JULY 2019

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LOÍZA, PUERTO RICO SECTION 14 PROJECT

US Army Corps of Engineers
JACKSONVILLE DISTRICT

US Army Corps of Engineers
JACKSONVILLE DISTRICT

PROPOSED FINDING OF NO SIGNIFICANT IMPACT

LOÍZA, PUERTO RICO
SECTION 14 PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

The U.S. Army Corps of Engineers, Jacksonville District (Corps), has conducted a draft supplemental environmental assessment (EA) in accordance with the National Environmental Policy Act of 1969, as amended, in order to evaluate changed site conditions requiring construction below mean high water (MHW). The Corps previously assessed the effects of the 2018 Recommended Plan in the Final Integrated Feasibility Report and Environmental Assessment (IFR/EA), dated April 2018 for the Loíza Section 14 Continuing Authorities Program (CAP) project in Puerto Rico. The 2018 final recommendation is contained in the IFR/EA and is incorporated herein by reference. Based on changed site conditions, the Recommended Plan has been updated to develop the 2019 Preferred Alternative and consists of the following:

- Construction of a continuous rock revetment partially below MHW along approximately 1,050 feet of shoreline in front of the public road, head start public school, and community center is recommended to provide emergency shoreline protection at Loíza;
- Elevation of the revetment crest will be approximately +9.0-ft to +10.0-ft Puerto Rico Vertical Datum of 2002 (PRVD02);
- The remaining sidewalk may need to be demolished due to existing damages and replaced with the over-wash protection zone, which consists of high performance turf reinforcement mat keyed in between the existing road and revetment.

In addition to the “no action” alternative, the 2018 Recommended Plan was evaluated against the updated 2019 Preferred Alternative. The 2019 Preferred Alternative meets the objectives of the study to provide emergency shoreline protection through the construction of a revetment along approximately 1,050 feet of shoreline at Loíza. This alternative provides a resilient solution to the continued erosion that threatens the existing public infrastructure. Additionally, the 2019 Preferred Alternative is economically justified because the costs to relocate the public road, head start school, and community center are higher than the Recommended Plan costs. There is not a locally preferred plan.

All practicable means to avoid and minimize adverse environmental effects have been incorporated into the 2019 Preferred Alternative. Environmental commitments as detailed in the IFR/EA will be implemented to minimize impacts.

DRAFT

The Puerto Rico Planning Board has concluded that the proposed Section 14 project is consistent with the Puerto Rico Coastal Management Program and its associated statutes by letter dated June 7, 2018. The 2019 Preferred Alternative includes work below MHW which does not change the Federal consistency determination or require an updated Coastal Zone Management Act review. However, work below MHW will require a water quality certificate (WQC) and an application pursuant to section 401 of the Clean Water Act was submitted to the Puerto Rico Environmental Quality Board on July 2, 2019. The WQC will be obtained from the Commonwealth of Puerto Rico prior to construction. All conditions of the water quality certification will be implemented in order to minimize adverse impacts to water quality.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the US Fish and Wildlife Service concurred with the Corps determination that the project may affect, but is not likely to adversely affect listed species via letter dated March 14, 2018 and electronic mail dated April 17, 2018. In addition, the Corps has determined that the project would have no effect to species listed by the National Marine Fisheries Service.

Pursuant to the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act, EFH consultation with NMFS will be initiated concurrently with the public release of the draft NEPA document.

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the Puerto Rico State Historic Preservation Officer concurred with the Corps determination of no effect to historic properties by letter dated October 6, 2017.

Public review of this draft supplemental EA will be completed. All comments submitted during the public comment period will be responded to in the final supplemental EA, Appendix A.

Technical, environmental, economic, and cost-effectiveness criteria used in the formulation of alternative plans were those specified in the Water Resource Council's 1983 Economic and Environmental Principles for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in the evaluation of the alternatives. Based on these reports, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____ _____

Date

Andrew D. Kelly, Jr.
Colonel, Corps of Engineers
District Commander

DRAFT

This page is deliberately left blank.

TABLE OF CONTENTS

1 PROJECT PURPOSE AND NEED 1
1.1 INTRODUCTION 1
1.2 PROJECT AUTHORITY 2
1.3 PROJECT LOCATION 2
1.4 PROJECT NEED OR OPPORTUNITY 3
1.5 RELATED ENVIRONMENTAL DOCUMENTS 3
1.6 DECISIONS TO BE MADE 4
1.7 SCOPING AND ISSUES 4
1.7.1 ISSUES ELIMINATED FROM FURTHER ANALYSIS 4
1.8 PERMITS 5
2 ALTERNATIVES 6
3 EXISTING ENVIRONMENT 9
4 ENVIRONMENTAL EFFECTS 13
4.1 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS 16
4.2 CUMULATIVE EFFECTS 16
5 PUBLIC AND AGENCY COORDINATION 19
5.1 SCOPING AND DRAFT EA 19
5.2 COMMENTS RECEIVED AND RESPONSES 19
6 ENVIRONMENTAL COMMITMENTS AND COMPLIANCE 20
7 LIST OF PREPARERS 24
8 ACRONYM LIST 25
9 REFERENCES 27

LIST OF APPENDICES

Appendix A – Pertinent Correspondence
Appendix B – Clean Water Act Section 404(b)(1) Guidelines Evaluation

LIST OF FIGURES

Figure 1. Recommended Plan 2
Figure 2. Location Map 2
Figure 3. Parcela Suarez Reef Assessment Map 9
Figure 4. Trammel Net Tangled in Reef 10
Figure 5. Eroding Shoreline Adjacent to Authorized Project 11

LIST OF TABLES

Table 1. Summary and comparison of potential environmental consequesnces associated with the implementation of the No Action and Action Alternatives 13
Table 2. Past, present, and reasonably foreseeable actions and plans affecting the project area 15
Table 3. Summary of cumulative effects. 16
Table 4. Corps environmental Committments. 19
Table 5. Proposed project's environmental act and Executive Order (E.O.) compliance status 20

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LOÍZA, PUERTO RICO
SECTION 14 PROJECT

1 PROJECT PURPOSE AND NEED

1.1 INTRODUCTION

At the request of the Department of Natural and Environmental Resources, Commonwealth of Puerto Rico, the U.S. Army Corps of Engineers (USACE) conducted a study along a portion of the shoreline of Loíza. The shoreline located in the study area is approximately 1,050 feet in length. The Loíza shoreline is severely eroded; chronic erosion has already impacted and continues to threaten public infrastructure and facilities, including a Head Start public school, community center, and a public roadway. An integrated Feasibility Report and Environmental Assessment (IFR/EA) was prepared and approved by South Atlantic Division on May 25, 2018. Subsequently the Finding of No Significant Impact (FONSI) was signed by the District Engineer on June 22, 2018. The recommended plan (see figure 1 below) includes rubble mound stone revetment across approximately 1,050 feet of severely eroded shoreline constructed entirely above mean high water (MHW). However, shoreline erosion has continued since approval of the project to the point where construction must now occur below MHW.

This draft supplemental Environmental Assessment (EA) evaluates only those effects resulting from construction partially below MHW which accounts for the continued erosion at the project site since approval. All other discussions and conclusions contained in the 2018 IFR/EA are hereby incorporated by reference into this document. This draft supplemental EA will complete the required analysis under the National Environmental Policy Act (NEPA).

Figure 1. 2019 Recommended Plan

1.2 PROJECT AUTHORITY

Authority and funds for this report were provided by Section 14 of the Flood Control Act of 1946, Public Law 79-526 (33 U.S.C. 701r); as amended, and reads as follows:

> The Secretary of the Army is authorized to allot from any appropriations heretofore or hereafter made for flood control, not to exceed $25,000,000 per year, for the construction, repair, restoration, and modification of emergency streambank and shoreline protection works to prevent damage to highways, bridge approaches, and public works, churches, hospitals, schools, and other nonprofit public services, when in the opinion of the Chief of Engineers such work is advisable: Provided, That not more than $5,000,000 shall be allotted for this purpose at any single locality from the appropriations for any one fiscal year, and if such amount is not sufficient to cover the costs included in the Federal cost share for a project, as determined by the Secretary, the non-Federal interest shall be responsible for any such costs that exceed such amount.

1.3 PROJECT LOCATION

Loíza is located on Puerto Rico's northern Atlantic Coast, approximately 16 miles east of San Juan, Figure 2. The study area includes a community center, a Head Start public school, and a public roadway with a combined shoreline frontage of approximately 1,050 feet within the Municipality of Loíza, Puerto Rico; Figure 1 and 2.

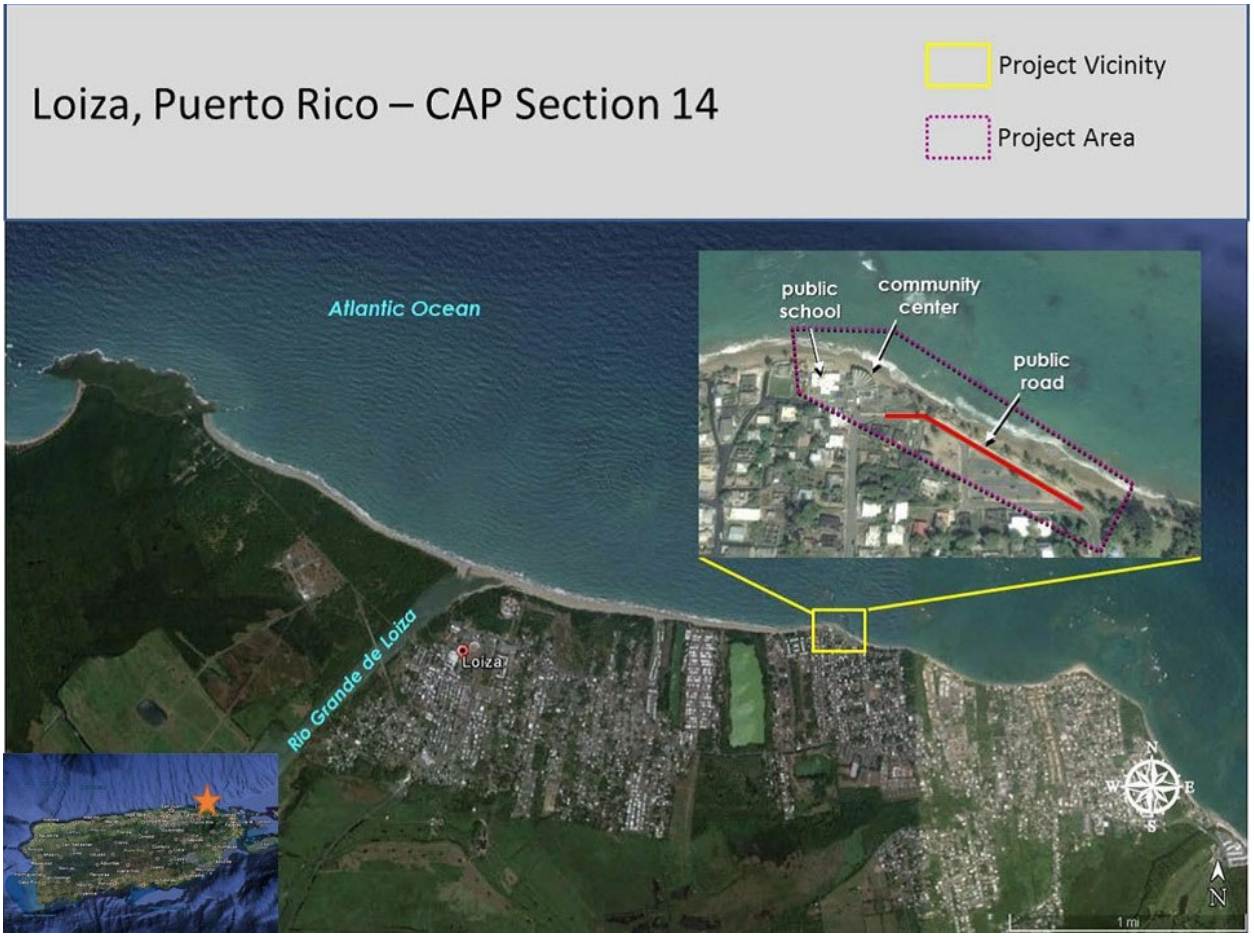

Figure 2. Location of Loíza

1.4 PROJECT NEED OR OPPORTUNITY

The purpose of the project is to halt shoreline erosion and provide protection to two public buildings and a public road that are immediately landward of the project (see Figure 1 and 2). Hurricane and coastal storm damages along the Loíza shoreline, including erosion causing receding shorelines, threatens infrastructure such as a public road, public buildings, commercial businesses, a public school, public parkland, private homes, and recreational beach access. It also contributes to public safety hazards.

1.5 RELATED ENVIRONMENTAL DOCUMENTS

The Final IFR/EA for the Loíza, Puerto Rico Section 14 Study can be found at the following link (click on Puerto Rico, scroll down to Loíza CAP Section 14 Project):

http://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/

All discussions and conclusions contained in the 2018 IFR/EA are hereby incorporated by reference into this document.

1.6 DECISIONS TO BE MADE

This draft supplemental EA specifically considers effects from construction below MHW due to changed existing conditions (additional shoreline erosion) as a result of extra-tropical and tropical storm events that impacted Puerto Rico following the completion of the Final IFR/EA.

There is one decision to be made within this draft supplemental EA which is to determine whether the construction below MHW will result in significant effects on the human environment. The need for mitigation measures or Best Management Practices (BMPs) to reduce any potentially adverse effects, particularly in regards to Endangered Species Act (ESA) listed species, will be determined based upon the analysis contained within this EA. The Corps will make the decision to sign the Finding of No Significant Impact (FONSI) and move forward with the Preferred Alternative if no significant impacts on the human environment are identified. If significant impacts are identified, the Corps will choose to implement mitigation measures to reduce the impacts to a lower-than-significant threshold, proceed with the Notice of Intent to prepare an Environmental Impact Statement (EIS), or not implement the Preferred Alternative.

This document concludes that the project as described in Table 1 Alternative C, the 2019 Preferred Alternative with work below MHW, is in the public interest and would not significantly affect the quality of the human environment. Alternative C will not require compensatory mitigation; however, implementation would require turbidity curtains, silt fences, and other BMPs to reduce any potentially adverse effects, particularly in regards to ESA listed species. (See Chapter 4 for the effects of the 2019 Preferred Alternative.) The Corps and its contractors commit to avoiding and minimizing adverse effects during construction activities. Environmental commitments, as discussed in Chapter 6, will be included in the contract specifications.

1.7 SCOPING AND ISSUES

1.7.1 ISSUES ELIMINATED FROM FURTHER ANALYSIS

The following issues were adequately addressed in the 2018 IFR/EA and are eliminated from further analysis in this draft supplemental EA: (1) physical conditions (i.e. geology and geomorphology, groundwater hydrology, tides and salinity, currents affecting navigation, sea level rise, water quality including salinity, American Heritage River status, dredged material management areas, land use, public lands adjacent to the proposed project construction area, coastal barrier resources, air quality, noise, hazardous, toxic, and radioactive waste, cultural resources, aesthetics); (2) nesting sea turtles; (3) environmental justice; (4) energy requirements and conservation; (5) reuse and conservation potential; (6) urban quality; (7) solid waste; (8) scientific resources; (9) Native Americans; (10) drinking water; (11) irreversible and irretrievable commitment of resources; (12) local short-term uses and maintenance/enhancement of long-term productivity; (13) compatibility with federal, state, and local objectives; (14) conflicts and

controversy; (15) uncertain, unique, or unknown risks; (16) precedent and principle for future actions.

1.7.2. ISSUES FURTHER ADDRESSED

With regard to environmental requirements, USACE is providing an update on the Clean Water Act and considering whether there are significant new circumstances or information relevant to environmental concerns and bearing on the project or its impacts triggering the requirement for an environmental impact statement. Additionally, USACE will further address cumulative impacts within this draft EA.

1.8 PERMITS

The Puerto Rico Planning Board has concluded that the proposed Section 14 project is consistent with the Puerto Rico Coastal Management Program and its associated statutes, 16 U.S.C. §1456 by letter dated June 7, 2018. An application for water quality certification pursuant to section 401 of the Clean Water Act, 33 U.S.C. § 1341, was submitted to the Puerto Rico Environmental Quality Board (PREQB) on July 2, 2019 and the WQC will be obtained from the Commonwealth of Puerto Rico prior to construction. All conditions of the water quality certification will be implemented in order to minimize adverse impacts to water quality.

2 ALTERNATIVES

The alternative formulation process for the Loíza 14 Project, as well as potential effects, were described within the 2018 IFR/EA. In summary, the 2018 IFR/EA stated that in accordance with Step 3 of the Planning Process as described in ER 1105-2-100, Planning Guidance Notebook, alternative plans were formulated for the Loíza study and evaluated on the basis of providing emergency shoreline protection per Section 14 of the 1946 Flood Control Act, as amended.

The following alternative plans and combinations were evaluated in the 2018 IFR/EA:

- No action.

- S-1 Energy dissipation protection (breakwater) or structures such as jetties, spurs, riprap, or armoring. This alternative was eliminated from further evaluation due to possible water quality degradation from changes in nearshore circulation and nearshore benthic resources (hardbottom). In addition, in order to function a wide-crested submerged breakwater would need to be very large to be effective in this area and therefore cost prohibitive.

- S-2 Beach nourishment with select construction of vegetated dunes. This alternative was eliminated from further evaluation due to the historic performance of dunes in the study area. Due to the conditions at Loíza, the beach and dunes have historically eroded. This alternative would not provide a sustainable solution for resilient shoreline protection at Loíza.

- S-3 Beach nourishment in conjunction with groins to stabilize the sand. This alternative was eliminated from further evaluation as it would not provide a sustainable solution for resilient shoreline protection at Loíza similar to S-2.

- S-4 Vegetated dune construction with minimal beach berm. This alternative was eliminated from further evaluation as it would not provide a sustainable solution for resilient shoreline protection at Loíza similar to S-2.

- S-5 Revetment construction. This meets the study objectives to provide emergency shoreline protection. This alternative provides a resilient solution to the erosion at Loíza.

The 2018 authorized plan (S-5) provides emergency shoreline protection for the shoreline at Loíza. This alternative would provide a resilient solution to the continued erosion threatening public infrastructure along the Loíza shoreline. The Sponsor's interest in a more "natural" dune would not be sustainable, and therefore could not be incorporated

into the design. The shoreline was further impacted by the recent Category 4 Hurricanes Irma and Maria, which further eroded the shoreline up to the public roadway. Additional information can be found in the 2018 IFR/EA.

2.1 2019 DRAFT SUPPLEMENTAL EA ALTERNATIVES

Due to changed site conditions at the Loíza Section 14 project as a result of extra-tropical and tropical storm events (including Hurricane Maria) that impacted Puerto Rico, the preferred alternative now must be constructed partially below MHW. The project site remains in need of erosion protection; however, the shoreline is now much more eroded than it was during completion of the 2018 IFR/EA. As a result of this changed condition, this draft supplemental EA has been prepared to confirm that construction of the authorized plan, including work below MHW (2019 Preferred Alternative), will not result in significant effects on the human environment (See section 4 for discussion of effects).

In addition to the "no action" alternative (A), the 2018 Authorized Plan (B) was evaluated against the updated 2019 Preferred Alternative (C). Alternative C accommodates the changed site conditions (continued shoreline erosion) requiring partial construction below MHW but is otherwise unchanged from Alternative B which meets the objectives of the study to provide emergency shoreline protection through the construction of a revetment along approximately 1,050 feet of shoreline at Loíza. Both Alternatives B and C provide a resilient solution to the continued erosion that threatens the existing public infrastructure. Additionally, both B and C are economically justified because the costs to relocate the public road, head start school, and community center are higher than the Recommended Plan costs. There is not a locally preferred plan.

2.1.1 NO-ACTION ALTERNATIVE – ALTERNATIVE A

Under the future without-project condition (No-Action Alternative) it is assumed that the Loíza shoreline will continue to erode and recede due to wind, waves, and tides amplified during storms and hurricane events. Currently much of the public infrastructure at Loíza is temporarily displaced due to the existing conditions of the shoreline; without a project these conditions are expected to worsen. Additionally, an adjacent roadway is partially non- functional. Under the No-Action Alternative the road would continue to be threatened and could be fully lost, threatening the remaining public infrastructure.

2.1.2 2018 AUTHORIZED PLAN – ALTERNATIVE B

- Placement of a continuous rock revetment above MHW along approximately 1,050 feet of shoreline in front of the public road, head start public school, and community center is recommended to provide emergency shoreline protection at Loíza;
- Elevation of the revetment crest will be approximately +10.0-ft Puerto Rico Vertical Datum of 2002 (PRVD02);
- The remaining sidewalk may need to be demolished due to existing damages and replaced with the over-wash protection zone, which consists of high performance turf reinforcement mat keyed in between the existing road and revetment.

2.1.3 2019 PREFERRED ALTERNATIVE – ALTERNATIVE C

- Alternative C accommodates the changed site conditions (continued shoreline erosion) requiring partial construction below MHW, as opposed to above, but is otherwise unchanged from Alternative B which meets the objectives of the study to provide emergency shoreline protection. Prior to any construction activity turbidity curtains, silt fences, and other BMP measures will be installed.

3 EXISTING ENVIRONMENT

This section summarizes the general physical and biological features of the nearshore environment within the Loíza project area including water quality, benthic resources and ESA listed species. The reader is encouraged to access the 2018 IFR/EA for additional information on the affected environment.

Existing environmental conditions at the Loíza Section 14 project have changed as a result of extra-tropical and tropical storm events (including Hurricane Maria) that impacted Puerto Rico. The shoreline within the project area is now more eroded than it was during completion of the 2018 IFR/EA. As a result of this changed condition, construction of the revetment below MHW will be required.

Existing information on the benthic habitat within the project footprint below MHW includes the 2001 National Oceanic and Atmospheric Administration (NOAA) Benthic Habitats of Puerto Rico which includes benthic habitat maps and geo-referenced imagery for the project area. Based on this report (NOAA 2001), the majority of the benthic habitats within the project area include unconsolidated sandy substrate in addition to linear and spot reefs with coral and colonized hardbottom.

The coral reef and colonized hardbottom are considered EFH by NMFS and its affiliate, the Caribbean Fisheries Management Council (CFMC), which oversee managed species and their habitats potentially affected by the proposed project. These habitats foster growth and provide food and protection from predators and are integral to producing healthy populations of commercially and recreationally important species.

A more recent nearshore benthic resource assessment was completed by the project's local sponsor DNER in June 2015 on the Parcela Suarez reefs which are immediately west of the project footprint (Figure 3). Live coral coverage was estimated to be 1%, and the colonies tended to be small. No *Acropora* or other ESA listed species of coral were found. The reefs were dominated by macroalgae and the Ichthyofauna of the reefs appeared overfished and dominated by small species such as damselfish. There was no evidence of large snappers, groupers, lobsters, parrotfish, or any species of commercial or recreational interest. One exotic lion fish, one tang, one juvenile schoolmaster (*Lutjanus apodus*) and a single school of 10-15 young jacks were observed. Also, several pieces of trammel net were tangled in the structure of the reef (Figure 4). The lack of a healthy fish and invertebrate community plays an important role in the condition of the reef (degraded). In 2015 reef structure erosion caused by sea urchins wasn't being adequately compensated by the growth of healthy corals.

NMFS has designated critical habitat (DCH) for ESA listed threatened elkhorn (*Acropora palmata*) and staghorn (*A. cervicornis*) coral including all areas surrounding the islands of the Commonwealth of Puerto Rico, 98 feet (30 meters) in depth and shallower which includes the project area. In addition, the following five other species of hard coral are also listed as threatened by the NMFS: pillar coral (*Dendrogyra cylindrus*), rough cactus

coral (*Mycetophyllia ferox*), lobed star coral (*Orbicella annularis*), mountainous star coral (*Orbicella faveolata*), and boulder star coral (*Orbicella franksi*). In addition to these ESA listed corals, other species listed by NMFS which could occur in the project area include swimming sea turtles. Finally the Antillean manatee listed as threatened by the USFWS could also possibly occur in the project vicinity. However, there is a significant lack of forage habitat for either the swimming sea turtles or the Antillean manatee in the project footprint thereby reducing the likelihood of occurrence.

None of these species, listed corals, sea turtles, or the Antillean manatee, were seen during the 2015 nearshore benthic resource assessment.

Figure 3. Parcela Suarez Reef Assessment Map (DNER 2015).

Figure 4. Trammel Net Tangled In Reef (DNER 2015).

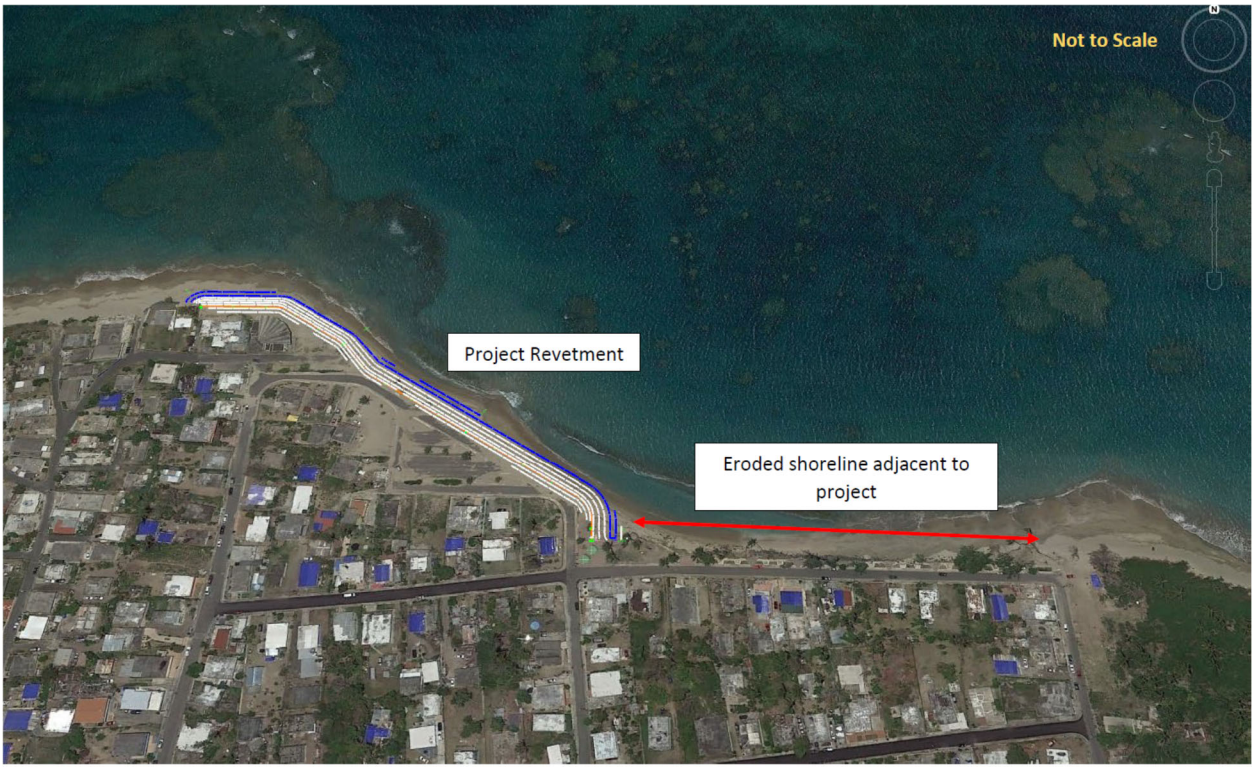

Figure 5. Eroding Shoreline Adjacent to Authorized Project.

Site conditions at the Loíza Section 14 project changed as a result of extra-tropical and tropical storm events. At present, the project site remains in need of erosion protection; however, the shoreline within and immediately east of the project area is now much more eroded than it was during the completion of the 2018 IFR/EA (Figure 5).

4 ENVIRONMENTAL EFFECTS

TABLE 1 includes anticipated changes to the existing environment including direct, indirect, and cumulative effects. Environmental effects caused by the construction of the revetment above MHW and potential environmental effects of the No Action Alternative are thoroughly evaluated within the 2018 IFR/EA and are hereby incorporated by reference (USACE 2018). However, due to the additional shoreline erosion within the project area, as discussed in Sections 1-3 above, construction of the revetment will include work below MHW (2019 Preferred Alternative). This has the potential to affect fish and wildlife, benthic resources, EFH, and ESA listed species (See Section 3 above and Table 1 below). Prior to any construction activity turbidity controls such as turbidity curtains, silt fences, and other BMP measures would be installed to prevent access by listed species to the construction area and maintain turbidity within WQC standards which are not to exceed 10 Nephelometric Turbidity Units (NTU).

Therefore, due to the use of the BMPs discussed above, the Corps has concluded that the project will have no effect to the following federally listed species and NMFS designated critical habitat (DCH):

- Antillean manatee (*Trichechus manatus*);
- Leatherback sea turtle (*Dermochelys coriacea*);
- Hawksbill sea turtle (*Eretmochelys imbricata*);
- Green sea turtle (*Chelonia mydas*);
- Elkhorn coral (*Acropora palmata*) – entire population DCH;
- Staghorn coral (*Acropora cervicornis*) – entire population DCH;
- Pillar coral (*Dendrogyra cylindrus*);
- Rough Cactus coral (*Mycetophyllia ferox*);
- Lobed Star coral (*Orbicella annularis*);
- Mountainous Star coral (*Orbicella faveolata*);
- Boulder Star coral (*Orbicella franksi*).

The shoreline along the Loíza coast continues to erode due to natural processes, including the shoreline east of the project footprint. Construction of the revetment will halt erosion in the short term for the project area and is not anticipated to impact the shoreline immediately to the east. The risk of erosion to the shoreline east of the project cannot be entirely eliminated within the constraints of this CAP Section 14 emergency shoreline protection project as it is beyond the scope of this project.

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action, Previously Preferred Action, and Currently Preferred Action Alternatives.

Resource	Alternative A (No Action)	Alternative B (2018 IFR/EA Preferred Alternative) ***Revetment Construction Above MHW***	Alternative C (2019 Preferred Alternative) ***Revetment Construction Below MHW***
Fish and Wildlife Habitat	Implementation of Alternative A would result in loss of sandy beach berm habitat and chronic nearshore turbidity from unabated shoreline erosion.	Conversion of sandy beach shorebird habitat to revetment.	Conversion of sandy beach habitat to revetment; Revetment provides fish habitat and hard substrate for invertebrate settlement and colonization.
Benthic Resources	Alternative A is expected to increase exposed hardbottom/bedrock habitat due to continued erosion but also cause chronic nearshore turbidity limiting settlement.	No effect.	Revetment construction would not impact nearshore resources due to turbidity controls; Revetment provides fish habitat and hard substrate for invertebrate settlement and colonization.
Essential Fish Habitat	Loss of sandy beach berm habitat and infaunal community which is an important food source and chronic nearshore turbidity from unabated shoreline erosion.	No effect.	Revetment construction would not impact EFH due to turbidity controls; Revetment provides fish habitat and hard substrate for invertebrate settlement and colonization.
ESA Listed Species	Chronic nearshore turbidity from unabated shoreline erosion continues to limit reef colonization by ESA listed hard corals, degrades *Acroporid* coral designated critical habitat, and reduces forage opportunities for swimming sea turtles and Antillean manatee.	No effect.	Turbidity curtains, silt fences, and other BMPs (daytime only work and qualified observers) would prevent access to the construction area by swimming sea turtles and marine mammals and also prevent turbidity/sedimentation in excess of the WQC requirements from escaping the construction area; In addition, the revetment would

			provide consolidated hard substrate for listed coral settlement; Therefore, the project would have no effect on listed species.
Shoreline Erosion	Unabated shoreline erosion	Erosion stopped within footprint; Not anticipated to increase risk to the adjacent shorelines.	Erosion stopped within footprint; Not anticipated to increase risk to the adjacent shorelines.
Water Quality	Unabated shoreline erosion causes chronic turbidity degrading water quality.	Improvement to water quality from shoreline stabilization.	Turbidity controls around construction area would prevent releases of turbid water in excess of WQC requirements (<10NTU) during construction; Turbidity monitored per WQC; Long-term improvement from shoreline stabilization.

4.1 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Under the No Action Alternative, unabated shoreline erosion may result in adverse effects to the environment from chronic nearshore turbidity.

Implementation of Alternative B is no longer possible due to the changed site conditions. Therefore Alternative C is the 2019 Preferred Alternative. Alternative C would unavoidably convert eroding shoreline to revetment. These effects are expected to be short-term and minor in nature.

Natural or Depletable Resources:

The No Action Alternative would negatively affect the natural shoreline through unabated erosion and implementation of Alternative B or C include direct and indirect effects. Depletable natural granite stone would be needed for construction of the revetment (direct) and the use of fuel for construction and operations (petroleum depletion = indirect). These effects are considered to be minor as several commercial quarries were identified in the 2018 IFR/EA which could provide the materials meeting the design criteria and petroleum importation and refinement is an active industry on the island.

Energy Requirements and Conservation:

The No Action Alternative would require no energy or energy conservation efforts; however, implementation of Alternative B or C will involve the use of fuel to power heavy machinery used in conjunction with the revetment construction.

4.2 CUMULATIVE EFFECTS

Cumulative effects are defined in 40 CFR §1508.7 as those effects that result from "...the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time."

Past, present and reasonably foreseeable actions and plans are summarized below in **Table 2**. Section 1.4 of the EA contains more details on environmental reports completed in/around the project's vicinity. In addition, it is expected that the public, Commonwealth of Puerto Rico, and local governments could have permitted activities in or around the project area. Federal activities are evaluated under NEPA directly for each project. Other projects that take place in-water or would affect wetlands are evaluated under a permit issued by the Corps Regulatory Division.

The Loíza 14 revetment construction, when considered with past projects in the area and potential future projects, has no significant cumulative impact on the environmental conditions of the project area. A summary of cumulative effects on environmental factors from past, present, and reasonably foreseeable actions and plans is provided in **Table 3**.

Table 2. Past, present, and reasonably foreseeable actions and plans affecting the project area.

Past Actions/Authorized	Current Actions and	Reasonably Foreseeable

Plans	Operating Plans	Future Actions and Plans
- Local efforts to protect school and community center foundation through the placement of sandbags	- No known actions or operating plans	- Local government and/or private entity shoreline protection efforts

Table 3. Summary of cumulative effects.

Natural Setting (Fish and Wildlife, Benthic Resources, EFH, and ESA Listed Species)	
Past Actions	Construction of residential and commercial/public infrastructure has decreased the amount of habitat available for fish, wildlife, and threatened and endangered species use in the area.
Present Actions	Overfishing and pollution continue to degrade the nearshore benthic resources which are EFH for managed fish species as well as habitat for ESA listed sea turtles, manatees and corals.
Preferred Alternative	Revetment construction may result in temporary impacts to fish, birds, and benthic resources (unconsolidated substrate) within the revetment footprint during construction due to noise and/or physical disturbance from construction activities; however, due to the implementation of turbidity controls such as silt fences, turbidity curtains and other BMPs, these impacts are expected to be minor and will cease with the completion of construction. In addition, the turbidity controls and other BMP measures would prevent access by listed species to the construction area. Therefore the Corps has determined that there would be no effect to threatened and endangered species. Finally, benthic species are expected to colonize the revetment from adjacent communities almost immediately after construction. Detailed discussion of the effects of the proposed action on the components of the natural setting are described in the 2018 IFR/EA and Table 1.
Future Actions	It is possible that the municipality of Loíza may extend the Federal revetment in the future to extend shoreline protection to the east of the limits of the Federal project. Any Federal and/or state/local projects will be required to follow regulations to maintain and protect threatened and endangered species and their habitats within the area.
Cumulative Effect	Unabated shoreline erosion west and east of the Federal revetment could lead to chronic nearshore turbidity which could continue to limit reef colonization by ESA listed hard corals, degrade Acroporid coral DCH, and reduce forage opportunities for swimming sea turtles and Antillean manatee.
Physical Setting (Shoreline Erosion and Water Quality)	
Past Actions	Ongoing erosion of non-fortified shoreline has led to chronic nearshore turbidity contributing to the degradation of water quality.

Present Actions	No known present actions are occurring in the project vicinity.
Preferred Alternative	Temporary, minor turbidity impacts caused by construction may occur. Best management practices will be used to limit the possibility of adverse effects. Detailed discussion of the effects of the proposed action on the components of the physical setting are described in the 2018 IFR/EA and Table 1 above.
Future Actions	Extension of the revetment in the future to the east of the Federal project by the municipality of Loíza would reduce shoreline erosion and chronic nearshore turbidity along the Loíza coastline. Projects implemented would maintain and meet regulated water quality standards within the area.
Cumulative Effect	Seasonal weather and storm event effects (already occurring natural processes) on erosion and nearshore water quality cannot be eliminated. In addition, while implementation of the 2019 Preferred Alternative is not anticipated to exacerbate shoreline erosion adjacent to the revetment, this risk cannot be eliminated entirely.

5 PUBLIC AND AGENCY COORDINATION

5.1 SCOPING AND DRAFT EA

Pursuant to the National Environmental Policy Act and USACE Regulation, a scoping letter dated November 30, 2017 was issued during the feasibility study phase. This draft EA and Proposed FONSI shall be made available to interested agencies and stakeholders for their review and comment. A Notice of Availability (NOA) for the draft EA and Proposed FONSI shall be issued.

5.2 COMMENTS RECEIVED AND RESPONSES

Pertinent comments received in response to the NOA shall be incorporated as appropriate into the Final supplemental EA.

6 ENVIRONMENTAL COMMITMENTS AND COMPLIANCE

The Corps and its contractors commit to avoiding and minimizing for adverse effects during construction activities by including the commitments in **Table 4** and in the contract specifications:

Table 4. Corps' environmental commitments.

Environmental Commitment	Corps' Commitment
Protection of Fish and Wildlife Resources	Construction activities will be kept under surveillance, management, and control to minimize interference with and disturbance and damage to fish and wildlife. Prior to the start of construction, the Contractor's Environmental Protection Plan (EPP) will include species that require specific attention, along with the protective measures.
Endangered and Threatened Species Protection	The Corps will implement measures to avoid interactions with listed species, employ qualified species observers, and only work during daylight hours. These endangered and threatened species protection measures will be included in the contract specifications and the Contractor's EPP.
Water Quality	Implementation of design and procedural controls will prevent oil, fuel, or other hazardous substances from entering the air or water. All wastes and refuse generated by project construction will be removed and properly disposed. Contractors will implement a spill contingency plan for hazardous, toxic, or petroleum material. Due to construction below the MHW, a Section 401 WQC will be obtained prior to construction.
Cultural Resources	An unexpected cultural resources finds clause will be included in the project specifications. In the event of an archaeological resource discovery, work in the area will be suspended at the site until compliance with all Federal and state regulations is successfully completed and Corps staff members provide further directive.
Protection of Migratory Birds	Standard migratory bird protection protocols will be incorporated into the project plans and specifications. The contractor will be required to abide by those protocols and all monitoring timeframes.

This Supplemental EA has been prepared pursuant to NEPA and its implementing regulations. The status of the proposed project's compliance with environmental acts and Executive Orders (E.O.) are provided in **Table 5**:

Table 5. Proposed project's environmental act and Executive Order (E.O.) compliance status.

Environmental Act or Executive Order (E.O.)	Project Compliance Status
National Environmental Policy Act of 1969 (42 U.S.C. §4321 *et seq.*)	The project complies with this Act.
Endangered Species Act of 1973 (16 U.S.C. §1531 *et seq.*)	Appropriate consultation with USFWS and NMFS has been concluded. The project is in compliance with this Act.
Fish and Wildlife Coordination Act of 1958 (16 U.S.C. §661 *et seq.*)	A MFR was signed by USFWS and the Corps to document an agreement between the agencies to use the NEPA review and ESA consultation processes to complete coordination responsibilities under the FWCA. The project complies with this Act.
National Historic Preservation Act of 1966 (*Inter Alia*)	Consultation with the SHPO has been completed. SHPO concurred with the Corp's determination of no effect to historic properties in a letter dated October 6, 2017. The project is in compliance with this Act.
Clean Water Act of 1972, Section 401 and Section 404(B) (33 U.S.C. §1341 *et seq.* and 33 U.S.C. §1344(b) *et seq.*)	A 404(b)(1) evaluation is included in Appendix B. A water quality certification will be obtained from the Puerto Rico Environmental Quality Board (EQB) prior to construction. The Corps will implement the conditions imposed by that water quality certification in order to minimize adverse impacts to water quality.
Clean Air Act of 1972 (42 U.S.C. §7401 *et seq.*)	No air quality permits are required for this project. Because the project is located within an attainment area, USEPA's General Conformity Rule to implement Section 176(c) of the Clean Air Act does not apply and a conformity determination is not required.
Coastal Zone Management Act of 1972 (16 U.S.C. §1451 *et seq.*)	The Puerto Rico Planning Board concurred with the Federal Consistency Determination (located in Appendix D-1 of the 2018 IFR/EA) by letter dated June 7, 2018. The project complies with this Act.
Farmland Protection Policy Act of 1981 (7 U.S.C. §4201 *et seq.*)	No prime or unique farmland will be affected by implementation of this project. This Act is not applicable.
Wild and Scenic River Act of 1968 (16 U.S.C. §1271 *et seq.*)	This project will not affect any designated wild and scenic river reaches. This Act is not applicable.
Marine Mammal Protection Act of 1972 (16 U.S.C. §1361 *et seq.*)	To ensure the protection of any manatees or dolphins present in the project area, incorporation of safeguards used to protect these species have been included in the project plans and specifications and will be implemented by the contractor during in-water work. The project complies with this Act.
Estuary Protection Act of 1968 (16 U.S.C. §§1221-26)	No designated Estuary of National Significance will be affected by project related activities. This Act is not applicable.

Environmental Act or Executive Order (E.O.)	Project Compliance Status
Federal Water Project Recreation Act (16 U.S.C. §460(L)(12)-460(L)(21) *et seq*.)	Recreational resources and opportunities are discussed in the 2018 IFR/EA and hereby incorporated by reference. The 2019 Preferred Alternative does not have any anticipated impacts to recreation beyond those previously evaluated in the 2018 IFR/EA. The project complies with this Act.
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (16 U.S.C. §1801 *et seq*.)	EFH consultation with NMFS will be initiated concurrently with the public release of the draft NEPA document. The project will comply with this Act.
Submerged Lands Act of 1953 (43 U.S.C. § 1301 *et seq*.)	The project will occur on submerged lands of the Commonwealth of Puerto Rico. The Corps will coordinate the project with the Commonwealth via the issuance of a WQC. The project will comply with this Act.
Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990 (16 U.S.C. §3501 *et seq*.)	There are no designated coastal barrier resource system units that will be affected by this project. These Acts are not applicable.
Rivers and Harbors Act of 1899, Section 10 (33 USC §403 *et seq*.)	The proposed work would not affect navigable waters of the U.S. The proposed action will be subjected to the public notice and other evaluations normally conducted for activities subject to the Act. The project is in compliance with the Act.
Anadromous Fish Conservation Act (16 U.S.C. §§757A-757G)	Anadromous fish species would not be affected. The project will be coordinated with NMFS and USFWS and complies with this Act.
Migratory Bird Treaty Act (16 U.S.C. §§703-712) and Migratory Bird Conservation Act (16 U.S.C. §§715-715D, 715E, 715F-715R)	The project was coordinated with USFWS and complies with these acts.
Marine Protection, Research, and Sanctuaries Act (16 U.S.C. §1431 *et seq*. AND 33 U.S.C. §1401 *et seq*.)	Ocean disposal is not a component of this project. This Act is not applicable.
Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. §4601 *et seq*.)	This project will not be acquiring any real estate interests from private property owners. The project complies with this Act.

Environmental Act or Executive Order (E.O.)	Project Compliance Status
E.O. 11988, Flood Plain Management	To comply with E.O. 11988, the policy of USACE is to formulate projects that, to the extent possible, avoid or minimize adverse effects associated with the use of the floodplain and avoid inducing development in the floodplain unless there is no practicable alternative. Activities associated with this Project have been designed to the extent possible to avoid and minimize effects associated with the use of the floodplain, which is defined by E.O. 11988 as an "area which has a one percent or greater chance of flooding in any given year." The Project is in compliance with the Order.
E.O. 11990, Protection of Wetlands	No wetlands will be affected by project activities. The project complies with the Order.
E.O. 12898, Environmental Justice	This E.O. is discussed in the 2018 IFR/EA and that discussions is hereby incorporated by reference. The 2019 Preferred Alternative does not alter that analysis and the project complies with this Order.
E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks	Disparate Risks involving Children is discussed in the 2018 IFR/EA and that discussion is hereby incorporated by reference. The 2019 Preferred Alternative does not alter that analysis and the project complies with this Order.
E.O. 13089, Coral Reef Protection	Based on the nearshore benthic resource survey conducted by DNER indicating the degraded nature of the adjacent nearshore resources as well as the revetment providing consolidated hard substrate for coral polyp settlement, it is unlikely that long-term, adverse effects to hardbottom habitats will occur. The project complies with the Order.
E.O. 13112, Invasive Species	The contract specifications for the project will include measures to avoid introduction of invasive species to the project area. The non-Federal Sponsor would be responsible for invasive species control following Project completion. The Project is in compliance with the Order.
E.O. 13186, Responsibilities of Federal Agencies to Protect Migratory Birds	This E.O. is discussed in the 2018 IFR/EA and that discussion is hereby incorporated by reference. The 2019 Preferred Alternative does not have any anticipated impacts to migratory birds beyond those previously evaluated in the 2018 IFR/EA. The project complies with this Act.

7 LIST OF PREPARERS

Name	Organization	Expertise	Role in Preparation
Paul DeMarco, Senior Biologist	Corps	NEPA/Biologist	Primary Author
Meredith Moreno, Lead Archaeologist	Corps	Lead Archaeologist	Contributing Author
Jason Spinning, Coastal Section Chief	Corps	Supervisory Biologist	Document Reviewer
Angela Dunn, Environmental Branch Chief	Corps	Supervisory Biologist	Document Reviewer

8 ACRONYM LIST

APE	Area of Potential Effects
BCE	Before Common Era
BMPs	Best Management Practices
BO	Biological Opinion
C.F.R.	Code of Federal Regulations
CBR	Coastal Barrier Resource
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CY	Cubic Yards
CZMA	Coastal Zone Management Act
DCH	Designated Critical Habitat
DMMA	Dredged Material Management Area
DPS	Distinct Population Segment
E.O.	Executive Order
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
ESA	Endangered Species Act
F.A.C.	Florida Administrative Code
FCD	Federal Consistency Determination
FDEP	Florida Department of Environmental Protection
FIND	Florida Inland Navigation District
FMSF	Florida Master Site File
FONSI	Finding of No Significant Impact
FR	Federal Register
FWC	Florida Fish and Wildlife Conservation Commission
FWRI	Florida Fish and Wildlife Research Institute
HAPC	Habitat of Particular Concern
HID	Hillsboro Inlet District
HIIP	Hillsboro Inlet Improvements Project
HTRW	Hazardous, Toxic, and Radioactive Waste
IWW	Intracoastal Waterway
M	Meters
MATER	Mid-Atlantic Technology and Environmental Research, Inc.
MBTA	Migratory Bird Treaty Act
MFR	Memorandum for the Record
MMPA	Marine Mammal Protection Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

NHPA	National Historic Preservation Act
NM	Nautical Miles
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
O&M	Operations and Maintenance
ODMDS	Ocean Dredged Material Disposal Site
P3BO	Programmatic Piping Plover Biological Opinion
PCEs	Primary Constituent Elements
RCRA	Resource Conservation and Recovery Act
RD	Regulatory Division
SAFMC	South Atlantic Fish Management Council
SARBO	South Atlantic Regional Biological Opinion
SHPO	State Historic Preservation Office
T&C	Terms and Conditions
U.S.	United States
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WQC	Water Quality Certification

9 REFERENCES

NOAA 2001. Benthic Habitats of Puerto Rico. NOAA, National Ocean Service. Silver Springs, Maryland.

USACE 2018. Final Integrated Feasibility Report and Environmental Assessment, Loíza, Puerto Rico Section 14 Study. Jacksonville, FL.

APPENDIX A – Pertinent Correspondence

Appendix B – Clean Water Act Section 404(b)(1) Evaluation

Clean Water Act Section 404(b)(1) Evaluation
Loiza 14 Continuing Authorities Program Project

1. Technical Evaluation Factors

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (230.20-230.25)(Subpart C)

	N/A	Not Significant	Significant
(1) Substrate impacts	☐	☒	☐
(2) Suspended particulates/turbidity impacts	☐	☒	☐
(3) Water Quality Control	☐	☒	☐
(4) Alteration of current patterns and water circulation	☐	☒	☐
(5) Alteration of normal water fluctuations/hydroperiod	☐	☒	☐
(6) Alteration of salinity gradients	☐	☒	☐

The objective of the Loíza 14 project is to provide emergency shoreline protection for critical infrastructure. The Recommended Plan consists of construction below MHW of a continuous rock revetment along approximately 1,050 feet of shoreline in front of a public road, Head Start public school, and community center to provide emergency shoreline protection at Loíza. The elevation of the revetment crest would be approximately between +9.0-ft to +10-ft Puerto Rico Vertical Datum of 2002 (PRV02). Due to existing public sidewalk damage, the remaining sidewalk may need to be demolished and replaced with the over-wash protection zone. If needed, the over-wash protection zone would consist of high performance turf reinforcement mat keyed in between the existing road and revetment.

Prior to any construction activity turbidity controls such as turbidity curtains, silt fences, and other Best Management Practice measures must be installed. First order of work is to remove any exiting boulders and debris on the shoreline. The second order of work is to re-grade the existing ground surface using a dozer and excavator to provide a flat or smooth surface. The third order of work is to place the marine mattress on top of excavated slope. The marine mattress consists of a geogrid that is filled with stone by assembling onsite using a hydraulic filling frame. Once the mattress is filled with stone and sewn closed, it will be lifted and placed in its final location using an excavator (back hoe) or crane. The toe of the mattress will be placed at -.56 feet PRV02 which is 1 foot below MLW. Finally 2.5 foot diameter armor stones will be placed on top of the marine mattress on a 3H:1V and 2H:1V slope up to elevation +9.0 feet PRV02 including a 10 foot wide crest.

Impacts will be temporary and localized, lasting only as long as construction takes place. Best Management Practices (BMPs) and methods to manage the construction will ensure minimized and controlled turbidity. Final details for BMPs and methods will be determined during the permitting and contracting process. The contractor will be given criteria to determine and achieve acceptable means and methods.

b. Biological Characteristics of the Aquatic Ecosystem(40 CFR §§ 230.30-230.32) (Subpart D)

	N/A	Not Significant	Significant
(1) Effect on threatened/endangered species and their habitat	☐	☒	☐
(2) Effect on the aquatic food web	☐	☒	☐
(3) Effect on other wildlife (mammals, birds, reptiles, and amphibians)	☐	☒	☐

USACE has concluded that the project will have no effect to the following federally listed species and NMFS designated critical habitat (DCH):

- Antillean manatee (*Trichechus manatus*);
- Leatherback sea turtle (*Dermochelys coriacea*);
- Hawksbill sea turtle (*Eretmochelys imbricata*);
- Green sea turtle (*Chelonia mydas*);
- Elkhorn coral (*Acropora palmata*) – entire population DCH;
- Staghorn coral (*Acropora cervicornis*) – entire population DCH;
- Pillar coral (*Dendrogyra cylindrus*);
- Rough Cactus coral (*Mycetophyllia ferox*);
- Lobed Star coral (*Orbicella annularis*);
- Mountainous Star coral (*Orbicella faveolata*);
- Boulder Star coral (*Orbicella franksi*).

c. Special Aquatic Site (40 CFR §§ 230.40-230.45) (Subpart E)

	N/A	Not Significant	Significant
(1) Sanctuaries and refuges	☒	☐	☐
(2) Wetlands	☒	☐	☐
(3) Mud flats	☒	☐	☐
(4) Vegetated shallows	☒	☐	☐
(5) Coral reefs	☐	☒	☐
(6) Riffle and pool complexes	☒	☐	☐

The degraded nature of existing nearshore benthic resources and the use of BMPs to control access to the construction area and turbidity will ensure there are no significant impacts.

d. Human Use Characteristics (40 CFR §§ 230.50-230.54) (Subpart F)

	N/A	Not Significant	Significant
(1) Effects on municipal and private water supplies	☒	☐	☐
(2) Recreational and Commercial fisheries impacts	☐	☒	☐
(3) Effects on water-related recreation	☐	☒	☐
(4) Aesthetic impacts	☐	☒	☐
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	☒	☐	☐

Construction of the Recommended Plan will result in improved fisheries habitat and will improve water quality in the project area.

2. Evaluation of Dredged or Fill Material (40 CFR §§ 230.60) (Subpart G)

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (**Check only those appropriate**)

☒ (1) Physical characteristics
☒ (2) Hydrography in relation to known or anticipated sources of contaminants
☐ (3) Results from previous testing of the material in the vicinity of the project
☐ (4) Known, significant, sources of persistent pesticides from land runoff or percolation
☐ (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances
☐ (6) Other public records of significant introduction of contaminants from industries, municipalities or other sources
☐ (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge
☒ (8) Other sources (specify)
The project being constructed is a marine mattress and rock revetment using quarried materials.

According to data on the U.S. Environmental Protection Agency's (USEPA) hazardous, toxic, and radioactive waste (HTRW) website, the Resource Conservation and Recovery Act (RCRA) information system lists one facility, Kodak Rahola, Inc., within a 1 mile radius of the Project site as having reported hazardous waste of unspecified activity. The RCRA information system allows RCRA staff to track notification, permit, compliance, and corrective action activities. All generators and treatment, storage, and disposal facilities who handle hazardous waste are required to report activities at least once every two years to support the creation of the Biennial Report. No information has been updated for this facility since April 14, 2015. No hazardous waste was listed as being generated or managed at this site. No known spills were listed. No sites were listed as part of a Superfund site. Kodak Rahola, Inc. is approximately 525 feet from the community center. The revetment created by this project would reduce re-suspension of sediments by dampening wave energy.

b. An evaluation of the appropriate information in 2a above indicated that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, of that levels of contaminants are substantively similar at extraction and disposal sites and not likely to exceed constraints. The material meets the testing exclusion criteria.

YES ☒ NO ☐

3. Disposal Site Delineation (40 CFR §§ Section 230.11(f))

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

☒ (1) Depth of water at disposal site
☒ (2) Current velocity, direction, and variability at disposal site
☒ (3) Degree of turbulence
☐ (4) Water volume stratification
☐ (5) Discharge vessel speed and direction

☐ (6) Rate of discharge
☒ (7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)
☐ (8) Number of discharges per unit of time
☒ (9) Other factors affecting rates and patterns of mixing (specify)

The existing ground surface will be re-graded using a dozer and excavator to provide a flat or smooth surface and the revetment rock from an upland mine will be transported to the staging areas via truck. Approximately 12,000 CY of rock is needed for the marine mattress and granite revetment. An excavator, crane, or other heavy equipment will be used to lift and place the marine mattress in its final location. Temporary turbidity will occur as a result of construction. Impacts will be temporary and localized, lasting only as long as construction takes place. Best Management Practices (BMPs) and methods to manage the placement of materials will ensure minimized and controlled turbidity. Final details for BMPs and methods will be determined during the permitting and contracting process. The contractor will be given criteria to determine and achieve acceptable means and methods.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES ☒ NO ☐

4. Actions to Minimize Adverse Effects (40 CFR §§ Section 230.70-230.77)(Subpart H)

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES ☒ NO ☐

5. Factual Determination (40 CFR §§ Section 230.11)

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short or long-term environmental effects of the proposed discharge as related to:

☒ a. Physical substrate at the disposal site (review sections 2a, 3, 4, & 5)
☒ b. Water circulation, fluctuation & salinity (review sections 2a 3, 4, & 5)
☒ c. Suspended particulates/turbidity (review sections 2a, 3, 4, & 5)
☒ d. Contaminant availability (review sections 2a, 3, & 4)
☒ e. Aquatic ecosystem structure and function (review sections 2b, c; 3, & 5)
☒ f. Disposal site (review sections 2, 4, & 5)
☒ g. Cumulative impact on the aquatic ecosystem
☒ h. Secondary impacts on the aquatic ecosystem

6. Review of Compliance (40 CFR §§ 230.10(a)-(d) (Subpart B)

A review of the permit application indicates that:

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative);

YES ☒ NO ☐

b. The activity does not appear to 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally designated marine sanctuary(if no, see section 2b and check responses from resource and water quality certifying agencies;

YES ☒ NO ☐

c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values (if no, see section 2);

YES ☒ NO ☐

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5);

YES ☒ NO ☐

7. Findings

☒ a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines

☐ b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions:

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

☐ (1) There is a less damaging practicable alternative

☐ (2) The proposed discharge will result in significant degradation of the aquatic ecosystem

☐ (3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem