Sierra Club
Galveston Regional Group

DRAFT

ENVIRONMENTAL STATEMENT

MAINTENANCE DREDGING

CHANNEL TO PORT BOLIVAR, TEXAS

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

30 May 1974

SUMMARY
MAINTENANCE DREDGING

CHANNEL TO PORT BOLIVAR, TEXAS

(X) Draft ( ) Final Environmental Statement

Responsible Office: U.S. Army Engineer District, Galveston
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District Engineer
P.O. Box 1229
Galveston, Texas 77550
Telephone: 713-763-1211 EXT 301

1. Name of Action: (X) Administrative ( ) Legislative

2. Description of Action: Maintain the existing Federal navigation project in Galveston County, Texas by periodic removal of shoaled materials. The authorized project includes a channel 30 feet deep and 200 feet wide from deep water in Bolivar Roads to Port Bolivar, including a turning basin 30 feet deep, 1,600 feet long,and an average of about 750 feet wide. Authorized project dimensions are not being maintained since lesser dimensions are adequate for existing traffic. A channel 14 feet deep, 200 feet wide, and approximately 900 feet long is maintained across the east end of the turning basin to accommodate the Galveston-Port Bolivar ferry. Normally, only from 500 to 700 feet of the channel require periodic maintenance dredging as natural depths over the remainder of the channel are sufficient for ferry traffic. The remainder of the project is in the inactive category. Maintenance will be accomplished by hydraulic pipeline dredges, and dredged materials will be disposed of in an open water area near the project.

3. a. Environmental Impact: The action will maintain the carrying capacity of the channel for efficient movement of the Galveston-Port Bolivar ferry. The action will remove or disturb motile and bottom dwelling organisms and result in an increase in turbidity during

dredging and disposal operations. Open water disposal operations may temporarily degrade water quality.

b. Adverse Environmental Effects: The action will disturb or cover some marine habitat and will result in an increase in turbidity during dredging.

4. Alternatives: No action; alternate methods of dredging and disposal, and alternate transportation routes.

5. Comments Requested:

Region VI, Department of Health, Education, and Welfare
Region VI, Environmental Protection Agency
Region VI, Department of Housing and Urban Development
Deputy Assistant Secretary for Environmental Affairs, Department of Commerce
Office of Environmental Project Review, Department of the Interior
Coordinator for Water Resources, Department of Transportation
Eighth Coast Guard District, Department of Transportation
Division of Planning Coordination, State of Texas
Texas Historical Survey Committee
Advisory Council on Historic Preservation
Houston-Galveston Area Council
County Judge, Galveston County
Galveston County, Navigation District No. 1
City of Galveston
Galveston Chamber of Commerce
County Judge, Chambers County
Audubon Society
Sportsmen's Clubs of Texas
The Sierra Club
League of Women Voters
National Wildlife Federation

6. Draft Statement to CEQ 10 JUN 1974.
Final Statement to CEQ _____.

MAINTENANCE DREDGING
CHANNEL TO PORT BOLIVAR

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CHANNEL TO PORT BOLIVAR

1. PROJECT DESCRIPTION.

1.01 Existing Project. Authorized by the River and Harbor Acts of 1910 and 1919, the Channel to Port Bolivar is an existing Federal navigation project in Galveston County, Texas. The authorization provides for a channel 30 feet deep and 200 feet wide from deep water in Bolivar Roads to Port Bolivar, including a turning basin 30 feet deep, 1,600 feet long, and an average of about 750 feet wide. 1/ The channel has not been constructed to authorized dimensions because the existing channel is sufficient for present needs. The existing channel is 14 feet deep, 200 feet wide, and 900 feet long and is used primarily by the Galveston-Port Bolivar ferry service. Normally, only from 500 to 700 feet of the channel require maintenance dredging as natural depths over the remainder of the channel are sufficient for ferry traffic. Natural depths in the vicinity of the channel do not remain constant over long periods of time because of high velocity tidal current flows that occur in the area. Figure 2 is a map of the project.

1.02 Proposed Action. Maintenance of the channel is accomplished by hydraulic pipeline dredges. The shoaling rate in the channel is approximately 50,000 cubic yards per year; and maintenance dredging is performed about once every 2 years at an average annual cost of

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1/ Depths and elevations given in this statement are referenced to Mean Low Tide Datum (MLT) which is 1.43 feet below Mean Sea Level Datum in the Galveston Bay Area as determined by the National Geodetic Survey.

$17,000. As shown on Figure 2, materials dredged from this channel will be deposited in open water adjacent to Bolivar Peninsula in an existing disposal area which has been used for about 54 years. Since the existing channel is only 200 feet wide, dredging cannot be conducted while a ferry is using the channel. The dredge must be moved aside to allow the ferry to pass. Dredging is accomplished on an "as practicable" basis. Most of the work is accomplished between the hours of 12:30 a.m. and 4:20 a.m. when the channel is used by a ferry only twice an hour. The length of time required to complete maintenance dredging of this project normally varies from 5 to 10 days.

1.03 Pollutant Sampling Program. Sediment samples representing shoaled materials normally removed by maintenance dredging operations were taken at two locations in the channel and one location in the disposal area before and after the most recent previous dredging. The dredging was accomplished in April 1973. Results of tests on these samples are shown in Table 2. Water samples were taken near the channel and around the disposal area before, during, and after dredging. Samples taken during dredging were taken on a falling tide. The test results of these samples are shown in Table 1. Figure 2 shows the sample locations.

1.04 Project Benefits. Benefits derived from continued maintenance dredging of the channel are limited to values attributed to the Galveston-Port Bolivar ferry service. The ferry service, owned and operated by the Texas Highway Department, is the only direct route for vehicle transportation between Galveston Island and Bolivar Peninsula. The ferries are a link in the State Highway system that follows the Texas coast from Port Arthur to Corpus Christi. The service provides substantial savings of time, money, and fuel for people living along the upper Texas coast. In addition, the ferry service is a known tourist attraction. It provides a free boat ride for anyone and holds a special fascination for people unaccustomed to living near the Gulf. The view from the ferry includes tankers, freighters, and shrimp boats traveling the ship channels. Sea gulls hover over the ferry and dolphins are sometimes sighted.

The abandoned Bolivar lighthouse and the remaining facilities at the historic Galveston Quarantine Station can also be seen.

2. ENVIRONMENTAL SETTING.

General Location.

2.01 Physical Description. The Channel to Bolivar is located on the upper Texas coast between Galveston Island and Bolivar Peninsula. This area is a part of the Texas coastal plain which varies from 30 to 60 miles in width along the entire shoreline of the state. The area is typified by a relatively flat, featureless terrain containing barrier islands and peninsulas, inland bays and bayous, and a mainland area of prairie land crossed by wooded streams and rivers. Galveston Island and Bolivar Peninsula separate the Galveston Bay system from the Gulf of Mexico. The bay system is connected to the Gulf by two large natural passes and a small man-made pass. The natural passes are the Galveston Entrance, which lies between Galveston Island and Bolivar Peninsula, and San Luis Pass at the southwest extremity of Galveston Island. Rollover Pass was constructed across Bolivar Peninsula about 15 miles north of the Galveston entrance. Figure 1 shows the Galveston Bay system and the barrier formations.

2.02 Geology and Soils. Soils in the coastal plain are primarily alluvial deposits of sand, silt, and clay of recent geological origin. In the project area these soils are about 40 feet thick and overlie a heavy clay formation of Pleistocene Age. The barrier formations, Galveston Island and Bolivar Peninsula, are typified by low vegetated sand dunes. Bay bottom sediments along the upper coast are primarily clays and sandy clays that are readily susceptible to resuspension in the water as a result of wave action; however, the high current velocities encountered in the passes from the bay to the Gulf transport the clay materials to the Gulf and the bottom materials in the passes are primarily sands.

2.03 Climate. The climate of the Galveston Bay area is humid and subtropical, and is strongly influenced by the Gulf of Mexico and the Galveston Bay system. The

average annual temperature is about 70°F. In summer the average high temperature is about 80°F and in winter about 56°F. Precipitation is approximately 42 inches per year. Fog can occur in this area at any time of the year but is most frequent in winter. Fog often causes temporary halts to navigation because of poor visibility and results in several vessel collisions annually.

2.04 Land Use. The mainland areas around the Galveston Bay system are primarily used for agriculture and grazing. Development is concentrated along the west shoreline of Galveston Bay, on Galveston Island, and on Bolivar Peninsula. Population is concentrated in a few major cities, including Galveston, Texas City, Houston, Baytown, and Pasadena. Galveston County, which comprises the Galveston-Texas City Standard Metropolitan Statistical area, had a 1970 population of about 170,000. Manufacturing values in Galveston County were over $352 million and payrolls were over $132 million. Total population of the Houston-Galveston area is about two million.

Galveston Bay.

2.05 Physical Description. The Galveston Bay system consists of four large bays (Galveston, Trinity, East, and West Bays) and numerous smaller bays, creeks, and bayous. It is the largest estuary on the Texas coast, having a total surface area of about 533 square miles. The major bays are broad and shallow with maximum depths of 8 to 10 feet. The smaller bays, creeks, and bayous are shallow with generally low current velocities during normal weather and tidal conditions.

2.06 Primary Productivity. Extensive marshes and beds of aquatic vegetation in the bays provide the main source of primary productivity in the Galveston Bay system. Primary productivity is the rate of photosynthetic carbon fixation by plants and bacteria forming the base of the marine food chain. Marshes cover more than 100,000 acres of surrounding low areas. Common types of marsh vegetation are cordgrass, sea-oxeye, and glasswort. Widgeongrass and shoalgrass are common types of submerged vegetation. High natural turbidities

and low nutrient concentrations inhibit phytoplankton production; and this source of primary productivity plays a reduced role in the maintenance of the estuarine food chain. 2/

2.07 Common Fishes and Crustaceans. The shallow bay areas provide important nursery and feeding areas for such commercial and sport species as sand and spotted seatrout, redfish, black drum, flounder, sheepshead, croaker, and gafftopsail catfish. Other common fishes include menhaden, mullet, spot, bay anchovy, sea catfish, and many smaller forage species. Brown and white shrimp and blue crab are important commercial crustaceans.

2.08 Birds. The bay area also provides feeding and nesting habitat for numerous species of water and shore birds. Large numbers of ducks and geese spend the fall and winter in the bay system and its adjacent marshes. Among the species of ducks and geese commonly observed in the area are Canada, white fronted, snow, and blue geese and pintail, gadwall, scaup, teal, widgeon, mallard, and mottled ducks. Clapper rail, seaside sparrow, and red-winged blackbird are typical residents of the salt marshes. Shore and wading birds that nest and feed along the bay shore and vegetated disposal islands include curlew, heron, egret, skimmer, and roseate spoonbill. White pelicans and sea gulls are common in this area.

2.09 Mammals. Marshes and land around the estuary provide food and cover for many wildlife species. A few of the more common species are rabbit, skunk, muskrat,

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2/ U.S. Army Corps of Engineers. 1973. Report on Gulf Coast Deep Water Port Facilities, Texas, Louisiana, Mississippi, Alabama, and Florida, Appendix F. Environmental Assessment Western Gulf, Vol. III

nutria, raccoon, opossum, and armadillo. Wooded areas along rivers and streams provide habitat for deer and squirrel. Wildlife habitat in the immediate project area is limited because of recreational use and development. Mammals common to the project area include skunk, rabbit, raccoon, and opossum. The water area of the channel and pass is commonly inhabited by dolphins. These animals often can be seen from the ferry and add an interesting side light to the ferry service's value as a tourist attraction.

2.10 Endangered and Threatened Species. Endangered species known to inhabit or which could possibly be present near the Galveston Bay system include the red wolf, Houston toad, southern bald eagle, Attwater's greater prairie chicken, American alligator, and eastern brown pelican. The roseate spoonbill is also an inhabitant of this area of the Texas coast and is listed in the Bureau of Sport Fisheries and Wildlife publication 'Threatened Wildlife in the United States', 1973 Edition, as a peripheral species. Of the above listed species, only the eastern brown pelican and the roseate spoonbill could reasonably be expected to utilize the project area. Because of development and intensive human activity in the immediate project area, no endangered or threatened species use or inhabit areas to be affected by the proposed action.

2.11 Commercial Fisheries. The Galveston Bay system supports major commercial fisheries for oysters, crabs, fin fish, and shrimp. The total value of all fish and shellfish harvested from the bay waters in 1971 was about 4.4 million dollars. Galveston Bay produced approximately 85 percent of the state's oyster harvest in 1971. Hundreds of commercial fishing vessels and many seafood processing plants are located around the bay system.

2.12 Oyster Production. Numerous commercial oyster reefs are located throughout the Galveston Bay estuary. The nearest known commercial reef to the project site is located approximately 8 miles away. There are no

known reefs or scattered oysters in the vicinity of the project area where the sediments will be dispersed. The nearest known oysters are located in a small bayou about one mile north of the project area on Bolivar Peninsula.

2.13 Recreation. The Galveston Bay area is used intensively for recreation. The open bays are used for sport fishing, pleasure boating, sailing, sail and power boat racing, water-skiing, and waterfowl hunting. Galveston Island and Bolivar Peninsula have public beaches extending for nearly 50 miles along the coast. Camping, swimming, shell collecting, surfing, and picnicking occur throughout the year on the beaches. Inland marshes and disposal islands are used heavily for waterfowl hunting and bird watching. Two large disposal islands in Galveston Bay are leased by the Audubon Society for bird sanctuaries. Major public recreational facilities in this region include county parks, public beaches, Galveston Island State Park, and Seawolf Park at the Pelican Island Recreation Area. The Galveston-Port Bolivar ferry is a significant tourist attraction for the region as it provides an excellent view of the Bolivar Roads area, shipping activity, and bird life. Because of the proximity of the nearly two million people in the Houston-Galveston area, many thousands of people use the available recreational resources every weekend. Many recreation oriented housing developments have been constructed along the bay shorelines and the Gulf beaches. Summer homes line much of the Bolivar Peninsula beach front. The number of persons involved in various forms of water oriented recreation in the Galveston Bay area on a typical summer weekend probably exceeds 100,000.

Immediate Project Area.

2.14 Bolivar Peninsula. Bolivar Peninsula is a long, narrow barrier formation extending southwestward from the mainland between East Bay and the Gulf. The peninsula is about 24.5 miles long with a width varying from one-quarter mile to about 3 miles. On the southwest, the peninsula is separated from Galveston Island by Bolivar Roads Channel. The general elevation of Bolivar

Peninsula is from five to six feet above mean sea level. Native vegetation consists mainly of coarse grasses, weeds, some shrubbery and trees. Heavy growths of marsh grass occur in the tidal areas bordering the bay shoreline. Development on Bolivar Peninsula consists of several small communities, fishing settlements, and summer camps. The town of Port Bolivar is situated at the southern end of the peninsula near the Galveston-Port Bolivar ferry landing. The peninsula is used to a considerable extent for truck crops and for cattle grazing. Rollover Fish Pass was cut through the peninsula to allow fish to enter East Bay from the Gulf and to permit exchange of tidal waters for improvement of the marine environment in East Bay. The pass has become a popular fishing spot. State Highway 87 provides a direct connection between the mainland and the small communities and summer homes along Bolivar Peninsula.

2.15 Galveston Island. Galveston Island is a barrier island about 30 miles long and varies in width from one-half mile to three miles. Major modifications to Galveston Island have included raising the elevation of much of the eastern end of the island where the city of Galveston is located and the construction of a seawall on the Gulf side to protect the city and port from storms. Development on Galveston Island is extensive and the city supports a population of about 60,000 people. The Port of Galveston is the fifth largest dry-cargo port along the Texas coast. Native vegetation on Galveston Island is similar to that of Bolivar Peninsula. The western end of the island is used extensively for cattle grazing. Numerous public and private piers line the beach front and parts of the bay shoreline.

2.16 Bolivar Roads. The Houston Ship Channel and Texas City and Galveston Channels extend to deep water in Bolivar Roads and thence through the Galveston Harbor Channels to the Gulf. These channels are major tidal exchange routes and serve as migratory pathways for juvenile and adult fish and crustaceans migrating between the Gulf and the Galveston Bay system. The channel

and adjacent shallow areas are fished extensively by sport fishermen for numerous species of game fish, including speckled seatrout, redfish, black drum, croaker, sheepshead, flounder, and gafftopsail catfish. During cold weather the warm bottom waters in the channels function as escape routes or refuges for marine animals. Wade fishing occurs extensively in the project area from the jetties on the Gulf side of Bolivar Peninsula to approximately one mile north of the ferry landing. Wade fishing is also popular along the Galveston shoreline adjacent to the pass. The mean range of tide in Bolivar Roads is 1.4 feet. The water in lower Galveston Bay can be depressed as much as 4 feet below mean low tide by strong north winds in winter and can be raised as much as 15 feet above mean low tide by tropical hurricanes which occur in the summer and fall at infrequent intervals.

2.17 Galveston-Port Bolivar Ferry. The only direct connection for vehicular traffic from Galveston Island to Bolivar Peninsula is the State Highway ferry service. The ferries are the only significant vessel traffic using the Channel to Port Bolivar. Three ferries, owned and operated by the Texas Highway Department, maintain a scheduled departure rate of every twenty minutes during periods of heavy traffic. Galveston officials have requested the Texas Highway Department to place additional ferries in service to accommodate the increasing traffic volume occurring on weekends and holidays. The ferries are used for highway traffic only, and are in operation daily except when dense fog or storms make navigation hazardous. In 1973, the ferries made approximately 22,000 round trips, transporting 1.2 million vehicles and 4.5 million passengers. Peak operation of the ferries occurs during the summer months when tourism and recreational activities are highest in the Galveston area. The ferry service results in substantial savings of time, money, and fuel for people inhabiting or visiting the upper Texas coast. For example, without the ferry service, anyone in Galveston needing to travel to Port Bolivar would have to drive 132 miles around the perimeter of Galveston Bay. Persons

wishing to travel between the Beaumont-Port Arthur area and Galveston would have to travel an additional 40 miles. People in Houston would have to travel an additional 63 miles to reach Port Bolivar. The savings of time, money, and fuel afforded by the ferry service becomes apparent when consideration is given to the 1.2 million vehicles transported by the ferries in 1973.

2.18 Disposal Site. The disposal area site has natural depths ranging from one to four feet. Tidal current velocities as high as 3.5 to 4 feet per second occur in this area and prevent significant build-up of sediments deposited in the disposal area. Sediments are initially deposited within the disposal area limits, but tidal currents eventually scatter the deposited sediments over large areas between Galveston Island and Bolivar Peninsula.

2.19 Archeological and Historical Resources. There are no known archeological or historical sites in the area which would be affected by maintenance of the project. A search of the National Register of Historic Places disclosed no record of registered historical places in the channel or disposal area. Dredging will be confined to the existing channel bottom limits and disposal will be limited to an area that has been used for this purpose since the project was constructed. Any shipwrecks that may have existed at one time within the channel limits would have been destroyed by previous dredging. Any sunken vessels existing in the disposal area should not be adversely affected by the proposed action because permanent deposition of sediment will be negligible. The Port Bolivar Lighthouse, a local historical monument on Bolivar Peninsula, will not be affected by dredging operations or disposal.

2.20 Other Projects. Maintenance dredging of various Federal navigation projects is a continuing operation throughout the Galveston Bay system. Most channels within the bay system require maintenance dredging at intervals of two years or more and are not thought to have significant interrelated or compounded environmental influences. A separate environmental statement

is being prepared for each individual maintenance dredging project stating the environmental circumstances and impacts of each.

3. RELATIONSHIP OF PROPOSED ACTION TO LAND USE PLANS.

3.01 Direct Effects. The proposed action will not have any direct effect on any existing land use plan. The proposed dredging and disposal actions will not affect any emergent land area.

3.02 Indirect Effects. The proposed action is in accord with use plans for lands in the project vicinity. Future land use plans for Bolivar Peninsula, including recreational areas, vacation homesites, fishing piers, and small businesses, depend upon continued access from Galveston Island. Failure to implement the proposed action would conflict with these proposed land uses. There is no known conflict with any land use plans.

4. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION.

4.01 General. The proposed action will provide social, economic, and recreational benefits by permitting continued unrestricted operation of the Galveston-Port Bolivar ferry service.

Effects of Dredging

4.02 Removal of Bottom Dwelling Organisms and Vegetation. Maintenance dredging of the channel will remove or disturb bottom dwelling organisms in or on the bottom sediments. Dredging should not damage any oysters or vegetation because neither exists on the channel bottom. E. E. Jones (Unpublished University of South Alabama) 3/

3/ Reported in "Environmental Effects of Hydraulic Dredging in Estuaries" by Edwin B. May, pub. in Alabama Marine Resources Bulletin No. 9 of the Alabama Department of Conservation and Natural Resources, Marine Resources Division. April 1973

did a limited faunal investigation by comparing dredged and undredged bottoms. He concluded that physical characteristics of dredged mud revert to the undredged bay bottom characteristics in approximately 6 months. Since the channel area has been dredged previously, the bottom dwelling organisms present are those that have repopulated the area since the most recent dredging. These organisms can be expected to repeat past development and recolonize the dredged areas. Based on studies by John L. Taylor (unpublished), [4/] it can be concluded that dredged areas will be recolonized in about 6 months. All such effects of dredging will be confined to the 3.2 acres of channel bottom.

4.03 Turbidity. Channel dredging will also result in areas of high turbidity immediately surrounding the dredge cutterhead during dredging. This turbidity will probably be visible at the surface for one or two thousand feet down current from the dredge because of the turbulent flow conditions existing in the channel area. Beyond that distance, dredge caused turbidities will be dispersed sufficiently to be indistinguishable from natural turbidities. This turbidity may reduce phytoplankton productivity in the affected area during dredging by reducing sunlight penetration and, consequently, photosynthesis.

4.04 Motile Organisms. Noise and turbidity surrounding the dredge cutterhead will disturb some species of motile organisms, causing them to avoid the immediate area; and will attract others that feed on the materials and organisms dislodged from the bottom. Some of the organisms attracted to the area will be entrained in the dredge pipe and will be pumped to the disposal area.

4/ Ibid

This will result in the loss of most of the entrained organisms. Because of the small numbers of animals normally observed in the discharge from a disposal pipe, this effect is not considered to be significantly detrimental to the productivity of the Galveston Bay system.

Disposal Operations.

4.05 Bottom Dwelling Organisms. The placement of dredged materials in less than 4 feet of water in the open water disposal site will cover bottom dwelling organisms and eliminate a small portion of the productive fish and crustacean habitat. However, since the area of deposition has been used many times in the past for similar maintenance dredging operations, there should be no basic change in the productivity of the area. Most of the dredged material will eventually spread far beyond the point of discharge. Because of the small quantities of materials involved and the long distances that the high velocity tidal currents can transport the materials, it is not believed that the sediments are deposited in sufficient depth to cause mass mortality among bottom dwelling organisms located outside the disposal area.

4.06 Turbidity. Turbidity caused by the disposal operations will have some adverse effects on primary productivity, recreation, and aesthetics in the affected area. As with turbidity caused by the dredge, primary productivity of the phytoplankton in the affected area will be reduced during dredging. Because of the larger volumes of sediments involved, the plume could remain visible for a distance of over one half mile from the point of disposal. Wade fishing east of the disposal area might be adversely affected during dredging because some desirable species might avoid the area of increased turbidity. From an aesthetic point of view, muddy water is usually displeasing to fishermen and tourists. In any event, the detrimental effects of dredge caused turbidities will not exceed those that result from turbidities caused by strong winds associated with weather fronts and storms that occur regularly in the project area.

Pollutant Sampling Program Results

4.07 General. Both sediment samples taken in the channel prior to dredging revealed concentrations of zinc in excess of the criteria proposed by the Environmental Protection Agency for limiting open water disposal. One of these samples also contained excessive total Kjeldahl Nitrogen. All sediment samples taken after dredging showed low levels of pollutants. This indicates that, because of the nature of the dredged materials and the high current velocities, the pollutants were resuspended and dispersed over a much larger area than the designated disposal site. It also showed that disposal activities did not appreciably affect background levels of pollutants in the disposal area sediments. As shown on Figure 2, water samples 9W, 10W, and 11W were taken down current from the disposal site during dredging, and samples 5W through 8W reflect the levels of materials resuspended by the dredge cutterhead.

4.08 Suspended Solids. During before dredging sampling, winds were from the south-southeast at 15 to 18 mph. Water conditions were rough and turbid as the winds had been blowing for several days. Suspended solid levels found at this time were from 2 to 3 times as great as levels found during and after dredging. The high levels of suspended solids and volatile solids found in before dredging water samples represented natural conditions. Sampling done during dredging was accomplished under similar weather conditions, but the wind velocities were just beginning to increase after several relatively calm days of winds from 8 to 16 mph. As a result, natural levels of suspended solids were far lower than levels found before dredging. Samples taken during dredging showed that suspended solid levels averaged slightly higher down current from the disposal area. This slight increase reflects the materials placed in suspension by the disposal action. After dredging samples, which represented natural conditions, did not show suspended solid levels to be significantly lower than those found during dredging. Wind conditions during after dredging sampling were relatively calm, varying from 10 to 15 mph. It can therefore be concluded that levels of solids

suspended by the disposal operations will not exceed levels suspended by wave action on typical windy days and may in fact be far lower.

4.09 Heavy Metals. The only heavy metal found in concentrations exceeding proposed EPA criteria was zinc. Generally, concentrations of zinc found in water samples taken during and after dredging were slightly higher than those observed prior to dredging. However, widespread release of zinc into the water column did not occur. Variations in data for all sampling periods preclude definite conclusions. Predredging and postdredging sediment samples showed mercury concentrations to be far below proposed limiting criteria. Mercury did show resuspension during dredging. After dredging samples showed a return to near predredged conditions.

4.10 Other Pollutants. Total Kjeldahl Nitrogen showed an increase in only one water sample during dredging. Higher levels found after dredging probably reflect a natural occurrence, but data are insufficient for definite conclusions. Oil and grease showed no significant change that could be attributed to dredging. As shown on the tables, Chemical Oxygen Demand (COD) did not exceed 250 ppm as measured. Because of high chloride concentrations, COD levels below 250 ppm are considered questionable and a minimum value of 250 ppm should be assigned to the results. The sampling program showed no increases in resuspended pollutants that could be attributed to the stirring action of the dredge cutterhead.

4.11 Resuspension of Pollutants. The results of the sampling program indicate that massive resuspension of pollutants by dredging did not occur. The only pollutant that was obviously resuspended was mercury, but the mercury content of the sediments was originally much lower than the proposed maximum acceptable for open water disposal. In addition, resuspended levels of mercury were very low. Resuspension of low levels should not adversely affect water quality. Generally, the sampling program showed that substantial changes in concentrations of critical water quality parameters did

not occur. Based on existing information, it is concluded that limited resuspension of pollutants that occurs will not have a significant adverse effect on marine organisms.

4.12 As evidenced by the after dredging sample analysis in Table 2, the pollutants which exceeded EPA criteria were probably so widely dispersed that the transfer of bottom sediments to the disposal area did not produce pollutant levels above EPA standards.

4.13 Productivity Lost. The most probable detrimental effect of open water disposal is considered to be continued low biological productivity levels in the disposal area as a result of intermittent destruction of some desirable marine organisms. This will not represent additional annual losses to the productivity of the bay system but will simply maintain existing conditions.

4.14 Air and Noise Pollution. Exhaust emissions from the dredge will have no significant effect on air quality in the area, and noise levels will not be increased except in the immediate vicinity of the dredge.

4.15 Oyster Productivity. Oyster reefs in the Galveston Bay system should not be affected by the proposed action. Distances from the project area to known live oysters are beyond the range of transport of significant amounts of detrimental sediments or pollutants.

4.16 Recreation. Recreational and aesthetic values of the area will not be significantly affected by dredging operations. Use of the pipeline dredge for maintenance dredging should cause only minor interference to boating or fishing activities in the channel area. Wade fishing on Bolivar Peninsula may be adversely affected in the vicinity of the dredging and disposal operations during the five to ten days required for the work.

4.17 Archeological and Historical Resources. There is no knowledge of archeological resources having been affected by construction or subsequent maintenance of the project. The entire project area was originally

bay bottom, and the only historical resources that could be of significance would be sunken vessels. Because of the lack of significant build-up of deposited sediments in the disposal area, sunken vessels, if any exist in the area, should not be adversely affected by disposal operations. Any sunken vessels existing within the channel limits would have been removed by previous dredging. Therefore the proposed plan of action should not result in any damages to archeological or historical resources.

5. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED ACTION BE IMPLEMENTED.

5.01 Marine Organisms. Bottom dwelling and motile organisms in the open water disposal area will be displaced or destroyed as material flows across the bay bottom. Organisms that have repopulated in the channel bottom since prior dredging operations will also be destroyed or moved to the area of deposition. Swimming organisms in the vicinity of the dredge may be disturbed and those in the immediate vicinity of the dredge cutterhead may be destroyed.

5.02 Resuspension of Pollutants. There is no practical way to avoid some redistribution of the polluted sediment; but dispersion of these sediments by tidal currents should reduce concentrations of resuspended pollutants to levels that will not damage aquatic life. Water quality should not be significantly affected.

5.03 Turbidities. Increased turbidities caused by the dredging and disposal operations will be unavoidable. As was shown by the sampling program, the levels of dredge related suspended solids will not exceed natural levels beyond a short distance from the point of discharge. Natural suspended sediment levels found prior to dredging were from two to three times the levels found during dredging. The distances from the point of discharge to the sampling stations varied from 400 to 700 feet. Since suspended sediments are the primary cause of dredge-related turbidity, it can be concluded that turbidities caused by dredging and disposal operations for the Channel

to Port Bolivar will not exceed turbidities caused by natural conditions beyond 400 feet from the point of discharge.

6. ALTERNATIVES TO THE PROPOSED ACTION.

6.01 General. Alternatives to the proposed project considered are "no action", including alternate methods of vehicle transportation; and alternate methods of dredging and material disposal.

"No Action"

6.02 Effect on Navigation. The "no action" alternative would result in shoaling of the channel and loss of its utility for ferry transportation. Over a period of 3 to 4 years the channel would shoal to a depth less than 10 feet and the Galveston-Port Bolivar ferry service would be precluded. The ultimate effect of the "no action" alternative would be elimination of the only direct route from Galveston to Bolivar Peninsula and points east.

6.03 Recreation. Recreation would be adversely affected by the "no action" alternative. Because of increased costs and time required for access to Bolivar Peninsula, its use for recreation would substantially decline. This would result in higher use rates and overcrowding of areas on Galveston Island. As a result, the quality of recreation would be lowered.

6.04 Environmental Benefits. Some minor environmental benefits would result from the "no action" alternative. Marine animals using the channel and disposal area would not be disturbed or destroyed. The elimination of the ferry service to Bolivar Peninsula would probably decrease the conversion of marsh and vegetated areas on the peninsula to summer home development.

6.05 Alternate Transportation. The only feasible alternative for vehicle transportation across the Bolivar Road Pass would be a highway bridge. The Texas Highway

Department, based on studies by consulting engineers, has estimated that a bridge across the channel would cost about $100 million. Because of the large cost and lack of local sponsorship, no action has been taken by the highway department to undertake such a project. In addition to the high cost, the bridge would also increase the probability of water pollution due to spillages of hazardous materials and surface runoff containing traffic pollutants. This alternative is not considered practicable.

6.06 Alternate Travel Routes. With elimination of the ferry service, the only means of vehicle transportation between Galveston and Bolivar Peninsula would be along a 132 mile route around the perimeter of Galveston Bay via State Highway 146 and Interstate Highway 10. Such a trip would take about 3 hours and would substantially increase fuel consumption. Ferry service across the pass takes about 15 minutes. Mileage increases cited in Section 4 would have a significant effect on people dwelling in or visiting the upper Texas coast. Since data on origin and destination of vehicles using the ferry service are not available, precise values of benefits cannot be determined. If the average distance saved per trip is assumed to have been 60 miles in 1973, the total mileage saved was 72 million miles. At 15 miles per gallon, that represents about 4.8 million gallons of gasoline at a cost of about $2.0 million. In addition to the value of the natural resource being saved, this large volume of gasoline being consumed would emit gases and particulate matter that would contribute to air pollution and the hazards to public health. The additional gasoline consumed would also contribute to the national energy crisis and have an adverse impact on the petroleum products conservation effort. In the overall view, the "no action" alternative is not considered practical or desirable because of the detrimental effect on man's social and economic well-being.

Alternate Methods of Dredging and Disposal.

6.07 General. Three alternate methods of dredging and disposal are available for consideration: pipeline dredging with disposal in leveed areas constructed in open waters; pipeline dredging with all disposal on leveed land areas; and dredging by means of self propelled seagoing hopper dredges with disposal at sea or inshore pump-out facilities.

6.08 Disposal in Leveed Areas in Open Water. Generally, the construction of levees in open waters involves difficult engineering problems which result in high costs. Earthen levees exposed to wave action and strong tidal currents are subject to continuous rapid erosion regardless of the material of which they are constructed. This erosion can only be retarded by facing the levee slopes with stone riprap. Because of the strong currents and large waves frequently occurring in the project area, the levees and stone protection system would be exorbitantly costly. For the Channel to Port Bolivar, it would be more economical to use a steel sheet pile retaining wall. Such a wall would cost about $500,000 to construct.

6.09 Containment of dredged material in open water would reduce turbidities and dispersal of sediments and pollutants associated with the disposal operation. The confined disposal area would become an emergent island, permanently eliminating an area of bay bottom habitat. Aside from its much higher cost, this alternative offers no substantial environmental advantages over the proposed method other than reduction in turbidity and pollutants that might be dispersed into the open channel waters. This alternative also includes the disadvantage of permanent displacement of submerged marine habitat. The sampling program for this project has shown little evidence that resuspended solids or pollutants are significantly damaging to marine water quality.

6.10 In view of the high cost and questionable benefits to the environment, a leveed open water disposal area is considered impracticable for this project.

6.11 Disposal in Leveed Upland Areas. Generally the disposal of dredged materials in upland shore areas involves high cost related to long pumping distances, a scarcity of suitable lands, and environmental or aesthetic detriments to the selected land area. The lands surrounding Port Bolivar include small residential developments, agricultural and grazing lands, and estuarine marshes. Undeveloped lands upland of the marshes are generally of good quality as habitat for birds and other small animal life and, depending on the area selected for disposal, environmental damages to these values would be sustained.

6.12 Based on use of an existing disposal area located along the Gulf Intracoastal Waterway (GIWW) approximately one mile from the ferry landing, it is estimated that the cost of maintenance work would be at least doubled. The increase relates to the higher cost of hydraulic dredging with a substantial lengthening of pumping distance. The presence of a floating pipeline over the bay and part of the Gulf Intracoastal Waterway would be disruptive to fishing craft, recreational boating, and inland waterway commerce.

6.13 It is concluded that this alternative would involve trade-off of one type of environmental impact for another, with no apparent gain; and would be more costly considering the pumping distance required. In view of these factors and the possible hazard to navigation, it is concluded that this alternative is less desirable than the proposed plan.

6.14 Use of Hopper Dredges. Government-owned, self propelled seagoing hopper dredges are commonly used by the Corps of Engineers in channel dredging. The principle involves pumping material from the channel bottom into hoppers or bins in the dredges, transporting it to deep water disposal areas and dumping it by opening the hoppers. Along the Texas coast the only areas of sufficient depth for disposal are in the Gulf of Mexico.

The Channel to Port Bolivar is a shallow-draft channel. The relatively deep-draft of the hopper dredges when

the bins are filled to capacity precludes their use in shallow-draft waterways. Therefore, hopper dredging is not a viable alternative.

6.15 Conclusions. With the exception of "no action", the above alternatives do not offer any substantial environmental advantages over the proposed plan. Although the "no action" alternative would benefit the natural environment somewhat, the loss in recreational opportunity and increased fuel consumption make it undesirable. All of the alternatives would be much more costly than the proposed plan. It is concluded that the proposed plan of action will result in minimal environmental damages and minimum cost. The proposed plan of action will best serve the total public interest.

7. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

7.01 The project will induce no basic change in either short or long-term use of the environment. Maintenance of the channel will help sustain the transportation activity for users of the facility and contribute to the economic and social well-being of the inhabitants of the area. Existing low productivity levels in the channel and disposal area will be continued.

8. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED.

8.01 Labor, materials, and capital resources associated with all phases of maintenance dredging would be irreversibly and irretrievably committed to the project. Frequency of dredging will restrict productivity in the affected area as long as the channel is maintained.

9. COORDINATION WITH OTHERS.

9.01 Public Participation. No public meetings were held concerning maintenance of the Channel to Port Bolivar.

9.02 Governmental Agencies. Copies of this draft will be circulated to the following agencies for review and comment:

Region VI, Department of Health, Education, and Welfare
Region VI, Environmental Protection Agency
Region VI, Department of Housing and Urban Development
Deputy Assistant Secretary for Environmental Affairs, Department of Commerce
Office of Environmental Project Review, Department of the Interior
Coordinator for Water Resources, Department of Transportation
Eighth Coast Guard District, Department of Transportation
Advisory Council on Historic Preservation
Division of Planning Coordination, State of Texas
Houston-Galveston Area Council
County Judge, Galveston County
County Judge, Chambers County
Galveston County, Navigation District No. 1
City of Galveston

9.03 Citizens Groups. Copies of this draft statement will be circulated to the following groups for review and comment:

Sportsmen's Clubs of Texas
Galveston Chamber of Commerce
Audubon Society
The Sierra Club
National Wildlife Federation
League of Women Voters

9.04 Coordination of Disposal Plans. Detailed plans for disposal of dredged material have been coordinated with the Fish and Wildlife Service and Environmental Protection Agency. No direct coordination was made with any other Federal or State agencies. The Bureau of Sport Fisheries and Wildlife coordinated its work with the Texas Parks and Wildlife Department and National Marine Fisheries Service. Copies of the disposal area coordination letters are included in this statement as Appendix A.

9.05 Environmental Protection Agency Recommendations. The Environmental Protection Agency recommended that all materials be disposed of in a leveed area and that if this is not done, the disposal activities should be closely monitored to avoid appreciable changes in concentrations of critical water quality parameters above background levels in the surrounding waters. As discussed in the alternatives section of this statement, the use of leveed areas was found impracticable. Critical water quality parameters were monitored during previous dredging of the channel and no appreciable changes above background levels were found.

9.06 Bureau of Sport Fisheries and Wildlife Recommendations. The Bureau of Sport Fisheries and Wildlife recommended that disposal materials dredged from the Channel to Port Bolivar be placed and contained on land above mean high tideline or, as an alternate, be placed on the designated disposal area used in previous dredging operations. The proposed action conforms with the latter recommendation.

MAINTENANCE DREDGING
CHANNEL TO PORT BOLIVAR

TABLE 1
RESULTS OF TESTS OF WATER SAMPLES

Sample Number	Date Sampled	Station	Distance from Channel	Depth MLT	Water* Temp °C	Conductivity	Total Solids	Dissolved Solids (From Chlorides)	Suspended Solids (By Diff)
CRITERIA									
			Before Dredging						
1W	1/31/73	1+00	25N	13.4	13.0	34,000	42,100	27,000	15,000
2W	1/31/73	6+00	25N	15.4	13.0	33,100	42,900	27,000	16,000
4W	1/31/73	-2+00	900S	2.0	12.4	21,100	41,100	27,000	14,000
			During Dredging						
5W	4/20/73	-2+00	400S	0.5	22	21,500	16,300	13,000	3,000
6W	4/20/73	2+00	400S	4.0	22	20,200	17,800	15,000	3,000
7W	4/20/73	6+00	400S	6.0	22	22,100	18,900	15,000	4,000
8W	4/20/73	2+00	400S	2.0	21	20,900	20,300	14,000	6,000
9W	4/20/73	2+00	1400S	2.5	20	22,000	19,700	16,000	4,000
10W	4/20/73	-3-50	1400S	2.5	20	22,100	19,900	15,000	5,000
11W	4/20/73	-6+50	1400S	1.0	20	22,100	21,400	13,000	8,000
			After Dredging						
1W	5/11/73	1+00	25N	21.5	24	14,500	14,600	11,000	4,000
2W	5/11/73	6+00	25N	22.0	24	16,200	19,300	12,000	7,000
4W	5/11/73	-2+00	900S	1.0	24	13,200	13,400	10,000	3,000

* Data supplied by Galveston District

Notes: 1. The dissolved solids were calculated on the assumption that the chlorides constitute 56% of the total dissolved solids.
2. All tests were conducted on unfiltered samples.

MAINTENANCE DREDGING
CHANNEL TO PORT BOLIVAR

TABLE 1 (CONTINUED)
RESULTS OF TESTS OF WATER SAMPLES

Sample Number	Date Sampled	Total Volatile Solids	Total Kjel Nit	Oil and Grease	COD	Mercury	Lead	Zinc	Chloride
CRITERIA						5.0	0.5	5.0	15,000
			Before Dredging						
1W	1/31/73	16,400	1.1	18	86	1.1	0.75	2.8	15,000
2W	1/31/73	16,900	1.2	13	104	0.93	0.75	0.86	15,000
4W	1/31/73	16,200	1.2	16	54	0.56	0.75	0.41	15,000
			During Dredging						
5W	4/20/73	3,820	2.5	18	18	0.74	0.65	0.31	7,200
6W	4/20/73	3,790	1.6	78	78	0.74	0.55	1.6	8,200
7W	4/20/73	4,970	1.9	84	56	0.74	0.55	1.9	8,200
8W	4/20/73	5,600	1.8	73	196	0.56	0.65	1.5	8,000
9W	4/20/73	4,120	1.1	84	204	2.0	0.55	1.5	9,000
10W	4/20/73	6,000	1.1	12	83	2.8	0.55	1.4	8,500
11W	4/20/73	8,000	3.3	16	142	2.6	0.65	7.0	7,500
			After Dredging						
1W	5/11/73	4,160	3.2	9	90	1.7	0.55	1.3	6,000
2W	5/11/73	8,700	3.6	44	35	1.5	0.35	3.5	6,500
4W	5/11/73	4,050	4.5	31	48	1.3	0.45	1.0	5,500

Notes:
3. Test results for Hg are un ug/l. All other results are in mg/l
4. Lead and zinc tests were performed on acid-digested samples
5. EPA Manual states: "When the chloride level exceeds 1,000 mg/l, the minimum accepted value for the chemical oxygen demand will be 250 mg/l. COD levels which fall below this value are highly questionable because of the high chloride correction which must be made." Actual COD results are shown.

MAINTENANCE DREDGING
CHANNEL TO PORT BOLIVAR

TABLE NO. 2
RESULTS OF TESTS OF SEDIMENT SAMPLES

Sample Number	Date Sampled	Station	Distance from Channel	Depth MLT	Moisture Content % Dry Wt.	Total Solids % by Wt	Total Volatile Solids % by Wt	Tot Kjel Nitrogen Dry Basis mg/kg
EPA PROPOSED LIMITING CRITERIA**							6.0	1,000
			Before Dredging					
1S	1/31/73	1+00	25N	13.4	85	54	4.9	1,400*
2S	1/31/73	6+00	25N	15.4	59	63	3.3	730
4S	1/31/73	-2+00	900S	2.0	27	79	1.4	410
			After Dredging					
1S	5/11/73	1+00	25N	21.5	22	82	1.1	330
2S	5/11/73	6+00	25N	22.0	25	80	1.4	460
4S	5/11/73	-2+00	900S	1.0	25	80	1.2	690

* Indicates average of at least two separate tests
**Criteria shown are tentative. A joint task force of EPA and the Corps of Engineers is currently developing guidelines and criteria for disposal of dredged material in inland waters.

MAINTENANCE DREDGING
CHANNEL TO PORT BOLIVAR

TABLE NO. 2 (CONTINUED)
RESULTS OF TESTS OF SEDIMENT SAMPLES

Sample Number	Date Sampled	Oil and Grease Dry Basis mg/kg	COD Dry Basis mg/kg	Mercury Dry Basis mg/kg	Lead Dry Basis mg/kg	Zinc Dry Basis mg/kg
EPA PROPOSED LIMITING CRITERIA		1,500	50,000	1.0	50	50
		Before Dredging				
1S	1/31/73	1,200	26,000	0.22	37	67*
2S	1/31/73	1,300	13,000	0.13	17	52*
4S	1/31/73	670	810	0.08	20	15
		After Dredging				
1S	5/11/73	1,200	560	0.09	16	18
2S	5/11/73	550	580	0.10	18	16
4S	5/11/73	670	590	0.06	15	15

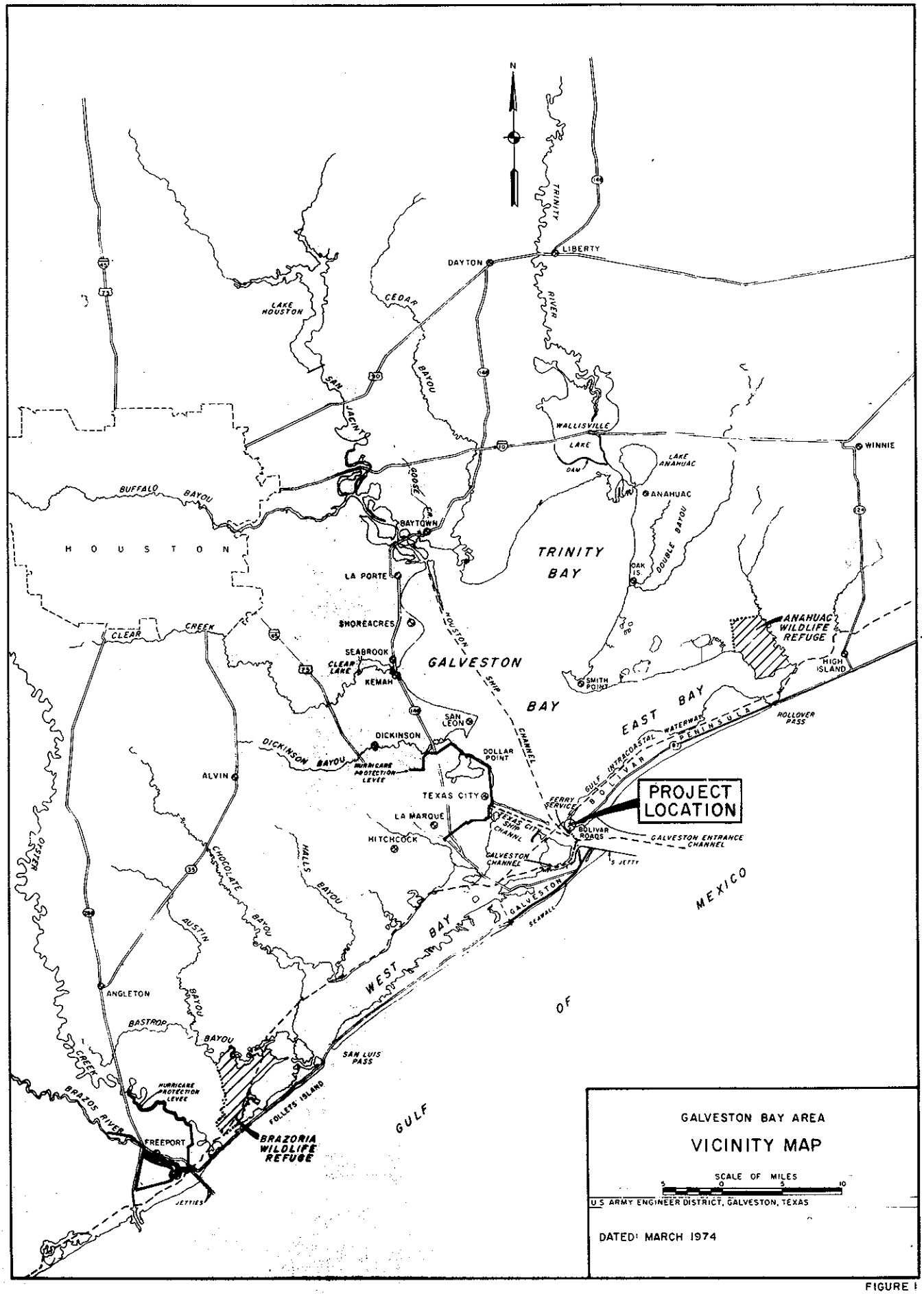
N
TRINITY
LIBERTY
DAYTON
LAKE HOUSTON
CEDAR
RIVER
SAN JACINTO
BAYOU
WALLISVILLE
LAKE
DAM
LAKE ANAHUAC
WINNIE
ANAHUAC
BUFFALO BAYOU
GOOSE
BAYTOWN
HOUSTON
TRINITY BAY
DOUBLE BAYOU
OAK I.
LA PORTE
ANAHUAC WILDLIFE REFUGE
CLEAR CREEK
SHOREACRES
HOUSTON SHIP CHANNEL
SEABROOK
CLEAR LAKE
KEMAH
GALVESTON BAY
EAST BAY
SMITH POINT
HIGH ISLAND
SAN LEON
DICKINSON
DICKINSON BAYOU
HURRICANE PROTECTION LEVEE
DOLLAR POINT
ROLLOVER PASS
GULF INTRACOASTAL WATERWAY
BOLIVAR PENINSULA
ALVIN
TEXAS CITY
FERRY SERVICE
PROJECT LOCATION
LA MARQUE
TEXAS CITY SHIP CHANNL
BOLIVAR ROADS
GALVESTON ENTRANCE CHANNEL
HITCHCOCK
GALVESTON CHANNEL
JETTY
CHOCOLATE BAYOU
HALLS BAYOU
OYSTER CREEK
AUSTIN BAYOU
GALVESTON SEAWALL
MEXICO
WEST BAY
GULF OF
ANGLETON
BASTROP BAYOU
SAN LUIS PASS
HURRICANE PROTECTION LEVEE
BRAZOS RIVER
FOLLETS ISLAND
FREEPORT
BRAZORIA WILDLIFE REFUGE
GULF
JETTIES
GALVESTON BAY AREA
VICINITY MAP
SCALE OF MILES
5 0 5 10
U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS
DATED: MARCH 1974

FIGURE 1

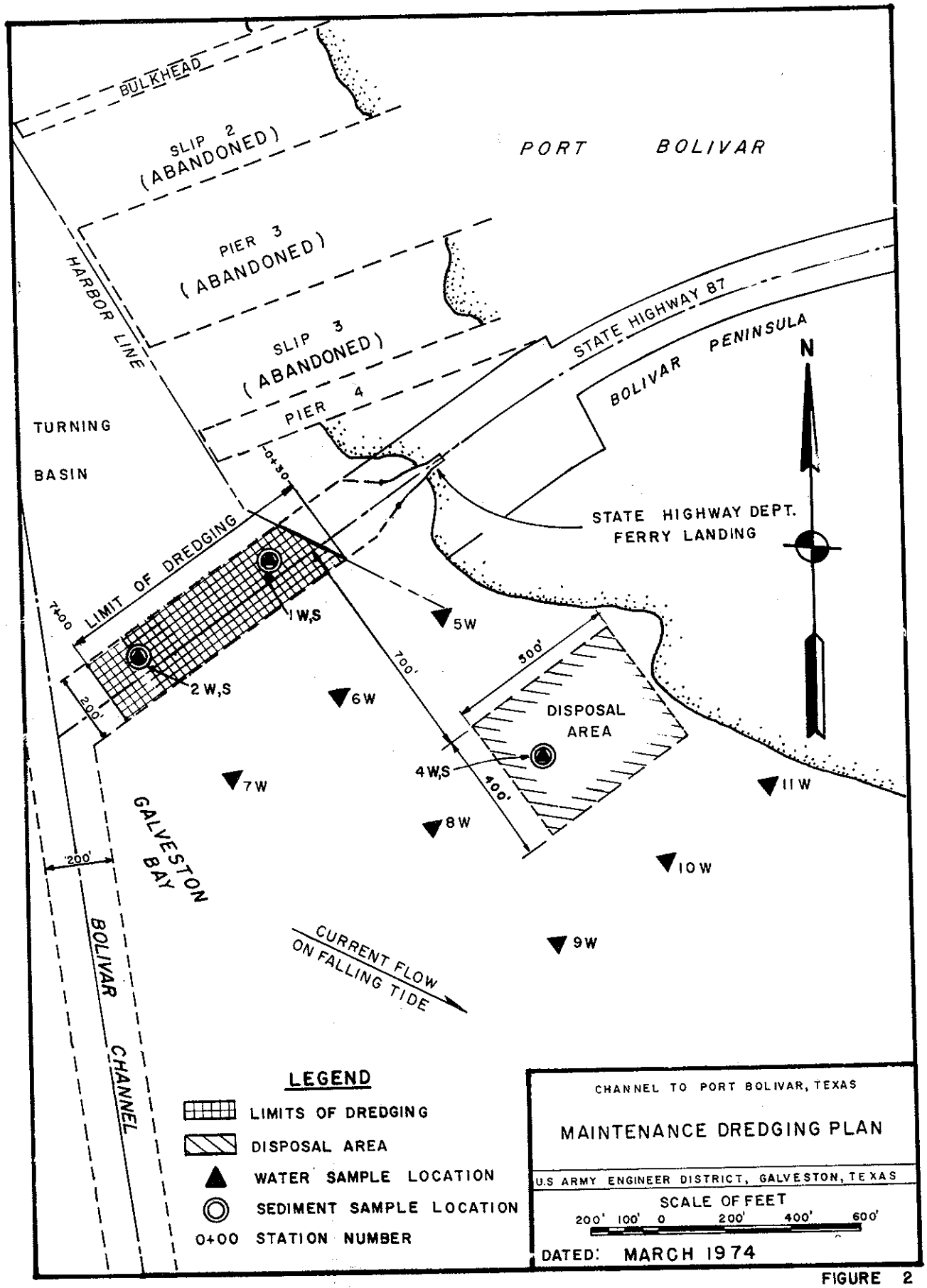
BULKHEAD
SLIP 2
(ABANDONED)
PORT BOLIVAR
PIER 3
(ABANDONED)
HARBOR LINE
STATE HIGHWAY 87
SLIP 3
(ABANDONED)
BOLIVAR PENINSULA
PIER 4
N
TURNING
BASIN
0+30
STATE HIGHWAY DEPT.
FERRY LANDING
LIMIT OF DREDGING
7+00
1W,S
5W
700'
500'
2W,S
200'
6W
DISPOSAL
AREA
4W,S
400'
7W
11W
8W
GALVESTON
BAY
200'
10W
BOLIVAR CHANNEL
CURRENT FLOW
ON FALLING TIDE
9W
LEGEND
LIMITS OF DREDGING
DISPOSAL AREA
WATER SAMPLE LOCATION
SEDIMENT SAMPLE LOCATION
0+00 STATION NUMBER
CHANNEL TO PORT BOLIVAR, TEXAS
MAINTENANCE DREDGING PLAN
U.S ARMY ENGINEER DISTRICT, GALVESTON, TEXAS
SCALE OF FEET
200' 100' 0 200' 400' 600'
DATED: MARCH 1974

FIGURE 2

APPENDIX A

ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1600 PATTERSON, SUITE 1100
DALLAS, TEXAS 75201

June 5, 1972

Colonel Nolan C. Rhodes
District Engineer
U. S. Army Engineer District, Galveston
P. O. Box 1229
Galveston, Texas 77550

Dear Colonel Rhodes:

Thank you for your letter of May 19, 1972, concerning final plans for disposal of materials dredged from the Channel to Port Bolivar and the Texas City Channel, both in Galveston County, Texas. Your final plans indicate that most of the spoil from these maintenance dredging operations will not be deposited within dikes. Because of the nature of the bottom materials, we recommended, in our letter of September 22, 1971, confinement of all dredged material behind dikes and control of runoff back to adjacent waters.

If you do not deposit the dredged material behind dikes, we recommend that the spoil disposal activities be closely monitored to avoid appreciable changes in concentrations of critical water quality parameters above background levels in the surrounding waters. This may require temporary suspension, reduction or other modification of operations during the course of the dredging activities. As stated previously in other correspondence with you on similar dredging projects, it is not our intention nor desire to stop the dredging operations, but to protect the quality of the surrounding waters. Your assistance in this endeavor will be appreciated.

Sincerely yours,

Dean S. Mathews

Dean S. Mathews, P. E.
Director
Air and Water Programs Division

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
POST OFFICE BOX 1306
ALBUQUERQUE, NEW MEXICO 87103

February 9, 1972

District Engineer
Corps of Engineers, U. S. Army
Post Office Box 1229
Galveston, Texas 77550

Dear Sir:

Mr. E. D. McGehee, by letter dated May 12, 1971, referenced SWGCO-M, enclosed drawings depicting plans for spoil disposal in connection with maintenance dredging operations in the Channel to Port Bolivar, in Galveston County, Texas.

This letter is our report on the plan. It was prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). It was prepared with the assistance of the Texas Parks and Wildlife Department and the National Marine Fisheries Service and has received the concurrence of these agencies as indicated by the attached copies of letters from Executive Director James U. Cross, dated October 5, 1971, and from R. T. Whiteleather, former Regional Director, dated October 12, 1971.

We have reviewed the proposed plan of spoil disposal for the Channel to Port Bolivar from Corps of Engineers Station -2+90A to Station 7+50A in Galveston Bay, as charted on map No. GALV 307-126, dated April 1971. The spoil would be placed in one area in the bay adjacent to Bolivar Peninsula where spoil has been deposited in previous maintenance dredgings. The spoil material would be permitted to spill promiscuously beyond the point of discharge into Galveston Bay.

The shallow bay waters are the productive portions of the bay. They serve as nursery and feeding areas for many species of fishes and crustaceans. Important species of fishes and crustaceans using the area include Atlantic croaker, black drum, red drum, flounder, striped mullet, sea catfish, spotted seatrout, pompano, sheepshead, blue crab, and shrimp.

Placement of spoil in the bay adjacent to the Bolivar Peninsula would eliminate a small portion of this productive habitat. Some of the spoil material would spread far beyond the point of discharge because of the high current velocities in the area. However, the resulting deposition would be so widely dispersed as to have little noticeable affect on fish and crustacean habitat.

To prevent losses of fish and crustacean habitat, placement of spoil on land above the mean high tideline would be preferable. However, placement of spoil on an existing spoil area used in previous dredging operations would not result in noticeable changes in the quality of fish and crustacean habitat in the bay area.

It is recommended that:

1. Spoil material dredged from the Channel to Port Bolivar be placed and contained on land above mean high tideline or, as an alternate, on the designated spoil area used in previous dredging operations.

Should it be necessary to change the location or size of the disposal area, the revised plan should be submitted sufficiently in advance to permit coordination and subsequent agreement prior to contracting for maintenance dredging of the area.

The opportunity extended to us to comment on the proposed plan for disposal of spoil from maintenance dredging of the Channel to Port Bolivar, in Galveston Bay, is appreciated.

Sincerely yours,

Enclosure

Copies (10)

Distribution:

(5) Executive Director, Texas Parks and Wild. Dept., Austin, Tex.
(2) Regional Director, Nat'l Mar. Fish. Serv., St. Petersburg, Fla.
(2) Laboratory Director, Biol. Lab., NMFS, Galveston, Tex.
(2) Regional Director, Bureau of Outdoor Rec., Denver, Colo.
(2) Regional Administrator, EPA - Reg. VI, Dallas, Tex.
(1) Field Representative, USDI, SW Reg., Albuquerque, N. Mex.
(2) Field Supervisor, BSFW, Div. of River Basin Studies, Fort Worth, Tex.

TEXAS
PARKS AND WILDLIFE DEPARTMENT

JAMES U. CROSS
EXECUTIVE DIRECTO

JOHN H. REAGAN BUILDING
AUSTIN, TEXAS 78701

October 5, 1971

Mr. W. O. Nelson, Jr.
Regional Director
United States Department of the Interior
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
P. O. Box 1306
Albuquerque, New Mexico 87103

Dear Mr. Nelson:

We have examined the Review Draft for the report on proposed maintenance dredging of Channel to Port Bolivar, Galveston County, and concur in the report as presented.

Sincerely,

James U. Cross

JAMES U. CROSS
Executive Director

cc: Mr. John Degani

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service
144 First Avenue South
St. Petersburg, Florida 33701

Date: October 12, 1971

Reply to Attn of: FSE21

Subject: BSFW draft report, Spoil disposal, Channel to Port Bolivar, Galveston County, Texas (COE)

To: Regional Director
Bureau of Sport Fisheries & Wildlife
Albuquerque, New Mexico 87103

Reference is made to your letter dated September 20, 1971, transmitting a copy of subject draft report and requesting our review and comments.

We have reviewed this report and concur with your findings and recommendations.

R. T. WHITELEATHER
Regional Director