UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

MAR 12 2013

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

TITLE: Supplemental Environmental Assessment on the Effects of Issuing a Permit Modification for Scientific Research on Endangered Shortnose and Atlantic Sturgeon in the Hudson River (File 17095-01)

LOCATION: The action area includes the Hudson River from River Mile -2.0 (Upper Hudson River Estuary) to River Mile 152 at Troy Dam (Albany, NY).

SUMMARY: The National Marine Fisheries Service (NMFS) proposes to issue a scientific research permit modification for takes of shortnose and Atlantic sturgeon, listed as endangered, under the Endangered Species Act. The objective of the research permit modification is to increase the number of Atlantic sturgeon taken to 200 annually, but with no more than 600 taken over the permit term. Shortnose and Atlantic sturgeon abundance and distribution through the Hudson River Biological Monitoring Program would continue as before. The preferred alternative is not expected to have more than short-term effects on shortnose or Atlantic sturgeon and will not significantly impact the quality of the human environment.

RESPONSIBLE OFFICIAL: Helen M. Golde
Acting Director, Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway, Room 13821
Silver Spring, MD 20910
(301) 713-2332

The environmental review process led us to conclude that this action will not have a significant effect on the human environment. Therefore, an environmental impact statement will not be prepared. A copy of the signed finding of no significant impact (FONSI), including the supporting supplemental environmental assessment (SEA), is enclosed for your information.

Although NOAA is not soliciting comments on this completed SEA/FONSI, we will consider any comments submitted assisting us in preparing future NEPA documents. Please submit any written comments to the responsible official named above.

Sincerely,

Patricia A. Montanio
NOAA NEPA Coordinator

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MAR 11 2013

Supplemental Environmental Assessment
On the Effects of Issuing a Permit Modification for Scientific Research on Endangered Shortnose and Atlantic Sturgeon in the Hudson River (File 17095-01)

March 2013

A supplement to the 2012 EA entitled "*Environmental Assessment On the Effects of Issuing a Permit for Scientific Research on Endangered Shortnose and Atlantic Sturgeon in the Hudson River (July 2012)*"

Lead Agency: USDOC National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources

Responsible Official: Helen M. Golde, Acting Director, Office of Protected Resources

For Further Information Contact: Office of Protected Resources
National Marine Fisheries Service
1315 East West Highway
Silver Spring, MD 20910
(301) 427-8400

Location: Hudson River, NY

Abstract: The National Marine Fisheries Service (NMFS) proposes to issue a permit modification to a five-year scientific research permit (Permit No. 17095) issued to Entergy Nuclear Operations Inc., 450 Broadway, Suite 3, Buchanan, NY 10511, pursuant to the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq.*). The action would continue to exempt the permit holder from takes of shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) under the ESA, by capture, harassment, wounding and harm during bona fide scientific research.

Permit No. 17095 currently authorizes the Permit Holder to: monitor shortnose and Atlantic sturgeon abundance and distribution through the Hudson River Biological Monitoring Program (HRBMP) in the Hudson River from River Mile 0 (Battery Park, Manhattan, NY) to River Mile 152 at Troy Dam (Albany, NY). Researchers are authorized to non-lethally capture, handle, measure, weigh, scan for tags, insert passive integrated transponder and dart tags, photograph, tissue sample, and release up to 82 shortnose sturgeon and 82 Atlantic sturgeon annually. Additionally, researchers are permitted to lethally collect up to 40 shortnose sturgeon and up to 40 Atlantic sturgeon eggs and/or larvae (ELS) annually.

To account for a higher than expected catch per unit effort of Atlantic sturgeon so far under Permit No. 17095, the Permit Holder now wishes to increase the number of takes for juvenile, sub-adult and adult Atlantic sturgeon to 200 fish per year. However, take would not exceed a total of 600 Atlantic sturgeon captured over the permit life. The number of shortnose sturgeon taken would remain the same. The Permit Holder also requests that the action area be expanded two miles south of the Battery (Manhattan at River Mile 0) to include the upper New York Harbor (~River Mile -2.0). The amount of lethal collection of Atlantic and shortnose sturgeon ELS would remain the same. The modification would be valid until the permit expires August 28, 2017.

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CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 DESCRIPTION OF ACTION

1.1.1 *PROPOSED ACTION:*

NMFS proposes to issue a modification to Scientific Research Permit No. 17095 pursuant to the Endangered Species Act of 1973 as amended (ESA; 16 U.S.C. 1531 et seq.) for "takes"[1] of protected shortnose and Atlantic sturgeon in the Hudson River in response to a request from the following applicant: File No. 17095: Entergy Nuclear Operations Inc, [John A. Ventosa, Responsible Party], 450 Broadway, Suite 3, Buchanan, NY 10511. The modification would be valid until the permit expires August 28, 2017.

1.1.2 *BACKGROUND:*

In response to the receipt of an application for a permit modification from Entergy Nuclear Operations Inc., [File No. 17095], NMFS PR proposes to issue a modification to scientific research Permit No. 17095 to include additional takes[1] of Atlantic sturgeon (*Acipenser brevirostrum*) pursuant to the statute and regulations listed above. This document supplements the 2012 EA entitled "*Environmental Assessment On the Effects of Issuing a Permit for Scientific Research on Endangered Shortnose and Atlantic Sturgeon in the Hudson River, July 2012"* (NMFS 2012a).

Permit No. 17095 currently authorizes the Permit Holder to monitor shortnose and Atlantic sturgeon abundance and distribution through the Hudson River Biological Monitoring Program (HRBMP) in the Hudson River from River Mile 0 (Battery Park, Manhattan, NY) to River Mile 152 at Troy Dam (Albany, NY). Researchers are authorized to non-lethally capture, handle, measure, weigh, scan for tags, insert passive integrated transponder and dart tags, photograph, tissue sample, and release up to 82 shortnose sturgeon and 82 Atlantic sturgeon annually. Additionally, researchers are permitted to lethally collect up to 40 shortnose sturgeon and up to 40 Atlantic sturgeon eggs and/or larvae (ELS) annually.

To account for a higher than expected catch per tow sampling of Atlantic sturgeon performed authorized under Permit No. 17095, the Permit Holder now wishes to increase the takes authorized for juvenile, sub-adult and adult Atlantic sturgeon to 200 fish per year, with the take not exceeding a total of 600 Atlantic sturgeon captured over the permit life. The Permit Holder also requests an expansion of the action area to include upper New York Harbor (~River Mile -2.0). The amount of lethal collection of Atlantic and shortnose sturgeon ELS would remain the same. The modification would be valid until the permit expires August 28, 2017.

1.1.3. *PURPOSE AND NEED FOR ACTION*:

The primary purpose of the permit is to provide an exemption from the ESA prohibitions to allow "takes" of endangered species for bona fide scientific research. The need for issuance of the permit is related to NMFS's mandates under the ESA, specifically, the responsibility to protect, conserve, and recover threatened and endangered species under its jurisdiction. The ESA prohibits takes of threatened and endangered species with only a few very specific exceptions, including for scientific research and enhancement purposes. Permit issuance criteria require research activities are consistent with the purposes and policies of this federal law and will not have a significant adverse impact on

[1] The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

the species. NMFS reviewed the proposed action to ensure all the proposed activities fulfill these permit issuance criteria.

1.1.4 *OBJECTIVES OF THE RESEARCH*:

The principal objectives of the proposed modification are identical to that of the original permit: monitor shortnose and Atlantic sturgeon abundance and distribution through the HRBMP in the Hudson River from River Mile 0 (Battery Park, Manhattan, NY) to River Mile 152 at Troy Dam (Albany, NY). However, as described above, the applicant wishes to increase the takes authorized for of juvenile, sub-adult and adult Atlantic sturgeon to 200 fish per year, with total take not exceeding 600 Atlantic sturgeon captured over the permit life. The Permit Holder also requests the action area be expanded by approximately two miles southward to include the upper New York Harbor in the Hudson River estuary and bay (~River Mile -2.0). Thus, the focus in this SEA is the target species Atlantic sturgeon and the new downstream boundary of the action area.

1.2 OTHER EAs/EISs INFLUENCING THE SCOPE OF THIS SEA

An EA (NMFS 2012a) was prepared for issuance of the original Permit No. 17095 which determined that issuance of the permit and the associated research would not result in significant impacts to any portion of the human environment.

Because the proposed action would not change the nature of the research activities, the effects on the social and economic environment are not re-examined in this SEA. However, because the modification would authorize more annual takes of Atlantic sturgeon and also extend the southern boundary for sampling, the scope of this SEA is includes the potential added impacts to Atlantic sturgeon and to the physical environment in the expanded action area.

1.3 SCOPING SUMMARY

The purpose of scoping is to identify the issues to be addressed and the significant issues related to the proposed permit modification, as well as identify and eliminate from detailed study the issues not significant or those having been covered by prior environmental review. An additional purpose of the scoping process is to identify the concerns of the affected public and Federal agencies, states, and Indian tribes. CEQ regulations implementing the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) do not require that a draft SEA be made available for public comment as part of the scoping process.

A Notice of Receipt of the application was published in the *Federal Register*, announcing the availability of the permit application and related documents for public comment (File No. 17095-01; January 29, 2013; 78 FR 6072). No comments were received from the public regarding this application. Comments from NMFS Northeast Regional Office, Northeast Fisheries Science Center, and expert outside reviewers were also solicited and addressed in the decision memos.

1.4 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

This section has not changed from that described in the 2012 EA and is incorporated by reference (NMFS 2012). Applicable laws include the NEPA, ESA and Magnuson-Stevens Act.

CHAPTER 2: ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 ALTERNATIVE 1 - NO ACTION:

Under the No Action alternative, the requested permit modification for increasing the take of Atlantic sturgeon and of expanding the action area would not be issued at this time. The existing permit would remain in effect through expiration on August 28, 2017, allowing research to continue as originally authorized.

2.2. *ALTERNATIVE 2 - PROPOSED PERMIT*:

Under the Proposed Action alternative, a permit modification would be issued for research activities having terms and conditions standard to such permits as issued by NMFS. The proposed changes to the permit, as summarized in Section 2.3 of this SEA, would be authorized and would remain in effect until expiration.

2.3 DESCRIPTION OF THE PROPOSED ACTION

The applicant seeks a modification to an ESA scientific research permit for taking endangered shortnose sturgeon and Atlantic sturgeon encountered during the annual Hudson River Biological Monitoring Program (HRBMP). The HRBMP is a continuing, annual biological monitoring program begun in 1966, performed to assess potential impacts of cooling water withdrawals from electric power generating stations on the Hudson River ecology.

The sampling methods, research activities, surveys and equipment proposed in this modification are identical to that in File 17095 (NMFS 2012a), and are reviewable by contacting: Chief, Permits Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Suite 13705, Silver Spring, MD 20910; phone (301) 427-8401, and requesting File 17095-01. Both Atlantic and shortnose sturgeon captured would continue to be measured, inspected for marks and tags, physical condition assessed, and tissue samples taken for genetic analyses. All untagged animals of suitable sizes would be tagged with external tags and PIT tagged prior to being returned to the river where they would become subjects of ongoing mark-recapture efforts.

2.3.1 *REQUESTED MODIFICATION:*

2.3.1.1 <u>Proposed Change in the Action Area Boundary</u>:

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 description of the action area therefore includes the areas affected by sampling activities as well as the area transited by project vessels.

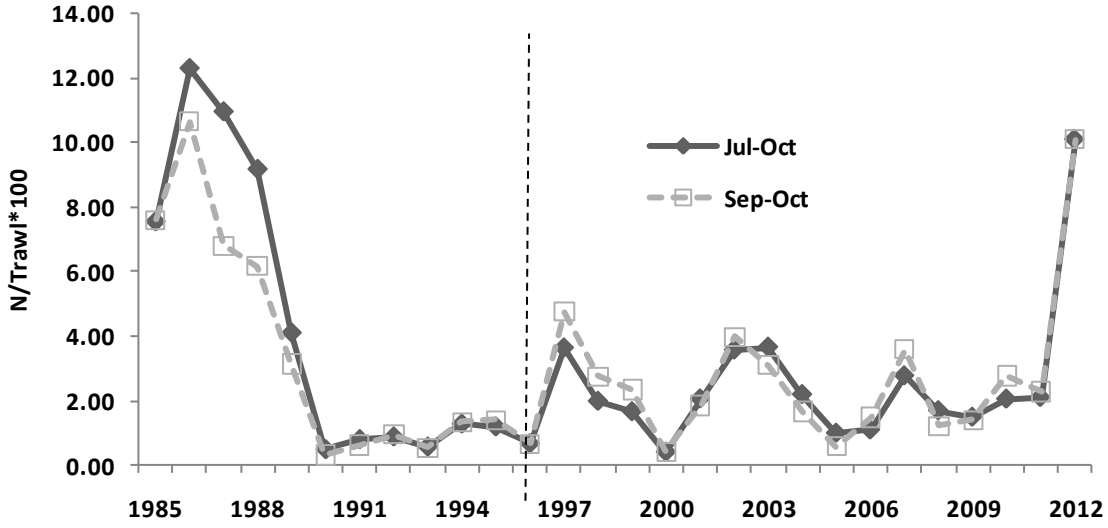
Under the proposed modification, the new action area would extend two miles south of Battery Park Manhattan (~River Mile 0) to the upper New York Harbor (~River Mile -2). The northern boundary would continue to be located at Troy Dam (River Mile 152) (See Appendix 2: Map of Action Area for File 17095-01).

2.3.1.2 Proposed Change to Increase the Numbers of ESA Target Species Captured: Atlantic Sturgeon:

The proposed permit modification (see Section 2.3.2, Table 1 of this SEA) would continue targeting shortnose sturgeon and Atlantic sturgeon in the same action area using identical gear authorized in Permit No. 17095 issued on August 28, 2012. Sampling effort will continue using the same effort; however, to account for a higher than expected catch per sampling effort of Atlantic sturgeon since first authorized in August 2012, the Permit Holder now wishes to increase the takes of juvenile, sub-adult and adult Atlantic sturgeon from 82 to 200 fish per year, with the take not exceeding a total of 600 Atlantic sturgeon over the permit life.

While the recent capture rates for shortnose sturgeon authorized in Permit 17095 have remained consistent with historic capture (1999-2011), the recent capture rates for Atlantic sturgeon to date have been much higher than historic ones. The historic and most recent capture rates of Atlantic sturgeon are summarized below in Figure 1.

Figure 1. CPUE of juvenile Atlantic sturgeon collected by beam trawl in the Hudson River Power generators Fall Shoals Survey. Solid line= Jul-Oct index, dotted line = Sep Oct index. Vertical, dotted line indicates moratorium implementation in New York (1996).



- August 28, 2012 to present Atlantic sturgeon capture rate = 1 fish per 9.5 beam trawl samples; and 1 fish per 5.8 striped bass trawls.
- 1999-2011 historic average Atlantic sturgeon capture rate = 1 fish per 56.7 beam trawl samples and 1 fish per 253.5 striped bass trawl tows.

At present, the data coming from the applicant's own research illustrates that the high capture rates for beam trawl samples and striped bass trawl tows make it very clear that the current annual authorized non-lethal take of 82 Atlantic sturgeon will most likely be exceeded under the current authorization in Permit No. 17095. Between August 28, 2012 and the end of 2012, seventy-four (74) Atlantic sturgeon have already been captured. Of these, fifty-seven (57) were juvenile animals measuring between 80mm and 481mm TL; and seventeen (17) were sub-adult juvenile sturgeon ranging between 500mm and 1081 mm TL. This indicates that the catch to date represents a strong

cohort of new juvenile Atlantic sturgeon in the Hudson River (New York Bight DPS) not seen since the precipitous crash in juvenile and sub-adult Atlantic sturgeon stocks between 1986 and 1990. Thus, NMFS believes the annual non-lethal take limit of 82 fish authorized under Permit No. 17095 is not large enough to sufficiently reflect the anticipated recovery of this stock in the present or future years of HRBMP sampling activities.

2.3.1.3 Anticipated Interaction with Atlantic Sturgeon Originating from Other Listed DPSs:

To the extent that numbers proposed of Atlantic sturgeon captured would be changed in the Proposed Action, NMFS is required through the section 7 process of the ESA to make a new determination whether the changes in the proposed research would be likely to jeopardize the continued existence of any of the other Atlantic sturgeon DPS potentially affected by the action. The assumptions related to the estimates of interaction with other DPS's appear in Section 4.2.1.3 of this SEA.

2.3.2. *PROPOSED TAKE:*

As illustrated in Table 1, the applicant would be authorized to non-lethally capture, handle, measure, weigh, scan for tags, insert passive integrated transponder (PIT) and dart tags, photograph, tissue sample, and release up to 82 shortnose sturgeon; and **up to 200 Atlantic sturgeon annually and no more than 600 over the permit life.** Additionally, researchers would be permitted to lethally take up to 40 shortnose sturgeon and 40 Atlantic sturgeon eggs and larvae (ELS) annually. The proposed action area would now extend from t**he Upper Hudson River Bay (~River Mile -2.0) to** Troy Dam (River Mile 152). All other activities would remain the same. The proposed take is described in detail in the application on file and is briefly summarized below as follows in Table 1.

Table 1. Activities Proposed Under Permit Modification No. 17095-01, Annually.

Number Animals	Species	Life Stage	Sex	Take Activity	Location	Date(s)
82	shortnose sturgeon (*Acipenser brevirostrum*)	Juveniles, sub-adults and adults	male & female	Non-lethal capture, handle, measure, weigh, scan for tags, PIT tag, Dart tag, photograph, tissue sample, and release	Hudson River, NY (**Upper Hudson River Bay RM -2.0** to RM 152)	January - December
40	shortnose sturgeon (*Acipenser brevirostrum*)	Eggs or larvae	unknown	lethal take	Hudson River, NY (**Upper Hudson River Bay RM -2.0** to RM 152)	March - December
200[1]	Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Juveniles (<500 mm) & Juvenile, sub-adults, adults (≥500mm)	male & female	Non-lethal capture, handle, measure, weigh, scan for tags, PIT tag, Dart tag, photograph, tissue sample, and release	Hudson River, NY (**Upper Hudson River Bay RM -2.0** to RM 152)	January - December
40	Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)	Eggs or larvae	unknown	lethal take	Hudson River, NY (**Upper Hudson River Bay RM -2.0** to RM 152)	March - December

1. No more than 600 Atlantic sturgeon may be captured over the permit life.

2.3.3 *MITIGATION MEASURES:*

In addition to the applicant's stated methods, the permit would include identical conditions for minimizing impacts to the target animals as outlined in the 2012 EA authorizing Permit No. 17095 (NMFS 2012a).

CHAPTER 3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This SEA evaluates the potential impacts to the human environment from issuance of the proposed permit modification.

3.1 SOCIAL AND ECONOMIC RESOURCES

The proposed action of issuing a scientific research permit for shortnose and Atlantic sturgeon does not affect distribution of environmental burdens, access to natural or depletable resources, or other social or economic concerns. It does not affect traffic and transportation patterns, risk of exposure to hazardous materials or wastes, risk of contracting disease, risk of damages for natural disasters, food safety, or other aspects of public health and safety. Thus, effects on such aspects of the environment are not considered further.

3.2 PHYSICAL ENVIRONMENT

Discussed in the 2012 EA were the potential impacts from the action on the *Biodiversity and Ecosystem Function, Ocean and Coastal Habitats, Unique Areas* and *Historic Places, Scientific, Cultural, and Historical Resources.* These effects were analyzed in the EA prepared for the initial permit and resulted in a FONSI and are incorporated by reference (NMFS 2012a).

Specifically, it was found that the original action did not interfere with benthic productivity, predator-prey interactions or other biodiversity or ecosystem functions. Additionally, it was concluded that the trawling equipment and beach seines used to take sturgeon would have little to no long-term impact to the sediment, critical habitat, or other bottom habitat. Also, the research was found not to take place in any sanctuaries, reserves or conservation areas. No park lands, prime farmlands, wetlands, or wild and scenic rivers were found within the action area; and the exempted takes in the proposed action directed at shortnose and Atlantic sturgeon would not alter or adversely affect habitat, unique areas, including any components of essential fish habitat (EFH) (NMFS 2012a).

However, because of the expansion of the proposed action area southward from RM 0 to RM -2, the permit modification would expose more of the EFH zone in the lower Hudson River to impacts from trawling or other sampling methods. For this reason informal consultations with the NMFS Habitat and Conservation Office were re-initiated. Section 4.2.1.2 provides a brief summary of these consultations providing a determination of the modification's impacts on EFH.

3.3 BIOLOGICAL ENVIRONMENT AFFECTED BY ISSUANCE OF MODIFICATION.

The biological environment for the proposed research modification has not changed from that evaluated in the 2012 EA (NMFS 2012). The modification would authorize increased annual takes of Atlantic sturgeon; therefore, this discussion is limited to the potential impacts to this species.

3.3.1 TARGET SPECIES—ATLANTIC STURGEON

Atlantic sturgeon were listed as endangered in the New York Bight in February 2012 (77 FR 5880) (effective date April 6, 2012). The Atlantic sturgeon's historic range included major estuarine and riverine systems that spanned from Hamilton Inlet on the coast of Labrador to the Saint Johns River

in Florida (Smith and Clugston 1997, ASSRT 2007). Atlantic sturgeon have been documented as far south as Bermuda and Venezuela (Lee et al. 1980). Historically, Atlantic sturgeon were present in approximately 38 rivers in the United States from St. Croix, ME to the Saint Johns River, FL, of which 35 rivers have been confirmed to have had historic spawning populations. Atlantic sturgeon are currently present in 36 rivers, and spawning occurs in at least 20 of these. Other estuaries along the coast formed by rivers not supporting Atlantic sturgeon spawning populations may still be important rearing habitats.

NMFS recently listed as endangered under the ESA the New York Bight Distinct Population Segment (DPS) of Atlantic sturgeon, which includes the Hudson River stock (NMFS 2010). This action was taken because it was concluded that the New York Bight DPS was at risk due to: (1) low levels of abundance with a limited number of spawning populations; (2) threats to habitat from continued degraded water quality and dredging; (3) threats from bycatch and vessel strikes; and (4) lack of existing regulatory mechanisms to address these threats. For more complete information on the status, threats and population estimates of Atlantic sturgeon in the action area, please see the 2012 EA (NMFS 2012a) and its accompanying Biological Opinion.

3.3.2 *NON-TARGET MARINE ANIMALS*

3.3.2.1 Sea Turtles:

Kemp's ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), and green (*Chelonia mydas*) sea turtles have been observed in Long Island Sound located to the north of the Hudson River mouth. However, all five species of ocean-going turtles may be found in New York coastal waters from time to time (Morreale et al. 1992). However, because there have been only limited occurrences of any sea turtles venturing into the lower Hudson estuary (NYSDEC 2010, Hudson River Almanac. http://www.dec.ny.gov/lands/68003.html), the NMFS Northeast Regional Office of Protected Resources recommended no more than the general protective conditions be added to the permit. Thus, the same protective conditions concluded in the 2012 EA would be included as mitigation measures in the new permit for sea turtles; and thus, the effects on sea turtles therefore will not be considered further in this SEA.

3.3.2.2 Marine Mammals:

Various sightings of marine mammals have been documented rarely in the Hudson River estuary and other upriver locations. The most abundant cetacean species would be the bottlenose dolphin (*Tursiops truncatus*), although they are also rarely encountered on the Hudson River. The Riverhead Foundation (2008), the stranding network for marine mammals in the Hudson River area, documented two different sightings of dolphin in recent history, once in 1997 and another event in 2008. Because marine mammals occur only occasionally in the proposed action area, NMFS Northeast Regional Office of Protected Resources recommended no more than the general protective conditions be added to the permit. Thus, the same protective conditions concluded in the 2012 EA will be included as mitigation measures in the new permit; and thus, the effects on marine mammals are therefore not considered further in this SEA.

3.3.2.3 Non-Listed By-catch Species:

To the extent that the action area is extended southward from the original lower boundary of the prior permit (File 17095-00), the new action could potentially impact greater numbers or new species of non-listed by-catch in the lower Hudson River estuary. However, based on prior sampling by the applicant in the last thirty years of netting, NMFS does not anticipate greater numbers or significantly different species of non-listed by-catch to appear in catches than was previously analyzed.

Nets would continue to be checked at short intervals and it is believed virtually all bycatch would be released alive in the short-duration trawl samples.

CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

4.1 *EFFECTS OF THE NO ACTION ALTERNATIVE*

Under the No Action alternative, the proposed additional take of Atlantic sturgeon and expansion of the action area under this alternative would not be exempted. There would no direct or indirect effects on the environment of not issuing the permits; however, the No Action alternative would also result in the loss of valuable information about sturgeon recovery.

4.2 *EFFECTS OF THE PROPOSED PERMIT ALTERNATIVE*

Effects would occur at the time when the applicant's research results in takes of the target Atlantic sturgeon.

4.2.1. *ENVIRONMENTAL CONSEQUENCES TO THE BIOLOGICAL ENVIRONMENT—ATLANTIC STURGEON*

Much of the environmental consequences to the biological environment of the target species of the proposed modification from research activities in File 17095 (capture with epibenthic sleds, trawls or beach seines, handle, weigh, measure, genetic tissue sample, PIT tag and release), are identical to the previously described activities in the 2012 EA. Hence, the following discussion focuses on the effects of the requests for an expanded action area and for increases in authorized takes in numbers of Atlantic sturgeon captured.

4.2.1.1 Effects of Capture 200 Adult, Sub-adult or Juvenile Atlantic Sturgeon:

The applicant proposes to use epibenthic sleds, trawls and beach seines to capture up to 200 Atlantic sturgeon annually, and no more than 600 animals over the remainder of the permit term. As previously concluded in File No. 17095, entanglement in such gear can result in injury and mortality, reduced fecundity, and delayed or aborted spawning migrations of sturgeon (Moser and Ross 1995; Collins et al. 2000; Moser et al. 2000). Historically, sturgeon mortality during scientific research using capture gear on sturgeon is directly related to capture as a function of numerous factors including water temperature, low dissolved oxygen concentration, soak time, mesh size, net composition, and netting experience. However, other major negative effects resulting from trawling capture of sturgeon typically are related to the speed and duration of the trawl (Moser et al. 2000).

The applicant has proposed in the modification identical methods as authorized over the last 15 years in prior permits where there have been no reports of mortalities or serious injury in the Hudson River BMP (Permit No. 1284, NMFS 2000; Permit No. 1580, NMFS 2007 and Permit No. 17095, NMFS 2012b).

To limit adverse effects of trawling, researchers would be required in the permit to adhere to the same protective permit conditions established in Permit No. 17095, including adhering to proper environmental standards, trawling at at slow speeds of 2 to 3 knots, limiting tows to 10 minutes, and avoiding multiple trawls over the same area during a 24-hour period. If equipment does become entangled in debris, efforts would begin immediately to free the gear, avoiding injuring any captured

fish. Thus NMFS concludes that any adverse effects of authorizing additional Atlantic sturgeon captures, while using the same methods authorized in Permit 17095, would be localized and minor.

NMFS concludes that the proposed increased capture of Atlantic sturgeon in Modification No. 17095-01 would not result in serious injury or mortality of the additional Atlantic sturgeon taken or their associated habitat, with exception of 40 ELS of either species authorized to be lethally collected in the permit. The additional capture however would result in short-term stress to individuals, but would not affect the population at a species level. Moreover, researchers would still be expected to monitor all capture events, following previous permit conditions, as well as any updated measures implemented by NMFS. In light of protective measures of the prior Permit No. 17095, and the applicant's past record using of NMFS guidelines, NMFS does not expect increased take would result in the loss or harm of animals from this population or in reduced reproductive success.

4.2.1.2. Effects on Unique Areas: EFH

This section considers the potential impact on EFH as a result of the proposed expansion of the action area two miles south of the original boundary of River Mile 0 in upper New York Harbor. As concluded in the 2012 EA (NMFS 2012a), informal consultations with the Northeast Regional Office of Habitat Conservation confirmed that the proposed gear were identified as those potentially resulting in adverse impacts to benthic habitats, including EFH, but were considered minimal and temporary in nature. When considering the existing variety of mitigating factors established by the original permit conditions, including the duration and frequency of the impact of the trawls, the intensity and spatial extent of the impact, and the sensitivity of the habitat and habitat functions to minimal impacts from the gear, the Office of Habitat Conservation had no new EFH conservation recommendations to provide pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act. Thus, no further analysis of new effects to EFH was warranted in formal consultations with the Office of Habitat and Conservation.

4.2.1.3 Effects on Atlantic Sturgeon Originating from Other Listed DPSs:

Because Atlantic sturgeon are known to occupy marine areas outside of their natal rivers (Wirgin and King 2011), there is potential for Atlantic sturgeon captured in the Hudson River to have originated from outside of the New York Bight DPS. The numbers proposed of Atlantic sturgeon captured are increased in the new modification; therefore, NMFS is required by the ESA to reinitiate section 7 consultation to make a new determination.

Thus with increased numbers proposed to be captured in the modification, increased impacts are possible for Atlantic sturgeon having migrated into the system of interacting with proposed activities. Having no knowledge at the time of capture of genetic origins and captured animals, and limited resources and technology to conduct immediate genetic tests necessary for determining DPS origins, the numbers of animals captured from separate DPSs would not be known for some time afterwards. Therefore, NMFS, under the ESA, is required to make a determination whether the proposed modified research is likely to jeopardize the continued existence of any Atlantic sturgeon derived from other DPSs. In this regard, the Biological Opinion (NMFS 2013) prepared for this modification first estimates the numbers of Atlantic sturgeon potentially occurring in the authorized catch from other DPSs. This was done by applying the following assumptions to develop an appropriate proportional mixing ratio illustrated below.

The assumptions for estimating the prior extent to which individual DPSs of Atlantic sturgeon in mixed aggregations would be taken in the proposed action are based on the work by Wirgin and King (2011) and are summarized for the current action as follows:

- NMFS anticipates that juvenile Atlantic sturgeon captured in the Hudson River measuring less than 500 mm (TL) and mature animals measuring over 1,300 mm TL should be considered native to that DPS; we also anticipate the early life stages (ELS) to be native.

- Similarly, NMFS anticipates that Atlantic sturgeon captured in the Hudson River measuring above 500 mm (TL), would be derived from a mixed stock of animals originating from the Gulf of Maine DPS (7%) and the New York Bight DPS (93%). All other DPSs would not be represented (0%).

Although we anticipate a mixed stock of animals throughout the range of Atlantic sturgeon, even within riverine areas of spawning rivers such as the Hudson River, we expect eggs/larvae and young of the year to be 100% from the spawning river of origin. Wirgin and King (2011) indicates that juvenile animals found in spawning rivers measuring less than 500 mm (TL) and mature animals measuring over 1,300 mm TL should be considered native to that DPS. However, because no animals over the prior 12 years of sampling by the applicant were captured over 1,300 mm TL, only juveniles measuring between 500 mm and 1,300 mm TL were considered to have potential to stray from other DPSs. Wirgin and King (2011) state that Atlantic sturgeon taken from their spawning rivers, tend to aggregate within the geographic region of their spawning river, resulting in a significant percentage of fish being native to that DPS, while a much smaller percentage are from the other DPSs (Wirgin and King 2011).

Table 2 below, using 11 years of capture data summarized in the 2012 EA, estimates the numbers of Atlantic sturgeon captured in the Hudson River measuring above and below 500mm. It anticipates that of the 200 Atlantic sturgeon authorized captured annually in the proposed action, 52% (or 104) would exceed an appropriate size threshold of animals measuring ≥500 mm TL; that is, these animals would be of the size range potentially migrating from another DPS. The remaining 96 animals measuring < 500mm are assumed native to the New York Bight DPS.

Table 2. Projected Allocation by DPS of the 200 Atlantic sturgeon authorized annually in Permit No. 17095-01 within the Hudson River.

Size & No. of Atlantic Sturgeon Anticipated Captured in Modification		NY Bight	GOM	Chesapeake Bay	Carolina	South Atlantic
Size (mm)	Number					
< 500mm[1]	48% or 96	**100% or 96**	0%	0%	0%	0%
≥ 500mm[2]	52% or 104	**93% or 97**	**7% or 7**	0%	0%	0%

1. Atlantic sturgeon captured <500 mm in the Hudson River are assumed to be natal to the New York Bight.
2. Atlantic sturgeon captured ≥500 mm are assumed to have potential (indicated) for originating from other DPSs.

4.2.2 *ENVIRONMENTAL CONSEQUENCES TO THE BIOLOGICAL ENVIRONMENT—NON-TARGET SPECIES*

4.2.2.1 Listed Species Under USFWS Jurisdiction

There are no non-target ESA-listed species affected by the proposed action under USFWS jurisdiction. Therefore, the USFWS was not consulted.

4.2.3 *CUMULATIVE IMPACTS*

4.2.3.1 Summary of Effects from Total Number of Permits:

In general, takes of shortnose or Atlantic sturgeon by harassment during permitted research using the proposed methodologies have not been shown to result in long-term or permanent adverse effects on individuals regardless of the number of times the harassment occurs. The frequency and duration of the disturbance under the proposed permit would allow adequate time for animals to recover from adverse effects such that additive or cumulative effects of the action on its own are not expected. No measurable effects on population demographics are anticipated because any sub-lethal (disturbance) effects are expected to be short-term, with the animals recovering within a day, and the proposed action is not expected to result in unintentional mortality of any animals. There exists the possibility that adverse effects on a species could accrue from the cumulative effects of other permitted takes on the Hudson River by harassment. However, relative to the size of the population—the Hudson River has the healthiest populations within the range of both shortnose and Atlantic sturgeon— there is no evidence that current or past levels of permitted takes have resulted in such population or species level effects. The impacts of directed mortality of ELS shortnose or Atlantic sturgeon would also be negligible at the population and species level.

Appendix 1 documents all other permits and actions for taking shortnose and Atlantic sturgeon within the range of each species. There are two other active sturgeon permits in the proposed action area on the Hudson River authorizing takes of the target species (Permit 16439 and 16436). In addition, four other research permits in the New York Bight DPS authorizing sturgeon research are Permit No. 15614 (Shortnose sturgeon in Connecticut waters); Permit No. 16323 (Atlantic sturgeon in Connecticut waters); and Permit No. 16422 (Atlantic sturgeon Atlantic Coastal waters of New York, New Jersey and Delaware). Elsewhere within the New York Bight DPS in the Delaware River, there are five other sturgeon permits in authorized to take shortnose sturgeon (Permit Nos. 14396 and 14604) and Atlantic sturgeon (Permit Nos. 16431, 16438 and 16507).[2]

However, even if the proposed action is able to target the same animals as other permit holders in the region, NMFS would not expect cumulative impacts from research since effects of research activities would dissipate within a day. Moreover, researchers working under NMFS permits are required to notify the appropriate NMFS Regional Office in advance of field work. The Northeast Regional Office is tasked with coordinating activities under multiple permits for the action area to ensure there is not unnecessary duplication of research.

[2] Documents are reviewable by contacting: Chief, Permits Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Suite 13705, Silver Spring, MD 20910; phone (301) 427-8401.

4.2.3.2 Interaction from Atlantic Sturgeon from Other DPSs:

Most animals captured since 1999 by the applicant are juvenile age class animals (i.e., 0, 1 and 2-yr), thought to be native to the Hudson River, and thus the New York Bight DPS. However, the best available information is preliminary, and animals may be migrating from other DPSs. There is evidence of mixing within the Hudson River, where approximately 7% of the Atlantic sturgeon would be expected to originate from the GOM DPS.

The analysis in this SEA (see Table 2) represents the amount of incidental take of Atlantic sturgeon estimated in the proposed action, originating either from the Hudson River (193) or from other DPSs (n = 7). Consequently, the researcher's permit would be conditioned to take genetic tissue samples from all Atlantic sturgeon captured, forwarding them to NOAA's genetics archive within six months of capture. After genetic assignments have been conducted, the results would provide a basis for determining the impacts of animals taken cumulatively from other DPSs. Should the take from all research permits exceed the authorized take for each DPS (NMFS 2012c), the Permits Division would re-initiate consultation with the ESA Interagency Cooperation Division in order to determine if exceeding take in any of the DPSs would jeopardize the sub-species in that DPS.

4.2.3.3 Summary of Other Activities and Threats to Atlantic Sturgeon:

The targeting of endangered species populations on the Hudson River may be exposed to other human activities. These include by-catch from fishing gear, ship strikes, and habitat alteration such as dams. Effects of past and ongoing human and natural factors (fisheries, existing NMFS research permits and other activities) occurring in or near the action area that have contributed to the current status of the species are described in the baseline section of the Biological Opinion[3] prepared for the ESA Section 7 consultation for this modified permit. General threats facing shortnose sturgeon range-wide are also discussed in the opinion. These activities and threats are expected to continue into the future.

4.2.3.4 Conclusions:

The conclusion of the Biological Opinion (NMFS 2013) prepared for this action was that the proposed action of increasing the take numbers of Atlantic sturgeon and expanding the action area where they could be taken, would not likely jeopardize the continued existence of any of any listed species, including other DPSs of Atlantic sturgeon. The action also would not likely destroy or adversely modify designated critical habitat because no critical habitat has been designated in the action area for Atlantic or shortnose sturgeon. NMFS also expects the proposed research activities would not appreciably reduce the species likelihood of survival and recovery in the wild by adversely affecting their birth, death, or recruitment rates. In particular, NMFS expects the proposed research activities not to affect adult female sturgeon in a way appreciably reducing the reproductive success of adults, the survival of young, or the number of young annually recruiting into the breeding populations of either of the target species.

Overall, the proposed action would not be expected to have more than short-term effects on endangered shortnose or Atlantic sturgeon. Further, the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions discussed here would be minimal and not significant. The data generated by the research activities associated with the proposed action would help determine certain movement patterns, habitat use, population parameters and life history

[3] The Biological Opinion produced for the ESA section 7 consultation for this permit may be reviewed by contacting the Permits and Conservation Division of Protected Resources.

characteristics of shortnose and Atlantic sturgeon found in the waters of the action area. The research would provide information helpful to managers in managing and recovering the endangered species.

CHAPTER 5.0 LIST OF PREPARERS

This SEA was prepared by the Permits and Conservation Division of the National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD. Formal section 7 consultations covering the effects of research on shortnose and Atlantic sturgeon were received in the Biological Opinion produced by the ESA Interagency Cooperation Division, Office of Protected Resources. Informal comments on proposed scientific research were received from the Northeast Regional Office of NMFS Offices of Protected Resources and Northeast Regional Office of Habitat Conservation. The Biological Opinion and other documents may be reviewed by contacting the Permits and Conservation Division of Protected Resources.

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APPENDIX 1: Actions Similar to the Proposed Action

Table 1: Listing of similar shortnose sturgeon ESA permits affecting the scope of the Proposed Action

Permit No.	Location	*Authorized Take*	*Research Activity*
10115 Expires: 8/3/2013	Saltilla & Saint Marys Rivers, GA & FL	85 adult/juv 20 ELS	Capture, handle, measure, weigh, PIT tag, tissue sample, collect ELS
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT TO CONDUCT RESEARCH ON SHORTNOSE STURGEON IN THE SAINT MARYS RIVER AND SATILLA RIVERS, GEORGIA AND FLORIDA			
14394 Expires: 9/30/14	Altamaha River and Estuary, GA	500 adult/juv. (1 lethal), 100 ELS	Capture, handle, weigh, measure, PIT tag, transmitter tag, tissue sample, anesthetize, laparoscopy, blood collection, fin ray section, collect ELS
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 14394) TO CONDUCT RESEARCH ON SHORTNOSE STURGEON IN THE ALTAMAHA RIVER, GEORGIA			
10037 Expires: 4/30/2013	Ogeechee River and Estuary, GA	150 adult/juv. (2 lethal), 40 ELS	Capture, handle, measure, weigh, PIT tag, tissue sample, fin-ray section, anesthetize, laparoscopy, blood collection, radio tag, collect ELS
ENVIRONMENTAL ASSESSMENT OF ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT TO DR. DOUGLAS PETERSON, UNIVERSITY OF GEORGIA, (FILE NO.10037) TO CONDUCT RESEARCH ON ENDANGERED SHORTNOSE STURGEON			
15677 Expires: 5/31/2016	S. Carolina Rivers and Estuaries	154 adult/juv 100 ELS	Capture with gill & trammel net or trawl, measure, weigh, photograph/video, dart tag, PIT tag, genetic tissue sample, anesthetize, laparoscopy, gonadal biopsy, blood sample; collect ELS
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 15677) TO CONDUCT SCIENTIFIC RESEARCH ON SHORTNOSE STURGEON IN SOUTH CAROLINA RIVERS			
14759 Expires: 8/19/2015	North Carolina Rivers	70 adult/juv.	Capture, handle, weigh measure, Floy tag, PIT tag, genetic tissue sample; anesthetize acoustic tag
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 14759) TO CONDUCT SCIENTIFIC RESEARCH ON SHORTNOSE STURGEON IN NORTH CAROLINA RIVERS			
14176 Expires: 9/30/2015	Potomac River	30 adult/juv. 20 ELS	Capture, handle, weigh, measure, Floy PIT tag, genetic tissue sample; anesthetize w/ electronarcosis; & internal acoustic tag
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT FILE NO. 14176 TO CONDUCT RESEARCH ON SHORTNOSE STURGEON IN THE POTOMAC RIVER, MARYLAND AND VIRGINIA			
14604 Expires: 4/19/2015	Delaware River and Estuary NJ & DE	1,000 adult/juv. (1 lethal), 300 ELS	Capture, handle, measure, weigh, Floy tag, PIT tag, tissue sample, anesthetize, ultrasonic tag, laparoscopy, blood collection, collect ELS
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (File No. 14604) TO CONDUCT SCIENTIFIC RESEARCH ON SHORTNOSE STURGEON IN THE DELAWARE RIVER			
14396 Expires: 12/31/2014	Delaware River and Estuary NJ & DE	100 adult/juv	Capture, handle, measure, weigh, Floy tag, PIT tag, genetic tissue sample, anesthetize, and sonic tag
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 14396) TO CONDUCT SCIENTIFIC RESEARCH ON SHORTNOSE STURGEON IN THE DELAWARE RIVER			
16439 Expires:10/31/2016	Hudson River,	240 and 2,340 shortnose sturgeon in year 1-3 and year 4-5,	Capture, handle, weigh, measure, PIT & Carlin tag, genetic tissue sample, and gastric lavage
ENVIRONMENTAL ASSESSMENT (SEA) OF THE ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT MODIFICATION (FILE NO. 16439) TO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) FOR CONDUCTING RESEARCH ON ENDANGERED SHORTNOSE STRUGEON			
Subject Permit Modification **17095-01** Would Expire: 8/27/17	Hudson River and Estuary, NY	82 Shortnose adult/juv; & 40 ELS **200** Atlantic adult/juv; & 40 ELS	Capture, handle, measure, weigh, PIT tag, Carlin tag, photograph, tissue sample, collect ELS (**River Mile -2 to 152**)
ENVIRONMENTAL ASSESSMENT OF ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT (FILE NO. 17095) TO ENTERGY NUCLEAR GENERATION, INC. TO CONDUCT RESEARCH ON ENDANGERED SHORTNOSE AND ATLANTIC STURGEON			

16549 PROPOSED	UPPER CONN. RIVER, MERRIMACK RIVER, MA	673 ADULT/JUV. (5 LETHAL), 1,430 ELS FROM EAST COAST RIVERS	CAPTURE, HANDLE, MEASURE, WEIGH, ANESTHETIZE, PIT TAG, TIRIS TAG, RADIO TAG, TEMPERATURE/DEPTH TAG, TISSUE SAMPLE, BORESCOPE, LABORATORY TESTS, PHOTOGRAPHS, COLLECT ELS
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT ON THE ISSUANCE OF A MODIFICATION TO SCIENTIFIC RESEARCH PERMIT NO. 1549 [BOYD KYNARD, S.O. CONTE ANADROMOUS FISH RESEARCH CENTER] TO CONDUCT RESEARCH ACTIVITIES ON ENDANGERED SHORTNOSE STRUGEON			
15614 EXPIRES: 5/23/2016	LOWER CONN. RIVER & ESTUARY., CT	500 ADULT/JUV (2 LETHAL); 300 ELS	CAPTURE, HANDLE, MEASURE, WEIGH, PIT & FLOY TAG ACOUSTIC TAG, GASTRIC LAVAGE, FIN RAY SECTION, COLLECT ELS
ENVIRONMENTAL ASSESSMENT ON THE EFFECTS OF THE ISSUANCE OF SCIENTIFIC RESEARCH PERMIT FILE NO. 15614 TO CONDUCT RESEARCH ON SHORTNOSE STURGEON IN CONNECTICUT WATERS			
16306 EXPIRES 5/21/2017	KENNEBEC COMPLEX AND ESTUARY, ME	500 ADULT/JUV.; 30 ELS	CAPTURE, HANDLE, MEASURE, WEIGH, TISSUE SAMPLE, PIT TAG, ACOUSTIC TAG, LAVAGE, ANESTHETIZE, COLLECT ELS
ENVIRONMENTAL ASSESSMENT FOR ISSUANCE OF SCIENTIFIC RESEARCH PERMITS NOS. 16306 TO CONDUCT SCIENTIFIC RESEARCH ON PROTECTED SHORTNOSE STURGEON IN THE GULF OF MAINE			

Table 2: Listing of Section 6 Grants awarded to researchers in Atlantic sturgeon actions affecting the scope of Proposed Action

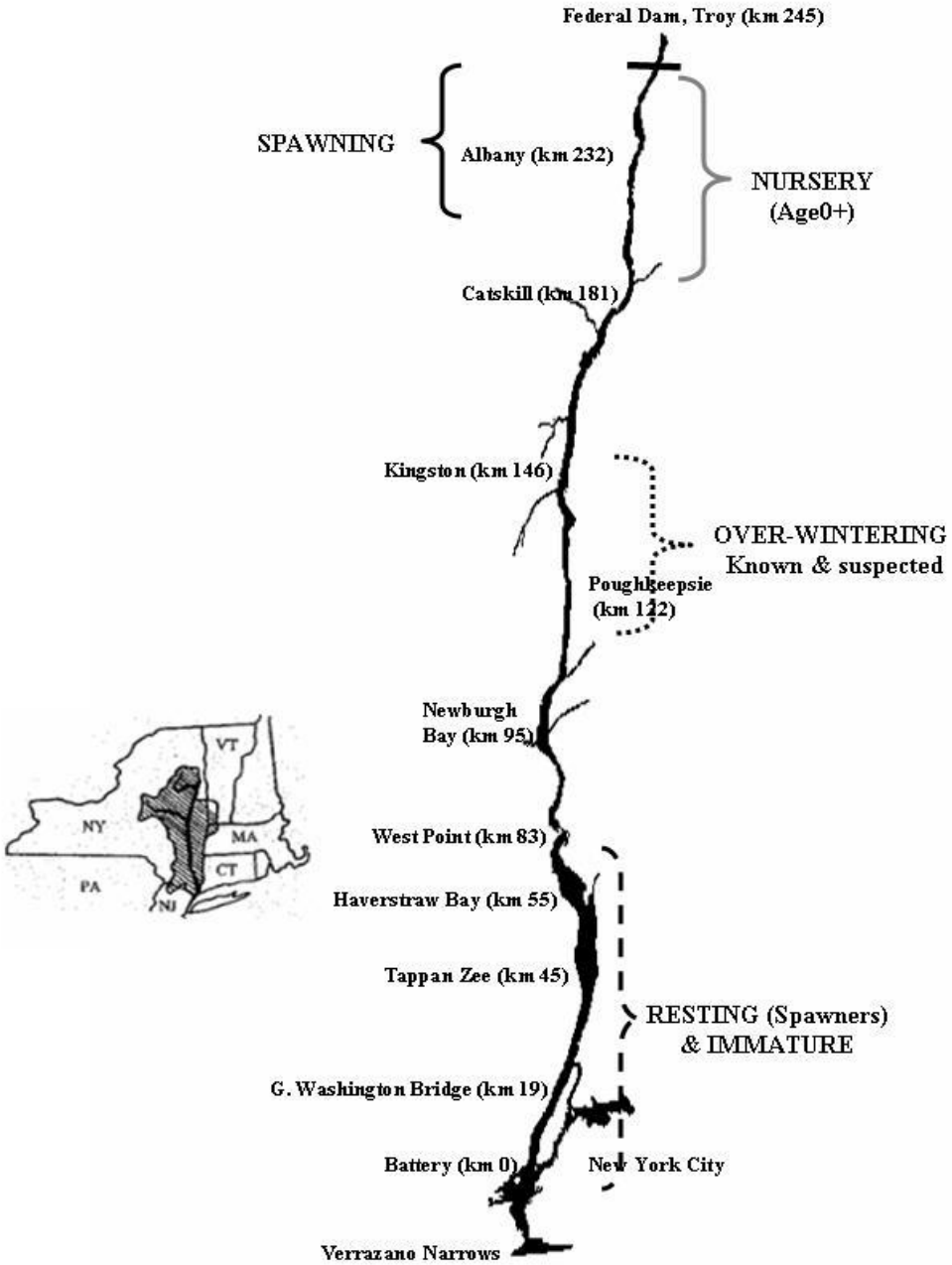
Section 6 Grant No.	*Location*	*Authorized Take*	*Research Activity*
Award No 4720023	Gulf of Maine	Non-listed at the time of grant	CAPTURE, HANDLE, MEASURE, WEIGH, PIT TAG, ANESTHETIZE, ACOUSTIC TAG, GASTRIC LAVAGE, COLLECT ELS, DIDSON SONAR
ENVIRONMENTAL ASSESSMENT ISSUANCE OF A PROTECTED SPECIES CONSERVATION AND RECOVERY GRANT TO THE MAINE DEPARTMENT OF MARINE RESOURCES (AWARD FILE 4720023) TO CONDUCT RESEARCH ON STURGEON IN MAINE			
AWARD NO. NA10NMF4720036	South Carolina Rivers Georgia Rivers North Carolina Rivers	Non-listed at the time of grant	ESTABLISHING ACOUSTIC RECEIVER ARRAY, TRACKING ACOUSTIC TAGGED ATLANTIC STURGEON, TELOMERE GENETIC SAMPLING
ENVIRONMENTAL ASSESSMENT ISSUANCE OF A PROTECTED SPECIES CONSERVATION GRANT TO THE SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES (AWARD NO. NA10NMF4720036) TO CONDUCT RESEARCH ON ATLANTIC STURGEON AND SHORTNOSE STURGEON			
AWARD NO. NA10NMF4720030	Delaware River Connecticut River and Long Island Sound	Non-listed at the time of grant	ESTABLISH ARRAY, CAPTURE, HANDLE, MEASURE, WEIGH, PIT TAG, ANESTHETIZE, ACOUSTIC TAG, COLLECT ELS, SIDE-SCAN SONAR SURVEY
ENVIRONMENTAL ASSESSMENT ISSUANCE OF A PROTECTED SPECIES CONSERVATION GRANT TO THE DELAWARE DIVISION OF FISHERIES AND WILDLIFE (AWARD NO. NA10NMF4720030) TO CONDUCT RESEARCH ON ATLANTIC STURGEON			

Table 3: Listing of Atlantic sturgeon ESA permits affecting scope of Proposed Action (*ENVIRONMENTAL ASSESSMENT for the issuance of 12 scientific research permits for research on Atlantic sturgeon.*)

Permit No.	Location	*Authorized Take*	*Research Activity*
16526 Expires: 4/5/2017	Gulf of Maine Rivers and Coastal Areas GOM DPS	975 adult/sub-adult & juveniles (2 lethal juv & 1 Adult)	Determine the degree of demographic connectivity (immigration and emigration) and correspondence (similarity or uniqueness of demographic parameters) among Atlantic sturgeon in the Gulf of Maine.
16323 Expires: 4/5/2017	Connecticut Waters & Long Island Sound (New York Bight DPS)	200 adult/sub-adult	Determine abundance and specific habitat utilization of Atlantic sturgeon in Connecticut waters and correlate movement within and in/out of key areas in Connecticut with environmental variables (temperature, river flow, and dissolved oxygen [DO]).
16422 Expires: 4/5/2017	Coastal Waters off Long Island Sound and New Jersey to Delaware River (New York Bight DPS)	285 adult/sub-adult	Develop a multi-State program identifying movements of Atlantic sturgeon among and within marine aggregation areas in the New York Bight DPS.
16436 Expires: 4/5/2017	Hudson River Estuary: NY Harbor to Troy, NY (New York Bight DPS)	925 adult/sub-adult/juv	Development of annual juvenile abundance survey; comparison of diet preference of co-occurring Atlantic and shortnose sturgeon; and annual adult spawning stock survey for Hudson River Atlantic sturgeon.
16507 Expires: 4/5/2017	Delaware River and Delaware Coastal Waters (New York Bight DPS)	500 adult/sub-adult/juv 350 ELS	Provide information on the location and periodicity of Atlantic sturgeon spawning in the Delaware River; provide a hydroacoustic assessment of habitat requirements of Atlantic sturgeon using side scan sonar; document habitat use, behaviour and diet of Atlantic sturgeon in a marine environment; and estimate a Delaware River Estuary vessel-strike carcass reporting rate for Atlantic sturgeon
16431 Expires: 4/5/2017	Delaware River Estuary (New York Bight DPS)	230 juveniles (1 lethal juvenile)	Define juvenile Atlantic sturgeon abundance and habitat selectivity through telemetry and mark-recapture methods in the Delaware River and Estuary.
16438 Expires: 4/5/2017	Delaware River Estuary (New York Bight DPS)	284 juveniles 50 ELS (1 lethal juvenile	Characterize habitat use, abundance, reproduction, juvenile recruitment, temporal and spatial distribution, and reproductive health of Atlantic sturgeon in the Delaware River and Estuary.
16547 Expires: 4/5/2017	Chesapeake Bay and Rivers (MD & VA) (Chesapeake DPS)	600 adult/sub-adult/juv 25 ELS	Study life history requirements of Atlantic sturgeon in the Chesapeake Bay and tributaries, conducting stock and threat assessments, genetic identification, movement patterns, habitat preference, dredge and shipping/boating interactions
16375 Expires: 4/5/2017	North Carolina Albemarle Sound and Rivers and Cape Fear River (Carolina DPS)	200 adult/sub-adult/juv	Investigation of population dynamics and migration of Atlantic sturgeon captured in North Carolina rivers and coastal waters through mark-recapture and telemetry techniques.
16442 Expires: 4/5/2017	South Carolina Rivers (Carolina & South Atlantic DPS)	350 adult/sub-adult/juv 100 ELS	Investigation of population dynamics and migration of Atlantic sturgeon captured in South Carolina rivers and coastal waters through mark-recapture and telemetry techniques.
16482 Expires: 4/5/2017	Georgia Rivers and Coastal Waters (South Atlantic DPS)	3474 adult/sub-adult/juv (5 lethal juv/1 adult) 250 ELS	Study of abundance, population dynamics, seasonal movement, diet, general ecology and environmental tolerance of Atlantic sturgeon captured in Georgia rivers and coastal waters.
16508 Expires: 4/5/2017	Florida/Georgia Rivers (South Atlantic DPS)	60 adult/sub-adult/juv	Determine presence and population status of Atlantic sturgeon in Florida and Georgia coastal rivers, and through telemetry techniques, determine movement patterns and habitat use.

Appendix 2:

Map of the Action Area for File No. 17095-01



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MAR 11 2013

Finding of No Significant Impact
Issuance of Scientific Research Permit No. 17095-01

Background

On November 21, 2012, the National Marine Fisheries Service (NMFS) received an application for a permit modification (File No. 17095-01) from the Entergy Nuclear Operations, Inc. (hereinafter "Permit Holder"), 450 Broadway, Suite 3, Buchanan, NY 10511, [Responsible Party: John A. Ventosa; and Principal Investigator: Dr. Mark Mattson] to conduct research on the spatial, temporal, and size distribution of shortnose sturgeon *(Acipenser brevirostrum)* and Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)* collected during the annual Hudson River Biological Monitoring Program (HRBMP). In accordance with the National Environmental Policy Act, NMFS has prepared a Supplemental Environmental Assessment (SEA) analyzing the impacts on the human environment associated with permit issuance *(Supplemental Environmental Assessment on the Effects of Issuing a Permit Modification for Scientific Research on Endangered Shortnose and Atlantic Sturgeon in the Hudson River)*. In addition, a Biological Opinion was issued under the Endangered Species Act summarizing the results of an intra-agency consultation. The analyses in the SEA, as informed by the Biological Opinion, support the below findings and determination.

Analysis

National Oceanic and Atmospheric Administration Administrative Order 216-6 (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

(1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fishery Management Plans?

Because the action area of the Proposed Action was proposed to be moved southward from River Mile 0 to River Mile -2 on the lower Hudson River, it was concluded that the permit modification would expose more of the EFH zone to additional impacts from trawling not analyzed previously by the NMFS Office of Habitat Conservation. Consequently, they were contacted again and asked if their opinion had changed on the impacts of the new permit modification. However, considering a variety of mitigating factors established by the original permit conditions still in force, including the limited duration and frequency of the

trawling, the intensity and spatial extent of the impact, and the sensitivity of the habitat and habitat functions to minimal impacts from the gear, the Office of Habitat Conservation again had no EFH conservation recommendations to provide pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act.

(2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

No impact on biodiversity or ecosystem function within the affected area is expected as a result of permit modification.

(3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Issuance of the permit modification is not expected to have substantial adverse impacts on public health or safety not already considered in the prior EA. The proposed modification will not affect traffic and transportation patterns, risk of exposure to hazardous materials or wastes, risk of contracting disease, risk of damages from natural disasters, food safety, or other aspects of public health and safety.

(4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

The proposed modification may have adverse effects on individual endangered shortnose or Atlantic sturgeon, but the effects are not expected to be significant at the populations' or species' level. The applicant does propose to increase the number of Atlantic sturgeon taken using epibenthic sleds, trawls and beach seines from 82 annually to 200 annually; but also proposes that no more than 600 animals over the remainder of the permit term. However, no additional take is proposed for shortnose sturgeon. As previously concluded in File No. 17095, entanglement in such gear can result in injury and mortality, reduced fecundity, and delayed or aborted spawning migrations of sturgeon. Historically, sturgeon mortality or serious harm of sturgeon species during scientific research using such capture gear such as gill nets, are directly related to environmental temperature, low dissolved oxygen concentration, soak time, mesh size, net composition, and netting experience. However, the major negative effects resulting from trawling capture of sturgeons are typically more related to the speed and duration of the trawl.

The applicant has proposed in the modification identical methods as authorized over the last 15 years in prior permits where there have been no reports of mortalities or serious injury in the Hudson River BMP (Permit No. 1284, NMFS 2000; Permit No. 1580, NMFS 2007 and Permit No. 17095, NMFS 2012b).

Consequently, NMFS anticipates that adverse effects of trawling would limited and short-term, with researchers required to adhere to the same protective permit conditions established in Permit No. 17095. These would include adhering to proper environmental standards, trawling at slow speeds of 2 to 3 knots, limiting tows to 10 minutes, and avoiding multiple trawls over the same area during a 24-hour period. Thus no unintentional lethal takes of juvenile, sub-adult or adult life stages of animals would be authorized in the modification while sampling with gear. However, as previously authorized in Permit 17095, up to 40 early life stages of each species intentionally lethally taken in sampling would not be expected to impact the population viability of shortnose or Atlantic sturgeon in the Hudson River.

Because critical habitat has not yet been designated for either any listed species in the action area, included Atlantic or shortnose sturgeon, it would not be affected. Should critical habitat be designated prior to the expiration date of the permit, then consultation with section 7 would be re-initiated in order to determine the impact on the critical habitat of the species.

Furthermore, because protected marine mammal species or ESA listed sea turtles rarely occur in the proposed action area, NMFS Northeast Regional Office of Protected Resources recommended that the same general protective conditions applied in the original permit be adopted in the modification. Thus potential impacts on marine mammals or sea turtles would not be considered a risk in the proposed action targeting shortnose and Atlantic sturgeon.

The conclusion of the Biological Opinion was that the proposed action of increasing the take of capturing Atlantic sturgeon and moving the action area where they could be taken would not likely jeopardize the continued existence of any of any listed species, including other DPSs of Atlantic sturgeon. The action also would not likely destroy or adversely modify designated critical habitat because no critical habitat has been designated in the action area for Atlantic or shortnose sturgeon. NMFS also expects the proposed research activities would not appreciably reduce the species likelihood of survival and recovery in the wild by adversely affecting their birth, death, or recruitment rates. In particular, NMFS expects the proposed research activities not to affect adult female sturgeon in a way appreciably reducing the reproductive success of adults, the survival of young, or the number of young annually recruiting into the breeding populations of either of the target species.

(5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

The proposed action is to increase the number of Atlantic sturgeon takes and expand the action area; no other aspect of the permitted activity would change. The analysis in the 2012 EA found no known social or economic impacts associated with the proposed actions. Therefore, there would be no significant social or economic impacts interrelated with natural or physical environmental effects within the current action.

(6) Are the effects on the quality of the human environment likely to be highly controversial?

A *Federal Register* notice (78 FR 6072) was published on January 29, 2013, allowing other agencies and the public to comment on the action. All agency comments were addressed and responses were included in the decision memos for the permit modification. None of the agency comments addressed the proposal's potential impacts on the quality of the human environment. One public comment was received in response to review of permit application with the reviewer expressing support for the increase in take as long as the proposed sampling did not result in mortality. Given the proposed research methodologies are well known and are expected to have minimal effects, NMFS believes it is not likely to be controversial.

(7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

There would be no change in the assessment of substantial to unique areas as a result of the permit modification, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. However, as indicated above in the discussion of EFH, the action area authorized in the original permit has changed. Reconsultation with the Office of Habitat Conservation, however, did not result in additional measures recommended protective of EFH in the lower Hudson River.

(8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The effects of the proposed modification on the human environment are predictable based on evaluation of the effects of previously permitted research on the same species. The risks of the proposed action are known in that they are expected to be the same as those considered for issuance of the original Permit No. 17095 for takes of sturgeon.

(9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Issuance of the permit modification is not interrelated with or interdependent on any other federal, state or local actions that could have environmental impacts. This permit modification is independent of other permits. While the results of the research may inform future management actions affecting the environment, the nature and timing of those actions is too speculative to consider and those actions would be subject to separate NEPA analysis.

(10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The action would not take place in any district, site, highway, structure, or object listed in or eligible for listing in the National Register of Historic Places, thus none would be impacted. The proposed action would also not occur in an area of significant scientific, cultural or historical resources and would not cause their loss or destruction.

(11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

The action's potential effects on the introduction or spread of non-indigenous species would remain the same as previously analyzed in the original 2012 EA. All of the conditions in the original permit to minimize these effects would remain in place. Thus, the modification is not reasonably expected to result in the introduction or spread of non-indigenous species.

(12) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

The decision to issue this permit modification would not be precedent setting and would not affect any future decisions. NMFS has issued numerous scientific research permits to study Atlantic sturgeon and shortnose sturgeon pursuant to section 10 of the Endangered Species Act; thus, this permit modification is not the first permit NMFS has issued for this type of research activity. Issuance of a permit or permit modification, to a specific individual or organization for a given research activity, also, does not in any way guarantee or imply NMFS would authorize other individuals or organizations to conduct the same research activity. Any future request received, including those by the applicant, would be evaluated upon its own merits relative to the criteria established in the ESA and NMFS' implementing regulations.

(13) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Issuance of the proposed permit modification is not expected to violate any Federal, State, or local laws for environmental protection. NMFS has sole jurisdiction for issuance of such permits for Atlantic sturgeon and has determined the research consistent with applicable provisions of the ESA. The modification contains language stating this permit does not relieve the Permit Holder of the responsibility to obtain other permits, or comply with other Federal, State, local, or international laws or regulations.

(14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

NMFS concluded the proposed taking in the modification may have adverse effects on individual Atlantic or shortnose sturgeon. However, with exception of lethal takes proposed for 40 shortnose and Atlantic sturgeon early life stages, annually, the cumulative effects on each of the populations are not likely long-term or significant to the species. No mortality or serious harm would be authorized in the modification for either species.

Because Atlantic sturgeon sub-populations are known to occupy marine areas outside of their natal rivers, there is potential for members of other sub-populations of Atlantic sturgeon originating from outside of the New York Bight DPS to be captured in the Hudson River in activities of the proposed modification. To the extent that changes in the number of Atlantic sturgeon (82 to 200) were authorized to be captured in the new permit application, as informed by the Biological Opinion for the proposed action, NMFS estimated to what extent it was likely that researchers would capture animals originating from each of the DPSs. This is required to make a new determination whether the changes in the proposed research would be likely to jeopardize the continued existence of any of the other Atlantic sturgeon DPS potentially affected by the action.

NMFS did not consider impacts on marine mammals or sea turtles in this SEA to be different than already considered in the original permit No. 17095; thus, NMFS adopted identical conditions in the permit modification protective of marine mammals and sea turtles.

DETERMINATION

In view of the information presented in this document, and the analyses contained in the SEA and Biological Opinion prepared for issuance of Permit Modification No. 17095-01, it is hereby determined that the modification issuance will not significantly impact the quality of the human environment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

Helen M. Golde
Acting Director, Office of Protected Resources

MAR 11 2013
Date