OCTOBER 2021

Draft Supplemental Environmental Assessment

SAN JUAN HARBOR, PUERTO RICO SEAGRASS MITIGATION, ADDITIONAL SAND SOURCE

U.S. Army Corps
of Engineers
JACKSONVILLE
DISTRICT

PROPOSED FINDING OF NO SIGNIFICANT IMPACT

SEAGRASS MITIGATION, ADDITIONAL SAND SOURCE

SAN JUAN HARBOR, PUERTO RICO

I have reviewed the Supplemental Environmental Assessment (SEA) for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the EA enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

a. The proposed action will not adversely affect existing fish and wildlife habitat.

b. This SEA represents a minimal deviation of the San Juan Harbor Improvements Integrated Feasibility Report/Environmental Assessment (2018) and the San Juan Harbor Submerged Aquatic Vegetation Mitigation Environmental Assessment (2015) in the form of a new sand source/borrow area. This proposed action may affect, but is not likely to adversely affect scalloped hammerhead shark, Nassau grouper, giant manta ray, leatherback sea turtles, Antillean manatee, sperm, sei, blue, or fin whales, elkhorn, staghorn, pillar, rough cactus, lobed star, mountainous star or boulder star corals, and would not adversely modify designated critical habitat for Acroporid corals. During project construction, dredging operations may affect green and hawksbill sea turtles only if a hopper dredge is used for construction but best management practices would be used to minimize effects.

c. The proposed action will have no effect on any sites of cultural or historical significance and is in compliance with the National Historic Preservation Act.

d. The proposed action will not adversely affect the authorized purposes of the San Juan Harbor Navigation Improvements Project.

e. The proposed action will not adversely affect water quality and will be compliant with Federal and local standards. Applicable Water Quality Certifications will be obtained prior to construction.

f. The proposed action will beneficially use approximately 260,000 cubic yards of dredged material from San Juan Harbor to fill artificial depressions within Condado Lagoon for the purposes of seagrass mitigation. Dredged material beneficial placement will reconcile 1.2 acres of seagrass mitigation associated with the construction of the Puerto Nuevo Channel in 2001. Approximately 18 acres of artificial depressions in Condado Lagoon will be restored to -12 to -15 feet depths for additional seagrass habitat restoration.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed. Technical and environmental criteria were used in the evaluation of alternative plans. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, 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 cause significant adverse effects on the quality of the human environment; therefore, preparation of an environmental impact statement is not required.

_____ _____

James L. Booth
Colonel, U.S. Army
District Commander

Date

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
ON
SUBMERGED AQUATIC VEGETATION MITIGATION, ADDITIONAL SAND SOURCE
SAN JUAN HARBOR, PUERTO RICO

TABLE OF CONTENTS

APPENICES

LIST OF FIGURES

LIST OF TABLES

1 PROJECT PURPOSE AND NEED

1.1 INTRODUCTION

The project study area includes San Juan Harbor (SJH), and surrounding areas as identified in the Recommended Plan in the 2018 San Juan Harbor Navigation Improvements (SJHNI) Study Integrated Feasibility Report & Environmental Assessment (2018 IFR/EA) and the 2015 San Juan Harbor Submerged Aquatic Vegetation Mitigation Environmental Assessment (2015 Mitigation EA). The Puerto Nuevo Channel widening portion of the 2001 SJH expansion dredging project impacted submerged aquatic vegetation (SAV) including marine macro-algae and seagrass resulting in a compensatory mitigation requirement for 1.2-acres (ac) of shoal grass (*Halophila decipiens*) habitat restoration. Subsequently the USACE completed the 2015 Mitigation EA which relocated the seagrass mitigation area from the inner harbor to deep, artificial depressions in Condado Lagoon (Figure 1-1). Although construction of this mitigation has been included in SJH maintenance dredging (O&M) events, contract bids have consistently exceeded the award thresholds and the mitigation currently remains unconstructed.

The 2018 IFR/EA includes a beneficial use of dredged material option to fill approximately 18-ac of the artificial depressions in Condado lagoon for seagrass restoration. Updated geotechnical investigations indicate there is less material suitable for beneficial use (coarse grain size) within the authorized channel expansion footprint than anticipated in the 2018 IFR/EA. The SJH project is approved for a Section 1122 pilot program to combine O&M funding and Beneficial Use funding in excess of the least cost disposal alternative. This draft Supplemental Environmental Assessment (SEA) evaluates only the dredging of a new area outside the Federal channel west of Cut-6 (Figure 1-3) as an additional sand source for the seagrass mitigation. The effects of dredging Cut-6 and the other channel expansion areas, and the effects of placement into Condado Lagoon for seagrass habitat restoration were previously evaluated in the 2018 IFR/EA and 2015 Mitigation EA. All discussions, consultations, effects determinations, and conclusions contained in the 2018 IFR/EA and 2015 Mitigation EA are here-by incorporated by reference into this draft SEA.

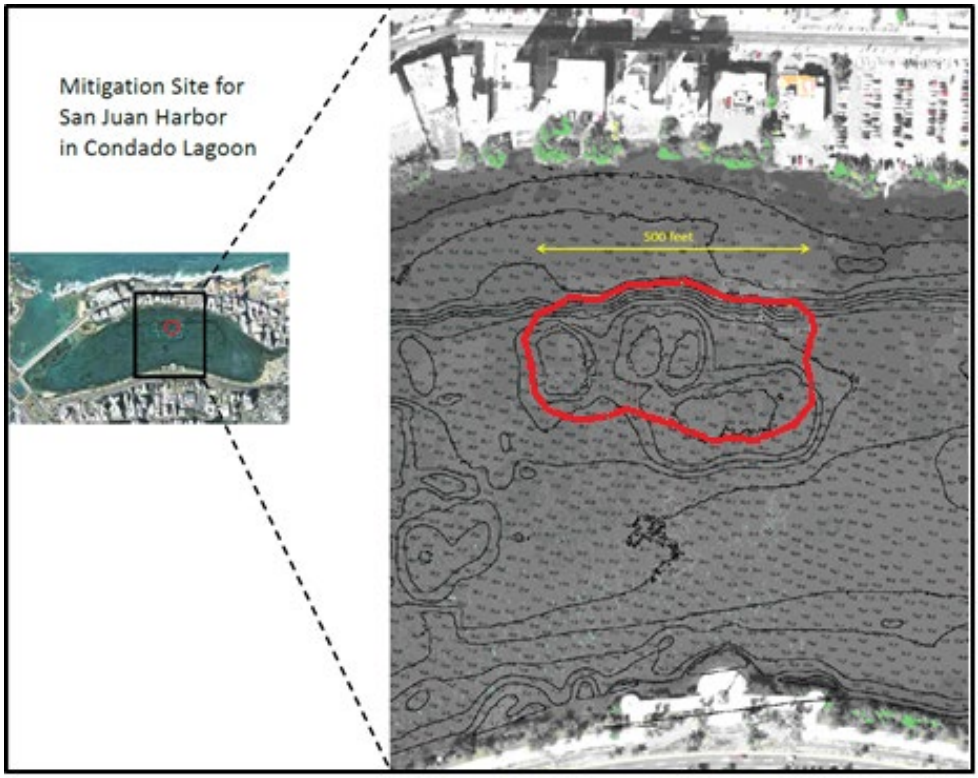

FIGURE 1-1: 2015 PROPOSED SEAGRASS MITIGATION SITE, CODADO LAGOON

1.2 PROJECT AUTHORITY

In response to requests from the government of the Commonwealth of Puerto Rico (Puerto Rico), studies of the authorized San Juan Harbor Federal Navigation Project were completed, and improvements were proposed in a Survey Report dated 1974. A Final Environmental Impact Statement (FEIS) was filed in 1976. The Congress of the United States authorized the preparation of a Phase I General Design Memorandum (GDM) in the Water Resources Development Act (WRDA) of 1976 (Public Law 94-587). The Phase I GDM and Supplemental Environmental Impact Statement (SEIS) were prepared in 1982. The SEIS incorporated new information provided by the U.S. Fish and Wildlife Service (FWS) on significant wildlife habitat areas, fisheries resources and SAV in the Puerto Nuevo-Army Terminal channel area. The Congress authorized the deep draft navigation project recommended in the Phase I GDM in WRDA of 1986 (Public Law 99-662).

The San Juan Harbor (SJH) improvements project authorized by WRDA of 1986 was re-authorized to include the recommendations made in the 1994 General Reevaluation Report (GRR) and Environmental Assessment (EA) by Section 301 of WRDA of 1996 (Public Law 104-303). In addition, House Resolution 2764 of the Committee on Transportation and Infrastructure, U.S. House of Representatives, adopted September 20, 2006, authorizes the Secretary of the Army to determine the feasibility of providing navigation improvements at San Juan Harbor, Puerto Rico to increase security, safety, and efficiency (USACE 2018).

Finally, the SJH seagrass mitigation is a component of the San Juan Harbor Federal Navigation Project. The non-Federal sponsor for the project is the Puerto Rico Ports Authority (PRPA).

1.3 PROJECT LOCATION

SJH and Condado Lagoon are located on the northeast coast of Puerto Rico. SJH is the Island's principal port (Figure 1-2). The entrance channel accesses the Atlantic Ocean to the north between Isla de Cabras and Isla San Juan (Old San Juan) at Boca del Morro.

FIGURE 1-2: LOCATION MAP OF SAN JUAN HARBOR

1.3.1 STUDY AREA

The project study area includes SJH, and surrounding areas as identified in the 2018 IFR/EA Recommended Plan (Figure 1-2) and the 2015 Mitigation EA. The harbor is home to various marine and terrestrial species and their associated habitats. It is the only harbor on the north coast which affords protection in all-weather because of the relatively high elevations of Old San Juan to the north and adjacent low mangrove swamps of the Puerto Rico mainland to the south, east, and west. The southeastern area of San Juan bay is approximately three miles wide and varies in width from 0.6 to 1.6 miles, but the entire southwest side of the bay is comprised shoals. The southwest shore is divided into two large bights by Punta Cataño, the point which extends about 0.6 miles northeast into the harbor. Additionally, Puerto Rico is a tropical island and is subject to tropical temperatures, precipitation, and storms, such as hurricanes.

Metropolitan San Juan, the capital and principal port of Puerto Rico, includes Old San Juan on the north side of Bahia de San Juan and the communities surrounding the bay. Commercial and government activities are located here, and San Juan is the primary tourist capital of the

commonwealth with over half of the Island's hotels located in the metropolitan area. Furthermore, over half the commerce of Puerto Rico passes through SJH. The principal cruise tourism facilities are on the south side of Old San Juan and on the north side of Isla Grande. Puerto Rico's cruise ships, containerized cargo, dry bulk grains, general cargo (including automobiles), and petroleum products pass through SJH. Container cargo terminals are located at Puerto Nuevo in the southeast part of the bay.

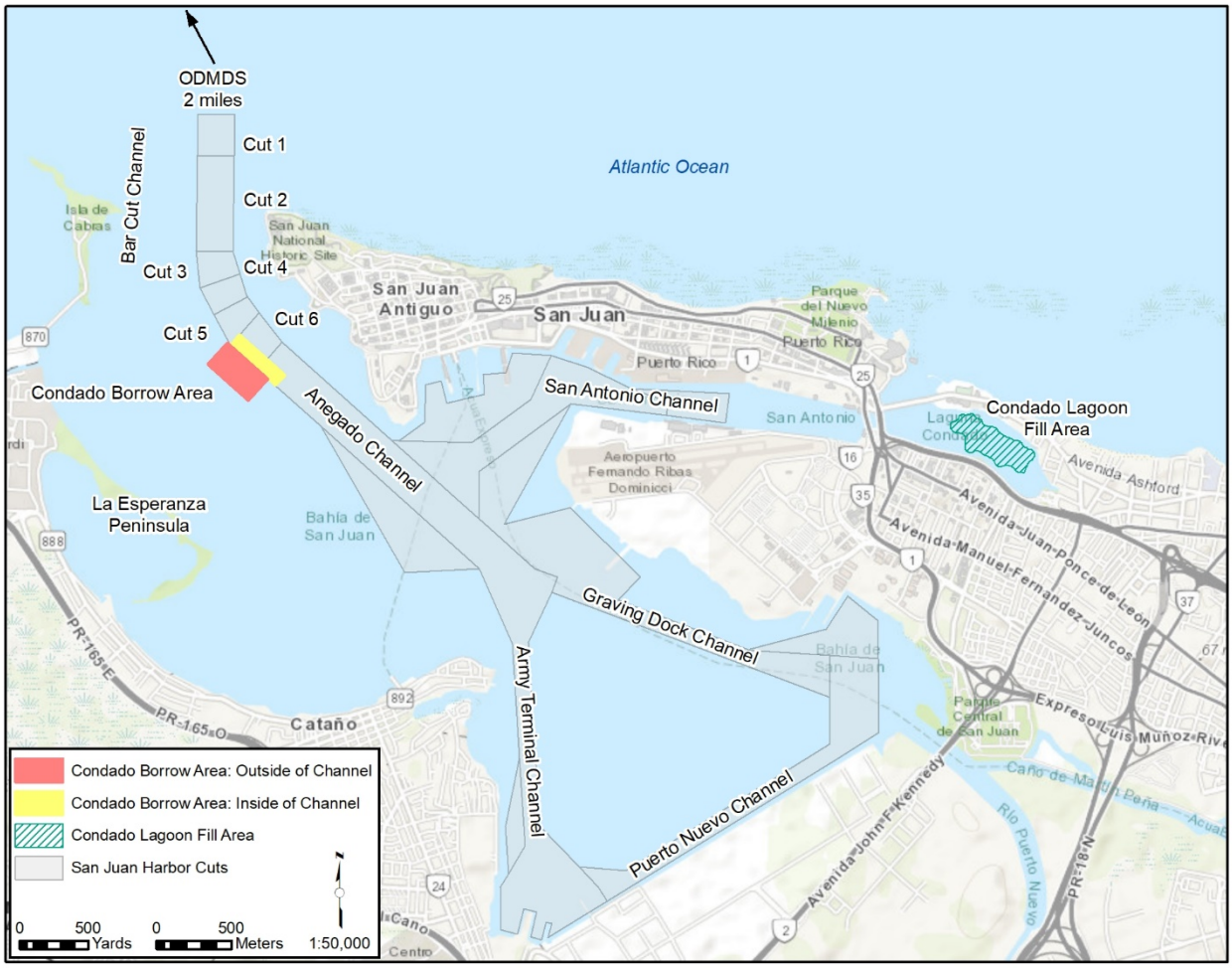

FIGURE 1-3: PROJECT STUDY AREA

1.3.2 HISTORICAL PERSPECTIVE

SJH has been in use since the colonization of the Island by the Spanish. As a United States territory, authorization for Federal improvements began in 1907 by the River and Harbor Act of 1907 (Public Law 59-168) (USACE 2018). The existing navigation project was authorized in Section 202(a) of the Water Resources Development Act of 1986 (Public Law 99-662) as amended by Section 301(a)(12) of the Water Resources Development Act of 1996 (Public Law 104-303).

The authorized navigation features described in the GRR and Environmental Assessment dated March 1994, revised June 1994, were approved by the Acting Assistant Secretary of the Army

(Civil Works) on July 8, 1994. The last federally constructed navigation improvements under this authority included deepening the bar channel (Cuts 1-3, Figure 1-2) to project depths of 56-51 feet, the Entrance Channel to 48-42 feet, Anegado Channel to 40 feet, Army Terminal and Turning Basin to 40 feet, Puerto Nuevo Channel to 39 feet, Graving Dock Channel to 36 feet, Graving Dock Turning Basin to 30 feet, Anchorage Area E to 36 feet, Anchorage Area F to 30 feet, San Antonio Channels to 35 feet, Cruise Ship Basin West to 36 feet and Cruise Ship Basins East to 30 feet, and the San Antonio Channel Extension to 30 feet. Refer to Figure 1-2 for locations of forementioned navigational features.

In the 1994 GRR, USACE deferred the authorized deepening of the Cruise Ship Basin, the San Antonio Channel and the San Antonio Extension to 36 feet because these improvements could not be economically justified at that time. Authorized deferred features were reconsidered in the 2018 IFR/EA.

1.4 PROJECT BACKGROUND

1.4.1 2015 SAV MITIGATION ENVIRONMENTAL ASSESSMENT

From 1962 to 1965, the SJH Navigation Project was constructed in San Juan Bay and included, among other works, the construction of the Puerto Nuevo Port facilities and the deepening and widening of the harbor's entrance channel, as well as the dredging of a new navigation channel, known today as the Puerto Nuevo Channel. A substantial amount of the dredged material from the development of these channels was side cast at the northwestern section of the harbor. The side cast dredged material eventually formed what is known today as La Esperanza Peninsula.

The 2001 Puerto Nuevo Channel widening activities impacted seagrass which resulted in a requirement for compensatory mitigation for 1.2 ac of shoal grass (*Halophila decipiens*) and marine macro-algae. Subsequent discussions between USACE, PRPA, U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) were conducted regarding concerns with the two mitigation sites, as proposed in 2003, located next to the Army Terminal and Puerto Nuevo Turning Basins. These included: 1) material stabilization to create and maintain the proposed shoal area, 2) impacts/perturbations to the mitigation from navigation and operation activities, 3) potential futurexpansion/widening of the channel that may impact the mitigation, and 4) likelihood of mitigation success at the proposed sites. As a result, USACE signed a Finding of No Significant Impact (FONSI) for the 2015 Mitigation EA which relocated mitigation construction to Condado Lagoon (Figure 1-3).

In 2005, the La Esperanza Peninsula was dredged by the Corps under the authority of Section 1135 of WRDA of 1986 as amended, to restore water quality of the Esperanza Cove and wildlife habitat on the Esperanza Peninsula. The 2015 Mitigation EA proposes to use material from shoaled areas of La Esperanza to fill four acres of artificial depressions in Condado Lagoon. Subsequent contract bids exceeded award thresholds and the mitigation remains unconstructed.

1.4.2 2018 SAN JUAN HARBOR NAVIGATION IMPROVEMENTS STUDY IFR/EA

As discussed in Section 1.2.2 above, in 2018 the USACE signed a FONSI for the SJH Navigation Improvements (SJHNI) Study IFR/EA. The 2018 IFR/EA's Recommend Plan

consists of modifying general navigation features within SJH. General navigation features include channels, jetties, and basins or water areas for vessel maneuvering, turning, passing, mooring or anchoring incidental to transit of the channels. A majority of the improvements consists of deepening and widening by dredging.

Approximately 2.2 million cubic yards (cy) of material would be dredged and require disposal to complete the improvements project. Several disposal options were considered; however, due to the anticipated fines content (mostly clay), only two placement options were determined feasible: 1) placement of the majority of the fine material at the existing Ocean Dredged Material Disposal Site (ODMDS), located approximately 2.2 nautical miles north-northwest of the entrance to SJH and 2) beneficial use of any appropriate quality (sandy) dredged material in Condado Lagoon to restore seagrass habitat. However, as discussed in the 2018 IFR/EA, appropriate quality sandy material is limited in quantity and only occurs in Cut-6.

1.5 PROJECT PURPOSE AND NEED

The purpose of this NEPA document is to evaluate an additional borrow area with suitable sandy material for use during construction of the seagrass habitat restoration as identified in the 2015 mitigation EA and the 2018 IFR/EA. The opportunity exists to use appropriate quality sandy dredged material to reconcile outstanding seagrass mitigation. However, to succeed it is likely restoring a larger area in Condado Lagoon would be required. Filling the large eastern artificial depressions to -12 feet to -15 feet depth contours will create stable conditions for seagrass establishment. The additional borrow area material will be added to the construction material from Cut-6 to restore approximately 18 ac of seagrass habitat improving the overall marine ecology within the Lagoon.

1.6 RELATED ENVIRONMENTAL DOCUMENTS

Related NEPA, design, and planning reports for dredging SJH and the beneficial use of dredged material for Condado lagoon seagrass habitat restoration include the following:

- San Juan Harbor, Puerto Rico Navigation Improvements Study - Integrated Feasibility Report and Environmental Assessment. U.S. Army Corps of Engineers, Jacksonville District. June 2018.
- San Juan Harbor, Puerto Rico Submerged Aquatic Vegetation Mitigation Environmental Assessment. U.S. Army Corps of Engineers, Jacksonville, FL. February 2015.
- The Hydrodynamics of Condado Lagoon. Determination of Stable Sand Grain Size for Restoration Initiative. Tetra Tech. October 2011.
- Environmental Review of the Condado Lagoon Ecosystem Restoration Project. A Capstone Review Paper Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of Science: Coastal Zone Management. Nova Southeastern University Oceanographic Center. December 2005.
- Section 204 Beneficial Use of Dredged Material. Preliminary Restoration Plan. Condado Lagoon. San Juan, Puerto Rico. U.S. Army Corps of Engineers, Jacksonville, FL. March 2003.
- Draft Benthic Survey Report. LG2 Environmental Solutions, Inc. and CSA Ocean Sciences Inc. Prepared for U.S. Army Corps of Engineers, Jacksonville District. October 2021.

All discussions, consultations, effects determinations, and conclusions contained in the two EAs above are here-by incorporated by reference into this EA. These NEPA documents, which include specific project details, can be accessed via the internet from the Corps, Jacksonville District website (https://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/).

1.7 DECISIONS TO BE MADE

The USACE goal for this project is to beneficially use dredged material from SJHNI Project in combination with a new proposed borrow area west of Cut-6 to restore seagrass habitat in Condado Lagoon. The purpose of this document is to evaluate alternatives to accomplish, and the environmental effects of that goal. This draft SEA evaluates the decision to use the proposed borrow area west of Cut-6, outside the Federal navigation channel, as an additional source of fill material. It does not evaluate the dredging effects or footprint associated to the 2018 IFR/EA or the 2015 Mitigation EA.

1.8 RELEVANT ISSUES AND ENVIRONMENTAL RESOURCES EVALUATED

The following issues were identified as relevant to the proposed action and are appropriate for further evaluation: navigation; relative sea level change; geotechnical; water quality; seagrass; essential fish habitat; protected species including sea turtles, Antillean manatee, and listed hard corals; marine mammals; and cultural resources.

1.8.1 ISSUES ELIMINATED FROM FURTHER ANALYSIS

The proposed action is expected to have little or no effect on soils, housing, or population dynamics. In addition, this SEA supplements the 2015 and 2018 EA and FONSI documents listed in Section 1.6 and provides an evaluation of the effects of dredging suitable quality material from an approximately 15-ac area adjacent to Cut-6 only (see Figure 1-2). The previous NEPA documents evaluated issues of concern related to construction and maintenance dredging, and material placement options which included the Ocean Dredged Material Disposal Site (ODMDS) (Figure 1-3), and beneficial use for seagrass habitat restoration in Condado lagoon. These evaluations have been determined to be still valid since the project area and potential construction methodologies essentially remain the same. The information presented in these evaluations is complete and relevant Federal laws have not changed in a manner that would require re-evaluation of these resources. Table 1-1 presents a summary of the environmental factors evaluated in the previous NEPA documents but eliminated from detailed discussion thereafter.

TABLE 1-1: SUMMARY OF ENVIRONMENTAL FACTORS EVALUATED IN NEPA DOCUMENTS PREPARED IN 2015 AND 2018 THAT ARE ELIMINATED FROM FURTHER ANALYSIS IN THIS SEA

ENVIRONMENTAL FACTOR	2015 Mitigation EA	2018 IFR/EA
SJH EXPANSION DREDGING	No impact.	Long-term beneficial effects through navigation channel improvements.
CONDADO FILL	Long-term natural and ecological benefits related to sea floor restoration.	Beneficial effects if dredge material is placed in the lagoon. No significant adverse impacts.
AIR QUALITY	In attainment area for pollutants. No significant adverse impacts.	No long-term accumulation of particulates. No significant adverse impacts.
FISHERIES AND WHALE SPECIES *NMFS listed fish: Banded Butterflyfish, Red Hind, Coney, Mutton Snapper, Schoolmaster, Gray Snapper, Yellowtail Snapper, White Grunt, Queen Triggerfish, Redtail Parrotfish, Squirrelfish, Sand Tile Fish, Spiny Lobster, Queen Conch*	No effect with implementation of standard protection conditions. Whales were not evaluated.	No substantial adverse effect on essential fish habitat (EFH) or federally managed fisheries. Minor, temporary effects associated to dredging. Dredging would have no effect on whales. Protective measures would be implemented.
FISH AND WILDLIFE	The proposed action would provide habitat for fish, invertebrates, manatees, sea turtles, and birds.	Evaluated through other resource topics. In summary, no substantial adverse effects. Minor, temporary effects associated to dredging. Habitat benefits through restoring seabed in Condado Lagoon.
BIRDS	Create beneficial habitat.	No effect is anticipated from construction. Beneficial use options may positively affect bird foraging habitat in Condado lagoon.
INVASIVE SPECIES	May reduce shoaling and rate of Australian Pine invasion at La Esperanza borrow site.	This alternative will not cause additional threats from invasive species. Regulations will help control aquatic invasive species.
WETLANDS	Not evaluated.	No impact.
COASTAL BARRIER RESOURCES	No impact.	No effect to CBRA Zones as a result of improvements.
WIND AND WAVE CLIMATE	Not evaluated.	No significant adverse impacts.

ENVIRONMENTAL FACTOR	2015 Mitigation EA	2018 IFR/EA
CURRENTS AND TIDES	Not evaluated.	No effect to tidal range is predicted. Currents will generally remain the same. Some areas of the harbor may experience a reduction in currents due to wider deeper channels.
SHORELINE EROSION	No change.	Reduction in shoreline erosion through deepening actions.
NOISE	No significant adverse impacts.	Minor adverse effects to aquatic species due to displacement. Temporary and minor effect to human populations due to the construction of project.
HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)	No HTRW would be encountered or released.	No HTRW is expected to be encountered or released.
NATIVE AMERICAINS	No federally recognized Indian Tribes in Puerto Rico.	Not evaluated.
SOCIOECONOMICS	Benefits from dredging La Esperanza. No substantial effects.	Complies with Executive Orders 12898 and 13045 and would not cause disproportionately high and adverse effects to minority populations, low-income populations, and sensitive populations such as the elderly, or children.
ENERGY REQUIREMENTS AND CONSERVATION	Energy will be expended to dredge and transport material.	Improves transportation efficiencies; promotes Executive Order 13783.
CUMULATIVE IMPACTS	Temporary degradation in water quality at dredging site and some loss of organisms at dredge site. Repopulation of organisms anticipated.	Temporary degradation in water quality at dredging site and some loss of organisms at dredge site. Repopulation of organisms anticipated.

2 ALTERNATIVES

2.1 DESCRIPTION OF ALTERNATIVES

This SEA evaluates the proposed modification to the 2015 Mitigation EA and 2018 IFR/EA, to include any changes or additional information on the existing environment since that time. This SEA ensures that any new potential environmental consequences on the human environment are fully analyzed and disclosed to the public. Alternatives described in this section include: 1) the No Action Alternative, 2) the Preferred Alternative – Beneficial use of Dredge Material from Area West of Cut-6, and 3) other alternatives that were considered, but eliminated from further analysis in this SEA. Section 3 (Affected Environmental and Environmental Consequences) compares the alternatives in greater detail, providing a clear basis for choice to the decision maker.

2.1.1 NO ACTION ALTERNATIVE

Under the 2015 Mitigation EA, dredged material was not able to be obtained from La Esperanza; therefore, the Preferred Alternative from 2015 could not be used as the No Action Alternative. For the purposes of this SEA, the No Action Alternative would use dredged material from the 2018 SJHNI Project and the required mitigation may take additional construction (O&M) actions to obtain the full quantity of material needed. Material to reconcile the 1.2-ac seagrass mitigation requirement would be obtained at a future date from an undetermined location.

2.1.2 ACTION ALTERNATIVE 1 – BENEFICIAL USE OF DREDGED MATERIAL FROM AREA WEST OF CUT-6

This alternative includes the use of a new borrow area, adjacent/west of Cut-6 to obtain the additional sand/dredged material required to create approximately 18 ac of seagrass habitat through filling artificial depressions in Condado Lagoon. The remainder of the material would be obtained as described in the 2018 IFR/EA from the dredging of the SJHNI Project construction. This approximately 15-ac borrow area adjacent (west) of Cut-6 would match slopes and depths of the entrance channel's transition into the Anegado Channel. Potential methods to obtain the sand include a hydraulic cutterhead dredge, hopper dredge, or mechanical excavator.

Placement of dredged material in Condado Lagoon (Figure 1-2) is expected to begin in the southeast portion of the lagoon and transition to the northwest. However, attempts would be made to fill as many of deeper dredged holes as possible. Placement operations would fill to a target depth of -13, thereby meeting the desired -12 to -15 depths. Thus, potentially creating up to 18 ac of seagrass habitat. Furthermore, a silt curtain/turbidity screen would be used to confine suspended sediments and reduce turbidity levels during material placement operations. Another method may include fluctuating placement rates to allow time for suspended sediments to settle.

2.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

To meet project goals and opportunities, the USACE considered other sources of beneficial use material within SJH for Condado Lagoon. Locations include areas within the dredge footprint of

the Army Terminal Channel (2018 IFR/EA) as well as within La Esperanza Peninsula. As a mutual project benefit, La Esperanza Peninsula was considered because it currently is in need of operations and maintenance (O&M) related to shoaling and sedimentation and was previously approved for source material. These two areas remain viable options under the 2015 Mitigation EA and the 2018 IFR/EA; however, they were removed from further analysis within this SEA for the following reasons:

The SJHNI Project will generate approximately 2.2. million cy of material as a result of construction dredging operations. However, only suitable material with grain sizes greater than 0.21mm would benefit the lagoon based tidal and current flows. The area west of Cut-6 contains suitable material, is closer to Condado Lagoon, and the dredge will already be operating in the vicinity. Furthermore, due to shallow water depths, it was determined to be cost ineffective to extract material from La Esperanza Peninsula due to the need to mobilize a different (smaller) dredge plant.

Areas within the SJHNI Project were reviewed for potential deposits of suitable material. Based on sediment studies, an area approximately 1,500 linear feet by ten-foot-deep within the Army Terminal Channel was considered. However, laboratory results show the material at this location is unsuitable. Though the desired average grainsize was relatively large (approximately 0.64mm), the average silt concentration was substantial (approximately 33.4 %). Thus, when homogenized, the overall dredge slurry grain size was estimated to be near the threshold of the 0.21mm size needed. Additionally, the orientation of the suitable material relative to the channel would make extraction more difficult and more costly when compared to the area west of Cut-6.

2.3 PREFERRED ALTERNATIVE

The Preferred Alternative is the Action Alternative 1 and best meets the project goals and objectives, is within project constraints, and is environmentally acceptable and economically justified. The Preferred Alternative would help reestablish depths required for seagrass habitat restoration thereby improving the natural and human environment by restoring ecosystem functions within Condado Lagoon.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

The affected environment succinctly describes the existing environmental resources which have the potential to be affected as a result of implementing the alternatives considered. The affected environment forms the base-line conditions for determining the environmental consequences of the proposed action and reasonable alternatives. The environmental resources, as discussed within 2015 Mitigation EA as well as the 2018 IFR/EA, have been analyzed and a FONSI was executed. Therefore, only resources which have the potential to be affected from the Preferred Alternative or are relevant to the decision to be made were carried forward for further discussion and analysis of environmental consequences in this section. Refer to Section 1, Table 1-1, for resources that were considered, but not carried forward for detailed analysis in this section.

The general environmental setting for SJH was described in Section 1.2.1, Study Area and described in considerable detail in the 2015 Mitigation EA and the 2018 IFR/EA. The following environmental resource sections include information summarized from the 2015 Mitigation EA, the 2018 IFR/EA, and have been updated with relevant 2021 information.

3.1 NAVIGATION

SJH is a federal navigation channel for the Commonwealth of Puerto Rico (Figure 1-3). Over half the commerce of Puerto Rico passes through SJH. The principal cruise tourism facilities are on the south side of Old San Juan and on the north side of Isla Grande. Puerto Rico's cruise ships, containerized cargo, dry bulk grains, general cargo (including automobiles), and petroleum products pass through SJH. Container cargo terminals are located at Puerto Nuevo in the southeast part of the bay. It also provides navigation through the San Antonio Channel which is connected tidally to Condado Lagoon.

3.1.1 NO ACTION ALTERNATIVE

No effects to navigation would be expected with this alternative.

3.1.2 PREFERRED ALTERNATIVE

The Preferred Alternative would have no adverse effects to navigation. The 15-ac area outside of Cut-6 would be sloped to match depths of Cut-6 and the Anegado Channel. This area would not be incorporated into the approved Federal SJH navigation channel; therefore, over time sedimentation accumulation within this 15-ac area would be expected.

Methods to transport dredged material to Condado Lagoon may involve a floating or submerged pipeline, or combination thereof. Effects to navigation from the pipeline or other methods to transport dredged material would be construction related. Therefore, adverse effects would be minor as marine vessels would have to temporarily avoid pipelines, barges, or other dredged material transportation equipment. During construction the project Contractor would be responsible for appropriate markers, lighting, or signs in compliance with Puerto Rico and federal laws regarding equipment used in SJH, San Antonio Channel, marina, and Condado

Lagoon. Methods to transport material would not be allowed to violate any federal or local laws and regulations, to include federally protected marine species or habitat.

3.2 RELATIVE SEA LEVEL CHANGE

In relation to the study area, a relative sea level change was calculated using the USACE Sea Level Change Curve Calculator, which is available at: https://www.usace.army.mil/corpsclimate/Public_Tools_Dev_by_USACE/sea_level_change/. Using this calculator, the baseline sea level change scenario referenced to the midpoint of the latest National Tidal Datum Epoch (1992), produces a 0.39-foot (or 4.08-inch) increase between 2018 and 2075 for the "low" scenario, a 0.94-foot increase for the "intermediate" scenario, and a 2.29-foot increase for the "high" scenario.

3.2.1 NO ACTION ALTERNATIVE

The 2018 IFR/EA concluded that the SJHNI Project and associated mitigation would not result in relative sea level changes.

3.2.2 PREFERRED ALTERNATIVE

The Preferred Alternative would not affect or contribute to sea level change. Project activities do not involve global scale activities that would influence the baseline sea level change scenario. Furthermore, displacing bed material from SJH into Condado Lagoon would not affect local sea levels or contribute to local flooding within the Harbor or the Lagoon. The volume of water displaced as a result of dredging activities will be offset by the large area of water bodies connected to Condado Lagoon through the SJH and into the Atlantic Ocean.

3.3 GEOTECHICAL

Puerto Rico's geology can be divided into two broad formations belonging to rocks of volcanic or sedimentary origin. Those of sedimentary origin consist mostly of limestone and are normally found underlying the northern part of the Island and sections of the southern coastal plains. Limestone is found at depths varying from 40 to 100 plus feet in depth. Periods of fluctuating sea levels occurred during the glacial periods at the close of the Tertiary time span; thus, exposing the limestone allowing for weathering and erosion to occur. Allowing for shallow lagoons to form in depressions along the coast.

Sediments were and continue to be transported from upland areas by rivers and streams and are deposited into the SJH. Core borings, dating back almost 50 years, in the area were composed mostly of soft clay and stiff plastic clay. Sand and gravel mixes were also encountered (i.e., sand mix, sand and clay, and gravel and clay). Periodically, hard limestone and sandstone were also encountered.

For the purposes of this SEA, four locations were surveyed for geotechnical information. Additional geotechnical associated to the surrounding areas is provided in the 2018 IFR/EA, Appendix A. The four locations include:

- **Cut-6:** Boring logs indicate primarily sandy deposits, with possible lenses of gravel or layers of hard brown calcareous quartz sandstone, intermixed with soft clay or soft silt. Sand with gravel fragments is described to -44.3, which is preceded by rock formations. Wash probes encountered refusal at similar depths. Recent material sample cores were collected at this location. The mean or average grain size was approximately 0.21mm and contained 20.6% silts.

- **Areas outside of Cut-6 (Figure 3-1):** Cores were profiled and separated into two separate levels. Level 1 ranged from -22 to -32 feet and Level 2 ranged from -32 feet to -40 feet. The average grain sized varied from 0.41mm to 0.51mm, respectively. Silt content for Level 1 was 25.3% and Level 2 was 17.6%. Additionally, as further discussed in Section 3.4, approximately 7 ac of boulders, rocks, and debris was discovered during benthic surveys. This hardbottom habitat is likely the result of past channel widening projects.

- **Anegado Channel:** Bottom material is characterized primarily by very soft clay with very low strength, with lesser occurrence of high plastic clays. Limestone or sandstone may be present below a depth of approximately -50 feet mean lower low water. This is six feet below the proposed project depth, and it is not anticipated to be encountered. The average grain size was approximately 0.64mm and contained 33.4% silts.

- **Condado Lagoon (Figure 3-2):** Samples were collected in proposed fill areas. Surficial sampling results indicated that materials contained 78-99% silts and the average grain size was <0.063mm. Thus, material at the bottom of the Lagoon would be highly susceptible to disturbances, such as dredged material placement.

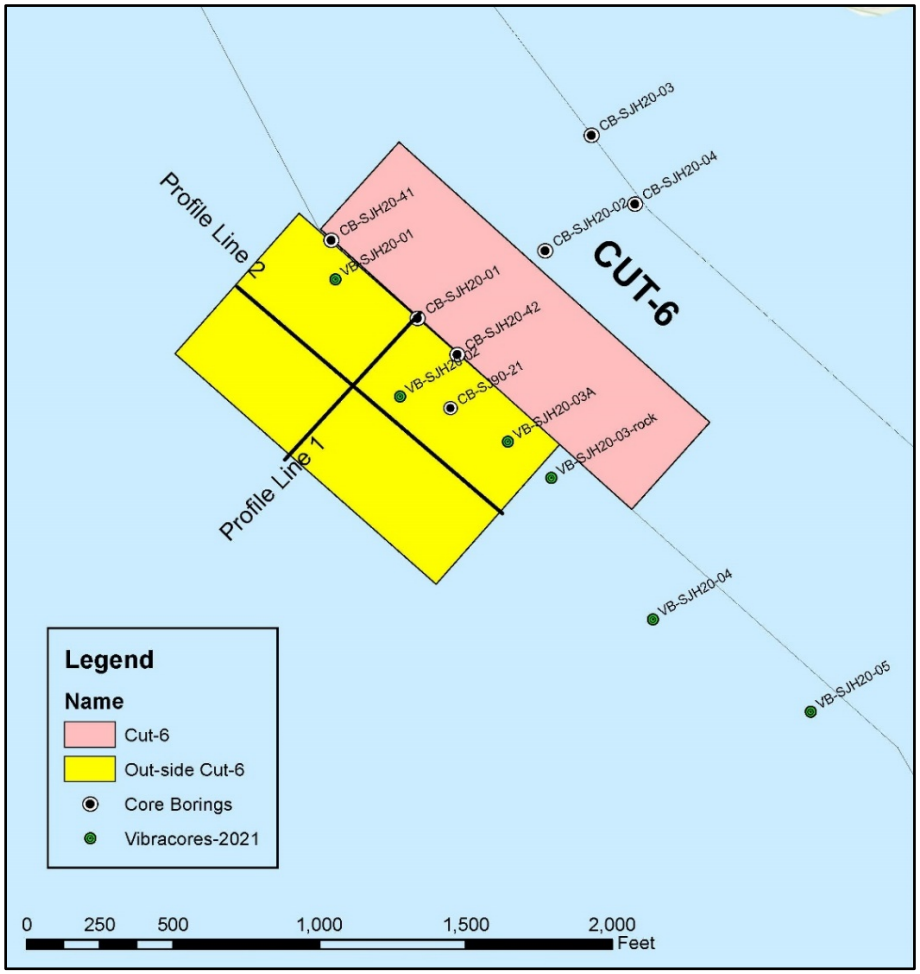

FIGURE 3-1: DREDGE AREA GEOTECHNICAL SAMPLE LOCATIONS

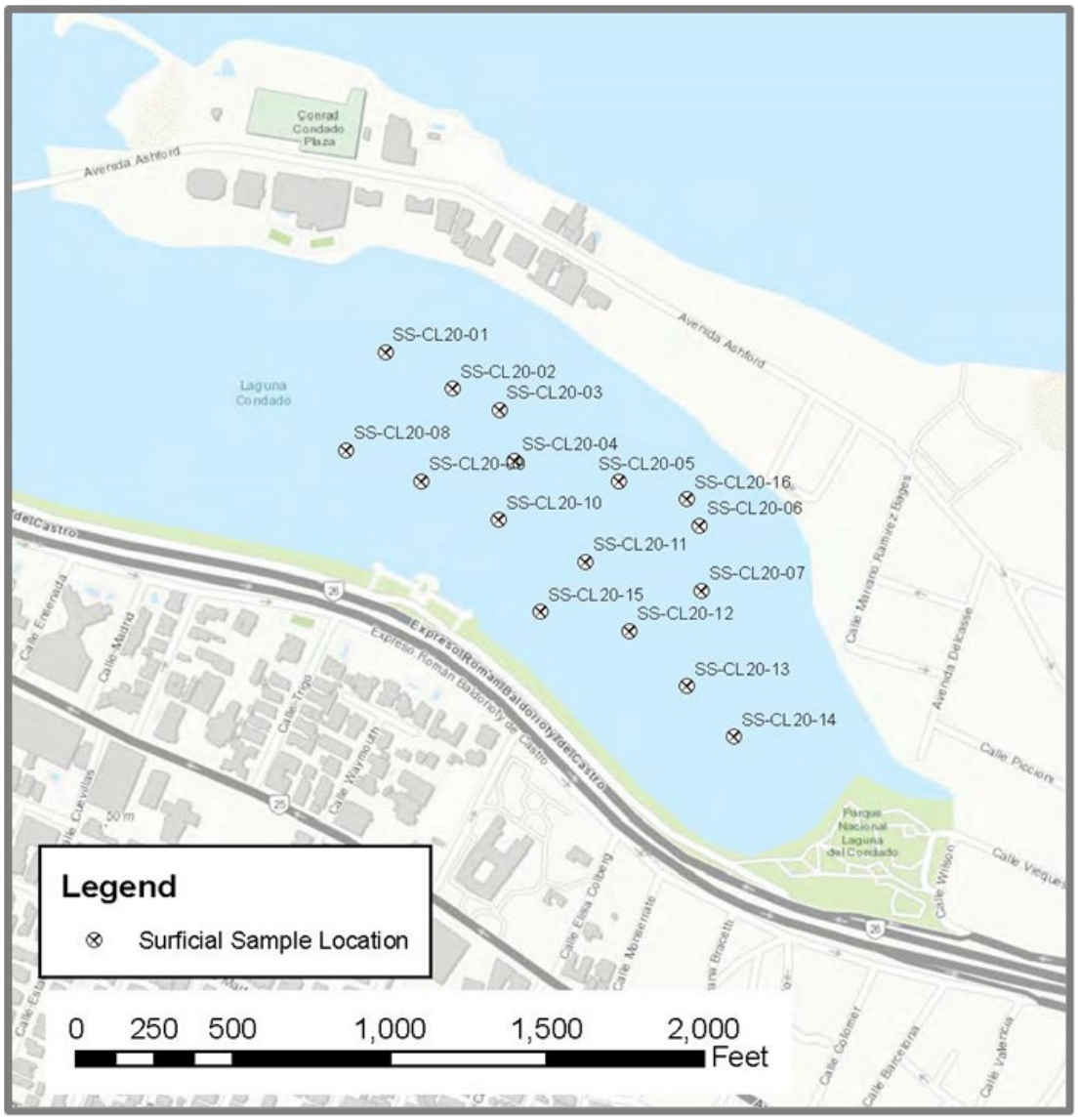

FIGURE 3-2: 2021 SURFICIAL SAMPLING LOCATIONS FOR CONDADO LAGOON

3.3.1 NO ACTION ALTERNATIVE

Dredging to deepening SJH as identified in the 2018 IFR/EA would occur, but the available material for beneficial use would not meet the quantities needed for the seagrass mitigation required. The remaining artificial dredged holes within Condado Lagoon would remain subject to natural processes.

3.3.2 PREFERRED ALTERNATIVE

The Preferred Alternative would not adversely affect the local geology. Bedrock is not expected to be encountered based on refusal depths. Sediments from the mainland are continuously deposited in the Harbor requiring periodic maintenance dredging of the navigational channel.

Thus, over time it is expected that the approximately 15-ac area west of Cut-6 would re-accrete sediments. During 2021 benthic surveys, hardbottom habitat was identified within the dredge area. Material, such as boulders or other debris, that has the potential to damage dredge equipment would be removed or side-cast. Considerations of other marine resources, such as hardbottom habitat, EFH, and federally protected marine species, are discussed further in below.

Geotechnical data collected for areas surrounding Cut-6, to include areas within Cut-6 and the Anegado Channel, indicated grain sizes are suitable for Condado Lagoon. Thus, benefiting approximately 18 ac of seabed of Condado Lagoon by covering fine silts with larger, less-mobile, sediment. Furthermore, once seagrass is established the plants' root systems would further stabilize bed sediments and restore more natural seabed conditions.

3.4 HARDBOTTOM HABITAT

A benthic survey, as further discussed in Sections 3.6, 3.7, and 3.8, was conducted in summer of 2021 with a draft report provided October 4, 2021. The draft report concluded that no hardbottom habitat exists within Condado Lagoon or within the eastern most 500 meters of the San Antonio Channel. However, transects within SJH identified four sites (Figure 3-3) adjacent to Cut-6 containing hardbottom habitat (USACE 2021).

- **Site 1:** Hardbottom features include boulders, rocks and rubble likely produced by past channel widening projects. Other debris such as pipelines and cables were also present throughout the area. Hardbottom at this site was covered primarily by cyanobacteria and sponges with no stony corals present.

- **Site 2:** Hardbottom features include natural eroded limestone with considerable rugosity and structural heterogeneity. This feature supported macroalgae, sponges, stony corals and reef fishes.

- **Site 3:** Hardbottom features were very similar in composition to Site 2 with side-cast boulders over natural hardbottom colonized primarily by cyanobacteria; however, no stony corals observed.

- **Site 4:** Boulders and other hardbottom features were found along the shallow margins of this site. An area at the northern portion of a drop-off with highest relief indicated evidence of epibiota development including presence of stony coral colonies.

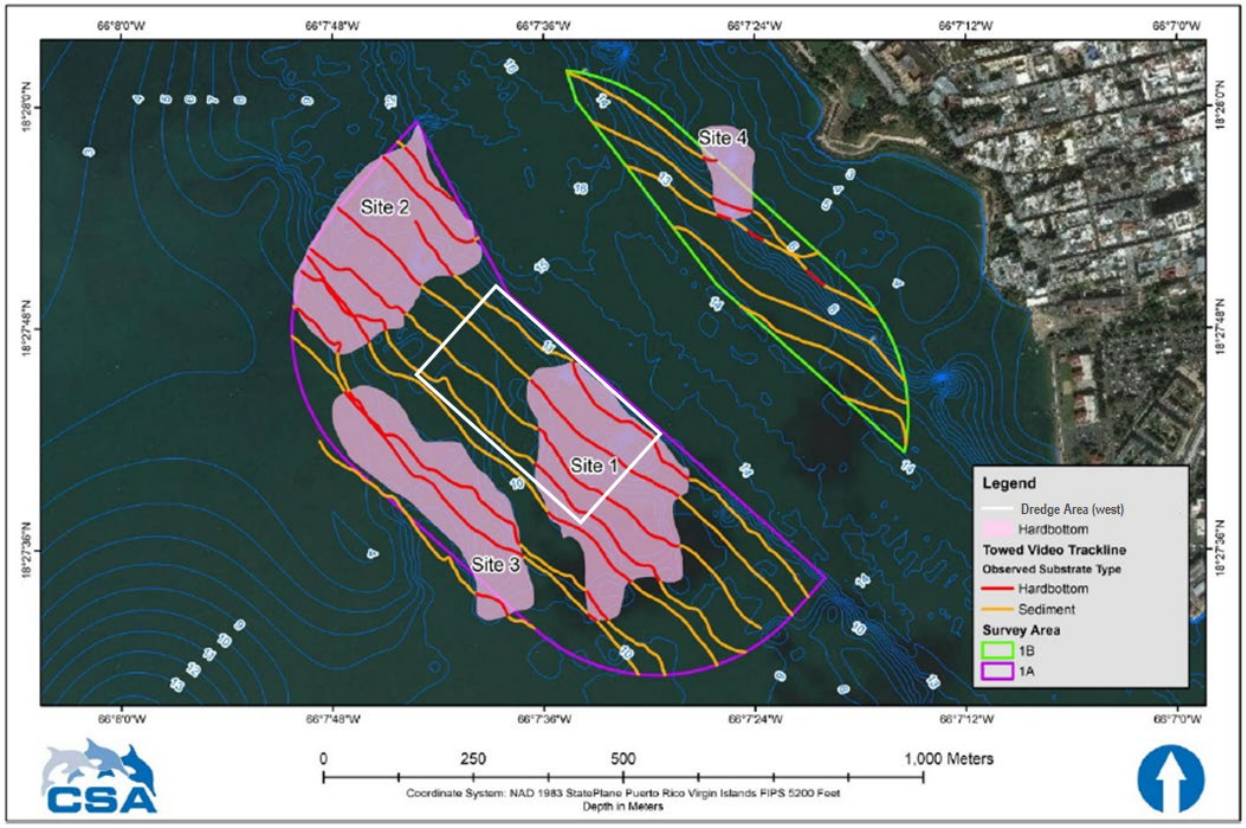

FIGURE 3-3: CUT-6 DREDGE AREA (WEST) HARDBOTTOM HABITAT

3.4.1 NO ACTION ALTERNATIVE

Effects to hard bottom resources would be as described in the 2018 IFR/EA.

3.4.2 PREFERRED ALTERNATIVE

The Preferred Alternative would result in the permanent loss of approximately 7 ac of hardbottom habitat at Site 1 (Figure 3-3). However, this area is likely side-cast material associated to construction of the Federal navigation channel and consists of cyanobacteria and sponges with no stony corals present. Material that could damage dredge equipment, such as boulders or debris, would be removed or side-cast. Any material side-cast would re-create hardbottom habitat conditions. Dredging would not occur within other hardbottom areas identified in the 2021 benthic survey, Sites 2, 3, and 4. Refer to Sections 3.5 and 3.7 concerning water quality effects and EFH related effects.

3.5 WATER QUALITY

SJH is an important component of the San Juan Bay estuary system which includes San Juan Bay, the Condado Lagoon, the San José Lagoon, Los Corozos Lagoon, La Torrecilla Lagoon, and the Piñones Lagoon, as well as the interconnecting Martín Peña and San Antonio Channels and the Suárez Canal. Inland areas surrounding San Juan Bay are a high developed, metropolitan

areas, and much of the bay's drainage basin is urbanized. The intensity and diversity of human activities taking place within the metropolitan area have influenced the water and sediment quality of the estuary in many ways, impairing in many instances its' functions and values (SJBEP 2000). However, San Juan Bay's direct connection to the Atlantic Ocean via the Boca del Morro results in average dissolved oxygen levels between 5.0-6.5 mg/L and salinities of 33-37 parts per thousand just below the water's surface (-2 feet) within SJH (Anamar 2008; Anamar 2011). The Rio Puerto Nuevo turning basin is located in the southeast portion of the harbor near the mouth of the Puerto Nuevo River which is the main source of sediment and fresh water into the harbor. The River connects to the low-flowing Caño Martín Peña which connects to the San José Lagoon. The Caño Martín Peña and San José Lagoon are severely degraded from highly turbid, organic and bacteria-rich waters with low-levels of dissolved oxygen.

Freshwater flows from the Puerto Nuevo River are driven by local rainfall which flushes untreated and treated stormwater runoff and wastewater from Caño Martín Peña and San José Lagoon into the harbor. Despite this, the Puerto Rico Department of Natural and Environmental Resources (DNER), through the promulgation of the Puerto Rico Water Quality Standards Regulation, has designated the waters of SJH as Class SB, or Coastal waters and estuarine waters intended for use in primary and secondary contact recreation, and for propagation and maintenance of desirable species, including threatened or endangered species. The turbidity standard for Class SB waters in Puerto Rico is not to exceed 10 nephelometric turbidity units (NTU), except by natural phenomena (DNER 2019).

Water quality in the Condado Lagoon is influence by tidal currents from the north and west inlets to the Lagoon. No freshwater rivers are connected to the Lagoon; however, local precipitation run-off does occur. As such, water quality pollution is associated with residential and industrial stormwater and storm sewer discharges. Pollutants include petroleum-based compounds, metals, organics, and nutrients. Furthermore, historic dredged depressions within the Lagoon act as storage areas for organic and nutrient pollutants (Haberer 2005).

A Water Quality Certification (WQC) (33 U.S.C. §1341) pursuant to Section 401 of the CWA would be required, in conjunction with this document, to place material from the Harbor to fill artificial depressions in Condado Lagoon. Special protocols would be implemented to manage the discharge, including turbidity increases, in an environmentally acceptable manner. Furthermore, in compliance with the CWA, a Section 404(b)1 evaluation is included Appendix A of this document.

3.5.1 NO ACTION ALTERNATIVE

Effects to water quality would be as described in the 2018 IFR/EA. Though there would be some benefit from filling of the dredged hole as discussed in the 2018 IFR/EA, the acreage expected to be improved as previously discussed would not be achieved due to insufficient material from the dredging of the SJHNI Project construction.

3.5.2 PREFERRED ALTERNATIVE

The Preferred Alternative would result in temporary turbidity increases in SJH and Condado Lagoon during construction. However, long-term water quality improvements are expected. Dredging adjacent (west) to Cut-6, to include areas of Anegado Channel, would be conducted in compliance with Puerto Rico's water quality standards not to exceed 10 NTU above background.

In the long-term, it is expected that filling historic dredged depressions in Condado Lagoon would benefit its overall water quality. Expected benefits include increased water circulation, mixing, and dissolved oxygen levels, and reduction of vertical stratification and nutrient storage (Haberer 2005). The establishment of seagrass could also help reduce turbidity and improve dissolved oxygen levels and other water quality parameters, improving the overall ecology of the Lagoon.

In the short-term, localized turbidity levels could increase. As indicated in Section 3.3, sediments in the Condado Lagoon artificial depressions have a high silt content, and when combined with dredged material, it is likely turbidity levels would be elevated during placement activities. However, to mitigate for turbidity concerns a silt screen/curtain or other mechanism would be placed around the fill location and operations could be fluctuated to allow time for suspended sediments to settle. Additionally, the Preferred Alternative would not be permitted to violate Puerto Rico's water quality standards. All required water quality permits, to include a WQC, would be obtained prior to project construction. A CWA 404(b)1 analysis is included in Appendix A.

3.6 MANGROVES AND SEAGRASS

Centuries of development have severely altered the natural ecosystem of SJH. Most of the shoreline is now hardened and developed. However, the San Juan Bay Estuary is the largest estuary in Puerto Rico, part of the National Estuary Program (NEP), and an estuary of national importance. Coastal mangrove wetland habitats are still found along La Esperanza Peninsula and at the mouth of the Puerto Nuevo River. Mangrove species found in SJH include red (*Rhyzophora mangle*), black (*Avicennia germinans*), and white (*Laguncularia racemosa*). Like seagrasses, mangroves are a highly productive habitat that "provide feeding, breeding, nesting, and roosting areas for birds, mammals, and reptiles, with the vegetative detritus of mangroves serving as the base of the food web for crabs, mollusks, shrimp, and fish, among others" (SJBEP 2000). Mangroves are important for shoreline protection and stabilization. In addition, mangrove habitats provide many important ecological functions, including providing refuge for juvenile stages of managed fish species and have been identified as significant resources for federally listed species. These systems also provide organic matter that forms the basis of a littoral-zone, marine food web. Sloughs (channels of slow-moving water) penetrate mangrove wetlands adjacent to channel areas. Some of these sloughs are natural, while some are man-made. These are extremely important areas that provide species with passageways for movement into and out of interior mangrove areas. They are also important for refuge and feeding areas for various fishes and invertebrates such as juvenile spiny lobster (*Panulirus argus*) and gray snapper (*Lutjanus griseus*).

As with most dredging projects, it is important to consider effects to subsurface features that serve as EFH or provide unique habitat features or services. The predominant benthic substrate within the project area is mud with invertebrate burrow holes. However, SAV consisting of marine macro-algae and seagrass occurs within SJH at scattered locations and generally at depths less than -15 feet (-4.6 meters). Both red and green macro-algae are prevalent throughout the bay. Native seagrass species include shoal grass (*Halodule wrightii*), paddle grass (*Halophila decipiens*), manatee grass (*Syringodium filiforme*), and turtle grass (*Thalassia testudinum*).

Seagrasses significantly modify the physical, chemical, and geological properties of coastal areas; they provide nutrients, primary energy, and habitats which sustain our coastal fisheries resources; and they provide foraging grounds for some endangered marine species (Vicente, 1990). Federally protected species such as green sea turtles (*Chelonia mydas*) and Antillean manatees (*Trichechus manatus manatus*) feed directly on seagrasses. Seagrass beds also serve as a substrate for epiphytes, such as filamentous algae and epiphytic diatoms, which in turn serve as food for invertebrates and fish.

As discussed in Section 3.4 Hardbottom Habitat, benthic surveys were conducted in 2021 for areas surrounding Cut-6, areas east of the San Antonio Channel, and Condado Lagoon (Figure 3-4). The draft report determined five species of seagrass occur in Condado Lagoon and east of the terminus of the San Antonio Channel (Figure 3-5). Turtle grass was the most abundant of the five species followed by the invasive Halophia (*Halophila stipulacea*). This invasive species was first reported in the Caribbean (Grenada) in 2004 and reaching Puerto Rico in 2017 (Winters et al. 2020). Though no seagrass beds were identified near Cut-6, scattered turtle and paddle grass beds are in San Juan Bay. These include mono-specific beds of paddle grass, mixed red and green macro-algae with paddle grass, and sparse turtle grass as documented with underwater video during benthic surveys conducted by the NMFS and the USACE from January 2016 through December 2016 (Reports available at: http://www.saj.usace. army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/).

FIGURE 3-4: BENTHIC RESOURCE SURVEY AREAS

FIGURE 3-5: SEAGRASS HABITAT WITHIN THE AREA OF CONDADO LAGOON

3.6.1 NO ACTION ALTERNATIVE

Effects to mangroves would be as described in the 2018 IFR/EA. The acreage expected to be filled by the as previously discussed beneficial use of dredged material from the SJHNI Project construction would not be achieved due to insufficient material. The full acreage of fill for seagrass mitigation as presented in the 2018 IFR/EA would not be achieved.

3.6.2 PREFERRED ALTERNATIVE

Based on benthic information collected in 2021 as well as for the 2015 and 2018 EAs, the Preferred Alternative is not expected to have significant adverse effects on seagrass. Seagrass habitat in Condado Lagoon has been identified and would be avoided to the extent practical during material placement operations. Minor adverse effects could occur. Dredge material pipelines could overlay seagrasses along the route to the placement area and minor turbidity increases in compliance with Puerto Rico's standards could occur. However, effects are expected to be temporary as these areas would reestablish from existing root systems or recolonize from

adjacent beds (Figure 3-5). Any minor adverse effects would be offset by long-term benefits of filling artificial depressions to elevations in which new seagrass habitat (approximately 18 ac) could be established. Furthermore, equipment used to transport dredged material to Condado Lagoon would avoid seagrass habitat to the extent practical. Avoidance measures will include a floating pipeline, turbidity monitoring, and containment with turbidity curtains around the perimeter of the placement area.

3.7 ESSENTIAL FISH HABITAT (EFH)

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (16 U.S.C. §801 *et seq.*) set forth a new mandate for the NMFS, regional fishery management councils (FMC), and other Federal agencies to promote the protection, conservation, and enhancement of EFH. The EFH provisions of the Magnuson-Stevens Act support one of the nation's overall marine resource management goals to maintain sustainable fisheries. The Magnuson-Stevens Act's final rule, to manage fishery resources and their habitats, was released on January 17, 2002. NMFS and its affiliate, the Caribbean Fishery Management Council (CFMC), oversee the managed species and their habitats potentially found within the study area. Activities which potentially affect EFH(s) are required to consult with the NMFS. Informal consultation with the NMFS was initiated in July 2021, details regarding the consultation are provided in Section 3.7, Protected Species.

In relation to the study area as part of U.S. regulated Caribbean waters, EFH has been identified all waters and substrates, including coral habitats, submerged vegetation, and adjacent intertidal vegetation, including wetlands and mangroves that are necessary for the reproduction, growth, and feeding of marine species. Many of these habitats foster growth and provide food and protection from predators and are integral to producing healthy populations of commercially and recreationally important species. Hardbottom and seagrass habitat locations were discussed in Sections 3.4 and 3.6, respectively. The 2021 benthic survey also identified the presence of NMFS listed species: banded butterflyfish, coney, mutton snapper, schoolmaster, gray snapper, white grunt, squirrelfish, spiny lobster, and queen conch.

3.7.1 NO ACTION ALTERNATIVE

Overall, the effects to EFH would be as described in the 2015 EA and the 2018 IFR/EA. The EFH improvements within Condado Lagoon would be less than previously assessed due to the lack of suitable material from the SJHNI Project construction and the entire 18-ac of habitat would likely not be restored as envisioned.

3.7.2 PREFERRED ALTERNATIVE

The Preferred Alternative would not result in significant adverse effects to EFH resources. As described in Section 3.4, approximately 7-ac (Site 1, Figure 3-3) of hardbottom habitat would be permanently removed within the dredged area of Cut-6 (west). However, this area is likely side-cast material associated to construction of the Federal navigation channel and consists of cyanobacteria and sponges with no stony corals present. Other hardbottom habitat (Figure 3-3) would not be significantly affected from dredging within the area of Cut-6 (west). Any adverse

effects to hardbottom EFH within these areas would be minor and associated to temporary increases in turbidity and suspended solids from dredge operations. Dredge operations would not be permitted to violate Puerto Rico's water quality standards as discussed in Section 3.5. Therefore, suspended sediments are not expected to be within levels that would result in substantial adverse long-term effects to hardbottom habitat at Sites 2, 3, and 4.

The 2015 and 2018 EAs determined no significant impacts to EFH related to fill in Condado Lagoon. However, the 2021 benthic survey identified grass beds throughout Condado Lagoon and east of the terminus of the San Antonio Channel (Figure 3-5). As described in Section 3.6, the Preferred Alternative is expected to have minor, temporary adverse effects to seagrass habitat and long-term ecological benefits associated to filling artificial depressions. The Preferred Alternative would avoid existing seagrass EFH (Figure 3-5) to the extent practical. Furthermore, any adverse effects would be offset from approximately 18 ac of seagrass EFH establishment that is expected within the placement areas. Thus, expanding EFH and benefiting NMFS listed species (Table 1-1) in Condado Lagoon.

3.8 PROTECTED SPECIES

The USFWS and NMFS have responsibilities under the Endangered Species Act of 1973 (16 U.S.C. §1531 *et seq.*) (ESA) to protect certain species. There are many threatened and endangered (T&E) species known to occur near SJH. However, not all of them would be affected by the currently proposed action. Accordingly, in 2015, 2018 and 2021 the USACE coordinated with USFWS Field Office in Boquerón, Puerto Rico, as well as the NMFS Southeast Regional Office in St. Petersburg, Florida, to focus on the species listed in Table 3-1. This list includes the federally listed T&E species that could be present in the area based upon their geographic range, except for whales due to their offshore/deep water tendencies. Refer to Section 1.8, regarding whales. The actual occurrence of a species in the area would depend upon the availability of suitable habitat, the season of the year relative to a species' temperature tolerance, migratory habits, and other factors.

As part of the 2018 IFR/EA, the USFWS concurred with the USACE may affect, not likely to adversely affect determination for the Antillean manatee via informal consultation letter dated June 21, 2018. In addition, USACE received a Biological Opinion (BO) (2018) from the NMFS evaluating potential effects of listed species from the SJHNI Project. In the 2018 NMFS BO, the NMFS determined that the proposed action (2018 IFR/EA recommended plan) is not likely to adversely affect leatherback sea turtles, sperm, sei, blue, and fin whales, elkhorn, staghorn, pillar, rough cactus, mountainous star, lobed star, and boulder star corals, scalloped hammerhead sharks, Nassau grouper, giant manta rays and is not likely to adversely modify designated critical habitat for elkhorn and staghorn corals. However, NMFS concluded that the proposed action (2018 IFR/EA recommended plan) may adversely affect but is not likely to jeopardize the continued existence of the green, loggerhead, and hawksbill sea turtles. Species information provided in this section has be taken directly from the 2018 NMFS BO and/or the 2018 IFR/EA. For addition details regarding T&E and EFH listed species refer to Appendix F and G of the 2018 IFR/EA.

TABLE 3-1: SELECTED FEDERALLY THREATENED AND ENDANGERED SPECIES POTENTIALLY PRESENT IN THE VICINITY OF SAN JUAN HARBOR, PUERTO RICO

Common Name	Scientific Name	Status	Year Listed
Marine Mammals			
Antillean Manatee	*Trichechus manatus*	T	2017
Marine Turtles			
Leatherback turtle	*Dermochelys coriacea*	E	1970
Loggerhead turtle	*Caretta caretta*	Northwest Atlantic Ocean DPS; T	2011
Hawksbill turtle	*Eretmochelys*	E	1970
Green turtle	*Chelonia mydas*	Northwest Atlantic DPS; T	2016
Fish			
Scalloped hammerhead shark	*Sphyrna lewinii*	Northwest Atlantic DPS; TT	2014
Nassau grouper	*Epinephelus striatus*	T	2016
Giant manta ray	*Manta birostris/ M.*	T (proposed)	2017
Corals			
Elkhorn coral	*Acropora palmata*	T	2006
Staghorn coral	*Acropora cervicornis*	T	2006
Pillar coral	*Dendrogyra cylindrus*	T	2014
Rough Cactus Coral	*Mycetophyllia ferox*	T	2014
Lobed Star Coral	*Orbicella annularis*	T	2014
Mountainous Star Coral	*Orbicella faveolata*	T	2014
Boulder Star Coral	*Orbicella franksi*	T	2014

E – federally-endangered
T – federally-threatened
Endangered: A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened: A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

Additionally, in July 2021 USACE contacted the USFWS, NMFS, and National Oceanic and Atmospheric Administration (NOAA) regarding the proposed project modifications concerning this SEA. Based on agency discussions and the mutual understanding that the proposed action would not result in any major modifications, the agencies tentatively indicated that coordination and determinations from 2018 would likely be applicable to the currently proposed project. Draft coordination letters (Appendix D) have been prepared stating the proposed project would have no major modifications and will be sent concurrently with the public noticing of this SEA. Furthermore, these agencies were provided the draft results of the 2021 benthic survey. The draft 2021 benthic survey indicated that no ESA listed species were observed; however, coordination with these agencies is ongoing based on the presence of hardbottom and seagrass habitat in the study area.

Scalloped hammerhead sharks, giant manta ray, and Nassau grouper are unlikely to be found within SJH and have not been reported within the San Juan Bay. The final rule listing distinct

population segments of scalloped hammerhead shark as threatened, including the Southwest Atlantic distinct population segment where Puerto Rico is located, indicated that that the NMFS has not been able to establish that the species is present in waters around Puerto Rico (80 FR 71774). The giant manta ray is typically found in offshore in the open ocean and sometimes may be found around nearshore reefs and estuarine waters; none of these conditions are found within SJH or Condado Lagoon. Giant manta ray may transit the area around the ODMDS or vessel disposal routes. Nassau grouper are found in offshore waters among coral and hardbottom. These conditions are not present with the SJH or Condado Lagoon, but the species may be found transiting near the disposal routes in areas where hardbottom is present.

Loggerhead sea turtles are not common and do not nest in Puerto Rico. Over a period of more than 20 years only four strandings of loggerheads have been reported around Puerto Rico. Past aerial surveys around the entire Island of Puerto Rico estimated that loggerheads represented only 0.5% of all sea turtle species observed.

No leatherbacks have been reported within the San Juan Bay and they are not expected within the Harbor because their life history, sheltering, and foraging requirements would not be met. Leatherback sea turtles inhabit pelagic waters where they forage primarily on jellyfish. However, nesting by leatherbacks has been reported on the sandy beach north of the Avenida Ashford (Dos Hermanos) Bridge northwest of Condado Lagoon (Harberer 2005).

Based on historic aerial surveys around Puerto Rico, green sea turtles comprised approximately 30% of the sightings and hawksbill turtles comprise approximately 8%. From 1992 to 2008 there have been several reports of green and hawksbill sea turtles near the project area, all of which stranded due to incidental or targeted capture by fishers or for unknown reasons. From 2013 to 2018, reported sightings within the areas of SJH include six juvenile or sub-adult green turtles and one adult hawksbill turtle. Green sea turtle nesting activity is low in Puerto Rico when compared to other areas of the Caribbean and Atlantic and there has been no reported nesting near La Esperanza Peninsula. However, hawksbill sea turtle nesting has been reported on the sandy beach north of the Avenida Ashford (Dos Hermanos) bridge northwest of Condado Lagoon (Harberer 2005).

The Antillean manatee inhabits the coastal waters of Puerto Rico and has been documented both feeding and traveling in the SJH and Condado Lagoon. Seagrass beds in the Lagoon provide suitable foraging habitat for the species. Furthermore, the location of the Lagoon provides suitable shelter for the species. In addition to being protected under the Marine Mammal Protection Act (MMPA) (Public Law 92-522), this species is protected by Puerto Rico Law Number 241 of August 15, 1999 (Wildlife Law of the Commonwealth of Puerto Rico) and Puerto Rico Regulation Number 6766 of February 11th, 2004, which regulates the management of threatened and endangered species in Puerto Rico. USFWS has not designated critical habitat for this species in the project area.

All seven species of ESA-listed corals have been found on the fringing reefs along the north coast of San Juan. However, in relation to the study area, the closest known location of coral(s), to include listed species, are located near Cut-2 (Figure 1-2) at the entrance of SJH and offshore of the north entrance to Condado Lagoon. No corals have been recorded by the USACE or NMFS habitat conservation division staff during towed video surveys within the dredging areas of the SJHNI Project (2018). Furthermore, 2021 benthic surveys results confirm no listed corals exist within the area of potential effect (Figure 3-4).

Of the seven listed coral species, only elkhorn and staghorn have designated critical habitat pertaining to the study area. Designated critical habitat for elkhorn and staghorn corals is located near Cut-2, approximately 2,500 ft north of the dredging area and adjacent to the ODMDS disposal routes. Furthermore, under 50 CFR Part 223 a 4(d) rule (16 U.S.C. §1533(d)) establishing "take" prohibitions for elkhorn and staghorn corals went into effect on November 28, 2008 for these areas.

3.8.1 NO ACTION ALTERNATIVE

Overall, the effects to protected species would be as described in the 2015 EA and the 2018 IFR/EA. The habitat improvements within Condado Lagoon would be less than previously assessed due to the lack of suitable material from the SJHNI Project construction and the entire 18-ac of habitat would likely not be restored within Condado Lagoon as envisioned. Protected species would receive some benefit from habitat improvements as described in the 2018 IFR/EA, but not the full extent of habitat restoration.

3.8.2 PREFERRED ALTERNATIVE

The Preferred Alternative would have less than or similar effects to T&E listed species as determined under the 2018 IFR/EA. The 2018 IFR/EA concluded that the SJHNI Project would not result in significant adverse impacts to ESA listed species in the study area. The NMFS concurred with the USACE determination that the proposed project, "may affect, but is not likely to adversely affect" scalloped hammerhead shark, Nassau grouper, giant manta ray, leatherback sea turtles, Antillean manatee, sperm, sei, blue, or fin whales, elkhorn, staghorn, pillar, rough cactus, lobed star, mountainous star or boulder star corals, and would not adversely modify designated critical habitat for Acroporid corals. During project construction, dredging operations "may affect" green and hawksbill sea turtles if a hopper dredge is used for construction. Project plans have been refined to minimize potential effects to the extent feasible. Furthermore, applicable agency coordination and consultation determinations would be completed prior to implementation of Preferred Alternative. Construction avoidance and minimization measures established in 2018 would be carried forward and applied the Preferred Alternative. If additional measures are needed, a mutual agreement between the agency and USACE would be established.

Direct, physical injury effects to T&E listed species (except possible hopper dredging effects to swimming green and hawksbill sea turtles) are not expected from construction machinery or materials because these species are able to detect and move away from dredge and disposal

vessels. Furthermore, corals are outside of influence of the Preferred Alternative. Thus, direct physical effects are considered extremely unlikely to occur and are therefore discountable.

Restoration of the Condado Lagoon seabed contours is expected to result in habitat improvements; thereby, creating conditions in which protected species would benefit. Specifically, restoring the sea floor elevations could create up to 18-ac of seagrass habitat. Thus, improving water quality, providing forage opportunities, and improving marine life diversity. Furthermore, it would improve conditions within the Lagoon by restoring natural currents, tidal flows, and circulation.

3.9 MARINE MAMMALS

The MMPA, as amended, provides federal protection to all marine mammals. In addition to the whale species previously discussed, the bottlenose dolphin has been described as the most frequently sighted cetacean, especially for inshore waters of Puerto Rico, but population size is unknown. Some cetacean species occur in the study area year-round (e.g., bottlenose dolphin, beaked whales), while others (e.g., humpback whale) occur seasonally as they migrate through deeper waters offshore.

A study conducted on the effects of dredging noise on bottlenose dolphins concluded that frequencies generated from dredging activities were not unlike those generated from shipping, tourist, and recreational boat traffic (NAVFAC 2008). Bottlenose dolphins are most sensitive to frequencies from 4 to 20 kHz and although source frequencies generated from a dredging vessel can fall in this range, noise effects are unlikely to acoustically mask bottlenose dolphin sound, particularly when generated within 100 meters of a dredging vessel (2018 IFR/EA). In addition, dolphins are highly mobile and are likely to only be in the vicinity of dredging operations for a short period of time. Although bottlenose dolphins are common in the study area, the USACE has never documented a direct effect on bottlenose dolphins from dredging activities during its numerous dredging projects throughout the United States. In the 2005, notice in the Federal Register (70 FR 21174) for the issuance of an Incidental Harassment Authorization for blasting at the Port of Miami, NMFS concluded, “(a)ccording to the Corps, bottlenose dolphins and other marine mammals have not been documented as being directly affected by dredging activities and, therefore, the USACE does not anticipate any incidental harassment of bottlenose dolphins. NMFS concurs.”

3.9.1 NO ACTION ALTERNATIVE

No action would be taken and no significant adverse impacts to marine mammals would occur. Fill activities to restore Condado Lagoon would not be taken; therefore, marine mammals would not benefit from expected habitat improvements as described under the Preferred Alternative.

3.9.2 PREFERRED ALTERNATIVE

The Preferred Alternative is not expected to result in significant adverse impacts to marine mammals. Noise and vessel associated disturbance resulting from dredging operations would be similar to those analyzed in the 2018 IFR/EA, which determined no significant impact to marine

mammals. In general, marine mammals have the ability to move away from the immediate noise source, noise generated by bucket, cutterhead, and hopper dredge activities. Thus, the dredging operations associated to the Preferred Alternative are not expected to affect the migration, nursing/breeding, feeding/sheltering or communication of marine mammals.

Marine mammals are expected to benefit from habitat improvements (as described in Section 3.7.2) in Condado Lagoon. The increase in seagrass habitat is expected to provide additional forage for the Antillean manatee, which was observed during the 2021 benthic survey. Additionally, increases in fish populations and diversity from seagrass improvements is also expected, which would provide forage for dolphins.

3.10 CULTURAL AND HISTORIC RESOURCES

A background investigation and cultural resources remote sensing survey of the SJH Channel Area of Potential Effect (APE) was conducted for the 2018 proposed project in consultation with the Puerto Rico State Historic Preservation Officer (SHPO) and the Instituto de Cultura Puertorriqueña (ICP). Background research revealed numerous shipwrecks within the project vicinity, though no previously identified cultural resources were located within the APE. SEARCH, Inc. (SEARCH) conducted a remote sensing survey of the SJH between June 1 and June 6, 2017. Based on the results of this survey, the USACE determined no historic properties were located within proposed areas of the SJHNI Project. At that time, USACE determined that the SJHNI Project, including placement of material in Condado Lagoon, posed no effect to historic properties listed or eligible for listing in the National Register of Historic Places (NRHP). The Puerto Rico SHPO concurred with the determination.

In 2021, the expanded areas surrounding Cut-6 was investigated for cultural and historic resources. The USACE contracted with SEARCH to conduct a remote sensing survey of Cut-6 and the surrounding area. This survey was conducted in March 2021. SEARCH documented a collection of magenetic anaomalies, designated M67, consistent with a historic shipwreck as part of this survey. In coordination with other disciplines, this area was omitted from the proposed dredge area, allowing the USACE to determine the proposed Project would pose no adverse effects to historic properties. The USACE provided a copy of the draft SEARCH report and consulted on this finding with SHPO by letter on July 22, 2021; the ICP was also provided with a copy of the report and the USACE finding. On August 30, 2021, USACE received concurrence from the SHPO regarding findings and a no adverse effects to historic properties determination (Appendix D).

3.10.1 NO ACTION ALTERNATIVE

Effects would be as described in the 2015 EA and 2018 IFR/EA.

3.10.2 PREFERRED ALTERNATIVE

Based on the results of 2018 and 2021 cultural resources assessment surveys, the Preferred Alternative poses no effect to cultural resources or historic properties.

3.11 SUMMARY AND COMPARISON OF THE POTENTIAL ENVIRONMENTAL CONSEQUENCES

Table 3-2 summarizes the anticipated environmental effects of the Preferred Alternative versus the No Action Alternative, encompassing direct, indirect, and cumulative effects.

TABLE 3-2: SUMMARY AND COMPARISON OF THE POTENTIAL ENVIRONMENTAL CONSEQUENCES ASSOCIATED ALTERNATIVES CONSIDERED

Environmental Factor/Resource	No Action Alternative	Preferred Alternative – Beneficial use of Dredge Material from Surrounding Areas of Cut-6
Navigation	No effect.	Short-term benefits from depth/width increases near Cut-6. Avoidance measures in place during dredged material transport. No adverse effects.
Relative Sea Level Change	No effect.	Project modifications would not affect local sea levels or contribute to local flooding within the Harbor or the Lagoon.
Geotechnical	No effect and no beneficial effects.	Project modifications would have no adverse effects on the local geology or geomorphologies. Condado Lagoon seabed would improve from fill activities.
Water Quality	No effect and limited beneficial effects.	Project modifications would cause temporary increases in turbidity; Operations would not exceed 10 NTU above background levels or be temporarily shut down. No long-term effects are anticipated in the Harbor; however, long-term water quality benefits are expected in the Lagoon.
Seagrass	No effect and limited beneficial effects.	No significant adverse impacts. Existing seagrass habitat would be avoided or protected to the extent practical. Long-term benefit in Condado Lagoon.
Essential Fish Habitat	No effect and limited beneficial effects.	Temporary effects from construction related turbidity. Temporary loss of 7-ac of low-quality hardbottom habitat. Recolonization expected post dredge. Long-term benefit in Condado Lagoon.
Protected Species (Threatened and Endangered Species)	No effect and limited beneficial effects.	Effects would less than or similar to effects determined in 2018; no significant adverse impacts to protected species. Agency determinations related to coordination conducted 2018 would be applicable; to include all recommendations, protection measures, and guidance therein. Long-term benefits from seagrass habitat improvements.

Marine Mammals	No effect and limited beneficial effects.	Dredging and disposal may affect marine mammals. Protective measures as set in 2018 would be implemented. Affects would be temporary and isolated to the dredging and placement activities. Long-term benefits from seagrass habitat improvements.
Cultural Resources	No effect.	No effect on historic properties.

3.12 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

3.12.1 IRREVERSIBLE

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. No irreversible adverse impacts are expected because of the proposed action.

3.12.2 IRRETRIEVABLE

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. Material mobilized from the area west of Cut-6 and areas of the Anegado Channel, would not be available for other purposes within SJH, i.e., shorelines, beaches, habitat creation, etc.

3.13 CONFLICTS AND CONTROVERSY

There are no known conflicts or controversy associated with the proposed action project. Puerto Rico's concurrence that the project is consistent with the Puerto Rico Coastal Management Plan under the Coastal Zone Management Act will be obtained from the Puerto Rico Planning Board.

3.14 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

Table 3-3 provides a list and compliance status of Federal laws and executive orders considered for this SEA.

TABLE 3-3: COMPLIANCE WITH ENVIRONMENTAL STATUTES

Environmental Act or E.O.	Project Compliance Status
Anadromous Fish Conservation Act, 16 U.S.C. 757a	The proposed action would not adversely affect anadromous fish species. The project will be coordinated with the NMFS. The project complies with this Act.
Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.	SJH is not designated as a nonattainment or maintenance area for any criteria pollutant and therefore USEPA's General Conformity Rule to implement Section 176(c) of the CAA [42 U.S.C. §7506(c)] does not apply. No air quality permits, nor a conformity determination are required for this project.
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	A CWA Section 404(b)1 evaluation is included as Appendix A. The EQB issued a WQC on January 14, 2015 for the discharge of dredged material into the Condado Lagoon artificial depressions. A new WQC will be sought from the EQB for the new dredging area after completion of this SEA. Per the process of obtaining a WQC in Puerto Rico, the FONSI with accompanying NEPA documents will be submitted to the OGPe after signature/approval for another round of public and agency coordination. Once the OGPe approves the project by letter, that letter and the CZMA consistency concurrence is submitted to the EQB who will then issue the WQC. All Puerto Rico water quality standards would be met.
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	To implement the CZMA and to establish procedures for compliance with its Federal consistency provisions, NOAA promulgated regulations which are contained in 15 C.F.R. Part 930. As per 15 CFR §930.37, a Federal agency may use its NEPA documents as a vehicle for its consistency determination. The Federal consistency determination is located in Appendix B and will be submitted to the Puerto Rico Planning Board for their concurrence. In addition, the Puerto Rico Planning Board concurred with USACE's Federal consistency determination for the 2015 Mitigation EA by letter dated August 22, 2014 and for the 2018 IFR/EA by letter dated January 4, 2018.
Coastal Barrier Resources Act and Coastal Barrier Improvement Act, 16 U.S.C. 3501 et seq.	There are no designated coastal barrier resource units in the project area that would be affected by the proposed action. These acts are not applicable.
Endangered Species Act, 16 U.S.C. 1531, et seq.	The proposed action would have less than or similar effects to ESA listed species as determined under the 2018 IFR/EA which concluded the SJHNI Project would not result in significant adverse impacts to ESA listed species in the study area. The NMFS, in their 2018 BO, concurred with the USACE determination that the proposed project, "may affect, but is not likely to adversely affect" scalloped hammerhead shark, Nassau grouper, giant manta ray, leatherback sea turtles, Antillean manatee, sperm, sei, blue, or fin whales, elkhorn, staghorn, pillar, rough cactus, lobed star, mountainous star or boulder star corals, and would not adversely modify designated critical habitat for Acroporid corals. The USFWS concurred with the USACE may affect, not likely to adversely affect determination for the Antillean manatee via informal consultation letter dated June 21, 2018. Additionally, in July 2021 USACE contacted the USFWS and NMFS regarding the proposed project modifications concerning this SEA. Based on agency discussions and the mutual understanding that the proposed action would not result in any major modifications, the agencies tentatively indicated that coordination and determinations from 2018 would likely be applicable to the currently proposed project. Consultation with NMFS and USFWS will be completed prior to finalization of this SEA.

Environmental Act or E.O.	Project Compliance Status
Estuary Protection Act, 16 U.S.C. 1221, et seq.	The proposed action may have adverse effects to water quality during dredging and placement. These effects are expected to be temporary and minor and will not result in long-lasting negative effects on the San Juan Bay Estuary. Restoration of seagrass beds in the Condado Lagoon is one of the goals of the SJBEP's Comprehensive Conservation and Management Plan, Action Plan HW-2, completed in August 2000. The project complies with this Act.
Federal Water Project Recreation Act, 16 USC 460l et seq.	The proposed action could benefit recreational opportunities through habitat restoration in Condado Lagoon. The project complies with this Act.
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	The USFWS issued a Final Coordination Act Report (CAR) on June 21, 2018 for the 2018 IFR/EA. The USFWS continues to support Condado Lagoon restoration using construction dredged material. USFWS coordination will be initiated concurrently with the NOA.
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	The term "dumping" as defined in the Act does not apply to this project. Geotechnical sampling shows the proposed dredged material is suitable for beneficial use.
Marine Mammals Protection Act, 16 U.S.C. §§ 1361 et seq.	The MMPA prohibits the take of marine mammals including the Antillean manatee, bottlenose dolphin, and humpback, sperm, sei, finback, and blue whales. Protective measures for marine mammals would be implemented. The project is being coordinated with USFWS and NMFS. The project, as conditioned, is in compliance with this act and no incidental harassment would occur.
Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801 et seq.	An EFH Assessment is incorporated into this integrated document in Section 3 and will be coordinated with NMFS HCD concurrent with the public review of the Draft SEA. In July 2021 USACE contacted the NMFS HCD regarding the proposed project modifications. Based on discussions and the mutual understanding that the proposed action would not result in any major modifications, the agency tentatively indicated that coordination and determinations from 2018 would likely be applicable to the currently proposed project. EFH consultation with NMFS HCD will be completed prior to finalization of this SEA.
Migratory Bird Treaty Act 16 U.S.C. §§ 703-712, July 3, 1918, as amended	The USACE does not anticipate migratory birds would be adversely (directly or indirectly) affected by the proposed action. Coordination with the USFWS will be completed prior to finalization of this SEA.
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	This Draft SEA will be made available for a 30-day public review period from November to December 2021. All comments received will be addressed in the development of the Final SEA and will be included in Appendix D (Correspondence). Upon completion of the Final SEA and signing of the FONSI, the project will be in full compliance with the NEPA.
National Historic Preservation Act of 1966, as amended, 54 U.S.C. 300101, et seq.	The proposed action is in compliance with Section 106 of the National Historic Preservation Act (NHPA), as amended. As part of the Corps' compliance with the requirements and consultation process contained within the NHPA implementing regulations of 36 CFR Part 800, the Corps has ensured that the proposed project is also in compliance with the Archaeological Resources Protection Act (16 U.S.C. 470aa-470mm) (Public Law 96-95), American Indian Religious Freedom Act (42 U.S.C. 1996 and 1996a) (PL 95-341), Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001 et. seq.) (Public Law 101-601) and its implementing regulations, Executive Orders (EO) 11593, 13007, and 13175, the Presidential Memo of 1994 on Government-to-Government Relations and appropriate Puerto Rico Statutes, and the Abandoned Shipwrecks Act (43 U.S.C. 2101-2106). Consultation with the

Environmental Act or E.O.	Project Compliance Status
	Puerto Rico State Historic Preservation Office (SHPO) and appropriate federally recognized tribes is complete. Pertinent correspondence can be found in Appendix D. The project complies with this Act.
Rivers & Harbors Act, 33 U.S.C. § 403	The proposed action could temporarily obstruct navigable waters of the U.S. during construction. The proposed action will be subjected to the public notice and other evaluations normally conducted for activities subject to the Act. The project complies with this Act.
Submerged Lands Act, 43 U.S.C. § 1301 et seq.	The proposed action would occur on submerged lands of Puerto Rico. Dredging and placement into Condado Lagoon depressions will be in compliance with the WQC, once issued, and Puerto Rico water quality standards. The project complies with this Act.
Wild and Scenic River Act, 16 U.S.C. 1271, et seq.	No designated Wild and Scenic river reaches would be affected by the proposed action; therefore, the Act is not applicable.
Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq.	No prime or unique farmland will be affected by implementation of the proposed action. This Act is not applicable.
Coral Reef Protection (Executive Order 13089)	Benthic surveys complete; no coral reefs adversely affected by the proposed action.
Environmental Justice (Executive Order 12898)	Refer to Table 1-1; previously covered by the 2018 IFR/EA.
Floodplain Management (Executive Order 11988)	Based on the analysis in the draft SEA, the Corps concludes that the proposed project will not result in harm to people, property, and floodplain values, will not induce development in the floodplain, and the project is in the public interest. The project complies with the Order.
Invasive Species (Executive Order 13112)	Benthic surveys complete; existing invasive aquatic species identified; standard avoidance measures would be implemented.
Protection of Wetlands (Executive Order 11990)	No wetlands would be affected by the proposed action.

.

4 PUBLIC INVOLVEMENT

4.1 SCOPING AND DRAFT EA

The draft SEA and Proposed Finding of No Significant Impact (FONSI) will be made available to the public by notice of availability in November 2021.

4.2 AGENCY COORDINATION

This proposed project will be coordinated with the following agencies, among others: USFWS, NMFS, U.S. Environmental Protection Agency (EPA), State Historic Preservation Officer (SHPO), Department of Natural and Environmental Resources, Puerto Rico Environmental Quality Board and OGPe.

4.3 LIST OF RECIPIENTS

Copies of the Draft SEA will be available on the Jacksonville District website:

http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices_OnLine_DadeCo.htm

The Notice of Availability (NOA) of this Draft SEA and Proposed FONSI will be mailed to applicable public and governmental organizations as well as made available to Puerto Rico within the surrounding areas of SJH. A mailing list will be created based the 2018 IFR/EA (Appendix J) mailing list.

5 LIST OF PREPARERS

Name	Organization	Role in EA
Paul DeMarco	Corps	Biologist
Chris Name	Corps	Biologist
Alberto Alvarado	Corps	Biologist, Water Quality
Chris Altes	Corps	Archeologist
Barbara Nist	Corps	Geologist

REFERENCES

Department of the Navy. 2008. Marine Resources Assessment Update for the San Juan/Jacksonville Operating Area. Naval Facilities Engineering Command, Atlantic; Norfolk, Virginia. Contract Number N62470-02-D-9997, Task Order Number 0056. Prepared by Geo-Marine, Inc., Hampton, Virginia.

DNER. 2019. Department of Natural and Environmental Resources. Puerto Rico Water Quality Standards Regulation. Accessed online at https://www.drna.pr.gov/

Haberer, Yvonne L. 2005. A Capstone Review Paper: An Environmental Review of the Condado Lagoon Ecosystem Restoration Project. Nova Southeastern University Oceanographic Center. Ellis, S. R. (1976). History of Dredging and Filling of Lagoons in the San Juan Area, Puerto Rico. U.S. Geological Survey Water-Resources Investigations 38-76. 25pp.

San Juan Bay Estuary Program (SJBEP). 2000. Comprehensive Conservation and Management Plan. San Juan Bay Estuary Program, San Juan, Puerto Rico, August 2000.

USACE. 2015. Submerged Aquatic Vegetation Mitigation Environmental Assessment. Accessed online at: https://www.saj.usace.army.mil/ About/Divisions-Offices/Planning /Environmental-Branch/Environmental-Documents/

USACE. 2017. South Atlantic Regional Biological Assessment, Joint Consultation. U.S. Army Corps of Engineers, South Atlantic Division and Bureau of Ocean Energy Management.

USACE. 2018. San Juan Harbor Navigation Improvements Study Integrated Feasibility Report/Environmental Assessment. Accessed online at: https://www.saj.usace.army.mil/ About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/

USACE 2021. Draft Benthic Survey Report. LG2 Environmental Solutions, Inc. and CSA Ocean Sciences Inc. Prepared for U.S. Army Corps of Engineers, Jacksonville District. October 2021.

Vicente, V.P. 1990. Ecological Effects of Sea Level Rise and Sea Surface Temperatures on Mangroves, Coral Reefs, Seagrass Beds and Sandy Beaches of Puerto Rico: A Preliminary Evaluation. Science-Ciencia, 16(2): 27-39.

Winters G, Beer S, Willette DA, Viana IG, Chiquillo KL, Beca-Carretero P, Villamayor B, Azcárate- García T, Shem-Tov R, Mwabvu B, Migliore L, Rotini A, Oscar MA, Belmaker J, Gamliel I, Alexandre A, Engelen AH, Procaccini G and Rilov G. 2020. The Tropical Seagrass *Halophila Stipulacea*: Reviewing What We Know From Its Native and Invasive Habitats, Alongside Identifying Knowledge Gaps. Frontiers Marine Science 7:300. doi: 10.3389/fmars.2020.00300.

APPENDIX A – CLEAN WATER ACT 404(b)1

APPENDIX B – COASTAL ZONE MANAGEMENT CONSISTENCY DETERMINATION

APPENDIX C – 2021 BENTHIC SURVEY

APPENDIX D - PERTINENT CORRESPONDENCE