

Draft Integrated Interim Response
Feasibility Report and Environmental
Assessment for Actionable Elements

**NEW YORK-NEW JERSEY
HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY**

**SUBAPPENDIX A-1C
OAKWOOD BEACH
ACTIONABLE ELEMENT SITE
ESSENTIAL FISH HABITAT (EFH)
WORKSHEET**

July 2025

Table of Contents

1	Introduction	3
1.1	Project Purpose and Need	3
1.2	Coordination and Consultation History	4
2	Study Area	6
2.1	Comprehensive Plan	6
2.2	Actionable Element Site – Oakwood Beach	7
3	Oakwood Beach Actionable Element Site	8
3.1	Project Description	8
3.2	Actionable Element Project Objectives	9
3.3	Existing Conditions Summary	10
3.4	EFH Effects and Consequences Summary	13
3.4.1	Adverse Effects	13
3.4.2	Beneficial Effects	14
3.5	EFH Worksheet	14
4	List of Preparers and Contributors	15

Figures

Figure 1. NYNJHAT Study Area	6
Figure 2. Oakwood Beach Actionable Element Site Location	7
Figure 3. Oakwood Beach Actionable Element Site Project Figure	9
Figure 4. Oakwood Beach Actionable Element Site Existing Conditions	12

Tables

Table 1. Target Natural Community	10
Table 2. Existing Vegetative Community	10
Table 3. Species with designated EFH in the Lower Bay Planning Region, Oakwood Beach Actionable Element Site	13

Attachments

Attachment 1 – EFH Worksheet for Oakwood Beach Actionable Element Site

1 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), New York District (District), has prepared this assessment to evaluate Essential Fish Habitat (EFH) for the New York New Jersey Harbor and Tributaries (NYNJHAT) Coastal Storm Risk Management (CSRM) Feasibility Study, Integrated Interim Response Feasibility Report and Environmental Assessment on Actionable Elements.

The NYNJHAT Study was authorized as a result of the findings in the January 2015, USACE North Atlantic Coast Comprehensive Study (NACCS) which identified high-risk areas on the Atlantic Coast for warranting further investigation of flood and coastal storm risk management solutions including the NYNJHAT study. In February 2019, a NYNJHAT Feasibility Study Interim Report (Interim Report) was completed to document existing information and assumptions about the future, and to identify knowledge gaps that warranted further investigation because of their potential to affect plan selection. The Interim Report states the impacts from Hurricane Sandy highlighted the National need for a comprehensive and collaborative evaluation to reduce risk to vulnerable populations within the North Atlantic region. In September 2022, a Draft Integrated Feasibility Report and Tier 1 (Programmatic) Environmental Impact Statement for the Comprehensive Plan was released detailing the additional analyses conducted following the Interim Report (2019) and what additional information was needed in the future for the remainder of Tier 1 and Tier 2 of the programmatic process.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended, was first passed in 1976 for the purpose of preventing overfishing, rebuilding overfished stocks, increase long-term economic and social benefits, ensure safe and sustainable supply of seafood, and protect habitat that fish need to spawn, breed, feed, and grow to maturity (NOAA Fisheries 2022). The MSA Reauthorization Act of 2007 amended the MSA to include annual catch limits and accountability measures, promote market-based management strategies (e.g. catch shares), strengthened peer-reviewed science, and enhance international cooperation to address illegal, unregulated, and unreported fishing (NOAA Fisheries 2022). The Sustainable Fisheries Act of 1996, as amended, strengthened the requirements to prevent overfishing and rebuilding overfished fisheries, set standards for fishery management plans to specific objectives and measurable criteria of stock status, added national standards for fishing vessel safety, fishing communities, and bycatch, new requirements for fishery management councils to identify and describe Essential Fish Habitat (EFH), to protect, conserve and enhance EFH, to designate Habitat Areas of Particular Concern, and establish a federal EFH consultation process that advises federal agencies to avoid, minimize, mitigate, or offset adverse effects to EFH (NOAA Fisheries 2022). The NOAA Fisheries EFH Mapper is a tool that allows users to discover where managed fish species spawn, grow, or live in a chosen location on the map: (<https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper>). The EFH mapper displays EFH, EFH areas protected from fishing, habitat areas of particular concern (HAPC), fishery management plans, and NOAA nautical charts.

Consultation with NOAA Fisheries is required for any Federal action that may adversely affect EFH. An adverse effect includes direct or indirect physical, chemical, or biological alternations to waters or substrate, species and their habitat, other ecosystem components, and quality and quantity of EFH. Consultation requires the preparation of an EFH Assessment (50 CFR Part 600.905).

This document focuses on the Oakwood Beach Actionable Element Site, comprised of a CSRM-focused Nature Based Solution (NBS) wetland enhancement and dune restoration, as a complimentary feature to the NYNJHAT Study Comprehensive Plan. This document further serves as a mechanism for coordination.

1.1 PROJECT PURPOSE AND NEED

Storms have historically severely impacted the NY/NJ Harbor region, including Hurricane Sandy most recently, causing loss of life and extensive economic damages.

In 2012, Hurricane Sandy caused considerable loss of life, extensive damage to property, and massive disruption to the North Atlantic Coast. The effects of this storm were particularly severe because of its tremendous size and the timing of its landfall during high tide. Twenty-six states were impacted by Hurricane Sandy, and disaster

declarations were issued in 13 states. NY and NJ were the most severely impacted states, with the greatest damage and most fatalities in the NY Metropolitan Area. For example, a storm surge of 12.65 feet above normal high tide was reported at Kings Point on the western end of Long Island Sound and 9.4 feet at the Battery on the southern tip of Manhattan. Flood depths due to the storm tide were as much as nine feet in Manhattan, Staten Island, and other low-lying areas within the NY Metropolitan Area. The storm exposed vulnerabilities associated with inadequate coastal storm risk management (CSRM) measures and lack of defense to critical transportation and energy infrastructure.

The January 2015, USACE North Atlantic Coast Comprehensive Study (NACCS) identified high-risk areas on the Atlantic Coast for warranting further investigation of flood risk management solutions. In February 2019, a NYNJHAT Feasibility Study Interim Report was completed to document existing information and assumptions about the future conditions, and to identify knowledge gaps that warranted further investigation because of their potential to affect plan selection. The Interim Report states the impacts from Hurricane Sandy highlighted the national need for a comprehensive and collaborative evaluation to reduce risk to vulnerable populations within the North Atlantic region. To address the impacts and concerns associated with devastating storms, the USACE New York District has proposed measures to manage coastal storm risk in the NYNJ Harbor and its tributaries.

In response, the USACE New York District is investigating measures to manage future flood and coastal storm risk in ways that support the long-term resilience and sustainability of the coastal ecosystem and surrounding communities, and reduce the economic costs and risks associated with flood and storm events for the NYNJHAT Study Area (USACE 2019). The alternative concepts proposed would help the region manage flood risk that is expected to be exacerbated by relative sea level rise.

The scope of the Interim Response Actionable Element builds upon the September 2022 Draft Integrated Feasibility Report (FR) and Tier 1 (Programmatic) Environmental Impact Statement (EIS), as an interim action while the overall Comprehensive Plan continues to be studied, subject to future funding and appropriations. The Comprehensive Plan is a programmatic assessment described as containing two tiers, with September 2022 Draft Report initiating the Tier 1, or broad-level assessment, with plans for a future Tier 2 containing the detailed site-specific analyses including any design refinements and reasonable alternatives. This Report is not a Tier 2, but rather an Interim Response to the Comprehensive Plan responsive to the larger Coastal Storm Risk Management (CSRM) authorization to assess a 2,500+ square mile radius in the New York-New Jersey Metropolitan Area. This interim response, like Tier 2, assesses the measures at a site-specific level, completing enough design maturity and analyses to disclose the potential effects of the Alternatives, and complete full environmental compliance. Interim responses often arise during the progress of a programmatic study, of which purpose and need is to respond to an immediate need for CSRM where able in the interim and corresponding with future legislative cycles (e.g. Water Resources Development Act (WRDA), while the more complex measures of the larger NYNJHAT Study require additional analysis, modeling, public engagement, and design maturity to complete. Interim responses often arise during the progress of a programmatic study, in this case, to respond to an immediate CSRM need in the interim and corresponding with future legislative cycles (e.g. Water Resources Development Act (WRDA), while the more complex measures of the larger NYNJHAT Study require additional analysis, modeling, public engagement, and design maturity to complete. The purpose and need of this action is to manage risk to critical infrastructure in local areas of high susceptibility to storm surge and at-risk communities. This Interim Response action addresses a critical need for CSRM measures in Harlem River, New York, East Riser, New Jersey, and Oakwood Beach, New York.

1.2 COORDINATION AND CONSULTATION HISTORY

Coordination with stakeholders has been a critical component of the NYNJHAT study. Since early 2017. The USACE New York District held many workshops and meetings with Cooperating and Participating Agencies and other stakeholders to share information on the study scope and purpose and formulation of alternatives, and to exchange ideas and information on natural and marine resources within the Study Area.

The USACE New York District announced the preparation of an Integrated Feasibility Report/Tiered EIS for the NYNJHAT study feasibility in the February 13, 2018 Federal Register pursuant to the requirements of Section

102(2)(C) of NEPA. The NEPA scoping period initially spanned 45 days from July 6 – August 20, 2018, but was extended to 120 days due to numerous requests from the public. The USACE New York District held a total of nine public scoping meetings during the public scoping period. In 2019, four NYBEM workshops were held on January 3, March 11, June 6, and November 14 to help inform the NYBEM model set up to be used as a tool for assessing some direct and indirect effects of agency actions on regional ecosystems including the NYNJHAT Study, among others.

In February 2020, the NYNJHAT Study paused until October 2021 due to a lack of Federal funding. Following study resumption, the USACE New York District held several Cooperating Agency meetings to facilitate open communication, share study progress, status updates, and data as it became available, including an Engineering presentation on the study alternatives, a presentation on the TSP, and a presentation on the NYBEM development progress. In September 2022, a Draft Integrated FR/Tier 1 (Programmatic) EIS was released for stakeholder, agency, and public review and comment. Following a substantial public review period of 175+ days, and approximately 2,700 comments received, many comments required a need for, among other requests, more consideration for Nature-Based Solutions to be incorporated into the Study. Ultimately, these comments informed the future of the NYNJHAT Study, and introduced the need for further coordination with public and resource agencies as the Study progresses.

2 STUDY AREA

2.1 COMPREHENSIVE PLAN

The Study Area of the NYNJHAT Study includes the NY Metropolitan Area, including New York City (NYC) which is the most densely populated city in the United States, and five of the six largest cities in New Jersey by population. The shorelines of some of the NYNJHAT Study Area is characterized by low elevation areas, developed with residential and commercial infrastructure, and is subject to tidal flooding during storms. The Study Area covers more than 2,150 square miles and comprises parts of 25 counties in New Jersey and New York, including Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, and Monmouth Counties in New Jersey; and Rensselaer, Albany, Columbia, Greene, Dutchess, Ulster, Putnam, Orange, Westchester, Rockland, Bronx, New York, Queens, Kings, Richmond, and Nassau Counties in New York.

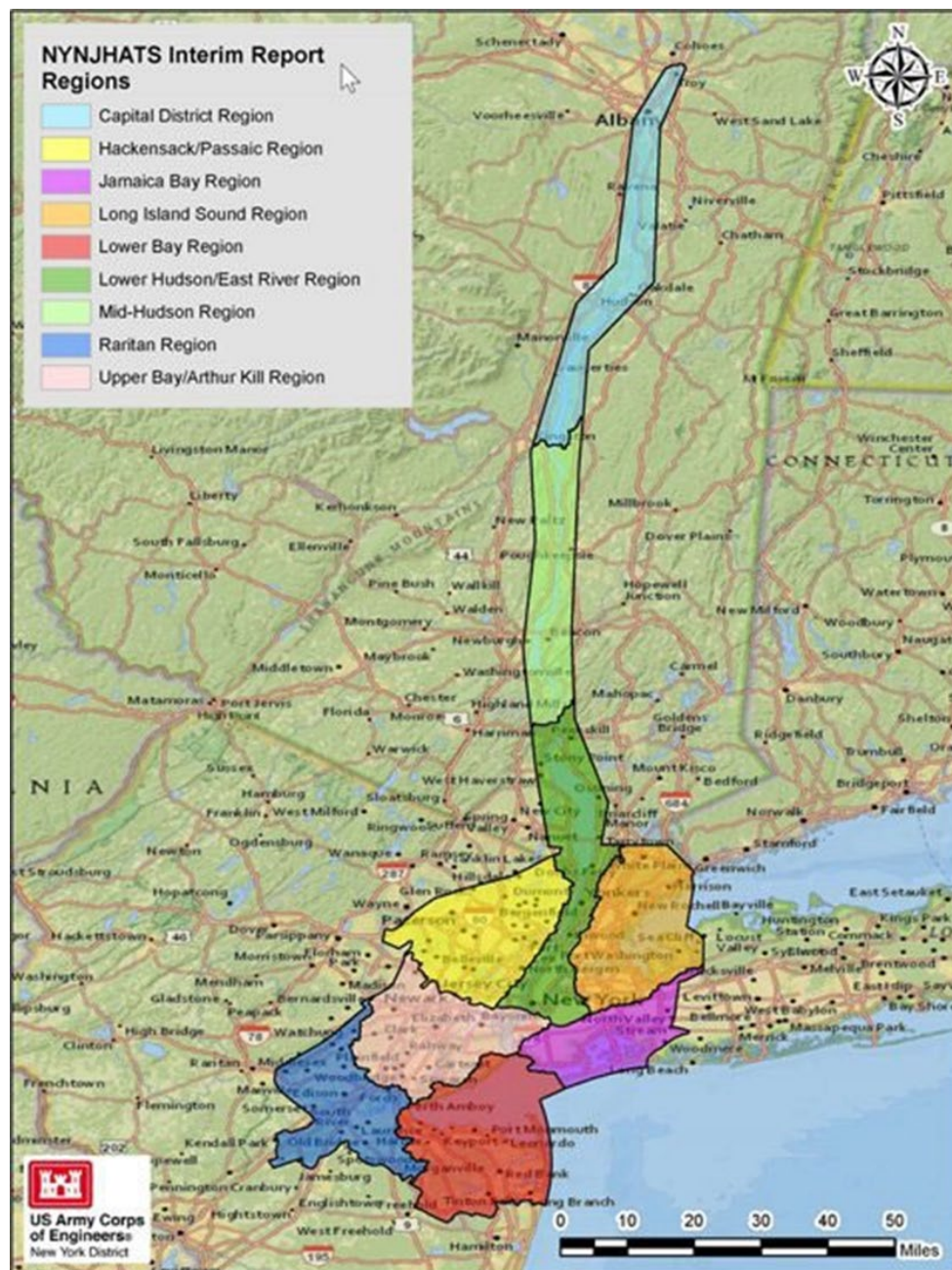


Figure 1. NYNJHAT Study Area

2.2 ACTIONABLE ELEMENT SITE – OAKWOOD BEACH

The Actionable Element Site identified within the Study Area is identified as Oakwood Beach, located in Richmond County, Staten Island, New York and a part of Great Kills Park, under the National Park Service jurisdiction Gateway National Recreation Area. This Actionable Element Site is located within the Lower Bay Planning Region of the overall Comprehensive Plan.

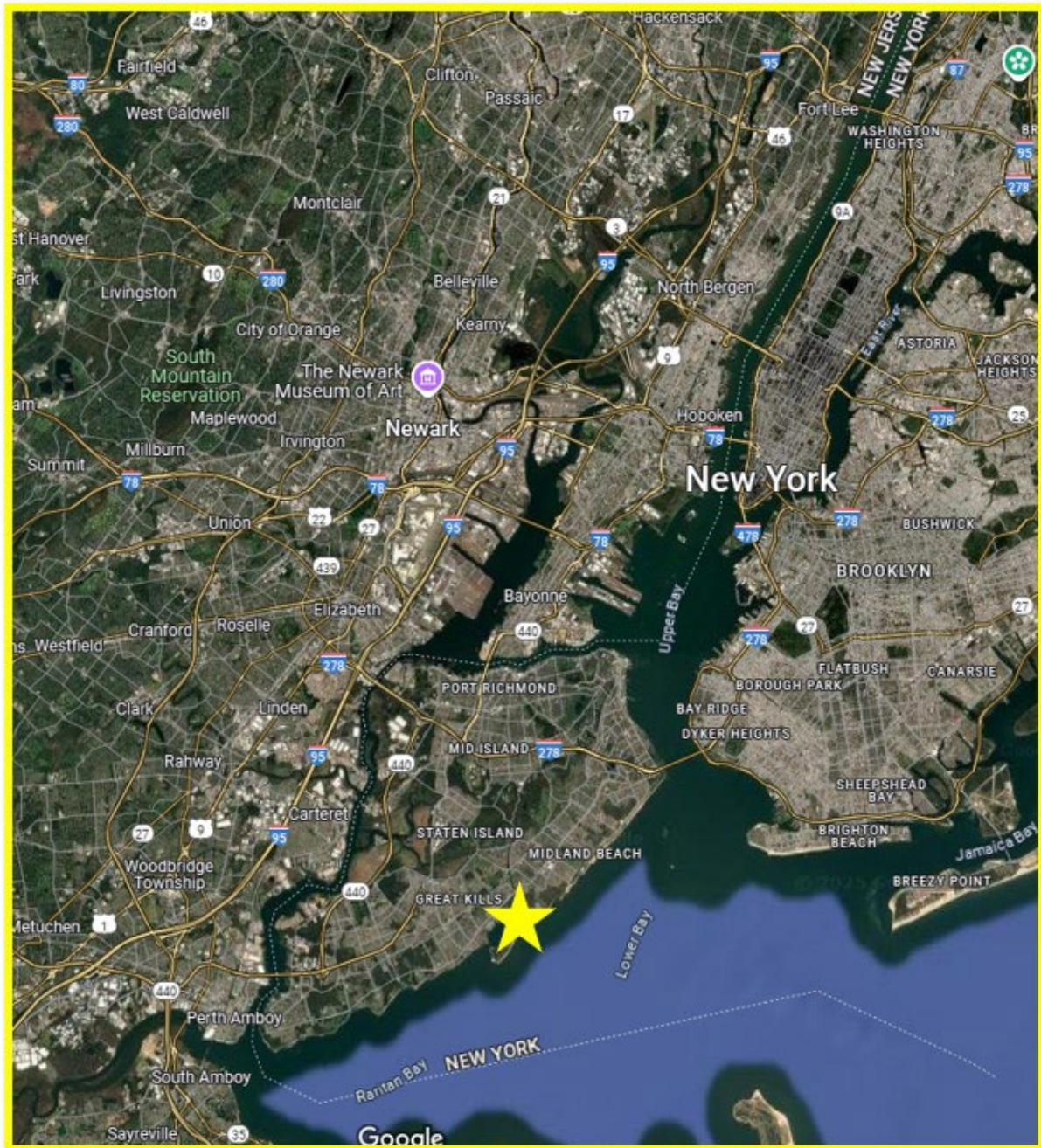


Figure 2. Oakwood Beach Actionable Element Site Location

3 OAKWOOD BEACH ACTIONABLE ELEMENT SITE

3.1 PROJECT DESCRIPTION

The Oakwood Beach Actionable Element Site is a Coastal Storm Risk Management (CSRM) nature-based feature of the NYNJHAT Study Overall Comprehensive Plan, managing high-frequency flood risk by serving as a natural buffer and also working complementary to the South Shore of Staten Island Project (presently under construction) and to Great Kills Park. The proposed Actionable Element will also manage wildfire risk for the impacted area. This CSRM-focused Nature-Based Solution (NBS) wetland enhancement includes three primary components: removal of non-native invasive plants, creation of a vegetative mosaic with native plants and tidal channels/pools, and dune restoration described in more detail below.

Removal of Non-Native Plants and Creation of Native Vegetative Mosaic and Tidal Channels:

The project proposes the removal of approximately 22.38-acres of non-native invasive Common Reed (*Phragmites australis*) and replacement with a vegetative mosaic of Low Salt Marsh (11.5 acres), High Salt Marsh (4.5 acres), Maritime Grassland (4.5 acres), Maritime Dune (5.5 acres), with upland buffers of Maritime Shrubland (3 acres) and Maritime Woodland (1 acre). Native plants will be established, with a particular focus on *Spartina alterniflora*, *Spartina patens* (salt meadow cordgrass), and *Distichlis spicata* (salt grass) for the created low and high marsh habitats. Any existing native plants that are salvageable will be salvaged and transplanted in the appropriate habitat. A network of tidal channels and/or pools with three main branches will be created within the vegetative mosaic supporting the created habitat, referred to as the North Channel, Middle Channel, and South Channel, totaling approximately 1.30-acres.

Dune Restoration:

Along the shoreline in front of and to the south of the created vegetative mosaic, adjacent to the mudflats and Lower Bay, a dune restoration measure is proposed for shoreline stabilization integral to maintaining the essential function of the restored wetland. The dune will consist of approximately 5.5 acres of clean sand with an elevation range up to 10-feet above mean sea level.

Additional Plan Features:

Riprap will be placed at several locations at the site to support erosion control and channel protection, including an approximate 1,115 cubic yards (CY) area to the east of the restored dune at the southeastern border adjacent to the Lower Bay between the existing riprap and main tidal channel (where a deteriorated wooden seawall is currently), 55-CY along the southwestern banks of the main tidal channel where existing riprap has eroded, 600-CY on the southeastern bank of the main tidal channel convergence with an eastern branching tidal channel where existing riprap is placed, and 700-CY at the inlets of the created tidal channels (along with coir fiber mats).

A maintained lawn trail will be developed on the westernmost edge of the site through the proposed maritime meadow, connecting an existing adjacent concrete bike/walking path to the parking lot for Great Kills Park to be utilized for O&M and public access.

Two osprey nests are proposed in the created maritime shrublands located within central the tidal channel network.

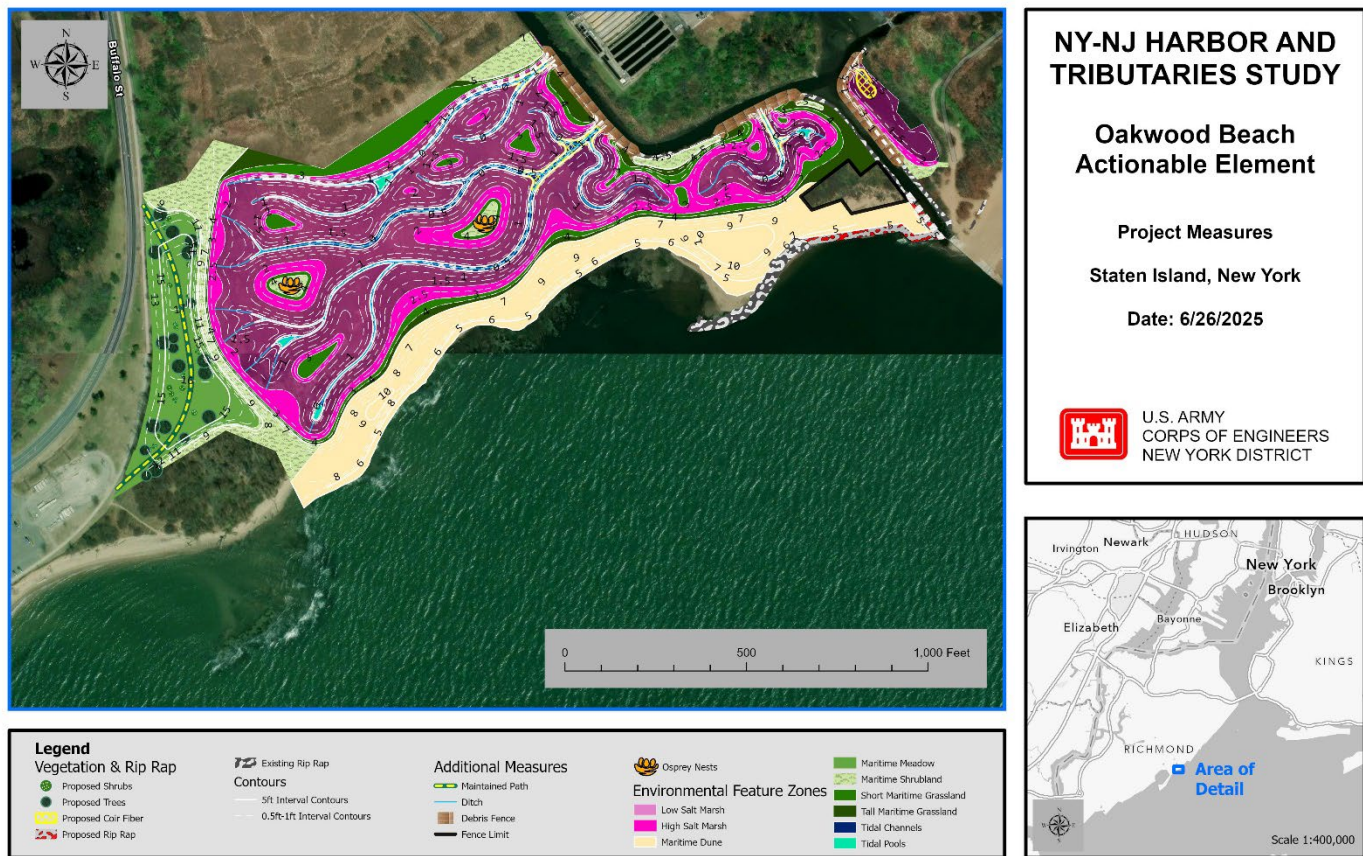


Figure 3. Oakwood Beach Actionable Element Site Project Figure

3.2 ACTIONABLE ELEMENT PROJECT OBJECTIVES

As excerpted from the New York City Department of Environmental Protections Habitat Restoration Plan:

*This restoration will maximize the replacement of the disturbed habitat with salt marsh naturally excluding *Phragmites australis* (common reed) – the invasive species responsible for the wildfires -- by bringing tidal flow into the interior of the project site area through a network of proposed channels via the existing tidal channel connected to the Lower New York Bay.*

*Currently, the site contains dense stands of common reed (*Phragmites australis*) which outcompete native vegetation that provides forage, cover, and other types of habitat for local and migrating wildlife species. To accomplish the project goals, hydrologic and topographical modifications are proposed to eliminate the standing crop of common reed and introduce tidal flow that will support low and high intertidal salt marsh habitat.*

Elevations to be achieved are those which predominantly support the low salt marsh habitat and eradicate common reed. The common reed root mass will be excavated to depths ranging approximately three to five feet. Tidal channels will be created, and the project area will be backfilled with approximately one foot of clean sand. The clean sand will provide the planting medium necessary to support the tidal wetland and associated coastal upland habitats that will be created as part of the project.

The existing tidal channel will be analyzed to determine the placement and depth of tidal channels within the proposed project area. Proposed elevations will be chosen based on tidal levels that targeted plant communities require. Channels created within the proposed salt marsh will drain of salt water during ebbing tide, where some mixing and influence of groundwater and stormwater may occur, including within the proposed tidal pools. The

proposed site design will maximize the elevation range of Mid Tide to Mean High Water that will support low marsh intertidal habitat. The creation of higher and lower points around the low salt marsh to establish both tidal salt pools and high marsh hummocks can be established throughout the site to increase habitat diversity and usage by coastal wildlife.

The existing site also contains a diverse patchwork of ecological systems that are worth preserving, both through protection and salvaging of existing plant material. The most notable ecological communities and features at the site include the maritime dune and beach and maritime shrubland. The proposed restoration plan incorporates and expands the extent and integrity of these communities preserving the maritime shrubland to the northeast of the site and expanding the existing dune to protect the salt marsh from future storms. Restoration plantings will be focused on *Spartina alterniflora*, *Spartina patens* (saltmeadow cordgrass), and *Distichlis spicata* (salt grass), for the created low and high marsh habitats.

The proposed higher diversity of intertidal marsh and maritime vegetated communities allows for the highest potential of biodiversity in plant and animal habitat once the project is completed. Targeted animal species include benthic invertebrates, marine herptiles, wading shorebirds and the species of fish that they typically forage for. The communities proposed offer the ideal habitat to support these species. The target habitats to be created/ restored with target elevation ranges and total acreage are included in Table 1, below:

Table 1. Target Natural Community

Target Natural Community	Elevation Range (above mean sea level, AMSL)	Acreage (total, non-contiguous)
Low Salt Marsh	-0.2 to 2.15 feet	11.5
High Salt Marsh	2.15 to 3 feet	4.5
Maritime Grassland	3 to 5 feet	4.5
Maritime Dune	Up to 10 feet	5.5
Maritime Shrubland	5+ feet	3
Maritime Woodland	6+ feet	1
Total Vegetative Community Acreage Created		30

Note: Approximates, may change quantities during Preconstruction, Engineering and Design. Source: (Hazen and Sawyer 2018)

3.3 EXISTING CONDITIONS SUMMARY

The Oakwood Beach Actionable Element Site is identified as a Federal and State listed wetland, with classification codes of Estuarine (E), Intertidal (2), Emergent, *Phragmites australis* [dominated], and Irregularly Flooded (P), as well as classification (NA-10) Class I, respectively. Vegetative communities present onsite includes non-native invasive common reed (*Phragmites australis*) dominance (approximately 22-acres) as well as some smaller vegetative communities of coastal shoals, bars and mudflats, maritime beach and maritime dune, successional maritime shrubland/forest, low salt marsh, and others in various quantities presented on the following table:

Table 2. Existing Vegetative Community

Vegetative Community	Acreage (total, non-contiguous)
Low Salt Marsh	1.43
Coastal Shoals, Bars, and Mudflats	6.07
Vegetated Coastal Shoals, Bars, and Mudflats	0.11

Salt Panne	0.09
Maritime Shrubland	1.06
Maritime Beach and Maritime Dune	5.98
Successional Maritime Shrubland/Forest	2.37
Common Reed/Non-Native Community	22.38
Total Vegetative Community Acreage	39.49

This Actionable Element Site is within a 100-year floodplain, Zone AE defined as an area with 1% chance of annual flood.

Existing habitat, although largely comprised of non-native invasive common reed, is anticipated to provide cover, shelter, foraging, and hunting for wildlife. USACE biologists have performed yearly bird monitoring along the Oakwood Beach shore since approximately 2017, noting observed presence of wildlife including wading, migratory, and predator birds, racoons, fox, and small fish and crabs in the existing tidal channel along the eastern border of the Site. Special status species potentially occurring in the vicinity of the Oakwood Beach Actionable Element Site include both Federal and State listed terrestrial species, such as piping plover, red knot, roseate tern, monarch butterfly (proposed). Aquatic special status species are present throughout the Comprehensive Plan Study Area, including the Lower Bay Planning Region where this Actionable Element Site is located; however, no aquatic threatened or endangered species are anticipated within the Actionable Element Site.

Four Marine Protected Areas (MPAs) are present within the Lower Bay Planning Region, one of which is collocated within this Actionable Element Site. This MPAs classification is zoned as "Multiple Use", and is managed by the National Park Service (NPS). Commercial and recreational fishing is restricted. This Actionable Element Site is also present within a Coastal Zone Management Act boundary and NPS Great Kills Park.

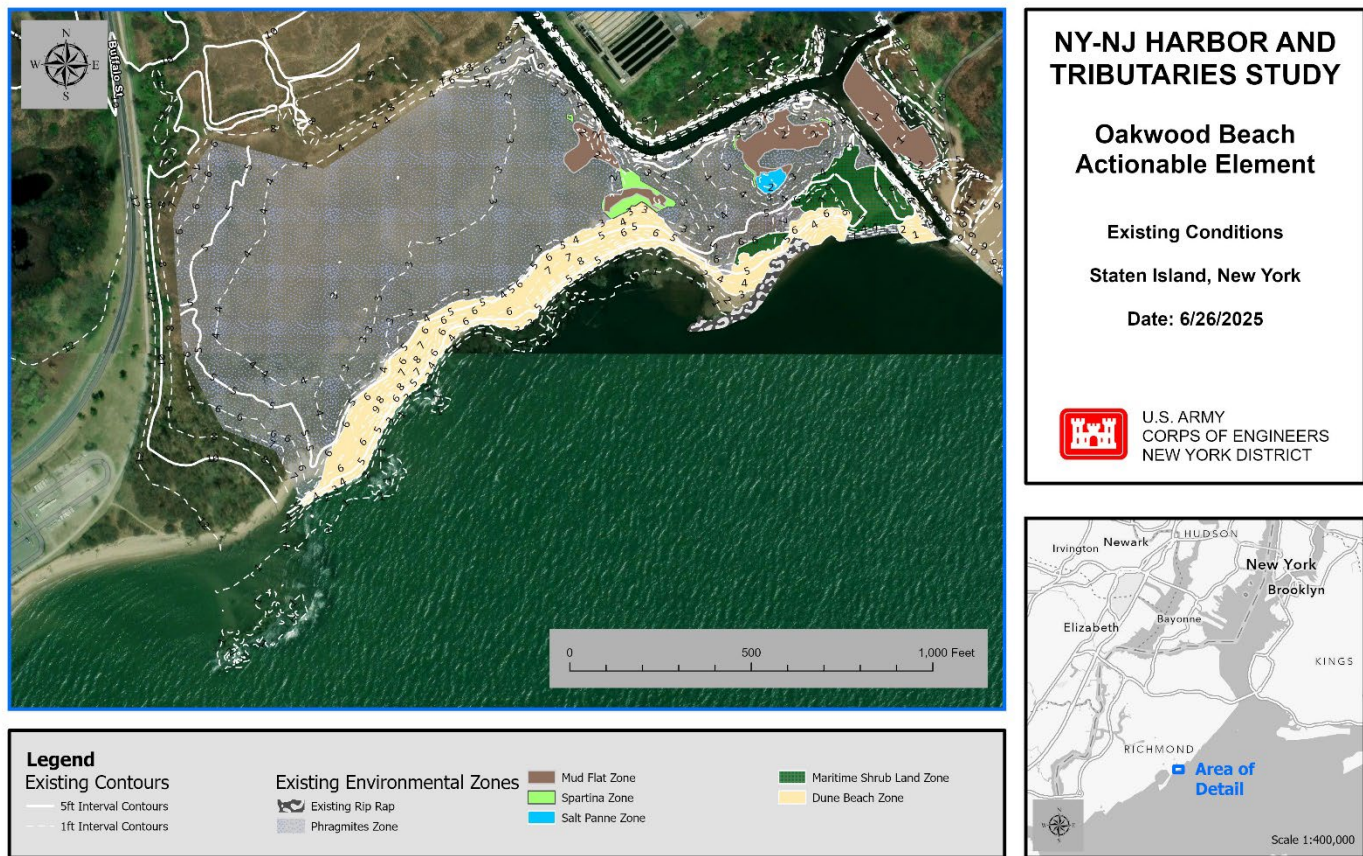


Figure 4. Oakwood Beach Actionable Element Site Existing Conditions

EFH within the NYNJHAT Study Area is both spatially and temporally highly variable. Some species are restricted to offshore waters, while others may occupy both nearshore and offshore waters, and migrate within and around the bays. Some species are well adapted for life within open ocean or pelagic waters, while others are primarily associated with the benthos or demersal waters. These habitat preferences can also vary among the different life stages of the species, and finfish studies conducted within the region confirm that seasonal abundances are highly variable, as many species are highly migratory (USACE, 2020a). The Study Area does not contain EFH areas protected from fishing. One HAPC, summer flounder SAV, is mapped across most of Study Area. Due to the dynamic nature of SAV and the differences in local mapping, detailed region-wide mapping of this HAPC is not available. Therefore, local mapping and site investigations, where appropriate, must be used to determine SAV presence at a specific area. Refer to the SAV (Submerged Aquatic Vegetation) Resource Section for additional information, as applicable, to this Actionable Element Site.

Based on a review of the EFH Mapper for the New England / Mid-Atlantic and Atlantic Highly Migratory Species Councils, the Actionable Element Site may contain EFH for various life stages of approximately 13 managed fish and invertebrate species (Table x). Refer to Appendix A-1x for additional information.

Refer to the September 2022 Draft Integrated FR/Tier 1 (Programmatic) EIS for a list of all EFH species throughout the HATS Study Area.

Table 3. Species with designated EFH in the Lower Bay Planning Region, Oakwood Beach Actionable Element Site

Common Name	Scientific Name	Life Stage	Habitat Association	Fishery Management Plan
Winter Flounder	<i>Pseudopleuronectes americanus</i>	E, L, J, A	Demersal	Amendment 14 to the Northeast Multispecies FMP
Little Skate	<i>Leucoraja erinacea</i>	J, A	Demersal	Amendment 2 to the Northeast Skate Complex FMP
Atlantic Herring	<i>Clupea harengus</i>	L, J, A	Pelagic	Amendment 3 to the Atlantic Herring FMP
Red Hake	<i>Urophycis chuss</i>	E, L, J, A	Egg/Larvae: Pelagic; Juvenile/Adult: Demersal	Amendment 14 to the Northeast Multispecies FMP
Silver Hake	<i>Merluccius bilinearis</i>	E, L,	Demersal/Pelagic	Amendment 14 to the Northeast Multispecies FMP
Yellowtail Flounder	<i>Limanda ferruginea</i>	J	Demersal	Amendment 14 to the Northeast Multispecies FMP
Windowpane Flounder	<i>Scophthalmus aquosus</i>	E, L, J, A	Egg: Pelagic; Larvae/Juvenile/Adult: Demersal	Amendment 14 to the Northeast Multispecies FMP
Winter Skate	<i>Leucoraja ocellata</i>	J, A	Demersal	Amendment 2 to the Northeast Skate Complex FMP
Clearence Skate	<i>Raja eglanteria</i>	J, A	Demersal	Amendment 2 to the Northeast Skate Complex FMP
Bluefish	<i>Pomatomus saltatrix</i>	J, A,	Pelagic	Bluefish
Longfin Inshore Squid	<i>Loligo pealeii</i>	E	Egg: Demersal/Somewhat Structure Oriented; Juvenile/Adult: Pelagic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Atlantic Butterfish	<i>Peprilus triacanthus</i>	L	Pelagic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Summer Flounder	<i>Paralichthys dentatus</i>	L, J, A	Demersal	Summer Flounder, Scup, Black Sea Bass

Notes: E (egg), L (larvae), J (juvenile), A (adult).

3.4 EFH EFFECTS AND CONSEQUENCES SUMMARY

3.4.1 Adverse Effects

While fish are not present within the project site due to a lack of sustaining habitat (permanent saturation), small fish are potentially present in the adjacent tidal channel, and as construction would include the creation of a tidal channel network within the site from that existing channel, fish would be able to access additional portions of the site from the convergence. During construction direct impacts would occur to the adjacent channel in the process of expanding the tidal channel network into the site, and as such areas of fish habitat would be removed, or introduce temporary limited access to those areas. Direct adverse effects from construction may cause temporary displacement, noise, vibrations, sediment resuspension, and disturbances that would make existing habitat temporarily unusable. Fish are expected to move to areas of nearby suitable habitat and avoid active construction, returning once construction is complete. Indirect effects may cause foraging/food sources to be disturbed and/or removed temporarily but are anticipated to return in frequency, diversity and abundance following construction. The transition of non-native habitat to native habitat would be more suitable for fish, but may temporarily deter fish while the wetland is re-established to fully functioning habitat. Measures and best

management practices to reduce potential impacts to fish may be considered on an as needed basis, if necessary.

No direct or indirect adverse effects from operation and maintenance of the site are anticipated to fish. The site would continue to be monitored for establishment of the native habitat, to prevent the return on non-native habitat, preserving the quality of habitat for fish that would be present and venture to access the inner network of the wetland. Maintenance may include non-native plant management, such as herbicide application and removal which could temporarily disturb fish, but would be negligible given that species present are likely highly adaptable to urban environments of the New York City Metropolitan Area. Any operations and maintenance activities, including herbicide application, will be done under Best Management Practices, and with the appropriate Federal and/or State and local jurisdiction permit and regulations.

3.4.2 Beneficial Effects

The proposed project would remove non-native phragmites, and replace with native habitat, inclusive of a new network of tidal channels more suitable for fish, providing additional areas to forage and shelter. With the conversion to native habitat, the wetland would be better quality habitat for fish with the tidal channel and native salt marsh plantings. The increased function and capacity of the CSRM wetland would be designed to function as a nature-based coastal storm risk management feature that could more naturally support the absorption of flood damages, and would be more readily able to function as a natural CSRM buffer between the coast and surrounding communities. Increased benefits would be observed from managing fire risk that can have indirect effects to fish, such as fire damage and storm damage related pollution into waters frequented by fish.

3.5 EFH WORKSHEET

As such, a EFH worksheet was completed for the project, and is provided as an attachment to this EFH Subappendix.

4 LIST OF PREPARERS AND CONTRIBUTORS

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NOAA Fisheries Greater Atlantic Regional Fisheries Office
Essential Fish Habitat (EFH) Assessment & Fish and Wildlife
Coordination Act (FWCA) Consultation Worksheet
August 2021 rev.

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

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Mid-Atlantic - NY, NJ, PA, MD, VA

Karen Greene, Branch Chief

Jessie Murray - NY, Northern NJ (Monmouth Co. and north)

Keith Hanson - NJ (Ocean Co. and south), DE and PA, Mid-Atlantic wind

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***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:

Project/Application Number:

Project Name:

Project Sponsor/Applicant:

Federal Action Agency (or state agency if the federal agency has provided written notice delegating the authority¹):

Fast-41: Yes No

Action Agency Contact Name:

Contact Phone: Contact Email:

Address, City/Town, State:

2. Project Description

²Latitude: Longitude:

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

Project Purpose:

Project Description:

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

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 EFH³? Yes No

Is the project in designated HAPC? Yes No

Does the project contain any Special Aquatic Sites⁴? Yes No

Is this coordination under FWCA only? Yes No

Total area of impact to EFH (indicate sq ft or acres):

Total area of impact to HAPC (indicate sq ft or acres):

Current range of water depths at MLW Salinity range (PPT): Water temperature range (°F):

³Use 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?*

*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)		
Sand (0.063-2mm)		
Rocky: Pebble/Gravel /Cobble(2-256mm)**		
Rocky: Boulder (256-4096mm)**		
Rocky: Coral		
Bedrock**		

⁶The 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.

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 than 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	

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 - <u>List species here:</u>
	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
	Underwater noise
	Water quality/turbidity/contaminant release
	Vessel traffic/barge grounding
	Impingement/entrainment
	Prevent fish passage/spawning
	Benthic community disturbance
	Impacts to prey species

Select all that apply and if temporary ⁹ or permanent		Habitat alterations caused by the activity
Temp	Perm	
		Water depth change
		Tidal flow change
		Fill
		Habitat type conversion
		Other:
		Other:

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.

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.

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?

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.

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

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 they 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 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	
American eel	
American shad	
Atlantic menhaden	
blue crab	
blue mussel	
blueback herring	
Eastern oyster	
horseshoe crab	
quahog	
soft-shell clams	
striped bass	
other species:	
other species:	
other species:	

12. Useful Links

[National Wetland Inventory Maps](#)

[EPA's National Estuary Program \(NEP\)](#)

[Northeast Regional Ocean Council \(NROC\) Data Portal](#)

[Mid-Atlantic Regional Council on the Ocean \(MARCO\) Data Portal](#)

Resources by State

Maine

[Maine Office of GIS Data Catalog](#)

[Town shellfish information including shellfish conservation area maps](#)

[State of Maine Shellfish Sanitation and Management](#)

[Eelgrass maps](#)

[Casco Bay Estuary Partnership](#)

[Maine GIS Stream Habitat Viewer](#)

New Hampshire

[NH Statewide GIS Clearinghouse, NH GRANIT](#)

[NH Coastal Viewer](#)

[State of NH Shellfish Program](#)

Massachusetts

[MA DMF Shellfish Sanitation and Management Program](#)

[MassGIS Data \(Including Eelgrass Maps\)](#)

[MA DMF Recommended TOY Restrictions Document](#) [Massachusetts](#)

[Bays National Estuary Program](#)

[Buzzards Bay National Estuary Program](#)

[Massachusetts Division of Marine Fisheries](#)

[Massachusetts Office of Coastal Zone Management](#)

Rhode Island

[RI Shellfish and Aquaculture](#)

[RI Shellfish Management Plan](#)

[RI Eelgrass Maps](#)

[Narragansett Bay Estuary Program](#)

[Rhode Island Division of Marine Fisheries](#)

[Rhode Island Coastal Resources Management Council](#)

Connecticut

[CT Bureau of Aquaculture](#)

[Natural Shellfish Beds in CT](#)

[Eelgrass Maps](#)

[Long Island Sound Study](#)

[CT GIS Resources](#)

[CT DEEP Office of Long Island Sound Programs and Fisheries](#)

[CT River Watershed Council](#)

New York

[Eelgrass Report](#)

[Peconic Estuary Program](#)

[NY/NJ Harbor Estuary Program](#)

[New York GIS Clearinghouse](#)

New Jersey

[Submerged Aquatic Vegetation Mapping](#)

[Barnegat Bay Partnership](#)

[NJ GeoWeb](#)

[NJ DEP Shellfish Maps](#)

Pennsylvania

[Delaware River Management Plan](#)

[PA DEP Coastal Resources Management Program](#)

[PA DEP GIS Mapping Tools](#)

Delaware

[Partnership for the Delaware Estuary](#)

[Center for Delaware Inland Bays](#)

[Delaware FirstMap](#)

Maryland

[Submerged Aquatic Vegetation Mapping](#)

[MERLIN \(Maryland's Environmental Resources and Land Information Network\)](#)

[Maryland Coastal Atlas](#)

[Maryland Coastal Bays Program](#)

Virginia

[VMRC Habitat Management Division](#)

[Submerged Aquatic Vegetation mapping](#)