



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

APR 16 2009

Lt. Col. Thomas Tickner
District Engineer
U.S. Army Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

ATTN: Minas Arabatzis, Chief Environmental Resources Branch
RE: CENAP-PL-E-09-01, Delaware River Main Stem and Channel Deepening Project

Dear Lt. Col. Tickner:

NOAA's National Marine Fisheries Service (NMFS) Northeast Region Habitat Conservation Division has received the essential fish habitat (EFH) assessment prepared for the Army Corps of Engineers for the Delaware River Main Stem and Channel Deepening Project in Delaware, New Jersey and Pennsylvania. The project involves the deepening of the Delaware River Federal Navigation Channel from 40 feet to 45 feet with an allowable overdepth of one foot, following the existing alignment from Philadelphia Harbor, PA and Beckett Street Terminal, Camden, NJ to the mouth of the Delaware Bay. The existing bottom width of the channel and the angle of the side slopes will remain the same as the existing channel, but the top of the channel will be a maximum of 15 feet wider on each side of the channel. Eleven bends in the channel will also be widened. The project also includes the deepening of the access channel at the Beckett Street Terminal, and a two space anchorage at the existing Marcus Hook anchorage will also be deepened to 45 feet with an allowable one-foot overdepth.

For the initial dredging, approximately 16 million cubic yards of material will be dredged using hydraulic cutterhead and hopper dredges. The material will be placed in existing confined disposal sites and used for the construction of wetlands at Kelly Island and for beach nourishment at Broadkill Beach, both in Delaware. An additional 77,000 cubic yards of rock will be blasted and removed from the channel in the vicinity of Marcus Hook (river mile 76.4 to 84.6) and placed at the Fort Mifflin confined disposal facility in Philadelphia.

Project History

An environmental impact statement (EIS) for this project was issued in 1992. A supplemental EIS (SEIS) was issued in 1997 and a record of decision (ROD) was signed in 1998. The project was suspended in 2002. NMFS provided comments to the ACOE on the EIS and SEIS in letters dated March 1, 1995, February 14, 1997 and September 29, 1997. Our previous letters expressed concern about the project including the proposed beneficial use projects as on Kelly Island, impacts on EFH and on sandbuilder worm (*Sabellaria vulgaris*) reefs at Broadkill Beach and the impacts of blasting on species of concern to us such as shortnose sturgeon (*Acipenser brevirostrum*). Some of these concerns have been addressed through changes in the project plan,



such as the elimination of the use of sand stock piles offshore of Delaware. Some concerns, such as impacts on EFH and the beneficial use project at Kelly Island, remain. Coordination between our agencies took place in 2000 and 2001 regarding impacts on EFH, but an EFH consultation was never completed.

In December 2008, we were notified that the project was reactivated. We obtained a public notice from the Philadelphia District's (District) website on December 18, 2008 announcing that the District was going to conduct an environmental review of all applicable, existing, and new information generated subsequent to the 1997 SEIS. NMFS commented on that notice in a letter dated December 30, 2008, in which we raised serious concerns about impacts on resources of concern to NMFS, changes in the aquatic environment, status of NOAA trust resources since the 1997 SEIS, and the need for the ACOE to complete consultations with NMFS under the Magnuson Stevens Act (MSA) and the Endangered Species Act (ESA) of 1973, as amended. Since our December 2008 letter, we have received a complete EFH assessment as required under the MSA, and a biological assessment as required under the ESA. The Northeast Region's Protected Resources Division (PRD) is currently reviewing the biological assessment, and a consultation pursuant to Section 7 of the ESA was initiated on February 9, 2009. The ESA consultation will proceed separately from the Habitat Conservation Division's consultation regarding EFH and species covered under the Fish and Wildlife Coordination Act (FWCA). We also note that the ACOE issued an environmental assessment (EA) on April 7, 2009.

Magnuson Stevens Act

As discussed in our letter dated December 30, 2008, Section 305 (b)(2) of the 1996 amendments to the MSA requires all federal agencies to consult with NMFS on any action authorized, funded, or undertaken by that agency that may adversely affect EFH. Included in this consultation process is the preparation of a complete and appropriate EFH assessment to provide necessary information on which to consult. Our EFH regulation at 50 CFR 600.905 mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. The consultation process for civil works projects is further described in our January 18, 2000 EFH finding letter to the ACOE's North Atlantic Division.

The Delaware River Main Stem and Channel Project will affect thousands of acres of habitat designated as EFH for a wide variety of species including Atlantic herring (*Clupea harengus*), black sea bass (*Centropristis striata*), bluefish (*Pomatomus saltatrix*), butterfish (*Peprilus triacanthus*), cobia (*Rachycentron canadum*), king mackerel (*Scomberomorus cavalla*), long finned squid (*Loligo pealei*), Spanish mackerel (*Scomberomorus maculatus*), red hake (*Urophycis chuss*), summer flounder (*Paralichthys dentatus*), windowpane (*Scophthalmus aquosus*), scup (*Stenotomus chrysops*), winter flounder (*Pseudopleuronectes americanus*), and several species of skates and sharks. Portions of Delaware Bay have been designated as a Habitat Area of Particular Concern (HAPC) for sandbar shark (*Carcharhinus plumbeus*). Dredging and disposal activities such as the placement of sand or dredging material either as beach fill or as beneficial reuse may have temporary or permanent adverse impacts on EFH.

The EFH final rule published in the *Federal Register* on January 17, 2002 defines an adverse effect as: “any impact which reduces the quality and/or quantity of EFH.” The rule further states that:

An adverse effect may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

We have reviewed the EFH assessment prepared by the Philadelphia District for the Delaware Deepening project. Overall, the EFH assessment evaluates adequately many of the potential direct impacts of the proposed deepening project. However, some of the indirect impacts, such as impacts on prey species and cumulative impacts, such as impacts from increased maintenance dredging, increased vessel traffic, and port facilities expansion, are not evaluated in the EFH assessment. Also, the evaluation of impacts appears to focus more on the individual species than their habitat. Despite these issues, the assessment contains sufficient information for us to evaluate most of the project impacts and to offer conservation recommendations.

We do wish to express our appreciation to the ACOE for their efforts to develop a complete EFH assessment for the project. It is a difficult task considering the scope of the project and the number of species and life stages for which EFH has been designated in the project area. We also appreciate greatly the efforts the ACOE has made to modify the dredging schedule and some of the dredge material placement to address our previous concerns, and to minimize impacts on EFH and NOAA trust resources. In particular, we note that the ACOE has scheduled the project to be consistent with the current (2007) seasonal dredging windows developed by the Delaware Fish and Wildlife Management Cooperative, to the maximum extent possible. The only instances where the seasonal windows were not incorporated into the schedule are for the construction of the Kelly Island and Broadkill Beach placement projects. While the proposed construction times in these areas may not have significant impacts on EFH, they may have potential ESA implications and impacts on Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), a NMFS candidate species. We also note that the ACOE modified the original project to eliminate sand stockpiles off the Delaware bayshore, and modified the Broadkill Beach beach nourishment design and timing to minimize impacts on early life stages of sandbar shark and their habitat area of particular concern, as well as some *Sabellaria* reefs near the beach nourishment site.

While the steps taken by the ACOE thus far have reduced impacts on EFH, we continue to have concerns about some aspects of the project including the Kelly Island beneficial use project, future maintenance dredging needs, port facilities expansion associated with the deepening, and impacts on Atlantic sturgeon.

Dredged Material Disposal Concerns

For the initial deepening, the ACOE plans to use existing federal confined disposal facilities

(CDFs) for the placement of the material dredged from the Delaware River portion of the project, identified as Reaches AA, A, B, C, and D in the EFH assessment. The CDFs to be used include National Park, Pedricktown North, Pedricktown South, Oldmans, Killihook, Reedy Point South, and Artificial Island. According to the EFH assessment, these sites are currently used for the maintenance dredging of the existing federal navigation channel. The assessment also mentions an open water site in Delaware Bay, known as Buoy 10, that is used for the disposal of sand from maintenance dredging of the existing 40-foot channel. It is not clear from the EFH assessment if the proposed CDFs will be able to accommodate the maintenance dredging needs of the 45-foot channel over the 50-year life of the project, or if new disposal sites will be needed. Nor does the EFH assessment state if Buoy 10 will continue to be used for the maintenance dredging of sand in the newly deepened channel.

The EFH assessment states that the operation and maintenance of the 45-foot channel will increase the required maintenance dredging of the channel by 862,000 cy from the current 3,455,000 to 4,317,000cy, or a total of 10 percent. The numbers appear inconsistent. The estimated 862,000 cy of increased dredging is a 20 percent increase in maintenance dredging needs, not 10 percent. This is a significant increase in material that will need to be removed from the channel and disposed of each year. The document also states that it is expected that areas typically requiring maintenance will remain the same. The EFH assessment does not discuss how much of an increase there will be in the amount to be removed from individual maintenance areas, or if the frequency of dredging in these areas will increase.

We also note that an EFH consultation has not been completed for the use of Buoy 10. There are no records in our files of its location, previous use, or any evaluation of the potential effects of using an overboard disposal site on NOAA trust resources. This is of particular concern due to the wide variety of important aquatic resources that exist in Delaware Bay. We expect that the ACOE will complete EFH and ESA consultations on the use of Buoy 10 prior to any dredged material being placed at that site.

To facilitate interagency coordination on dredge material management issues and to promote long-term solutions for dredged material disposal, we recommend that the ACOE convene a regional dredging team and develop a dredged material management plan for the region. The team should include representatives from state and federal agencies that are responsible for dredging and dredge material disposal operations. We welcome the opportunity to work with the Philadelphia District.

Beneficial Use Sites

In addition to the upland CDFs, the ACOE proposes to place dredged material at two beneficial use sites in Delaware – the Kelly Island Wetland Restoration and Broadkill Beach nourishment. Originally a third site, Egg Island Point in New Jersey, was also included as a beneficial use site for dredged material. It appears that the Egg Island Point site was eliminated as a beneficial use site due to refinements and reductions in the anticipated dredging volumes. No information has been provided to explain why the Kelly Island site was retained, while the Egg Island was not. As discussed below, we have significant concerns about the design and ecological impacts of the Kelly Island project. We request that the ACOE provide details that explain the rationale for

choosing the Kelly Island site over the Egg Island Point site.

Kelly Island

In our comments on previous NEPA documents for the deepening, we expressed serious concerns about the proposed Kelly Island project. As currently proposed, the project will fill 120 acres of intertidal and subtidal shallows to create 60 acres of emergent wetlands and 60 acres of beach. The site will be constructed as an impoundment and remain as such until the sediments consolidate and vegetation becomes established. Areas of the site that do not vegetate naturally will be planted. The State of Delaware will decide whether to open the site up to unregulated tidal inundation once the site has settled. The option to convert the site back to an impoundment will be maintained.

Since the early planning stages of the Kelly Island project, we have consistently opposed the creation of an impoundment at the site. Impounded wetlands have little value to resources under our stewardship as they are unable to access the site through the water control structures. Impoundments primarily benefit waterfowl. Since the Delaware River deepening project overwhelmingly impacts fishery resources, not birds, and the Kelly Island project construction fills 120 acres of fishery habitat, the creation of an impoundment should not be considered a beneficial use of dredged material.

The filling of the unvegetated shallow water habitat will have an adverse effect on federally managed species such as winter flounder, windowpane, summer flounder, and other benthic species that feed on the organisms currently found at the site. According to the EFH assessment, the benthic community evaluations conducted in 1993 and 1994 indicate that the area to be filled does not provide unique habitat. Without additional data on benthic sampling throughout the project area, it is not possible to assess the validity of this statement. However, the 1993 sampling found that the site was dominated by the bivalve *Mulinia lateralis*, which accounted for 94 percent of the individuals collected. Stemile et al. (2000) reported that *Mulinia lateralis* is a prey species consumed by a wide variety of fish including winter flounder, summer flounder, windowpane, little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), and scup (*Stenotomus chrysops*). The placement of fill material in this area will eliminate 120 acres of forage area for these federally managed species, and as a result, adversely affect their EFH.

With the exception of summer flounder, which may use some of the marsh creeks as habitat, the above species are not known to use wetlands during any portion of their life histories. As currently proposed, even summer flounder would not be able to use the site since the wetlands will be cut off from tidal flow and there would be no means by which summer flounder could access the site. Consequently, the statement in the EFH assessment that the eroding wetlands of Kelly Island are important nursery areas for summer and winter flounder is incorrect. Restoring the wetlands at Kelly Island, especially if they are impounded, will not have any benefit to these species.

As currently proposed, the impoundment created at Kelly Island will adversely impact EFH designated by the federal fisheries management councils for a wide variety of federally managed species, including forage habitat for summer flounder, windowpane, winter flounder, skates and

scup, and early life stage EFH for winter flounder. The wetland and beach to be created have little to no habitat value for these species. To minimize impacts on EFH, the ACOE should require the removal of the water control structure and the maintenance of permanent, unrestricted tidal flow with no option to revert to an impoundment or provide compensatory mitigation for the loss of 120 acres of fishery habitat, or eliminate the Kelly Island project from the deepening project.

Broadkill Beach

The nourishment of Broadkill Beach in Delaware is another beneficial use site proposed for the deepening project. The ACOE's original proposal was to stockpile the sand offshore of the beach for later use as beach nourishment material. In response to our concerns, the beneficial use project was redesigned so that the dredged material would be placed directly on the beach.

We recognize the efforts that the ACOE has made to address our concerns about impacts on sandbar shark and its HAPC as well as ecologically important *Sabellaria* reefs that would have resulted from the sand stockpiling. *Sabellaria vulgaris*, a tube building, annelid polychaete worm, is a food source for a number of federally managed species including summer flounder, winter flounder, and scup (Steimle et. al. 2000). The ACOE has conducted surveys of the beach nourishment area to determine the location and extent of these reefs. We agree that the ACOE has attempted to minimize impacts on these areas to the extent practicable. However, reefs may still be impacted due to the runoff of sand below mean low water along the beach nourishment footprint. According to the EFH assessment, compensation for impacts on *Sabellaria* can be compensated by either moving the existing reefs to suitable areas prior to construction or by placing suitable substratum - large rocks in groins or jetties or cobble sized gravel on sand beaches. Substratum should be placed at mean low water during the later summer or early fall settlement period following the beach nourishment. Both Kelly Island and Broadkill Beach will be evaluated prior to construction to determine the most appropriate course of action. The ACOE should continue to coordinate with us and the Delaware Fish and Wildlife Management Fisheries Technical Committee, as project plans for this site move forward so that we may assist the ACOE in determining what, if any, mitigation might be appropriate.

The lower portion of Delaware Bay, including Broadkill Beach, has been designated as a Habitat Area of Particular Concern (HAPC) for sandbar shark. HAPC are subsets of EFH identified based on one or more of the following considerations: 1) the importance of the ecological function, 2) extent to which the habitat is sensitive to human-induced degradation, 3) whether and to what extent development activities are stressing the habitat type, or 4) rarity of habitat type [50 CFR 600.815(a)(8)]. The EFH assessment evaluates the impacts on these species, and identifies the efforts the ACOE has made to minimize impacts on the sandbar shark and its EFH. From May 1 to September 15, when sandbar sharks use the area as an important pupping and nursery ground, any material placed on the beach will be deposited above the mean high water line, behind a sand dike. The dike will be constructed using existing sand on the beach and will be long enough so that most of the dredged material will drop out on the beach and not return to the bay. No dredged material will be hydraulically placed below the mean high water line during this time. The dredged pipe will be placed upon pontoons for a minimum of 1000 feet, beginning at the approximate elevation of -4.7 NGVD, to avoid disrupting movements of young

sandbar sharks. These measures will reduce greatly the potential impacts on sandbar sharks and their HAPC.

Another outstanding issue with the use of Broadkill Beach for the beneficial use of dredged material is whether or not the site will be used for future dredged material disposal from the maintenance of the deepened federal channel. The ACOE should clarify the future use of this site. The ACOE should develop a regional dredged material management plan as previously mentioned.

Important Fishery Resources within the Delaware Estuary

Atlantic Sturgeon

In addition to addressing impacts on EFH, the EFH assessment includes a section on important resources within the Delaware Estuary that are not federally managed. These species include anadromous fish such as blue crab (*Callinectes sapidus*), horseshoe crab (*Limulus polyphemus*), American oyster (*Crassostrea virginica*), and anadromous fish such as alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), striped bass (*Morone saxatilis*), hickory shad (*Alosa mediocris*), and Atlantic sturgeon.

As mentioned above, the ACOE has scheduled much of the deepening project in accordance with the seasonal dredging windows developed by the Delaware River Fish and Wildlife Management Cooperative in order to minimize the impacts on important fishery resources in the Delaware Estuary.

However, we are concerned that the deepening of the channel below river mile (RM) 32, and the construction of the Kelly Island and Broadkill Beach projects are scheduled during months that Atlantic sturgeon may be present in the project area and when the Delaware River Fish and Wildlife Management Cooperative has recommended that hopper dredges not be used. Atlantic sturgeon are a NMFS candidate species. The term "candidate species" refers to species that are the subject of a petition to list as threatened or endangered, and for which NMFS has determined that listing pursuant to section 4 (b)(3)(A) of the ESA may be warranted. NMFS has announced the initiation of a status review in the *Federal Register*. In 2006, NMFS convened a Status Review Team charged with reviewing the status of Atlantic sturgeon along the Atlantic coast of the United States. In 2007, a Status Review Report was completed. In this report, the Atlantic Sturgeon Status Review Team (ASSRT) determined that the Hudson River and Delaware River Atlantic sturgeon stock constitute a distinct population segment (DPS), referred to as the New York Bight DPS. The SRT also concluded that the New York Bight DPS is likely (>50 % chance) to become endangered within the next twenty years. The ASSRT (2007) also identified 15 stressors that may impact Atlantic sturgeon populations including poor water quality, habitat loss, and dredging. NMFS is currently considering the information in the status report to determine if listing the species under the ESA is warranted. NMFS expects to publish a listing determination during the spring of 2009.

Until a decision on listing is made, NMFS continues to provide recommendations on measures to protect this species and its habitats under the Fish and Wildlife Coordination Act. Please note that if listing under the ESA is proposed, the conference provisions of the ESA Section 7

regulations would be applicable (see 50 CFR 402.10).

From the schedule provided, it appears that dredging with a hopper dredge is planned for the months of April, May, and June 2011. In 2012, dredging is planned from April through August. The Delaware Fish and Wildlife Management Cooperative has recommended against the use of a hopper dredge below RM 32 from June 1 to November 30 of each year to minimize impacts on Atlantic sturgeon present in the area. We recognize that there are multiple seasonal restrictions recommended in this section of the river for a wide variety of species. Given the critically low population of Atlantic sturgeon in the Delaware River and the potential for the species to be listed as threatened or endangered in the near future, the ACOE should adhere to the recommended seasonal dredging restriction for hopper dredging below RM 32, and not dredge from June 1 to November 30.

American Oysters

In our December 2008 letter, we mentioned efforts ACOE and the States of Delaware and New Jersey have made over the past few years to restore oyster beds in Delaware Bay. Since 2004, the ACOE has worked with New Jersey and Delaware to plant shell in portions of natural oyster beds in Delaware Bay. Native oysters are ecologically important species and NMFS has supported fully the efforts of the ACOE and the states to restore these species.

In response to concerns about the impacts of the deepening project on oysters, the ACOE performed pre-construction monitoring studies in 2000 and 2001. More than eight years have passed since these pre-construction monitoring studies have been completed. Ecological conditions of the estuary and the status of the oyster stocks have changed. In addition, more information is now available on water quality in the estuary, the conditions of the oyster seed beds, and the benthic communities of the Bay from sources such as the Haskin Shellfish Research Laboratory, NJDEP's Bureau of Marine Water Monitoring and the Delaware Department of Natural Resources and Environmental Control. According to the NJDEP, an expansive area of habitat has been identified in the area of Hope Creek near Salem, NJ, but little data is available from this area.

To ensure that the impacts on oysters are evaluated fully and the appropriate measures are taken to avoid, minimize, and mitigate for these impacts, The ACOE should update the 2000 and 2001 studies. A revised plan of study should be developed with the input of shellfish biologists from the States of Delaware and New Jersey, as well as the Haskins Lab and NMFS. These studies should be undertaken before any construction occurs in the Bay. The ACOE should reinitiate coordination with these groups to refine the monitoring plan to be implemented during and post-construction.

Other Information Needs

The blue crab and horseshoe crab studies should be updated due to the age of the existing data generated by the ACOE, the changes in the ecological conditions of the Bay, the availability of new data from other sources, and the changes in the status of the stocks.

Most of the data collected by the ACOE for horseshoe crabs and blue crabs is more than eight years old. Winter blue crab surveys were done in 2001 and 2002. The horseshoe crab surveys were done in 2001 and 2004. Since that time, there has been a substantial decline of the blue crab stock abundance in Chesapeake Bay (Rugolo et al. 1998 in Muffley et al 2007) which has put an increased pressure New Jersey's blue crab resources, particularly in Delaware Bay (Kahn 2003 in Muffley et al. 2007). Kahn (2003) and Coakely (2004) also report recent declines in the Delaware Bay blue crab landings and catch-per-unit-effort (Muffley et al. 2007).

Concerns also continue to exist over the status of the horseshoe crab stocks in Delaware Bay. In response to these concerns, NMFS has banned fishing for horseshoe crabs in federal waters off the mouth of Delaware Bay. The States of New Jersey and Delaware have also taken steps to restrict the harvest of horseshoe crabs in State waters. New Jersey and Delaware also conduct annual surveys of horseshoe crab spawning on the beaches of Delaware Bay. The ACOE should evaluate the existing survey information available on horseshoe crabs, and assess whether or not additional surveys are needed. Additional coordination with the State of Delaware on the potential impacts on horseshoe crabs at the Kelly Island and Broadkill Beach beneficial use sites should also be undertaken.

As mentioned in our December 30, 2008 letter, anecdotal reports also indicate that submerged aquatic vegetation (SAV) has expanded in the Delaware River. A 2004 study done by S.T Hudson Engineers, Inc. (2004) for work at Wiggins Waterfront Park in Camden, NJ identified the presence of large patches of wild celery (*Vallisneria americana*) throughout the project area. Wild celery provides important refuge and forage habitat for fish. Because no systematic mapping of SAV exists for the Delaware and it does not appear that any surveys have been done as part of the data collection for the deepening project, it is not possible to evaluate the potential and extent of the impacts the deepening will have on SAV. To address this issue, the ACOE should undertake a comprehensive SAV survey of the Delaware deepening project area to identify the location and extent of SAV that may be affected directly or indirectly by the deepening and widening of the federal navigation channel.

Cumulative Effects

An evaluation of the cumulative effects of the deepening is not included in the EFH assessment. In order to fully analyze the potential impacts on EFH, federally managed species and their forage base, the ACOE should undertake a comprehensive evaluation of the indirect and cumulative impacts of the proposed deepening. For example, we understand that the Philadelphia Regional Port Authority (PRPA) is seeking to develop a project known as "Southport" at the Philadelphia Navy Yard. This proposed container terminal appears dependent upon the deepening of the channel to allow container vessels to access the area. Also, according to a statement in the PRPA's Dredging News (www.philaport.com/news/dredging.htm), the deepening of the channel is "integral" to the development of this facility. The article further states that "millions of cubic yards of the materials collected during the channel deepening would directly aid the Southport effort by filling in areas between Piers 122 and 124, as well as a parcel at the east end of the Philadelphia Naval Shipyard. These are the areas that need to be filled in to create the necessary acreage for this state of the art project." Based upon these statements by the deepening project's current non-federal sponsor, the PRPA, the construction of Southport

appears dependent upon the deepening. The Southport project also appears to require substantial fill within the Delaware River. Clearly, this project should be considered as part of the analysis of the cumulative effects of the deepening,

In addition to the Southport project, the ACOE should review and evaluate the cumulative impacts that would result from the deepening and improvements at other facilities along the river as a result of the channel deepening project. As existing facilities expand and new facilities are built, what are the effects on aquatic resources? Will these facilities have increased dredging and dredged material disposal needs? Will the increased vessel traffic cause more ship strikes of Atlantic sturgeon or shortnose sturgeon? The City of Philadelphia is proposing an expansion of the Philadelphia International Airport that could result in 25 acres of fill within the Delaware River. The Gloucester County Improvement Authority and South Jersey Port Corporation are considering the construction of a new port facility at Paulsboro, New Jersey. These projects, as well as others that have been proposed, should have been evaluated as part of cumulative effects assessment. They have not been included in the EFH assessment. We hope that the issue of cumulative effects is addressed in the EA released by the ACOE on April 7, 2009. If this is not included in the EA, we request that the ACOE develop a full and complete assessment of the cumulative impacts of the deepening project, including impacts on EFH, federally managed species and their prey.

We note that several other anadromous fish such as alewife, blueback herring, and American shad use the Delaware River and its tributaries as spawning, nursery, and forage habitat. Buckel and Conover (1997) in Fahey et al. (1999) reports that diet items of juvenile bluefish include these species. As a result, activities that adversely affect the spawning success and the quality for the nursery habitat of these anadromous fish will adversely affect the EFH for juvenile bluefish by reducing the availability of prey items. Consequently, dredging and filling operations that would occur within the Delaware River and Bay due to the creation of a deeper channel should be included in any assessment of cumulative impacts.

EFH Conservation Recommendations

To minimize impacts on EFH for federally managed species, NMFS recommends the following EFH conservation recommendations pursuant to Section 305(b)(4)(A) of the MSA :

1. The ACOE should form a regional dredging team and develop a regional dredged material management plan to evaluate the long-term dredging needs and disposal options for the dredging projects within the Delaware River and Estuary. The team should include representatives from agencies responsible for dredging and dredge material disposal operations. Annual meetings should be held to discuss upcoming projects and schedules. This will help to identify and minimize impacts on NOAA trust resources, including EFH, early in the planning process, and will facilitate efficient coordination on dredging and dredged material disposal issues.
2. Should Buoy 10 be used for any dredged material disposal, an EFH consultation must be completed.
3. Any wetlands created at Kelly Island should be open to unrestricted tidal flow in perpetuity.

No impoundments should be permitted. A copy of the detailed construction plans including a planting plan and a long-term monitoring and maintenance plan should be provided to NMFS. If the ACOE continues to proceed with plans to construct an impoundment on the site, compensatory mitigation for the loss of shallow water habitat for winter flounder, windowpane, and other benthic species should be provided.

4. Continued coordination with NMFS, the members of the Delaware Fish and Wildlife Management Cooperative, and Delaware State fisheries biologists on the potential need and appropriateness of mitigation or relocation of the *Sabellaria* reefs or the creation of suitable substrate for recolonization.

5. In light of potential cumulative impacts on EFH and other resources of concern to NMFS from the numerous development projects proposed along the Delaware River, including some such as the Southport project that are dependent upon the deepening of the river, the ACOE should develop a full and complete assessment of the cumulative impacts of the deepening project, including impacts on EFH, federally managed species and their prey.

Please note that Section 305(b)(4)(B) of the MSA requires the ACOE to provide NMFS with a detailed written response to these EFH conservation recommendations, including the measures adopted by the ACOE for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with NMFS' recommendations, Section 305(b)(4)(B) of the MSA also indicates that the ACOE must explain its reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with NMFS over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920 (k).

Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CRF 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Fish and Wildlife Coordination Act Recommendations

1. Given the critically low population of Atlantic sturgeon in the Delaware River and the ongoing review of this species status, we strongly recommend that the ACOE adhere to the recommended seasonal dredging restriction for hopper dredging below RM 32, and not dredge from June 1 to November 30. Further, NMFS recommends that an observer be used to document any interactions with Atlantic sturgeon during dredging, and that reports be provided to NMFS in a timely manner.

If hopper dredging does occur during this time period, an observer should be placed on board the dredge to monitor for entrainment of Atlantic sturgeon. If any Atlantic sturgeon are observed to survive entrainment, photographs and measurements should be taken, and care should be taken to return the fish to the water in an area where dredging is not occurring. We have enclosed a reporting form with this letter that should be used by the observers. We also request that a fin clip be taken from any sturgeon for the purposes of ongoing genetic studies. Instructions have been included with this letter and should be distributed to the observers. Any sturgeon that are

killed during dredging operations should be retained on board the dredge in a refrigerator or freezer until instructions on disposition can be obtained from NMFS. All observations and interactions with Atlantic sturgeon should be recorded on the enclosed reporting form and e-mailed (Julie.Crocker@Noaa.gov) or faxed (978-281-9394) to NMFS within 24 hours.

2. The ACOE should undertake a comprehensive SAV survey of the Delaware River deepening project area to identify the location and extent of SAV that may be affected directly or indirectly by the deepening and widening of the federal navigation channel.

3. Updated oyster, blue crab, and horseshoe crab surveys should be undertaken. The ACOE should coordinate with the states of New Jersey and Delaware, the Haskins Shellfish Research Lab, NMFS, and others, as appropriate, to evaluate the existing data and update the surveys as needed.

We look forward to continued coordination with the ACOE on this project as well the ACOE's response to our EFH conservation recommendations. If you have any questions concerning these comments or wish to discuss our recommendations, please contact Karen Greene at 732 872-3023, or Stanley Gorski at 732-872-3037.

Sincerely,


for Peter D. Colosi, Jr.
Assistant Regional Administrator
for Habitat Conservation

cc: EPA - Region III – B. Arguto
Region II – L. Knutson
FWS - State College – C. Tibbot
Pleasantville – S. Mars
NJDEP – Office of Dredging - S. Dietrick
DNREC – R. Miller
MAFMC – T. Hoff
NEFMC – C. Demarest
DRFWM Coop. Tech Committee
PRD – M. Colligan

LITERATURE CITED

- Atlantic Sturgeon Status Review Team. 2007. Status review of Atlantic sturgeon (*Acipneser oxyrinchus oxyrinchus*). Report to the National Marine Fisheries Service. Northeast Regional Office. February 23, 2007. 174 pp.
- Buckel, J.A. and D.O. Conover. 1997. Movements, feeding periods, and daily ration of piscivorous young-of-the-year bluefish, *Pomatomus saltatrix*, in the Hudson River estuary. Fish. Bull. (U.S.) 95(4):665-679.
- Coakely, J.M., 2004. Stock status of Delaware Bay blue crab (*Callinectes sapidus*) for 2004. Department of Natural Resources and Environmental Control. Delaware Division of Fish and Wildlife. Dover, DE
- Collette, B.B. and G. Klein-MacPhee. eds. 2002. Bigelow and Schroeder's fishes of the Gulf of Maine. Smithsonian Institution. Washington, D.C.
- Fahey, M.P., P.L. Berrien, D.L. Johnson and W.W. Morse. 1999. Essential Fish Habitat Source Document: Bluefish, *Pomatomus saltatrix* life history and habitat characteristics. U.S. Dep. Commer., NOAA Technical Memorandum NMFS-NE-144.
- Kahn, D.M., 2003. Stock status of Delaware Bay blue crab (*Callinectes sapidus*) for 2003. Department of Natural Resources and Environmental Control. Delaware Division of Fish and Wildlife. Dover, DE
- Muffley, B., L. Lurig, G.N. Mahnke and H. Driscoll. 2007. Survey of New Jersey's blue crab, *Callinectes sapidus*, recreational fishery, Year 1, Delaware Bay. New Jersey Department of Environmental Protection, Division of Science, Research and Technology. Trenton, NJ
- Rugolo, L.J. Knotts, K.S., Lange, A.M. and Crecco, V.A. 1998. Stock assessment of Chesapeake Bay blue crab (*Callinectes sapidus* Rathbun). *J. Shellfish Res.* 17:449-517.
- Steimle, F.W., R.A. Pikanowski, D.G. McMillan, C.A. Zetlin, S.J. Wilk. 2000. Demersal fish and American lobster diets in the Lower Hudson-Raritan Estuary. NOAA Technical Memorandum NMFS-NE-161. Woods Hole, MA. 106 p.
- S.T. Hudson Engineers, Inc. 2002. Wild Celery Survey at Dr. Ulysses S. Wiggins Waterfront Park North Riverfront Promenade Extension. Prepared for the Delaware River Port Authority, Camden, NJ

STURGEON SALVAGE FORM

Version 09-21-2007 for documenting dredge interactions

INVESTIGATORS'S CONTACT INFORMATION
 Name: First _____ Last _____
 Agency Affiliation _____
 Address _____

 Area code/Phone number _____

UNIQUE IDENTIFIER (Assigned by NMFS)

DATE REPORTED:
 Month Day Year 20

DATE EXAMINED:
 Month Day Year 20

SPECIES: (check one)
 shortnose sturgeon
 Atlantic sturgeon
 Unidentified *Acipenser* species
 Check "Unidentified" if uncertain.
 See reverse side of this form for aid in identification.

LOCATION FOUND: Offshore (Atlantic or Gulf beach) Inshore (bay, river, sound, inlet, etc)
 River/Body of Water _____ City _____ State _____
 Descriptive location (be specific) _____

 Latitude _____ N (Dec. Degrees) 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
 Borescope

MEASUREMENTS: **Circle unit**
 Fork length _____ cm / in
 Total length _____ cm / in
Length actual estimate
 Mouth width (inside lips, see reverse side) _____ cm / in
 Interorbital width (see reverse side) _____ cm / in
Weight actual estimate _____ kg / lb

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

Tag #	Tag Type	Location of tag on carcass
_____	_____	_____
_____	_____	_____

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

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

PHOTODOCUMENTATION:
 Photos/vids taken? Yes No
 Disposition of Photos: _____

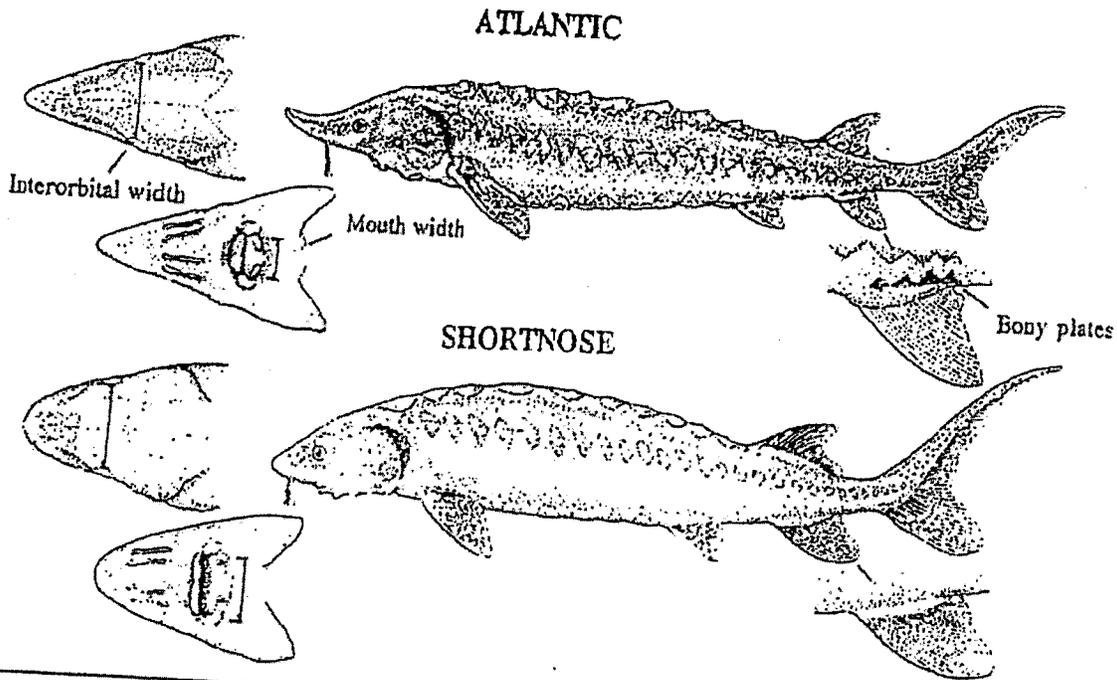
SAMPLES COLLECTED? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Sample	How preserved	Disposition (person, affiliation, use)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Comments:

Distinguishing Characteristics of Atlantic and Shortnose Sturgeon

Characteristic	Atlantic Sturgeon, <i>Acipenser oxyrinchus</i>	Shortnose Sturgeon, <i>Acipenser brevirostrum</i>
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 posterior to rectum	Large paired pre-anal plates, often followed by a second pair of plates and another, larger single plate	1-3 pre-anal plates, never paired
Plates along the anal fin	Large rhombic plates found along the lateral base of the anal fin	No plates along the base of anal fin
Habitat/Range	Anadromous; spawn in freshwater but primarily lead a marine existence	Freshwater amphidromous; aside from seasonal migrations to estuary, rarely occurs in the marine environment

* From Vecsei and Peterson, 2004



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

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.

Procedure for obtaining fin clips from Atlantic sturgeon for genetic analysis

Updated April 2009

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 Atlantic 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:
Julie Carter
NOAA/NOS – Marine Forensics
219 Fort Johnson Road
Charleston, SC 29412-9110
Phone: 843-762-8547
2. Upon sending a sample, contact Kim Damon-Randall at NMFS Northeast Regional Office (978-282-8485) to report that a sample has been sent.

Procedure for obtaining fin clips from Atlantic sturgeon for genetic analysis

Updated April 2009

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 Atlantic 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:
Julie Carter
NOAA/NOS – Marine Forensics
219 Fort Johnson Road
Charleston, SC 29412-9110
Phone: 843-762-8547
2. Upon sending a sample, contact Kim Damon-Randall at NMFS Northeast Regional Office (978-282-8485) to report that a sample has been sent.