New Jersey Turnpike Authority
Newark Bay–Hudson County Extension
Interchange 14 to Interchange 14A

New Jersey Executive Order No. 215 Environmental Impact Statement

Appendix F: Biological Resources

April 2024

Submitted by:

New Jersey Turnpike Authority

Appendix F-1

USFWS Information For Planning And Consultation (IPaC)
and USFWS Correspondence

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

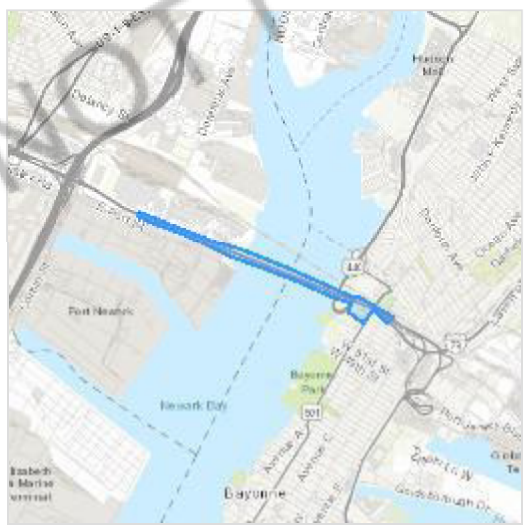
Project information

NAME

NJ Turnpike Newark Bay Bridge Replacement

LOCATION

Essex and Hudson counties, New Jersey



DESCRIPTION

Some(Bridge replacement, Newark and Bayonne, NJ)

Local office

New Jersey Ecological Services Field Office

(609) 646-9310

4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 08205

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of

Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found This species only needs to be considered if the following condition applies: • This species only needs to be considered if the project includes wind turbine operations. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read

"Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

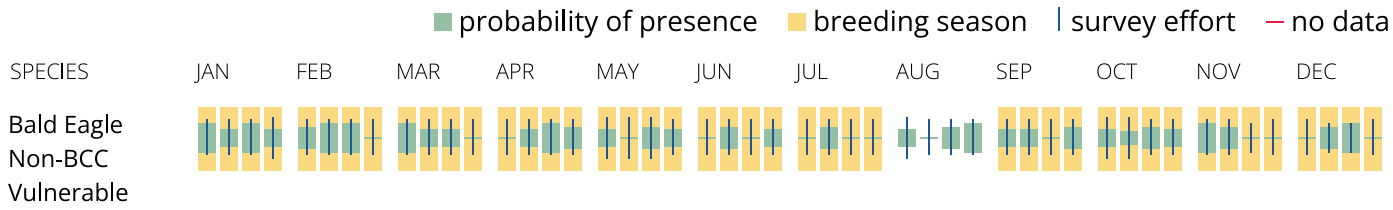
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
King Rail Rallus elegans This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read

"Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
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Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

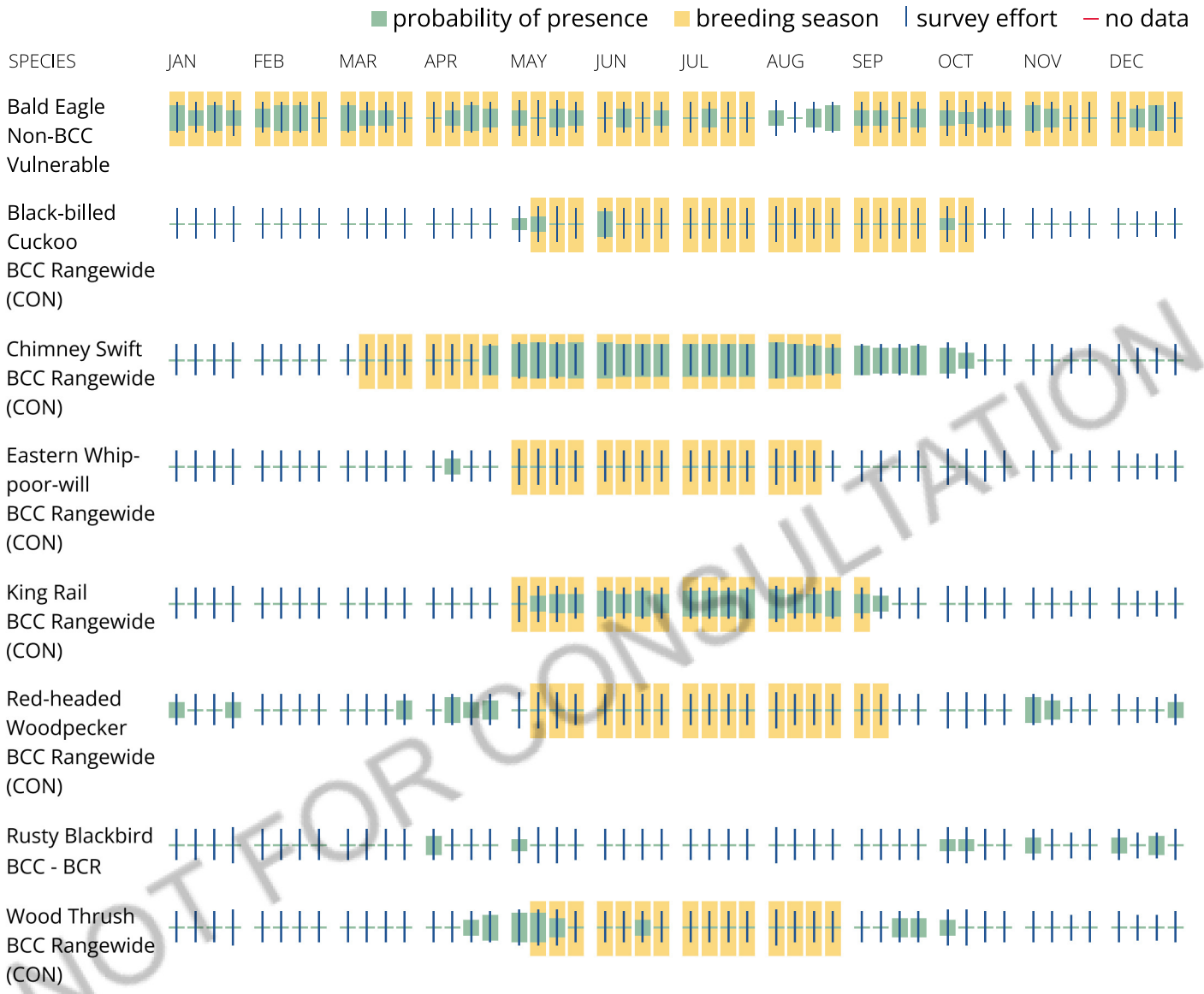
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

- E1UBL

ESTUARINE AND MARINE WETLAND

- E2EM5P
- E2EM1P
- E2EM1N
- E2USN

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Ecological Services Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 08205
Phone: (609) 646-9310

In Reply Refer To: 04/02/2024 18:40:07 UTC
Project Code: 2023-0039248
Project Name: NJ Turnpike Newark Bay Bridge Replacement

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Jersey Ecological Services Field Office
4 E. Jimmie Leeds Road, Suite 4
Galloway, NJ 08205
(609) 646-9310

PROJECT SUMMARY

Project Code: 2023-0039248
Project Name: NJ Turnpike Newark Bay Bridge Replacement
Project Type: Bridge - Replacement
Project Description: Bridge replacement, Newark and Bayonne, NJ
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.696534400000004,-74.12198292466032,14z

Counties: Essex and Hudson counties, New Jersey

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Endangered
No critical habitat has been designated for this species.	
This species only needs to be considered under the following conditions:	
▪ This species only needs to be considered if the project includes wind turbine operations.	
Species profile: https://ecos.fws.gov/ecp/species/9045	
Tricolored Bat *Perimyotis subflavus*	Proposed Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/10515	

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9743	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: WSP USA, Inc.
Name: Dana Flynn
Address: 350 Mount Kemble Avenue
City: Morristown
State: NJ
Zip: 07960
Email dana.flynn@wsp.com
Phone: 9734071475

LEAD AGENCY CONTACT INFORMATION

Lead Agency: U.S. Coast Guard

Appendix F-2

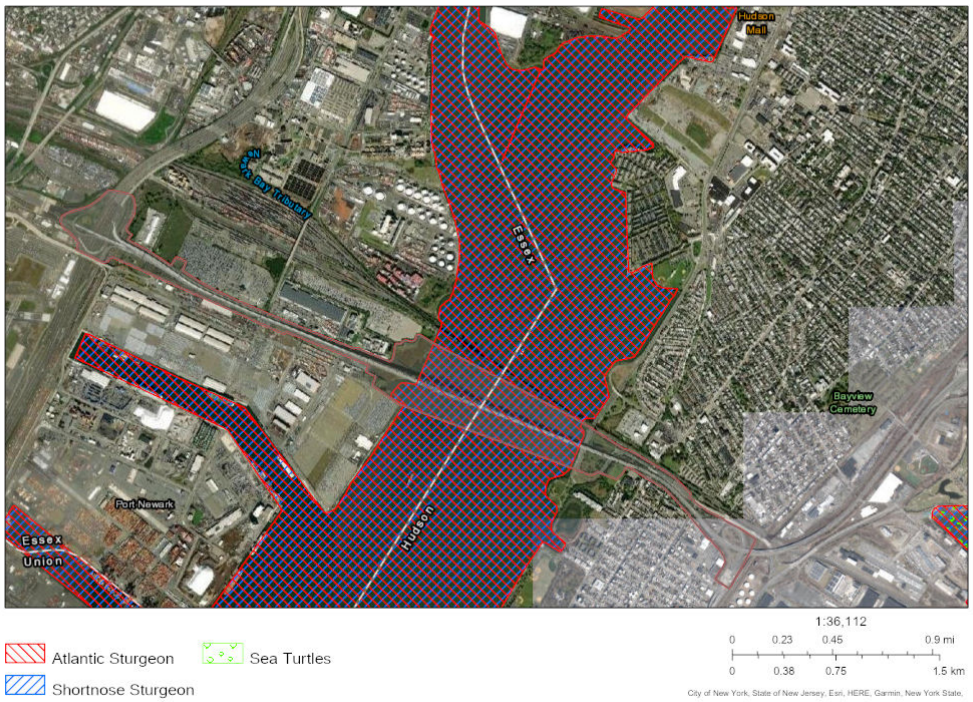
NMFS Section 7 Mapper Report and NMFS Correspondence

Drawn Action Area & Overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 320.16 acres

Jun 4 2021 14:54:30 Eastern Daylight Time



Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	2	265.66	N/A
Shortnose Sturgeon	1	132.83	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	0	0	N/A
Atlantic Large Whales	0	0	N/A
In or Near Critical Habitat	0	0	N/A

Atlantic Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	ANS_C50_ADU_MAF	Atlantic sturgeon	Adult	Migrating & Foraging	N/A	01/01	12/31	N/A	N/A	132.83
2	ANS_C50_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	N/A	01/01	12/31	N/A	N/A	132.83

Shortnose Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	SNS_C50_ADU_MAF	Shortnose sturgeon	Adult	Migrating & Foraging	N/A	04/01	11/30	N/A	N/A	132.83

From:	Edith Carson-Supino - NOAA Federal
To:	Flynn, Dana
Cc:	Pesesky, Lawrence; mmorgan; Campagnino, Marjorie M.; Jessie Murray - NOAA Federal
Subject:	Re: NJTA Newark Bay-Hudson County Extension Program - ESA request for info
Date:	Friday, August 6, 2021 11:55:49 AM
Attachments:	image003.png Incoming - USGSTopo.pdf

Ms. Flynn,

We received your email on August 5, 2021, regarding the proposed geotechnical borings in Newark Bay and adjacent tidal wetlands (attached). In your email, you requested any available information regarding the presence of federally listed threatened or endangered species within the vicinity of the site. Please note that you can also look up species presence in your project area by using our Mapper: http://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

We offer the following comments.

Endangered Species Act

Atlantic Sturgeon

Atlantic sturgeon could be present in the waters of Newark Bay 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 Newark Bay and its adjacent bays and tributaries.

Shortnose Sturgeon

Shortnose sturgeon could be present in the Newark Bay 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 Newark Bay 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 any impacts to habitat or conditions that temporarily render affected water bodies unsuitable for the above-mentioned species, consider the use of timing restrictions for in-water work.
- 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
Sturgeon	206 dB re 1 µPaPeak and 187 dB cSEL	150 dB re 1 µPaRMS

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, 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 - https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultations-greater-atlantic-region. 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).

Magnuson-Stevens Fishery Conservation and Management Act - Essential Fish Habitat

Recent changes to the Corps of Engineers' Nationwide Permits have removed the requirement that NOAA Fisheries be contacted for information on essential fish habitat and that applicants provide evidence of the contact and our resources. You now access the information on your own from our websites. The Habitat Conservation Division's website is: https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/conserving-habitat-greater-atlantic-region. Information on essential fish habitat can be found there.

Thank you,

Edith

Edith Carson-Supino, M.Sc (she/her/hers)
Section 7 Fish Biologist, Greater Atlantic Regional Fisheries Office
NOAA Fisheries | U.S. Department of Commerce
Office: (978) 282-8490
For ESA Section 7 guidance please see:
https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultations-greater-atlantic-region

On Thu, Aug 5, 2021 at 11:54 AM Flynn, Dana <dana.flynn@wsp.com> wrote:

> Good Morning Ms. Carson-Supino,
>
> On behalf of the New Jersey Turnpike Authority (Authority), Gannett Fleming, Inc. Design Team member WSP USA, Inc. (WSP) is preparing geotechnical boring permit applications to obtain state and federal approvals for activities associated with Newark Bay-Hudson County Extension (NB-HCE) Program. The NB-HCE Program (Program) limits extend from a point just east of Interchange 14 in Newark, Essex County, across the Newark Bay

Bridge, and through Bayonne, Hudson County to the eastern terminus of the Authority's jurisdiction at Jersey Avenue in Jersey City, Hudson County, New Jersey. The project consists of the NB-HCE corridor, including the Newark Bay Bridge, and abutting areas. The project area is shown on the attached USGS topographic map.

As part of preliminary design, geotechnical borings are proposed in Newark Bay and adjacent tidal wetlands. This email is requesting information regarding the presence of Endangered Species Act (ESA) listed threatened or endangered species under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS) within the subject project site. Should you require additional information, please do not hesitate to contact me at dana.flynn@wsp.com or 973-407-1475.

Thank you for your assistance,

Dana Flynn, CWB, CE

Senior Environmental Scientist

T+ 1 973.407.1475

M + 1 484.225.3650
WSP USA

412 Mount Kemble Avenue 5th Floor

Morristown, NJ 07960 USA

wsp.com

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EFH Mapper Report

EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

Greater Atlantic Regional Office
Atlantic Highly Migratory Species Management Division

Query Results

Degrees, Minutes, Seconds: Latitude = 40º 41' 44" N, Longitude = 75º 52' 56" W
Decimal Degrees: Latitude = 40.695, Longitude = -74.118

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

***** W A R N I N G *****

Please note under "Life Stage(s) Found at Location" the category "ALL" indicates that all life stages of that species share the same map and are designated at the queried location.

EFH

Link	Data Caveats	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Winter Flounder	Eggs Juvenile Larvae/Adult	New England	Amendment 14 to the Northeast Multispecies FMP
		Little Skate	Juvenile Adult	New England	Amendment 2 to the Northeast Skate Complex FMP
		Atlantic Herring	Juvenile Adult Larvae	New England	Amendment 3 to the Atlantic Herring FMP
		Red Hake	Adult Eggs/Larvae/Juvenile	New England	Amendment 14 to the Northeast Multispecies FMP
		Windowpane Flounder	Adult Larvae Eggs Juvenile	New England	Amendment 14 to the Northeast Multispecies FMP
		Winter Skate	Adult Juvenile	New England	Amendment 2 to the Northeast Skate Complex FMP

Link	Data Caveats	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Clearnose Skate	Adult Juvenile	New England	Amendment 2 to the Northeast Skate Complex FMP
		Longfin Inshore Squid	Eggs	Mid-Atlantic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
		Bluefish	Adult Juvenile	Mid-Atlantic	Bluefish
		Atlantic Butterfish	Larvae	Mid-Atlantic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
		Summer Flounder	Larvae Juvenile Adult	Mid-Atlantic	Summer Flounder, Scup, Black Sea Bass

Salmon EFH

No Pacific Salmon Essential Fish Habitat (EFH) were identified at the report location.

HAPCs

Link	Data Caveats	HAPC Name	Management Council
		Summer Flounder	Mid-Atlantic

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

All spatial data is currently available for the Mid-Atlantic and New England councils,
Secretarial EFH,
Bigeye Sand Tiger Shark,
Bigeye Sixgill Shark,
Caribbean Sharpnose Shark,
Galapagos Shark,
Narrowtooth Shark,
Sevengill Shark,
Sixgill Shark,
Smooth Hammerhead Shark,
Smalltail Shark

Appendix F-3

NJDEP Correspondence

State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF PARKS & FORESTRY
NEW JERSEY FOREST SERVICE
OFFICE OF NATURAL LANDS MANAGEMENT
P.O. BOX 420
TRENTON, NJ 08625-0420
Tel. (609) 984-1339 Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

July 2, 2021

Dana Flynn
WSP USA
412 Mount Kemble Avenue
Morristown, NJ 07962

Re: NJTA Newark Bay-Hudson County Extension Program
Bayonne and Jersey Cities, Hudson County
Newark City, Essex County

Dear Dana Flynn:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the immediate vicinity of the site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL,

https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 21-4007461-22351

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Cattle Egret	Bubulcus ibis	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	Egretta caerulea	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Northern Harrier	Circus cyaneus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Peregrine Falcon	Falco peregrinus	Urban Nest	4	NA	State Endangered	G4	S1B,S3N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Tricolored Heron	Egretta tricolor	Foraging	2	NA	Special Concern	G5	S3B,S3N
Insecta								
	Checkered White	Pontia protodice	Breeding/Courtship	3	NA	State Threatened	G5	S2
Osteichthyes								
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Juvenile Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	4	NA	State Endangered	G5	S1B,S2N
	Black-crowned Night-heron	Nycticorax nycticorax	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Bobolink	Dolichonyx oryzivorus	Non-breeding Sighting	2	NA	Special Concern	G5	S2B,S3N
	Cattle Egret	Bubulcus ibis	Foraging	3	NA	State Threatened	G5	S2B,S3N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Least Tern	Sternula antillarum	Nesting Colony	4	NA	State Endangered	G4	S1B,S1N
	Little Blue Heron	Egretta caerulea	Foraging	2	NA	Special Concern	G5	S3B,S3N
	Northern Harrier	Circus cyaneus	Breeding Sighting	4	NA	State Endangered	G5	S1B,S3N
	Peregrine Falcon	Falco peregrinus	Urban Nest	4	NA	State Endangered	G4	S1B,S3N
	Savannah Sparrow	Passerculus sandwichensis	Breeding Sighting	3	NA	State Threatened	G5	S2B,S4N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Tricolored Heron	Egretta tricolor	Foraging	2	NA	Special Concern	G5	S3B,S3N

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
	Upland Sandpiper	Bartramia longicauda	Breeding Sighting	4	NA	State Endangered	G5	S1B,S1N
Insecta								
	Checkered White	Pontia protodice	Breeding/Courtship	3	NA	State Threatened	G5	S2
Osteichthyes								
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Atlantic Sturgeon	Acipenser oxyrinchus	Migration Corridor - Juvenile Sighting	5	Federally Listed Endangered	State Endangered	G3	S1
	Shortnose Sturgeon	Acipenser brevirostrum	Migration Corridor - Adult Sighting	5	Federally Listed Endangered	State Endangered	G3	S1

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Office of Permitting & Project Navigation
Mail Code 401-07J
P.O. Box 420
Trenton, New Jersey 08625-0420
www.nj.gov/dep/pcer

CATHERINE R. McCABE
Commissioner

May 14, 2021

Gannett Fleming
c/o Michael A. Morgan, PE
1 Centennial Avenue
Building C-Suite 201
Piscataway, NJ 08854

RE: EO-215 Environmental Assessment
NJTA Newark Bay-Hudson County Extension
City of Newark, Essex County
Bayonne and Jersey City, Hudson County

Dear Mr. Fleming:

The New Jersey Department of Environmental Protection's (NJDEP) Office of Permitting & Project Navigation (OPPN) received a Preliminary Design and Environmental Study on April 16, 2021, which was prepared pursuant to the environmental review requirements of New Jersey Executive Order No. 215 of 1989 (EO #215) for the proposed 4-phased roadway widening and improvement project to improve mobility and address roadway structural needs on the Authority's Newark Bay-Hudson County Extension (NB-HCE).

In response to your request for a determination as to whether the proposal will have any adverse impacts to land resources, historical or cultural resources, threatened and endangered species and migratory birds, or whether there are any impacts to Green Acres-encumbered parkland held by the State, local government units and/or nonprofit organizations, the Department offers the following comments for your consideration:

Land Resource Protection

The Division concurs with the submitted assessment that identified the need for both Inland and Upland Waterfront Development Permits and a Flood Hazard Area Permit. The Division recommends the applicant also apply for a Freshwater Wetlands Letter of Interpretation. Any proposed impacts to freshwater wetlands will require either a Freshwater Wetlands Statewide General Permits or a Freshwater Wetlands Individual Permit depending on the scope of impacts to wetlands, transition areas, and/or State open waters.

The Division recommends an eventual pre-application meeting to discuss the permitting requirements

If you have any additional questions, please contact Chris Jones at Christopher.Jones@dep.nj.gov for WFD/FWW or Christian Zografos at Christian.Zografos@dep.nj.gov for FHA/Stormwater, or both can be reached at 609-777-0454.

Historic and Cultural Resources:

The project is located within a historic setting containing multiple historic and archaeological resources, including the New Jersey and National Register of Historic Places-listed or eligible properties adjacent to, crossed-by, or in the vicinity of the NB-HCE corridor. These resources are primarily related to the area's rich transportation history. The submitted information correctly identifies the following historic properties in the corridor, most of which are in Projects 2 and 4: Lehigh Valley Railroad Historic District (SHPO Opinion 3/15/2002), Morris Canal Historic District (NR 10/1/1974; SR 11/26/1973), Hudson & Manhattan Railroad Transit (PATH) System (SHPO Opinion 3/4/2002), and the US Routes 1 & 9 Historic District (SHPO Opinion 3/8/1996). However, the identified Pennsylvania Railroad (PRR) Newark and New York Railroad Historic District does not appear on the HPO's identified properties list; this may be a misnomer for the PRR New York Bay Branch Historic District (SHPO Opinion 12/18/2019). Additionally, based on the HPO's understanding of the project limits, the Terminal Distribution Warehouses of Hudson County Historic District (SR 10/26/2015) does not appear to be within the likely area of potential effects (APE) for the project. The applicant's list of historic properties also includes the Greenville Yard Historic District, which has been determined not eligible for the New Jersey and National Registers (SHPO Opinion 7/22/2015). According to the applicant, the NB-HCE is also visible from the Statue of Liberty National Monument. The corridor also intersects with eight archaeological site grids.

The HPO notes that, based on the project limits, the above-referenced list of historic properties omits numerous historic buildings and districts in the area identified as Project 4, including but not limited to: the US Routes 1 & 9 Extension [Pulaski Skyway] (NR 8/12/2005; SR 6/13/2005); New Jersey Railroad Bergen Cut Historic District (SHPO Opinion 5/21/1999); PRR New York to Philadelphia Historic District (SHPO Opinion 1/14/2015); Italian Village Historic District (SHPO Opinion 5/13/2019); PRR Harsimus Branch Right-of-Way Historic District (SHPO Opinion 7/14/2017); and Erie Railroad Main Line Historic District (SHPO Opinion 2/20/2003).

The HPO recommends an intensive-level historic architectural survey for properties within the area of potential effects (APE) for the project. The survey must include an assessment of the eligibility of the Newark Bay Bridge. The HPO strongly recommends consultation with our office in order to define an APE and survey methodology for the project. The APE should on areas of direct impacts and areas where the roadway widening will result in increased visual, auditory, and atmospheric impacts from existing conditions. The survey methodology should focus on resources that are directly affected by the proposed construction and on resources constructed prior to the existing roadway (i.e., before c.1955). The intensive-level historic architectural survey must be prepared by an Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] and shall follow the Guidelines for Architectural Survey, published by our office and available on our website (https://www.nj.gov/dep/hpo/1identify/survarcht.htm), with reporting conforming to the guidelines at N.J.A.C. 7:4-8.6.

Further, the HPO recommends, based on the potential for maritime and terrestrial archaeological resources, that an initial Phase IA archaeological reconnaissance survey is conducted for the entire project alignment (Project's 1-4) so that specific areas of sensitivity and areas requiring additional archaeological and geotechnical investigations can be identified forming a management tool for this extensive and multi-phased roadway project. Depending on design, future archaeological investigations could be extensive and time consuming and will require consideration as part of any regulated activity. For examples for other multi-year archaeological investigations, see the information on Boston's replacement of I-93 (https://www.sec.state.ma.us/mhc/mhcpdf/Big_Dig_book.pdf) or the on-going I-95 expansion work through Philadelphia (https://diggingi95.com/).

If you have any additional questions, please contact Jennifer Leynes at Jennifer.Leynes@dep.nj.gov and Vincent Maresca at Vincent.Maresca@dep.nj.gov.

Fish & Wildlife

Marine Fisheries Administration (MFA)

Coastal Zone Management Rules relevant to marine fisheries which apply to this project:

- 9.5 Finfish migratory pathways
  NY/NJ Harbor Agreement timing restriction – February 1 – May 31

- 9.36 Endangered or threatened wildlife or plant species habitats
  Atlantic sturgeon: NY/NJ Harbor Agreement timing restriction – February 1 – May 31

- 12.6 Maintenance Dredging
  Winter flounder timing restriction – January 1 – May 31

Be aware, the work conducted in Project 1 to rebuild the NB-HCE bridge can disturb important fish habitat and disrupt migration of fish during Spring spawning runs through the Newark Bay area. Newark Bay and significant associated river systems (Passaic and Hackensack Rivers) support spawning runs of shad and river herring species, as well as striped bass. Shad and river herring are currently experiencing low population abundances coastwide, while striped bass stocks have recently been assessed as overfished and experiencing overfishing. Avoidance of interference with these and other Spring spawning runs is critical to reduce further detrimental impacts to these fish stocks. Atlantic Sturgeon use Newark Bay as foraging grounds which coincides with the New York Bight distinct population segment and are considered endangered under the Endangered Species Act. Therefore, the following Time of Year Restrictions of in-water work activities will be recommended for this project: NY/NJ Harbor Agreement: February 1 – May 31. Additionally, MFA recommends the use of Best Management Practices (BMPs) to reduce impacts of construction on migrating fish by monitoring and controlling turbidity, noise, and overall habitat disturbance.

If dredging is required for Project 1: MFA recommends all dredging and dredge material operations utilize specific operational procedures designed to minimize water quality impacts, resuspension of sediment, and percussive sound generation. Operations are recommended to deploy silt curtains at sites when plausible based on-site conditions. If it is determined the use of a silt curtain is infeasible at specific locations, dredging using closed watertight buckets or lateral digging buckets, or for a hydraulic dredge the removal of the cutter head, flushing of pipeline sections prior to disconnection, or limitations on depth of successive cuts is recommended.

The Southern New England/Mid-Atlantic winter flounder stock is near historic lows and the proposed work plans are in regions which have been determined to be Essential Fish Habitat for all life history stages of winter flounder. The dredging and development timing restrictions for winter flounder, which have been established to protect the spawning and vulnerable life history stages, in areas of 20- feet or less MLLW bathymetric contour, and an additional 500-foot buffer seaward of the 20- foot bathymetric contour, is recommended from January 1- May 31.

Threatened & Endangered Species

Species Occurrence Area (v12) and Landscape mapping (v3.3) indicates habitats valued for, and possible occurrences of, **Threatened / Endangered** (T / E) and "**Species of Concern"** within the expected area of impact for the following species: Bald Eagle, Peregrine Falcon, Northern Harrier, Least Tern, Atlantic & Short-nose Sturgeon, Black-crowned Night-heron, Cattle Egret, Checkered White, Snowy Egret, Glossy

Ibis, Little Blue Heron, Tricolored Heron, Northern Diamondback Terrapin. These species must be addressed in the Environmental Impact Statement (EIS).

Peregrine Falcon (State – E) nests are mapped on the Newark Bay Bridge (from 2012) and the rail bridge to the north (from 2009). If these nests still exist, consultation with the Endangered & Non-game Species Program will be required.

Northern Long-eared Bat, Little Brown Bat, Eastern Small-footed Myotis, and Tri-colored Bat, all of which are found state-wide and after review by Endangered and Non-game Species Program Biologists and the NJ Endangered and Nongame Advisory Committee, have a "Consensus Status" of "Endangered" in NJ, must be considered if tree clearing is required for this proposal

If you have any additional questions, please contact Kelly Davis at 609-292-9451 or Kelly.Davis@dep.nj.gov

Tidelands

If tidally claimed areas are proposed to be impacted for the project, the applicant must confirm whether there is a Tidelands Grant for these areas and if the Grant is still valid. If there is no Grant or it is no longer valid, then the applicant shall apply for a new Tidelands Instrument for work proposed within the claimed areas. Additionally, the construction of new in-water structures will require an application to the Bureau of Tidelands for a new Instrument.

If you have any additional questions, please contact Marty Mosen at 609-633-7900 or Martin.Mosen@dep.nj.gov

Green Acres

The applicant states that several parks may be impacted by this project and that they recognize a diversion application and State House Commission approval may be required unless the project can be routed in such a way as to avoid parkland. The applicant is advised to consult with Green Acres about the project design for assistance in identifying local parks that may be impacted and assistance in the diversion process. The Green Acres Bureau only handles county, municipal and nonprofit GA encumbered lands.

If you have any additional questions, please contact Maude Snyder at 609-292-0903 or Maude.Snyder@dep.nj.gov

State-owned Lands

If the project will impact NJDEP property, the applicant shall submit the following form: https://www.nj.gov/dep/greenacres/pdf/request_to_use_njdep_property.pdf
An alternatives analysis will need to be submitted that shows why the use of NJDEP property cannot be avoided, and if it cannot be avoided, how the use is being minimized.

If you have any additional questions, please contact Adria Wentzel at 609-984-0532 or Adria.Wentzel@dep.nj.gov

Site Remediation

The applicant is advised to consult the SRP linear construction technical guidance at:
https://www.state.nj.us/dep/srp/guidance/srra/lc_guidance.pdf

If you have any questions, please contact Steve Maybury at 609-633-1455 or Steve.Maybury@dep.nj.gov

Stormwater Management

Construction projects that disturb 1 acre or more of land, or less than 1 acre but are part of a larger common plan of development that is greater than 1 acre, are required to obtain coverage under the Stormwater construction general permit (5G3). Applicants must first obtain certification of their soil erosion and sediment control plan (251 plan) form their local soil conservation district office. Upon certification, the district office will provide the applicant with two codes process (SCD certification code and 251 identification code) for use in the DEPonline portal system application. Applicants must then become a registered user for the DEPonline system and complete the application for the Stormwater Construction General Authorization. Upon completion of the application the applicant will receive a temporary authorization which can be used to start construction immediately, if necessary. Within 3-5 business days the permittee contact identified in the application will receive an email including the application summary and final authorization.

If you have any additional questions, please contact Eleanor Krukowski at (609) 633-7021 or Eleanor.Krukowski@dep.nj.gov

RECOMMENDATIONS

Pursuant to Section 4(c)ii of EO #215, the NJDEP recommends a conditional approval for the project, provided that any NJDEP permits and approvals that may be required for the project are obtained by the applicant prior to commencement of any activity regulated by those required permits and approvals.

Section 5 of EO #215 requires that within thirty days of receiving our recommendation, the proposing agency provide the NJDEP a written response either accepting our recommendations or setting forth those issues remaining in dispute. Acceptance of our conditional approval and recommendations would conclude the EO #215 environmental review process. If a written response is not received in this time frame, it will be assumed that the proposing agency has accepted the NJDEP's recommendations listed above.

Thank you for giving the NJDEP the opportunity to comment on the provided information for the proposed project. Please contact Becky Mazzei at Becky.Mazzei@dep.nj.gov or (609) 292-3600 if you have any additional questions or concerns.

Sincerely,

Megan Brunatti, Director
Office of Permitting & Project Navigation

Appendix F-4

Essential Fish Habitat Assessment

New Jersey Turnpike Authority
Newark Bay – Hudson County Extension
Interchange 14 to Interchange 14A

Essential Fish Habitat Assessment

January 2024

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1 Introduction

In compliance with Section 305(b) (2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act (SFA) of 1996 (Public Law 104-267), this Essential Fish Habitat (EFH) assessment is provided to evaluate the potential effects of constructing a replacement bridge for the Newark Bay Bridge (NBB) on EFH. This bridge crosses over Newark Bay for a distance of approximately 4,200 feet, connecting the cities of Newark and Bayonne in New Jersey. This assessment includes an analysis of the potential effects of the proposed project on habitat for those species and life stages for which EFH has been designated.

Potential impacts of the proposed bridge construction and demolition of the existing bridge were evaluated using information collected during previous aquatic sampling programs and relevant literature to evaluate species occurrence and existing habitat. Potential temporary and permanent impacts of the proposed project on the EFH were assessed in terms of the seasonal distribution, relative abundance, and habitat requirements of the designated species and life stages. The assessment addresses the physical and biological effects of the proposed in-water construction and operation activities on the 11 EFH-designated species and Habitat Areas of Particular Concern (HAPC) that may occur in the project area.

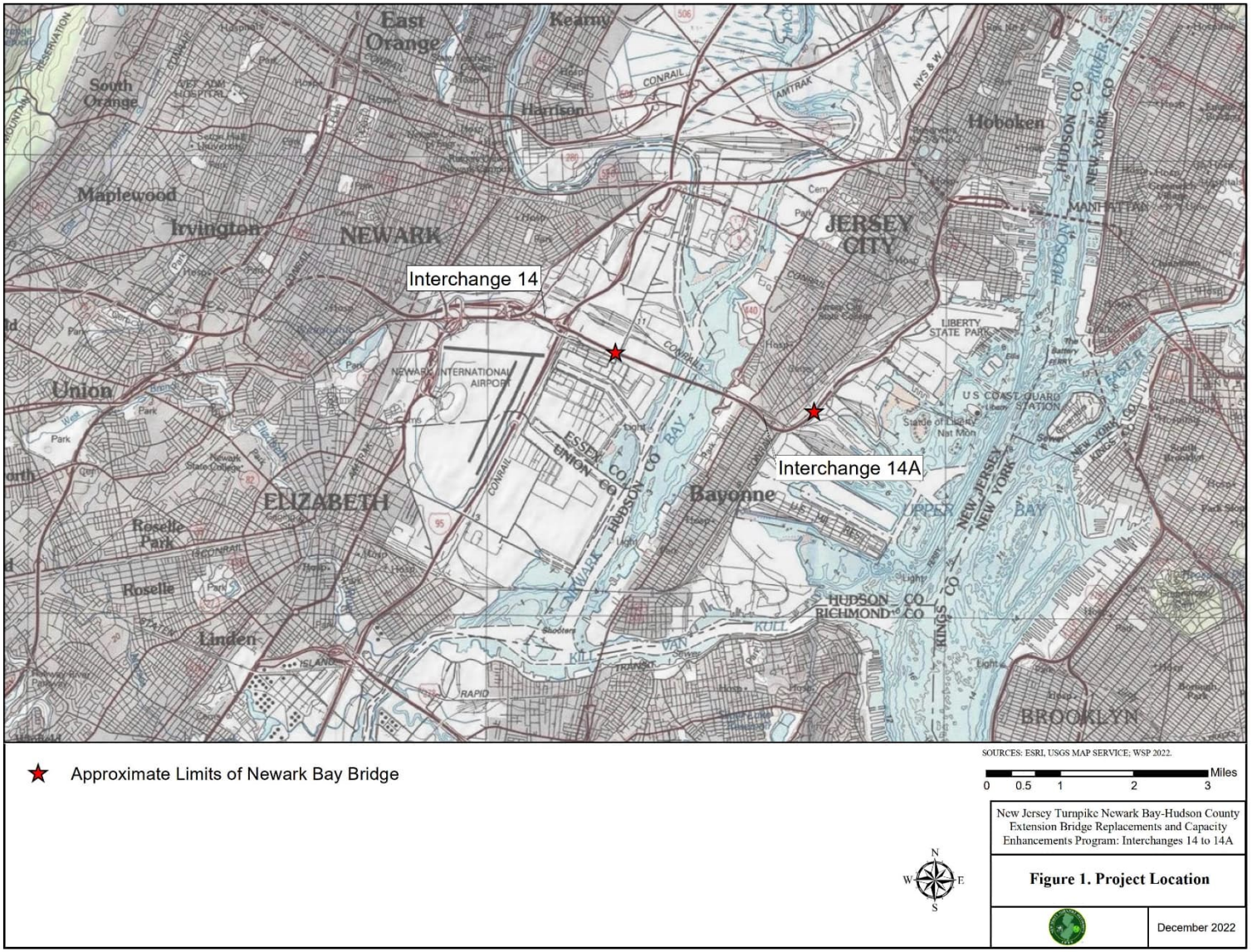
Also included in this EFH Assessment are four forage species, including bay anchovy (*Anchoa mitchelli*), Atlantic menhaden (*Brevoortia tyrannus*) and river herring (collectively blueback herring [*Alosa aestivalis*], and alewife [*Alosa pseudoharengus*]).

2 Project Site and Project Description

2.1 Site Description

Newark Bay is a shallow, 5.5 mile long tidal embayment located at the confluence of the Passaic and Hackensack Rivers (Figure 1). It is tidally connected to the Atlantic Ocean at its southern end via the Kill van Kull and Arthur Kill. Newark Bay has a width ranging from about 0.6 to 1.2 miles and is bordered to the east by the City of Bayonne and to the west by the City of Newark. In the project corridor, depths are generally less than eight feet, except for the Newark Bay Main Navigational Channel North Reach, which passes under the NBB, and has an authorized width of 500 feet and a depth of 35 feet. The shoreline along Newark Bay varies, consisting largely of riprap and bulkheads, with little natural shoreline remaining. Along the project corridor, the western shore of Newark Bay underneath the existing bridge is riprap with tidal wetlands immediately north and south. The eastern shore of Newark Bay in the project corridor is composed of riprap.

The project area has undergone intense development and urbanization. To the north of the NBB, the Lehigh Valley Railroad Bridge crosses Newark Bay and connects to a large railroad yard in Newark. The Port Newark shipping facility and manufacturing buildings comprise much of the land use to the west of the NBB, while the eastern side of Newark Bay is characterized by dense residential development and urban parks. A variety of urban, industrial inputs and development of the nearshore zone of Newark Bay has modified the area's hydrology, degraded water quality, and altered biotic communities. Over the years, most of the salt marsh wetlands that fringed Newark Bay have been degraded as a result of mosquito control measures and invasive vegetation, or lost through filling.


Interchange 14
Interchange 14A
East Orange
Kearny
South Orange
Harrison
Hoboken
Maplewood
Irvington
NEWARK
JERSEY CITY
Union
ELIZABETH
Bayonne
Roselle Park
Roselle
Linden
BROOKLYN
NEWARK INTERNATIONAL AIRPORT
LIBERTY STATE PARK
US COAST GUARD STATION
Approximate Limits of Newark Bay Bridge
SOURCES: ESRI, USGS MAP SERVICE; WSP 2022.
0 0.5 1 2 3 Miles
N
W E
S
New Jersey Turnpike Newark Bay-Hudson County Extension Bridge Replacements and Capacity Enhancements Program: Interchanges 14 to 14A
Figure 1. Project Location
December 2022

Aquatic habitats in Newark Bay include deep navigation channels, expansive subtidal shallows, intertidal mudflats, and salt marshes. Substrates in the project corridor in Newark Bay consist predominately of silty sand and sandy silt (USACE 2012). Recent fish community studies conducted from 1993 to 2013 have identified 62 fish species occurring within Newark Bay (Tierra Solutions Inc. 2013), including federally-managed species for which EFH has been designated. A recent mid-water study of migratory finfish in the bay detailed use of the water column by pelagic species infrequently caught in bottom-trawl studies (USACE 2015). Ichthyoplankton studies conducted in Newark Bay from 1999-2006 identified early life stages (eggs, larvae, or juveniles) of federally-managed species for which EFH has been designated. A number of benthic invertebrate surveys have been conducted in Newark Bay since the mid-1980s. USACE found moderate benthic abundance, with the assemblage dominated by polychaetes, with softshell clam (*Mya arenaria*) also abundant (USACE 1987). NOAA conducted a benthic macroinvertebrate survey of Newark Bay during 1993-1994, finding a similar polychaete-dominated community that exhibited discernible shifts in species composition among seasons (NOAA 1994). The Port Authority of New York/New Jersey's 1995-1996 Newark Bay benthic sampling program corroborated the dominance by polychaetes, with additional common invertebrates including softshell clam, dwarf surf clam (*Mulina lateralis)*, the isopod *Cyathura polita*, and the cumacean (*Oxyurostylis smithiiz*) (LMS 1996).

Newark Bay is designated as "SE3" (N.J.A.C. 7:9B), indicating saline waters of estuaries. In all SE3 waters the designated uses are: (1) Secondary contact recreation; (2) Maintenance and migration of fish populations; (3) Migration of diadromous fish; (4) Maintenance of wildlife; and (5) Any other reasonable uses. The Draft 2018/2020 New Jersey Integrated Water Quality Assessment Report indicates that only 5 of the 19 water monitoring stations in Newark Bay fully supported general aquatic life use criteria. High nutrients, total phosphorus, and impairments associated with nutrient over-enrichment are the common cause of aquatic life impairments.

Water quality parameters of temperature, salinity and dissolved oxygen vary considerably within Newark Bay across the seasons. These variations reflect typical meteorological and hydrological conditions in Newark Bay and the waters that flow into it (Arthur Kill, Kill van Kull, Hackensack and Passaic rivers).

Annual low water temperatures of around 2° C occur in late December/January, and seasonally high temperatures up to 24° C occur June through August (USACE 1997). Salinity ranges from around 3 parts per thousand (ppt) to 21 ppt over the year, with salinities greater than 12ppt spring through fall and lower salinities in winter. Dissolved oxygen values in the summer are relatively low at 4 to 7 mg/L, with highs of 10 to 14 mg/L in the winter months.

Newark Bay is an Operable Unit (OU3) of the Diamond Alkali Superfund site. The historic manufacture of herbicides at a facility along the Lower Passaic River, upstream from Newark Bay, resulted in considerable contamination of area sediments by a variety of toxic substances including DDT and dioxin. The Newark Bay Study Area of the Diamond Alkali Superfund site includes Newark Bay and portions of the Hackensack River, Arthur Kill and Kill van Kull. As a result of this contamination, the state of New Jersey prohibits consuming shellfish and recommends very limited consumption of fish from Newark Bay (NJDEP/NJDOH, 2021). Newark Bay has not undergone Superfund remediation as of 2022.

2.2 Project Description

The New Jersey Turnpike Authority (Authority) proposes a modernization of the Newark Bay-Hudson County Extension (NB-HCE) between Interchange 14 in Newark, Essex County, and Interchange 14A in Bayonne and Jersey City, Hudson County, to meet current and future needs of patrons of the NB-HCE, current design standards, and the Authority's operational and maintenance needs (the Proposed Project). A major element of the Proposed Project is the replacement of the NBB, officially, the Vincent R. Casciano Memorial Bridge, which comprises nearly half of the total length of the NB-HCE between Interchanges 14 and 14A.

The new bridge piers will be constructed by the drilled shaft method. These piers will be accessed via a temporary construction trestle extending out from each shore to the new main span pier locations just outside of the navigation channel. The temporary access trestle for the new westbound bridge would be supported by 36" diameter steel pipe piles and is expected to be in place for a period of two years. Once the westbound bridge is completed, the existing NBB would be demolished, with all of the piers within Newark Bay removed to two feet below the mudline in accordance with Authority practice, except for the two main span piers which would remain to support the fendering system for the new bridges. Following demolition of the NBB, another temporary trestle would be constructed out from each shore to the new main span pier locations to support construction of the eastbound span within the footprint of the existing NBB and would be in place for a period of two years. Based on historic boring data, trestle pipe piles would be driven down about 40 feet with a vibratory hammer and then driven an additional 20 to 40 feet with an impact hammer. For in-water installation of the trestle piles, a larger 60" diameter 60" diameter casing will be set to the mudline and equipped with air compressor lines at the bottom of the casing which will create air bubbles in the annular space between pipe pile and casing to reduce underwater noise transmission during pile driving.

The drilled shafts for the bridge piers would likely be advanced in-water with turbidity barriers used to minimize sediment resuspension and reduce impacts to the aquatic community. Turbidity barriers would minimize disturbances but would not contain 100 percent of suspended sediments and would be susceptible to changing water conditions, such as wave action, wind seiches, and turbulent tidal currents. Bridge pier construction would then take place within steel sheetpile cofferdams. Demolition of the existing NBB bridge piers would also occur within sheetpile cofferdams. Following completion of bridge construction and demolition, cofferdams and trestle piles would be removed by vibratory extraction. All of this in-water construction activity requires considerable use of spud barges, tugboats and other support vessel types over a period of four years. The installation and removal of steel pipe piles and steel sheetpiles and associated spud barge mooring and tugboat propeller wash in the relatively shallow waters of Newark Bay will disturb bottom sediments and cause temporary increases in suspended sediment in the construction area.

Except for the construction of the temporary construction trestles and the drilled shafts, all in-water construction, and demolition would take place within cofferdams in order to minimize impacts to the aquatic community. Since sediments in the project area are composed of sand and silt, pilings and sheetpile cofferdams would be installed using vibratory hammers instead of impact hammers, thereby reducing potentially harmful noise generation. Turbidity barriers and/or bubble curtains are assumed to be required to protect the aquatic community from sediment resuspension during sheetpile driving. Following completion of bridge construction and demolition, cofferdams and trestle piles would be removed by vibratory extraction.

3 EFH Designations

EFH is defined under the MSFCMA, as amended by the SFA of 1996, as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The SFA requires that EFH be identified for those species actively managed under Federal Fishery Management Plans (FMPs). This includes species managed by the eight regional Fishery Management Councils (FMCs), established under the MSFCMA, as well as those managed by the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) under FMPs developed by the Secretary of Commerce.

EFH includes both the water column (including its physical, chemical, and biological growth properties) and the underlying substrate (including sediment, hard bottom, and other submerged structures). Under the EFH definition, necessary habitat is that which is required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. EFH is designated for a species' complete life cycle, including spawning, feeding, and growth to maturity, and may be specific for each life stage (e.g., eggs, larvae). EFH designations are based on various levels of information available for a species life stage distribution, abundance, and habitat-productivity relationships.

A summary of EFH-designated species in the project area is provided in Table 1. This information was obtained from the Essential Fish Habitat Mapper | NOAA Fisheries. This tool allows users to generate a report with supporting documentation describing where managed fish species spawn, grow, or live in a chosen location. The EFH Mapper Report generated for this project is attached as Appendix F-2.

EFH that is judged to be particularly important to the long-term productivity of populations of one or more managed species, or to be particularly vulnerable to degradation, may also be identified by Fisheries Management Councils (FMC) and NOAA Fisheries as habitat areas of particular concern (HAPC). Areas of EFH considered HAPC must be proven by NOAA Fisheries Service to be important to the ecological function provided by the habitat for managed species. The extent to which the habitat is sensitive to human-induced environmental degradation, including development activities that stress the habitat and the rarity of the habitat, are considered in designating HAPC (NMFS, 2003).

In the project area, the only managed species for which HAPC has been identified is summer flounder. NOAA Fisheries identifies HAPC for juvenile and adult summer flounder across its entire range as "all native species of macro-algae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH." Seagrasses are not present in Newark Bay, however, macroalgae occurs in shallow areas where hard substrate is present, and *Spartina alterniflora* marshes are present along the western shore in close proximity to the NBB. Therefore, HAPC for summer flounder is present in the vicinity of the proposed project.

Table 1. Summary of EFH-Designated Species in the Newark Bay Bridge Area.

Species	Eggs	Larvae	Juveniles	Adults
Winter flounder (*Pleuronectes americanus*)	X	X	X	X
Little skate (*Raja erinacea*)			X	X
Atlantic herring (*Clupea harengus*)		X	X	X
Red hake (*Urophycis tenuis*)	X	X	X	X
Windowpane flounder (*Scopthalmus aquosus*)	X	X	X	X
Winter skate (*Raja ocellata*)			X	X
Clearnose skate (*Raja eglanteria*)			X	X
Longfin inshore squid (*Doryteuthis pealeii*)	X			
Bluefish (*Pomatomus saltatrix*)			X	X
Atlantic butterfish (*Peprilus triacanthus*)		X		
Summer flounder (*Paralicthys dentatus*)		X	X	X

4 Potential Impacts to EFH-Designated Species

The EFH Assessment addresses the potential temporary and permanent impacts on individual species and their respective habitats. The species addressed include the 11 EFH-designated species which may occur in the project area (Table 1).

4.1 Potential Project Impacts

The EFH Assessment for the identified species is based on the potential impacts resulting from habitat alteration and/or loss due to bridge construction and demolition activities. The potential project impacts are evaluated on the basis of short-term and long-term effects on each of the EFH designated species, as they may occur temporarily during construction or permanently due to changes in turbidity, hydrodynamic patterns, loss of intertidal and subtidal habitats, noise and vibrations, loss of salt marsh wetlands, and a temporary loss of habitat from equipment and cofferdams.

Short-term effects on EFH resulting from the proposed action include: displacement of fish from available water column habitat in Newark Bay due to avoidance of areas of hydrological disturbance, noise and vibrations caused by construction; increased turbidity and levels of resuspended solids and contaminants, and temporary sediment disturbance and associated loss of the benthic community within cofferdams. Long-term effects on habitat include effects due with construction activities in Newark Bay and include: alteration of substrate types and benthic habitats; changes in water depth, hydrodynamics, and sedimentation rates; and permanent loss of water column and benthic habitats resulting from new bridge piers.

The National Marine Fisheries Service and Federal Highway Administration have developed Best Management Practices (BMPs) for in-water work (NMFS/FHWA 2018). These BMPs include time of year (TOY) restrictions for each state in the greater Atlantic region so that in-water work (i.e., turbidity producing activities) may be avoided during sensitive life stages of managed species (Table 2). These standard TOY restrictions consider the breeding, nursery, and migration stages of species which are especially vulnerable to in-water silt-producing activities, noise impacts, or activities which may encroach greater than 25% into a waterway interfering with migration.

Table 2. Time of Year Restrictions for New Jersey.

Species/Group	Time of Year Restriction
Winter Flounder	January 1 to May 31
Diadromous Fish	March 1 to June 30 and September 1 to November 30*
Submerged Aquatic Vegetation	April 15 to September 30
Overwintering Blue Crab and Striped Bass	November 15 to April 15

*Use the fall TOY restriction in cases where an action will substantially block the waterway in the fall.

4.2 Description of Data Sources

Previous biological investigations have characterized the seasonal distribution and composition of the fish community in various habitats and areas of NY/NJ Harbor, including Newark Bay. Several fish sampling studies have been conducted in the general vicinity of the proposed project area.

The U.S. Army Corps of Engineers, New York District (USACE-NYD) surveyed seasonal use patterns and distribution trends of finfish in NY/NJ Harbor from October 1998 through September 1999 (USACE 1999). Three stations were located within navigation channels within Newark Bay. Sampling was conducted bi-monthly using a 30 foot Wilcox flat bottom trawl and ichthyoplankton tows were made using a 0.5 meter net with 500 micron mesh netting mounted in a benthic sled. USACE (2002) provided supplemental data to the 1998-1999 surveys to obtain additional information on the distribution patterns of the egg and larval stages of demersal species with emphasis on winter flounder. Sampling was conducted from December 2000 through June 2001. During this program, three stations were located within navigational channels and three were located within shoal areas in Newark Bay. USACE (2003, 2004, 2005, 2006) documents the continuation of the USACE's monthly trawl and ichthyoplankton sampling program from December 2001 through July 2005.

During 1995-1996, The Port Authority of New York/New Jersey (PANY/NJ) conducted a fisheries sampling program in support of the Newark Bay Confined Disposal Facility Environmental Impact Statement. Monthly surveys, using a 30 foot Wilcox flat bottom trawl were conducted at four shallow water stations in Newark Bay, two channel stations in the Arthur Kill, and one in the Kill Van Kull (LMS, 1996).

USACE-NYD (2012) prepared a summary report focused on juvenile and adult spawning winter flounder occurrence and EFH utilization within the Harbor incorporating data collected as part of the Aquatic Biological Survey bottom trawl program (2002 – 2010) by the USACE-NYD during the Harbor Deepening Project. Six stations were located in channel and non-channel locations within Newark Bay.

The 2006 and 2011-2013 Migratory Finfish Surveys were conducted as part of the New York and New Jersey Harbor Deepening Project, a USACE-NYD and PANYNJ sponsored project to deepen navigation channels to 50 feet to accommodate larger commercial vessels. Six stations were located in channel and non-channel locations within Newark Bay.

The surveys described above were used to prepare a composite summary of the expected seasonal occurrence of EFH-designated species in the Newark Bay area (Tables 3 and 4). The data presented in this assessment were summarized and consolidated from the above mentioned sampling programs. The data are presented for the purpose of identifying general trends in species occurrence and relative abundance within the vicinity of the proposed project site.

Table 3. Ichthyoplankton Catch of EFH-Designated Species in Newark Bay 1999 to 2006.

EFH-Designated Species	Early Life Stage	1999	2000	2001	2002	2003	2004	2005	2006
Winter flounder	Egg	15			6	1	1	4	
	Larvae	34		230	537	626	721	198	97
	Juvenile					2		1	
Atlantic herring	Larvae	6		5		9	8		2
	Juvenile						1		
Windowpane flounder	Egg			396	551	77	256	13	
	Larvae	35		21	10	6	4	37	5
	Juvenile			1	1	3			
Atlantic butterfish	Larvae				1				
Summer flounder	Larvae		6	6	1				

Sources: USACE 2003, 2004, 2005, and 2006.

Table 4. EFH-Designated Species Monthly Finfish Catch Data from Newark Bay Fish Community Studies 1993-2013.

EFH-Designated Species	Average Percent Composition of Monthly Finfish Catch Data												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
Winter flounder	3.2	2.6	5.8	5.4	0.8	3.5	4.2	1.7	0.9	2.1	7.1	7.4	3.72
Little skate	*0.0*	*0.0*	*0.0*	0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	0.0	*0.0*	0.01
Atlantic herring	0.0	*0.0*	0.0	6.7	39.4	10.4	*0.0*	*0.0*	*0.0*	0.0	0.3	0.1	4.75
Red hake	0.7	0.2	0.2	0.4	0.5	0.6	0.3	*0.0*	*0.0*	*0.0*	*0.0*	0.5	0.25
Windowpane flounder	0.4	0.4	0.1	0.5	0.1	0.2	0.0	0.8	0.0	0.3	0.4	0.3	0.25
Winter skate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Clearnose skate	*0.0*	0.0	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	0.00
Bluefish	*0.0*	*0.0*	*0.0*	*0.0*	0.1	0.5	0.1	0.2	1.7	1.0	*0.0*	*0.0*	0.29

EFH-Designated Species	Average Percent Composition of Monthly Finfish Catch Data												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
Atlantic butterfish	0.0	*0.0*	*0.0*	*0.0*	0.1	0.1	0.3	0.6	0.8	1.0	0.1	0.0	0.26
Summer flounder	*0.0*	*0.0*	*0.0*	0.2	0.5	1.6	2.0	0.3	0.2	0.1	*0.0*	*0.0*	0.42

Italicized numbers indicate none of this species were caught in this month across the survey period.
Sources: LMS 1996; NOAA 1994; USACE 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2013.

4.3 EFH-Designated Species Assessment

Of the eleven species for which EFH has been designated in the Newark Bay area, early life stages (eggs, larvae and juveniles) of five species (winter flounder, Atlantic herring, windowpane flounder, Atlantic butterfish and summer flounder) have been collected there (LMS, 1996; USACE 1999, 2002, 2003, 2003b, 2004, 2005, 2006) (Table 3). The presence of winter flounder and windowpane flounder eggs suggests possible spawning near the project area. Juveniles and/or adults of ten EFH-designated species (winter flounder, little skate, Atlantic herring, red hake, windowpane flounder, clearnose skate, bluefish, Atlantic butterfish, and summer flounder) have been caught in the project area during the various fish community studies performed in Newark Bay and the USACE's winter flounder and migratory finfish surveys conducted for the New York/New Jersey Harbor Deepening Program (USACE 1999, 2002, 2003, 2003b, 2004, 2005, 2006, 2012, 2015)(Table 4).

4.3.1 Winter Flounder

Newark Bay is designated as EFH for all life stages of winter flounder. Winter flounder is a commercially and recreationally important species that resides in NY/NJ Harbor waters. Spawning occurs between February and April in estuaries and bays of the Mid-Atlantic Bight, including NY/NJ Harbor. Adults spawn in late winter through spring, at water temperatures below 15°C, at salinity between 10 - 32 ppt over sand, mud and gravel substrate (< 6 meters deep) (Pereira et al. 1999). Winter flounder eggs are demersal, adhesive, and stick together in clusters. Eggs are typically found in water with temperatures less than 10°C and depths less than 5 meters over sand, muddy sand, mud, and gravel substrates. These substrates may provide EFH for winter flounder spawning adults, eggs, and larvae throughout the estuarine and marine portions of the NY/NJ Harbor. Larvae are non-buoyant and have a strong benthic orientation, often resting on the bottom between swimming efforts (Pearcy 1962). Winter flounder larvae prefer water temperatures less than 15°C, depths less than 6 meters, and a salinity range of 4 to 40 ppt. Juvenile winter flounder use habitats from 1 to 50 meters, at water temperatures below 25°C and at salinity between 10-33 ppt. During summer months, winter flounder adults reside in nearshore coastal waters, with the distance offshore dependent upon water temperature, i.e., the warmer the water temperature the further offshore adults move. Winter flounder adults are typically found on mud, sand, and gravel substrates, at water temperatures below 25°C, salinity between 15-33 ppt, and water depths between 1-100 meters.

Prey items for larval winter flounder include copepod nauplii, small polychaetes and invertebrate eggs (Pereira et al. 1999). Juvenile and adult winter flounder are opportunistic feeders, consuming mostly invertebrates (e.g., amphipods, bivalve siphons, polychaetes, anthozoans), and on rare occasions, small fishes.

Winter flounder adults and juveniles were collected during the PANY/NJ's 1995-1996 Newark Bay trawl survey from April through November, accounting for 2.5% of the total number of fish collected (LMS, 1996). Winter flounder eggs, larvae and juveniles were caught during ichthyoplankton studies performed in Newark Bay from 1999-2006, with larvae being the most abundant life stage caught (USACE 2003, 2004, 2005, 2006). Winter flounder larvae dominated ichthyoplankton connections from the Arthur Kill/Newark Bay area during February-March USACE (2003). Bottom trawl sampling from 2002 to 2010 in the NY/NJ harbor from the winter to early summer revealed winter flounder habitat use varied by size/age class (USACE 2012). Year-1

juvenile densities were significantly higher in the Arthur Kill/Newark Bay area and adult densities were significantly lower in this area compared to the Lower Bay and Upper Bay areas. Year-1 juveniles were most commonly collected in the early months of sampling (January to March) in the Arthur Kill/Newark Bay area. Ripe individuals were collected in February and March and spent individuals were collected thereafter.

Juvenile and adult winter flounder were caught during every month of the year during the various Newark Bay fish community studies from 1993 to 2013, accounting for 3.7% of the overall catch. Adult collections were highest in March and April.

Potential Project Effects on Winter Flounder EFH

All winter flounder life stages are expected to occur within the NBB area. Potential impacts to winter flounder EFH include temporary loss of approximately 15.823 acres of the intertidal and subtidal water column and bay bottom, which includes 1.532 acres from cofferdams around new bridge piers and fenders, 1.141 acres from cofferdams for existing bridge pier and fender removal, 12.529 acres from the construction trestle, and 0.621 acres from construction access and staging. During construction, these temporary impacts would displace all life stages of winter flounder from habitat required for spawning, foraging and growth to maturity. Increases in turbidity caused by spud barges, vessel propeller wash and scouring around cofferdams and trestle piles would disturb additional habitat and may cause burial of winter flounder eggs and newly- metamorphosed larvae through sediment deposition. Impacts also include disturbance and loss of the benthic and pelagic habitats of winter flounder prey organisms. Temporary loss or relocation of benthic prey species will cause winter flounder to move to other feeding habitats within the harbor. These impacts will be limited to the duration of the construction operations except for the area of permanent fill. Juveniles and adults that frequent the project area will actively avoid in-water construction, opting for other suitable habitat within the general vicinity of the project area.

The new bridge piers footings and fenders, and permanent access underneath the bridge structure for maintenance, inspections and security would result in the permanent fill of tidal waters in Newark Bay totaling approximately 5.853 acres (including 3.808 acres of tidal wetland fill). The removal of the existing NBB piers, except for the main span piers that would remain, would result in the gain of 0.817 acres of tidal open waters, and 0.034 acres of tidal wetlands, for a net permanent loss of 5.002 acres of intertidal and subtidal bay bottom. Adopting the NMFS/FHWA time of year restrictions for winter flounder and diadromous species (i.e., placement and removal of cofferdams and trestle piers between July 1 and December 31) would allow construction and demolition work to proceed year-round and would be protective of the sensitive early life stages of winter flounder. Potential long-term impacts may include minor alterations to local bathymetry and hydrodynamics in the area of the new bridge, but this area would still provide suitable depth and habitat substrate types for winter flounder.

Benthic invertebrate communities are expected to recolonize impacted areas following cessation of construction activities (Newell et al. 1998). Areas of temporary and permanent impacts resulting from bridge demolition and construction is a small fraction of the total benthic habitat available in Newark Bay. Impacts to winter flounder EFH from the project are expected to be primarily short-term and largely avoidable through the use of time of year restrictions and cofferdams for in-water work.

4.3.2 Little Skate

Newark Bay is designated as EFH for juvenile and adult stages of little skate (Attachment F-2). This species is typically found on sand or gravel bottoms but has also been reported from mud (Packer et al. 2003b). Little skates generally remain buried in depressions during the day and are more active at night. Juvenile and adult little skates can be found from shallow waters to 110 m in the Mid-Atlantic Bight. The temperature range of little skate is generally 1-21°C, although most are found between 2-15°C. Little skate can tolerate salinity ranges as low as 15-20 ppt but their preferred range is usually 29-33 ppt.

Little skate do not appear to migrate extensively, but they do move to shallow water during the summer and to deep water in fall or early winter. Little skate prey includes small fish, decapod crustaceans, amphipods and polychaetes (Packer et al. 2003b). Only two little skates were caught during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.01% of the overall catch.

Potential Project Effects on Little Skate EFH

Little skates prefer waters of relatively high salinity and relatively coarse substrates, so it is unlikely that this species will occur in the NBB project area. Potential impacts to little skate EFH could result from disturbance of benthic habitat and prey species. Little skates, if present, may avoid the area to forage in undisturbed habitat. These impacts would be temporary and limited to the area of bottom disturbance. Given the limited extent of the impact area and the relatively low likelihood of this species to be present in Newark Bay, impacts to little skate EFH from the proposed project are expected to be negligible.

4.3.3 Atlantic Herring

EFH for larval, juvenile, and adult stages of Atlantic herring has been designated in Newark Bay (Attachment F-2). Atlantic herring eggs are demersal, stick to the seabed or algae on the ocean floor, and hatch in 10 to 15 days (Reid et al. 1998). Atlantic herring larvae are pelagic and occur throughout the mid-Atlantic Bight at water temperatures below 16 °C, depths from 50 - 90 meters and salinities around 32 ppt. Juveniles and adults occur in schools in temperatures below 10°C at depths from 15 - 135 meters and at salinities from 26 - 32 ppt and above 28 ppt, respectively. Atlantic herring are primarily pelagic but may also be found in shallow, nearshore areas. Atlantic herring juveniles and adults of the George's Bank stock use the New York Bight as a wintering area between December and April, when they may occur in the Newark Bay area (Anthony 1982).

Small numbers of Atlantic herring larvae and one juvenile were caught during ichthyoplankton studies performed in Newark Bay from 1999-2006 and were most commonly collected during February and March (USACE 2003, 2004, 2005, 2006). Juvenile Atlantic herring was the third most caught fish in mid-water trawls in Newark Bay in the spring months but was uncommon or absent in summer or fall (USACE 2015). Overall, Atlantic herring comprised nearly five percent of the catch of the various Newark Bay fish community studies from 1993 to 2013.

Potential Project Effects on Atlantic Herring EFH

Atlantic herring is a schooling pelagic species, not generally associated with bottom habitats or nearshore areas. Atlantic herring larvae and juveniles may be seasonally present in the project area, although larvae prefer deeper water and higher salinities than occur in Newark Bay. Juveniles and adults also prefer deep, cool waters of high salinity. If present in the project area, short-term increases in turbidity caused by construction and demolition activities are not likely to affect this pelagic species. Potential impacts on Atlantic herring EFH from the proposed project are expected to be negligible.

4.3.4 Red Hake

Newark Bay is designated as EFH for egg, larval, juvenile and adult stages of red hake (Attachment F-2). Red hake make seasonal migrations in response to changing water temperatures, inhabiting shallow water in the spring and summer but moving to deep offshore water to over-winter. Eggs and larvae are pelagic and tend to be restricted to deeper marine areas over the inner continental shelf (Able and Fahay, 1998). Red hake eggs are typically found in surface waters with temperature less than 10°C and salinity less than 25 ppt while larvae are typically found in surface waters with temperatures below 19°C, depths less than 200 meters, and salinities greater than 0.5 ppt. Eggs and larvae are most often found throughout the mid-Atlantic Bight from May through December, and peak abundance is during June and October (Wilk et al. 1990). Larval red hake typically feed on copepods (Steimle et al. 1999).

Juveniles are pelagic until they reach approximately 25 mm total length (TL) or greater, at which time they become demersal, seeking shelter along the continental shelf bottom within depressions in the sediment or among live sea scallop beds (Steimle et al. 1999). Juveniles also may associate with other forms of shelter, including debris and artificial reefs (Steimle et al. 1999). Juveniles are typically found on shell substrates with water temperatures below 16°C, depths of less than 100 meters, and a salinity range of 31 to 33 ppt. Juveniles remain associated with sea scallop beds through their first fall and winter (until approximately 90-116 mm in length), and then occupy either estuarine or inshore marine waters over sand or mud substrate, prior to joining adults in the offshore migration during their second winter. Juvenile red hake typically feed on benthic and pelagic crustaceans such as decapod shrimp, mysids, euphausiids and amphipods (Steimle et al. 1999). Adult red hake are common on soft sediments and are usually found in depressions in soft sediments or shell beds. Adults occur in the Hudson-Raritan estuary during cooler seasons but are not abundant. Adult red hake are usually found at a salinity range of 20-33 ppt and DO concentrations greater than 6 mg/L in the Hudson-Raritan estuary (Steimle et al. 1999).

No red hake eggs or larvae were collected in Newark Bay during the USACE's ichthyoplankton sampling programs. Small numbers of juvenile red hake were caught from the months of December through July during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.25% of the overall catch. Two juvenile red hake were caught in mid-water trawls targeting pelagic species in Newark Bay (USACE 2015).

Potential Project Effects on Red Hake EFH

Red hake may be present within Newark Bay however, the frequency of their occurrence would be limited by water quality and habitat preferences. Because red hake eggs and larvae are pelagic and tend to be primarily occur in areas east and north of the Hudson River (Able and Fahay, 1998), impacts to EFH of these life stages from the project are not anticipated. The shelly substrate preferred by juveniles for shelter is lacking in the project area. Juveniles and adults are only likely to occur in the project area in low abundance and only during the colder months. Potential impacts to juvenile and adult EFH would be limited to disturbance of bottom habitat during construction and demolition activities. These activities would cause sediment resuspension, indirectly affecting red hake through a temporary loss of foraging habitat and benthic prey species. Any potential impact would be limited to winter and spring, when juveniles and adults are more likely to occur in the inshore waters of the Hudson-Raritan estuary. Because few red hake have been collected near the project area and no eggs or larval red hake have been reported, the proposed bridge construction and demolition is expected to have a negligible impact on EFH of this species.

4.3.5 Windowpane Flounder

Newark Bay is designated as EFH for all life stages of windowpane flounder (Attachment F-2). Windowpane flounder occur at all depths in estuaries of the Mid-Atlantic Bight, including the NY/NJ Harbor, with juveniles and adults seasonally most abundant in deeper channels occurring over mud or fine-grained sand (Chang et al. 1999). Spawning adults, eggs, and larvae are often observed from February to December, with a spring spawning event (peak in May) in the polyhaline portion of estuaries and a fall-spawning event (peak in October) in offshore waters of the continental shelf. Eggs and larvae are concentrated in the mid to upper water column, and juveniles and adults prefer bottom habitats of mud or fine-grained sand. Larvae are pelagic, settling to the bottom at approximately 10-20 mm TL, and occur in the brackish portion of the estuary, primarily in spring (Able and Fahay, 1998). Juveniles, adults and spawning adults are typically found on bottom habitats with water temperatures below 21°C, salinity between 5-36 ppt and water depths between 1-75 meters. Eggs and larvae are respectively found in surface and pelagic waters with temperatures below 20°C.

Windowpane flounder eggs, larvae and juveniles were caught during ichthyoplankton studies performed in Newark Bay from 1999-2006, with eggs being the most abundant life stage caught (USACE 2003, 2004, 2005, 2006). Small numbers of juvenile and adult windowpane flounder were caught in every month of the year during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.25% of the overall

catch. Five juvenile windowpane flounder were caught in mid-water trawls targeting pelagic species in Newark Bay (USACE 2015).

Potential Project Effects on Windowpane Flounder EFH

All windowpane flounder life stages are expected to occur within Newark Bay. Potential impacts to windowpane flounder EFH include the temporary loss of spawning and nursery habitat during the spring-spawning season from increased turbidity and displacement from cofferdam areas. As windowpane eggs and larvae are pelagic, they would not be expected to remain in the project area for very long. No significant impact to spawning habitat is expected because this species typically spawns in deeper areas of the Hudson-Raritan estuary such as the Lower Bay. Impacts to windowpane flounder juvenile and adult EFH include temporary foraging habitat loss and impaired sight-feeding resulting from turbidity and sedimentation increases due to cofferdam and trestle pile installation and removal, barge spuds and vessel propeller wash, though a significant portion of windowpane flounder's prey is pelagic and would be less affected. Windowpane flounder are highly mobile and would likely move to undisturbed areas during construction activities. Natural sedimentation and subsequent recolonization by benthic invertebrates and other prey are expected to occur within a year following bridge construction. Juveniles and adults would also permanently lose access to around 5.002 acres of intertidal and subtidal bay bottom. However, the area of impact is relatively small compared to the available intertidal and subtidal habitat in Newark Bay. Adopting the NMFS/FHWA time of year restrictions for winter flounder and diadromous species (i.e., placement and removal of cofferdams and trestle piers between July 1 and December 31) would allow construction and demolition work to proceed year-round and would be protective of the windowpane flounder spring spawning period. Impacts to windowpane flounder EFH from the proposed project are expected to be primarily temporary and minor.

4.3.6 Winter Skate

Newark Bay is designated as EFH for juvenile and adult winter skate (Attachment F-2). This species is typically found on sand or gravel bottoms, but has also been reported on mud bottoms (Packer et al. 2003a). Winter skates remain buried in depressions during the day and are more active at night. Winter skates can be found from shallow waters to 371 m in the Mid-Atlantic Bight, but are more abundant at depths less than 110 m. The temperature range of winter skate is generally -1 to 19°C. Winter skate can tolerate salinity ranges between 20-35 ppt but their preferred range is usually 23-32 ppt. Winter skates do not migrate extensively; however, they tend to be less abundant in the NY/NJ Harbor during summer months. Winter skate typically prey upon polychaetes, amphipods, decapods, isopods, bivalves and smaller fish such as alewives, blueback herring and butterfish (Packer et al. 2003a). Winter skate was not caught during the various Newark Bay fish community studies from 1993 to 2013.

Potential Project Effects on Winter Skate EFH

Winter skate prefer waters of relatively high salinity, so it is unlikely that this species will occur in the project area. Potential indirect impacts to winter skate EFH could result from disturbance of benthic habitat and prey species. Winter skates, if present, may avoid the area to forage in undisturbed habitat. These indirect impacts would be temporary and limited to the area of bottom disturbance. Given the limited extent of the impact area and the relatively low likelihood of winter skates to be present in Newark Bay, impacts to winter skate EFH from the proposed project are expected to be negligible.

4.3.7 Clearnose Skate

Newark Bay has been designated as EFH for juvenile and adult clearnose skate (Attachment F-2). Clearnose skates prefer soft bottom habitats, but can also be found on rocky or gravelly bottoms. Juveniles and adults are most abundant inshore in the summer months and less abundant in the cooler months of autumn, winter and spring. Bigelow and Schroeder (1953) reported clearnose skate occurring off New Jersey and New York from late April to November. In the Hudson Raritan Estuary, juveniles mostly occur at depths of 5 to 7 meters,

temperatures between 13 and 24°C, and salinities ranging from 21 to 31 ppt (Packer et al. 2003). Adults in the estuary mostly occur at depths of 5 to 8 meters, temperatures between 9 and 24°C, and salinities ranging from 25 to 30 ppt. Common prey items include polychaetes, amphipods, mysid shrimp, crab and fish including butterfish, scup (*Stenotomus chrysops*) and weakfish (*Cynoscion regalis*) (Bowman et al. 2000). Only one clearnose skate was caught during the various Newark Bay fish community studies from 1993 to 2013.

Potential Project Effects on Clearnose Skate EFH

Since clearnose skate prefer waters of relatively high salinity, it is unlikely that this species will occur in the project area. The average salinity of the project area is well below the preferred salinity range of this species in the Hudson Raritan Estuary. Clearnose skates, if present, may avoid the area to forage in undisturbed habitat during construction and demolition activities. Given the limited extent of the impact area and the relatively low likelihood of this species to be present in Newark Bay, impacts to clearnose skate EFH from the proposed project are expected to be negligible.

4.3.8 Longfin Inshore Squid

EFH has been designated for eggs of the longfin inshore squid in Newark Bay (Attachment F-2). The longfin inshore squid is a schooling molluscan species distributed in continental shelf and slope waters from Newfoundland to the Gulf of Venezuela and occurs in commercial abundance from southern Georges Bank to Cape Hatteras (Jacobson, 2005). Longfin inshore squid migrate offshore during late autumn and overwinter in warmer waters along the edge of the continental shelf, returning inshore during the spring and early summer. Spawning has been reported from late spring to early summer in the Middle Atlantic. Egg masses are commonly found attached to rocks and small boulders on sandy/muddy bottom and on aquatic vegetation, such as Fucus spp., *Ulva lactuca*, *Laminaria* spp. and *Porphyra* spp. The eggs are demersal, are generally laid in waters < 50 m and are found at temperatures of 10-23° C and salinities of 30-32 ppt Development time varies from 10 to 27 days, depending on water temperature. The larvae are pelagic near the surface and occur at temperatures of 10-26° C and salinities of 31.5-34.0 ppt.

One longfin inshore squid was caught in Newark Bay in a navigational channel in July 1993 during a USACE trawl survey (USACE 1997). Ichthyoplankton studies within Newark Bay have not caught the planktonic larval stage of this species.

Potential Project Effects on Longfin Inshore Squid EFH

The seaweeds *Fucus* spp., and *Ulva lactuca* occur in areas of hard substrate (riprap, bulkheads, debris) within Newark Bay and may provide habitat for egg mass attachment, however substrates in the NBB area are silt-sand dominant. The bridge piers themselves may support the appropriate aquatic vegetation for eggs, so bridge construction and demolition may potentially result in a temporary loss of egg habitat. However, the typical salinity ranges in Newark Bay are below 30 ppt, whereas the salinity ranges described in the EFH Source Document (Jacobson, 2005) for longfin inshore squid eggs and larvae are above 30ppt. Any impacts to longfin inshore squid from the project are expected to be negligible.

4.3.9 Bluefish

Newark Bay is designated as EFH for juvenile and adult stages of bluefish (Attachment F-2). Juveniles are pelagic, using estuaries as nursery areas, and can be found over sand, mud, silt, or clay substrates (Fahay et al. 1999). Juveniles typically inhabit estuaries from May to October, preferring temperatures between 19-24°C, and salinities between 23-36 ppt. Juveniles have been reported to intrude into waters with salinities as low as 3 ppt. Juvenile bluefish prey upon polychates, shrimp, and forage fish including bay anchovy, menhaden, and river herring.

Adults travel in pelagic schools and are generally not associated with bottom habitats. They prefer temperatures between 18-22 °C, and salinity above 25 ppt. Adults are highly migratory and seasonally occur in NY/NJ Harbor from April to October. Bluefish adults generally migrate in warm waters, moving north to the New York Bight and southern New England during the spring and summer and to the South Atlantic Bight and/or offshore during the fall and winter (Shepherd and Packer 2006). Adults feed on a wide variety of available forage fish, such as bay anchovy, menhaden and river herring (alewife and blueback herring).

Small numbers of bluefish were caught from May through October during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.29% of the overall catch, however as bluefish are pelagic, bottom trawling is not an effective means of sampling for this species. Bluefish was the sixteenth most common fish caught in USACE mid-water trawls in Newark Bay in the spring months, moving up to sixth most common fish caught in the summer and fall months (USACE 2015).

Potential Project Effects on Bluefish EFH

Relatively low abundance of bluefish in Newark Bay bottom trawl surveys is indicative of the pelagic lifestyle of this species. The seasonal occurrence and pelagic behavior of bluefish and their prey greatly limits bridge construction and demolition impacts on EFH. Adopting the NMFS/FHWA time of year restrictions for winter flounder and diadromous species (i.e., placement and removal of cofferdams and trestle piers between July 1 and December 31) would allow construction and demolition work to proceed year-round and would be protective of migrating river herring which are important forage species for juvenile and adult bluefish. Impacts on bluefish EFH from the proposed project are expected to be negligible.

4.3.10 Atlantic Butterfish

Newark Bay is designated as EFH for larval Atlantic butterfish (Attachment F-2). Butterfish range from Nova Scotia to Florida along the Atlantic coast and are euryhaline (5-32 ppt) and eurythermal (4-21°C) (Cross et al. 1999). Butterfish migrate seasonally between offshore waters in the southern part of their range during winter and coastal waters in the northern part of their range during the summer. Spawning occurs primarily over continental shelf waters in the Mid Atlantic Bight between May and October, although some eggs and larvae have been collected in coastal and estuarine waters (Able and Fahay, 1998).

Larvae are typically found at temperatures between 9-19 °C, depths greater than 10 meters, and salinity ranging between 6-37 ppt. Juveniles and adults are typically found over sandy and muddy substrates at temperatures between 3-28 °C, depths greater than 10 meters, and salinity ranging between 4-26 ppt.

Larval, juvenile, and adult butterfish are pelagic, occurring in the Hudson-Raritan estuary during warmer summer months in both shallow and deeper bay waters. Juveniles form loose schools often near the surface, and are found over a range of sand, mud and mixed fine grain substrates. During the summer, butterfish have been reported over shallow flats, in sheltered bays, estuaries, and the surf zone. Larger juveniles and adults may congregate near the bottom during the day and move upward at night. Prey species include small fishes and crustaceans such as copepods, amphipods, decapods and polychaetes (Cross et al. 1999).

Only one butterfish larva was caught during ichthyoplankton studies performed in Newark Bay from 1999-2006 (USACE 2003, 2004, 2005, 2006). Small numbers of butterfish were caught from May through December during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.26% of the overall catch, however as butterfish are pelagic, bottom trawling is not an effective means of sampling for this species. Juvenile and adult Atlantic butterfish was the ninth most common fish caught in mid-water trawls in Newark Bay in the spring months, moving up to the second most common fish caught in the summer months and moving down to tenth most common fish caught in the fall (USACE 2015).

Potential Project Effects on Atlantic Butterfish EFH

Water temperature and salinity ranges in Newark Bay are within the ranges preferred by larval Atlantic butterfish, however most of the bay is shallower than the 10+ meter depth preference of this life stage. Larvae have been virtually absent from ichthyoplankton collections in Newark Bay. Bridge construction and demolition will likely cause periods of increased turbidity and sedimentation as sheetpile cofferdams and trestle piles are installed and removed, but as larvae are pelagic and benthic organisms comprise only a portion of butterfish diets, potential impacts would be temporary and limited to areas of active construction. Therefore, any potential impacts to Atlantic butterfish EFH from the proposed project would be negligible.

4.3.11 Summer Flounder

Newark Bay is designated as EFH for larval, juvenile, and adult stages of summer flounder (Attachment F-2). The study area does contain some summer flounder HAPC, in the form of *Spartina alterniflora* marshes and the NBB bridge piers and other hard substrate likely support macroalgae. In the New York Bight, summer flounder usually occupy inshore regions during the warmer months and move offshore for the winter season. Summer flounder can camouflage themselves to match the surrounding substrate, to avoid predation and conceal themselves from prey. They feed by sight and are most active during daylight hours. Summer flounder larvae and juveniles are opportunistic feeders but primarily feed on microcrustaceans and small polychaetes (Packer et al. 1999). Adult prey includes shrimp, mysids, anchovies (Anchoa spp.) and Atlantic silversides.

The pelagic larvae are found over the inner and outer continental shelf, and are transported to estuarine nursery areas by currents. Larvae occur across a wide range of salinities, but are most often captured in the higher salinity portions of estuaries. Larvae are most abundant between 9 and 18°C and at depths from 10 to 70 meters in the Mid Atlantic Bight.

Juveniles move into shallow bays and estuaries for the spring, summer and autumn months, and are usually found in depths of 0.5 to 5.0 meters, using these areas as nursery habitat. Juveniles can be found on mud and sand substrates in flats, channels, salt marsh creeks, and eelgrass beds. Juvenile summer flounder are tolerant of the wide ranges of temperature and salinity of estuarine habitats, and can withstand temperatures from 3 to 27°C and salinities from 10 to 30 ppt (Packer et al. 1999).

Adult summer flounder are found offshore during colder months on the outer continental shelf. Adults usually return inshore to coastal waters of the New York Bight in April, and reach their peak abundance during the warm summer months of July and August (Packer et al. 1999). They are often found in the high salinity portions of estuaries, and have been reported as preferring sandy habitats, but can be found in a variety of habitats with both mud and sand substrates, including marsh creeks, seagrass beds, and sand flats. Similar to juveniles, adults can tolerate a wide range of temperatures.

Small numbers of summer flounder larvae were caught during ichthyoplankton studies performed in Newark Bay from 1999-2006 (USACE 2003, 2004, 2005, 2006). Small numbers of summer flounder were caught from May through December during the various Newark Bay fish community studies from 1993 to 2013, accounting for 0.42% of the overall catch.

Potential Project Effects on Summer Flounder EFH

As summer flounder larvae are pelagic, short-term increases in turbidity and sedimentation from bridge construction and demolition are not expected to significantly impact EFH of this life stage. Impacts to summer flounder juvenile and adult EFH include temporary foraging habitat loss and impaired sight-feeding resulting from turbidity and sedimentation increases due to cofferdam and trestle pile installation and removal, barge spuds and vessel propeller wash. However, summer flounder are highly mobile and would likely move to undisturbed areas during construction activities. Natural sedimentation and subsequent recolonization by benthic invertebrates and other prey are expected to occur within a year following bridge construction. Juveniles and adults would also permanently lose access to approximately 5.002 acres of intertidal and subtidal

bay bottom. The area of impact is relatively small compared to the available intertidal and subtidal habitat in Newark Bay. HAPC for summer flounder that is present in the NBB area includes macroalage in shallow areas of hard substrate and *Spartina alterniflora* marshes along the western shore that would be temporarily and permanently impacted by bridge construction and demolition. Temporary wetland losses in this area would be 0.185 acres due to cofferdam and trestle pile installation, and permanent losses would be 1.055 acres due two new pier footings and one fender, and permanent access underneath the bridge structure for maintenance, inspections and security. Wetland mitigation plans are only developed conceptually at this time via the purchase of credits from a wetland mitigation bank, but would mitigate for permanent impacts to wetlands as required under state and federal regulations. Taking into consideration the wetland mitigation, impacts to summer flounder EFH are expected to be primarily temporary and minor.

4.4 Forage Species

A number of forage species occur in Newark Bay and its tributaries. While EFH has not been designated for many forage species, impacts to these species can affect habitat for EFH-designated species which rely on them as a food source. In order to assess impacts to EFH through adverse effects on forage species, potential project impacts to four representative forage species commonly found in Newark Bay (i.e., bay anchovy, Atlantic menhaden, blueback herring and alewife) are discussed below. Figure 2 portrays the relative abundance of these migratory species from spring to fall in the Newark Bay area.

4.4.1 Bay Anchovy

The bay anchovy is a schooling species and is one of the most abundant species in Atlantic coast estuaries. As such, it is an extremely important prey resource for larger, predatory fishes. Bay anchovy are widely distributed throughout the lower Hudson River estuary and its tidal tributaries. Dovel (1981) collected bay anchovies within the Hudson River Estuary in water temperatures from 2 to 27 ºC and salinities ranging from 25-30 ppt. Bay anchovy was the second most common fish caught in mid-water trawls in Newark Bay in the spring, and the most commonly caught in the summer and fall months (USACE 2015). Bay anchovy accounted for 98% of all fish collected during the USACE migratory finfish survey and were collected during every season and from all New York/New Jersey harbor regions.

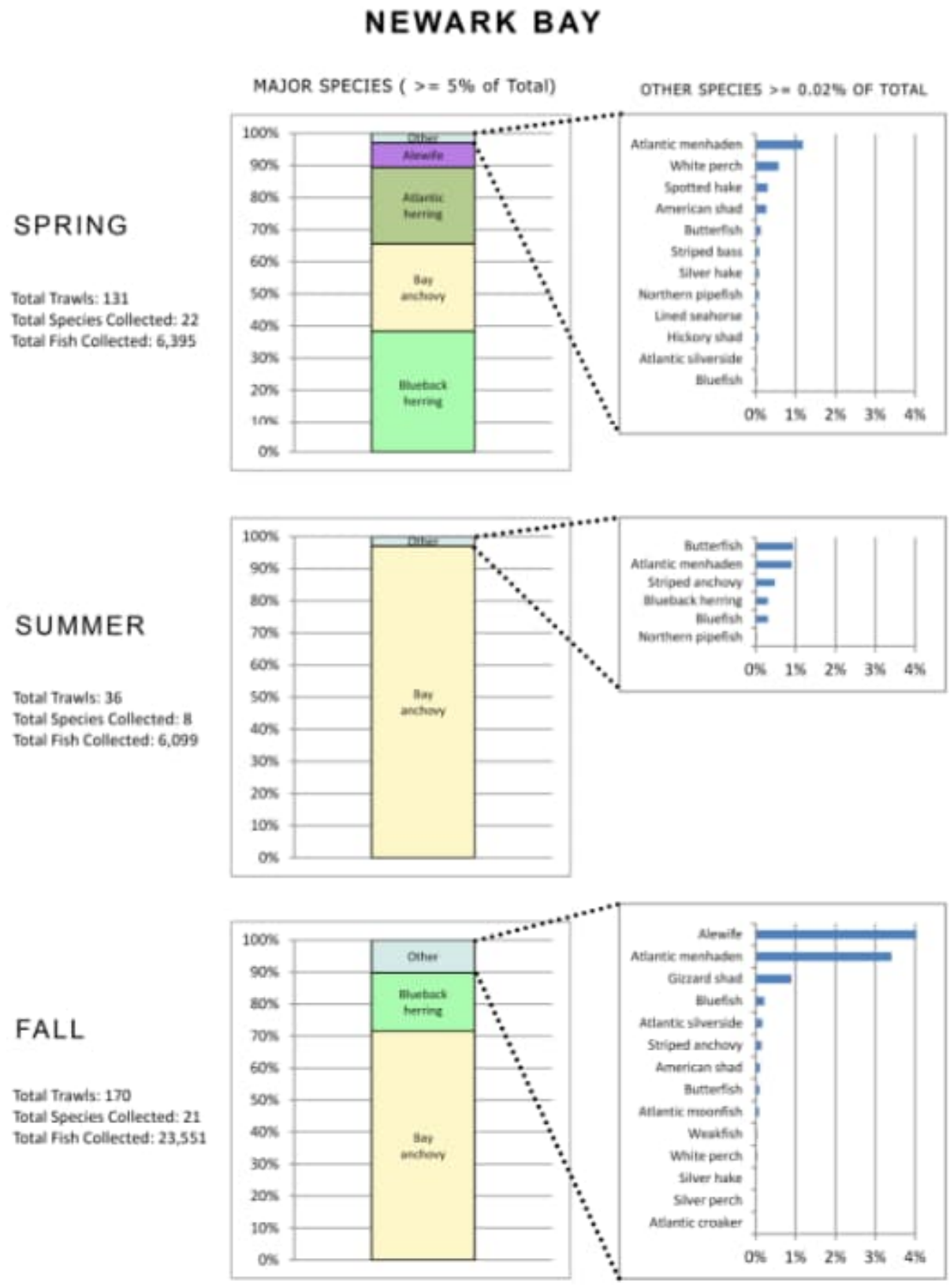


Figure 2. Mid-water finfish collections from the Newark Bay Harbor region 2006-2013 (USACE 2015)

Potential impacts to bay anchovy may result from increases in turbidity from cofferdam and trestle pile installation and removal. Bay anchovy are planktivorous and increased turbidity in the vicinity of construction could impair feeding efficiency. However, bay anchovy are highly mobile fish that occur in often turbid estuary habitats. Because of their pelagic nature, potential impacts to this forage species from the proposed project are expected to be short-term and minimal.

4.4.1 Atlantic Menhaden

The Atlantic menhaden, locally referred to as "bunker" is a seasonally abundant herring, occurring in large schools in coastal bays and estuaries. Atlantic menhaden migrate seasonally along the Atlantic coast, moving north through the mid-Atlantic Bight during Spring and south during Fall to overwinter in waters south of Cape Hatteras (Able and Fahay, 1998). Atlantic menhaden spawn in continental shelf waters and the lower reaches of estuaries and coastal bays along the U.S. Atlantic coast (Dovel, 1971). Large schools of juvenile menhaden use estuaries as nurseries during the summer before migrating offshore in the fall. Adult menhaden have a broad temperature range of 0 to 25°C, and a wide salinity range of <1 to 36 ppt (Ahrenholz et al. 1989). Adults are strictly filter feeders, grazing on phytoplankton and small zooplankton (Ahrenholz et al. 1987). Juvenile and adult Atlantic menhaden are seasonally abundant throughout NY/NJ Harbor and were the fifth most caught fish in Newark Bay in the spring, increasing to third most caught fish in summer, and fourth most caught species in fall in USACE's mid-water migratory fish surveys (USACE 2015).

Potential impacts to Atlantic menhaden may result from increases in turbidity from cofferdam and trestle pile installation and removal. This species is largely planktivorous and increased turbidity caused by construction could impair feeding efficiency. However, this highly mobile species regularly experiences the often turbid conditions of estuaries and can avoid areas of increased turbidity. Because of their pelagic nature, potential impacts to Atlantic menhaden from the proposed project are expected to be short-term and minimal.

4.4.2 River Herring

River herring (alewife and closely related blueback herring) are anadromous species with similar distributions, ecological roles and environmental requirements. The alewife, an anadromous species, inhabits waters from the Gulf of Saint Lawrence to South Carolina, occurring primarily between the Gulf of Maine and the Chesapeake Bay. Adult alewives enter the NY/NJ Harbor between late-February and mid-March moving upstream to spawn in freshwater tributaries in relatively shallow water with slow currents (Schmidt et al. 1988; Everly and Boreman 1999). Alewives typically spawn three to four weeks before blueback herring (Loesch 1987 in ASMFC 2009), when water temperatures rise to approximately 10°C. Alewife larvae and juveniles remain in their freshwater nurseries until late May or June before moving downstream as young-of-the-year into the lower estuary where they remain until moving into the ocean in November (Stone et al. 1994, Everly and Boreman 1999). It is generally accepted that juveniles join the adult population at sea within the first year of their lives and follow a north-south seasonal migration along the Atlantic coast, similar to that of American shad (Neves 1981). Alewife was the fourth most common fish caught in mid-water trawls in Newark Bay in the spring but was infrequently caught in summer after the spawning run had passed through the bay, and then were the third most caught fish in the fall in USACE's mid-water migratory fish surveys (USACE 2015).

Blueback herring inhabit coastal and estuarine waters from Nova Scotia to Florida, with concentrations in the Middle and South Atlantic Bight. In general, blueback herring have a more southern distribution than alewife (Mullen et al. 1986). Similar to alewife, blueback herring are present in coastal ocean waters prior to entering estuaries on their annual spawning runs during the spring (Schmidt et al. 1988). Prior to the spawning run, adult blueback herring stage in estuaries at the mouth of natal rivers in March and early April when water temperatures are approximately 4-9 °C (Loesch and Lund 1977, Able and Fahay 2010). Adult blueback herring enter the Hudson-Raritan Estuary in early March prior to their migration to spawning areas from May to July (Stone et al. 1994). Adult blueback herring swim at mid-water depths and have been documented to feed during their freshwater migration (Monroe 2000). The blueback herring spawning period usually begins about a month later than that of alewife (Loesch 1987) and they prefer deep freshwater habitats with swift currents over hard

gravel or sand substrates (Loesch and Lund 1977, Everly and Boreman 1999). After spawning, blueback herring move into the lower estuary and coastal ocean waters, although a few adults may remain in the estuary through winter (Stone et al. 1994). Juvenile blueback herring begin migrating downstream to the estuary at the end of summer, approximately a month after American shad and alewife (Marcy 1976, Monroe 2000 and references therein). By the end of November, juveniles have typically returned to the ocean, though some evidence of juvenile overwintering in estuaries has been reported in New Jersey and the lower Connecticut River (Monroe 2000 and references therein). Aside from a few juveniles overwintering within estuaries during their first year, researchers assume that most juveniles join the adult population at sea within the first year of their lives and follow a north-south seasonal migration along the Atlantic coast, where changes in temperature likely drive oceanic migration (Neves 1981). Blueback herring was the most common fish caught in mid-water trawls in Newark Bay in the spring, decreasing to fifth most common fish in summer and increasing to second most common fish caught in the fall months (USACE 2015).

Potential impacts to river herring may result from increases in turbidity from cofferdam and trestle pile installation and removal. River herring are planktivorous and do feed on their springtime upstream migration, so turbidity increases could impair feeding efficiency. Adopting the NMFS/FHWA time of year restrictions for winter flounder and diadromous species (i.e., placement and removal of cofferdams and trestle piers between July 1 and December 31) would allow construction and demolition work to proceed year-round and would be protective of springtime upstream migration of river herring. As cofferdams and trestle piles would not substantially block the waterway, the fall time of year restriction would not be warranted. Impacts to river herring from the proposed project are expected to be short-lived and negligible.

5 Assessment Conclusion

Review of the life histories of the EFH-designated species for the NBB project area and indicates that the habitat, water quality and other environmental conditions support most of these species and life stages. This is supported by fisheries surveys documenting most of the species and life stages that NOAA Fisheries designates Newark Bay as EFH for. Adults of the EFH-designated species winter flounder and windowpane flounder were caught in every month of the year in Newark Bay and eggs, larvae and juveniles of both species have been caught there. Summer flounder larvae, juveniles and adults have been caught on a seasonal basis. Little skate, Atlantic herring, red hake, clearnose skate, bluefish, and Atlantic butterfish are seasonally present in the Newark Bay area. Longfin inshore squid may be seasonally present in Newark Bay, but early life stages have not been caught.

Recent mid-water trawl surveys (USACE 2015) identified considerable presence of pelagic species that some EFH-designated species (i.e., bluefish) prey on. These pelagic forage species are poorly represented in bottom trawls more historically used to sample the Newark Bay fish community. Bay anchovy and Atlantic menhaden are seasonally abundant in Newark Bay and alewife and blueback herring annually pass through Newark Bay on their spring spawning runs.

5.1 Temporary Impacts

Temporary impacts to EFH would total approximately 15.823 acres of tidal waters and wetlands, split between 10.374 acres of subtidal shallows and open waters and 5.449 acres of tidal wetlands. This includes a tidal wetland connected via culvert to the east bank Newark Bay, which would experience temporary impacts of 0.224 acres for construction access, and 0.010 acres for the placement of cofferdams around new bridge piers; however, Wetland DFG is connected to the Newark Bay via culvert and does not likely provide suitable habitat for most species found in tidal water column and benthic habitats. Within Newark Bay, temporary impacts to surface waters include 2.02 acres for the placement of cofferdams around the new and existing bridge pier footings and fenders and 8.354 acres for the construction trestle. Within tidal wetlands of Newark Bay, temporary impacts would include 0.653 acres for the placement of cofferdams around the new and existing bridge pier footings and fenders 4.175 acres for the construction trestle, and 0.621 acres for construction access

and staging areas. These impacts to Newark Bay and its tidal wetlands would last for the for the duration of construction, or around seven years, but would not be simultaneous because of construction sequencing.

Additional temporary impacts would result from the installation and removal of cofferdam sheetpiles, construction trestle pipe piles, spud barge movements and associated vessel propeller wash in the shallow waters of Newark Bay. Small turbidity increases are expected to occur during construction from these activities which in turn may impact some EFH-designated species that are sensitive to water quality fluctuations. Flounder species are particularly susceptible to bay bottom disturbance because of their demersal habitat preference and dependence on benthic forage species. Winter flounder eggs, which are demersal, adhesive, and stick together in cluster are particularly susceptible to burial from sediment resuspension and deposition. However, turbidity in Newark Bay is naturally highly variable, depending on freshwater inflow, strong tidal currents, storms, and other factors.

Other EFH-designated species (little skate, Atlantic herring, red hake, clearnose skate, bluefish, and Atlantic butterfish) are less demersal or fully pelagic and are only seasonally present in the Newark Bay area. Pelagic species, including forage species of EFH-designated species are expected to resume use of temporarily lost portions of the water column following bridge construction and demolition. Any temporary impacts to pelagic species from the proposed project are expected to be negligible.

Upon completion of bridge construction, areas of water column and benthic habitat occupied by cofferdams and trestle piles will be available to all fish species. A total of 2.02 acres of benthic habitat temporarily lost due to cofferdam placement would be devoid of benthic forage species after cofferdam removal. Substrates around the new bridge piers and in areas where the existing NBB piers were removed would be recolonized by mobile organisms from adjacent unaffected areas and by natural recruitment. Recovery of the natural benthic assemblage to baseline conditions of abundance, biomass, and community composition should occur within 1-5 years in most cofferdam areas where sediment type and hydrodynamics are remains unchanged (Newell et al. 1998). The presence of the new bridge piers will alter hydrodynamics in the immediate area around each bridge pier, so sediments may be coarser adjacent to piers due to lack of settlement of silt particles and a different benthic community composition may result in these areas. Areas of pier removal would be backfilled to adjacent grades with sand and would become naturally recolonized over time. Areas of salt marsh temporarily impacted by construction trestles and cofferdams would be regraded to original elevations and replanted with native salt marsh species. Permit-mandated monitoring would ensure that restored salt marsh areas meet performance standards.

5.2 Permanent Impacts

Permanent impacts to EFH would total approximately 5.853 acres of tidal waters and wetlands, split between of 2.045 acres of subtidal shallows and open waters and 3.808 acres of tidal wetlands, and resulting from bridge piers footings and fenders, and permanent access underneath the bridge structure for maintenance, inspections and security. The removal of the existing NBB bridge footings will result in the gain of 0.817 acres of tidal waters, and 0.034 acres of tidal wetlands, for a net permanent habitat loss of 5.002 acres of intertidal and subtidal bay bottom. Flounder species would likely be the EFH-designated species most affected by the loss of bay bottom, as flounders are largely demersal and require this habitat for shelter and foraging. Winter flounder also require fine-grained bottom habitat for spawning. However, the area of loss is relatively small compared to the overall area of intertidal and subtidal shallows available in Newark Bay. The loss of bay bottom would be somewhat offset by the habitat functions provided by the new bridge piers. The intertidal and subtidal surfaces of the new bridge piers will provide hard substrate for the epibenthic fouling estuarine community, such as mussels, barnacles, and tunicates etc., and will likely support algae, and will function as fish habitat for pelagic and structure-oriented fish species.

5.3 Impact Avoidance, Minimization and Mitigation

Fisheries data for Newark Bay indicate considerable usage by all life stages of winter flounder and diadromous runs of blueback herring, alewife and other species. Observance of the NMFS/FHWA in-water Time of Year restrictions from January 1 to June 30 for New Jersey (Table 2) would minimize turbidity-related impacts to winter flounder spawning in the project area and river herring migration through Newark Bay to upstream freshwater spawning habitat. Work could proceed within cofferdams installed outside of this restriction period. Project construction would not substantially block Newark Bay in the fall, so the diadromous fish restriction from September to November 30 may not be warranted. Submerged aquatic vegetation is not present in Newark Bay. The overwintering blue crab and striped bass restriction period from November 15 to April 15 would be substantially protected by observing the winter flounder and diadromous fish restriction periods from January 1 to June 30.

BMPs will be used to avoid and minimize impacts to EFH as specified in the project permit requirements. These practices are expected to include the following: constructing and demolishing bridge piers within cofferdams to reduce sediment and contaminant resuspension; vibratory pile-driving of sheetpile cofferdams and use of turbidity booms and/or air bubble curtains to minimize noise generation and sediment resuspension and escapement; and installation of trestle piers within casings using compressed air to reduce noise transmission to surrounding waters. Potential soil stockpile erosion into Newark Bay will be minimized through the use of standard BMPs, including fabric lined silt fences or hay bales of hay.

Salt marsh adjacent to the NBB are designated as HAPC for summer flounder. Impacts to larvae could include loss of individuals during construction (direct impact), and increased turbidity and reduced water quality (indirect impacts) that would affect habitat condition and feeding. These impacts would be located along the western shoreline of Newark Bay where approximately 1.055 acres of permanent impacts would occur due two new pier footings and one fender, and permanent access underneath the bridge structure for maintenance, inspections and security, and 0.185 acres of temporary impacts would occur to tidal marsh habitat due to cofferdam and trestle pile installation to staging areas, cofferdam sheeting around pier footings, stormwater basin access buffers, and trestle piles.

However, there is no region-wide mapping of summer flounder EFH and GARFO indicates that local sources and on-site surveys may be needed to identify submerged aquatic vegetation beds (GARFO 2021). The tidal wetland connected to the eastern shore of Newark Bay via culvert the within the infield areas of Route 440 would not likely provide this habitat. However, due to its, Direct impacts within Newark Bay are expected to be minor because juvenile and adults are mobile and would likely move from the study area due to disruptions from construction. Thus, future surveys would be performed to delineate the extent of vegetated shallows within the limits of the Proposed Action identified on preliminary design plans. Following construction, temporarily impacted tidal wetlands would be graded to appropriate elevations, replanted with native salt marsh species and would be subjected to permit-mandated monitoring to ensure restoration success. Permanent losses of salt marsh would be mitigated at a 3:1 ratio through the restoration of these habitat types within the watershed.

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Authorities

The Magnuson Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with NOAA Fisheries on any action or proposed action authorized, funded, or undertaken by such agency that may adversely affect essential fish habitat (EFH) identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process.

The Fish and Wildlife Coordination Act (FWCA) requires that all federal agencies consult with NOAA Fisheries when proposed actions might result in modifications to a natural stream or body of water. The FWCA also requires that federal agencies consider the effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under the FWCA, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species that are not federally managed and do not have designated EFH.

It is important to note that these consultations take place between NOAA Fisheries and federal action agencies. **As a result, EFH assessments, including this worksheet, must be provided to us by the federal agency, not by permit applicants or consultants.**

Use of the Worksheet

This worksheet can serve as an EFH assessment for **Abbreviated EFH Consultations**, and as a means to provide information on potential effects to other NOAA trust resources considered under the FWCA. An abbreviated consultation allows us to determine quickly whether, and to what degree, a federal action may adversely affect EFH. Abbreviated consultation procedures can be used when federal actions do not have the potential to cause substantial adverse effects on EFH and when adverse effects could be alleviated through minor modifications.

The intent of the EFH worksheet is to provide a guide for determining the information needed to fully assess the effects of a proposed action on EFH. In addition, the worksheet may be used as a tool to assist you in developing a more comprehensive EFH assessment for larger projects that may have more substantial adverse effects to EFH. However, for large, complex projects that have the potential for significant adverse effects, an **Expanded EFH Consultation** may be warranted and the use of this worksheet alone is not appropriate as your EFH assessment.

An **adverse effect** is 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.

Consultation under the MSA is not required if there is no adverse effect on EFH or if no EFH has been designated in the project area. However, because the definition of "adverse effect" is very broad, most in-water work will result in some level of adverse effect requiring consultation with us, even if the impact is temporary or the overall result of the project is habitat restoration or enhancement. It is important to remember that an adverse effect determination is a trigger to consult with us. It does not mean that a project cannot proceed as proposed, or that project modifications are necessary. An adverse effect determination under the EFH provisions of the MSA simply means that the effects of the proposed action on EFH must be evaluated to determine if there are ways to avoid, minimize, or offset adverse effects. Additional details on EFH consultations, tools, and resources, including frequently asked questions can be found on our website.

Instructions

This worksheet should be used as your EFH assessment for **Abbreviated EFH Consultations** or as a guide to develop your EFH assessment. It is not appropriate to use this worksheet as your EFH assessment for large, complex projects, or those requiring an Expanded EFH Consultation.

When completed fully and with sufficient information to clearly describe the activities proposed, habitats affected, and project impacts, as well as the measures taken to avoid, minimize or offset any unavoidable adverse effects, this worksheet provides us with required components of an EFH assessment including:

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

When completing this worksheet and submitting information to us, it is important to ensure that sufficient information is provided to clearly describe the proposed project and the activities proposed. At a minimum, this should include the public notice (if applicable) or project application and project plans showing:

- location map of the project site with area of impact.
- existing and proposed conditions.
- all in-water work and the location of all proposed structures and/or fill.
- 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.
- Habitat Areas of Particular Concern (HAPCs).
- sensitive habitats mapped, including special aquatic sites (submerged aquatic vegetation, saltmarsh, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges), hard bottom or natural rocky habitat areas, and shellfish beds.
- site photographs, if available.

Your analysis of effects **should focus on impacts that reduce the quality and/or quantity of the habitat or result in conversion to a different habitat type** for all life stages of species with designated EFH within the action area. Simply stating that fish will move away or that the project

will only affect a small percentage of the overall population is not a sufficient analysis of the effects of an action on EFH. Also, since the intent of the EFH consultation is to evaluate the direct, indirect, individual and cumulative effects of a particular federal action on EFH and to identify options to avoid, minimize or offset the adverse effects of that action, is it not appropriate to conclude that an impact is minimal just because the area affected is a small percentage of the total area of EFH designated. The focus of the consultation is to reduce impacts resulting from the activities evaluated in the assessment. Similarly, a large area of distribution or range of the fish species is also not appropriate rationale for concluding the impacts of a particular project are minimal.

Use the information on the our EFH consultation website and NOAA's EFH Mapper to complete this worksheet. The mapper is a useful tool for viewing the spatial distribution of designated EFH and HAPCs. Because summer flounder HAPC (defined as: " all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH") does not have region-wide mapping, local sources and on-site surveys may be needed to identify submerged aquatic vegetation beds within the project area. The full designations for each species may be viewed as PDF links provided for each species within the Mapper, or via our website links to the New England Fishery Management Councils Omnibus Habitat Amendment 2 (Omnibus EFH Amendment), the Mid-Atlantic Fishery Management Councils FMPs (MAMFC - Fish Habitat), or the Highly Migratory Species website. Additional information on species specific life histories can be found in the EFH source documents accessible through the Habitat and Ecosystem Services Division website. This information can be useful in evaluating the effects of a proposed action. Habitat and Ecosystem Services Division (HESD) staff have also developed a technical memorandum *Impacts to Marine Fisheries Habitat from Non-fishing Activities in the Northeastern United States,* NOAA Technical Memorandum NMFS-NE-209 to assist in evaluating the effects of non-fishing activities on EFH. If you have questions, please contact the HESD staff member in your area to assist you.

Federal agencies or their non-federal designated lead agency should email the completed worksheet and necessary attachments to the HESD New England (ME, NH, MA, CT, RI) or Mid- Atlantic (NY, NJ, PA, DE, MD, VA) Branch Chief and the regional biologist listed on the Contact Regional Office Staff section on our EFH consultation website and listed below.

We will provide our EFH conservation recommendations under the MSA, and recommendations under the FWCA, as appropriate, within 30 days of receipt of a **complete** EFH assessment for an abbreviated consultation. Please ensure that the EFH worksheet is completed in full and includes detail to minimize delays in completing the consultation. If we are unable to assess potential impacts based on the information provided, we may request additional information necessary to assess the effects of the proposed action on our trust resources before we can begin a consultation. If the worksheet is not completely filled out, it may be returned to you for completion. **The EFH consultation and our response clock does not begin until we have sufficient information upon which to consult**.

If this worksheet is not used, you should include all the information required to complete this worksheet in your EFH assessment. The level of detail that you provide should be commensurate with the magnitude of impacts associated with the proposed project. You may need to prepare a more detailed EFH assessment for more substantial or complex projects to fully characterize the effects of the project and the avoidance and minimization of impacts to EFH. The format of the EFH worksheet may not be sufficient to incorporate the extent of detail required for large-scale projects, and a separate EFH assessment may be required.

Regardless of the format, you should include an analysis as outlined in this worksheet for an expanded EFH assessment, along with any additional necessary information including:

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

For these larger scale projects, interagency coordination meetings should be scheduled to discuss the contents of the EFH consultation and the site-specific information that may be needed in order to initiate the consultation.

Please contact our Greater Atlantic Regional Fisheries Office, Protected Resources Division regarding potential impacts to marine mammals or threatened and endangered species and the appropriate consultation procedures.

HESD Contacts*

New England - ME, NH, MA, RI, CT

Chris Boelke, Branch Chief	christopher.boelke@noaa.gov
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Mid-Atlantic - NY, NJ, PA, MD, VA

Karen Greene, Branch Chief	karen.greene@noaa.gov
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Keith Hanson - NJ (Ocean Co. and south), DE and PA, Mid-Altantic wind	keith.hanson@noaa.gov
Maggie Sager - NJ (Ocean Co. and south), DE and PA	lauren.m.sager@noaa.gov
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Ecosystem Management (Wind/Aquaculture)

Peter Burns, Branch Chief	peter.burns@noaa.gov
Alison Verkade (NE Wind)	alison.verkade@noaa.gov
Susan Tuxbury (wind coordinator)	susan.tuxbury@noaa.gov

***Please check for the most current staffing list on our contact us page prior to submitting your assessment.**

EFH Assessment Worksheet rev. August 2021

Please read and follow all of the directions provided when filling out this form.

1. General Project Information

Date Submitted: 12/01/2022

Project/Application Number:

Project Name: Newark Bay-Hudson County Extension Newark Bay Bridge Replacement

Project Sponsor/Applicant: New Jersey Turnpike Authority

Federal Action Agency (or state agency if the federal agency has provided written notice delegating the authority[1]): U.S. Coast Guard

Fast-41: Yes ☐ No ☐

Action Agency Contact Name:

Contact Phone: Contact Email:

Address, City/Town, State:

2. Project Description

[2]Latitude: 40.695387 Longitude: -74.118521

Body of Water (e.g., HUC 6 name): 020301

Project Purpose:

The project is the replacement of the New Jersey Turnpike Authority's Newark Bay Bridge which spans Newark Bay between Newark and Bayonne, NJ with two new bridges.

Project Description:

The Newark Bay Bridge was completed in 1956 and is now structurally deficient and functionally obsolete. The existing bridge will be replaced with two new bridges - a westbound span located north of the existing bridge and an eastbound span to be constructed in the existing bridge's approximate footprint after demolition. The new bridge piers will be constructed by the drilled shaft method and will be accessed via temporary construction trestles extending out from each shore to the new main span pier locations just outside of the navigation channel. The temporary access trestle for the new westbound bridge would be supported by 42-inch diameter steel pipe piles and is expected to be in place for a period of approximately 4 years. Once the new westbound bridge is completed, another temporary trestle would be constructed out from each shore alongside the eastbound bridge and used for both demolishing the existing NBB and constructing the new bridge within its existing footprint.

Anticipated Duration of In-Water Work including planned Start/End Dates and any seasonal restrictions proposed to be included in the schedule:

The NMFS/FHWA in-water Time of Year restrictions for New Jersey from January 1 to June 30 would be observed, which matches the USACE New Jersey Nationwide Permit Regional Conditions to protect winter flounder and diadromous fish. This would minimize turbidity-related impacts to winter flounder spawning in the project area and river herring migration through Newark Bay to upstream freshwater spawning habitat. Bridge construction is expected to occur from 2026 to 2036.

[1] A federal agency may designate a non-Federal representative to conduct an EFH consultation by giving written notice of such designation to NMFS. If a non-federal representative is used, the Federal action agency remains ultimately responsible for compliance with sections 305(b)(2) and 305(b)(4)(B) of the Magnuson-Stevens Act. [2] Provide the decimal, or the degrees, minutes, seconds values for latitude and longitude using the World Geodetic System 1984 (WGS84) and negative degree values where applicable.

3. Site Description

EFH includes the biological, chemical, and physical components of the habitat. This includes the substrate and associated biological resources (e.g., benthic organisms, submerged aquatic vegetation, shellfish beds, salt marsh wetlands), the water column, and prey species.

Is the project in designated EFH[3]? ☑ Yes ☐ No

Is the project in designated HAPC? ☑ Yes ☐ No

Does the project contain any Special Aquatic Sites[4]? ☐ Yes ☑ No

Is this coordination under FWCA only? ☑ Yes ☐ No

Total area of impact to EFH (indicate sq ft or acres): 9.84 ac. (3.93 ac. temp + 5.91 ac. perm)

Total area of impact to HAPC (indicate sq ft or acres): 1.27 ac (0.22 ac. temp & 1.05 ac. perm)

Current range of water depths at MLW	Salinity range (PPT):	Water temperature range (°F):
0-35 feet	3-21	36-75

[3]Use the tables in Sections 5 and 6 to list species within designated EFH or the type of designated HAPC present. See the worksheet instructions to find out where EFH and HAPC designations can be found. [4] Special aquatic sites (SAS) are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. They include sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes (40 CFR Subpart E). If the project area contains SAS (i.e. sanctuaries and refuges, wetlands, mudflats, vegetated shallows/SAV, coral reefs, and/or riffle and pool complexes, describe the SAS, species or habitat present, and area of impact.

4. Habitat Types

In the table below, select the location and type(s) for each habitat your project overlaps. For each habitat type selected, indicate the total area of expected impacts, then what portion of the total is expected to be temporary (less than 12 months) and what portion is expected to be permanent (habitat conversion), and if the portion of temporary impacts will be actively restored to pre- construction conditions by the project proponent or not. A project may overlap with multiple habitat types.

Habitat Location	Habitat Type	Total impacts ($lf/ft^2/ft^3$)	Temporary impacts ($lf/ft^2/ft^3$)	Permanent impacts ($lf/ft^2/ft^3$)	Restored to pre-existing conditions?*
Estuarine	Substrate (silt/mud)	338,436 ft2	148,856 ft2	189,579 ft2	Yes
Estuarine	Wetland (emergent)*	90,334 ft2	22,294 ft2	68,050 ft2	Yes
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one

*Restored to pre-existing conditions means that as part of the project, the temporary impacts will be actively restored,such as restoring the project elevations to pre-existing conditions and replanting. It does not include natural restoration or compensatory mitigation.

Submerged Aquatic Vegetation (SAV) Present?:

Yes: ☐ No: ☑

If the project area contains SAV, or has historically contained SAV, list SAV species and provide survey results including plans showing its location, years present and densities if available. Refer to Section 12 below to determine if local SAV mapping resources are available for your project area.

Sediment Characteristics:

The level of detail required is dependent on your project – e.g., a grain size analysis may be necessary for dredging. In addition, if the project area contains rocky/hard bottom habitat [6](pebble, cobble, boulder, bedrock outcrop/ledge) identified as Rocky (coral/rock), Substrate (cobble/gravel), or Substrate (rock) above, describe the composition of the habitat using the following table.

Substrate Type* (grain size)	Present at Site? (Y/N)	Approximate Percentage of Total Substrate on Site
Silt/Mud (<0.063mm)	Yes	50
Sand (0.063-2mm)	No	50
Rocky: Pebble/Gravel /Cobble(2-256mm)**	Select one	
Rocky: Boulder (256-4096mm)**	Select one	
Rocky: Coral	Select one	
Bedrock**	Select one	

[6]The type(s) of rocky habitat will help you determine if the area is cod HAPC.

* Grain sizes are based on Wentworth grain size classification scale for granules, pebbles, cobbles, and boulders.

** Sediment samples with a content of 10% or more of pebble-gravel-cobble and/or boulder in the top layer (6-12 inches) should be delineated and material with epifauna/macroalgae should be differentiated from bare pebble-gravel-cobble and boulder.

If no grain size analysis has been conducted, please provide a general description of the composition of the sediment. If available please attach images of the substrate.

Substrates in the project corridor in Newark Bay consist predominately of silty sand and sandy silt.

Diadromous Fish (migratory or spawning habitat- identify species under Section 10 below):

Yes: ☑ No: ☐

5. EFH and HAPC Designations

Within the Greater Atlantic Region, EFH has been designated by the New England, Mid-Atlantic, and South Atlantic Fisheries Management Councils and NOAA Fisheries. Use the EFH mapper to determine if EFH may be present in the project area and enter all species and life stages that have designated EFH. Optionally, you may review the EFH text descriptions linked to each species in the EFH mapper and use them to determine if the described habitat is present at your project site. If the habitat characteristics described in the text descriptions do not exist at your site, you may be able to exclude some species or life stages from additional consideration. For example, the water depths at your site are shallower that those described in the text description for a particular species or life stage. We recommend this for larger projects to help you determine what your impacts are.

Species Present	EFH is designated/mapped for:				What is the source of the EFH information included?
	EFH: eggs	EFH: larvae	EFH: juvenile	EFH: adults/ spawning adults	
winter flounder	✔	✔	✔	✔	EFH Mapper c
little skate			✔	✔	EFH Mapper c
Atlantic herring		✔	✔	✔	EFH Mapper c
red hake	✔	✔	✔	✔	EFH Mapper c
windowpane flounder	✔	✔	✔	✔	EFH Mapper c
winter skate			✔	✔	EFH Mapper c
clearnose skate			✔	✔	EFH Mapper c
long-finned squid	✔				EFH Mapper c
bluefish			✔	✔	EFH Mapper c
Atlantic butterfish		✔			EFH Mapper c
summer flounder		✔	✔	✔	EFH Mapper c

6. Habitat Areas of Particular Concern (HAPCs)

HAPCs are subsets of EFH that are important for long-term productivity of federally managed species. HAPCs merit special consideration based their ecological function (current or historic), sensitivity to human-induced degradation, stresses from development, and/or rarity of the habitat.While many HAPC designations have geographic boundaries, there are also habitat specific HAPC designations for certain species, see note below. Use the EFH mapper to identify HAPCs within your project area. Select all that apply.

☑	Summer flounder: SAV[7]	☐	Alvin & Atlantis Canyons
☐	Sandbar shark	☐	Baltimore Canyon
☐	Sand Tiger Shark (Delaware Bay)	☐	Bear Seamount
☐	Sand Tiger Shark (Plymouth-Duxbury-Kingston Bay)	☐	Heezen Canyon
☐	Inshore 20m Juvenile Cod[8]	☐	Hudson Canyon
☐	Great South Channel Juvenile Cod	☐	Hydrographer Canyon
☐	Northern Edge Juvenile Cod	☐	Jeffreys & Stellwagen
☐	Lydonia Canyon	☐	Lydonia, Gilbert & Oceanographer Canyons
☐	Norfolk Canyon (Mid-Atlantic)	☐	Norfolk Canyon (New England)
☐	Oceanographer Canyon	☐	Retriever Seamount
☐	Veatch Canyon (Mid-Atlantic)	☐	Toms, Middle Toms & Hendrickson Canyons
☐	Veatch Canyon (New England)	☐	Washington Canyon
☐	Cashes Ledge	☐	Wilmington Canyon
☐	Atlantic Salmon		

[7] Summer flounder HAPC is defined as all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH. In locations where native species have been eliminated from an area, then exotic species are included. Use local information to determine the locations of HAPC.

[8] The purpose of this HAPC is to recognize the importance of inshore areas to juvenile Atlantic cod. The coastal areas of the Gulf of Maine and Southern New England contain structurally complex rocky-bottom habitat that supports a wide variety of emergent epifauna and benthic invertebrates. Although this habitat type is not rare in the coastal Gulf of Maine, it provides two key ecological functions for juvenile cod: protection from predation, and readily available prey. See EFH mapper for links to text descriptions for HAPCs.

7. Activity Details

Select all that apply	Project Type/Category
☐	Agriculture
☐	Aquaculture - List species here:
☐	Bank/shoreline stabilization (e.g., living shoreline, groin, breakwater, bulkhead)
☐	Beach renourishment
☐	Dredging/excavation
☐	Energy development/use e.g., hydropower, oil and gas, pipeline, transmission line, tidal or wave power, wind
☑	Fill
☐	Forestry
☑	Infrastructure/transportation (e.g., culvert construction, bridge repair, highway, port, railroad)
☐	Intake/outfall
☐	Military (e.g., acoustic testing, training exercises)
☐	Mining (e.g., sand, gravel)
☐	Overboard dredged material placement
☐	Piers, ramps, floats, and other structures
☐	Restoration or fish/wildlife enhancement (e.g., fish passage, wetlands, mitigation bank/ILF creation)
☐	Survey (e.g., geotechnical, geophysical, habitat, fisheries)
☐	Water quality (e.g., storm water drainage, NPDES, TMDL, wastewater, sediment remediation)
☐	Other:

8. Effects Evaluation

Select all that apply	Potential Stressors Caused by the Activity	Select all that apply and if temporary[9] or permanent		Habitat alterations caused by the activity
		Temp	Perm	
☑	Underwater noise	☐	☐	Water depth change
☑	Water quality/turbidity/ contaminant release	☐	☐	Tidal flow change
☑	Vessel traffic/barge grounding	☐	☑	Fill
☐	Impingement/entrainment	☐	☐	Habitat type conversion
☐	Prevent fish passage/spawning	☑	☑	Other: loss of bay bottom
☑	Benthic community disturbance	☑	☑	Other: loss of salt marsh
☑	Impacts to prey species			

[9] Temporary in this instance means during construction. [10] Entrainment is the voluntary or involuntary movement of aquatic organisms from a water body into a surface diversion or through, under, or around screens and results in the loss of the organisms from the population. Impingement is the involuntary contact and entrapment of aquatic organisms on the surface of intake screens caused when the approach velocity exceeds the swimming capability of the organism.

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Details - project impacts and mitigation

Briefly describe how the project would impact each of the habitat types selected above and the amount (i.e., acreage or sf) of each habitat impacted. Include temporary and permanent impact descriptions and direct and indirect impacts. For example, dredging has a direct impact on bottom sediments and associated benthic communities. The turbidity generated can result in a temporary impact to water quality which may have an indirect effect on some species and habitats such as winter flounder eggs, SAV or rocky habitats. The level of detail that you provide should be commensurate with the magnitude of impacts associated with the proposed project. Attach supplemental information if necessary.

Temporary losses of the tidal waters, including intertidal and subtidal shallows, would total approximately 3.81 acres split between 2.93 acres of subtidal shallows and open waters and 0.88 acres of tidal wetlands. These impacts to Newark Bay would result from cofferdams around bridge pier footings and fenders, trestle piles, and construction access; they would last for the for the duration of construction, or around seven years, but would not be simultaneous because of construction sequencing. Upon completion of bridge construction, areas of water column and benthic habitat occupied by cofferdams and trestle piles will be available to all fish species. Permanent impacts to tidal waters and wetlands would total approximately 5.859 acres, split between 4.352 acres of subtidal shallows and open waters and 1.507 acres of tidal wetlands. These impacts would result from bridge fenders and pier footings, and for permanent access within tidal wetlands on the west side of Newark Bay and within wetland DFG within the within the infield areas of Route 440 on the east side of the bay. Removal of the existing bridge pier footings would result in the gain of 0.851 acres of tidal waters, for a net permanent habitat loss of 5.008 acres. Flounder would likely be the EFH-designated species most affected by this habitat loss.

What specific measures will be used to avoid and minimize impacts, including project design, turbidity controls, acoustic controls, and time of year restrictions? If impacts cannot be avoided or minimized, why not?

Avoidance of in-work from January 1 to June 30 will minimize turbidity-related impacts to winter flounder spawning in the project area and river herring migration through Newark Bay. Bridge pier construction and demolition would be performed within cofferdams to reduce sediment and contaminant resuspension. Vibratory pile-driving of sheetpile cofferdams and use of turbidity booms and/or air bubble curtains will minimize noise generation and sediment resuspension. Trestle piles will be installed within air-bubble filled casings to reduce noise transmission to area waters.

Is compensatory mitigation proposed? Yes ☑ No ☐

If compensatory mitigation is not proposed, why not? If yes, describe plans for compensatory mitigation (e.g. permittee responsible, mitigation bank, in-lieu fee) and how this will offset impacts to EFH and other aquatic resources. Include a proposed compensatory mitigation and monitoring plan as applicable.

Compensatory mitigation for permanent impacts, inclusive of temporary impacts greater than 6 months in duration, will be provided through a combination of on-site restoration of temporarily impacted freshwater and tidal wetlands and open waters, restoration of tidal open water through the removal of the existing bridge piers, and purchasing mitigation credits from existing mitigation banks

9. Effects of Climate Change

Effects of climate change should be included in the EFH assessment if the effects of climate change may amplify or exacerbate the adverse effects of the proposed action on EFH. Use the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCP) 8.5/high greenhouse gas emission scenario (IPCC 2014), at a minimum, to evaluate the future effects of climate change on the proposed projections. For sea level rise effects, use the intermediate-high and extreme scenario projections as defined in Sweet et al. (2017). For more information on climate change effects to species and habitats relative to NMFS trust resources, see Guidance for Integrating Climate Change Information in Greater Atlantic Region Habitat Conservation Division Consultation Processes.

1. Could species or habitats be adversely affected by the proposed action due to projected changes in the climate?If yes, please describe how:

As the majority of the project area is subtidal waters, only the tidal wetlands portion of the project may be affected by climate change. Sea level rise will be incorporated into the marsh restoration

2. Is the expected lifespan of the action greater than 10 years? If yes, please describe project lifespan:

The lifespan of the new bridge is expected to be 150 years.

3. Is climate change currently affecting vulnerable species or habitats, and would the effects of a proposed action be amplified by climate change? If yes, please describe how:

Sea level rise is affecting regional salt marsh habitats. Sea level rise would be incorporated into the design for the restored marsh habitat so that the marsh plain, when accretion is taken into effect,

4. Do the results of the assessment indicate the effects of the action on habitats and species will be amplified by climate change? If yes, please describe how:

No. Sea level rise will be taken into consideration in the design of the restored salt marsh habitat.

5. Can adaptive management strategies (AMS) be integrated into the action to avoid or minimize adverse effects of the proposed action as a result of climate? If yes, please describe how:

The restored marsh will be operated under an adaptive management plan to ensure optimal ecological functions are maintained across time.

10. Federal Agency Determination

Federal Action Agency's EFH determination (select one)	
☐	There is no adverse effect[7] on EFH or EFH is not designated at the project site. EFH Consultation is not required. This is a FWCA only request.
☑	The adverse effect[7] on EFH is not substantial. This means that the adverse effects are no more than minimal, temporary, or can be alleviated with minor project modifications or conservation recommendations. This is a request for an abbreviated EFH consultation.
☐	The adverse effect[7] on EFH is substantial. This is a request for an expanded EFH consultation. We will provide more detailed information, including an alternatives analysis and NEPA documents, if applicable.

[7] An adverse effect is 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.

11. Fish and Wildlife Coordination Act

Under the FWCA, federal agencies are required to consult with us if actions that the authorize, fund, or undertake will result in modifications to a natural stream or body of water. Federal agencies are required to consider the effects these modifications may have on fish and wildlife resources, as well as provide for the improvement of those resources. Under this authority, we consider the effects of actions on NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats, that are not managed under a federal fisheries management plan. Some examples of other NOAA-trust resources are listed below. Some of these species, including diadromous fishes, serve as prey for a number of federally-managed species and are therefore considered a component of EFH pursuant to the MSA. We will be considering the effects of your project on these species and their habitats as part of the EFH/FWCA consultation process and may make recommendations to avoid, minimize or offset and adverse effects concurrently with our EFH conservation recommendations.

Please contact our Greater Atlantic Regional Fisheries Office, Protected Resources Division regarding potential impacts to marine mammals or species listed under the Endangered Species Act and the appropriate consultation procedures.

Fish and Wildlife Coordination Act Resources	
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	Alewife annually migrate through Newark Bay to upstream freshwater spawning areas. Project impacts would be negligible, as in-water work would avoid the
American eel	American eel is present in Newark Bay. Project impacts would be negligible, as in-water work would avoid the the NMFS/FHWA Time of Year restrictions for
American shad	American shad have been collected in Newark Bay. Project impacts would be negligible, as in-water work would avoid the NMFS/FHWA Time of Year
Atlantic menhaden	Atlantic menhaden have been collected in Newark Bay. Project impacts would be negligible, as in-water work would avoid the the NMFS/FHWA Time of Year
blue crab	Blue crabs occur within Newark Bay. Project impacts would be negligible, as observance of the NMFS/FHWA Time of Year restriction for winter flounder and
blue mussel	
blueback herring	Blueback herring annually migrate through Newark Bay to upstream freshwater spawning areas. Project impacts would be negligible, as in-water work would
Eastern oyster	Eastern oysters occur on hard substrate (i.e. riprap, pilings) in Newark Bay. Impacts to this type of substrate, aside from removal of the existing bridge piers, are not expected. The new bridge piers would provide substrate for oysters.
horseshoe crab	
quahog	Quahogs occur within shallow subtidal areas in Newark Bay. Project impacts would be negligible, as bridge construction and demolition will result in only a
soft-shell clams	Soft shell clams occur within mudflats in Newark Bay. Bridge construction and demolition will result in a small (less than 1 acre) loss of intertidal habitats, which
striped bass	Striped bass occur within Newark Bay. Project impacts would be negligible, as observance of the NMFS/FHWA Time of Year restriction for winter flounder and
other species:	
other species:	
other species:	

Appendix F-5

New Jersey Department of Environmental Protection:
Permit for Newark Bay Bridge Replacement

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STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATERSHED & LAND MANAGEMENT
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.nj.gov/dep/landuse

PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date
April 3, 2024

Expiration Date
April 2, 2029

Permit Number(s):	**Type of Approval(s):**	**Governing Rule(s):**
0000-23-0012.2 LUP230001	WFD Individual Upland Permit WFD Individual In-Water Permit FHA Induvial Permit FWW Individual Permit Water Quality Certificate	N.J.A.C. 7:13-1.1(b) N.J.A.C. 7:7-1.1(a) N.J.A.C. 7:7A-1.1(a)

Permittee:
Lisa Navarro
NJ Turnpike Authority
1 Turnpike Plaza
Woodbridge, NJ 07095

Site Location:
Block(s) & Lot(s): [5078, 90] [5078, 91] [5078.02, 87] [5078.03, 85] [5078.03, 92] [5082, 10] [5082, 16] [11, 1] [11, 2] [12, 1] [12, 2] [13, 1] [13, 15] [13, 16] [13, 18] [8, 1] [8, 2] [8, 3] [8, 4] [8, 5] [8, 6]
Municipality: Newark City, Bayonne City
County: Essex, Hudson

Description of Authorized Activities:

This document authorizes the New Jersey Turnpike Authority to reconstruct the Newark Bay Bridge (NBB) over the Newark Bay, between the Cities of Newark and Bayonne, Essex and Hudson Counties respectively. The approved project includes the replacement of the existing four-lane, multi-span structure with a new four-lane westbound structure in a parallel alignment north of the existing alignment, and a new eastbound four-lane multi span structure in the same approximate alignment as the existing NBB structure. The approval also includes roadway realignment and improvements on the east and westbound approach roadways, the construction of a trestle system to construct the new bridges, and various drainage and stormwater management improvements. This approval is in association with a linear development project on the parcel(s) referenced above and as shown on the approved plans cited at the end of this document.

This project is authorized under and in conditional compliance with the applicable Coastal Zone Management Rules (N.J.A.C. 7:7-1.1 et seq.) as amended through October 5, 2021, the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1.1 et seq) as amended through November 7, 2022, and the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-1.1 et seq.) as amended through July 17, 2023 provided that all conditions to follow are met.
This approval includes a Water Quality Certification (WQC).

The Department has determined that the herein approved activities meet the requirements of the (FHACA/CZM) rules. This approval does not obviate the local Floodplain Administrator's responsibility to ensure all development occurring within their community's Special Flood Hazard Area is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. FEMA requires communities to review and permit all proposed construction or other development within their SFHA in order to participate in the NFIP.

Prepared by:
Matthew Resnick

Received and/or Recorded by County Clerk:

If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the requirements of the permit and all conditions therein.

This permit is not valid unless authorizing signature appears on the last page.

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-2.18; N.J.A.C. 7:7-29; N.J.A.C. 7:7A-22.

FWW Individual Permit-Open Water (not SFH/Duplex)	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Freshwater wetlands	4.038	5.118
Transition areas	3.792	2.936
State open waters	0	0

Riparian Zone Vegetation	Area of riparian zone (Acres)
Permanent Disturbed	2.867
Temporary Disturbed	1.629

WFD IP-Commercial/Industrial/Public(Waterward)	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Tidal Open Waters	3.808	10.974
Intertidal subtidal shallows (ISS)	2.045	5.449

PRE-CONSTRUCTION CONDITIONS:

1. This permit is not valid until such time as you have obtained a Department of the Army authorization. You are advised to contact the Philadelphia District at 215-656-6728 if your project is located south of the Manasquan River or the New York District at 212-264-3912 if your project is located north of the Manasquan River.

2. In accordance with N.J.S.A. 12:5-3 and N.J.S.A. 13:1D-150-156, within 90 days of permit issuance or prior to pre-construction earth movement, site preparation and construction of the Bridge

Replacement, whichever is earlier, the Applicant shall submit a formal and complete public access project proposal, as outlined in the submitted addendum to the permit application entitled "**Waterfront Development Public Access Implementation Proposal New Jersey Turnpike Authority Newark Bay-Hudson County Extension Program Newark Bay Bridge Replacement NJDEP File No.: 0000-23-0012.2 Activity Number LUP23000**" for the City of Bayonne, Hudson County and for the City of Newark, Essex County, to this Division for review and approval.

3. Within 90 days of permit issuance and prior to any construction activities for the Bridge Replacement Project, whichever is earlier, the permittee shall also execute an escrow agreement with the Division for which the funds shall be held in trust in an attorney trust account of a licensed New Jersey attorney, to meet the public access requirements of the permit.

4. The permittee and/or respective municipalities shall secure all requisite permits and approvals for the agreed upon public access improvement projects in their respective municipalities prior to the start of any site disturbance, pre-construction earth movement or construction of the Bridge Replacement.

5. At least 90 days prior to any site disturbance, pre-construction earth movement, construction activities, the permittee shall deposit the $6,000,000 contribution towards the "Public Access Improvement Project" for the improvements in both respective municipalities identified in the escrow agreement. The permittee shall deposit such funds to be held in escrow in their attorney's trust account and shall comply with all other provisions outlined in the escrow agreement.

6. The permittee may deposit partial contributions in the attorney trust account in advance of site disturbance, pre-construction earth movement or construction of the Bridge Replacement Project, and, subject to the Division's approval, may request release and approval, and expend such funds needed for the purpose of the planning, engineering or permitting costs for the public access improvement projects other than for the actual construction of the public access improvements.

7. The Division approved public access improvements shall be constructed prior to, or concurrent with, the construction of the Bridge Replacement project within the respective municipality as authorized by this permit.

8. Prior to the construction of any structures and/or the placement of fill within any tidelands areas authorized under this permit, the permittee must apply to the Division's Bureau of Tidelands Management for a tidelands instrument (e.g., a license or lease) for the use and occupation of said tidelands. Tidelands staff will provide further guidance upon review for the timing of construction. All decisions concerning the issuance of any tidelands instrument is solely up to the Division's Bureau of Tidelands Management following the Tidelands Resource Council policy.

9. De-watering of cofferdams must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from cofferdams must be encompassed by a turbidity barrier. The turbidity barrier must be located parallel to the stream banks and anchored to the shoreline to maintain free flow of the stream center. In order to avoid obstruction of stream flows or fish passage, turbidity barriers must not be placed across the entire stream channel.

10. Prior to the commencement of site clearing, grading, or construction onsite, the permittee shall install a sediment barrier at the limits of disturbance authorized herein, which is sufficient to prevent the sedimentation of the remaining freshwater wetlands and transition areas and shall serve as a physical barrier protecting these areas from encroachment by construction vehicles or other soil-disturbing

activities. All sediment barriers and soil erosion control measures shall be kept in place and maintained throughout the duration of construction, until such time that the site is stabilized.

11. If a geodetic control reference marker is found on site and the position of the survey marker or monument cannot be protected, the applicant shall coordinate with the New Jersey Department of Transportation's Geodetic Survey and Survey Support Unit at least 60 days prior to disturbance to relocate the geodetic control marker to an appropriate location prior to construction. The impacted areas shall be restored to original grade and condition. The applicant shall contact NJGCS with any questions at (609) 963-1680.

HISTORIC PRESERVATION SPECIAL CONDITIONS:

1. Prior to the removal, demolition, or alteration of any components of the Newark Bay Bridge, the permittee, using the services of an Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] in Architectural History, shall document the existing conditions of the bridge to Level III equivalent standards of the Historic American Engineering Record (HAER). In lieu of large format photography, the permittee shall include high-resolution digital photos that meet the National Park Service National Register Digital Photo Submission Standards. The standards can be found at the following web address:

   NR and NHL Consolidated and Updated Photograph Policy 2024 (nps.gov)

   The recordation shall include both archivally stable, 4-inch by 6-inch black and white prints and high-resolution digital RAW and/or TIFF files. A minimum of thirty (30) views of the bridge shall be produced as part of the recordation. Photography shall include, but not be limited to, documentation of the bridge and its setting.

   The permittee shall ensure that all documentation is completed and accepted by the Historic Preservation Office prior to any removal, demolition, or alteration of any components of the bridge or new construction. The permittee shall provide one original archival copy of the recordation to the HPO and duplicate copies, with original photographs, shall be provided to the appropriate repositories as identified in consultation with the Historic Preservation Office.

   The HAER documentation shall be submitted to the Historic Preservation Office within six (6) months of permit issuance.

2. The permittee, using the services of a qualified consultant meeting the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] in History and/or Architectural History, shall develop and install interpretive signage regarding the history and significance of the Newark Bay Bridge, including the structure's involvement in the construction of the New Jersey Turnpike Newark Bay-Hudson County Extension and its design as a cantilevered truss bridge. The signage shall incorporate historic images of the bridge and shall be installed in a publicly accessible location near the bridge such as the Richard A. Rutkowski Park in the City of Bayonne. The applicant shall consult with the HPO on the design, layout, and content of interpretive signage, as well as its proposed location, within one (1) year of permit issuance. The signage shall be installed within six (6) months of the project completion, and the permittee shall submit photographs of the installed signage to the HPO within thirty (30) days of installation.

3. The permittee, using the services of a qualified consultant meeting the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] in Architectural History, shall prepare a historic context study and inventory of the extant bridges at least 45 years of age (pre-1979) on the

New Jersey Turnpike owned by the New Jersey Turnpike Authority (NJTA). The study and inventory would serve as a planning tool to help the NJTA identify which structures may be historic and may feasibly be prioritized for preservation, while ensuring the long-term safety of each crossing. The study would detail the history of the NJTA and the development of the New Jersey Turnpike network and provide an inventory of all undergrade and overgrade bridges under the NJTA's ownership on the New Jersey Turnpike main stem, Newark Bay-Hudson County Extension, Western Extension/Spur, and Pearl Harbor Memorial Turnpike Extension. The inventory shall include NJHPO Survey Forms for each bridge to evaluate the individual NRHP eligibility of each structure. The draft context study and inventory shall be submitted to the HPO for review within eighteen (18) months of permit issuance. The final report and inventory, addressing any HPO comments, shall be submitted to the HPO within ninety (90) days of the issuance of HPO comments on the draft report. Quarterly reports shall be submitted to the HPO documenting the current status of all outstanding mitigation items.

4. The permittee shall conduct a Phase IB archaeological survey within the project's area of potential effects prior to construction to identify the presence or absence of archaeological deposits. The results of Phase IB archaeological survey shall be submitted to the Division of Land Resource Protection and the Historic Preservation Office for review and comment.

5. The permittee shall submit a Phase II archaeological survey to the Historic Preservation Office for review, if archaeological resources were identified during Phase I archaeological survey and cannot be avoided. The Phase II archeological survey work plan shall be submitted to the Historic Preservation Office for review and approval prior to the commencement of the Phase II fieldwork.

6. The permittee shall consult with the Historic Preservation Office upon completion of the Phase II archaeological survey to assess the effects of the proposed project on any resources identified as eligible for listing on the New Jersey and National Registers of Historic Places.

7. The permittee shall submit an avoidance and protection plan to the Historic Preservation Office and the Division of Land Resource Protection within 30 days of completion of the Phase II archaeological survey for any resources eligible for inclusion or listed on the New Jersey and National Registers of Historic Places will be avoided by project impacts.

8. The permittee shall submit an archaeological monitoring plan to the Historic Preservation Office and the Division of Land Resource Protection for approval prior to the start of construction. The approved archaeological monitoring plan shall be referenced in all project documents, plans, and bid proposals. Any failure to comply with the provisions of the archaeological monitoring plan shall be reported to the Historic Preservation Office and the Division of Land Resource Protection within 24 hours.

9. The permittee shall submit a minimization and/or Phase III mitigation plan to the Historic Preservation Office if impacts to resources eligible or listing on the New Jersey and National Registers of Historic Places that cannot be avoided. The minimization and/or mitigation plan(s) must be approved by the Historic Preservation Office prior to the commencement of on-site construction activities or any data recovery activities to ensure that the research designs, work plans, proposed archaeological buffer zones, data recovery plans and public outreach components are acceptable to the Historic Preservation Office.

10. The permittee shall ensure the Historic Preservation Office approved archaeological work plans for the Phase II and Phase III data recovery surveys are implemented.

11. The permittee shall not commence with any on-site construction activities until the Division of Land Resource Protection, in consultation with the Historic Preservation Office, has released the data recovery project site for construction once the fieldwork component of the data recovery is completed and the Historic Preservation Office has received A) an approved data recovery work plan with requirements for monthly updates and delivery schedules; B) notification of the completion of the data recovery fieldwork; and C) a Historic Preservation Office approved data recovery management summary of the data recovery field work.

12. The permittee shall ensure complete draft Phase II reports shall be submitted to the Historic Preservation Office for review and approval within three months after respective phases of fieldwork are completed. The project permittee shall ensure a complete draft Phase III report shall be submitted to the Historic Preservation Office for review and approval within six months after fieldwork is completed. Final reports for each phase of survey shall be submitted to the Historic Preservation Office within two months after comments are received on the respective draft reports. Other timelines (for example, for public outreach) shall be established in consultation with the Historic Preservation Office, as necessary, based on the findings of the archaeological survey.

13. The permittee shall notify the Historic Preservation Office within three days of the completion of each phase of archaeological fieldwork.

14. The Permittee shall ensure that all phases of the archaeological survey and reporting shall be in keeping with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the archaeological survey and report rules at N.J.A.C. 7:4-8.4 through 8.5. Evaluations to determine the National Register eligibility of archaeological sites should be in keeping with the National Park Service's 2000 National Register Bulletin, Guidelines for Evaluating and Registering Archaeological Properties. The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation are available on the National Park Services web site: http://www.nps.gov/history/local-law/arch_stnds_0.htm)

15. The Permittee shall ensure that the individual(s) conducting the work meet the Secretary of the Interior's Professional Qualifications Standards for Archaeology and Historic Architecture (48 FR 44738-9).

16. The permittee shall ensure that all artifacts from State and National Register eligible archaeological sites will be analyzed, catalogued, and curated in accordance with the National Park Service Standards, codified as 36 CFR Part79.

17. The permittee shall ensure that within two months of the submission of the final Phase II report and any final Phase III data recovery report to Division of Land Resource Protection and the Historic Preservation Office, the artifacts, field records (including the artifact catalogue), and copies of all phases of survey from National Register eligible sites shall have been turned over to the New Jersey State Museum or other institution meeting the Secretary of the Interior's Standards for Curation. A copy of the New Jersey State Museum Deed of Gift Form (or a Deed of Gift Form from another suitable curation facility) shall be submitted to the Historic Preservation Office at that time as an indicator of the final transmission of the artifact collection. All archaeological reports shall identify the repository where the project records and artifacts will be located.

18. The project permittee shall ensure that work that does not meet the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation and the requirements of the Coastal Zone Management Rules and Freshwater Wetlands Protection Act Rules as determined by the

Historic Preservation Office in consultation with Division of Land Resource Protection, will be rectified by the project archaeological consultant(s).

19. The permittee shall immediately cease all ground disturbing activities and contact the Historic Preservation Office if potential human burials or human skeletal remains are encountered. The potential burials and/or human skeletal remains shall be left in place unless imminently threatened by human or natural displacement.

20. If, for any reason the Phase I identification survey, Phase II evaluation, Phase III data recovery, and/or architectural fieldwork is not accomplished prior to construction within the defined project area site limits, the project permittee shall be responsible for all investigation, evaluation, survey, salvage, and/or stabilization deemed necessary by the Historic Preservation Office, in consultation the Division of Land Resource Protection, pursuant to the implementing regulations. Information gathered from such investigation, evaluation, or survey shall be used by the Historic Preservation Office, in consultation with Division of Land Resource Protection, to determine the extent of damage, evaluate the resource, and direct any measures to mitigate impacts from project-related activities, including any actions on the part of the permittee's contractors. Should any archaeological or architectural site be partially or entirely destroyed by project-related activities before completion of any of the required phases of archaeological fieldwork are completed, the Historic Preservation Office, in consultation with Division of Land Resource Protection, shall determine other appropriate mitigation (e.g., alternative site excavation, alternative analysis, and/or public outreach activities) and enforcement, commensurate with the impacts which occurred.

FISH AND WILDLIFE SPECIAL CONDITIONS:

1. In order to protect anadromous species spawning runs within the Newark Bay and associated UNT tributaries, a timing restriction from **March 1 through June 30** is required for any in-water disturbance, sediment generating activities and pile driving activities. A separate timing restriction of **January 1 through May 31** is required to protect Winter Flounder species during migration and spawning in the area. This Winter Flounder species timing restriction period shall be applied to tidal waters ranging from near-shore (sub-tidal) to 20 ft. depths, in low to moderate tidal velocity areas, and in waters averaging between 10 - 32 ppt salinities. Furthermore, any activity outside the river, which would likely introduce sediment into the river and/or increase its turbidity, is also prohibited during this period. The Department reserves the right to suspend all regulated activities onsite should it be determined that the permittee has not taken proper precautions to ensure continuous compliance with this condition. If sediment control structures, cofferdams or other water isolation measures are installed prior to the timing restrictions stated above, construction activities behind the sediment control structures may proceed during the restricted period.

2. <u>For the Trestle construction</u>: Authorization is granted to the Permittee to conduct pile driving installation for trestle construction during the above referenced timing restriction period, by allowing for the use of bubble curtains, both with and without external confinement casings, provided that the applicant/contractor use the best management practices, as applicable, outlined below;
    - Use of noise attenuation and minimization measures during piles driving, such as:
    - Driving piles in the dry or during low water conditions for intertidal areas.
    - Use of vibratory hammers and construction phasing to minimize acoustic impacts.
    - Driving piles as deep as possible with a vibratory hammer prior to using an impact hammer.
    - Minimizing the number and size of temporary and permanent piles.
    - Limiting pile driving activities to no more than 12 hours per day.

- Providing a 12 hour quiet (recovery) period between pile driving days.
- Use of "soft start" or "ramping up" pile driving (e.g., driving does not begin at 100% energy).
- Use of cushion blocks when using an impact hammer.
- Using drilled shafts instead of hammered piles where appropriate.

3. Within 90 days of permit issuance and prior to any construction activities for the Bridge Replacement Project, whichever is earlier, a project schedule and plan is required to be developed and provided to the Division of Fish and Wildlife Services, attn: Kelly Davis at Kelly.Davis@dep.nj.gov for review. The project schedule and plan shall describe how the installation methods avoids or minimizes noise during sensitive life stages (migration and spawning) of ESA-listed species, federally-managed species, and other NOAA-trust resources such as anadromous fish.

THREATENED AND ENDANGERED SPECIES SPECIAL CONDITIONS:

1. To protect sensitive habitat for Peregrine Falcon (State-listed, endangered), the Permittee shall adhere to a seasonal restriction on all work, inclusive of project site preparation and storage of materials, from March 1 through July 31 of each calendar year.

2. Prior to the commencement of site preparation, inclusive of site clearing, project staging, onsite storage of materials, pre-construction earth movement, other site disturbance, and all authorized activities, and within 90 days of the issuance of this permit authorization, the Permittee **shall** submit to the NJDEP DLRP ETSU for review and written approval, an impact avoidance proposal designed to protect the identified Peregrine Falcon nesting habitat that exists at the project site. **To that end, the proposal must detail the construction of a nest structure suitable for use by Peregrine Falcons and all efforts that will be taken to ensure its occupation.**

    A. Guidance from NJ Fish & Wildlife supports installation of a replacement nest structure on Block 5708, Lot 91 and the City of Newark has confirmed that the NJTA is authorized to conduct mitigation efforts on this block and lot (Eric S. Pennington**,** City of Newark, April 1, 2024). The mitigation plan must propose an exact location of the proposed nest structure on Block 5708, Lot 91.

    B. The impact avoidance proposal must include the proposed project design and include four poles with a finished deck height of 25' to 30'. The deck should be approximately 10' x 10' and be made of wood or composite. The nest area should be made of an XL dog igloo, with no tunnel entrance. The applicant should include spikes on one pole for climber access to the nest structure.

    C. The impact avoidance proposal must detail all anticipated efforts to exclude peregrine falcons from the original nest location (i.e. exclusion netting over all suitable nest sites). If Peregrine Falcons are observed on or near the subject bridge, all authorized work shall cease immediately until the Permittee has coordinated with, and guidance on habitat management practices can be issued by, the NJ Department of Environmental Protection.

    D. The Permittee shall engage a qualified wildlife biologist, with sufficient knowledge of and experience with avian species, and particularly Peregrine Falcon behavior, to monitor the project area from March 1 through July 31 of the given calendar. The wildlife biologist shall document Peregrine Falcon usage of the newly installed nest structure and continued use of the bridge proposed for demolition. For the Department's review and approval, the

impact avoidance proposal must identify all contractors who plan to perform and assist with the Peregrine Falcon surveys and include a copy of their curriculum vitae, identifying their experience with avian survey. All State-listed (endangered, threatened, special concern) species observed must be reported to the NJDEP, Division of Fish and Wildlife, Endangered and Nongame Species Program.

E. The permittee must detail all efforts to exclude Peregrine Falcon from using the Newark Bay Bridge prior to construction as well as efforts to discourage Peregrine Falcon from nesting on the newly constructed Newark Bay Bridge.

F. The permittee must provide a detailed work schedule in relationship with measures to exclude Peregrine Falcon from nesting on the Newark Bay Bridge and construction of the alternate nest structure.

3. Prior to the commencement of site preparation, inclusive of site clearing, project staging, onsite storage of materials, pre-construction earth movement, other site disturbance, and all authorized activities, the Permittee shall demonstrate to NJDEP that the approved efforts to discourage Peregrine Falcon nesting on the Newark Bay Bridge and safe relocation of nesting to the alternate nest structure on Block 5708, Lot 91 have been successful. Once this has been confirmed, the proposed project can commence after concurrence from the NJDEP is issued.

FRESHWATER WETLAND MITIGATION CONDITIONS:

1. The permittee shall mitigate for the disturbance of **9.156** acres of herbaceous wetlands through an on-site or off-site creation, restoration or enhancement project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area in accordance with the mitigation hierarchy. (N.J.A.C. 7:7A-11 et seq)

2. **At least 90 days prior to the initiation of regulated activities authorized by this permit**, the permittee shall submit a mitigation proposal to the Division of Watershed Protection and Restoration (Division) for review and approval. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department (N.J.A.C. 7:7A-11.6(a)).

3. **All mitigation for permanent disturbances shall be conducted prior to or concurrent with the construction of the approved project** (N.J.A.C. 7:7A-11.3(a)). Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. **All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that caused the disturbance.**

4. If the permittee fails to perform mitigation within the applicable time-period the acreage of mitigation required shall be increased by 20 percent each year after the date mitigation was to begin (N.J.A.C. 7:7A-11.3(c)).

5. If the permittee is considering obtaining land to satisfy a mitigation requirement, the Department strongly recommends that the permittee obtain the Division's conceptual review and approval of any land being considered as a potential mitigation area.

6. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase of mitigation credits from an approved wetland mitigation bank to the attention of the

Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

Oradell Reservoir Mitigation Bank – Contact Doug Lashley, GreenVest. Phone: (410) 987-5500. Email: Doug@greenvestus.com; Or Brian Cramer, GreenVest. Phone: (732) 902-6644. Email: Brian@greenvestus.com.

7. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:

    a. **Prior to the initiation of regulated activities** authorized by this permit the permittee shall submit a final design of the mitigation project for approval and include all of the items listed on the checklist entitled Checklist for Completeness: Creation, Restoration or Enhancement for a Freshwater Wetland Mitigation Proposal located at https://dep.nj.gov/wlm/forms/.

    b. **Prior to the completion of the mitigation project**, the permittee shall complete, sign and file with the County Clerk (the Registrar of Deeds and Mortgages in some counties), a conservation restriction that meets the requirements of N.J.A.C. 7:7A-12.1. The conservation restriction shall include the wetland and required transition area and conform to the format and content of the Wetlands Mitigation Area model conservation restriction that is available at: https://dep.nj.gov/wlm/forms/. The permittee is required to include a metes and bounds description shown on a map. Within 180 days of the issuance of the mitigation approval, the recorded conservation restriction shall be provided to the Mitigation Unit, Division of Watershed Management and Restoration for verification. (N.J.A.C. 7:7A-12.1 et. seq.)

    c. The permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing **at least 30 days prior to the start of construction of the wetland mitigation project** to arrange an on-site pre-construction meeting among the permittee, the contractor, the consultant and the Division.

    d. To ensure the intent of the mitigation design and its predicted wetland hydrology is realized in the landscape, the mitigation designer shall be present on-site during all critical stages of mitigation construction and during the restoration of any temporarily impacted areas. Critical stages of construction include but are not limited to herbicide applications, earthmoving activities, planting, and inspections.

    e. The permittee shall be responsible for ensuring that best management practices are used throughout construction to control the spread and colonization of highly invasive plants. Specifically, all equipment, especially tracks and tires, must be thoroughly cleaned every time equipment or vehicles move from an area containing invasive plants or from off-site to the mitigation area. In addition, soil containing root fragments and above-ground vegetative material from invasive plants shall be carefully managed during earthmoving activities and disposed of at a suitable off-site location rather than mulched and reused or stockpiled elsewhere on the site.

    f. If changes to the mitigation design are necessary to ensure success of the project as a result of on-site conditions, the mitigation designer shall immediately notify the Division in writing and

submit an alternative plan which achieves the proposed wetland conditions. The Division shall review the plan in accordance with N.J.A.C. 7:7A-11.7. Any modifications to the plan that are reviewed and approved by the Division must be shown on a signed and sealed revised plan. The As-Built plans required as a part of the Construction Completion Report may serve as the signed and sealed revised plan required to be submitted as part of the construction modification process described above if time constraints warrant such action and have been approved by the Division in writing.

g. **Within 30 days of final grading of the mitigation site and prior to planting**, the permittee shall notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing to arrange a post-grading construction meeting among the permittee, contractor, consultant and the Division.

h. **Within 30 days following the final planting of the mitigation project**, the permittee shall submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction (N.J.A.C. 7:7A-11.12). The Construction Completion Report shall contain, at a minimum, the following information:

    i. A completed Wetland Mitigation Project Completion of Construction Form. This form is located at https://dep.nj.gov/wlm/forms/ and certifies that the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished;

    ii. As-Built plans which depict final grade elevations at one-foot contours and include a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes; and

    iii. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983.

i. **Within 30 days following final planting of the mitigation project**, the permittee shall post the mitigation area with permanent signs which identify the site as a wetland mitigation project and that all-terrain vehicle use, motorbike use, mowing, dumping, draining, cutting and/or removal of plant materials is prohibited and that violators shall be prosecuted and fined to the fullest extent under the law. The signs must also state the name of the permittee, a contact name and phone number, and the Department's permit number.

j. The permittee shall monitor **all freshwater wetland and transition area projects** for a minimum of 5 years, unless otherwise stipulated within the approved mitigation proposal, beginning the first full growing season after the mitigation project has been completed. The permittee shall submit monitoring reports to the Division of Watershed Management and Restoration no later than December 31st of each full monitoring year (N.J.A.C. 7:7A-11.12(g)). All monitoring reports must include the standard items identified in the checklist entitled, "Wetland Mitigation Monitoring Project Checklist", which can be found at https://dep.nj.gov/wlm/forms/.

k. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure. This mitigation project will be considered successful if the permittee demonstrates all of the following:

i. That the goals of the wetland mitigation project, including acreage and the required transition area, as stated in the approved wetland mitigation proposal and the permit have been satisfied. The permittee shall submit a field wetland delineation of the wetland mitigation project based on the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) which shows the exact acreage of State open waters, emergent, scrub/shrub and/or forested wetlands in the mitigation area;

ii. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or target hydrophytes, which are species native to the area and similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving and all trees must be at least five feet in height;

iii. The site has less than 10 percent coverage by invasive or noxious species.

iv. The site contains hydric soils or there is evidence of reduction occurring in the soil; and,

v. The proposed hydrologic regime as specified in the mitigation proposal has been satisfied.

l. The permittee is responsible for assuming all liability for any corrective work necessary to meet the success criteria established above (N.J.A.C. 7:7A-11.12(i)). The Division will notify the permittee in writing if the mitigation project is considered a failure. Within 30 days of notification, the permittee shall submit a revised mitigation plan to meet the success criteria identified above for Division review and approval. The financial surety, if required, will not be released by the Division until such time that the permittee satisfies the success criteria as stipulated above.

INTERTIDAL AND SUBTIDAL SHALLOWS AND TIDAL WATER MITIGATION CONDITIONS:

1. **At least 90 days prior to commencing regulated activities authorized by this permit,** the permittee shall submit a mitigation proposal to mitigate for the loss of **2.045** acres of intertidal and subtidal shallows and **3.808** acres of tidal water to the Division of Watershed Protection and Restoration (Division) for review and approval.

2. **All mitigation shall be conducted prior to or concurrent with the construction of the approved project.** Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole.

3. The permittee shall mitigate for the loss of intertidal and subtidal shallows and tidal waters through the creation of intertidal and subtidal shallows and tidal waters, at a creation to loss ratio of 1:1, on the site where the filling occurred.

4. If mitigation for the filling of intertidal and subtidal shallows and tidal waters is not feasible onsite, then mitigation shall be performed offsite through the creation of intertidal and subtidal shallows and tidal waters at a ratio of 1:1 within the same estuary as the site of the filling or through the purchase of in-kind credits form a mitigation bank with a service area that includes the site of the filling.

5. If mitigation for the filling of intertidal and subtidal shallows is not feasible onsite or offsite, then mitigation shall be in the form of restoration, creation, or enhancement of a wetland within the same estuary as the site of the filling in accordance with N.J.A.C. 7:7-17.13 or through the purchase of out-of-kind wetland credits from a mitigation bank with a service area that includes the site of the filling.

6. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, the permittee shall submit proof of purchase for mitigation credits from an approved wetland mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

   As of the date of this permit, **there are no mitigation banks** with the appropriate credit types serving your project area. Additional banks may be approved at any time, so please contact the Mitigation Unit for the most up to date service area information if you would like additional options.

7. If mitigation for the filling of intertidal and subtidal shallows and tidal waters is not feasible, then mitigation shall be in the form of one or both of the following, as determined in consultation with the Department:

   a. Upland preservation in accordance with the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A-15.9; or

   b. In-lieu fee payment in accordance with N.J.A.C. 7:7-17.16.

8. If mitigation for the filling of intertidal and subtidal shallows and tidal waters as described above is not feasible, then mitigation shall be in the form of a land donation in accordance with the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A-15.19.

9. If the permittee is proposing to construct an on-site intertidal subtidal shallows and/or tidal waters creation project, (see N.J.A.C. 7:17.11(b)) one acre of creation must be performed for each acre disturbed. If the permittee is proposing to mitigate through off-site creation, restoration, or enhancement project, or by purchasing credits from a mitigation bank serving the area an enhancement or creation project, the ratio of disturbance to mitigation required shall be in accordance with N.J.A.C. 7:7-17.11(c) through (g). If proposing onsite or offsite mitigation, provide the following:

   a. At least 90 days prior to commencing regulated activities authorized by this permit, submit for review and approval, a conceptual plan showing the location and proposed hydrology of the mitigation site; and

   b. Within 30 days of receiving Division approval of the conceptual mitigation proposal, submit a final design of the mitigation project.

10. The following requirements will apply to an onsite or offsite intertidal subtidal shallows and tidal waters mitigation project:

    a. Complete, sign and file with the County Clerk (the Registrar of Deeds and Mortgages in some counties), a conservation restriction protecting the mitigation site that meets the requirements of N.J.A.C. 7:7-18.

b. Notify the Mitigation Unit at the Division of Watershed Protection and Restoration in writing at least 30 days prior to the start of construction of the wetland mitigation project to arrange an on-site pre-construction meeting among the permittee, the contractor, the consultant and the Division.

c. In accordance with N.J.A.C. 7:7-17.11(h), within 60 days following the completion of the mitigation project, submit a Construction Completion Report to the Division detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction (N.J.A.C. 7:7-17.11(h)). The Construction Completion Report shall contain, at a minimum, the following information:

i. A completed Wetland Mitigation Project Completion of Construction Form that certifies the mitigation project has been constructed as designed and that the proposed area of wetland creation, restoration or enhancement has been accomplished. This form is located at on the Division's website at: https://dep.nj.gov/wlm/forms/ in the Mitigation tab of Forms & Checklists.

ii. An as-built plan of the completed mitigation area showing grading and any structures included in the approved mitigation proposal;

iii. Photographs, both pre and post construction, of the intertidal and subtidal shallows and tidal waters mitigation project including a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983; and

(1) For ISS creation projects only, provide documentation that the mitigation site meets the definition of an intertidal and subtidal shallow as defined at N.J.A.C. 7:7-9.15; and

d. Monitor the mitigation site in accordance with N.J.A.C. 7:7-17.11(i), (j), and (k).

11. Once the required monitoring period has expired and the permittee has submitted the final monitoring report, the Division will make the finding that the mitigation project is either a success or a failure (see N.J.A.C. 7:7-17.11(k)). This mitigation project will be considered successful if the permittee demonstrates all of the following:

i. That the goals of the ISS and tidal waters mitigation project, including acreage as stated in the approved mitigation proposal and the permit, have been satisfied. The permittee shall submit a field delineation of the mitigation project which shows the exact acreage of ISS in the mitigation area;

ii. The mitigation site is an intertidal and subtidal shallows area, as defined at N.J.A.C. 7:7-9.15, or tidal water. The documentation shall include tidal data, topography for the spring high tide line, photographs, and field observation notes collected throughout the monitoring period;

iii. The mitigation meets all applicable requirements of Subchapter 17 of the Coastal Zone Management Rules (N.J.A.C. 7:7-17);

iv. The mitigator has executed and recorded a conservation restriction that meets the requirements of N.J.A.C. 7:17-18.

12. The permittee is responsible for assuming all liability for any corrective work necessary to meet the success criteria established above (N.J.A.C. 7:7-17.13(h)). The Division will notify the permittee in writing if the mitigation project is a failure and the permittee shall submit a revised mitigation plan or alternative mitigation proposal to satisfy the mitigation requirement. No financial surety will be released until such time that the permittee satisfies the success criteria.

RIPARIAN ZONE MITIGATION CONDITIONS:

1. **At least 90 days prior to commencing regulated activities authorized by this permit**, the permittee shall submit a proposal to mitigate the disturbance of **4.358** acres of herbaceous riparian zone vegetation. The proposal shall be designed in accordance with the standards at N.J.A.C. 7:13-13. Activities authorized by this permit shall not begin until the permittee has obtained written approval of a mitigation plan from the Department (N.J.A.C. 7:13-13.2(b)).

2. **All mitigation for permanent disturbances shall be conducted prior to or concurrent with the regulated activity that causes the disturbance.** Concurrent means that at any given time, the mitigation must track at the same or greater percentage of completion as the project as a whole. **All mitigation for temporary disturbances shall be conducted immediately following completion of the activity that caused the disturbance.**

3. If the permittee is purchasing credits from a mitigation bank to satisfy a mitigation requirement, prior to the initiation of regulated activities authorized by this permit, the permittee shall submit proof of purchase for mitigation credits from an approved riparian mitigation bank to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

   At this time, the following bank(s) are approved to serve the project area; additional banks may be approved at any time, so please contact the Mitigation unit for the most up to date service area information if you would like additional options.

   Oradell Reservoir Mitigation Bank – Contact Doug Lashley, GreenVest. Phone: (410) 987-5500. Email: Doug@greenvestus.com; Or Brian Cramer, GreenVest. Phone: (732) 902-6644. Email: Brian@greenvestus.com.

4. If the permittee is considering conducting a creation, restoration or enhancement project, the following conditions shall apply:

   Prior to the initiation of regulated activities authorized by this permit, the permittee shall sign a Department approved conservation restriction to protect the mitigation area from future development that would remove the vegetation planted. (N.J.A.C. 7:13-13.2(g)). The conservation restriction shall conform to the format and content of the rules at N.J.A.C. 7:13-14 and the Riparian Zone Mitigation Area model located at https://dep.nj.gov/wlm/forms/. The restriction shall be included on the deed and recorded in the office of the County Clerk (the Registrar of Deeds and Mortgages in some counties) in the county wherein the lands of the mitigation project are located. A metes and bounds description shown on a map must be included within the recorded conservation restriction. Within 10 days of filing the conservation restriction, the permittee must send a copy of the conservation restriction to the attention of the Mitigation Unit Supervisor, NJDEP, Division of Watershed Protection and Restoration at Mail Code 501-02A, P.O. Box 420, Trenton, NJ 08625-0420.

5. The permittee shall monitor the riparian project for at least 5 years beginning the year after the riparian zone mitigation project has been completed (N.J.A.C. 7:13-13.12(c)). **The permittee shall submit monitoring reports to the Division of Watershed Protection and Restoration, no later than December 31st of each full monitoring year**.

    a. All monitoring reports except the final one should include the requirements and goals of the mitigation proposal and a detailed explanation of the ways in which the mitigation has or has not achieved progress toward those goals. If mitigation has not achieved progress, the report shall also include a list of corrective actions to be implemented and a timeline for completion.

    b. The final monitoring report must include documentation and data demonstrating that:

        i. The goals of the riparian zone mitigation as stated in the approved riparian zone mitigation proposal and the permit conditions have been satisfied.

        ii. At least 85 percent of the mitigation plantings have survived and that at least 85 percent of the mitigation area is established with native species similar to ones identified on the mitigation planting plan. All plant species in the mitigation area must be healthy and thriving. All trees must be at least 5 feet in height; and

        iii. The site is less than 10 percent occupied by invasive or noxious species; and

        iv. The conservation restriction for the mitigation site has been executed and recorded.

6. If the riparian mitigation project does not meet the success criteria established above the project shall be considered a failure and the permittee shall submit a revised riparian mitigation plan. The revised plan shall be submitted within 60 days of receipt of notification from the Division indicating the riparian mitigation project was a failure.

7. If the Division determines that the riparian zone mitigation project is not constructed in conformance with the approved plan, the permittee will be notified in writing by the Department and will have 60 days to submit a proposal to indicate how the project will be corrected.

8. For preservation projects, the application shall provide documentation showing that the proposed preservation area will fully compensate in accordance with N.J.A.C. 7:13-13.13 for the loss of functions and values caused by the disturbance.

SPECIAL CONDITIONS:

1. This permit is issued subject to compliance with N.J.A.C. 7:7-27.2 Conditions that apply to all coastal permits.

2. This permit to conduct a regulated activity in a state open water includes the Division's approval of a Water Quality Certificate for these activities.

3. The authorized activities shall comply with the applicable conditions set forth under N.J.A.C. 7:7A-5.7, 9.3, and 20.2. Failure to comply with these conditions shall constitute a violation of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et. seq.). Any additional un-permitted disturbance of freshwater wetlands, State open waters, or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act Rules

unless the activity is exempt or a permit is obtained from the Department prior to the start of the disturbance.

4. This authorization for a Freshwater Wetlands Individual Permit, Waterfront Development Individual In-water and Upland Permit, and Flood Hazard Area Individual Permit is valid for a term not to exceed five years from the date of this permit. If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit, the permittee must apply for and obtain a permit extension or a new permit, prior to the permit's expiration. If the term of the authorization exceeds the expiration date of the general permit issued by rule, and the permit upon which the authorization is based is modified by rule to include more stringent standards or conditions, or is not reissued, the applicant must comply with the requirements of the new regulations by applying for a new GP authorization or an Individual permit.

5. The Site Remediation Program Interest number associated with the project is No. G000008760. All activities shall conform to the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C. 7:26C), including Subchapter 16 regarding Linear Development Projects, and the Technical Requirements for Site Remediation (N.J.A.C. 7:26E).

6. To minimize turbidity downstream of the project area and to maintain the water quality of Newark Bay and all associated unnamed tributaries, construction activities within the channel may only be performed in the dry or dewatered conditions.

7. Construction equipment shall not be stored, staged or driven within any channel, freshwater wetland or transition area, unless expressly approved by this permit and/or described on the approved plans.

8. Raw, unset, or tremie concrete shall not come in contact with any surface waters onsite, since such contact can be toxic to aquatic biota.

9. All excavated material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.

10. Vegetation within 50 feet of the top of the bank shall only be disturbed in the areas specifically shown on the approved drawing(s). No other vegetation within 50 feet of the top of any stream bank onsite shall be disturbed for any reason. This condition applies to all channels onsite regardless of the contributory drainage area.

11. All riparian zone vegetation that is cleared, cut, and/or removed to conduct a regulated activity, access an area where regulated activities will be conducted, or otherwise accommodate a regulated activity shall be replanted immediately after completion of the regulated activity, unless prevented by seasonal weather, in which case the vegetation shall be replanted as soon as conditions permit. Portions of the riparian zone occupied by an authorized structure need not be replanted. The vegetation to be replanted shall:

i. Consist of vegetation of equal or greater ecological function and value as the vegetation that was cleared, cut, or removed. For example, herbaceous vegetation may be replaced with the same type of vegetation or with trees, but the trees in forested areas must be replaced with trees of equal or greater density and ecological function and value;

ii. Consist of native, non-invasive vegetation, except in an actively disturbed area. In an actively disturbed area, the vegetation may be replaced with the same type of vegetation that was cleared,

cut, or removed, or with another kind of vegetation typical of an actively disturbed area. For example, lawn grass may be replaced with garden plants or agricultural crops; and

iii. In cases where replanting would interfere with continued access to or maintenance of a structure that is required by Federal, State, or local law, the vegetation replanted shall meet the requirements to the extent feasible.

12. Any additional un-permitted disturbance of freshwater wetlands, transition areas, intertidal subtidal shallows, tidal open waters, and riparian zones besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act Rules unless the activity is exempt or a permit is obtained from the Department prior to the start of the proposed disturbance.

13. Any pipes laid through wetlands, transition areas, or State open water must be properly sealed so as to prevent leaking or infiltration. Pipes and backfilled materials must be placed entirely beneath the pre-existing ground elevation.

14. The excavation for any pipes within the wetlands and transition area must be backfilled with the original soil material or suitable material to within 18 inches of the surface. The upper 18 inches must be backfilled with the original topsoil material to the preexisting elevation and replanted with indigenous species.

15. The Department has determined that this project meets the requirements of the Stormwater Management rules at N.J.A.C. 7:8. Any future expansion or alteration of the approved stormwater management system, which would affect water quality, increase the rate or volume of stormwater leaving the site, affect the infiltration capacity on the site, or alter the approved green infrastructure best management practices, shall be reviewed and approved by the Department by obtaining a modification or new permit as appropriate prior to construction. This includes any proposed changes to the discharge characteristics of any basin, the construction of new inlets or pipes that tie into the storm sewer network and/or the replacement of existing inlets or pipes with structures of different capacity.

16. The applicant must adhere to the operations and maintenance plan for the stormwater management measures incorporated into the design of this major development in accordance with N.J.A.C. 7:8-5.8. Guidance set forth in the New Jersey Stormwater Best Management Practices Manual should be followed to the maximum extent practicable.

17. Any new, reconstructed, enlarged, or elevated structure within a flood hazard area shall be secured to resist flotation, collapse, and displacement due to hydrostatic and hydrodynamic forces from floodwaters.

18. All foundations, slabs, footings and walls of the proposed structure/s shall be designed to resist uplift, flotation, collapse and displacement due to hydrostatic and hydrodynamic forces resulting from flooding up to an elevation of one foot above the flood hazard area design flood elevation. Furthermore, all structural components shall be designed to resist the same forces.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.

2. The issuance of a permit does not convey any property rights or any exclusive privilege.

3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.

4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.

5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.

6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.

7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Watershed & Land Management by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:

    i. A description of the noncompliance and its cause;

    ii. The period of noncompliance, including exact dates and times;

    iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

    iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.

9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.

10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.

11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.

12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.

13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:

    i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;

    ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

    iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and

    iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.

14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.

15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.

16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.

17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.

18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.

19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.

20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.

21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.

22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.

23. A permit can be modified, suspended, or terminated by the Department for cause.

24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.

25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.

26. The permittee shall submit email notification to the Bureau of Coastal & Land Use Compliance & Enforcement at CLU_tomsriver@dep.nj.gov at least 3 days prior to commencement of site preparation and/or regulated activities, whichever comes first. The notification shall include proof of completion of all pre-construction conditions, including proof of recording of permits, approved plans and/or conservation easements, if required. The permittee shall allow an authorized Bureau representative on the site to inspect to ensure compliance with this permit.

27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to Watershed & Land Management through the DEP Online service. The uploaded documents will go directly into the Department's database, and staff will be notified that information has been received. The service can be found at: https://www.nj.gov/dep/landuse/epermit.html.

APPROVED PLAN(S):

The drawing(s) hereby approved consist of sixty nine (69) sheet(s) prepared by Micheal A. Morgan, P.E., of Gannet Fleming Inc., dated September 2023 unrevised, and entitled:

"NEW JERSEY TURNPIKE AUTHORITY NEW JERSEY TURNPIKE OPS NO. T3820, FRESHWATER WETLAND INDIVIDUAL PERMIT PLANS AND WATERFRONT DEVELOPMENT PERMIT PLANS, NEW JERSEY TURNPIKE NEWARK BAY-HUDSON COUNTY EXTENSION NEWARK BAY BRIDGE REPLACEMENT, CITY OF NEWARK, COUNTY OF ESSEX, CITY OF BAYONNE, COUNTY OF HUDSON"

- "LOCATION PLAN", sheet 1 of 23,
- "PLAN REFERENCE SHEET", sheet 2 of 23,
- "FRESHWATER WETLAND/WATEFRONT DEVELOPMENT PERMIT PLAN -1-" through "FRESHWATER WETLAND/WATERFRONT DEVELOPMENT PERMIT PLAN -10-", sheets 3 through 12 of 23,
- "FRESHWATER WETLAND/WATERFRONT DEVELOPMENT RESTORATION PLAN -1-" through "FRESHWATER WETLAND/WATERFRONT DEVELOPMENT RESTORATION PLAN -9-", sheets 13 through 21 of 23,
- "PLANTING NOTES AND DETAILS" sheets 22 and 23 of 23.

And,

"NEW JERSEY TURNPIKE AUTHORITY NEW JERSEY TURNPIKE OPS NO. T3820, NJDEP FLOOD HAZARD AREA PERMIT PLANS, NEW JERSEY TURNPIKE NEWARK BAY-HUDSON COUNTY EXTENSION NEWARK BAY BRIDGE REPLACEMENT, CITY OF NEWARK, COUNTY OF ESSEX, CITY OF BAYONNE, COUNTY OF HUDSON"

- "LOCATION PLAN", sheet 1 of 38,
- "PLAN REFERENCE SHEET", sheet 4 of 38,
- "FLOOD HAZARD AREA PLAN -1-" through "FLOOD HAZARD AREA PLAN -10-", sheets 5 through 14 of 38,
- "STORMWATER MANAEMENT PLAN -1-" through "STORMWATER MANAGEMENT PLAN -10-", sheets 15 through 24, of 38,
- "BASIN GRADING PLAN -01-" through "BASIN GRADING PLAN -07-", sheets 25 through 31, of 38
- "CONSTRUCTION DETAILS -1-" through "CONSTRUCTION DEAILS -7-", sheets 32 through 38 of 38.

Additional drawing(s) hereby approved consist of eight (8) sheet(s) prepared by Gannett Fleming, INC, dated February 2023, unrevised, unless otherwise noted, and entitled:

"NEW JERSEY TURPINKE AUTHOIRTY NEW JERSEY TURNPIKE OPS NO. T3820 NEW JERSEY TURNPIKE NEWARK BAY-HUDSON COUNTY EXTENSION BRIDGE REPLACMENTS AND CAPACITY ENHACEMENTS PROGRAM"

- "SECTION KEY PLAN"- Sheet No. 6 of 13,
- "SECTION S-01"- Sheet No. 7 of 13,
- "SECTION S-02"- Sheet No. 8 of 13,
- "SECTION S-03"- Sheet No. 9 of 13,
- "SECTION S-04 & SECTION S-05"- Sheet No. 10 of 13,
- "SECTION S-06"- Sheet No. 11 of 13,
- "SECTION S-07"- Sheet No. 12 of 13,
- "SECTION S-08"- Sheet No. 13 of 13.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at www.nj.gov/dep/bulletin). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at www.nj.gov/dep/landuse/forms.html). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, Mail Code 401-07A, P.O. Box 420, 401 East State Street, 7th Floor, Trenton, NJ 08625-0420. Additionally, a copy of the hearing request shall be submitted to the Director of Watershed & Land Management at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute

Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact Watershed & Land Management's Technical Support Call Center at (609) 777-0454.

Approved By:

Digitally signed by Janet Stewart
Date: 2024.04.03 12:29:11 -04'00'

Janet Stewart, Manager
Bureau of Coastal Permitting
Watershed & Land Management

c: Municipal Clerk, Newark City
Municipal Construction Official, Newark City
Agent (original) – Dana Flynn