OW Doug-FY
File - D.1

CESAM-PD-EC Dr. Rees/tn/4141/15 May 91

Ft. Dauphin Island Project

MEMORANDUM FOR RECORD

SUBJECT: Dauphin Island Erosion Problem

1. Recent articles in the local press have raised the issue of the erosion on Dauphin Island and the Corps response to this problem (Encl 1). This memo presents information concerning the problem, issues raised in the press articles, and actions which could be undertaken to address the problem.

2. Shoreline change on Dauphin Island is not new and in fact comparison of historic maps of the island indicate a general trend of erosion along the gulf and accretion on the western end. The earliest known maps indicate that around 1717 Dauphin and Petit Bois Islands were connected. At some later date, this island was breached and the two separate entities formed. Between 1909 and 1917, Dauphin Island was breached by a hurricane and it was not until 1942 that maps indicated the breach was filled. The island was again breached by a hurricane in September 1948 and aerial photos taken in March 1950 indicate the island was rejoined. Hurricane Frederic in 1979 caused massive washover of the west end but total breaching did not occur. Studies of the shoreline change between the period 1942 to 1974 indicate gulf shore erosion rates of 6.3 feet per year. Accretion of the west end between 1917 and 1974 accounted for the addition of 1.8 miles of gulf shoreline.

3. The erosion/accretion of Dauphin Island is controlled in large part by geologic and physical forces. The entrance to Mobile Bay is not jettied, in contrast to many of those in Florida such as Perdido and East Passes. A large ebb tide shoal extends along the east side of the outer bar channel from Fort Morgan along "Dixie Bar" seaward to the vicinity of Sand Island Lighthouse. On the west side the shoal extends along the remnants of the Sand Island - Pelican Island Complex. This large shoal forms a natural "sand by-passing plant" for littoral material with a predominantly east to west drift. Material passes across the inlet on the shoal after having been deposited in the inlet channel and then pushed out by the ebb currents. This material is then deposited on the western shoulder of the shoal and eventually returned to the littoral system. All of the islands fronting the Mississippi Sound tend to migrate to the west in the direction of the predominant littoral drift. The east ends of Petit Bois and Ship Islands have in fact eroded at much higher rates than Dauphin Island, and there are no dredged channels immediately updrift of these islands.

4. Corps activities obviously play some role in modifying the littoral drift system. Its significance is unknown and may be impossible to determine with existing information. Between 1982 and 1987, the average annual shoaling rate of the outer bar channel was 350,000 gross cubic yards (based on four dredging contracts). This reach is defined as from mile 35 (in mouth of Mobile Bay) seaward to the project terminus. Naturally deep water exists in the vicinity of Fort Morgan; therefore, the quantity actually removed from the "Dixie Bar" area is rather small. Historically, this material was removed to the ocean disposal site for placement.

5. Tom Richardson, CERC, confirms our belief. He also stated that the erosion seen on the island is part of the natural cyclic nature of barrier islands and not caused by our activities.

6. Dr. Scott Douglas, University of South Alabama, who is quoted extensively in the press articles, called Hugh McClellan and the undersigned on 14 May 91 to indicate that much of the information attributed to him in the articles was not his. His opinion parallels that of this memo and Mr. Richardson. He indicated that he and/or the University are preparing a Letter to the Editor concerning his misrepresentation.

7. In the articles, Mr. Henderson indicated that requests to the Corps had fallen on deaf ears. In 1979, the District completed a "Survey Report on Beach Erosion Control and Hurricane Protection for Mobile County (including Dauphin Island)" (Encl 2). The conclusions of this study were that although problems did exist, that structural plans to meet the needs of the area were either unacceptable to local interests or not economically feasible. The selected plan involved modifying maintenance of the Mobile navigation project to include littoral zone disposal of suitable material. SAD returned the report for revision, indicating that any modifications to the navigation projects should be addressed in ongoing studies of that project.

8. In 1987, District team members met with the Dauphin Island Property Owners Association to discuss Corps activities and erosion on the island (Encl 3). The main topics were construction of the feeder berm which had been completed in March 1987 and the upcoming construction of the stable berm. The feeder berm was constructed with maintenance material from the "Dixie Bar" by modifying existing practices. As you know, one objective of these structures was slow erosion on Dauphin Island. The feeder berm would serve to supply sand to the littoral system while the stable berm would attenuate storm wave energy prior to it influencing the island. Monitoring studies completed late last year indicate that both berms are serving their intended purposes.

9. In addition to the Mobile navigation project, we maintain a shallow draft channel from the bay into Billy Goat Hole on the island. The maintenance material from the Fort Gaines - Government Cut channel is currently authorized for placement on the east end of the island or on the eastern shore of Little Dauphin Island. The recently completed Section 107 Study (Encl 4) proposes to place approximately 20,000 cubic yards of new work and future maintenance in either of these locations. The recommended plan would place the new work material on Little Dauphin Island (B:C 1.1). Moving the material to the east end of the island would, at a minimum, double the cost which would make the project unfeasible. It is possible that non-monetary benefits could be used to justify the increase in costs; however, this would need approval from SAD.

10. We have also attempted to alleviate the erosion problems through the regulatory program. Permit applicants with suitable material (i.e., sand) are required to use the material beneficially if at all feasible. Shell Oil was

issued a permit to place 30,000 cu yd on the east end of the island; however, they have decided not to perform drilling activities because Mobil Oil received their oil gas exploration permit first. Mobil has been issued a permit to place 17,000 cu yd in the east end groin field. Recent discussions with the company indicate this quantity may increase to 300,000 cu yd. They are currently meeting with Dauphin Island people to decide whether to put material in the groin field or along the island gulf beach.

11. Mr. Henderson also raised the issue of Florida laws and our practices in that State. In 1986, Florida established a policy that all suitable material dredged from inlet channels should be placed on downdrift beaches at no expense to the State (Encl 5). In many instances, the Corps has been able to place material on the beach as the least cost environmentally acceptable alternative. These actions are in concert with our regulation which defines the Federal Standard (Encl 6). In some cases, however, placement of sand is not the least costly method and the Corps has required the State to pay for the incremental costs.

12. Recently, this has become a very heated issue in relation to the designation of ocean disposal sites, especially for SAJ (Encl 7). As indicated on the enclosed letter, we will (do) comply with the State policy when it does not conflict with Federal policy. On the other hand, we expect the State to cost share the placement when it is not the least costly alternative.

13. Although not in the newspaper articles, Mr. Henderson has questioned our activities at Johnson Beach, Florida. Johnson Beach is the National Park Service public facility on Perdido Key. Our activities here are on behalf of the U.S. Navy and not related to the Federal navigation channel at Pensacola. As an added note -- the State of Florida, Escambia County and City of Pensacola are "cost sharing" the Navy Homeport activities at Pensacola and these funds are being used primarily to offset the cost of dredging and placement.

14. In addition to a specific Congressionally authorized study, there are two avenues which the "locals" could investigate to request the involvement of the Corps on this issue: Section 111 of the Rivers and Harbors Act of 1968 (Encl 8) and Section 933 of the Water Resources Act of 1986 (Encl 9). Each of the studies have pluses and minuses from our standpoint and from that of the locals.

15. Section 111 provides for cost shared funding of mitigation of the percent of damage due to inlet maintenance up to first cost of $2,000,000 provided:

a. percent of damage can be established, and

b. locals agree to assume O&M.

Cost sharing is based on the cost sharing provisions applicable to the project causing the damage. In this instance, it would be 100% Federal funds. Mr. Richardson indicated that it is extremely difficult to prove damage (or the percentage) attributable to a navigation project in inlets as large as Mobile.

16. Section 933 is probably an easier study to perform but cost sharing for placement would either be 50% or 100% of the incremental costs depending upon the circumstances. Cost sharing of study costs is required when placement of dredged material on beaches is approved.

17. Emergency Management has investigated their authority under P.L. 84-99. Our emergency actions under this authority are restricted to Federally authorized and constructed projects. The undersigned has been in contact with David Schmidt, Chief, SAJ-PD-FC, concerning activities in SAJ, especially Miami and Puerto Rico. Mr. Schmidt indicated that corrective activities had been undertaken along the Florida east coast after Hurricane Dora in 1964 as part of a National Disaster declaration. This work was paid for by Office of Emergency Preparation (forerunner of FEMA). Similar activities were undertaken in Pinellas County after Hurricane Agnes in 1972. Miami Beach project was authorized in 1968 and any corrective actions there would have been undertaken in response to P.L. 84-99.

18. It appears our best efforts at assisting Dauphin Island would be via the Section 107 project, or a Section 933 study. Should you need additional information, please contact me at ext 4141.

Susan Ivester Rees

SUSAN IVESTER REES
Chief, Coastal Environment
Section

9 Encls
as

CF:
DE
DM
PD/McClure
PD-E/McClellan
OP-O/Langan
OP-OW/Baxter
OP-S/Krizman
EN-Y/Odum
EN-YD/Robinson
PD-FP/Martin
EM-D/Page
PA/Robbins

The Sunday Morning
MOBILE PRESS REGISTER
Vol. 21 May 12, 1991

Dauphin Island loses beaches to erosion

(EDITOR'S NOTE: Coastal erosion claims more footage on Gulf Coast beaches each year. Historic landmarks, vacation and residential properties are being threatened in [illegible] areas. This is the first of two stories examining the threat to Dauphin Island.)

By EARL SWEATT
Press Register Reporter

DAUPHIN ISLAND, Ala. — Historic Fort Gaines survived the Civil War but might not survive the latest threat — erosion.

Strong currents and wave action that removed the white sandy beaches from the east end of the resort island have nearly undermined the paved road next to the old brick walls of the fort.

Mike Henderson, executive director of the Dauphin Island Park

See EROSION, 10A, Col. 1

Press Register photo by Earl Sweatt

Stumps along the main public beach at Dauphin Island display the extent of loss of sand.

Erosion

■ Continued From Page 1

and Beach Board, pointed to long fingers of huge rocks protruding from the east end of the island. "These rocks were once covered with sand and a beach once provided recreation for visitors," he said.

Today the beach is virtually gone and fishermen use the rocks as fishing piers. Just a few yards down the beach area a paved drive once used to unload and launch sail boats and catamarans was closed after several hundred feet of the paving was washed away.

Just a little farther down the beach, or what at one time was a beach used by the Dauphin Island Sea Lab, a group of school students touring the sea lab facilities had to walk in shallow water. In years past they could have strolled along the white sandy beach. In the last few years the beach has disappeared.

Under normal conditions island officials expect some loss of sand during the winter months. "It has been normal to lose sand in winter, and build back in summer," according to Henderson. "But we have been experiencing a net loss over the past few years."

Several sections of the island have been experiencing a net loss due to erosion. The hardest-hit sections are on the east end near Fort Gaines and the south side where the main beach and fishing pier are located, Henderson said.

Henderson said for the past eight years, in an attempt to stem the tide and loss of sand, sand fences, Christmas trees and other methods to build back the main beach have been used, but so far nothing has really worked.

"In the last year and half we have lost approximately 400 linear feet of boardwalk and steps going down to the main beach in addition to all the beach area which has washed away," Henderson said.

In an effort to find a solution to the problem, and to see if there is some way to reverse the erosion, Henderson contacted Dr. Scott L. Douglas of the University of South Alabama, a top erosion expert in this area and currently under contract with the state to do a coastal survey of the island.

Douglas, in response to an inquiry by Henderson, stated that "...without a doubt the main source of Dauphin Island's erosion problem stems from the Corps of Engineers' method of maintaining the ship channel.

"For over 50 years they have removed sand from the channel that would have worked its way onto Dauphin Island and instead dumped it out at sea."

Douglas maintained in his memo that this action by the Corps of Engineers stopped the east-west flow of sand before it reached the island. "Although the currents bring no new sand, they continue to move the island's sand from east toward the west," he added.

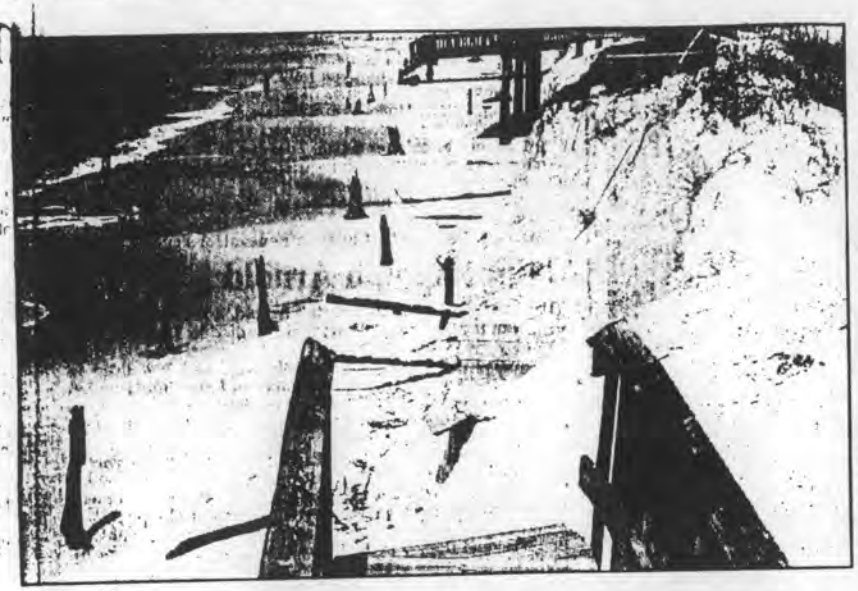
Henderson said an additional threat to the main beach at the island is caused by Sand Island. Currents from Sand Island's west end, where it hooks northward, cause currents to further erode Dauphin Island beaches.

A request to the Corps of Engineers to have the beach quality sand dredged from the channel placed on the public beaches fell on deaf ears, according to Henderson. "They said if we would pay for it, they would be willing to dump it on the beaches, but the cost would be around a million dollars," Henderson said.

Contents Copyrighted 1991 by The Mobile Press Register, Mobile, Ala. Serving The South Since 1813

12 Sections — 128 Pages — ★ Final — $1

ench 1



A 10- to 12-foot drop from the restrooms and boardwalks gives a vivid indication of the drastic loss of beach at Dauphin Island.

Press Register photos by Earl Sweatt

Maintenance workers for the Dauphin Island Park and Beach Board remove sections of the beach boardwalk that have fallen due to extensive erosion of the beach.

Erosion threatens boardwalks, historic Fort Gaines

Main beach's public facilities closed

(EDITOR'S NOTE: This is the second of two stories concerning coastal erosion being experienced at Dauphin Island and studies and plans designed to correct the problem.)

By EARL SWEATT
Press Register Reporter

DAUPHIN ISLAND, Ala. — The boardwalks, restrooms, and other public facilities on the main beach at Dauphin Island have been closed to the public.

Many of the attractions built for the convenience of the public are in danger of being washed away. Beachgoers walk virtually single file along the narrow remains of the white sandy beach, maneuvering around exposed stumps left by strong currents and shifting sand.

Erosion has already taken away the boardwalks and is rapidly eating away he foundation of the bathhouse. Dauphin Island Park and Beach Board officials have closed these conveniences to the public.

"The beach shoreline has receded 30 feet this spring ... It has receded 80 feet since (Hurricane) Frederic and 150 feet since 1975," said Dr. Scott Douglas of the University of South Alabama, an erosion expert under contract with the state to conduct a coastal survey of Dauphin Island. Douglas' report was in a memo to Mike Henderson, executive director of the DI Park and Beach Board.

"In terms of volume loss, you lost about 39 cubic yards of sand per linear yard of beach this spring," said Douglas. "For the whole 1,000-foot length we discussed, this implies you lost 10,000 cubic yards of sand this spring."

Under normal conditions, Henderson said, the island loses sand along the beach, but the loss is replaced by incoming sand. "Over the last few years we have had a gross loss of sand due to the dredging of the ship channel by the Corps of Engineers," he said.

According to Henderson, a Florida state law requires that "All beach-quality sand dredged by the Corps" will be placed on public beaches. "We do not have that same law in Alabama ... if we did, it would solve lots of our beach erosion problems."

Thus far the Corps of Engineers has refused, without compensation, to place the sand dredged from the ship channel onto public beaches, he said. "They estimated it would cost us $1 million to have the dredged sand hauled to the public beach and dumped."

Henderson has taken his plea to Gov. Guy Hunt's Coastal Waters Initiative Committee for assistance.

He also has approached Phillip Hinesley, planner for Coastal Programs, Alabama Department of Economic and Community Affairs, in hopes of obtaining matching funds to build up the beach by dredging offshore and obtaining assistance from the Corps of Engineers.

Henderson said beach nourishment by way of offshore dredging is one solution suggested by Douglas. "Dr. Douglas states that pumping 20,000 cubic yards of sand will build up a beach 1,000 feet long and 60 feet wide," Henderson said. "An alternative with the same volume would be to nourish a 600-foot section by extending it out 100 feet."

Without some help, according to Henderson, the beach and the facilities will be lost.

"This will be a tremendous loss of tax dollars and tourism dollars," he said. "Tourism dollars turn over seven times ... Without these facilities to attract tourists and local residents, we will be hurting financially. When our public facilities are in such bad shape ... people do not want to use them."

Viewing the beach from the fishing pier, Henderson Young, a member of the DI Park and Beach Board, said, "Normally at this time of year you do not see these stumps." He pointed to the boardwalks which have been closed to the public, stating, "These were the approaches to the beach ... now they're gone."

Maintenance vehicles could be seen removing sections of the boardwalk that had fallen. A 10- to 12-foot drop from the end of the boardwalk and bathhouse gave graphic evidence of just how much sand had been washed away.

"We are worried about the fishing pier ... as you can see, several feet of piling has been exposed. What used to be beach area is now covered by water; the sand has gone," Henderson pointed out.

Several homes on the north side of the island are being threatened by erosion. Several feet of waterfront property have been lost, and the homes are in danger of being undermined.

Henderson said there are numerous erosion problems on Dauphin Island and help is needed in getting the law changed so the Corps of Engineers can dump beach-quality sand on public beaches.

"We also need assistance for repairs to the facilities already damaged," he said. Without some assistance, Dauphin Island could become an island without a beach, without a public fishing pier, and without historic Fort Gaines.

Survey Report on Beach Erosion Control and Hurricane Protection for Mobile County (Including Dauphin Island)

CONCLUSIONS

198. In Mobile County, there is significant erosion occurring along the Mobile Bay shoreline and along the southern shores of Dauphin Island. There is also a potential for substantial hurricane flood damage along much of the county's low-lying coast. However, analysis of structural alternatives indicate that, except for utilizing maintenance material dredged from the Mobile Bay entrance channel to reduce erosion on Dauphin Island, such alternatives are either unacceptable to local interests or not economically feasible. Analyses also indicate that essentially all practical nonstructural measures offering potential benefits have been implemented in the study area. Accordingly, the only plan indicated to be economically feasible provides for nourishment of the gulf nearshore of Dauphin Island with material removed from the Mobile Bay entrance channel as part of the ongoing maintenance program for the Federal project for Mobile Harbor.

199. The selected plan for nearshore nourishment of the littoral system along the southwestern shore of Dauphin Island with maintenance material dredged from the Mobile Harbor navigation project could be implemented under the discretionary authority of the Chief of Engineers for operation and maintenance of the existing project without further action by the Congress. This would only be a partial solution to erosion. However, it is indicated the plan could be implemented at an additional annual maintenance cost for the navigation project of $216,000 and annual savings in the loss of lands of $261,000. Accordingly, the plan would have net benefits of $45,000 and a benefit to cost ratio of 1.21. Implementation of the selected plan is

encl 2

indicated to be a more efficient and appropriate utilization and management of the involved resources and should not alter any areas of local responsibility for the existing project. The environmental impacts are not indicated to be significant or substantially different from those occurring from the present maintenance practice. However, further consideration of the selected plan under the operation and maintenance authority for the existing Federal navigation project for Mobile Harbor would require preparation of a supplemental EIS for the existing EIS on Operation and Maintenance, a Section 404(b) water quality evaluation report as required by PL 92-500 and associated studies.

200. After considering all technical information, public views and, in particular, the economic, environmental and social well-being impacts, it is concluded that the selected plan warrants further consideration under the Operation and Maintenance program for Mobile Harbor. There is no more appropriate alternative to the proposed action that could more meaningfully address the problems of the area at this time.

RECOMMENDATIONS

201. On the basis of studies presented herein, it is concluded that structural plans to meet the needs of the area that would require authorization by the Congress are either unacceptable to local interests or not economically feasible. On the basis of these findings, the District Engineer recommends that no additional improvements for beach erosion control and hurricane protection for Mobile County be authorized by the Congress at this time.

CHARLIE L. BLALOCK
Colonel, CE
District Engineer

SADPD-P (29 Sep 78) 1st Ind
SUBJECT: Survey Report on Beach Erosion Control and Hurricane Protection for Mobile County (Including Dauphin Island) - 79420

DA, South Atlantic Division, Corps of Engineers, 510 Title Building, 30 Pryor Street, S.W., Atlanta, Georgia 30303 29 January 1980

TO: District Engineer, Mobile, ATTN: SAMPD-N

1. Subject draft report is returned for revision. Processing of the report has been delayed as a result of our review and your response to informal comments and the subsequent need to consider Hurricane Frederic. The impacts of Hurricane Frederic should be assessed and appropriately considered in your final report. Any beach erosion work and/or hurricane protection that can be justified should be recommended.

2. We do not believe it appropriate to recommend a change in the dredging practices for the Mobile Harbor project in this report. Any modification to that project should be addressed in your ongoing survey study of Mobile Harbor.

3. In the event you find that improvements to the shores of Mobile County cannot be justified or there is no Federal interest, a concise letter report will be adequate.

FOR THE DIVISION ENGINEER:

C. G. WHITE
Chief, Planning Division

5 Incl
wd cys 41 & 42 Incl 1
Incl 2 - 5 nc

November 18, 1987

Coastal Section

Honorable Oliveth Archer, Chairman
Mobile County Commission
Post Office Box 1443
Mobile, Alabama 36633

Dear Mrs. Archer:

This is to inform you that the Mobile County, Alabama, beach erosion and hurricane protection study is included in a list of studies presented to the Congress on September 17, 1987 by the Acting Assistant Secretary of the Army for deauthorization as required by Section 710 of the Water Resources Development Act of 1986. This study was authorized by the Congress in 1970. A copy of the resolution is enclosed for your information.

Section 710 requires that the Secretary of the Army submit to Congress a list of incomplete studies for which no funds have been appropriated during the preceding five fiscal years. The aforementioned study was last funded in 1977. The study will be deauthorized 90 days after submission of the list unless funds have been appropriated for it prior to that time.

Should the need for study arise in the future, a new study resolution will be required. If you have any questions concerning this action or the Corps of Engineers Water Resources Program in general, please feel free to call me or Mr. Roger Burke, Chief, Plan Formulation Branch, (205) 694-3809. We will be pleased to assist you in any way we can.

Sincerely,

Lawrence R. Green
Chief, Planning Division

Martin/vr/PD-FC/3805
Law/PD-FC
Burke/PD-F
Green/PD

Enclosure

Copy Furnished:
Honorable Sonny Callahan, Washington, D.C. 20515-0101
Honorable Howell Heflin, Washington, D.C. 20510-0101
Honorable Richard C. Shelby, Washington, D.C. 20510-0103

SAMPD-FC

7 April 1987

MEMORANDUM FOR RECORD

SUBJECT: Dauphin Island Property Owners Association Meeting

1. On April 4, 1987, Mr. Mathew Laws (Chief, PD-FC) and Mr. Jim Baxter (Chief, OP-ON) spoke to the Dauphin Island Property Owners Association at the Civic Center on Dauphin Island. The Corps was requested by Admiral Stuart, member of the Board of Directors to attend the meeting and brief those in attendance on erosion prevention at the east end and western portion of the Island. This was a regularly scheduled meeting of the Board of Directors with about 20 other property owners present.

2. Mrs. Doris Anderson, the current president, opened the meeting and welcomed each of the property owners attending. She also introduced Mr. Laws and Mr. Baxter as quests from the Corps. Following the old business portion of the meeting, under new business, the topic of erosion on the island was brought to the floor.

3. Admiral Stuart introduced Mr. Laws and Mr. Baxter and gave a brief desciption of their responsibilities in the District.

4. Mr. Laws thanked Admiral Stuart for the opportunity to attend the meeting and briefly described the "Mobile County, Alabama (Including Dauphin Island) Feasibility Study for Beach Erosion Control and Hurricane Protection" completed in September 1978. Mr. Laws remarks were concluded with the statement that solutions to the problem on the western 11 miles of the Island were tied to maintenance of the Mobile Ship Channel bar crossing.

5. Mr. Laws introduced Mr. Baxter who then discussed the "Feeder Berm" the Corps has constructed just off Sand Island in about 18 feet of water. Mr. Laws and Mr. Baxter held up a map of the Island and berm area, and described the purpose of the "Feeder Berm". A seabed drifter was shown to the attendees, and Mr. Baxter explained their purpose. He stressed that, when found, a good description of their location was essential in the Corps' work. Mr. Baxter also stressed that the current berm would not completely solve the erosion problems of the Island, but if monitoring of the sand movement continued to yield favorable results that the Corps would continue to provide feeder sand berms. This would be done in conjunction with maintenance dredging of the bar, and the exact location of the berm may be modified as a result of the monitoring of sand movements.

6. Admiral Stuart asked if new work material from Mobile Harbor Deepening could be used to feed Dauphin Island. He was told that most of this material would not be suitable for beach nourishment, but that some of the material from the bar crossing could be a candidate for placing in a feeder berm.

encl 3

7. Jim Baxter pointed out that in years past the hopper dredge fleet did not consist of vessels that could deposit material in the water depths now being used for feeder berms, and that pumping material with pipeline onto beaches was a very expensive undertaking. Now, thanks to the shallower draft, smaller plant available, we can more efficiently place material in places that will feed the littoral system.

8. Admiral Stuart asked if the berm would assist with erosion on the east end of the island. It was explained that the historical movement of the shoreline in this area has been very erratic dating back as early as the 1800's; and, that each time a major storm occurs new patterns of accretion or erosion develop. Jim Baxter said that in connection with the construction of the channel from Billy Goat Whole to Dauphin Island Bay, that material had to be placed to assist in replenishing the east end. Mr. Baxter further stated that when situations allowed this could be done again.

9. President Anderson and Admiral Stuart thanked the Corps for the consideration given their needs, and for taking time to come on a Saturday to discuss their problem. The overall mood of the meeting was positive, and the Corps was given a round of applause for its efforts to assist the people of Dauphin Island.

MATHEW M. LAWS, III
Chief, Coastal Section

JAMES B. BAXTER
Chief, Navigation Section

CONTINUING AUTHORITY PROJECT FACT SHEET
FORT GAINES CHANNEL (GOVERNMENT CUT) DAUPHIN ISLAND, ALABAMA
SECTION 107 PROJECT

The Detailed Project Report (DPR) for the Fort Gaines Channel study was conducted under Section 107 of the River and Harbor Act of 1960, as amended. The recommended plan consists of provision for a deeper channel beginning at the 7-foot Fort Gaines channel anchorage basin and extending upstream 4,070 feet to the intersection with the locally maintained 7-foot Dauphin Island Bay Channel. The channel would be dredged to 6 feet plus 2 feet for advanced maintenance and 1-foot for allowable overdepth. The channel will be maintained at the existing 40-foot bottom width with a 1 vertical and 3 horizontal side slope. Dredged material of about 17,258 cubic yards of sandy material will be pumped to existing disposal sites along the east side of Little Dauphin Island. The material will be placed on the beach to mimic the existing topography.

The District is currently working with the City of Dauphin Island and Mobile County to provide the non-Federal share of about $43,200 to construct the project. The total revised project first cost is estimated at $141,400. A letter of intent indicating a willingness to cost share in the project from the non-Federal sponsor is the first step leading to obligating continuing authority funds for deepening the channel this fiscal year.

encl 4

FLORIDA POLICY OF SAND ON THE BEACHES

Florida Statutes, Section 161.142

Effective 1 July 1986

"The Legislature hereby recognizes the need for maintaining navigation inlets to promote commercial and recreational uses of our coastal waters and their resources. The Legislature further recognizes that inlets alter the natural drift of beach quality sand resources, which often results in these sand resources being deposited around shallow outer-bar areas instead of providing natural nourishment to the downdrift beaches. Therefore: (1) All construction and maintenance dredging of beach-quality sand should be placed on downdrift beaches; or, if placed elsewhere, an equivalent quality and quantity of sand from an alternate location should be placed on the downdrift beaches at no cost to the state and at a location acceptable to the Department. (2) On an average annual basis, a quantity of sand should be placed on the downdrift beaches equal o the natural net annual longshore sediment transport. This sand shall be placed at no cost to the state. The placement location and quantities based on natural net annual longshore transport shall be established by the department (Florida Department of Natural Resources) and the sand quality must be acceptable to the department."

encl 5

NAVIGATION AND FEDERAL STANDARD

33 CFR 336.1(c)(1)

The maintenance of a reliable Federal navigation system is essential to the economic well-being and national defense of the country. The district engineer will give full consideration to the impact of the failure to maintain navigation channels on the national and, as appropriate, regional economy. It is the Corps' policy to regulate the discharge of dredge material from its projects to assure that dredged material disposal occurs in the least costly, environmentally acceptable manner, consistent with engineering requirements established for the project. The environmental assessment of environmental impact statement, in conjunction with the section 404(b)(1) guidelines and public notice coordination process, can be used as a guide in formulating environmentally acceptable alternatives. The least costly alternative, consistent with sound engineering practices and selected through the 404(b)(1) guidelines or ocean disposal criteria will be designated the Federal standard for the proposed project.

encl 6

CESAD-E

DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 313, 77 FORSYTH ST., S.W.
ATLANTA, GEORGIA 30335-6801

APR 22 1991

REPLY TO
ATTENTION OF:

Directorate of Planning

Mr. Greer C. Tidwell
Regional Administrator
United States Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Tidwell:

Our staffs have recently been engaged in dialogue concerning the merit of adding wording to ocean dredged material disposal site (ODMDS) designations in Florida which would prohibit the placement of beach quality sand dredged from navigation channels in ODMDS in favor of disposal on "proximate" beaches "consistent with federal, state, and local requirements." I am concerned that this language in ODMDS designations would be inappropriate and counter to the basic intent of the ocean disposal provisions of the Marine Protection, Research, and Sanctuaries Act.

We understand that the proposed wording was developed as a condition to gain state of Florida coastal zone consistency concurrence with ODMDS designations. This would further confuse an issue which we have been working with the state for some time; it would inherently place federal laws and policies in conflict with rather specific state intent reflected in their laws. Consequently, it would be unproductive to require beach placement of dredged sand as an ODMDS designation condition. Further, the requirements governing beach placement of dredged sand from channels are complex, and beach placement cannot be guaranteed in every case. Any general prohibition of sand placement in an ODMDS would have to be based on a determination that the activity would result in unacceptable environmental impacts. We doubt such a generic determination can be made and supported.

Over the last few years, we have made every effort to work with the state on this issue. I commend for your information and review a copy of a recent report on beach and nearshore placement of sand from navigation channels prepared by our Institute for Water Resources. The rules which govern federal participation in the increased cost of beach placement are summarized in the document (pages 8 and 9). The report is also highly complimentary of Jacksonville and Mobile District efforts (page 48) to coordinate and work with the state to place dredged sand from navigation channels on beaches and in nearshore areas whenever possible.

encl 7

SECTION 933

Sec. 145, WRDA of '76, authorized the Corps, upon a request from the state, to place on the beaches of the state beach quality sand dredged in constructing and maintaining navigation inlets and channels adjacent to beaches, if the Secretary of the Army deems this to be in the public interest and upon payment of the cost above the cost required for alternative methods of disposal. (Not verbatim.)

Sec 933, WRDA of '86, changed the payment to 50 percent.

encl 9

STATISTICS.

8, and each January 15 thereafter,
ie Committee on Public Works and
epresentatives and the Committee
ks of the Senate a report which—
electricity generated by each water
by the Secretary which generated
ical year;
eceived by the United States from
ed by such project; and
nstruction, operation, and mainte-
ed to the generation of electricity.
this section, the Secretary shall
pital costs repaid to that amount
y capital costs. The first report
specify the amounts of electricity
, and the costs allocated for each
, on a fiscal year basis in constant
hall specify the amounts of elec-
ceived, and the costs allocated for
fiscal year.

SS CONTRACTS.

n annual basis, transmit to the
Transportation of the House of
tee on Environment and Public
escribing the number and dollar
each industry category or sub-
r District of the Army Corps of
le the number and dollar amount
business concerns; (B) awarded to
aged business concerns; (C) avail-
rms of all sizes; and (D) awarded
small disadvantaged business

ie term—
contract, or any subcontract in
ng plan entered into pursuant to
ness Act, as amended (15 U.S.C.
h appropriations made available
and
bcategory" means the four digit
defined by the Small Business

l cost effective operations by the
l of the United States shall con-
contracting procedures for civil
amine whether potential bidders
are allowed to compete fairly in
ntracts for construction. Within
nt of this Act, the Comptroller
to Congress together with an
ocedures are applied uniformly
der the Secretary's jurisdiction.
ecommendations on improving
) how the Secretary can prepare
re, to the greatest extent reason-

able, that no potential bidder or offeror is precluded from competing fairly for contracts, (2) whether recordkeeping requirements imposed by the Secretary on contractors are appropriate in the interest of competition, and (3) the extent to which the private sector can be used more efficiently by the Secretary in contracting for construction, architecture, engineering, surveying, and mapping.

SEC. 939. WRECK REMOVAL.

(a) Section 15 of the Act of March 3, 1899 (30 Stat. 1152; 33 U.S.C. 409) is amended—

(1) by striking out "voluntarily or carelessly";

(2) by striking out "accidentially or otherwise,"; and

(3) by inserting ", lessee, or operator" after "owner" each place it appears.

(b) Sections 19 and 20 of the Act of March 3, 1899 (30 Stat. 1154; 33 U.S.C. 414 and 415) are amended by inserting "(a)" before the first word of each section and by adding the following new subsection at the end of each section:

"(b) The owner, lessee, or operator of such vessel, boat, watercraft, raft, or other obstruction as described in this section shall be liable to the United States for the cost of removal or destruction and disposal as described which exceeds the costs recovered under subsection (a). Any amount recovered from the owner, lessee, or operator of such vessel pursuant to this subsection to recover costs in excess of the proceeds from the sale or disposition of such vessel shall be deposited in the general fund of the Treasury of the United States.". Vessels.

SEC. 940. SHORE DAMAGE MITIGATION.

Section 111 of the River and Harbor Act of 1968 (82 Stat. 735, 33 U.S.C. 426i) is amended to read as follows:

"SEC. 111. The Secretary of the Army is authorized to investigate, study, plan, and implement structural and nonstructural measures for the prevention or mitigation of shore damages attributable to Federal navigation works, if a non-Federal public body agrees to operate and maintain such measures, and, in the case of interests in real property acquired in conjunction with nonstructural measures, to operate and maintain the property for public purposes in accordance with regulations prescribed by the Secretary. The costs of implementing measures under this section shall be cost-shared in the same proportion as the cost-sharing provisions applicable to the project causing the shore damage. No such project shall be initiated without specific authorization by Congress if the Federal first cost exceeds $2,000,000.". Real property.

SEC. 941. AQUATIC PLANT CONTROL.

Section 104(b) of the River and Harbor Act of 1958 (33 U.S.C. 610(b)) is amended by striking out "$10,000,000" and inserting in lieu thereof "$12,000,000".

SEC. 942. TECHNICAL ASSISTANCE. 33 USC 426m.

(a) Upon request of the Governor of a State, or the appropriate official of local government, the Secretary is authorized to provide designs, plans, and specifications, and such other technical assistance as he deems advisable to such State or local government for its use in carrying out— State and local governments.

re compliance with any require-
by non-Federal interests in carry-
ect authorized before, on, or after

any information available to the
it any non-Federal interest is not
nder subsection (a), the Secretary
h non-Federal interest to provide
l opportunity for a hearing, if the
s violating an order issued under
subject to a civil penalty not to
violation, except that the total
violation shall not exceed $50,000.
be liable for interest on any pay-
n 221 of the Flood Control Act of
ne interest rate to be charged on
l be at a rate, to be determined by
ual to 150 percent of the average
en-week Treasury bills auctioned
n which such payment became
ely prior to the beginning of each
he period of delinquency exceeds

the Attorney General to bring a
f, including permanent or tem-
on of an order issued under this
imposed under this section, to
ecretary in undertaking perform-
nder section 221(d) of the Flood
interest for which a non-Federal
3). Any action under this subsec-
court of the United States for the
s located or resides, or is doing
ive jurisdiction to restrain such
to require payment of any civil
, and to require payment of any
undertaking performance of any

o determine that no funds appro-
nance, including operation and
d control, Mississippi River and
ne particular benefit of projects
Federal interest when such non-
nore than twenty-four months in
an agreement entered into with
n 221 of the Flood Control Act of

trol Act of 1968 is amended by
ting in lieu thereof "$3,000,000".

NTROL FREQUENCY.

y reports for projects for flood
rural areas, the Secretary may
o reduce or eliminate damages
frequency of flooding, drainage

area, and amount of runoff. This section shall apply with respect to any project, or separable element thereof, the Federal share of the cost of which is less than $3,000,000.

SEC. 915. SMALL PROJECT AUTHORIZATIONS.

(a) Section 205 of the Flood Control Act of 1948 (33 U.S.C. 701s) is amended by striking out "$30,000,000" in the first sentence and inserting in lieu thereof "$40,000,000" and by striking out "$4,000,000" in the third sentence and inserting in lieu thereof "$5,000,000".

(b) Section 2 of the Flood Control Act of August 28, 1937 (33 U.S.C. 701g) is amended by striking out "$5,000,000" and inserting in lieu thereof "$7,500,000" and by striking out "$250,000" and inserting in lieu thereof "$500,000".

(c) Section 14 of the Flood Control Act of 1946 (33 U.S.C. 701r) is amended by striking out "$10,000,000" and inserting in lieu thereof "$12,500,000" and by striking out "$250,000" and inserting in lieu thereof "$500,000".

(d) Subsection (a) of section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577) is amended by striking out "$25,000,000" and inserting in lieu thereof "$35,000,000". Subsection (b) of such section is amended by striking out "$2,000,000" and inserting in lieu thereof "$4,000,000".

(e) Section 3 of the Act entitled "An Act authorizing Federal participation in the cost of protecting the shores of publicly owned property", approved August 13, 1946 (33 U.S.C. 426g), is amended (1) by striking out "$25,000,000" and inserting in lieu thereof "$30,000,000", and (2) by striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(f) Section 111 of the River and Harbor Act of 1968 (33 U.S.C. 426i) is amended by striking out "$1,000,000" and inserting in lieu thereof "$2,000,000".

(g) Section 3 of the Act entitled "An Act authorizing the construction, repair, and preservation of certain public works or rivers and harbors, and for other purposes", approved March 2, 1945 (33 U.S.C. 603a), is amended by striking out "$300,000" and inserting in lieu thereof "$1,000,000".

(h) The Secretary is authorized to use the authority contained in section 205 of the Flood Control Act of 1948 (33 U.S.C. 701s), section 2 of the Flood Control Act of August 28, 1937 (33 U.S.C. 701g), section 14 of the Flood Control Act of 1946 (33 U.S.C. 701r), section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577), section 3 of the Act entitled "An Act authorizing Federal participation in the cost of protecting the shores of publicly owned property", approved August 13, 1946 (33 U.S.C. 426g), and section 111 of the River and Harbor Act of 1968 (33 U.S.C. 426i) in the Trust Territory of the Pacific Islands. Trust Territory of the Pacific Islands. 33 USC 2290.

(i) The amendments made by this section shall not apply to any project under contract for construction on the date of enactment of this Act. Contracts. 33 USC 426g note.

SEC. 916. FEDERAL REPAYMENT DISTRICT. 33 USC 2291.

(a) The Secretary may enter into a contract providing for the payment or recovery of an appropriate share of the costs of a project under his responsibility with a Federal Project Repayment District or other political subdivision of a State prior to the construction, operation, improvement, or financing of such project. The Federal Contracts. State and local governments.

and shorelines where significant erosion occurs; (2) identifying those areas where erosion presents a serious problem because the rate of erosion, considered in conjunction with economic, industrial, recreational, agricultural, navigational, demographic, ecological, and other relevant factors, indicates that action to halt such erosion may be justified; (3) describing generally the most suitable type of remedial action for those areas that have a serious erosion problem; (4) providing preliminary cost estimates for such remedial action; (5) recommending priorities among the serious problem areas for action to stop erosion; (6) providing State and local authorities with information and recommendations to assist the creation and implementation of State and local coast and shoreline erosion programs; (7) developing recommended guidelines for land use regulation in coastal areas taking into consideration all relevant factors; and (8) identifying coastal areas where title uncertainty exists. The Secretary of the Army shall submit to the Congress as soon as practicable, but not later than three years after the date of enactment of this Act, the results of such appraisal investigation and study, together with his recommendations. The views of concerned local, State, and Federal authorities and interests will be taken into account in making such appraisal investigation and study. Report to Congress.

(b) There are authorized to be appropriated such amounts, not to exceed $1,000,000, as may be necessary to carry out the provisions of this section. Appropriation.

SEC. 107. That the projects for the Illinois Waterway and Grand Calumet River, Illinois and Indiana (Calumet-Sag navigation project), authorized by the River and Harbor Act of July 24, 1946, are hereby modified substantially in accordance with the recommendations of the Chief of Engineers in House Document Numbered 45, Eighty-fifth Congress, insofar as such recommendations apply to existing highway bridges in Part II: Grand Calumet River and Indiana Harbor Canal, at an estimated cost of $33,265,000. 60 Stat. 634.

SEC. 108. (a) Steele Bayou, in Warren, Issaquena, Sharkey, and Washington Counties, Mississippi, Washington Bayou, in Issaquena and Washington Counties, Mississippi, and Lake Washington, in Washington County, Mississippi, are hereby declared to be nonnavigable within the meaning of the laws of the United States.

(b) The project for navigation on Steele Bayou, Washington Bayou, and Lake Washington, authorized by the Rivers and Harbors Acts of July 5, 1884, August 5, 1886, and June 25, 1910, is hereby deauthorized. 23 Stat. 133; 24 Stat. 310; 36 Stat. 630.

SEC. 109. Section 313 of the Act approved October 27, 1965 (79 Stat. 1073), is amended by deleting the date "June 30, 1968" and substituting in lieu thereof "June 30, 1969".

SEC. 110. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to review the requirements of local cooperation for the Ouachita and Black Rivers navigation projects, authorized by the River and Harbor Act of 1950, as amended, with particular reference to Federal and non-Federal cost sharing, and he shall report the findings of such review to Congress within one year after the date of enactment of this Act. Ouachita and Black Rivers. 64 Stat. 163. Report to Congress.

SEC. 111. The Secretary of the Army, acting through the Chief of Engineers, is authorized to investigate, study, and construct projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installing, operating, and maintaining such projects shall be borne entirely by the United States. No such project shall be constructed without specific authorization by Congress if the estimated first cost exceeds $1,000,000. Shore damage prevention, study.

SEC. 112. Section 111 of the River and Harbor Act of 1966 (80 Stat. 417) is amended by adding at the end thereof the following: Washington Channel, D. C.

"(g) The Secretary of the Interior shall conduct a study of those areas in the vicinity of the Washington Channel in the District of Study.

encl. 8

We intend to make maximum use of opportunities to beneficially use dredged material. The primary limitation we have is the extent to which the federal government can participate in the increased cost, if any, of this option. Thus, our differences with the state are in essence a cost-sharing issue, not an environmental issue. ODMDS designations are not the appropriate vehicles to debate and address this question.

We will lend any assistance to your staff that might be necessary if you choose to elevate the coastal zone consistency issue with the state to the National Oceanic and Atmospheric Administration, Office of Coastal Resource Management, for resolution. I will meet with you and the heads of the Florida Department of Environmental Regulation and Department of Natural Resources as necessary to discuss this matter further. Two of our critical ODMDS designations, Canaveral and Miami, are currently held up by this issue, and more delays will follow for other sites unless this issue is resolved soon. Additional delays in the final designation of these and other remaining sites for this reason are unwarranted.

Please contact me at your convenience to discuss this matter further. My staff points of contact for this matter are either Mr. Dennis Barnett at 331-4580 or Mr. Rudy Nyc at 331-4619.

Sincerely,

John F. Sobke
Major General, U.S. Army
Division Engineer

Enclosure

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

EC 1165-2-142

CECW-RR
CECW-PE

Circular
No. 1165-2-142

15 December 1987

EXPIRES 31 DECEMBER 1988

Water Resources Policies and Authorities
COST SHARING FOR DISPOSAL OF MATERIALS ON BEACHES

1. Purpose. This circular provides guidance on Corps of Engineers participation in planning for disposal of materials dredged from navigation inlets and channels, during original Federal improvement or during maintenance, onto adjacent beaches.

2. Applicability. This circular is applicable to all HQUSACE/OCE elements and all field operating activities (FOAs) having civil works responsibilities. The policy and guidelines provided are applicable to the United States coasts of the Atlantic and Pacific Oceans and the Gulf of Mexico, the Great Lakes, and the estuaries and bays directly connected therewith. They are similarly applicable to the coasts of the Commonwealths of Puerto Rico and Northern Marianas Islands, the Territories of the United States (U.S. Virgin Islands, Guam, American Samoa), and the Federated States of Micronesia and the Marshall Islands.

3. References:

a. Section 145, Water Resources Development Act (WRDA) of 1976, Public Law (P.L.) 94-587, enacted 22 October 1976.

b. Section 933, WRDA of 1986, P.L. 99-662, enacted 17 November 1986.

c. ER 1130-2-307, Dredging Policies and Practices, dated 31 October 1968.

d. 33 U.S.C. 560

4. Background:

a. Section 145 of P.L. 94-587 authorizes the Secretary of the Army, acting through the Chief of Engineers, to place beach-quality sand, which has been dredged in constructing and maintaining navigation inlets and channels, onto adjacent beaches if: (1) requested by the State; (2) the Secretary deems such action to be in the public interest; and (3) upon payment of the increased cost thereof above the cost required for alternative methods of disposing of such sand.

b. Section 933 of P.L. 99-662 amends Section 145 of P.L. 94-587 to authorize such placement of such dredged material upon payment by the State of 50 percent of the increased cost over alternative methods of disposal. In other words, it provides for 50-50 cost sharing of the incremental costs, Federal and non-Federal.

5. Policy:

a. It is Corps policy to accomplish construction and maintenance dredging of Federal navigation projects in the least costly manner possible (ER 1130-2-307). Hence, if the placement of dredged material on a beach or beaches should be determined by the Corps to be the least costly acceptable means for disposal of the material, then such placement shall be considered integral to accomplishment of the project work and cost shared with the project sponsor accordingly. No additional contribution shall be required for placement of the material on the beach in question.

b. It is Corps policy to participate in any additional costs for placing clean sand or other suitable material, dredged by the Corps during construction or maintenance of Federal navigation projects, onto adjacent beaches or nearshore waters subject to availability of funds and to the following:

(1) Placement of the material on a beach or beaches and Federal (Corps) participation in the costs must be requested by the State in which the beach or beaches are located.

(2) The added cost of such disposal must be justified by the benefits associated with protection of such beach or beaches.

(3) The storm damage reduction benefits resulting from the beach protection must exceed 50 percent of the total benefits, unless the placing of the dredged material is economically justified based on storm damage reduction benefits alone.

(4) The beaches involved must be open to the public.

(5) The placement must be environmentally acceptable, pursuant to all applicable statutes and regulations.

(6) Local interests must pay 50 percent of the added cost of disposal above the alternative least costly method of disposal.

(7) Local interests must provide (without cost sharing) any necessary additional lands, easements, rights-of-way, and relocations.

c. Should all of the foregoing conditions not pertain, it is Corps policy to place clean sand or other suitable material, dredged by the Corps during construction and maintenance of Federal navigation projects, onto beaches or nearshore waters, even though more costly than alternative means of disposal, subject to the following:

(1) Placement on a beach or beaches must be requested by the State in which the beach or beaches are located.

(2) A finding can be made that, regardless of evaluated benefits, protection of the beaches involved is in the public interest.

(3) The placement must be environmentally acceptable, pursuant to all applicable statutes and regulations.

(4) Local interests must contribute 100 percent of the added cost of disposal above the alternative least costly method of disposal.

(5) Local interests must provide any necessary additional lands, easements, rights-of-way, and relocations.

6. Procedure:

a. When a State request for placement of dredged materials on a beach or beaches is received by the District Engineer, a formal evaluation and report will be required. The report must be sufficient to definitively establish that the required conditions set forth in paragraph 5b or 5c, above, exist. This report, with the Division Commander's recommendation will be forwarded to HQUSACE (CECW-P) for review and preparation of a recommendation to the Assistant Secretary of the Army for Civil Works (ASA(CW)) for a decision. If the Division Commander recommends that dredged material should be placed on beaches and ASA(CW) approves the evaluation report, a draft local cooperation agreement (LCA) should then be developed with the State. All draft LCA's should be written for signature and execution by the ASA(CW) and submitted to HQUSACE, in accordance with established procedures.

b. The District may proceed with the necessary studies using available funds for the project improvements involved, but with the condition that the actual costs be separately accounted for. The cost of preparing the evaluation report will be added to the separable construction costs for placement of dredged material on the beaches, and cost shared accordingly. In the event the Corps financed studies do not result in placement of material on beaches as requested by the State, costs will be absorbed by the Federal government. This guidance may be modified if a permanent line item for Section 933 studies is established in the budget/appropriations process.

FOR THE COMMANDER:

C. HILTON DUNN, JR.
Colonel, Corps of Engineers
Executive Director of Civil Works

PROJECT	REMARKS
Dauphin Island Bay	o Existing project consists of a 7ft x 150ft channel from the Bay to a 7ft x 7 acre anchorage basin, and a 4ft x 40ft channel from the basin to Dauphin Island. The Village channel, 7ft x100 ft channel heads NW from Dauphin Island to the GIWW. o The project is dredged every ~~2 to~~ 3 years, with the last dredging of both channels in 1990. The quantity of material removed last time was 69000cy(net), 134000cy(gross). o No environmental issues associated with this project. The net/gross ratio has remained the same throughout the dredging history of the project.

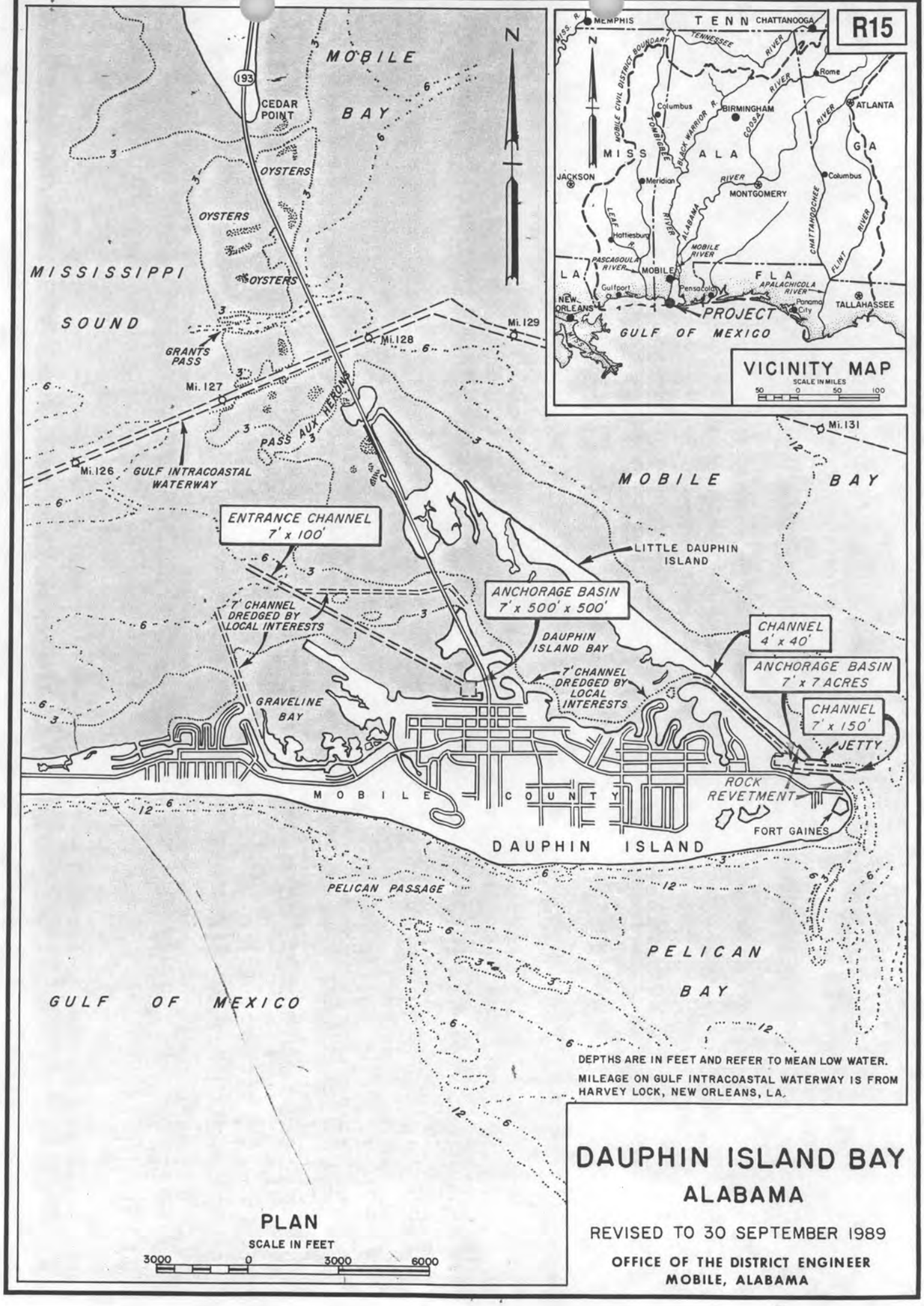
87 - 4,511 / 9,616

84 -

80 - 92,000 / 183,000

CORPS OF ENGINEERS

U. S. ARMY



DEPTHS ARE IN FEET AND REFER TO MEAN LOW WATER.

MILEAGE ON GULF INTRACOASTAL WATERWAY IS FROM HARVEY LOCK, NEW ORLEANS, LA.

PLAN

SCALE IN FEET

3000 0 3000 6000

DAUPHIN ISLAND BAY

ALABAMA

REVISED TO 30 SEPTEMBER 1989

OFFICE OF THE DISTRICT ENGINEER
MOBILE, ALABAMA