Appendix E
Essential Fish Habitat Assessment Worksheet

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

Introduction:

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

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

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

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

Your analysis of adverse effects to EFH under the MSA should focus on impacts to the habitat for all life stages of species with designated EFH, rather than individual responses of fish species. Fish habitat includes the substrate and benthic resources (e.g., submerged aquatic vegetation, shellfish beds, salt marsh wetlands), as well as the water column and prey species.

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

Instructions for Use:

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

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

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

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

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

The information contained on the HCD Consultation website and NOAA's EFH Mapper will assist you in completing this worksheet. Please note that the Mapper is currently being up-dated with new designations and EFH maps and text descriptions for many species are temporarily missing. When you open the Mapper, read the WARNING that pops up when you click on the Greater Atlantic Region. It will direct you to a document with maps and text descriptions for each of the missing New England Species and to the Mapper's Data Inventory where a data layer for all the missing species is available for downloading into GIS software. Once the Mapper is up-dated, you can do a Location Query for your project location, but until then, the only way to easily generate a list of the missing species and life stages is to use your own GIS software. Before you fill out the worksheet, we recommend that you check with the appropriate HCD staff member to ensure that your list is complete and accurate. They will be able to answer any questions that you have.

Also note that a number of new Habitat Areas of Particular Concern (HAPCs) have been designated in the Greater Atlantic Region. HAPC maps will also be added to the Mapper the next time it is up-dated. Currently, they can be viewed by following the instructions on the warning page for the region. We expect the Mapper to be fully up-dated and functional later this spring.

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

PROJECT NAME: NASA Wallops Flight Facility Fiber-Optic Cable Installation

DATE: 07/25/2019

PROJECT NO.:

LOCATION (Water body, county, physical address):

Watts Bay and Ballast Narrows, Wallops Island, Accomack County, VA

PREPARER: NASA

Step 1: Use NOAA's EFH Mapper to generate the list of designated EFH for federally-managed species and life stages for the geographic area of interest. Use this list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. The list can be included as an attachment to the worksheet. Make a preliminary determination on the need to conduct an EFH consultation.

1. INITIAL CONSIDERATIONS

EFH Designations	Yes	No
Is the action located in or adjacent to EFH designated for eggs? **List the species:**	☐	☑
Is the action located in or adjacent to EFH designated for larvae? **List the species:** Neonates for sand tiger shark, sandbar shark, and smoothhound shark complex - Atlantic stock	☑	☐
Is the action located in or adjacent to EFH designated for juveniles? **List the species:** Atlantic butterfish, black sea bass, bluefish, clearnose skate, sand tiger shark, sandbar shark, smoothhound shark complex - Atlantic stock, summer flounder, and winter skate	☑	☐

Is the action located in or adjacent to EFH designated for adults or spawning adults? List the species: Atlantic butterfish, Atlantic herring, black sea bass, bluefish, clearnose skate, sand tiger shark, sandbar shark, smoothhound shark complex - Atlantic stock, summer flounder, windowpane flounder, and winter skate	✔	

If you answered 'no' to all questions above, then an EFH consultation is not required - go to Section 5.

If you answered 'yes' to any of the above questions, proceed to Section 2 and complete the remainder of the worksheet.

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

2. SITE CHARACTERISTICS

Site Characteristics	Description
Is the site intertidal, sub-tidal, or water column?	Salt marsh portion of proposed fiber-optic cable alignment is intertidal; bay and narrows portions are subtidal/water column.
What are the sediment characteristics?	Fine-grained material (silts and clays)
Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the SAV species and spatial extent.	No. According to Virginia Institute of Marine Science SAV Monitoring - Interactive Map, the nearest SAV density (not fully mapped) is located approximately 3 miles (straight line) from the project alignment. (http://web.vims.edu/bio/sav/savwabmap/)
Are there wetlands present on or adjacent to the site? If so, describe the spatial extent and vegetation types.	Project alignment would cross approximately 3,900 feet of tidal salt marsh (Walker Marsh) between Ballast Narrows and Watts Bay. Cable would be installed in marsh by vibratory and open trenching, and hand-holes would be installed at two locations where horizontal directional drilling (HDD) boreholes would exit. Vegetation would be re-established in accordance with NASA WFF vegetation management policies in the small areas impacted by vegetation removal.

Is there shellfish present at or adjacent to the project site? If so, please describe the spatial extent and species present.	The project alignment crosses private oyster ground leases in Ballast Narrows and Watts Bay. Private or public oyster grounds cover the majority of Watts Bay (Virginia Marine Resources Commission, 2019). The Virginia Marine Resources Commission (VMRC) verbally informed NASA by phone call on/around 21 August 2019 that the HDD portion of the project is exempt from subaqueous permitting, no royalties would be required, and the project can proceed in these areas as designed.
Are there mudflats present at or adjacent to the project site? If so please describe the spatial extent.	Mudflats are located adjacent to the Project alignment in Ballast Narrows and Watts Bay. The nearest mudflats are approximately 400 feet from the Ballast Narrows segment and approximately 900 feet from the Watts Bay segment.
Is there rocky or cobble bottom habitat present at or adjacent to the project site? If so, please describe the spatial extent.	No
Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so for which species, what type habitat type, size, characteristics?	No
What is the typical salinity, depth and water temperature regime/range?	Salinity ranges between approximately 20 and 32 ppt (Suttles et al./USGS 2017, Summary of Oceanographic and Water-Quality Measurements in Chincoteague Bay, Maryland and Virginia, 2014–15). The water depth in Ballast Narrows is approximately -1.32 feet. The water depth in Watts Bay is approximately -3.28 feet (2016 USGS CoNED Topobathymetric Model (1859 - 2015): Chesapeake Bay Region). Water temperature ranges from 0 and 30°C.
What is the normal frequency of site disturbance, both natural and man-made?	Natural site disturbance may occur during storms and higher-than-normal tidal cycles, when the Project area may be inundated with wrack and other debris. Man-made disturbance in the area may consist of motorized small boat traffic, activities at the North Wallops Island UAS airstrip, and rocket launches from the Wallops Flight Facility launch range.
What is the area of proposed impact (work footprint & far afield)?	Project involves installation of a fiber-optic cable by HDD beneath Ballast Narrows and Watts Bay and by vibratory trenching and open trenching in the salt marsh between the narrows and bay (Walker Marsh). Hand-installation of the cable via water jetting would occur in three guts located in Walker Marsh. Area of potential impact is the corridor in which the cable would be installed and adjacent areas. Corridor length would include approximately 9,400 feet to be installed by HDD and 3,900 feet to be installed by trenching and jetting across Walker Marsh. Areas of disturbance of marsh vegetation: access matting-1,900 square feet (sf); HDD work areas-15,000 sf; vibratory trench-49,500 sf; open trench-19,000 sf. Total disturbance would of Walker Marsh would be 85,400 sf (1.96 acres).

<u>Step 3</u>: This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

3. DESCRIPTION OF IMPACTS

Impacts	Y	N	Description
Nature and duration of activity(s). Clearly describe the activities proposed and the duration of any disturbances.			Project involves installation of a fiber-optic cable by HDD beneath Ballast Narrows and Watts Bay and by vibratory and open trenching in the salt marsh (Walker Marsh) between the narrows and bay. The activity would be short-term and temporary. There would be temporary staging areas at the two HDD borehole exit points for HDD equipment, HDPE conduit, and fiber optic cable. Temporary access mats would be used. Temporary staging at the borehole entry areas would be required for the HDD equipment and slurry boxes. The vibratory trenching machinery would create a temporary opening in the ground for the concurrent direct burial of the fiber optic cable conduit; there is no side cast of excavation material. Water jetting would be used for trenching across three guts in the marsh. Open trenching would be conducted in the areas immediately surrounding three guts. Specialized low-ground-pressure trenching equipment to would be used to minimize compaction of soil and vegetation. Project would be completed in 3 months, including 1 month in Walker Marsh. All work would occur between September and March.
Will the benthic community be disturbed? If no, why not? If yes, describe in detail how the benthos will be impacted.	✔		The benthic community of Ballast Narrows and Watts Bay will not be disturbed because the use of HDD will preclude the need for in-water work in those areas. The benthic community of the salt marsh may be physically impacted within the narrow path where trenching and water jetting would occur, and in the areas where the two HDD boreholes exit. These areas would be re-vegetated as needed, and the benthic community would re-establish through natural processes. Benthic community may be temporarily disturbed by anchoring of a barge at the east and west borehole exit areas on Walker Marsh.
Will SAV be impacted? If no, why not? If yes, describe in detail how the SAV will be impacted. Consider both direct and indirect impacts. Provide details of any SAV survey conducted at the site.		✔	SAV would not be impacted. According to Virginia Institute of Marine Science SAV Monitoring - Interactive Map, the nearest SAV density (not fully mapped) is located approximately 3 miles (straight line) from the project alignment. (http://web.vims.edu/bio/sav/savwabmap/)
Will salt marsh habitat be impacted? If no, why not? If yes, describe in detail how wetlands will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?	✔		Salt marsh would be temporarily impacted by the installation of a fiber-optic cable by trenching across Walker Marsh, the salt marsh island between the narrows and bay. The length of the segment through the marsh would be approximately 3,900 feet, and the width of the corridor in which vegetation would be disturbed by the installation activities would be 14 feet. In addition, small areas on each end of the marsh segment would be impacted where the HDD boreholes exit, as well as the areas of disturbance associated with the open trenching. The total area of marsh potentially affected would be approximately 2 acres. The impacts would be temporary because trenching would immediately bury the cable, the open trench and boreholes would be backfilled, and vegetation would be reestablished in accordance with NASA WFF vegetation management policies and regulatory requirements in areas where vegetation is removed.

Will mudflat habitat be impacted? If no, why not? If yes, describe in detail how mudflats will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?		✔	Mudflat habitat would not be directly impacted because mudflats are not documented within the project path and in-water work would be avoided through the use of HDD.
Will shellfish habitat be impacted? If so, provide in detail how the shellfish habitat will be impacted. What is the aerial extent of the impact? Provide details of any shellfish survey conducted at the site.		✔	Shellfish habitat in the bay and narrows would not be impacted because in-water work would be avoided through the use of HDD. Shellfish habitat may be present in the three guts within Walker Marsh where water jetting would be used to install the cable in the subaqueous bottom. The habitat area that may be temporarily disturbed where these guts are crossed would be small and would re-establish through natural processes.
Will hard bottom (rocky, cobble, gravel) habitat be impacted at the site? If so, provide in detail how the hard bottom will be impacted. What is the aerial extent of the impact?		✔	Not present
Will sediments be altered and/or sedimentation rates change? If no, why not? If yes, describe how.	✔		Sediments may be disturbed by trenching in the salt marsh. However, vibratory trenching does not require excavation of an open trench or side cast, and best management practices (BMPs) would be used to prevent or minimize erosion and corresponding increases in sedimentation and turbidity. Filling of the two borehole exit areas and open trenches with excavated sediment and re-vegetation of the affected areas in accordance with NASA WFF vegetation management policies would ensure that impacts would be temporary. Sedimentation rates would not change.
Will turbidity increase? If no, why not? If yes, describe the causes, the extent of the effects, and the duration.	✔		Turbidity may increase due to trenching activity and borehole exit areas in the salt marsh. However, impacts would be temporary and prevented or minimized through the use of BMPs. Water jetting for installation of conduit in the subqaueous bottom of three guts in the marsh may temporarily increase turbidity in the creeks; turbidity curtains would be used to minimize the migration of disturbed sediments beyond the immediate area of the crossing.

Will water depth change? What are the current and proposed depths?	☐	☑	No
Will contaminants be released into sediments or water column? If yes, describe the nature of the contaminants and the extent of the effects.	☐	☑	Accidental spills of fuel or other hazardous substances would be prevented or minimized through the contractor's adherence to spill prevention and control measures as specified in WFF's Integrated Contingency Plan. The installation contractor would be required to regularly maintain and inspect equipment to prevent the occurrence of leaks or spills. An inadvertent release of drilling mud could occur during HDD. Drilling mud is a viscous fluid consisting mainly of clay (bentonite) in water. It is essentially nontoxic, and any release would be short-term and localized. Potential effects could include increased turbidity from suspended clay particles in the immediate vicinity of the release, which may temporarily interfere with respiration by invertebrates and fish. Conditions would return to a pre-disturbance condition once particles disperse in the water column and/or settle to the bottom.
Will tidal flow, currents, or wave patterns be altered? If no, why not? If yes, describe in detail how.	☐	☑	No in-water work will be performed.
Will water quality be altered? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration of the impact.	☐	☑	BMPs will be employed to prevent possible releases of contaminants, such as oil, fuel, hydraulic fluid, or drilling mud, into the water column from vibratory trenching and drilling equipment. Water jetting for installation of conduit in the subaqueous bottom of three guts in the marsh may temporarily increase turbidity in the creeks; however, turbidity curtains would be used to minimize the migration of disturbed sediments beyond the immediate area of the crossing. Any effects on water quality from inadvertent releases of such substances or increases in turbidity would be localized and temporary.
Will ambient noise levels change? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration and degree of impact.	☑	☐	Ambient noise levels would increase in the vicinity of the equipment used for vibratory trenching and HDD operations. The effects would be temporary and would occur only during limited periods while the equipment is being operated.
Does the action have the potential to impact prey species of federally managed fish with EFH designations?	☑	☐	Prey species may be indirectly affected through their avoidance of noise and vibration and/or increases in turbidity. However, impacts would be temporary and confined to the immediate area of the segment through Walker Marsh during installation.

Step 4: This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species (from the list generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. NOAA's EFH Mapper should be used during this assessment to determine the ecological parameters/ preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT

Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:			
Spawning **If yes, describe in detail how, and for which species. Describe how adverse effects will be avoided and minimized.**		✔	Project area does not provide spawning habitat for EFH species.
Nursery **If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.**		✔	Only neonates of sandbar, smoothhound, and sand tiger sharks may use the area as nursery habitat. There would be limited in-water work associated with jetting in the guts, and potential turbidity effects from trenching in the salt marsh would be limited in duration and small in extent. Turbidity curtains would be used to minimize the spread of turbidity beyond the immediate area.Therefore, nursery habitat for these species would not be significantly affected. The proposed project will incorporate a time-of-year (TOY) restriction between April 1 and August 31 to avoid impacts on the eastern black rail (Laterallus jamaicensis jamaicensis), a small, marsh-dwelling migratory bird proposed for listing by the USFWS as threatened under the Endangered Species Act (ESA) and known to occur on and near WFF. Adherence to this measure would also minimize the potential for effects on nursery habitat during the project.
Forage **If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.**		✔	Adults and juveniles of Atlantic butterfish, black sea bass, bluefish, clearnose skate, sand tiger shark, sandbar shark, smoothhound shark complex - Atlantic stock, summer flounder, and winter skate and adults of Atlantic herring and windowpane flounder potentially forage in the Project area in the shallow, brackish habitats of Ballast Narrows and Watts Bay. Potential turbidity effects from trenching in the salt marsh would be limited in duration and extent. Similarly, water jetting across three guts in the marsh may increase turbidity in the creeks temporarily; however, turbidity curtains would be used to minimize the spread of turbidity beyond the immediate area of the crossing. Therefore, food sources available to these species would not be reduced, and foraging habitat for these species would not be significantly affected.
Shelter **If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.**		✔	Adults and juveniles of Atlantic butterfish, black sea bass, bluefish, clearnose skate, sand tiger shark, sandbar shark, smoothhound shark complex - Atlantic stock, summer flounder, and winter skate and adults of Atlantic herring and windowpane flounder potentially find shelter in the Project area in the shallow, brackish habitats of Ballast Narrows and Watts Bay. Potential turbidity effects from trenching in the salt marsh would be limited in duration and extent. Similarly, water jetting across three guts in the marsh may increase turbidity in the creeks temporarily; however, turbidity curtains would be used to minimize the spread of turbidity beyond the immediate area of the crossing. Therefore, sheltering habitat for these species would not be significantly affected.

Will impacts be temporary or permanent? Please indicate in description box and describe the duration of the impacts.			Direct, minor, and temporary impacts from earth disturbance and associated erosion, turbidity, and sedimentation. The temporary area of disturbance on Walker Marsh is anticipated to be 2 acres (1.96 acres). Best management practices would be used to prevent or minimize impacts. Temporary impacts would cease upon installation of the cable. The proposed project will incorporate a TOY restriction between April 1 and August 31 to avoid impacts on the eastern black rail. Adherence to this measure would further limit the portion of the year in which impacts may occur to an approximately 3-month period between September and March.
Will compensatory mitigation be used? If no, why not? Describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation plan, if applicable.	☐	☑	No compensatory mitigation is proposed. Applicable BMPs would be used to minimize temporary adverse effects.

<u>Step 5</u>: This section provides the federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

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

5. DETERMINATION OF IMPACT

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

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

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT

Species known to occur at site (list others that may apply)	Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.
alewife	Anadromous -- adults and juveniles potentially may pass through the Project area when migrating between offshore waters and freshwater spawning areas. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
American eel	Catadromous -- juveniles potentially may pass through the Project area before maturing and entering freshwater streams and rivers. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
American shad	Anadromous -- adults and juveniles potentially may pass through the Project area when migrating between offshore waters and freshwater spawning areas. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
Atlantic menhaden	Larvae, juveniles, and adults potentially may occur in the Project area. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
blue crab	All life stages potentially may occur in the Project area. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
blue mussel	Not present in project area due to lack of suitable habitat.
blueback herring	Anadromous -- adults and juveniles potentially may pass through the Project area when migrating between offshore waters and freshwater spawning areas. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.

Eastern oyster	Waters in the Project area provide habitat for all life stages of the eastern oyster, and extensive oyster beds are present in the area. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
horseshoe crab	Not present in project area due to lack of suitable habitat.
quahog	Potentially present in muddy sand substrates in the Project area. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
soft-shell clams	Potentially present in muddy sand substrates in the Project area, although water depths may be too shallow. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species if present.
striped bass	Anadromous -- adults and juveniles potentially may pass through the Project area when migrating between offshore waters and freshwater spawning areas. Project includes no in-water work that would adversely affect this species. Localized, temporary turbidity from jetting, trenching and HDD borehole exits in the salt marsh would be unlikely to adversely affect the species.
other species:	

Useful Links

National Wetland Inventory Maps

EPA’s National Estuaries Program

Northeast Regional Ocean Council (NROC) Data

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

Resources by State:

Maine
Eelgrass maps

Maine Office of GIS Data Catalog

Casco Bay Estuary Partnership

Maine GIS Stream Habitat Viewer

New Hampshire
New Hampshire's Statewide GIS Clearinghouse, NH GRANIT

New Hampshire Coastal Viewer

Massachusetts
Eelgrass maps

MADMF Recommended Time of Year 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
Eelgrass maps

Narraganset Bay Estuary Program

Rhode Island Division of Marine Fisheries

Rhode Island Coastal Resources Management Council

Connecticut

Eelgrass Maps

Long Island Sound Study

CT GIS Resources

CT DEEP Office of Long Island Sound Programs and Fisheries

CT Bureau of Aquaculture Shellfish

Maps CT River Watershed Council

New York

Eelgrass report

Peconic Estuary Program

NY/NJ Harbor Estuary

New Jersey

Submerged Aquatic Vegetation mapping

Barnegat Bay Partnership

Delaware

Partnership for the Delaware Estuary

Center for Delaware Inland Bays

Maryland

Submerged Aquatic Vegetation mapping

MERLIN

Maryland Coastal Bays Program

Virginia

Submerged Aquatic Vegetation mapping