NOAA Fisheries Essential Fish Habitat Consultation

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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

Chris Boelke, Branch Chief	christopher.boelke@noaa.gov
Mike Johnson - ME, NH	mike.r.johnson@noaa.gov
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Mid-Atlantic - NY, NJ, PA, MD, VA

Karen Greene, Branch Chief	karen.greene@noaa.gov
Jessie Murray - NY, Northern NJ (Monmouth Co. and north)	jessie.murray@noaa.gov
Keith Hanson - NJ (Ocean Co. and south), DE and PA, Mid-Altantic wind	keith.hanson@noaa.gov
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Jonathan Watson - MD, DC	jonathan.watson@noaa.gov
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Ecosystem Management (Wind/Aquaculture)

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

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

EFH Assessment Worksheet rev. August 2021

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

1. General Project Information

Date Submitted: 01/20/2026

Project/Application Number:

Project Name: Wallops Flight Facility Shoreline Protection Program

Project Sponsor/Applicant: National Aeronautics and Space Administration, Wallops Flight Facility

Federal Action Agency (or state agency if the federal agency has provided written notice delegating the authority[1]): National Aeronautics and Space Administration

Fast-41: Yes ☐ No ☑

Action Agency Contact Name: Shari Miller, Environmental Planning Group Lead

Contact Phone: 757.864.5662 Contact Email: shari.a.miller@nasa.gov

Address, City/Town, State:

Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

2. Project Description

[2]Latitude: 37.8477839°N Longitude: 75.2102609°W

Body of Water (e.g., HUC 6 name): Chincoteague Watershed; 02060010

Project Purpose:

The purpose of the project is to protect the Wallops Island shoreline through beach renourishment, construction of additional breakwaters, and/or repair and extension of the existing seawall in order to reduce the potential for damage to, or loss of, NASA, U.S. Navy, U.S. Air Force, and Virginia Spaceport Authority Mid-Atlantic Regional Spaceport assets on Wallops Island from effects associated with storm events and erosion.

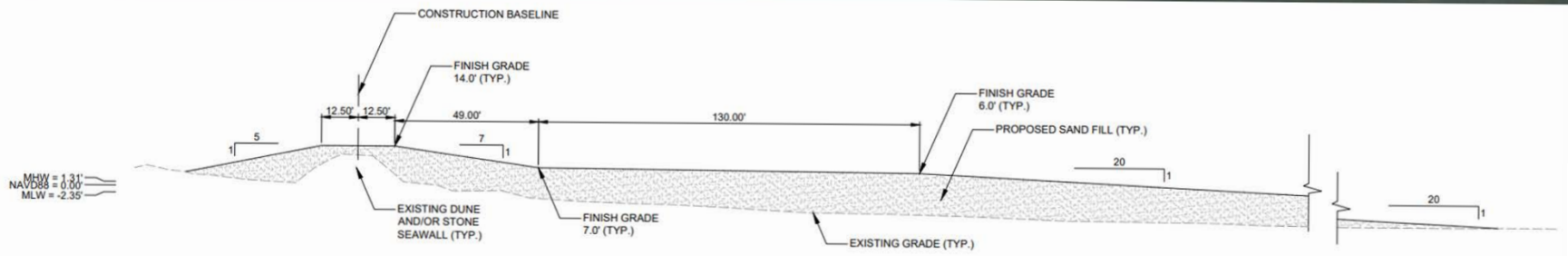
Project Description:

Consistent with the Action Alternatives described in detail in the 2010 Final SRIPP PEIS, reexamined in the 2013 Final Post-Hurricane Sandy EA, and implemented following completion of the 2019 Final Shoreline Enhancement and Restoration Project EA, NASA is preparing the Wallops Flight Facility Shoreline Protection Program EA. NASA's Proposed Action would implement measures to protect the beach along the Wallops Island shoreline infrastructure protection area. The Proposed Action could involve a combination of the following: sand renourishment within an approximate 15,000-ft section of shoreline from the south property line on Wallops Island north to the location of the fire station; construction of up to 12 breakwaters in the near shore area between the existing breakwaters; as well as repairs and extension of the existing seawall.
Shoreline stabilization activities would occur in phases depending on a number of factors, including infrastructure prioritized for protection, the pace and location of erosion, and the availability of funding. For example, a section of beach that experiences rapid erosion in a storm event could be renourished followed by construction of breakwaters in one year, and in another year additional renourishment, breakwaters construction, or both, could occur in another area.

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

The dredging and beach fill portion of the project would take approximately 3 months. Construction of each breakwater is estimated to take approximately 2 months.

[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.



L4 TYPICAL BEACH TEMPLATE PROFILE

1" = 20'-0"

0 20' 40'

Project Area Description

The project area consists of three primary areas, the beach, offshore sand area, and offshore breakwater area.

For the impacted beach area, sand would be placed onshore along 15,000 feet of beach extending from just north of the southern property line to the north near the fire station. Renourishment of the beach at the Wallops Island shoreline infrastructure protection area would result in a new shoreline extending several hundred feet offshore from the current shoreline. The new beach profile would increase wave dissipation and provide onshore infrastructure protection from storm events. After the initial placement, there would be an equilibration period during which there would be a rapid loss of sand offshore to fill in deeper portions of the beach profile. The new beach profile would continue to adjust to the minor changes in borrow material sediment size, local wind and wave, climate and tidal action. Adjustments may be episodic as spring tides and/or storms result in transport of the borrow material. Over time, the new beach would be reshaped until it is in equilibrium with the natural forces and assume a normal profile.

The renourishment process would begin with the dredge contractor transporting equipment and materials to the project site. Offshore equipment would include several miles of discharge pipe, pumpout buoys, and multiple barges, tugboats, derricks, and smaller crew transportation vessels. Once the dredge hopper is filled, the dredge would transport the material to a pump-out station that would be placed at a water depth of approximately 30 feet, approximately 2 miles offshore of the placement or beach area. The pathway from Unnamed Shoal A to the pump-out buoy is not a straight line, but a dogleg shape with a turning point, for the purpose of avoiding Chincoteague Shoal and Blackfish Bank. The distance from the turning point to the pump-out buoy is approximately 8 miles. The one-way distance from Unnamed Shoal A to the pump-out buoy is approximately 14 miles. It is estimated that the pump-out station would be moved up to 10 times to accommodate transit by the dredge. Booster pumps may be needed to aid the offloading of sand from the pump-out buoy to the shoreline.

For the offshore sand area, sand would be taken from Unnamed Shoal A. Unnamed Shoal A is around 1,800 acres (over 2.5 square miles) and is an unvegetated, offshore sand ridge located roughly 7 miles east of Assateague Island and 11 miles northeast of Wallops Island. Approximately 515 acres of the sub-area A-1 were dredged for the initial beach renourishment in 2012. Approximately 3 million cubic yards of sand material from Unnamed Shoal A may be placed in the shoreline areas, over the next seven years. Because of overflow from the hopper dredge at the borrow site during dredging and losses during discharge and placement, a larger volume of material would need to be dredged to meet the targeted fill volume. Sediment losses during dredging and placement operations are assumed to be up to 50 percent. Using this estimate, the dredged volume for the proposed renourishment would be approximately 4.5 million cubic yards of sand and it is anticipated that 3 million cubic yards would be moved per renourishment event. The dredging and beach fill portion of the project would take approximately 3 months. In the table above, "no" was checked for the "restored to pre-existing conditions" column because, as explained in the footnote, we expect the dredging of Unnamed Shoal A would be done in a way to not substantially change shoal topography and conditions to be restored naturally over time.

Breakwaters would also be implemented approximately 200 feet offshore. Each individual breakwater would convert approximately 0.275 acre of unconsolidated sand into hardbottom seafloor EFH. If all twelve breakwaters were constructed, a total of 3.30 acres of unconsolidated sand would be converted into hardbottom seafloor EFH.

3. Site Description

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

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

Is the project in designated HAPC? ☐ Yes ☑ No

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

Is this coordination under FWCA only? ☐ Yes ☑ No

Total area of impact to EFH (indicate sq ft or acres): see below (habitat types)

Total area of impact to HAPC (indicate sq ft or acres): 0 acres

Current range of water depths at MLW	Salinity range (PPT):	Water temperature range (°F):
12 ft	28-36 ppt	57-77 °F

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

4. Habitat Types

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

Habitat Location	Habitat Type	Total impacts (lf/ft²/ft³)	Temporary impacts (lf/ft²/ft³)	Permanent impacts (lf/ft²/ft³)	Restored to pre-existing conditions?*
Marine	Substrate (sand/shell)	15,000 linear feet of shoreline	X		No
Marine	Substrate (sand/shell)	474 acres	X		No
Marine	Shore (unconsolidated)	3.30 acres		X	No
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one

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

Submerged Aquatic Vegetation (SAV) Present?:

Yes: ☐ No: ☑

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

No SAV is located within the 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)	No	
Sand (0.063-2mm)	Yes	100%
Rocky: Pebble/Gravel /Cobble(2-256mm)**	No	
Rocky: Boulder (256-4096mm)**	No	
Rocky: Coral	No	
Bedrock**	No	

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

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

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

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

Sediment samples collected on Wallops Island in 2007 and 2009 indicated native median grain sizes ranging from approximately 0.18 to 0.27 mm corresponding to fine sand per the American Society for Testing and Materials unified classification system. Samples collected during the initial beach fill indicate that the sediment within the nourished portion of the beach is coarser, with median grain sizes between approximately 0.28 and 0.54 mm, corresponding to fine to fine to medium sand.

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

Yes: ☑ No: ☐

5. EFH and HAPC Designations

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

Species Present	EFH is designated/mapped for:				What is the source of the EFH information included?
	EFH: eggs	EFH: larvae	EFH: juvenile	EFH: adults/ spawning adults	
albacore tuna	☐	☐	☑	☐	EFH Mapper
Atlantic angel shark	☐	☐	☐	☐	EFH Mapper
Atlantic butterfish	☑	☐	☑	☑	EFH Mapper
Atlantic herring	☐	☐	☑	☑	EFH Mapper
Atlantic surf clam	☐	☐	☑	☑	EFH Mapper
Atlantic sharpnose shark (Atlantic st	☐	☐	☐	☑	EFH Mapper
Black sea bass	☐	☑	☑	☑	EFH Mapper
blacktip shark (Atlantic Stock)	☐	☐	☑	☑	EFH Mapper
bluefish	☑	☑	☑	☑	EFH Mapper
clearnose skate	☐	☐	☑	☑	EFH Mapper
common thresher shark	☑	☑	☑	☑	EFH Mapper

EFH and HAPC Designations Table - Continued

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	
dusky shark	☐	☐	☐	☐	EFH Mapper c
long-finned squid	✓	☐	☐	☐	EFH Mapper c
monkfish	✓	✓	☐	☐	EFH Mapper c
red hake	✓	✓	✓	✓	EFH Mapper c
sand tiger shark	☐	☐	✓	✓	EFH Mapper c
sandbar shark	☐	☐	✓	✓	EFH Mapper c
scup	☐	☐	✓	✓	EFH Mapper c
skipjack tuna	☐	☐	☐	✓	EFH Mapper c
smoothound shark (Atlantic stock)	✓	✓	✓	✓	EFH Mapper c
spiny dogfish	☐	☐	☐	✓	EFH Mapper c
summer flounder	☐	☐	✓	✓	EFH Mapper c

EFH and HAPC Designations Table - Continued

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	
tiger shark	☐	☐	✓	✓	EFH Mapper c
windowpane flounder	✓	✓	✓	✓	EFH Mapper c
winter skate	☐	☐	✓	✓	EFH Mapper c
witch flounder	✓	☐	☐	☐	EFH Mapper c
yellowfin tuna	☐	☐	✓	☐	EFH Mapper
	☐	☐	☐	☐	
	☐	☐	☐	☐	
	☐	☐	☐	☐	
	☐	☐	☐	☐	
	☐	☐	☐	☐	
	☐	☐	☐	☐	

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.

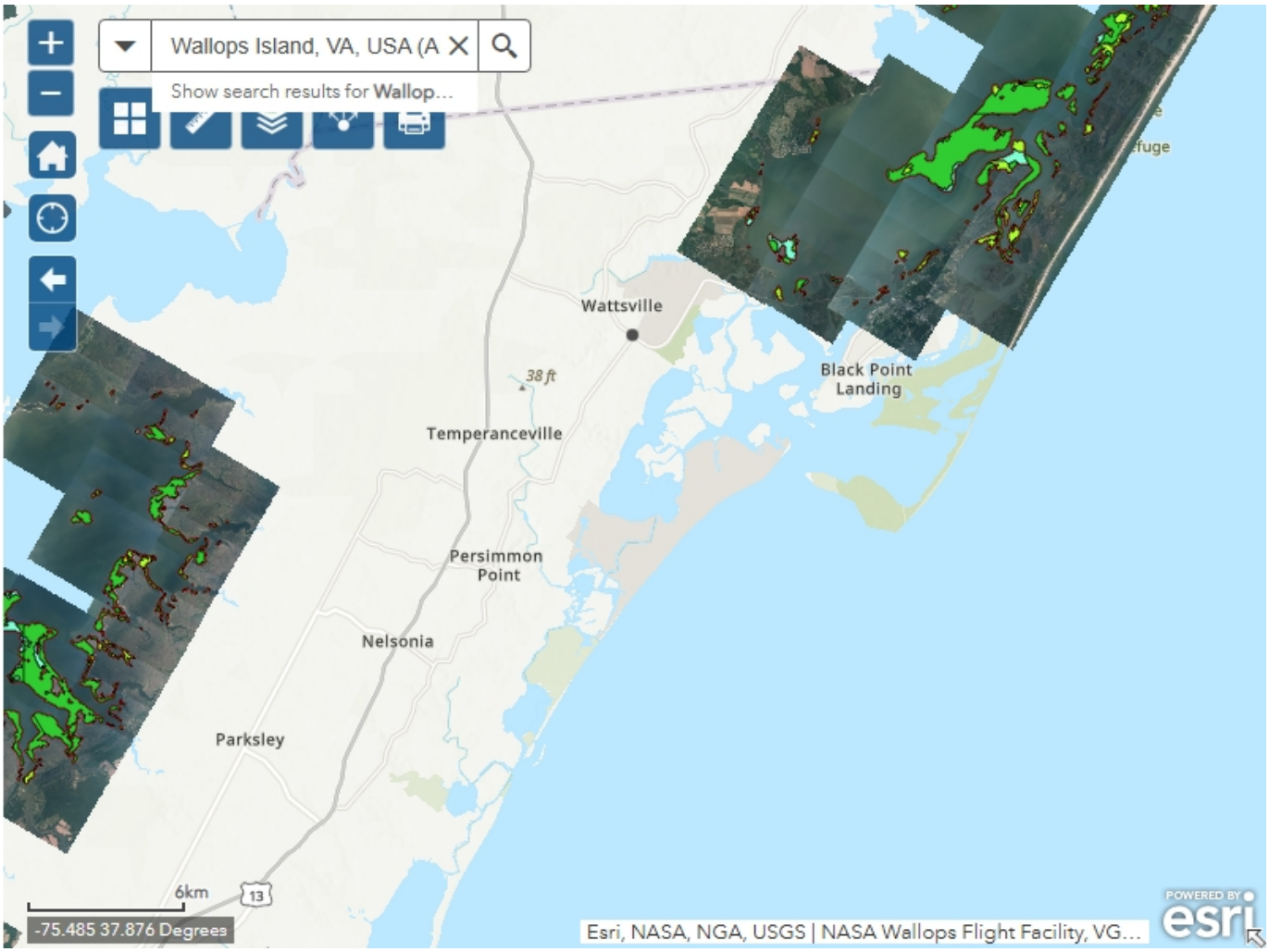
☐	Summer flounder: SAV[7]	☐	Alvin & Atlantis Canyons
☐	Sandbar shark	☐	Baltimore Canyon
☐	Sand Tiger Shark (Delaware Bay)	☐	Bear Seamount
☐	Sand Tiger Shark (Plymouth-Duxbury-Kingston Bay)	☐	Heezen Canyon
☐	Inshore 20m Juvenile Cod[8]	☐	Hudson Canyon
☐	Great South Channel Juvenile Cod	☐	Hydrographer 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.

The Virginia Marine Resources Commission's *Chesapeake Bay Interactive Map* does not show any SAV documented between 2020 and 2024 present within the Project Area (Virginia Marine Resources Commission, n.d.). In addition, the Virginia Institute of Marine Science's *Interactive SAV Map* does not document presence of SAV within the Project Area (Virginia Institute of Marine Science, n.d.). Therefore, there is no Summer flounder HAPC within the Project Area. Images of the Project Area from the interactive maps are shown below.

Virginia Marine Resources Commission. (n.d.). Chesapeake Bay Map. Retrieved January 16, 2026, from https://webapps.mrc.virginia.gov/public/maps/chesapeakebay_map.php



Virginia Institute of Marine Science. (n.d.). Interactive SAV map. Virginia Institute of Marine Science. Retrieved January 16, 2026, from https://www.vims.edu/research/units/programs/sav/access/maps/

7. Activity Details

Select all that apply	Project Type/Category
☐	Agriculture
☐	Aquaculture - List species here:
☑	Bank/shoreline stabilization (e.g., living shoreline, groin, breakwater, bulkhead) Up to 12 breakwaters constructed nearshore
☑	Beach renourishment beach fill mobilization, dredging, and sand placement
☑	Dredging/excavation dredging of sand from the OCS
☐	Energy development/use e.g., hydropower, oil and gas, pipeline, transmission line, tidal or wave power, wind
☐	Fill
☐	Forestry
☐	Infrastructure/transportation (e.g., culvert construction, bridge repair, highway, port, railroad)
☐	Intake/outfall
☐	Military (e.g., acoustic testing, training exercises)
☐	Mining (e.g., sand, gravel)
☐	Overboard dredged material placement
☐	Piers, ramps, floats, and other structures
☐	Restoration or fish/wildlife enhancement (e.g., fish passage, wetlands, mitigation bank/ILF creation)
☐	Survey (e.g., geotechnical, geophysical, habitat, fisheries)
☐	Water quality (e.g., storm water drainage, NPDES, TMDL, wastewater, sediment remediation)
☐	Other:

8. Effects Evaluation

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

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

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Details - project impacts and mitigation

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

Construction activities would result in temporary adverse effects to EFH within the region. Water column and benthic unconsolidated sediment EFH may be adversely affected by turbidity and water quality stressors and by physical strike and disturbance stressors. The main temporary impact of turbidity stressors is to water column EFH functions and values for sight-reliant organisms (e.g., feeders and predator escape). However, adverse impacts are expected to be temporary and highly localized. Overall, adverse impacts to EFH would be no more than minimal because the consequences of turbidity and water quality stressors would be minimal and temporary to short term. Adverse impacts of benthic habitat disturbance would be long-term or permanent, but no more than minimal because the consequences affect a negligible portion of EFH in the region and because most of the affected area is small and would remain available to the same suite of organisms. Historically, previous EFH consultations for similar activities concurred would not substantially adversely affect EFH. EFH is not expected to be affected to the point of substantial loss of any protected species and would not have adverse effects to the EFH in the proposed project area due to the localized and short-term nature of the Proposed Action.

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?

The following mitigations have been incorporated into the Proposed Action: dredge offshore sand from Unnamed Shoal A sub-area A-1; dredge over a large area and not create deep pits; dredge cut depth would not be excessive; dredging would not occur over the entire length of the shoal; MEC screening at the drag head; ensure dredged materials brought to the beach are comparable sediment type, grain size, and color as the existing beach material; and Implement erosion and sediment control and spill prevention BMPs.

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.

No wetlands exist in the Project Area, and no wetlands would be affected by the Proposed Action.

The 2019 Wallops Flight Facility Update and Consolidation of Existing Biological Opinions, Accomack County, VA. Project # 2015-F-3317 requires measures to minimize effects on protected species within the Project Area.

10. Federal Agency Determination

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

[7] An adverse effect is any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

11. Fish and Wildlife Coordination Act

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

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

Fish and Wildlife Coordination Act Resources	
Species known to occur at site (list others that may apply)	**Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.**
alewife	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and
American eel	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and
American shad	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and
Atlantic menhaden	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and
blue crab	These organisms may be expected to occur on the offshore shoals in the Project Area. However, impacts due to turbidity will be temporary and habitat will be
blue mussel	Several areas of existing hard substrate (existing sea wall and breakwaters) may provide habitat for this species. Breakwater construction and seawall extension
blueback herring	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and
Eastern oyster	Several areas of existing hard substrate (existing sea wall and breakwaters) may provide habitat for this species. Breakwater construction and seawall extension could add to this habitat.
horseshoe crab	These organisms may be expected to occur on the offshore shoals in the Project Area. However, impacts due to turbidity will be temporary and habitat will be
quahog	Could occur in the offshore shoal where it could experience habitat loss, mortality or effects of turbidity. Given the abundant adjacent habitat, effects are expected
soft-shell clams	Could occur in the offshore shoal where it could experience habitat loss, mortality or effects of turbidity. Given the abundant adjacent habitat, effects are expected
striped bass	The potential impacts to habitat for this species that may occur in the Project Area due to a temporary elevated water turbidity is minimal due to tides and currents.
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

NOAA Fisheries ESA Section 7 Consultation

National Aeronautics and Space Administration

Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

Reply to Attn of: 250.W

January 20, 2026

Julie Crocker
Acting Assistant Regional Administrator
Protected Resources Division
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930-2276

Dear Ms. Crocker:

This correspondence serves as the National Aeronautics and Space Administration's (NASA's) notification to the National Oceanographic and Atmospheric Administration (NOAA) Fisheries of its proposed Shoreline Protection Program at Wallops Flight Facility (WFF), Wallops Island, Virginia. This project tiers to the 50-year Shoreline Restoration and Infrastructure Protection Program (SRIPP). The goal of the SRIPP is to reduce direct damage to Wallops Island's infrastructure, allowing WFF to continue its mission of supporting aerospace programs.

To date, there have been three renourishments and shoreline protection projects. The initial cycle of renourishment was completed in August 2012. The second cycle, which repaired the effects of Hurricane Sandy, was completed in September 2014. The third, which incorporated breakwater construction, was completed in 2021. The current Proposed Action is to perform additional beach renourishment, breakwater construction, and to repair and extend the existing sea wall. These activities are needed to maintain the beach berm and dune system, which is vital to protecting critical NASA, United States (U.S.) Navy, Department of Air Force, and Virginia Space Authority assets. The purpose of this correspondence is to request NOAA Fisheries concurrence that consultation does not need to be reinitiated based on the similarity of potential effects to those previously assessed in the SRIPP (as amended).

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) Regulatory Program has jurisdiction over the disposal of dredged and fill material in Waters of the U.S. Similarly, under Section 10 of the Rivers and Harbors Act of 1899, the USACE has jurisdiction over the placement of structures and work conducted in navigable waters of the U.S. and would issue a permit to enable the proposed project. Additionally, the USACE Norfolk District is overseeing project design, construction, and monitoring on NASA's behalf. The U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) has jurisdiction over mineral resources on the Federal Outer Continental Shelf and would enter into a negotiated agreement with NASA and USACE pursuant to section 8(k)(2)(d) of the Outer Continental Shelf Lands Act. Therefore, both BOEM and USACE are serving as cooperating agencies on this project.

To this end, NASA has assumed the role of Lead Federal Agency for Endangered Species Act (ESA) Section 7 compliance and both BOEM and USACE are participating in NASA's ESA

consultation. The effects of their actions are considered in all project documents, including this correspondence.

1.0 Background

1.1 Shoreline Restoration and Infrastructure Protection Program

On December 13, 2010, NASA issued a Record of Decision (ROD) for the WFF SRIPP Programmatic Environmental Impact Statement (2010 Final SRIPP PEIS [NASA, 2010a]), which analyzed structural and non-structural options, varying beach berm widths, and multiple sources of fill material that could be used to restore and protect the Wallops Island shoreline over 50 years. During this time, an estimated nine beach renourishment cycles at approximately 5-year intervals were anticipated. In its ROD, NASA selected beach fill (from Unnamed Shoal A, Unnamed Shoal B, or north Wallops Island beach) and seawall extension and adopted a suite of mitigation and monitoring protocols to reduce potential environmental impacts and track project performance.

The initial phase entailed placement of approximately 3.2 million cubic yards of sand dredged from Unnamed Shoal A along the Wallops Island shoreline and a 1,430-foot southerly extension of the rock seawall with future extensions to a maximum length of 4,600 feet.

NASA consulted with NOAA Fisheries, which issued a Biological Opinion (BO) (July 22, 2010) that concluded the proposed action:

- *Would have no effect to hawksbill sea turtles based on the very low probability of presence within the Action Area*;
- *May affect, but is not likely to adversely affect humpback whale, fin whale, North Atlantic right whale, leatherback sea turtle, and Atlantic green sea turtle; and*
- *May affect but would not jeopardize the continued existence of loggerhead sea turtle (Northwest Atlantic Ocean Distinct Population Segment) and Kemp's ridley sea turtle*.

The SRIPP BO included an Incidental Take Statement (ITS), exempting the take of nine sea turtles (eight loggerhead sea turtles and one Kemp's ridley sea turtle) over the 50-year life of the project (based on one turtle injury or mortality for every 1.6 million cubic yards of material removed from offshore borrow areas). While no takes were documented in the daily biological observer dredge reports during the initial dredging operations, NASA assumes 2 loggerhead sea turtles may have been taken based on a total 3.2 million cubic yards dredged.

1.2 Post-Hurricane Sandy Shoreline Repair

A second renourishment and repair to a section of the seawall were required after Hurricane Sandy made landfall in October 2012. NASA prepared the Post-Hurricane Sandy Shoreline Repair Final Environmental Assessment (EA), signed a Finding of No Significant Impact (FONSI) on June 6, 2013 (NASA, 2013), and consulted with NOAA Fisheries which issued a BO (August 3, 2012). In addition to the previous determinations, it added that the proposed action:

- *May adversely affect but is not likely to jeopardize the continued existence of the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, or South Atlantic DPSs of Atlantic sturgeon.*

In addition to the ITS for sea turtles issued in the 2010 BO, it provided for the exempted incidental take of no more than one Atlantic sturgeon for approximately every 9.4 million cubic yards of material removed from the borrow areas, or a total of two Atlantic sturgeon.

Repairs to the seawall and second beach renourishment of 650,000 cubic yards of sand were completed in September 2014. During this renourishment, unexploded ordnance was discovered in a hopper intake basket. Subsequently, munitions and explosives of concern (MEC) screening was added to the dredge to protect personnel and equipment. Since MEC screening was not included in the earlier consultations and would preclude the identification of remains by on-board observers, NASA requested the SRIPP BO be amended to account for this addition. On September 26, 2014, NOAA Fisheries issued an amendment to the SRIPP BO which added the requirement for an on-vessel lookout bridge watch when MEC screening is used, provided an ITS for Atlantic sturgeon, and concluded that incidental take of sea turtles would be unchanged by the addition of MEC screening. While no takes were documented in the daily biological observer dredge reports during the Post-Hurricane Sandy dredging operations, based on a total of 650,000 cubic yards dredged, NASA would assume a fractional take of 0.4 loggerhead sea turtles and 0.07 Atlantic sturgeon. Therefore, between the combined SRIPP and Post-Hurricane Sandy dredging events of 3,850,000 cubic yards, NASA assumes a total take of 2.4 sea turtles (2.165 loggerheads and 0.24 kemps ridley) and 0.4 Atlantic sturgeon.

1.3 Shoreline Enhancement and Restoration Project

Subsequent storms in 2015, 2016, and 2018 resulted in a reduction of over a million cubic yards of sand in the southern portion of the island as compared to volumes present after the 2014 shoreline repair (USACE, 2018a). In 2018, NASA requested the USACE Norfolk District Hydraulics and Hydrology Section evaluate the effectiveness of constructing breakwater(s) along the shoreline to reduce the intensity of wave action and the rate of sediment transport, since previous renourishments provided only temporary protection. The USACE modeled how alternative placement, size, and number of breakwaters affected shoreline stabilization and sediment transport. Results indicated the placement of detached parallel breakwaters approximately 200 feet offshore would be most effective (USACE, 2018b).

NASA proposed to continue the SRIPP by implementing the Shoreline Enhancement and Restoration Project (SERP). It prepared the SERP EA and signed a FONSI on July 16, 2019 (NASA, 2019). Repairs included beach renourishment using approximately 1.1 million cubic yards of sand sourced from the north Wallops Island beach and construction of five breakwaters using barges. These were constructed in two sets—two breakwaters constructed in front of the Horizontal Integration Facility and three breakwaters constructed south of these, in front of Launch Pad 0-B.

NASA provided the SERP Biological Evaluation (BE), which included the recently-listed giant manta ray. In a letter dated November 20, 2018, NOAA Fisheries determined that it was not necessary to reinitiate the consultation on the SRIPP BO (as amended).

In October 2020, NASA proposed modifications to the breakwater construction methods. Three tropical storms/hurricanes had caused construction delays and posed hazards to personnel and equipment. Because of this, NASA proposed to build the three southern breakwaters via temporary bulkheads constructed perpendicular to the shoreline. NASA requested concurrence that the change to construction methodology would result in no additional effects to protected species. On October 2, 2020, NOAA Fisheries provided its concurrence via email and stated that reinitiation of consultation was not required.

2.0 Proposed Action

The beach and dune system established to protect NASA's Wallops Island launch range infrastructure has continued to erode through storm wind and wave damage. The effects of storms are most apparent in the southern half of the Wallops Island beach, where the majority of the critical launch assets are located.

The current Proposed Action is to perform additional beach renourishment, breakwater construction, and/or seawall repair and extension taking into consideration new information. NASA's proposed action would implement measures to protect the beach along the Wallops Island shoreline infrastructure protection area. The Proposed Action could involve a combination of the following, implemented in phases over the next 7 years (**Figure 1**):

- sand renourishment within an approximately 15,000-foot section of shoreline from the south property line on Wallops Island north to the location of the fire station;
- construction of up to 12 breakwaters in the nearshore area between the existing breakwaters; and
- repairs and extension of the existing seawall.

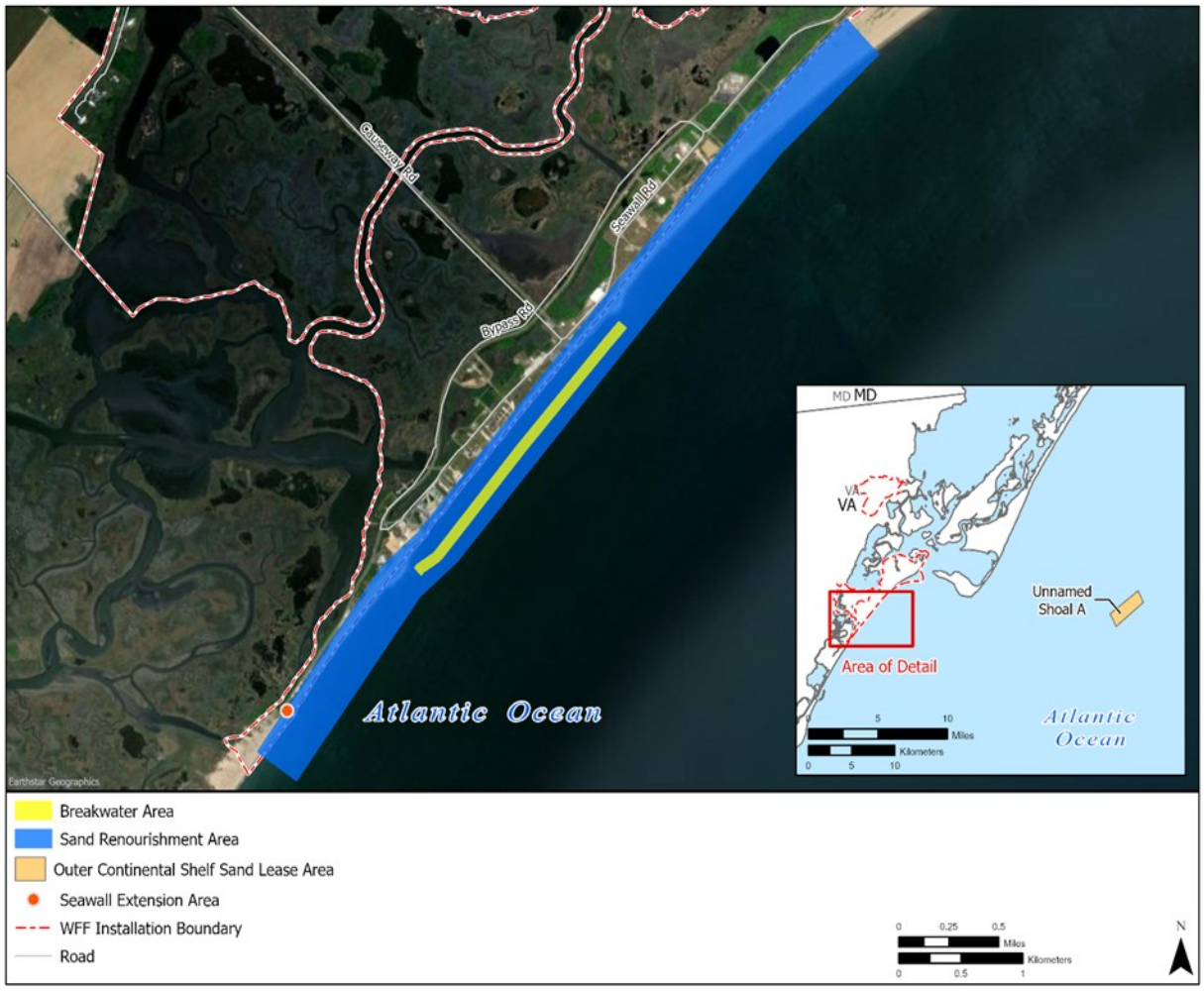

Figure 1 Project Area and Components

Activities would occur in phases depending on a number of factors, including infrastructure prioritized for protection, the pace and location of erosion, and the availability of funding.

2.1 Dredging

Over the next 7 years, the beach along the Wallops Island shoreline infrastructure protection area would be renourished using up to 3 million cubic yards of sand sourced from Unnamed Shoal A. Because of overflow from the hopper dredge at the borrow site during dredging and losses during discharge and placement, a larger volume of material would need to be dredged to meet the targeted fill volume. Sediment losses during dredging and placement operations are assumed to be up to 50 percent, resulting in an estimated 4.5 million cubic yards dredged in order to renourish the beach with 3 million cubic yards of sand. The dredging and beach fill portion of the project would take approximately 3 months.

The renourishment processes (i.e., beach fill mobilization, dredging, and sand placement) would be consistent with the analyses described previously. The renourishment process would begin with the dredge contractor transporting equipment and materials to the project site. Offshore equipment would include several miles of discharge pipe, pump-out buoys, and multiple barges, tugboats, derricks, and smaller crew transportation vessels. It is expected that the discharge lines would be assembled inside the protected waters of Chincoteague Inlet, rafted together, and then positioned by mechanical means at their ultimate placement site, as weather conditions allow.

Offshore, the dredging process would be cyclical in nature, with the vessel transiting to the borrow site, lowering its drag arms (equipped with munitions and explosives of concern [MEC] screens and sea turtle deflectors), filling its hopper, and transporting the material to a pump-out station (the floating end of a submerged pipeline) that would be placed at a water depth of approximately 30 feet, approximately 2 miles offshore. The pathway from Unnamed Shoal A to the pump-out buoy avoids Chincoteague Shoal and Blackfish Bank. The one-way distance from Unnamed Shoal A to the pump-out buoy is approximately 14 miles. It is estimated that the pump-out station would be moved up to 10 times to accommodate transit by the dredge. Booster pumps may be needed to aid the offloading of sand from the pump-out buoy to the shoreline. The sand/water slurry would be pumped to the beach through several miles of submerged steel pipeline temporarily placed on the seafloor in areas previously cleared for cultural resources and/or on hardbottom. All dredging and equipment placement would take place in areas previously surveyed. Nearshore, it is expected that the contractor would employ one or more anchored pump-out stations

2.2 Beach Renourishment

Consistent with previous beach renourishment projects, onshore sections of discharge lines would be placed using a front-end loader or crane. As the sand slurry is discharged onto the shoreline, bulldozers would grade the material to the desired design template. Sand would be placed onshore along 15,000 feet of beach extending from just north of the southern property line to the north near the fire station. The tidal cycle would influence the location on the beach within which the equipment would work for a given dredge load. During low tide, the equipment would likely concentrate on the intertidal and subtidal zones, whereas, during high tide, work would be focused on the upper beach berm and dune. After each section of beach is confirmed to meet design criteria, the process would continue in the longshore direction, with sections of discharge pipe added as it progresses.

2.3 Breakwater Construction

Also over the next 7 years, up to 12 breakwaters would be constructed approximately 200 feet offshore between the two existing sets of breakwaters. Breakwaters would vary in height and width depending on the elevation of the sea bottom. Each breakwater would cover 11,000–12,000 square feet of bottom, for a total of up to approximately 144,000 square feet. Breakwaters could be placed in sets or individually. Breakwaters would be similar to those previously constructed with a layer of Type I Armor Stone, a center core of Virginia Department of Transportation (VDOT) Class II stone. Breakwaters may be placed on underlying 12-inch marine filter mattresses and/or a layer of geotextile fabric. The specific size, number, and placement of breakwaters would be a function of available funding, local conditions, and modeling by the USACE to determine maximum effectiveness while minimizing impacts to sediment transport and hydrodynamics in the project vicinity. Construction of each breakwater is estimated to take approximately 2 to 3 months. Breakwater construction could occur using several methods: via barge, temporary bulkheads, or temporary trestle system.

2.3.1 Building Breakwaters by Barge

The rock and other materials for constructing each breakwater would be transported to the breakwater construction area by barge or to the WFF area by rail, offloaded, and then barged to the handling or placement site offshore of Wallops Island. Placement would occur in the water using a barge and heavy lifting equipment.

2.3.2 Building Breakwaters Using Temporary Bulkheads

Materials and equipment would be transported to the WFF area by rail and offloaded to trucks or by truck to and from the island via existing roads to either an impervious surface or previously disturbed upland staging area. During construction, staging could move to the construction zone on the beach. Temporary bulkhead structures would be constructed using steel sheet piles. Each temporary bulkhead would be roughly 130 feet long by 30 feet wide and use approximately 1,000 cubic yards of temporary sand (same as used for beach fill).

2.3.3 Building Breakwaters Using Temporary Trestle System

Materials and equipment would be transported to the WFF area by rail and offloaded to trucks or by truck to and from the island via existing roads to either an impervious surface or previously disturbed upland staging area. During construction, staging could move to the construction zone on the beach. A series of steel pilings would be installed and beams placed across the top of the piles to form temporary trestles. The system would be 30 to 40 feet wide with crane mats used as decking.

2.4 Seawall Repair and Extension

The existing rock seawall is located along 15,900 feet of the Wallops Island shoreline. Construction of this seawall began in 1992. While the wall has prevented overwash and storm damage, erosion of the shoreline seaward of the wall has continued, resulting in an increased risk of damage to the seawall. The SRIPP analyzed potential effects from repairing and extending the seawall to a maximum length of 4,600 feet south of its southernmost point (NASA, 2010a). During the first SRIPP cycle, the seawall was extended approximately 1,430 feet south with the premise that the remaining 3,170-feet extension would be implemented with future funding. The seawall extension would consist of the placement of rocks weighing approximately 5 to 7 tons on a 1 to 1.5 slope. The top of the seawall would be approximately 14 feet above the normal high-tide water level after completion, depending on the extent of existing shoreline retreat at that

time. The seawall may be repaired at any location. Consistent with previous SRIPP consultations, this portion of the project would occur on land where species under NOAA Fisheries jurisdiction would not be present. No direct or indirect effects are expected and this project component will not be discussed further.

2.5 Mitigations and Monitoring

Dredging would be conducted in a manner consistent with the 2010 SRIPP BO (as amended). Specifically, NASA would at a minimum incorporate the following mitigation measures.

- Dredge offshore sand from Unnamed Shoal A sub-area A-1.
- Dredge over a large area and not create deep pits.
- Require that dredge cut depth not be excessive.
- Require that dredging not occur over the entire length of the shoal.
- Require MEC screening at the drag head.
- When utilizing MEC screening, NASA shall ensure that a lookout/bridge watch, knowledgeable in listed species identification, will be present on board the hopper dredge at all times to inspect the draghead each time it is removed from the water.
- If a listed whale is spotted within 1 kilometer (0.62 mile) of the dredge, stop dredging until the whale is farther than 1 kilometer from the dredge.
- All dredge operators will monitor the right whale sighting reports (i.e., sighting advisory system, dynamic management areas, seasonal management areas) to remain informed on the whereabouts of right whales within the vicinity of the action area.
- All dredge operators will conform to the regulations prohibiting the approach of right whales closer than 500 yards. Any vessel finding itself within the 500-yard buffer zone around a right whale must depart the area immediately at a safe, slow speed, unless one of the exceptions applies (see 50 Code of Federal Regulations 224. l 03 (c)).
- Should renourishment activities be scheduled between March 15 and August 31, NASA will ensure that a qualified biological monitor conducts daily surveys of the project site and adjacent areas to detect nesting sea turtles, in accordance with established and approved monitoring protocols.
- In accordance with WFF's Protected Species Monitoring Plan, if sea turtle nests are identified, the nests will be clearly marked using signage and rope barriers encircling each site. A qualified biological monitor will conduct daily nest inspections. All on-site personnel will be informed of the nesting status, and all project activities within 1,000 feet of a nest will be suspended or relocated until hatching is complete.
- Prior to initiation of on-site work, NASA will notify all prospective employees, operators, and contractors about the presence and biology of the plover, knot, and loggerhead; special provisions necessary to protect these species; activities that may affect these species; and ways to avoid and minimize these effects. NASA has developed a fact sheet containing this information
- Beach profile monitoring of the project site would continue to be conducted biannually, in the spring and fall (or as funding allows), of the previously constructed beach and breakwaters to monitor effectiveness.

3.0 Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 Code of Federal

Regulations section 402.02). The action area includes the Wallops Island offshore borrow sites, the waters between and immediately adjacent to these areas where project vessels would travel and dredged material would be transported, as well as an area extending 4,000 feet in all directions from the area to be dredged to account for the sediment plume generated during dredging activities. The action area also includes the portion of Wallops Island and the portion of Wallops Island shoreline and nearshore waters that would be affected by the extended seawall and beach fill (i.e., 3.7 miles of shoreline) as well as the portion of Atlantic Ocean from the edge of Wallops Island shoreline and adjacent to the outboard side of the proposed breakwater structures. As dredging operations would also produce underwater noise levels that range between 120–160 decibels relative to 1 micropascal (dB re 1µPa), the action area would also include the area around the dredge where effects of increased underwater noise levels would be experienced. Based on the analysis of dredge noise and transmission loss calculations, effects of dredge noise would be experienced within approximately 2,625 feet from the dredge during loading and pumping.

4.0 Status of Species within the Action Area

Table 1 lists the species that would be potentially affected by the project activities.

Table 1 Listed Species Which May Exist within the Action Area

Common Name	ESA Status	Previous Determination
Humpback whale *Megaptera novaeangliae*	Endangered	MA/NLAA
Fin whale *Balaenoptera physalus*	Endangered	MA/NLAA
North Atlantic right whale *Eubalaena glacialis*	Endangered	MA/NLAA
Hawskbill sea turtle *Eretmochelys imbricata*	Endangered	NE
Loggerhead sea turtle[1] *Caretta caretta*	Threatened	MA/NJ
Kemp's ridley sea turtle *Lepidochelys kempii*	Endangered	MA/NJ
Leatherback sea turtle *Dermochelys coriacea*	Endangered	MA/NLAA
Green sea turtle *Chelonia mydas*	Threatened	MA/NLAA
Atlantic sturgeon[2] *Acipenser oxyrhinchus oxyrhinchus*	Endangered	MA/NJ
Giant Manta Ray *Manta birostris*	Threatened	MA/NLAA

Key: ESA = Endangered Species Act; MA = may affect; NE = no effect; NJ = no jeopardy; NLAA = not likely to adversely affect

Notes: [1] Northwest Atlantic Ocean Distinct Population Segment
[2]Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments

Consistent with previous shoreline restoration and stabilization projects, a determination of no effect is made the hawksbill sea turtle. Because the low likelihood of its presence in the project area and interaction with project components, it is not carried forward for detailed analysis.

The SRIPP BO (as amended) considered the effects of offshore dredging and beach renourishment on these listed species and included an ITS for those species that may be adversely affected, but not jeopardized, by the SRIPP. Specifically, the ITS exempts the take of nine sea turtles (eight loggerhead sea turtles and one Kemp's Ridley sea turtle) and two subadult

Atlantic sturgeon during these operations over the 50-year life of the SRIPP. These numbers were based on the volume of sand that would be removed from the borrow area during that project lifespan: one sea turtle injured or killed for every 1.6 million cubic yards and one Atlantic sturgeon injured or killed for every 9.4 million cubic yards.

4.1 Marine Mammals

The 2010 Final SRIPP PEIS described the marine mammals that may occur seasonally within the project area offshore of Wallops Island. Consistent with previous consultations, this includes right whales from November–May; humpback whales from September–April; and fin whales from October–January. It also noted that it is possible for individual transient whales to be present in the action area outside of these times as this area is used by whales moving between calving/mating grounds and foraging grounds.

4.2 Sea Turtles

In accordance with the Protected Species Monitoring Plan, NASA monitors sea turtle nesting (in conjunction with piping plover monitoring). If a nest is discovered, monitoring continues through November 30, or until the last hatchling leaves the nest. While NASA has observed loggerhead sea turtles and sea turtle nesting activity in the past, numbers are low, and some years have no observations of sea turtle nesting. From 1979 to 2008, a total of five loggerhead sea turtle nests occurred on Wallops Island, one in each year. Nesting occurred again in 2010, 2012, and 2013, and there were four, two, and two nests, respectively, for a total of eight nests with five false crawls. No loggerhead sea turtle nesting activity has occurred on Wallops Island since 2013. DNA analysis determined that all four nests in 2010 were dug by a single female loggerhead sea turtle (NASA, 2010b; USFWS, 2016). Historically, only loggerhead sea turtles have been found on Wallops Island (NASA, 2023).

The area offshore of Wallops Island is considered to be marginal as sea turtle habitat, and observations of sea turtles in these waters are infrequent. Protected species monitoring conducted by observers onboard the three dredges during the post-Sandy beach fill cycle reported no in-water sightings of listed species.

4.3 Atlantic Sturgeon

The Atlantic sturgeon is a subspecies of sturgeon distributed along the eastern coast of North America from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida, United States. Populations of Atlantic sturgeon are categorized into the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments (DPSs). Individuals from all the listed DPSs may occur in the action area.

A study by BOEM passively monitored telemetered fish in the Sandbridge Shoal Marine Minerals Lease Area off the southeast coast of Virginia, south of Unnamed Offshore Shoal A, from 2016 to 2019. Atlantic sturgeon were the most commonly detected fish, with detections ranging from 109 to 134 individuals per year and occurring on between 96 and 103 days per year. Detections varied greatly by month with the fewest from June to September (no detections in July and August) and the largest number of detections in March–April and November–December (BOEM, 2024).

4.4 Giant Manta Ray

The giant manta ray was listed as threatened in January 2018. Giant manta rays are slow-growing, migratory animals with small, highly fragmented populations that are sparsely

distributed across the world. It is the world's largest ray with a wingspan of up to 29 feet and can weigh up to 5,300 pounds. It is found worldwide in tropical, subtropical, and temperate bodies of water and is commonly found offshore, in oceanic waters, and near productive coastlines. It has been found in waters as cool at 66 degrees Fahrenheit and has been observed in estuarine waters near oceanic inlets (NOAA, 2021). Giant manta rays primarily feed on planktonic and nektonic species throughout the water column, not benthic, organisms. During feeding, giant manta rays may be found aggregating in shallow waters at depths less than 33 feet; however, tagging studies have also shown that the species conducts dives of up to 650 to 1,500 feet and is capable of diving to depths exceeding 3,200 feet. This diving behavior may be influenced by season and shifts in prey location associated with the thermocline (NOAA, 2021). There is the potential for giant manta rays to be within the offshore borrow area during the summer months

5.0 Effects of the Action on Listed Species

Because the effects of the proposed activities have been evaluated in detail previously, the following sections provide a summary of effects. The activities proposed at this time have been assessed previously in the SRIPP BO (as amended) and in subsequent coordination as follows.

- Dredging sand from Unnamed Offshore Shoal A, moving it as a slurry via pipeline to the Wallops Island beach, and using heavy equipment on the beach to grade the sand into a desired design template were evaluated in 2010, 2012, and 2014 and effects determinations were provided in the SRIPP BO (as amended).
- Construction of offshore breakwaters was evaluated in a 2018 Biological Assessment. In a letter dated November 20, 2018, NOAA Fisheries determined that it was not necessary to reinitiate the consultation on the SRIPP BO.
- In 2020, NASA requested NOAA Fisheries concurrence that constructing breakwaters via temporary bulkheads perpendicular to the shoreline would result in no additional effects to protected species. On October 2, 2020, NOAA Fisheries provided its concurrence via email and stated that reinitiation of consultation was not required.

5.1 Dredging

Consistent with the SRIPP BO, potential effects of dredging include entrainment of sea turtles and Atlantic sturgeon (other species would not be susceptible and/or would not be expected to be present); alteration of sea turtle and Atlantic sturgeon foraging habitat; Atlantic sturgeon, giant manta rays, and sea turtle interaction with suspended sediment; injury to Atlantic sturgeon, giant manta rays, sea turtles, or whales from underwater noise generated during dredging operations; and collisions between whales, Atlantic sturgeon, giant manta rays, or sea turtles and project vessels.

5.1.1 Entrainment

During sand harvest, it is possible that turtles, particularly loggerhead and Kemp's ridley sea turtles, would become entrained in the dredge as described in previous consultation documents. Entrainment of green sea turtles is extremely unlikely because of their low numbers in the action area. Green sea turtles forage in seagrass beds, which do not exist in the borrow area, and leatherback sea turtles forage on jellyfish in the water column, thus these species are not likely to interact with the draghead. Loggerheads are the most numerous sea turtles in the area and tend to forage on the bottom, therefore are most likely to become entrained. However, the probability of interaction is very low because turtle numbers in the area are low. It is anticipated that over the life of the project, up to nine sea turtles could be killed, with no more than one being a Kemp's

ridley and the remainder being loggerheads.

Similarly, it is possible that subadult sturgeon would become entrained in the dredge as described in previous consultation documents (adults are too large to become entrained in draghead openings). No change to methodology is proposed that would affect this and the possibility persists. Entrainment of large mobile animals, such as sturgeon, is relatively rare, particularly in the open ocean where individuals' movements would not be restricted (as may be the case in a river channels). Additionally, Atlantic sturgeon density in the action area is expected to be low and migrating individuals would occur higher in the water column away from the draghead. Therefore, NOAA Fisheries estimated that the likelihood of interaction of an Atlantic sturgeon with a dredge operating under the SRIPP may lead to up to two subadult Atlantic sturgeon being killed.

5.1.2 Foraging Habitat Alternation

Removal of sediments from Unnamed Shoal A would affect infauna, as well as species which prey upon them. Green sea turtles forage in seagrass beds, which do not exist in the borrow area, and leatherback sea turtles forage on jellyfish in the water column, thus no effects from foraging habitat alteration are anticipated. The borrow area is not known to be an area where Kemp's ridley or loggerhead sea turtles or Atlantic sturgeon congregate; dredging could affect turtle and sturgeon prey items. Given the small area affected by the proposed activities relative to abundant adjacent habitats and the ability of turtles to exploit food sources over a large area, these effects would be minor and discountable.

5.1.3 Suspended Sediment Effects

Dredging operations cause sediment to be suspended in the water column as dragheads are pulled through the sediment, turbulence is generated by the vessel, and from overflow of turbid water during hopper filling. Suspended solid concentrations would be lower than levels considered toxic to fish. The most likely effect of suspended sediments would be to alter behaviors of whales, sea turtles, Atlantic sturgeon, or giant manta rays as these highly mobile species alter movement to avoid sediment plumes. Such movements are likely to be insignificant.

5.1.4 Underwater Noise

Dredging operations would result in noise from vessel activities. Marine animals may have behavioral and physiological reactions to underwater noise but responses would typically be brief. An increase in background vessel noise levels has the potential to expose Atlantic sturgeon, giant manta rays, sea turtles, or whales to sound and general disturbance, potentially resulting in short-term behavioral reactions such as avoidance response and masking. These species are more likely to react to nearby vessel noise (i.e., within tens of meters) than to noise from a distant vessel. Maximum noise levels from the vessel would be well below those that would cause injury to Atlantic sturgeon, giant manta rays, sea turtles, or whales, and effects on behaviors would be discountable. Existing mitigations including maintaining buffers and turning off pumps when whales are sited would reduce the likelihood that whales are exposed to excessive underwater noise. Limiting vessel speeds would make it possible for individuals to avoid vessel activity.

5.1.5 Vessel Collision

Though vessel collision could occur, strike is more likely to occur in areas with high levels of vessel traffic and/or high species density. Existing mitigations including maintaining buffers, posting lookouts, and limiting vessel speeds would lower the possibility of collisions with project

vessels. This, coupled with the ability of species to detect and avoid vessels, reduces the likelihood of vessel collisions with whales, Atlantic sturgeon, giant manta rays, or sea turtles to discountable levels.

5.2 Beach Renourishment

Potential effects of beach renourishment include alteration of sea turtle and Atlantic sturgeon foraging habitat, sea turtle nesting habitat, and interaction with suspended sediment.

5.2.1 Foraging Habitat Alternation

Green and leatherback sea turtles are unlikely to forage in nearshore area of Wallops island as appropriate habitat and prey items do not occur here. Loggerhead and Kemp's ridley sea turtles could use nearshore areas for feeding as could Atlantic sturgeon. Benthic prey items in the renourishment area would be buried during beach renourishment resulting in the temporary loss of foraging habitat. Given the small area affected by the proposed activities relative to abundant adjacent habitats and the ability of turtles to exploit food sources over a large area, these effects would be minor and discountable. It is expected that recolonization of the nearshore benthos will occur within 2-6 months after each renourishment cycle is complete. Additionally, the placement of sand seaward of the existing seawall, where currently limited or no beach area exists, would have beneficial effects on benthic organisms by restoring and creating new beach habitat and providing additional sources of prey along the Wallops Island shoreline.

5.2.2 Turtle Nesting Habitat Alteration

Impacts to nesting sea turtles could include avoided nesting attempts due to construction activity (noise, artificial lighting) on the beach, disorientation of hatchlings (due to project-related light sources), obstruction to hatchlings during their emergence and subsequent trip to the ocean, or loss of beach habitat. However, sea turtle nesting occurred on the new Wallops Island dune during the initial beach fill, indicating that it is very possible that the renourished elevated beach would provide additional sea turtle nesting habitat, a net benefit to the species.

5.2.3 Suspended Sediment Effects

As described above for dredging, sand placement on the Wallops Island beach would cause sediment to be suspended in the water column. Suspended solid concentrations would be lower than levels considered toxic to fish. The most likely effect of suspended sediments would be to alter behaviors of whales, sea turtles, or fish as these highly mobile species alter movement to avoid sediment plumes. Such movements are likely to be insignificant.

5.3 Breakwater Construction

Potential effects of breakwater construction include sea turtle, giant manta ray, and Atlantic sturgeon interaction with suspended sediment; injury from noise generated during operations; alteration of sea turtle and Atlantic sturgeon foraging habitat; and alteration of sea turtle nesting habitat. Whales and manta rays are not expected to be present in the areas close to shore where breakwater construction is proposed. These species are highly mobile and could avoid the area. Therefore, no deleterious effects would be expected.

5.3.1 Suspended Sediment Effects

As described above for dredging and beach renourishment, breakwater construction could result in a temporary increase in suspended sediments, which could affect turtles and Atlantic sturgeon close to shore. Impacts would be similar to those described above.

5.3.2 Underwater Noise

Breakwater construction-related stressors include disturbance from vessel noise (if breakwaters are constructed from offshore) or non-impulsive pile driving (if breakwaters are constructed from shore via temporary bulkheads or trestles). A number of factors may influence an animal's response to noise, including its previous experience, its auditory sensitivity, its biological and social status (including age and sex), and its behavioral state and activity at the time of exposure. NOAA Fisheries reviewed studies of hearing sensitivity of marine mammals and developed thresholds for use as guidance when assessing the effects of anthropogenic sound on marine mammals based on measured or estimated hearing ranges (NMFS, 2024); however, listed whales are not expected to be present near the shore where such activities may occur.

Thresholds have also been developed for sea turtles based on auditory sensitivity in marine mammals. Construction of breakwaters could cause disturbance to sea turtles area avoidance. Noise from the installation of steel sheet piling using a vibratory hammer, if that method were used to install breakwaters (which is estimated to be as high as 163 decibels) may affect sea turtles. **Table 2** illustrates the sound thresholds for causing effects to sea turtles (Navy, 2017, 2018) and distances from the noise source (steel sheet pile being driven by a vibratory hammer) for those effects to occur. Outside these distances, effects would not occur. Additionally, noise dampening would be expected as sound waves encounter shallow bottom sediments and would be masked by the sound of crashing surf. Given that breakwater construction activities would occur fairly close to shore, noise levels would fall below those that could cause permanent or temporary threshold shifts (hearing impacts) or behavior changes, it is unlikely that sea turtles would experience effects from underwater noise.

Table 2 Auditory Injury and Behavioral Thresholds for Sea Turtles Exposed to Non-Impulsive Sounds

Effect	Weighted SPL Threshold re µPa2•s	Distance (feet)
Permanent Threshold Shift	220 dB SEL_{cum}	2
Temporary Threshold Shift	200 dB SEL_{cum}	42
Behavioral Change	175 dB RMS	6.6

Key: µPa = microPascal; µPa2•s = microPascal squared per second; dB = decibel; re = referenced to; RMS = root mean square; SPL = sound pressure level; SEL_{cum} = cumulative sound exposure level over 24 hours, weighted for turtle hearing group based on formula in Navy 2017

Current acoustic thresholds define behavioral disturbance to fish from all source types at 150 dB RMS. If a sturgeon were present in the study area and exposed to noise sufficient to create a behavioral response, it would modify its behavior and move away from the affected area prior to incurring injury. Although ESA-listed fish species could be affected by noise and disturbance, the probability would be decreased due to the low potential for occurrence in the study area. While Atlantic sturgeon may not always necessarily change their trajectory due to noise from vessels or pile driving, this species is highly mobile and an individual within the vicinity would be expected to alter its movement and avoid the area. Underwater noise from breakwater construction will be temporary and localized, and is unlikely to affect Atlantic sturgeon movements or ability to access habitat. Additionally, Atlantic sturgeon density in the action area is expected to be low, and any individuals transiting the study area would be able to avoid vessels and pile activity.

5.3.3 Foraging Habitat Alternation

Loggerhead and Kemp's ridley sea turtles could use nearshore areas for feeding as could Atlantic sturgeon. Benthic prey items in the renourishment area would be buried during beach renourishment resulting in the temporary loss of foraging habitat. Given the small area affected by the proposed activities relative to abundant adjacent habitats and the ability to exploit food sources over a large area, these effects would be minor and discountable. It is expected that recolonization of the nearshore benthos would occur within 2 to 6 months after each renourishment cycle is complete. Additionally, the placement of sand seaward of the existing seawall, where currently limited or no beach area exists, would have beneficial effects on benthic organisms by restoring and creating new beach habitat and providing additional sources of prey along the Wallops Island shoreline.

5.3.4 Turtle Nesting Habitat Alteration

Impacts to nesting sea turtles could include avoided nesting attempts due to construction activity (noise, artificial lighting) on the beach, disorientation of hatchlings (due to project-related light sources), obstruction to hatchlings during their emergence and subsequent trip to the ocean, or loss of beach habitat. However, sea turtle nesting occurred on the Wallops Island dune during the initial beach fill, indicating that it is very possible that the renourished elevated beach would provide additional sea turtle nesting habitat, a net benefit to the species.

Beach stabilization measures such as renourishment and hard structures provide not only increased beach width for shore protection but also may provide increased "real estate" of sea turtle nesting habitat that would otherwise be unavailable due to erosion (USACE, 2022). However, hard structures can affect adjacent beaches by modifying coastal sediment transport processes (USACE, 2022). Coastal modifications (e.g., beach armoring, beach sand placement, sand fencing) and associated pressures (e.g., artificial lighting, human disturbance, noise, beach compaction) may change beach morphology, nesting area availability and the incubating environment of marine turtle eggs (Nelson Sella and Fuentes, 2019). Because marine turtles rely on sandy coasts for reproductive purposes, impacts can affect individual species directly or can act indirectly on their habitat so that it becomes unsuitable for resting or reproduction (Nelson Sella and Fuentes, 2019).

Beach stabilization measures can affect sea turtles by preventing access to suitable nesting sites, impeding and/or trapping nesting females, abandoning nesting attempts, preventing proper nest construction, and overall loss of nesting habitat due to long term beach erosion (USACE, 2022). A 2025 study found that despite a general increase in sea turtle nest numbers, a marked decrease was observed in the study area landward of the breakwaters, demonstrating that breakwaters may effectively impact the ingress and egress of nesting sea turtles, as well as the egress of hatchlings (Casale et al., 2025). This indicates that breakwaters represent a barrier for nesting females that may nest elsewhere, either in the same or in a different coastal tract. This would result in a decrease in nest density landward of the breakwaters and an increase in other areas free of breakwaters. This pattern would be expected even if breakwaters do not act as physical barriers but instead alter beach characteristics in ways that make nesting more difficult (Casale et al., 2025). In the long term, the longshore transport would be altered by the breakwaters and may enhance or denigrate nesting habitat for sea turtles on Wallops Island.

Aside from the physical obstruction of the breakwater blocking access to the beach for the mother and the open ocean for both the mother and emergent hatchlings, the structures can redirect the direction of the turtles and possibly point them towards a light source. However,

light disorientation impacts can be minimized by reducing the wattage of light sources, altering the direction of light sources by shielding or lowering the light elevation, and using lights with spectral properties (longer wavelengths) that are less disruptive to sea turtles (USACE, 2022).

6.0 Effects Determination

Based on the discussion above, NASA has made determinations of effects resulting from components of the proposed action on ESA-listed marine species (**Table 3**).

Table 3 Effects Determinations

	Dredging	Beach Renourishment	Breakwater Construction
Humpback whale	NLAA	NE	NE
Fin whale	NLAA	NE	NE
North Atlantic right whale	NLAA	NE	NE
Hawskbill sea turtle	NE	NE	NE
Loggerhead sea turtle	MA/NJ	NLAA	NLAA
Kemp's ridley sea turtle	MA/NJ	NLAA	NLAA
Leatherback sea turtle	NLAA	NLAA	NLAA
Green sea turtle	NLAA	NLAA	NLAA
Atlantic sturgeon	MA/NJ	NLAA	NLAA
Giant Manta Ray	NLAA	NLAA	NLAA

Key: MA= may affect; NJ = no jeopardy; NLAA = may affect not likely to adversely affect; NE = no effect

7.0 Conclusion

During the preparation of the 2010 SRIPP PEIS, the 2013 Hurricane Sandy EA, and the 2019 SERP EA, NASA consulted with NOAA Fisheries regarding potential effects on listed species and critical habitat NOAA Fisheries offered a revised BO in August of 2012 and confirmed in 2018 and 2020 that reinitiation was not warranted.

In consideration of the scope of the proposed project, listed species known to inhabit the project area, the potential effects on those species, and mitigation measures to be implemented, NASA has made the determinations listed in **Table 3**. Over the next 7 years, this project may involve an estimated total amount of4.5 million cubic yards of sand harvested with a MEC screen, placement and grading of sand on Wallops Island beach, construction of up to 12 detached breakwaters, as well as repair and extension of the seawall. The proposed action is similar to that considered in previous consultations. In light of the mitigation procedures that would be implemented to avoid affecting threatened and endangered species, NASA concludes that reinitiating formal ESA consultation is not necessary. NASA requests NOAA Fisheries concurrence with this determination.

If you have any questions or require additional information, please contact Ms. Lori Levine at (301) 286-6741 or lori.m.levine@nasa.gov.

Sincerely,

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Environmental Planning Group Lead
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USACE/S. Reinheimer
USACE/S. Williams

References

BOEM. 2024. Spatiotemporal Distributions of Species Detected within Virginia's Offshore Lease Areas Volume 1: Sandbridge Shoal Marine Minerals Lease Area. Available online: https://espis.boem.gov/final%20reports/BOEM_2024-071.pdf. Accessed October 22, 2025.

Casale, P., S.A. Ceriani, A. Mastrogiacomo, S. Demetropoulos, M. Marcou, and A. Demetropoulos. 2025. Breakwaters Impact Marine Turtle Nesting Activity. *Endangered Species Research*, Volume 58, pp. 43-47.

NASA. 2010a. Final Programmatic Environmental Impact Statement for Wallops Flight Facility Shoreline Restoration and Infrastructure Protection Programs.

NASA. 2010b. 2010 Wallops Protected Species Monitoring Report. December.

NASA. 2013. Final Environmental Assessment Wallops Island Post-Hurricane Sandy Shoreline Repair. June.

NASA. 2019. Final Environmental Assessment. NASA Wallops Flight Facility Shoreline Enhancement and Restoration Project. June. Available at: https://www.nasa.gov/goddard/memd/nepa/shoreline/#documents https://code200-11 external.gsfc.nasa.gov/250-WFF/serp-ea.

NASA. 2023. 2023 Wallops Protected Species Monitoring Report.

NMFS. 2024. Update to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0): Underwater and In-Air Criteria for Onset of Auditory Injury and Temporary Threshold Shifts. U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-71, 182 p.

NOAA. 2021. Giant Manta Ray (*Mobula birostris*). Available at: https://www.fisheries.noaa.gov/species/giant-manta-ray.

Navy. 2017. Quantifying Acoustic Impacts on Marine Mammals and Sea Turtles: Methods and Analytical Approach for Phase III Training and Testing. Naval Undersea Warfare Center Division, Newport, Rhode Island. NUWC-NPT Technical Report 12,242. June 16.

Navy. 2018. Quantifying Acoustic Impacts on Marine Mammals and Sea Turtles: Methods and Analytical Approach for Phase III Training and Testing. Naval Undersea Warfare Center Division, Newport, Rhode Island. NUWC-NPT Technical Report, August.

Nelson Sella, Kristen A. and Mariana M.P.B. Fuentes. 2019. Exposure of Marine Turtle Nesting Grounds to Coastal Modifications: Implications for Management. *Ocean and Coastal Management* 169, pp. 182–190.

USACE. 2022. A Literature Review of Beach Nourishment Impacts on Marine Turtles. Final Report. March.

USACE. 2018a. Wallops Island, VA. Fall 2017 Shoreline Mapping Program Beach Profile Monitoring Survey Evaluation, Final Report. January.

USACE. 2018b. Breakwater(s) Analysis, Design, and Modeling Report for National Aeronautics and Space Administration Goddard Space Flight Center Wallops Flight Facility. May.

USFWS. 2016. Revised Biological Opinion Wallops Flight Facility Proposed and Ongoing Operations and Shoreline Restoration. June.

U.S. Fish and Wildlife Service ESA Section 7 Consultation

National Aeronautics and Space Administration

Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

Reply to Attn of: 250.W

January 20, 2026

Troy Anderson
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Dear Mr. Anderson:

This correspondence serves as the National Aeronautics and Space Administration's (NASA's) notification to the United States (U.S.) Fish and Wildlife Service (USFWS) of its proposed Shoreline Protection Program at Wallops Flight Facility (WFF), Wallops Island, Virginia. This project tiers to the 50-year Shoreline Restoration and Infrastructure Protection Program (SRIPP). The goal of the SRIPP is to reduce direct damage to Wallops Island's infrastructure, allowing WFF to continue its mission of supporting aerospace programs.

To date, there have been three renourishments and shoreline protection projects. The initial cycle of renourishment was completed in August 2012. The second cycle, which repaired the effects of Hurricane Sandy, was completed in September 2014. The third, which incorporated breakwater construction, was completed in 2021. The current Proposed Action is to perform additional beach renourishment, breakwater construction, and to repair and extend the existing sea wall. These activities are needed to maintain the beach berm and dune system, which is vital to protecting critical NASA, U.S. Navy, Department of Air Force, and Virginia Space Authority assets.

The purpose of this correspondence is to request USFWS concurrence that the action currently proposed is substantially similar to those considered previously (in the SRIPP Biological Assessment [BA], 2010 Programmatic Biological Opinion [BO], 2016 BO, and 2019 Programmatic BO, 2021 Project Modification, and 2024 Letter of Concurrence [LoC]) that is, these actions may affect and are likely to adversely affect piping plovers, red knots, and loggerhead sea turtles. Further, because the actions are substantially similar in scope and geography, and have similar effects to the same listed species, NASA requests that they are covered under the 2019 Programmatic BO and 2021 Project Modification. NASA would continue to follow all provisions of the 2019 Programmatic BO and 2021 Project Modification as it relates to avoidance and minimization measures, reporting, and USFWS coordination.

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) Regulatory Program has jurisdiction over the disposal of dredged and fill material in Waters of the U.S. Similarly, under Section 10 of the Rivers and Harbors Act of 1899, the USACE has jurisdiction over the placement of structures and work conducted in navigable waters of the U.S. and would issue a permit to enable the proposed project. Additionally, the USACE

Norfolk District is overseeing project design, construction, and monitoring on NASA's behalf. The U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) has jurisdiction over mineral resources on the Federal Outer Continental Shelf and would enter into a negotiated agreement with NASA and USACE pursuant to section 8(k)(2)(d) of the Outer Continental Shelf Lands Act. Therefore, both BOEM and USACE are serving as cooperating agencies on this project.

To this end, NASA has assumed the role of Lead Federal Agency for Endangered Species Act (ESA) Section 7 compliance and both BOEM and USACE are participating in NASA's ESA consultation. The effects of their actions are considered in all project documents, including this correspondence.

1.0 Background

1.1 Shoreline Restoration and Infrastructure Protection Program

On December 13, 2010, NASA issued a Record of Decision (ROD) for the WFF SRIPP Programmatic Environmental Impact Statement (2010 Final SRIPP PEIS), which analyzed structural and non-structural options, varying beach berm widths, and multiple sources of fill material that could be used to restore and protect the Wallops Island shoreline over 50 years. During this time, an estimated nine beach renourishment cycles at approximately 5-year intervals were anticipated. In its ROD, NASA selected beach fill (from Unnamed Shoal A, Unnamed Shoal B, or north Wallops Island beach) and seawall extension and adopted a suite of mitigation and monitoring protocols to reduce potential environmental impacts and track project performance. The initial phase entailed placement of approximately 3.2 million cubic yards of sand dredged from Unnamed Shoal A along the Wallops Island shoreline and a 1,430-foot southerly extension of the rock seawall with future extensions to a maximum length of 4,600 feet.

1.2 Post-Hurricane Sandy Shoreline Repair

A second renourishment and repair to a section of the seawall were required after Hurricane Sandy made landfall in October 2012. NASA prepared the Post-Hurricane Sandy Shoreline Repair Final Environmental Assessment (EA) (NASA, 2013). Repairs to the seawall and second beach renourishment of 650,000 cubic yards of sand were completed in September 2014.

1.3 Shoreline Enhancement and Restoration Project

Subsequent storms in 2015, 2016, and 2018 resulted in a reduction of over a million cubic yards of sand in the southern portion of the island as compared to after the 2014 shoreline repair (USACE, 2018). In 2018, NASA requested the USACE Norfolk District Hydraulics and Hydrology Section evaluate the effectiveness of constructing breakwater(s) along the shoreline to reduce the intensity of wave action and the rate of sediment transport, since previous renourishments provided only temporary protection. NASA proposed to continue the SRIPP by implementing the Shoreline Enhancement and Restoration Project (SERP). Repairs included beach renourishment using approximately 1.1 million cubic yards of sand sourced from the north Wallops Island beach and construction of five breakwaters using barges. These were constructed in two sets—two breakwaters constructed in front of the Horizontal Integration Facility and three breakwaters constructed south of these, in front of Launch Pad 0-B. During construction, three tropical storms/hurricanes caused delays and posed hazards to personnel and equipment. Because of this, NASA proposed to build the

three southern breakwaters via temporary bulkheads constructed perpendicular to the shoreline.

2.0 Proposed Action

The beach and dune system established to protect NASA's Wallops Island launch range infrastructure has continued to erode through storm wind and wave damage. The effects of storms are most apparent in the southern half of the Wallops Island beach, where the majority of the critical launch assets are located.

Consistent with the 2019 Programmatic BO (USFWS, 2019), NASA's proposed action would implement measures to protect the beach along the Wallops Island shoreline infrastructure protection area. The Proposed Action could involve a combination of the following, implemented in phases over the next 7 years (**Figure 1**):

- dredging up to 4.5 million cubic yards of sand from Offshore Unnamed Shoal A;
- sand renourishment within an approximately 15,000-foot section of shoreline;
- construction of up to 12 breakwaters in the nearshore area between the existing breakwaters; and
- repairs and extension of the existing seawall.

Activities would occur in phases depending on a number of factors, including infrastructure prioritized for protection, the pace and location of erosion, and the availability of funding. Existing mitigation measures and monitoring requirements would be unchanged.

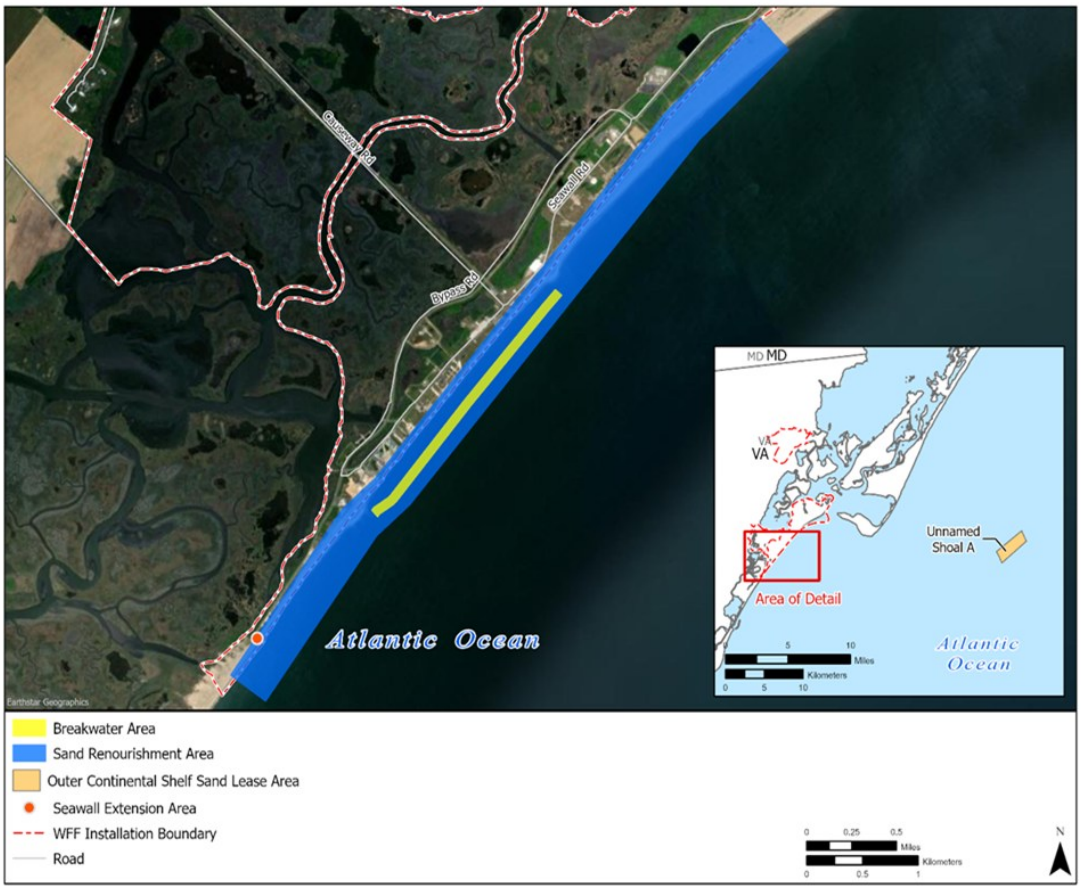

Figure 1 Project Area and Components

2.1 Dredging

Over the next 7 years, the beach along the Wallops Island shoreline infrastructure protection area would be renourished using up to 3 million cubic yards of sand sourced from Unnamed Shoal A. Because of overflow from the hopper dredge at the borrow site during dredging and losses during discharge and placement, a larger volume of material would be dredged to meet the targeted fill volume. Sediment losses during dredging and placement are assumed to be up to 50 percent, resulting in an estimated 4.5 million cubic yards dredged in order to renourish the beach with 3 million cubic yards of sand. The dredging together with the beach renourishment portion of the project would take approximately 3 months.

Dredging would be consistent with the pervious projects. The dredge contractor would transport equipment and materials to the project site. Offshore equipment would include several miles of discharge pipe, pump-out buoys, and multiple barges, tugboats, derricks, and smaller crew transportation vessels. It is expected that the discharge lines would be assembled inside the protected waters of Chincoteague Inlet, rafted together, and then positioned by mechanical means at their ultimate placement site, as weather conditions allow.

The dredging process would be cyclical in nature, with the vessel transiting to the borrow site, lowering its drag arms (equipped with munitions and explosives of concern [MEC] screens and sea turtle deflectors), filling its hopper, and transporting the material to a pump-out station (the floating end of a submerged pipeline) that would be placed at a water depth of approximately 30 feet, approximately 2 miles offshore. The pathway from Unnamed Shoal A to the pump-out station avoids Chincoteague Shoal and Blackfish Bank and is approximately 14 miles. The pump-out station would be moved up to 10 times. Booster pumps may be needed to aid the offloading of sand from the pump-out buoy to the shoreline. The sand/water slurry would be pumped to the beach through several miles of submerged steel pipeline temporarily placed on the seafloor in areas previously cleared for cultural resources and/or on hardbottom. All dredging and equipment placement would take place in areas previously surveyed. Nearshore, it is expected that the contractor would employ one or more anchored pump-out stations.

2.2 Beach Renourishment

Consistent with previous beach renourishment projects, onshore sections of discharge lines would be placed using a front-end loader or crane. As the sand slurry is discharged onto the shoreline, bulldozers would grade the material to the desired design template. Sand would be placed onshore along 15,000 feet of beach extending from just north of the southern property line to the north near the fire station. The tidal cycle would influence the location on the beach within which the equipment would work for a given dredge load. After each section of beach is confirmed to meet design criteria, the process would continue in the longshore direction, with sections of discharge pipe added as it progresses.

2.3 Breakwater Construction

Also over the next 7 years, up to 12 breakwaters would be constructed approximately 200 feet offshore between the two existing sets of breakwaters. Breakwaters would vary in height and width depending on the elevation of the sea bottom. Each breakwater would cover 11,000–12,000 square feet of bottom, for a total of up to approximately 144,000 square feet. Breakwaters could be placed in sets or individually. Breakwaters would be similar to those previously constructed with a layer of Type I Armor Stone, a center core of Virginia

Department of Transportation (VDOT) Class II stone. Breakwaters may be placed on underlying 12-inch marine filter mattresses and/or a layer of geotextile fabric. The specific size, number, and placement of breakwaters would be a function of available funding, local conditions, and modeling by the USACE to determine maximum effectiveness while minimizing impacts to sediment transport and hydrodynamics in the project vicinity. Construction of each breakwater is estimated to take 2 to 3 months. Breakwater construction could occur using several methods: via barge, temporary bulkheads, or temporary trestle system.

2.3.1 Building Breakwaters by Barge

The rock and other materials for constructing each breakwater would be transported to the breakwater construction area by barge or to the WFF area by rail, offloaded, and then barged to the handling or placement site offshore of Wallops Island. Placement would occur in the water using a barge and heavy lifting equipment.

2.3.2 Building Breakwaters Using Temporary Bulkheads

Materials and equipment would be transported to the WFF area by rail and offloaded to trucks or by truck to and from the island via existing roads to either an impervious surface or previously disturbed upland staging area. During construction, staging could move to the construction zone on the beach. Temporary bulkhead structures would be constructed using steel sheet piles. Each temporary bulkhead would be roughly 130 feet long by 30 feet wide and use approximately 1,000 cubic yards of temporary sand (same as used for beach fill).

2.3.3 Building Breakwaters Using Temporary Trestle System

Materials and equipment would be transported to the WFF area by rail and offloaded to trucks or by truck to and from the island via existing roads to either an impervious surface or previously disturbed upland staging area. During construction, staging could move to the construction zone on the beach. A series of steel pilings would be installed and beams placed across the top of the piles to form temporary trestles. The system would be 30 to 40 feet wide with crane mats used as decking.

2.4 Seawall Repair and Extension

The existing rock seawall is located along 15,900 feet of the Wallops Island shoreline. Construction of this seawall began in 1992. While the wall has prevented overwash and storm damage, erosion of the shoreline seaward of the wall has continued, resulting in an increased risk of damage to the seawall. The SRIPP analyzed potential effects from repairing and extending the seawall to a maximum length of 4,600 feet south of its southernmost point (NASA, 2010a). During the first SRIPP cycle, the seawall was extended approximately 1,430 feet south with the premise that the remaining 3,170-feet extension would be implemented with future funding. The seawall extension would consist of the placement of rocks weighing approximately 5 to 7 tons on a 1 to 1.5 slope. The top of the seawall would be approximately 14 feet above the normal high-tide water level after completion, depending on the extent of existing shoreline retreat at that time. The seawall could require repairs at any location.

2.5 Mitigation

The 2019 Programmatic BO requires the following measures to minimize effects on these species.

- Preparation and distribution of a fact sheet containing this information to all project personnel.
- Minimization of foot traffic during construction.
- Inspection of all vehicles for leaks immediately prior to work in beach habitat.
- Notification to the USFWS regarding the projected and actual start dates, progress, and completion of the project and confirmation that all conservation measures were followed.
- Submission of an annual report summarizing the survey and monitoring efforts, location and status of all occurrences of listed species recorded, and any additional relevant information to the USFWS by December 31 of each year.
- Should renourishment activities be scheduled between March 15 and August 31, NASA will ensure that a qualified biological monitor conducts daily surveys of the project site and adjacent areas to detect nesting piping plovers and sea turtles, in accordance with established and approved monitoring protocols.
- In accordance with WFF's Protected Species Monitoring Plan, if piping plover or sea turtle nests are identified, the nests will be clearly marked using exclosures or signage and rope barriers encircling each site. A qualified biological monitor would conduct daily nest inspections. All on-site personnel would be informed of the nesting status, and all project activities within 1,000 feet of a nest would be suspended or relocated until hatching is complete.

3.0 Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 Code of Federal Regulations section 402.02). As with previous shoreline consultations, the action area includes the Wallops Island offshore borrow sites, the waters between and immediately adjacent to these areas where project vessels would travel and dredged material would be transported, the beach and nearshore where sand would be replenished, the offshore area where breakwaters would be constructed, and the shoreline where seawall repairs and extension could take place.

4.0 Status of Species within the Action Area

Table 1 provides a review of species that would be potentially affected by the project activities that have been assessed previously in shoreline project consultations. **Table 2** is a list of species that have been listed or proposed for listing since the last shoreline consultation as well as their potential to occur in the action area.

Table 1 Previously Evaluated ESA-Listed Species with Potential to Occur in the Action Area

Common Name	ESA Status	Previous Determination	Species/Habitat Presence in Action Area
Northern long- eared bat *(Myotis septentrionalis)*	E	NLAA	Species was not detected (nor was any species of the genus *Myotis*) during 2017–2018 or 2024 bat acoustic and mist netting surveys (Barr, 2018; NASA, 2024b). While there is suitable habitat present in parts of the island, none is present in the action area.
Piping Plover (*Charadrius melodus*)	T	LAA	Within the action area, plovers use wide sandy beaches on Metompkin, Assawoman, Wallops, and Assateague Islands for courtship and nesting.
Roseate tern (*Sterna dougalii dougalii*)	E	NLAA	Species has not been identified and is not likely to be present.
Rufa red knot (*Calidris canutus rufa*)	T	LAA	The majority of knot foraging habitat on Wallops Island occurs on the north end of the island, well north of the action area.
Green sea turtle (*Chelonia mydas*)	T	NLAA	Species has not been identified and is not likely to be present.
Hawksbill sea turtle (*Eretmochelys imbricata*)	E	NLAA	Species has not been identified and is not likely to be present.
Kemp's ridley sea turtle (*Lepidechelys kempii*)	E	NLAA	Species has not been identified and is not likely to be present.
Leatherback sea turtle (*Dermochelys coriacea*)	E	NLAA	Species has not been identified and is not likely to be present.
Loggerhead sea turtle (*Caretta caretta*)	T	LAA	Nests on Wallops Island have been documented on the recreational beach and in front of the rock wall, but are not documented every year.
Seabeach amaranth (*Amaranthus pumilius*)	T	NLAA	Species has not been identified and is not likely to be present.

Key: E = Endangered; ESA = Endangered Species Act; LAA = likely to adversely affect; NLAA = not likely to adversely affect; T= threatened

Table 2 ESA Listed Species not Previously Evaluated with Potential to Occur in the Action Area

Common Name	ESA Status	Species/Habitat Presence in Action Area
Tricolored bat (*Perimyotis subflavus*)	PE	Species was detected during 2017–2018 and was not detected in 2024 bat acoustic and netting surveys (Barr, 2018; NASA, 2024b). While there is suitable habitat present in parts of the island, none is present in the action area.
Eastern black rail (*Laterallus jamaicensis jamaicensis*)	T	NASA completed two sets of surveys during the breeding season: from June 10 to July 13, 2021 (Ritzert, Stein, and Bartok, 2021) and from May 1 to June 6, 2022 (Stein, Bartok, and Ritzert, 2022). No visual or auditory observations of eastern black rails were recorded during surveys. No Eastern black rail habitat (wetlands) exists in the action area.
Bermuda petrel (*Pterodroma cahow*)	E	No Bermuda petrel habitat exists in the action area. The Bermuda petrel is a seabird with a restricted range, primarily nesting on small islands in Bermuda, over 1,000 miles from Wallops Island.
Monarch butterfly (*Danaus plexippus*)	PT	No suitable habitat exists in the action area.

Key: E = Endangered; ESA = Endangered Species Act; NASA = National Aeronautics and Space Administration; PE = proposed endangered; T= threatened; USFWS = United States Fish and Wildlife Service

While habitat does exist on Wallops Island for the endangered northern long-eared bat, none exists in the action area. Northern long-eared bat has not been detected during surveys in 2017, 2018, or 2024. Tricolored bat habitat exists on Wallops Island and it was detected in surveys in 2018 (but not in 2024); but there is no habitat in the action area and the species is not likely to be affected by project activities (NASA, 2024a, 2024b).

NASA completed two sets of visual and auditory surveys to capture peak potential eastern black rail activity during the breeding season. The first set of surveys was conducted from June 10 to July 13, 2021 (Ritzert, Stein, and Bartok, 2021) and the second set was conducted from May 1 to June 6, 2022 (Stein, Bartok, and Ritzert, 2022). No visual or auditory observations of eastern black rails were recorded during surveys. No eastern black rail habitat (wetlands) exists in the action area, and no wetlands would be affected by the Proposed Action.

Bermuda petrels are unlikely to encounter dredging activities as water depths are shallower than where the species is usually found. This, along with the small size of the area offshore that would be affected by dredging, the duration of activities, the patchy and seasonal distribution of the species over a large area, suggest that dredging has a discountable probability of affecting Bermuda petrels.

The monarch butterfly, which recently was proposed for federal listing as threatened, also has no suitable habitat within the project area since the area is unlikely to provide habitat for milkweeds, their preferred host species.

Piping Plover: Since 2010, NASA has conducted annual piping plover surveys three to four times weekly between March 15 and August 31, or when the last chick fledges. Additionally, when prior renourishment occurred during the nesting season, NASA increased monitoring to 7 days a week. **Table 3** illustrates historic nest data.

Table 3 Historic Piping Plover Nesting on Wallops Island

Year	Nests	Chicks Fledged
2017	6	4
2018	3	3
2019	7	5
2020	7	0
2021	3	0
2022	4	0
2023	3	3
2024	7	1
2025	3	8

Sources: NASA 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024c, 2025

Rufa Red Knot: NASA has observed and recorded the presence of red knots on the north end of Wallops Island during their May spring migrations since 2010. **Table 4** illustrates historic rufa red knot counts at Wallops Island. The project area overlaps the current designated critical habitat for the rufa red knot. In 2021 and 2023, the USFWS proposed critical habitat for the rufa red knot, including two areas on Wallops Island: one 540-acre area on northern Wallops Island and a 31-acre area on southern Wallops Island. Although the project area overlaps the proposed critical habitat, the designation has not been finalized.

Table 4 Historic Rufa Red Knot Counts on Wallops Island

Year	Count
2017	415
2018	393
2019	2,020
2020	117
2021	0
2022	622
2023	186
2024	53
2025	1,744

Sources: NASA 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024c, 2025

Sea Turtles: In accordance with the Protected Species Monitoring Plan, NASA monitors for sea turtle nesting in conjunction with piping plover monitoring. If a nest is discovered, monitoring continues through November 30, or until the last hatchling leaves the nest. While NASA has observed loggerhead sea turtles and sea turtle nesting activity in the past, numbers are low, and some years have no observations of sea turtle nesting. Between 2010 and 2013, NASA observed a total of eight nests and five false crawls on Wallops Island beach. DNA analysis determined that all four nests in 2010 were dug by a single female loggerhead sea turtle (NASA, 2010b; USFWS, 2016). No sea turtle nesting activity has been observed on Wallops Island since monitoring began in 2013. Historically, only loggerhead sea turtles have been found on Wallops (NASA, 2023).

5.0 Effects of the Action on Listed Species

Because the effects of the proposed activities have been evaluated in detail previously, the following sections provide a summary of effects. Project elements are substantially similar to those assessed previously in the SRIPP BA, 2010 Programmatic BO, 2016 BO, and 2019 Programmatic BO; and 2021 Project Modification. Therefore, there would be no change to effects determination, take, terms and conditions, and monitoring and reporting requirements for species previously evaluated. None of the species listed since 2019 have the potential to occur in the action area.

5.1 Dredging

The effects of dredging on sea turtles offshore is being evaluated in consultation with the National Oceanic and Atmospheric Administration Fisheries. Bermuda petrels are unlikely to encounter dredging activities as water depths are shallower than where the species is usually found. This, along with the small size of the area offshore that would be affected by dredging, the duration of activities, the patchy and seasonal distribution of the species over a large area, suggest that dredging has a discountable probability of affecting Bermuda petrels. Dredging is not expected to affect any other ESA-listed species managed by USFWS.

5.2 Beach Renourishment

Beach renourishment would temporarily disturb piping plover and loggerhead sea turtle nesting habitat and red knot migratory habitat, though currently the quality of existing habitat has been diminished by erosion and productivity is historically low. In the long term, the beach nesting habitat would be stabilized by beach renourishment and other stabilization efforts. Benthic prey items in the sand template would be buried during renourishment, resulting in the temporary loss of foraging habitat for piping plovers and rufa red knots.

Given the small area affected by the proposed activities relative to abundant adjacent habitats and the ability of these species to exploit food sources over a large area, these effects would be minor. In the long term, a wider stable beach would be recolonized by benthos from adjacent areas and would provide foraging habitat for these species. Effects would not appreciably diminish the value of the proposed rufa red knot critical habitat over the long term because beach foraging habitat would be stabilized; therefore, the proposed action is not likely to adversely modify proposed critical habitat.

Noise and human presence in the renourishment area could disturb piping plovers, red knots, and loggerhead sea turtles for the duration of activities. Nesting sea turtles could be impacted by nighttime construction activity (particularly artificial lighting) on the beach, unintentional burial of a newly dug nest (if it were undetected), disorientation of hatchlings (due to project-related light sources), or obstruction to hatchlings during their emergence and subsequent trip to the ocean. The replenished beach would prove suitable to nesting turtles because the beach fill material is not substantially different from nearby native beaches. Moreover, as evidenced by the sea turtle nesting that occurred on the Wallops Island beach during the initial beach fill cycle, and continued piping plover nesting, it is possible that the additional elevated beach would provide suitable nesting habitat.

5.3 Breakwater Construction

Noise and human presence during breakwater construction could disturb piping plovers, red knots, and loggerhead sea turtles for the duration of activities. The construction of breakwaters could potentially cause disturbance and area avoidance by sea turtles, depending on the time of year construction was initiated. Impacts to nesting sea turtles could include avoided nesting attempts due to construction activity (noise, artificial lighting) on the beach, disorientation of hatchlings (due to project-related light sources), obstruction to hatchlings during their emergence and subsequent trip to the ocean, or loss of beach habitat. However, sea turtle nesting occurred on the new Wallops Island dune during the initial beach fill, indicating that it is very possible that the renourished elevated beach would provide additional sea turtle nesting habitat, a net benefit to the species. Similarly, a wider stable beach would be colonized by benthos from adjacent areas and would provide foraging habitat for piping plover and rufa red knot in 3 to 6 months (Hill-Spanick et al., 2018; Tauran et al., 2025). In addition, the above-water portion of the breakwaters after construction would provide potential roosting and resting area for birds.

5.4 Seawall Repair and Extension

Noise and human presence associated with seawall work could disturb piping plovers, red knots, and loggerhead sea turtles for the duration of activities. Extension of the seawall could cover existing foraging habitat. Possible effects on nesting turtles would be generally the same as those discussed for beach renourishment and breakwater construction.

6.0 Effects Determination

Based on the discussion above, NASA has made determinations of effects resulting from components of the proposed action on ESA-listed species (**Table 5**).

Table 5 Effects Determinations

Species	Dredging	Beach Renourishment	Breakwater Construction	Seawall Repair and Extension
Evaluated in Previous Consultations				
Northern long- eared bat	NE	NLAA	NLAA	NLAA
Piping Plover	NE	LAA	LAA	LAA
Roseate tern	NE	NLAA	NLAA	NLAA
Rufa red knot	NE	LAA	LAA	LAA
Green sea turtle	NLAA	NLAA	NLAA	NLAA
Hawksbill sea turtle	NLAA	NLAA	NLAA	NLAA
Kemp's ridley sea turtle	NLAA	NLAA	NLAA	NLAA
Leatherback sea turtle	NLAA	NLAA	NLAA	NLAA
Loggerhead sea turtle	NLAA	LAA	LAA	LAA
Seabeach amaranth	NE	NLAA	NLAA	NLAA
Listed Since Previous Consultation				
Tricolored bat	NE	NLAA	NLAA	NLAA
Eastern black rail	NE	NE	NE	NE
Bermuda petrel	NLAA	NE	NE	NE
Monarch butterfly	NE	NLAA	NLAA	NLAA

Key: LAA = likely to adversely affect; NE = no effect; NJ = not likely to jeopardize the continued existence; NLAA = not likely to adversely affect

7.0 Conclusion

In consideration of the scope of the proposed project, listed species known to inhabit the project area, and the potential effects on those species, NASA concludes that the proposed action is substantially similar in scope, geography and timing as that covered in the 2019 Programmatic BO. Species listed or proposed for listing since the 2019 Programmatic BO would not be affected or are not likely to be affected by the proposed action. Further, NASA concludes that impacts associated with the proposed action are substantially similar as those considered within the SRIPP BA, 2010 Programmatic BO, 2016 BO, 2019 Programmatic BO, and 2021 Project Modification; that is these actions *may affect, likely to adversely affect* piping plovers, red knots, and loggerhead sea turtles. NASA hereby requests USFWS concurrence with this determination and that the proposed action can be covered under the 2019 Programmatic BO and 2021 Project Modification.

If you have any questions or require additional information, please contact Ms. Lori Levine at (301) 286-6741 or lori.m.levine@nasa.gov.

Sincerely,

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References

Barr, E. 2018. Post-WNS Survey of Bats at NASA Wallops Island Flight Facility. 2018 Final Report. November.

Hill-Spanik, K.M., Smith, A.S. and Plante, C.J. 2018. Recovery of Benthic Microalgal Biomass and Community Structure Following Beach Renourishment at Folly Beach, South Carolina. Estuaries and Coasts 42, 157–172 (2019). https://doi.org/10.1007/s12237-018-0456-x

NASA. 2010a. Biological Assessment Shoreline Restoration and Infrastructure Protection Program. February.

NASA. 2010b. Final Programmatic Environmental Impact Statement for Wallops Flight Facility Shoreline Restoration and Infrastructure Protection Programs. October.

NASA. 2013. Final Environmental Assessment Wallops Island Post-Hurricane Sandy Shoreline Repair. June.

NASA. 2017. 2017 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2018. 2018 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2019. 2019 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2020. 2020 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2021. 2021 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2022. 2022 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2023. 2023 Wallops Protected Species Monitoring Report.

NASA. 2024a. Bat Acoustic Survey Report for the Wallops Flight Facility Main Base, Mainland, and Island Project. October.

NASA. 2024b. Historical Wallops Island Nesting 2020-2024. Available at: https://www.nasa.gov/wp-content/uploads/2024/08/combined-nesting-locations-2020-2024.pdf?emrc=a99410.

NASA. 2024c. 2024 Wallops Island Protected Species Monitoring Report. National Aeronautics and Space Administration Wallops Flight Facility Wallops Island, Virginia

NASA. 2025. 2025 Wallops Island Protected Species Monitoring Report.

Ritzert, J. P., J. Stein, and N. Bartok. 2021. Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) Acoustic Surveys for the National Aeronautics and Space Administration Goddard Space Flight's Wallops Flight Facility, Accomack County, Virginia. Final Report: June 10 – 13, 2021. Prepared for US Air Force, Wright-Patterson Air Force Base, Ohio and National Aeronautics and Space Administration (NASA), Wallops Island, Virginia. Prepared by Western EcoSystems Technology, Inc. (WEST). Lemoyne, Pennsylvania. August 31, 2021. Virginia.

Stein, J., N. Bartok, and J. Ritzert. 2022. Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) Acoustic Surveys for the National Aeronautics and Space Administration Goddard Space Flight Center's Wallops Flight Facility, Accomack County, Virginia. Final Report: May 1-June 6, 2022. Prepared for US Air Force, Wright-Patterson Air Force Base, Ohio, and National Aeronautics and Space Administration (NASA), Wallops Island, Virginia. Prepared by Western EcoSystems Technology, Inc. (WEST). Lemoyne, Pennsylvania. July 15, 2022.

Tauran, A., N. Lavesque, H. Blanchet, V. Bujan, B. Gouillieux, S. Humbert, B. Lamarque, L. Latry , and X. de Montaudouin. 2025. Long-term impact of dredging and beach nourishment works on benthic communities. Accessed on 6 January 2026. Available: https://doi.org/10.1016/j.ecss.2024.109119

USACE. 2018. Wallops Island, VA. Fall 2017 Shoreline Mapping Program Beach Profile Monitoring Survey Evaluation, Final Report. January.

USFWS. 2010. Programmatic Biological Opinion on the Wallops Flight Facility Shoreline Restoration and Infrastructure Protection Program. Gloucester, Virginia Field Office. July

USFWS. 2016. Revised Biological Opinion Wallops Flight Facility Proposed and Ongoing Operations and Shoreline Restoration. June.

USFWS. 2019. Programmatic Biological Opinion Wallops Flight Facility Updated and Consolidated Biological Opinion. June.