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CORRESPONDENCE

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

March 27, 2019

Mr. Robert DeSista
Chief, Regulatory Division
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Re: NAE-2018-00926 City of Milford, Beach Nourishment Project, Milford, CT

Dear Mr. DeSista:

We have reviewed the revised essential fish habitat (EFH) assessment dated June 21, 2018, and updated plans dated November 28, 2018, for the City of Milford's proposed beach nourishment project within tidal waters of Long Island Sound (LIS) in Milford, CT. The proposed project includes placement of 123,915 cubic feet of sand and 36,710 cubic feet of rock to create a dune and beach system, and to protect multiple stormwater outfalls along an approximately 5,000 liner foot section of shoreline. The proposed project footprint would cover an area of 20.2 acres, with 15.3 acres of fill waterward of the state defined coastal jurisdiction line (CJL). The EFH assessment and project plans describe the habitats within the project footprint as mixed substrate of fine to medium grain sand. No mitigation has been proposed for the loss of tidal waters or habitats.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require federal agencies to consult with one another on projects such as this. Because this project involves EFH, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the relevant consultation procedure.

Based upon the information provided, this project will result in substantial adverse impacts to EFH. Unfortunately, our ability to consult and ultimately assess potential impacts to EFH and associated marine resources has been complicated by deficiencies in the EFH assessment. We consider the EFH assessment to be incomplete because it does not fully characterize the benthic resources and habitats within the project area and does not include an adequate assessment of project impacts or alternatives analysis.

A complete EFH assessment is a prerequisite to begin the consultation process as stated in 50 CFR 600.920(i)(2). On a number of occasions we have requested that you provide us with information in accordance with the EFH assessment requirements described in 50 CFR 600.920 (e)(1) through (e)(4) in order for the EFH assessment to be considered complete and allow for a full evaluation of the effects to EFH. The information provided in response to each of our

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requests has not adequately addressed the issues and concerns we have raised. Of particular concern is the assessment of coastal resources within the project footprint. While we have not yet received a sufficient response to our additional information requests, we are providing our EFH conservation recommendations based upon the information available and the observations made during our site visit on February 22, 2019. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

General Comments

Importance of intertidal and shallow water habitats
Intertidal and inshore subtidal sandy habitats serve as important shelter and forage habitat for a variety of managed fish species and NOAA-trust resources. Multiple managed fish species within the project area have life history stages that are found in the intertidal and shallow-water subtidal zone including, summer flounder, winter flounder, windowpane flounder, red hake, winter skate, little skate, and pollock. Sand habitats also provide important habitat for NOAA-trust resources including, sand lance, Atlantic tomcod, American eel, and soft-shelled clam (Stevenson et al. 2014). Of particular concern are the juvenile life history stages for windowpane flounder, little skate, winter flounder, summer flounder, winter skate, and red hake.

Intertidal habitats support distinct marine communities and it has been well established that these habitats provide important foraging habitats and areas of refuge from predation for juvenile fish during periods of high tide (Helfman et al. 2009). Multiple managed fish species in the project vicinity have life history stages that are found in the intertidal zone including, windowpane flounder, little skate, winter flounder, red hake, summer flounder, pollock, and Atlantic herring. These species have life stages that occur within intertidal habitats in the vicinity of the project and have specific habitat requirements at various life stages that may be adversely and permanently impacted by the proposed project (Cargnelli et al. 1999; Chang et al. 1999; Pereira et al. 1999; Stevenson et al. 2014).

Shallow water substrates in the project vicinity provide and support distinct benthic communities that serve as EFH by directly providing prey and foraging habitat, or through emergent fauna providing increased structural complexity and shelter from predation. Habitat attributes within soft substrates provide important functions for managed fish species including shelter, foraging, and prey. For example, biogenic depressions, shells, moonsnail egg cases, anemone, and polychaete tubes within sandy habitats serve as shelter for red hake (Able and Fahay 1998, Wicklund 1966; Ogren et al. 1968; Stanley 1971; Shepard et al. 1986). Sand waves and ridges serve as valuable habitat for refuge and shelter, as well as habitat for spawning and juvenile development for a variety of species. In complement and addition to the research discussed above, recent literature regarding the importance of shallow water habitats for managed fish species was reviewed and discussed in "Shallow Water Benthic Habitats in the Gulf of Maine: A Summary of Habitat Use by Common Fish and Shellfish Species in the Gulf of Maine" (Stevenson et al. 2014).

EFH Assessment Correspondence
As you are aware, there has been a number of back and forth discussions related to our information needs to complete an EFH consultation for the project. After our review of materials

provided to the state in support of a 401 water quality application, which included an alternatives analysis, on May 25, 2018, we requested the following information to be addressed: 1) a complete EFH assessment; 2) full assessment and delineation of all habitat resources; 3) a full assessment of reasonable alternatives to the proposed project, in particular a smaller scale beach nourishment project; 4) specific assessment of the need for the proposed rock core and maintenance requirements to prevent and address exposure over time; and 5) a compensatory mitigation plan.

You provided us with an EFH assessment worksheet completed by the applicant's agent in September 2018. After review, we notified you that the provided information was not sufficient and did not address our information requests. Upon your request, we directly discussed the information that was needed for a complete EFH assessment directly with the applicant's agent as well.

In December 2018, we received a copy of the results of a sediment grain size analysis, and a document including: 1) updated plan views depicting the high tide line (HTL), 2) a copy of a consultant letter dated November 30, 2018, and titled "Stormwater Calculations for Outfalls;" and 3) "Documentation of Neighborhood Meeting of May 22, 2017," that included a copy of a sign in sheet, slide presentation, and mailing list. However, the provided materials still did not address the information we requested on May 25, 2018 or September 14, 2018. It is not clear why information items #2 and #3 were to provide for our review. We never received the information we initially requested.

February 22, 2019 Site Visit
We conducted a low tide site visit at the project site on February 22, 2019. The habitat visible at low tide was dominated by a mixed sand to fine pebble steep beach face with vast intertidal sand flats and scattered remnant rip-rap associated with existing and derelict structures. A band of vegetated dunes was observed along the beach area, and small, isolated patches of vegetated areas also occur along the section of the project in front of the private residences. Sand ridges occurred throughout the intertidal sand flats with interspersed biogenic depressions. A small band of gravel to cobble sized sediments was observed within the northern-most section of the project footprint. Various species of clam shells and oyster shells were found along the exposed beach area and waterline.

Comments on EFH Assessment Deficiencies
Habitat assessment and delineation
The information provided does not discuss or assess the extensive sand flats that occur throughout the project area, nor does it assess or evaluate shellfish resources within the project footprint. The plans illustrate the bathymetric contours and the extent of the sand flats can be inferred, but an assessment of this habitat and an evaluation of impacts from the project has not been provided. The materials also state that shellfish resources are present adjacent to the project footprint, but no shellfish survey or other information has been provided in support of these statements. Further, no information on other benthic resources within the project footprint was provided. Additionally, the documents describe the existing beach as "fine to medium grain sand," but the sediment grain size analysis indicates that the sediments are dominated by coarse sand to small pebble.

Habitat impact assessment and proposed minimization measures

As stated above, the full extent of habitat resources has not been assessed, and therefore, the full extent of habitat impacts from the project as proposed has not been considered or evaluated. The provided EFH worksheet states that "there is no anticipated net loss of benthic communities." However, the worksheet also states that the area between 0 feet and 7.15 feet mean high water will be reduced from a current width of 100-180 feet to 40-60 feet. The proposed beach dune creation has a footprint of approximately 5.1 acres below the existing state defined CJL that is used as proxy for the HTL. It is not clear how there could be no net loss of benthic resources when there is a proposed 60-120 foot reduction of the intertidal area and a loss of 5.1 acres of benthic habitat.

As discussed above, on our February 22, 2019, site visit we viewed expansive sand flats dominated with sand ridges and shell debris from various species of shellfish. Sand ridges provide both flow refugia and shelter for managed fish species and their prey. Intertidal sand habitats and sand flats also provide important foraging areas and provide important refuge areas from predators during periods of high tide. The documents provided do not assess the adverse impacts the proposed project would have to these existing resources. Further, the provided materials do not provide any information on how it was determined that shellfish resources do not occur in the project footprint or assess other benthic resources that would be permanently lost as a result of the loss of tidal waters described above.

Alternative analysis

The requested alternatives analysis was not provided. The alternatives analysis that was provided with the state 401 application materials, does not fully evaluate less environmentally damaging alternatives to the project as proposed. The alternatives analyzed include: Alternatives #1 – No Action, #2 – Postponing Action Pending Further Study, #3 – Conducting Activities of a Different Nature and #4 – Taking Action at a Different Location. Among those alternatives only Alternative #3, discusses one alternative that appears to be a reasonable alternative to the proposed action that would minimize the loss of tidal resources and habitats.

The stated goal of Alternative # 3 was to "develop a proposal that achieves the objectives of coastal flood protection with the least environmental impact and modifications to the landscape." However, this alternative only assessed two alternatives to the proposed dune and nourishment creation. One alternative method for attaining this goal would also minimize resource impacts, but the justification for abandoning the alternative is not clear. Specifically, the alternative considered modification of the beach and upland interface. However, the discussion indicated that the existing interface is composed of multiple, privately owned seawalls at various heights and alignments, modifying the existing structures to a uniform structure over time would be difficult, and that such structures are "not typically permitted by the (state)…would not provide long-term protection form storm events …(so) it was not pursued." However, it is not clear why the City of Milford is responsible for maintenance and modification of the privately owned existing hard structures. Further, modification of existing hard structures is routinely authorized by the Corps. The alternatives analysis also considered different dune configurations and the creation of offshore breakwaters and islands. However, the requested analysis of smaller scale beach nourishment was not evaluated, nor was any other "soft" living shoreline alternative that would provide beneficial tidal habitat components (e.g. a tidal wetland-sill combination). Such alternatives that minimize the loss of tidal resources should be further evaluated and pursued. In particular, augmenting the existing privately owned seawalls and a smaller scale beach nourishment footprint would significantly minimize habitat impacts and the loss of tidal resources and attain the stated resiliency goals.

Compensatory mitigation plan

No compensatory mitigation plan has been provided. The applicant states that the proposed alternative enhances the ability of the beach face to withstand storms and floods, and will provide additional coastal habitat for a variety of coastal species. As discussed above, it does not appear that the applicant has fully considered the full extent or value of the existing habitats. While the project may enhance habitat for upland beach and dune species, this does not offset the permanent loss of important tidal habitats for managed fish species. Further, it appears that multiple other feasible alternatives exist to achieve the stated resiliency goals while fully avoiding and/or minimizing the currently proposed substantial adverse impacts to coastal resources. We recommend that such alternatives be pursued.

Species and habitat addressed

The revised EFH worksheet also did not address all species with designated EFH at the project site. A number of species were either not included, or missing multiple life history stages for the project location. Specifically, red hake, winter flounder, summer flounder, pollock, black sea bass, Atlantic mackerel, scup, butterfish, longfin inshore squid, bluefish, sand tiger shark, and the smoothhound shark complex all have EFH at the project location that was not included in the EFH assessment worksheet. Many of these species have intertidal zones and sand and gravel as designated EFH. As discussed above, the impacts to the EFH of these species was not addressed in the provided materials and, as proposed, the project would result in substantial adverse impacts that can be avoided by pursuing a different, smaller scale alternative.

Essential Fish Habitat Conservation Recommendations

The project area is EFH under the MSA for several species, and also supports other NOAA-trust resources. As described above, the proposed project would have adverse effects on EFH designated for multiple federally managed species, including windowpane flounder, red hake, winter flounder, and summer flounder, as a result of direct loss of tidal waters and intertidal habitat, including sand flats. Pursuant to Section 305(b)(4)(A) of the MSA, we recommend that you adopt the following EFH conservation recommendations to minimize impacts to EFH.

1. In lieu of the proposed beach nourishment and dune creation, an alternative that avoids the loss of tidal waters and sand flats should be pursued. The revised project description, details, and plan views should be provided to us for review. Additional EFH conservation recommendations may be necessary.
2. Compensatory mitigation should be provided, for any remaining losses of tidal water habitats.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you have adopted that avoid, mitigate, or offset the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us 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 CFR 600.920(l) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Fish and Wildlife Coordination Act Recommendations

The project area provides habitat that has been documented to be important in the life history of sand lance, shellfish, and tomcod. The currently proposed loss of tidal habitats would result in a net loss of NOAA-trust resources. Alternatives that avoid loss of tidal habitats should be fully pursued.

Conclusion

In summary, we recommend that the applicant pursue an alternative to the proposed beach nourishment and dune creation that avoids impacts to sand flats and a permanent loss of tidal waters, and the alternative should be provided for our review and comment. If you have any questions, please contact Alison Verkade at (978) 281-9266 or at alison.verkade@noaa.gov.

Sincerely,

Karen M Greene
for

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: Zach Jylkka, PRD
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Kevin Kotelly, ACOE
Josh Helms, ACOE
Nathan Margason, USEPA
Colin Clark, CT DEEP
Steve Gephard, CT DEEP Fisheries

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New England Fishery Management Council
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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

March 20, 2019

Ms. Alison Verkade
NMFS, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Dear Alison:

Lou Chiarella-has recommended you serve on the Council's Habitat Plan Development Team (PDT). I agree with Lou that you would be a valuable asset to the PDT, and I am pleased to appoint you to the team.

Currently, the Habitat PDT is engaged in research planning for the Great South Channel Habitat Management Area, implementation of the Fishing Effects model, and providing support to the Council on offshore wind-related issues. We appreciate your past and ongoing technical assistance in support of the Clam Framework Adjustment, which should go into effect this spring. Overall, we have enjoyed a productive relationship with Habitat Conservation Division staff, and welcome increased assistance from the division on habitat-related issues.

As you know, PDTs are tasked with providing objective analyses to the Council. For this reason, PDT members are not allowed to address the Committee or Council in order to advocate for any specific Council decisions unless they are presenting a PDT position. This task is normally the responsibility of the PDT Chair.

You are already acquainted with Michelle Bachman, the Council's Habitat PDT Chair. Feel free to contact either of us with any questions or concerns. I want to thank you in advance for your assistance and technical support for the Council's habitat-related initiatives.

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

cc: Lou Chiarella

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
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MAR 15 2019

Mr. Robert DeSista
Chief, Regulatory Division
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Re: NAE-2018-00927 City of Milford, Beach Nourishment Project, Milford, CT

Dear Mr. DeSista:

We have reviewed the revised essential fish habitat (EFH) assessment dated June 27, 2018, updated plans dated October 18, 2018, an alternatives analysis dated November 28, 2018, and your March 5, 2019, Public Notice for the City of Milford's proposed beach nourishment project within tidal waters of Long Island Sound (LIS) in Milford, CT. The proposed project includes placement of 26,800 cubic feet of sand to create a dune and nourish the existing beach with sand. The proposed project footprint would cover an area of 2.71 acres waterward of the high tide line (HTL). As stated in the Public Notice, the proposed project would result in a significant change in elevation from the existing conditions. The project also includes plantings along the proposed beach dune, installing "sand fence" and a walkway over the new dune, and installing a 195 x 50 foot stormwater outfall. The proposed stormwater outfall would be covered with two feet of rip-rap, capped with 5 to 8 ton armor stone, and then buried in sand. The stated project purpose is to provide coastal resiliency, minimize erosion impacts, and protect the roadway. The Public Notice describes the habitats within the project footprint as mixed substrate of fine to medium grain sand, and gravel and cobble set between two bedrock headlands. No mitigation has been proposed for the loss of tidal waters or habitats.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require federal agencies to consult with one another on projects such as this. Insofar as a project involves EFH, as this project does, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the relevant consultation procedure.

The Public Notice indicates you have made a preliminary determination that site-specific impacts may be substantial for the proposed beach nourishment project. We agree with this determination. Specifically, it is our preliminary determination that this project would result in substantial adverse impacts to EFH. Unfortunately, our ability to consult and ultimately assess potential impacts to EFH and associated marine resources has been complicated by deficiencies in the EFH assessment. We consider the EFH assessment to be incomplete because it does not

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fully characterize the benthic resources and habitats within the project area and does not include an adequate assessment of project impacts or alternatives analysis.

A complete EFH assessment is a prerequisite to begin the consultation process as stated in 50 CFR 600.920(i)(2). We have repeatedly requested that you provide us with accurate information in accordance with the EFH assessment requirements described in 50 CFR 600.920 (e)(1) through (e)(4). The information provided in response to each of our requests has not adequately addressed the issues and concerns we have raised. Of particular concern is the delineation of rocky habitats within the project footprint. While we have not yet received a sufficient response to our additional information requests, we are providing our EFH conservation recommendations based upon the information available and the observations made during our site visit on February 22, 2019. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

General Comments

Importance of intertidal and shallow subtidal rocky habitats
Intertidal and inshore subtidal pebble, cobble, and boulder habitats with added habitat complexity from invertebrate communities and macroalgal cover, serve as important shelter and forage habitat for a variety of managed fish species and NOAA-trust resources. Multiple managed fish species within the project area have life history stages that are found in the intertidal and shallow-water subtidal zone including, pollock, summer flounder, winter flounder, black sea bass, red hake, winter skate, and little skate. Rocky habitats with attached macroalgae also provide important habitat for NOAA-trust resources including, lobster, striped bass, cunner, and tautog. Of particular concern are the juvenile life history stages for pollock and summer flounder, as well as juvenile lobsters.

Shallow rocky intertidal areas are considered among one of the most productive regions of the ocean (Helfman et al. 2009). Intertidal zones serve as areas of refuge from predation and foraging habitat for juvenile fish during periods of high tide (Helfman et al. 2009; Rangeley and Kramer 1995). The critical role of rocky intertidal habitats as refuge and foraging habitat for juvenile lobsters is also well established (Cowan 1999; Stevenson et al. 2014). Recently, research has also documented diurnal use of rocky intertidal zones by adult lobster as foraging habitat (Jones and Shulman 2008). In Connecticut waters, rocky intertidal areas have been identified as important coastal habitats by the Long Island Sound Study (LISS) and as a "priority habitat type" in the 2017 Habitat Restoration Initiative by the LISS Habitat Restoration and Stewardship Working Group. Rocky habitats were recently identified under Criterion Pillar #1, Areas with rare, sensitive, or vulnerable species, communities, or habitats in the Connecticut Department of Energy and Environmental Protections Blue Plan (CT DEEP 2019). Macroalgal habitats were also specifically identified as "important components of the LIS ecosystem, especially for their contributions to productivity" (CT DEEP 2019).

The structural complexity of rocky habitats are important for fish in that they provide shelter and refuge from predators (Auster 1998; Auster and Langton 1999; NRC 2002; Rangeley and Kramer 1998; Stevenson et al. 2004; Stevenson et al. 2014). Rocky habitats provide a substrate for macroalgal and epibenthic growth which serves as additional refuge for juvenile fish. These habitats have recently been identified as EFH for multiple managed fish species by the New England Fisheries Management Council (NEFMC 2018). The complexity of rocky habitats with, and without, macroalgal and epifaunal cover have been well demonstrated as important habitats for juvenile life history stages of pollock, red hake, lobsters, cunner and tautog (Rangeley and Kramer 1995; Rangeley and Kramer 1998; Stevenson et al 2014). Furthermore, the Mid-Atlantic Fishery Management Council has designated areas of macroalgae, when associated with EFH for juvenile and adult summer flounder, as a Habitat Area of Particular Concern (HAPC) under Amendment 13 of the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Impacts to these important habitats should be avoided wherever feasible. Due to their important role for multiple marine organisms, impacts to rocky habitats should be avoided wherever feasible. This is particularly true for rocky habitats supporting macroalgae in the western portion of LIS where rocky habitats are rare.

EFH Assessment Correspondence
As you are aware, there has been a number of back and forth discussions related to our information needs to complete an EFH consultation for the project.

May 25, 2018: After our review of the materials provided to the state in support of a 401 water quality application with included alternatives analysis, we requested the following information to be addresses: 1) a complete EFH assessment; 2) full delineation of all resources, particularly in respect to rocky and vegetated habitats; 3) a full assessment of reasonable alternatives to the proposed project; and 4) a compensatory mitigation plan.

September 12, 2018: You provided us with an EFH assessment worksheet completed by the applicant's agent.

September 13, 2018: We reviewed the submitted worksheet and notified you that the EFH assessment was not sufficient. We noted that given the extent of proposed impacts, using the worksheet as the EFH Assessment for the project was not appropriate. We also discussed our concern that the extent of rocky habitats in the project area did not appear to be adequately assessed and provided you with a copy of the rocky habitat delineation guidance we created for your agency. Further, we noted that a full alternatives analysis and compensatory mitigation plan was necessary. Lastly, we discussed the fact that multiple managed fish species were not addressed in the provided assessment worksheet, including summer flounder and the HAPC for summer flounder.

September 17, 2018: Upon your request, we directly discussed the information that was needed for a complete EFH assessment directly with the applicant's agent.

November 28, 2018: we received a revised EFH assessment worksheet as well as a copy of the results of a sediment grain size analysis, a revision of the alternatives analysis that was submitted with the state application materials, and a revised plan view. However, the provided materials still did not address the information we requested on May 25, 2018 or September 23, 2018.

February 22, 2019 Site Visit
A site visit conducted at low tide on February 22, 2019, confirmed that the habitat information

provided for this project is not accurate. The habitat visible at low tide was dominated by cobble and boulder with interspersed rock ledge outcrops occurring throughout nearly the entire project area waterward of mean high water. Pebble mixed with some fines appeared to be primarily located along the HTL and within the upper intertidal, or within the interstitial spaces of the large sediments (cobble and boulder) and within depressions of the ledge outcrops. Abundant macroalgal growth and epifaunal coverage was evident throughout the intertidal rocky habitat. In addition to the abundant macroalgal growth, oysters and polychaete worms were located throughout the intertidal area and visible subtidal areas. Oysters provide both shelter and forage opportunities for managed fish species and polychaete worms have been specifically identified as EFH for juvenile red hake.

Based upon the extent of rocky habitats viewed during our site visit and by the high percentage of pebble to cobble sized sediments in the grain size analysis, it is not clear what criteria was used by the applicant to determine the extent of the "gravelly intertidal area." The delineation of rocky habitat should identify all areas of cobble and boulders, as well as pebble dominated areas, and the methodology used to delineate the areas should be provided. This is necessary to allow review of the alternative to ensure that impacts to these habitats has been fully avoided.

Comments on Revised EFH Assessment Deficiencies

Habitat delineation

The revised worksheet, dated November 28, 2018, noted that there is approximately 3,500 square feet of "gravelly intertidal area" in the nourishment footprint. While there was a call-out of "cobbly beach face" added to an overview plan, the rocky area was not delineated on the detailed plan views illustrating the proposed project. Further, the results of the provided sediment grain size analysis indicate that the extent of rocky habitat is far greater than described. Further, based on the extent of cobble and boulder sized sediment that was observed during our site visit, it is not clear how the provided sediment grain size analysis did not find any sediments greater than 3.0 inches, and only two of the eight samples contained some fraction of cobble sized sediments.

Habitat impact assessment and proposed minimization measures

As stated above, the full extent of rocky habitats throughout the project footprint has not been accurately described, and therefore the full extent of habitat impacts that would result from the project as proposed has not been considered or evaluated. Based on the information provided, we offer following comments.

The revised EFH worksheet states that the described "gravelly" area will be nourished with "material of similar grain size and slightly more fine." However, the proposed material to be used for the beach nourishment and dune creation is described as "sand" which is not consistent with the material found at the project site.

The Public Notice indicates that the applicant has proposed a number of best management practices (BMP) including one that would protect rocky habitat. Specifically, it states that "no rocky shorefront areas will be covered with sand" as a BMP. The most recent plan view, dated November 21, 2018, clearly illustrates sand placement over the areas that were delineated as "ledge" and "submerged ledge." It is not clear how such placement would be consistent with the stated BMP. The revised EFH worksheet also states that "no rocky, cobble, or gravel benthic habitat will be impacted by the proposed project." As discussed above, our February 22, 2019, site visit confirmed that rocky habitats are found throughout the project footprint, so it is not clear how the BMP could be implemented to protect rocky habitats.

Based on information in the Public Notice and EFH Worksheet, it is also not clear what the extent of direct loss of tidal waters would be as a result of the proposed action. The original project footprint has been minimized to avoid direct impacts to tidal wetlands, resulting in a reduction in the project footprint below the existing HTL to a net 2.71 acres. However, it is not clear how much of the 2.71 acres would remain as tidal waters and how much would be converted to upland as a result of the proposed dune creation. The total proposed loss of tidal waters through conversion to upland habitats should be fully evaluated and described to ensure impacts to sensitive habitats are avoided.

Alternative analysis
The revised alternatives analysis submitted on November 28, 2018, does not fully evaluate less environmentally damaging alternatives to the project as proposed. The revised analysis provides additional text related to alternatives that were originally compiled through the state permitting process. These alternatives include: Alternatives #1 – No Action, #2 – Postponing Action Pending Further Study, #3 – Conducting Activities of a Different Nature and #4 – Taking Action at a Different Location. Among those alternatives only Alternative #3, discusses one alternative for Crescent Beach that appears to be a reasonable alternative to the proposed action.

The stated goal of Alternative # 3 was to "develop a proposal that achieves the objectives of coastal flood protection with the least environmental impact and modifications to the landscape." However, only one such alternative method for attaining this goal was discussed for Crescent Beach, and it does not appear that the alternative was fully evaluated. Specifically, an alternative that would provide coastal resiliency and protect the roadway, would be to modify the existing seawall to form a revetment. The text discussion of this option was minimally altered from the original document. The alternative was dismissed with the statement that revetments are "not typically permitted by the (state)…would not provide long-term protection form storm events or provide habitat enhancements through the creation of a beach and dune system…(so) it was not pursued." However, maintenance and modification of existing hard structures is routinely authorized by the Corps. The extent of habitat impacts that would occur as a result of the proposed project does not appear to have been fully considered by the applicant. In particular, it is not clear how the loss of complex tidal habitats through the conversion to upland dunes and non-complex sand habitats would constitute a habitat enhancement, nor does it appear consistent with the stated goal of minimizing landscape impacts.

Further, there is no discussion of other alternatives, such as elevating the roadway, raising the seawall, installing armor stone toe protection, or a smaller scale nourishment footprint and evaluation of alternative grain sizes that would be consistent with the existing shorefront sediments. Any of these alternatives, that avoid placement of sand material in complex, intertidal rocky habitats, would minimize impacts to these important habitats and appear to be fully feasible. Such an alternative should be further evaluated and pursued. In particular, augmenting the existing seawall to form a revetment would significantly minimize habitat impacts and the loss of tidal resources and attain the stated resiliency goals.

Compensatory mitigation plan
No compensatory mitigation plan has been provided. The applicant states that the proposed alternative is a flood hazard mitigation project designed to enhance the existing developed landscape during intense storms, and that it has been designed with respect of the integrity of coastal resources, public access, and recreation. As discussed above, it does not appear that the applicant has fully considered the full extent or value of natural, complex rocky habitats. While the project may enhance public access and recreation of a beach and dune system, such public benefit does not offset the permanent loss of important complex tidal habitat. Further, it appears that multiple other feasible alternatives exist to achieve the stated resiliency goals while fully avoiding and/or minimizing the currently proposed substantial adverse impacts to coastal resources. We recommend that such alternatives be pursued, and due to their importance for multiple managed fish species as well as NOAA-trust resources, any unavoidable impacts to rocky habitats should be mitigated.

Species and habitat addressed
The revised EFH worksheet also did not address all species with designated EFH at the project site. Of note, neither pollock nor summer flounder were identified as species with EFH in the project area. As discussed above, macroalgae has been specifically identified as EFH for both of these species and both species have EFH within the intertidal zone. A number of other species were also either not included, or missing multiple life history stages for the project location. Specifically, black sea bass, red hake, winter flounder, Atlantic mackerel, scup, butterfish, longfin inshore squid, bluefish, sand tiger shark, and the smoothhound shark complex all have EFH at the project location that was not included in the EFH assessment worksheet. Many of these species have intertidal zones and macroalgae as EFH. As discussed above, the impacts to the EFH of these species were not addressed in the provided materials. We agree with your determination that the impact of the project as proposed would result in a substantial adverse impact. We also believe that this substantial adverse impact is fully avoidable by pursing feasible alternatives that enhance and augment the existing seawall or involve upland road alterations.

Essential Fish Habitat Conservation Recommendations

The project area is EFH under the MSA for several species, and also supports other NOAA-trust resources. As described above, the proposed project would have adverse effects on summer flounder HAPC, and multiple species EFH including pollock, as a result of direct loss and the conversion of complex rocky habitats supporting macroalgae and epifauna, to non-complex sand habitats. Pursuant to Section 305(b)(4)(A) of the MSA, we recommend that you adopt the following EFH conservation recommendations to ensure minimal impacts to EFH.

1. Rocky habitat, including pebble, cobble, boulder, and ledge, within the project area should be fully evaluated and delineated on the plans. A copy of the revised plans and delineation method should be provided for our review and comment.
2. In lieu of the proposed beach nourishment and dune creation, an alternative that avoids rocky habitat impacts, as delineated in item#1 above, should be pursued. The revised

project description, details, and plan views should be provided to us for review. Additional EFH conservation recommendations may be necessary.

3. Compensatory mitigation should be provided, for any impacts to rocky habitats.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you have adopted that avoid, mitigate, or offset the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us 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 CFR 600.920(1) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Fish and Wildlife Coordination Act Recommendations

The project area provides habitat that has been documented to be important in the life history of juvenile and adult lobsters. Multiple NOAA-trust resources were also noted throughout the project area. Conversion of the rocky habitat to a sand habitat would result in a net loss of lobster and NOAA-trust resources and alternatives to this loss should be fully pursued.

Conclusion

In summary, we recommend that the applicant pursue an alternative to the proposed beach nourishment and dune creation that avoids impacts to rocky habitats and provide for our review and comment. In addition, the full extent of rocky habitats within the project area should be delineated and provided for our review and comment. If you have any questions, please contact Alison Verkade at (978) 281-9266 or at alison.verkade@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: Zach Jylkka, PRD
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Kevin Kotelly, ACOE
Josh Helms, ACOE
Nathan Margason, USEPA
Colin Clark, CT DEEP
Steve Gephard, CT DEEP Fisheries

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Joan O'Leary

From: SALVATORE NOVELLO <snovello@verizon.net>
Sent: Monday, March 11, 2019 9:37 AM
To: Joan O'Leary; Michael Ruccio; Caleb Gilbert - NOAA Federal
Subject: Fw: Gulf of Maine fish stocks are moving to deeper waters,because of warming waters,but also the bottom habitat is changing !!!

Comments To NEFMC,

Gulf of Maine coastal waters bottom habitat is now being
changed because warming waters & should be watched & be monitored by habitat personal .

Went fishing in Gulf of Maine last week in a area that
I have fished years ago & that bottom habitat has changed
, I believe that warming waters is causing the changing the bottoms of our oceans ?
Why do I know this is happening because , a fisherman's net talks to him ,
a good & observant fishing captain sees many signs in his net?? Our oceans are changing faster
than our today's ocean science ???

SAM NOVELLO Gulf of Maine Fisherman

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

MAR 7 - 2019

Edward O'Donnell
Programs and Project Management Division
Civil Works/IIS Branch
Navigation Section
U.S. Army Corps of Engineers
New England District
696 Virginia Road Concord, Massachusetts 01742-2751

Re: Annisquam River Federal Navigation Project

Dear Mr. O'Donnell:

We are in receipt of your letter dated January 18, 2019, the Environmental Assessment (EA), and Essential Fish Habitat (EFH) assessment for the proposed dredging of the Annisquam River Federal Navigation Project (FNP) in Gloucester, Massachusetts. The proposed project involves dredging 140,000 cubic yards (cy) over approximately 27 acres within the 8-foot deep channel and anchorage consisting of a mix of sand and gravel. The material is proposed to be mechanically dredged with disposal of 132,500 cy in the Ipswich Bay Nearshore Disposal Site (IBNDS) and 7,500 cy in the Gloucester Historic Disposal Site (GHDS). The Annisquam River FNP was last dredged by the U.S. Army Corps of Engineers (USACE) in 1976. The dredging is expected to take 3-4 months to complete and the work is proposed between October 1, 2019 and March 15, 2020.

As you are aware, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require federal agencies to consult with one another on projects such as this. Insofar as a project involves EFH, as this project does, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

Fishery Resources

The Annisquam River, Gloucester Harbor, and Ipswich Bay contain important nursery, feeding, and resting habitats for a number of marine and estuarine finfish and invertebrate species. The area supports important living marine resources that provide for valuable recreational and commercial fisheries, as well as species and habitats that are critical to a healthy marine ecosystem. The project area supports salt marsh wetlands, gravel/cobble habitats, intertidal mudflats, fringing salt marshes, and subtidal habitats including eelgrass beds.

The project area has been identified as EFH for a number of federally-managed species, including winter flounder, windowpane flounder, Atlantic cod, and ocean quahog. In particular, habitats and conditions that are favorable for Atlantic cod and winter flounder spawning, as well as egg, larvae, and juvenile development are known to occur in the area.

mb 3/12/19

Recent research in the southwestern Gulf of Maine show that winter flounder spawn in water depths of up to 70 meters, as well as in shallow coastal estuaries less than 5 meters (DeCelles and Cadrin 2010; Fairchild et al. 2013). The type of substrate where winter flounder eggs are found varies, and includes sand, muddy sand, mud and gravel. Winter flounder eggs are demersal, adhesive, and stick together in clusters, at water temperatures of 10° C or less, and salinities ranging from 10 to 30 parts per thousand (Pereira et al. 1999). Because eggs, larvae, and young-of-year winter flounder are non-dispersive, spawning areas and nursery areas tend to be close together (Pearcy 1962; Crawford and Carey 1985). Therefore, both the Annisquam River and the areas in and around the IBNDS and the GHDS are conducive to winter flounder spawning, and egg, larvae, and juvenile development habitats.

The spawning and egg development life stages are particularly vulnerable to the effects of dredging from direct, mechanical impacts on eggs and from turbidity/sedimentation impacts on spawning adults, eggs, and larvae (Berry et al. 2011; Suedel et al. 2017). The MA DMF recommended time-of-year restriction for winter flounder spawning in the Annisquam River is February 15 to June 30, which we believe is necessary for this project to protect sensitive life stages of winter flounder.

According to the EA, gravel and coarse sand substrates are found in the area proposed for disposal at the GHDS. The New England Fishery Management Council (NEFMC) and National Marine Fisheries Service (NMFS) has identified gravel and cobble habitats and eelgrass beds as important post-settlement habitat for juvenile Atlantic cod. The project area is also within the Habitat Area of Particular Concern (HAPC) for inshore juvenile cod in the Gulf of Maine and Southern New England, which occurs from mean high water to water depths of 20 meters (NEFMC 2018). Inshore waters are deemed a HAPC for juvenile cod because the area meets a number of criteria, including important ecological functions, sensitivity to anthropogenic stressors, and the presence of current or future stresses. Atlantic cod spawning aggregations have been documented to occur offshore of Cape Ann near Gloucester between February and April (Deese 2005). These spawning areas likely overlap with some portions of the GHDS.

Trawl data collected by MA DMF indicate both juvenile Atlantic cod and winter flounder were collected in the area of the IBNDS (no sampling was conducted within the GHDS). In light of the fact that the Omnibus EFH Amendment identified dredge material disposal as the only activity considered to be a "high" potential impact to cod EFH (NEFMC 2018), we are concerned about dredge disposal in the GHDS and IBDS between February 15 and June 30.

As described in the EA and EFH assessment, the Massachusetts Geographic Information System (MA GIS) has mapped eelgrass beds within Ipswich Bay approximately 1,200 feet from the dredging of the northern entrance channel. In addition, two separate beds were mapped in Gloucester Harbor (Western Harbor) approximately 50 feet east of the entrance channel and 800 feet west of the entrance channel (MA GIS 2019). The assessment indicates there will be no direct or indirect impacts to eelgrass from the dredging or disposal, and the dredging contractor will be provided drawings of eelgrass bed locations and will not be allowed to anchor in eelgrass beds. However, we have concerns that the MA GIS maps, which are based on aerial photography interpretation, may not provide the precision necessary to ensure avoidance of all eelgrass beds in the project area. In addition, recent observations indicate eelgrass beds may be expanding in Gloucester Harbor near the entrance channel (Phil Colarusso, US EPA, personal communication). We believe a site specific eelgrass survey with either side scan sonar with underwater video "ground-truthing" or underwater diver transects should be conducted during the growing season and prior to the start of dredging in October 2019. The results of these surveys should be provided to the dredging contractors to ensure eelgrass beds are protected from dredging, anchoring, and other vessel activities.

The Annisquam River is actively used by diadromous fish, including rainbow smelt, alewife, and blueback herring. Diadromous fishery resources serve as prey for a number of federally-managed species and several species are considered a component of EFH pursuant to the MSA. The Little River, a tributary of the Annisquam River, is documented as spawning habitat for these species. However, spawning migration for these species begins around March 1, and continues through September 30.

In addition, the Annisquam River, Gloucester Harbor, and Ipswich Bay supports a number of shellfish species, including blue mussel, soft shell clam, hard clam, ocean quahog, and surf clam (MA GIS 2019). Shellfish surveys conducted by the State of Massachusetts has confirmed spawning habitats for these species occur within the dredging and disposal areas of this project (MA GIS 2019). The spawning period for these species occurs from approximately March 1 through September 30.

Essential Fish Habitat Conservation Recommendations

Section 305(b)(2) of the MSA requires all federal agencies to consult with us on any action authorized, funded, or undertaken by that agency that may adversely affect EFH. The Annisquam River, and areas within and adjacent to the IBNDS and GHDS have been identified as EFH under the MSA for several federally-managed species. We recommend, pursuant to Section 305(b)(a)(A) of the MSA, that you adopt the following EFH conservation recommendations:

1. A time-of-year restriction of February 15 to June 30 should be implemented for any in-water silt producing activities or for any dredge or disposal activities to protect winter flounder and Atlantic cod spawning, and egg, larvae, and juvenile development habitats.
2. An eelgrass survey should be conducted in the areas adjacent to the entrance channel during the growing season. The results of the survey should be mapped and provided to the dredging contractor to ensure eelgrass beds are avoided during construction.
3. Dredge vessel anchoring, spudding, and grounding in eelgrass beds should be avoided at all times during construction.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you have adopted that avoid, mitigate, or offset the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us 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 CFR 600.920(1) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Fish and Wildlife Coordination Act Recommendations
The Annisquam River serves as habitat for a number of resident shellfish species and diadromous fish species. The proposed project may impact shellfish spawning activity in the project area, as well as spawning migration for diadromous species because dredging would not allow for an adequate zone of passage for these species. In order to protect shellfish spawning and diadromous species during spring spawning migrations, no dredging should occur between March 1 and September 30 of any year.

Conclusion
In summary, we recommend a time-of-year restriction between February 15 and September 30 to protect federally-managed species and other NOAA trust resources. In addition, an eelgrass survey in the areas adjacent to the entrance channel in Gloucester Harbor and no anchor, spudding, or vessel grounding be permitted in areas containing eelgrass. If you have any questions regarding this information request and comments, please contact Michael Johnson at (978) 281-9130 or at mike.r.iohnson@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: Zach Jylkka, NMFS PRD
Grace Moses, USACE
Phil Colarusso, US EPA
Tay Evans, MA DMF
David Wong, MA DEP
Tom Nies, NEFMC
Lisa Havel, ACFHP

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
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FEB 28 2019

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

RE: NEPA Scoping – Edgemoor Shipping Container Port Facility along the Delaware River, New Castle County, Delaware

Dear Mr. Blum:

We have reviewed the information provided in your National Environmental Policy Act (NEPA) Scoping letter dated December 17, 2018, for the construction of Diamond State Port Corporation's (Applicant) proposed Edgemoor shipping container port facility along the Delaware River in New Castle County, Delaware (Edgemoor Site). Due to the lapse in appropriations for Fiscal Year 2019 and resulting closure of our office, we did not receive your letter until January 29, 2019. The Applicant intends to apply for a Clean Water Act Section 404 permit, and a Rivers and Harbors Act Section 10 permit for an alternative identified in the Applicant's Master Plan. The Applicant's preferred alternative includes deepening portions of the Delaware River adjacent to the federal navigation channel at the Edgemoor Site, formerly occupied by the Chemours (DuPont) Edgemoor Plant, to create a primary access channel that will serve the proposed berth construction at the site. The proposed new entrance channel and berth area would be constructed by excavating the riverbank between the existing shoreline and federal navigation channel in the Delaware River to depths between 38 and 45 feet below MLLW. A new wharf of unknown size will also be constructed along the shoreline and over the water to support large container cranes. The estimated area proposed to be dredged is 85.7 acres, while the estimated area of wetland impacts for a proposed terminal bulkhead is 5.3 acres; the area of wharf impact is currently unknown.

The U.S. Army Corps of Engineers, Philadelphia District, Planning Division (ACOE), is acting as a neutral party on this non-federal project proposal in order to gather information and assist with coordination on potential impacts in accordance with NEPA. Any alternatives analysis will be presented in the NEPA report and will use a tiered approach to evaluate: (1) physical location; (2) dredging depth; and (3) dredge material storage. This approach will be dependent on two scenarios: (a) expanding operations at the Port of Wilmington's current location, or (b) expansion and development of a new multiple-user marine terminal on the Delaware River. At present, six (6) alternatives have been outlined for the physical location, three (3) alternatives for dredged material disposal, and the Applicant is currently evaluating a range of proposed dredging depths between 38 and 45 feet below Mean Lower Low Water (MLLW).

mb 3/4/19

The Applicant is requesting that you determine the federal interest for the Assumption of Maintenance of non-federal sponsor improvements for the primary harbor access channel (under Section 204(f) of the Water Resources Development Act of 1986 [WRDA]). Approval of the proposed project by the Assistant Secretary of the Army – Civil Works, in accordance with WRDA, would authorize future maintenance of the proposed entrance channel as a federal responsibility. Recurrent dredging is expected to maintain the new entrance channel and berth area for port operation.

The stated purpose of the proposed project is to modernize Delaware's international waterborne trade capabilities and meet the rising demand for modern containerized ports as a consequence of the completion of the Panama Canal Lock Expansion. According to the Applicant, the proposed project is anticipated to attract new containerized shipping commerce to the region rather than displace existing container operations, resulting in economic expansion. New Panamax vessels are approximately 1,200 feet in length, 161 feet in width, and draft approximately 50 feet. Initial plans for the proposed port facility include the capability to berth two New Panamax container ships simultaneously.

You are requesting our input on potential resource issues related to the proposed project. To assist you in the development of a NEPA document and to assess the impacts of the proposed project, we offer you the following comments pursuant to our authorities under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Fish and Wildlife Coordination Act (FWCA), and Endangered Species Act (ESA).

MAGNUSON STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (MSA)

The main stem Delaware River has been designated essential fish habitat (EFH) for a variety of fish managed by the New England Fishery Management Council (NEFMC) and Mid-Atlantic Fishery Management Council (MAFMC) because these areas provide feeding, resting, nursery, and staging habitat for a variety of commercially, recreationally, and ecologically important species. Various life stages of species for which EFH has been designated in the area of the proposed project include, but are not limited to, Atlantic butterfish (*Peprilus triacanthus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), and Atlantic herring (*Clupea harengus*).

The Delaware River is also important habitat for anadromous fish such as alewife *(Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and American shad (*Alosa sapidissima*), which use the Delaware River including the areas in and around the proposed project site as migratory, nursery, resting, and foraging habitat. These *Alosa* species have complex lifecycles where individuals spend most of their lives at sea then migrate great distances to return to freshwater rivers to spawn. American shad (stocks north of Cape Hatteras, N.C.), alewife, and blueback herring are believed to be repeat spawners, generally returning to their natal rivers to spawn (Collette and Klein-MacPhee 2002). These fish are important forage for several federally managed species, providing trophic linkages between inshore and offshore systems. Buckel and Conover (1997) in Fahey et al. (1999) reports that diet items of juvenile bluefish include *Alosa* species such as these. Additionally, juvenile *Alosa* species have all been identified as prey species for windowpane and summer flounder in Steimle et al. (2000). The specific area of the proposed project exhibits high relative abundance of diadromous fish species, including alewife and blueback herring (ENTRIX, Inc. 2002). This area is also important for fisheries and their prey as it demarcates the boundary between the mesohaline and oligohaline zones of the river.

In the Mid-Atlantic, landings of alewife and blueback herring, collectively known as river herring, have declined dramatically since the mid-1960s and have remained very low in recent years (ASFMC 2007). Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960s, river herring have been designated as Species of Concern by NOAA. Species of Concern are those about which we have concerns regarding their status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA. We wish to draw proactive attention and conservation action to these species.

The 2012 river herring benchmark stock assessment found that of the 52 stocks of alewife and blueback herring assessed, 23 were depleted relative to historic levels, one was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short. The "depleted" determination was used instead of "overfished" to indicate factors besides fishing have contributed to the decline, including habitat loss, habitat degradation and modification, and climate change. Increases in turbidity due to the resuspension of sediments into the water column during construction can degrade water quality, lower dissolved oxygen levels, and potentially release chemical contaminants bound to the fine- grained estuarine/marine sediments. Suspended sediment can also mask pheromones used by migratory fishes to reach their spawning grounds and impede their migration and can smother immobile benthic organisms and demersal newly-settle juvenile fish (Auld and Schubel 1978; Breitburg 1988; Newcombe and MacDonald 1991; Burton 1993; Nelson and Wheeler 1997). Noise from the construction activities, such as wharf construction, may also result in adverse effects. Our concerns about noise effects come from an increased awareness that high-intensity sounds have the potential to adversely impact aquatic vertebrates (Fletcher and Busnel 1978; Kryter 1984; Popper 2003; Popper et al. 2004). Effects may include (a) lethal and non-lethal damage to body tissues, (b) physiological effects including changes in stress hormones or hearing capabilities, or (c) changes in behavior (Popper et al. 2004).

Understanding how the riverine environment and the geomorphic features (e.g., shoreline, nearshore wetlands, and flats) associated with it function to provide habitat is the product of complex interactions between biological processes and physical factors. There is potential for significant short-term and long-term physical, biological, and chemical impacts from dredging, filling, and modifying habitat in the Delaware River. Potential impacts caused by dredging and filling include physical removal of benthic faunal communities and disturbance of foraging, nursery, and migratory habitat for fish and invertebrates. Dredging and filling can also affect benthic communities by altering sediment transport characteristics, sediment texture, depth and vertical relief, and overall community structure. Systematic disturbances such as repeated dredging and high-energy propeller wash may result in cumulative and chronic changes in habitat quantity and quality.

Consultation
The MSA requires federal agencies, such as the ACOE, to consult with us on any action or proposed action authorized, funded, or undertaken, by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process. The level of detail in an EFH assessment should be commensurate with the complexity and magnitude of the potential adverse effects of the action.

Essential fish habitat is defined as, "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." For the purpose of interpreting the definition of EFH:

- "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate;
- "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities;
- "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem;
- "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

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.

The EFH final rule also states that the loss of prey may be an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH.

Our EFH regulations also allow EFH consultations, including abbreviated and expanded consultations to be combined with existing procedures required by other statutes, such as NEPA if such processes meet, or are modified to meet, certain criteria. The existing process must provide us with timely notification of actions that may adversely affect EFH. Whenever possible, we should have at least 60 days' notice prior to a final decision on an action, or at least 90 days if the action would result in substantial adverse impacts.

If an EFH assessment is contained in another document, such as a draft NEPA document, it must be clearly identified as an EFH assessment and include all of the following mandatory elements including: (i) a description of the action, (ii) and analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable. If appropriate, the assessment should also contain additional information, including: (i) the results of an on-site inspection to evaluate the habitat and the site specific effects of the project, (ii) the views of recognized experts on the habitat or species that may be affected, (iii) a review of pertinent literature and related information, (iv) an analysis of alternatives to the action. Such analysis should include alternatives that could avoid or minimize adverse effects on EFH, and (v) other relevant information.

As part of the NEPA process, a comprehensive EFH assessment should be prepared to address the direct, indirect, individual, cumulative, and synergistic effects of the proposed project on EFH, federally managed species and their prey. To fully evaluate the proposed project, information regarding the location, type, quantity, frequency, magnitude, and duration of impacts will be necessary as well as biological information characterizing the distribution, abundance, biomass, production and diversity of fish and their prey (including benthic invertebrates).

Additionally, fishery-independent surveys that include a combination of active sampling (e.g., trawling) and passive sampling (e.g., acoustic technologies) should be used to fully characterize species use of the area. Sampling should occur throughout the year to evaluate temporal differences in biological communities. Fishery-dependent surveys may also be useful for evaluating project effects. Furthermore, thorough analyses of each alternative, as well as the individual components of each alternative should be undertaken to fully evaluate the potential impacts of the proposed project. Impacts to aquatic resources should be avoided to the maximum extent practicable and compensatory mitigation should be provided to offset unavoidable adverse effects. Avoidance and minimization measures and compensatory mitigation should be clearly described in the EFH assessment.

For a listing of EFH and further information, please see our website at: http://www.greateratlantic.fisheries.noaa.gov/habitat. The website also contains information on descriptions of EFH for each species, guidance on the EFH consultation process including EFH assessments, and information relevant to our other mandates.

FISH AND WILDLIFE COORDINATION ACT (FWCA)

The Fish and Wildlife Coordination Act, as amended in 1964, requires that all federal agencies consult with us when proposed actions might result in modifications to a natural stream or body of water. It also required that they consider effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species that are not managed by the federal fishery management councils and do not have designated EFH. The Delaware River serves as important habitat for many aquatic species and their forage including striped bass (*Morone saxatilis*), blue crab (*Callinectes sapidus*), Atlantic menhaden (*Brevoortia tyrannus*), American eel (*Anguilla rostrata*), bay anchovy (*Anchoa* *mitchilli*), hickory shad (*Alosa mediocris*), Atlantic croaker (*Micropogonias undulatus*) and other assorted baitfishes and shrimps.

The section of the Delaware River where the project is proposed is used by a wide variety of resources of concern to us. The New Jersey Department of Environmental Protection (NJDEP) has conducted fish sampling in the Delaware River, including the portion of the river near the project area since 1980. This long-term survey documents the use of this section of the river by a wide variety of species including blueback herring, alewife, American shad, American eel, Atlantic herring, Atlantic menhaden, bay anchovy, gizzard shad (*Dorosoma cepedianum*), hogchoker (*Trinectes maculatus*), striped bass, yellow perch (*Perca flavescens*), white perch (*Morone americana*), Atlantic silverside (*Menidia menidia*), and many others (NJDEP 2010). Weisberg *et al.* (1996) captured more than 25 different species near the area of the proposed project in the Delaware River including yellow perch, hickory shad, hogchoker, banded killifish (*Fundulus diaphanus*) and mummichog (*Fundulus heteroclitus*). Studies done by VERSAR, Inc. (Weisberg *et al.* 1990) determined that striped bass eggs and larvae were most abundant near Wilmington, DE.

Impingement studies done at the Eddystone power plant located on the Pennsylvania side of the Delaware River near the project site identified 53 species of fish in this section of the river including alewife, American eel, American shad, Atlantic menhaden, bay anchovy, blueback herring, gizzard shad, hogchoker, spot, striped bass and white perch (Waterfield et al. 2008). Additionally, trawl, ichthyoplankton, and impingement/entrainment studies were conducted at the specific area of the proposed project from 1999 to 2001 for the Edgemoor Power Plant operated by Conectiv (ENTRIX, Inc. 2002). ENTRIX, Inc. (2002) identified over 40 species in this section of the river, with Atlantic croaker, bay anchovy, and hogchocker dominating trawl surveys, striped bass dominating all ichthyoplankton surveys, and river herring and striped bass dominating entrainment surveys. Striped bass and river herring appear to favor the shoreline and nearshore area near the Edgemoor Site (ENTRIX, Inc. 2002).

The area of the proposed project is regionally significant for striped bass because of its importance as spawning, nursery, foraging, and resting habitat. Striped bass are not only a commercially and recreationally important species, but are strongly tied to the cultural heritage of the eastern U.S. The spawning migration of resident and coastal contingents moving upriver to the freshwater reaches of the Delaware River occurs in the spring. Late larvae and early juveniles favor shallower water with slower currents, and likely reside in nearshore areas for increased feeding opportunities and reduced predation risk. Juveniles subsequently move downstream to overwinter in the lower Delaware River and Delaware Bay. Additionally, the proposed project is adjacent to the Cherry Island Flats, a geomorphic feature where gravid females aggregate and various other life stages of striped bass use as nursery, foraging, and resting habitat; the Flats are considered a hot spot for all life stages of striped bass (personal communication with Delaware DNREC fisheries biologists).

Flats (shoal) habitat is defined by such factors as exposure, sediment texture, depth, and rugosity. Flats are also generally characterized by high fish production, high benthic faunal density, and species diversity; dense aggregations of fish are supported by local primary production. Benthic invertebrate communities can be highly diverse and productive despite natural disturbance regimes. Infaunal species provide important trophic linkages coupling benthic-pelagic ecosystems. Potential changes to the physical, biological, or chemical elements of the Cherry Island Flats from the proposed project may result in widespread and unanticipated adverse impacts to the habitat.

Catadromous American eels spawn in the Sargasso Sea and transit the Delaware River as elvers to migrate to freshwater tributaries within Delaware River watershed. They inhabit these freshwater areas until they return to the sea as adults. According to the 2012 benchmark stock assessment, the American eel population is depleted in U.S. waters. The stock is at or near historically low levels due to a combination of historical overfishing, habitat loss, food web alterations, predation, turbine mortality, environmental changes, exposure to toxins and contaminants, and disease (ASMFC 2012). Actions being considered as part of the proposed project may impede the movements of these species between important freshwater habitats and the Atlantic Ocean in a number of ways including altering hydrologic conditions such as velocity and flow patterns, as well as changing water quality.

Submerged Aquatic Vegetation

The area of the proposed project may also include submerged aquatic vegetation (SAV) habitat. SAV habitats are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling, physical modification of the water column, and binding sediments to providing food and shelter for commercially and recreationally important fishery species (Stephan and Bigford 1997). Several species have been observed throughout the tidal Delaware River since 1970, including: *Vallisneria americana, Myriophyllum spicatum, Elodea nuttallii, Najas flexillis, Potamogeton sp.* and others (Schuyler 1988). Since 2017, the U.S. Environmental Protection Agency (USEPA) has surveyed portions of the tidal Delaware River and found expansive SAV beds, with many of the same species documented by Schuyler (1988) [preliminary USEPA data]. Wild celery (*Vallisneria americana*) appears to be one of the most abundant SAV species in the Delaware River and its tributaries, as it is routinely encountered by researchers and the public (preliminary USEPA data and personal communication with USEPA). SAV provides valuable nursery, forage and refuge habitat for a variety of migratory and forage fish species including striped bass, American shad, alewife, and blueback herring. It is also an important food source for waterfowl. In addition, the USEPA has designated SAV as a special aquatic site under Section 404(b)(1) of the federal CWA, due to its important role in the marine ecosystem for nesting, spawning, nursery cover, and forage areas for fish and wildlife. Surveys for SAV should be conducted in and around the site of the proposed project between June 1 and October 15 of any year. Surveys should be conducted in any area proposed to be dredged, filled, or covered (with an over-water structure) and adjacent areas that may be affected by turbidity, sedimentation or other impacts extending beyond the primary project footprint.

Wetlands
While much of the wetland fill proposed may occur within a confined dredged material disposal facility (CDF), numerous acres of tidal wetlands could be filled as part of the proposed project. Tidal wetlands provide nursery and forage habitat for a variety of species including alewife, Atlantic croaker, Atlantic menhaden, spot (*Leiostomus xanthurus*), striped bass, as well as federally managed bluefish and summer flounder (Graff and Middleton undated). Important forage species such as mummichog, Atlantic silverside (*Menidia menidia*), inland silverside (*Menidia beryllina*), killifish (*Fundulus sp.*), and bay anchovy also use these areas. Mummichog, killifish, anchovies and other small fish and benthic organisms found in estuarine wetlands provide a valuable food source for many of the commercially and recreationally valuable species mentioned above including striped bass, summer flounder, weakfish, red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*) and windowpane flounder (Steimle et al. 2000).

Wetlands also provide many other important ecological functions and services to society including fish and wildlife habitat, food chain support, surface water retention or detention, groundwater recharge, and nutrient transformation, sediment retention and atmospheric equilibrium. The primary production in wetlands forms the base of the food web that supports insects and forage fish that are then prey species for larger fish such as bluefish, summer flounder and other species that have been documented in the marsh creeks surrounding the project site. The water quality services provided by these wetlands retain nutrients, sediments and contaminants and improve water quality. Wetlands may also help to moderate global climate change through carbon storage within the plant communities and soil. The loss of wetlands as a result of this project can adversely affect federally managed species and other species of concern to us though the reduction in prey species and primary production, as well as water quality degradation from the reduction in sediment retention and pollution filtration.

ENDANGERED SPECIES ACT

The ESA requires federal agencies (in this case, the ACOE) to ensure, in consultation with NMFS, that any action authorized, funded, or carried out by them is not likely to jeopardize species listed under the ESA or destroy or adversely modify critical habitat. Depending on the final alternative selected and as project details become finalized, an interagency consultation, pursuant to section 7 of the ESA, may be necessary. If you determine that the proposed project is not likely to adversely affect listed species under our jurisdiction, then you need to request concurrence from us with your determination. If you determine that the proposed project is likely to adversely affect listed species under our jurisdiction, then a formal consultation will be required.

It is important to note that in the regulations implementing Section 7(a)(2) of the ESA (interagency consultation), "effects of the action" are the direct and indirect effects of the action, plus the effects of any interrelated or interdependent activities. Interrelated activities are activities that are part of the proposed action and depend on the proposed action for their justification. Interdependent activities are activities that have no independent utility apart from the action under consideration. Such activities would be those that would not occur "but for" the proposed action under consultation.

In recognition of this, a consultation needs to fully consider all effects of the action on listed species, which include effects on listed species from the construction of the terminal and the activities related to the future operation of the terminal, including associated vessel traffic. While all construction activities and future operation of the facilities such as long-term vessel use of the new facility may not be under your jurisdiction, they are effects of the action that need to be analyzed if they would not occur "but for" the action and are reasonably certain to occur.

Overall, to ensure ESA consultation is completed in a timely manner, we recommend that the lead federal action agency develop a biological assessment (BA) that includes: 1) a thorough analysis and deconstruction of the proposed project into its individual components that includes all activities related to the construction as well as long-term operation of the facility; 2) a description of the action area that encompasses direct and indirect effects from all stressors from the proposed project, including interrelated and interdependent actions; 3) a full description and status of all life stages of ESA-listed species that may be present in the action area; 4) a thorough consideration of the baseline that includes all current activities that affect ESA-listed species; and 5) an effects analysis that evaluates the impacts of all stressors, including those from interrelated and interdependent activities, on each species, their life stages, and critical habitat that are present in the action area. Further, a biological assessment should include any known, unrelated future non-federal activities (cumulative effects) reasonably certain to occur within the action area that are likely to affect ESA-listed species. Information about the ESA interagency consultation process, tools to evaluate effects, and suggested avoidance and minimization measures can be found on our GARFO website[1].

Project Activities and Action Area

During an interagency consultation under section 7(a)(2) of the Act, the lead federal agency in coordination with us will evaluate the effects of a proposed project within the action area. 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." It also includes the areas to be affected by interrelated and interdependent activities. Here we discuss the activities and their associated stressors that should be considered in determining the action area for the proposed project. Since the project is in the early stages of planning, the activities addressed below may not include all proposed activities. Therefore, effects to listed species from other activities than those addressed here may have to be consider when determining the action area. Based on the information provided, the construction of the terminal includes demolition of existing structures, riverbank excavation, deepening of the berth area and entrance channel, transport and deposition of dredged materials, construction of structures, and grading of upland areas. In-water construction activities are expected to include the use of a dredge to remove sediment, driving of piles, and the movement and transit of project vessels. The proposed project also includes development of facilities for the handling, storage, logistics, and landward transport of cargo. While the construction of landward components of the terminal are not under your jurisdiction, the landward components of the terminal construction should be considered for potential pathways of stressors that would affect ESA-listed species under our jurisdiction. Potential activities include, but are not limited to, excavation and grading of the terminal site, waste and stormwater discharge, the construction and subsequent presence of a cut-off wall, removal of riparian vegetation, and any loss of tidal wetlands. Effects of these activities needs to

[1]NOAA Fisheries: https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html

be considered when determining the effects and the action area. Thus, the area that will be dredged, the extent of turbidity plumes, the distance that sound travels during pile driving, the route of project vessels to and from disposal sites, and the route of project vessels to and from their point of origin will all determine the size and shape of the action area.

In addition to construction activities, the proposed project includes port operations for containerized shipping commerce. Activities related to the operation of the facility include but may not be limited to the management and discharge of stormwater, dredging to maintain river depth at the berth and entrance channel, vessel maneuvers and movements in the entrance channel and berth, and transit of container vessels to and from the port. Effects of these activities needs to be considered in determining the action area.

The applicant states that the new terminal is expected to attract new container commerce rather than displacing existing commerce. The terminal is intended to accommodate two New Panamax container ships simultaneously. Thus, the transit and movement of the vessels in the Delaware River, Delaware Bay, and offshore may be vessel activities that would not occur but for the proposed project. Vessel traffic is known to interact with ESA-listed sturgeon, sea turtles, and whales (Barco et al. 2016, Brown and Murphy 2010, Damon-Randall et al. 2017, Singel et al. 2003). Further, vessel traffic and navigation can negatively affect habitat (Gabel et al. 2017, PIANC 2008). Therefore, a consultation will need to analyze effects of container vessel activity to ESA-listed species under our jurisdiction and to Atlantic sturgeon critical habitat. To the extent effects are reasonably certain to occur, the transit routes and movements of the vessels that are expected to call at the proposed terminal should be used in determining the action area.

We look forward to assisting you with the development of the project description and defining the action area as well as collaborating with you to determine how best to appropriately analyze effects for this action.

ESA-Listed Species Presence in the Action Area

Currently the project is in the early stage of planning and, as part of the NEPA process, you and the applicant are evaluating several alternatives. Consequently, the action area has not been defined. Below, we provide information on presence of species within an action area based on the preferred alternative.

In your request for comments on the proposed project you incorrectly stated that "the entire Delaware River has been declared critical habitat for Atlantic sturgeon and shortnose sturgeon." However, critical habitat has not been designated for shortnose sturgeon. Critical habitat was designated for Atlantic sturgeon in 2017 (82 FR 39160), including for the Atlantic sturgeon New York Bight (NYB) Distinct Population Segment (DPS), which includes Atlantic sturgeon originating from the Delaware River. While a large portion of the Delaware River was designated as critical habitat for the NYB DPS, it is not correct that the entire Delaware River is designated as critical habitat (see below). Further, your assessment failed to include several other listed species that the proposed project may affect. Please note that we have developed an online web application (ESA Section 7 Mapper) where you can access data layers that represent our best estimate of the spatial and temporal range of listed species' life stages and critical habitat in our region. The Section 7 Mapper can be accessed from our website[2] and is a convenient tool that can be used to generate a report for the presence of species and life stages within an area.

Below we provide a list of species and their various life stages that are present in the lower Delaware River, within the Delaware Bay, and in coastal areas offshore of New Jersey and Delaware. We also provide information about presence of critical habitat for Atlantic sturgeon. Please, note that our comments are limited to the presence of species and do not include the detailed information about biology, behavior, and habitat use that may be needed to properly analyze effects on each species and their life stages.

The following protected species and critical habitat may be affected by the proposed project:

Fish

- Shortnose Sturgeon (*Acipenser brevirostrum*) (32 FR 4001; Recovery plan: NMFS 1998)
- Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914)

Sea Turtles

- Kemp's Ridley Turtle (*Lepidochelys kempii*) (35 FR 18319; Recovery plan: NMFS et al. 2011)
- Leatherback Turtle (*Dermochelys coriacea*) (35 FR 849; Recovery plan: NMFS & USFWS 1992)
- Loggerhead Turtle (*Caretta caretta*) (76 FR 58868; Recovery plan: NMFS & USFWS 2008)
- Green Turtle (*Chelonia mydas*) (81 FR 20057; Recovery plan: NMFS & USFWS 1991)

Whales

- North Atlantic Right Whale (*Eubalaena glacialis*) (73 FR 12024; Recovery plan: NMFS 2005)
- Fin Whale (*Balaenoptera physalus*) (35 FR 18319; Recovery plan: NMFS 2010)

Critical Habitat

- Critical habitat of Atlantic Sturgeon (82 FR 39160)

Shortnose sturgeon

The federally endangered shortnose sturgeon occurs in the Delaware River from the lower Delaware Bay upstream to at least Lambertville, New Jersey (RKM 238, RM 148). The shortnose sturgeon are benthic invertivores. Young-of-year (YOY) feed on amphipods and dipteran larvae found in drift and mud substrate. Juveniles and adults feed on benthic insects, crustaceans, mollusks, and polychaetes (SSSRT 2010). Adult shortnose sturgeon may also forage on small benthic fishes.

In the Delaware River, movement to the spawning grounds occurs in early spring, typically, in late March, with spawning occurring through early May. Larvae have been collected and spawning is believed to occur in the area between Scudders Falls and the Trenton rapids (RKM

[2] https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html

214-224; RM 133-139) (ERC 2007). Hatchlings may seek cover in the gravel at the spawning site and larvae are expected to remain in the spawning area (Kynard and Horgan 2002). Young-of-year may move downstream to areas above the salt front and can therefore occur in the lower Delaware River including the areas in and around the proposed project site.

Juveniles migrate downstream where they move back and forth in the low salinity portion of the salt wedge during summer. In the Delaware River, the oligohaline/freshwater interface can range from as far south as Artificial Island (RKM 87, RM 54) north to the Schuylkill River (RKM 142, RM 92). Juvenile shortnose sturgeon are known to occur year round at and downstream of the site of the proposed project (Brundage and O'Herron 2009, ERC 2016, 2017, 2018).

After spawning, adult shortnose sturgeon migrate rapidly downstream to the lower Delaware River. By the time water temperatures have reached 10°C, typically by mid-November, most adult sturgeon have returned to the overwintering grounds in the Roebling (RKM 200, RM 124), Bordentown (RKM 208, RM 129), or Trenton reaches (RKM 214, RM 133), but may overwinter as far downstream as Wilmington (RKM 116, RM 72) (Environmental Research and Consulting 2016, O'Herron et al. 1993).

Thus, both juvenile and adult shortnose sturgeon occur year round at the site or the proposed project and in the downstream reaches. The lower Delaware River provides important foraging and overwintering habitat. Based on spawning occurring over 100 RKM upstream of the project site and the behavior of larvae, shortnose sturgeon eggs and larvae do not occur at the site of the proposed project.

Atlantic Sturgeon

The Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina Distinct Population Segments (DPS) are listed as endangered, while the Gulf of Maine DPS is listed as threatened. The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida; therefore, the Atlantic sturgeon originating from any of the five DPSs may be present in the Delaware River.

The Atlantic sturgeon are omnivorous benthic feeders that draw food into a ventrally located protrusible mouth. The diet of adult and subadult Atlantic sturgeon includes benthic invertebrates such as worms (Oligo- and Polychaeta), mollusks, crustaceans (incl. amphipods, decapods and isopods), gastropods and occasionally fish (ASSRT 2007, Guilbard et al. 2007, Savoy 2007). Juveniles also feed on aquatic insects and aquatic life stages of terrestrial insects, such as chironomidae larvae (ASSRT 2007).

In the Delaware River, Atlantic sturgeon occur from the mouth of the Delaware Bay to the fall line near Trenton, NJ (ASSRT 2007, Simpson 2008). Spawning migrations are believed to occur from April and into July and spawning to occur over hard bottom substrate. Atlantic sturgeon spawning could occur where spawning habitat features are present from Marcus Hook Bar (~RKM 125) to the fall line at Trenton, NJ (~RKM 213.5) (Breece et al. 2013, Simpson 2008).

Sturgeon eggs are highly adhesive and are deposited on the bottom substrate, usually on hard surfaces (e.g., cobble) (Gilbert 1989, Smith and Clugston 1997). Hatchlings (yolk sac larvae) seek refuge among coarse bottom substrate. Once the yolk is exhausted, the post yolk sac larvae are believed to move downstream to rearing grounds in freshwater areas upstream of the salt front (Kynard and Horgan 2002). The larvae do not tolerate saline water.

Rearing of YOY and juveniles occur upstream of the salt water front and in increasingly saline waters as they grow. In the Delaware River, juvenile rearing concentration areas exist from the New Castle Range to upstream of Philadelphia, PA (Calvo et al. 2010, ERC 2018, Fisher 2011).

Young remain within their natal river/estuary for periods of approximately one to six years before emigrating to the open ocean as subadults (ASSRT 2007, Smith 1985). After emigration from the natal river/estuary, subadults and adult Atlantic sturgeon travel within the marine environment, using coastal bays, sounds, and ocean waters and may enter estuaries and rivers other than their natal rives (Collins and Smith 1997, Dunton et al. 2010, Erickson et al. 2011, Laney et al. 2007, Murawski and Pacheco 1977).

Atlantic sturgeon are commonly found off the coast of New Jersey where they are generally found at depths of less than 40 meters with most captures at depths of 20 meters or less (Dunton et al. 2015, Dunton et al. 2010, Erickson et al. 2011). Aggregations and large presence of sturgeon from Long Island to Virginia during winter months indicates that the New York Bight is an important overwintering area (Dunton et al. 2010). Two concentration areas have been identified along the New Jersey coast; one of these is located at the Delaware Bay mouth (Breece et al. 2018, Dunton et al. 2010, Erickson et al. 2011, Stein et al. 2004).

Based on the above information, all life stages of Atlantic sturgeon are found at the project area. The project site and extending down the Delaware River to its mouth with the bay is an important area for juvenile foraging and physiological development and is used for foraging by subadults. It is also a migration corridor for adults during spawning. Adult and subadult individuals are present year round in the Delaware Bay and the Bay mouth; high concentrations are present from fall through spring just within and oceanward of the Bay mouth.

Critical Habitat for Atlantic Sturgeon

On August 17, 2017, we issued a final rule to designate critical habitat for the threatened Gulf of Maine DPS of Atlantic sturgeon, the endangered New York Bight DPS of Atlantic sturgeon, the endangered Chesapeake Bay DPS of Atlantic sturgeon, the endangered Carolina DPS of Atlantic sturgeon, and the endangered South Atlantic DPS of Atlantic sturgeon (82 FR 39160). The rule was effective on September 18, 2017.

Critical habitat in Delaware River for the New York Bight Atlantic sturgeon DPS includes the river main stem from the Trenton-Morrisville Route 1 Toll Bridge (RKM 214.6, RM 133) to where the main stem of the river discharge into Delaware Bay (RKM 77.6, RM 48). Thus, the project area overlaps with the Delaware River critical habitat unit designated for the New York Bight DPS.

As identified in the final rule, the biological and physical features (PBF) that are essential to the conservation of the species and that may require special management considerations or protection are:

1) Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0 to 0.5 parts per thousand (ppt) range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;
2) Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development; 3)
3) Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support:
    i) Unimpeded movement of adults to and from spawning sites;
    ii) Seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and
    iii) Staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river.
4) Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support:
    i) Spawning;
    ii) Annual and interannual adult, subadult, larval, and juvenile survival; and
    iii) Larval, juvenile, and subadult growth, development, and recruitment (e.g.,13 °C to 26 °C for spawning habitat and no more than 30 °C for juvenile rearing habitat, and 6 milligrams per liter (mg/L) dissolved oxygen (DO) or greater for juvenile rearing habitat).

The Delaware River Basin Commission (DRBC) identifies RKM 107.8 (approximately RM 67) as the lower part of the median range for the salt front (defined as 0.25 ppt). It is reasonable to use the furthest downstream extent of the median range of the location of the salt front (0.25 ppt) as a proxy for the downstream border of PBF 1 in the Delaware River. This because the salinity near the salt front is dynamic and the area where there would be a difference in salinity between 0.25 and 0.5 ppt is very small. Consequently, we consider the area upstream of RKM 107.8 to have salinity levels consistent with the requirements of PBF 1. The river channel adjacent to the proposed Edgemoor site may consist of hard bottom substrate [3]. Based on the physical and biological features of the river, PBF 1,3, and 4 are present adjacent to and upstream of the project site and PBF 2, 3, and 4 in the river downstream from the project site to the mouth of the Delaware River.

Sea Turtles

There are four listed turtle species that may occur within New Jersey state coastal waterways and the Delaware Bay from late spring to mid-fall. The four listed species include the federally threatened Northwest Atlantic Ocean DPS of loggerhead, endangered Kemp's ridley, endangered leatherback, and threatened North Atlantic DPS green sea turtle.

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[3] https://erma.noaa.gov/atlantic/erma.html#/layers=1+814+17307+1073+1252&x=-75.50481&y=39.74258&z=14&panel=layer

The functional ecology of sea turtles in the marine and/or estuarine ecosystem is varied. The loggerhead is primarily carnivorous and has jaws well-adapted to crushing mollusks and crustaceans, and grazing on encrusted organisms attached to reefs, pilings and wrecks. The Kemp's ridley is omnivorous and feeds on swimming crabs and crustaceans. Juvenile green sea turtles are primarily carnivorous, and more mature specimens eat marine animals, particularly, cnidarians, mollusks, crustaceans, sponges and jellyfish, along with vascular sea grass. An adult green turtle is an herbivore and grazes on marine grasses and algae, while the leatherback is a specialized feeder preying primarily upon jellyfish.

The recognized life stages for these turtles are egg, hatchling, juvenile/subadult, and adult (Hirth 1971). Reproductive adults of all species return to their natal beach to lay eggs that incubate in the sand. A female sea turtle leaves the beach to enter the coastal waters immediately after laying and covering her eggs.

Hatchlings dig their way out of the sand to emerge from the nest. They find their way across the beach and, once in the surf, swim offshore for many hours. Hatchlings may become associated with floating sargassum rafts offshore (Bjorndal 1995).

Along the U.S. Atlantic coast, known sea turtle nesting beaches occur from Virginia south through Florida. No beaches north of Virginia support regular nesting by any sea turtle species. A few green and loggerhead sea turtle nesting attempts have occurred on Delaware and New Jersey beaches, but these have been unsuccessful and are believed to have been abnormalities. Thus, hatchlings would not be present along the Delaware and New Jersey coast.

In general, listed juvenile and adult sea turtles are seasonally distributed in coastal U.S. Atlantic waters, migrating to and from habitats extending from Florida to New England, with overwintering concentrations in southern waters. As water temperatures rise in the spring, these turtles begin to migrate northward. As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration. Sea turtles are expected to be in coastal water from Massachusetts to New Jersey and in the Delaware Bay in warmer months, typically when water temperatures are at least 15°C. This generally coincides with the months of May through November, with the highest concentration of sea turtles present from June through October (Morreale et al. 2007, Shoop and Kenney 1992).

Right and Fin Whales

Federally endangered North Atlantic right whales are found in waters from New Jersey to Massachusetts. This species may be present on the continental shelf off the coast of New Jersey.

Two Seasonal Management Areas (SMA) for right whales with 10 knots maximum speed restrictions for vessels 65 feet or larger exist in New Jersey state waters (50 CFR 224.105)[4]. One SMA is located at the on the oceanward side of the entrance to Delaware Bay.

It is believed that there are approximately 450 right whales comprising the western North Atlantic population. The North Atlantic right whale remains critically endangered, the rarest of all large whale species and among the rarest of all marine mammal species. Recent analysis of

[4] https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales

sightings data suggests a decrease in population size (Pace et al. 2017). The North Atlantic right whales migrate along the New Jersey coast to calving and nursery grounds and they have been documented year round along the New Jersey coast, including at the mouth of the Delaware Bay (see NMFS: http://www.nefsc.noaa.gov/psb/surveys/).

Fin whales are listed as endangered. The species is found off the eastern United States and are centered along the 100 meter (328 foot) isobaths. However, sightings are spread out over shallower and deeper water, with their summer feeding range occurring mainly between 41°N and 51°N, from shore seaward to the 1,000-fathom (6,000 feet) contour (Hain et al. 1992, NMFS 2010).

Information concerning the individual life history, distribution and biological requirements for each of the individual species of whales can be found on the NOAA Fisheries webpage at https://www.fisheries.noaa.gov/species-directory.

Effects

The Delaware River from the New Castle Range to the Little Tinicum Island Range are important nursery reaches that supports high densities of both juvenile Atlantic sturgeon and shortnose sturgeon (ERC 2016, 2017, 2018, Hale et al. 2016). Subadult and adult Atlantic sturgeon are present from spring to fall. The adjacent Cherry Island Flats is an area that sturgeon are known to utilize (Hale et al. 2016). Its importance for sturgeon is not clear but the feature is known to provide habitat for multiple fish species and likely provides important forage and potential staging for migrating adult Atlantic sturgeon. This part of the river is also a migration corridor during spawning. Therefore, there are no time period when sturgeon exposure to stressors can be avoided. However, in developing the proposed project, you should consider avoiding in-water construction activities when Atlantic sturgeon spawning migration occurs (April through early July) and when Atlantic sturgeon larval life stages are present (May through September).

As part of the NEPA process, it is important that impacts to protected resources are not analyzed in a vacuum but rather assessed in light of the cumulative impacts from existing and planned commercial developments and navigation activities in the Delaware River and Bay. Similarly, as part of the ESA consultation process, the risk to listed species is based on the effects of proposed activities when added to the existing environmental baseline within the action area.

Below we provide information on stressors and concerns with regard to development of the proposed project. Please note that the comments below are not meant to be extensive or address all potential stressors and effects related to the proposed project. The extent and intensity of effects will also depend on the alternative.

Habitat Modification

The Shortnose Sturgeon Status Review Team (SSSRT 2010) and the Atlantic Sturgeon Status Review Team (ASSRT 2007) have identified loss of habitat as a threat to sturgeon in the Delaware River. Further, Atlantic sturgeon critical habitat PBF 1 (Hard bottom substrate in low salinity waters for settlement of fertilized eggs, refuge, growth, and development of early life stages) is present upstream of Wilmington and PBF 2 (soft substrate for juvenile foraging and physiological development) is present in the Delaware River from the project site to its mouth with the Delaware Bay.

Proposed Project Site

The riverbed adjacent to Edgemoor seems to consist of hard bottom substrate[5]. Based on current information, Atlantic sturgeon spawn upstream (i.e., RKM 125-212, RM 77.7-131.7) of the proposed Edgemoor project site. However, the hard substrate may support refuge, growth, and development of early life stages. Therefore, as part of the NEPA process, you should survey presence of hard bottom substrate and assess its type (i.e. bedrock, cobble, etc.) within the project site and in the adjacent river channel above RKM 107.8 for each of the alternatives.

Both shortnose sturgeon and Atlantic sturgeon forage on benthic invertebrates and substrate type strongly affects the composition of benthic prey. Both species are associated with the availability of prey, and, as a result, soft substrates, such as sand and mud, constitute ideal forage conditions for the sturgeon. Mollusks are also important prey for shortnose sturgeon and they may forage off the plant surface of submerged aquatic vegetation. Therefore, as part of the NEPA process, you should document the presence of soft bottom substrate and provide information characterizing baseline distribution, abundance, biomass, production, and diversity of invertebrate prey.

The construction of the berth and approach channel as well as future maintenance dredging will result in the total removal of the substrate and thereby benthic invertebrates that sturgeon forage on. Active dredging results in suspension of sediment and re-deposition, elevated turbidity, and reduced water quality that can negatively affect benthic invertebrates and Atlantic sturgeon spawning habitat. Besides the proposed deepening, the stopping-starting and maneuvering of vessels approaching and docking at the terminal are expected to continue to disturb bottom sediment and decrease available forage within the approach channel and berth. The strong swirling jet flow induced by a rotating ship propeller causes shear stress and can scour the riverbed as the vessels maneuver within the approach channel and berth (Hong et al. 2013, Hong et al. 2016, Karaki and van Hoften 1975). Because the propeller-induced bed shear stress is a main stirring force, sediment erosion, resuspension and deposition are all expected to be closely related to vessels maneuvering while docking (Karaki and van Hoften 1975, Nybakk 2015). Thus, bottom scour and shear stress from vessel operations and propellers should be calculated and quantified. In your letter you note that the new river bottom after deepening may consist of sediments that has concentration of certain substances that exceed ecological screening criteria. As such, the resuspension of sediment can contribute to transport of contaminants from a polluted area to a non-polluted area and expose sturgeon to suspended pollutants. Studies have also shown that scouring and resuspension of sediment caused by vessel traffic negatively affect submerged aquatic vegetation (Asplund and Cook 1997, PIANC 2008). Consequently, a calculation of the concentration, duration, and extent of suspended sediment should be prepared as part of the NEPA process. Further, vessel activity and propeller motion when vessels are arriving and leaving the berth are likely to disturb sturgeon that are present within or adjacent to the berth area. Based on these considerations, we believe the development of the access channel and berth will result in the permanent loss and degradation of sturgeon habitat in a reach of the Delaware River that provides important habitat for sturgeon.

[5] https://erma.noaa.gov/atlantic/erma.html#/layers=1+814+17307+1073+1252&x=-75.53756&y=39.74388&z=12&panel=layer

Based on the calculations and findings above, you should evaluate the effects that the proposed project will have on both sturgeon species and the Atlantic sturgeon critical habitat. Continuous impacts to substrate and turbidity plumes are expected to decrease the value that habitat within the berth, approach channel, and the adjacent river channel have for conservation. The extent to which habitat value will decrease depends on the value for conservation that the habitat within the proposed berth, access area, and adjacent river currently provide.

Delaware River Navigation Channel

New Panamax sized vessels will have little clearance between the hull and the river bed. The propeller of these vessels are several meter in diameter. Propeller wash from large vessels with minimal clearance and hydrodynamic forces around the hull of a moving vessel can cause shear stress on the riverbed and re-suspend sediment (Chen and Wang 2014, PIANC 2008). Starting and maneuvering of vessels such as occur at anchorages can cause large scour holes and significant suspension of sediment (Hong et al. 2013, PIANC 2008). Waves and hydraulic forces around the hull also affect the river bed and causes erosion of the riverbed and banks (Gabel et al. 2017, Gutreuter et al. 2006, Miller and Payne 1991, PIANC 2008, Wilcox 1991). These impacts can detach invertebrates or expose and displace Atlantic sturgeon early life stages seeking cover within interstitial spaces amongst coarse habitat. However, we have little information on clearance between the vessel hulls and the river bottom within the Navigation Channel or the level of shear stress that vessel traffic has on bottom substrate and its impact on sturgeon and their habitat in the Delaware River. As part of the NEPA process, you should calculate the shear stress that New Panamax sized vessels cause on the riverbed as they move through the Navigation Channel, calculate the sizes of sediment that would be impacted, calculate sediment suspension from the vessels' movements, and the quantity of hard and soft substrate that would be exposed to the vessels. This information should be used to evaluate risks to sturgeon from habitat impacts and to Atlantic sturgeon designated critical habitat.

Effects of Construction and Channel Deepening

Pile Driving

We expect that the proposed project includes driving steel piles, though, at this stage in the planning, the number and type of piles are not known. The driving and removal of piles generate sound waves that travels through the water body. Exposure to human generated sounds may potentially affect stress levels and the immune system, cause temporary or permanent loss of hearing, damage body tissues, result in mortality, and kill or damage larvae.

Besides injurious effects, pile driving may elicit behavioral modification and avoidance. Depending on the size and type of the pile as well as the type of hammer, this may temporarily limit use of important foraging areas, affect the value of critical habitat, and restrict migration and movements within the river. Avoidance may also restrict sturgeon up and downstream movements to the navigation channel and, thereby, increase the risk of interaction with vessels. Pile driving may adversely affect listed sturgeon given the importance that this reach of the river has for sturgeon, the density of sturgeon in river reaches adjacent to the project site, and the potential presence of Atlantic sturgeon early life stages with poor swimming abilities.

Dredging

You manage and maintain the Delaware River federal navigation channel (the Federal Navigation Project, FNP) and the deepening of the federal navigation channel in reach B from 40 to 45 feet. The deepening of the channel includes dredging and blasting of bedrock and rock outcrops as well as relocation trawling of sturgeon to minimize effects from blasting. These activities are currently ongoing and expected to be completed in 2019 or 2020. In addition, maintenance dredging of the navigation channel is ongoing and will continue in the foreseeable future. Entrainment in dredges, exposure to sound from blasting, and relocation trawling have injured and killed both Atlantic sturgeon and shortnose sturgeon. An interagency consultation on the deepening and maintenance of the FNP was reinitatied in 2018 and a biological opinion and incidental take statement issued on December 10, 2018.

The applicant has requested that you determine the federal interest for the Assumption of Maintenance of the approach channel under the Water Resources Development Act of 1986. It is unclear how, if approved by the Assistant Secretary of the Army, this will relate to the FNP and determine any future ESA consultation with us.

The proposed project includes the deepening of the berth area and the approach channel connecting the berth to the navigation channel. While project plans are not finalized, we assume the deepening include use of dredges. In addition, rock outcrops seem to be present within the proposed approach channel. Thus it is a possibility that blasting may be needed. In addition, maintenance of the depth at the berth and approach channel will require ongoing dredging. This lower reach of the Delaware River is an important rearing area for juveniles and the relocation trawling for the deepening project has shown that this stretch of river reach supports high densities of young of the year and juvenile sturgeon. Further, sub-adult Atlantic sturgeon are commonly found on the Cherry Island Flats reach of the river. Therefore, risk of mortality from construction and maintenance activities is a concern. Especially, the effects from constructing and maintaining the berth and approach channel needs to be assessed by how those activities affect the species when added to other existing and ongoing federal and private dredging and deepening activities.

Vessel Traffic

In your letter, you note that the proposed project "is anticipated to attract new containerized shipping commerce to the region rather than displacing existing container operations." An increase in the activity of large vessels is a major concern with regard to rebuilding the Atlantic sturgeon population in the Delaware River and has been identified as an issue for the recovery of sturgeon species (ASSRT 2007, Brown and Murphy 2010, SSSRT 2010). Vessels are known to strike sturgeon species as well as marine mammals and sea turtles.

The ACOE Waterborne Commerce Statistics Center reports a large number of vessel trips (in the tens of thousands) in the Delaware River and Bay each year[6]. However, these vessel trips include short movements by tug boats, shallow draft vessels, and non-motorized vessels while studies have identified large, deep draft vessels as the major cause of sturgeon vessel strikes

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[6] ACOE Waterborne Commerce Statistics Center: https://www.iwr.usace.army.mil/About/Technical-Centers/WCSC-Waterborne-Commerce-Statistics-Center/

(Balazik et al. 2012, Brown and Murphy 2010). The number of registered large commercial vessel trips between Philadelphia, PA, and the mouth of the Delaware Bay each year is considerably lower than the total vessel trips reported. For instance, for 2016, the ACOE Waterborne Commerce Statistics Center reported 1,403 trips of tanker sized vessels.

Over a ten-year period, from 2007 to 2017, a median of 13 sturgeon mortalities per year was reported to the Delaware Department of Natural Resources and Environmental Control through their sturgeon carcass public reporting program[7]. Of these, a median of five sturgeon carcasses per year was attributed to vessel strike mortalities. The cause of death could not be determined for a median of seven carcasses and these likely included vessel mortalities. It is unlikely that these mortalities represent the total number of mortalities, as most carcasses are likely to go undetected. Vessel strike mortality of subadult and adult Atlantic sturgeon is of particular concern as the mortality of a small portion of a population's females will significantly affect population growth (ASMFC 2007, Brown and Murphy 2010) and migrating subadults and adults may be especially exposed to vessels (Fisher 2011, Hondorp et al. 2017). The geomorphic structure of the river such as narrow areas and presence of sturgeon concentration areas influence the probability of a vessel striking a sturgeon (Balazik et al. 2012). Further, Atlantic sturgeon larvae exposed to vessel traffic and entrained through a propeller will likely be injured or killed (Killgore et al. 2001).

Large whales are also injured and killed by ocean going vessels. Five North Atlantic right whale confirmed or probable vessel strike mortalities occurred during 2017 and 2018[8]. The cause of death could not be determined for another eight whales and these may have included vessel strikes. North Atlantic right whale occurs in New Jersey coastal areas and in waters off the mouth of the Delaware Bay. Thus, this species will be exposed to vessels transiting to and from the proposed terminal. A Seasonal Management Area seaward of the Delaware Bay COLREG line restricts vessels speeds to protect right whales during migration to and from calving and nursery grounds[9].

Four species of sea turtles are known to be seasonally present in the Delaware Bay and in the waters off the coast. Small and fast moving vessels are known to strike sea turtles. However, little information exists about the risk of injury and death from interaction with large oceangoing vessels. It is possible that the bow wave of large vessels pushes sea turtles away, thereby reducing the risk of blunt impact from the hull or entrainment through the vessel's propeller, though this has not been confirmed.

Supporting documentation and analysis is needed for both short-term vessel traffic associated with the project's construction, as well as long-term vessel use of the proposed Edgemoor multiuser containerized cargo port for each of the proposed alternatives. In addition to the number of vessel trips, information should clearly demonstrate whether all anticipated vessel traffic to the site is from new vessels or whether it includes vessels displaced from other ports should be considered. Any seasonal trends should also be provided. Overall the analysis needs

[7] DNREC: http://apps.dnrec.state.de.us/sturgeon

[8] NOAA Fisheries: https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2018-north-atlantic-right-whale-unusual-mortality-event

[9] NOAA Fisheries: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales

to show the number of new vessels that will be added to the existing vessel traffic and which would not occur but for the proposed action. The analysis should include if certain vessels are expected to be diverted from visiting ports further upstream of the Delaware River and thus, now taking shorter trips over less distance. As part of the NEPA process, for each alternative, the vessel information together with best available data on vessel strikes should be used to analyze and document the risk to protected resources.

There is an expectation of expanded shipping commerce in the region. Therefore, it is important to consider the risk to listed species from the proposed vessel activities within the context of how this adds to the overall commercial vessel activity of the Delaware port complex. Several other ports are expanding and new terminals are being built. These include, but are not limited to, the construction of the Southport Terminal in Philadelphia, the Delaware River Partners' Gibbstown terminals within the Little Tinicum Island range, the expansion of the Paulsboro port in New Jersey upstream of Little Tinicum Island, and activities to increase cargo capacity at several other existing ports and terminals.

CONCLUSION

We look forward to continued coordination with your office to address the issues we have outlined in this letter as you prepare the NEPA document for this project and evaluate project alternatives. The Applicant's preferred project site is located in an area that is highly sensitive for NOAA trust resources including federally protected species under our jurisdiction such as ESA-listed sturgeon as well as aquatic resources of national importance including alewife, blueback herring, and striped bass. Construction activities and terminal operations could result in significant impacts to these resources. Regular maintenance of the approach channel in an area where trust resources, species of concern, and sturgeon are known to congregate can result in significant impacts to these species. Vessel traffic is known to kill sturgeon, including Atlantic sturgeon during spawning migrations, and we are very concerned about planned increases in vessel activity on the Delaware River and in the Delaware Bay. Impacts to sea turtles and whales are also of concern and should be considered. Therefore, the cumulative impacts of construction, maintenance, and operation of the terminal should be analyzed in context of the operation of the overall navigation infrastructure and marine commerce on the Delaware River and Bay.

If you have any questions or need additional information, please do not hesitate to contact Keith Hanson in our Annapolis, MD field office at keith.hanson@noaa.gov or (410) 573-4559 regarding EFH/MSA issues and Peter Johnsen at peter.b.johnsen@noaa.gov or (978) 282-8416 regarding ESA issues.

Sincerely,

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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

February 28, 2019

Mr. Michael Pentony
GARFO Regional Administrator
NMFS/NOAA Fisheries
55 Great Republic Drive
Gloucester, MA 01930

Dear Mike:

On February 28, my staff electronically submitted a preliminary version of the Clam Framework, including a Draft Environmental Assessment, to your staff in the Sustainable Fisheries Division at the Greater Atlantic Regional Fisheries Office. The Council developed this framework to evaluate and designate areas where hydraulic clam dredging might continue in the Great South Channel Habitat Management Area. The purpose of the habitat management area is to minimize, to the extent practicable, the effects of fisheries on essential fish habitat. The framework includes a no action alternative which would allow the present clam dredge exemptions to expire, per the regulations implemented under Omnibus Habitat Amendment 2.

The framework also includes four alternative combinations of exemption areas that provide clam dredges, and in some cases, mussel dredges, year-round or seasonal access to sections of the habitat management area. Two of these alternatives recommend development of a research program to increase our understanding of habitat conditions and fishery impacts to habitats in the management area. The Council's recommended approach, Alternative 5, designates two, year-round exemption areas and one seasonal exemption area for both clam and mussel dredges, plus two areas where research is encouraged.

Upon review of the document, please communicate any comments and/or need for further revision directly to me. Please contact me if you have questions.

Sincerely,

Thomas A. Nies
Executive Director

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

FEB 2 1 2019

John R. Kennelly
Chief, Planning Division
US Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Re: Draft Environmental Impact Statement for the New Haven Harbor Federal Navigation Project in New Haven, Connecticut

Dear Mr. Kennelly:

We have reviewed the Draft Environmental Impact Statement (DEIS) Essential Fish Habitat (EFH) Assessment dated September 2018, regarding the proposed navigation improvements to the New Haven Harbor Federal Navigation Project (FNP) in New Haven, Connecticut. The existing New Haven FNP extends approximately five miles from Long Island Sound into New Haven Harbor and includes a main channel, maneuvering area, and turning basin. The New Haven FNP is currently authorized to a depth of -35 feet mean lower low water (MLLW) with channel widths varying form 400 feet to 800 feet along its length. The current authorized depth of the FNP is not adequate for larger ships using the harbor. The project seeks to deepen the existing channels and turning basin to a depth of -40 feet MLLW with 2 feet overdepth. Areas of the existing FNP will also be widened, including the inner channel from 400 to 500 feet, the entrance channel from 500 to 600 feet, and the East Breakwater bend section from 560 to 800 feet. The project will generate approximately 4.3 million cubic yards of soft sediment dredge material and approximately 43,500 cubic years of rock. You have evaluated multiple beneficial reuse projects to dispose of the dredge material. Dredge material will be placed to create a rock reef along the western breakwater in New Haven Harbor with the rocky dredge material and to create oyster habitat along the eastern border of the FNP. You also propose to create a tidal wetlands over an approximately 73.2 acre area at Sandy Point and fill two abandoned borrow pits (Morris Cove and West River). Any remaining material will be disposed of at Central Long Island Sound Disposal Site or within a confined aquatic disposal cell if it is deemed unsuitable.

You have determined that the proposed project will result in a loss of winter flounder EFH of 8.6 acres due to the proposed dredging and 60.6 acres due to proposed tidal wetland creation. As mitigation for these losses, you have proposed to create 57 acres of winter flounder EFH by filling the two abandoned borrow pits (Morris Cove and West River) to an elevation suitable to serve as winter flounder egg habitat.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require Federal agencies to consult with one another on projects like this project. Because the project involves EFH, the consultation process is guided by the EFH regulatory requirements under 50 CFR 600.920, which mandates the preparation of EFH assessments and generally outlines your obligations. We offer the following comments and recommendations for your consideration.

mb 2/25/19

General Comments
New Haven Harbor and the surrounding waters of Long Island Sound contain productive fishery habitat that supports numerous important living marine resources including federally managed finfish and shellfish. Multiple managed fish species have EFH designated for multiple life history stages in the project vicinity and within the vicinity of the placement areas, including winter flounder, summer flounder, windowpane flounder, little skate, winter skate, and black sea bass. The proposed project would adversely affect the habitat value through direct removal of subtidal habitats, burial of benthic organisms and habitat by the disposal of dredged material and through the elevation of suspended sediments in the water column. Of particular concern are the proposed impacts to EFH for winter flounder sensitive life history stages (e.g. eggs, larvae, young-of-year). Winter flounder EFH that supports these reduced mobility life stages are more likely to be adversely affected by indirect, temporary effects of dredging activities (e.g. suspended sediments) while the projects direct effects (e.g. sediment removal, sediment disposal, or blasting) will result in both temporary and permanent impacts to winter flounder EFH.

Temporary adverse impacts
Winter flounder spawn in Connecticut waters beginning in January when water temperatures are approximately 2-5°C (Pereira et al. 1999). Winter flounder have demersal, adhesive eggs that sink and remain on the bottom until they hatch (Pereira et al. 1999). After hatching, flounder larvae are initially planktonic, but following metamorphosis they are negatively buoyant and are more abundant near the substrate (Pereira et al. 1999; Able and Fahay 1998). Young-of-the-year flounder tend to burrow in the soft-sediments in response to perceived threats rather than flee. Thus, they are not likely to swim away from a dredge, and run a high risk of being entrained. Eggs, larvae and young-of-year flounder are essentially non-dispersive resulting in spawning areas and nursery areas being located in close proximity to each other (Pearcy 1962; Crawford and Carey 1985). These sensitive life history stages could be directly impacted by sediment removal and placement activities, or by deposition of suspended sediments (Berry et al. 2004; Johnson et al. 2008). Blasting activities would have similar impacts, and may also result in adverse impacts to spawning activity.

Eggs and newly metamorphosed larvae that are located within a dredge footprint, blast debris impact area, and the disposal areas would be destroyed and could result in a considerable loss in a year class. Dredging and in-water disposal also result in elevated suspended sediments in the water column which have been documented to result in adverse impacts to various life stages of fish (Newcombe and Jensen 1996, Wilber and Clark 2001). Suspended sediments have also been shown to restrict and inhibit habitat use and function, including fish reproduction (Newcombe and MacDonald 1991). Settlement of suspended sediments onto winter flounder eggs can result in mortality, delayed hatching, and developmental defects to larvae (Klein-MacPhee et al. 2004; Berry et al. 2004). Decreased hatching success of eggs was observed when covered in as little as 1 mm of sediment, and burial in sediments greater than 2.5 mm has been demonstrated to cause a zero percent hatch rate (Berry et al. 2004). These adverse temporary impacts can be alleviated by implementing appropriate time of year (TOY) work restrictions to avoid impacts during the periods that the habitat is used.

To minimize these temporal impacts to winter flounder EFH, the proposed activities, including dredging, in-water sediment deposition, and blasting, should occur outside the time of year spawning and early life history stages are present in the project area. For this area of Long Island Sound, we recommend a work restriction from January 1 through May 31. Currently, you have proposed two different TOY work restrictions for dredging and placement activities in the inner and outer harbors.

North of Sandy Point you have proposed a February 1 to June 30 work restriction and south of Sandy Point you have proposed an April 1 to June 30 restriction. You have proposed a work period of October 1 to May 1, or May 2 to September 30 work restriction for the blasting activities that would occur south of Sandy Point. However, winter flounder are known to spawn in both regions of the harbor (Schultz et al 2007). Of the eggs collected within the inner and outer harbor, Schultz et al (2007) collected the highest numbers of eggs per site at locations within the outer harbor. Based on this, we do not agree that the proposed modified TOY restriction would adequately protect winter flounder EFH from adverse impacts south of Sandy Point. We recommend a TOY restriction of January 1 to May 31 be employed for all dredging and blasting activities.

As discussed in our May 1, 2017 letter, New Haven Harbor supports diadromous fish spawning migrations. Your currently proposed dredging TOY work restrictions extend until June 30 which would provide protection of diadromous spawning migrations. We support and recommend that the TOY restriction should extend until June 30, for an inclusive TOY work restriction of January 1 to June 30. Currently, you propose blasting activities to extend until May 1. As blasting activities would also create noise and turbidity impacts that could adversely impact diadromous fish spawning migrations, we recommend the blasting should not occur during the standard spring spawning migration TOY restriction of April 1 to June 30.

A list of additional BMPs to be incorporated to minimize blasting impacts were included in the EFH assessment, but a detailed blasting plan was not provided. It also does not appear that the aerial extent of blasting impacts has been fully assessed. While you discussed that benthic species adjacent to the blasting footprint are expected to be adversely impacted, you have not provided an assessment on the scope of these impacts, or measures that could be employed to minimize impacts associated with debris. A full blasting plan, with information on the expected extent of impacts and detailed measures to be employed to minimize these impacts should be provided for our review and comment.

Permanent adverse impacts
The EFH assessment states that a total of 69.2 acres of winter flounder egg habitat would be lost. The proposed dredging would result in an 8.6 acre loss and the proposed tidal wetland creation would result in an additional 60.6 acre loss. To offset these losses you have proposed to fill two historically used and currently abandoned borrow pits in the project vicinity, Morris Cove and West River. The proposed filling of the Morris Cove pit would create 42.0 acres and the West River filling would create an additional 15.0 acres of winter flounder egg habitat, resulting in a net loss of 12.2 acres of sensitive life history stage EFH. You also propose to create oyster habitat along the eastern edge of a portion of the FNP and a rocky reef adjacent to an existing breakwater on the western side of New Haven Harbor.

The loss of winter flounder egg EFH appears to be adequately offset with the proposed creation of tidal wetlands, filling of the abandoned borrow pits, and rocky reef and oyster habitats. The New England Fisheries Management Council recently updated their managed fish species EFH designations and tidal wetland habitats are now specifically designated as EFH for juvenile winter flounder, which is also a sensitive life history stage. Tidal wetlands are also designated as EFH for sensitive life history stages of multiple other managed fish species and provide important ecological services for many NOAA-trust resources. Depending on design, the proposed rocky reef and oyster habitat could provide complex habitat that would support multiple managed fish and prey species. However, the details, including plan views, of the proposed mitigation projects have not been provided. You have provided the square footage of the proposed tidal wetland creation and indicated that the borrow pits will be filled to an elevation of less than 5 meters to provide winter flounder egg

EFH, but no information has been provided on the extent or construction of the proposed rocky reef or oyster habitat. We agree that the proposed suite of mitigation projects should offset adverse impacts of the proposed FNP modifications. However, as the details of the projects have not been reviewed, further consultation will be required as the mitigation projects are developed to determine if additional conservation recommendations may be necessary.

Essential Fish Habitat Conservation Recommendations
The project area is designated as EFH under the MSA for several species, including winter flounder. As described above, the proposed project would have adverse effects on winter flounder EFH through dredging and filling subtidal habitats. Pursuant to Section 305(b)(4)(A) of the MSA, we recommend that you adopt the following EFH conservation recommendations to ensure minimal impacts to EFH:

1) To avoid impacts to sensitive life stages of winter flounder, no in-water activity should occur between January 1st and May 31st of any year.
2) A detailed blasting plan should be developed and provided for our review and comment. Based on our review of a blasting plan, additional EFH conservation recommendations may be required to adequately conserve and protect EFH.
3) The proposed mitigation project plans should be provided for our review and comment. Based on our review of the mitigation plans, additional EFH conservation recommendations may be required to avoid and minimize adverse impacts to EFH.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH Conservation Recommendations, including a description of measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us 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 CFR 600.920(l) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH Conservation Recommendations.

Fish and Wildlife Coordination Act Recommendations
In addition to the EFH provisions of the MSA, the Fish and Wildlife Coordination Act requires that we consult with each other on activities that impact fish and wildlife resources. As discussed above, the project area supports diadromous fish spawning migrations. In order to protect diadromous fish resources we recommend you adopt the time of year restriction noted below.

1) To protect diadromous species, dredging within the entrance channel should not occur between April 1 and June 30 of any year.

Endangered Species Act
A consultation, pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, may be necessary. Under the ESA, if the proposed project has the potential to affect listed species or designated critical habitat, and it is being approved, permitted or funded by a Federal agency, the lead Federal agency, or their designated non-Federal representative, is responsible for determining

whether the proposed action may affect the listed species or designated critical habitat. In this situation, you are responsible for this determination. If you determine the proposed action may affect listed species under our authority, the determination along with justification for their determination should be sent to the attention of the ESA Section 7 Coordinator at nmfs.gar.esa.section7@noaa.gov (NMFS Greater Atlantic Regional Fisheries Office, Protected Resources Division (PRD), 55 Great Republic Drive, Gloucester, MA 01930). After reviewing this information, we would then be able to conduct a consultation under section 7 of the ESA. If you determine the proposed action will not affect listed species under our authority, no further consultation with us is necessary. Should you have any questions about these comments or about the section 7 consultation process in general, please contact Zach Jylkka at Zachary.Jylkka@noaa.gov or (978) 282-8467.

Conclusion
We look forward to your response to our EFH recommendations on this project. If you have any questions regarding these comments and recommendations, please contact Alison Verkade at 978-281-9266, or at Alison.Verkade@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: Zach Jylkka, PRD
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Todd Randall, ACOE
Barbara Blumeris, ACOE
Nathan Margason, USEPA

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UNITED STATES DEPARTMENT OF COMMERCE
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FEB 6 - 2019

Coral Siligato
Navigation Project Manager
Programs and Project Management Division
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Navigation Section
U.S. Army Corps of Engineers
New England District
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Re: Cape Porpoise Federal Navigation Project

Dear Ms. Siligato:

We are in receipt of your letter dated December 26, 2018, responding to our requests for additional information provided in our November 30, 2018, letter. The requested information was in regards to the proposed maintenance dredging of the Cape Porpoise Federal Navigation Project (FNP) in Kennebunkport, Maine. In addition, we had requested you extend the consultation process pursuant to 50 CFR 600.920(i)(5) so that you could provide us with additional information to complete the EFH consultation and allow us to develop Essential Fish Habitat (EFH) conservation recommendations, as necessary. Based on the information you provided in your December 26, 2018 letter, and telephone discussions we have had with you, we are now providing our recommendations.

The proposed work involves dredging approximately 12 acres from shoaled areas in the 6-foot and 15-foot channels and the 15-foot anchorage of the Cape Porpoise Harbor FNP, and is expected to produce a volume of approximately 25,000 cubic yards of a mix of sand and fine-grained material. The 6-foot channel will be dredged to the authorized project depth plus allowable over-depth and the 15-foot channel and anchorage will be dredged to 10 feet plus allowable over-depth. This material is proposed to be mechanically dredged and disposed of at the Cape Arundel Disposal Site (CADS) or the Portland Disposal Site (PDS). The proposed work will take approximately one to three months to accomplish between November 1 and March 15 of the year(s) in which funds become available. Cape Porpoise Harbor FNP was last dredged by the U.S. Army Corps of Engineers (USACE) in 1976.

As you are aware, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require federal agencies to consult with one another on projects such as this. Insofar as a project involves EFH, as this project does, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

mb 2/7/19

The information requested in our November 30, 2018 letter was in reference to impacts to eelgrass within and adjacent to the federal channel and anchorage, and the amount and distribution of areas intended for over-depth dredging. According to the Environmental Assessment (EA) and EFH assessment for this project, the amount of eelgrass impacted directly and indirectly from the dredging was estimated to be 121 square feet (sf). Based on the close proximity of the eelgrass beds along the eastern and western sides of the 15-foot channel and anchorage, we had concerns that the impacts would be larger than was described in the EA and EFH assessment. Specifically, we requested that you estimate the projected side slope of the channel that is expected after dredging as the slope reaches equilibrium, and recalculate the area of impact to eelgrass beds adjacent to the channel on both eastern and western sides of the channel. We also requested that you provide us information, including proposed methods for additional eelgrass surveys you intended to conduct over an area adjacent to new shoaling identified in the 15-foot channel, as referenced on page 14 of the EFH assessment. Lastly, we requested that you investigate the feasibility of avoiding or minimizing dredging areas in the channel that are adjacent to eelgrass beds, particularly areas identified as over-depth dredging.

According to your response, you have decided not to conduct additional eelgrass surveys in the areas of new shoaling identified in the 2018 condition survey. Specifically, the new shoal areas are located on the eastern and western sides of the channel and anchorage south of the USACE survey conducted in 2017. Rather, you are estimating the amount of eelgrass impacted in these areas based on the Maine Division of Marine Resources (MEDMR) 2010 aerial eelgrass survey. We do not agree with this decision, because the distribution of eelgrass in these areas of the channel and anchorage today is likely quite different than observed approximately nine years ago. According to your letter, you have decided to assume all of the eelgrass identified in the 2010 survey exist in the shoals today and have included these data in your estimation of impacts. Therefore, you believe the estimates of impact are conservative. We note that this estimate is conservative only if the eelgrass distribution today is the same or less than reported by MEDMR in 2010, but would not be so if the eelgrass has increased in distribution. Given new shoals have formed since the 2015 condition survey, it is plausible the distribution of eelgrass may have increased in this area as a result of shallower water depths. Absent any additional eelgrass surveys, information on the extent of eelgrass in this area is unknown.

In response to our request that you estimate the projected side slope of the channel that is expected after dredging as the slope reaches equilibrium, and recalculate the area of impact to eelgrass beds adjacent to the channel and anchorage, you have revised the area of impact based on the initially proposed dredging plan (i.e., dredging the 15-foot anchorage and channel to 10 feet plus 1-foot of overdepth) to 8,858 sf of eelgrass. In addition, you have evaluated an alternative dredging plan for the areas adjacent to eelgrass beds identified in 2017 USACE eelgrass survey and the 2010 MEDMR aerial eelgrass survey. This alternative includes the same dredging depth (10 feet), but with no allowable overdepth and using a "uniform box cut" that you anticipate would result in a 2:1 side slope, rather than the 3:1 side slope proposed in the areas of the channel without adjacent eelgrass beds. Based on this alternative dredging plan, you estimated the eelgrass impacts to be 1,681 sf. Furthermore, you propose to compensate for this impact to eelgrass by providing a fee to the Maine In-lieu Fee program.

We appreciate your willingness to conduct the analyses to recalculate the impacts to eelgrass beds from dredging and the resultant side slope sloughing, and revising the project to minimize impacts to the eelgrass beds. While we agree the project modification should be expected to minimize impacts to eelgrass, we believe there is a reasonably high degree of uncertainty from the dredging contractor in carrying out the dredging as proposed. As we understand it, the dredging contractor would be responsible for following precise location information of the existing mapped eelgrass beds, and adjusting both the depth of dredging by eliminating the allowable overdepth and dredging a "uniform box cut" in these areas rather than a 3:1 side slope done in other portions of the channel and anchorage. Given the inherent inaccuracies of dredging that we are told exist for all dredging projects from both dredging equipment and electronic monitoring equipment, we believe there is a reasonably high degree of uncertainty associated with this modified dredging plan. In addition, the estimation of the 2:1 side slope from a "uniform box cut" is also uncertain. We are not aware of any other FNP project utilizing a "uniform box cut", and we have seen no data to support whether this method reduces the side slope impacts by increasing the angle of repose. Your letter suggested a 2:1 angle of repose is expected because of the material type and is consistent with the existing slopes throughout this FNP. However, documentation of these existing conditions were not provided. Therefore, it is our determination that in order to reduce what we view as a highly uncertain outcome, pre- and post-construction eelgrass surveys are necessary to validate and confirm these methods are successful in minimizing the adverse effects to eelgrass habitat. In addition, pre- and post-construction surveys conducted during the 2019 growing season will confirm current eelgrass distribution better than the 2010 MEDMR survey.

Essential Fish Habitat Conservation Recommendations
Section 305(b)(2) of the MSA requires all federal agencies to consult with us on any action authorized, funded, or undertaken by that agency that may adversely affect EFH. The Cape Porpoise Harbor and adjacent estuary have been identified as EFH under the MSA for several federally-managed species. We recommend, pursuant to Section 305(b)(a)(A) of the MSA, that you adopt the following EFH conservation recommendations:

1. Pre- and post-construction eelgrass surveys should be conducted in the areas of the channel and anchorage adjacent to eelgrass beds identified in the previous USACE and MDMR surveys to verify direct and indirect impacts are minimized as proposed. The results of these surveys should be used to calculate the compensatory mitigation used to offset adverse effects to eelgrass habitat.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you have adopted that avoid, mitigate, or offset the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us 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

CFR 600.920(1) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Conclusion

In summary, we recommend pre- and post-construction eelgrass surveys be conducted in the areas of the channel and anchorage adjacent to the eelgrass beds identified in previous surveys to verify direct and indirect impacts are minimized and appropriate in-lieu fee provided. If you have any questions regarding this information request and comments, please contact Michael Johnson at 978-281-9130 or at mike.r.iohnson@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
For Habitat Conservation

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