

Therefore, an artificial reef created with the provision of suitable substrate as an objective would replace nearly 100% of the existing habitat values of the existing reef. It is our opinion, therefore, that if carefully planned and executed, an artificial reef of equal acreage would adequately compensate for reef losses incurred by the proposed project. We welcome the opportunity to work with Corps staff and that of Sarasota County in developing a suitable, yet economical, reef design and in monitoring the effectiveness of that design.

IX. FISH AND WILDLIFE SERVICE RECOMMENDATIONS

The Fish and Wildlife Service recommends that the following be included in the Sarasota County Beach Erosion Control General Design Memorandum:

A. Project Design

1. To prevent damage to the productive reef located at DNR monument R-120 the width of the beach fill should be reduced by 100 feet for a length of 900 feet along the shoreline beginning 450 feet north of the monument and ending 450 feet south of the monument.

B. Hardbottom Mitigation

1. The large boulders that make up the groin south of Venice Beach, as well as the derelict groin in this same vicinity, should be taken offshore and used to create an artificial reef.
2. Under current conditions, approximately 2.3 acres of hardbottom will be buried. We recommend that at least one acre of artificial reef is deployed prior to project construction. This will provide an alternative refuge for fish displaced by the project.
3. Assuming that the artificial structure will have approximately the same surface area per acre above the scour zone as the six hardbottom areas, we recommend a mitigation ratio of no less than 1 to 1. Since we believe the reef offshore DNR monument R-120 is irreplaceable, this .4 acre area cannot be mitigated. The remaining hardbottom area occupies an area of 1.9 acres which requires the construction of 1.9 acres of artificial reef.
4. The artificial reef structure selected for mitigation should be designed to provide habitat for species which are of interest to local SCUBA divers and snorkelers. It should be constructed of natural material (i.e. limestone). Design features should include: a) extensive unshaded horizontal surface area; b) openings near the bottom for stone crabs; d) interstitial spaces

approximately 10 cubic feet; e) large overhanging ledges; f) numerous projections, crevices and holes.

5. Based on existing reef acreage, we recommend that the designed reef consist of 16 modules, either of limestone boulders or the limestone embedded concrete modules, which are 50 ft. wide by 100 ft. long by at least 5 ft. high.
6. Monitoring and annual reporting to the Corps of Engineers and resource agencies on the effectiveness of the mitigation should be incorporated as a project feature. Monitoring should include quantitative measurement of the macroepibenthos per square meter by wet weight of organisms which have colonized artificial substrate. Comparisons should be made between total biomass, macroepifloral biomass and macroepifaunal biomass at the designed reef and at nearby natural reefs. Fin fish communities at both reef types should be censused and compared in number, species and biomass (estimated). Fish communities should also be compared at both reef types using similarity indexing. Sampling should take place once in each season for three years or until it is clear that community structure has stabilized.
7. The Fish and Wildlife Service should be funded by the Corps of Engineers to participate in the monitoring of the designed reefs. This will promote a better understanding of design effects on reef communities and facilitate the development of an increasingly effective artificial reef strategy and better informed decision making for future Civil Works projects.
8. The reef mitigation plan described above should be included as a Federal project feature subject to cost-sharing (i.e. 75% Federal, 25% local) to defray the project sponsor's cost of mitigation in accordance with current Corps policy as established by the principles and guidelines.

X. SUMMARY

The Corps of Engineers has requested comments from the Fish and Wildlife Service regarding a proposed beach nourishment project at Sarasota County, Florida.

The proposed project will result in the direct burial of approximately 2.3 acres of hardbottom. The Service recommends that the width of the nourishment be reduced by 100 feet to protect the productive reef that occurs offshore DNR monument R-120. Hardbottom acreage buried should be mitigated for with artificial reef habitat at an approximate ratio of 1 to 1 with a suitable reef design. Monitoring of the created reef should be conducted for three years or until reef community structure has stabilized.

XI. Literature Cited

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Table 1. Fish Species Observed at Reef Waterward of R-120.

Gray snapper	(<u>Lutjanus griseus</u>)
Spadefish	(<u>Chaetodipterus faber</u>)
White grunt	(<u>Haemulon plumieri</u>)
Spottail pinfish	(<u>Diplodus holbrooki</u>)
Sheepshead	(<u>Archosargus probatocephalus</u>)
Red grouper	(<u>Epinephelus morio</u>)
Spotted seatrout	(<u>Cynoscion nebulosus</u>)
Dusky damselfish	(<u>Pomacentrus fuscus</u>)
Black sea bass	(<u>Centropristis striata</u>)
Redfish	(<u>Sciaenops ocellata</u>)
Snook	(<u>Centropomus undecimalis</u>)
Atlantic moonfish	(<u>Vomer sepapinnis</u>)
Scrawled cowfish	(<u>Acanthostracion quadricornis</u>)
Porcupinefish	(<u>Diodon hystrix</u>)
Gag grouper	(<u>Mycteroperca microlepis</u>)
Gray triggerfish	(<u>Balistes capriscus</u>)

APPENDIX V

SECTION 404(B)(1) EVALUATIONS

SECTION 404(b)(1) EVALUATION DREDGED MATERIAL

I. Project Description

a. Location. Intracoastal Waterway (IWW), Vicinity Casey's Pass, Sarasota County, Florida.

b. General Description.

The maintenance dredging would include the excavation of sandy material from the IWW and Casey's Pass and the placement of that material on Snake Island and the beach South of Casey's Pass. Casey's Pass is 100 feet wide and 11 feet deep; this depth includes the 9 feet authorized and 2 feet of allowable overdepth. Placement of material on Snake Island will enhance the beach area on the west side of the island and will be a one-time beneficial use of dredged material. The beach placement area would include 6000 feet of Venice Beach starting 600 feet south of Casey's Pass and would be utilized during most maintenance dredging episodes.

c. Authority and Purpose. When a Federal navigation project is authorized, it is generally the responsibility of the U.S. Army Corps of Engineers to maintain that channel. As part of that responsibility, the channels are monitored for shoaling and the situation warrants it maintenance dredging is performed. As part of the Federal standard for the project the local sponsor acquires disposal areas. The disposal option with the least cost is designated the baseline for the project. If the local sponsor should desire another option then, this option is cost shared. House Document No. 371, 76th Congress, First Session authorized the authorization for maintenance of the Federal channel.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The material is sandy shoal material deposited in the inlet and waterway channel.

(2) Quantity of Material. Approximately 40,000 cubic yards would be dredged once every two years.

(3) Source of Material. The dredged material would come from the Casey's Pass Navigation channel and the IWW in the vicinity.

e. Description of the Proposed Discharge Site.

(1) Size and Location. The disposal areas are on the west side of Snake Island and 6,000 feet of beach located 600 feet south of the inlet.

(2) Type of Site. The disposal areas are a spoil island and beach environment along the Gulf coast.

(3) Type of Habitat. The habitat at the discharge site is sandy beach, dunes and surf.

(4) Timing and Duration of Discharge. The dredging would occur for approximately 90 days at a dredging frequency of every other year.

f. Description of Disposal Method. The material would be slurried and pumped to the beach through a pipeline. As the sandy material settles out of solution and is deposited on the beach, a berm is constructed between the discharge and the surf using a front-end loader or bulldozer. The return water from the bermed area returns to the surf zone.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. Gently sloped beach and littoral zone.

(2) Sediment Type. The material is graded coarse sand dredged from the IWW and Casey's Pass Navigation Channel. The tidal flows and littoral transport cause the sedimentation of coarse grained materials in the navigation channel.

(3) Dredged/Fill Material Movement. The material would be placed in the beach/littoral drift zone. During the yearly cycle, the beach accretes and erodes with a general southern movement of material along the beach.

(4) Physical Effects on Benthos. There would be a covering and smothering of clams and worms that inhabit the surf zone. These organisms would not be significantly affected because of the small amount of sediments covering these organisms and their ability to burrow towards the surface.

(5) Other Effects. After the beach placement there is a general compacting and erosion process that establishes the equilibrium state of the beach. Sometimes escarpments form along the beach during this erosion process.

(6) Actions Taken to Minimize Impacts. Tilling is conducted if beach compaction exceeds 500 PSI or if escarpments form prior to sea turtle nesting season.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

- (a) Salinity. No impacts to salinity at disposal site.
- (b) Water Chemistry. There would be no affect because the shoaled material is clean sand.
- (c) Clarity. Effluent out of the return water from the bermed area will meet State water quality criteria for turbidity.
- (d) Color. There would be no relative differences to receiving water color expected other than localized turbidity.
- (e) Odor. The disposal site is located adjacent to inhabited areas and any odors will be temporary. The effluent return to the Gulf should have little or no odor and is not expected to cause either short of long-term odor problems in the Gulf.
- (f) Taste. Not applicable.
- (g) Dissolved Gas Levels. There would be no impact because the surf zone has a high level of atmospheric mixing.
- (h) Nutrients. None.
- (i) Eutrophication. None.

(2) Current Patterns and Circulation. Not applicable.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. There will be a short-term increase in the suspended particulate/turbidity in the return effluent from the bermed area. Levels should

not exceed state standard.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Slight light penetration reduction will be temporarily experienced at the disposal site effluent return in the surf zone.

(b) Dissolved Oxygen. None.

(c) Toxic Metals and Organics. None.

(d) Pathogens. Not Applicable.

(e) Aesthetics. There would be construction activities along beaches used for recreational activities. Some beach activities such as seashell gathering increase because of the disposal operations. The operation also becomes recreation as it is a curiosity to beach goers.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in Sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. Dredged material will be dewatered in the bermed area and most suspended particulates will settle out before the effluent is returned to the surf zone.

d. Contaminant Determinations. No sources of pollution have been identified in the project area; therefore, no contaminants are expected to be encountered. In addition, the sandy material has a relatively low capacity for bonding with many contaminants.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. There would be no significant impacts on benthos in the

area from the return water plume.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. There would be no significant impact on the aquatic food web within the surf zone.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. Not applicable.

(b) Wetlands. Not applicable.

(c) Mud Flats. None.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. No hardbottoms would be impacted.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. Sea turtles use the beach for nesting. A nest monitoring and relocation program would minimize the affects of beach placement on these species. Manatees use the Intracoastal waterways. There would be no affects on manatees because standard state and federal conditions for dredging will be implemented to protect the manatees.

(7) Other Wildlife. There would be an increase in the amount of migratory bird nesting and sea turtle nesting habitat available.

(8) Actions to Minimize Impacts. Work schedules would try to avoid migratory bird and sea turtle nesting periods. However, should the dredging be delayed precautions will be taken to avoid impacting nesting until the project is complete. Also precautions will also be taken to avoid impacting manatees within the work area.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge return water must comply with State water quality standards.

(3) Potential Effects on Human Use Characteristic

- (a) Municipal and Private Water Supply. Not applicable.
 - (b) Recreational and Commercial Fisheries. Immediate impacts to commercial fisheries resources will be insignificant.
 - (c) Water Related Recreation. There would be a disruption of normal beach recreational activities during placement of sand along the beach.
 - (d) Aesthetics. There would be aesthetic impacts during beach placement activities from the presence and operation of heavy equipment, the pipeline, and the discharge of slurried material along the shoreline. There will be a minor temporary adverse impacts to project area aesthetics because of the smoke from the dredge engine and placement of slurried sand on Snake Island and the beach south of the Pass.
 - (e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.
- g. Determination of Cumulative Effects on the Aquatic Ecosystem. None are apparent.
- h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

APPENDIX VI

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS.

1.0 National Environmental Policy Act of 1969, as amended. Environmental information on the project has been compiled and the draft Environmental Assessment was made available for public review through public notice in compliance with 33 CFR Parts 335-338. These regulations govern the Operations and Maintenance of US Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged or Fill Material into Waters of the US or Ocean Waters. The public notice for this work was issued on 10 May 1995. No adverse comments were received. A public workshop was also held on 1 May 1995, in Venice, Florida. This public coordination and environmental impact assessment complies with the intent of NEPA. The process will fully comply with the Act once the District Commander has signed the Findings of No Significant Impact.

2.0 Endangered Species Act of 1973, as amended. On 8 September 1997, we initiated consultation with the US Fish and Wildlife Service concerning impacts on manatees and sea turtles requesting incorporation by reference the Biological Opinion from the Sarasota County Shoreline Protection Project. In addition, we also requested a Biological Opinion for impacts on manatees based on a May Effect determination by this office. By letter dated 3 October 1997, the USFWS responded stating that impacts on sea turtles would adversely impact the species. However, if all Terms and Conditions of the October 1991 BO for the Sarasota project were followed impacts would be mitigated. Also if we followed the standard manatee protection condition that the dredging would not likely affect the species.

This project was fully coordinated under the Endangered Species Act; therefore, this project is in full compliance with the Act.

3.0 Fish and Wildlife Coordination Act of 1958, as amended. The project has been coordinated with the USFWS during the public notice period. No adverse comments were received. Therefore, due to the none-response of the USFWS, it is assumed it is acceptable and would comply with the Act.

4.0 National Historic Preservation Act of 1966, as amended (PL 89-665). A prehistoric archeological site, 8 SO 2336, is listed in the Florida Master Site Files and is located on the southwestern portion of Snake Island. The site is a shell midden consisting of a scatter of prehistoric artifacts. The Snake Island archeological site has been affected by previous disposal activities and is subject to adverse effects from shoreline erosion. Specific site information has not been sufficient to make a determination of eligibility according to the procedures established in the National Historic Preservation Act of 1996, as amended, and 36 CFR Part 800. The Jacksonville District, Corps of Engineers, initiated coordination with the Florida State Historic Preservation Office (SHPO) on 28 November 1995 with a telephone conversation between Ms. Laura Kemmerer, Division of Historic Resources (DHR), and Ms Janice Adams, Corps Archeologist. Ms Kemmerer agreed that the site had been affected by previous disposal activities and continues to be adversely affected by erosion. It was the opinion of the SHPO that data should be collected to make a determination of eligibility before site preservation measures

are planned or initiated. Since Snake Island will not be used as the dredged material placement area, a future Beneficial Use of Dredged Material could be the protection and preservation of site 8 SO 2336.

The beach placement was covered by coordination with the SHPO from the Sarasota County Shoreline Protection Project (See Environmental Assessment dated June 1992).

5.0 Clean Water Act of 1972, as amended.

5.1. Section 401. The Florida Department of Environmental Regulation is processing a Water Quality Certification for a 10-year period by Permit Application No. 582731519. If the work is done in accordance with the permit there would be no adverse water quality impacts.

5.2. Section 404. The purpose of Section 404(b)(1) of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States through the control of discharges of dredged or fill material. Controls are established through restrictions placed on the discharges in Guidelines published in 40 CFR 230. An evaluation of the material has been conducted in accordance with procedures in Section 404(b)(1) (Appendix V).

6.0 Clean Air Act of 1972, as amended. No air quality permits will be required for this project. Therefore, this Act would not be applicable.

7.0 Coastal Zone Management Act of 1972, as amended. The project has been evaluated in accordance with Section 307 of the Coastal Zone Management Act. It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Management Plan (Appendix III). In accordance with the 1979 Memorandum of Understanding and the 1983 Addendum to the Memorandum concerning acquisition of water quality certifications and other State of Florida authorizations, the preliminary Environmental Assessment and Section 404(b)(1) Evaluation have been submitted to the State in lieu of a summary of environmental impacts to show consistency with the Florida Coastal Zone Management Plan.

8.0 Farmland Protection Policy Act of 1981. No prime or unique farmland will be impacted by implementation of this project. This act is not applicable.

9.0 Wild and Scenic River Act of 1968, as amended. No designated Wild and Scenic river reaches will be affected by project related activities. This act is not applicable.

10.0 Marine Mammal Protection Act of 1972, as amended. Incorporation of the safe guards used to protect manatees during dredging and disposal operations will be implemented during construction, therefore, this project is in compliance with the Act.

11.0 Estuary Protection Act of 1968. No designated estuary will be affected by project activities. This act is not applicable.

12.0 Federal Water Project Recreation Act, as amended. There is no recreational development proposed for maintenance dredging or disposal. Therefore, this Act does not apply.

13.0 Resource Conservation and Recovery Act of 1976, (PL 94-580; 7 U.S.C. 100, et seq. This law has been determined not to apply, as there are no items regulated under this act being disposed of or affected by this project.

14.0 Toxic Substances Control Act of 1976, (PL 94-469; U.S.C. 2601, et seq. This law has been determined not to apply, as there are no items regulated under this act being disposed of or affected by this project.

15.0 Migratory Bird Treaty Act. The work has been evaluated pursuant to the Migratory Bird Treaty Act. A Migratory Bird Protection Policy has been prepared to address protecting migratory bird nesting within the Jacksonville Harbor area and the Atlantic Intracoastal Waterway. As part of the Policy, conditions will be incorporated into the Plans and Specifications to protect the birds during the nesting season. This plan would insure no adverse impacts on nesting migratory birds in compliance with the Act.

16.0 E.O. 11990, Protection of Wetlands. No wetlands will be affected by project activities. This project is in compliance with the goals of this Executive Order.

17.0 E.O. 11988, Floodplain Management. No activities associated with this project will take place within a floodplain, therefore this project is in compliance with the goals of this Executive Order.