

**FEDERAL CONSISTENCY DETERMINATION FOR THE  
SHORELINE RESTORATION AND INFRASTRUCTURE PROTECTION  
PROGRAM**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
GODDARD SPACE FLIGHT CENTER  
WALLOPS FLIGHT FACILITY  
WALLOPS ISLAND, VA 23337**

## Introduction

This document provides the Commonwealth of Virginia with the National Aeronautics and Space Administration's (NASA) Consistency Determination under Coastal Zone Management Act Section 307(c)(1) and Title 15 Code of Federal Regulations (CFR) Part 930, Subpart C, for implementation of the Shoreline Restoration and Infrastructure Protection Program (SRIPP) at NASA's Goddard Space Flight Center Wallops Flight Facility (WFF), Wallops Island, Virginia. The information in this Consistency Determination is provided pursuant to 15 CFR Section 930.39.

NASA has prepared a Programmatic Environmental Impact Statement (PEIS) to evaluate the potential environmental impacts from the proposed SRIPP in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S. Code 4321-4347), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), NASA's regulations for implementing NEPA (14 CFR Subpart 1216.3), and the *NASA Procedural Requirements (NPR) for Implementing NEPA* and *Executive Order (EO) 12114* (NPR 8580.1).

The U.S. Department of the Interior Minerals Management Service (MMS) and the U.S. Army Corps of Engineers (USACE), Norfolk District, have served as Cooperating Agencies in preparing the PEIS and this Consistency Determination, because they possess regulatory authority and specialized expertise pertaining to the Proposed Action. The PEIS is being developed to fulfill all three Federal agencies' obligations under NEPA. NASA, as the WFF property owner and project proponent, is the Lead Agency and responsible for ensuring overall compliance with applicable environmental statutes, including NEPA.

The SRIPP encompasses a 50-year planning horizon and is intended to reduce storm-induced physical damage to Federal and State infrastructure on Wallops Island. The Preferred Alternative would involve extending Wallops Island's existing rock seawall a maximum of 1,400 meters (m) (4,600 feet [ft]) south of its southernmost point and placing sand dredged from Federal waters on Wallops Island along 6.0 kilometers (3.7 miles) of the shoreline. An initial sand placement of approximately 2.4 million cubic meters (m<sup>3</sup>) (3.2 million cubic yards [yd<sup>3</sup>]) of would occur, followed by periodic renourishments anticipated to occur every 5 years, with a total of 9 renourishment cycles over the 50-year life of the SRIPP. Each renourishment event would involve placement of approximately 616,000 m<sup>3</sup> (806,000 yd<sup>3</sup>) of sand on the shoreline. The topography and bathymetry of the beach would be monitored on a regular basis to determine sand movement patterns and plan when renourishment is needed. The initial fill plus the total

fill volume over 9 renourishment events would result in approximately 8 million m<sup>3</sup> (10.5 million yd<sup>3</sup>) of sand being placed on the shoreline.

The SRIPP would help reduce the risk to infrastructure on Wallops Island from storm-induced damages by restoring the beach profile in front of the present shoreline.

## Effects to Resources

NASA has determined that the SRIPP would affect the land or water uses or natural resources of Virginia in the following manner:

***Geology and Sediment*** – Beneficial long-term impacts on land use and the Wallops Island and northern Assawoman Island shorelines would occur due to creation of a beach. North Wallops Island sand removal would result in minor adverse impacts on sediments and topography. Placement of beach fill (initial and renourishment) would create and maintain a beach approximately 21 meters (70 feet) wide on Wallops Island, resulting in long-term direct beneficial impacts. The addition of sediment to the longshore transport system would offset some ongoing erosion that is occurring at the northern end of Assawoman Island. The northern end of Wallops Island would continue to accrete, and would likely accrete at a faster rate than under existing conditions due to the presence of additional sand in the longshore sediment transport system from the beach fill. The newly created beach profile would extend underwater for a maximum of 52 meters (170 feet), resulting in a new bathymetric profile within the subaqueous lands immediately east of Wallops Island.

To minimize impacts on sediments, beach nourishment would be done using a comparable sediment type (a similar percentage of sand, silt and clay), grain size and color as the existing beach material. The removal of sediments from north Wallops Island would be mitigated by the re-deposition of sediment that would come from the addition of new sand on the beach. A monitoring survey of the shoreline in the vicinity of Wallops Island would be conducted twice a year, with LiDAR (Light Acquisition, Detection, and Ranging) data obtained for the area approximately once a year. NASA would implement an adaptive management strategy to ensure that mitigation and monitoring are effective and appropriate.

***Water Resources*** –Elevated turbidity in the nearshore marine water environment off Wallops Island would occur during and immediately after initial and renourishment beach fill. No impacts would occur on surface waters or wetlands.

***Floodplains*** – Wallops Island is located entirely within the floodplain; therefore, all SRIPP activities on land would take place within the 100-year and 500-year floodplains. No practicable alternatives to work in the floodplain exist. The functionality of the floodplain on Wallops Island, provided both by the wetlands on the island and the area of the island itself, would not be reduced by the SRIPP.

***Air Quality*** – Emissions from construction equipment (seawall extension, movement of sand on beach during placement, excavation of sediments on north Wallops Island beach) and barge activities (dredging and transport) are not anticipated to cause long-term adverse impacts on air quality or climate change.

**Noise** – Construction and transportation activities have the potential to generate temporary increases in noise levels from heavy equipment operations. Localized impacts would occur during construction of the seawall and sand placement activities, but no adverse impacts are anticipated. Temporary, localized impacts on marine mammals associated with noise related to vessel activities (dredging) and construction of the groin or breakwater.

**Hazardous Materials and Hazardous Waste Management** – Beneficial impacts would occur by restoring the Wallops Island shoreline and increasing the distance between breaking waves and hazardous materials storage areas and accumulation points. NASA has implemented various controls to prevent or minimize the effects of an accident involving hazardous materials on NASA property, including the following:

- Preparation of an Integrated Contingency Plan
- Preparation of emergency plans and procedures designed to minimize the effect an accident has on the environment
- Maintenance of an online database (MSDSPro) of hazardous materials and the associated buildings where they are stored or used, which would be updated to include the new facilities
- Annual training for all users of hazardous materials

**Munitions and Explosives of Concern** – MEC are not anticipated to be encountered in the area of seawall construction or beach fill. It is anticipated that shoreline erosion would increase to the south of the seawall extension in the first one to two years of the SRIPP; MEC may migrate to the ocean if further beach erosion occurs in this area. The beach fill (starting in year two) would reduce the potential of MEC migration into the ocean. There is a potential that MEC would be encountered during excavation of the north Wallops Island borrow site. To minimize the risk of adverse impacts from UXO in this area, an MEC Avoidance Plan that addresses the potential hazards would be prepared. A visual and magnetic survey of the area to locate MEC would be completed and potential hazards removed prior to excavation.

**Vegetation** – The addition of sand to the shoreline would result in beneficial impacts on existing vegetation. The presence of a beach is an important buffer for other vegetative zones on Wallops Island. The SRIPP would create beach and dune habitat along approximately 6.0 kilometers (3.7 miles) of shoreline where none currently exists, allowing grasses to repopulate the upper dune areas. Vegetative species associated with dune and swale systems would also benefit from the expanded beach habitat that would be created under the Preferred Alternative. The movement of dump trucks carrying the seawall components would likely disturb some vegetation in the upper beach zone. During renourishment cycles from the northern part of Wallops Island, vegetation is not expected to be disturbed because the equipment would travel along the unvegetated beach to reach the upland borrow site. Overall, it is anticipated that Alternative One would result in beneficial impacts on Wallops Island vegetation.

**Benthic Resources** – Placement of the initial fill would bury existing intertidal benthic community along an approximate 4,300-meter (14,000-foot) length of the seawall. The

mean tidal range is approximately 1.1 m (3.6 ft); therefore approximately 0.5 hectare (1.2 ac) of hard-bottom, intertidal habitat would be permanently buried. In addition, approximately 91 hectares (225 acres) of the subtidal benthic community along the existing seawall would be buried during the initial fill placement. A new beach would be formed in front of the seawall and a beach benthic community would become established.

***Terrestrial Wildlife and Migratory Birds*** – Impacts on migratory birds are anticipated during construction of the seawall extension due to temporary noise disturbances, especially during spring and fall migrations; however, noise disturbances would be similar to existing noise from daily operations, including airplane and launch operations on Wallops Island. Temporary minor adverse impacts on beach invertebrates on existing portions of the beach like ghost crabs may occur during sand placement. Terrestrial species found inland may become startled by construction-related noises, but this would be temporary and would only last the duration of the construction.

***Threatened and Endangered Species*** – The SRIPP may affect, but is not likely to adversely affect vegetation, whales, sea turtles (except for loggerhead), and the candidate Red Knot. The SRIPP may affect, and is likely to adversely affect the loggerhead and Kemp's ridley sea turtles, and may affect, but is not likely to adversely affect the leatherback or Atlantic green sea turtles. The SRIPP is likely to adversely affect the Piping Plover. No adverse affect to other bird species. A qualified biologist would conduct surveys and monitor the project area to ensure Red Knots and Piping Plovers are not directly affected during construction activities. Turtle deflectors would be installed on the drag heads during dredging to reduce the risk of entrapment. In addition, NASA would implement a number of other measures to minimize impacts of incidental take of sea turtles. A NMFS-approved observer would be present on board the dredging vessel for any dredging occurring between April 1 and November 30.

***Marine Mammals, Fisheries, Essential Fish Habitat*** – NASA has determined that the proposed SRIPP would have site-specific adverse effects on Essential Fish Habitat, but the impacts would not be significant within a regional context. There would be short-term site-specific adverse effects on fish habitat within the fill placement area due to temporary burial of existing benthic habitat and increased levels of turbidity during and immediately after sand placement. Benthic habitats would recover post-project. Temporary, localized potential impacts associated with physical disturbance to habitats during dredging and fill, vessel strike, and increased noise from vessel activities (dredging). Although placement of sand on the Wallops Island shoreline might disrupt foraging habitat, no adverse impacts are anticipated to marine mammals. Because vessel activity in the project area is common, noise impacts are not expected to be significant. As suggested by NMFS in a memorandum dated June 18, 2009, the potential of marine mammal strikes would be mitigated by operating the dredge vessel at speeds below 14 knots.

***Socioeconomics*** – Beneficial impacts on the socioeconomic environment would occur from reducing damages to infrastructure and from job creation. Minor adverse effects on commercial and recreational fisheries. Disproportionately high or adverse impacts to low-income or minority populations are not anticipated.

***Commercial and Recreational Fishing*** - There could be temporary impacts on commercial and recreational fishing resources during the placement of beach fill material on Wallops Island due to elevated turbidity levels in the nearshore environment and disruption of the benthos, which would cause fish to avoid the disturbed areas. No impacts to commercial and recreational fishing are anticipated from construction of the seawall or use of the north Wallops Island borrow site for renourishment.

***Cultural Resources*** – No archaeological (below ground or underwater) resources or above-ground historic properties are present within the project area; therefore no archeological resources or above-ground historic properties would be affected. In a letter dated January 5, 2009, VDHR concurred with NASA’s determination “that there are no historic properties location within the project area and that no further work is needed within the area studied,” and that the SRIPP “will not adversely affect any historic properties.” In the event that previously unrecorded historic properties are discovered during project activities, NASA would stop work in the area and contact VDHR immediately.

***Transportation*** – Minor construction traffic is anticipated to be associated with the SRIPP on Wallops Island and also on the ocean between the proposed offshore shoals and the pump-out station located 3 kilometers (1.9 miles) off of Wallops Island. Employees would drive to the docked dredging barges to load them with any needed equipment. However, this amount of traffic would not be a significant increase from the usual daily landside traffic on Wallops Island.

***Cumulative Impacts*** – The area for the cumulative effects analysis covered the nearshore areas from approximately Ocean City, MD to Sandbridge, VA. The only resources that have been identified as having the potential to be adversely impacted by the cumulative effects of the SRIPP in combination with other local projects and activities are the geomorphic integrity of the offshore sand shoal environment, the loggerhead sea turtle, and the Piping Plover. Beneficial cumulative impacts are anticipated on socio-economics. No cumulative impacts are anticipated on other resources.

## Consistency Determination

The Virginia Coastal Resources Management Program contains the following applicable enforceable policies:

- **Fisheries Management.** Administered by VMRC, this program stresses the conservation and enhancement of shellfish and finfish resources and the promotion of commercial and recreational fisheries.
- **Subaqueous Lands Management.** Administered by VMRC, this program establishes conditions for granting permits to use State-owned bottomlands.
- **Wetlands Management.** Administered by VMRC and VDEQ, the wetlands management program preserves and protects tidal wetlands.
- **Dunes Management.** Administered by VMRC, the purpose of this program is to prevent the destruction and/or alteration of primary dunes.

- **Non-point Source Pollution Control.** Administered by the Virginia Department of Conservation and Recreation, the Virginia Erosion and Sediment Control Law is intended to minimize non-point source pollution entering Virginia’s waterways.
- **Point Source Pollution Control.** Administered by the State Water Control Board, the National Pollutant Discharge Elimination System permit program regulates point source discharges to Virginia’s waterways.
- **Shoreline Sanitation.** Administered by the Department of Health, this program regulates the installation of septic tanks to protect public health and the environment.
- **Air Pollution Control.** Administered by the State Air Pollution Control Board, this program implements the Federal Clean Air Act through a legally enforceable State Implementation Plan.
- **Coastal Lands Management.** Administered by the Chesapeake Bay Local Assistance Department, the Chesapeake Bay Preservation Act guides land development in coastal areas to protect the Chesapeake Bay and its tributaries.

Based upon the following information, data, and analysis, NASA finds that the proposed SRIPP activities are consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program. The table below summarizes NASA’s analysis supporting this determination:

Virginia Policy	Consistent?	Analysis
Fisheries Management	Yes	There would be short-term site-specific adverse effects on fish habitat within the fill placement area due to temporary burial of existing benthic habitat and increased levels of turbidity during and immediately after sand placement. Benthic habitats would recover post-project. Minor impacts on commercial or recreational fishing are anticipated. The proposed action would not violate the provisions outlined in Code of Virginia § 28.2-200 through 28.2-713 and Code of Virginia § 29.1-100 through 29.1-570.
Subaqueous Lands Management	Yes	The creation of a beach along Wallops Island would affect existing subaqueous areas in the nearshore ocean environment. Elevated turbidity in marine waters would occur during and immediately after beach fill. The newly created beach profile would extend approximately 21 meters (70 feet) above water from the existing shoreline and continue for a maximum of 52 meters (170 feet) underwater, resulting in a new bathymetric profile in the

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Virginia Policy	Consistent?	Analysis
		subaqueous lands immediately east of Wallops Island. Any necessary VMRC permits required for work involving maintenance, repair, or emergency actions in subaqueous bottom land would be obtained by NASA prior to implementation of the SRIPP.
Wetlands Management	Yes	Project activities would not impact wetlands.
Dunes Management	Yes	Project activities would involve the creation of a beach and dunes along 6 kilometers (3 miles) of the Wallops Island shoreline over the top of the existing seawall. No destruction of existing dunes would occur. Any necessary VMRC permits would be obtained by NASA prior to implementation of the SRIPP.
Non-point Source Pollution Control	Yes	Construction activities could temporarily increase non-point source runoff to the Atlantic Ocean during the duration of the project. NASA would implement appropriate best management practices to minimize the impact. All land-disturbing activities would be conducted on the existing beach (seawall construction and use of north Wallops Island for beach renourishment) and newly created beach.
Point Source Pollution Control	Yes	The project would not involve a new point source discharge to Virginia waters.
Shoreline Sanitation	Yes	The project would not involve the construction of septic tanks.
Air Pollution Control	Yes	Use of equipment for construction of the seawall extension, movement of sand placed on the newly created beach, and excavation of sand at the north end of Wallops Island along with barge operations for dredging and transport of sand would result in emissions. NASA would minimize adverse impacts to air quality by implementing best management practices. The project would not violate Federal or Virginia air quality standards.
Coastal Lands Management	Yes	The proposed project would not include land development activities that would impact the Chesapeake Bay or its tributaries.

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Pursuant to 15 CFR section 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR Section 930.41(b). Virginia's concurrence will be presumed if its response is not received by NASA on the 60<sup>th</sup> day from receipt of this determination. The State's response should be sent to:

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