DRAFT
ENVIRONMENTAL ASSESSMENT
FOR
LOWER PENSACOLA HARBOR FEDERAL NAVIGATION CHANNEL
ESCAMBIA COUNTY, FLORIDA

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DRAFT ENVIRONMENTAL ASSESSMENT

LOWER PENSACOLA HARBOR FEDERAL NAVGIGATION CHANNEL
ESCAMBIA COUNTY, FLORIDA

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DRAFT ENVIRONMENTAL ASSESSMENT

LOWER PENSACOLA HARBOR FEDERAL NAVGIGATION CHANNEL ESCAMBIA COUNTY, FLORIDA

1.0 INTRODUCTION

The U.S. Army Corps of Engineers is responsible for maintaining the Pensacola Harbor Federal navigation channel. The lower 35- by 500-foot (ft) entrance channel reach of the federally authorized project is not included in the current Pensacola Harbor permits, environmental compliance consultations, and NEPA documentation. This segment of the Federal channel corresponds to and falls within the NAS Pensacola navigation channel, however, it is not known whether the Navy will always have the necessary funds to adequately maintain this segment of channel. In the event that shoaling occurs to a point that encroaches on the Federal channel, the Corps must have the means to adequately maintain this part of the Federal channel.

This reach of navigation channel contains material suitable for beach and nearshore placement, therefore, it is recommended that the sediment removed from this channel segment be beneficially bypassed to the adjacent downdrift beach and nearshore areas consistent with established regional sediment management practices. The proposed disposal areas are the Perdido Key beach and nearshore disposal sites previously established under the Navy project.

1.1 EXISTING PROJECT DESCRIPTION

The existing authorized project as illustrated in Figure 1 provides for (1) a 35- by 500-feet entrance channel about 5 miles long, from the Gulf of Mexico to lower Pensacola Bay; (2) a 33- by 300-foot bay channel; (3) two 33- by 300-foot parallel approach channels to opposite ends of the inner-harbor channel; (4) an inner-harbor channel 500 feet wide, 33 feet deep, and 3,950 feet long; (5) a 30- by 250-foot approach channel to the pierhead line south of the Muscogee wharf; and (6) a 15- by 100-foot entrance channel into Bayou Chico, thence a channel 14 feet deep, 75 feet wide, and about 4,400 feet long to a turning basin 14 feet deep and 500 feet square. Plane of reference is mean low water.

1.2 PROJECT LOCATION

The Port of Pensacola is located in Pensacola, Florida and is positioned on the north side of Pensacola Bay extending southward into the Gulf of Mexico in the extreme western part of the state as illustrated by Figure 1. The port and associated navigation channels are approximately 87 nautical miles east of Mobile, Alabama, and 100 nautical miles west of Panama City, Florida. Pensacola Bay is approximately 13 miles long and 3 miles wide, with naturally occurring depths ranging from -20 to -50 feet mean lower low water (MLLW). The bay is separated from the Gulf of Mexico (Gulf) by Santa Rosa

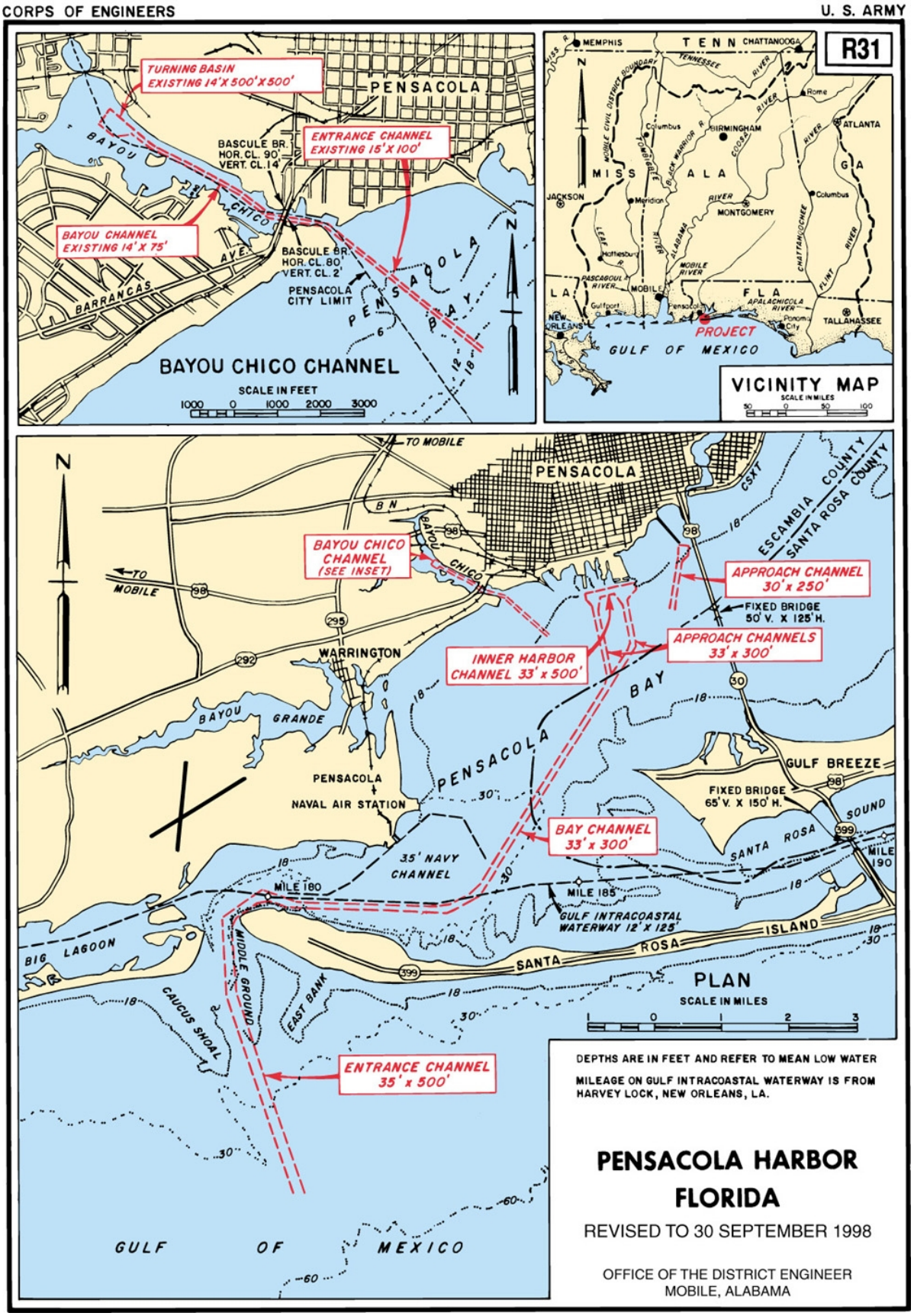


Figure 1. Location and dimensions of the Pensacola Harbor Federal Navigation Channel

Island. The channel serving the Pensacola Harbor includes the lower entrance channel which extends from the Gulf, passing to the western end of Santa Rosa Island and the eastern end of the Perdido Key, and enters the Pensacola Bay. Once in the Bay, the channel proceeds in a northeasterly direction, intersecting the Gulf Intracoastal Waterway, then heads in an easterly direction, somewhat parallel to the northern Santa Rosa Island shoreline. It is this lower 35- by 500-foot (ft) entrance channel reach of the federally authorized project that is not included in the current Pensacola Harbor permits that is being addressed in this EA and also illustrated in Figure 2. It is this segment of the channel. Roughly 4.5 miles after heading to the east, the channel again proceeds in a northeasterly direction to the Port. Just south of the harbor, the channel splits into two parallel approach channels, connecting opposite ends of the harbor. The Port of Pensacola is the non-Federal sponsor for the Federal project at the Pensacola Harbor.

1.3 AUTHORITY

The existing project was authorized by RIVERS & ARBORS Act of 23 October 1962. (H. Doc. 528, 87th Cong., 2d sess.) and previous projects. Modification of the Bayou Chico project as authorized by the 1945 River and Harbor Act (H. Doc. 743, 79 Cong., 2nd sess.) to provide for enlarging the entrance channel, to 21- by 100 feet, the bayou channel to 20- by 100 feet and deepening the turning basin to 20 feet has been de-authorized. The project was completed in 1965. The Local Sponsor is the City of Pensacola, Florida.

1.4 PURPOSE AND NEED

The purpose of the proposed dredging and disposal is to provide length, width, and depth dimensions for the Federal authorized lower entrance segment for the Pensacola Harbor navigation channel. Proposed dredging and disposal activities are necessary to maintain the project dimensions in order to provide a safe, navigable channel. Although the channel corresponds with the NAS Pensacola channel it is not known whether the Navy will always have the necessary funds to adequately maintain the channel. In the event that shoaling occurs to a point that encroaches on the Federal channel, the Corps must have the means to adequately maintain this part of the Federal channel.

1.5 SCOPE

This Environmental Assessment (EA) was prepared in accordance with Engineer Regulation (ER) 200-2-2, *Procedures for Implementing the National Environmental Policy Act (NEPA)* and the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations (CFR) Pts. 1500-1508). The objective of the EA is to determine the magnitude of the environmental impacts of the proposed storm protection and restoration actions. If such impacts are relatively minor, a Finding of No Significant Impact (FONSI) would be issued and the Mobile District, U.S. Army Corps of Engineers may proceed with the action. If the environmental impacts are significant according to

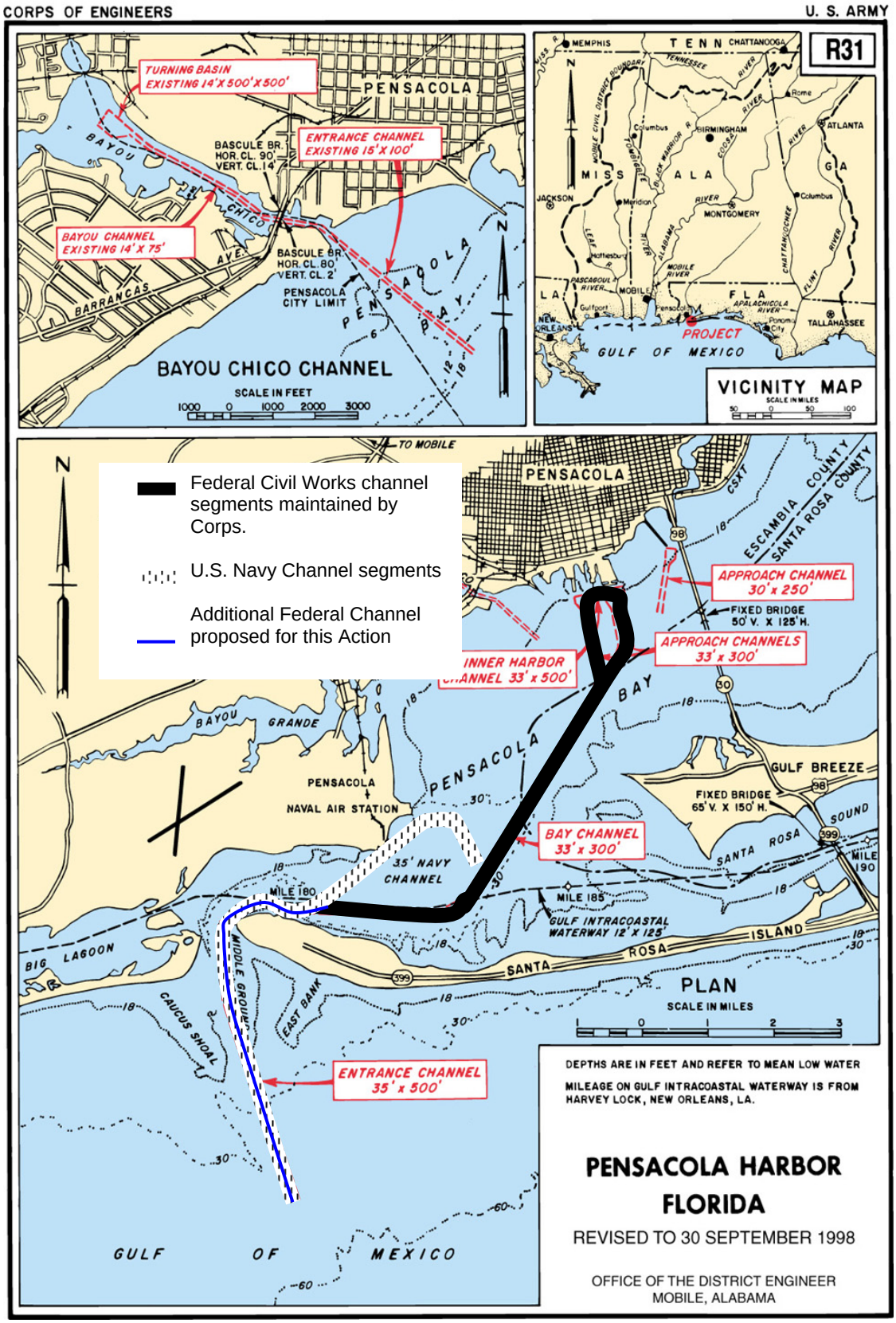


Figure 2. Additional reach of Federal Civil Works Channel proposed fro the action (shown in blue)

CEQ's criteria (40 CFR Pt. 1508.27), an Environmental Impact Statement (EIS) would be prepared before a decision is reached to implement the proposed action.

Applicable laws under which these impacts will be evaluated include the National Environmental Policy Act (NEPA), Endangered Species Act, the Clean Water Act, the Clean Air Act, the U.S. Fish and Wildlife Coordination Act, National Historic Preservation Act, Coastal Barrier Resources Act, Magnuson – Stevens Fishery Conservation and Management Act, and Coastal Zone Management Act.

1.6 ENVIRONMENTAL ASSUMPTIONS

The general environmental criteria for projects of this nature are identified in Federal environmental statutes, executive orders, planning guidelines, and the Environmental Operating Principles (EOP). It is the national policy that fish and wildlife resource conservation be given equal consideration with other study purposes in the formulation and evaluation of alternative plans. The basic guidance during planning studies is to assure that care is taken to preserve and protect significant ecological and cultural values, and to conserve natural resources. These efforts also should provide the means to maintain and restore, as applicable, the desirable qualities of the human and natural environment. Formulation of alternative plans should avoid damaging the environment to the extent practicable and contain measures to minimize or mitigate unavoidable environmental damages. Consistent with laws and policy, alternative plans formulated should avoid damaging the environment to the extent practicable and contain measures to minimize or mitigate unavoidable environmental impacts.

EOPs have been established for evaluation of water resource projects. Throughout the study process to ensure conservation, environmental preservation, and restoration is considered at the same level as economic issues. These principles are: 1) Strive to achieve environmental sustainability, 2) Consider environmental consequences, 3) Seek balance and synergy, 4) Accept responsibility, 5) Mitigate impacts, 6) Understand the environment, and 7) Respect other views. The following criteria were used to address environmental impacts during the evaluation of alternatives.

- Protection, preservation, and improvement of the existing fish and wildlife resources along with the protection and preservation of coastal and offshore habitat and water quality;

- Consideration in the project design of the least disruptive construction techniques and methods;

- Protection and preservation of endangered and/or threatened species, Critical Habitat, and EFH; and

- Preservation of significant historical and archeological resources through avoidance, if possible, or data recovery if destruction of the resources is necessary.

1.7 APPLICABLE EVIRONMENTAL LAWS AND REGULATIONS

Of primary concern is compliance with the Clean Water Act. Potential water quality impacts associated with the borrowing and placement of fill material associated with beach nourishment operations must be considered. Such activities will include evaluation of sediment from the identified channel dredging areas for placement within the littoral zone of the proposed placement areas. Sediment characteristics of concern are sediment grain size and color. Dredged material must match, as closely as possible, to the sediment characteristics at the placement sites. This information will be utilized in the preparation of the Section 404(b)(1) evaluation and also in developing the management requirements to minimize impacts to threatened and/or endangered species under Section 7 of the Endangered Species Act.

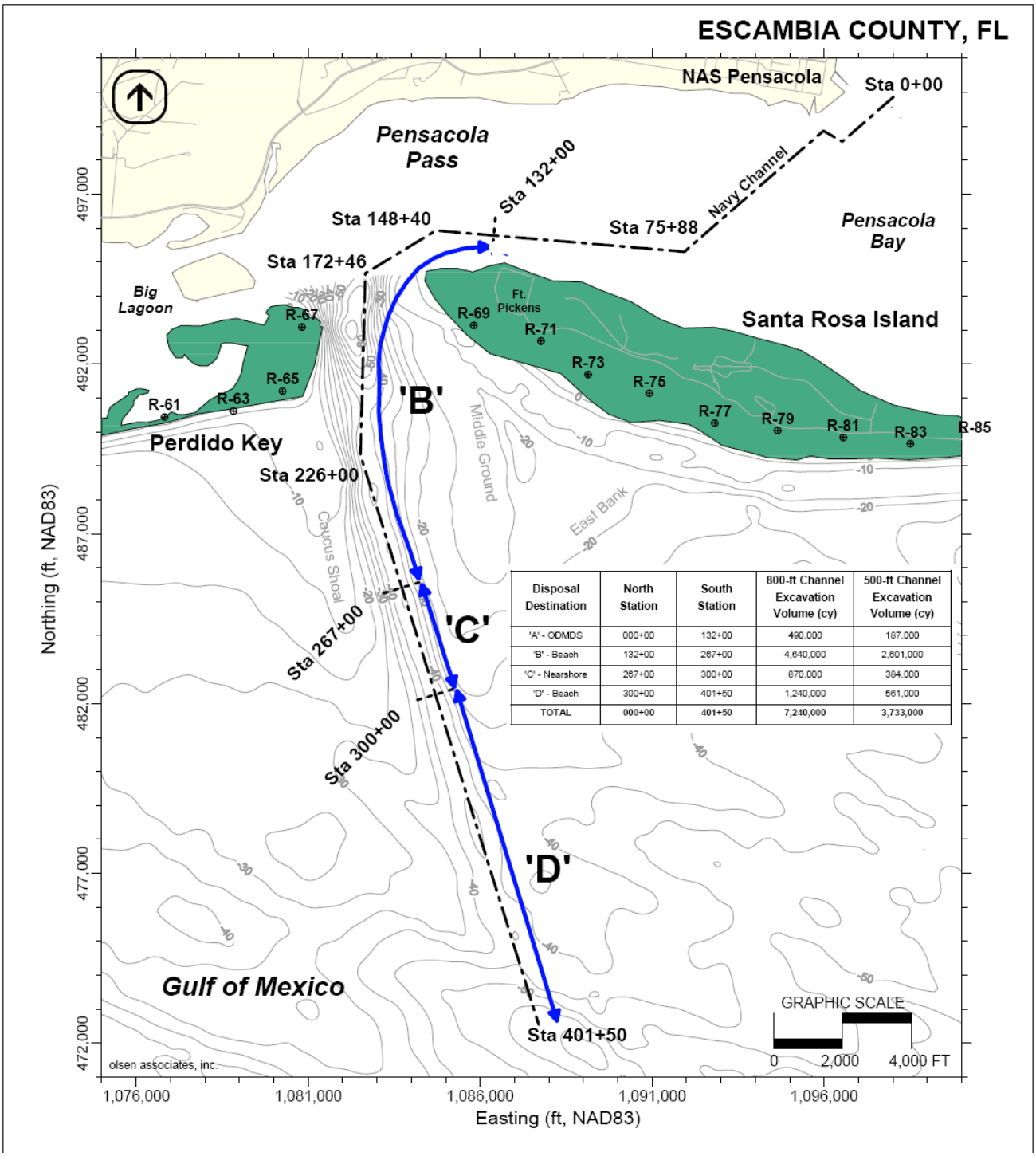
Additional issues to be addressed will include the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) identified habitats within the marine and estuarine areas of the US that were essential to the management of certain specific fin and shellfish. Areas identified by the Gulf of Mexico Fishery Management Council as essential fish habitat (EFH) include all the marine and estuarine areas of Walton County. Consultation with the National Marine Fisheries Service (NMFS) will focus on activities to minimize impacts to EFH. Coordination with the FWS and NMFS concerning potential impacts to listed species will be required in accordance with the Endangered Species Act (ESA). Efforts will be made to include actions that would benefit the recovery of listed species.

All activities associated with coastal projects must be consistent with the State of Florida's coastal zone management practices and criteria to the maximum extent practicable. These activities will be evaluated to assess coastal zone management compliance. In addition, water quality certification from the State of Florida would be required for all actions to be implemented. The feasibility study of the critically eroded shoreline will be conducted and consistent with State of Florida's beach management plan.

2.0 PROPOSED PROJECT DESCRIPTION

2.1 DREDGING ACTIVITIES

The lower entrance portion of the channel has been divided into three sub-reaches based on sediment quality as illustrated in Figure 3. Sediment will be removed from the different channel sub-reaches and placed in the specified disposal area sections. A description of the division of the channel segments according to sediment quality and describes where the material from each segment should be placed within the proposed disposal area is included below. The Perdido Key beach and nearshore disposal area established under the NAS Pensacola permit will be considered for this action.



Disposal Destination	North Station	South Station	800-ft Channel Excavation Volume (cy)	500-ft Channel Excavation Volume (cy)
'A' - ODMDS	000+00	132+00	490,000	187,000
'B' - Beach	132+00	267+00	4,640,000	2,601,000
'C' - Nearshore	267+00	300+00	870,000	384,000
'D' - Beach	300+00	401+50	1,240,000	561,000
TOTAL	000+00	401+50	7,240,000	3,733,000

Figure 3. Lower Federal Navigation channel segments.

a. Channel Segment 'B'. It is proposed that sand from this segment be placed along the highest priority beach areas within the Perdido Key disposal area. The western tip of Santa Rosa Island has actually encroached into the channel and contains a large volume of sand. Previous sediment testing in this area indicate clean sands with minimal fines content of 1 to 2% and median grain sizes ranging from 0.26 to 0.40 mm with very little shell hash. A color assessment included in the disposal plan indicates good compatibility of this material with the disposal areas.

Another area of high deposition within this segment of channel is south of the throat of the Pass and the Perdido Key shoreline. The material found here are also considered to be of beach quality of light grey to white quartz sands. This material is derived from erosion of the Perdido Key shoreline. Grain size analyses indicate median diameters of 0.30 to 0.50mm. Overall the material from this segment of the channel is expected to be of a high quality, suitable for direct beach placement.

Yet another area of high deposition within Segment B is a 4,100-ft reach south of the turn at around Station 226+00. The sediment investigation conducted by the Corps indicates that this material is expected to yield beach-compatible sand with median grain size diameters of 0.26 to more than 0.40 mm and compatible color gradings. This area represents the northern end of what was historically the ebb shoal bypass bar, prior to the commencement of dredging activities.

b. Channel Segment 'C'. Sediment testing from this portion of the channel indicates increasing occurrences of silty lenses and inclusions, which represents the seaward side of the historic bypass bar and extends offshore to where, historically, the -30 ft depth contour occurred. Median grain size diameters of samples in this segment range from 0.20 to 0.30 mm, and color gradings tend to degrade a bit as compared to the other sandier segments. It is recommended that material excavated from this segment of the channel be placed in the nearshore along the primary bar in the beach profile along Perdido Key. In order to promote the sorting of the finer silts from the coarser fraction of sand and facilitate the onshore transport of the sand fraction, it will be necessary to place the material as close to the primary bar, or just inshore of the bar if possible, shallower than roughly 12 ft MLLW.

c. Channel Segment 'D'. Located the farthest south, the dredged channel along this segment extends beyond the historical bypass bar location and the pre-dredging zone of primary influence of the inlet. Sediments along the channel improve in color, grain-size, and fines content. Sediment testing indicate some lenses of slightly silty sand lying atop three to five feet of light gray sand with median grain diameters of 0.33 to 0.35 mm. Samples in other areas of this segment reveal no silt lens and light gray sediments with median grain diameters of 0.32 to 039 mm.

The disposal plan discusses previous work along this segment conducted by Olsen & Associates (2001) where they previously collected a number of Vibracores and developed a borrow site along the eastern margin of the channel. The color gradings of these Vibracores were produced by a different inspecting geologist under different

conditions and on a more refined color grading scale. As such the gradings produced are higher, in general, than those of the COE dataset. Comparison of seabed elevations suggests that the 2001 data are still applicable for the sand lens above the maximum dredging depth.

2.2 DISPOSAL ACTIVITIES

It should be mentioned that the total depth of this portion of the Federal channel is 39 feet, versus 48 feet for the NAS Pensacola channel, so it is expected that the volume of material dredged for this action will be substantially less than that required for the NAS Pensacola action referenced herein.

The following placement areas on Perdido Key are recommended for this action as shown in Figure 4:

a. Perdido Key GUIS. It is proposed that sand should be placed over a 6.3-mile segment of beach limited to a maximum fill volume density of 85 cy/ft and a single event disposal volume of no more than1.44 million cy. The maximum berm height is proposed at 8 feet with varying berm height and volume density in the alongshore direction to preserve natural overwash processes. Placement of the material will be segmented into 4 sub-disposal placement areas approximately 8,400 feet in length with 4,700 feet at a berm elevation of 8-foot and 3,700 feet at 5-foot elevation. The placement template can be seen in the disposal plan.

b. Perdido Key GUIS Nearshore. Sediment from channel sub-reach C should be placed just seaward of the primary bar system landward of the -12-foot contour. The configuration is presented in the disposal plan. The placement zone and recommended configuration would require approximately 40 - 50 cy/ft. Additional materials may come from segments B or D, particularly if the need arises to dispose of more sand from these segments than can be placed on the beaches using the present beach templates.

The placement plan recognizes that the action proposed sites are to maintain the channel to a 500-foot width. Maintenance material on Perdido Key and the nearshore site will be conducted, as long as there is remaining capacity within the design template.

3.0 AFFECTED ENVIRONMENT

3.1 EXISTING CONDITIONS

This section contains a description of the existing environment of the surrounding areas for the proposed action. The channel is located within Pensacola Pass between Santa Rosa Island and Perdido Key, including the Gulf of Mexico entrance channel extending into Pensacola Bay as illustrated in Figure 2. Material removed from maintenance activities of the channel will be placed within designated nearshore and beach sites within the GUIS on Perdido Key. Information on the environment in the vicinity of the

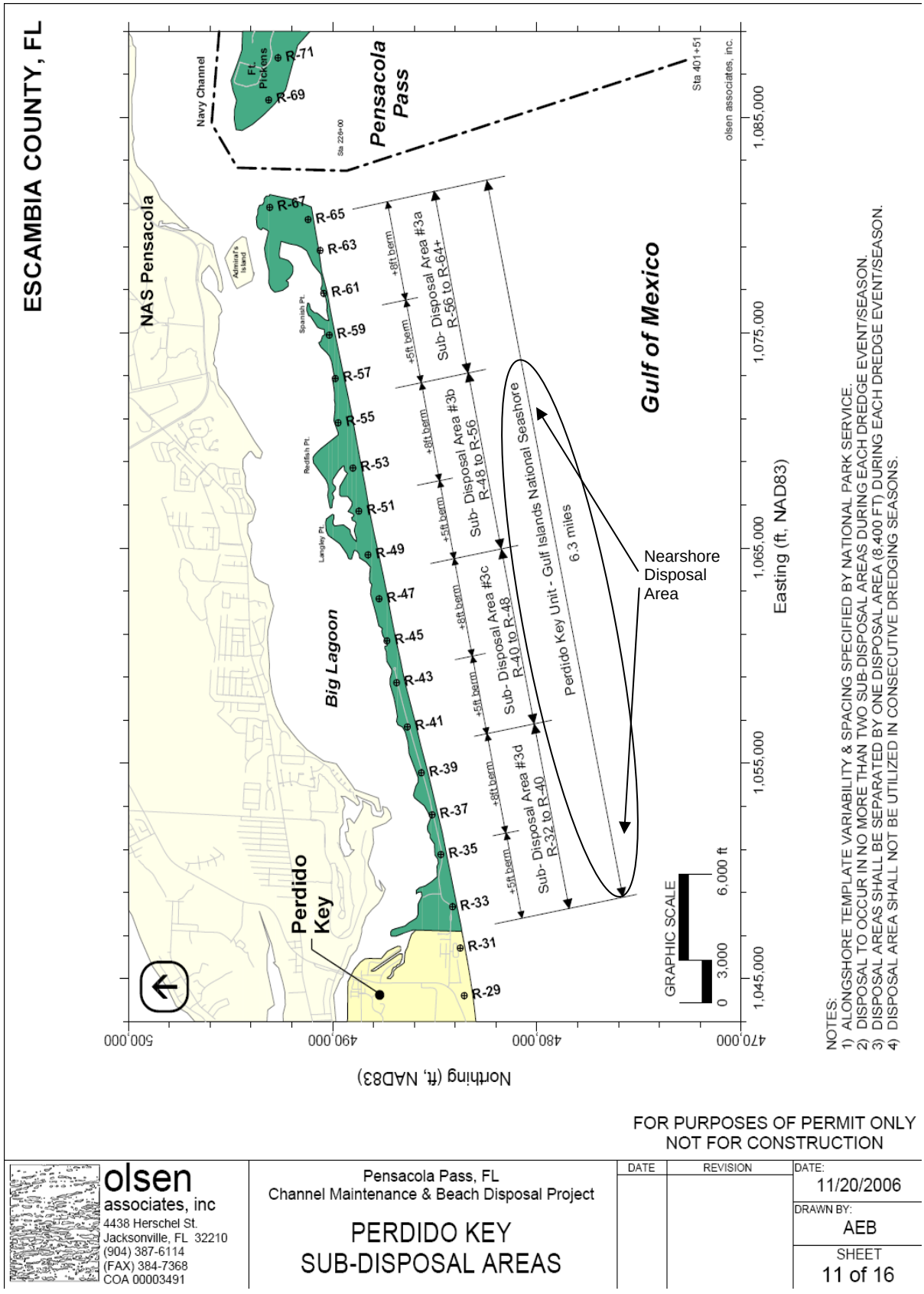


Figure 4. Proposed Perdido Key beach and nearshore disposal areas.

proposed action was developed to serve as a basis for projection of environmental consequences resulting from the proposed action. The information is presented in two major categories representing the primary components of the environment: physical and biological.

3.2 PHYSICAL CONDITIONS

3.2.1 Geology. The Pensacola Bay Area lies within the physiographic regions termed the coastal lowlands and southern Pine Hills districts of the Gulf coastal plain section (Navy, 1986). This district has been sculptured from an alluvial plain underlain by sand, gravel, silt, and clay. The Pensacola Bay system is generally shallow with a total surface area greater than 144 square miles. The Bay is comprised of systems of which Pensacola Bay is the largest followed by East Bay, Escambia Bay, Santa Rosa Sound, Blackwater Bay, and Big Lagoon.

The barrier islands on both sides of the Pass are within the national seashore having a distinct east/west orientation containing a large supply of reworked sand this vulnerable to tropical storm events. These elements combine to make them extremely dynamic, constantly changing environments that provide habitats and ecosystems supporting a variety of populations of plants and animals that can rapidly change under the influence of natural processes. The islands also provided a degree of protection for a variety of rare, threatened, or endangered wildlife and plant species.

The Perdido Key and Santa Rosa Island barrier island systems within the national seashore are composed of approximately 99% of well sorted medium grained quartz sand with a low fraction of fine silt and coarser pebbles and shell hash. Like most other barrier islands along the northern Gulf coast, these barrier island systems are a product of natural functions such as erosion/accretion and overwash. The islands exhibit a net westward migration resulting from the continual longshore transport processes as a function of the approaching wave energy. Extreme storms act to cause a northern migration through overwash processes that transports the sand from the beaches on the Gulf side to the northern island shorelines. These islands also respond and migrate relative to sea level and the energy dynamics through the redistribution of sand within the entire littoral system. Recent studies have shown that the volume of sand on the island remains relatively stable; it is just redistributed within the littoral system by waves, storms, and changes in water levels.

Following hurricane impacts, these same natural functions serve to rebuild the structure of the island. The island is fronted by a low-elevation beach berm that develops following a hurricane and can be over-topped by elevated water levels during strong frontal storms. Overwash during these storms is part of the post-hurricane recovery of the barrier island. The sediment deposited in these overwash fans is important to the recovery of the dunes and the vertical structure of the island. The dune system redevelops from and within the overwash sediments and through sediment delivery under fair-weather conditions. Overwash during both extreme and frontal storms is a strong control on the ecological makeup and diversity of the island and any impedance

to overwash will not only alter the post-hurricane topography but also the ecology (Houser and Oravetz 2006).

3.2.2 Sediments. The entrance to Pensacola Pass and the beaches of Perdido Key and Santa Rosa Island are known for the sugar-white sands. The littoral sands along this area consist of the homogenized quartz sand with grain sizes ranging from 0.30 to 0.43 mm (Gorsline 1966). However, some pockets of finer materials of Pleistocene origin are present. In general the sediments found with the Pensacola Pass entrance and the adjacent beaches along Perdido Key and Santa Rosa Island are consist with that found in northern Gulf of Mexico coastal environments.

3.2.3 Climate. The climate of the Pensacola Bay area is characterized by warm, humid summer and mild winters with abundant precipitation in all seasons. The Florida panhandle's climate pattern demonstrates a monsoonal effect, with continental influence predominating during the cooler winter months and a maritime influence influencing the summer months. Low pressure areas are frequently generated along fronts over the Gulf of Mexico, especially in the winter, resulting in heavy participation in the general region.

During part of the year the area is within or the belt of the sub-tropical Bermuda high, which is the source of the northeast trade winds and the prevailing westerlies. Since these wind belts shift north or south, the season determines wind belt is closest to the area and determines the local climate for that time. The wind belts acts in cooperation with the jet stream and existing climatic conditions to the north and west of the Florida peninsula to produce the area's basic weather pattern. Warm maritime air from the Atlantic Ocean and the Gulf of Mexico moderates the cold of continental air masses from the northwest.

The normal annual precipitation for Pensacola is 61.2 inches (NOAA, 1986) with minimums and maximums observed at 29 and 90 inches. Much of the summer rainfall comes as heavy afternoon thunderstorms. Winter rains are typically lighter but a longer duration

The mean annual temperature is 67.9°F with January averaging the coldest temperature of 59.7°F and July exhibiting the warmest average temperature of 82.3°F. The area typically experiences a total of 54.4 days with temperatures 90°F or greater and 17.6 days with minimum temperatures 32.0°F or less (NOAA 1986). The average annual mean wind velocity for the Pensacola Bay area is 8.3 miles per hour (mph). Prevailing winds are out of the north 22% of the time and from the south 18% of the time. Average hourly wind velocities are generally highest in March and at their lowest in August.

3.2.4 Currents. The circulation in the Pensacola Bay is dependent upon factors such as astronomical tides, wind, river flow, bathymetry, and density variations. The Pensacola Bay is located along a section of coast with a low amount of tidal energy to drive currents within the bay system resulting in a relatively week tidal driven

circulation. Predicted currents within the Bay have a mean ebb velocity of about 3.0 feet per second directed toward the west-southwest diagonally across the main channel. The mean flood velocity is 2.7 feet per second directed east-northeast. Low slack water occurs from 1 to 3 hours after low water with high slack water occurring approximately 3 to 4 hours after high water. Normal currents have been recorded to be between 3.9 and 4.2 feet per second over a two a two hour period during the strongest ebb tides and 2.8 feet per second during the strongest flood tides (Ketchen and Staley 1979).

Water circulation within the adjacent Gulf of Mexico consists of interrelated systems which includes the open and inshore areas. The large scale circulation in the Gulf is influenced by the loop current and associated eddies, wind, waves, and density structures of the water column. The general circulation pattern within the inshore region is more strongly influenced by the astronomical tides, local winds, and also influenced by the open Gulf circulation features which act as a forcing mechanism. The combination of local winds and tides are contributors to the nearshore shelf circulation (Corps of Engineers, 1985).

3.2.5 Tides. The tides of Pensacola Bay and Gulf of Mexico are mixed and dominated by diurnal components for much of the lunar cycle, although, some semi-diurnal characteristics are evident during neap tide. Mixed tides are common along most of the Gulf coast with varying strengths of semi-diurnal and diurnal components (Lillycrop 1983). The mean tidal range at the Pass entrance is 1.1 feet and 1.6 feet in the upper reaches of the bay system with neap tide ranges averaging 0.5 feet. The long-term predicted tide range at Pensacola varies from being almost negligible to a maximum 2.7 feet.

3.3 ENVIRONMENTAL RESOURCES

3.3.1 Vegetation. The terrestrial vegetation composition within the national seashore results from variations in salt spray, sand deposition, wind flow, erosion, and human and meteorological disturbances. Vegetative communities within the national seashore include dunes, forests, salt marshes, and bayous.

The dune-strand environment in the Florida district includes a series of primary sand dunes 10 to 20 feet in height and adjacent areas that are parallel to the Gulf of Mexico. The dune-swale environment consists of isolated or connected dunes interspersed with low, wetland areas called swales. Dunes are dry and sandy, though swales are occasionally flooded with fresh rainwater and their soil remains moist even during dry periods. Tree species in the dune-swale are shrub-like. Gulf beaches are located to the south of the primary dunes, while the north face of the primary dune joins the dune-swale.

The beach dune community is composed of two separate plant associations. Hardy pioneer plants, mainly sea oats, *Uniola paniculata*, are found in the harsher foredune area. The roots of sea oats serve as the anchoring system for the dunes. A more

diverse plant community, including beach grass, *Uniola paniculata*, bunch grass (Family Poaceae), prickly-pear cactus, *Opuntia humifusa,* and golden aster, *Chrysopsis gossypina,* is found on the protected lee side of the dunes.

Fresh and salt marsh communities constitute the majority of wetland areas in the national seashore. Marsh wetlands form in low spots or inlets throughout the national seashore. Fresh water marsh areas are often isolated or associated with ponds, swales, or abandoned mosquito control ditches. True freshwater marshes are fed by rainwater, as opposed to tidal activity that supports salt marshes.

Shoreline vegetation is limited on the majority of shorelines due to continual wave induced erosion and visitor activity. Vegetation that is present along shorelines is often dominated by sea oats due to its ability to withstand the high salt environment. Soil and sand disturbances can cause intense wash-over disturbance.

Submerged aquatic vegetation is a diverse assembly of rooted macrophytes that grow in shallow water, under the surface, but not above it. Under federal regulations, submerged aquatic vegetation beds are considered special aquatic sites (40 CFR 230 Section 404 (b)(1) Guidelines — Protection of Wetlands and other Waters of the United States). At Gulf Islands National Seashore, submerged aquatic vegetation beds consist of several species of seagrasses. Seagrasses are very important in stabilizing bottom sediments and improving water clarity by trapping the fine particles that would otherwise remain suspended by wave and current action. Seagrasses bind shallow water sediments with their roots and rhizomes and baffle wave and current energy with their leafy canopy.

Seagrasses form the basis of the food web in clear water systems and provide important nursery habitat for many species. Larval and juvenile forms of fishes and invertebrates find protection in seagrass beds and many species of fish, mammals, turtles, and birds use these areas as feeding habitat. Further, the seagrass beds occurring within Gulf Islands National Seashore and surrounding waters are vital nursery areas for Gulf of Mexico fisheries.

Gulf Islands National Seashore Florida District waters contain approximately 1,930 acres of potential seagrass habitat in the Perdido Key area and waters north of Santa Rosa Island. Potential seagrass habitat within the national seashore consists of shallow areas less than seven feet deep with stable sediments and slow currents. The primary seagrass species in park waters are turtle grass, *Thalassia testudinum*, manatee grass, *Syringodium filliforme,* shoal grass, *Halodule wrightii,*and widgeon grass, *Ruppia maritime*. In 1949, seagrass beds in the Pensacola Bay system were extensive, but by 1975, these beds were documented to have receded or disappeared. In Perdido Bay, seagrass decline within the whole system was nearly 50% from 1940 to 1987, with some specific areas experiencing seagrass coverage losses of greater than 80%. Seagrass decline in these areas was attributed to increased turbidity caused by harbor and intracoastal waterway dredge and fill activities, boat traffic, shoreline modification, reduced water quality from residential, commercial, and industrial development, and

hurricane-related effects. Big Lagoon in the Perdido Key area and the area north of Santa Rosa Island are the only water bodies within the Pensacola Bay watershed that still contain moderately diverse seagrass beds. Because of the decline of these seagrass beds in recent years, the FDEP's Ecosystem Restoration Section has been conducting a seagrass restoration program in Pensacola Bay. Part of this program includes a seagrass monitoring program to establish baseline data for seagrass beds in Big Lagoon and the area north of Santa Rosa Island. The occurrence and distribution of seagrasses in the Florida District of Gulf Islands National Seashore are detailed in Table 1 below.

TABLE 1: SEAGRASS HABITAT IN THE FLORIDA DISTRICT OF GULF ISLANDS NATIONAL SEASHORE

Area	Seagrass Habitat (acres)
Big Lagoon (Perdido Key area)	640
Fort Pickens	422
Santa Rosa Area	772
Naval Live Oaks	94
Total for Florida District of national seashore	1,928

3.3.2 Benthic Environment. The sandy substrate of the intertidal swash zone provides habitat for benthic and infaunal communities characterized by low species diversity. Saloman and Naughton (1984) investigated benthic macroinvertebrate assemblages inhabiting the swash zone at Panama City Beach, Florida which is considered consistent with that of this project. Sampling data showed four dominant species representing four families: *Donax texasianus*, a burrowing bivalve; *Scolelepis squamata*, a polychaete worm; *Haustorius sp*., an amphipod; and *Emerita talpoida*, an anomuran crab. Saloman and Naughton concluded that benthic communities inhabiting the swash zone of Panama City Beach were typical of other sandy Gulf of Mexico beaches. Similar benthic communities in this zone should exist along the beaches of Santa Rosa Island and Perdido Key. This portion of the beach also provides foraging and resting habitat for numerous seabirds and shorebirds such as terns, gulls (*Larus spp.*), sandpipers (*Tringa*, *Calidris*, and *Actitis spp*.), plovers, skimmers, and oystercatchers (*Haematopus spp.*). Fish and invertebrates within the intertidal zone are the staple diet for these avian species.

As typical of the sandy panhandle beaches, the nearshore zone consists of distinct longshore sandbars. For Florida panhandle beaches, the first and second sandbars are typically located approximately 50 to 80 feet and 425 to 460 feet offshore (Wolfe et al., 1988). These sandbars and associated troughs provide habitat for a diverse benthic community. A variety of crabs, marine worms, clams, cumaceas, and sand hoppers dominate the nearshore zone. *Donax texasianus,* a burrowing bivalve*,* commonly occurred on both sandbars and troughs in between. Other dominant species found on the first offshore bar include *Haustorius sp*. (an amphipod), *Mancocuma sp*. (a cumacea), and *Scolelepis squamata* (a polychaete worm). Additional dominant species

found on the second sandbar and adjacent landward trough includes the haustoriid amphipods *Acanthohaustorius n*. *sp*., *Protohaustorius n. sp*., and *Pseudohaustorius n. sp*. The assumption that similar benthic communities exist in the nearshore marine zone off of Santa Rosa and Perdido Key is reasonable. Many commercially, recreationally, and ecologically important fish species are known to inhabit the nearshore area of Florida's northern gulf coast.

3.3.3 Marine Mammals. Twenty-nine marine mammals are native to the Gulf of Mexico: 28 pelagic species of whales and dolphins and one sirenian, the Florida manatee. Three species commonly occur at Gulf Islands National Seashore: the bottlenose dolphin, *Tursiops truncatus,* Atlantic spotted dolphin, *Stenella frontalis*, and the Florida manatee. Descriptions of the two dolphin species are provided below. The manatee is discussed in the Threatened and Endangered Species section. Whales are rare transients in the national seashore waters.

The bottlenose dolphin, *Tursiops truncatus*, and the Atlantic spotted dolphin, *Stenella frontalis*, are the two most common marine mammals found in the Gulf of Mexico. Both species feed primarily on fish, squid and crustaceans. While *S. frontalis* spends the majority of its life offshore, *T. truncatus* often travel into coastal bays and inlets for feeding and reproduction.

3.3.4 Protected Species. There are several environmental concerns that must be addressed in order achieve environmental compliance for both permitting and NEPA. It was discussed during the interagency coordination meetings that efforts will be made to conduct the dredging and placement of the beach quality sand during the most desirable environmental windows to the maximum extent practicable. The FWS expressed their primary mission in regards to this project as the protection of species and habitats while accomplishing project objectives.

The project area is host to a variety of wildlife on the State and Federal protected species list presented in Table 2. Of particular concern in the proposed project vicinity are the:

- Atlantic loggerhead turtle *(Caretta caretta caretta)*
- Atlantic green turtle *(Chelonia mydas mydas)*
- Kemp's ridley turtle *(Lepidochelys kempi)*
- Leatherback turtle *(Dermochelys coriacea)*
- Gulf sturgeon *(Acipenser oxyrinchus desotoi)*
- West Indian manatee *(Trichechus manatus floridanus)*
- Perdido Key beach mouse *(Peromystus polionotus trissyllepsis)*
- Santa Rosa beach mouse *(Peromystus polionotus leucocephalus)*
- piping plover (Charadvius melundus)

<u>Atlantic Loggerhead Sea Turtle</u>. The loggerhead sea turtle is a medium to large turtle. Adults are reddish-brown in color and generally 31 to 45 inches in shell length with the record set at more than 48 inches. Loggerheads weigh between 170 and 350

Table 2. State and Federal Listed Species

Common Name	***Scientific Name***	***State***	***Federal***
Fish			
Gulf sturgeon	*Acipenser oxyrhynchus desotoi*	SSC	n/a
salt marsh topminnow	*Fundulus jenkinsi*	SSC	n/a
Reptiles			
American alligator	*Alligator mississipiensis*	SSC	T (s/a)
Atlantic loggerhead turtle	*Caretta caretta caretta*	T	T
Leatherback turtle	*Dermochelys coriacea*	E	E
Atlantic green turtle	*Chelonia mydas mydas*	E	E
Kemp's ridley	*Lepidochelys kempi*	E	E
Birds			
snowy plover	*Charadrius alexandrinus tenuirostris*	T	SSC
piping plover	*Charadrius melodus*	T	T
Arctic peregrine falcon	*Falco peregrinus tundrius*	E	T
American oystercatcher	*Haematopus palliatus*	SSC	n/a
bald eagle	*Haliaeetus leucocephalus*	T	T
brown pelican	*Pelecanus occidentalis*	SSC	n/a
least tern	*Sterna antillarum*	T	n/a
Mammals			
Perdido Key beach mouse	*Peromystus polionotus trissullepsis*	E	E
West Indian manatee	*Trichechus manatus*	E	E

State listings are taken from the Florida Fish and Wildlife Conservation Commission or as with plants Florida Department of Agriculture. Federal listings are taken from the United States Fish and Wildlife Service. E = Endangered; T = Threatened; T (s/a) = Threatened due to similarity in appearance; SSC = Species of Special Concern; UR = Under review; n/a = information not available or no designation listed

pounds with the record set at greater than 500 pounds. Young loggerhead sea turtles are brown above and whitish, yellowish, or tan beneath, with three keels on their back and two on their underside.

Loggerhead sea turtles occur throughout the temperate and tropical regions of the Atlantic, Gulf of Mexico, Pacific, and Indian Oceans. This species may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, and the mouths of large rivers. In shallow Florida lagoons, loggerheads were found during the morning and evening, leaving the area during mid-day when temperatures reached 87° F. At dusk, turtles moved to a sleeping site and remained there until morning, possibly in response to changes in light or water temperature (Nelson 1986).

Loss or degradation of suitable nesting habitat may be the most important factor affecting the nesting population in northern Gulf of Mexico. Overall the loss of nesting beaches, hatchling disorientation from artificial light, drowning in fishing and shrimping trawls, marine pollution, and plastics, and styrofoam have led to the decline of loggerheads.

Loggerheads are frequently observed near offshore oil platforms, natural rock reefs, and rock jetties along the Gulf Coast. Large numbers of stranded turtles were observed inshore of such areas (Rabalais and Rabalais 1980). Fishermen reported sightings of large turtles near the Gulf Coast. In a recent tracking study, loggerheads spent more than 90 percent of the time underwater, tended to avoid colder water, and spent much of the time in the vicinity of oil and gas structures, such as those found offshore of Mississippi and Alabama.

Green Sea Turtle. The green sea turtle is mottled brown in color. The name is derived from the greenish fat of the body. The carapace is light or dark brown. It is sometimes shaded with olive, often with radiating mottled or wavy dark markings or large dark brown blotches. This species is considered medium to large in size for sea turtles with an average length of 36 to 48 inches. The record was set at about 60 inches in length. Its weight ranges from about 250 to 450 pounds with the record at more than 650 pounds. The upper surfaces of young green turtles are dark brown, while the undersides are white.

Although green sea turtles are found worldwide, this species is concentrated primarily between the 35° North and 35° South latitudes. Green sea turtles tend to occur in waters that remain warmer than 68° F; however, there is evidence that they may be buried under mud in a torpid state in waters to 50° F (Ehrhart 1977; Carr et al. 1979).

Major nesting areas for green sea turtles in the Atlantic include Surinam, Guyana, French Guyana, Costa Rica, the Leeward Islands, and Ascension Island in the mid-Atlantic. Historically in the U. S., green turtles have been known to nest in the Florida Keys and Dry Tortugas. Yet, these turtles primarily nest on selected beaches along the coast of eastern Florida, predominantly Brevard through Broward Counties. However,

they probably nested along the Gulf Coast before their decline. In the southeastern U.S., nesting season is roughly June through September. Nesting occurs nocturnally at 2, 3, or 4-year intervals. Only occasionally do females produce clutches in successive years. Estimates of age at sexual maturity range from 20 to 50 years (Balazs 1982; Frazer and Ehrhart 1985) and they may live over 100 years. Immediately after hatching, green turtles swim past the surf and other shoreline obstructions, primarily at depths of about 8 inches or less below the water surface, and are dispersed both by vigorous swimming and surface currents. The whereabouts of hatchlings to juvenile size is uncertain. Green turtles tracked in Texas waters spent more time on the surface, with fewer submergences at night than during the day, and a very small percentage of the time was spent in the Federally maintained navigation channels. The tracked turtles tended to utilize jetties, particularly outside of them, for foraging habitat.

Leatherback Sea Turtle. The leatherback sea turtle is the largest of all sea turtles. It may reach a length of about 7 feet and weigh as much as 1600 pounds. The carapace is smooth and is colored gray, green, brown and black. The plastron is yellowish white. Juveniles are black on top and white on the bottom.

This species is highly migratory and is the most pelagic of all sea turtles (NMFS and USFWS 1992). They are commonly found along continental shelf waters. Leatherback turtles' range extends from Cape Sable, Nova Scotia, south to Puerto Rico and the U.S. Virgin Islands. Leatherbacks are found in temperate waters while migrating to tropical waters to nest (Ross 1981). Distribution of this species has been linked to thermal preference and seasonal fluctuations in the Gulf Stream and other warm water features (Fritts et al. 1983). General decline of this species is attributed to exploitation of eggs (Ross 1981).

Nesting of leatherback sea turtles is nocturnal with only a small number of nests occurring in the United States in the Gulf of Mexico (Florida) from April to late July (Pritchard 1971; Fuller 1978; Fritts et al. 1983). Leatherbacks prefer open access beaches possibly to avoid damage to their soft plastron and flippers. Unfortunately, such open beaches with little shoreline protection are vulnerable to beach erosion triggered by seasonal changes in wind and wave direction. Thus, eggs may be lost when open beaches undergo severe and dramatic erosion. The Pacific coast of Mexico supports the world's largest known concentration of nesting leatherbacks. There is very little nesting in the United States. Disturbance of the nesting grounds is the most serious threat to leatherback sea turtles.

Kemp's ridley turtle. The Kemp's ridley occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean with occasional individuals reaching European waters. Adults of this species are generally confined to the Gulf of Mexico, although some adults are sometimes found on the east coast of the U.S. Females return to their nesting beach about every other year with nesting occurring from April into July and usually limited to the western Gulf of Mexico. The mean clutch size for this species is about 100 eggs per nest and an average of 2.5 nests per female per season.

Benthic immature turtles have been found along the eastern seaboard of the U.S. and in the Gulf of Mexico. In Gulf, studies suggest that immature turtles stay in shallow, warm, nearshore waters in the northern Gulf until cooling waters force them offshore or south along the Florida coast. Little is known of the movements of the post-hatching stage (pelagic stage) within the Gulf. Studies have indicated that this stage varies from 1 to 4 or more years and the benthic immature stage lasts about 7 to 9 years. The maturity age of this species is estimated to be 7 to 15 years. Of the seven extant species of sea turtles, the Kemp's ridley has declined to the lowest population level. However, recent studies have indicated that increased nesting activities and suggest that the decline in ridley population has stopped and the population is now increasing. Future threats to the species include interaction with fishery gear; marine pollution; destruction of foraging habitat; illegal poaching; and impacts to nesting beaches associated with rising sea level, development, and tourism pressure.

Gulf Sturgeon. The NMFS and FWS listed the Gulf sturgeon as a threatened species on September 30, 1991. The Gulf sturgeon, also known as the Gulf of Mexico sturgeon, is a subspecies of the Atlantic sturgeon. It is a large fish with an extended snout, vertical mouth, and with the upper lobe of the tail longer than the lower. Adults are 180 to 240 cm (71-95 inches) in length, with adult females larger than adult males. The skin is scaleless, brown dorsally and pale ventrally and imbedded with 5 rows of bony plates.

Adult fish are bottom feeders, eating primarily invertebrates, including brachiopods, insect larvae, mollusks, worms and crustaceans. Gulf sturgeon are anadromous, with reproduction occurring in fresh water. Most adult feeding takes place in the Gulf of Mexico and its estuaries. The fish return to breed in the river system in which they hatched. Spawning occurs in areas of deeper water with clean (rock and rubble) bottoms. The eggs are sticky and adhere in clumps to snags, outcroppings, or other clean surfaces. Sexual maturity is reached between the ages of 8 and 12 years for females and 7 and 10 years for males.

Historically, the Gulf sturgeon occurred from the Mississippi River to Charlotte Harbor, Florida. It still occurs, at least occasionally, throughout this range, but in greatly reduced numbers. The fish is essentially confined to the Gulf of Mexico. River systems where the Gulf sturgeon are known to be viable today include the Mississippi, Pearl, Escambia, Yellow, Choctawhatchee, Appachicola, and Swannee Rivers, and possibly others.

West Indian Manatee. The West Indian manatee, also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act. Manatees inhabit both salt and fresh water and can be found in shallow (5 ft to usually <20 ft), slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas throughout their range. On occasion, manatees have been observed as much as 3.7 miles off the Florida Gulf coast. The West Indian manatee is herbivorous and eats aquatic plants such as hydrilla, eelgrass, and water lettuce.

During the cooler months between October and April, Florida manatees concentrate in areas of warmer water. Manatees are thermally stressed at water temperatures below 18ºC (64.4ºF); therefore, during winter months, when ambient water temperatures approach 20ºC (68ºF), manatee population confines itself to the coastal waters of the southern half of peninsular Florida and to springs and warm water industrial outfalls as far north as southeast Georgia. Manatees also winter in the St. Johns River near Blue Spring State Park. Severe cold fronts have been known to kill manatees when the animals did not have access to warm water refuges. During summer months, they may migrate as far north as coastal Virginia on the east coast and the Louisiana coast on the Gulf of Mexico and appear to choose areas based on an adequate food supply, water depth, and proximity to fresh water.

Piping Plover. The piping plover is a small, pale-colored North American shorebird. The bird's light sand-colored plumage blends in with the sandy beaches and shorelines that are its primary habitat. It weighs 1-2 ounces (43-63 grams) and is 6-6 ½ inches (17-18 centimeters) long. During the breeding season the legs are bright orange and the short stout bill is orange with a black tip. There are two single dark bands, one around the neck and one across the forehead between the eyes. Plumage and leg color help distinguish this bird from other plovers. The female's neck band is often incomplete and is usually thinner than the male's neck band. In winter, the bill turns black, the legs remain orange but pale, and the black plumage bands on the head and neck are lost. Chicks have speckled gray, buff, and brown down, black beaks, orange legs, and a white collar around the neck. Juveniles resemble wintering adults and obtain their adult plumage the spring after they fledge.

Historically, piping plovers bred across three geographic regions. These regions include: the United States and Canadian Northern Great Plains from Alberta to Manitoba and south to Nebraska; the Great Lakes beaches; and the Atlantic coastal beaches from Newfoundland to North Carolina. Generally, piping plovers favor open sand, gravel, or cobble beaches for breeding. Breeding sites are generally found on islands, lake shores, coastal shorelines, and river margins.

Birds from all three populations build their nests in the north but spend the winter along the south Atlantic and Gulf coasts, sometimes arriving as early as mid-July. Since the three populations are indistinguishable from one another while on their overlapping wintering grounds, all plovers are classified as threatened in their wintering areas. Piping plovers winter in coastal areas of the United States from North Carolina to Texas. They also winter along the coast of eastern Mexico and on Caribbean islands from Barbados to Cuba and the Bahamas.

Piping plovers begin arriving on the wintering grounds in early July, with some late nesting birds arriving in September. A few individuals can be found on the wintering grounds throughout the year, but sightings are rare in June and early July. Migration is poorly understood, but most piping plovers probably migrate non-stop to wintering grounds. They feed along beaches and intertidal mud and sand flats.

Beach mice**.** The Perdido Key Beach mouse was listed as endangered on June 6, 1985. The Perdido Key beach mouse is one of five subspecies of the old-field mouse that inhabit coastal dune communities along the Gulf coast of Florida and Alabama. Historic distributions of the Perdido Key beach mouse extended along the entire length of the island of Perdido Key, starting in Alabama at Florida Point and continuing eastward to the Pensacola Bay inlet. However, by 1986, due to habitat fragmentation, hurricane events, etc. the number of mice remaining was believed to be less than 30 animals. After several successful relocation episodes, the population now exists on public lands in areas along 8.4 miles of coastline on Perdido Key at Gulf Islands National Seashore and Perdido Key State Park.

Beach mouse habitat is restricted to mature coastal barrier sand dunes along the Gulf. Optimal beach mouse habitat should have: (1) high maximum elevation of coastal sand dunes; (2) relatively great differences between maximum dune height and minimum interdunal elevation; (3) close proximity of forest; (4) a sparse ground cover, and (5) relatively low cover of sea oats. Early research suggested that the frontal dune system was a significant habitat component utilized by the beach mice. However, new research suggests that scrub dune habitat serves an invaluable role in the persistence of the beach mouse population. Therefore, habitat components considered critical for beach mice extend from the frontal dune landward to the transition from scrub habitat to maritime forest. The food plants most utilized by beach mice are beach grass and sea oats; however, they may eat invertebrates when seed sources are scarce in the late winter or early spring.

The USFWS issued in the Federal Register a proposed rule for revising designated critical habitat for the Perdido Key and Choctawhatchee beach mice. Critical habitat for the Perdido Key includes habitat throughout the subspecies' ranges in Baldwin County, Alabama and Escambia County, Florida. The primary constituent elements of critical habitat for the Perdido Key beach mouse are the habitat components that provide: (1) a contiguous mosaic of primary, secondary, and scrub vegetation and dune structure, with a balanced level of competition and predation and few or no competitive or predaceous non-native species present, that collectively provide foraging opportunities, cover, and burrow sites, (2) Primary and secondary dunes, generally dominated by sea oats, that, despite occasional temporary impacts and reconfiguration from tropical storms and hurricanes, provide abundant food resources, burrow sites, and protection from predators, (3) scrub dunes, generally dominated by scrub oaks, that provide food resources and burrow sites, and provide elevated refugia during and after intense flooding due to rainfall and/or hurricane-induced storm surge, (4) functional, unobstructed habitat connections that facilitate genetic exchange, dispersal, natural exploratory movements and re-colonization of locally extirpated areas, and (5) a natural light regime within the coastal dune ecosystem, compatible with the nocturnal activity of beach mice, necessary for normal behavior, growth, and viability of all life stages. The Perdido Key beach mouse is located in critical habitat units (1) Gulf State Park Unit, (2) West Perdido Key Unit, and (3) Perdido Key State Park Unit.

3.3.5 Fish and Essential Fish Habitat (EFH). More than 200 species of fish occur within the waters of Gulf Islands National Seashore. The most abundant fish are anchovies, *Anchoa sp*. Silversides, *Menidia sp*., are abundant in the shallow nearshore waters. These small species, among others, provide food for larger predators. Killifish, *Fundulis sp*., sailfin molly, *Poecilia latipinna* and mosquito fish, *Gambusia affinis*, live in ponds and lagoons, and along the beaches. Myriad larval and young fish occupy the shallow waters around the islands and find food and protection in the seagrass beds. These include most of the important sport and commercial species that spawn further offshore and spend the early parts of their lives in estuarine nursery areas.

Numerous commercially and recreationally important species occur within the waters of the national seashore. Speckled sea trout, *Cynoscion nebulosos,* spawn around the islands and are often the most sought after sport fish. The red drum, *Sciaenops ocellatus,* sand sea trout, *Cynoscion arenarius*, kingfish and mackerel, jack and pompano, flounder, bluefish, *Pomatomus saltatrix*, snapper and many other species provide excellent surf and troll fishing. Cobia, *Rachycentron canadum*, locally known as lemon fish, and tarpon, *Megalops atlanticus,* are among the large game fish.

Several species of sharks occur in seashore waters, including hammerhead, *Sphyrna sp*., bonnethead, *Sphyrna tiburo*, Atlantic sharpnose, *Rhizoprionodon terraenovae*, bull, *Carcharhinus leucas*, and blacktip, *Carcharhinus limbatus*. Several species of rays, including Southern stingrays, *Dasyatis americana*, manta rays, *Manta birostris*, and spotted eagle rays, *Aetobatus narinari*, occur as well. Southern stingrays are the most abundant and commonly feed and rest in shallow waters.

Several species of shellfish that are of commercial, recreational, and ecological importance occur in Gulf Islands National Seashore waters, including blue crabs, *Callinectes sapidus*, stone crabs, *Menippe mercenaria* and many species of shrimp. Water bottoms around the seashore in the Florida and Mississippi districts are important nursery areas for most species of shellfish. Blue crabs are caught recreationally. Three species of shrimp (brown shrimp, *Penaeus aztecus*, white shrimp, *Penaeus setiferus*, and pink shrimp, *Penaeus duorarum*) occur at various seasons and life stages in seashore waters. Commercial shrimping is not allowed within the national seashore boundaries. Stone crab juveniles are common in the Pensacola Bay system waters and Gulf stone crab adults and juveniles are common in Mississippi Sound waters. Bay scallops, *Aequipectin irradians*, whose range once extended to Pensacola, are now rare in areas west of St. Joseph Bay.

The 1996 Magnuson-Stevens Act requires cooperation among the National Marine Fisheries Service (NMFS), fishers, and federal and state agencies to protect, conserve, and enhance essential fish habitats. Essential fish habitat (EFH) is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. EFH occurs for several species of fish within the project area. An EFH has not yet been designated for most species occurring in the Gulf of Mexico.

NOAA has designated EFH for more than 30 estuaries in the northern Gulf of Mexico for a number of species of finfish and shellfish. EFH occurs for several species of fish and shellfish in and around project area and is identified in Table 3 for key species that occur in Pensacola Bay.

Table 3. Essential fish habitat for key species that occur in Pensacola Bay

EFH Species
Brown Shrimp *Penaeus aztecus*
Gray Snapper *Lutjanus griseus*
Gulf Stone Crab *Menippe adina*
Pink Shrimp *Penaeus duorarum*
Red Drum *Sciaenops ocellatus*
Spanish Mackeral *Scomberomorus maculates*
Spiny Lobster *Panulirus argus*
White shrimp *Penaeus setiferus*

Additional invertebrates of ecological importance exist within the adjacent project waters, although essential fish habitat has not been designated for these species. These species include horseshoe crab, *Limulus polyphemus*, mole crab, *Emerita talpoida*, fiddler crab, *Uca sp*., several species of hermit crabs, coquina, *Donax sp*., several species of conch, *Strombus sp*., oyster drill, *Urosalphinx cinerea* and various copepods, isopods, and amphipods.

3.4 CULTURAL RESOURCES

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered relevant to a culture or community for scientific, traditional, religious, or other reasons. They include archaeological resources (both prehistoric and historic), historic architectural resources, and American Indian sacred sites, and traditional cultural properties. Historic properties (as defined in 36 CFR 60.4 and 36 CFR 800.15(l)(1))) are significant archaeological, architectural, or traditional resources that are defined as either eligible or ineligible for listing in the NRHP. During previous dredging and disposal activities pertaining to the NAS Pensacola channel established that there are no cultural resources within the established channel. However, two cultural resource targets in the adjacent nearshore

area involving a historic recorded shipwreck (Concrete Ballast Wreck 8ES2995) and an unrecorded historic barge wreck were identified.

3.5 WATER QUALITY

The FDEP classifies the coastal water in the project area as Class III, defined as waters suitable for recreation and propagation of fish and wildlife. The FDEP sets water quality standards and requires monitoring of water quality during sand excavation and beach placement operations.

3.6 SEDIMENT QUALITY

Grain size comparisons were conducted between the core samples taken from the channel and samples collected from the beach. Grain size and color analysis were conducted on the borings and compared to that of the beach samples to assure compatibility between the proposed dredged material and nearshore disposal area. The results indicate that the materials compare well to the dredge material grain sizes and color presented in the placement plan.

3.7 HAZARDOUS, TOXIC, AND RADIO ACTIVE WASTE

The project area lies primarily in residential and recreational areas. The Corps knows of no sources of hazardous, toxic and radioactive waste (HTRW) in the project area.

3.8 AIR QUALITY

Non-point sources such as vehicular traffic exist within the area; however, air quality along Santa Rosa Island and Perdido Key beaches is good due to the presence of either on or offshore breezes that readily disperse airborne pollutants. Escambia County is classified as an attainment area for all Federal Air Quality Standards.

3.9 NOISE

Ambient noise levels in the project area are low to moderate. Because of the urbanization near the beaches and the popularity of the beach environment, elevated noise levels primarily from vehicles, may occur during weekends and summer months. The major noise producing source of the area year round is breaking surf adjacent to residential and resort areas.

3.10 AESTHETICS

The signature white sandy beaches and the relatively low wave energy of the Gulf of Mexico provide a visually-pleasing environment along the beaches of adjacent to Pensacola Bay.

3.11 RECREATION

Locals and tourist spend much time sunbathing, sailing, fishing, walking and engaging in other active and passive activities near the beach. Beach usage peaks during the summer and subsides during the winter.

4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The proposed maintenance dredging and placement actions would result in a number of impacts to the navigation channel, and adjacent beach and nearshore placement areas, both adverse and beneficial. The adverse impacts include smothering of benthos, reduced esthetics, reduced air quality, increased turbidity, increased noise, and aquatic organism disturbance. The beneficial impacts consist of maintaining wider beaches; increased storm protection to adjacent properties; and increased habitat for endangered sea turtles, various shore birds, and many other beach dwelling organisms. The cumulative impacts of the overall action are beneficial and consist of increased storm protection and increased beach habitat

4.1 HABITAT IMPACTS

4.1.1 Habitat. Adverse impacts to benthic organisms would be encountered as a result of the direct littoral and nearshore placement of the dredged material from the project site. While most of the immobile organisms within the surf zone are quite adaptable to seasonal changes in temperature, salinity, dissolved oxygen, water clarity, and water level fluctuations due to the tidal cycle, the physical placement of dredged material would destroy some sediment dwelling organisms in the disposal area. Also, some motile organisms may be covered by placement of the dredged material. Natural recruitment into the surf and swash zones by benthic organisms, encrusting organisms and fishes would occur rapidly such that the overall impact would not be significant.

Coastal ecological resources along the local beach systems have consistently been diminished due to the high shoreline recession rates exhibited in this region. The result has been the loss of valuable habitat including sea turtle nesting habitat, shorebird foraging and roosting areas, dune habitat supporting various flora and fauna, and general beach ecosystem functions. Benefits of placing quality material in the local beach-dune system allow greater stability and sustainability of the coastal environment once it becomes re-established. Beach and nearshore placement assists towards restoring the beach habitat that supports a variety of associated flora and fauna contributing to the success and continual survival of several threatened or endangered species. More natural restorative processes will also contribute to the well being of various other flora and fauna that naturally occur in the immediate vicinity.

Contributing sand into the littoral processes will help to increase opportunities towards enhancing sea turtle nesting. The enhanced berm creates additional habitat beneficial

to a variety of shore birds as well as other inhabitants of the coastal environment. Wider beaches augment natural dune creation and maintenance, which will be beneficial for dune dwelling organisms and endangered species such as beach mice.

4.1.2 Esthetics. Esthetics would be reduced in the project area during the dredging and placement operations, due to the physical presence of the dredge and pipeline used to transport the dredged material as well as the presence of other land-based support equipment. However, these impacts would be temporary and insignificant. Benefits are received through the increased protection provided by maintaining wider beaches in the vicinity of and downdrift of the project area. The sand bypassing process mimics natural processes and provides greater storm protection to existing coastal structures, dunes, and adjacent sensitive coastal habitats. Increasing the supply of beach sand will also allow natural building and maintenance of the dune system. The resultant wider beaches and the overall enhanced beach environment will increase the esthetics qualities of the area.

4.1.3 Water Quality. As required by the Clean Water Act (CWA), a Section 404 (b)(1) evaluation for the removal of sediment from the navigation channel and placement of material downdrift has been prepared and is included as APPENDIX A.

Turbidity. Some silty material may be associated with the dredging and placement operations and its re-suspension may result in a slight increase in turbidity. Due to the predominant sandy nature of the material being dredged (beach quality sand), the quantity of silt is expected to be low and not a significant problem. Since the materials being excavated are beach quality sands, no significant elevation of turbidity is expected. The State of Florida's waters would not be significantly affected and water clarity would return to ambient conditions shortly after sediment placement at the disposal site. No significant impacts are expected to result from the placement of the sandy material.

Contaminants. The sandy dredged material designated for beach and nearshore placement consists of a medium-grained marine sand from sources within the littoral system. Section 404 of the Clean Water Act (CWA) [230.60(b)] states that no testing is required by virtue of the fact that the dredged material is sufficiently removed from pollution sources. Furthermore, the CWA states that material that is primarily composed of sand, gravel, or other inert material found in areas of high current and wave energy conditions are most likely free of contaminants CWA. The sandy material being dredged and placed on the designated beach and nearshore areas is littoral sand form the same source as the sand found within these proposed disposal sites. Previous operations and water quality certifications has found that the material dredged from the site is free of contaminants.

4.1.4 Sediment Compatibility. As part of the emergency dredging operations in 2003, sediment core samples were collected from the entrance area of the NAS Pensacola Channel and from the beaches of Perdido Key just to the west of the

Pensacola entrance channel. The purpose of this exercise was to perform a grain size comparison between the core samples taken from the channel and the samples collected from the beach. Grain size and color analysis were conducted on the borings and compared to that of the beach samples to assure compatibility between the proposed dredged material and nearshore disposal area. The results indicate that the materials from the dredge site matches well with the beach samples. The analysis indicated that the beach is composed of white medium to fine sand with a median grain size of 0.374 mm and a Munsel dry color rating of 8/1. The beach sands compare well to the dredge material grain sizes and color presented in the placement plan. There is no reason to believe that the beach characteristics have significantly changed. It is reasonable to assume that the beach sand characteristics identified in the 2003 analysis is still representative of the present day conditions.

4.1.5 Air Quality. Air quality would be temporarily and insignificantly affected by the proposed action. Emissions are expected to occur and would result from the operation of the dredge, land-based equipment, and any other support equipment which may be on or adjacent to the job site. The project area is currently in attainment with National Ambient Air Quality Standards parameters. The proposed action would not affect the attainment status of the project area or region. A State Implementation Plan conformity determination (42 United States Code 7506 (c) is not required since the project area is in attainment for all criteria pollutants.

4.1.6 Noise. Noise from the dredge and other associated support equipment would be evident in the project area. While this noise would be evident to those workers on the job and any users of the beach in proximity of the project, it would be short-term and insignificant. Normal noise levels would be achieved at the end of each workday and after completion of the job.

4.2 FEDERALLY PROTECTED SPECIES

4.2.1 Essential Fish Habitat (EFH). Essential Fish Habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity". The designation and conservation of EFH seeks to minimize adverse effects on habitat caused by fishing and non-fishing activities. The National Marine Fisheries Service (NMFS) has identified EFH habitats for the Gulf of Mexico in its Fishery Management Plan Amendments. These habitats include estuarine areas, such as estuarine emergent wetlands, seagrass beds, algal flats, mud, sand, shell, and rock substrates, and the estuarine water column. The habitat in the project area includes the lower Pensacola Bay and Gulf of Mexico waters and consists primarily of sandy substrate consistent with sediment along the northern Gulf of Mexico. The NMFS has management plans for the species listed in Table 4. Based on the phased approach for the implementation of the dredging and disposal activities and the time that it would take to complete each phase and the size of the proposed placement areas in relation to the total available acreage of similar habitat within the Gulf of Mexico, it has been determined that the proposed action would not result in long-term adverse effects to

essential fish habitat.

4.2.2 Threatened and Endangered Species

Sea Turtles. The effects of beach disposal and impacts on nesting sea turtles has been extensively documented and indicate that, in nesting success rates may decrease the year following beach placement as a result of escarpments, altered beach profiles, and sand compaction. Post-placement monitoring has shown an increase in abandoned nest attempts on altered beaches compared to that of unnourished beaches as well as increases water inundation during the beach equilibration process. This suggests that a post-placement decline in nesting is a result from variation in the beach profile than beach compaction and escarpment formation. Other studies, however, have shown that sediment used for the nourishment of some beaches in Florida exhibited little or no impediments to nesting sea turtles and that the physical characteristics of the placed sediment did not cause excessive scarp formation and limit their ability to nest across the beach. Minimal post-placement effects can be achieved by using compatible beach material and innovative design methods. For this particular project, the sand dredged from the navigation channel and placed on the beach or nearshore is in essence native beach sand that has been deposited in the navigation channel by the local littoral processes. This material is being placed back in the littoral system and should exhibit minimal impacts due to compaction. However, there will likely be some potential impacts resulting from altering the profile and equilibration process. Changes in beach slope as well as the development of escarpments may develop along the mean high water line as the constructed beach adjusts from a construction profile to a natural beach profile

Though the equilibration process and subsequent escarpment formation are features of most beach projects, management techniques can be implemented to reduce the impact of escarpment formations. For completed sections of beach during beach construction operations, and for subsequent years following as the construction profile approaches a more natural profile, visual surveys for escarpments could be performed. Escarpments that are identified prior to or during the nesting season that interfere with sea turtle nesting (exceed 18 inches in height for a distance of 100 ft.) can be leveled to the natural beach for a given area. If it is determined that escarpment leveling is required during the nesting or hatching season, actions should be taken as directed by the Fish and Wildlife Service.

It likely that pipeline equipment will be used to place the material on the beach and if conducted within the nesting season, may act as an impediment to nesting females and/or hatchlings. Nesting females may either encounter the pipe and false crawl, or nest in front of the pipeline in a potentially vulnerable area to erosion and water inundation. This problem can easily be avoided by conducting the beach placement outside of the turtle nesting window.

The presence of artificial lighting on or within the vicinity of nesting beaches has shown to be detrimental to the nesting process both for the nesting females and emerging

hatchlings. Lighting on beaches tends to deter sea turtles from emerging from the sea to nest and the sea-finding process of hatchlings during the nest emergence. The impact of light on nesting females and hatchlings can be minimized by reducing the number and wattage of light sources or by modifying the direction of light sources through shielding, redirection, elevational modifications, etc. Lighting is not expected to an issue for this project. The beach placement will be occurring with the GUIS property where there is a lack of development associated lighting sources. This area is also strictly managed for preservation and conservation of wildlife resources. During construction, all lighting will be minimized to the maximum extent practicable while maintaining compliance with all Corps, OSHA, and Coast Guard requirements.

There will be some placement of beach compatible material in the nearshore as described in the disposal plan. Placement in this area will enhance the return of the beach sand to the littoral system and potentially result in beach accretion. It is believed that nearshore disposal can enhance sea turtle nesting habitat by promoting beach accretion based on natural sediment distribution and will not have an impact on nesting activities.

All efforts will be made to conduct the proposed dredging and placement activities outside of the sea turtle nesting window. Additionally, the conservation measures and recommendations specified in the RBO for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges will be followed to the maximum extent practicable. However, it is inevitable that some of the placed sand will remain on the beach during subsequent nesting seasons. Given these considerations it is determined that the proposed action may adversely affect sea turtles.

Gulf Sturgeon. Effects to Gulf Sturgeon resulting from the proposed dredging and disposal activities would be confined to direct impacts associated with the dredge equipment. Effects resulting from the use of hopper dredges were considered in the Regional Biological Opinion for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287) dated November 19, 2003. Mobile District will abide by the reasonable and prudent measures set forth in that opinion. No effects to Gulf Sturgeon are anticipated with the use of a hydraulic cutter-head dredge, as they are not known to impact Gulf Sturgeon.

The proposed project area falls within the designated Gulf sturgeon critical habitat. The primary constituent elements essential for the conservation of the Gulf sturgeon are those habitat components that support foraging, riverine spawning sites, normal flow regime, water quality, sediment quality, and safe unobstructed migratory pathways. The proposed dredging of the navigation channel will fall within Unit 9 - Pensacola Bay and Unit 11 - Florida Nearshore Gulf of Mexico. However, the navigation channel is excluded from the designated Gulf sturgeon critical habitat area. The beach placement activities will be occurring within Unit 11 of the designated critical habitat. This area falls under the jurisdiction of the National Marine Fisheries Service (NMFS). A formal consultation with NMFS regarding the effects of the proposed action on Gulf sturgeon

and subsequent potential modification to Gulf sturgeon critical habitat has been initiated. No nearshore placement activities will be conducted in designated critical habitat as the Unit 11 terminates one nautical mile west of Pensacola Pass. Direct placement of beach material will increase shoreline width in some areas of Unit 11. The increased width is intended to restore the shoreline position to pre-hurricane positions and will not affect critical habitat areas.

The conservation measures and recommendations specified in the RBO for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges will be followed to the maximum extent practicable pertaining to Gulf sturgeon. It is therefore determined that the proposed action may affect, but not likely to adversely affect Gulf sturgeon and will not adversely modify designated critical habitat.

West Indian Manatee. Manatees may be occasionally found in the shallow waters of the project area during the warmer months of the year. Given slow-moving and low visibility nature, it is possible that manatees could wander into close proximity of the dredging and placement operations. To minimize contact and potential injury to manatees, the Manatee Construction Conservation Measures as specified by the FWS letter dated August 31, 2006 will be strictly observed. In addition, there will be NMFS approved observers on board all hopper dredge operations. By adhering to these measures and recommendations, the proposed action may affect but not likely to adversely affect manatees.

Piping Plovers. The beach placement proposed during this action may actually enhance of beach habitat even potentially restore lost habitat in the long term. However, short-term impacts to foraging and roosting habitat may occur during beach construction operations. Since piping plovers do not nest in Florida, construction activities will not impact breeding and nesting activities. Wintering habitat for roosting and foraging may be impacted; however, project construction limits will avoid areas designated as critical habitat area to the maximum extent practicable. Direct short-term foraging habitat losses may occur during the placement of sediment on the beach and associated construction operations. Since only a small portion of the foraging habitat is directly affected at and around the discharge site, adjacent habitat is still available and the overall direct loss of foraging habitat will be minimal and short-term. However, the placement of sediment on the beach may temporarily impact foraging, sheltering, and roosting habitat and; therefore, it has been determined that the placement of sediment may adversely affect piping plovers.

Beach Mice. The beach placement area on Perdido Key identified in the disposal plan is adjacent designated critical habitat for the Perdido Key beach mouse. The placement of sediment directly on the beach and seaward of the toe of the existing primary dune line would not generally impact existing beach mice and their habitat. Pipeline routes for beach construction will typically avoid identified primary constituent elements for critical habitat. There will not be any construction of dune features associated with this project and will not impact existing beach mouse habitat.

Considering that much of the mature coastal barrier sand dunes and scrub dune habitat on the Gulf and Atlantic coasts of Florida have been lost and populations of beach mice have declined as a result, the development of new habitat or enhancement of existing habitat is beneficial to the recovery goals of beach mice. Beach placement of compatible sand allows for additional availability of materials for the natural formation and growth of primary and secondary dunes. Such processes would help in the development of new beach mouse habitat and may aid in the enhancement and expansion of existing populations by stabilizing and enhancing existing dune communities with available sand and associated aeolian transport processes. This in turn promotes natural recruitment of native dune vegetation that contributes to the primary constituent elements for critical habitat by providing food resources for beach mice.

Direct beach placement of compatible sand may enhance existing habitat or establish new habitat for beach mice. The placement of material seaward of the primary dune may avoid the primary constituent elements for critical habitat. However, recent hurricane activity has flattened a significant portion of the primary dune systems within the GUIS. It is not known at this time where dune vegetation will begin to re-establish itself prior to construction of the project. With these considerations in mind and the uncertainties associated with the direct beach placement and location of the dune building processes a determination has been made that the action may adversely affect the Perdido Key beach mouse and designated critical habitat.

4.3 CONSERVATION MEASURES

The proposed project will adhere to the reasonable and prudent measures set forth in the Regional Biological Opinion for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287) dated November 19, 2003 and subsequent revisions. This would include screens/observers, drag head deflectors and relocation trawling within the active dredging areas.

The following marine turtle protection conditions are provided for the dredging work within the navigation channel and beach placement areas. These conditions were developed in cooperation with the State of Florida, the USFWS, and the Corps.

1. Material placement on Perdido Key will take place between October 1 and March 30 to avoid most of the sea turtle and shorebird nesting seasons.

2. Material placed on the beaches shall be phased and designed to allow for infaunal recruitment to maximize recovery rates. Design elevations shall consider to continuation of the natural overwash process.

3. Littoral zone placement for dredged material shall be placed at or below the MHW such that it will not create a barrier to marine turtles attempting to nest or otherwise

create a berm that is not suitable for marine turtle nesting.

4. From May 1 through November 1, all project lighting shall be limited to the immediate area of active construction only and shall be the minimal lighting necessary to comply with U.S. Coast Guard and/or OSHA requirements. Stationary lighting on the beach and all lighting on the dredge shall be minimized through reduction, shielding, lowering, and appropriate placement of lights to minimize illumination of the nesting beach and water.

5. After completion of the each fill placement event and prior to April 15 for three (3) subsequent years, if placed sand still remains on the beach, compaction testing will be performed in accordance with accepted protocols to determine if tilling is necessary.

6. Visual surveys for escarpments along the beach fill area shall be made immediately after completion of fill placement operations and prior to April 15 for the following three years if placed sand remains on the beach. Any escarpments that exceed 18 inches in height for a distance of 100 feet shall be leveled to the natural beach contour by May 1.

7. Visual surveys for barriers formed by sand disposal shall be completed prior to April 15 each year after fill placement. Sand berms that could interfere with sea turtle movement to and from the beach or otherwise impact nesting shall be leveled to the natural beach contour or otherwise modified by May 1.

8. Reports on all nesting activity shall be provided for the initial nesting season and for a minimum of two additional nesting seasons after each dredging and fill placement event if placed sand remains. It is understood that an ongoing sea turtle monitoring program conducted by the NPS in place and expected to continue for the life of the project.

While pipeline dredging equipment is being used, in an effort to minimize adverse affects to sea turtles, Gulf sturgeon, and other marine wildlife the following measures will be observed: a) disengage dredging pumps when the cutter heads are not in the substrate to reduce entrainment of animals in the dredging equipment and b) monitor the dredge discharge for turtle or fish carcasses or parts to document the occurrence of mortality due to dredging operations. Should such evidence occur, dredging operations will be suspended and proper authorities notified immediately.

4.4 CULTURAL RESOURCES

A 1,000-foot radius protective buffer zone has been established during previous dredging and disposal activities around the two cultural resource targets identified in the adjacent nearshore area involving a historic recorded shipwreck (Concrete Ballast Wreck 8ES2995) and an unrecorded historic barge wreck. These sites, however, are well outside of the established buffer zones.

4.5 ENVIRONMENTAL JUSTICE

On February 11, 1994, the President issued Executive Order (E.O.) 12898, F*ederal Actions to Address Environmental Justice in Minority Populations and Low Income Populations.* The order required that Federal agencies conduct programs, policies, and activities that substantially affect human health or the environment so that there are no disproportionately high and adverse human health or environmental effects on minority and low-income populations. This project is not designed to create a benefit for any group or individual, but rather benefits on a nationwide basis. There are no indications that the proposed sand bypassing operation would be contrary to the goals of E.O. 12898, or would create disproportionate, adverse human health or environmental impacts on minority or low income populations of the surrounding community.

4.6 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

No known hazardous, toxic or radioactive waste concerns are known to exist within the confines of the project area. Nor would any be added as a result of the proposed activities. The material to be excavated are naturally occurring marine sands in areas of high current activity and far removed from sources of pollution, thus providing reasonable assurance that the material is not contaminated.

4.7 RECREATION

For a short time, the construction process would limit the recreational activities, especially near the dredge pipe and equipment staging areas. Once completed, the project would provide an aesthetically pleasing larger beaches and vegetated dunes which would supply more area for active and passive recreational activities as attracting coastal wildlife.

4.8 CUMULATIVE EFFECTS SUMMARY

Cumulative impacts are those impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. This section analyzes the proposed action as well as any connected, cumulative, and similar existing and potential actions occurring in the area surrounding the site.

No projects are known to be interdependent upon this project. It is likely that renourishment events in the action area would occur in the future to maintain the beach design profile and additional sand sources would be used. Renourishment is expected to occur at regular intervals with increasing occurrence if the area is impacted by tropical storm events. Several other known beach renourishment are occurring, have recently occurred or are expected to occur within the Florida Panhandle. These include: Pensacola Beach Restoration (8.2 miles of shoreline), Navarre Beach and Dune (3.6

miles of shoreline), and Walton County/City of Destine Beach renourishment (6.9 miles of shoreline and a 210 acre borrow area). In addition there is a proposed sand bypassing unit for the Mexico Beach Canal which is currently within the FDEP permitting process. This project if approved would consist of regualar bypassing of sand via a hydraulic dredge from a 1.6 acre beach site west of the pass to a 4,500 foot stretch of beach to the east. The combined footprint is approximately 514 acres of seafloor and 37 miles of the shoreline. Not all of these projects are expected to occur within the same renourishment cycle (year), thus providing time for the natural system to recover. Cumulative impacts that would arise from renourishment efforts are anticipated to be remote due to the conservation measures typically incorporated in to beach nourishment projects, the dynamic nature of the nearshore zone and the rapid recovery time of the benthic assemblages.

5.0 STATUS OF ENVIRONMENTAL COMPLIANCE

5.1 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) OF 1969

Environmental information on the project has been compiled and this EA has been prepared in accordance with the NEPA. Upon finalization of this EA a Findings of No Significant Impacts (FONSI) will be prepared.

5.2 ENDANGERED SPECIES ACT OF 1973

This proposed action has been coordinated with the USFWS and NMFS. A biological assessment (BA) has been prepared by the local sponsor addressing the potential impacts to the listed species and/or their critical habitat which resulted in a biological opinion issued by the USFWS and NMFS. This coordination has resulted in the issuance of biological opinions (BO) from both agencies. Hopper dredging operations have already been analyzed for the Gulf of Mexico in the November 19, 2003 Regional Biological Opinion (RBO) entitled “Dredging of the Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges (Consultation Number F/SER/2000/01287). Another related biological opinion is in progress for placement of sand on Florida beaches and is anticipated to be in place by the time this project is constructed. Activities will be undertaken to avoid or minimize impacts to these species or where possible to provide activities that may enhance the species continued survival or it’s critical habitat.

5.3 COASTAL ZONE MANAGEMENT ACT OF 1972

The Corps, Mobile District determined that the proposed action is consistent with the Florida Coastal Management Program to the maximum extent practicable. The effect of this project on the coastal zone would be to enhance the zone’s appearance and suitability for beach-type recreation and to restore some of the coastal zone’s ability to provide protection against storms and flooding. Restoration of the State’s beaches is a policy statement with the state Coastal Zone Management Plan Chapter 161 (Coastal Construction). This coordination with the State of Florida will be finalized once the authorization has been received.

5.4 CLEAN AIR ACT OF 1972

No air quality permits are required for this project.

5.5 CLEAN WATER ACT OF 1972

A Section 401 water quality certification has been requested from the Florida Department of Environmental Protection (FDEP). A Section 404 (b)(1) evaluation report is include in APPENDIX A of this EA.

5.6 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (PL 89-665, THE ARCHEOLOGY AND HISTORIC PRESERVATION ACT (PL 93-291), AND EXECUTIVE ORDER 11593)

Consultation with the Florida SHPO will be conducted in accordance with the National Historic Preservation Act, as amended; the Archeological and Historic Preservation Act, as amended and Executive Order 11593. The Corps, Mobile District will also be involved in this coordination.

5.7 MIGRATORY BIRD TREATY ACT

No migratory birds would be adversely affected by project activities.

5.8 MAGNUSON FISHERY CONSERVATION AND MANAGEMENT ACT

The Essential Fish Habitat (EFH) HAS been coordinated with the NMFS.

5.9 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

The term "dumping" as defined in the Act (3[33 U.S.C. 1402](f)) does not apply to the disposal of material in beach and nearshore areas. Therefore, the Marine Protection, Research and Sanctuaries Act does not apply to this project. The disposal activities addressed in this EA have been evaluated under Section 404 of the Clean Water Act.

5.10 E.O. 11988, PROTECTION OF CHILDREN

The proposed action complies with Executive Order 13045, “Protection of Children from Environmental Health Risks and Safety Risks”, and does not represent disproportionally high and adverse environmental health or safety risks to children in the United States. The proposed site is not used disproportionally by children.

5.11 E.O. 11990, ENVIRONMENTAL JUSTICE

The proposed action complies with Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”, and does not represent disproportionally high and adverse human health or environmental effects on minority populations and low-income populations in the United States. The proposed site is not used disproportionally by these populations.

6.0 CONCLUSIONS

Based on the discussions herein and conclusion presented below it is determined that the implementation of the proposed action would not result in long-term adverse impacts and that no significant cumulative impacts for the proposed downdrift disposal site and adjacent shoreline would occur. Upon finalization of this EA a Findings of No Significant Impacts (FONSI) will be prepared.

6.1 HABITAT

Adverse impacts to benthic organisms would be encountered as a result of the direct littoral and nearshore placement of the dredged material from the project site. While most of the immobile organisms within the surf zone are quite adaptable to seasonal changes in temperature, salinity, dissolved oxygen, water clarity, and water level fluctuations due to the tidal cycle, the physical placement of dredged material would destroy some sediment dwelling organisms in the disposal area. Also, some motile organisms may be covered by placement of the dredged material. Natural recruitment into the surf and swash zones by benthic organisms, encrusting organisms and fishes would occur rapidly such that the overall impact would not be significant.

Benefits from the proposed modified placement procedures are wider downdrift beaches, which creates more nesting habitat for endangered sea turtles. The additional habitat is also beneficial to a variety of shore birds as well as other inhabitants of the coastal environment. Wider beaches augment natural dune creation and maintenance, which will be beneficial for dune dwelling organisms and endangered species such as beach mice.

6.2 ESTHETICS

Esthetics would be reduced in the project area during the dredging and placement operations, due to the physical presence of the dredge and pipeline used to transport the dredged material as well as the presence of other land-based support equipment. However, these impacts would be temporary and insignificant. Benefits are received through the increased protection provided by maintaining wider beaches in the vicinity of and downdrift of the project area. The sand bypassing process mimics natural processes and provides greater storm protection to existing coastal structures, dunes, and adjacent sensitive coastal habitats. Increasing the supply of beach sand will also allow natural building and maintenance of the dune system. The resultant wider beaches and the overall enhanced beach environment will increase the esthetics qualities of the area.

6.3 NOISE

Noise from the dredge and other associated support equipment would be evident in the project area. While this noise would be evident to those workers on the job and any users of the beach in proximity of the project, it would be short-term and insignificant. Normal noise levels would be achieved at the end of each workday and after completion of the job.

6.4 WATER QUALITY

As required by the Clean Water Act (CWA), a Section 404 (b)(1) evaluation for the removal of sediment from the navigation channel and placement of material downdrift has been prepared. Some minor and temporary impacts will result from this action:

Turbidity. Some silty material associated with the dredging and placement operations and its re-suspension may result in a slight increase in turbidity. Due to the predominant sandy nature of the material being dredged (beach quality sand), the quantity of silt is expected to be low and not a significant problem. Since the materials being excavated are beach quality sands, no significant elevation of turbidity is expected. The State of Florida's waters would not be significantly affected and water clarity would return to ambient conditions shortly after sediment placement at the disposal site. No significant impacts are expected to result from the placement of the sandy material.

Contaminants. The sandy dredged material designated for beach and nearshore placement consists of a medium-grained marine sand from sources within the littoral system. The sandy material being dredged and placed on the designated beach and nearshore areas is littoral sand form the same source as the sand found within these proposed disposal sites. Previous operations and water quality certifications has found that the material dredged from the site is free of contaminants.

Sediment removed from the tuning basin segment (Site A) of the NAS Pensacola channel is not considered suitable for the placement in the beach and nearshore disposal area. This material is designated to be disposed of the Pensacola Ocean Dredged Material Disposal Site (ODMDS). Materials taken to the ODMDS demonstrated that material from this site does meet the criteria as shown by the Section 103 Evaluation Report.

6.5 AIR QUALITY

Air quality would be temporarily and insignificantly affected by the proposed action. The project area is currently in attainment with National Ambient Air Quality Standards parameters. The proposed action would not affect the attainment status of the project area or region. A State Implementation Plan conformity determination (42 United States Code 7506 (c) is not required since the project area is in attainment for all criteria

pollutants.

6.6 SEDIMENT COMPATIBILITY

Grain size comparisons were conducted between the core samples taken from the channel and the samples collected from the beach. Grain size and color analysis were conducted on the borings and compared to that of the beach samples to assure compatibility between the proposed dredged material and nearshore disposal area. The results indicate that the materials compare well to the dredge material grain sizes and color presented in the placement plan.

6.7 ESSENTIAL FISH HABITAT (EFH)

The National Marine Fisheries Service (NMFS) has identified EFH habitats for the Gulf of Mexico in its Fishery Management Plan Amendments. The habitat in the project area includes the lower Pensacola Bay and Gulf of Mexico waters and consists primarily of sandy substrate consistent with sediment along the northern Gulf of Mexico. Based on the phased approach for the implementation of the dredging and disposal activities and the time that it would take to complete each phase and the size of the proposed placement areas in relation to the total available acreage of similar habitat within the Gulf of Mexico, it has been determined that the proposed action would not result in long-term adverse effects to essential fish habitat.

6.8 PROTECTED SPECIES

Based upon the findings of the biological assessments referenced in this EA, the following determinations have been made:

Sea Turtles – All efforts will be made to conduct the proposed dredging and placement activities outside of the sea turtle nesting window. The conservation measures and recommendations specified in the RBO for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges will be followed to the maximum extent practicable. Because it is inevitable that some of the placed sand will remain on the beaches during subsequent nesting seasons it is determined that the proposed action may adversely affect sea turtles.

Gulf Sturgeon – The conservation measures and recommendations specified in the RBO for Dredging of Gulf of Mexico Navigation Channels and Sand Mining Areas Using Hopper Dredges will be followed to the maximum extent practicable pertaining to Gulf sturgeon. No nearshore placement activities will be conducted in designated critical habitat. Direct placement of beach material will increase shoreline width in some areas, however, the increased width is intended to restore the shoreline to pre-hurricane positions. It is therefore determined that the proposed action may affect, but not likely to adversely affect Gulf sturgeon and will not adversely modify designated critical habitat.

West Indian Manatee - To minimize contact and potential injury to manatees, the Manatee Construction Conservation Measures as specified by the FWS letter dated August 31, 2006 will be strictly observed. In addition, there will be NMFS approved observers on board all hopper dredge operations. By adhering to these measures and recommendations, the proposed action may affect but not likely to adversely affect manatees.

Piping Plover - The placement of sediment on the beach may temporarily impact foraging, sheltering, and roosting habitat and therefore has been determined that direct beach placement of sediment may adversely affect piping plovers.

Perdido Key beach mouse - Direct beach placement of compatible sand may enhance existing habitat or establish new habitat for beach mice. Due to recent hurricane activity flattening a significant portion of the primary dune systems, it is not known where natural dune restoration will begin prior to construction of the project. Given this uncertainty associated with the direct beach placement and location of the dune building processes a determination has been made that the action may adversely affect the Perdido Key beach mouse or designated critical habitat.

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APPENDIX A

SECTION 404 (b)(1) EVALUATION REPORT

FOR

LOWER PENSACOLA HARBOR FEDERAL NAVIGATION CHANNEL

ESCAMBIA COUNTY, FLORIDA

APPENDIX A

SECTION 404 (b)(1) EVALUATION REPORT
FOR
LOWER PENSACOLA HARBOR FEDERAL NAVIGATION CHANNEL
ESCAMBIA COUNTY, FLORIDA

I. DESCRIPTION OF PROJECT.

The U.S. Army Corps of Engineers is responsible for maintaining the Pensacola Harbor Federal navigation channel. The lower 35- by 500-foot (ft) entrance channel reach of the federally authorized project is not included in the current Pensacola Harbor permits, environmental compliance consultations, and NEPA documentation. This segment of the Federal channel corresponds to and falls within the NAS Pensacola navigation channel, however, it is not known whether the Navy will always have the necessary funds to adequately maintain this segment of channel. In the event that shoaling occurs to a point that encroaches on the Federal channel, the Corps must have the means to adequately maintain this part of the Federal channel.

This reach of navigation channel contains material suitable for beach and nearshore placement, therefore, it is recommended that the sediment removed from this channel segment be beneficially bypassed to the adjacent downdrift beach and nearshore areas consistent with established regional sediment management practices. The proposed disposal areas are the Perdido Key beach and nearshore disposal sites previously established under the Navy project.

The existing authorized project as illustrated in Figure A-1 provides for (1) a 35- by 500-feet entrance channel about 5 miles long, from the Gulf of Mexico to lower Pensacola Bay; (2) a 33- by 300-foot bay channel; (3) two 33- by 300-foot parallel approach channels to opposite ends of the inner-harbor channel; (4) an inner-harbor channel 500 feet wide, 33 feet deep, and 3,950 feet long; (5) a 30- by 250-foot approach channel to the pierhead line south of the Muscogee wharf; and (6) a 15- by 100-foot entrance channel into Bayou Chico, thence a channel 14 feet deep, 75 feet wide, and about 4,400 feet long to a turning basin 14 feet deep and 500 feet square. Plane of reference is mean low water.

a. Location. The project is located at Pensacola Pass between Santa Rosa Island and Perdido Key, including the Gulf of Mexico entrance channel extending into Pensacola Bay. It is this lower 35- by 500-foot (ft) entrance channel reach of the federally authorized project that is not included in the current Pensacola Harbor permits that is being addressed in this EA and also illustrated in Figure A-2.

b. Proposed Dredging and Disposal Activities.

Dredging Activities. The lower entrance portion of the channel has been divided into three sub-reaches based on sediment quality as illustrated in Figure A-3. Sediment will be removed from the different channel sub-reaches and placed in the specified disposal area sections. A description of the division of the channel segments according to sediment quality and recommends where the material from each segment should be placed within the proposed disposal area is included below. The Perdido Key beach and nearshore disposal area established under the NAS Pensacola permit will be considered for this action.

(1) Channel Segment 'B'. It is proposed that sand from this segment be placed along the highest priority beach areas within the Perdido Key disposal area. The western tip of Santa Rosa Island has actually encroached into the channel and contains a large volume of sand. Previous sediment testing in this area indicate clean sands with minimal fines content of 1 to 2% and median grain sizes ranging from 0.26 to 0.40 mm with very little shell hash. A color assessment included in the disposal plan indicates good compatibility of this material with the disposal areas.

Another area of high deposition within this segment of channel is south of the throat of the Pass and the Perdido Key shoreline, as indicated in the disposal plan. The material found here are also considered to be of beach quality of light grey to white quartz sands. This material is derived from erosion of the Perdido Key shoreline. Grain size analyses indicate median diameters of 0.30 to 0.50mm. Overall the material from this segment of the channel is expected to be of a high quality, suitable for direct beach placement.

Yet another area of high deposition within Segment B is a 4,100-ft reach south of the turn at around Station 226+00 as indicated in the disposal plan. The sediment investigation conducted by the Corps indicates that this material is expected to yield beach-compatible sand with median grain size diameters of 0.26 to more than 0.40 mm and compatible color gradings. This area represents the northern end of what was historically the ebb shoal bypass bar, prior to the commencement of dredging activities.

(2) Channel Segment 'C'. Sediment testing from this segment of channel indicates increasing occurrences of silty lenses and inclusions, which represents the seaward side of the historic bypass bar and extends offshore to where, historically, the -30 ft depth contour occurred. Median grain size diameters of samples in this segment range from 0.20 to 0.30 mm, and color gradings tend to degrade a bit as compared to the other sandier segments. It is recommended that material excavated from this segment of the channel be placed in the nearshore along the primary bar in the beach profile along Perdido Key. In order to promote the sorting of the finer silts from the coarser fraction of sand and facilitate the onshore transport of the sand fraction, it will be necessary to place the material as close to the primary bar, or just inshore of the bar if possible, shallower than roughly 12 ft MLLW.

(3) Channel Segment 'D'. Located the farthest south, the dredged channel along this segment extends beyond the historical bypass bar location and the pre-dredging

zone of primary influence of the inlet. Sediments along the channel improve in color, grain-size, and fines content. Sediment testing indicate some lenses of slightly silty sand lying atop three to five feet of light gray sand with median grain diameters of 0.33 to 0.35 mm. Samples in other areas of this segment reveal no silt lens and light gray sediments with median grain diameters of 0.32 to 039 mm.

The color gradings of the sediment were produced by a different inspecting geologist under different conditions and on a more refined color grading scale. As such the gradings produced are higher, in general, than those of the COE dataset. Comparison of seabed elevations suggests that the 2001 data are still applicable for the sand lens above the maximum dredging depth.

Disposal Activities. It should be realized that the total depth of this portion of the Federal channel is 39 feet, versus 48 feet for the NAS Pensacola channel, so it is expected that the volume of material dredged for this action will be substantially less than that required for the NAS Pensacola action referenced herein.

The following placement areas on Perdido Key are recommended for this action and illustrated in Figure A-4:

(1) Perdido Key GUIS. It is proposed that sand should be placed over a 6.3-mile segment of beach limited to a maximum fill volume density of 85 cy/ft and a single event disposal volume of no more than1.44 million cy. The maximum berm height is proposed at 8 feet with varying berm height and volume density in the alongshore direction to preserve natural overwash processes. Placement of the material will be segmented into 4 sub-disposal placement areas approximately 8,400 feet in length with 4,700 feet at a berm elevation of 8-foot and 3,700 feet at 5-foot elevation. The placement template can be seen in the disposal plan.

(2) Perdido Key GUIS Nearshore. Sediment from channel sub-reach C should be placed just seaward of the primary bar system landward of the -12-foot contour. The configuration is presented in the disposal plan. The placement zone and recommended configuration would require approximately 40 - 50 cy/ft. Additional materials may come from segments B or D, particularly if the need arises to dispose of more sand from these segments than can be placed on the beaches using the present beach templates.

The placement plan recognizes that the action proposed sites are to maintain the channel to a 500-foot width. Maintenance material on Perdido Key and the nearshore site will be conducted, as long as there is remaining capacity within the design template.

c. Purpose. The purpose of the proposed dredging and disposal is to provide length, width, and depth dimensions for the Federal authorized lower entrance segment for the Pensacola Harbor navigation channel. Proposed dredging and disposal activities are necessary to maintain the project dimensions in order to provide a safe, navigable channel. Although the channel corresponds with the NAS Pensacola channel it is not known whether the Navy will always have the necessary funds to adequately

maintain the channel. In the event that shoaling occurs to a point that encroaches on the Federal channel, the Corps must have the means to adequately maintain this part of the Federal channel.

d. General Description of the Dredged or Fill Material. The material to be placed in the existing disposal areas site will be maintenance dredged material from the navigation channel described above. The dredged material will be of beach quality sand composed predominantly of medium and fine-grained quartz sand.

(1) General Characteristics of Material. The dredged material consists of marine sand from sources within the littoral system. The sand is predominantly white and consists of fine to medium quartz sand.

(2) Quantity of Material. Due to the sandy, coarse-grained nature of the littoral sediments and that these sediments are far removed from sources of contamination, it is considered that no significant levels of contaminants are present.

(3) Source of Material. The source of the sand to be placed in the proposed disposal sites is sandy material that will be dredged from the Pensacola Harbor lower entrance channel as described above.

e. General Description of the Discharge Sites.

(1) Location Map. A map illustrating the location of the existing disposal areas is presented in Figure A-4.

(2) Type of Habitat. The disposal areas are characterized by predominantly white fine to medium quartz sand. The beach and nearshore zones are a very dynamic environment that changes drastically as a function of climate and wave conditions. The direction of the longshore transport is from east to west. Due to the harsh environment within the active nearshore beach zone, the benthic community generally consists of a small number of opportunistic invertebrates. Fish species abundance and diversity are generally lower in nearshore environments such as this. The constantly shifting sediments do not allow aquatic vegetation to become rooted or attached to the unconsolidated sandy substrate. The dynamic nature of the nearshore littoral zone (swash zone, surf zone, and foreshore) is a harsh, unstable environment providing low animal and plant densities.

(4) Timing and Duration of Discharge. The maintenance dredging activities for this project is typically conducted during the fall and winter seasons.

f. Disposal Method. Placement will be accomplished by either or both hopper or hydraulic pipeline within the limits of the disposal areas. It is expected that some support equipment such as bull dozers, etc. may be necessary to move the sand into the proposed configuration.

II. FACTUAL DETERMINATIONS.

a. Physical Substrate Determinations.

(1) Substrate elevation and slope. Beach quality material will be dredged during maintenance operations and placed in a configuration to achieve the desired beach and nearshore properties. Should unnatural escarpments develop on the beach areas, earth moving equipment may be deployed to restore the area to a more natural configuration.

(2) Sediment type. All material dredged from the navigation channel and placed on the described disposal sites is fine to medium beach quality quartz sand.

(3) Dredged/fill material movement. The dredged material placed on the beach and in the nearshore would be subject to movement via cross-shore and longshore transport processes. This movement would occur on a continuous basis depending upon wave climate and the frequency of storm events. The predominant longshore sediment transport pattern in this area is from east to west. The purpose of placing the sand at the proposed sites is to allow the sand to return to the natural littoral system, thus, providing benefits to the immediate and adjacent beaches.

(4) Physical effects on benthos. It is certain that some benthic organisms would be destroyed by the proposed action; however, due to the constant movement of material by currents, benthic organism diversity and abundance would appear to be low. Research conducted by the U.S. Army Corps of Engineers, Waterways Experiment Station under the Dredged Material Research Program (DMRP) suggests that the benthic community is adapted to a wide range of naturally occurring environmental changes and that no significant or long-term changes in community structure or function are expected.

(5) Other effects. No other significant effects due to movement of the physical substrate are noted.

(6) Actions taken to minimize impacts. No actions, which would further reduce impacts due to the placement of dredged the material are deemed necessary.

b. Water Circulation/Fluctuation, and Salinity Determination.

(1) Water

(a) Salinity. No effects.

(b) Water chemistry. No effects.

(c) Clarity. Water clarity may locally be decreased slightly during the

proposed placement of dredged material, but this would not be significant.

(d) Color. No effects.

(e) Odor. No effects.

(f) Taste. No effects.

(g) Dissolved gases. No effects.

(h) Nutrients. No effects.

(i) Eutrophication. No effects.

(2) Current Patterns and Circulation

(a) Current patterns and flow. Changes in water circulation and flow due to placement of sand on the downdrift beaches are not expected to occur. Natural currents and flow will occur during tidal, wave, and storm activities.

(b) Velocity. No effects.

(c) Stratification. No effects.

(d) Hydrologic effects. No effects.

(3) Normal Water Level Fluctuations. No effects.

(4) Salinity Gradients. No effects.

(5) Actions That Will Be Taken To Minimize Impacts. No other actions that would minimize impacts on water circulation/fluctuation and salinity are deemed necessary.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected changes in suspended particulate and turbidity levels in the vicinity of the disposal site. Suspended particulate and turbidity levels are expected to undergo minor increases during dredging and placement activities, however, suspended sediment of this type will quickly fall out of the water column and return to normal conditions. No significant effects would occur as a result of these increases.

(2) Effects on the chemical and physical properties of the water column.

(a) Light penetration. Increased turbidity levels in the project area as a result of the placement of dredged material would reduce the penetration of light into the water column only slightly and would be a minor short-term impact.

(b) Dissolved oxygen. No effects.

(c) Toxic metals and organics. No effects·

(d) Pathogens. No effects.

(e) Esthetics. The placement of dredged material would likely decrease the esthetic qualities of the project area for a short period of time during and shortly after placement. The disposal areas equilibrate and rapidly return to normal upon exposure to the wave climate.

(f) Others as appropriate. None appropriate.

(3) Effects on biota.

(a) Primary production, photosynthesis· No significant effects.

(b) Suspension/filter feeders. Some local minor increases in suspended particulates may be encountered during the proposed action, but these increases would not cause significant impacts to these organisms unless they are directly covered with sand. If directly covered with dredged material, it is expected that some organisms will be destroyed. Rapid recruitment of these organisms will promote a rapid recovery to normal populations. Overall, the impact to these organisms is expected to be minor and insignificant.

(c) Sight feeders. Sight feeders would avoid impacted areas and return when conditions are suitable. However, it is difficult to relate the presence or absence of sight feeders in an area to the placement of dredged material. Sight feeders, particularly fishes, may vary in abundance as a result of temperature changes, salinity changes, seasonal changes, dissolved oxygen level changes, as well as other variables. No significant impacts are expected to occur on sight feeders.

(4) Actions taken to minimize impacts. No further actions are deemed appropriate·

d. Contaminant Determination. No significant effects. The dredged material consists of marine sand from sources within the littoral system that are far removed from sources of contamination and therefore is considered free of contaminants.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on plankton. No effects.

(2) Effects on benthos. Benthic organisms would be destroyed by the deposition of dredged material below the waterline in the nearshore placement areas, but no significant effects are expected on the benthic community as a result of the proposed action.

(3) Effects on nekton. No effects.

(4) Effects on aquatic food web. No effects.

(5) Effects on special aquatic sites.

(a) Sanctuaries and refuges. No effect

(b) Wetlands. Not applicable

(c) Mud flats. Not applicable.

(d) Vegetated shallows. Not applicable'

(e) Coral reefs. Not applicable.

(f) Riffle and pool complexes. Not applicable.

(6) Threatened and endangered species. No threatened or endangered species are anticipated to be impacted by the proposed action; however, a number of sea turtle species and Gulf sturgeon may enter the project area. Practicable efforts will be made to avoid activities during sea turtle nesting season. If activities during nesting season are unavoidable, appropriate sea turtle protection measures will be implemented. Also, the manatee could occur in the area, but not with regularity. Other protected species that are likely to occur within the project area include shorebirds such as plovers and the Perdido Key beach mouse. These species would be avoided if found in the area. In 2007, formal consultation under Section 7 of the Endangered Species act was completed with the U.S. Department of the Interior, Fish and Wildlife Service (FWS) and U.S. Department of Commerce, National Marine Fisheries Service (NMFS) for the dredging and disposal activities for the NAS Pensacola channel to coordinate undertaken to insure that protected species under their purview are appropriately protected. This coordination is constantly updated to assure that these measures of protection remain appropriate.

(7) Other wildlife. No significant effects.

(8) Actions to minimize impacts. No other actions to minimize impacts on the aquatic ecosystem are deemed appropriate.

f. Proposed Disposal Site Determination.

(1) Mixing zone determinations. The Florida Department of Environmental Protection (DEP) delineates mixing zones on a case-by-case basis. DEP has issued a variance to increase the size of the mixing zone for the associated beach and nearshore placement

actions. All requirements placed on the project would be followed to the maximum extent practicable.

(2) Determination of compliance with applicable water quality standards. The proposed action would be in compliance to the maximum extent practicable, with all applicable water quality standards. The Florida Department of Environmental Protection (FDEP) issued a Joint Coastal Permit for the project on (date), under permit number (TBD)

(3) Potential effects on human use characteristics.

(a) Municipal and private water supply. No effects.

(b) Recreational and commercial fisheries. No effects.

(c) Water-related recreation. No effects.

(d) Esthetics. No effects.

(e) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves. The beach placement areas are located with National Park Service, Gulf Islands National Seashore. All activities have been coordinated with NPS representatives.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. In a separate but related action, the National Park Service (NPS) proposes to restore public access to the Fort Pickens Area of Gulf Islands National Seashore (GUIS) to pre-Hurricane Ivan levels. Access to this portion of the park has been severely limited since the Fort Pickens Road was destroyed in 2004 and 2005 by Hurricanes Ivan and Dennis. The Fort Pickens Road is approximately 7 miles long and connects Pensacola Beach with Fort Pickens, a listed National Historic District. It has been closed to vehicular traffic since September 2004. Over 700,000 visitors access Fort Pickens Area each year. The Fort Pickens Area is about 1740 acres in area.

The proposed action has been made necessary due to the destruction of large portions of the Fort Pickens Road by Hurricane Ivan and subsequent storms. The Fort Pickens Road is a segment of National Park Service-owned and -maintained road on Santa Rosa Island, Escambia County, Florida. The road extends approximately 7 miles between Pensacola Beach and Fort Pickens. This road has been in place for over 50 years under state, and then federal, ownership. During that time the natural processes and dynamics of the barrier island have proceeded, although the location of the road did impact the process of dune migration and development. Sand moved, vegetation and wildlife flourished, wetlands appeared and disappeared with relatively little effect from the road. The eastern four miles of the road were destroyed by Hurricane Ivan in September 2004, and damaged by subsequent tropical events in 2005. The road has been closed to the vehicular traffic since that time.

The predicted cumulative impacts these actions are minor in relation to the action addressed the EA. The areas would be returned to conditions that existed prior to the 2004 and 2005 hurricane seasons. Implementing such actions will provide regional overall public benefits as well as provide shoreline maintenance resulting in an enhanced coastal environment on a regional level.

h. Determination of Secondary Effects on the Aquatic Ecosystem. No significant effects.

III. FINDING OF COMPLIANCE.

a. Adaptation of Section 404(b)(1) Guidelines. No significant adaptations to the guidelines were made relative to this evaluation.

b. Alternatives.

(1) No Action. A "no action" alternative was considered but would not provide the proposed maintenance dredging and disposal activities required for the Pensacola Harbor Federal channel needed to ensure safe navigation of vessels that may travel through the channel from the Gulf of Mexico through Pensacola Bay to the Port of Pensacola. Navigability of the channel would be impacted by not providing the necessary dimensions and impede access to the Pensacola Harbor facilities. The resultant impacts from "no action" would include unsafe navigation conditions and adverse economic impacts due to decreased channel navigability.

c. Compliance with State Water quality Standards. Acquiring a certification under the Clean Water Act (CWA), Section 401 Water Quality Certification was required for the proposed action, resulting in a Joint Coastal Permit (permit number TBD) received from Florida DEP on (date).

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean water Act. The action is consistent with the Florida Coastal Program to the maximum extent practicable. Recertification of the existing project and establishment of the disposal areas were requested and granted under the permits listed above from the State of Florida.

e. Compliance with Endangered Species Act. The proposed activity is not expected to harm Federally-protected species. Regarding potential impacts to Federally-protected species, the appropriate Federal agencies have been contacted. Sufficient safeguards exist to protect Federally-protected species which may occur or enter into the project area.

f. Compliance with Specific Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act. The proposed activity would not result in any significant adverse effects on human health or welfare, including municipal or private water supplies, recreation and commercial

fishing, plankton, fish, shellfish, and wildlife. The life stages of aquatic life and other wildlife would not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values would not occur. No wetlands would be impacted by the proposed action.

g. Evaluation of Extent of Degradation of the Waters of the United States. The proposed fill plan is specified as complying with the requirements of these guidelines.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem. The proposed fill plan is specified as complying with the requirements of these guidelines.

i. On the Basis of the Guidelines, the proposed Disposal Site for the Discharge of Dredged Material. Specified as complying with the requirements of these guidelines.

DATE: _____

_____
BYRON G. JORNS
Colonel, Corps of Engineers
District Engineer

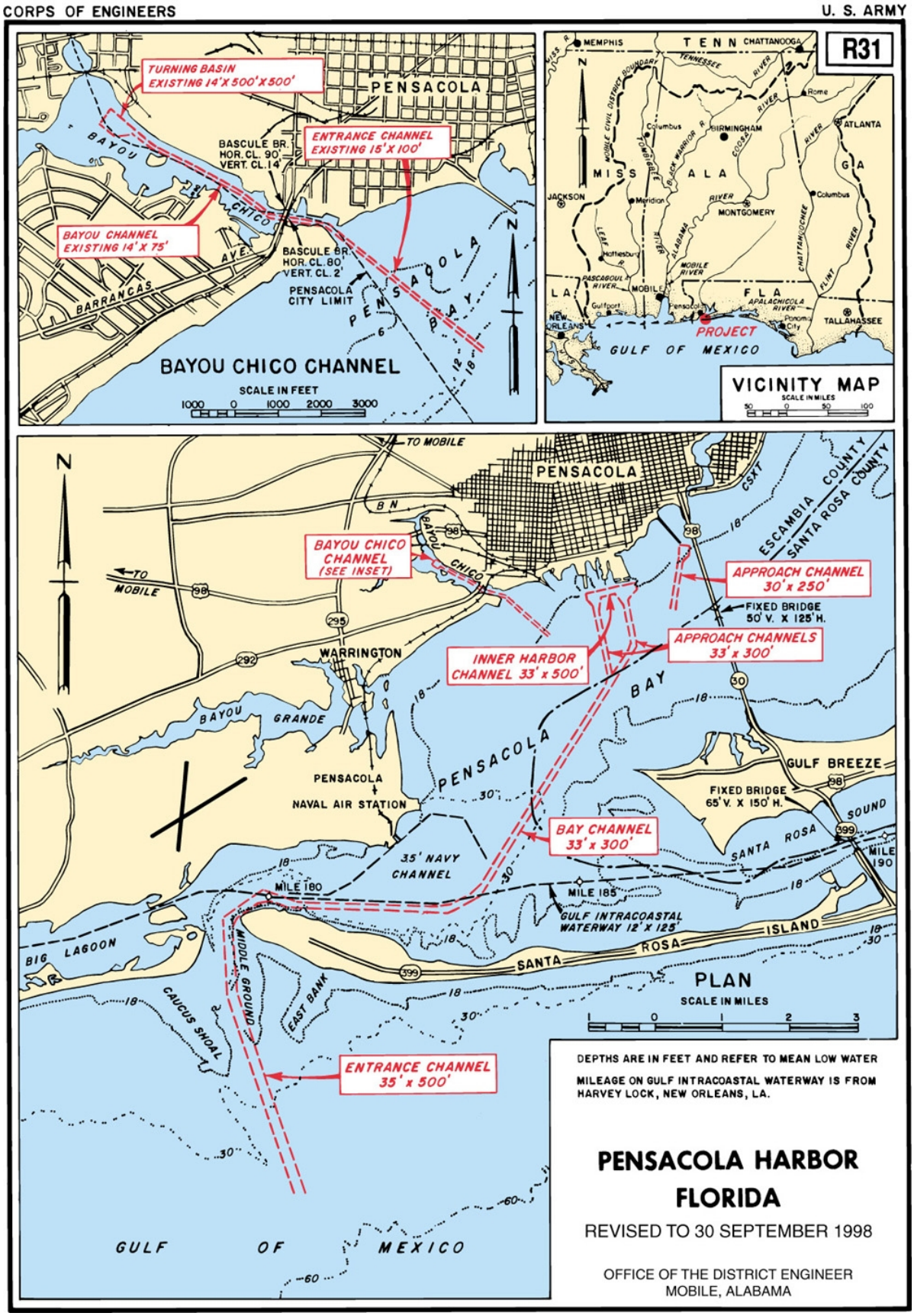


Figure A-1. Location and dimensions of the Pensacola Harbor Federal Navigation Channel

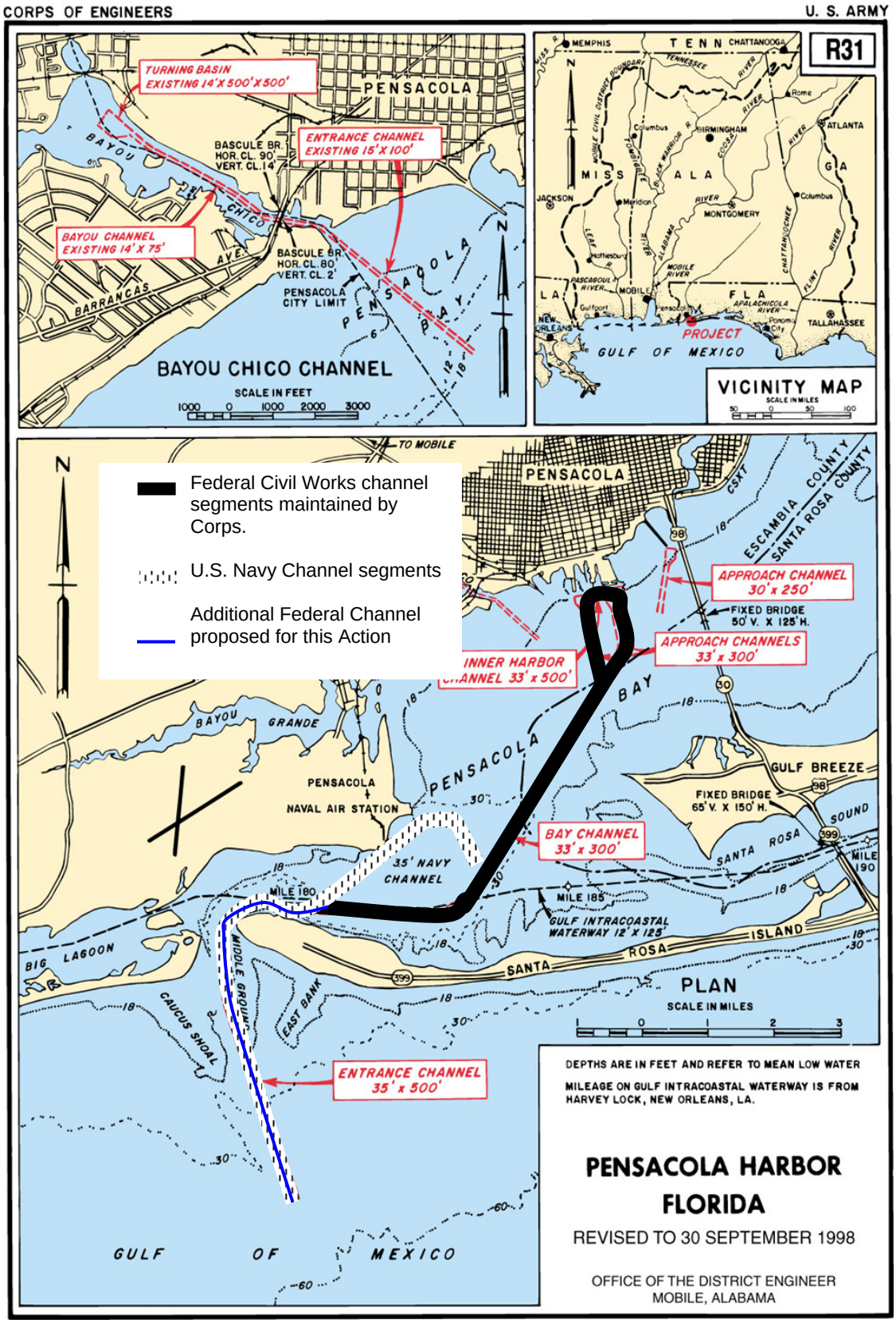
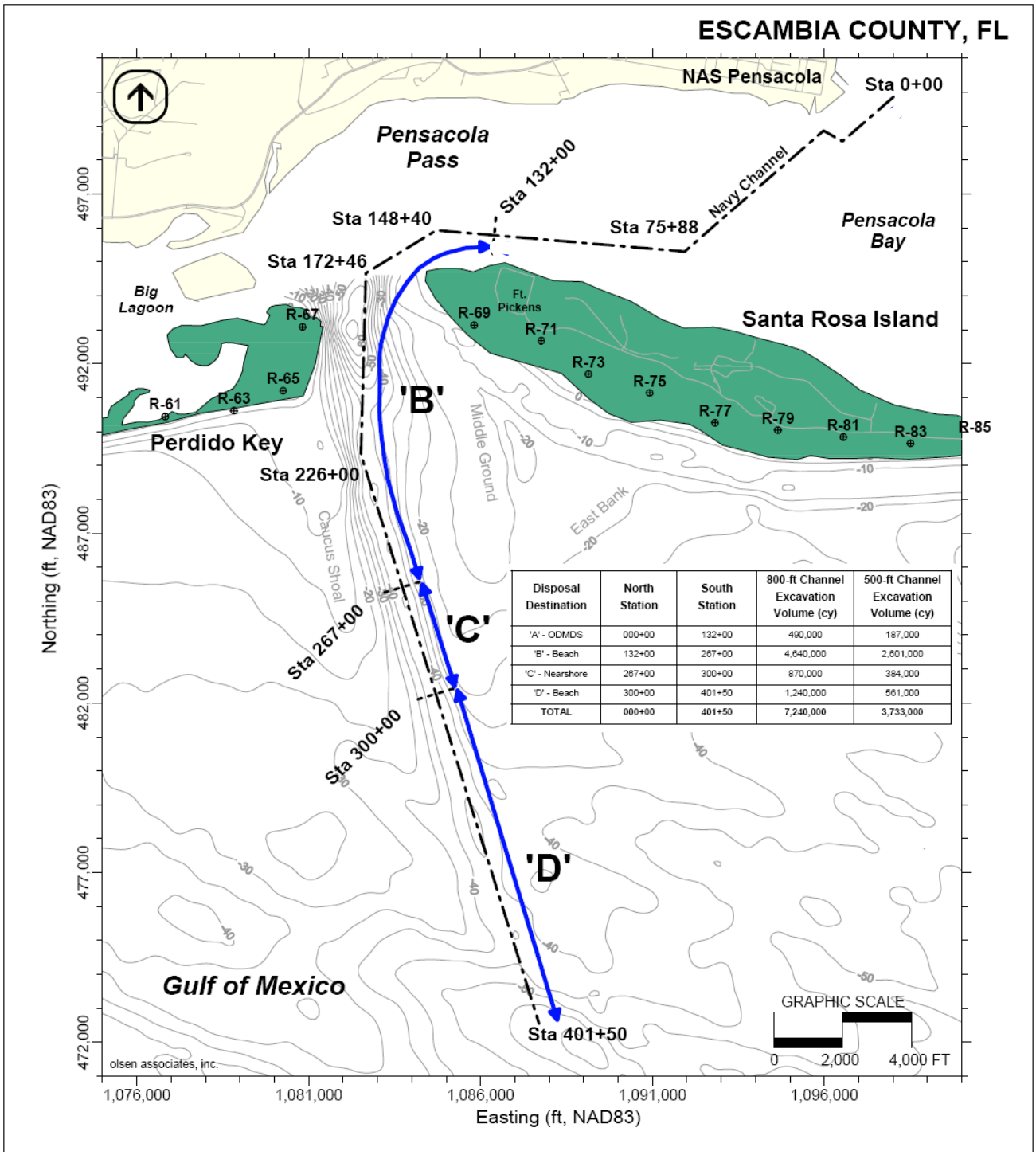


Figure A-2. Additional reach of Federal Civil Works Channel proposed fro the action (shown in blue)



Disposal Destination	North Station	South Station	800-ft Channel Excavation Volume (cy)	500-ft Channel Excavation Volume (cy)
'A' - ODMDS	000+00	132+00	490,000	187,000
'B' - Beach	132+00	267+00	4,640,000	2,601,000
'C' - Nearshore	267+00	300+00	870,000	384,000
'D' - Beach	300+00	401+50	1,240,000	561,000
TOTAL	000+00	401+50	7,240,000	3,733,000

Figure A-3. Lower Federal Navigation channel segments.

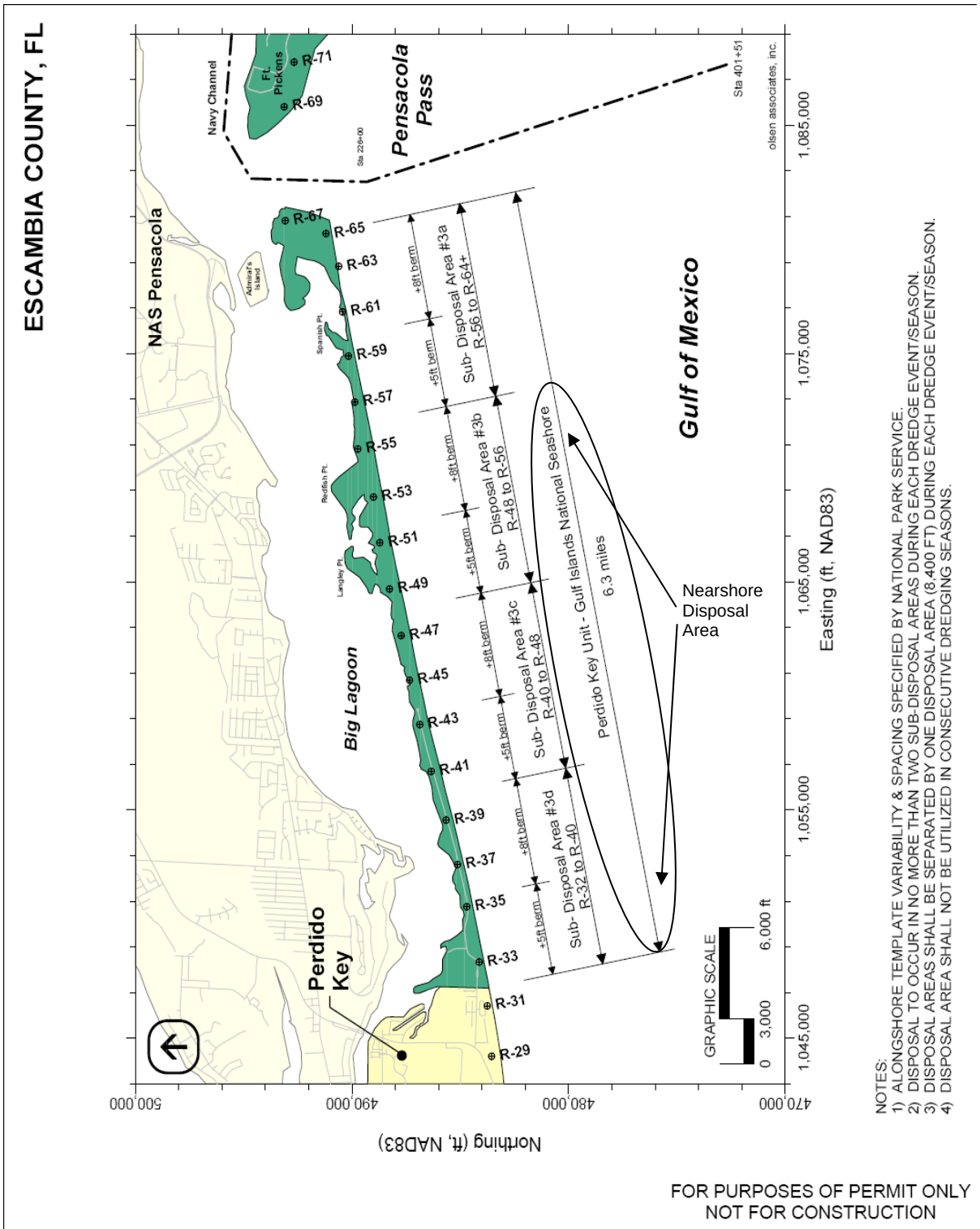


Figure A-4. Proposed Perdido Key beach and nearshore disposal areas.