Record of Decision

Wallops Flight Facility Shoreline Restoration and Infrastructure Protection Program

Programmatic Environmental Impact Statement

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

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RECORD OF DECISION
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
SHORELINE RESTORATION AND INFRASTRUCTURE PROTECTION PROGRAM

A. Background

The National Aeronautics and Space Administration (NASA) has prepared this Record of Decision (ROD) for the *Wallops Flight Facility (WFF) Shoreline Restoration and Infrastructure Program (SRIPP) Final Programmatic Environmental Impact Statement (PEIS).* This ROD includes a summary of the Final PEIS, public involvement in the decision-making process, synopses of alternatives considered, a summary of the key environmental issues evaluated, statement of the decision made (selection of an alternative), and the basis for the decision.

Purpose and Need for the Proposed Action

Wallops Island is one of eighteen barrier islands along the east coast of Virginia's Eastern Shore. Since the 1940s, NASA's WFF has maintained infrastructure on the island in support of its mission as one of the nation's test sites for aerospace technology experiments. Additionally, within the past several decades, the U.S. Navy and Virginia Commercial Spaceflight Authority's Mid-Atlantic Regional Spaceport (MARS) have constructed facilities on the island due to its unique location along the Atlantic coast. At the present time, there is over $1 billion in Federal and state infrastructure on the island.

The purpose of the SRIPP is to reduce the potential for damage to, or loss of, NASA, U.S. Navy, and Commonwealth of Virginia assets on Wallops Island from storm-induced wave impacts. The NASA facilities at greatest risk are the south Unmanned Aerial Systems Runway, the south camera station (building Z-100), and the Launch Control Center (building W-20), all located within 30 m (100 ft) of the shoreline, and all three sounding rocket launch pads, which are approximately 75 m (250 ft) from the shoreline. U.S. Navy assets at risk include the AEGIS and Ship Self Defense System Facilities. MARS Launch Pads 0-A and 0-B are located within 75 m (250 ft) of the shoreline, and are also at a high level of risk.

The existing seawall is being undermined because there is little or no protective sand beach remaining and storm waves break directly on the rocks. Currently, the south end of the island is unprotected except for a low revetment around MARS launch pad 0-B and temporary geotextile tubes that extend from the southern end of the existing seawall south to camera stand Z-100. In recent years, NASA has installed temporary structures (geotextile tubes) along the shoreline as an interim measure to help protect onshore assets from wave action and slow down the transport of sand off the beach. Additionally, NASA has made repairs to its rock seawall. Despite these efforts, the ocean has continued to encroach substantially toward the mission-essential infrastructure on Wallops Island.

A long-term storm damage reduction strategy is needed so that NASA and its partners can continue to safely and effectively conduct their operations on Wallops Island. Accordingly, NASA partnered with the U.S. Army Corps of Engineers (USACE) and the U.S. Department of the Interior's Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) in planning the proposed SRIPP.

B. The Environmental Impact Statement

B.1 Introduction to the EIS

NASA prepared a Programmatic Environmental Impact Statement (PEIS) to analyze the potential environmental impacts of the planned SRIPP. The USACE and BOEMRE served as Cooperating Agencies in preparing the PEIS as both agencies possess specialized expertise and regulatory jurisdiction over the proposed action.

The PEIS addresses a 50-year planning horizon. Despite the programmatic nature of the document, NASA included detailed design information for the initial construction of the three action alternatives that it considered for the SRIPP. Given the severity of shoreline erosion at Wallops Island and WFF's vulnerability to storms, it is necessary that a storm damage reduction project be implemented as soon as possible. As a result, the PEIS includes such specific detail as sand retention structure dimensions and locations so that the selected alternative could be implemented and permitted without the need for additional National Environmental Policy Act (NEPA) documentation. Utilizing an adaptive management approach, NASA would implement an initial project and evaluate future actions that may include variations of the alternatives evaluated in the PEIS. Once details of future actions are known, additional NEPA documentation may be prepared, as necessary.

On March 24, 2009, NASA published a Notice of Intent in the *Federal Register* (74 FR 12387) to prepare an EIS and conduct scoping for the SRIPP. Paid notices were also published in the three local newspapers with the greatest readership: the *Chincoteague Beacon*, *Eastern Shore News*, and Salisbury, Maryland *Daily Times*. Public input and comments on alternatives and potential environmental concerns were requested. NASA also held a public scoping meeting at the Wallops Visitor's Center on the evening of April 21, 2009 to solicit written and oral input. The scoping period closed on May 11, 2009. A total of 146 scoping comments were received from Federal, state, and local agencies, organizations, and individuals. Although the scoping comments involved a wide range of topics, the majority of concerns were regarding the proposed construction of a sand retention structure at the south end of the project site and its potential effects on the sediment transport system. These concerns were addressed in the Draft PEIS.

Prior to releasing the Draft PEIS to the public, NASA held a project update meeting on the evening of December 8, 2010 at the Wallops Visitor's Center. The purpose of the meeting was to keep interested parties abreast of the project's progress and to answer questions about the proposal.

NASA published a Notice of Availability (NOA) of the Draft PEIS for the SRIPP in the *Federal Register* on February 26, 2010 (75 FR 8997). The Draft PEIS was also mailed directly to 125 potentially interested Federal, state, and local agencies, organizations, and individuals. In addition, the Draft PEIS was published electronically on NASA's website. The U.S. Environmental Protection Agency (EPA) published its NOA for the DPEIS in the *Federal Register* on February 26, 2010, initiating the public review and comment period. The EPA subsequently published an amended notice on March 12, 2010 (75 FR 11882) to correct a misprint in the original February 26, 2010 notice and another on April 2, 2010 (75 FR 16786) to announce an extension of the public comment period.

The public review and comment period closed on April 19, 2010. NASA received 12 comment submissions from agencies and organizations that collectively contained 315 individual comments. The comments received ranged from concerns about impacts to wildlife, sediment transport, and cumulative effects. Upon its review of the Draft PEIS, the EPA expressed concern regarding potential environmental impacts of the SRIPP and requested that additional information be provided in the Final PEIS.

In addition to soliciting comments for submittal by letter and email, NASA held a meeting during which the public was invited to provide both oral and written comments on the SRIPP. To notify members of the public of the availability of the Draft PEIS and the schedule for the meeting, NASA placed paid advertisements in the *Eastern Shore News*, the *Chincoteague Beacon*, and the Salisbury, Maryland *Daily Times*. The meeting was held on the evening of March 12, 2010 at the Wallops Visitor's Center. Seven members of the public attended the meeting with two offering comments on the Draft PEIS. Excerpts of the official transcripts were recorded and are included in the Final PEIS in Appendix L. NASA's responses to all comments received on the Draft PEIS are included in the Final PEIS as Appendix M.

NASA published its NOA for the Final PEIS in the *Federal Register* on October 29, 2010 (75 FR 66800) and mailed copies of the document to 143 Federal, state, and local agencies, organizations, and individuals. In addition, NASA made the Final PEIS available in electronic format on its website. The U.S. EPA also published its NOA for the Final PEIS in the *Federal Register* on October 29, 2010 (75 FR 66756), initiating the 30-day waiting period, which ended on November 29, 2010. NASA received four comment submittals during this period. A discussion of comments received on the Final PEIS is located at Section E.2 of this ROD.

B.2 Alternatives Considered

NASA considered a range of alternatives to meet its purpose and need. Its Proposed Action is intended to employ a multi-tiered approach to reduce damages to Wallops Island facilities from ongoing beach erosion and storm waves during normal coastal storms and northeasters. Under each alternative, NASA would initiate a 50-year design life program with an initial construction phase followed by subsequent renourishment cycles that would be determined through monitoring and adaptive management. The alternatives considered in the PEIS entail a 5-year renourishment interval; however actual renourishment requirements would be driven primarily by storm conditions following each fill.

The SRIPP incorporates an adaptive design and management strategy that is defined by a range of alternatives with the understanding that one alternative is preferred as the initial action, but elements of the other alternatives may be adopted in the future if the monitoring program reveals them to be necessary. Alternatives presented in the Final PEIS are based on current conditions and knowledge of design and resources; however, as more information becomes available through monitoring, NASA would further evaluate its strategy for storm damage reduction measures.

Alternative One: Full Beach Fill, Seawall Extension

Alternative One, identified as NASA's preferred alternative in the Final PEIS, would involve an initial construction phase with follow-on renourishment cycles. The initial phase would include two distinct elements:

1. Extending Wallops Island's existing rock seawall a maximum of 1,400 meters (m) (4,600 feet [ft]) south of its southernmost point. An initial seawall extension of 435 m (1,430 ft) would be implemented in the first year of the SRIPP prior to the placement of the initial beach fill. Additional seawall extension would be completed in the future as funding becomes available.

2. Placing sand dredged from Unnamed Shoal A, located offshore in Federal waters, on the Wallops Island shoreline. An estimated 2,446,000 cubic meters (m^3) (3,199,000 cubic yards [yd^3]) of fill would be placed along a 6.0 kilometer (3.7 mile) length of shoreline starting at camera stand Z-100, which is located approximately 4,600 m (1,500 ft) north of the Wallops Island-Assawoman Island property boundary and extending north to the terminus of the existing rock seawall.

Each renourishment fill volume is anticipated to be approximately 616,000 m^3 (806,000 yd^3), at a frequency of every 5 years, totaling 9 renourishment cycles over the 50-year life of the SRIPP. 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 lifecycle renourishment fill would result in approximately 7,992,000 m^3 (10,453,000 yd^3) of sand being placed on the shoreline.

Alternative Two: Full Beach Fill, Groin, Seawall Extension

Under Alternative Two, the seawall extension would be the same as described under Alternative One. In addition, a rock groin would be constructed at the south end of the Wallops Island shoreline approximately 445 m (1,460 ft) north of the Wallops Island-Assawoman Island border.

Construction of the groin would result in more sand being retained along the Wallops Island beach, so less fill would be required for both the initial nourishment and renourishment volumes compared to Alternative One. The initial fill volume would be 2,229,000 m^3 (2,916,000 yd^3) and each renourishment fill volume would be 552,000 m^3 (722,000 yd^3). The initial fill plus all renourishment fill would result in approximately 7,198,000 m^3 (9,414,000 yd^3) of sand being placed on the shoreline.

Beach fill would be placed along the same length of the shoreline as described under Alternative One, but because less initial placement and renourishment fill would be required, the beach profile would not extend as far into the ocean.

Alternative Three: Full Beach Fill, Breakwater, Seawall Extension

Under Alternative Three, the seawall extension would be the same as described under Alternatives One and Two. In addition, a single nearshore rock breakwater would be constructed at the south end of the Wallops Island shoreline.

Construction of the breakwater would result in the most sand being retained along the Wallops Island beach, so the least fill would be required for both the initial placement and renourishment volumes compared to Alternatives One and Two. The initial fill volume would be 2,170,000 m^3 (2,839,000 yd^3) and each renourishment fill volume would be 537,000 m^3 (703,000 yd^3). The initial fill plus the total fill volume over nine renourishment events would result in approximately 7,008,000 m^3 (9,166,000 yd^3) of sand being placed on the shoreline.

Beach fill would be placed along the same length of the shoreline as described under Alternatives One and Two, but because the least initial nourishment and renourishment fill would be required, the beach profile would not extend as far into the ocean.

Sources of Beach Fill Material

For the three action alternatives evaluated in detail in the PEIS, NASA considered in detail three borrow sites as sources of fill material for constructing and renourishing the Wallops Island beach. Two of the borrow areas are offshore sand shoals, referred to as unnamed Shoals A and B, approximately 18 kilometers (km) (11 miles [mi]) and 21 km (13 mi) northeast of the project site, respectively. NASA also considered the potential effects of employing a technique known as "backpassing," by which sand from the north end of Wallops Island would be excavated and placed on the beach at points further south. "Backpassed" sand could be used to address erosional "hot spots" along the shoreline but could also supply approximately one half of the project's required renourishment volume.

The dredging scenarios evaluated in the PEIS involved obtaining the entire initial fill from Shoal A, with either of the three sand sources used for renourishment.

No Action Alternative

Under the No Action Alternative for this PEIS, the SRIPP would not be conducted on Wallops Island, but maintenance and emergency repairs to existing structures would continue. Maintenance activities include repairs to the existing seawall and to the geotextile tubes. Emergency actions may include hauling in additional rock to add to the existing seawall, hauling and placing sand on the beach or behind existing shoreline protection, installing sheet piling in or near the high tide level, or emergency geotextile tube installation. Under this alternative, the seawall can be expected to continue to deteriorate and would be increasingly vulnerable to massive failure during large storm events as waves break directly on the structure and also undercut the leading edge of the seawall. NASA, U.S. Navy, and MARS mission support equipment, buildings, and infrastructure would continue to be at increasing risk from storm

damage. Operations at facilities may be temporarily or permanently disrupted following even modest storm events.

B.3 Alternatives Considered But Not Evaluated Further

In addition to the alternatives considered in detail in the Final PEIS, NASA assessed a wide range of other potential storm damage reduction options but determined through its screening process that they would not meet the requisite criteria of interruption to Wallops mission activities, storm damage reduction, initial project cost, and annual maintenance costs. These options included:

Relocating At-Risk Infrastructure: While this alternative would reduce the risk to critical infrastructure from storm events, the public could be exposed to greater safety risks from hazardous operations being conducted closer to private property. Ensuring public safety is the top priority of NASA and its partners; increasing the potential risk to the public would be unacceptable. In addition, relocating Wallops Island facilities would be prohibitively expensive and would severely restrict NASA's ability to conduct its mission due to the need to maintain mandatory range safety clear zones.

Seawall Extension Only: The existing seawall is being undermined by wave action and has partially fallen into the ocean; this erosion process of the sediment underneath the seawall will continue if sand is not placed in front of the seawall. Because the Seawall Extension Only alternative does not include beach fill, it would not provide adequate long-term storm damage reduction to the shoreline on Wallops Island. Therefore, this alternative was dismissed from further consideration.

Sand Dunes with Various Cores: The construction of sand dunes with various cores without beach fill would not involve adding sand to the beach and thus would not provide adequate storm damage reduction. Construction of sand dunes without beach in front of them would expose the dunes to wave action and they would be undermined by erosion processes, as evidenced by the existing seawall. Because this alternative does not include beach fill, it would not provide adequate long-term storm damage reduction on Wallops Island.

Alternative Sand Retention Structures: The use of beach prisms or beach beams as a type of sand retention structure was dismissed from further consideration because, although these structures would provide some damage reduction during normal storm events, they both tend to be knocked over and sink during larger than normal storm events. Because this alternative is known to fail during severe storm events, conditions under this alternative would be no different from the existing conditions on the island and critical infrastructure would remain at risk; therefore, this alternative does not meet the purpose and need of the project and was dismissed from further consideration.

Beach Fill Only: This alternative would provide additional damage reduction to the shoreline in front of the existing seawall, reducing the potential for damages to the critical infrastructure on Wallops Island. However, the absence of a seawall extension to the south would leave other valuable infrastructure at risk from larger storm events. Therefore, beach fill only, without

extension of the seawall, did not pass the initial screening and was dismissed from further consideration.

Combinations of Beach Fill, Sand Retention Structures, and Seawall Extension: NASA initially considered 54 combinations of beach fill, sand retention structures, and seawall extension prior to arriving at the three action alternatives evaluated in detail in the Final PEIS. The 54 alternatives included varying widths of beach fill, lengths of beach fill, renourishment frequency, and type, number, and location of sand retention structures. A screening process was applied to these alternatives to ascertain the practicality of each in the context of the SRIPP. After this screening was conducted, the following components were eliminated from further analysis because they did not provide an acceptable level of storm damage reduction: narrowest beach fill and shorter beach fill. Additionally, the following components were eliminated from further analysis because of costs: widest beach fill, multiple sand retention structures, and shortest and longest time between renourishment cycles.

Sources of Beach Fill Material: NASA considered alternative borrow sites, including Chincoteague Inlet, the Virginia Inside Passage, and the nearshore ocean bottom just east of Wallops Island. These areas were eliminated from further consideration as they did not meet sand quality (grain size) or volume requirements to be a viable long-term source of sand for the project. Blackfish Bank, an offshore sand shoal approximately 8 km (5 mi) east of north Wallops Island, met fill quality and quantity requirements, however it was eliminated from further consideration due to potential adverse effects to commercial and recreational fisheries and potential adverse effects on the Assateague Island shoreline from the resulting reduction in wave sheltering following dredging.

B.4 Environmental Consequences of the Alternatives

Generally, all three action alternatives have similar environmental impacts. The primary factor dictating the intensity of effects across the alternatives is the type of sand retention structure that would be constructed. A summary of impacts from the action alternatives and the No Action Alternative are presented within this section. The resource areas for which notable differences were identified among the alternatives are discussed in Section C below.

Geology and Shoreline Change

Action Alternatives: Initial extension of the seawall prior to beach fill could cause temporary, localized downdrift erosion, however it would be mitigated following beach nourishment. Placement of beach fill (initial and renourishment) would create and maintain a beach berm approximately 21 m (70 ft) wide on Wallops Island. The addition of sediment to the longshore transport system would result in a reduction in the rate of erosion at the southern end of Wallops Island and northern end of the U.S. Fish and Wildlife Service (USFWS)-owned Assawoman Island. Over the lifetime of the SRIPP, the beach fill would be transported alongshore both north and south (estimated to be primarily north) and would have long-term direct beneficial impacts on the Wallops Island shoreline by mitigating the current rate of shoreline retreat. Continued beach nourishment would add to this benefit.

Long-term adverse impacts on coastal geology would occur because placement of beach fill and seawall would prevent naturally occurring overwash processes, thereby causing some island narrowing.

Because it does not include a sand retention structure, Alternative One would likely have the least potential detrimental effects on nearshore sediment transport when compared to Alternatives Two and Three. Additional discussion of the effects of a south sand retention structure is located in Section C.1 below.

No-Action Alternative: Adverse effects on sediment transport could occur due to emergency shoreline armoring without the addition of substantial quantities of sand to the nearshore system. Additionally, shoreline armoring would reduce overwash and contribute to island narrowing.

Water Quality
Action Alternatives: Dredging at the offshore shoals, placement of sand on the Wallops Island beach, and construction of a sand retention structure would cause elevated turbidity in marine waters. Effects are expected to be limited to the immediate area around where work is occurring and given the sandy composition of the fill material; the effect would not be expected to last more than several hours following dredging.

No-Action Alternative: Emergency actions could result in short-term localized degradation of water quality from elevated turbidity or from the unintentional release of petroleum products from construction equipment. As the scope of emergency repairs would likely be much less than the action alternatives, potential impacts would be as well.

Air Quality
Action Alternatives: Fossil-fuel powered construction equipment would generate emissions; however, it is not anticipated to cause long-term adverse impacts on air quality or climate change. Alternative One would have the greatest emissions when compared to Alternatives Two and Three as it does not include sand retention structures that would reduce the amount of fill needed over the project lifecycle.

No Action Alternative: Emissions generated from fossil fuel burning equipment would be expected to be very minor and temporary. As the scope of emergency repairs would likely be less than either of the action alternatives, emissions would be less in comparison.

Noise
Action Alternatives: Construction equipment would generate noise; however it would be temporary and localized. Underwater noise levels are expected to increase during dredging operations however with mitigation (described below in Section F.4) the potential effects on marine mammals are expected to be negligible.

No Action Alternative: Noise generated would be related primarily to land-based construction equipment and would be temporary and localized.

Hazardous Materials and Waste:
Action Alternatives: No substantial impacts are expected as all hazardous materials and waste would be managed in accordance with all applicable Federal, state, and local regulations. Implementation of the project would provide a beneficial impact by restoring the shoreline and increasing the distance between breaking waves and critical storage and accumulation areas. There is a potential that Munitions and Explosives of Concern (MEC) would be encountered during work along the Wallops Island shoreline (particularly during excavation of the north Wallops Island beach), however with mitigation (described below in Section F.3), effects on worker or public safety are expected to be negligible.

No Action Alternative: Emergency storm damage reduction measures are expected to only provide a marginal level of protection to Wallops Island assets; therefore it is likely that hazardous materials stored in those facilities would continue to be at increasing risk during storms.

Birds
Action Alternatives: Temporary noise disturbances from the construction machinery used for seawall extension, movement of beach sand, excavation of the north Wallops Island borrow site, construction of a sand retention structure, and dredging are expected to adversely affect beach nesting and foraging birds. Adverse effects may also occur from a reduction in available food sources during and following the placement of sand on the Wallops Island shoreline (initial fill and renourishment cycles) and excavation at north Wallops Island for renourishment. The time of year that construction would occur would dictate the intensity of effects, with winter expected to produce the least and late spring and summer the greatest. Long term, the newly created beach could create suitable shorebird nesting habitat.

Dredging the offshore shoals would change shoal topography and could adversely impact foraging by reducing available food sources, but the impacts are not anticipated to be significant within a regional context. Alternative One would have the greatest effects on seabirds when compared to Alternatives Two and Three as it would involve more dredging over the lifecycle of the program. Sand retention structures would create nearshore fish habitat, and in turn, benefit fish-eating birds.

No Action Alternative: Minor adverse effects that include startling and disruption of nesting could be expected if emergency measures were implemented at the extreme north and south ends of Wallops Island (where suitable beach habitat would be available).

Benthic Organisms
Action Alternatives: Direct adverse impacts are expected on bottom dwelling communities within the dredging area as they would be entrained in the dredge, but would likely recover shortly thereafter. Placement of beach fill and construction of a sand retention structure would bury existing benthic communities; however, a new beach would be formed in front of the seawall and a corresponding benthic community would become established. Additionally, a rock sand retention structure would provide habitat for a variety of bottom-dwelling organisms.

No Action Alternative: Minor adverse effects would be expected due to burial or crushing of benthic organisms along the Wallops Island shoreline when conducting emergency repairs.

Fisheries
Action Alternatives: Direct site-specific adverse effects on Essential Fish Habitat (EFH) are expected within both the dredged area due to removal of benthic habitat and changes in shoal topography and the fill placement area due to burial of existing benthic habitat. Also, construction of a sand retention structure would bury non-motile species. There would be temporary direct impacts to fisheries within and adjacent to the dredging, fill, and sand retention structure footprints due to an increase in water turbidity. Alternative One would have the greatest impacts on EFH when compared to Alternatives Two and Three as it would have the greatest dredge and fill requirements. An in-water rock sand retention structure would create beneficial fish habitat.

NASA consulted with the National Marine Fisheries Service (NMFS) Habitat Conservation Division (HCD) regarding means to mitigate effects on EFH. Although the two agencies did not agree on the level to which mitigation should be taken, NASA is confident that its dredging methodology (described in Section F.5 of this ROD) would not lead to substantial impacts on the resource because it is consistent with latest published studies. Additional discussion of EFH is located in Section C.2 below.

No Action Alternative: As emergency repairs would be expected to have limited effects on in-water habitat, fisheries impacts would be minor and lesser than the action alternatives. Potential impacts could include a temporary increase in turbidity or burial of benthic organisms along the Wallops Shoreline.

Marine Mammals
Action Alternatives: Potential adverse impacts to marine mammals would be associated with physical disturbance to habitats during dredging and fill, vessel strike, and increased noise from vessel activities (dredging). However, given the relatively slow speed of the dredge and with the implementation of mitigation measures described below, effects are expected to be minimal. Alternative One would likely have greater potential impacts than Alternatives Two and Three as it would entail more dredging over the lifecycle of the project.

No Action Alternative: Minor adverse effects could occur from noise generated during in-water rock or piling installation.

Threatened and Endangered Species:
Action Alternatives: If beach fill or construction of a sand retention structure were to occur during the spring, summer, or fall seasons, adverse effects would be expected on piping plover and loggerhead sea turtles that nest (and forage, for plovers) on the Wallops beach. Construction of the new beach would potentially create suitable nesting habitat for both species. There is a slight potentialfor adverse effects on seabeach amaranth while conducting work on the beach.

Offshore, adverse effects are expected on loggerhead and Kemp's ridley sea turtles during dredging. Alternative One would likely have greater effects on in-water sea turtles than

Alternatives Two and Three due to greater fill requirements (and more dredging) that would need to be conducted over the lifecycle of the program. The project is not expected to adversely affect threatened or endangered marine mammals (right, fin, or humpback whales) due to mitigation measures discussed in Section F.4 below. NASA consulted with the USFWS and the NMFS; both agencies concluded that the SRIPP would neither jeopardize the continued existence of these species nor would it modify critical habitat.

No Action Alternative: If emergency actions were conducted at the extreme northern and southern portions of Wallops Island, adverse effects on piping plover or nesting loggerhead sea turtles could be expected.

Socioeconomics:
Action Alternatives: Beneficial impacts would be expected from reducing damages to infrastructure, reducing losses of work days and jobs, and from temporary construction-related job creation. Dredging the offshore shoals and placing sand on the beach could result in temporary minor adverse effects on commercial and recreational fishing due to entrainment of fish and clams, elevated turbidity levels, and disruption of the benthos which would cause fish to avoid the disturbed areas. No disproportionately high impacts would occur on minority and low-income persons.

No Action Alternative: Adverse effects would be expected due to storm-caused disruption of WFF operations. Although emergency repairs would result in some construction revenues, the benefits would be on a much smaller scale than the action alternatives.

Cultural and Historic Resources:
Action Alternatives: 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 impacted. NASA consulted with the Virginia Department of Historic Resources (VDHR) and BOEMRE; both agencies concurred with NASA that seawall extension, sand retention structure construction, dredging, and beach fill would not have an adverse effect on historic properties. Once more details regarding offshore pumpout buoys are known, NASA would continue its consultation with VDHR to avoid adverse impacts.

No Action Alternative: No adverse effects are expected as work would likely be confined to the immediate vicinity of the Wallops shoreline.

Transportation:
Action Alternatives: During construction, there would be a temporary increase in upland and maritime traffic. Alternative One would have more dredge trips than Alternatives Two and Three and would therefore have slightly greater impacts to maritime traffic.

No Action Alternative: A temporary increase in upland traffic would be expected during times when rock or other materials are hauled to Wallops Island; however any effects would be very minor and temporary. When compared to the action alternatives, the effects would be less.

Cumulative Effects:
NASA evaluated the effects of past, present, and reasonably foreseeable actions when considered in conjunction with the impacts of the SRIPP. The effects of climate change were also considered in the analysis. The resource areas most substantially affected include beach and marsh nesting birds and the barrier island shorelines within and adjacent to Wallops Island. The most substantial direct effects on these resources were related to past development activities on Wallops Island, most of which occurred prior to the enactment of modern environmental regulations. The most noteworthy beneficial cumulative effect is WFF's continued ability to conduct its operations and in turn provide substantial economic benefits to the region.

C. Key Environmental Issues and Assessment of the Analysis

The analyses in the PEIS indicate that while many of the environmental consequences of each action alternative are similar, there are several key differences that could dictate the potential significance of environmental impact. These key issues involve the construction of a sand retention structure and the choice of borrow sites, and are discussed in more detail below.

C.1 Effects of a Sand Retention Structure

Construction of a south sand retention structure would result in less beach fill material needed over the lifetime of the SRIPP. Accordingly, Alternatives Two and Three would have fewer adverse impacts on air quality, EFH, benthic organisms, sea turtles, marine mammals, seabirds, and transportation. However, with a sand retention structure there may be the potential for disruption of nearshore sediment transport which could in turn result in accelerated erosion to nearby barrier islands that are internationally regarded as critical waterbird nesting and foraging habitat.

Immediately south of the project site is Assawoman Island, a landholding owned and managed by the USFWS as part of the Chincoteague National Wildlife Refuge. Further south are additional undeveloped barrier islands managed almost solely for conservation purposes. As such, the potential effects on neighboring properties were a focal point of the PEIS analysis. In comparing the effects of each alternative on longshore sediment transport, NASA employed industry-standard models, which predicted that due to the large amount of sand placed into the nearshore system from the beach fill, islands south would accrete rather than erode. Additionally, further analysis revealed that because sediment transport within the area is generally south to north, the construction of a south sand retention structure would only provide marginal benefits to the project.

However, despite the results of the modeling, there is inherent risk in constructing a sand retention structure in an eroding, sand starved site. The potential for exacerbating erosion on neighboring properties could exist if storm conditions occurred at a frequency or magnitude greater than what were modeled, or if renourishment were not undertaken as prescribed in the project design.

In developing the SRIPP, NASA recognizes that continued renourishment is likely the most important means of ensuring long-term project success. However, just like any Federal agency,

NASA is subject to Congressional appropriations, and would be unable to guarantee that renourishment would occur as required in the project design over the lifetime of the project. If NASA were unable to secure funding for future renourishment, the continued presence of a sand retention structure (without the additional sand added to the nearshore system) could lead to unintended effects on neighboring properties. Moreover, if such adverse effects on neighboring shorelines were identified following construction of the breakwater (Alternative Three), it would likely be very difficult to remove the offshore structure; thereby presenting an additional risk.

In summary, during the preparation of the PEIS, the consideration of the effects of south sand retention structures on adjacent properties and the habitats they support became the highest priority environmental consideration in project planning.

C.2 Choice of Borrow Sites

North Wallops Island Beach

Once initial fill is placed along the Wallops shoreline, it is expected that a substantial amount of material would accumulate on the north end. Use of the north Wallops Island beach as a supplemental source of renourishment fill material would reduce the effects on air quality, EFH, offshore benthos, seabirds, marine mammals, and in-water sea turtles; however it could also result in substantial adverse effects on nesting and foraging shorebirds and nesting sea turtles. The importance of this area to birds and turtles is evidenced by its continued use by piping plovers, red knots and loggerhead sea turtles, and through concerns expressed by resource agencies. As such, it became clear during the analysis of impacts in the PEIS that, due to the value of this area to biological resources, future consideration of this area as a source of fill would require careful project planning.

Depending on the extent that the north beach is used, this option for renourishment fill material could have the most detrimental effects on shorebirds, a number of which have been designated as protected species at the Federal or state levels. Sand removal could expose nests to increased risk of flooding, temporarily reduce the availability of food sources, and it would alter the shoreline topography such that it may no longer be suitable habit. Additionally, sea turtles could be adversely affected by compaction of the beach (leading to reduced quality of nesting habitat) and similar reduction in beach elevation, which in turn could lead to more frequent ocean inundation and loss of nests.

A related concern focused on the suitability of habitat that would be created along the newly constructed beach and how “backpassing” large quantities of sand from north Wallops Island would further compound the issue of availability of forage and nesting habitat on the Wallops shoreline until conditions were to revert to a more natural state, which could take up to several years following renourishment.

NASA recognizes the biological importance of the north Wallops Island beach and would exercise caution if this were to be pursued further in the future. For example, no sand excavation would be conducted during times of shorebird or sea turtle nesting. Additionally, where this concept is only loosely defined in the Final PEIS, and as wildlife use patterns could change in the future, NASA would only consider “backpassing” sand after undertaking a thorough subsequent

analysis of wildlife use, potential effects, and consultation with USFWS and the Virginia Department of Game and Inland Fisheries (VDGIF).

Offshore Sand Shoals

Regarding the use of the proposed offshore sand shoals as long-term borrow sites, the NMFS HCD expressed concerns during its consultation with NASA pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (M-SA). The focus of the concern was the amount of material that would be dredged from either shoal and the how the selected dredging methodology could affect the long-term physical recovery of the shoal. The initial NMFS recommendations contained conditions that would not have allowed the project to be constructed as designed by USACE within the available budget. Accordingly, NASA pursued the issue further and engaged BOEMRE and USACE to participate in subsequent discussions with NMFS. In summary, the three agencies did not concur with all of NMFS's recommendations.

In developing its responses to NMFS, NASA reviewed the most recent BOEMRE-funded studies and consulted extensively with subject matter experts within BOEMRE and USACE. In conclusion, NASA found that the expected effects from the SRIPP would not be of a magnitude that would warrant literal adoption of all NMFS recommendations. Consistent with M-SA, NASA provided NMFS with scientific reasoning for its position and offered mitigation measures consistent to the extent practicable with the NMFS recommendations. These mitigation measures are discussed in Section F.5 of this ROD. Recognizing that the SRIPP is a long-term proposal and that specifics of future dredging activities would be refined in the future, NASA would continue to consult with NMFS to reduce adverse effects on EFH for all renourishment cycles.

C.3 Conflicting Agency Views

There were conflicting views among reviewing resource agencies regarding the key environmental issues discussed in Sections C.1 and C.2 above. For example, during consultation with NMFS HCD regarding effects on EFH, the agency offered support of constructing sand retention structures (Alternatives Two and Three) and "backpassing" sand from the north Wallops Island beach to reduce offshore borrow site impacts during renourishment. Conversely, other agencies consulted, including USFWS, VDGIF, and the Virginia Department of Conservation and Recreation found the no-structure alternative (Alternative One) to be the least environmentally damaging as it would have the least potential to adversely affect nearshore sediment transport patterns. Additionally, given the area's documented use by a number of imperiled species, these wildlife agencies strongly stated that "backpassing" sand from the north Wallops Island beach should be avoided due to its potential for significant adverse effects.

Clearly, when making project decisions, NASA must weigh conflicting agency concerns. At this point in project planning, concerns expressed regarding the initial construction of a south sand retention structure were given highest priority. As the majority of other conflicting agency views were regarding how renourishment would be conducted, they have been considered programmatically thus far, and will be appropriately prioritized in the future once more detail is known regarding subsequent renourishment phases.

C.4 No Action Alternative

The key concern identified regarding the No Action Alternative was the ineffectiveness of emergency storm damage reduction measures as a long-term solution to maintaining facilities on Wallops Island. Without a long-term solution for reducing storm damage, NASA would not be able to conduct its missions, and in turn, both the national-level scientific advances and the local and regional employment opportunities that WFF provides would likely decline over time.

D. Choice of Alternatives

After a thorough review of the potential environmental consequences of all alternatives evaluated in the Final PEIS, consultations with and input from other Federal, state, and local agencies; organizations; and individuals, it is my intention to select Alternative One for the Wallops SRIPP based upon the following:

Despite being the most costly of the action alternatives, Alternative One bears the least risk and is most consistent with the SRIPP adaptive management philosophy. Implementing a storm damage reduction project with no initial sand retention structure will allow NASA and its project partners to evaluate the performance of the project without carrying the risk of a groin or breakwater not performing as designed. Additionally, a sound basis for future project decisions can be built from the empirical data that will be collected.

The first year of construction, expected to begin in spring 2011, will extend the existing Wallops Island rock seawall approximately 435 m (1,430 feet) south; additional extension up to the maximum length of 1,400 m (4,600 feet) would be accomplished in future years as funding becomes available. Initial beach fill will likely follow in winter 2011. The material for the initial fill cycle will be obtained from Unnamed Shoal A.

Regarding future renourishment cycles, either Shoal A, Shoal B, or the north Wallops Island beach will be considered for obtaining fill as described in the Final PEIS, however the decision on the specifics of how and when the fill material would be obtained will be the subject of future action-specific NEPA documentation.

Identification of the Environmentally Preferable Alternative

The No Action Alternative would be the environmentally preferable alternative as there would be no large scale dredging and beach nourishment project implemented at WFF. Although environmental impacts would likely be less, the infrastructure and mission activities on Wallops Island would continue to be at great risk.

As the No-Action Alternative would not meet the project's purpose and need, I find it relevant to also identify the environmentally preferable action alternative. Based upon the analyses contained within the Final PEIS, and through substantial stakeholder consultation, I find the selected alternative (Alternative One) to be the most environmentally preferable means of reducing storm damage to the Federal and state assets on Wallops Island.

E. Additional Information

E.1 Consultation and Coordination

While preparing the PEIS, NASA strived to accomplish as many related environmental review requirements as practicable to assist in the decision making process. Consultations pursuant to the Coastal Zone Management Act, Endangered Species Act, M-SA, and National Historic Preservation Act were all accomplished concurrently with PEIS preparation. Summaries of all such consultations are included in the Final PEIS; detailed consultation information is included as separate Appendices.

E.2 Comments Received on the Final PEIS

NASA received four agency comment submissions on the Final PEIS. A majority of the commentors reiterated previously raised concerns regarding potential effects on wildlife species and recommended continued coordination with resource agencies. The EPA provided suggestions regarding means to improve Environmental Justice considerations in future NEPA documents.

The Virginia Department of Environmental Quality (DEQ) Federal Facilities Program suggested that all dredged materials for the SRIPP should be screened for MEC. NASA is confident that the conclusions drawn in the Final PEIS do not support the requirement for screening at the dredge intake. However, as a precautionary measure, NASA would ensure that all personnel working on the project receive MEC Awareness training. Additionally, if unexpected MEC is uncovered at any point during project construction, NASA and USACE would implement additional preventive measures, which could include screening or avoidance.

The Waste Division of the DEQ Tidewater Regional Office raised additional questions regarding the effects of the project on NASA's Resource Conservation and Recovery Act-permitted Open Burning/Open Detonation (OB/OD) area. Following receipt of the comments, NASA coordinated directly with DEQ to clarify the fact that OB/OD operations would not be expected to change. Additionally, NASA provided additional clarifying information to support its conclusion that construction of the project would not have measurable effects on either the site's groundwater flow or the air quality modeling performed when the site was originally permitted.

The VDGIF recommended that NASA work with resource agencies in developing a response plan should shorebird or sea turtle nests be identified within or adjacent to construction work along the Wallops beach. NASA concurs that this would be a proactive means for reducing potential adverse impacts on nesting species and communicated its desire to work with the agencies in developing such a plan prior to beginning construction.

F. Mitigation and Monitoring

Because the SRIPP Proposed Action will take place in a complex and dynamic environment over a 50-year period, NASA will implement and continuously evaluate mitigation measures to ensure they are effective and appropriate. Due to a certain degree of uncertainty inherent in

predicting how the Proposed Action activities will affect physical and biological resources, NASA will implement an adaptive management strategy for the SRIPP comprised of the following three elements:

- Base planning on existing and adequate knowledge of the project area, well-defined project goals, and current technology;
- Implement the Proposed Action with the initially planned mitigation measures described below; and
- Monitor and evaluate results.

The cycle will then reinitiate, driven by the monitoring results and project performance. Results could validate existing practices or reveal the need for alterations in project implementation or mitigation techniques. By monitoring and evaluating how measures are working, NASA will ensure that mitigation measures are optimized.

As the SRIPP encompasses a planning horizon of 50 years, it is not practical to establish all requisite mitigation measures at this stage in program planning. In some instances, those that may be appropriate for the initial fill cycle may differ from those that will apply to renourishing the established beach. Accordingly, the mitigation measures discussed below are grouped into those that can be considered "programmatic" and will apply to all aspects of the project, and those that are specific to the initial fill cycle. Additionally, those to-be-determined mitigation measures that would be specific to a future renourishment cycle (and are therefore not identified in this ROD) would be developed and discussed in future NEPA documentation.

It should be noted that the mitigation and monitoring measures identified in this ROD are not an exhaustive list, rather a summary of the most relevant components. NASA is adopting all mitigation and monitoring components identified in Chapter 5 of the Final PEIS, and as such, additional detail may be found there. Consistent with the SRIPP's adaptive management framework, it is expected that the mitigation plan will be adjusted based on monitoring results and effectiveness of the measures.

F.1 Water Quality

Programmatic Considerations

Onshore, NASA will implement erosion and sediment control Best Management Practices (BMPs) to minimize adverse effects on adjacent water bodies. All BMPs will be designed and installed in accordance with the latest version of the Virginia Erosion and Sediment Control Handbook.

For both onshore and offshore operations, spill prevention BMPs will be implemented to reduce potential impacts on soils and sediments during seawall construction, and all work would be performed in accordance with the most current version of WFF's Integrated Contingency Plan. Prior to starting work, the contractor will be required to submit an Environmental Protection Plan which will outline all measures that will be employed during onshore and offshore construction activities to minimize adverse environmental impacts.

F.2 Shoreline Change

Programmatic Considerations
As funding allows, NASA will conduct pre- and semi-annual post-construction monitoring in the designated shoreline monitoring area following the initial beach fill. NASA will conduct combined subaerial (above water) and subaqueous (below water) monitoring surveys along the Wallops Island shoreline.

The objective of the annual beach profile post-construction monitoring program will be to evaluate the post-construction performance of the seawall extension and beach fill project. This evaluation will also be used to identify the need for beach renourishment.
The monitoring program will consist of data collection, including subaerial beach cross-section surveys, subaqueous beach profile surveys, aerial photographs, and storm data summaries. The monitoring program will also compare the post-construction data with the pre-construction data and evaluate the performance of the project.

F.3 MEC

Programmatic Considerations
NASA will provide all construction personnel an MEC awareness briefing prior to beginning work. Additionally, informational signs would be posted conspicuously in areas of the jobsite most frequently visited by workers. If any MEC is identified along the Wallops shoreline, it would be reported to the WFF Security Office and managed in accordance with WFF's established program. Any MEC discovered offshore would be immediately reported to the U.S. Coast Guard and WFF personnel.

To minimize the risk of adverse impacts from MEC in the North Wallops Island beach, MEC Awareness and Avoidance Plans that address the potential hazards will be prepared. Visual and geophysical surveys of the area to locate MEC will be completed, as appropriate, and potential hazards removed prior to excavation.

F.4 Protected Species

<u>Onshore</u>

Programmatic Considerations
NASA consulted with the USFWS regarding potential effects on Endangered Species Act-listed birds and sea turtles likely to be affected by the project. Although the consultation focused on the initial fill cycle, NASA and USFWS developed a number of measures to reduce the intensity of potential effects on all birds and sea turtles that will be applicable to the SRIPP over its entire lifecycle. In the context of these mitigation measures, "nesting season" is generally defined as the time between March 15 through November 30 or the last date of potential sea turtle hatchling emergence based on when the last eggs were laid. The measures include:

1. NASA will educate all personnel working in the construction area on recognizing protected species and their likely habitat so that appropriate avoidance and minimization measures can be incorporated into activities;

2. NASA will conduct daily surveys and monitoring for listed species when construction takes place during nesting season and implement measures to avoid potential impacts whenever possible;
3. NASA will conduct daily surveys and monitoring when construction takes place during nesting season to determine the effects of the proposed action on listed species and their habitat;
4. NASA will actively manage habitats and human activity on the beaches to avoid and minimize potential impact on listed species;
5. NASA will consult with USFWS to develop site-specific mitigation measures if a nest or crawl tracks are found within areas planned for construction;
6. NASA will only excavate sand from the north Wallops Island beach for future renourishment outside of plover and sea turtle nesting season;
7. NASA will install sand fencing perpendicular to the Wallops Island shoreline with regular spacing between sections to allow wildlife passage between the dune area and the ocean;
8. NASA will survey the area around the proposed work site on north Wallops Island to determine the presence of bald eagle nests. If nests are identified, NASA will consult with USFWS and VDGIF to minimize effects; and
9. Prior to conducting work on the Wallops beach during shorebird or sea turtle nesting season, NASA will coordinate with USFWS and VDGIF to develop a plan of action to address nest sites found within or adjacent to the construction area so that appropriate protections can be enacted immediately upon documentation of a site.

Initial Fill Cycle:
Following initial construction of the new beach, NASA will monitor concentrations of rocket exhaust on the beach and will survey the beach following rocket launches to identify any adverse effects to wildlife. NASA will provide the relevant data with USFWS and coordinate with the agency to determine the appropriate length of this monitoring component.

Offshore

Programmatic Considerations
NASA consulted with NMFS regarding potential effects of the project on listed marine mammals and in-water sea turtles. The two agencies worked together to identify potential impacts and to develop means of mitigating them. Accordingly, NASA will implement the following measures to minimize impacts on listed sea turtles and marine mammals:

1. NASA will continually coordinate with NMFS and would notify NMFS of commencement and conclusion of each phase of project activity as well as any interaction with listed species;
2. NASA will require its dredge contractors to monitor marine mammal sighting reports to remain informed on the whereabouts of right whales in the vicinity of the action area;
3. During April 1 through November 30, when sea turtles are known to be present in the project area, hopper dredges will be outfitted with state-of-the-art sea turtle deflectors on the drag head and operated in a manner that will reduce the risk of interactions with sea turtles;

4. An NMFS-approved observer will be required to be on board the dredge vessel for any dredging occurring in the April 1 – November 30 time frame to document interactions (lethal and non-lethal) with listed species;
5. All dredges will be equipped and operated in a manner that provides endangered/threatened species observers with a reasonable opportunity for detecting interactions with listed species and that provides for handling, collection, and resuscitation of turtles injured during project activities;
6. A lookout will be present on the dredge at all times from December l through March 31 to alert the captain when a listed whale is spotted within 1 kilometer (km) (0.62 mi) of the dredge. If a whale is observed within 1 km (0.62 mi) of the dredge, all pumps will be turned off until the whale leaves the area; and
7. NASA will require its dredge contractors to conform to the regulations prohibiting the approach of right whales closer than 460 m (1,500 ft).

F.5 Essential Fish Habitat

Programmatic Considerations
NASA consulted with NMFS HCD, BOEMRE, and USACE to identify means for reducing effects on the offshore shoals.

These considerations include:

- NASA will target depocenters for extraction;
- NASA will avoid dredging active erosional areas;
- NASA will employ shallow dredging over large areas rather than creating deep pits;
- NASA will only dredge shoals in less than 30 m (98 ft) of water; and
- NASA will avoid longitudinal dredging over the entire length of shoal.

NASA will provide NMFS pre- and post-borrow bathymetric maps of the dredged areas. The post-borrow survey will be performed soon after dredging was completed, likely not more than 2 weeks after completion of the respective phase of the project.

Because specific details on the use of either offshore shoal would be developed in the future once actual renourishment volume requirements are known, NASA will continue to coordinate and consult with NMFS throughout the 50-year life of the SRIPP to avoid and minimize impacts on EFH.

Initial Fill:

- NASA will target Shoal A sub-area A-1 (an accretional area) for initial fill. Shoal A sub-area A-2 will only be used during off-nominal conditions;
- Dredging will be uniform over a large area and would not create deep pits;
- NASA will limit dredge depth to not more than 3 m (9.8 ft);
- NASA will not dredge the entire length of the shoal; and
- NASA will plant the dunes with native vegetation and install sand fencing to trap windblown sand (thereby reducing long-term borrow requirements).

F.6 Cultural and Historic Resources

Programmatic Considerations

- To mitigate potential adverse effects from offshore pumpout buoys on unidentified submerged cultural resources, NASA will require its contractor to supply a dredge plan prior to implementation, which NASA will review with VDHR and jointly decide whether further investigation is required and, if warranted, agree on a survey method. If underwater resources are discovered during the survey, they will be reported to VDHR along with a proposed avoidance buffer. In the event that previously unrecorded historic properties are discovered during project activities, NASA will stop work in the area and contact VDHR immediately to determine appropriate avoidance measures.
- If an unanticipated discovery of archaeological resources occurs at either of the offshore shoals within BOEMRE's jurisdiction, the dredge will halt operations within 305 m (1,000 ft) of the area of the discovery. NASA will report the discovery to BOEMRE immediately to determine appropriate avoidance measures.

F.7 Adoption of All Practical Means to Minimize Environmental Harm

It is my belief that all practical measures to mitigate environmental harm have been adopted for the SRIPP. Throughout the planning process for the SRIPP, resource agencies proposed potential mitigation measures that could have further reduced environmental impact; however such measures may not be practical within the context of the SRIPP. In determining if a mitigation measure is practical, a number of factors must be considered, including cost and technical feasibility. In planning a beach nourishment project, a major factor dictating environmental impact is the time of year that the work is conducted. As discussed in the Final PEIS, constructing the SRIPP exclusively during winter months would present the least environmental impact, however given the magnitude of the beach fill volume needed for initial construction of the beach, it would not be possible to complete all operations within the winter season. As such, the only available option would be to conduct two smaller fill cycles over two years. However, given the high cost of mobilization and demobilization of dredging equipment (estimated to be more than $1 million per occasion), the project budget will simply not support two such phases. Regarding renourishment, as wildlife use of the beach will likely change both spatially and temporally over the lifecycle of the project, I find it more appropriate to consider the timing of renourishment immediately prior to each future cycle.

Additionally, NMFS HCD recommended that only limited quantities of sand be removed from Shoal A due to its smaller size and steeper slopes than Shoal B. However, given the higher cost of obtaining material from Shoal B, we estimate that between 25,000-80,000 cubic meters (100,000-300,000 cubic yards) of sand could not be placed on the Wallops beach due to the higher dredging costs. Such a substantial reduction in beach fill would not allow the project to be constructed in accordance with the design. Furthermore, given the large number of the offshore shoals within the Mid-Atlantic Region, I find that adopting such a conservative mitigation measure is not warranted.

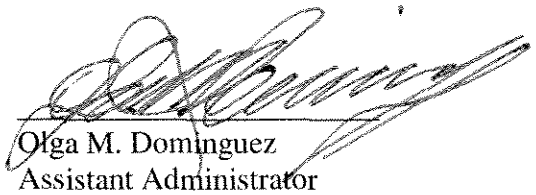
NMFS HCD also recommended that areas of the shoal crest be avoided and suggested that NASA's proposed shoal dredge area was too far along the longitudinal axis of the shoal.

However, given that NASA is already planning to avoid erosional areas on the shoals, and that the coarsest (most desirable) material is located on the shoal crest, a very limited area of the shoal would be then available for dredging, and this area could present the finest sediment on the shoal. Encountering finer sediments than desired could result in more material needing to be placed along the shoreline throughout the project lifecycle, which would result in greater impacts to the shoals. Moreover, studies reviewed during the preparation of the Final PEIS suggest that removing sand from the crest, which is considered to be the most physically active portion of the shoal, could facilitate quicker post-dredge recovery due to sediment re-working and site infilling.

Additionally, regarding NMFS's concern about the length of the dredge area, our project team consulted with dredging subject matter experts within USACE's Operations Division regarding the feasibility of employing shorter dredge tracks. It was concluded that requiring a dredge operator to execute the suggested scenario would reduce efficiency and unacceptably increase cost. Again, given the relatively large number of offshore shoals in the region, and for the technical reasons described in the Final PEIS and EFH Consultation (Appendix I), I find this mitigation measure to be impractical within the context of the SRIPP.

Decision

Based upon all of the foregoing, and in consideration of all technical, environmental, and economic factors, it is my decision to implement the SRIPP. After all requisite environmental permits are obtained; seawall extension will begin and will be followed by initial beach nourishment. Future renourishment actions will be based upon the results of the SRIPP monitoring program and will be carefully planned in consultation with all cognizant resource agencies and interested parties.



12/13/2010

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Date