

Appendix G
NOAA NMFS Section 7 and EFH

**RECENT CORRESPONDENCE
TO SUPPORT DEIS PUBLICATION**

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**



The City of New York
Office of Management and Budget
255 Greenwich Street • New York, New York 10007-2146

March 27, 2019

Ms. Ursula Howson
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

**Re: Response to Draft Essential Fish Habitat (EFH) Consultation for the
East Side Coastal Resiliency Project
New York, New York**

Dear Ms. Howson:

Thank you for your review of the draft EFH findings associated with the new Preferred Alternative for the East Side Coastal Resiliency (ESCR) project. The City of New York (the City) is pleased to inform NOAA NMFS that a revised consultation that is responsive to the concerns raised in an email correspondence on March 22, 2019 (letter dated March 14, 2019) will be provided to NOAA NMFS well in advance of the ESCR project's Final Environmental Impact Statement (FEIS). The City is committed to working with NOAA NMFS to identify any conservation measures that NOAA NMFS deems appropriate, and concluding the consultation process prior to the FEIS, so that all commitments will be acknowledged in the FEIS.

Consultation History to Date

As indicated in previous correspondence with NOAA NMFS, the City is receiving funds from the U.S. Department of Housing and Urban Development (HUD), a federal agency, to implement the ESCR project, and is therefore subject to Section 7 of the Endangered Species Act as well as the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended.

Requests for concurrence on findings regarding threatened and endangered species and EFH was previously submitted to NOAA NMFS on January 25, 2016. NMFS returned the results of the Section 7 consultation on March 18, 2016 and concurred with the findings that the in-water construction activities proposed at that time, including pile driving a 24-inch sheet pile coffer dam with an impact hammer for a 300-square foot area, may effect but would not likely adversely affect species listed as threatened or endangered. NOAA NMFS then returned the results of the EFH consultation on April 14, 2016 and concurred with the findings that adverse effects associated with the proposed in-water activities would be minimal and did not recommend conservation measures be implemented.

A project update was provided on May 26, 2016 (with a follow up email transmitting these materials on May 27, 2016) to request additional guidance on the addition of a new potential project alternative that would create a more robust line of projection and eliminate the need for closure structures across the FDR (Alternative 5 in the DEIS). A response was received from NOAA NMFS on June 2, 2016 that concurred with an unchanged determination for Section 7 threatened and endangered species and EFH.

Project Update

Subsequent to the initial and supplemental consultations identified above, design and planning for ESCR has progressed and a new Preferred Alternative has been identified. The Preferred Alternative would

involve additional in-water construction beyond what was described in the original and supplemental consultations as well as placement of additional permanent features within the East River. This alternative would further enhance the flood protection and open space enhancement goals of the proposed project by elevating East River Park and the existing esplanade to protect these valuable recreational amenities from extreme coastal storm events as well as increased inundation due to sea level rise.

New in-water components of the Preferred Alternative include: (1) the filling of two existing embayments that would be relocated within the project area to allow for active recreation fields to be reconstructed around the new flood protection alignment as well as allowing for ADA accessible pathways to the waterfront; (2) demolition of the existing esplanade at the sites of the proposed new embayments, and near one existing embayment; (3) reconstruction of ten sewer outfalls as part of a larger effort to reconstruct water and sewer infrastructure within East River Park to withstand additional fill; (4) utilization of construction barges; (5) construction of in-water footings and shafts to accommodate a pedestrian and bicyclist (shared use) flyover bridge between the northern portion of East River park and Captain Patrick J. Brown Walk to improve access along this stretch of the East River; and (6) demolition of the existing bulkhead along the East River to accommodate the installation of a new cut-off wall in the same footprint and alignment. Components (4) and (5) were previously mentioned in conjunction with the consultation update initiated on May 26, 2016.

Response to Comments

With the identification of the new Preferred Alternative and associated in-water components, a draft informal consultation was submitted to NOAA NMFS on February 7, 2019. The City appreciates the response and comments provided by your office on this draft EFH consultation. In response to these comments, the City has supplemented the analyses in our draft consultation in the Draft Environmental Impact Statement (DEIS). Specifically, we have completed the following in the DEIS:

- Supplemented the analysis of the 11 EFH species previously identified with analyses for the 5 additional EFH species in the March 14, 2019 letter;
- Provided an analysis of 10 Fish and Wildlife Coordination Act (FWCA) species identified in the March 14, 2019, letter from NOAA NMFS in the March 14, 2019 letter;
- Provided additional context for the permanent in-water components beyond the analysis included in our draft consultation, specifically regarding the relocation of the existing embayments, to preserve necessary park features and accessibility, and to provide improved wetland habitat and improved user experience;
- Provided a discussion of aforementioned improved habitat with the new embayments, including the elimination of bridges that shade aquatic habitat, which can reduce benthic organism productivity and biomass, and the provision of habitat enhancements designed for the recruitment of shellfish and other aquatic life along East River Park; and
- Provided discussion of wetland mitigation measures pursuant to NYSDEC and USACE permit requirements including restoration of wetland habitat both in the format of in-kind, on-site restoration and off-site restoration or purchase of wetland credits from the Saw Mill Creek Wetland Mitigation Bank located in Staten Island, New York, which would be provided at a 2:1 ratio per NYSDEC requirements.

In addition, the DEIS includes comprehensive analyses of the direct and indirect effects associated with the temporary and permanent placement of fill within the East River, including the potential for adverse effects to EFH species and prey species, and a discussion of measures taken to avoid and minimize these adverse effects. The DEIS discusses the measures that would be in place during construction of the proposed project to avoid and minimize affects to the aquatic environment, including minimizing or avoiding the potential for sediments and noise, as well as measures taken to avoid and minimize adverse effects associated with the permanent disturbance of aquatic habitat.

As noted above, the City anticipates submitting a revised consultation to NOAA NMFS well in advance of the FEIS, and concluding that consultation prior to the FEIS, such that all conservation measures will be reflected in that document. The City thanks you for your assistance during this process and looks forward to continued coordination with NOAA NMFS.

Sincerely,



Eram Qadri

cc: NOAA: E. Carson-Supino
DDC: T.L. Dinh, E. Ilijevich, K. Leaman
Parks: E. Humes, C. Alderson
OMB: E. Qadri, J. Jacobs
Deputy Mayor's Office: M. De Coo
HUD: T. Fretwell; D. Mahon
JV: A. Winter, C. Campbell, K. Mui, R. White



The City of New York
Office of Management and Budget
255 Greenwich Street • New York, New York 10007-2146

Ms. Edith Carson-Supino
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

**Re: Informal Consultation for Endangered Species Act Section 7 Conclusion
East Side Coastal Resiliency Project
New York, New York**

Dear Ms. Carson-Supino:

The City of New York (City) is requesting an informal consultation seeking concurrence on the conclusions of our initial analysis to support the publication of the Draft Environmental Impact Statement (DEIS). A follow up Section 7 consultation complete with acoustical analysis will be submitted to you for your review in April 2019. The City is requesting guidance from the National Oceanic and Atmospheric Association (NOAA) National Marine Fisheries Service (NMFS) regarding new design and construction information for the proposed East Side Coastal Resiliency (ESCR) project, located in New York City, New York. Specifically, the City is requesting confirmation that the design and construction of the Preferred Alternative **May Affect, but is Not Likely to Adversely Affect** the federally listed species identified as potentially occurring within the limits of disturbance for the proposed project: Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*).

Project Description

As you may recall, the proposed ESCR project extends along the east side of Manhattan between Montgomery Street and East 25th Street. The (EIS) study area for natural resources (“study area”) extends 400 feet into the East River from the shoreline between Montgomery Street and East 25th Street. The proposed project is a series of integrated flood control measures designed to protect areas of Manhattan within the Federal Emergency Management Agency (FEMA)-designated 100-year flood hazard area accounting for sea level rise projections to the 2050s developed by the New York City Panel on Climate Change. The design and construction associated with the proposed project would occur primarily on land but will also include in-water work in the East River, a saline surface water component of the New York Harbor Estuary.

In-Water Components

Subsequent to the original and supplemental consultations for this project, design and planning for ESCR has progressed and a new Preferred Alternative has been identified. The new Preferred Alternative would involve additional in-water construction and placement of additional permanent features within the East River. The Preferred Alternative would further enhance the goals of the proposed project by elevating East River Park and the existing esplanade, to protect these valuable recreational amenities from extreme coastal storm events as well as increased inundation due to sea level rise. New in-water components of the Preferred Alternative include: (1) the filling and relocation of two existing embayments with improved habitat within the project area to allow for the accommodation of flood protection elements while maintaining valuable community recreation space, and allowing universal accessibility to the waterfront through the accommodation of ADA-accessible pathways; (2) demolition of the existing esplanade at the

sites of the proposed new embayments and near one existing embayment; (3) reconstruction of ten sewer outfalls as part of a larger effort to reconstruct water and sewer infrastructure within East River Park to withstand additional fill; (4) utilization of construction barges; (5) construction of in-water footings and shafts to accommodate a pedestrian and bicyclist (shared use) flyover bridge between the northern portion of East River park and Captain Patrick J. Brown Walk to improve access along this stretch of the East River; and (6) demolition of the existing bulkhead along the East River to accommodate the installation of a new cut-off wall in the same footprint and alignment. Components (4) and (5) were previously mentioned in conjunction with the consultation update initiated on May 26, 2016.

Design of the Preferred Alternative is ongoing and, as such, for the purposes of this informal consultation request, a reasonable worst-case scenario for potential in-water effects associated with the Preferred Alternative is presented and evaluated herein.

Summary of Findings

Based on prior communications with NOAA NMFS there are two species of endangered fish with the potential to occur in the East River adjacent to the study area: the Atlantic sturgeon and the shortnose sturgeon. Due to inhospitable habitat conditions within the East River, such as strong currents, heavy boat traffic, degraded water quality, the localized nature of the proposed in-water work adjacent to the project area, coupled with the proposed mitigation measures to lessen any potential effects, OMB has determined that the construction and operation of the Preferred Alternative **May Affect, but is Not Likely to Adversely Affect** the Atlantic sturgeon and shortnose sturgeon, and is seeking concurrence from NOAA NMFS on these findings.

The Preferred Alternative would result in a total of 24,085 square feet of permanent disturbance to tidal wetland habitat, which would require 48,170 square feet of tidal wetland mitigation. On-site, in-kind wetland mitigation would consist of constructing two new embayments within the project area which would restore approximately 26,000 square feet of the impacted tidal wetlands. The remaining 22,170 square feet of required mitigation would be accomplished through the purchase of tidal wetland mitigation bank credits or with off-site tidal wetland restoration or creation.

Construction of the Preferred Alternative would involve the following in-water elements: construction of shafts and footings for the shared use flyover bridge; construction barging; relocating and reconstructing sewer outfalls; demolition of the existing bulkhead to replace with a new cut-off wall; demolition of the existing embayments; and demolition of existing piles and formwork associated with the esplanade in the areas of existing and proposed embayments. There would be temporary adverse effects to New York State Department of Environmental Conservation (NYSDEC) and U.S. Army Corps of Engineers (USACE) regulated littoral zone tidal wetlands Waters of the United States resulting from the construction of these elements.

Construction barges may include unloading barges, transit barges, which may be employed to supplement truck deliveries, and storage barges. The anchoring of construction barges would be accomplished with spuds (vertical steel shafts) located on the barges. Monopile dolphins (a cluster of piles used as a fender for the bulkhead) could also be installed to control the transverse movements of unloading barges to ensure safe barging operations. The unloading barges, typically used to support excavators and small crawler cranes used for transferring materials from transit barges to the shoreline, would be sited along the bulkhead and moved as necessary between the Fireboat House and the north end of East River Park. Transit barges would be moored to the unloading barges from which materials would be transferred to the park for installation. Construction barges used for storage may be sited along the bulkhead in up to three other locations: between Pier 36 and Pier 42, at the northern end of East River Park, and/or along Captain Patrick J. Brown Walk. Upon completion of construction, any spuds and monopile dolphins would be removed and the affected area would be allowed to naturally restore to pre-construction conditions.

To install the shafts and footings associated with the flyover bridge, the current assumption includes use of land-based drill rigs positioned in East River Park, the East River Greenway path, and the Con Edison

pier to install these support structures south of East 15th Street. Drilling for footings to be installed along Captain Patrick J Brown walk would be performed using barge mounted drill rigs. Shaft construction activities for the flyover bridge would involve the installation of a turbidity curtain and sinking of the pipe with a rotating cutter head to push the pipe into the river bed. After sinking the pipe, a rebar cage is lowered prior to installing a tremie pipe. Concrete is then pumped into the tremie pipe. As the tremie pipe is filled with concrete, river water and sediment within that pipe is gradually displaced or may require pumping to remove the sediment and water. The support shafts and footings for the flyover bridge occurring within the East River would result in approximately 650 square feet of permanent disturbance within NYSDEC and USACE regulated tidal wetlands. Once the installation of these components is complete, the tremie pipe and any turbidity curtains would be removed, and the shafts and footings would remain.

To relocate and reconstruct the 10 sewer outfalls, a watertight cofferdam would be installed adjacent to the bulkhead at each of the 10 outfall locations and the work area would be dewatered. The top of the cofferdam would be above the mean higher-high water line to isolate the work area from tidal influence. The work area would not contain standing water and approved dewatering measures would be installed, as necessary, and would discharge below the mean higher-high water line. A portable sediment tank or approved equivalent would be used to treat dewatering effluent. Approximately 1,000 square feet of temporary disturbance to regulated tidal wetlands between the cofferdams and East River bulkhead is anticipated for each sewer outfall for a total temporary disturbance area of 10,000 square feet. Existing sewer infrastructure is anticipated to be filled with concrete and abandoned in place.

Demolition of the existing bulkhead would require turbidity curtains to be installed. Demolition of the esplanade would require debris nets to minimize the amount of debris falling into the waterway. Any large debris would be retrieved and disposed of in accordance with applicable regulations and best practices. Following demolition, a cut-off wall would be installed in the approximate alignment of the existing bulkhead. The cut-off wall sheet piles would be pile driven. The piles would initially be vibrated down and then pile driven to final tip elevation. Where obstructions are encountered, some pre-drilling may be needed prior to installing the cut-off wall sheet piles.

The filling of the existing embayments would occur following the installation of the cut-off wall, which would serve to limit any potential adverse effects to water resources during construction. Esplanade demolition and reconstruction activities in the areas of existing and proposed embayments would generally consist of the removal of the existing esplanade's concrete deck and support pilings at the mudline, and the installation of new girders and deck structure.

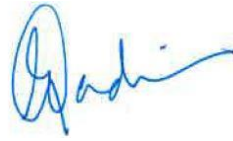
Upon completion of construction, the spuds, barges, turbidity curtains and debris nets would be removed, and the affected area would be allowed to naturally restore to pre-construction conditions.

Conclusions

Per your correspondence of March 22, 2019, no effects to Atlantic sturgeon eggs, larvae, or juveniles would occur as they are not tolerant of saline waters. To avoid and minimize any effects to adult and subadult Atlantic sturgeon as well as shortnose sturgeon associated with construction, including noise and turbidity within the East River, conservation measures would be implemented. To reduce noise or the likelihood that sturgeon would be exposed to the construction activities these conservation measures include, to the greatest extent practicable, the use of bubble curtains for pile driving activities, the use of a cushion block, and gradually ramping up pile driving. To avoid and minimize any effects due to turbidity, as turbidity curtains, water-tight cofferdams, and debris nets would be used as applicable. With these conservation measures in place, sturgeon may be discouraged from utilizing the near-shore environment in the East River.

The City would greatly appreciate an expeditious review of this informal consultation request. Should you have any questions or require additional information, please feel free to contact me at (212) 539-7063. Thank you in advance for your assistance with this matter.

Sincerely,



Eram Qadri

cc: NOAA: E. Carson-Supino
DDC: T.L. Dinh, E. Iljevich, K. Leaman
Parks: E. Humes, C. Alderson
OMB: E. Qadri, J. Jacobs
Deputy Mayor's Office: M. De Coo
HUD: T. Fretwell; D. Mahon
JV: A. Winter, C. Campbell, K. Mui, R. White

Winter, Annie

From: Qadri, Eram (OMB) <QadriE@omb.nyc.gov>
Sent: Friday, March 22, 2019 9:28 AM
To: Winter, Annie; Stein, Haley (Law); Alderson, Colleen (Parks); Martin, Robert L (Law); Humes, Emily (Parks)
Cc: rwhite@akrf.com; Kenny Mui; Jacobs, Juliet (OMB); De Co, Minelly
Subject: FW: FW: NMFS comment letter, East Side Coastal Resiliency project pDEIS and dEFH

External Email - think before you click

Hi all – see below for email and comments on the ESA from Edith/NOAA.

From: Edith Carson-Supino - NOAA Federal [mailto:edith.carson-supino@noaa.gov]
Sent: Friday, March 22, 2019 9:22 AM
To: Qadri, Eram (OMB) <QadriE@omb.nyc.gov>
Cc: Ursula Howson - NOAA Federal <ursula.howson@noaa.gov>; Mahon, Donna M <Donna.M.Mahon@hud.gov>; Jacobs, Juliet (OMB) <JacobsJ@omb.nyc.gov>
Subject: Re: FW: NMFS comment letter, East Side Coastal Resiliency project pDEIS and dEFH

I apologize for the delay. Here are my comments:

Endangered Species Act

Atlantic Sturgeon

Atlantic sturgeon could be present in the waters of the East River and its adjacent bays and tributaries. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments (DPS) of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Adult and subadult Atlantic sturgeon originating from any of these DPSs could occur in the proposed project area. As young remain in their natal river/estuary until approximately age 2, and early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile Atlantic sturgeon will occur within the East River and its adjacent bays and tributaries.

Shortnose Sturgeon

Shortnose sturgeon could be present in the East River and could occur in its adjacent bays and tributaries. Shortnose sturgeon are listed as endangered throughout their range. As early life stages are not tolerant of saline water, no eggs, larvae, or juvenile shortnose sturgeon will occur within the saline waters of the East River and its adjacent bays and tributaries.

As project details develop, we recommend you consider the following effects of the project on Atlantic and shortnose sturgeon:

- For activities that increase levels of suspended sediment, consider the use of silt management and/or soil erosion best practices (i.e., silt curtains and/or cofferdams).
- For activities that may affect underwater noise levels, consider the use of cushion blocks and other noise attenuating tools to avoid reaching noise levels that will cause injury or behavioral disturbance to sturgeon - see the table below for more information regarding noise criteria for injury/behavioral disturbance in sturgeon.

Organism	Injury	Behavioral Modification
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Sturgeon	206 dB re 1 μ PaPeak and 187 dB cSEL	150 dB re 1 μ PaRMS
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Depending on the amount and duration of work that takes place in the water, listed species of sturgeon may occur within the vicinity of your proposed project. The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NOAA Fisheries, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930 or nmfs.gar.esa.section7@noaa.gov. Please be aware that we have recently provided on our website guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. See - <http://www.greateratlantic.fisheries.noaa.gov/section7>. After receiving a complete, accurate comprehensive request for consultation, in accordance to the guidance and instructions on our website, we would then be able to conduct a consultation under section 7 of the ESA. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact me (978-282-8490; Edith.Carson-Supino@noaa.gov).

Thank you,

Edith Carson-Supino, M.Sc.
 Section 7 Fish Biologist
 NOAA Fisheries
 U.S. Department of Commerce
 Greater Atlantic Regional Fisheries Office
 Phone: 978-282-8490
edith.carson-supino@noaa.gov

For ESA Section 7 guidance please see:
<https://www.greateratlantic.fisheries.noaa.gov/section7>



On Fri, Mar 22, 2019 at 9:08 AM Qadri, Eram (OMB) <QadriE@omb.nyc.gov> wrote:

Hello Edith,

We have not received comments from you on the preliminary DEIS and ESA for the ESCR project yet. Please let me know if we should be expecting these anytime soon, and if you need any additional information from our office. Also, attached are comments received on the preliminary DEIS and the draft EFH assessment from Ursula.

Thank you,

Eram

Eram Qadri, AICP, LEED AP

Unit Head - Environmental Review, CDBG Disaster Recovery

New York City Mayor's Office of Management & Budget

255 Greenwich Street, 5th Floor

New York, NY 10007

Tel: (212) 788-6241

* QadriE@omb.nyc.gov

From: Ursula Howson - NOAA Federal [mailto:ursula.howson@noaa.gov]

Sent: Wednesday, March 20, 2019 4:04 PM

To: Qadri, Eram (OMB) <QadriE@omb.nyc.gov>

Cc: stephan.a.ryba@usace.army.mil; Lamster, Stephanie <lamster.stephanie@epa.gov>; McReynolds, Dawn (DEC) <Dawn.McReynolds@dec.ny.gov>

Subject: NMFS comment letter, East Side Coastal Resiliency project pDEIS and dEFH

Hello all,

Attached please find our comment letter for the East Side Coastal Resiliency project pDEIS and dEFH assessment.

Let me know if you have any questions.

Ursula

--

Ursula Howson, PhD
NOAA/National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
Habitat Conservation Division
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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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MAR 14 2019

Eram Qadri
Unit Head - Environmental Review, CDBG Disaster Recovery
New York City Mayor's Office of Management & Budget
255 Greenwich Street, 5th Floor
New York, NY 10007

RE: Preliminary Draft Environmental Impact Statement and Draft Essential Fish Habitat Assessment, East Side Coastal Resiliency Project, East River, New York, New York.

Dear Ms. Qadri:

We have reviewed the February 2019 Preliminary Draft Environmental Impact Statement (PDEIS) and Draft Essential Fish Habitat Assessment for the East Side Coastal Resiliency project (ESCR), located along the East River in the Borough of Manhattan, New York, New York. We provided a comment letter on a previous version of the project on April 14, 2016. Subsequent to that correspondence, a different project alternative was selected, necessitating your request for a new EFH consultation with us.

The ESCR project is a coastal flood protection system designed to protect the east side of Manhattan from coastal storm events. The design includes a combination of floodwalls, raised landscapes, closure structures (floodgates) and other infrastructure improvements that together will reduce the risk of coastal flooding impacts in the project area. Approximately 0.49 acres of shallow open water habitat will be permanently impacted by the project. Construction of new shallow open water habitat and compensatory mitigation will be used to offset these adverse impacts.

The project area extends along the East River waterfront, including East River Park, from Montgomery Street to East 25th Street. The preferred alternative (PA) is designed to increase the elevation of the entire East River Park by approximately 8 ft. The Delancey Street, East 10th Street, and Corlears Hook bridges would be reconstructed to provide universal accessibility, and a new shared-use flyover bridge would be constructed. A portion of the park's underground water and drainage infrastructure, bulkhead, and esplanade will be repaired or reconstructed. Two existing embayments along the East River esplanade will be relocated to allow for siting of active recreation fields within the park and to facilitate direct connection of the public with the water.

The PA will result in impacts to shallow open water (unconsolidated bottom) habitat, including the filling of 0.47 acres to relocate two embayments in the park, and 0.02 acres for installation of support structures for the shared-use flyover bridge. Additional impacts to shallow open water habitat may result from the filling of the two embayments, including the removal and reconstruction of the East River Esplanade bulkhead, as well as construction of bridge support



shafts, installation of cofferdams to facilitate the reconstruction of several sewer outfalls, and the use of construction barges with temporary mooring spuds and dolphins.

The embayments would be reconstructed in approximately the same size along the shoreline within the project area. Permanent impacts to open water habitat will be mitigated through implementation of a compensatory mitigation plan consistent with state and federal regulations and in cooperation with the appropriate agencies.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

The project area has been designated as EFH for a number of federally managed species including Atlantic butterfish (*Peprilus triacanthus*), Atlantic mackerel (*Scomber scombrus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), clearnose skate (*Raja eglanteria*), cobia (*Rachycentron canadum*), king mackerel (*Scomberomorus cavalla*), little skate (*Leucoraja erinacea*), red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*), Spanish mackerel (*Scomberomorus maculatus*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), winter flounder (*Pseudopleuronectes americanus*), and winter skate (*Leucoraja ocellata*).

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with us on any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect EFH identified under the MSA. The EFH regulations, 50 CFR Section 600.920, outline that consultation procedure and require the preparation of an EFH assessment by the action agency, or its designated non-federal representative. While our regulations also allow a federal agency such as the US Department of Housing and Urban Development (HUD) to designate a non-federal representative to conduct the EFH consultation, it is important to note that the federal action agency remains ultimately responsible for compliance with sections 305(b)(2) and 305(b)(4)(B) of the MSA.

We have reviewed the draft EFH assessment for this project. The assessment adequately assesses some of the impacts of the project on EFH associated with this coastal flood control project on the East River. According to the information in the PDEIS, 0.49 acres of shallow water habitat will be filled to construct the PA. The direct and indirect effects of this fill on EFH are not evaluated in the draft EFH assessment. In addition, the assessment does not include a discussion of measures taken to avoid, and minimize this loss of aquatic habitat. In addition, some of the construction activities proposed for the project area, including removal of the bulkhead and installation of the cofferdam system, may adversely affect EFH for species such as bluefish, summer flounder, windowpane flounder and winter flounder. Some adverse effects are a result of the loss of EFH or from construction related impacts to water quality and sediments. However, some adverse effects are due, in part, to impacts to prey species. Impacts to prey species are not evaluated fully in the draft assessment.

Because the draft assessment provided for this project does not assess fully the adverse effects to EFH that will result from the construction of this project, we cannot consider the assessment complete. In order to initiate the EFH consultation, a revised EFH assessment that includes a full and complete evaluation of the direct, indirect, individual and cumulative effects of the construction and operation of all of the project components on EFH should be provided to us.

The required components of the EFH assessment include a description of the action; an analysis of the potential adverse effects of the action on EFH and the managed species; the federal agency's conclusions regarding the effects of the action on EFH; and proposed mitigation, if applicable. The assessment should also include an analysis of alternatives to the action. Such analysis should include alternatives that could avoid or minimize adverse effects on EFH.

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as "any impact which reduces the quality and/or quantity of EFH" and 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 states that the loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat; the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, 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. Prey for these managed species include alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), collectively referred to as river herring. The final EFH assessment this project should include an analysis of the impacts of the project on these species.

Additionally, the Clean Water Act (CWA) Section 404 (b)(1) Guidelines outline a sequence to be followed when evaluating actions such as this that propose the placement of fill material into aquatic habitats. The Guidelines specify that it must first be demonstrated that potential impacts have been avoided and minimized to the maximum extent practicable before considering compensatory mitigation. Also, the Guidelines allow permit issuance for only the least environmentally damaging practicable alternative. Because the construction of recreation fields is not a water-dependent activity, it is presumed that practicable upland alternatives exist and that these alternatives would be less environmentally damaging. An analysis of alternatives that avoid and minimize the placement of fill in aquatic habitats is needed to rebut this presumption. This analysis should be included in the final EFH assessment to demonstrate that impacts to EFH have been minimized.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA), 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 requires 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 diadromous species, shellfish, and other commercially and recreationally important species that are not managed by the federal fishery management councils and therefore do not have designated EFH. The New York Harbor estuary and the East River are highly productive

habitat for a wide variety of NOAA trust resources covered by the FWCA, including important forage species such as river herring, silversides (*Menidia* spp.), killifish (*Fundulus* spp.), menhaden (*Brevoortia tyrannus*), anchovies (*Anchoa* spp.), and shellfish. The abundance of forage species makes these waterways important feeding and nursery areas for a number of estuarine-dependent commercially and recreationally important species, including summer flounder, winter flounder, bluefish, American eel (*Anguilla rostrata*), striped bass (*Morone saxatilis*), tautog (*Tautoga onitis*) and weakfish (*Cynoscion regalis*). The New York Harbor estuary provides habitat for one of the largest populations of striped bass on the East Coast, including an overwintering population in the upper New York Harbor and associated tributaries.

We are particularly concerned about potential impacts to river herring and striped bass. River herring and striped bass undergo spring spawning migrations and use the East River as a migratory route. An evaluation of impacts of the ESCR project to NOAA trust resources should also be provided. Seasonal work restrictions or other best management practices may be needed to minimize adverse effects to these species. Additional information on the effects of the project on river herring and striped bass, such as the construction methods, construction schedule, and materials to be used should be provided to assist us in determining the appropriation recommended protections for these species.

Endangered Species Act

Our Protected Resources Division will provide separate comments on this project. Further questions should be directed to Edith Carson-Supino at (978) 282-8490 or edith.carson-supino@noaa.gov.

Conclusion

As stated above, the draft EFH assessment provided for this project does not evaluate all of the potential direct, indirect, individual and cumulative effects to EFH that could result from the implementation of the proposed project. To initiate the EFH consultation with us, a revised assessment should be provided to us that addresses the impacts of the proposed fill, impacts to prey species, and discussed alternatives considered to avoid and minimize the adverse effects. This will enable us to develop site-specific EFH conservation recommendations. We look forward to our continued coordination with your office on this project as it moves forward. If you have any questions or need additional information, please do not hesitate to contact Ursula Howson in our Highlands, NJ field office at (732) 872-3116 or ursula.howson@noaa.gov.

Sincerely,



Karen Greene
Mid-Atlantic Field Office Supervisor

cc: NYD ACOE – S. Ryba
PRD – D. Marrone, E. Carson
NYDEC – D. McReynolds
EPA – S. Lamster
NOAA NEPA

CONSULTATION

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**

February 7, 2019

Mr. Daniel Marrone
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

**Re: Section 7 and Essential Fish Habitat Findings for the
East Side Coastal Resiliency Project, Alternative 4
New York, New York
New York City Department of Design and Construction Capital Contract: SANDRESM1**

Dear Mr. Marrone:

On behalf of the New York City (City) Department of Design and Construction (DDC), the Hazen and Sawyer/AKRF Joint Venture (JV) is requesting additional guidance from the National Oceanic and Atmospheric Association (NOAA) National Marine Fisheries Service (NMFS) regarding new design and construction information for the proposed East Side Coastal Resiliency (ESCR) project, located in New York City, New York. Specifically, the JV is requesting confirmation that (1) the federally listed species identified as potentially occurring within the limits of disturbance for the proposed project include only Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*); (2) confirmation of the Essential Fish Habitat (EFH) species identified herein; and (3) that the changes to design and construction of the proposed project May Affect but is Not Likely to Adversely Affect these two listed species and would result in Minimal Adverse Effects to EFH.

Consultation History to Date

To implement the proposed project, the City is receiving funds from the U.S. Department of Housing and Urban Development (HUD), a federal agency, and is therefore subject to Section 7 of the Endangered Species Act as well as the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended. Requests for concurrence on findings regarding threatened and endangered species and EFH was previously submitted to NMFS on January 25, 2016. A project update was provided on May 26, 2016 (with a follow up email transmitting these materials on May 27, 2016) to request additional guidance on the addition of a new potential project alternative that would create a more robust line of projection and eliminate the need for closure structures across the FDR (Alternative 5). The original consultation requests, all correspondence associated with those requests, and NMFS's responses are provided in **Attachment 1**.

NMFS returned the results of the Section 7 consultation on March 18, 2016 and concurred with the findings that the proposed limited in-water construction activities, including pile driving a 24-inch sheet pile coffer dam with an impact hammer for a 300-square foot area, is not likely to adversely affect species listed as threatened or endangered.

NMFS returned the results of the EFH consultation on April 14, 2016 and concurred with the findings that adverse effects associated with the proposed in-water activities would be minimal and did not recommend conservation measures be implemented.

As noted above, a project update was provided on May 26, 2016, to request additional guidance on the addition of a new potential project alternative and a response was received from NMFS on June 2, 2016 that concurred with an unchanged determination for Section 7 threatened and endangered species and EFH.

New Consultation Request

As you may recall, the proposed ESCR project extends along the east side of Manhattan between Montgomery Street and East 25th Street. The Environmental Impact Statement (EIS) study area for natural resources (“study area”) extends 400 feet into the East River from the shoreline between Montgomery Street and East 25th Street (**Figure 1**). The proposed project is a series of integrated flood control measures designed to protect areas of Manhattan within the Federal Emergency Management Agency (FEMA)-designated 100-year flood hazard area accounting for sea level rise projections to the 2050s developed by the New York City Panel on Climate Change. The proposed project design and construction associated with the proposed project would occur primarily on land but will also include in-water work in the East River, a saline surface water component of the New York Harbor Estuary. A more in-depth description of the in-water components of proposed project is provided in **Attachment 2**. The Draft EIS for ESCR is anticipated to be published in spring 2019, and a preliminary DEIS will be made available for your review in advance of that publication.

Subsequent to the original and supplemental consultations identified above, design and planning for ESCR has progressed and a new preferred alternative has been identified. This alternative, Alternative 4 in the DEIS, would involve additional in-water construction and placement of additional permanent features within the East River. Alternative 4 would further enhance the goals of the proposed project by elevating East River Park and the existing esplanade to protect these valuable recreational amenities from extreme coastal storm events as well as increased inundation due to sea level rise. A schematic of Alternative 4 is provided in **Figure 2**. New in-water components of Alternative 4 include: (1) the filling of two existing embayments that would be relocated within the project area to allow for active recreation fields to be reconstructed around the new flood protection alignment; (2) reconstruction of ten sewer outfalls (**see Figure 3**) as part of a larger effort to reconstruct water and sewer infrastructure within East River Park to withstand additional fill; (3) the use of construction barges; and (4) construction of in-water footings and shafts to accommodate a pedestrian and bicyclist (shared use) flyover bridge between the northern portion of East River park and Captain Patrick J. Brown Walk to improve access along this stretch of the East River. Components (3) and (4) were previously mentioned in conjunction with the consultation update initiated on May 26, 2016. Information on the current construction assumptions is provided in **Attachment 2**.

Design of this new alternative is ongoing and, as such, for the purposes of this consultation request, a reasonable worst-case scenario for potential in-water effects associated with Alternative 4 is presented and evaluated herein. A Species Conclusion Table documenting the natural history of threatened and endangered species potentially occurring within the study area along with discussions of potential project related effects is provided in **Attachment 3**. A “NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies” and an EFH impact assessment is provided in **Attachment 4**. Documentation from HUD and the New York City Office of Management and Budget (OMB) designating the JV as the non-federal representative for this project is provided in **Attachment 5**.

Summary of Findings

Threatened and Endangered Species

Based on prior communications with NMFS (**Attachment 1**) there are two species of endangered fish with the potential to occur in the East River adjacent to the study area: the Atlantic sturgeon and the shortnose sturgeon. We are requesting an informal Section 7 consultation with NMFS for these species, in addition to confirmation that no additional federal or endangered species would be anticipated to occur within the project area.

Due to inhospitable habitat conditions within the East River, such as strong currents, heavy boat traffic, degraded water quality, the localized nature of the proposed in-water work adjacent to the project area, and mitigation proposed by DDC to lessen any potential effects as described in **Attachment 2**, DDC has determined that the construction and operation of Alternative 4 May Affect, but is Not Likely to Adversely Affect the Atlantic sturgeon and shortnose sturgeon. DDC is seeking concurrence from NMFS on these findings. A Species Conclusion Table with additional details on sturgeon life history and rationale for this finding is provided in **Attachment 3**.

Essential Fish Habitat (EFH)

An EFH assessment and accompanying NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies are provided in **Attachment 4**. As a result of construction activities associated with the proposed project, there would be minor effects to EFH for one or more lifestages of winter flounder, windowpane flounder, summer flounder, Atlantic herring, scup, and black sea bass. Several species listed as potentially occurring in the study area are either at the extreme limit of their known range or are highly migratory and are therefore anticipated to occur in the East River only as uncommon or transient individuals. The remainder of the species evaluated would not be anticipated to be found in the East River due to unsuitable environmental conditions, unsuitable depths, and unsuitable substrates or other habitat features. DDC is requesting an Abbreviated EFH Consultation for Alternative 4 and concurrence with their findings of Minimal Adverse Effects to EFH in the study area. DDC also requests guidance on any Conservation Recommendations that NMFS may have for the proposed project.

Results of these consultation requests will be used to inform the DEIS currently being prepared for the ESCR project in order to comply with applicable National Environmental Protection Act (NEPA), New York State Environmental Quality Review Act (SEQRA), and New York City Environmental Quality Review (CEQR) standards. In the event that new design elements are developed that result in additional in-water construction activities not described above or in **Attachment 2**, DDC would notify NMFS of these changes as addenda to this submission.

The City would greatly appreciate an expeditious review of the enclosed documents within the 30-day review period. Please send the results of the requested consultations to JEinhorn@hazenandsawyer.com. Should you have any questions or require additional information, please feel free to contact me at (212) 539-7063. Thank you in advance for your assistance with this matter.

Sincerely,



Jessica Einhorn
Principal Scientist
Hazen and Sawyer

Enclosures:

- Figure 1 – Site Location Map
- Figure 2 – Map Location of Existing Embayments
- Figure 3 – Water and Sewer Schematic Showing Location of Proposed Reconstructed Outfalls
- Attachment 1 – Previous Correspondence with NMFS
- Attachment 2 – Construction Description
- Attachment 3 – Section 7 Species Conclusion Table
- Attachment 4 – EFH Assessment Worksheet and EFH Assessment
- Attachment 5 – Designation of Non-Federal Representative Letter

cc: NOAA: K. Greene
DDC: T.L. Dinh, E. Ilijevich, K. Leaman
Parks: E. Humes, C. Alderson
OMB: E. Qadri, J. Jacobs
Deputy Mayor's Office: M. De Coo
HUD: T. Fretwell
JV: A. Winter, C. Campbell, K. Mui, R. White




Source: USFWS

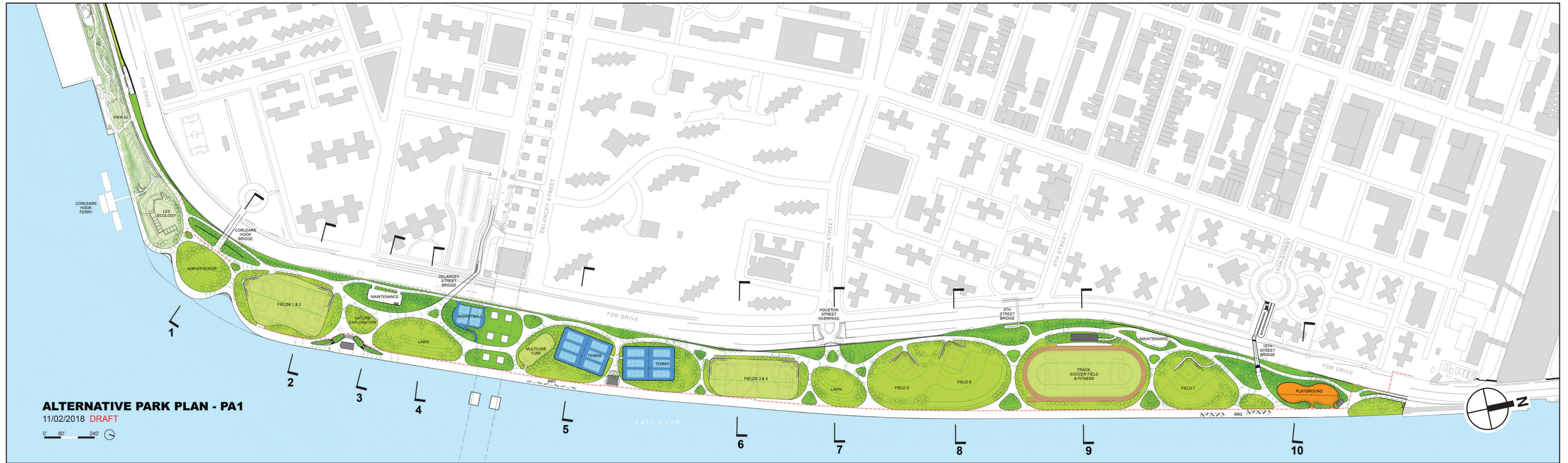
 Project Area One

 Project Area Two



 Natural Resources Study Area (400-Foot Study Area Radius)

 Estuarine and Marine Deepwater (Estuarine Subtidal Wetlands with an Unconsolidated Bottom- E1UBL)

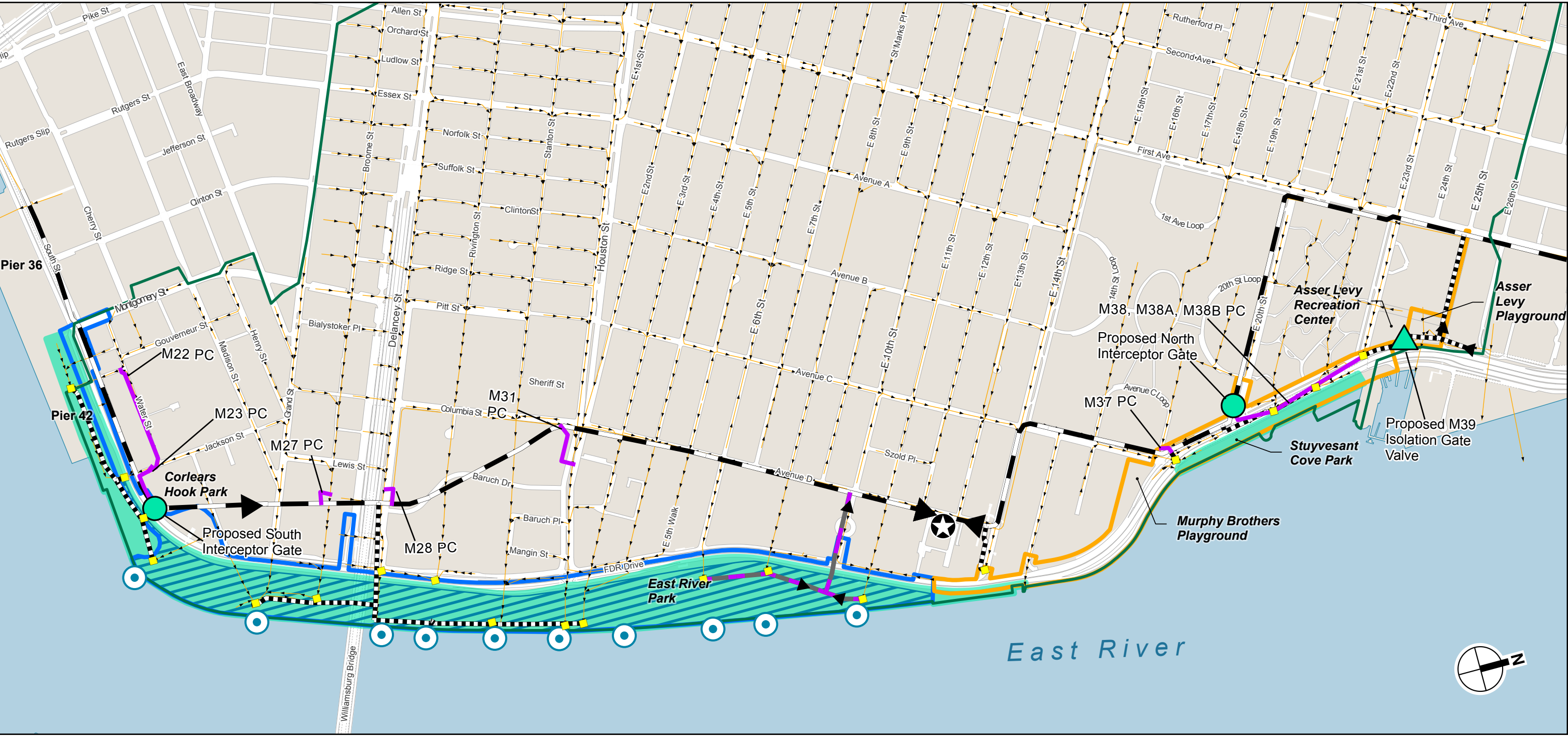
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Project Elements

-  Proposed Floodwall
-  Redesigned Open Spaces

NOTE: Based on Preliminary Draft Design Concept.



Drainage Isolation

- Proposed Isolation Gate Valve at Regulator M-39
- Proposed Interceptor Gate
- Proposed Floodproofing of Unprotected Sewer Infrastructure

Drainage Management

- Proposed Parallel Conveyance (PC)
- Proposed Upsized Branch Interceptor

Infrastructure Reconstruction

- Proposed Infrastructure Reconstruction
- Proposed Reconstructed Outfall Location

- Existing Regulators
- Existing Lateral Sewers in Drainage Protected Area
- Existing Branch Interceptors
- Existing Interceptor
- Manhattan Pump Station

- Drainage Protected Area
- Project Area One
- Project Area Two

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**ATTACHMENT 1
PREVIOUS CORRESPONDENCE WITH NMFS**

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**

Diamond, Ross

From: Daniel Marrone - NOAA Federal <daniel.marrone@noaa.gov>
Sent: Tuesday, August 11, 2015 8:55 AM
To: Diamond, Ross
Cc: Karen Greene - NOAA Federal; pauh@ddc.nyc.gov; dinhl@ddc.nyc.gov; rogersel@ddc.nyc.gov; PichardoJimenezC@ddc.nyc.gov; DaviesMi@ddc.nyc.gov; cgrassi@cityhall.nyc.gov; Alda.chan@parks.nyc.gov; qadrie@omb.nyc.gov; JonesM@omb.nyc.gov; Wells, Owen (Parks); EBrunner; rwhite@akrf.com; mlee@akrf.com; Mehrotra, Sandeep; Young, Valerie; Winter, Annie; Wells, Ruby
Subject: Re: Request for Information/Informal Section 7 Review of Federally Listed Marine Species - East Side Coastal Resiliency, New York, NY

Hi Ross,
Atlantic and shortnose sturgeon are the only ESA-listed species under our jurisdiction that may occur in the East River. Sea turtles do not occur in the East River.
Dan

On Mon, Aug 10, 2015 at 4:54 PM, Diamond, Ross <RDiamond@hazenandsawyer.com> wrote:

Hi Daniel, thank you for distributing the technical guidance letter. For our own records, can you confirm that the species in question for our project area are:

Atlantic Sturgeon

Shortnose Sturgeon

Green Turtle

Atlantic Hawksbill

Loggerhead

Kemp's Ridley

Leatherback

The design of the ESCR project is currently progressing and when additional information is available on the extent of the in-water construction, we will resume coordination with NMFS. Thank you.

Ross Diamond

Principal Scientist | Hazen and Sawyer
498 Seventh Avenue, 11th Floor, New York, NY 10018

[212.539.7082](tel:212.539.7082) (direct) | [973.820.5398](tel:973.820.5398) (cell)
rdiamond@hazenandsawyer.com | hazenandsawyer.com

From: Daniel Marrone - NOAA Federal [mailto:daniel.marrone@noaa.gov]

Sent: Thursday, July 30, 2015 1:58 PM

To: Diamond, Ross <RDiamond@hazenandsawyer.com>

Cc: Karen Greene - NOAA Federal <karen.greene@noaa.gov>; pauh@ddc.nyc.gov; dinhl@ddc.nyc.gov; rogersel@ddc.nyc.gov; RichardoJimenezC@ddc.nyc.gov; DaviesMi@ddc.nyc.gov; cgrassi@cityhall.nyc.gov; Aida.chan@parks.nyc.gov; gadrie@omb.nyc.gov; JonesM@omb.nyc.gov; Wells, Owen (Parks) <Owen.Wells@parks.nyc.gov>; EBrunner <EBrunner@cityhall.nyc.gov>; rwhite@akrf.com; mlee@akrf.com; Mehrotra, Sandeep <SMehrotra@hazenandsawyer.com>; Young, Valerie <vyoung@hazenandsawyer.com>; Winter, Annie <awinter@hazenandsawyer.com>; Wells, Ruby <RWells@hazenandsawyer.com>

Subject: Re: Request for Information/Informal Section 7 Review of Federally Listed Marine Species - East Side Coastal Resiliency, New York, NY

Hi Ross,

Sorry for the delay. Attached is a copy of the technical guidance letter we sent out in July for Sandy resiliency projects. I believe your project fits in with this group. Please let me know if you have any questions.

Thanks,

Dan

On Tue, Jul 14, 2015 at 1:25 PM, Diamond, Ross <RDiamond@hazenandsawyer.com> wrote:

Dear Mr. Marrone,

A request for information for federally-listed threatened and endangered marine species with regards to the East Side Coastal Resiliency Project located in New York County, New York was placed in the mail to you today, July 14th 2015. This is a supplementary digital submission of the same package. Attached to this email please find a copy of the cover letter that contains a project description, two figures representing the project location, and the GIS shapefiles of the study area and respective buffer area. Thank you for your review and please do not hesitate to contact me for any reason.

Ross Diamond

Principal Scientist | Hazen and Sawyer
498 Seventh Avenue, 11th Floor, New York, NY 10018
[212.539.7082](tel:212.539.7082) (direct) | [973.820.5398](tel:973.820.5398) (cell)
rdiamond@hazenandsawyer.com | hazenandsawyer.com



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

July 8, 2015

Andrew Raddant, Office of Environmental Policy and Compliance, Department of the Interior
Nancy Danzig, Federal Transit Administration, Region 2, Department of Transportation
Timothy Timmermann, Region 1, EPA
Grace Musumeci, Region 2, EPA
Katherine Zeringue, Region 2, FEMA
Irene Chang-Cimino, Sandy Recovery Office, FEMA
Therese Fretwell, Regions I and II, HUD
COL David Caldwell, New York District, USACE
LTC Michael Bliss, Philadelphia District USACE
COL Christopher Barron, New England District, USACE

Re: Sandy Regional Infrastructure Resilience Coordination - Federal Review and Permitting

Dear Mr. Raddant, Ms. Danzig, Mr. Timmerman, Ms. Musumeci, Ms. Zeringue, Ms. Chang-Cimino, Ms. Fretwell, Col. Caldwell, Lt Col. Bliss, and Col. Barron:

You have requested guidance on consulting with NMFS Protected Resources Division, Greater Atlantic Region, under Section 7 of the Endangered Species Act (ESA), as amended, for species listed under our jurisdiction, and with NMFS Habitat Conservation Division, Greater Atlantic Region under the essential fish habitat (EFH) provisions of the Magnuson Stevens Fishery Conservation and Management Act (MSA), regarding the projects in the Sandy-affected region funded under the following federal grant/loan programs, some of which are supported by the Disaster Relief Appropriations Act of 2013 (Sandy Supplemental), and/or other federal programs or authority including the following:

- **DOI's** Hurricane Sandy Coastal Resiliency Competitive Grant Program
- **DOT's** FHWA Emergency Relief Program and FTA Emergency Relief Program
- **EPA's** Clean Water State Revolving Fund (annual + Sandy Supplemental) and Drinking Water State Revolving Fund (annual + Sandy Supplemental)
- **FEMA's** Public Assistance and Hazard Mitigation Grant Program
- **HUD's** Community Development Block Grant - Disaster Recovery
- **NOAA's** Coastal Resilience Networks (CRest) and Cooperative Institute of North American Research (CINAR)
- **USACE's** Civil Works Program, Sandy Supplemental appropriations to USACE, and the USACE Regulatory Program
- **USDA's** Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program



You have requested technical guidance to help you determine which activities funded by the program may require additional coordination with NOAA's National Marine Fisheries Service, including potential future consultation pursuant to Section 7 of the ESA and the MSA. We propose that it would be more efficient to consider ESA Section 7 and MSA EFH consultation needs as they apply to the entire group of above-funded projects rather than having you submit a separate request for each project. The guidelines provided below are intended to be incorporated into your environmental review process so that you can determine which projects require additional coordination with us. This letter is provided as technical assistance, and Section 7 and EFH consultations have not been initiated. In fact, as indicated below, we expect the majority of activities being considered for funding will not need additional coordination with us.

We understand that this guidance applies to (but is not limited to) the following proposed land-based activity:

1. Rehabilitation and repair of 1-4 unit homes, 5-9 unit buildings, and commercial properties, including appropriate elevations of properties within a floodplain.
2. Repair and replacement of bulkheads in accordance with the USACE Nationwide General Permit Program, for which EFH consultation is complete on a regional basis.
3. Buy-out of certain storm-damaged properties for conversion to green space or other public facility in perpetuity.
4. Acquisition of certain damaged properties for future redevelopment.
5. Coastal infrastructure, both green and gray.

Endangered Species Act Guidance

Several species of listed sea turtles and Atlantic and shortnose sturgeon occur in the coastal waters of New York and New Jersey. Distribution maps are currently available on our website (<http://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/maps/index.html>). Because these species only occur in the water in New York and New Jersey, they would not be exposed to any effects of activities that occur solely on land or above the high tide line and do not involve work in waterways. We also understand that appropriate best management practices will be required by other permits and employed to avoid any discharge into waterways and wetlands during any work. While there are ESA listed species under our jurisdiction in the coastal waters adjacent to where these land projects maybe based, these species are aquatic and limited to oceans and rivers (e.g., there are no nesting beaches for sea turtles in New York or New Jersey). Activities that have no effect on waterways or wetlands do not have the potential to impact our listed species and their habitats. ESA Section 7 consultation is required when a proposed Federal action may affect a listed species. Because no listed species under our jurisdiction will be exposed to effects from proposed activities on land, no section 7 consultation is necessary.

For activities such as bulkhead repair and replacement that occur along the shoreline, typical bulkhead repair and replacement methodologies include sheet pile installation, individual piles used to support an aboveground structure, or, gravity construction resting on the shore bottom supported by its own weight. The presence of sea turtles and sturgeon in shallow waters adjacent to the shoreline where bulkheads are typically installed would be rare. Impacts to these species are more likely to occur as a result of increased turbidity (due to sediment disturbance) and noise

resulting from the installation of piles. Measures that can be implemented to minimize the potential exposure of these species to these stressors include the use of turbidity or silt curtains, construction at low tide when water is absent from the area, use of vinyl piles, use of the smallest diameter piles practicable, and use of vibratory pile drivers. Avoidance of the May-October time period would also reduce the likelihood of impacts to listed species of sea turtles. We also encourage you to follow the guidance of the relevant permit conditions of the USACE Nationwide Permit Program (e.g. #3 (maintenance), 13 (Bank Stabilization), 23 (NEPA CE exclusions)), as well as general and regional specific conditions for New York and New Jersey.

The lead action agency, or their designated non-Federal representative, is responsible for determining if a proposed action may affect a listed species. If you determine that listed species will not be exposed to any effects of a proposed activity, no additional coordination with us is necessary. For any activities that may affect a listed species, section 7 consultation is required. We expect the projects that will require additional coordination would be any that result in negative impacts to submerged aquatic vegetation (SAV), shellfish resources, or involve pile installation, or dredging and disposal.

Essential Fish Habitat Guidance

EFH has been designated within the proposed project area by the New England and Mid-Atlantic Fishery Management Councils. The MSA requires federal agencies to consult with us on any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect EFH identified under the MSA. Additional information on EFH designations and the EFH consultation process can be found at <http://www.greateratlantic.fisheries.noaa.gov/habitat>. Programs occurring along the shoreline and adjacent to nearshore coastal waters will likely require federal authorizations by USACE pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, potentially through the Nationwide General Permit Program. One aspect of the conditions for these authorizations is to identify and implement measures which would avoid and minimize adverse effects to EFH and other trust resources; therefore, avoiding the need for additional consultation with us.

In order to avoid and minimize impacts to EFH, we encourage you to design any shoreline structures in accordance with the regional and general conditions for the Nationwide Permits. The regional conditions for New Jersey can be found on the USACE Philadelphia District website (<http://www.nap.usace.army.mil/Missions/Regulatory/Permits/NWP.aspx>). The regional conditions for New York can be found on the USACE New York District website (http://www.nan.usace.army.mil/Portals/37/docs/regulatory/geninfo/natp/NWP_PN_30MAY12.pdf). Activities that do not meet these regional conditions will require additional EFH consultation with our office.

Conclusion

Under the ESA and MSA and our implementing regulations, it is up to the action agency to make the determination of whether to consult. This guidance applies to all present and potential projects under the above-listed grants and loan programs, including bulkhead repair activities, housing rehabilitation for homes of all sizes, reimbursement for costs incurred, demolition, redevelopment activities, economic development, and infrastructure activities, and will assist you in determining if consultation is necessary.

We look forward to continuing to work with you on projects funded by the above-listed programs. Should you have any questions regarding the ESA comments, please contact Jennifer Goebel in our Protected Resources Division (978-281-9373 or jennifer.goebel@noaa.gov). If you have any questions concerning the EFH comments, please contact Karen Greene in our Habitat Conservation Division (732-872-3023 or karen.greene@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberly B. Randall', written in a cursive style.

Kimberly Damon-Randall
Assistant Regional Administrator
Protected Resources Division

EC: Goebel, Murray-Brown GARFO PRD
Chiarella, Greene – GARFO HCD

**PREVIOUS CORRESPONDENCE WITH NMFS
JANUARY 2016 CONSULTATION**

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**

January 25, 2016

Mr. Daniel Marrone
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

Re:

**Section 7 and Essential Fish Habitat Findings for the
East Side Coastal Resiliency Project
New York, New York
New York City Department of Design and Construction Capital Contract: SANDRESM1**

Dear Mr. Marrone:

On behalf of the New York City (City) Department of Design and Construction (DDC), the Hazen and Sawyer/AKRF Joint Venture (JV) is requesting concurrence from the National Oceanic and Atmospheric Association (NOAA) National Marine Fisheries Service (NMFS) with DDC's findings regarding Section 7 threatened and endangered species and Essential Fish Habitat (EFH) for the East Side Coastal Resiliency (ESCR) project, located in New York City, New York. The proposed ESCR project extends along the east side of Manhattan between Montgomery Street and East 23rd Street (with a potential alignment extending to East 25th Street). The Environmental Impact Statement (EIS) study area for the Natural Resources chapter ("study area") extends 400 feet into the East River from the shoreline between Montgomery Street and East 25th Street (**Figure 1**). The proposed project is a series of integrated flood control measures designed to protect areas of Manhattan within the Federal Emergency Management Agency (FEMA)-designated 100-year flood hazard area accounting for 2050 sea level rise projections developed by the New York City Panel on Climate Change. The construction associated with the proposed project would occur primarily on land, but may also include some in-water work in the East River, a saline surface water component of the New York Harbor Estuary.

To assist in your review, a Species Conclusion Table documenting the natural history of threatened and endangered species potentially occurring within the study area along with discussions of potential project related effects is found in **Attachment 1**. A "NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies" and an EFH impact assessment are provided in **Attachment 2**. Previous correspondence with NMFS regarding the ESCR project is provided in **Attachment 3**. Please find below a project description and description of potential construction activities for the proposed project.

Project Description

Hurricane Sandy, which made landfall in October 2012, greatly impacted New York City and surrounding areas, including the east side of Manhattan, highlighting existing deficiencies in the City's ability to adequately protect vulnerable populations and critical infrastructure during major storm events. Hurricane Sandy caused extensive inland flooding in the study area, resulting in damage to residential and commercial property; transportation; and critical power, water, and sewer infrastructure. Addressing the vulnerability of the study area by protecting critical infrastructure and resources on Manhattan's lower east side is essential to the City's resiliency planning.

In June 2013, the U.S. Department of Housing and Urban Development (HUD) launched Rebuild by Design (RBD), a competition to respond to Hurricane Sandy's devastation in the northeast region of the United States. The winning proposals would be implemented using Community Development Block Grant – Disaster Recovery (CDBG-DR) funding as well as other public and private-sector funding sources. One of the winning proposals was an integrated flood protection system on the east side of southern Manhattan between Montgomery Street and East 23rd Street to reduce the risk of coastal flood hazards, which became the ESCR project. The proposed flood protection system would be comprised of a combination of elevated berms, floodwalls, and deployables (temporary flood protection walls/gates deployed only during flood conditions). The study area was defined based on floodplain and topography mapping.

In addition to providing a reliable flood protection system for this flood hazard area, the proposed project aims to improve and enhance access to the waterfront, including East River Park and Stuyvesant Cove Park, which are located within the study area. As such, the City is proposing to construct and operate a flood protection system with integrated urban design features that will reduce flood hazards to a diverse and vulnerable residential population and safeguard critical energy, infrastructure, commercial, and transportation assets while enhancing access to the waterfront and parkland. Project construction is anticipated to commence in summer 2017.

Potential In-water Construction Activities Associated with ESCR

As stated above, the majority of construction associated with ESCR would occur on land within East River Park. Design of ESCR is ongoing and subject to change. However, the following in-water construction activities have been identified as potential components of the project:

- Construction barging;
- Installation of temporary mooring structures; and
- Construction of a combined sewer outfall.

Utilizing barges for construction activities may be necessary due to the site constraints of East River Park, including those associated with limited vehicular access and ongoing construction activities within a highly-utilized public park. Barges would have extended gangways to allow for offloading of construction materials and vehicles and would not require anchoring to the bulkhead. Therefore no dredging to accommodate barges would be necessary. Temporary appurtenances (i.e., mooring spuds) on the East River floor would be installed at barging locations to allow for mooring. A combined sewer outfall is currently planned to be constructed to provide drainage to the inland area protected by the proposed flood protection system. This outfall would only discharge during emergency storm surge conditions in which the flood protection system is operational. During non-storm conditions there would be no flow of any kind discharging from this outfall. Construction of the outfall would occur within the existing bulkhead and only temporary construction-related impacts such as installation of a coffer dam and dewatering in the affected area are anticipated.

Section 7 Findings

ESCR is receiving funds from HUD, a federal agency, and is therefore subject to Section 7 of the Endangered Species Act. Based on prior communications with NMFS for a request for information dated 8/11/2015 (**Attachment 3**), there are two species of endangered fish with the potential to occur in the East River adjacent to the study area. These species are the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*). DDC is requesting an informal Section 7 consultation with NMFS for these species. Due to inhospitable habitat conditions in the East River such as strong currents, heavy boat traffic, and degraded water quality; the localized nature of the proposed in-water work within the study area; and the minimal effects future operation of the flood protection system would have on the East River, DDC has determined that the construction and operation of the proposed ESCR project May Affect, but is Not Likely to Adversely Affect both the Atlantic sturgeon and shortnose sturgeon. DDC is seeking

concurrence from NMFS on these findings. A Species Conclusion Table with additional details on sturgeon life history and rationale for this finding is provided in **Attachment 1**.

Essential Fish Habitat Findings

An Essential Fish Habitat (EFH) assessment and accompanying NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies are provided in **Attachment 2**. As a result of construction activities associated with the proposed project, there would be minor effects to EFH for one or more lifestages of winter flounder, windowpane flounder, summer flounder, Atlantic herring, scup, and black sea bass. Several species listed as potentially occurring in the study area are either at the extreme limit of their known range or are highly migratory and are therefore anticipated to occur in the East River only as uncommon or transient individuals. The remainder of the species evaluated would not be anticipated to be found in the East River due to unsuitable environmental conditions, unsuitable depths, and unsuitable substrates or other habitat features. DDC is requesting an Abbreviated EFH Consultation and concurrence with their findings of Minimal Adverse Effects to EFH in the study area. DDC also requests guidance on any Conservation Recommendations that NMFS may have for the proposed project.

Results of these consultation requests will be used to inform the EIS currently being prepared for the ESCR project in order to comply with applicable National Environmental Protection Act (NEPA), State Environmental Quality Review Act (SEQRA), and City Environmental Quality Review (CEQR) standards. Design of the ESCR project and reasonable alternatives are currently being developed. In the event that new design elements are developed that result in additional in-water construction activities not described above, DDC would notify NMFS of these changes as addenda to this submission.

The City would greatly appreciate an expeditious review of the enclosed documents. Please send the results of the requested consultations to me at rdiamond@hazenandsawyer.com. Should you have any questions or require additional information, please feel free to contact me at (212) 539-7082. Thank you in advance for your assistance with this matter.

Sincerely,



Ross Diamond
Principal Scientist
Hazen and Sawyer, P.C.

Enclosures:

- Figure 1 – Site Location Map
- Attachment 1 - Section 7 Conclusions Table
- Attachment 2 - EFH Assessment and EFH Assessment Worksheet for Federal Agencies
- Attachment 3 - Previous NMFS Correspondence

cc:

- DDC: T. Foley, H.S. Pau, L. Murray, E. Ilijevich, E. Rogers, M. Davies, C. Pichardo-Jimenez
- DPR: O. Wells, A. Chan
- OMB: E. Qadri, C. Johnson, M. Jones
- ORR: C. Grassi
- HUD: T. Fretwell, J. Levine



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 18 2016

Ross Diamond
Hazen and Sawyer / AKRF, JV
440 Park Avenue South
New York, New York 10016

Re: ESA Section 7 East Coast Resiliency Project: SANDRESM1

Dear Mr. Diamond:

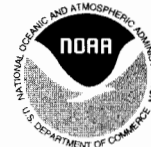
We have completed an Endangered Species Act (ESA) section 7 consultation in response to your letter received on January 26, 2016, and additional information received on February 17, 2016. Based on correspondence you provided us from the U.S. Department of Housing and Urban Development, and the New York City Office of Management and Budget, we understand that you have been designated as the lead non-federal representative on this action. We concur with your determination that the proposed project is not likely to adversely affect any species listed by us as threatened or endangered under the ESA of 1973, as amended. Our supporting analysis is provided below.

Proposed Action

The proposed project is a series of integrated flood control measures on the east side of southern Manhattan between Montgomery Street and East 23rd Street designed to protect areas of Manhattan within the Federal Emergency Management Agency (FEMA) designated 100-year flood hazard area, accounting for 2050 sea level rise projection developed by the New York City Panel on Climate Change. The construction associated with the proposed project will occur on land, but will also include some in-water work in the East River. The proposed flood protection system will comprise a combination of elevated berms, floodwalls, and deployables (temporary flood protection walls/gates deployed only during flood conditions). Project construction is anticipated to commence in summer 2017.

The in-water work for the project includes:

- Installation of a turbidity curtain prior to installing the coffer dam.
- Installation of 24-inch steel sheet piles to be used as a coffer dam. The sheet piles will be installed via a vibratory or impact hammer, depending on subsurface conditions. The area enclosed by the sheet piles is anticipated to measure approximately 300 square feet. The duration of pile driving will be two, 8-hour construction days.
- Removal of the piles after the completion of the project.
- The construction of an outfall that will occur in a dewatered coffer dam and will not have any effects on ESA-listed species.



Description of the Action Area

The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR§402.02). For this project, the action area is confined to the area affected by the installation of sheet piles and the route traveled by the barge. This includes underwater areas where effects of pile driving and pile removal (i.e., elevated levels of underwater noise; increase in suspended sediment) will be experienced. Analyses of similar pile driving activities indicate that effects of increased underwater noise are likely to be experienced up to a maximum of 295 feet from the piles to be driven (depending on the pile installation method) (ICF Jones & Stokes and Illingworth and Rodkin Inc. 2009, 2012). Therefore, the action area is the footprint of the pile installation and removal area and areas within a 295-foot radius of piles being driven, as well as the surrounding area where any increase in vessel traffic may occur. This area is expected to encompass all of the effects of the proposed project, including the ensonified area (295-foot radius around the piles).

The project will occur in the East River. The river is a highly developed waterway with substantial vessel traffic. The maximum depth of the action area is approximately 40 feet. The substrate consists of coarse sands and gravels in high-energy areas with fine-grained silts and clay in low-energy areas. There is no known submerged aquatic vegetation (SAV) and limited benthic invertebrates in the action area.

NMFS Listed Species in the Action Area

Atlantic Sturgeon

There are five distinct population segments (DPSs) of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) listed as threatened or endangered. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered; 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 and includes the action area.

At around three years of age, subadults exceeding 70 centimeters (cm) in total length begin to migrate to marine waters (Bain *et al.* 2000). After emigration from the natal river/estuary, subadults and adult Atlantic sturgeon travel within the marine environment, typically in waters less than 164 feet in depth, using coastal bays, sounds, and ocean waters (ASSRT 2007). In rivers and estuaries, Atlantic sturgeon typically use the deepest waters available; however, Atlantic sturgeon also occur over shallow (8 feet), tidally influenced flats and mud, sand, and mixed cobble substrates (Savoy and Pacileo 2003). Occurrence in these shallow waters is thought to be tied to the presence of benthic resources for foraging. Atlantic sturgeon spawn in freshwater portions of their natal river, and early life stages are not tolerant of salinity (ASSRT 2007); therefore, no eggs or larvae will occur in any part of the action area, and thus, will not be exposed to the direct and indirect effects of the proposed action.

Research conducted by Savoy and Pacileo (2003) suggests the East River is used by subadult Atlantic sturgeon to move between the Hudson River to western Long Island Sound. Use of the East River by Atlantic sturgeon has been confirmed by the detection of 15 tagged subadults and/or adults (total length 50-150 cm) at a receiver array placed near the east end of Roosevelt Island from May 2011 to August 2013 (Tomichek *et al.* 2014). Atlantic sturgeon were detected in March through July and October. Tagged sturgeon records show that 7 of 15 sturgeon were in

the area for less than 10 minutes, with the others present 48 minutes to 6 hours. This indicates use of the East River is limited to transient individuals. Based on detections in the East River, we expect sturgeon presence to be limited to March through October.

New York Bight, Gulf of Maine, and Chesapeake Bay DPSs of Atlantic sturgeon occur in the Hudson River (Damon-Randall *et al.* 2013). In Long Island Sound, Atlantic sturgeon from all five DPSs are present. Therefore, adult and subadult Atlantic sturgeon from any of the five DPSs may be present in the action area. These sturgeon are likely to be migrating and may also use the action area for opportunistic foraging.

Shortnose Sturgeon

Shortnose sturgeon (*Acipenser brevirostrum*) occur in the Hudson and Connecticut Rivers. In some areas, including the Gulf of Maine, nearshore coastal migrations and movements between river systems have been documented. For example, approximately 70% of shortnose sturgeon tagged in the Penobscot River made regular seasonal movements out of the river, with some fish spending up to a year outside of the river (Zydlewski *et al.* 2011). Movements of these fish have been limited to the Gulf of Maine with the furthest extent of movements documented between the Merrimack River (MA) and Penobscot River (ME).

Only a few of these types of nearshore coastal movements have been documented in the New York Bight. Three shortnose sturgeon adults tagged in the Hudson River have been recaptured in the Connecticut River (Savoy 2004 in SSSRT 2010) and one Hudson River origin shortnose sturgeon was captured in both the Connecticut and Housatonic rivers (Savoy 2004 in SSSRT 2010). In fall 2014, a shortnose sturgeon was caught in the Merrimack River (MA) carrying a tag implanted in the Connecticut River in 2001. Genetic information is not yet available so we do not know the river of origin of this fish. At this time, the available tagging and tracking information is too limited to determine if Hudson River and Connecticut River shortnose sturgeon are making regular movements outside of their natal rivers. Very few movements of Hudson River fish have been documented outside of the river since the mid-1990s which is thought to be a reflection of the rarity of these types of movements. However, the documented occurrence of Hudson River shortnose sturgeon in the Connecticut River, the capture of a shortnose sturgeon in the Housatonic River, and the movement of a shortnose sturgeon from the Connecticut River to the Merrimack River, indicate that occasional shortnose sturgeon may be present in nearshore coastal waters and rivers between the Hudson and Connecticut rivers.

Based on known movement patterns, we expect any shortnose sturgeon moving between the Hudson River and the Connecticut River to travel through the East River and in the nearshore coastal waters of northern Long Island Sound with occasional movements into small coastal rivers and estuaries. The range of shortnose sturgeon in this area is expected to include nearshore waters, accessible estuaries, and small rivers on the northern coast of Long Island Sound between the East River and the Connecticut River. Based on the best available information, rare transient shortnose sturgeon may occur in the action area which is located in the East River. Occurrence in these shallow waters is thought to be tied to the presence of suitable benthic resources for foraging. However, as noted above, the action area has no SAV and limited benthic resources. Because of the limited suitable forage, use of the area by shortnose sturgeon is likely to be limited to transient individuals that are passing through; opportunistic foraging may occur in areas if suitable benthic resources are available. As shortnose sturgeon spawn in freshwater

portions of large rivers and early life stages are not tolerant of salinity, juveniles, eggs, and larvae will not occur in any part of the action area.

Effects of the Action

Noise Associated with Pile Installation

Pile driving produces underwater sound pressure waves that can affect aquatic species, including sturgeon. Effects to fish can range from temporary avoidance of an area to death due to injury of internal organs, such as swim bladders. The type and size of pile, installation method (i.e., vibratory vs. impact hammer), size of the organism (smaller individuals are more susceptible to effects) and particular species, and distance from the sound source (i.e., sound dissipates over distance so noise levels are greater closer to the source) all contribute to the likelihood of effects to an individual. Generally, the larger the pile and the closer an individual is to the pile, the greater the likelihood of effects.

The existing piles will be removed via extraction. For the purpose of this consultation, we assume any underwater noise levels produced by extracting the piles will be below noise levels produced by the driving of piles via an impact hammer. Based on the best available information, vibratory hammers produce underwater noise levels that are approximately 10-20 dB re: 1 μ Pa lower than those produced by an impact hammer (Laughlin 2005). For the purpose of this consultation, we assume any underwater noise levels produced by vibratory hammer will be below noise levels produced by the driving of piles via an impact hammer. Given the available information, we will analyze the underwater noise levels generated by the driving of the sheet piles with an impact hammer as the factor that will produce the greatest stressor. Because any noise generated during pile removal will be less than that produced during pile installation, an analysis considering effects of noise of pile installation will provide a conservative analysis of potential effects of exposure to noise during pile removal.

The applicant plans to install 24 inch steel sheet piles. To estimate underwater noise levels for the installation of sheet piles via an impact hammer, underwater noise estimates were taken from a project that installed 24-inch steel sheet piles driven by an impact (ICF Jones & Stokes and Illingworth and Rodkin, Inc. 2012). Given the type and size of the pile, and the installation method, this is a reasonable estimator of noise produced during the proposed project. Therefore, following the noise measurements from ICF Jones & Stokes and Illingworth and Rodkin, Inc. (2012), we expect the noise produced by an un-attenuated impact hammer at the proposed project site to be: 205 dB re 1 μ Pa peak, 190 dB re 1 μ Pa RMS, and 180 dB re 1 μ Pa²s sSEL at 33 feet from the pile (ICF Jones & Stokes and Illingworth and Rodkin, Inc. 2009).

Table 1. Estimated average underwater noise levels produced by the driving of piles at a distance of 33 feet.

Type Pile	Hammer Type	Estimated Peak Noise Level (dB _{Peak} ¹)	Estimated Pressure Level (dB _{RMS} ²)	Estimated Single Strike Sound Exposure Level (sSEL)
24 " Sheet Pile	Impact hammer	205	190	180

The sound levels in Table 1 are an estimate, and will likely vary depending on the geometry and boundaries of the surrounding underwater and benthic environment (*i.e.* shallow/deep water, shoaled portions of channels, obstacles in the waterway). As the distance from the source increases, underwater sound levels produced by pile driving dissipate rapidly. Underwater noise levels will attenuate approximately 5 dB every 33 feet for sheet piles (ICF Jones & Stokes and Illingworth and Rodkin Inc. 2009, 2012). If significant obstacles or variable bathymetry are present in an area, attenuation may occur more rapidly, dampening the sound pressure by an even greater factor.

Background Information on Noise and Sturgeon

Sturgeon rely primarily on particle motion to detect sounds (Lovell *et al.* 2005). While there are no data either in terms of hearing sensitivity or structure of the auditory system for Atlantic and shortnose sturgeon, there are data for the closely related lake sturgeon (Lovell *et al.* 2005, Meyer *et al.* 2010), which because of the biological similarities, for the purpose of considering acoustic impacts, are a good surrogate for Atlantic and shortnose sturgeon. The available data suggest that lake sturgeon can hear sounds from below 100 Hz to 800 Hz (Lovell *et al.* 2005, Meyer *et al.* 2010). However, since these two studies examined responses of the ear and did not examine whether fish would behaviorally respond to sounds, it is hard to determine thresholds for hearing (that is, the lowest sound levels that an animal can hear at a particular frequency) using information from these studies. The best available information indicates that Atlantic and shortnose sturgeon are not capable of hearing noise in frequencies above 1000 Hz (1 kHz) (Popper 2005). Sturgeon are categorized as hearing “generalists” or “non-specialists” (Popper 2005). Sturgeon do not have any specializations, such as a coupling between the swim bladder and inner ear, to enhance their hearing capabilities, which makes these fish less sensitive to sound than hearing specialists. Low-frequency impulsive energies, including pile driving, cause swim bladders to vibrate, which can cause damage to tissues and organs as well as to the swim

¹ Peak sound pressure level is the largest absolute value of the instantaneous sound pressure and is expressed as dB re: 1 μPa.

² Root Mean Square (RMS): the square root of the average squared pressures over the duration of a pulse; most pile-driving impulses occur over a 50 to 100 millisecond (msec) period, with most of the energy contained in the first 30 to 50 msec (Illingworth and Rodkin, Inc. 2001, 2009). Therefore, RMS pressure levels are generally “produced” within seconds of pile driving operations and represent the effective pressure and its resultant intensity (in dB re: 1 μPa;) produced by a sound source.

bladder (Halvorsen *et al.* 2012a). Sturgeon have a physostomous (open) swim bladder, meaning there is a connection between the swim bladder and the gut (Halvorsen *et al.* 2012a). Fish with physostomous swim bladders, including Atlantic and shortnose sturgeon, are able to expel air, which can diminish tension on the swim bladder and reduce damaging effects during exposure to impulsive sounds. Fish with physostomous swim bladders are expected to be less susceptible to injury from exposure to impulsive sounds, such as pile driving, than fish with physoclistous (no connection to the gut) swim bladders (Halvorsen *et al.* 2012a).

If a noise is within a fish's hearing range and is loud enough to be detected, effects can range from mortality to a minor change in behavior (e.g., startle), with the severity of effects increasing with the loudness and duration of the noise (Hastings and Popper 2005). The actual nature of effects and the distance from the source at which they could be experienced will vary and depend on a large number of factors, such as fish hearing sensitivity, source level, how the sounds propagate away from the source and the resultant sound level at the fish, whether the fish stays in the vicinity of the source, the motivation level of the fish, etc.

Criteria for Assessing the Potential for Physiological Effects to Sturgeon

The Fisheries Hydroacoustic Working Group (FHWG) was formed in 2004 and consists of biologists from NMFS, USFWS, FHWA, and the California, Washington, and Oregon DOTs, supported by national experts on sound propagation activities that affect fish and wildlife species of concern. In June 2008, the agencies signed a Memorandum of Agreement documenting criteria for assessing physiological effects of pile driving on fish. The criteria were developed for the acoustic levels at which physiological effects to fish could be expected. It should be noted that these are onset of physiological effects (Stadler and Woodbury 2009), and not levels at which fish are necessarily mortally damaged. These criteria were developed to apply to all species, including listed green sturgeon, which are biologically similar to Atlantic and shortnose sturgeon and, for these purposes, is considered a surrogate. The interim criteria are:

- Peak Sound Pressure Level (SPL): 206 decibels relative to 1 micro-Pascal (dB re 1 μ Pa) (206 dB_{Peak}).
- Cumulative Sound Exposure Level (cSEL): 187 decibels relative to 1 micro-Pascal-squared second (dB re 1 μ Pa²-s) for fishes above 2 grams (0.07 ounces) (187 dBcSEL).
- cSEL: 183 dB re 1 μ Pa²-s for fishes below 2 grams (0.07 ounces) (183 dBcSEL).

At this time, these criteria represent the best available information on the thresholds at which physiological effects to sturgeon from exposure to impulsive noise, such as pile driving, are likely to occur. It is important to note that physiological effects may range from minor injuries from which individuals are anticipated to completely recover with no impact to fitness to significant injuries that will lead to death. The severity of injury is related to the distance from the pile being installed and the duration of exposure. The closer the fish is to the source and the greater the duration of the exposure, the higher likelihood of significant injury.

Since the FHWG criteria were published, two papers relevant to assessing the effects of pile driving noise on fish have been published. Halvorsen *et al.* (2011) documented effects of pile driving sounds (recorded by actual pile driving operations) under simulated free-field acoustic conditions where fish could be exposed to signals that were precisely controlled in terms of

number of strikes, strike intensity, and other parameters. The study used Chinook salmon and determined that onset of physiological effects that have the potential of reduced fitness, and thus a potential effect on survival, started at above 210 dB re $1\mu\text{Pa}^2\text{-s}$ cSEL. Smaller injuries, such as ruptured capillaries near the fins, which the authors noted were not expected to impact fitness, occurred at lower noise levels. Chinook salmon are hearing generalists with physostomous swim bladders. Results from Halvorsen *et al.* (2012a) suggest that the overall response to noise between chinook salmon and lake sturgeon is similar.

Halvorsen *et al.* (2012b) exposed lake sturgeon to pile driving noise in a laboratory setting. Lake sturgeon were exposed to a series of trials beginning with a cSEL of 216 dB re $1\mu\text{Pa}^2\text{-s}$ (derived from 960 pile strikes and 186 dB re $1\mu\text{Pa}^2\text{-s}$ sSEL). Following testing, fish were euthanized and examined for external and internal signs of barotrauma. None of the lake sturgeon died as a result of noise exposure. Lake sturgeon exhibited no external injuries in any of the treatments but internal examination revealed injuries consisting of hematomas on the swim bladder, kidney, and intestines (characterized by the authors as “moderate” injuries) and partially deflated swim bladders (characterized by the authors as “minor” injuries). The author concludes that an appropriate cSEL criteria for injury is 207 dB re $1\mu\text{Pa}^2\text{-s}$.

It is important to note that both Halvorsen papers (2012a, 2012b) used a response weighted index (RWI) to categorize injuries as mild, moderate, or mortal. Mild injuries (RWI 1) were determined by the authors to be non-life threatening. The authors made their recommendations for noise exposure thresholds at the RWI 2 level and used the mean RWI level for different exposures. Because we consider even mild injuries to be physiological effects and we are concerned about the potential starting point for physiological effects and not the mean, for the purposes of this consultation we will use the FHWG criteria to assess the potential physiological effects of noise on Atlantic and shortnose sturgeon and not the criteria recommended by Halvorson *et al.* (2012a, 2012b). Therefore, we will consider the potential for physiological effects upon exposure to impulsive noise of 206 dB_{Peak} and 187 dBcSEL. Use of the 183 dBcSEL threshold is not appropriate for this consultation because all sturgeon in the action area will be larger than 2 grams. As explained here, physiological effects from noise exposure can range from minor injuries that a fish is expected to completely recover from with no impairment to survival to major injuries that increase the potential for mortality or result in death.

Available Information for Assessing Behavioral Effects on Sturgeon

To date, neither we nor the FHWG have published criteria for underwater noise levels resulting in behavioral responses. However, in practice, we rely on a level of 150 dB re $1\mu\text{Pa}$ RMS as a conservative indicator as to when a behavioral response can be expected in fish exposed to impulsive noise such as pile driving. This level is based on the available literature where fish behavior has been observed (see Fewtrell 2003 and Mueller-Blenkle *et al.* 2010). Because there are no published studies establishing the noise levels at which sturgeon respond behaviorally to noise, these studies of fish—which are likely more sensitive to noise than Atlantic or shortnose sturgeon—are a reasonable conservative indicator of when sturgeon can be expected to respond behaviorally to noise.

Fewtrell (2003) exposed caged fish to air gun arrays. Fewtrell reported altered behavioral responses (alarm responses, faster swimming speeds) for fish exposed to noise of 158-163 dB re

1uPa. Consistent startle responses were observed at noise levels of 167-181 dB re 1uPa (in striped trumpeters). Alarm responses became more frequent at noise levels above 170 dB re 1uPa. Fewtrell reports that avoidance behavior is expected at noise levels lower than that required to produce a startle response.

Mueller-Blenkle *et al.* (2010) played back pile-driving noise to cod and sole held in two large net pens. Movements of fish were tracked and received sound pressure levels were measured. The authors noted a significant movement response to the pile-driving stimulus in both species at received SPL of 144-156 dB re 1uPa peak (cod) and 140-161 dB re 1uPa peak (sole). Indications of directional movements away from the sound source were noted in both species.

We are aware of only one study that has attempted to assess the behavioral responses of sturgeon to underwater noise. A monitoring plan is currently being implemented at the Tappan Zee Bridge replacement project (Hudson River, New York) using acoustic telemetry receivers to examine the behavior of acoustically tagged sturgeon. During the installation of test piles, the movements of tagged Atlantic sturgeon were monitored with a series of acoustic receivers. Tagged Atlantic sturgeon spent significantly less time in the detection area (an area that encompassed the 206 dB re 1uPa peak, 187 dB re 1uPa 2s cSEL and 150 dB re 1uPa RMS SPL isopleths), during active impact pile driving compared to that time period just prior to the work window. Results of this study indicate that sturgeon are likely to avoid areas with potentially injurious levels of noise (AKRF and Popper (2012a, 2012b)). However, due to limitations of the study design, it is not possible to establish the threshold noise level that results in behavioral modification or avoidance of Atlantic sturgeon. Monitoring is ongoing as the bridge project progresses. To date, hundreds of tagged sturgeon have been documented in the project area; however, no sturgeon have been injured or killed as a result of exposure to pile-driving noise.

For the purposes of this analysis, we will use 150 dB re 1 μ Pa RMS as a conservative indicator of the noise level at which there is the potential for behavioral effects, provided the operational frequency of the source falls within the hearing range of the species of concern. That is not to say that exposure to noise levels of 150 dB re 1 μ Pa RMS will always result in behavioral modifications or that any behavioral modifications will rise to the level of “take” (i.e., harm or harassment) but that there is a potential, upon exposure to noise at this level, to experience some behavioral response. We expect that behavioral responses could range from a temporary startle to avoidance of the area with disturbing levels of sound. The effect of any anticipated response on individuals will be considered in the effects analysis below.

Physiological Effects of Pile Driving to Sturgeon

As described above, exposure to underwater noise levels of 206 dB_{Peak} and 187 dB_{cSEL} can result in injury to sturgeon. Because peak noise levels will be below 206 dB_{peak}, no sturgeon will be exposed to peak pressure levels that may result in injury (i.e., 206 dB_{Peak}) (see Table 2).

Table 2: Estimated Distances to Injury and Behavioral Thresholds

Type Pile	Hammer Type	Distance (feet) to 206dB _{Peak} (injury)	Distance (feet) to Behavioral Disturbance Threshold (150 dB _{RMS})	Distance (feet) to sSEL of 150 dB (surrogate for 187 dB _{cSEL} -injury)
24" Sheet Pile	Impact hammer	Not Reached	295 feet	230 feet

In addition to the “peak” exposure criteria which relates to the energy received from a single pile strike, the potential for injury exists for multiple exposures to noise over a period of time; this is accounted for by the cSEL threshold. The cSEL is not an instantaneous maximum noise level, but is a measure of the accumulated energy over a specific period of time (e.g., the period of time it takes to install a pile). The Practical Spreading Loss Model is used to determine underwater noise attenuation rates and can be used to calculate the distance at which a specific noise value (e.g., cSEL) is attained. This model is not a reliable predictor of attenuation in shallow, relatively confined waters such as the action area and typically results in overestimates of distances to thresholds of concern. For that reason, we are not using that model to estimate the distance to the 187 dB re 1 μ Pa²s criteria.

When it is not possible to accurately calculate the distance to the 187 dB re 1 μ Pa cSEL re: 1 μ Pa²·s isopleth, we calculate the distance to the 150 dB re 1 μ Pa sSEL isopleth. The further a fish is away from the pile being driven, the more strikes it must be exposed to accumulate enough energy to result in injury. At some distance from the pile, a fish is far enough away that, regardless of the number of strikes it is exposed to, the energy accumulated is low enough that there is no potential for injury. This distance is where the 150 dB re 1 μ Pa sSEL isopleth occurs (Stadler and Woodbury 2009). A fish located outside of this isopleth has no potential for injury, regardless of the number of pile strikes it is exposed to (i.e., sound levels will not accumulate to injurious levels). The distance to the 150 dB sSEL isopleth is no greater than 230 feet, depending on the installation method. In order to be exposed to potentially injurious levels of noise during installation of the piles, a sturgeon would need to be within 230 feet of the pile being driven. This is extremely unlikely to occur because we expect sturgeon to modify their behavior (i.e., avoid an ensonified area) upon exposure to underwater noise levels of 150 dB re 1 μ Pa_{RMS}. Given that a sturgeon would be exposed to levels of noise that cause behavioral modification (at 295 feet) before being exposed to injurious levels of noise (at 230 feet), we expect sturgeon would swim away from the sound source and never be exposed to potentially injurious levels of underwater noise. If any sturgeon are within 295 feet of the pile at the time pile driving commences, we still expect the sturgeon to leave the area before injurious levels of noise are reached. This is because pile driving hammers have a ramp up period, so the first several blows produce less noise than estimated in Table 1. As we expect sturgeon to modify their behavior and leave the area in a matter of seconds, sturgeon will swim away from the pile well before the cSEL threshold (a cumulative effect of multiple exposures) is reached. Therefore, no injury is anticipated.

Behavioral Effects of Pile Installation to Sturgeon

Behavioral effects, such as avoidance or disruption of foraging activities, may occur in sturgeon exposed to noise above 150 dB re 1 $\mu\text{Pa}_{\text{RMS}}$. We expect underwater noise levels to be below 150 dB_{RMS} at distances beyond approximately 295 feet from the piles being installed. Should sturgeon move into the action area where the 150 dB_{RMS} isopleth extends, as described above, it is reasonable to assume that a sturgeon, upon detecting underwater noise levels of 150 dB_{RMS}, will modify its behavior such that it redirects its course of movement away from the ensonified area and therefore, away from the project site. No spawning or overwintering occurs in the action area; therefore, these behaviors will not be impacted. While sturgeon may opportunistically forage in the action area, the temporary displacement from the noisy area is extremely unlikely to affect any sturgeon. This is because the noisy area is only a small fraction of the available foraging habitat in East River and the action will not prevent sturgeon from accessing other suitable foraging areas. Given the width of the East River (approximately 2,000 feet) and the short distance any sturgeon would have to swim to avoid the noisy area (no more than 295 feet), it is extremely unlikely that a sturgeon would experience any effects from making the small behavioral changes necessary to avoid exposure to disturbing or injurious levels of noise. Given the very small distance a sturgeon would need to move to avoid the disturbing levels of noise, any effects will not be able to be meaningfully measured or detected. Therefore, effects are insignificant.

Water Quality Effects

The installation and removal of the sheet piles will disturb bottom sediments and may cause a temporary increase in suspended sediment in the action area. The turbidity curtain will prevent sturgeon from accessing the area. Thus, there is no risk of sturgeon being exposed to any increase in suspended sediment resulting from pile installation and removal.

While the barriers are up, sturgeon will not have access to the area. However, given the small size of the project area as compared to the width of the East River (approximately 2,000 feet), the reduction in space available for migratory passage and opportunistic foraging for sturgeon will be extremely small (<1%) and any effects to Atlantic and shortnose sturgeon are extremely unlikely. Thus, effects of the placement of the turbidity curtain on Atlantic and shortnose sturgeon are discountable.

Habitat Modification

This action involves a total of 300 square feet of displaced river bottom. The cofferdam will prevent sturgeon from entering the 300 square foot area. The habitat in the action area has no SAV or shellfish beds, and is otherwise marginally suitable for sturgeon foraging. Given the extremely small size of the displaced area that would fall under the coffer dam, relative to the available foraging area in the East River, the effects of habitat modification on sturgeon foraging will be too small to be meaningfully measured or detected. Therefore, effects of habitat modification on sturgeon are insignificant.

Vessel Interactions

The construction operations will result in a temporary increase in vessel traffic in the area, consisting of one barge assisting with construction. We have considered whether this temporary

increase in vessel traffic in the action area will increase the risk of interactions between vessels and sturgeon.

Sturgeon are known to be vulnerable to vessels strikes in rivers and channels. The vessel movements associated with this project will be localized to the area where pile driving will occur. We have considered the likelihood that an increase in vessel traffic associated with the project increases the risk of interactions between sturgeon and vessels in the project area, compared to baseline conditions. Given the large volume of traffic in the project area, the increase in traffic associated with the project (one vessel) is extremely small. Based on this information, we believe the effects of vessel traffic on sturgeon from this project would not be able to be detected and are, therefore, insignificant.

Conclusions

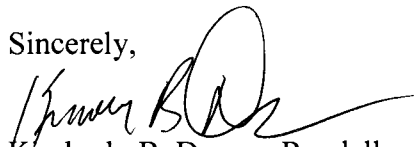
Based on the analysis that any effects to listed species of sturgeon will be insignificant or discountable, we concur with your determination that the proposed project is not likely to adversely affect any listed species under our jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the actions that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified actions are subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified actions. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Dan Marrone at (978) 282-8465 or by email (Daniel.Marrone@Noaa.gov).

Essential Fish Habitat Comments

NMFS Habitat Conservation Division (HCD) is responsible for overseeing programs related to Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act and other NOAA trust resources under the Fish and Wildlife Coordination Act. HCD will provide comments separately on this project. If you wish to discuss this further, please contact Karen Greene (732-872-3023 or Karen.Greene@noaa.gov).

Sincerely,



Kimberly B. Damon-Randall
Assistant Regional Administrator
for Protected Resources

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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
Gloucester, MA 01930-2276

APR 14 2016

Ross Diamond
Hazen and Sawyer / AKRF, JV
440 Park Avenue South
New York, New York 10016

RE: Essential Fish Habitat Findings for the East Side Coastal Resiliency Project
New York, New York
New York City Department of Design and Construction Capital Contract: SANDRESM1

Dear Mr. Diamond:

We have reviewed the essential fish habitat (EFH) assessment for the East Side Coastal Resiliency (ESCR) Project provided to us as part of your January 25, 2016, letter to Mr. Daniel Marrone of our Protected Resources Division. The ESCR is a series of integrated flood control measures on the east side of southern Manhattan between Montgomery Street and East 23rd Street designed to protect areas within the Federal Emergency Management Agency (FEMA) designated 100-year flood hazard area, accounting for 2050 sea level rise projection developed by the New York City Panel on Climate Change. The construction associated with the proposed project will occur primarily on land, but will also include some in-water work in the East River. The proposed flood protection system includes a combination of elevated berms, floodwalls, and deployables (temporary flood protection walls/gates deployed only during flood conditions). The in-water work for the project comprises construction of a combined sewer outfall (CSO) and the installation of temporary mooring structures. As part of the construction of the CSO, a sheet pile cofferdam and turbidity barriers will be installed to enclose approximately 300 square feet of the river. The sheet piles will be installed via a vibratory or impact hammer, depending on subsurface conditions. The duration of pile driving will be two, 8-hour construction days. The sheet pile will be removed after the completion of the project. The construction is anticipated to commence in summer 2017.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

The project area has been designated as (EFH) for a number of federally managed species including Atlantic butterflyfish (*Peprilus triacanthus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), winter flounder (*Pseudopleuronectes americanus*), windowpane flounder (*Scophthalmus aquosus*) and others.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies, or their designee, to consult with us on projects such as this that may adversely affect 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 consultation process. Based on correspondence you provided us from the U.S.



Department of Housing and Urban Development and the New York City Office of Management and Budget, we understand that you have been designated as the lead non-federal representative on this action.

The EFH assessment provided adequately evaluates the effects of the proposed project on EFH and federally managed species, and we agree with your determination that the adverse effects will be minimal. As a result, no conservation recommendations are needed. Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CRF 600.920 (j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination. Should you have any questions regarding EFH, please contact me at 732-872-3023 or at karen.greene@noaa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen M. Greene".

Karen M. Greene
Mid-Atlantic Field Offices
Supervisor

cc: PRD – D. Marrone

**PREVIOUS CORRESPONDENCE WITH NMFS
MAY 2016 CONSULTATION**

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**

May 26, 2016

Mr. Daniel Marrone
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

**Re: Section 7 and Essential Fish Habitat Findings for the
East Side Coastal Resiliency Project, Alternative 5
New York, New York
New York City Department of Design and Construction Capital Contract: SANDRESM1**

Dear Mr. Marrone:

On behalf of the New York City (City) Department of Design and Construction (DDC), the Hazen and Sawyer/AKRF Joint Venture (JV) is requesting additional guidance from the National Oceanic and Atmospheric Association (NOAA) National Marine Fisheries Service (NMFS) for new design and construction information for the East Side Coastal Resiliency (ESCR) project, located in New York City, New York. ESCR is receiving funds from HUD, a federal agency, and is therefore subject to Section 7 of the Endangered Species Act. DDC originally submitted a request for concurrence on their findings regarding Section 7 threatened and endangered species and Essential Fish Habitat (EFH) on January 25, 2016, with additional information provided on February 17, 2016. NMFS returned the results of the Section 7 consultation on March 18, 2016, and concurred with DDC's findings that the proposed limited in-water construction activities, including pile driving a 24-inch sheet pile coffer dam with an impact hammer for a 300-square foot area, would result in insignificant or discountable effects to Atlantic sturgeon and that the proposed project was unlikely to result in adverse effects to Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) or the shortnose sturgeon (*Acipenser brevirostrum*). NMFS returned the results of the EFH consultation on April 14, 2016 and concurred with DDC's findings that adverse effects associated with the proposed in-water activities would be minimal and did not recommend any conservation measures. DDC's original consultation request, all correspondence associated with that request, and NMFS's response are provided in **Attachment 1**.

As you may recall, the proposed ESCR project extends along the east side of Manhattan between Montgomery Street and East 23rd Street (with an alternate alignment extending to East 25th Street). The Environmental Impact Statement (EIS) study area for natural resources ("study area") extends 400 feet into the East River from the shoreline between Montgomery Street and East 25th Street (**Figure 1**). The proposed project is a series of integrated flood control measures designed to protect areas of Manhattan within the Federal Emergency Management Agency (FEMA)-designated 100-year flood hazard area accounting for sea level rise projections developed by the New York City Panel on Climate Change. The construction associated with the proposed project would occur primarily on land, but may also include in-water work in the East River, a saline surface water component of the New York Harbor Estuary. A more in depth Project Description for ESCR is provided in **Attachment 2**. The draft EIS (DEIS) for ESCR is anticipated to be published in Fall 2016.

New Consultation Request

The original consultation described one of the possible ESCR project alternatives, identified as Alternative 3 in the DEIS. Since that consultation request was initiated, design and planning for ESCR has progressed and an additional project alternative, referred to as Alternative 5 in the DEIS, has been developed that would involve additional in-water construction, including pile driving, in addition to the permanent installation of support shafts in the East River. To eliminate the need for closure structures across the FDR Drive and create a more robust line of flood protection, this alternative instead includes raising the elevation of the northbound lanes of the FDR Drive between East 13th and East 18th Streets by approximately six feet and installing a wall along the raised portion of the roadway, effectively turning the FDR Drive itself into an integrated component of the flood protection system. This change would allow the FDR Drive to remain open for emergency traffic during a storm event.

In addition, Alternative 5 proposes to construct and install a bicycle and pedestrian flyover bridge that would connect the East River Park esplanade south of Con Edison with the Captain Patrick J. Brown Walk north of Con Edison (**Figure 2**). The flyover bridge would improve access along this stretch of the East River where currently pedestrian and bicyclist access is constrained near Con Edison facilities.

Construction activities for the elevated FDR Drive and the flyover bridge would be adjacent to each other and construction may occur concurrently, though each of the piles for these structures would be installed during one continuous period. While construction of Alternative 5 will be analyzed in the DEIS to the greatest extent practicable, design and construction information is ongoing. Therefore, for the purposes of this consultation request, a worst-case scenario for construction of Alternative 5 is presented (**Attachment 2**).

A Species Conclusion Table documenting the natural history of threatened and endangered species potentially occurring within the study area along with discussions of potential project related effects is provided in **Attachment 3**. A “NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies” and an EFH impact assessment is provided in **Attachment 4**. Documentation from the U.S. Department of Housing and Urban Development (HUD) and the New York City Office of Management and Budget (OMB) designating the Hazen and Sawyer / AKRF Joint Venture the non-federal representative for this project is provided in **Attachment 5**.

Summary of Findings

Threatened and Endangered Species

Based on prior communications with NMFS (**Attachment 1**) there are two species of endangered fish with the potential to occur in the East River adjacent to the study area: the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*). DDC is requesting an informal Section 7 consultation with NMFS for these species. The noise generated by pile driving that would be associated with construction of Alternative 5 is known to cause behavioral and physiological impacts to fish, including these species of sturgeon. Due to the extent of proposed pile driving activities for Alternative 5, noise from pile driving activities has the potential to affect sturgeon in the East River. **Due to the potential for adverse effects to sturgeon, DDC has committed to implementing conservation measures for in-water pile driving associated with Alternative 5 including gradually ramping-up pile driving, using a cushion block for impact hammers, and installation of bubble curtains around all in-water piles.** Design and construction phasing for Alternative 5 are ongoing. As those develop, consideration will be given to the November to February window when Atlantic sturgeon are least likely to be migrating through the East River. With these conservation measures in place, DDC has determined that construction of Alternative 5 **May Affect, but is Not Likely to Adversely Affect** both the Atlantic sturgeon and the shortnose sturgeon. DDC is seeking concurrence from NMFS on these findings. A Species Conclusion Table with additional details on sturgeon life history and rationale for this finding is provided in **Attachment 3**.

Essential Fish Habitat (EFH)

An EFH assessment and accompanying NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies are provided in **Attachment 4**. As a result of construction activities associated with the proposed project, there would be minor effects to EFH for one or more lifestages of winter flounder, windowpane flounder, summer flounder, Atlantic herring, scup, and black sea bass. Several species listed as potentially occurring in the study area are either at the extreme limit of their known range or are highly migratory and are therefore anticipated to occur in the East River only as uncommon or transient individuals. The remainder of the species evaluated would not be anticipated to be found in the East River due to unsuitable environmental conditions, unsuitable depths, and unsuitable substrates or other habitat features. DDC is requesting an Abbreviated EFH Consultation for Alternative 5 and concurrence with their findings of **Minimal Adverse Effects to EFH** in the study area. DDC also requests guidance on any Conservation Recommendations that NMFS may have for the proposed project.

Results of these consultation requests will be used to inform the DEIS currently being prepared for the ESCR project in order to comply with applicable National Environmental Protection Act (NEPA), State Environmental Quality Review Act (SEQRA), and City Environmental Quality Review (CEQR) standards. In the event that new design elements are developed that result in additional in-water construction activities not described above or in Attachment 2, DDC would notify NMFS of these changes as addenda to this submission.

The City would greatly appreciate an expeditious review of the enclosed documents. Please send the results of the requested consultations to me at rdiamond@hazenandsawyer.com. Should you have any questions or require additional information, please feel free to contact me at (212) 539-7082. Thank you in advance for your assistance with this matter.

Sincerely,



Ross Diamond
Principal Scientist
Hazen and Sawyer

Enclosures:

- Figure 1 – Site Location Map
- Figure 2 – Schematic of Alternative 5
- Attachment 1 – ESCR Section 7 and EFH Consultation Received 3/18/2016
- Attachment 2 – Alternative 5 Project and Construction Description
- Attachment 3 – Section 7 Species Conclusion Table
- Attachment 4 – EFH Assessment Worksheet and EFH Assessment
- Attachment 5 – Designation of Non-Federal Representative Letter

- cc: NOAA: K. Greene
DDC: T. Foley, H.S. Pau, E. Ilijevich, E. Rogers, M. Davies, C. Pichardo-Jimenez
DPR: O. Wells, A. Chan
OMB: E. Qadri, C. Johnson, M. Jones, D. Herrera
ORR: C. Grassi
HUD: G. Amabile, T. Fretwell, J. Levine

Diamond, Ross

From: Edith Carson - NOAA Federal <edith.carson@noaa.gov>
Sent: Thursday, June 02, 2016 1:05 PM
To: Diamond, Ross
Cc: Daniel Marrone - NOAA Federal; Karen Greene - NOAA Federal; William Barnhill - NOAA Federal; Winter, Annie; Leung, Nicolette
Subject: Re: Section 7 and Essential Fish Habitat Consultation for East Side Coastal Resiliency Project, Alternative 5, New York, NY

Hi Ross,

After reviewing the information you sent us, it appears the concrete piles for the support shafts will produce noise levels lower than what was analyzed in the original consultation for the installation of the cofferdam. The proposed modification will not increase effects to ESA-listed species beyond what was considered in the March 18, 2016, consultation. No reinitiation for consultation is necessary. Should project plans change, further coordination should be pursued.

If you have any questions regarding these comments, please contact me at edith.carson@noaa.gov or 978-282-8490.

Thank you,

Edith

Edith Carson, M.Sc.

Section 7/Shortnose Sturgeon Fish Biologist

NOAA Fisheries

U.S. Department of Commerce

Greater Atlantic Regional Fisheries Office

Phone: 978-282-8490

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NOAA FISHERIES

On Fri, May 27, 2016 at 2:56 PM, Diamond, Ross <RDiamond@hazenandsawyer.com> wrote:

Hi Dan, Bill, and Edith,

The design is conceptual and at this point no method can be committed to. However, it is my understanding that concrete is the more likely choice over steel for the shafts. Thanks.

Ross Diamond

Principal Scientist | Hazen and Sawyer

498 Seventh Avenue, 11th Floor, New York, NY 10018
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From: Daniel Marrone - NOAA Federal [mailto:daniel.marrone@noaa.gov]

Sent: Friday, May 27, 2016 1:57 PM

To: Diamond, Ross <RDiamond@hazenandsawyer.com>

Cc: Karen Greene - NOAA Federal <karen.greene@noaa.gov>; Wells, Owen (Parks <Owen.Wells@parks.nyc.gov>; Chan, Alda (Parks <Alda.Chan@parks.nyc.gov>; Qadri, Eram (OMB <QadriE@omb.nyc.gov>; Pau, How Sheen (DDC <PAUH@ddc.nyc.gov>; Ilijevich, Eric (DDC <IlijevichE@ddc.nyc.gov>; Davies, Michael (DDC <DaviesMi@ddc.nyc.gov>; Murray, Loan (DDC <DinhL@ddc.nyc.gov>; Rogers, Eleanor (DDC <RogersEl@ddc.nyc.gov>; Pichardo Jimenez, Carlos (DDC <Pichardca@ddc.nyc.gov>; Mahmood, Tahsina (DDC <MahmoodTa@ddc.nyc.gov>; Robert White <rwhite@akrf.com>; Nathan Riddle <nriddle@akrf.com>; Winter, Annie <awinter@hazenandsawyer.com>; Leung, Nicolette <nleung@hazenandsawyer.com>; Campbell, Christopher <ccampbell@hazenandsawyer.com>; Mehrotra, Sandeep <SMehrotra@hazenandsawyer.com>; William Barnhill - NOAA Federal <william.barnhill@noaa.gov>; Edith Carson - NOAA Federal <edith.carson@noaa.gov>

Subject: Re: Section 7 and Essential Fish Habitat Consultation for East Side Coastal Resiliency Project, Alternative 5, New York, NY

Hi Ross,

Can you let me know what type of piles will be used for the support shafts (e.g., steel, concrete)? Once we have this information we can see if the noise levels will be higher or lower than what was analyzed in the original consultation for the installation of the cofferdam. If the noise levels that will be produced are lower, there will be no need to reinitiate consultation.

Can you please copy Bill Barnhill and Edith Carson (cc'd here) on your reply? I will be out of the office for a couple weeks and they will be handling the response for this project.

Thanks,

Dan

On Fri, May 27, 2016 at 11:35 AM, Diamond, Ross <RDiamond@hazenandsawyer.com> wrote:

Dear Mr. Marrone,

On behalf of the New York City Department of Design and Construction (DDC), we have placed in the mail to you today, May 27, 2016, a request for review of DDC's findings regarding (1) threatened and endangered species pursuant to Section 7 of the Endangered Species Act, and (2) Essential Fish Habitat pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, for DDC's East Side Coastal Resiliency

(ESCR) Project in New York, NY. NMFS has previously reviewed a similar consultation for this project. This request for consultation includes new design and construction information for a new project alternative to ESCR. This email is a supplementary digital submission of the same package that was mailed today. Attached to this email please find a single PDF that contains the following:

- Cover letter with project history and summary;
- Figures of the project location;
- Initial ESCR project NMFS consultation results;
- Description of the new construction activities proposed under the new project alternative;
- Summary table containing findings for federally threatened and endangered marine species with the potential to occur in the project area;
- NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies;
- Essential Fish Habitat Assessment; and
- Federal Representative Designation documentation..

Thank you for your review and assistance to date coordinating with us on this project. Please do not hesitate to contact me for any reason.

Ross Diamond

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**ATTACHMENT 2
CONSTRUCTION DESCRIPTION**

**Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY**

Attachment 2

East Side Coastal Resiliency Project: Construction Description of Alternative 4

Project Background

Hurricane Sandy, which made landfall in October 2012, greatly impacted New York City and surrounding areas, including the east side of Manhattan, highlighting existing deficiencies in the City's ability to adequately protect vulnerable populations and critical infrastructure during major storm events. Hurricane Sandy caused extensive inland flooding in the study area, resulting in damage to residential and commercial property; transportation; and critical power, water, and sewer infrastructure. Addressing the vulnerability of the study area by protecting critical infrastructure and resources on Manhattan's lower east side is essential to the City's resiliency planning.

In June 2013, the U.S. Department of Housing and Urban Development (HUD) launched Rebuild by Design (RBD), a competition to respond to Hurricane Sandy's devastation in the northeast region of the United States. The winning proposals would be implemented using Community Development Block Grant – Disaster Recovery (CDBG-DR) funding as well as other public and private-sector funding sources. One of the winning proposals was an integrated flood protection system on the east side of southern Manhattan to reduce the risk of coastal flood hazards, which became the ESCR project. The proposed flood protection system would be comprised of a combination of elevated berms, floodwalls, and closure structures (temporary flood protection walls/gates deployed only during flood conditions). The study area for the proposed project is between Montgomery Street on the south and East 25th Street on the north, as shown in **Figure 1**.

The study area was defined based on floodplain and topography mapping. In addition to providing a reliable flood protection system for this flood hazard area, the proposed project aims to improve and enhance access to the waterfront, including East River Park and Stuyvesant Cove Park, which are located within the study area. As such, the City is proposing to construct and operate a flood protection system with integrated urban design features that will reduce flood hazards to a diverse and vulnerable residential population and safeguard critical energy, infrastructure, commercial, and transportation assets while enhancing access to the waterfront and parkland. Project construction is anticipated to commence in spring 2020 with an estimated 3.5-year construction schedule allowing the flood protection system to be in place in 2023.

Alternative 4 – Flood Protection System with a Raised East River Park

Alternative 4 of the East Side Coastal Resiliency (ESCR) project proposes to provide flood protection by raising East River Park by approximately eight feet and installing below-grade floodwalls within the park to meet the design flood protection criteria, providing flood protection for both the park and the inland community. This alternative would further enhance neighborhood connectivity to the East River Park by reconstructing the Delancey Street, East 10th Street, and Corlears Hook Bridges to provide universal accessibility. This alternative would require reconstructing the park's underground water supply and drainage infrastructure and the existing park structures and recreational features, including the park amphitheater, as well as relocating two embayments within East River Park. This alternative also includes construction of footings to accommodate a shared-use flyover bridge connecting the north end of East River Park to Captain Patrick J. Brown Walk to alleviate congestion in the East River Bikeway. Under this alternative, Murphy Brothers and Asser Levy Playgrounds would be reconstructed and protected by a

floodwall that would connect the northern point of East River park to the existing VA Hospital flood protection system at East 25th Street.

Description of In-Water Components

The in-water construction activities detailed in the original consultations (**Attachment 1**) included:

- Use of one construction barge and the installation of a temporary mooring structure
- Construction of a combined sewer outfall (approximately 300 square feet of temporary disturbance)
- Construction of support shafts for both the raised FDR Drive and the flyover bridge (15 shafts to be installed within the East River)

Some of the in-water components from the previous consultations are incorporated into Alternative 4, though with modified assumptions. The design of this alternative is currently underway and in the conceptual stage at present; therefore, this consultation assumes a reasonable worst-case scenario, specifically with respect to the in-water disturbances associated with the implementation of Alternative 4. The primary in-water activities associated with Alternative 4 are described below:

- Pile drilling for the installation of ten 8-foot diameter shafts and installation of five footings to be placed atop of the shafts for the shared use flyover bridge (resulting in approximately 652 square feet of permanent disturbance)
- Filling approximately 20,600 square feet of two existing embayments (permanent disturbance)
- Reconstruction of ten combined sewer outfalls (resulting in approximately 10,000 square feet of temporary disturbance)
- Use of construction barges and the installation of temporary mooring spuds and monopile dolphins for stabilization (resulting in approximately 160 square feet of temporary disturbance)

To install the shafts and footings associated with the flyover bridge, the current assumption includes use of land-based drill rigs positioned in East River Park, the East River Greenway path and, the Con Edison pier to install these support structures south of East 15th Street. Drilling for footings to be installed along Captain Patrick J Brown walk would be performed using barge mounted drill rigs. Pile drilling activities for the flyover bridge would involve the installation of a turbidity curtain and sinking of the pipe with a rotating cutter head to push the pipe into the river bed. After sinking the pipe, a rebar cage is lowered prior to installing a tremie pipe. Concrete is then pumped into the tremie pipe. As the tremie pipe is filled with concrete, river water and sediment within that pipe is gradually displaced or may require pumping to remove the sediment and water. In either case, the discharge material would be tested for quality before being discharged either to the river or the existing sewer system. Once the installation of these components is complete, the rebar cage, tremie pipe and any turbidity curtains would be removed.

The filling of existing embayments would be completed following the installation of a sheet pile cut-off wall just inland of the existing East River Esplanade bulkhead. Esplanade elevation activities would generally consist of the removal of the existing esplanade's concrete deck and support pilings at the mudline, the installation of floodwalls and the cut-off wall, backfill, and the installation of new girders and deck structure. Demolition of the existing embayments would require turbidity curtains to be installed as well as debris nets to minimize the amount of debris falling into the waterway. Any large debris would be retrieved and disposed of in accordance with applicable regulations and best practices. The area inland of the cutoff wall would be backfilled, which would involve the loss of approximately 20,600 square feet of tidal wetlands. However, two new embayments would be constructed that are larger in size (approximately 26,000 square feet) and would be similarly located along the East River Park waterfront. The need to relocate the embayments stems from the need to maintain large active recreation fields within the Parks that can only be sited where the existing embayments are located once the flood protection features are installed.

To relocate and reconstruct the 10 sewer outfalls, a watertight cofferdam would be installed adjacent to the bulkhead and the work area would be dewatered. The top of the cofferdam would be above the mean higher-high water line to isolate the work area from tidal influence. The work area would not contain standing water and approved dewatering measures would be installed, as necessary, and would discharge below the mean higher-high water line. A portable sediment tank or approved equivalent would be used to treat dewatering effluent. Approximately 1,000 square feet of temporary disturbance to regulated tidal wetlands between the cofferdams and East River bulkhead is anticipated for each sewer outfall for a total temporary disturbance area of 10,000 square feet. Existing sewer infrastructure is anticipated to be filled with concrete and abandoned in place.

Utilizing barges for construction activities is likely due to the site constraints of East River Park that include limited vehicular access and ongoing construction activities within a highly-utilized public park. Temporary construction barging operations would primarily require the installation of mooring spuds and monopile dolphins on the East River floor that would result in approximately 160 square feet of temporary disturbance. The construction would likely involve the use of equipment such as barge-mounted cranes and a vibratory pile driver or other drilling equipment to place the piles. At the completion of construction, all barge components would be removed.

Summary of Protective Measures

Design and construction phasing planning for Alternative 4 are ongoing. However, pile drilling associated with installation of the flood protection alignment adjacent to and, in some locations, within the East River as well as for the support structures of the proposed shared use flyover bridge are anticipated. The noise generated by pile driving and pile drilling that would be associated with construction of Alternative 4 is known to cause behavioral and physiological impacts to fish. Due to the potential for adverse effects to fish, DDC has committed to implementing conservation measures for in-water pile installation associated with Alternative 4 including:

- **Cushion blocks.** Cushion blocks are wooden blocks placed on the top of the pile and act as a buffer between the impact hammer and the pile, reducing total noise from each impact.
- **Pile driving ramp up.** Pile driving would begin with a series of low impact hits and gradually increase to normal impact levels. This method allows for some warning to aquatic fauna prior to attaining peak noise levels of the pile driving.
- **Bubble Curtains.** Bubble curtains are hoses or manifolds that are placed on the sea floor around the project impact area. Air compressors disburse air into the hoses and air bubbles then discharge up into the water column. Bubble curtains have been shown to be effective at reducing the sound level of pile driving to acceptable underwater levels. Where practicable, bubble curtains would be used during installation of support structures for the shared use flyover bridge.

In addition, as construction phasing develops, consideration will be given to the November to February window when Atlantic sturgeon are least likely to be migrating through the East River. Moreover, to reduce suspension of sediment into the water column to the greatest extent practicable, turbidity curtains would be installed prior to any construction, where practicable. Sediments in the East River are anticipated to be contaminated due to historic land uses. All sediments removed from the support shaft casings will be handled, stored, and disposed of in accordance with all applicable health, safety, and sediment and waste management plans including a site specific Remedial Action Plan (RAP), a Construction Health and Safety Plan (CHASP), a New York State Department of Environmental Conservation (NYSDEC) approved stormwater pollution prevention plan (SWPPP), and a U.S. Environmental Protection Agency (USEPA) approved spill prevention control and countermeasures plan (SPCCP).

ATTACHMENT 3
SECTION 7 SPECIES CONCLUSION TABLE

Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY

Attachment 3

NMFS Section 7 Consultation
Species Conclusion Table

Species Conclusion Table

Project Name: East Side Coastal Resiliency (ESCR), Alternative 4, New York City Department of Design and Construction

Date: January 28, 2019

Species Name/Critical Habitat	Potential Habitat Present?	Species Present?	Critical Habitat Present?	ESA Determination	Notes / Documentation Summary
Atlantic sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)	Yes	No Survey Conducted	Undefined for New York Bight, South Atlantic, Carolina, Chesapeake, and Gulf of Maine Distinct Population Segments	May Affect, but Not Likely to Adversely Affect	<p>Atlantic sturgeon egg and larval lifestages occur only in the Hudson River for the New York Bight Distinct Population Segment (DPS). The Hudson River is outside of the study area and therefore egg and larval Atlantic sturgeon lifestages would not be impacted by the proposed ESCR project. Late juvenile and adult Atlantic sturgeon utilize brackish waters of the New York Bight (Bain et. al., 1998) and therefore have the potential to occur in the East River adjacent to the study area. The Atlantic waters off of Rockaway Peninsula and Sandy Hook are a significant concentration areas of wintering Atlantic sturgeon (Dunton et al. 2010), and transients moving between Hudson River spawning grounds and these overwintering areas may pass through the lower East River. Atlantic sturgeon passing through the East River are migrating from all five DPS's (New York Bight, South Atlantic, Carolina, Chesapeake, and Gulf of Maine). Telemetry arrays in the lower East River, on the east side of Roosevelt Island, have recently detected radio-tagged Atlantic sturgeon moving through this area (Tomichek et al. 2014). Occurrences of Atlantic sturgeons in the East River are likely brief, as these individuals are strictly transients.</p> <p>More information is available for the adult lifestage than for the late juvenile lifestage of Atlantic sturgeon. Some documentation suggests the two lifestages follow the same natural history when in ocean waters (Bain et al. 2000; Eyster 2006). When not spawning in the Hudson River, Atlantic sturgeon in the New York Bight DPS are found throughout the coastal bays, sounds, and marine waters along the East Coast of the United States. Habitat within these waters typically consists of deeper waters approximately 20-50 meters (m) deep with silt or mud substrates (New NY Bridge FEIS, 2012, citing others). When not spawning, Atlantic sturgeon are known to migrate great distances, typically with the seasons (south in winter and north in summer). Atlantic sturgeon do not return to spawn annually, therefore, their migration range may be very large, spanning from as far south as Cape Hatteras, North Carolina, into Maine (Bain et al., 1998). Depth of habitat used by Atlantic sturgeon changes seasonally: in winter and spring, Atlantic sturgeon tend to favor waters greater than 50m deep in the southern portion of the Mid-Atlantic Bight (North Carolina to New York). In summer and fall, waters in the northern portion of the Mid-Atlantic Bight approximately 20m deep are used (New York to Massachusetts) (Erickson et al., 2011). Atlantic sturgeon are rarely caught or observed using shallow habitats when utilizing ocean waters.</p> <p>The East River contains depths that are within the range of those used by Atlantic sturgeon. Depths in the northern portion of the East River where it meets the Long Island Sound, also known as Hell Gate, can reach approximately 33m. Depths in the East River between Hell Gate and the Battery are generally within 10-20m, with the deepest portions occurring in the federal navigation channel (NOAA Chart 12335, 2015). The ESCR study area is contained between the Hell Gate and Battery stretch of East River and occurs in the portions of the federal navigation channel south of the Williamsburg bridge.</p> <p>The East River is a tidal straight that has very strong tidal currents, routinely reaching speeds of 2 meters per second. The strong current is a result of the East River's width, channelization, bottom</p>

Attachment 3

NMFS Section 7 Consultation
Species Conclusion Table

					<p>topography, and the influence of tidal water from the Hudson River (through the Harlem River) and the Long Island Sound (Blumberg and Pritchard, 1997). The strong tidal currents in the East River prevent the Atlantic sturgeon’s preferred silt and mud habitat substrates from accumulating. Therefore, while the depths in the East River may be suitable for Atlantic sturgeon, the preferred habitat substrates are typically not available due to the strong tidal currents.</p> <p>Construction of the proposed project under Alternative 4 would include in-water activities that would consist of: construction barging, which would include placement of temporary mooring structures; the reconstruction of a combined sewer outfalls, which would include installation of watertight cofferdams during construction; the relocating of two embayments, which would include the filling of existing tidal wetland habitat; and the installation of support shafts and footings for the flyover bridge, which would include vibratory or impact pile driving and drilling.</p> <p>Temporary effects to the East River as a result of in-water construction would consist primarily of elevated turbidity, noise from construction equipment and pile driving and pile drilling, and shading from construction barges. Permanent effects would occur from the filling of approximately 21,252 square feet of the existing embayments, and 650 square feet of the support shafts and footings for the flyover bridge (see Attachment 2). As noted above, the potential habitat in this area is of low quality and unlikely to attract or contain Atlantic sturgeon and is small relative to the overall habitat within the East River. The permanent loss, therefore, May Affect but is Not Likely to Adversely Affect Atlantic sturgeon.</p> <p>For construction of the outfalls and pile driving and drilling, Best Management Practices (BMPs) such as a turbidity curtain would be used to contain suspended sediment within the affected area and prevent sturgeon from coming in contact with any increased turbidity or mechanical activity at the outfall or within areas requiring mooring of the construction barge. In addition, a cofferdam would be used during construction of the outfalls. The following conservation measures would be implemented to mitigate noise from pile driving of the support shafts: gradually ramping up pile driving and use of a cushion block, where practicable.</p> <p>In summary, Atlantic sturgeon may be present in the East River and May be Affected as a result of the proposed project, however the proposed project is Not Likely to Adversely Affect Atlantic sturgeon due to:</p> <ul style="list-style-type: none"> • Low quality habitat of the East River (currents, substrates, water quality); • Potential presence of Atlantic sturgeon in the East River would likely be transient between areas with more suitable habitat; • Turbidity curtains would be used to contain suspended sediment within the affected areas and prevent sturgeon from coming in contact with any increased turbidity or mechanical activity at the outfalls and support shaft sites or within areas requiring mooring of construction barges. A cofferdam would be used during reconstruction of the outfalls to minimize suspended sediment and turbidity. • Conservation measures to mitigate the noise created from pile driving and pile drilling would be used and consist of gradually ramping up pile driving, use of a cushion block, and bubble curtains, where practicable, during installation of the support shafts and footings for the shared used flyover bridge.
Shortnose sturgeon (<i>Acipenser</i>)	Yes	No Survey Conducted	Undefined	May Affect, but Not Likely to Adversely Affect	In the New York Bight, the egg, larval, and juvenile lifestages of shortnose sturgeon occur only in the Hudson River (Bain et al., 1998). In addition, adult shortnose sturgeon mostly spend their lives within the Hudson River, utilizing freshwater extents in the northern portion of the Hudson near

Attachment 3
 NMFS Section 7 Consultation
 Species Conclusion Table

<p><i>brevirostrum</i>)</p>					<p>Albany south to the mouth of the Hudson River in the New York Harbor. The East River is at the extreme southern limit of this population's overwintering range due to the intolerance of shortnose sturgeon to high salinity levels this close to the Atlantic Ocean (Dadswell et al. 1984, Jenkins et al. 1993). Waters anywhere below the Tappan Zee region of the Hudson River are suboptimal due to their high salinities (Bain 1997).</p> <p>Shortnose sturgeon migrations from the Hudson River and other rivers containing reproductive populations have been rarely documented. One study documented a transient adult emigrating from the Hudson River to more southerly populations (Kynard 1997). Other studies have documented isolated occurrences of shortnose sturgeon migrating between the Hudson River and Connecticut River (Attachment 1; New NY Bridge FEIS, 2012, citing others). Migrations of shortnose sturgeon in other tidal river populations including the Gulf of Maine and southeast United States river populations have been documented more frequently. Based on the current studies and behavioral patterns of shortnose sturgeon, any shortnose sturgeon that are documented in the East River would be expected to be transient and such occurrences would be rare.</p> <p>In summary, adult shortnose sturgeon may undergo coastal migrations in search of other tidal river habitat, however such behavior in the New York Bight and consequently the East River, are extremely rare. Based on this, the proposed project is Not Likely to Adversely Affect shortnose sturgeon. In the event that a shortnose sturgeon does enter the East River and the study area, the following conservation measures would be in place to mitigate for any construction related activities:</p> <ul style="list-style-type: none"> • Turbidity curtains would be used to contain suspended sediment within the affected areas and prevent sturgeon from coming in contact with any increased turbidity or mechanical activity at the outfalls and support shaft sites or within areas requiring mooring of construction barges. A cofferdam would be used during reconstruction of the outfalls to minimize suspended sediment and turbidity. • Conservation measures to mitigate the noise created from pile driving and pile drilling would be used and consist of gradually ramping up pile driving, use of a cushion block, and bubble curtains, where practicable, during installation of the support shafts and footings for the shared used flyover bridge.
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ATTACHMENT 4
EFH ASSESSMENT WORKSHEET AND EFH ASSESSMENT

Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY

**East Side Coastal Resiliency Project: Alternative 4
 New York City Department of Design and Construction
 Attachment 4: Essential Fish Habitat Assessment**

Essential Fish Habitat (EFH) in the study area was identified by utilizing the Greater Atlantic Regional Fisheries Office (GARFO) “Guide to Essential Fish Habitat Designations in the Northeastern United States.” Per NOAA NMFS guidance, the EFH species to assess in this consultation were those species that occurred in the mixing zone of the Hudson/Raritan Estuary (**Table 1**). A NOAA Fisheries Northeast Regional Office EFH Assessment Worksheet for Federal Agencies is attached. A description of the EFH life stages for the species in **Table 1** are provided below, followed by the Principal Conclusions concerning project related effects associated with Alternative 4.

EFH Analysis

Each species with the potential to occur in the study area is listed in **Table 1** along with the applicable life stage. Project related impact assessments for each species are provided below. Resources utilized for this assessment include the Guide to Essential Fish Habitat Descriptions provided by GARFO, EFH Assessments and Environmental Impact Statements conducted by others within the East River¹, EFH Source Documents from the Northeast Fisheries Science Center, and other literature and studies.

Table 1 - Essential Fish Habitat within the ESCR Study Area

Species	Eggs	Larvae	Juveniles	Adults
Red hake (<i>Urophycis chuss</i>)		X	X	X
Winter flounder (<i>Pseudopleuronectes americanus</i>)	X	X	X	X
Windowpane flounder (<i>Scophthalmus aquosus</i>)	X	X	X	X
Atlantic herring (<i>Clupea harengus</i>)		X	X	X
Bluefish (<i>Pomatomus saltatrix</i>)			X	X
Atlantic butterfish (<i>Peprilus triacanthus</i>)		X	X	X
Summer flounder (<i>Paralichthys dentatus</i>)		X	X	X
Black sea bass (<i>Centropristis striata</i>)			X	X
King mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
Cobia (<i>Rachycentron canadum</i>)	X	X	X	X
Notes: X = Lifestage is present in study area.				
Source: National Marine Fisheries Service. “Summary of Essential Fish Habitat (EFH) Designation” posted on the internet at http://www.greateratlantic.fisheries.noaa.gov/hcd/ny3.html				

Red hake (Urophycis chuss)

EFH for red hake larva consists of surface waters of the Gulf of Maine, Georges Bank, the continental shelf off southern New England, and the middle Atlantic south to Cape Hatteras, North Carolina. Generally, the

¹ NOAA NMFS GARFO. Guide to Essential Fish Habitat Descriptions. Accessed from <http://www.greateratlantic.fisheries.noaa.gov/hcd/list.htm>;
 New York City Department of City Planning. 2005. Greenpoint-Williamsburg Rezoning Final Environmental Impact Statement. Accessed from <http://www.nyc.gov/html/dcp/html/greenpointwill/eis.shtml>;
 Metropolitan Transit Authority. 2004. Second Avenue Subway Final Environmental Impact Statement. Accessed from http://web.mta.info/capital/sas_docs/feis.htm

following conditions exist where red hake larvae are found: sea surface temperatures below 19 °C, water depths less than 200 meters, and a salinity greater than 0.5 ppt (NMFS, 1998b). Red hake larvae have been reported from the Hudson-Raritan Estuary; however, they are most abundant at the middle and outer continental shelf throughout the Middle Atlantic Bight (Steimle et al., 1999).

EFH for red hake juveniles consists of bottom habitats with a substrate of shell fragments, including areas with an abundance of live scallops in the Gulf of Maine, on Georges Bank, the continental shelf off southern New England, and the middle Atlantic south to Cape Hatteras. Generally, the following conditions exist where red hake juveniles are found: water temperatures below 16 °C, depths less than 100 meters, and a salinity range from 31 – 33 ppt (NMFS, 1998b). Shelter is considered crucial for juvenile red hake (Steimle et al., 1999).

EFH for red hake adults consists of bottom habitats in depressions with a substrate of sand and mud in the Gulf of Maine, on Georges Bank, the continental shelf off southern New England, and the middle Atlantic south to Cape Hatteras. Generally, the following conditions exist where non-spawning red hake adults are found: water temperatures below 12 °C, depths from 10 – 130 meters, and a salinity range from 33 – 34 ppt (NMFS, 1998b). This salinity is above the range found in the East River. Additionally, non-spawning red hake are abundant in the Long Island Sound, but not in the Hudson-Raritan Estuary (Steimle et al., 1999). Spawning adult red hake are known to use the New York Bight primarily in May-June and will utilize waters with salinity less than 25 ppt. The East River meets this salinity range, however both non-spawning and spawning adults do not inhabit water with dissolved oxygen (DO) less than 3 parts per million (ppm). DO in the East River is at or below 3.0 ppm periodically during the summer (NYCDEP, 2015)

High-quality EFH for larval and juvenile red hake is not found in the East River, and red hake larvae and juveniles that occur in the East River are most likely transient. Therefore, no significant adverse effects to red hake larval or juvenile EFH are anticipated as a result of the proposed project. Adult red hake are known to occur in the East River from impingement and entrainment studies conducted at the Ravenswood Power Plant on the Queens side of the East River (Normandeau Associates, 1994). However, adult red hake are not abundant in the Hudson-Raritan Estuary during any season (Stiemle et al., 1999a). Therefore, spawning and non-spawning adult red hake have the potential to occur in the East River but would most likely be transient individuals. Adult red hake would not be anticipated to be found in the East River during the summer when DO is periodically low. Therefore, no significant adverse effects to adult red hake or spawning red hake EFH are anticipated as a result of the proposed project.

Winter flounder (Pleuronectes americanus)

EFH for winter flounder eggs consists of bottom waters with a substrate of sand, muddy sand, mud and gravel on Georges Bank, the inshore areas of the Gulf of Maine, southern New England, and the middle Atlantic south to the Delaware Bay. Generally, the following conditions exist where winter flounder eggs are found: water temperatures less than 10 °C, salinities between 10 to 30 ppt, and water depths less than 5 meters (NMFS, 1998c).

Winter flounder larvae EFH consists of pelagic and bottom waters of Georges Bank, the inshore areas of the Gulf of Maine, southern New England, and the middle Atlantic south to the Delaware Bay. Generally, the following conditions exist where winter flounder larvae are found: sea surface temperatures less than 15 °C, salinities between 4 – 30 ppt, and water depths less than 6 meters (NMFS, 1998c).

EFH for winter flounder juveniles consists of bottom waters with a substrate of mud or fine-grained sand on Georges Bank, the inshore areas of the Gulf of Maine, southern New England, and the middle Atlantic south to the Delaware Bay. Young-of-the-year juveniles generally persist where the following conditions are found: water temperatures below 28°C, depths from 0.1 – 10.0 meters, and salinities between 5 – 33 ppt. Juveniles

over one year old are generally found where the following conditions exist: water temperatures below 25°C, depths from 1 – 50 meters, and salinities between 10 – 30 ppt (NMFS, 1998c).

Adult winter flounder EFH consists of bottom waters with a substrate of mud, sand, and gravel on Georges Bank, the inshore areas of the Gulf of Maine, southern New England, and the middle Atlantic south to the Delaware Bay. Generally, the following conditions exist where winter flounder adults are found: water temperatures below 25° C, depths from 1 – 100 meters, and salinities between 15 – 33 ppt (NMFS, 1998c). Adults found in the Hudson-Raritan Estuary are known to utilize waters with salinities as low as 15 ppt, although most were found at salinities less than 22 ppt (Pereira et al. 1999). Spawning winter flounder are typically found in shallower, cooler bottom waters where the temperature is below 15° C, depth is less than 6 meters, and salinity is between 5.5 – 36 ppt (NMFS, 1998c). Winter flounder spawn between February and April in waters with temperatures lower than 15° C, salinities between 10 and 32 ppt, and on substrates sand, gravel, or mud in depths less than 6 meters. Spawning winter flounder have the potential to be present in shallow areas of the East River.

Winter flounder were collected during impingement and entrainment studies at the Ravenswood power plant on the Queens side of the East River and found to be the most abundant fish at the site (Normandeau Associates, 1994). Noise from pile driving and pile drilling could potentially have minimal adverse effects to winter flounder in the immediate vicinity of the pile installation and could prevent winter flounder from utilizing that area for the duration of construction. Disturbance of substrate and the water column due to activities associated with barging, construction of the combined sewer outfalls, and construction of the shared use flyover bridge support structures could potentially cause a temporary increase in turbidity and result in temporary effects to winter flounder EFH. In addition, temporary shading from barges may adversely affect some habitat. Construction BMPs such as turbidity curtains would be utilized to limit turbidity and potential effects to winter flounder EFH. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. The study area constitutes a very small portion of the available EFH for this species, therefore, some temporary construction related effects to EFH could occur, however no significant adverse effects to EFH for any lifestage of winter flounder are anticipated as a result of the proposed project.

Windowpane flounder (Scophthalmus aquosus)

Windowpane flounder, also called sand flounder, is found from the Gulf of St. Lawrence to South Carolina and has its maximum abundance in the New York Bight. EFH for windowpane flounder eggs consists of surface waters around the perimeter of the Gulf of Maine, on Georges Bank, southern New England, and the middle Atlantic south to Cape Hatteras. Generally, windowpane flounder eggs are found where sea surface temperatures are less than 20 °C and water depths are less than 70 meters (NMFS, 1998d).

EFH for windowpane flounder larvae consists of pelagic waters around the perimeter of the Gulf of Maine, on Georges Bank, southern New England, and the middle Atlantic south to Cape Hatteras. Generally, windowpane flounder larvae are found where sea surface temperatures are less than 20 °C, and water depths are less than 70 meters (NMFS, 1998d). Based on collections from southern New Jersey, it appears that settlement of spring-spawned individuals occurs both in estuaries and on the continental shelf, while settlement of autumn-spawned individuals occurs primarily on the continental shelf (Chang et al., 1999).

EFH for juvenile windowpane flounder consists of bottom habitats with a substrate of mud or fine-grained sand around the perimeter of the Gulf of Maine, on Georges Bank, southern New England and the middle Atlantic south to Cape Hatteras (NMFS, 1998d). Generally, the following conditions exist where windowpane

flounder juveniles are found: water temperatures below 25 °C, depths between 1 – 100 meters, and salinities between 5.5 – 36 ppt (NMFS, 1998d). In the Hudson-Raritan Estuary, juveniles were fairly evenly distributed throughout the estuary, but were most abundant in the deeper channels in winter and summer (Wilk et al., 1996).

EFH for adult windowpane flounder consists of bottom habitats with a substrate of mud or fine-grained sand around the perimeter of the Gulf of Maine, on Georges Bank, southern New England and the middle Atlantic south to the Virginia-North Carolina border. Generally, the following conditions exist where windowpane flounder adults are found: water temperatures below 21 °C, depths between 1 – 75 meters, and salinities between 5.5 – 36 ppt. Adult windowpane flounder are sensitive to hypoxic conditions and have been found to avoid conditions where DO levels were less than 3 ppm (Howell and Simpson 1994). During the summer, DO in the water column and bottom waters of the East River can be reduced to less than 3 ppm, making this unsuitable habitat for windowpane flounder.

As with winter flounder, the windowpane flounder is a bottom-dwelling species that has the potential to be affected by Alternative 4 of the proposed project. Noise from pile driving and pile drilling could potentially have minimal adverse effects on winter flounder in the immediate vicinity of the pile installation and could prevent windowpane flounder from utilizing that area for the duration of construction. Disturbance of substrate and the water column due to activities associated with barging, construction of the combined sewer outfalls, and construction of the shared use flyover bridge support structures could potentially cause a temporary increase in turbidity and result in temporary effects to windowpane flounder EFH. In addition, temporary shading from barges may adversely affect some habitat. Construction BMPs such as turbidity curtains would be utilized to limit turbidity and potential effects to windowpane flounder EFH. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. The study area constitutes a very small portion of the available EFH for this species, therefore, some temporary construction related effects to EFH could occur, however no significant adverse effects to EFH for any lifestage of windowpane flounder are anticipated as a result of the proposed project.

Atlantic sea herring (Clupea harengus)

EFH for Atlantic herring larvae consists of pelagic waters in the Gulf of Maine, Georges Bank, and southern New England. Generally, the following conditions exist where Atlantic herring larvae are found: sea surface temperatures below 16 °C, water depths from 50 – 90 meters, and salinities around 32 ppt (NMFS, 1998e). The East River does not contain suitable depth or salinity for Atlantic herring larvae. Therefore, no significant adverse effects to Atlantic herring larvae EFH are anticipated as a result of the proposed project.

EFH for Atlantic herring juveniles and adults consists of pelagic waters and bottom habitats in the Gulf of Maine, Georges Bank, southern New England, and the middle Atlantic south to Cape Hatteras. Generally, the following conditions exist where Atlantic herring juveniles and adults are found: water temperatures below 10 °C, water depths from 15 – 135 meters, and a salinity range from 26 – 32 ppt. The East River is on the low end of the preferred salinity for juvenile and adult Atlantic herring (NMFS, 1998e).

Atlantic herring juveniles and adults are known to occur in the Hudson-Raritan estuary in winter and spring from bottom trawling surveys (Stevenson and Scott, 2005) and have been collected during entrainment studies at the Ravenswood power plant in Queens (Normandeau Associates, 1994). However, water temperatures in other seasons in the East River would likely be too high to support juvenile and adult Atlantic herring. Juvenile and adult Atlantic herring prefer DO in bottom habitats between 6 – 12 ppm. Water quality monitoring in the East River shows DO at the bottom of the East River is only suitable for

Atlantic herring in the winter and spring (NYCDEP, 2015). Atlantic herring could potentially utilize the East River during winter and spring when DO and water temperatures are suitable. Construction of at least part of the proposed project is anticipated to occur in the winter and therefore has the potential to effect Atlantic herring. Noise from pile driving and pile drilling could potentially have minimal adverse effects on Atlantic herring in the immediate vicinity of the pile installation and could prevent Atlantic herring from utilizing that area for the duration of construction. Disturbance of substrate and the water column due to activities associated with barging, construction of the combined sewer outfalls, and construction of the shared use flyover bridge support structures could potentially cause a temporary increase in turbidity and result in temporary effects to Atlantic herring EFH. In addition, temporary shading from barges may adversely affect some habitat. Construction BMPs such as turbidity curtains would be utilized to limit turbidity and potential effects to Atlantic herring EFH. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. The study area constitutes a very small portion of the available EFH for this species, therefore, some temporary construction related effects to EFH could occur, however no significant adverse effects to EFH for any lifestage or the fishery of Atlantic herring are anticipated as a result of the proposed project.

Bluefish (Pomatomus saltatrix)

EFH for juvenile bluefish consists of pelagic waters over the continental shelf from Nantucket Island south to Key West, and estuaries from Penobscot Bay south to coastal Florida. Generally, juvenile bluefish prefer water temperatures between 19 – 24 °C and salinities between 23 – 36 ppt (NMFS, 1998f). Trawl surveys in the Hudson-Raritan Estuary found juvenile bluefish throughout the area in all depths sampled during the summer and fall, and no occurrences of juvenile bluefish during the winter and spring (Fahay et al., 1999).

Adult bluefish EFH consists of pelagic waters over the continental shelf from Nantucket Island south through Key West, and estuaries from Penobscot Bay, Maine south to Key West, Florida. Generally, juvenile bluefish prefer water temperatures between 14 – 16 °C and salinities greater than 25 ppt (NMFS, 1998f). Adult bluefish are highly migratory and occur seasonally in Mid-Atlantic estuaries from April to October (Fahay et al., 1999). Due to their migratory tendencies, any adult bluefish that occur in the East River would be anticipated to be transient individuals. Since bluefish are not a bottom dwelling species, any temporary increases in turbidity or shading due to barging and outfall construction activities are not anticipated to have a significant adverse effect. Noise from pile driving and pile drilling could potentially have minimal adverse effects to bluefish in the immediate vicinity of the pile installation and could prevent bluefish from utilizing that area for the duration of construction. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. The study area constitutes a very small portion of the available EFH for this species, therefore, some temporary construction related effects to EFH could occur, however no significant adverse effects to EFH for any lifestage or the fishery of bluefish are anticipated as a result of the proposed project.

Atlantic butterfish (Peprilus triacanthus)

EFH for Atlantic butterfish larvae consists of pelagic waters over the continental shelf from the Gulf of Maine to Cape Hatteras, and estuaries from Boston Harbor south to the Chesapeake Bay. Generally, the following conditions exist where Atlantic butterfish larvae are found: water temperatures between 9 – 19 °C, salinities between 6.4 – 37 ppt, and water depths between than 10 meters – 1829 meters (NMFS, 1998f).

Juvenile Atlantic butterfish EFH consists of pelagic waters over the continental shelf from the Gulf of Maine through Cape Hatteras, and estuaries from Boston Harbor south to the James River in Virginia. Generally, the following conditions exist where Atlantic butterfish juveniles are found: water temperatures between 3 – 28 °C, salinities between 3 – 37 ppt, and water depths between 10 meters – 365 meters (though most are found at depths less than 120 meters) (NMFS, 1998f).

EFH for Atlantic butterfish adults consists of pelagic waters over the continental shelf from the Gulf of Maine through Cape Hatteras, and estuaries from Boston Harbor south to the James River in Virginia. Generally, the following conditions exist where Atlantic butterfish juveniles are found: water temperatures between 3 - 28 °C, salinities between 4 – 26 ppt, and water depths between 10 meters – 365 meters (though most are found at depths less than 120 meters) (NMFS, 1998f). Adults are most common in the New York Harbor in the summer and have been found over shallow flats, estuaries, and may congregate on the bottom during the day.

In Hudson-Raritan trawl surveys, juvenile and adult Atlantic butterfish were collected at water temperatures ranging from 8 – 26 °C, depths ranging from 3 – 23 meters, salinities ranging from 19 – 32 ppt, and DO levels ranging from 3 – 10 ppm (Cross et al, 1999). Atlantic butterfish is primarily a pelagic species (Woodhead, 1990), and although Atlantic butterfish may be present in the East River, it is primarily anticipated to use the East River as a migratory route and therefore their presence would be transient. As such, the temporary construction activities would be occurring on the shoreline and would not be anticipated to significantly adversely impact any lifestage of Atlantic butterfish.

Summer flounder (Paralichthys dentatus)

EFH for summer flounder larvae consists of pelagic waters over the continental shelf from the Gulf of Maine south to the east coast of Florida, and estuaries from the Waquoit Bay, Massachusetts south to the Indian River, Florida. Generally, the following conditions exist where summer flounder larvae are found: water temperatures between 9 – 12 °C, salinities between 23 – 33 ppt, and water depths between 10 – 70 meters (NMFS, 1998f).

EFH for summer flounder juveniles consists of bottom habitat with mud or sand substrates in continental shelf waters from Gulf of Maine south to the east coast of Florida, and estuaries from the Waquoit Bay south to the Indian River. Generally, the following conditions exist where summer flounder juveniles are found: water temperatures greater than 11 °C, salinities between 10 – 30 ppt, and water depths between 0.5 – 5 meters (NMFS, 1998f).

EFH for summer flounder adults consists of bottom habitat with mud or sand substrates in continental shelf waters from Gulf of Maine south to the east coast of Florida, and estuaries from the Buzzards Bay, Massachusetts south to the Indian River (NMFS, 1998f). Generally, adults are found at depths up to 25 meters and in temperatures ranging from 9 to 26°C in the autumn, 4 to 13°C in the winter, 2 to 20°C in the spring, and 9 to 27°C in the summer. Salinity is known to have minimal effect on distribution in comparison to substrate preference. Trawl surveys from 1992 to 1997 found adult summer flounder to be present in moderate numbers throughout the Hudson-Raritan Estuary in all seasons except winter (Packer et al., 1999; Zetlin et. al., 1999).

As with the winter flounder and windowpane flounder described above, the summer flounder is a bottom dwelling species that has potential to be affected by pile driving and the temporary increases in turbidity and shading due to barging, outfall construction, and the shared use flyover bridge support structures construction activities in the study area. However, the study area constitutes a small portion of the EFH for this species, and any temporary changes to summer flounder habitat in the study area would not significantly affect this

fishery. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. Therefore, no significant adverse effects to EFH for the larvae, juvenile and adult lifestages or the fishery of summer flounder are anticipated as a result of the proposed project.

Black sea bass (Centropristus striata)

EFH for black sea bass juveniles consists of demersal waters over the continental shelf from the Gulf of Maine to Cape Hatteras, and estuaries from Buzzards Bay south to the James River. Generally, juvenile black sea bass are found in waters warmer than 6 °C with salinities greater than 18 ppt, and depths between 1 – 28 meters. Juvenile black sea bass are found in the estuaries in the summer and spring, and overwinter offshore from New Jersey and south. Juvenile black sea bass require structural complexity in both offshore and inshore substrates including rough bottoms, shellfish and eelgrass beds, and man-made structures in sandy-shelly areas. Offshore clam beds and shell patches may also be used during the wintering (NMFS, 1998h; Drohan et al., 2007). Black sea bass were captured during impingement and entrainment studies at the Ravenswood power plant in Queens (Normandeau Associates, 1994).

EFH for black sea bass adults consists of demersal waters over the continental shelf from the Gulf of Maine to Cape Hatteras, and estuaries from Buzzards Bay south to the James River. Black sea bass adults are generally found in estuaries from May through October and overwinter offshore south of New York to North Carolina from November through April. Generally, adult sea bass are found in waters warmer than 6 °C with salinities greater than 20 ppt, and depths between 20 – 50 meters. Structured habitats (natural and man-made), sand and shell rocky reefs, cobble and rock fields, stone coral patches, exposed stiff clay, and mussel beds are usually the substrate preference (NMFS, 1998h; Drohan et al., 2007). Spawning occurs in the Mid-Atlantic Bight in April through October. Black sea bass are only present in the inshore areas of the New York Harbor in the winter months.

Due to the preference of black sea bass for structured habitats, they are not uncommonly found underneath man-made structures such as docks and piers. Therefore, it is likely that black sea bass juvenile and adults are present in the study area. Construction activities are therefore likely to temporarily effect some black sea bass and make the area of the construction activities unsuitable for black sea bass for the duration of construction. Construction BMP's such as turbidity curtains would be implemented to minimize re-suspension of particulates into the water column. Conservation measures to limit the noise of the pile driving and drilling to the greatest extent practicable would be implemented. These include using a cushion block to dampen the impact of the pile hammer, ramping up pile driving gradually to give fish opportunities to vacate the construction area, and a bubble curtain would be implemented, as practicable, for installation of the flyover bridge support shafts. Therefore, there is the potential for temporary construction related effects to black sea bass juveniles and adults, however the study area is small in size and would not be anticipated to significantly adversely impact black sea bass.

King mackerel (Scomberomorus cavalla)

King mackerel are marine species of fish that can occur as far north as Rhode Island and south to Brazil. They are most common in warmer waters around the Chesapeake Bay southward. EFH for King mackerel eggs, larvae, juveniles, and adults consists of sandy shoals of capes and offshore bars, high profile rocky bottom and barrier-island ocean-side waters from the surf to the shelf break zone, from the Gulf Stream shoreward, including *Sargassum*, coastal inlets, and all state-designated nursery habitats of particular importance to coastal migratory pelagic species (NMFS, 1998i). King mackerel generally favor deeper and warmer waters than are typically found in the East River. Any king mackerel in the East River would be

Virginia

Submerged Aquatic Vegetation mapping

<http://web.vims.edu/bio/sav/maps.html>

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anticipated to be rare and transient individuals. Therefore, no significant adverse effects to EFH for any life stage of king mackerel are anticipated as a result of the proposed project.

Spanish mackerel (Scomberomorus maculatus)

Spanish mackerel are marine species of fish that can occur as far north as Connecticut and south to the Yucatan Peninsula. They are most common between the Chesapeake Bay and the Gulf of Mexico. Spanish mackerel overwinter in waters off of south Florida. EFH for Spanish mackerel eggs, larvae, juveniles, and adults consists of sandy shoals of capes and offshore bars, high profile rocky bottom and barrier-island ocean-side waters from the surf to the shelf break zone, from the Gulf Stream shoreward, including *Sargassum*, coastal inlets, and all state-designated nursery habitats of particular importance to coastal migratory pelagic species (NMFS, 1998i). Spanish mackerel generally favor higher salinities (greater than 30 ppt) and warmer waters (18 °C or more). Any Spanish mackerel in the East River would be anticipated to be rare and transient individuals. Therefore, no significant adverse effects to EFH for any life stage of Spanish mackerel are anticipated as a result of the proposed project.

Cobia (Rachycentron canadum)

Cobia is a large, highly migratory species that is known to occur from Cape Cod, Massachusetts to Argentina (ESS, 2013). EFH for cobia eggs, larvae, juveniles, and adults consists of sandy shoals of capes and offshore bars, high profile rocky bottom and barrier-island ocean-side waters from the surf to the shelf break zone, from the Gulf Stream shoreward, including *Sargassum*, coastal inlets, high-salinity bays, estuaries, and seagrass habitat. Information about the distribution of cobia life stages on the East Coast is limited. However, cobia are most abundant in the Gulf of Mexico where they spawn and then leave the Gulf to commence extreme migrations. No cobia life stages were documented in entrainment studies at the Ravenswood power plant (Normandeau Associates, 1994). Any cobia in the East River would be anticipated to be rare and transient individuals. Therefore, no significant adverse effects to EFH for any life stage of cobia are anticipated as a result of the proposed project.

Principal Conclusions

There would be minimal adverse effects to the EFH for winter flounder, windowpane flounder, summer flounder, Atlantic herring, and black sea bass as a result of construction activities associated with the proposed project. As discussed above, one or more life stages of these species are likely to occur in the East River and could potentially utilize areas of the East River that would be affected by temporary construction related activities for the proposed project. The remainder of the species identified in **Table 1** would not be anticipated to be found in the East River due to either unsuitable environmental conditions, such as salinity, temperature, or DO; unsuitable depths; unsuitable substrates or other habitat features. Additionally, several species listed as potentially occurring in the study area would occur at the extreme limit of their known ranges or are highly migratory. These species would only be anticipated to occur in the East River as uncommon and transient individuals.

The effects to the EFH for species listed above would result from the in-water construction activities associated with Alternative 4 of the proposed ESCR project and would primarily be temporary and limited to small localized areas where (1) barging would occur; (2) temporary mooring appurtenances are installed for barges; (3) combined sewer outfalls are reconstructed; (4) embayments are filled and reconstructed in new locations; and (5) pile driving and pile drilling and construction activities associated with in-water support shafts for the flyover pedestrian bridge and the East River Park esplanade. Temporary effects from these activities would include re-suspension of fine particulate matter into the water column, shading by barges, construction noise including noise from in-water pile driving and pile drilling, and disturbance to the benthic invertebrate community. The majority of the permanent effects to the study area would result from the filling of embayments with limited additional permanent effects resulting from construction of the support shafts.

However, the embayments would be reconstructed in kind along the East River Park waterfront. For additional information about these permanent effects, see **Attachment 2**.

The effects on EFH would be small in scale and are not anticipated to result in significant adverse effects to EFH for any of the lifestages of the species listed above. Best Management Practices (BMP) would be utilized to the greatest extent practicable during construction of ESCR. These BMPs would include turbidity curtains surrounding all operations that disturb East River sediments. Turbidity curtains would minimize the spread of re-suspended particles. Spill prevention techniques for construction equipment and barges would also be implemented. The swift currents in the East River would further alleviate any localized turbidity resulting from construction. Spill kits would be kept on all construction barges. The combined sewer outfalls to be reconstructed would drain inland areas similar to existing conditions. No discharge of any kind would occur from the outfall during non-storm conditions. To minimize adverse effects to aquatic life due to pile driving and pile drilling, a variety of conservation measures will be implemented. These include using a cushion block to dampen the impact hammer, gradually ramping up pile driving so as to warn aquatic life and give fish a chance to vacate the impact area, and the use of a bubble curtain, where practicable, for installation of the shared use flyover bridge support shafts to reduce in-water noise peaks. Due to these BMP's and conservation measures, and the limited duration and footprint of the project, there is no mitigation to EFH proposed. The New York City Department of Design and Construction (DDC) will coordinate with New York State Department of Environmental Conservation (NYSDEC) and U.S. Army Corps of Engineers to mitigate for any adverse effects to tidal wetland areas under NYCRR Article 25 and Section 404 of the Clean Water Act, respectively.

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NOAA FISHERIES
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
Essential Fish Habitat (EFH) Consultation Guidance
EFH ASSESSMENT WORKSHEET

Introduction:

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates that federal agencies conduct an essential fish habitat (EFH) consultation with NOAA Fisheries regarding any of their actions authorized, funded, or undertaken that may adversely affect EFH. An adverse effect means any impact that reduces the quality and/or quantity of EFH. Adverse effects 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 ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

This worksheet has been designed to assist in determining whether a consultation is necessary and in preparing EFH assessments. This worksheet should be used as your EFH assessment or as a guideline for the development of your EFH assessment. At a minimum, all the information required to complete this worksheet should be included in your EFH assessment. If the answers in the worksheet do not fully evaluate the adverse effects to EFH, we may request additional information in order to complete the consultation.

An expanded EFH assessment may be required for more complex projects in order to fully characterize the effects of the project and the avoidance and minimization of impacts to EFH. While the EFH worksheet may be used for larger projects, the format may not be sufficient to incorporate the extent of detail required, and a separate EFH assessment may be developed. However, regardless of format, the analysis outlined in this worksheet should be included for an expanded EFH assessment, along with additional information that may be necessary. This additional information includes:

- the results of on-site inspections to evaluate the habitat and site-specific effects
- the views of recognized experts on the habitat or the species that may be affected
- a review of pertinent literature and related information
- an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

Your analysis of adverse effects to EFH under the MSA should focus on impacts to the habitat for all life stages of species with designated EFH, rather than individual responses of fish species. Fish habitat includes the substrate and benthic resources (e.g., submerged

aquatic vegetation, shellfish beds, salt marsh wetlands), as well as the water column and prey species.

Consultation with us may also be necessary if a proposed action results in adverse impacts to other NOAA-trust resources. Part 6 of the worksheet is designed to help assess the effects of the action on other NOAA-trust resources. This helps maintain efficiency in our interagency coordination process. In addition, further consultation may be required if a proposed action impacts marine mammals or threatened and endangered species for which we are responsible. Staff from our Greater Atlantic Regional Fisheries Office, Protected Resources Division should be contacted regarding potential impacts to marine mammals or threatened and endangered species.

Instructions for Use:

Federal agencies must submit an EFH assessment to NOAA Fisheries as part of the EFH consultation. Your EFH assessment must include:

- 1) A description of the proposed action.
- 2) An analysis of the potential adverse effects of the action on EFH, and the managed species.
- 3) The federal agency's conclusions regarding the effects of the action on EFH.
- 4) Proposed mitigation if applicable.

In order for this worksheet to be considered as your EFH assessment, you must answer the questions in this worksheet fully and with as much detail as available. Give brief explanations for each answer.

Federal action agencies or the non-federal designated lead agency should submit the completed worksheet to NOAA Fisheries Greater Atlantic Regional Fisheries Office, Habitat Conservation Division (HCD) with the public notice or project application. Include project plans showing existing and proposed conditions, all waters of the U.S. on the project site, with mean low water (MLW), mean high water (MHW), high tide line (HTL), and water depths clearly marked and sensitive habitats mapped, including special aquatic sites (submerged aquatic vegetation, saltmarsh, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges), hard bottom habitat areas and shellfish beds, as well as any available site photographs.

For most consultations, NOAA Fisheries has 30 days to provide EFH conservation recommendations once we receive a complete EFH assessment. Submitting all necessary information at once minimizes delays in review and keeps review timelines consistent. Delays in providing a complete EFH assessment can result in our consultation review period extending beyond the public comment period for a particular project.

The information contained on the HCD website (<http://www.greateratlantic.fisheries.noaa.gov/habitat/>) will assist you in completing this worksheet. The HCD website contains information regarding: the EFH consultation process; Guide to EFH Designations which provides a geographic species list; Guide to EFH Species Descriptions which provides the legal description of EFH as well as important ecological information for each species and life stage; and other EFH reference documents including examples of EFH assessments and EFH consultations.

Our website also includes a link to the NOAA EFH Mapper (<http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html>). We would note that the EFH Mapper is currently being updated and revised. Should you use the EFH Mapper to identify federally managed species with designated EFH in your project area, we recommend checking this list against the Guide to Essential Fish Habitat Designations in the Northeast (<http://www.greateratlantic.fisheries.noaa.gov/hcd/index2a.htm>) to ensure a complete and accurate list is provided.

DRAFT

EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 3/2016)

PROJECT NAME: EAST SIDE COASTAL RESILIENCY

DATE: 2/7/2019

PROJECT NO.: SANDRESM1

LOCATION (Water body, county, physical address): EAST RIVER, NEW YORK COUNTY, NEW YORK CITY, NEW YORK

PREPARER: JESSICA EINHORN (HAZEN AND SAWYER)

Step 1: Use the Habitat Conservation Division EFH webpage’s Guide to Essential Fish Habitat Designations in the Northeastern United States to generate the list of designated EFH for federally-managed species for the geographic area of interest (<http://www.greateratlantic.fisheries.noaa.gov/hcd/index2a.htm>). Use the species list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. The list can be included as an attachment to the worksheet. Make a preliminary determination on the need to conduct an EFH consultation.

1. INITIAL CONSIDERATIONS		
EFH Designations	Yes	No
<p>Is the action located in or adjacent to EFH designated for eggs? List the species: Winter flounder, windowpane flounder, summer flounder, king mackerel, Spanish mackerel, and cobia.</p>	X	
<p>Is the action located in or adjacent to EFH designated for larvae? List the species: Red hake, winter flounder, windowpane flounder, Atlantic herring, Atlantic butterfish, summer flounder, king mackerel, Spanish mackerel, and cobia.</p>	X	
<p>Is the action located in or adjacent to EFH designated for juveniles? List the species: Red hake, winter flounder, windowpane flounder, Atlantic herring, bluefish, Atlantic butterfish, summer flounder, black sea bass, king mackerel, Spanish mackerel, and cobia.</p>	X	

<p>Is the action located in or adjacent to EFH designated for adults or spawning adults? List the species: Red hake, winter flounder, windowpane flounder, Atlantic herring, bluefish, Atlantic butterfish, summer flounder, black sea bass, king mackerel, Spanish mackerel, and cobia.</p>	X	
<p>If you answered no to all questions above, then EFH consultation is not required - go to Section 5. If you answered yes to any of the above questions proceed to Section 2 and complete remainder of the worksheet.</p>		

Step 2: In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Identify the sources of the information provided and provide as much description as available. These should not be yes or no answers. Please note that there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts. Project plans that show the location and extent of sensitive habitats, as well as water depths, the HTL, MHW and MLW should be provided.

2. SITE CHARACTERISTICS	
Site Characteristics	Description
<p>Is the site intertidal, sub-tidal, or water column?</p>	<p>The East River within the project area includes both sub-tidal and water column areas as well as a very small area (~6,200 square feet) of intertidal area.</p>
<p>What are the sediment characteristics?</p>	<p>Sediment in the East River within the shallower areas of the project area is primarily sand, gravel, and riprap. Sediments in the greater East River have been reported to be silty mud.</p>
<p>Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the SAV species and spatial extent.</p>	<p>There is no SAV (e.g. eel grass) in the project area. However, green algae (<i>Ulva</i> spp.) and rockweed (<i>Ascophyllum</i> spp.) are present on riprap in small areas of intertidal zone abutting bulkhead.</p>
<p>Are there wetlands present on or adjacent to the site? If so, describe the spatial extent and vegetation types.</p>	<p>There are NYSDEC regulated Littoral Zone tidal wetlands adjacent to the project area. These Littoral Zone wetlands are adjacent to the shoreline over the extent of the project area. Shoreline surveys conducted during low tide found three locations within the study area where the substrate of the East River is either visible or exposed. These areas are classified by NYSDEC as</p>

	<p>coastal shoals, bars, and mudflats. There is no SAV (e.g. eel grass) in these surveyed areas. However, green algae (<i>Ulva</i> spp.) and rockweed (<i>Ascophyllum</i> spp.) are present on riprap in small areas of intertidal zone abutting bulkhead.</p>
<p>Is there shellfish present at or adjacent to the project site? If so, please describe the spatial extent and species present.</p>	<p>No shellfish was observed during site surveys and no literature documenting shellfish on the hardened western shore of the East River was found.</p>
<p>Are there mudflats present at or adjacent to the project site? If so please describe the spatial extent.</p>	<p>Shoreline surveys conducted during low tide found three locations within the study area where the substrate of the East River is either visible or exposed. These areas are classified by NYSDEC as coastal shoals, bars, and mudflats.</p>
<p>Is there rocky or cobble bottom habitat present at or adjacent to the project site? If so, please describe the spatial extent.</p>	<p>The substrate of the East River is primarily sand and gravel in shallow areas and silty-mud in deeper areas. There may be rocky areas within the channel of the East River, but none that are inside the study area.</p>
<p>Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so for which species, what type habitat type, size, characteristics?</p>	<p>No HAPC is designated at the project area.</p>
<p>What is the typical salinity, depth and water temperature regime/range?</p>	<p>Salinity generally ranges between 19-25 parts per thousand. According to NOAA National Centers for Environmental Information, annual temperatures at both the Battery (south of project site) and Willets Point (north of project site) range from 34-74 degrees Fahrenheit.</p>
<p>What is the normal frequency of site disturbance, both natural and man-made?</p>	<p>Heavy daily boat traffic of both large and small vessels. Development at waterfront is common. Ambient noise in the area is generally high, including boats, traffic from the nearby FDR Drive, helicopters, and train traffic on the Williamsburg Bridge. Site is a hardened shoreline of Manhattan.</p>
<p>What is the area of proposed impact (work footprint & far afield)?</p>	<p>The currently existing study area spans from Montgomery Street north to 25th street. See Attached Figure 1. Within this study area, barging would occur at a limited number of locations and a combined sewer outfall would be constructed at one location. New</p>

	<p>permanently installed support shafts would be constructed in the middle of the study area at 14th street and existing shafts would be replaced in kind. The specific work footprint has yet to be determined. See Attachment 2 for additional construction information and footprints for temporary and permanent impacts.</p>
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Step 3: This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

3. DESCRIPTION OF IMPACTS			
Impacts	Y	N	Description
Nature and duration of activity(s). Clearly describe the activities proposed and the duration of any disturbances.			See EFH Impacts Discussion in Attachment 4 for Additional Information
Will the benthic community be disturbed? If no, why not? If yes, describe in detail how the benthos will be impacted.	x		See EFH Impacts Discussion in Attachment 4 for Additional Information
Will SAV be impacted? If no, why not? If yes, describe in detail how the SAV will be impacted. Consider both direct and indirect impacts. Provide details of any SAV survey conducted at the site.		x	There is no SAV present in the East River.
Will salt marsh habitat be impacted? If no, why not? If yes, describe in detail how wetlands will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?		x	There is no salt marsh habitat present in the study area.

<p>Will mudflat habitat be impacted? If no, why not? If yes, describe in detail how mudflats will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?</p>		<p>x</p>	<p>There are no intertidal areas present in the study area.</p>
<p>Will shellfish habitat be impacted? If so, provide in detail how the shellfish habitat will be impacted. What is the aerial extent of the impact? Provide details of any shellfish survey conducted at the site.</p>		<p>x</p>	<p>There is no shellfish habitat in the study area.</p>
<p>Will hard bottom (rocky, cobble, gravel) habitat be impacted at the site? If so, provide in detail how the hard bottom will be impacted. What is the aerial extent of the impact?</p>		<p>x</p>	<p>The substrate in the study area is primarily sand and small gravel in the shallower areas and in deeper areas is primarily silty mud.</p>
<p>Will sediments be altered and/or sedimentation rates change? If no, why not? If yes, describe how.</p>		<p>x</p>	<p>Sedimentation would be temporarily elevated during construction due to disturbance to the benthic environment. Potential impacts will be minimized through the use of turbidity curtains.</p>
<p>Will turbidity increase? If no, why not? If yes, describe the causes, the extent of the effects, and the duration.</p>	<p>x</p>		<p>Turbidity would temporarily increase during construction due to disturbance to the benthic environment. Potential impacts will be minimized through the use of turbidity curtains. There would not be any operational conditions that generate turbidity.</p>
<p>Will water depth change? What are the current and proposed depths?</p>		<p>x</p>	<p>The topography of the East River would not be altered and water depths would remain the same as they currently are.</p>
<p>Will contaminants be released into sediments or water column? If yes,</p>	<p>x</p>		<p>Contamination is anticipated to be present in East River sediments due to historic land uses. Turbidity curtains would be installed</p>

describe the nature of the contaminants and the extent of the effects.			surrounding all work areas where benthic disturbance would occur.
Will tidal flow, currents, or wave patterns be altered? If no, why not? If yes, describe in detail how.		x	No construction activity proposed would alter tidal flow or currents. New piles and shafts are proposed, however these would be placed in areas already containing numerous piles and hardened structures.
Will ambient salinity or temperature regime change? If no, why not? If yes, describe in detail how and the effects of the change.		x	No proposed construction activity would result in altered salinity or temperature regimes to the East River.
Will water quality be altered? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration of the impact.	x		Water quality has the potential to be temporarily affected due to increased turbidity associated with disturbance to the benthic environment. This would be temporary and mitigated through the use of turbidity curtains.
Will ambient noise levels change? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration and degree of impact.	x		Ambient noise levels will be changed during construction due to pile driving. See Attachment 2 Construction Description for duration and degree of impacts.
Does the action have the potential to impact prey species of federally managed fish with EFH designations?		x	Prey species are not anticipated to be significantly impacted by the proposed action.

Step 4: This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species (from the list generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. The Guide to EFH Descriptions webpage (<http://www.greateratlantic.fisheries.noaa.gov/hcd/list.htm>) should be used during this assessment to determine the ecological parameters/preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT			
Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:	See EFH Discussion in Attachment 4		
<u>Spawning</u> If yes, describe in detail how, and for which species. Describe how adverse effects will be avoided and minimized.	x		Winter flounder, windowpane flounder (See EFH Assessment in Attachment 4)
<u>Nursery</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	x		Winter flounder - eggs, larval, juvenile Windowpane flounder - eggs, larval, juvenile Summer flounder - larval, juvenile Atlantic herring - larval, juvenile Black sea bass - juvenile (See EFH Assessment in Attachment 4)
<u>Forage</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	x		Winter flounder - larval, juvenile, adult Windowpane flounder - larval, juvenile, adult Summer flounder - larval, juvenile, adult Atlantic herring - larval, juvenile, adult Black sea bass - juvenile, adult (See EFH Assessment in Attachment 4)
<u>Shelter</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	x		Black sea bass - juvenile, adult (See EFH Assessment in Attachment 4)
Will impacts be temporary or permanent? Describe the duration of the impacts.			Temporary impacts will consist of noise and approximately 17,200 square feet of benthic disturbance. Permanent impacts will consist of the support shafts and filled embayments. See EFH Impacts Discussion in Attachment 4.

<p>Will compensatory mitigation be used? If no, why not? Describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation plan, if applicable.</p>		<p>x</p>	<p>Compensatory mitigation will be provided for the permanent impacts to tidal wetlands. There is no compensatory mitigation proposed to offset specific impacts to EFH.</p>
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Step 5: This section provides the federal agency’s determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

Please note: if information provided in the worksheet is insufficient to allow NOAA Fisheries to complete the EFH consultation additional information will be requested.

5. DETERMINATION OF IMPACT

	/	Federal Agency’s EFH Determination
<p>Overall degree of adverse effects on EFH (not including compensatory mitigation) will be:</p>		<p>There is no adverse effect on EFH or no EFH is designated at the project site.</p> <p>EFH Consultation is not required</p>
<p>(check the appropriate statement)</p>		<p>The adverse effect on EFH is not substantial. This means that the adverse effects are either no more than minimal, temporary, or that they can be alleviated with minor project modifications or conservation recommendations.</p> <p>This is a request for an abbreviated EFH consultation.</p>
		<p>The adverse effect on EFH is substantial.</p> <p>This is a request for an expanded EFH consultation</p>

Step 6: Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats as part of the Fish and Wildlife Coordination Act. Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries' Protected Resources Division.

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT	
Species known to occur at site (list others that may apply)	Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.
alewife	NOAA Trust Resources other than those identified in the EFH Assessment occur in or around the East River. These include alewife, Atlantic sturgeon, shortnose sturgeon, American eel, marine sea turtles, and others. The proposed project would not result in significant adverse impacts to any of these species or their habitat. BMPs such as turbidity curtains would be used to contain suspended sediment within the affected areas and prevent NOAA resources from coming in contact with any increased turbidity or mechanical activity at the outfalls or within areas requiring mooring of construction barges. A cofferdam would be used during construction of the outfalls to minimize suspended sediment and turbidity. Construction is not anticipated to result in permanent impacts to any benthic environment.
American eel	
American shad	
Atlantic menhaden	
blue crab	
blue mussel	
blueback herring	
Eastern oyster	
horseshoe crab	
quahog	
soft-shell clams	
striped bass	
other species:	

Useful Links

National Wetland Inventory Maps

<http://www.fws.gov/wetlands/>

EPA's National Estuaries Program

<http://www.epa.gov/nep/information-about-local-estuary-programs>

Northeast Regional Ocean Council (NROC) Data Portal

<http://www.northeastoceandata.org/>

Mid-Atlantic Regional Council on the Ocean (MARCO) Data Portal

<http://portal.midatlanticocean.org/>

Resources by State:

Maine

Eelgrass maps

<http://www.maine.gov/dmr/rm/eelgrass/>

Maine Office of GIS Data Catalog

<http://www.maine.gov/megis/catalog/>

Casco Bay Estuary Partnership

<http://www.cascobayestuary.org/>

Maine GIS Stream Habitat Viewer

<http://mapserver.maine.gov/streamviewer/index.html>

New Hampshire

New Hampshire's Statewide GIS Clearinghouse, NH GRANIT

<http://www.granit.unh.edu/>

New Hampshire Coastal Viewer

<http://www.granit.unh.edu/nhcoastalviewer/>

Massachusetts

Eelgrass maps

http://maps.massgis.state.ma.us/images/dep/eelgrass/eelgrass_map.htm

MADMF Recommended Time of Year Restrictions Document

<http://www.mass.gov/eea/docs/dfg/dmf/publications/tr-47.pdf>

Massachusetts Bays National Estuary Program

<http://www.mass.gov/eea/agencies/mass-bays-program/>

Buzzards Bay National Estuary Program

<http://buzzardsbay.org/>

Massachusetts Division of Marine Fisheries

<http://www.mass.gov/eea/agencies/dfg/dmf/>

Massachusetts Office of Coastal Zone Management

<http://www.mass.gov/eea/agencies/czm/>

Rhode Island

Eelgrass maps

http://www.savebay.org/file/2012_Mapping_Submerged_Aquatic_Vegetation_final_report_4_2013.pdf

Narraganset Bay Estuary Program

<http://www.dem.ri.gov/programs/benviron/water/wetlands/wetldocs.htm>

Rhode Island Division of Marine Fisheries

<http://www.dem.ri.gov/>

Rhode Island Coastal Resources Management Council

<http://www.crmc.ri.gov/>

Connecticut

Eelgrass Maps

https://www.fws.gov/northeast/ecologicalservices/pdf/wetlands/2012_CT_Eelgrass_Final_Report_11_26_2013.pdf

Long Island Sound Study

<http://longislandsoundstudy.net/>

CT GIS Resources

http://www.ct.gov/deep/cwp/view.asp?a=2698&q=323342&deepNav_GID=1707

CT DEEP Office of Long Island Sound Programs and Fisheries

<http://www.ct.gov/deep/>

CT Bureau of Aquaculture Shellfish Maps

<http://www.ct.gov/doag/cwp/view.asp?a=3768&q=451508&doagNav=>

CT River Watershed Council

<http://www.ctriver.org/>

New York

Eelgrass report

http://www.dec.ny.gov/docs/fish_marine_pdf/finaleseagrassreport.pdf

Peconic Estuary Program

<http://www.peconicestuary.org/>

NY/NJ Harbor Estuary

<http://www.harborestuary.org/>

New Jersey

Submerged Aquatic Vegetation mapping

<http://crssa.rutgers.edu/projects/coastal/sav/>

Barnegat Bay Partnership

<http://bbp.ocean.edu/pages/1.asp>

Delaware

Partnership for the Delaware Estuary

<http://www.delawareestuary.org/>

Center for Delaware Inland Bays

<http://www.inlandbays.org/>

Maryland

Submerged Aquatic Vegetation mapping

http://data.imap.maryland.gov/datasets/da64df6bd4124ce9989e6c186a7906a7_0

MERLIN

<http://geodata.md.gov/imaptemplate/?appid=a8ec7e2ff4c34a31bc1e9411ed8e7a7e>

Maryland Coastal Bays Program

<http://www.mdcoastalbays.org/>

ATTACHMENT 5
DESIGNATION OF NON-FEDERAL REPRESENTATIVE LETTER

Capital Project SANDRESM1
East Side Coastal Resiliency Project
Borough of Manhattan, NY



**U.S. Department of Housing and Urban
Development**

New York State Office
Jacob K. Javits Federal Building
26 Federal Plaza, Suite 3541
New York, New York 10278-0068
Office (212) 264-8000, Fax (212) 264- 0993
TTY (212) 264-0927

28 October 2013

Ms. Patricia Cole
Deputy Field Supervisor
New York Field Office
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, New York 13045

**Re: Responsible Entity Certification for Section 7 Review for
U.S. Department of Housing and Urban Development (HUD) Community
Development Block Grant-Disaster Recovery (CDBG-DR)
Programs, administered by New York City Office of Management & Budget (NYC OMB)**

Dear Ms. Cole:

The Department of Housing and Urban Development (HUD) has authorized New York State Homes and Community Renewal (NYSHCR) to implement the HUD Community Development Block Grant – Disaster Recovery (CDBG-DR) Programs (Program) in accordance with the *City of New York Action Plan for Community Development Block Grant Program Disaster Recovery*, dated August 2013 (Federal Register Docket # 78 FR 14329). In accordance with prior coordination agreements between HUD and the FWS, HUD certifies that NYC OMB shall assume federal responsibilities for all National Environmental Policy Act and all related environmental laws and authorities as identified in HUD regulation 24 CFR 58.5. Consultations arising from activities funded under this Program will be conducted directly by NYC OMB in accordance with the assumption authority of 24 CFR 58.4

According to HUD regulations at 24 CFR §58.4, state and local governments that receive HUD funds assume the status of ‘responsible entity,’ and act as the federal action agency for all necessary consultations and other compliance measures. The assumption of federal status for environmental review purposes extends to substantive and procedural compliance with Section 7 of the Endangered Species Act, per 24 CFR §58.5.

For all Section 7 consultations arising from HUD-funded activities under any of the programs listed at 24 CFR §58.1(b), the State of New York and all local governments therein have been

granted authority to act as the federal action agency. These governments should alert the FWS when seeking a HUD Release of Funds for a project that requires Section 7 consultation. The FWS may notify HUD if the State or local government has not fulfilled its Section 7 requirements, and HUD will not release the funds in those instances.

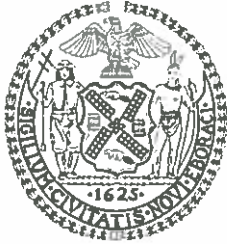
Please contact Regional Environmental Officer Therese Fretwell at 212-542-7445 if you have any questions regarding HUD's designation of the City of New York for Section 7 purposes under the CDBG-DR program, or HUD's general regulations concerning assumption of federal authority for Section 7 consultations.

Sincerely,

A handwritten signature in black ink, appearing to read "Therese Fretwell". The signature is written in a cursive style with a large, sweeping initial "T".

Therese Fretwell
Regional Environmental Officer
Department of Housing and Urban Development
26 Federal Plaza, Room 3513
New York, NY 10278

cc: Steven Sinkevich, Long Island Field Office



The City of New York
Office of Management and Budget
255 Greenwich Street, 8th Floor • New York, New York 10007

February 8, 2016

Mr. Daniel Marrone
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930-2276

Re: Project ID. SANDRESM1
Designation of non-federal representative regarding Section 7 and Essential Fish Habitat Findings
for the East Side Coastal Resiliency Project

Dear Mr. Marrone:

The New York City Office of Management and Budget (“OMB”) acting under the authority of the U.S. Department of Housing and Urban Development (HUD) is assuming the role of Lead Agency under the National Environmental Policy Act (“NEPA”), and related laws, for the environmental review of the proposed East Side Coastal Resiliency Project (the “Proposed Project”). OMB is leading this NEPA environmental review on behalf of the City of New York as the Responsible Entity (RE) and recipient of Community Development Block Grant - Disaster Recovery (“CDBG-DR”) funds from HUD under 42 U.S.C. § 5304(g) and 79 Fed. Reg. 62,182 (Oct. 16, 2014).

The Proposed Project would receive funds from HUD, a federal agency, and is therefore subject to Section 7 of the Endangered Species Act (ESA). Pursuant to the ESA, the federal agency may designate a non-federal representative to prepare the Section 7 consultation. The Hazen and Sawyer / AKRF JV is our designated non-federal representative for the purposes of this consultation. A Section 7 consultation was sent to you on January 25, 2016, by the Hazen and Sawyer / AKRF Joint Venture (JV).

If you have any questions, please feel free to contact me at 212-788-6241 and/or QadriE@omb.nyc.gov. Thank you for your consideration and cooperation, and we look forward to working with your agency on this critical capital project.

Sincerely,

Eram Qadri, AICP, LEED AP
Unit Head, Environmental Review
CDBG Disaster Recovery
New York City Office of Management and Budget

cc: G. Amabile, HUD
Therese Fretwell, HUD
O. Wells, A. Chan, NYCDPR
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