C and E). The 1-cm clip will be taken from the pelvic fin, and preserved in 95% non-denatured ethanol. Each vial will be properly labeled with the species, date, fork length and total length. For tissue samples, screw top

vials, wrapped with electrical tape will be used to prevent evaporation of ethanol. The samples and fish will be identified with a unique ID number based on a Julian number scheme as follows:

YYYYMMDDXXZZ (XX = chronological sample number for each sampling date; ZZ = chronological fish number for each sample on a particular date).

For example, the first sample on 02/15/13 will be 2013021501. The first fish analyzed from that sample will be 201302150101 and the second fish will be 201302150102. This identification numbers will be used to identify the fish on corresponding reports. Prior to sending the sample to NMFS, FHWA will contact NMFS Protected Resources Division (978-181-9328) to report a sample is being sent . The sample will be placed on ice or refrigerated when ice is not available. The samples will be packaged and shipped according to the directions in Appendix C and sent within 24 hours to:

 NOAA National Marine Fisheries Service Protected Resources Division, 55 Great Republic Drive, Gloucester MA, 01930

The appropriate NMFS Northeast Region contact will also be contacted:

- 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)

Live sturgeon will be visually inspected for injuries and physical abnormalities. Observers will inspect sturgeon for external injuries such as wounds, lesions, evidence of swim bladder expansion or compression, burst capillaries in eyes and near skin surface. Injuries and abnormalities will be documented in writing and injuries will also be documented in photographs. Unless the size of fish precludes holding, collected fish must be held on board a vessel with a flow through live well. A brief assessment of the physical condition of living specimens will be recorded.

Live sturgeon greater than 300 mm TL will be fitted with a PIT tag, if no PIT tag is detected. The full power (highest power) PIT tag should be used. The observer will use procedures provided by NMFS in Appendix D for PIT tagging the live sturgeon. The observer will examine the posterior of the dorsal fin to ensure that the location is free of dermal scutes at the injection site. The observer will disinfect the PIT tag and needle in isopropyl alcohol. The PIT tag will then be inserted in the dorsal musculature at a 60° angle, antennae first. Following withdrawal of the needle, the tag should be scanned to confirm operation and the number will be recorded. Once data are recorded in the Sturgeon Take Report and Sturgeon Data Collection Form (Appendix E) the sturgeon will be transported outside of the project area, and safely released.

If possible, fish will be weighed with an appropriate scale; otherwise sturgeon weight will be estimated using length and girth. Attempts will be made to keep handling time for live sturgeon to less than 2 hours (Moser et al. 2000)¹. It is assumed that water temperature will be less than 27 °C. If water temperatures are greater than 27 °C, measures will be taken to reduce handling time as much as possible.

If a live sturgeon appears to have inflated their air bladder, attempts will be made to return the fish to neutral buoyancy by propelling the fish rapidly downward. If the air bladder still remains inflated gentle pressure will be place on the ventral side in a posterior to anterior direction (Moser et al. 2000)¹. The sturgeon will be released north of the construction site when the tide is flooding and south of the site when the tide is ebbing. The safe location will be determined by the person(s) handling the sturgeon, based on conditions.

¹ Moser, M.L., M. Bain, M.R. Collins, N. Haley, B. Kynard, J.C. O'Herron II, G. Rogers, and T.S. Squiers. 2000. A Protocol for Use of Shortnose and Atlantic Sturgeons. National Marine Fisheries Service, NOAAT Technical Memorandum NMFS-OPR-18.

The observer will preserve dead sturgeon for necropsy, if appropriate according to the Sturgeon Sighting Protocol (Attachment A) and the Necropsy Plan (Attachment B). If determined to be suitable for necropsy, the dead sturgeon will be placed on ice and transferred from TZC to NYSTA using proper chain of custody (COC) protocols. NYSTA will be responsible for transporting the sturgeon to the College of Veterinary Medicine at Cornell University (a NMFS-approved facility) for necropsy to attempt to determine the cause of death. For dead sturgeon, the observer will complete a Sturgeon Take Report and Sturgeon Data Collection Form (Appendix E) that will be reviewed by the ECM or designee and submitted to the OECM for submittal to NMFS. The completed form will be submitted to:

- By fax to NMFS at 978-281-9394 or
- By email to incidental.take@noaa.gov

Insulated fish bags (70" x 23") will be utilized to transport dead fish. If a sturgeon is larger than 70", two bags will be used to insulate it. Sturgeon will be packed in ice and the ice replenished if necessary during transport to prevent decomposition.

Following transfer to the laboratory for necropsy the fish will be handled per the NYSTA Necropsey Plan (Attachment B).

6.0 Data Collection

6.1 Pile Driving Monitoring

Data collected during the vessel-based monitoring will include:

- Date
- Boat tracks during monitoring
- Weather conditions (e.g. wind speed & direction, outdoor temperature)
- Water conditions (e.g., surface waves and tidal stage)
- Water temperature
- Salinity
- Other incidental fish species observed
- Situational photographs of pile driving, dredging, and observed fish as necessary
- Observations of Piscivorous or scavenging bird activity
- If sturgeon are recovered, information required under Section 6.3 would be collected
- · Initials of sturgeon monitors

Data collected during the barge-based monitoring will include:

- Date
- Pier Number and Size of piles
- Time that impact pile machinery work begins and ends
- Time of sturgeon sightings
- Location of sturgeon sighting
- Time of non-sturgeon species sightings
- Names of sturgeon monitors

Data will be recorded on the Pile Driving Monitoring Forms (Attachment C).

6.2 Dredge Monitoring

Data collected during dredging will include:

- Date
- Weather conditions during observation (e.g. wind speed & direction, outdoor temperature)
- Water conditions (e.g., surface waves and tidal stage)
- Time that dredging begins and ends
- Time of sturgeon sightings
- If sturgeon are recovered, information required under Section 6.3 would be collected

Data will be recorded on the Dredging Monitoring Forms (Attachment D).

6.3 Sturgeon Handling

For sturgeon specimen collected, at a minimum, the following data will be recorded in the Sturgeon Take Report and Sturgeon Data Collection Form (Appendix E).

- Date and time (including time recovered and time returned to the water)
- Location found (description and coordinates in latitude and longitude), water depth and capture method
- Species, if known
- Water temperature and salinity
- Construction operation: impact pile driving, dredging operations, dredged material transport/delivery
- Monitoring location: vessel, dredge, or dredge transport/delivery
- Photographs (3) of each sturgeon (with a ruler used for scale for the dorsal and ventral surface of the head)
- Total length and fork length
- · Weight, as appropriate
- Interorbital width
- Mouth Width
- Sex if known and how sex was determined
- Fish condition: stunned, injured, dead
- Decomposition or Carcass Condition (Incident Report and Sturgeon Data Collection Form): no (fresh dead); slightly, moderately; severely; dried carcass; skeletal, skutes, and cartilage
- Injury locations, if present
- Tagged: yes or no
- Tag type: floy, PIT, etc.
- Tag ID: record tag numbers
- Fin clip sample number
- Necropsy sample number

7.0 Reporting

In addition to the sturgeon take reporting described in Section 5.3 and 6, the following reports will be prepared to meet the terms and conditions of the BO. The reports will be submitted to the OECM and FHWA. FHWA will submit these reports to NMFS.

7.1 Pile Driving Monitoring Reports

Reports containing information on the number of fish observed stunned or injured (including non-sturgeon species) will be prepared for submittal to NMFS every 60 days. Reports will include the following information:

- Summary of pile driving such as, start and end times, quanitity of piles driven, and locations
- Summary of barge-based and vessel-based monitoring durations
- Example map showing monitoring vessel transects during reporting period
- Quantity of fish (sturgeon and/or non-sturgeon species) observed
- Locations of fish observed (if known)
- Condition of fish observed (if known)
- Copies of required data sheets and photodocumentation associated with collection of a sturgeon (if collected)

7.2 Dredge Monitoring Report

At the end of each dredging operation (i.e., each three-month dredging period), a report will be prepared that summarizes dredge operations that includes the following:

- · Dates of dredging
- Volume of material removed
- Number of trips to the disposal site
- Observations of sturgeon during dredging

Copies of the dredge observer reports will be appended to the report. The report will be submitted to the OECM to be reviewed and coordinated with the U.S. Army Corps of Engineers and project sponsors for submittal to NMFS by December 31.

A NMFS-approved observer will prepare a final report that documents biological material collected during the monitoring. The report will be submitted to the OECM and FHWA. FHWA will submit to NMFS by December 31 of any year that dredging occurs.



Appendix A:

Monitoring Specifications for Mechanical Dredges

APPENDIX A

MONITORING SPECIFICATIONS FOR MECHANICAL DREDGES

I. EQUIPMENT SPECIFICATIONS

A. Floodlights

Should dredging occur at night or in poor lighting conditions, floodlights must be installed to allow the NMFS-approved observer to safely observe and monitor dredge bucket and scow.

B. Intervals between dredging

Sufficient time must be allotted between each dredging cycle for the NMFS-approved observer to inspect the dredge bucket and scow for shortnose sturgeon and/or sturgeon parts and document the findings.

II. OBSERVER PROTOCOL

A. Basic Requirement

A NMFS-approved observer with demonstrated ability to identify shortnose sturgeon must be placed aboard the dredge(s) being used; starting immediately upon project commencement to monitor for the presence of listed species and/or parts being taken or present in the vicinity of dredge operations.

B. Duty Cycle

A NMFS-approved observers must be onboard during dredging until the project is completed. While onboard, observers shall provide the required inspection coverage to provide 100% coverage of all dredge-cycles.

C. Inspection of Dredge Spoils

During the required inspection coverage, the NMFS-approved observer shall observe the bucket as it comes out of the water and as the load is deposited into the scow during each dredge cycle for evidence of shortnose sturgeon. If any whole sturgeon (alive or dead) or sturgeon parts are taken incidental to the project(s), NMFS ((978) 281-9328) must be contacted by phone within 24 hours of the take. An incident report for sturgeon take shall also be completed by the observer and sent to NMFS via FAX (978) 281-9394 or e-mail (indicidental.take@noaa.gov) within 24 hours of the take. Incident reports shall be completed for every take regardless of the state of decomposition. Every incidental take (alive or dead, decomposed or fresh) must be photographed. A final report including all completed load

sheets, photographs, and relevant incident reports are to be submitted to the attention of the Section 7 Coordinator, NMFS Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930.

D. Inspection of Disposal

The NMFS-approved observer shall observe all disposal operations to inspect for any whole sturgeon or sturgeon parts that may have been missed when the load was deposited into the scow. If any whole sturgeon (alive or dead) or sturgeon parts are observed during disposal operation, the procedure for notification and documentation outlined above should be completed.

E. Disposition of Parts

As required above, NMFS must be contacted as soon as possible following a take. Any dead sturgeon should be held in cold storage until disposition can be discussed with NMFS. Under no circumstances should dead sturgeon be disposed of without confirmation of disposition details with NMFS.



Appendix B:

Observer Requirements

APPENDIX B.

OBSERVER REQUIREMENTS

Submission of resumes of endangered species observer candidates to NMFS for final approval ensures that the observers placed onboard the dredges are qualified to document takes of endangered and threatened species, to confirm that incidental take levels are not exceeded, and to provide expert advice on ways to avoid impacting endangered and threatened species. NMFS does not offer certificates of approval for observers, but approves observers on a case-by-case basis.

A. Qualifications

Observers must be able to:

- 1) differentiate between shortnose (Acipenser brevirostrum) and Atlantic (Acipenser oxyrinchus oxyrinchus) sturgeon and their parts;
- 2) handle live sturgeon;
- 3) correctly measure the total length and width of live and whole dead sturgeon species;

B. Training

Ideally, the applicant will have educational background in biology, general experience aboard dredges, and hands-on field experience with the species of concern. For observer candidates who do not have sufficient experience or educational background to gain immediate approval as endangered species observers, we note below the observer training necessary to be considered admissible by NMFS. We can assist the FHWA by identifying groups or individuals capable of providing acceptable observer training. Therefore, at a minimum, observer training must include:

- 1) instruction on how to identify sturgeon and their parts;
- 2) instruction on appropriate screening on hopper dredges for the monitoring of sturgeon(whole or parts);
- 3) demonstration of the proper handling of live sturgeon incidentally captured during project operations;
- 4) instruction on standardized measurement methods for sturgeon lengths and widths; and
- 5) instruction on dredging operations and procedures, including safety precautions onboard.

Appendix C:

Procedures for Obtaining Fin Clips from Sturgeon for Genetic Analysis

APPENDIX C

Procedure for obtaining fin clips from sturgeon for genetic analysis

Obtaining Sample

- 1. Wash hands and use disposable gloves. Ensure that any knife, scalpel or scissors used for sampling has been thoroughly cleaned and wiped with alcohol to minimize the risk of contamination
- 2. For any sturgeon, after the specimen has been measured and photographed, take a one-cm square clip from the pelvic fin.
- 3. Each fin clip should be placed into a vial of 95% non-denatured ethanol and the vial should be labeled with the species name, date, name of project and the fork length and total length of the fish along with a note identifying the fish to the appropriate observer report. All vials should be sealed with a lid and further secured with tape Please use permanent marker and cover any markings with tape to minimize the chance of smearing or erasure.

Storage of Sample

1. If possible, place the vial on ice for the first 24 hours. If ice is not available, please refrigerate the vial. Send as soon as possible as instructed below.

Sending of Sample

1. Vials should be placed into Ziploc or similar resealable plastic bags. Vials should be then wrapped in bubble wrap or newspaper (to prevent breakage) and sent to:

NOAA National Marine Fisheries Service Protected Resources Division 55 Great Republic Drive Gloucester MA 01930

Prior to sending the sample, contact NMFS Protected Resources Division (978-281-9328) to report that a sample is being sent and to discuss proper shipping procedures (see certification, ID and chain of custody forms below).

Certification, Identification and Chain of Custody Form for Submitting Sturgeon Genetic Tissue Samples.^{1,2} (A) CERTIFICATION OF SPECIES (Collector) hereby certify that I have positively identified the Full Name ☐ shortnose sturgeon; ☐ Atlantic sturgeon; ☐ other fish or fishes sampled in this shipment as: based on my knowledge and experience as a **Position Job Title** Signature: Date Identified: Address: Phone Number: SAMPLE IDENTIFICATION **(B) Species Identification: □** shortnose sturgeon; ☐ Atlantic sturgeon; unknown Unique ID No: ____; Preservative: ; Tissue Type: ___ Location: (River: ; River-km: ; Lat/Long: River Location Description: Total Length (TL) of Specimen (mm): Weight of Specimen (g): ; Sex (if known) **Specific comments on take:** \square 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. Release Signature NMFS Permit No. Method of Transfer Date Receipt Signature NMFS Permit No. Date 2. Method of Transfer Release Signature NMFS Permit No. Receipt Signature NMFS Permit No. Date 3. Release Signature NMFS Permit No. Method of Transfer Date

Date

Receipt Signature

NMFS Permit No.

¹ Instructions on next page.

² If multiple samples are shipped, attach summary sheet

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. <u>Tissue Sampling Instructions</u>:

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:

- . Label vial with fish's unique ID number.
- ii. Place a 1-2 cm² 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 (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 *** "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

Summary Sheet for Genetic Tissue Samples Collected^{1,2}

Date	Species	Unique ID No.	Genetic Tissue Type	Preservative	Locatio n: (River)	Location (River- km)	Location (Lat/Long)	Total Length (mm)	Weight (g)	Sex	Comments

- 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.

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 (______)

b) Package Components:

- 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:

- ii. Name and Address: The outer container must display the name and address of the shipper and consignee. When reusing shipping boxes, completely remove or black out all unnecessary labels or marks.

 I understand (______)



Figure 1. Dangerous Goods in Excepted Ouantities label

d)	Package Tests:

A representative example of packaging used for excepted quantities of ethanol solutions must pass a drop test and compressive load test without any breakage or leakage of any inner packaging and without any significant reduction in package effectiveness. Perform the following tests on a representative example of your packaging and keep a record of the results.

i. Drop Test. Drop a representative package from a height of 1.8 m (5.9 feet) directly onto a solid unyielding surface:

		1 est Results
a.	One drop flat on the base;	(
b.	One drop flat on top;	(
c.	One drop flat on the longest side;	(
d.	One drop flat on the shortest side; and	(
e.	One drop on a corner.	(

ii. *Compressive Load Test*: Apply a force to the top surface of a representative package for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 meters. (______)

e) Package Documentation:

Proper documentation is required for all shipments of hazardous materials. Incorrect documentation is the most common cause for package refusal. If using documentation for couriers other than FedEx, UPS and DHL, please contact NMFS for assistance.

- i. *FedEx*: For domestic shipments with FedEx Express, fill out the standard US Airbill. Fill out the form completely including the following information:
 - a. In Section 6, Special Handling, check the box "Yes, Shipper's Declaration not required."



include this statement and check this box.

By signing this document, I affirm I understand the hazards associated with ethanol and the shipping requirements for ethanol solutions, as outlined in this guide. I also understand I am required to include a copy of this document in the package and that it should be appended to an ESA permit (if listed samples are shipped).

	11 1	1 11 /	
Print Name:		Signature:	
Employer:		Employer Address:	
Date:			Phone:



Appendix D:

PIT Tagging Procedures for Shortnose and Atlantic Sturgeon

APPENDIX D.

PIT Tagging Procedures for Shortnose and Atlantic sturgeon

(adapted from Damon-Randall et al. 2010)

Passive integrated transponder (PIT) tags provide long term marks. These tags are injected into the musculature below the base of the dorsal fin and above the row of lateral scutes on the left side of the Atlantic sturgeon (Eyler *et al.* 2009), where sturgeon are believed to experience the least new muscle growth. Sturgeon should not be tagged in the cranial location. Until safe dorsal PIT tagging techniques are developed for sturgeon smaller than 300 mm, only sturgeon larger than 300 mm should receive PIT tags.

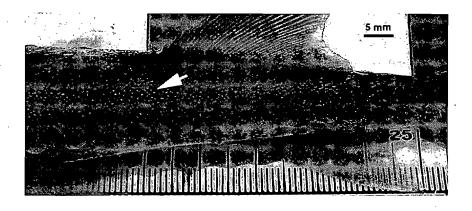
It is recommended that the needles and PIT tags be disinfected in isopropyl alcohol or equivalent rapid acting disinfectant. After any alcohol sterilization, we recommend that the instruments be air dried or rinsed in a sterile saline solution, as alcohol can irritate and dehydrate tissue (Joel Van Eenennam, University of California, pers. comm.). Tags should be inserted antennae first in the injection needle after being checked for operation with a PIT tag reader.

Sturgeon should be examined on the dorsal surface posterior to the desired PIT tag site to identify a location free of dermal scutes at the injection site. The needle should be pushed through the skin and into the dorsal musculature at approximately a 60 degree angle (Figure 15). After insertion into the musculature, the needle angle should be adjusted to close to parallel and pushed through to the target PIT tag site while injecting the tag. After withdrawing the needle, the tag should be scanned to check operation again and tag number recorded.

Some researchers check tags in advance and place them in individual 1.5 ml microcentrifuge tubes with the PIT number labeled to save time in the field.

Because of the previous lack of standardization in placement of PIT tags, we recommend that the entire dorsal surface of each fish be scanned with a PIT tag reader to ensure detection of fish tagged in other studies. Because of the long life span and large size attained, Atlantic sturgeon may grow around the PIT tag, making it difficult to get close enough to read the tag in later years. For this reason, full length (highest power) PIT tags should be used.

Fuller et al. (2008) provide guidance on the quality of currently available PIT tags and readers and offer recommendations on the most flexible systems that can be integrated into existing research efforts while providing a platform for standardizing PIT tagging programs for Atlantic sturgeon on the east coast. The results of this study were consulted to assess which PIT tags/readers should be recommended for distribution. To increase compatibility across the range of these species, the authors currently recommend the Destron TX1411 SST 134.2 kHz PIT tag and the AVID PT VIII, Destron FS 2001, and Destron PR EX tag readers. These readers can read multiple tags, but software must be used to convert the tag ID number read by the Destron PR EX. The FWS/Maryland Fishery Resources Office (MFRO) will collect data in the coastal tagging database and provide approved tags for distribution to researchers.



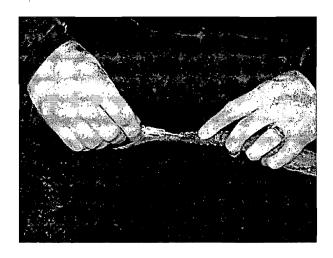


Figure 15. (from Damon-Randall *et al.* 2010). Illustration of PIT tag location (indicated by white arrow; top), and photo of a juvenile Atlantic sturgeon being injected with a PIT tag (bottom). *Photos courtesy of James Henne, US FWS*.

Appendix E:

Sturgeon Data Collection Form

STURGEON DATA COLLECTION FORM

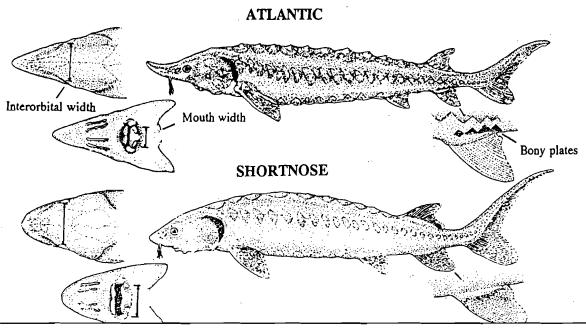
For use in documenting sturgeon injury or mortality incidental to a federal action and exempted pursuant to a NMFS issued incidental take statement

OBSERVER'S CONTACT INFO Name: First Agency Affiliation	Last Email	SEC 7 UNIQUE IDENTIFIER (PCTS No. Assigned by NMFS) DATE REPORTED:
		— 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.	Descriptive location (be specific)	Inshore (bay, river, sound, inlet, etc) City State Longitude 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 Rorescope	ASUREMENTS: k length al length mgth
TAGS PRESENT? Examined for Tag #	or external tags including fin clips? Yes Tag Type Loc	No Scanned for PIT tags? Yes No cation of tag on carcass
CARCASS DISPOSITION: (che 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? Sample	Yes No How preserved Dis	sposition (person, affiliation, use)
omments:		

Distinguishing Characteristics of Atlantic and Shortnose Sturgeon (version 07-20-2009)

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 r wounds / abnormalities are found.). Please note if no
,		1				
		· 				

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.

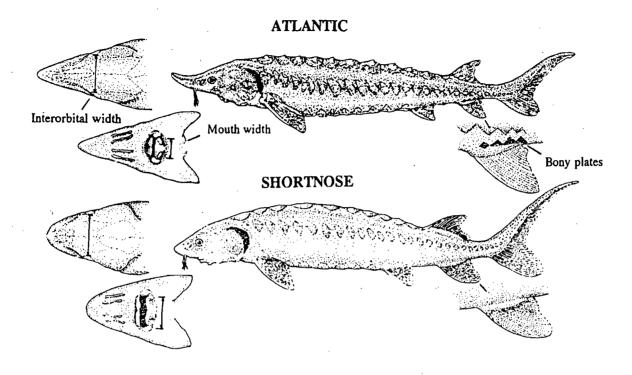
Submit completed forms (within 30 days of date of investigation) to: Northeast Region Contacts – Shortnose Sturgeon Recovery Coordinator (Jessica Pruden, Jessica Pruden@noaa.gov, 978-282-8482) or Atlantic Sturgeon Recovery Coordinator (Lynn Lankshear@noaa.gov, 978-282-8473); Southeast Region Contacts. Shortnose Sturgeon Recovery Coordinator (Stephania Bolden@noaa.gov, 727-824-5312) or Atlantic Sturgeon Recovery Coordinator (Kelly Shotts, Kelly.Shotts@noaa.gov, 727-551-5603):



Appendix F
Identification Key for Sturgeon Found in Northeast U.S. Waters

APPENDIX G

Identification Key for Sturgeon Found in Northeast U.S. Waters



Distinguishing Characteristics of Atlantic and Shortnose Sturgeon

ıracteristic	Atlantic Sturgeon, Acipenser oxyrinchus	Shortnose Sturgeon, Acipenser brevirostrum		
cimum length	.> 9 feet/ 274 cm	4 feet/ 122 cm		
uth .	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		
e-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)		
es along the I fin	Rhombic, bony plates found along the lateral base of the anal fin (see diagram below)	No plates along the base of anal fin		
itat/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



ATTACHMENT A
New York State Thruway Authority (NYSTA) Sturgeon Sighting Protocol

The New NY Bridge Project



Reporting Protocol and Decision Key for Sturgeon Sightings Rev. 3 - October 14, 2014

Reporting Protocol

A dead or injured sturgeon sighting could come from 1) the public via the project's sturgeon hotline, 2) a notification from NYSDEC, or 3) from a Tappan Zee Constructors (TZC) sturgeon monitor or NMFS-approved Endangered Species observer. The following outlines the reporting protocol, depending on the manner of communication of the sighting.

LOCATION: If the sighting is upstream of the Port of Coeymans or downstream of the Verrazano Bridge, the sighting should be referred to the NYSDEC contacts below, and no further action by the Project Team is required. If the sighting location is between Coeymans and the Verrazano Bridge, the Reporting Protocol is to be followed.

COMMUNICATION: All communication will be via email with a high alert red flag.

- From the public: Brian Conybeare will get the notification through the project's sturgeon hotline, and will
 email Justin Krebs, with a cc: to Kristine Edwards and Melissa Toni. Justin Krebs will proceed with the
 Decision Key for Sturgeon Sightings Protocol, below. If the sturgeon is determined likely to be project
 related, Melissa Toni will notify NMFS through their incidental take process (see contacts below),
 including submission of the Incident Report within 24 hours of the take.
- 2. From the NYSDEC: The NYSDEC will be notified by either the public or by DEC staff biologists and will email Justin Krebs with a cc: to Kristine Edwards and Melissa Toni. Melissa Toni will report the sighting to Julie Crocker at NMFS within 24 hours of the sighting. Justin will proceed with the Decision Key for Sturgeon Sightings Protocol, below. If the sturgeon is determined likely to be project related, Melissa Toni will notify NMFS through their incidental take process (see contacts below), including submission of the Incident Report within 24 hours of the take.
- 3. From the project monitors or observers: The monitor or observer will immediately complete and email the Incident Report to Justin Krebs, Kristine Edwards, and Melissa Toni. Justin Krebs will receive the Incident Report, revise as necessary to ensure accuracy and completion and email it to Kristine Edwards and Melissa Toni. Melissa Toni will notify NMFS through their incidental take process (contacts noted below), including submission of Incident Report within 24 hours of the take.

REPORTING FORMS: There are three types of reporting forms related to sturgeon sightings, as noted below. All three forms are attached to this Protocol.

Incident Report: This form is completed for all sturgeon that are observed by the monitor or observer or captured (alive, injured, or dead) during any aspect of the bridge replacement project, as required by the NMFS Biological Opinion. FHWA is required to notify NMFS through their contacts below, and fax/email an Incident Report within 24 hours of the take. The monitor or observer will complete and email the Incident Report to Justin Krebs, Kristine Edwards, and Melissa Toni. The Incident Report is received by Justin Krebs, reviewed for accuracy and completion, and filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails and faxes the form to Julie Crocker at NMFS and the NMFS Incidental Take Office.

Sturgeon Sighting Form: This form is to be completed by Justin Krebs for the sighting of a sturgeon that is reported to the Project Team by the general public or through the NYSDEC. This form is for documenting sightings of dead or injured sturgeon within the action area (Port of Coeymans to Verrazano Bridge) that were not reported by NMFS-approved observers during dredging or by sturgeon monitors during pile driving. These sturgeon would most likely be reported by the public through the project's sturgeon hotline or by the NYSDEC. The Sturgeon Sighting Form is to be completed within one week of the sighting, by Justin Krebs, and is to be filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails the form to Julie Crocker at NMFS.

Sturgeon Data Collection Form: This form is to be completed for all dead sturgeon that are likely to be project related, regardless of the source of the sighting (i.e., public, NYSDEC, monitors and observers). The form is to be completed by the monitor or observer if observed during the approved monitoring program or by Justin Krebs if reported by the public or through NYSDEC. Within one week of the observance/capture of the sturgeon, Justin Krebs will file this form via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails and faxes the form to Julie Crocker at NMFS and the NMFS Incidental Take Office.

AGENCY CONTACT INFORMATION:

New York State Thruway Authority

Kristine Edwards 914-524-5464 Desk / 518-937-6811 Cell

kristine.edwards@newnybridge.com

Ken Avery 914-524-5481 Desk / 585-261-4988 Cell

Ken.avery@newnybridge.com

National Marine Fisheries Service

Julie Crocker 978-281-9300 x6530

Julie.crocker@noaa.gov

NMFS Incidental Take Line 978-281-9328 fax 978-281-9394

Incidental.take@noaa.gov

New York State Department of Environmental Conservation

John Ferguson 518-402-9177

jjfergus@gw.state.ny.us

Andy Kahnle, Hudson River Fisheries Unit Leader 845-256-3072

awkahnle@gw.dec.state.ny.us

Kathy Hattala, Sturgeon Biologist 845-256-3071

kahattal@gw.dec.state.ny.us

Federal Highway Administration

Melissa Toni 518 431-8867 / 518 961-3302

melissa.toni@dot.gov

John Burns 518 431-8875

john.burns@dot.gov

Designated Biologist for the Thruway Authority

Justin Krebs, AKRF 727-366-0550 / 646-388-9662

jkrebs@akrf.com

Decision Key for Sturgeon Sightings Protocol

In the event that a dead or injured sturgeon is reported by the public or by NYSDEC in the Hudson River during construction of the New NY Bridge at Tappan Zee, this decision key will assist the project team in determining the appropriate response to the sturgeon sighting. The key will aid in determining the appropriate forms to complete, if agency notification is required, if necropsy should be performed, and the likelihood that the injury or mortality is project related. The key is intended to assist in responding to the sighting; best professional judgment will be exercised in making the final determination.

Definition of the Action Area

As stated by NMFS in its Biological Opinion for this project, "the action area is defined in 50 CFR 402.02 as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area includes the project footprint where work to construct the new bridge and remove the old bridge will take place, including dredging and armoring of the river bottom. The action area also includes the area of the river where increased underwater noise levels and changes in water quality will be experienced and the transit route that barges will use when transporting dredged material to the offloading site in upper New York Harbor for upland disposal. The action area also includes the area where in-water work will be carried out at Coeymans and extends to the area of the river where increased underwater noise levels and changes in water quality will result from that work. The action area also includes the route traveled by tug/barges from New York City to Coeymans and from Coeymans to the bridge site."

According to this definition, the action area spans from the Tappan Zee Bridge at river mile (RM) 27 to the Verrazano Bridge at the entrance to New York Harbor approximately 7 miles downstream of the Battery at RM 0. Given current velocities averaging 1.6 miles per hour (mph) at the surface in the navigation channel (Geyer and Chant 2006)¹, the upstream tidal excursion distance during a flood tide lasting 6 hours would be approximately 10 miles. Because there is a net downstream current velocity of approximately 0.4 mph, it is unlikely that injured or dead sturgeon passively transported from the action area would be found upstream of the town of Haverstraw at RM 37. Therefore, the any dead or injured sturgeon sighted within the Hudson River between the Verrazano Bridge and the Port of Coeymans will be considered to be in the action area for response purposes.

When a dead or injured sturgeon is observed or reported in the Hudson River:

1. Was the sturgeon sighted within the action area (Verrazano Bridge to the Port of Coeymans)?

Yes Go to 2.

No This sturgeon sighting is not likely to be project related. The Sturgeon Sighting Form is to be completed within one week of the sighting, by Justin Krebs, and filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails the form to Julie Crocker at NMFS.

2. Was the sturgeon sighted during, or within 48 hours of, in-water project activities, including dredging, pile driving, or movement of project-related vessels?

Yes Go to 3.

No This sturgeon sighting is not likely to be project related. However, if the sturgeon was reported from within the action area, it should be recovered if possible and sent to the NMFS-approved laboratory for necropsy to evaluate cause of death. If the sturgeon is not in suitable condition for necropsy, as determined by gill color (see Necropsy Plan), a Sturgeon Sighting Form should be completed within one week of the sighting, noting the current status of construction. The Sturgeon Sighting Form is to be completed, by Justin Krebs, and filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails the form to Julie Crocker at NMFS.

3. Does the sturgeon have any external lacerations consistent with potential vessel strike or propeller scars?

The sturgeon sighting is potentially project related. The sturgeon should be recovered if possible and sent to the NMFS-approved laboratory for necropsy to attempt to determine the cause of death, through the response protocols outlined in the Dredging and Pile Driving Monitoring Plan and the Necropsy Plan. If the sturgeon is not in suitable condition for necropsy, as determined by gill color (see Necropsy Plan), the NYSDEC should be consulted to evaluate cause of death. An Incident Report and Sturgeon Data Collection Form are to be

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Geyer, W.R. and R. Chant. 2006. The physical oceanography processes in the Hudson River Estuary. In: The Hudson River Estuary. eds. J.S. Levinton and J.R. Waldman. Cambridge University Press.

completed immediately by the observer and emailed to Justin Krebs if sighted during project activities or by Justin Krebs if reported through the project's sturgeon hotline or by NYSDEC and is emailed to Kristine Edwards and Melissa Toni. Justin emails the NYSDEC contacts, and Melissa Toni emails Julie Crocker at NMFS and the NMFS Incidental Take Office. All reporting is to be completed within 24 hours of the sighting.

No Go to 4.

4. Was the sturgeon sighted during, or within 48 hours of, dredging activities?

Yes Go to 5.

No Go to 6.

Yes

5. Was the sturgeon sighted by a NMFS-approved observer during dredging in the dredge bucket or scow?

The sturgeon sighting is potentially project related. The sturgeon should be recovered if possible and sent to the NMFS-approved laboratory for necropsy to attempt to determine the cause of death, through the response protocols outlined in the Dredging and Pile Driving Monitoring Plan and the Necropsy Plan. An Incident Report and Sturgeon Data Collection Form are to be completed immediately by the observer and emailed to Justin Krebs, Kristine Edwards, and Melissa Toni. Both forms are received by Justin Krebs, reviewed for accuracy and completion, and filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the forms to the NYSDEC contacts and Melissa Toni emails and faxes the forms to Julie Crocker at NMFS and the NMFS Incidental Take Office. All reporting is to be completed within 24 hours of the sighting. The Sturgeon Sighting Form is also to be completed by Justin Krebs for all dead sturgeon that are found in the dredge bucket or scow. The form is to be completed within one week of the observance/capture of the sturgeon, and will be filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails and faxes the form to Julie Crocker at NMFS and the NMFS Incidental Take Office.

No Go to 6.

Yes

6. Was the sturgeon sighted during, or within 48 hours of completion of, pile-driving activities?

The sturgeon sighting is potentially project related. The sturgeon should be recovered if possible and sent to the NMFS-approved laboratory for necropsy to attempt to determine the cause of death. If the sturgeon is not in suitable condition for necropsy, as determined by gill color (see Necropsy Plan), NYSDEC should be consulted to evaluate cause of death. If the sighting was made by the TZC sturgeon observer during pile-driving monitoring, the observer is to complete an Incident Report and Sturgeon Data Collection Form and email to Justin Krebs, Kristine Edwards, and Melissa Toni. If the sighting was reported through the project's sturgeon hotline or by the NYSDEC, Justin Krebs is to complete the same forms. In both cases, the forms are received by Justin Krebs, reviewed for accuracy and completion, and filed via email to Kristine Edwards and Melissa Toni. Justin Krebs also emails the forms to the NYSDEC contacts and Melissa Toni emails and faxes the forms to Julie Crocker at NMFS and the NMFS Incidental Take Office. All reporting is to be completed within 24 hours of the sighting. The Sturgeon Sighting Form is also to be completed by Justin Krebs for all dead sturgeon within one week of the sighting/collection of the sturgeon. The form will be filed via email to Kristine Edwards and Melissa Toni, Justin Krebs also emails the form to the NYSDEC contacts and Melissa Toni emails and faxes the form to Julie Crocker at NMFS and the NMFS Incidental Take Office.

No The sturgeon sighting is not likely to be project related. The sturgeon should be recovered if possible and sent to the NMFS-approved laboratory for necropsy to attempt to determine the cause of death, through the response protocols outlined in the Dredging and Pile Driving Monitoring Plan and the Necropsy Plan. If the sturgeon is not in suitable condition for necropsy, as determined by gill color (see Necropsy Plan), NYSDEC is consulted to evaluate cause of death. An Incident Report and Sturgeon Data Collection form are to be completed by Justin Krebs and is emailed to Kristine Edwards and Melissa Toni. Justin emails the NYSDEC contacts, and Melissa Toni emails Julie Crocker at NMFS and the NMFS Incidental Take Office. All reporting is to be completed within 24 hours of the sighting.

ATTACHMENT B
NYSTA Necropsy Plan

Sturgeon Necropsy Plan Rev. 3 – October 14, 2014



In the event that a dead sturgeon is observed in the Hudson River or along the river's shoreline during construction of the New NY Bridge at Tappan Zee, the New York State Department of Environmental Conservation (NYSDEC) and the National Marine Fisheries Service (NMFS) require that a necropsy be performed to determine the cause of death. Because decomposition will prevent necropsy, the condition of the gills will be used to determine the sturgeon's final disposition. A "fresh dead" sturgeon (red gills) will be sent to Dr. Paul Bowser in the College of Veterinary Medicine at Cornell University (a NMFS-approved facility) to determine the cause of death, a "less fresh but not clearly decomposing" sturgeon (pink gills) will be sent to DEC for collection of fin rays and otoliths for age and growth studies, and a decomposing sturgeon (brown, gray, or white gills) will be spray painted orange to indicate that it has been documented and dragged above the high-tide line to prevent it from washing back into the river.

As stated by NMFS in its Biological Opinion for this project, the action area is defined in 50 CFR 402.02 as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area includes the project footprint where work to construct the new bridge and remove the old bridge will take place, including dredging and armoring of the river bottom. The action area also includes the area of the river where increased underwater noise levels and changes in water quality will be experienced and the transit route that barges will use when transporting dredged material to the offloading site in upper New York Harbor for upland disposal. The action area also includes the area where in-water work will be carried out at Coeymans and extends to the area of the river where increased underwater noise levels and changes in water quality will result from that work. The action area also includes the route traveled by tug/barges from New York City to Coeymans and from Coeymans to the bridge site." According to this definition, the action area spans from river mile 27 at the Tappan Zee Bridge, including areas upstream of the bridge in which underwater noise exceeds the designated threshold for the onset of behavioral effects (i.e., 150 dB re: 1 µPa SPL_{rms}) and upstream areas in which elevated turbidity occurs, to the Verrazano Bridge. Dead sturgeon sighted within the action area during monitoring activities required by the Biological Opinion and outlined in the Dredging and Pile Driving Monitoring Plan will be recovered for necropsy.

In the event that a necropsy is required, these detailed procedures will be followed.

- All dead sturgeon will be preserved in cold storage for necropsy
- NMFS will be notified within 24 hours of collection of the sturgeon for necropsy (incidental.take@noaa.gov)
- A NOAA Sturgeon Data Collection Form will be completed (see attached)

- A General Submission Accession Form will be filled out as completely as possible and submitted to the necropsy lab upon delivery of the sturgeon for necropsy (see attached)
- An Aquatic Animal Health Program Fish Disease Diagnostic Workup Form will be utilized for documentation of necropsy (see attached)

During the necropsy, external processing will be performed for each sturgeon to visually evaluate, via the presence of lacerations or amputation, the possibility of vessel collision, or interaction with the dredge bucket as the potential cause of death. Internal processing will be performed to detect the presence of lesions on the external surface of organs or tissues consistent with barotrauma (e.g., hemorrhage, hematoma) that would indicate exposure to elevated sound pressure levels during pile driving. To further assess the possibility of barotrauma as the cause of death, histopathology will be used to evaluate microscopic-hemorrhages on the liver, kidney, spleen, heart, gills, gonads, esophagus, stomach, pyloric ceca, intestine and swim bladder. To assess the possibility of natural mortality, each sturgeon will also be examined for signs of bacterial or viral infection, parasite load, and starvation. Bacterial cultures, viral isolation, skin scrapings, and examination of food content in the digestive tract will be used to evaluate the potential for natural mortality as the cause of death. The detailed procedures for external and internal processing follow below.

External Processing

- 1. External Evaluation: Visual evaluation of skin, fins, eyes, oral area, gill chamber, gills, and anal pore. Note any abnormalities including signs of blood, bile, or presence of embolism and characterize type of lesions as well as severity. These abnormalities may indicate exposure to elevated sound pressure levels, interaction with a vessel or dredge bucket, among numerous other insults. Examine carcass for signs of external laceration or amputation that may indicate a potential vessel strike or interaction with the dredge bucket. Photographs will be used to document any external abnormalities or lesions.
- 2. Collect skin scrapings from lesions as well as from apparently normal areas; preparation of wet mounts of this material followed by microscopic evaluation for presence of parasites or other pathogens. Identify parasites and characterize severity of the infection, if present. This procedure will document the presence of microscopic external parasites as well as other pathogens that can be visualized with a compound microscope.
- 3. Collection of bacterial samples from external lesions. The purpose of this evaluation is to document the presence of external lesions that may be due to a bacterial infection, which may have contributed to natural mortality. The skin will be cleaned by removing any mucous and then an incision will be made so that a sterile bacterial culture loop can be inserted into the muscle immediately below the dermis. Bacterial culture will be attempted on Blood Agar and Marine Agar. If bacteria are isolated, they will be submitted to the Animal Health Diagnostic Center at the College of Veterinary Medicine, Cornell University for bacterial identification. If the level of post

- mortem decomposition has progressed too far, it may not be appropriate to collect a bacterial sample.
- 4. Tissue biopsies will be collected from any lesions and preserved in 10% neutral buffered formalin. These biopsies will subsequently be embedded in paraffin, sectioned and stained with hematoxylin and eosin stains for histological evaluation. Special stains will be used as necessary to characterize lesions. The purpose of histopathological evaluation is to characterize the nature of lesions on a microscopic level. It is not unusual that important lesions may not be visible to the unaided eye. They can only be visualized and characterized when they are evaluated on a microscopic level. The tissue biopsies may provide the opportunity to view hemorrhage on a microscopic level that is not visible grossly. This kind of evaluation may also point to a very different kind of tissue damage that has nothing to do with the barotrauma, such as blunt trauma that would occur from a vessel strike or interaction with the dredge bucket.

Internal Processing

- 1. Aseptically open the coelomic cavity and collect a bacterial sample from the posterior region of the kidneys. If any grossly visible abnormalities are observed on any internal organs, also collect a bacterial sample from those abnormal areas. Culture will be attempted on Blood Agar and Marine Agar and any bacteria isolated will be submitted as above for identification. As with the collection of bacterial samples from external lesions, this procedure would document bacterial infection which may have contributed to natural mortality if present. If the level of post mortem decomposition has progressed too far, it may not be appropriate to collect a bacterial sample.
- Evaluate the external surfaces of major organs for any abnormalities particularly those indicating potential exposure to excess sound pressure levels, especially hemorrhage and hematoma of the liver, heart, spleen, and other organs and perforations of the swim bladder. Characterize, on a gross level, the nature of any lesions according to the Barotrauma Necropsy Protocol provided by Dr. Arthur Popper, acoustic expert from the University of Maryland (see Attachment A).
- 3. Collect biopsies of all major organs and preserve in 10% neutral buffered formalin for histological evaluation.
- 4. Collect biopsies of liver, kidney and spleen for virus isolation. The White Sturgeon Cell Line will be used. The purpose of this is to determine if any of the know sturgeon viruses are present.
- 5. Continue gross evaluation of all internal organs by dissecting them from the animal and making cut sections to determine any grossly visible internal lesions.
- Open the digestive tract (esophagus, grinding stomach, pyloric ceca and spiral intestine) to determine if food is present and to also determine if any lesions are present.

At the conclusion of the necropsy, the sturgeon will be placed in a chilled storage room and held for delivery to NYSDEC.

Necropsy will be performed upon receipt of the sturgeon or on the following day if the sturgeon is received after close of business. Upon completion of the visual portion of the external evaluation and the internal examination for signs of barotrauma, an interim report will be submitted to the Designated Biologist for the Thruway Authority. The interim report will include a preliminary assessment, based on gross pathology, of the likelihood that the sturgeon mortality was related to project activities including exposure to elevated sound pressure levels, interaction with the dredge bucket, or vessel strike. An interim memorandum detailing the necropsy findings will be prepared by the Thruway Authority for submittal to NYSDEC and NMFS within 48 hours of receipt of the interim case report from the Necropsy lab.

Because some of the procedures (i.e., viral isolation, bacterial culture) would require more time to perform, the final case report will be submitted following the completion of those additional diagnostic tests and will include the final determination for cause of death to the extent that the necropsy results allow. A final memorandum from the Thruway Authority will be submitted to NYSDEC and NMFS within 48 hours of receiving the final case report from the Necropsy lab.

ATTACHMENT C
Pile Driving Monitoring Forms

Tappan Zee Hudson River Crossing Vessel-Based Monitoring Data Form

Survey Informatio	n		Observation	n type (circle	e): Survey	Resp	ponse
Date:			Crew:			Vessel:	
Construction Activ	ity:		Survey Star	rt Time:		Survey End Tim	ne:
Weather/Water C	onditions (S	urvey Only)					
Air Temperature (°	°C):		Wind Direc	ction:		Wind Speed (mp	oh):
Cloud Cover:				Precipitation	on:		
Wave height:				Tide stage:			
Water Temperature	e (°C):			Water Salin	nity (ppt):		
GPS Transect Info	rmation						
Transect ID Number	Start Time	Finish Time		Starting L	oc.	I	Finish Loc.
				-			
Observations (Survey Only)							
Other Fish Species	bservations (Survey Only) Other Fish Species:						
Species ID	Quantity	Time Observed	Transec	t Number	Location Obse	erved (Lat/Long)	Condition (stunned, freshly dead, decaying)

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

Pisciverous/Scavenging Bird Activity Obser	ved (Circle):	: Y		N
Comments/Additional Observations:				
Sturgeon Information				
Sturgeon Observed (circle): Y	N		Recovered (cire	cle): Y N
Time Observed:	Species (SI	N/AT):	-	Fish ID*:
Location Recovered (Lat/Lon):	-			Time Recovered:
Water Depth @ Recovery Loc. (ft):		Recovery M	lethod:	
Recovered From (circle): River Scow				
Condition/Dispostion:				
Photo #s:		Photo Descr	riptions:	
Weight (g):	TL (mm):			FL (mm):
Interorbital Width (mm):	Mouth Wic	dth (mm):		Fin Clip? Y N
PIT Tag Present? Y N	PIT Tag Fi	tted? Y	N	PIT Tag #:
Location Returned (Lat/Lon):	-			Time Returned:
Water Depth @ Return Loc. (ft):		Return Met	hod:	
Sturgeon Forms Completed (circle): Sampl	e Collection	Incident	t Report Sal	lvage

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

TAPPA CONSTRUC				PILE E	BARGE	ENVIRO	NMEN	TAL CHE	CKLIST			Pa	ge 1 of
					•	ections B-D a	•	•		tivities. CHI	ECK POINT	rs (CP) mus	st be
Date (mm/	dd/yy):			Barge:				Superinte	ndent:				
				SECT	ΓΙΟΝ Α. Ι	BARGE AC	CTIVITY	INFORM	ATION				
A1. Enviro	onmental Co	ompliance	Team (ECT) Notificati	ion (initial or	circle NA if not a	pplicable to b	parge activity, se	ee back for ECT	Contact Informa	ation)		
Notify ECT	T TWO hour	s prior to s	tart of pile	driving or	dewatering	g	No	tification T	ime (hh:mm)	:			NA
A2. Activi	ty Informat	ion (circle on	e):	B. Vibrato	ory Driving	C. Impact	Driving	D. Dewate	ering				
Pier No(s)	l.:		Pile Dia(s)	.:				Acti	vity Start T	ime at First	Pile (hh:mm)	•	
Hammer I	Model (enter	NA if not appli	cable):					Ac	tivity End 1	Time at Last	Pile (hh:mm)	:	
A3. Spill P	Prevention (circle NA if not	applicable to d	laily barge activ	vity)								
(CP) Spill	Kit and SPC	C Plan onb	oard (confirm	n spill kit conte	nt list is stocke	d, circle and initi	ial)				Υ	N	Initial Here
(CP) Cont	ainment bo	om deploy	ed around	template o	or work are	a (circle one an	d initial)				Υ	N	Initial Here
If No, imm	nediately no	tify ECT an	ıd take corı	rective acti	on	Persons No	otified:				Time Noti	fied (hh:mm):	
A4. Pereg	rine Falcon	Protection	(circle NA if no	ot applicable to	barge activity)							
Checkerbo	oard flag ins	stalled at to	op of crane	S (circle one)								Υ	N
				S	ECTION	B. VIBRA	TORY P	ILE DRIVI	NG			•	
B1. Sturge	eon See Page 2	for Examples.	Complete at er	nd of shift or w	hen fish/ birds	observed.		1	I	.			
Observer	Name:				Sturgeon	observed (ci	rcle):	Υ	N	Time(s) ob	served (hh:r	mm):	
If Yes imm	nediately no	tify ECT	Person	s Notified:						Time Notif	ied (hh:mm):	1	
B2. Water	r Quality		Turbidity	observed e	xtending >	500-ft from	pile (circle)	:				Υ	N
If Yes, imr	mediately n	otify ECT ar	nd take cor	rective act	ion	Persons No	otified:				Time Noti	fied (hh:mm):	
					SECTIO	N C. IMP	ACT PILI	E DRIVIN	G				
C1 Shrou	d Noise Att	tenuation 9	System (NA	\S\ - Rubble						to confirm NAS	is aparating pr	anarly)	
	Shroud De			13, 2435.	Y	Initial Here				ing (initial belo			
L				S (record air pr	essure and flow	w approx. 5 mins				<u> </u>		, , , , , , , , , , , , , , , , , , ,	
			NAC		Air Pre	essure (psi)	at Reservo	oir Tank Ou	tlets/ Air F	low (cfm) at	Meter (if a	ıvailable)	
Dila Na	NAS	Pile	NAS Cables		1	2			3	1	4	1	5
Pile No.	(CP) (initial)	(circle one)	Taut	Visually	DCI	Visually	DCI	Visually	DCI	Visually	DCI	Visually	DCI
			(circle one)	Checked	PSI	Checked	PSI	Checked	PSI	Checked	PSI	Checked	PSI
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y / N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
	Initial Here	Y/N	Y/N	Y/N		Y/N		Y/N		Y/N		Y/N	
If NIAS not	t operationa	Y/N	Y/N immediate	Y/N		Y / N Persons No	atified:	Y/N		Y/N	Time Noti	Y/N fied (hh:mm):	
	•					ı					Time Noti	neu (nn:mm).	
	_	Vessel Ava	ilable on C	hannel 18A	ĺ	for Examples. Co						.:(FCT	
Observer						observed (ci	rcle):	Υ	N	+	ediately no		
. ,	bserved (hh:r		Υ	l N	ı	ns Notified:	W/aii-	Y	N	rime Notif	ied (hh:mm):		
Time Obse	observed (Lircie).	<u> </u>	Species (if		r bird activit	y (circle):	Quantity (Condition		
Time Obse				Species (if				Quantity (Condition		
C4. Water			Turhidita		•	500-ft from	nile (a)	•	JJJCI VCU.		Condition	Y	NI NI
			,			1		•			L		N
If Yes, imr	mediately n	otify ECT ar	nd take cor	rective act	ion	Persons No	otified:				Time Noti	fied (hh:mm):	

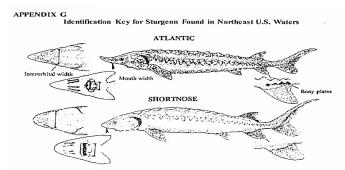
Name: Signature: (print) (by signing I certify I have performed the above checks and believe them to be accurate)

Environmental Compliance Team Contacts

(contact in order shown until someone is reached)

(contact in order showing	until someone is reached)
1. Jefferey Kapus	646-823-4685
2. Donald Henshaw	845-821-4306
3. Christopher Coccaro	914-907-2024
4. Zach Osei	917-559-6611
5. John Luniewski	917-757-8299

Examples of a Sturgeon



SECTION D. DEWATERING INFORMATION

(Complete D1 and D2 for each pile. **Check Points (CP)** must be initialed by responsible person before work progresses.

Use additional sheets as necessary. See ITP TZC 0033 for mudline elevation.)

D1.1 Pile Information (complete for each pile, circle NA if not applicable barge activity)		Pier No.:		Pile No.:		NA	
(CP) Confirm 2-ft min separation between pump and mudline elev. (initial)		Initial Here	Mudlin	e elevation:			f
Discharge hose consistent with construction work plan (circle one)		Υ	N				
D2.1 Water Quality							
Turbidity observed in the vicinity of the pump discharge (circle):					Υ	ı	N
If Yes, immediately notify ECT and take corrective action							
Persons Notified:	Time Notified:						
D1.2 Pile Information (complete for each pile, circle NA if not applicable barge activity)	Pier No.:			Pile No.:		NA	
(CP) Confirm 2-ft min separation between pump and mudline elev. (initial)		Initial Here	Mudlin	e elevation:			f
Discharge hose consistent with construction work plan (circle one)		Υ	N				
D2.2 Water Quality							
Turbidity observed in the vicinity of the pump discharge (circle):					Υ	1	N
If Yes, immediately notify ECT and take corrective action							
Persons Notified:	Time Notified:						
D1.3 Pile Information (complete for each pile, circle NA if not applicable barge activity)	Pier No.:			Pile No.:		NA	
(CP) Confirm 2-ft min separation between pump and mudline elev. (initial)		Initial Here	Mudlin	e elevation:			f
Discharge hose consistent with construction work plan (circle one)		Υ	N				
D2.3 Water Quality							
Turbidity observed in the vicinity of the pump discharge (circle):					Υ	1	N
If Yes, immediately notify ECT and take corrective action							
Persons Notified:	Time Notified:						

ATTACHMENT D
Dredging Monitoring Forms

Watch #	of	·	Page_	of		TZB Decant Barge Monitoring Log	Barg	e W	onitoring l	-og
Watch Location:	2			12	Time Boarded Scow/Barge:	ow/Barge:	Time Disembark Scow/Barge:	ark Scow/i	large:	341
Endangered Species Observer:	ecies Observ	er:	ts		Barge Name:		Scow Name:			*
Were any speci	ies sighted at	Were any species sighted at the start of operations?	ations? Y or N		Decant water held	Decant water held in barge for minimum of 24 hours? Y or N* or N/A or U	Y or N* or N	/A or U		
Were any spec	es sighted du	Were any species sighted during the watch?	Y or N	,,	If discharge occur	If discharge occurred, were substantial suspended solids, turbidity, or sheens observed? Y^\star or N	ids, turbidity,	or sheens	bserved? Y* or N or N/A	
Was there over	flow from the	Was there overflow from the barge at any point? Y*	int? Y* or N		Did turbidity resul	Did turbidity result in substantial visible contrast with the river? Y* or N or N/A	the river? Y* o	or N or N	, Y	
Depth:			Wave Height:		Temp (°F):	Weather Code:	Wind Speed:		Wind Direction:	
	Date (MM/DD)	Time (24 hr)	Scow Size	Latitude (DD MM.M)	.M)	Longitude (DD MM.M)		Tidal Stage:	Tim	Time Lost Amount
Decant Begin	78.								-22	hrs
i.				t						nrs hrs
Decant End				50						. hrs
	Date (MM/DD)	Time (24 hr)	Number Sighted	Species Name	0	Sighting Code	Recovered ** Y or N	Recovery	Recovery Release Code Time Release Code	de UIN (Sturgeon Only)
						×	8 12	••	••	V
р	£3					B)			••	·
ghte				,				2426	••	
jiS e		• •							••	
əiɔə		•							••	
dS					e					
		•••	GF.					•		
COMMENTS:	,=,		29	÷			- 40			
* If circled, comments are required	ents are required	** If species recove	ered is Sturgeon proce	** If species recovered is Sturgeon proceed to Sturgeon Salvage Form and Sturgeon incidental Take Log	on Incidental Take Log					

Decant Barge Monitoring Log

Decanting Begin- Time when active discharge of a barge into the river begins OR time when decanting from a scow to the barge begins.

Decanting End- Time when active discharge of a barge into the river ends OR time when decanting from a scow to the barge ends.

Scow- Large flat-bottomed boat with broad square ends used chiefly for transporting bulk material (as ore, sand, or refuse)

Turbidity- Not clear or transparent because of stirred-up sediment or the like.

Watch- Period of time in which you are observing decanting operations (scow to barge OR barge to river). If a scow is decanted and removed while you are on a shift and another one is brought in, that would constitute a new watch and a new log should be used.

- 1. Watch: The first blank is the number watch you are on of the total consecutive watches that you performed ON THIS SHIFT.
 - Example: If you were on the second watch of three performed during this shift you would write in 2 of 3.
- 2. Page: Consecutive page numbering for each watch.

Example: If you had two dredge monitoring logs for a particular watch they would be numbered 1 of 2, and 2 of 2.

- 3. Watch Location: Primary area where you were located during your watch.
 - Example: On scow, on dredge etc.
- 4. **Time Boarded Scow/Barge**: Enter the time you board the scow/barge at the beginning of your shift.
- 5. **Time Disembark Scow/Barge:** Enter the time you disembark from the scow/barge at the end of a shift.
- 6. Endangered Species Observer: Record your NAME (First and Last).
- 7. Barge Name: Record the name of the barge that you will be observing during THIS PARTICULAR watch.
- 8. **Scow Name:** Record the name of the scow that is being decanted. If you are observing the decanting of a barge and no scow is present record a "-" (a dash).
- 9. Were any species sighted at the start of operations?: As decanting operations begin after you have boarded the barge/scow, observe the surrounding water and circle Y if ANY species are sighted or N if the area is clear. If any species are seen, they should be recorded in the Species Sighted section of the log.

- 10. **Decant water held in barge for minimum of 24 hours?:** This information should be obtained from the crew.
 - Circle Y if this watch consists of a barge being decanted AND the water was held in the barge for a minimum of 24 hours, and N if it was not. If N is circled, comments are required.
 - Circle N/A if this watch did not consist of a barge being decanted.
 - If you are unable to confirm that the water was held for 24 hours circle U.
- 11. Were any species sighted during the watch?: Circle Y if ANY species were sighted during the watch and N if there were no sightings.
- 12. If discharge occurs, was substantial suspended solids, turbidity, or sheens observed?:
 - Circle Y if this watch consists of a barge being decanted AND the decanting added substantial suspended solids, turbidity, or sheen to the river, and N if not. If Y is circled, comments are required.
 - Circle N/A if this watch did not consist of a barge being decanted.
- 13. Was there overflow from the barge?: Circle Y if the barge was filled to a point where materials were flowing back into the river, and N if not. If Y is circled, comments are required.
- 14. Did turbidity result in substantial visible contrast with the river?:
 - Circle Y if the turbidity caused by the flow of water into the river resulted in a visible difference with the surrounding water. If Y is circled, comments are required.
 - Circle N/A if this watch did not consist of a barge being decanted.
- 15. **Depth:** Record the approximate depth (in feet) of the water below the barge. This information can be obtained from the barge crew. If this information is unavailable record "-" (a dash).
- 16. **Wave Height:** Record an estimated height (in feet) of the waves surrounding the barge at the beginning of dredging operations.
- 17. **Temp (°F):** Record the air temperature (in °F), with the thermometer that was provided to you, at the beginning of decanting operations.
- 18. **Weather Code:** Record the Code that best describes the weather at the beginning of decanting operations. The codes are listed on the back of the log.
- 19. **Wind Speed:** Record the estimated speed of the wind, in MPH at multiple of five increments, at the beginning of decanting operations. If there is no wind record "0".
- 20. **Wind Direction:** Record, in compass degrees (0°-359°), the direction from which the wind is blowing at the beginning of decanting operations. If there is no wind record "-" (a dash).
- 21. Decant Begin Date: Record the date (MM/DD) at the beginning of decanting operations.
 - If decanting/discharge had already begun before you started your watch record "-" (a
 dash) in this field and record the name of the ESO who was present for the beginning of
 operations in the comments section.
- 22. Decant Begin Time: Record the time (24hr) at the beginning of dredging operations.
 - If decanting/discharge had already begun before you started your watch record "-" (a dash) in this field and record the name of the ESO who was present for the beginning of operations in the comments section.
- 23. **Decant End Date:** Record the date (MM/DD) at the end of dredging operations.

Decant Barge Monitoring Log

- If decanting/discharge will continue after your shift ends record "—" (a dash) in this field and record the name of the ESO who will replace you in the comments section.
- 24. Decant End Time: Record the time (24hr) at the end of dredging operations.
 - If decanting/discharge will continue after your shift ends record "-" (a dash) in this field and record the name of the ESO who will replace you in the comments section.
- 25. BLANK: Leave this field blank
- 26. Latitude: Record the Latitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.
- 27. **Longitude:** Record the Longitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.
- 28. **Decant Begin Tidal Stage:** Record whether the tide is ebbing or flooding at the beginning of dredging operations. This information should be obtained from the tidal chart that was provided to you.
 - Example: If dredging began on 9/1 at 07:15 you would record "flood" because at 08:01 it is high tide and at 02:06 the tide was low. In other words: When the tide is going from low to high it is a flood tide and when it is going from high to low it is an ebb tide.
- 29. **Decant End Tidal Stage:** Record whether the tide is ebbing or flooding at the beginning of dredging operations. This information should be obtained from the tidal chart that was provided to you.
 - Example: If dredging began on 9/1 at 07:15 you would record "flood" because at 08:01 it is high tide and at 02:06 the tide was low. In other words: When the tide is going from low to high it is a flood tide and when it is going from high to low it is an ebb tide.
- 30. Time Lost Code: This field should only be used if there are significant delays to decanting operations (i.e. greater than 30 mins). Record the time lost code of the event that best describes the reason why decanting was delayed. Time lost codes are listed on the back of the log.
- 31. **Time Lost Amount:** Record, to the nearest tenth of an hour, for each reason recorded (#30), the total amount of time lost during THIS WATCH.
 - Example: If operations were delayed for an hour and 25 minutes due to barge repair. You would record "12" in the Time Lost Code field and "1.4" in the Time Lost Amount field.

Species Sighted

This field should be used for each specific sighting of a species. If the same species is seen more than once during a watch, separate lines with the same species name but different times should be listed. If more than one species is seen at the same time, separate lines should be used with different species names but the same time and date. Comments should be made along with this field in most cases, referencing the date at time of the sighting.

- 32. Date: Record the date (MM/DD) of each individual sighting.
- 33. Time: Record the time (24 hr) of each individual sighting.
- 34. Number Sighted: Record the number of individual animals seen for THIS SIGHTING.
- 35. **Species Name:** Record the species name as listed on the Husdon River Fish Checklist provided to you.
 - · Example: sturgeon, shortnose
- 36. **Sighting Code:** Record the Code of the event the best describes the manner in which you sighted the species. Sighting codes are listed on the back of the log.
 - Example: If you sighted a fish in the barge you would record "04" (sighted in Barge).
- 37. Recovered: Record a "Y" if the species referenced was able to be recovered and "N if it was not.

 ** If species recovered is Sturgeon proceed to Sturgeon Incidental Take Log and Sturgeon
 Salvage Form (dead only)
- 38. Recovered Time: Record the time (24 hr) when the species was recovered.
- 39. **Recovery Code:** Record the recovery code that best describes how the species referenced was recovered.
- 40. Release Time: Record the time (24 hr) that the species was released alive.
- 41. **Release Code:** Record the release code that best describes how the species referenced was released.
- 42. UIN (Unique Identification Number): This field is only to be used if the species referenced is a sturgeon AND it was able to be recovered. If BOTH of theses requirements are not met record "-" (a dash). If a UIN is required it should be the same one used on the Sturgeon Salvage Form and Incidental Take Log. The number will take this form:
 - YYYYMMDDXXZZ (XX= chronological sample number for each sampling date;
 ZZ=chronological fish number for each sample on a particular date
 - Example: The first sample on 2/15/13 will be 2013021501, and the first fish analyzed from that sample will be 201302150101 and the second fish will be 201302150102.
- 43. **Comments:** This section should be used for any additional information that can be provided that is not already covered on the log as well as to describe any unusual situations.

Watch #	" of		Page	of		TZB Dredge Monitoring Log	lge M	oni	torin	g	og	
Watch Location:	u.			E	Time Boarded Scow/Dredge:	ow/Dredge:	Time Disembark Scow/Dredge:	ark Scow/I	Dredge:			
Endangered Species Observer:	ecies Observe	er:		ā	Dredge Name:	38	Scow Name:					2
					1) -		r					
Were any speci	es sighted at t	Were any species sighted at the start of operations?	tions? Y or N	וס	Closed clamshell dredge used?	dredge used? Y or N*						
Were any speci	es sighted du	Were any species sighted during the watch?	Y or N	A	as there overflo	Was there overflow from the scow at any point? Y^* or N	N					
Was excessive	material spille	Was excessive material spilled into the river?	Y* or N	×	as the buckest l	Was the buckest lowered below the gunwales before each deposit?	ach deposit?	Y or N*				
Dredge Depth:			Wave Height:	T	Temp (°F):	Weather Code:	Wind Speed:		Wind Direction:	ë		19
	Date (MM/DD)	Time (24 hr)	Scow Size	Latitude (DD MM.M)	(v	Longitude (DD MM.M)		Tidal Stage:		Code	Time Lost	ost Amount
Dredging Begin												hrs
							2					. hrs
Dredging End						é		•				hrs
	Date (MM/DD)	Time (24 hr)	Number Sighted	Species Name		Sighting Code	Recovered ** Y or N	Recovery	Recovery Code	Release Time	Release	UIN (Sturgeon Only)
								101				385
р			-									
ghte				2				. X. 40. 4				
jiS s								••				25
əisə								848 4		7494		
dS								848		Sec.		
	*)											
							A.	**				
COMMENTS:							a					

Dredge Monitoring Log

Dredging Begin- When the dredge begins extracting material from the river bottom.

Dredging End- When the dredge completes the loading of a scow and discontinues extracting materials from the river bottom.

Watch- Period of time in which you are observing dredging operations for the loading of one scow. If a scow is filled and removed while you are on a shift and another one is brought in, that would constitute a new watch.

- 1. Watch: The first blank is the number watch you are on of the total consecutive watches that you performed ON THIS SHIFT.
 - Example: If you were on the second watch of three performed during this shift you would write in 2 of 3.
- 2. Page: Consecutive page numbering for each watch.

Example: If you had two dredge monitoring logs for a particular watch they would be numbered 1 of 2, and 2 of 2.

- 3. Watch Location: Primary area where you were located during your watch.
 - Example: On scow, on dredge etc.
- 4. **Time Boarded Scow/Dredge**: Enter the time you board the scow/dredge at the beginning of your shift.
- 5. **Time Disembark Scow/Dredge:** Enter the time you disembark from the scow/dredge at the end of a shift.
- 6. Endangered Species Observer: Record your NAME (First and Last).
- 7. **Dredge Name:** Record the name of the dredge that you will be observing during THIS PARTICULAR watch.
- 8. Scow Name: Record the name of the scow that the dredge you are observing is depositing into.
- 9. Were any species sighted at the start of operations?: As dredge operations begin after you have boarded the dredge, observe the surrounding water and circle Y if ANY species are sighted or N if the area is clear. If any species are seen, they should be recorded in the Species Sighted section of the log.
- 10. Closed clamshell dredge used?: Circle yes if a closed clamshell dredge is used for the ENTIRE watch and N if anything type of dredge is used. If N is circled, comments are required.
- 11. Were any species sighted during the watch?: Circle Y if ANY species were sighted during the watch and N if there were no sightings.
- 12. Was there any overflow from the scow at any point?: Circle Y if the scow was filled to a point where materials were flowing back into the river, and N if not. If Y is circled, comments are required.

- 13. Was excessive material spilled into the river? Circle Y if EXCESSIVE material was spilled into the river and N if not. If Y is circled, comments are required.
 - NOTE: Some material will most likely be spilled into the river with each deposit. This
 question is designed to determine if EXCESSIVE material is spilled.
 - Example: If the dredge is accidentally opened over the river instead of into the scow, Y
 would be circled.
- 14. Was the bucket lowered below the gunwales before each deposit?: Circle Y if the bucket was lowered below the gunwales before each deposit and N if not. If N is circled, comments are required.
- 15. **Dredge Depth:** Record the approximate depth (in feet) that the dredge is at on the bottom at the beginning of dredging operations. This information can be obtained from the dredge crew. If this information is unavailable record "-" (a dash).
- 16. Wave Height: Record an estimated height (in feet) of the waves surrounding the dredge/scow at the beginning of dredging operations.
- 17. **Temp (°F):** Record the air temperature (in °F), with the thermometer that was provided to you, at the beginning of dredging operations.
- 18. **Weather Code:** Record the Code that best describes the weather at the beginning of dredging operations. The codes are listed on the back of the log.
- 19. **Wind Speed:** Record the estimated speed of the wind, in MPH at multiples of five increments, at the beginning of dredging operations. If there is no wind record "0".
- 20. **Wind Direction:** Record, in compass degrees (0°-359°), the direction from which the wind is blowing at the beginning of dredging operations. If there is no wind record "—" (a dash).
- 21. Dredging Begin Date: Record the date (MM/DD) at the beginning of dredging operations.
 - If dredging had already begun before you started your watch record "—" (a dash) in this field and record the name of the ESO who was present for the beginning of operations in the comments section.
- 22. **Dredging Begin Time:** Record the time (24hr) at the beginning of dredging operations.
 - If dredging had already begun before you started your watch record "—" (a dash) in this field and record the name of the ESO who was present for the beginning of operations in the comments section.
- 23. **Dredging End Date:** Record the date (MM/DD) at the end of dredging operations.
 - If dredging has not finished by the end of your shift record "—" (a dash) in this field and record the name of the ESO who will be replacing you in the comments section.
- 24. **Dredging End Time:** Record the time (24hr) at the end of dredging operations.
 - If dredging has not finished by the end of your shift record "-" (a dash) in this field and record the name of the ESO who will be replacing you in the comments section.
- 25. BLANK: Leave this field blank.
- 26. **Latitude:** Record the Latitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.
- 27. **Longitude:** Record the Longitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.

- 28. **Dredging Begin Tidal Stage:** Record whether the tide is ebbing or flooding at the beginning of dredging operations. This information should be obtained from the tidal chart that was provided to you.
 - Example: If dredging began on 9/1 at 07:15 you would record "flood" because at 08:01 it is high tide and at 02:06 the tide was low. In other words: When the tide is going from low to high it is a flood tide and when it is going from high to low it is an ebb tide.
- 29. **Dredging End Tidal Stage:** Record whether the tide is ebbing or flooding at the beginning of dredging operations. This information should be obtained from the tidal chart that was provided to you.
 - Example: If dredging began on 9/1 at 07:15 you would record "flood" because at 08:01 it is high tide and at 02:06 the tide was low. In other words: When the tide is going from low to high it is a flood tide and when it is going from high to low it is an ebb tide.
- 30. Time Lost Code: This field should only be used if there are significant delays to dredging operations (i.e. greater than 30 mins). Record the time lost code of the event that best describes the reason why dredging was delayed. Time lost codes are listed on the back of the log.
- 31. **Time Lost Amount:** Record, to the nearest tenth of an hour, for each reason recorded (#30), the total amount of time lost during THIS WATCH.
 - Example: If operations were delayed for an hour and 25 minutes due to dredge repair. You would record "06" in the Time Lost Code field and "1.4" in the Time Lost Amount field.

Species Sighted

This field should be used for each specific sighting of a species. If the same species is seen more than once during a watch, separate lines with the same species name but different times should be listed. If more than one species is seen at the same time, separate lines should be used with different species names but the same time and date. Comments should be made along with this field in most cases, referencing the date and time of the sighting.

- 32. Date: Record the date (MM/DD) of each individual sighting.
- 33. Time: Record the time (24 hr) of each individual sighting.
- 34. Number Sighted: Record the number of individual animals seen for THIS SIGHTING.
- 35. **Species Name:** Record the species name as listed on the Hudson River Fish Checklist provided to you.
 - Example: sturgeon, shortnose
- 36. **Sighting Code:** Record the Code of the event the best describes the manner in which you sighted the species.
 - Example: If you sighted a fish in the water next to the dredge as it was coming out of the water you would record "04" (sighted in water near dredge).

Dredge Monitoring Log

- 37. Recovered: Record a "Y" if the species referenced was able to be recovered and "N if it was not.

 ** If species recovered is Sturgeon proceed to Sturgeon Incidental Take Log and Sturgeon
 Salvage Form (dead only)
- 38. Recovered Time: Record the time (24 hr) when the species was recovered.
- 39. **Recovery Code:** Record the recovery code that best describes how the species referenced was recovered.
- 40. Release Time: Record the time (24 hr) that the species was released alive.
- 41. **Release Code:** Record the release code that best describes how the species referenced was released.
- 42. UIN (Unique Identification Number): This field is only to be used if the species referenced is a sturgeon AND it was able to be recovered. If BOTH of theses requirements are not met record "-" (a dash). If a UIN is required it should be the same one used on the Sturgeon Salvage Form and Incidental Take Log. The number will take this form:
 - YYYYMMDDXXZZ (XX= chronological sample number for each sampling date;
 ZZ=chronological fish number for each sample on a particular date
 - Example: The first sample on 2/15/13 will be 2013021501, and the first fish analyzed from that sample will be 201302150101 and the second fish will be 201302150102.
- 43. **Comments:** This section should be used for any additional information that can be provided that is not already covered on the log as well as to describe any unusual situations.

Watch #_	of	3	Page	jo	3 8 8	TZB Disposal Site Monitoring Log	I Site Mo	nitoring l	-og
Watch Location:				•	Time Arrived at Site:	ite:	Time Departed Site:		
Endangered Species Observer:	ies Observe	Li			Site Name and Location:	cation:	Scow Name:		
Were any species sighted at the start of operations?	sighted at t	he start of opera	ations? Y or N		Were any species	Were any species sighted during the watch? Y or N			
Did you have an adequate view of the material being offloaded?	dequate vie	w of the material	l being offloaded	Y or N	Temp (°F):	Weather Code:	Wind Speed:	Wind Direction:	
	Date (MM/DD)	Time (24 hr)	Scow Size	Latitude (DD MM.M)	1.M)	Longitude (DD MM.M)	M.M)	Tir	Time Lost Amount
Offload Begin						æ			hrs
Offload End				2			S		. hrs
	Date (MM/DD)	Time (24 hr)	Number Sighted	Species Name	Ð	Sighting Code	Recovered *	Recovery Code	UIN (Sturgeon Only)
		2.5					N P		
р							Y or N		
əjyb				1			Z io >	8	
jiS s		2.0					Y or N		
əiɔə					**		N o Y		*
dS							Y or N		
							Y or N		
		••					Y or N	20	
COMMENTS:	10	41/		=	g.	t			
* If species recovered is Sturgeon proceed to Sturgeon Salvage Form and Sturgeon Incidental Take Log	is Sturgeon pro	ceed to Sturgeon Salva	age Form and Sturgeo	n Incidental Take Log					

Disposal Site Monitoring Log

Offload Begin- The beginning of active removal of dredged material from a loaded scow.

Offload End- When the active removal of dredged material from a loaded scow ends.

Watch- Period of time in which you are observing operations for the removal of material from one scow. If a scow is unloaded and removed while you are on a shift and another one is brought in, that would constitute a new watch.

- 1. Watch: The first blank is the number watch you are on of the total consecutive watches that you performed ON THIS SHIFT.
 - Example: If you were on the second watch of three performed during this shift you would write in 2 of 3.
- 2. Page: Consecutive page numbering for each watch.
 - Example: If you had two dredge monitoring logs for a particular watch they would be numbered 1 of 2, and 2 of 2.
- 3. Watch Location: Primary area where you were located during your watch.
 - Example: On scow, on dredge etc.
- 4. Time Arrived at Site: Record the time you arrive at the offload site at the beginning of a shift.
- 5. Time Departed Site: Record the time you depart from the offload site at the end of a shift.
- 6. Endangered Species Observer: Record your NAME (First and Last).
- 7. **Site Name and Location:** Record the name and address of the site that you will be observing during THIS PARTICULAR watch.
- 8. **Scow Name:** Record the name of the scow that is being offloaded during THIS PARTICULAR WATCH.
- 9. Were any species sighted at the start of operations?: As offload operations begin after you have arrived at the site, observe the surrounding area and circle Y if ANY species are sighted or N if the area is clear. If any species are seen, they should be recorded in the Species Sighted section of the log.
- 10. Were any species sighted during the watch?: Circle Y if ANY species were sighted during the watch and N if there were no sightings.
- 11. Did you have an adequate view of the material being offloaded?: Circle Y if you could view the material being offloaded during the ENTIRE watch, and N if not. If N is circled, comments are required.
- 12. **Temp (°F):** Record the air temperature (in °F), with the thermometer that was provided to you, at the beginning of offload operations.
- 13. **Weather Code:** Record the Code that best describes the weather at the beginning of offload operations. The codes are listed on the back of the log.
- 14. **Wind Speed:** Record the estimated speed of the wind, in MPH at multiples of five increments, at the beginning of dredging operations. If there is no wind record "0".
- 15. **Wind Direction:** Record, in compass degrees (0°-359°), the direction from which the wind is blowing at the beginning of dredging operations. If there is no wind record "—" (a dash).

- 16. Offload Begin Date: Record the date (MM/DD) at the beginning of offload operations.
 - If the offload had already begun before you started your watch record "—" (a dash) in this field and record the name of the ESO who was present for the beginning of operations in the comments section.
- 17. Offload Begin Time: Record the time (24hr) at the beginning of offload operations.
 - If the offload had already begun before you started your watch record "—" (a dash) in this field and record the name of the ESO who was present for the beginning of operations in the comments section.
- 18. Offload End Date: Record the date (MM/DD) at the end of offload operations.
 - If the offload has not finished by the end of your shift record "-" (a dash) in this field and record the name of the ESO who will be replacing you in the comments section.
- 19. Offload End Time: Record the time (24hr) at the end of offload operations.
 - If the offload has not finished by the end of your shift record "—" (a dash) in this field and record the name of the ESO who will be replacing you in the comments section.
- 20. BLANK: Leave this field blank.
- 21. **Latitude:** Record the Latitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.
- 22. **Longitude:** Record the Longitude (DD MM.M) to the tenth of a minute of the location you are observing from using the handheld GPS that was provided to you.
- 23. Time Lost Code: This field should only be used if there are significant delays to offload operations that are in progress (i.e. greater than 30 mins) OR if there is a lapse in operations due to changing of scows. Record the time lost code of the event that best describes the reason why the offload was delayed. Time lost codes are listed on the back of the log.
- 24. **Time Lost Amount:** Record, to the nearest tenth of an hour, for each reason recorded (#23), the total amount of time lost during THIS WATCH.
 - Example: If operations were delayed for an hour and 25 minutes due to the changing of scows. You would record "13" in the Time Lost Code field and "1.4" in the Time Lost Amount field.

Species Sighted

This field should be used for each specific sighting of a species. If the same species is seen more than once during a watch, separate lines with the same species name but different times should be listed. If more than one species is seen at the same time, separate lines should be used with different species names but the same time and date. Comments should be made along with this field in most cases, referencing the date and time of the sighting.

- 25. Date: Record the date (MM/DD) of each individual sighting.
- 26. Time: Record the time (24 hr) of each individual sighting.
- 27. Number Sighted: Record the number of individual animals seen for THIS SIGHTING.

Disposal Site Monitoring Log

- 28. **Species Name:** Record the species name as listed on the Hudson River Fish Checklist provided to you.
 - Example: sturgeon, shortnose
- 29. **Sighting Code:** Record the Code of the event the best describes the manner in which you sighted the species.
 - Example: If you sighted a fish in the water next to the dredge as it was coming out of the water you would record "04" (sighted in water near dredge).
- 30. Recovered: Record a "Y" if the species referenced was able to be recovered and "N if it was not.

 ** If species recovered is Sturgeon proceed to Sturgeon Incidental Take Log and Sturgeon
 Salvage Form (dead only)
- 31. Recovered Time: Record the time (24 hr) when the species was recovered.
- 32. **Recovery Code:** Record the recovery code that best describes how the species referenced was recovered.
- 33. Release Time: Record the time (24 hr) that the species was released alive.
- 34. **Release Code:** Record the release code that best describes how the species referenced was released.
- 35. UIN (Unique Identification Number): This field is only to be used if the species referenced is a sturgeon AND it was able to be recovered. If BOTH of theses requirements are not met record "-" (a dash). If a UIN is required it should be the same one used on the Sturgeon Salvage Form and Incidental Take Log. The number will take this form:
 - YYYYMMDDXXZZ (XX= chronological sample number for each sampling date;
 ZZ=chronological fish number for each sample on a particular date
 - Example: The first sample on 2/15/13 will be 2013021501, and the first fish analyzed from that sample will be 201302150101 and the second fish will be 201302150102.
- 36. **Comments:** This section should be used for any additional information that can be provided that is not already covered on the log as well as to describe any unusual situations.

ATTACHMENT E Environmental Performance Commitments Responsibility Matrix

DB Contract Exhibit B Item #	Environmental Performance Commitment	Implementation	EPC/Plan Responsibility Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
4.A	Dredging shall only be conducted during a three-month period from August 1 to November 1 in any given year. Dredging shall be conducted during at most three calendar years of the construction period. (These restrictions are in order to minimize the potential for impacts to anadromous fish migration, including shortnose and Atlantic sturgeon, as well as migration by other fish species.)	TZC (Subcontractor)	TZC Subcontractor's Site Superintendent	Environmental Checklists	ЕСТ	Environmental Review Field Compliance Reports
4.L	Access to suitable vessels shall be provided to NMFS-approved protected species observer(s) to perform appropriate observation pursuant to the Environmental Approvals.	TZC (Subcontractor)	TZC Subcontractor's Site Superintendent	Environmental Checklists	ECT	Environmental Review
5.B.i	At all times provide all necessary cooperation, advance notification of works activities (including dates and times, contact details of relevant liaison personnel, locations, and any changes to these arrangements), access, including provision of suitable vessels, such that the Authority's NMFS-approved species observer(s) can be present to observe all dredging operations in river and disposal operations at HARS.	TZC (Subcontractor)	TZC Subcontractor's Site Superintendent	Environmental Checklists	ECT	Environmental Review
5.B.ii	The Authority's NMFS-approved species observer(s) shall monitor all dredging operations, including site dredging, transfer and disposal.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
5.B.iii	If dredging occurs at night or in poor lighting conditions, the Design-Builder shall provide and operate floodlights to allow the Authority's NMFS-approved observer to safely observe and monitor dredge bucket operations and scow or hopper.	TZC (Subcontractor)	TZC Subcontractor's Site Superintendent	Environmental Checklists	ЕСТ	Environmental Review
5.B.iv	The Design-Builder shall allocate sufficient time between each dredging cycle to enable the Authority's staff and NMFS-approved observer to inspect the dredge bucket and scow for shortnose sturgeon and/or sturgeon parts and to document the findings.	TZC (Subcontractor)	TZC Subcontractor's Site Superintendent	Environmental Checklists	ECT	Environmental Review
5.B.v	The Design-Builder shall be responsible for ensuring that all sturgeon observed to be captured within the mechanical dredging operations shall be removed with a net and, if alive, shall be returned to the river at a location away from the Project Site.	TZC (Subcontractor) ECT	TZC Subcontractor's Site Superintendent ECT Task Leader	Environmental Checklists Vessel Data Sheets Sturgeon Data Collection Forms	ECR	ECR Forms
5.D.ii	All live shortnose or Atlantic sturgeon captured during the Project shall be inspected for the presence of passive integrated transponder (PIT) tags with a PIT tag reader. If no PIT tag is present, a PIT tag (of appropriate size) shall be inserted. Live or injured sturgeon shall be released away from the Project Site.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Data Collection Forms	ECR	ECR Forms
5.D.iii	The Design-Builder shall design and implement a monitoring program for detection of any floating dead or injured sturgeon. Include this program in the Ecological Monitoring Plan (see Section 3.3.3.2 in this Project Requirement). A vessel, running transect lines through the Project area, shall be used during any impactive pile driving.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms

DB Contract Exhibit B Item #	Environmental Performance Commitment	Implementation	EPC/Plan Responsibility Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
5.D.iv	Observed live fish shall be held on a boat with a flow-through live well.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Data Collection Forms	ECR	ECR Forms
5.D.v	All sturgeon captured shall have a fin clip taken for genetic analysis. The fin clip sample shall be transferred to NMFS personnel.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Data Collection Forms	ECR	ECR Forms
5.D.vi	All dead sturgeon must be preserved for necropsy and possible contaminant evaluation, either by NMFS or at a NMFS-approved facility.	ECT	ECT Task Leader	Sturgeon Data Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
5.D.vii	All sturgeon captures, injuries or mortalities associated with the Project and any sturgeon sightings in the Project area shall be reported to the Authority immediately.	ECT	ECM	Vessel Data Sheets Sturgeon Data Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
5.D.viii	All incidental fish take limits for the Project stated in the NMFS Biological Opinion shall apply.	ECT	ECM	Environmental Compliance Plan Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
5.D.ix	Conduct a daily survey of the project area (River Mile 27) for the purpose of locating stunned or dead shortnose and Atlantic sturgeon. A procedure for this survey shall be submitted to Authority as soon as practicable, but no later than 15 days before invier construction begins. Include this procedure in the Ecological Monitoring Plan (see Section 3.3.3.2 in this Project Requirement). The Authority shall be contacted by the Design-Builder within 6 hours following a take. (The Authority shall notify NMFS of the take.) Any dead sturgeon shall be held in cold storage until disposition can be discussed, via the Authority, with NMFS. Under no circumstances shall dead sturgeon be disposed of without confirmation, via the Authority, of disposition details by NMFS.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
5.E	Additional monitoring during pile installation: The Design-Builder shall monitor predation levels by gulls and other piscivorous birds. Observation of such predation shall be used as an indicator of an increased number of dead or dying fish at the surface. Develop daily log of activities and submit to the Authority.	ECT TZC	ECT Task Leader TZC Site Superintendents	Vessel Data Sheets Pile Barge Environmental Checklist	ECR	ECR Forms

Notes:

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NYSDEC Permit Condition #	Permit Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
41	The Permittee must survey the project area (River Mile 27) daily during driving of permanent piles and dredging for the purpose of locating stunned or dead fish. An Standard Operating Procedure (SOP) detailing the procedures for this survey must be submitted to the Department for approval as soon as practicable, but at least 30 days before starting dredging or installation of permanent piles four feet or more in diameter.	ECT	ECT Task Leader	Dredging and Pile Driving Monitoring Plan Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
42	All live stunned or injured sturgeon shall be placed in a holding tank onboard a survey vessel and transported outside the area ensonified by pile driving. The sturgeon shall be measured for total length, identified to species, examined for a Passive Integrated Transponder (PIT) tag, and if untagged, the sturgeon will be marked with a PIT tag applied in the flesh below the base of the dorsal fin (left side),then released. Application of the PIT tag will follow the procedures as outlined in the NMFS protocol.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Data Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
43	Necropsies shall be performed on any dead sturgeon collected. After completion of the necropsy all dead sturgeon must be placed on ice and held for delivery to the Department. After collection of a dead Shortnose or Atlantic sturgeon the Permittee shall contact the Department's Hudson River Fisheries Unit leader during the following DEC work day for delivery procedures.	NYSTA	NMFS / NYSDEC Approved Laboratory	Necropsy Plan Necropsy Report	NYSTA Technical Lead	NYSTA Review
44	Within 90 days of the effective date of this Permit, the Permittee must submit detailed procedures for the necropsies, which identifies the contractor that will perform the necropsies and the location of the laboratory where the necropsies will be performed.	NYSTA	NMFS Approved Laboratory	Necropsy Plan	NYSTA Technical Lead	NYSTA Review

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NMFS BO Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
i	NMFS will consider incidental take exceeded if any of the following conditions are met: More than 21 shortnose sturgeon are observed stunned or injured during pile driving.	ECT	ECT Task Leader	Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
ii	NMFS will consider incidental take exceeded if any of the following conditions are met: More than one dead shortnose sturgeon or more than one dead Atlantic sturgeon (belonging to the NYB, CB or GOM DPS) are observed during pile driving with injuries that are attributable to project operations.	ECT	ECT Task Leader	Sturgeon Monitoring During Pile Driving 60-Day Report Necropsy Report	ECR	ECR Forms
iii	NMFS will consider incidental take exceeded if any of the following conditions are met: More than 20 New York Bight DPS, 1 Chesapeake Pay DPS, and 1 Gulf of Maine DPS Atlantic sturgeon are observed stunned or injured during pile driving.	ECT	ECT Task Leader	Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
iv	NMFS will consider incidental take exceeded if any of the following conditions are met: More than one shortnose sturgeon and more than one Atlantic sturgeon (two NYB DPS and one CB or GOM DPS) are observed captured during mechanical dredging.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
RPM 1	FHWA must provide NMFS with notice prior to the start and at the completion of each dredge cycle. Any request to extend dredging beyond the August 1 – November 1 window must be coordinated with NMFS with the understanding that this is likely to require reinitiation of this consultation.	TZC	TZC Area Manager	Construction Schedule	ECT	Environmental Review
RPM 2	FHWA must ensure a NMFS-approved endangered species observer is present to observe all mechanical dredging activities to monitor for any capture of shortnose and Atlantic sturgeon.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
RPM 3	The FHWA must ensure that all measures are taken to protect any sturgeon that survive capture in the mechanical dredge.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
RPM 6	FHWA must continue to implement a program to monitor impacts to sturgeon resulting from pile installation for permanent piles four feet or more in diameter throughout the duration of pile driving operations.	TZC ECT	TZC Site Superintendent ECT Task Leader	Environmental Checklists Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms
RPM 7	All live sturgeon captured during monitoring must be released back into the Hudson River at an appropriate location away from any bridge construction activity that minimizes the additional risk of death or injury.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
RPM 8	All Atlantic sturgeon captured must have a fin clip taken for genetic analysis. This sample must be provided to NMFS.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
RPM 9	All shortnose and Atlantic sturgeon that are captured during the project must be scanned for the presence of Passive Integrated Transponder (PIT) tags. Tag numbers must be recorded and reported to NMFS. If no tag is present, a PIT tag of the appropriate size must be inserted.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
RPM 10	A necropsy must be undertaken to attempt to determine the cause of death of any dead sturgeon observed during bridge construction that is judged to be suitable for necropsy, in consultation with NYSDEC and NMFS. After completion of the necropsy all dead shortnose and Atlantic sturgeon shall be delivered to the NYSDEC.	NYSTA	NMFS / NYSDEC Approved Laboratory	Necropsy Report	NYSTA Technical Lead	NYSTA Review
RPM 11	All sturgeon captures, injuries or mortalities associated with the bridge replacement project must be reported to NMFS within 24 hours.	ЕСТ	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms	ECR	ECR Forms

NMFS BO Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
T&C 1	To implement RPM #1, each year that dredging is undertaken, the FHWA in coordination with the ACOE, project sponsors and contractors as appropriate, must inform NMFS of the commencement of dredging operations at least one week prior to the actual start date and inform us of the number of dredges to be used, the area within the river to be dredged, the volume of material to be removed, the expected duration of dredging, and the disposal site to be used.	TZC (Subcontractor)	TZC Subcontractor's Project Manager	Dredging Plan	ECT	ECT Review
T&C 2	To implement RPM #1, at the end of each dredging operation, FHWA in coordination with the ACOE, project sponsors and contractors as appropriate, must provide us a report that summarizes dredge operations including information on the dates of dredging, the volume of material removed, the number of trips to the disposal site. This report must also contain copies of the dredge observer reports. This report must be submitted to us by December 31 of any year that dredging occurs.	TZC (Subcontractor)	TZC Subcontractor's Project Manager	Annual Dredging Report	ECT	ECT Review
T&C3	To implement RPM#2, for mechanical dredging, the FHWA in coordination with the ACOE, project sponsors and contractors as appropriate, must ensure that observer coverage is sufficient for 100% monitoring of dredging operations. This monitoring coverage must involve the placement of a NMFS-approved observer on board the dredge for every day that dredging is occurring. The NMFS approved observer must observe all discharges of dredged material from the dredge bucket to the scow or hopper. All biological material must be documented by a NMFS-approved observer as outlined in Appendix A and be reported to NMFS by December 31 of any year that dredging occurs.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
T&C 4	To implement RPM#2, at least two weeks prior to each dredge period, FHWA must submit to us the names and qualifications of any observers to be used on board the dredge(s). No observers can be deployed to the dredge site until FHWA has written confirmation from MNFS that they have met the qualifications to be a "NMFS-approved observer" as outlined in Appendix B. If substitute observers are required during dredging operations, FHWA must ensure that NMFS approval is obtain before those observers are deployed on dredges. Approval of any substitute observers may be by phone, to be followed by written confirmation.	NYSTA	NYSTA Subcontractor's Project Manager	Observer Resumes Observation Reports	NYSTA Technical Lead	Annual Observer Report
T&C 5	To implement RPM #3, FHWA, in coordination with the ACOE, and in accordance with the Dredging and Pile Driving Monitoring Plan, project sponsors and contractors as appropriate, any sturgeon observed in the dredge bucket or dredge scow during mechanical dredging operations must be removed and, if allive, returned to the river away from the project site after scanning and/or inserting PIT tags (see T&C #15 below) and documenting the interaction (see T&C #17 below).	NYSTA ECT	NYSTA Subcontractor's Project Manager ECT Task Leader	Dredge Observer Forms Vessel Data Sheets Sturgeon Collection Forms	NYSTA Technical Lead ECR	NYSTA Review ECR Forms
T&C 12	To implement RPM#6, FHWA must ensure the project area is monitored for the presence of any floating dead or injured sturgeon down current of pile driving. FHWA must continue to implement the Dredging and Pile Driving Monitoring Plan that ensure the detection of any floating stunned, injured or dead sturgeon. Preliminary reports containing information on the number of fish observed stunned or injured (including non-sturgeon species) must be reported to NMFS on a regular basis, but no less frequently than every 60 days. If reports can not be provided on that frequency, FHWA must provide an explanation to NMFS within the 60 day period and provide the report as soon as possible.	TZC ECT	TZC Site Superintendent ECT Task Leader	Environmental Checklists Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms

NMFS BO Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
T&C 13	To implement RPMs #4, 5, and 6, if FHWA determines that changes to the telemetry monitoring plan, acoustic monitoring plan (i.e., monitoring of noise produced during pile driving) or dredge monitoring plan are necessary, FHWA must submit a revised plan to NMFS and request concurrence with the proposed modifications. Within 14 days, NMFS will either submit written approval of the plan to FHWA or request additional information or modifications. Except in extenuating circumstances (e.g., extreme weather or situations threatening human life or safety), changes to the plan will not be implemented prior to receiving NMFS written approval of the revised plan. If extenuating circumstances are present, FHWA must notify NMFS at the time the revised plan is submitted for review.	ECT	ECT Task Leader	Dredge and Pile Driving Monitoring Plan Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
T&C 14	To implement RPM#7, FHWA must ensure any observed live sturgeon are collected and are visually inspected for injuries. Unless the size of fish precludes holding, collected fish must be held with a flow through live well.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms
1&C 15	To implement RPM #8, FHWA must ensure that fin clips are taken (according to the procedure outlined in Appendix C) of any sturgeon captured during the project and that the fin clips are sent to NMFS for genetic analysis. Fin clips must be taken prior to preservation of other fish parts or whole bodies.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms
	To implement RPM #9, FHWA must ensure all collected sturgeon must be inspected for a PIT tag with an appropriate PIT tag reader and tagged if no PIT tag is detected according to the protocol provided as Appendix D. Injured fish must be visually assessed, measured, photographed, released away from the site and reported to NMFS.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms
T&C 17	To implement RPM #9, FHWA must ensure that any observed dead sturgeon are collected with a net, reported to NMFS, preserved as appropriate to allow for necropsy, and that NMFS is contacted immediately to discuss necropsy and disposal procedures. The form included as Appendix E must be completed and submitted to NMFS.	ECT	ECT Task Leader	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-day Report	ECR	ECR Forms
T&C 18	To implement RPM #11, if any live or dead sturgeon are observed or captured during any aspect of the proposed bridge replacement project, FHWA must ensure that NMFS (978-281-9328) is notified immediately and that an incident report (Appendix F) is completed by the observer and sent to the NMFS Section 7 Coordinator via FAX (978-281-9394) or e-mail (incidental.take@noaa.gov) within 24 hours of the take. FHWA must also ensure that every sturgeon is photographed. Information in Appendix F will assist in identification of shortnose and Atlantic sturgeon.	ECT NYSTA	ECM NYSTA Environmental Project Manager	Vessel Data Sheets Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report Sturgeon Sighting Form	ECR NYSTA Technical Lead	ECR Forms NYSTA Review

Notes:

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FHWA EPC Condition #	FHWA Environmental Performance Commitment	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
	Limiting the periods of pile driving to no more than 12-hours/day except in rare circumstances, when safety or other constraints require completion of work begun that day.	TZC	TZC Site Superintendent	Environmental Checklists	ECT	Monthly Summary of Pile Driving Activities Field Compliance Reports
	Pile tapping (i.e. a series of minimal energy strikes) for an initial period to cause fish move from the immediate area.	TZC	TZC Site Superintendent	Environmental Checklists	ECT	Environmental Review
3.3.7	Continuing to implement a comprehensive monitoring plan as described in the Dredging and Pile Driving Monitoring Plan. Elements include: Monitoring water quality parameters in accordance with the Water Quality Monitoring Plan in the vicinity of pile driving: Monitoring fish mortality and inspection of fish for types of injury, as well as a program for determining contaminant levels in dead sturgeon through tissue analysis methods, as feasible; Monitoring the recovery of benthic community within the dredged area at the end of the construction period; supporting the Atlantic and shortnose sturgeon sonic tagging program through coordination with MMFS and NYSDEC. This may include placement of telemetry receivers in the project area; Monitoring predation levels by gulls and other piscivorous birds, which would indicate an increased number of dead or dying fish at the surface; and, Preparing appropriate plans outlining the monitoring and reporting methods to be implemented during the program.	TZC ECT NYSTA	TZC Project Manager ECT Task Leader NYSTA Environmental Project Manager	Environmental Checklists Vessel Data Sheets Sturgeon Data Collection Forms Weekly Pile Driving Summary Sturgeon Monitoring During Pile Driving 60-day Report NYSTA Inspection Forms NYSTA Technical Summary Sturgeon Acoustic Telemetry Monitoring Plan	ECR NYSTA Technical Lead	ECR Forms NYSTA Review
3.3.8	In addition, access channel dredging (using a clamshell dredge with an environmental bucket and no barge overflow) would only be conducted during a three-month period from August 1 to November 1, for the two years of the construction period in which dredging would occur. This time of year restriction is design to minimize the potential for interaction with the dredge and migration effects to sturgeon and other fish species.	TZC	TZC Area Manager	Construction Schedule	ECT	Environmental Review

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USACE Permit Condition #	Permit Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
SC: D	The permittee shall comply with the terms and conditions of the National Marine Fisheries Service (NMFS) Biological Opinion (BO) and Incidental Take Statement (ITS) dated April 10, 2013, and all future amendments thereto. This Department of the Army permit does not authorize the permittee, or its agents, to take an animal of an endangered species, in particular, Shortnose sturgeon or Atlantic sturgeon. In order to take a listed species, the permittee shall have a separate authorization under the Endangered Species Act (ESA) (ESA) (EU. Sc. 1531 et. seq.), e.g., a permit under Section 10 of the Endangered Species Act (ESA) (EU. Sc. 1514 et. seq.), e.g., a permit under Section 10 of the Endangered Species Act (ESA) with Incidental Take Statement (ITS) provisions with which the permittee must comply. TH cited Biological Opinion (BO) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with the Incidental Take Statement (ITS) of the Biological Opinion (BO). The permittee's authorization under this Department of the permit is conditioned upon the permittee's compliance with the Incidental Take Statement (ITS) of the Biological Opinion (BO), which terms and conditions associated with the Incidental Take Statement (ITS) of the Biological Opinion (BO), which terms and conditions associated with the Incidental Take Statement (ITS) of the Biological Opinion (BO), where a take of a listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with this issued Department of the Army permit. The National Marine Fisheries Service (NMFS) is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion (BO), and with the Endangered Species Act (ESA) (16 U.S.C. 1531 et. seq.)	TZC ECT NYSTA	TZC Site Superintendent ECT Task Leader NYSTA Subcontractor's Project Manager	Environmental Checklists Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report Necropsy Reports Observation Reports	ECR NYSTA Technical Lead	ECR Forms Annual Observer Report
SSP: E	This authorization is conditional on the permittee's compliance with the requirements of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Section 7 of the Endangered Species Act if 1973, and Section 106 of the National Historic Preservation Act. The permittee must provide appropriate documentation to this office, citing the subject file number, demonstrating compliance with these requirements. Compliance can be separately accomplished for the borings investigation phase and the pile load test phase. It is understood that the Federal Highway Administration of the U.S. Department of Transportation will lead consultation efforts with the applicable agencies.	TZC ECT NYSTA	TZC Site Superintendent ECT Task Leader NYSTA Subcontractor's Project Manager	Environmental Checklists Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report Necropsy Reports Observation Reports	ECR NYSTA Technical Lead	ECR Forms Annual Observer Report

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D+PD Plan Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
Section 3.0	Prior to the commencement of dredging, the Oversight Environmental Compliance Monitor (OECM) (Kristine Edwards, NYSTA) will be notified of the commencement of dredging operations at least one week prior to the actual start date. Information provided will include: Number of dredges to be used, Documentation that dredged material barges and scows have been inspected and found to be properly sealed; Area within the river to be dredged, Volume of material to be removed, Expected duration of dredging, and Means of transport of dredged material and disposal site to be used.	ECT	ЕСМ	Dredging Plans	ECR	ECR Forms
Section 4 ()	Sturgeon monitoring during dredging will be conducted by a NYSTA NMFS-approved observer.	NYSTA NYSTA Subcontractor	NYSTA ECM NYSTA Subcontractor's Subcontractor	NMFS Written Approvals Observation Reports	NYSTA Technical Lead	NYSTA Review
	Daily monitoring during pile driving of permanent piles 4 feet or greater in diameter will occur from a barge next to each pile being driven and a small boat.	TZC ECT	TZC Site Superintendent ECT Task Leader	Environmental Checklists Vessel-Based Monitoring Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECT ECR	Environmental Review ECR Forms
Section 5.2	A NMFS-approved observer will be onboard the dredge platforms(s) to monitor all dredging activity everyday that dredging occurs	NYSTA NYSTA Subcontractor	NYSTA ECM NYSTA Subcontractor's Subcontractor	Observation Reports	NYSTA Technical Lead	NYSTA Review
Section 5.3, pg.4	For live sturgeon: 1. Sturgeon will be removed as quickly and carefully as possible. Note that a net will be used, if possible; however, some sturgeon might be too large to collect with a net. In all cases, the safety of the observer will be given the highest priority. 2. Live sturgeon will be placed into tubs filled and overflowing with ambient river water, which will be continuously supplied to the tubs while they contain fish. 3. Each sturgeon will then be placed on the measuring board where the sturgeon will be kept wet throughout the data collection procedure. The following measurements will be quickly recorded: • Total length (mm) • Arter making sure that the fish is wet enough, three photographs will be quickly taken to aid in species identification (determined using distinguished characteristics provided in Appendix F) and document the condition of the fish. One will be taken of the top of the fish, one will be taken of the side of the fish (a good view of the mouth is important), and one will be taken of the side of the fish. A ruler will be included in the photograph for scale of the dorsal and ventral surface of the head. Injuries and physical abnormalities will also be photographed. 5. After the requisite data has been collected, live fish will be returned to the river away from the project site as quickly and as gently as possible.	ECT	ECT Task Leader	Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms

D+PD Plan Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
Section 5.3, pg.5	For dead sturgeon: Note: Immediately upon retrieval, each sturgeon will be assessed to confirm status (live/dead). 1. Sturgeon will be removed as quickly and carefully as possible. Note that a net will be used, if possible; however, some sturgeon might be too large to collect with a net. In all cases, the safety of the observer will be given the highest priority. 2. Each sturgeon will be checked for a Passive Integrated Transponder (PIT) tag. 3. Each sturgeon will then be placed on the measuring board. The following measurements will be recorded: • Total length (mm) • Fork length (mm) 4. Three photographs will be taken to aid in species identification and document the condition of the fish. One will be taken of the top of the fish, one will be taken of the bottom of the fish. One will be taken of the top of the fish, one will be taken of the side of the fish. A ruler will be included in the photograph for scale of the dorsal and ventral surface of the head. Injuries and physical abnormalities will also be photographed. 5. After the requisite data has been collected the fish will be prepared for necropsy, provided that is it is a viable candidate based on guidance from the OECM based on the Necropsy Plan (Attachment B), and transferred to the OECM. 6. If the sturgeon is determined not to be an appropriate candidate for necropsy as directed by the OECM the fish will be placed above the high tide line and marked with orange spray paint.	ECT	ECT Task Leader	Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
Section 5.3, pg.5	Sturgeon captures, injuries or mortalities, and sturgeon sightings in the Project area will be immediately reported to the ECM or designee, who will report it to the OECM and FHWA. FHWA will report the sturgeon take to NMFS within 24 hours. • By phone at 978-281-9328 • By email to incidental.take@noaa.gov	ECT NYSTA	ECT Task Leader NYSTA ECM	Sturgeon Collection Forms	ECR	ECR Forms
Section 5.3, pg.5	The observer will photograph sturgeon specimens and record information for the Sturgeon Data Collection Form for live and dead sturgeon (Appendices E). Sturgeon Data Collection Forms will be reviewed by the ECM or designee and submitted to the OECM for submittal to NMFS, within 24 hours of the take. The Sturgeon Data Collection Forms will be transmitted to NMFS within 24 hours of the take as follows: • By fax to NMFS at 978-281-9394 or • By email to incidental.take@noaa.gov	ECT NYSTA	ECT Task Leader NYSTA ECM	Sturgeon Collection Forms	ECR	ECR Forms
Section 5.3, pg.6	If a live sturgeon appears to have inflated their air bladder, attempts will be made to return the fish to neutral buoyancy by propelling the fish rapidly downward. If the air bladder still remains inflated gentle pressure will be place on the ventral side in a posterior to anterior direction (Moser et al. 2000). The sturgeon will be released north of the construction site when the tide is flooding and south of the site when the tide is ebbing. The safe location will be determined by the person(s) handling the sturgeon, based on conditions.	ECT	ECT Task Leader	Sturgeon Collection Forms Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms

D+PD Plan Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
Section 6.1, Vessel	Data collected during the vessel-based monitoring will include: • Date • Boat tracks during monitoring • Weather conditions (e.g., wind speed & direction, outdoor temperature) • Water conditions (e.g., surface waves and tidal stage) • Water temperature • Salinity • Other incidental fish species observed • Situational photographs of pile driving, dredging, and observed fish as necessary • Observations of Piscivorous or scavenging bird activity • If sturgeon are recovered, information required under Section 6.3 would be collected • Initials of sturgeon monitors	ЕСТ	ECT Task Leader	Vessel-based Monitoring Forms	ECR	ECR Forms
Section 6.1, Barge	Data collected during the barge-based monitoring will include: Date Pier Number and Size of piles Time that impact pile machinery work begins and ends Time of sturgeon sightings Location of sturgeon species sightings Time of non-sturgeon species sightings Names of sturgeon monitors	TZC	TZC Site Superintendents	Environmental Checklists	ECT	Weekly Pile Driving Summary Sturgeon Monitoring During Pile Driving 60-Day Report
Section 6.2	Data collected during dredging will include: Date Weather conditions during observation - (e.g. Wind speed & direction, outdoor temperature) Water conditions (e.g., surface waves and tidal stage) Time that dredging begins and ends Time of sturgeon sightings If sturgeon are recovered, information required under Section 6.3 would be collected. Data will be recorded on Dredging Monitoring Forms (Attachment D).	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report
Section 6.3	recorded in the Sturgeon Take Report and Sturgeon Data Collection Form (Appendix E). Date and time (including time recovered and time returned to the water) Location found (description and coordinates in latitude and longitude), water depth and capture method Species, if known Water temperature and salinity Construction operation: impact pile driving, dredging operations, dredged material transport/delivery Monitoring location: vessel, dredge, or dredge transport/delivery Photographs (3) of each sturgeon (with a ruler used for scale for the dorsal and ventral surface of the head) Total length and fork length Weight, as appropriate Interorbital width Mouth Width Sex if known and how sex was determined Fish condition: stunned, injured, dead Decomposition or Carcass Condition (Incident Report and Sturgeon Data Collection Form): no (fresh dead): slightly, moderately; severely; dried carcass; skeletal, skutes, and cartilage Injury locations, if present Tagged: yes or no Tag type: floy, PIT, etc. Tag ID: record tag numbers Fin clip sample number Necropsy sample number	ECT	ECT Task Leader	Vessel-based Monitoring Forms Sturgeon Collection Forms	ECR	ECR Forms

D+PD Plan Condition #	Biological Opinion Condition	Implementation	EPC/Plan Responsible Party	EPC/Plan Documentation	EPC/Plan Review	EPC/Plan Review Documentation
	Reports containing information on the number of fish observed stunned or injured (including non-sturgeon species) will be prepared for submittal to NMFS every 60 days. Reports will include the following information: - Summary of pile driving such as, start and end times, quantity of piles driven, and locations - Example map showing monitoring vessel transects during reporting period - Quantity of fish (sturgeon and/or non-sturgeon species) observed - Locations of fish observed (if known) - Condition of fish observed (if known) - Copies of required data sheets and photo documentation associated with collection of a sturgeon (if collected)	ECT	ECT Task Leader	Sturgeon Monitoring During Pile Driving 60-Day Report	ECR	ECR Forms
Section 7.2, Paragraph 1	At the end of each dredging operation (i.e., each three-month dredging period), a report will be prepared that summarizes dredge operations that includes the following: • Dates of dredging • Volume of material removed • Number of trips to the disposal site • Observations of sturgeon during dredging Copies of the dredge observer reports will be appended to the report. The report will be submitted to the OECM to be reviewed and coordinated with the U.S. Army Corps of Engineers and project sponsors for submittal to NMFS by December 31.	TZC (Subcontractor) NYSTA	TZC Subcontractor's Project Manager NYSTA Subcontractor's Project Manager	Annual Dredge Report	ECT NYSTA Technical Lead	ECT Review NYSTA Review
Section 7.2, Paragraph 3	A NMFS-approved observer will prepare a final report that documents biological material collected during the monitoring. The report will be submitted to the OECM and FHWA. FHWA will submit to NMFS by December 31 of any year that dredging occurs.	NYSTA	NYSTA Subcontractor's Project Manager	Observation Reports	NYSTA Technical Lead	Annual Observer Report

Notes:

TZC : Tappan Zee Constructors, LLC ECT : Environmental Compliance Team ECM : Environmental Compliance Manager

ECR : Environmental Compliance Review NYSTA: New York State Thruway Authority