Environmental Protection Agency
1445 Ross Avenue
Dallas, Tx 75202

July 1990

EPA

ENVIRONMENTAL IMPACT STATEMENT

FINAL

Brazos Island Harbor Ocean Dredged Material Disposal Site Designation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202-2733

JUN 28 1990

TO INTERESTED AGENCIES, OFFICIALS, PUBLIC GROUPS AND INDIVIDUALS:

Enclosed is a copy of the Final Environmental Impact Statement (EIS) concerning the Environmental Protection Agency's (EPA's) designation of an ocean disposal site for material dredged from the Brazos Island Harbor Entrance Channel. The National Environmental Policy Act does not apply to EPA activities of this type. EPA has voluntarily committed to prepare EISs in connection with its ocean disposal site designation program.

Because changes from the Draft EIS are minor, the Final EIS incorporates the Draft EIS by reference and includes the following: 1) a revised summary; 2) comments received on the Draft EIS and EPA's responses; 3) modifications and corrections to the Draft EIS; and 4) EPA's proposed action.

Written comments or inquiries on this Final EIS should be mailed to Norm Thomas, Chief, Federal Activities Branch, at the above address by the date stamped on the cover sheet following this letter.

Sincerely yours,

Robert E. Layton Jr.

Robert E. Layton Jr., P.E.
Regional Administrator

Enclosure

FINAL ENVIRONMENTAL IMPACT STATEMENT
BRAZOS ISLAND HARBOR
OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMDS) DESIGNATION

RESPONSIBLE AGENCY: U.S. Environmental Protection Agency, Region 6

ADMINISTRATIVE ACTION: The purpose of the action is to comply with the Marine Protection, Research and Sanctuaries Act of 1972 by providing an environmentally acceptable ODMDS in compliance with the Ocean Dumping Regulations (40 CFR §§ 220-229).

EPA CONTACT: Norm Thomas (6E-F)
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ABSTRACT: The proposed action is the designation of an ocean disposal site for 350,000 cu yd of material dredged from the Brazos Island Harbor Entrance Channel during maintenance dredging by the U.S. Army Engineer District, Galveston, Texas. The major adverse environmental impact of disposal at the site is the burial and high mortality of the benthic infaunal community within the disposal site boundary.

COMMENTS ON THE FINAL EIS DUE: AUG 13 1990

RESPONSIBLE OFFICIAL:

Robert E. Layton, Jr., P.E.
Regional Administrator

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PREFACE

The Draft Environmental Impact Statement (DEIS) for the Brazos Island Harbor Ocean Dredged Material Disposal Site (ODMDS) Designation was issued by the U.S. Environmental Protection Agency (EPA) in July of 1989. The DEIS was distributed to approximately 30 Federal, State, and local agencies and interested individuals. Eight comment letters were received by EPA during the public review period.

This Final Environmental Impact Statement (FEIS) consists of four sections, which are (1) a summary of the disposal alternatives considered, the proposed action, and an evaluation of the environmental impacts of the proposed action; (2) the comments received and EPA's responses; (3) modifications or corrections to the DEIS; and (4) EPA's proposed action. A complete environmental analysis of the proposed action is provided by the DEIS and FEIS together.

The FEIS was prepared with the assistance of Battelle Memorial Institute – Duxbury Operations.

PART I. SUMMARY OF THE DRAFT AND FINAL EIS

A. BACKGROUND

The purpose of this Final Environmental Impact Statement (FEIS) is to identify an environmentally acceptable site for disposal of material dredged from the Brazos Island Harbor (BIH) entrance channel. Channel maintenance is the responsibility of the Galveston District U.S. Army Corps of Engineers (COE) and the work is classified as a Federal project, which means the dredging is performed directly by the COE. To maintain safe navigability of the entrance channel, approximately 350,000 cubic yards (cu yd) of sediment is dredged from the channel at 13-month intervals.

The channel was first constructed in 1905 when a 10-ft-deep, 70-ft-wide cut was made through the sandbar east of Port Isabel for the passage of ship traffic. The channel, designated the Brazos Santiago Pass, was stabilized by the construction of rubble-mound jetties, topped with 4-ft cubic granite blocks and concrete in 1935. Presently, the north and south jetties are 6330 ft long and 4550 ft long, respectively. In 1950, Congress authorized construction of a 21.5 mile (statute) deep-draft channel to link the city of Brownsville, TX, to the Gulf of Mexico. The authorized depth of the Brownsville ship channel was 36 ft, and the project was completed in 1957. Bottom widths of the present channel range from 300 ft at the entrance to approximately 200 ft inland. The BIH ODMDS receives only material dredged from the 2-mile portion of the channel that begins between the jetties and extends into the Gulf. Material dredged from the inland portion of the channel is disposed at upland sites and is not considered in this EIS. An EIS for maintenance dredging of the entire 21.5-mile Brownsville Ship Channel was prepared by the COE in 1975.

The interim-designated BIH ODMDS in the Gulf of Mexico has received maintenance dredged material from the channel since at least 1957. The interim-designated disposal site is approximately 0.77 square mile and is located northeast of the Brazos Santiago Pass between the −30 and −50-ft contours.

In 1972, the Marine Protection, Research, and Sanctuaries Act (MPRSA), Public Law 92-532, empowered the U.S. Environmental Protection Agency (EPA) to issue regulations for ocean disposal of dredged material and assigned the COE as the permitting authority for dredging operations. EPA's Ocean Dumping Regulations, revised in January 1977 (40 CFR §§ 220-229), establish procedures for ODMDS designation and terms for their management.

Pursuant to these regulations, all existing ODMDSs were designated as interim sites until final ODMDS designations could be made.

Since 1977, the Galveston District of the COE has continued to dispose of maintenance material dredged from the BIH entrance channel at the interim-designated BIH ODMDS. The COE has requested that EPA designate a final ODMDS to receive maintenance material in compliance with the MPRSA.

B. ALTERNATIVES

EPA's proposed action is to designate an ODMDS for the disposal of material dredged from the BIH entrance channel. Disposal alternatives that were considered include no action, land-based disposal, and ocean disposal at nearshore, midshelf, and continental shelf sites.

No Action

The no-action alternative, under which an ocean disposal site for BIH maintenance material would not be selected, is a violation of the intent of the MPRSA, as expressed in 40 CFR § 228.12. Interim sites were designated in 1977. This process was created so that economically important disposal operations that were not obviously creating detrimental impacts could continue to function until baseline or trend assessment surveys were performed and appropriate management actions could be recommended. The interim sites, such as the BIH ODMDS, were designated based on historical usage. It was never the intention of the MPRSA for the interim designation to remain permanently in effect.

Land-Based Disposal

Non ocean-disposal alternatives that were considered in this EIS include upland disposal and beach nourishment. Upland sites that are available for disposal of BIH maintenance material are too small, far away, and/or in environmentally sensitive and productive habitats such as shallow bays and wetlands. One 82-acre site was considered as a temporary alternative, but within a few years it would be filled to capacity and other farther away sites would have to be used or ocean disposal would have to be resumed. The costs of overland transport of dredged material are also very high. The costs can include purchases of property, pipeline easements, heavy equipment, and pumps. The limited

capacity of the one available site and the cost of using it and other more inland sites make upland disposal an unfavorable alternative.

In addition to dramatically higher disposal costs, upland dredged material disposal is difficult to properly engineer and carries more environmental risk. Dredged material that is disposed in upland sites, even very clean material such as from BIH entrance channel, must often be dewatered, diked, and either covered or vegetated with terrestrial plants to prevent erosion. Erosion is already a problem at upland areas that receive dredged material from the BIH inland channels. The arid conditions in South Texas lead to hypersaline conditions in the land-disposed material; vegetation cannot take root and wind-driven dust and erosion become significant problems.

Beach nourishment was also considered as an alternative disposal method for the disposal of BIH maintenance material. The COE is using BIH entrance channel dredged material in a pilot project to stabilize the beach along South Padre Island. Dredged material has been deposited along the 25-ft contour parallel to the beach creating a submerged offshore berm. It is believed that the berm will trip large incoming waves and damp their energy, thereby indirectly reducing shoreline erosion. Over time, the berm is expected to erode and serve as a feeder of sand material to the beach. The results of this project have not yet been analyzed. Direct disposal of BIH dredged material onto the beach front is not feasible due to turbidity problems, obstructions to navigation in the area by pipelines and anchoring arrays, and the overall high cost of transporting the material up onto the shore. There are also significant technical problems related to the use of hopper dredges, which are necessary in the unprotected waters of the entrance channel. Most hopper dredges are not designed to pump the dredged material in their holds into pipelines to get it onto the beach. If present hopper dredges can be retrofitted with pumpout hardware or new dredges with pumps are built in the future, direct beach nourishment can become a feasible alternative.

Ocean Disposal

Ocean disposal at the mid-continental-shelf, the continental slope, and near shore was considered. These disposal alternatives are evaluated in the following sections.

Offshore Sites

The midshelf and continental slope areas are 25 - 30 and 60 miles, respectively, from the entrance of BIH. Generally, the midshelf and continental shelf sites were determined to

be unacceptable because of uncertain environmental impacts, decreased monitoring and surveillance feasibility, increased transportation costs, and greater safety risks. The sediments dredged from BIH have significantly different chemical and physical properties, compared to deep-water coastal sites. Deep-water benthic communities are inherently less adapted to perturbations that might occur during dredged material disposal than are shallow-water communities. Shallow-water communities are adapted to high turbidity and occasional burial caused by wave action and storm events.

Hauling dredged material to either offshore site will increase the length of time to complete each dredging operation, increase equipment and fuel costs, and require more manpower and closer surveillance to guard against short dumps. Presently, the 13-month interval maintenance dredging for BIH entrance channel requires 16 days; the same project would require 189 days to complete if material is deposited at a continental shelf site. Fuel consumption increases from 107,000 gal at the preferred site to 1,266,000 gal at a continental shelf site. Fuel combustion introduces a range of environmental pollutants, increasing the overall environmental impact of disposal at an offshore site. Use of additional vessels would reduce the total number of days to complete the work, but would not reduce the number of man-days or the quantity of fuel required.

Deepwater disposal sites are also more difficult to monitor for baseline conditions and postdisposal impacts. Whereas grab samplers and SCUBA divers can be used to monitor shallow sites, more sophisticated sampling devices, submersibles, and larger research vessels are necessary to monitor deep-water sites. Additionally, working farther offshore carries greater safety risks during both the disposal and monitoring operations. Because of these considerations, the midshelf and continental slope sites were eliminated as feasible disposal site alternatives.

Nearshore Sites

A nearshore site was determined to be the best alternative, based on monitoring studies that show that no cumulative impacts have occurred from disposal at the interim-designated site, the feasibility of continued monitoring, and decreased cost and safety hazards.

Nearshore areas that are suitable for the establishment of ODMDSs were identified by using the Zone of Siting Feasibility (ZSF) approach. This approach involves identification of a large area within which an ODMDS could be located, based on physical, political and

geographical constraints. Subareas within the ZSF are then eliminated from ODMDS siting, based on the locations of biologically sensitive areas, beaches and recreational areas, cultural and historical areas, and living and nonliving resources. These areas are excluded from the ZSF based on an interpretation of 5 general and 11 specific criteria described in 40 CFR §§ 228.5 and 228.6(a) of the Ocean Dumping Regulations.

A computerized literature search was conducted to collect data relevant to the project area. Because there were no significant environmental reasons to locate the site farther offshore, a 10-mile radius from the intersection of the BIH entrance channel and the beach line was used as the boundary of the ZSF. The enclosed area is approximately 140 square miles and is restricted on the southern side by the United States/Mexico boundary. Monitoring and surveillance activities are feasible within all regions of the ZSF, and all areas outside the ZSF were eliminated from further consideration.

ODMDS Size and Location

A computer model developed by the COE Waterways Experiment Station was used to predict the transport of dredged material through the water column and subsequent benthic deposition after discharge from a hopper barge. This information was used to calculate the size of a nearshore ODMDS so that dredged material discharged in the center of the site will settle to the bottom inside the site's boundaries. The model predicted an elliptical dispersion pattern. The mound would have a maximum height of 6 in. and be approximately 700 ft long in the downcurrent direction and 400 ft wide in the crosscurrent direction. The boundary is defined as where the thickness of the dredged material is 0.6 in. The model also predicted a detectable accumulation of material to 2600 ft downcurrent from the center of the mound. This information was used to determine the necessary size of the ODMDS and the buffer zone distances between the ODMDS and the numerous recreational, cultural, historical, living and nonliving resources within the ZSF.

The determination of ODMDS size and location was also based on the analysis of the daily number of discharges expected during dredging operations and location restrictions as described in 40 CFR §§ 220-229. Other important siting considerations include the cost of the dredging operations and the regulations stating that ODMDS sites shall be as small as possible to contain any future impacts and allow for effective monitoring [40 CFR § 228.5 (d)], and that historical disposal sites shall be used whenever feasible [40 CFR § 228.5(e)].

Therefore, EPA recommends siting the BIH ODMDS inside the following coordinates (see Figure 1).

26° 04′ 32″ N, 97° 07′ 26″ W;	26° 04′ 32″ N, 97° 06′ 30″ W
26° 04′ 02″ N, 97° 06′ 30″ W;	26° 04′ 02″ N, 97° 07′ 26″ W

The northeast and southwest corners of the interim-designated BIH ODMDS are within areas excluded from the ZSF. The preferred BIH ODMDS is smaller than the interim-designated site (5200 x 3000 ft vs 6300 x 3300 ft), overlaps a large part of the nonexcluded portion of the interim site, and is outside all excluded areas within the ZSF.

It should be noted that designation of an ODMDS does not permit disposal of toxic or otherwise hazardous dredged material at the site. By law (40 CFR §§ 220-229), dredged material must meet stringent toxicity and bioaccumulation criteria before it may be disposed at a designated ODMDS. Data from BIH entrance-channel dredged material indicate that it has historically met all criteria for ocean disposal. Additionally, no detrimental impact has been observed at the interim ODMDS. To ensure that long-term detrimental impacts are prevented at and around the preferred site, EPA will establish a monitoring and surveillance program for the BIH ODMDS. The program will consist of

- Assessment of the water column and sediment quality of the ODMDS
- Assessment of the health of the biological community of the ODMDS and immediately downcurrent of the site
- Elutriate testing of the disposal site sediment for toxicity and bioaccumulation
- Replicate sampling of macrobenthic organisms at three sites in and near the ODMDS

C. AFFECTED ENVIRONMENT

Physical Environment

The Brownsville Shipping Channel and the Brazos Island Harbor Entrance Channel are on the South Texas Coastal Plain in a semitropical marine environment controlled by the Gulf of Mexico. Water circulation in the area is the result of a complex interaction of lunar tides, prevailing wind and storms, freshwater inflow, and Coreolis acceleration. Tidal range in the BIH ODMDS area is 2 to 4 ft and bottom currents are predominantly to the north. Storm events in the area are relatively frequent and often completely obscure tidal fluctuations.

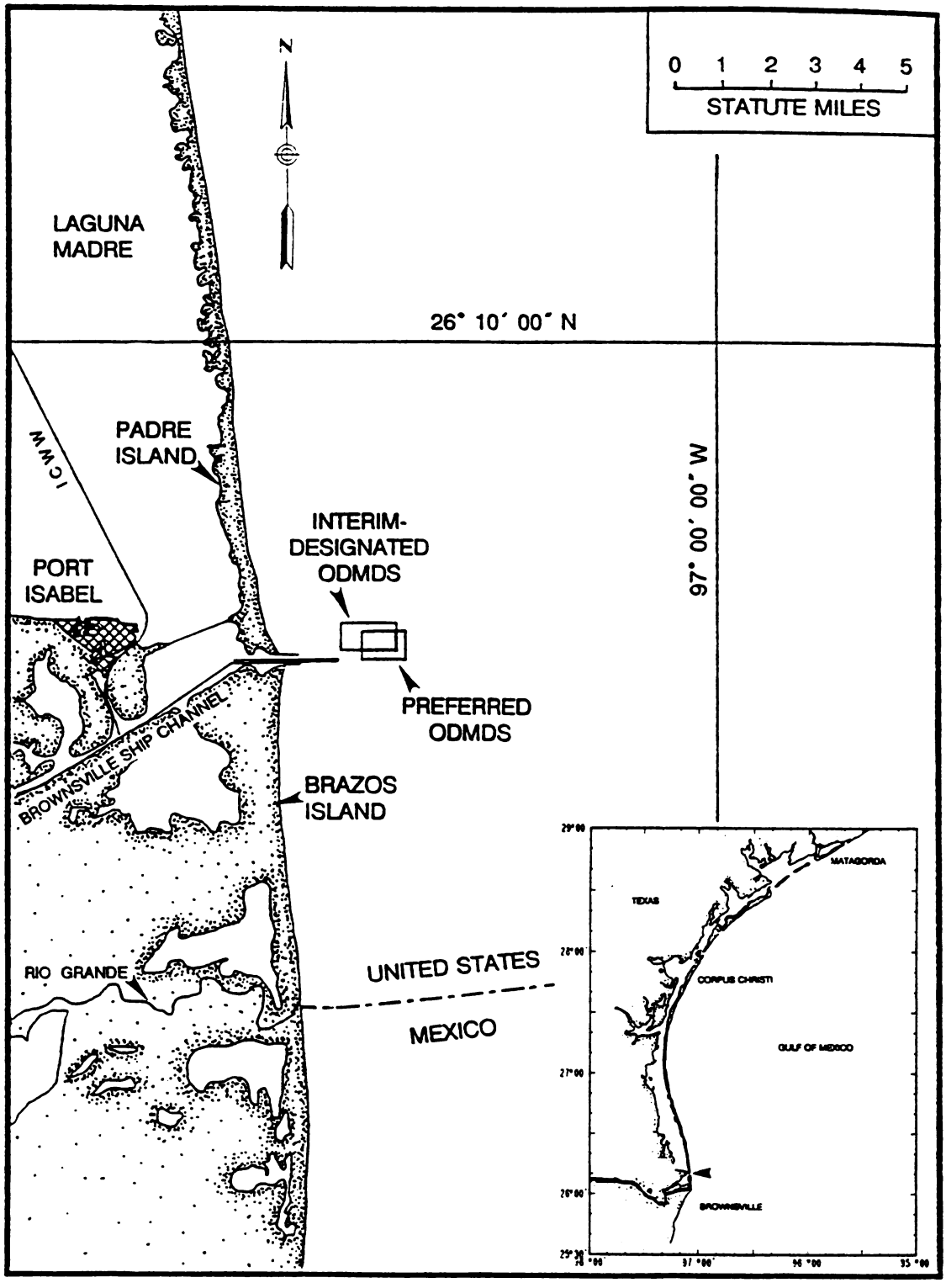

FIGURE I-1. BRAZOS ISLAND HARBOR AREA SHOWING LOCATIONS OF THE INTERIM-DESIGNATED ODMDS AND THE PREFERRED SITE

Annually, there is a 32%, 21%, and 3% chance of a tropical storm, hurricane, and extreme hurricane, respectively, striking the mid-Texas coast. The Laguna Madre is typical of Texas bays and is responsive to a wide range of meteorological forcing. High- and low-pressure systems acting on the bays create net water inflow or discharge through the passes of the barrier islands, including Brazos Santiago Pass. The combined result of water movement in the Gulf, the bays, and through the pass, causes sediment transport and shoaling of the BIH entrance channel at approximately 350,000 cu yd/year.

Water depth at the ODMDS is approximately 50 ft. The benthic topography in this part of the Gulf is flat and relatively featureless, with an average vertical to horizontal gradient of 5:1000 from the beach to 3300 ft offshore. Beyond this, the continental shelf begins with an even more gradual gradient of 5:10,000.

Analysis of BIH Dredged Material and ODMDS Conditions

Sediment and water quality in and near the interim-designated ODMDS are within EPA standards. Zinc and toxaphene exceeded EPA water quality criteria in elutriate tests of BIH dredged material, but both contaminants were calculated to be within acceptable levels following initial mixing. Similarly, bioassay and bioaccumulation studies of the dredged material have shown that the dredged material does not exceed the regulatory criteria. In conclusion, no toxic or hazardous effects have been shown from historical use of the interim-designated ODMDS and none is predicted for future disposal of BIH entrance-channel dredged material at the preferred site.

Grain-size analyses have shown that the composition of the dredged-material sediment is similar to sediments at the interim-designated and preferred ODMDSs. The sediments from the entrance channel, the ODMDSs, and the area south of the ODMDSs are mostly sand. Farther offshore and north of the ODMDS area, the sediments are composed of fine sand and silt plus clay fractions. These data support the designation of a nearshore ODMDS versus an offshore site.

Beaches in the BIH area are generally in a state of erosion. Storm-driven sediment is transported from the beaches and onto the tidal flats and the Laguna Madre. Prevailing onshore winds strike the shoreline at an angle and generate strong longshore drift to the north. The longshore drift is evidenced by the buildup of sand on the south side of the jetties of Brazos Santiago Pass. These sediment-transport processes also prevent mounding of

dredged material at the ODMDS. No cumulative mounding has resulted from disposal at the interim-designated ODMDS and none is expected at the preferred ODMDS.

Biological Environment

The dominant phytoplankton in South Texas Gulf of Mexico waters are diatoms, with the heaviest concentrations occurring near shore. Peaks in abundance occur in the spring and summer for nearshore communities and in the summer for offshore phytoplankton. Changes in nearshore-phytoplankton biomass correlate closely with freshwater runoff into the nearshore environment. Zooplankton communities in the area are dominated by copepods with a spring/summer peak of abundance.

Macroinfauna in the area are dominated by polychaetes and molluscs. The community composition of the infauna in the interim-designated ODMDS area and the area south of the site is similar. Conversely, the communities north and offshore of the ODMDS area are significantly different from those in the ODMDS area. These differences are probably due to the corresponding differences in grain size of the sediments in each area, as discussed above.

Nekton in the project area include a variety of finfish and crustacea. Species include those that inhabit the bays and the Gulf and migratory species that move through the area on a seasonal basis. Commercially and recreationally important fishery resources in the area include penaeid shrimp, blue crab, kingfish, croaker, star drum, pompano, and red snapper. Other species that occur in large numbers around the project area include the Gulf whiting, Atlantic threadfin, mullet, sardine, silverside, killifish, and anchovy. None of these species is expected to be significantly impacted by the proposed use of the ODMDS.

The National Marine Fisheries Service has identified 10 species of aquatic vertebrates considered endangered or threatened that possibly inhabit the Gulf Texas area.[1] Eleven species of aquatic and terrestrial vertebrates considered endangered or threatened are also listed by the U.S. Fish and Wildlife Service (50 CFR § 17) and the Texas Parks and Wildlife Department. In addition, the Texas Organization for Endangered Species lists 13 species for the region.

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[1] The fin whale, humpback whale, right whale, sei whale, sperm whale, green sea turtle, hawksbill sea turtle, Kemp's Ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle.

The largest concentration of green sea turtles on the Texas coast occurs along the lower portion of the Laguna Madre. Juvenile green turtles inhabit the Laguna Madre primarily in the fall. Loggerhead turtle strandings have been recorded on the lower Texas coast and in 1979 two loggerhead nests were documented on South Padre Island. Six nests of Kemp's Ridley sea turtle have also been recorded on South Padre Island. The leatherback and hawksbill are extremely rare in the area.

Only four listed cetacean species are known to occur off the Texas coast – the sperm whale, blue whale, black right whale, and the finback. The sperm whale is the most common, but none is known to regularly inhabit nearshore Texas waters. EPA has determined that designation of the BIH ODMDS will not adversely impact any endangered or threatened species.

In the vicinity of the ODMDSs, there is one unit of the Lower Rio Grande National Wildlife Refuge on Brazos Island. West of Brazos Island is the State of Texas South Bay Coastal Preserve and to the north is the National Audubon Society Three Islands Bird Sanctuary and the Laguna Atascosa National Wildlife Refuge. There are no designated marine sanctuaries in the area, although there is a fish haven north of the preferred ODMDS and shrimp spawning of many commercially valuable species occurs throughout the region.

Socioeconomic Elements

Brazos Island Harbor is an active port for commercial and recreational vessels. Commercial uses include fishing vessels and bulk-cargo vessels that transport petroleum products, cotton, corn, sorghum grains, fresh fruits, and nuts. Records show that 1.71×10^6 tons of bulk cargo was shipped through BIH in 1985. This is a significant decline from a peak of 6.38×10^6 tons in 1973 when Port Isabel had an operational deep-draft transshipment terminal.

Economically important tourist/recreational beaches in the area are located on Padre Island and Brazos Island. The State recreation area is also located on Brazos Island. On the mainland is the Port Isabel State Historic Structure and the Queen Isabella State Fishing Pier. There are also 116 shipwrecks of cultural or historical interest within the greater project area.

No mineral extraction is presently occurring in the project area, nor are there any military restrictions that would influence the BIH ODMDS selection process. The nearest international boundary is the United States/Mexico border approximately 10 miles south of the preferred BIH ODMDS.

D. ENVIRONMENTAL CONSEQUENCES

The preferred BIH ODMDS has been evaluated according to five general and 11 specific criteria in the Ocean Dumping Regulations [40 CFR §§ 228.5 and 228.6(a)]. This evaluation is summarized in Tables I-1 and I-2.

E. PROPOSED ACTION

EPA's proposed action is the final designation of the preferred site for the future disposal of material dredged from the Brazos Island Harbor entrance channel during annual maintenance.

TABLE I-1. SUMMARY OF GENERAL CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE

General Criteria as Listed in 40 CFR § 228.5(a-e)	Preferred Disposal Site
(a) The dumping of materials into the ocean will be permitted only at sites or in areas selected to minimize the interference of disposal activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries and regions of heavy commercial or recreational navigation.	The preferred BIH ODMDS was selected to avoid sport and commercial fishing activities, as well as other areas of biological sensitivity. The site does not include any known navigational obstructions and is outside the buffer zones of the navigational channel, the jetties, a fish haven, and the nonsubmerged shipwrecks in the area.
(b) Locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere in the site can be expected to be reduce to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.	Chemical analyses and toxicity studies indicate that the material dredged in the past has been acceptable for ocean disposal under 40 CFR § 227. The biota in the ZSF is healthy, indicating no significant adverse impacts from historical disposal operations in the area. The size of the preferred ODMDS and buffer zones in the DEIS were determined through analyses of sediment transport information and the physical oceanographic characteristics of the Brownsville area. The analyses were conservative to ensure that no perturbations caused by the disposal operations would be detectable outside the boundaries of the site.
(c) If at any time during or after disposal site-evaluation studies it is determined that existing disposal sites presently approved or on an interim basis for ocean dumping do not meet the criteria for site selection set forth in §§ 228.5-228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.	Should the proposed monitoring and surveillance program indicate in the future that dredged material disposal at the preferred site is unsuitable and that the site should be dedesignated, there are other nonexcluded areas in the ZSF that are available and suitable for use as an ODMDS.

TABLE I-1. SUMMARY OF GENERAL CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE (continued)

General Criteria as Listed in 40 CFR § 228.5(a-e)	Preferred Disposal Site
(d) The sizes of ocean disposal sites will be limited to localize the identification and control any immediate adverse impacts and to permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration, and location of any disposal site will be determined as a part of the disposal site evaluation or designation study.	The site is of minimum size to sufficiently meet the requirements of 40 CFR §§ 228.5 and 228.6(a). The size of the preferred site is 0.56 square mile, reduced from 0.77 square mile of the interim site. The proposed monitoring programs should provide adequate surveillance to identify any potential adverse impacts within the boundaries of the ODMDS.
(e) EPA will, whenever feasible, designate ocean dumping sites beyond the edge of the continental shelf and other such sites that have been historically used.	No significant advantages, but many disadvantages were found for the establishment of an ODMDS off the continental shelf. An offshore ODMDS for BIH dredged material would result in dramatically higher costs, safty risks, and time factors than the preferred site that is nearer to the source of the dredged material. There is also a large disparity in grain sizes between the dredged material and the benthos of the continental shelf from Brownsville. Additionally, compared to inshore communities, benthic communities off the continental shelf are less resilient to perturbations that may result from disposal operations. The preferred site encompasses much of the historically used interim-designated site. However, the interim site was found to be partially in the excluded area and could not be selected in its entirety. There are no other historically used sites within the ZSF.

TABLE I-2. SUMMARY OF SPECIFIC CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE

Specific Criteria as Listed in 40 CFR § 228.6(a)(1-11)		Preferred Disposal Site
(1)	Geographical position, depth of water, bottom topography, and distance from the coast.	The coordinates of the site are stated on page 1-6. The water depth at the preferred site ranges from 45 to 60 ft. The benthic topography of the site is flat and the closest point to shore is 1.6 miles from the coast.
(2)	Location in relation to breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases.	The nearest fish haven is approximately 0.8 mile NNE of the preferred site and the Brazos Island Harbor jetties are about 1.0 mile from the SW corner of the site. The protected waters between the jetties allow for migratory passage of brown and white shrimp, blue crab, drum, sheepshead, and southern flounder populations. The jetties, the fish haven, and the nonsubmerged shipwrecks in the area, the last of which also improves fishing, were excluded from the ZSF.
(3)	Location in relation to beaches or other amenity areas.	The preferred site is 1.8 miles from the nearest beach and 1.8 miles from the Brazos Island Recreation Area.
(4)	Types and quantities of wastes proposed to be disposed of, and proposed methods or release including methods of packaging the wastes, if any.	Only maintenance dredged material from the Brazos Island Harbor entrance channel will be disposed at the preferred site. Approximately 350,000 cu yd of material is dredged from the channel at roughly 13-month intervals. The material is presently transported to the interim-designated site by hopper dredges, but other means of transportation could be used at either the interim or preferred sites, including hydraulic-dredge/pipeline.

TABLE I-2. SUMMARY OF SPECIFIC CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE (continued)

Specific Criteria as Listed in 40 CFR § 228.6(a)(1-11)		Preferred Disposal Site
(5)	Feasibility of surveillance and monitoring.	The preferred site is amenable to surveillance and monitoring, due to its proximity to Brownsville and Port Isabel and its relatively shallow depths. These factors facilitate site accessibility and reduce sampling costs and safety risks. The proposed surveillance and monitoring program for the Brazos Island Harbor ODMDS consists of water, sediment, and elutriate chemistry; bioassays; bioaccumulation studies; and benthic infaunal analyses.
(6)	Dispersal, horizontal-transport, and vertical-mixing characteristics of the area, including prevailing current direction and velocity, if any.	Sediment dispersal, horizontal transport, water column currents, and vertical mixing in the region of the ODMDS were analyzed to (1) develop the necessary buffer zones for the exclusion analysis, and (2) determine the minimum necessary size of the preferred site. The predominant longshore currents are toward the north with average near-bottom velocities beyond the 50-ft isobath between 0.1 - 0.3 kn. No long-term mounding has been recorded at the interim-designated ODMDS, which has received dredged material from the channel since at least 1957. Presumably, the longshore water circulation and storm events, including occasional hurricanes, level the topography of the site to that of the surrounding area and most/all of the disposed material is widely dispersed over the nearshore area.
(7)	Existence and effects of current and previous discharges and dumping in the area (including cumulative effects).	Studies employing both chemical tests and bioassays have concluded that there are no water- or sediment-quality problems in the preferred site or the ZSF. Testing of past maintenance dredged material indicates

TABLE I-2. SUMMARY OF SPECIFIC CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE (continued)

Specific Criteria as Listed in 40 CFR § 228.6(a)(1-11)	Preferred Disposal Site
(7) (continued)	that it was acceptable for ocean disposal under 40 CFR § 227. Grain-size studies have shown that the sediment at the interim site is primarily sand, similar to areas nearshore and south of the site, and to past maintenance material disposed at the site. Also, the benthic community at the interim site is similar to nearshore and southern areas. Both sediment composition and benthic communities at and south of the interim site are significantly different from areas located to the north and farther offshore. The grain size and benthic conditions at the interim-designated site may be the result of natural processes or of historical disposal of dredged material at the site. In either case, no adverse environmental impacts have been found at the site. Continued disposal of channel-dredged material at or near the interim site would not be expected to cause any significant problems. The preferred site encompasses much of the interim site and is not within an excluded area.
(8) Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance, and other legitimate uses of the ocean.	Items from this list that are pertinent to the BIH ODMDS are shipping, mineral extraction, commercial and recreational fishing, and recreational and historical sites. The preferred site will not interfere with other legitimate uses of the ocean because the site-selection process was expressly designed and conducted to avoid interferences and minimize impacts. Past disposal operations at the interim site have not interfered with other uses, and no changes are expected at the preferred site that would alter the *status quo*.

TABLE I-2. SUMMARY OF SPECIFIC CRITERIA AS APPLIED TO THE PREFERRED DISPOSAL SITE (continued)

Specific Criteria as Listed in 40 CFR § 228.6(a)(1-11)		Preferred Disposal Site
(9)	Existing water quality and ecology of the site as determined by available data or by trend assessment of baseline surveys.	Monitoring studies at other ODMDSs off the Texas coast have shown that short-term water-column turbidity perturbations, and sometimes increased chemical oxygen demand (COD), result from disposal operations. No short-term sediment-quality perturbations were correlated to disposal operations. Similar short-term impacts probably occur during disposal operations at Brazos Island Harbor ODMDS. Available data show that both water and sediment quality are high in the interim site and throughout the ZSF. This indicates that BIH disposal operations present no long-term water column or benthic impacts. Correspondingly, minimal environmental impacts are predicted during disposal operations at the preferred site.
(10)	Potentiality for the development or recruitment of nuisance species in the disposal site.	When dredged material is disposed, the material is recolonized first by opportunistic species. However, these species are not nuisance species in the sense that they interfere with legitimate uses of the ocean or that they are human pathogens. The disposal of maintenance material has not been shown to, nor is the disposal of future maintenance material expected to, promote the development of nuisance species at the BIH ODMDS.
(11)	Existence at or in close proximity to the site of any significant natural or cultural features of historical importance.	Sixty-two shipwrecks of historical importance are clustered around the BIH channel jetties and within the established buffer zones of the jetties. Disposal operations at the preferred ODMDS should not impact any known sites of historical importance.

PART II. CONSULTATION AND COORDINATION

This section of the FEIS summarizes the process by which the DEIS was reviewed. Comments received during the review process are acknowledged and responded to as necessary by EPA.

A. PUBLIC REVIEW PROCESS

The Brazos Island Harbor Ocean Dredged Material Disposal Site Designation Draft EIS was distributed by EPA to interested agencies, officials, public groups, and individuals on June 29, 1989 (EPA 906/07-89-007). All comments received on the DEIS, as well as the FEIS, are considered by EPA when making a final decision on ODMDS designation.

B. RESPONSES TO COMMENTS

During the public review process, eight comment letters concerning the Draft EIS were received from federal and state agencies and one private organization. The letters are numbered and listed below.

Letter Number	Agency
1	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, DC
2	U.S. Department of the Interior, Office of Environmental Project Review, Albuquerque, NM
3	U.S. Department of Transportation, United States Coast Guard, New Orleans, LA
4	U.S. Department of Health and Human Services, Centers for Disease Control, Atlanta, GA
5	State of Texas, Office of the Governor, Austin, TX
6	State of Texas, Texas Historical Commission, Austin, TX

Letter Number	Agency
7	State of Texas, Parks and Wildlife Department, Austin, TX
8	F. Hermann Rudenburg, Sierra Club, Lone Star Chapter Coastal Affairs Committee, Galveston, TX

These letters are reproduced in this section. Each comment within each letter is assigned a number in the left margin. EPA's responses to the comments are to the right and are identified by the respective comment number.

Some of the letters contain comments that concern other ODMDS Draft EISs. Only the comments pertaining to the BIH ODMDS DEIS are addressed in this document. EPA's responses to the other comments are presented in the respective FEISs.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Washington, D.C. 20230

Office of the Chief Scientist

LETTER NO. 1

August 23, 1989

RECEIVED
SEP 5 1989
6E-F

Mr. Norm Thomas
Federal Activities Branch
EPA Region 6
1445 Ross Avenue, Suite 1200
Dalls, Texas 75202

Dear Mr. Thomas:

This is in reference to your Draft Environmental Impact Statement on the Port Mansfield, the Brazos Island Harbor and the Matagorda Ship Channel Ocean Dredged Material Disposal Site Designation, Texas.

II-3

1-0 We hope our enclosed comments will assist you. Thank you for giving us an opportunity to review the documents.

1-0 See the following pages for EPA's responses to specific comments.

Sincerely,

David Cottingham

David Cottingham
Director
Ecology and Environmental
Conservation Office

Enclosure

Southeast Regional Office
9450 Koger Boulevard
St. Petersburg, FL 33702

August 22, 1989

Mr. Norm Thomas, Chief (6E-F)
Federal Activities Branch
EPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

SEP 5 1989

6E-F

Dear Mr. Thomas:

The National Marine Fisheries Service (NMFS) has reviewed the Environmental Protection Agency's (EPA) Draft Environmental Impact Statements (DEIS) for the Port Mansfield Ocean Dredged Material Disposal Site Designation (ODMDS) off of Port Mansfield, Texas, in Willacy County; the Brazos Island Harbor ODMDS near Port Isabel, Texas, in Cameron County and the Matagorda Ship Channel ODMDS near Port O'Connor, Texas, in Matagorda County. We have the following comments to offer for your consideration.

General Comments

1-1 An alternative to disposing the new dredged material along the shoreline for beach restoration and/or shoreline protection should be addressed, especially since the dredged material consists of approximately 80% sand for Port Mansfield and the Matagorda Ship Channel, and 90% sand for Brazos Island Harbor. Each of the three DEIS' mentions beach nourishment as an alternative (CHAPTER 2, ALTERNATIVES, 2.2 UPLAND DISPOSAL), but there is no further discussion of it in the rest of the document. Such a discussion should be included or the rationale provided as to why this alternative is not being actively pursued.

1-2 Upland disposal is preferable to ocean disposal from the viewpoint of fishery resources and habitat. Therefore, we believe that this option, as discussed in Section 2.2 of the three 'DEIS', should be reanalyzed; especially since the rationale used to defer this option is based largely on conclusions reached by the Corps of Engineers in 1974. Better disposal area management techniques have been developed. It is also unclear why one large disposal area
1-3 instead of several smaller ones is necessary and why the EPA believes that alteration of inshore wetlands must be connected with the upland alternatives. Accordingly, from the information
1-4 presented, we do not believe it can be concluded that, "A land-based alternative would, therefore, offer no environmental benefit to ocean disposal." This statement would be incorrect even if no
1-5 upland sites are found.

II-4

LETTER NO. 1 (continued)

1-1 The purpose of the BIH ODMDS EIS is to identify an environmentally acceptable ocean disposal location for dredged material from BIH. EPA's designation of this ODMDS does not preclude future consideration of alternative, beneficial uses of the material. A study by the COE is presently under way to evaluate beach nourishment by using BIH dredged material to construct a feeder berm off South Padre Island.

Hopper dredges must be used to perform the maintenance dredging for BIH entrance channel because most of the work is in unprotected waters in the Gulf of Mexico. Hopper dredges do not have pumpout capabilities, making the transfer of dredged material to the beaches impossible. If the COE study shows that nearshore feeder berm construction is both feasible and beneficial to the beach environment, the disposal alternative will be pursued to the fullest extent possible.

1-2 An EIS for the dredging of the entire Brazos Island Harbor Channel was prepared by the COE in 1975 to determine the appropriate methods of disposal for the dredged material. Only material dredged from the entrance channel is currently being designated for disposal at the BIH ODMDS. The majority of BIH dredged material is disposed at upland sites – usually on the banks of the channel as levees.

1-3 It is not necessary to restrict upland disposal to one large site.

1-4 Upland disposal is connected to the alteration of inland wetlands because all land areas that are sufficiently large enough for disposal sites in the BIH entrance channel area contain a significant amount of wetlands.

1-5 This statement has been clarified in Part I, Section B, and is noted in Part III of this document.

Specific Comments

Port Mansfield ODMDS DEIS

CHAPTER 2

ALTERNATIVES

2.3 OCEAN DISPOSAL.
2.3.1 Mid-Shelf and Continental Slope Alternatives. Pages 2-2 thru 2-4

Most of the arguments against mid-shelf and continental slope ODMDS sites may not be valid. For example, the statement that, "The benthos at this depth would rarely be disturbed by sediment resuspension and therefore would not be expected to be as resilient as would benthic communities (Oliver, et al. 1977) living in the nearshore, high-energy environments," should be reconsidered. Shallow-water and deep-water benthic communities would have similar problems of survival if large volumes of dredged materials were dumped on them.

CHAPTER 3

AFFECTED ENVIRONMENT

3.2 PHYSICAL ENVIRONMENTAL.
3.2.5 Sediments.
3.2.5.1 Sediment Quality and Characteristics. Pages 3-18 thru 3-22

This section should include grain size data for the sediments at each sample station. There also are no data presented to support statements such as, "...the offshore stations comprised a habitat group distinct from inshore stations" and "...the grain size of the material to be discharged is more similar to that of the inshore stations...." In addition, sample station locations should be indicated on Figure 3-4 on Page 3-21.

3.3 BIOLOGICAL ENVIRONMENT.
3.3.2 Benthos. Pages 3-26 thru 3-32

This section is confusing and should be revised because the data presented do not support the site specific conclusions that were drawn. For example, Table 3-10 on Page 3-28 represents a compilation of data added from all of the stations. Therefore, it can only be presumed that there are five distinct species groups in the sample area. This section, at a minimum, should include dendrograms and two-way tables showing species and station groups. Each station also should include water quality measurements such as dissolved oxygen and salinity; grain size data for sediments; and the number of major taxa, species, and individuals.

The first sentence of the second paragraph on Page 3-32 states, "There was a general trend of increased species diversity, density of individuals, and biomass with increased depth and percent sand content." However, the sediment data indicate that percent sand decreased as depth increased. This should be clarified.

3.4 SOCIOECONOMIC ENVIRONMENT.
3.4.1 Commercial and Recreational Fisheries. Pages 3-35 thru 3-38

The third and fourth paragraphs on Page 3-36 (starting on line 10) should be moved to the discussion in Section 3.3.3 Nekton. The Atlantic threadfin, tidewater silversides, striped killifish, etc. are not commercially or recreationally important. Rather, they are forage species that support marine fishery species.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1 REGULATORY CHARACTERIZATION.
4.1.1 Five General Criteria.
4.1.1.5 40 CFR 228.5(e). Page 4-3

There is no data presented which demonstrates that the near-shore benthic community is more resilient than the off-shelf benthic community when large volumes of dredge material are dumped on them. The DEIS should indicate whether having particle sizes that more closely resemble inshore sediments, will alter the naturally occurring benthic communities, and how much of the communities would be eliminated in each area.

4.1.2 Eleven Specific Factors.
4.1.2.7 40 CFR 228.6(a)(7). Page 4-5

Data presented in the DEIS on benthos is insufficient to support or to rebut the statement that, "Studies of the benthos at the interim-designated ODMDS (No. 14) and nearby areas have not indicated any significant decrease or change in composition of the benthos at the ODMDS." Therefore, that statement should be substantiated by much more than one set of samples or it should be removed.

4.2 ENVIRONMENTAL CHARACTERIZATION.
4.2.2 Biological Environment.
4.2.2.2 Benthos. Page 4-10

See comments for Sections 2.3.1, 3.3.2, 4.1.1.5 and 4.1.2.7.

CHAPTER 2

ALTERNATIVES

2.3 OCEAN DISPOSAL.
2.3.1 Mid-Shelf and Continental Slope Alternatives. Pages 2-2 thru 2-4

1-6 Comments under Section 2.3.1 for the Port Mansfield ODMDS DEIS also apply here.

1-7 The DEIS states that, "There are also no data to indicate that such sites (deep water) would offer any environmental benefit over a nearshore site." The converse also is true.

CHAPTER 3

AFFECTED ENVIRONMENT

3.2 PHYSICAL ENVIRONMENTAL.
3.2.5 Sediments.
3.2.5.1 Sediment Quality and Characteristics. Pages 3-21 thru 3-25

1-8 This section should include grain size data for the sediments at each sample station. There are no data presented to support the contention that there are two distinct communities in the two habitat types. In addition, sample station locations should be indicated on Figure 3-4 on Page 3-24.

3.3 BIOLOGICAL ENVIRONMENT.
3.3.2 Benthos. Pages 3-29 thru 3-33

1-9 Comments under this section for the Port Mansfield ODMDS also apply here. If possible, the first paragraph on Page 3-31 should include an explanation as to why the nearshore community was observed to be under "severe stress" and the offshore community was not. It should be clarified as to whether the EPA 1985 sampling locations on Figure 3-5 are the same as the Science Applications 1984 1-10 stations; and whether the EH&A (1981) study also indicated that there were four taxonomic communities.

3.4 SOCIOECONOMIC ENVIRONMENT.
3.4.1 Commercial and Recreational Fisheries. Pages 3-36 thru 3-39

1-11 The last paragraph on Page 3-37 is exactly the same paragraph as on Page 3-33 under the Nekton section. It should be deleted here. Additionally, the first two paragraphs on Page 3-38 would be more appropriate, if they were placed in Section 3.3.3 Nekton.

1-6 Shallow-water organisms are much more likely to be buried by storm-suspended sediment than deeper-water continental-shelf and -slope organisms. The mid-Texas coast annually has a 32%, 21%, and 3% chance of experiencing a tropical storm, hurricane, and an extreme hurricane, respectively. Shallow-water benthic communities are expected to be much more resilient to periodic burial than offshore communities that are less often disturbed by storm events.

1-7 The statement has been further explained in Part I, Section B, of this document.

1-8 The conclusions of Science Applications (1984) are presented in this section.

1-9 Indication of severe stress was based on the harpacticoid:nematode ratio. This ratio indicates whether the stress is physical or chemical in nature, but if, as in this case, a low ratio indicates chemical stress, the ratio does not assist in the determining the agent causing the stress.

1-10 On page 3-1, it is stated that the Science Applications (1984) study was a study performed for EPA. EH&A (1981) did not conduct an analysis that would have yielded habitat groups as did Science Applications (1984).

1-11 The last paragraph on page 3-37 is a misprint and has been noted in Part III of this document. EPA agrees that the paragraph beginning, "A study of the South Texas Outer Continental Shelf. . ." should have been in Section 3.3.3. The paragraph beginning, "Chittenden and McEachron . . ." is concerned primarily with commercial and recreational fishing and is appropriately included in Section 3.4.1.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1 REGULATORY CHARACTERIZATION.
4.1.1 Five General Criteria.
4.1.1.5 40 CFR 228.5(e). Page 4-3

There is no data presented which demonstrates that the near-shore benthic community is more resilient than the off-shelf benthic community when large volumes of dredge material are dumped on them.
1-12 The EPA should explain what difference it makes if particle sizes more closely resemble inshore sediments, if the end result in both areas is elimination of naturally occurring communities. Also, a discussion of the deep-ocean sediments off of Freeport would not appear to apply to those off the Port Isabel area.

4.1.2 Eleven Specific Factors.
4.1.2.7 40 CFR 228.6(a)(7). Page 4-5

There are no data presented on benthos that can be utilized to
1-13 support or to rebut the conclusions in this section. Therefore, either adequate supporting data should be provided or the conclusions removed.

4.2 ENVIRONMENTAL CHARACTERIZATION.
4.2.2 Biological Environment.
4.2.2.2 Benthos. Page 4-10

1-14 See comments for Sections 2.3.1, 3.3.2, 4.1.1.5 and 4.1.2.7.

Matagorda Ship Channel ODMDS DEIS

CHAPTER 2

ALTERNATIVES

2.3 OCEAN DISPOSAL.
2.3.1 Mid-Shelf and Continental Slope Alternatives. Pages 2-2 thru 2-4

Comments under this section for the previous DEIS' also apply here. This DEIS even states on Page 4-10 that, "The benthic community at the interim-designated ODMDS was found to be significantly different from that in the natural bottom sediments near the existing site (SAI, 1989)." This apparently implies that naturally occurring benthic populations have been extirpated by disposal of dredged materials. It is probable that benthic communities will be destroyed or adversely impacted regardless of where dredged materials are dumped, therefore, the EPA argument in favor of nearshore disposal should be better documented.

LETTER NO. 1 (continued)

1-12 One of the most significant determinants of the composition of any benthic community is the distribution of grain size in the sediment. This is why the EIS places emphasis on trying, to the extent possible, to locate the preferred ODMDS in an area where the grain-size distribution is similar to that of the dredged material.

Disposal of similar grain-size material that is significantly free of contaminants, as is that from BIH, is expected to create localized impact at the discharge point owing to benthic burial, but the vast majority of the disposal area is covered by relatively thin layers of material and in a short while the benthic organisms can migrate vertically and horizontally to recolonize the sediment - water interface. If the dredged material has a significantly different grain-size distribution than that at the ODMDS, colonization will be slower as adult and juvenile organisms that are adaptable to the introduced grain size emigrate from more distant areas.

The word Freeport is a typographical error and has been identified in Part III of this document. It should read "Brazos Santiago Pass."

1-13 The discussion supporting this conclusion is found on pages 3-32 and 3-33 of the DEIS.

1-14 See responses to comments for the respective sections.

CHAPTER 3

AFFECTED ENVIRONMENT

3.2 PHYSICAL ENVIRONMENTAL.
3.2.5 Sediments.
3.2.5.1 Sediment Quality and Characteristics. Pages 3-19 thru 3-23

This section should include grain size data for the sediments at each sample station. In addition, sample station locations should be indicated on Figure 3-4 on Page 3-21.

3.3 BIOLOGICAL ENVIRONMENT.
3.3.2 Benthos. Pages 3-26 thru 3-31

Comments under this section for the previous DEIS' also apply here.

Table 3-10 on Page 3-29 and the third paragraph of Page 3-31 should change the references from group "4" to group "3", unless there was an additional group identified that has not been discussed.

It should be explained why were there no deep-water samples taken. EPA should have the deep water areas sampled for comparative purposes, or explain why there is no need for taking such samples.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1. REGULATORY CHARACTERIZATION.
4.1.1 Five General Criteria.
4.1.1.5 40 CFR 228.5(e). Page 4-3

Comments under this section for the previous DEIS' also apply here.

4.2 ENVIRONMENTAL CHARACTERIZATION.
4.2.2 Biological Environment.
4.2.2.2 Benthos. Page 4-10

See comments for Sections 2.3.1, 3.3.2, 4.1.1.5 ahd 4.1.2.7.

If you have any questions, please contact Donald Moore or Russell Swafford at FTS 527-6699.

Sincerely yours,

David Cottingham for

Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

LETTER NO. 2

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
POST OFFICE BOX 649
ALBUQUERQUE, NEW MEXICO 87103

ER-89/683

AUG 23 1989

RECEIVED

AUG 28 1989

6E-F

Mr. Norm Thomas
U.S. Environmental Protection Agency
First Interstate Bank Tower
1445 Ross Avenue
Dallas, Texas 75202-2733

Dear Mr. Thomas:

This responds to your request to the Director, Office of Environmental Project Review for our evaluation and comments on the draft environmental impact statement for the Brazos Island Harbor, Ocean Dredge Material Disposal Site Designation. The following comments are provided for your consideration.

We see no problem with the disposal site proposed for designation, nor with the biological basis for the documents' conclusions. However, we offer some suggested corrections to the text regarding the status and location of properties, including some in Fish and Wildlife Service ownership.

Specific Comments

Executive Summary, Affected Environment, page vii. This section incorrectly states: "On Brazos Island is found a National Audubon Society Sanctuary and Three Islands
2-1 Bird Sanctuary, while to the north is found the Laguna Atascosa National Wildlife Refuge." (Errors underlined). The passage should read: "On Brazos Island is found one unit of the Lower Rio Grande National Wildlife Refuge. West of Brazos Island is found the State of Texas' South Bay Coastal Preserve, while to the north is found the National Audubon Society's Three Islands Bird Sanctuary and the Laguna Atascosa National Wildlife Refuge."

Figure 2-8, Areas excluded from the ZSF by the Beach Buffer Zone, page 2-20. This
2-2 figure incorrectly shows a location for the Brazos Island State Recreation Area, which has not existed since the Texas General Land Office took its property back from the Texas Parks and Wildlife Department in 1987. Furthermore, the Recreation Area was found farther south than designated on the figure. We suggest that the designated area be deleted altogether, or that a different caption be substituted: "Brazos Santiago Depot; National Register Historic Site." Alternatively, a much smaller area might be designated on the figure and captioned: "Brazos Island Unit of the Lower Rio Grande National Wildlife Refuge."

Section 3.4.3, Beaches and Recreation Areas, page 3-41. See comments on Executive Summary.

The opportunity to comment on this document is appreciated.

Sincerely,

Raymond P. Churan

Raymond P. Churan
Regional Environmental Officer

II-10

2-1 The errors have been identified and noted in Part I, Section C, and in Part III of this document.

2-2 Figure 2-8 delineates the areas excluded from the ZSF by beach buffer zones and shore-based recreational areas. The inaccuracy in the plotting and naming of the Brazos Island State Recreational Area is cited in Part III of this document. However, the presence or absence of the recreational area does not affect the buffer zone boundaries depicted in the figure.

LETTER NO. 3

US Department of Transportation
United States Coast Guard

Commander
8th Coast Guard District
Hale Boggs Federal Building

500 Camp Street
New Orleans, LA 70130-3396
Staff Symbol (oan)
Phone (504) 589 623

16500
31 JUL 1989

U. S. Environmental Protection Agency
First Interstate Bank Tower
1445 Ross Avenue
Dallas, TX 75202-2733

Dear Gentlemen:

3-1 After reviewing the draft Environmental Impact Statements for Ocean Dredged Material Disposal Sites offshore Port Mansfield, Matagorda Ship Channel and Brazos Island Harbor Texas, I find no reason to object to their establishment.

Sincerely,

R. J. Heym
Captain, U. S. Coast Guard
Chief, Aids to Navigation Branch
By direction of the District Commander

3-1 No response required.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta GA 30333

August 22, 1989

Norm Thomas (6E-F)
U.S. Environmental Protection Agency
First Interstate Bank Tower
1445 Ross Avenue
Dallas, TX 75202-2733

AUG 28 1989

6E-F

Dear Mr. Thomas:

This letter consolidates our comments on three (3) Draft Environmental Impact Statements (DEISs) proposing designation of ocean dredged material disposal sites (ODMDS) at three locations in Texas. Since these three DEISs all originated from your office, and since we did not have significant comments, we have combined our remarks into one response letter. These DEISs propose ODMDS designations at Matagorda Ship Channel, Brazos Island Harbor, and Port Mansfield, Texas. We are responding on behalf of the U.S. Public Health Service. Each of these DEISs considers alternatives for designation of sites in the open ocean for disposal of maintenance material dredged from ship channels.

From a public health standpoint, our major concern with these projects is the potential toxic contamination of dredged materials. Toward this end, we were pleased to learn that the maintenance material proposed for disposal at all three sites was found to contain only minor quantities of heavy metals. We found no other potential significant public health impacts posed by this project. We recommend close adherence to all applicable occupational safety and health guidelines to minimize any potential hazards which might arise during dredging operations.

4-1

Thank you for the opportunity to review these DEISs. Please insure that we are included on your mailing list to receive NEPA-related documents on other projects with potential human health hazards.

Sincerely yours,

David E. Clapp, Ph.D., P.E., CIH
Environmental Health Scientist
Center for Environmental Health
and Injury Control

LETTER NO. 4

4-1 EPA concurs.

LETTER NO. 5

STATE OF TEXAS
OFFICE OF THE GOVERNOR
AUSTIN, TEXAS 78711

WILLIAM P. CLEMENTS, JR.
GOVERNOR

RECE
SEP 15 198
6E-F

September 12, 1989

Norm Thomas, Chief
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

RE: TX-R-89-07-12-0004-50-00 / DRAFT EIS OCEAN DREDGED MATERIAL DISPOSAL SITES

Dear Applicant:

Your environmental impact statement for the project referenced above has been reviewed. The comments received are summarized below and are attached.

II-13

The Texas Historical Commission commented that they have no record of properties listed or eligible for listing on the National Register of
5-1 Historic Places within the project or affected area. However, if cultural materials are encountered during construction, work should cease in that area.

5-2 The Texas Parks and Wildlife Department commented that they have no objection to your proposal.

We appreciate the opportunity afforded to review this document. Please let me know if we can be of further assistance.

Sincerely,

T.C. Adams, State Single Point of Contact

TCA/rb/pon

Enclosures

5-1 See response 6-1.

5-2 No response required.

LETTER NO. 6

THE STATE OF TEXAS

CURTIS TUNNELL
EXECUTIVE DIRECTOR

TEXAS HISTORICAL COMMISSION

P.O. BOX 12276 AUSTIN, TEXAS 78711 (512)463-6100

July 27, 1989

Robert E. Layton Jr., P.E.
Regional Administrator
Environmental Protection Agency
Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

Re: Brazos Island Harbor Ocean Dredged
Material Disposal Site Designation
Draft EIS (EPA, A4, A5, D1b)

Dear Mr. Layton:

Thank you for the opportunity to review the project referenced above. Using the information you have provided, we have completed a Level II review and find that we have no record of properties listed or eligible for listing on the National Register of Historic Places within the project or affected area.

The project may continue without further consultation with this office. However, it is possible that buried cultural materials may be present in the project area. If cultural materials are encountered during construction, work should cease in the immediate area; work can continue in the project area where no cultural materials are present. The Secretary of Interior should be contacted. Please also notify the State Historic Preservation Officer (512/463-6096). 6-1

If we may be of further service, please advise.

Sincerely,

James E. Bruseth

James E. Bruseth, Ph.D.
Deputy State Historic Preservation Officer

WB/JEB/lft

The State Agency for Historic Preservation

6-1 EPA's site designation does not involve construction. However, if cultural materials are encountered during the disposal of dredged material, EPA concurs that work should cease.

LETTER NO. 7

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 South School Road Austin, Texas 78744

CHARLES D. TRAVIS
Executive Director

August 15, 1989

Mr. T.C. Adams
State Single Point of Contact
Governor's Office of Budget and Planning
P.O. Box 12428
Austin, Texas 78711

Re: SAI/EIS# TX-R-89-07-12-0004-50-00

Dear Mr. Adams:

The Department has reviewed the draft Environmental Impact Statements on ocean dredged material disposal sites for Brazos Island Harbor, Port Mansfield, and Matagorda Ship Entrance Channels. In particular, the documents provide for nearshore deposition so that dredge material will most closely match bottom sediments and cause the least amount of impact to benthos. Also, sand will be maintained in
7-1 the overall beach sand budget. The Department has no objection to contents of the documents.

If you have questions regarding these comments, please contact Mr. Leland E. Roberts, Resource Protection Division, at telephone 512/389-4732.

Sincerely,

Charles D. Travis
Executive Director

CDT:LER

7-1 No response required.

SIERRA CLUB

LONE STAR CHAPTER
COASTAL AFFAIRS COMMITTEE

F. Hermann Rudenberg, Ph.D.
3327 Avenue Q 1/2
Galveston, Texas 77550
24 August, 1989

Norm Thomas (6E-F)
U.S. Environmental Protection Agency
First Interstate Bank Tower
1445 Ross Avenue
Dallas, Texas 75202-2733

RECEIVED
AUG 28 1989
6E-F

Dear Mr. Thomas:

These comments pertain to the three draft EIS for Ocean Dredged Material Site Designation at (a) Port Mansfield, (b) Matagorda Ship Channel, and (c) Brazos Island Harbor. Thank you for sending them for me to review. I have reviewed the first in detail and comment specifically on it; the other two are closely similar except as to physical location and other
8-1 matters which mainly do not affect the evaluation provided here. I have been hard put to evaluate as closely as I would have liked, having read the document only once, and scanned the other two. But there are flaws in these serious enough to warrant that the next version should be a COMPLETE rewrite, not merely a reference to these drafts. The drafts are unacceptable. They show a lack of understanding and a lack of critical review in toto. Other portions are sloppily executed for those who have not been involved in this.to understand rapidly.

These comments are numbered pertinent to the Port Mansfield DEIS. Fig. 1: define all batching, lines, dots - place in box in lower left corner. Define where it is so as to stand alone. Now comes another figure 1! This one, on page 1-4 is Fig 1-1; it says general PROJECT map but does not show the project! Also, it does not define the terminology for the two sites shown. Section 1.3 at end says "future" but nither Fig 1-1 or 1-2 show this. Fig 1-2 shows a site but doesn't label it as "interim"; and, other lines are not defined. Both jetties and lines in the water MUST be defined, as must the cross hatching.

Section 2.1, line 3 confuses designation of a disposal site
8-2 with dredging; these are two separate actions. Further, I was under the impression that the MPRSA forbad ocean dumping?

Section 2.2continues the confusion between the act of dredging and the act of disposal. Para. 1 talks about it being uneconomical to transport to suitable upland areas,; well, destruction of benthos and placing silt in water columns is also uneconomical and comparative numbers are not assigned for review. Further, in Para 1, end of second to last sentence: neither wetland nor bay bottom should even be conceived as being a disposal area! And the last sentence here is CRAP. It shows the author's bias!

Para 2: "land-based alternatives offer no environmental or economic advantage over disposal in the ocean" That is not the point; which has a DISadvantage? If the sentence is to stand,

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8-1 EPA believes that the DEIS and the FEIS adequately present the material needed for responsible decision-making as required by 40 CFR §§ 220-229.

8-2 The MPRSA does not forbid ocean dumping. The act establishes procedures to administer regulatory permit programs for the discharge of wastes, including dredged material, into U.S. territorial seas. The act requires that all relevant factors be considered in the permit programs, including socioeconomic factors and land-based alternatives to ocean disposal.

then it provides support for land-based disposal. Do it!

Page 2-8, end of 2.3.4.1.1 "it was demonstrated that neither... was preferable" This shows that it is then faulty reasoning to exclude these here as alternatives. Further, other sites, not mid-shelf, are being excluded summarily, nor is reasoning provided. Costs of increased transport distance are cited in the previous paragraph. The proposed site IS further out; but I fail to find a 2.5x number for one to ten miles specific enough. And it is not the dredging time that is increased, the working time for the project is. Perhaps better, alternative methods need be found or used than having hopper vessels which also do the dredging? bargs! (see below)

Page 2-14, Table 2-1. Column 2: Seconds, not minutes; see Fig 2-5. Silt volume is 14% which does not agree with figures used later. The length of predicted silt plume does not agree with top of page 4-8. The estimate is too low, and from Fig 2-5 appears to be a half time, not full time, for 40=silt.

8-3 Fig 2-5. Does the line start at 16 feet because of the depth of the hopper vessel? In seconds, how long does it take to discharge a load? How many cubic yards is that load? Is it the sum of the total volume in table 2-1 converted to cu yds? How many loads does that require in the three channels? The model may well not apply in any of the three cases. And if gravel and clumps fall to the bottom, 32 feet away, what if there is an endangered turtle in the way? does it receive a concussion?

8-4 Page 2-16, first full paragraph, and figure 2-6. Is this for one hopper discharge? or for all? The volumes in the three DEIS's differ, yet the same figure is used. The fig says "after" WHEN AFTER? after a long enough time for currents to disperse? And on 2-16 what do you mean "plot of the FINAL dredged material distribution"? I cannot believe that the whole disposal will create a 6 inch mound which is roughly 80 feet by 350 feet. And since maintenance dredging is repetitive (different periods average at the three sites, as well as different disposal volumes) what is the cumulative mounding?

Page 2-16, 3rd full para. "only generalizations" means you don't know. Unless the Bastian study is site specific, it can only be used as a terrible guess for this site. What is "the period of record"? and, "removal rates MUST approximate.." NO WAY!

Next paragraph: Granted that the silt will be over the gravel and thus more easily erodable, offshore currents are not uniform and with storms, or if, close to land and rivers, there is a sudden dump of runoff rain water, currents are unpredictable.

Page 2-18 lines 5 & 6. "assurance" NO SUCH THING. "would also be accurate" Only if the model happens to be right. I vote NO such conclusion is warranted.

2.3.4.3.1 Questions have been asked already regarding time, number of loads. 0.6 inches smothers benthos as well as 6 inches! The parenthetical sentence "(Solid phase bioassay testing...)" is a generalization which has not been verified for this disposal and is therefore meaningless. Further, if this refers to the

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8-3 The 16-ft depth indicated on Figure 2-5 represents the approximate depth of discharge from a hopper dredge. A typical hopper dredge used for maintenance of the BIH entrance channel has the capacity to dredge and transport 3700 cu yd of material at a time. A hopper dredge of this size is approximately 150 ft long, 41 ft wide, and has a maximum draft of about 19 ft. The Galveston COE estimates that average dredge loads are 50% solids, equaling 1850 cu yd for the vessel described above. Figure 2-5 is generated by the discharge model.

The model assumes an instantaneous discharge to calculate maximum potential mounding of the dredged material on the benthos. In reality, a barge discharges while moving forward at 2 - 5 kn and takes about 1 min to fully empty. As the discharge is in process, the draft of the vessel decreases at a corresponding rate.

The volumes in Table 2-1 may be converted to cubic yards by dividing the values by a factor of 27. BIH requires maintenance dredging of 350,000 cu yd every 13 months, equivalent to about 189 barge loads. The model uses a water-depth of 52 ft. This is the average depth in the vicinity of the BIH ODMDS. The increased risk to the sea turtle population from the ocean disposal of dredged material is very low.

8-4 Figure 2-6 is generated by the model and represents a single instantaneous hopper discharge of approximately 2200 cu yd of dredged material. "After" refers to minutes after discharge, when the material has settled to the bottom. A single discharge in 52 ft of water will create a mound 6 in. high. The estimated boundaries of the material (0.6 in. thick) will be at 400 and 700 ft in the crosscurrent and current directions respectively. Between 13-month interval dredging events, no mounding has been observed at the BIH interim ODMDS. The same is expected at the preferred ODMDS.

elutriate test since it does not assay filter feeders or silt ingesting species which are prevalent on the benthos, it's inadequate.

Fig 2-7 Put key in left bottom into a box and define all slash-marked codes.

Page 2-20 top para. line 7-8. See page 3-18 top for net flow. Parenthesis 1, here, is non-sensical. In addition, the beach should be nourished with acceptable material whenever possible to counter the continual degradation of Texas beaches.
2.3.4.4 "Since the longshore drift is predominantly SOUTHWEST to NORTHEAST" relate to current toward shore. ALSO PUT NORTH ARROW on figure, at least on FIG 2-8! — Does it make fig 3-5?

Fig 2-9 Define hatched area by key in box at left bottom.

Fig 2-10 ...unless the currents change and come from the south!
Fig 2-11 provide key for hatched area and dots.

Page 2-25, 2.3.4.7 The shrimp know not to go beyond the one mile buffer zone? NUTS.

Page 2-27 ah, the hopper is 3,700 cy "in the model". Does this fit what will be used? Now, the "sediment to be dredged averages only 6.6% silt" not the 14% of Table 2-1 or the 100% of the model. And there will be an estimated 12 deliveries per day. But for how many days? WHAT IS THE MOUNDING? later "assumption was made" and "an arbitrary safety factor" -- I strongly question the validity of either assumption or adequacy of safety factor. At the bottom we have "the barge", and at the top of the next page "significant impacts at the interim site have not been detected". First list the information, then let me decide whether I consider these significant. Then note the other changes; distance off-shore, proximity of channel, likely others. The preferred site selection is inappropriate. It is too close to the dredged area, it is within a fairway (I guess that's what those lines represent -- They are never defined!) The site should be at least 4 miles out from shore.

Page 2-30 , 2.4.2 top para "carries with it the strong probability" That is entirely inadequate, it will never happen I am 100% certain. Para2 Monitoring is after the fact and is too late.

Para 3, end "thoroughly examined" just doesn't happen. Not only don't you look for many hazardous chemicals but you rely on the elutriate test. Last para: New silt is not identical to old silt deposits because there are new chemical industries. A typical example of EPA's inadequacies regarding testing is the failure in the MatagordaDEIS to determine aluminum contamination; the Bay/Harbor is highly contaminated, and "2/3 of the material moving through the Matagorda Ship Channel was aluminum ore"-Page 3-12 of Matagorda DEIS- but no Al-compound data!

Page 2-31. NO. 4 is inadequate. No.5 "three stations" is inadequate. AND your'e not proposing to check on mounding, and this in a fairway? I have little confidence in this DEIS.

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Page 3-3 top full paragraph. "Unfortunately" so you make an excuse and an extrapolation. "were considered sufficiently" i.e. another assumption. Last para before 3.1.4 "There is no indication of sediment quality problems in the project area." Define problems. Just what did you look for? is that adequate? "Survival was high" is an unacceptable generalization.

Table 3-2. Identify 1980 as 1 and interim, 1985 as 1A. Where are other PAHs? Certainly for Matagorda, where is Aluminum? Where is tributyltin? Same goes for other tables.

Page 3-8 top line "acute", but where is chronic and where is behavioral testing data? Next para "survival...was greater than 50%" is definitely inadequate. Also since organisms will be chronically exposed, the end of para must comment on this, not just acute/96 hour test -- and were the correct species used? Certainly in the next paragraph where species are listed, the local economic species are not tested (fish and shrimp).

Table 3-6 Explain, state number tested, time of tests, oxygen content of medium. Also cite which are considered control data, or provide them. Also Table 3-7 where at least there is some key. But when were the samples taken with respect to the maintenance dredging cycle?

Page 3-11 just before 3.2.2 "relative sea level reached its present position" For 1910 to 1970 the Corps of Engineers at Galveston has documented a rise at the rate of 2 feet per 100 years. Likely the same has occurred here. Then, document the source of "subsidence" as well as means taken to now stop it (as in Galveston Bay area).

Then you need a section on projected sea level rise. While deepening the water, and allowing longer periods between redredging, it will flood the port and make it less usable. And then it floods roads and railroads, so that without elevation, this is not adequately beneficial in the long haul. This is a powerful reason for stockpiling dredged material on land when you can get it!

Page 3-16 Show site in question (project) on maps. Show Fig 3-2 by reference as a box on these current maps. Now show currents at depth, not just surface, that is where the deposits are going to be placed and that is where mounding is in question. The same problem is underlined on page 3-17 para 2 "Studies using drift bottles..." these measure SURFACE movement only. The last sentence of the next paragraph, "probably" is another assumption and needs elaboration.

Page 3-18, 3.2.4 "no water quality problems" -- tell me what you mean by this since the correct tests have not been done, the full chemical array has not been studied, and the species are not the local species which may be affected.

Table 3-9. Why is the right column higher for As, Cu and Pb? Define other materials represented by TOC. Table 3-8 (sorry) for pesticides why have 7 increased during those 3 years in water samples?

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Page 3-22 end of top para. "to ensure that any errors are on the conservative side DOI/MMS..." There are two opinions as to MMS validity and correctness.

Page 3-27 Fig 3-5 Why is there a scale change? Why is there no analysis at the "preferred site"? Note number 7. Go to table 3-11 and note that site7 has the highest in all but one column, and there it is close. More data are needed. The preferred site would be better if moved further from the shore and entrance channel. It should NOT be in the fairway. I would think 4 miles out may be best, but that puts you at location 7. A more northerly location 3 to 4 miles out should be examined. It is also inappropriate to dispose in anchorage areas.

Page 4-11 end of 4.1.1.1 An 800 foot buffer zone is entirely inadequate.

Page 4-8 top"May found that on a still day the turbidity plume was more than a mile down current". When not still it would be longer, so the plume is at least that long under any circumstances and this must be factored in. Again you start with disposal and then continue with "from an active dredge. That is a different process. One is pick up, the other put down or discharge. The next paragraphs again talk about release and elutriates and forgets about filter feeders and ingesters.

Page 4-9, 4.2.1.3 again "no sediment quality problems". You do not show this, you merely conclude it.
4.2.2 end "non-excluded": we are concerned with inside the non-excluded, or outside the excluded areas! That this is "not pertinent" is an error as there are edge effects possible.

Page 4-11 top paragraph. The hazard of dredge disposal on animals swimming under the barge or vessel is probably negligible, but for endangered turtles it cannot be ignored as another threat.

I'm sure with more study, more problems would surface. It is depressing. There are entirely too many assumptions.

Finally, you show that progressive disposal areas are moving further and further offshore, and for good reason. Don't make the same mistake yet another time by not moving sufficiently far away from the mouth of the dredged portion of the channel. Secondly, Industries receiving contaminants in each port must be listed for imports, exports and waste discharges and then ALL these materials must be examined for their hazard. Only then will offshore disposal suggest acceptance. And onshore, upland disposal must be evaluated more deeply.

I suggest that you redo these draft documents for another go-round. They are a good beginning, but not adequate to warrant moving to the FEIS stage. Thank you for this opportunity to comment.

F. Hermann Rudenberg, PhD.
Sierra Club Coastal Committee

PART III. MODIFICATIONS AND CORRECTIONS TO THE DRAFT EIS

The Brazos Island Harbor Ocean Dredged Material Disposal Site Designation Draft EIS was reviewed by EPA, and by other Federal and State agencies, public groups, and individuals. This section of the FEIS presents minor revisions and some clarifications to the DEIS based on errors identified during the review process. Each amendment is identified by page, paragraph, and line of the DEIS and any amended text is presented in boldface type.

Generally speaking, the figures provided in the DEIS are not well defined. However, because this does not affect the analytical content of this EIS, the figures will not be revised.

Page 2-2, paragraph 1, lines 4 and 5:

The sentence, "A land-based alternative would therefore offer no environmental benefit to ocean disposal" should read

"Environmental impacts at land-based disposal sites for BIH dredged material would be significantly greater than those at designated ODMDSs that are operated in compliance with the Ocean Dumping Regulations (40 CFR §§ 220-229)."

Page 2-12, paragraph 2, line 3:

The word "fate" in the phrase, ". . . short-term fate of dredged material. . . " should be replaced by the word **"transport."**

Page 2-20, Figure 2-8:

The shaded portion of the figure that indicates the location of the Brazos Island Recreation Area is incorrect. The recreation area was discontinued in 1987 when control of the property was returned to Texas General Land Office from the Texas Parks and Wildlife Department. Additionally, the area was about 2 miles farther south on the shore of Brazos Island.

None of this information influences the intent of Figure 2-8. The water areas excluded from the ZSF are unchanged wherever the former Brazos Island State Recreation Area was located.

Page 3-21, bottom paragraph, line 8:

The "1" in "(67.41%)" is a typographical error and should be deleted. As determined from the data in Table 3-5 on pages 3-7 and 3-8, the dredged material contains 67.4% fine sand.

Page 3-37, bottom paragraph:

The paragraph beginning "Offshore nekton of the project area. . . " is deleted. The same paragraph is accurately presented on page 3-33, in Section 3.3.3.

Page 3-41, Section 3.4.3, Beaches and Recreational Areas:

The sentence, "A state recreational area is found on Brazos Island." is deleted.

Page 4-3, paragraph 3, line 6:

The word "Freeport" is a typographical error and is replaced with "Brownsville."

PART IV. EPA'S PROPOSED ACTION

EPA's proposed action is the final designation of the preferred site for disposal of material dredged from the Brazos Island Harbor entrance channel during annual maintenance. This entrance channel connects with the Brownsville Ship Channel, providing access for commercial and recreational vessels from the Gulf of Mexico to the Gulf Intracoastal Waterway and Port Brownsville for shipping traffic. The preferred site was identified based on an evaluation of environmental and economic considerations.

Longshore currents, lunar tides, and storm-induced water movement cause shoaling of the entrance channel at approximately 350,000 cu yd annually. The U.S. Army Corps of Engineers is responsible for channel maintenance under the MPRSA, and has requested that EPA permanently designate an ODMDS for material dredged from the Brazos Island Harbor entrance channel.

The no-action alternative is considered to be a violation of the intent of the MPRSA. This decision would result in continued disposal of acceptable dredged material at the interim-designated ODMDS. Interim sites were designated based on historical use and were to be used until baseline or trend assessment surveys could be completed and a final designation could be made. For these reasons, the no-action alternative is not considered viable.

Upland sites were excluded from consideration, based on lack of available sites and technical problems related to transferring material from hopper dredges to land. Midshelf and continental shelf sites were determined unsuitable because of potential impacts on the benthic community, greatly increased fuel and manpower requirements, and increased safety risks associated with long-distance transport.

The Zone of Siting Feasibility approach resulted in the exclusion of a portion of the interim-designated ODMDS (Refer to Section B., *ODMDS Size and Location*.). The preferred site is located in the nonexcluded portion of the interim-designated site, is smaller, and extends slightly farther offshore. This site, like the interim-designated ODMDS, is in a highly dispersive environment where no significant amount of cumulative mounding is expected. The site avoids areas of recreational importance and biological sensitivity, and is reasonably nearshore to facilitate site monitoring and surveillance. Further, past dredged material has been tested and shown to be acceptable for ocean disposal.

EPA has determined that the preferred site is acceptable for disposal of future material dredged from the Brazos Island Harbor entrance channel. The primary environmental impact associated with disposal is the temporary burial of the benthic community and the potential for mortality of some of the benthic organisms within the site.