



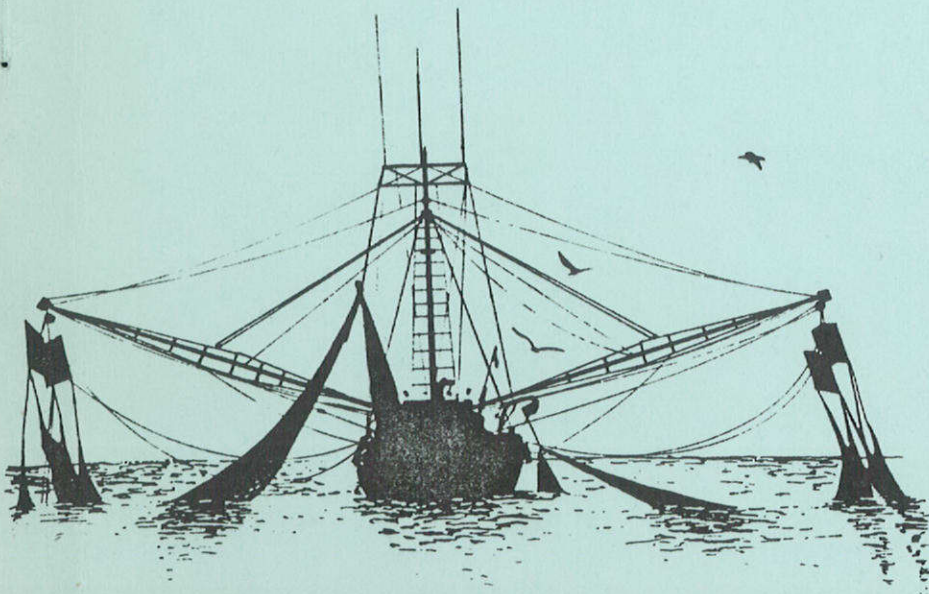
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CHARLESTON CHANNEL IMPROVEMENTS

COOS BAY, OREGON

DETAILED PROJECT REPORT & ENVIRONMENTAL ASSESSMENT



OCTOBER 1982



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

NPPPL-AP

4 October 1982

SUBJECT: Charleston Channel Improvements, Coos Bay, Oregon; Detailed
Project Report and Environmental Assessment

Commander, North Pacific Division
ATTN: NPDPL-FS

1. Forwarded for final approval are twenty (20) copies of subject detailed project report including environmental assessment.
2. The report has received public and agency review. All comments received were considered and/or incorporated in the report. Subject to project approval, request funding in the amount of \$20,000 for preparation of plans and specifications.

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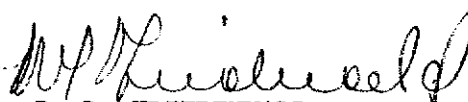

R. L. FRIEDENWALD
Colonel, Corps of Engineers
Commanding

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- 3 Tidal Cumulative Probability Curve

EXHIBITS

- 1 Letter - Port of Coos Bay - Feasibility Study Request, dtd. 25 October 1976
- 2 Letter - Charleston Boat Basin Manager - Feasibility Study Request, dtd. 26 October 1976
- 3 Letter - Port of Coos Bay - Supplementary Request, dtd. 27 November 1978
- 4 Report - U.S. Fish and Wildlife Coordination Act Report - Charleston Channel Navigation Improvement, Coos Bay, Oregon, dtd. October 1981
- 5 Letter - U.S. Fish and Wildlife Service, - Threatened and Endangered Species List, dtd. 2 December 1981
- 6 Report - U.S. Army Corps of Engineers - Biological Assessment - Brown Pelican and Bald Eagle, dtd. February 1982
- 7 Letter - Oregon State Historical Preservation Office - Concurrence with Cultural Resource Findings, dtd. 27 January 1977
- 8 Letter - U.S. Fish and Wildlife Service - Supplement to Fish and Wildlife Coordination Act Report, dtd. 29 January 1982
- 9 Letter - Corps of Engineers, Consistency Statement, dtd. 28 April 1982
- 10 Letter - Oregon State Department of Land Conservation and Development, Consistency Verification, dtd. 10 May 1982
- 11 Letter - Oregon State Department of Land Conservation and Development, Final Consistency Statement, dtd. 30 August 1982
- 12 Letter - Corps of Engineers, Response to U.S. Fish and Wildlife Coordination Act, dtd. 22 February 1982
- 13 Letter - Corps of Engineers, Items of Local Cooperation, dtd. 2 March 1982
- 14 Letter - Port of Coos Bay, Letter of Intent for Item of Local Cooperation, dtd. 16 March 1982

- 15 Letter - U.S. Fish and Wildlife Service, Confirmation of Modifications of Coordination Act Recommendations, dtd. 16 March 1982
- 16 Letter - U.S. Fish and Wildlife Service, Project Concurrence, dtd. 18 August 1982
- 17 Letter - Coos County Board of Commissioners, Project Support, dtd. 3 August 1982
- 18 Letter - National Marine Fisheries Service, Project Concurrence, dtd. 18 August 1982
- 19 Letter - Environmental Protection Agency, Project Concurrence, dtd. 17 August 1982
- 20 Letter - Governor of Oregon, Project Support, dtd. 29 September 1982.

INTRODUCTION

1. General. This detailed project report on improving general navigation facilities addresses deepening the existing entrance channel and turning basin for Charleston Small Boat Basin, Coos Bay, Oregon.
2. Authorization. Specific authority for preparation of the report was granted by letter from North Pacific Division (dated 14 August 1979) to District Engineer, Portland, subject: Charleston Small Boat Harbor, Section 107 Reconnaissance Report. General authority is contained in Section 107 of the 1960 River and Harbor Act, as amended. The study was requested by the Port of Coos Bay by letters dated 25 and 26 October 1976 (exhibit 1 and 2). Subsequent request was received from the Port on 26 November 1978 (exhibit 3).
3. Purpose and Extent of Study. The report considers the feasibility of deepening the Federal navigation channel which provides access to the boat basin and waterfront industries at Charleston. Engineering studies for dredging the channel deeper were based on hydrographic surveys, sediment analysis, and subsurface explorations provided by Portland District, Corps of Engineers.
4. Tributary Area. The primary area considered tributary to the project area consists of the communities of Charleston and Barview, located on South Slough. The principal economic activity of these communities centers around the marine industry of the boat basin. The basin and nearby fish-receiving stations service Oregon fisheries, both locally and outside the area, and out-of-state vessels. The industry and tourism generated by the facilities at Charleston are two of the principal economic industries in Coos County.
5. Location and Description. The Charleston Small Boat Basin is located in Coos Bay at the mouth of the South Slough (figure 1). Coos Bay is the largest natural harbor between Astoria, 200 miles to the north, and San Francisco, 445 miles to the south. The South Slough, one of five major sloughs emptying into Coos Bay, lies about 1-1/2 miles inside the entrance to the bay. The Charleston Channel follows the South Slough from its confluence with the main channel of Coos Bay south to the Cape Arago highway bridge (plate 1). Depths

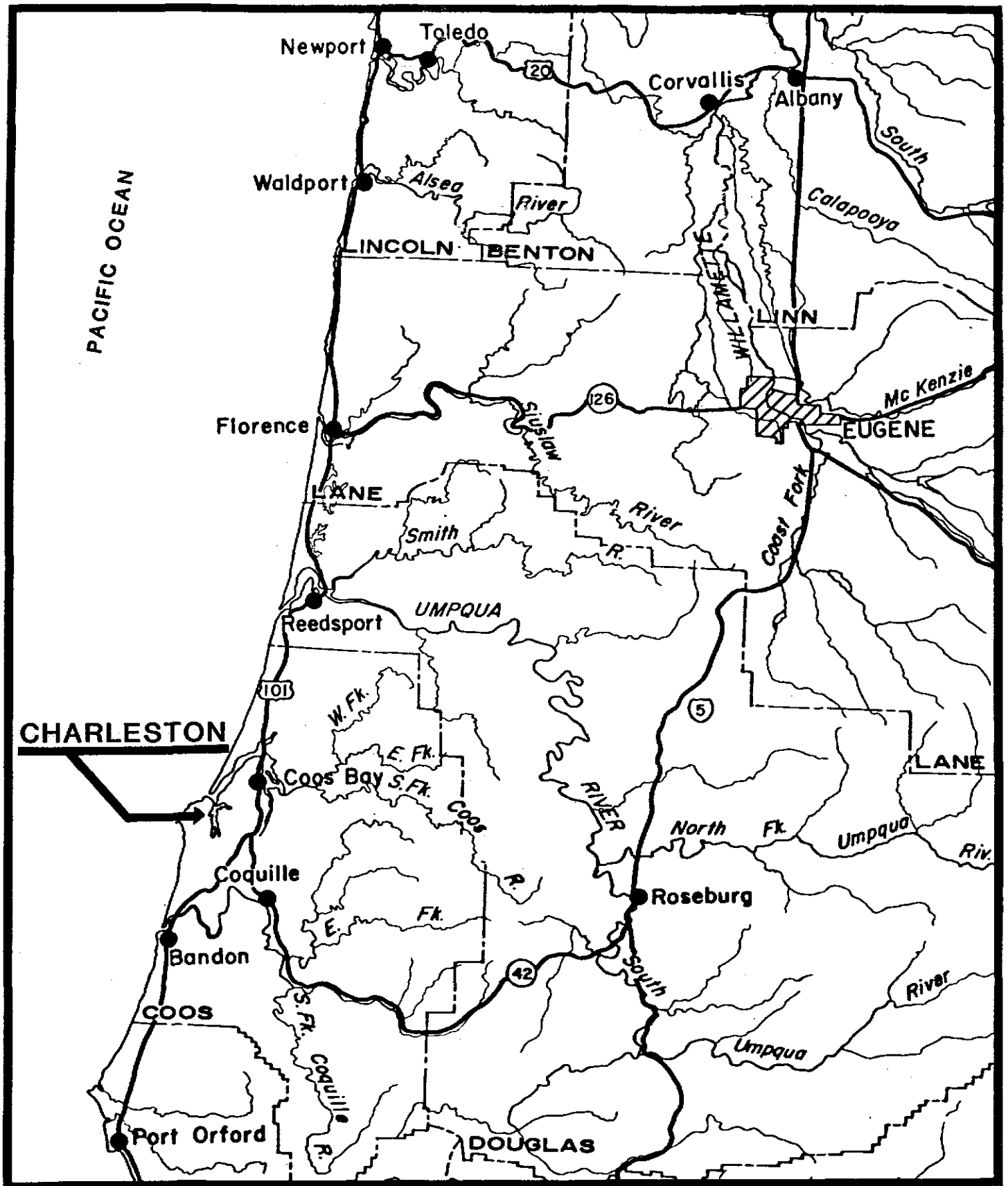
in the existing channel range from minus 8 to minus 16 feet, mean lower low water (mllw). The small boat basin is situated on the west side of the slough at the community of Charleston. The upper reaches of the slough have been designated the South Slough Estuarine Sanctuary.

6. Related Reports. A favorable report entitled "Section 107 Reconnaissance Report, Charleston Boat Basin, Oregon, Navigation Improvement for Small Boat Harbor" was prepared by Portland District, Corps of Engineers in July 1979. An environmental assessment for the project has been prepared and is presented as a section in this report. An operation and maintenance design memorandum entitled "Charleston Channel and Mooring Basin Breakwater Extension and Groin" was prepared by the Portland District in October 1978. The accompanying Environmental Impact Statement Supplement for the design memorandum was published in April 1979. A numerical model of South Slough was developed and used to analyze effects on the hydraulics of the South Slough-Coos Bay complex caused by extending the Charleston breakwater and constructing a groin adjacent to Charleston Channel. A report of the model and results was published by the Waterways Experiment Station in December 1978. It is entitled "Technical Report H-78-22, Numerical Simulation of the Coos Bay-South Slough Complex."

7. Public Involvement. During the course of study, coordination was established with the State of Oregon, Port of Coos Bay, and U.S. Fish and Wildlife Service (USFW). Comments and suggestions received have been given full consideration.

STUDY AREA DESCRIPTION

8. Physiography. Coos Bay is an inverted "U" shaped estuary 13 miles long with an average width of 1,200 feet at low tide. Its surface area is 10,973 acres or about 17 square miles at high tide, and 5,810 acres or approximately 9 square miles at low tide. The Coos and Millicoma Rivers are the principal tributaries of the estuary and drain a 605-square-mile area on the west slope of the Oregon Coast Range. The South Slough is a tidal inlet, relatively free of freshwater runoff from its 29-square-mile watershed. The slough is



REGIONAL AND VICINITY MAP
SOUTHWESTERN OREGON

separated from the Pacific Ocean by a ridge generally 400 feet high consisting of shale and sandstone. Coos Bay is a drowned river mouth type of estuary, created during the last 15,000 years by a rising sea level.

9. Geology and Soils. The bottom of the Charleston Channel is composed mostly of fine to medium sand with some gravels. Median size values for samples taken in the channel in February 1981 and over the last 10 years range from 0.2 to 0.3 mm. Analysis of the latest samples indicate low levels of silts and volatile solids within acceptable standards set for ocean disposal. Figure 2 lists the results of the sediment analysis. Location of the samples are shown on plate 1.

10. Jet probes in October 1981 located an inferred rock layer of probable sandstone in the entrance channel for approximately 800 feet. Depths encountered range from 10 feet to over 40 feet, the limit of the probe. Typical depths in the channel alignment are 14 to 18 feet mllw. Location and findings of the jet probes are shown on plate 2.

11. Climate. The project area has cool, comparatively dry summers and mild, cloudy, wet winters. Annual rainfall in the region varies from 55 inches at the mouth of Coos Bay to 100 inches in the headwaters of the West Fork Millicoma River. Three-fourths of the precipitation occurs in the months November through March. The Coos Bay entrance is fully exposed to waves approaching from the west through the northwest. Cape Arago, a rocky headland, partially shelters the entrance from waves approaching from the southwest. The most severe storms occur during the winter months and come from the southwest. Winds may reach hurricane speed (greater than 74 miles per hour) during such storms. During the summer, the wind blows consistently from north to northwest at 15 to 30 miles per hour.

12. Water Level Fluctuation. Tides at Coos Bay entrance have a diurnal inequality typical of the Pacific Coast of North America, with the higher high tide followed by long runout to the lower low tide. The following tidal information was compiled from data published by the National Oceanic and Atmospheric Administration for Coos Bay entrance:

Highest Tide (estimate)	10.5 feet
Mean Higher High Tide	7.0 feet
Mean High Tide	6.4 feet
Mean Tide Level	3.8 feet
Mean Low Tide	1.2 feet
Mean Lower Low Tide	0.0 feet
Lowest Tide (estimate)	-3.0 feet

A tidal cumulative probability curve is attached as figure 3. Floods have little effect on navigation in the Charleston Channel; however, storm setup may account for as much as one foot of the observed tide.

13. Fish and Wildlife Resources. Sixty-six species of fish are known to inhabit the estuary. Fall chinook and coho salmon, as well as steelhead and cutthroat trout are found throughout the bay. Other prevalent species found are striped bass, American shad, starry flounder and surfperch. Pacific herring spawn in the South Slough from February to April. Invertebrate species include gaper, cockle, butter and littleneck clams. A major population of razor clams are located north of the existing basin breakwater.

14. Waterfowl, shorebirds, and marsh birds depend on the estuary for resting, feeding, nesting, and/or wintering habitat. The snowy plover, a species of concern in Oregon, is a resident of the lower bay area. The U.S. Fish and Wildlife Coordination Act Report provides a complete list of the prevalent species within the area and is attached as exhibit 4.

15. Endangered Species. The brown pelican and bald eagle are on the U.S. Fish and Wildlife endangered species list for the Coos Bay area (see exhibit 5). A biological assessment has determined that neither the endangered species nor their habitat would be impacted by the proposed dredging and dredged disposal activity, and is provided as exhibit 6. Coordination has been established with the USFW.

16. Historical and Archeological Sites. No cultural or archeological resources within the project boundaries are listed by the National Register of Historic Places and the Statewide Inventory of Historic Sites and Buildings.

One of the disposal sites on the north spit received cultural resource clearance and was used during dredging for the Coos Bay main channel. That site is an alternative disposal site for this project. Since location and dimensions of the alternative disposal site on the north spit have not changed and no other earth disturbing activities are proposed, it has been determined that no additional cultural resource clearance letter is required. A letter from the State Historic Preservation Office has been reproduced as exhibit 7.

17. National Parks, Wilderness Areas and Scenic Rivers. Approximately 4,300 acres of the South Slough were designated a National Estuarine Sanctuary in 1975. The lower boundary of the sanctuary is 1.8 miles beyond Cape Arago highway bridge, the upper limit of the proposed project. The sanctuary has a management plan administered by the State of Oregon. Negligible adverse impacts due to the proposed project can be found. No national park, wilderness area, or scenic river are within the project area.

18. Economic and Social Conditions. Fish-receiving stations and packing plants have developed over the years along the South Slough due to safe access to nearby rich fishing grounds, and convenient moorage and repair facilities located there. Charleston has become one of the most important fishing ports on the Oregon Coast. It is Oregon's second leading fishing port in terms of harvest, with annual landings approximating 23 million pounds in recent years. The use of the authorized 10-foot channel by more and more deeper-draft boats has precipitated an increase in groundings and damages to boats, and lost fishing time. Deepening the channel would permit use of the channel by more efficient boats. Fish-receiving stations and packing plants may experience, as a result of the deepening, increased economy in their operations.

AVAILABLE NAVIGATION FACILITIES

19. Authorized Navigation Project. The Federal project at Charleston includes a turning basin 10 feet deep by 180 feet wide by 900 feet long, an access channel 10 feet deep by 100 feet wide by 400 feet long, an entrance channel 10 feet deep by 150 feet wide from the main channel to the highway bridge at Charleston, an "L" shaped breakwater north of the basin, and a

bulkhead. Authorized but not constructed is a 400-foot groin which would be built opposite the breakwater on the east side of the channel.

20. The Coos Bay project provides for two rubblemound, high tide jetties at the bay entrance, a channel across the outer bar 45 feet deep and 700 feet wide, which is gradually reduced to 35 feet deep and 300 feet wide at mile 1. These dimensions are maintained to mile 9, and the channel continues with varying dimensions to mile 17.

21. Coos Bay Marine Facilities. The Charleston Small Boat Basin had initially 244 berths for commercial and recreational boats in 1957. The expansion in 1966 increased the capacity by 300 berths. By 1976, the average size of boats had increased so that only 430 boats could be moored. The most recent expansion in May 1981 increased the number of berths by 70 spaces, primarily for commercial vessels 60 to 90 feet in length. Recreational and commercial interests offer full-facility services such as parking, utilities, restrooms, restaurants, motels, repair and supply outlets, access roads, and launching facilities.

22. Several privately-owned waterfront facilities are located at Charleston. Four fish-processing companies own and operate fish-receiving docks. Peterson Seafood and Hallmark Fisheries are located on the downstream side of the highway bridge. Alaska Packers (Pt. Adams Division) and Lazio's Fish Company have wharfs at the tip of the basin breakwater. Icing and fueling facilities are found near the boat basin. Kelly Boat Works, inland of the highway bridge, owns and operates a waterfront marine plant equipped to build and repair vessels. Hanson Landing, upstream of the highway bridge, is a timber-pile wharf used to moor charter sport fishing boats. The publicly-owned Coos County wharf is 50 feet downstream of the bridge.

23. One fish-receiving station is located outside the South Slough. The Port of Coos Bay owns and operates a T-dock at river mile 5.6 with a dredged channel of 16 feet. Related marine facilities such as fueling docks, packing plants or moorage space are not provided. A trawler basin for 50 large boats is planned for development by 1986 at this site. The other major docks in Coos Bay are concentrated along the eastern waterfront of Coos Bay/North Bend

from river miles 11 to 15. These facilities are equipped to export forest products and receive petroleum imports.

24. Existing Traffic. Commercial fishing craft servicing the Charleston area total approximately 415, plus an additional 15 charter boats. A total of 115 of the commercial boats have greater than 50-foot lengths. About 40 of those boats are moored locally and 75 use the channel as transient boats, to take on fuel and supplies, or to unload fish. A trend is developing toward combination boats 40 to 60 feet in length which are equipped to harvest several fisheries, and vessels 70 to 120 feet in length which are referred to as mid-water capacity boats. Those boats fish for high volume species in depths 300 to 600 feet deep above the sea bottom in the mid-water zone. Economics of the industry have caused this trend to take place. In order to compete successfully with other fishermen up and down the coast, fishermen at Charleston are purchasing boats having drafts approaching 15 feet.

25. Adjacent Coastal Facilities. The nearest fishing ports to Charleston are Winchester Bay, 21 miles north on Umpqua River, and Bandon, 18 miles south on Coquille River. The small-boat basin project at Winchester Bay has a newly authorized depth of 16 feet deep and channel width of 100 feet. A contract for the deepening has been awarded. The authorized project at Bandon consists of 2 rubblemound jetties and a 13-foot-deep channel. A Federal boat basin has been authorized, and plans and specifications are being prepared. The southern coastal region, consisting of ports at Winchester Bay, Coos Bay, Port Orford, Gold Beach, and Brookings, account for about 25 percent of all commercial fish landings in the state of Oregon. Moorage capacity in the region is approximately 2,200 berths of which about 83 percent are public and 17 percent are private. Approximately 75 percent of the berths are used by commercial boats. There are more than 600 boats on waiting lists for spaces, and the trend for increased usage is 3-1/4 to 4 percent annually.

PROBLEMS AND NEEDS

26. Difficulties Attending Navigation. The Charleston Channel, which serves the small boat basin and other South Slough waterfront facilities, is a physical limitation to the operation of the present fishing fleet. Those boats

must either wait for tides or come in with lightloads to safely navigate to the fish-receiving stations. Both alternatives are undesirable.

27. Wave motion, vessel squat, minimum keel clearance and tides further decrease channel capability to adequately serve the fishing fleet. The first three factors (wave motion, vessel squat, and keel clearance) combined require an additional 3-foot clearance beyond the draft of a vessel for safe navigation in the channel entrance and 2-foot clearance behind the breakwater. On an average, the tide drops below mean lower low water approximately one hour a day; further decreasing the effective use of the channel. A 14-foot-draft vessel, therefore, could not safely navigate the existing 10-foot-deep channel entrance for approximately 20-hours per day.

28. Improvements Desired. The Port of Coos Bay has requested that Charleston Channel be deepened to accommodate the increase in drafts of locally-moored commercial fishing boats and transients.

PLAN FORMULATION

29. Planning Objectives. The objective of the plan is to provide an adequate navigation channel to service the Charleston Small Boat Basin and appurtenant facilities. The existing channel depth restricts efficient operation of the locally-moored commercial fishing boats and transient craft, as well as the economic viability of the Charleston area.

30. Technical Criteria. The following technical criteria were developed for use in selecting a plan.

a. Channel depth and width are designed in accordance with standards stated in "Small Craft Harbors: Design, Construction and Operation".¹ Channel depth is to be based on vessel draft, vessel squat, 1/2 wave height and a minimum keel clearance. Minimum channel depth will adequately serve locally-moored vessels and transients.

b. Side slopes of dredged channel are to be 1-vertical (V) on 3-horizontal (H) except where rock is encountered, slopes will be 4-V on 1-H.

c. Dredged material will be disposed of in approved ocean disposal site or upland site. Analysis of sediment is presented in the accompanying Section 103 Evaluation and Environmental Assessment.

31. Bridges and Utilities. The channel deepening will not affect or be affected by existing bridges, cables, or pipes. The Cape Arago highway bridge and a buried cable cross South Slough beyond project limits.

32. Environmental Aspects. The following environmental aspects were considered in selecting a plan.

a. Avoidance of detrimental environmental effects of dredging and disposal where possible.

b. An interdisciplinary approach in planning and design for utilization of natural resources.

c. Prevent water quality degradation below acceptable levels inside the project and in adjacent waters.

33. Socioeconomic Criteria. The following socioeconomic criteria were considered.

a. The social impact of the proposed action was evaluated.

b. Detrimental social effects of the proposed action were avoided where possible.

c. Detrimental social effects of the proposal were determined by coordination with Federal and non-Federal agencies and individuals by means of a public notice.

34. No Action Plan. A variety of fish handling and processing facilities, and related marine industries have developed at Charleston. The economic survival of those facilities depend on the commercial fishing boats moored at Charleston or calling there. The changes in the fishing season, growing market for bottom fisheries, and economic need of maximizing production time per fishing trip are reflected by boat owners buying larger boats capable of meeting those needs. Under the no action plan, those larger boats will be faced with mooring and offloading their catches at other ports, or enduring the economic losses associated with navigating Charleston Channel. Seafood handlers and processors, as well as other waterfront industries at Charleston, will suffer economic losses as a result of the no action plan. None of the study objectives would be satisfied.

35. Alternatives Investigated. The alternatives investigated were limited to the present channel alinement due to the configuration of existing breakwaters and rock strata. Alternative locations of public and private facilities were not considered. Location of fish-receiving stations necessitate maintaining present channel limits. Other than no action, alternatives are limited to depth variation and boat size restriction. The following alternatives were given consideration.

a. Alternate 1, Variable 16-/17-foot Channel Depth. This plan would increase the authorized depth to minus 17 feet mllw within the existing channel alinement for the initial 3,200 feet and minus 16 feet mllw thereafter. A variable 16-/17-foot deep channel (plus a 2-foot overdepth dredging) would require removing 213,200 cubic yards of sedimentary material and 12,200 cubic yards of rock. Side slopes would be 1-V to 3-H in sedimentary material and 4-V to 1-H in rock.

b. Alternate 2, 12-foot Channel Depth. Alternate 2 would provide a 12-foot channel depth within the same boundaries as alternate 1. Dredging a 12-foot channel (plus overdepth) would require removal of 44,000 cubic yards of sediment and 400 cubic yards of rock. Side slopes will be the same as alternate 1.

c. Alternate 3, 14-foot Channel Depth. Alternate 3 is the same as alternates 1 and 2 except that a 14-foot channel would be provided. That plan would require removal of 114,000 cubic yards of sediment and 1,500 cubic yards of rock.

d. Alternate 4, Limit Harbor Use to Boats under 50 feet in Length (8-foot drafts). This alternate is presented as a non-structural solution and would consist of establishing and enforcing boat size restrictions. The American Society of Civil Engineers' "Report on Small Craft Harbors"² equates boats of 50 feet or less in length with drafts up to 8 feet. Boat size restrictions would provide more convenient and safer harbor traffic conditions and would substantially decrease the incidence of groundings and delays to boats within the basin in all but extreme water fluctuation conditions, as the existing channel is maintained to 10 feet.

36. Selecting a Plan. The selected plan must satisfy stated planning objectives and criteria, and be compatible with existing facilities and usages. Table 1 lists each alternate and displays the plan's effects.

a. Alternate 1, Variable 16-/17-foot Channel Depth. The variable channel depth maximizes economic benefits and is considered the National Economic Development Plan. That plan provides safe navigation for existing fishing boats using Charleston harbor and meets the needs of future trends. Major benefits are reduced damages due to groundings and delays encountered. A variable 16-/17-foot channel depth would assure continued use and the potential for increase in economic activity in the Charleston area. Environmental impacts are minimal. For those reasons, alternate 1 was selected for further evaluation.

b. Alternate 2, 12-foot Channel Depth. This alternate is the least environmentally damaging of the structural alternatives. The plan would not provide depth requirements for boats exceeding 10-foot drafts. The economic activity of facilities dependent upon the channel would diminish due to restrictive depth. Minimal benefits from reduced damages would be gained. Generally, planning objectives would not be satisfied. For those reasons, alternate 2 was dropped from further consideration.

Table 1
 DISPLAY OF ALTERNATIVE PLAN EFFECTS, CHARLESTON CHANNEL, OREGON

	No Action Plan	Alternate 1 Variable 16- to 17-foot Channel Depth	Alternate 2 12-foot Channel Depth	Alternate 3 14-foot Channel Depth	Alternate 4 Limit Harbor Use to Boats Under 50 Feet in Length (8-foot Drafts)
Dredging					
Federal channels	N/A	est. 213,200 c.y. silt est. 12,200 c.y. rock	est. 44,000 c.y silt est. 400 c.y rock	est. 114,000 c.y. silt est. 1,500 c.y. rock	None
Boat Basin (Non. Fed.)	N/A	Existing	Existing	Existing	Existing
Total	N/A	est. 213,200 c.y. silt est. 12,200 c.y. rock	est. 44,000 c.y silt est. 400 c.y rock	est. 114,000 c.y. silt est. 1,500 c.y. rock	None
Permits required	N/A	Section 103 Ocean Disposal Permit Required	Same as alternate 1	Same as alternate 1	None
National Economic Development					
Implementation costs:					
Federal ^{1/}	None	\$1,829,300	\$ 520,000	\$ 857,000	None
Non-Federal		0	0	0	
Total		\$1,829,300	\$ 520,000	\$ 857,000	None
Average Annual Benefit	None	\$ 583,500	\$ 357,700	\$ 487,500	N/A
Average Annual Cost	None	\$ 161,300	\$ 54,000	\$ 82,000	N/A
Annual Net Benefit	None	\$ 422,200	\$ 303,700	\$ 405,500	N/A
Benefit-to-Cost Ratio	None	3.6:1	6.6:1	5.9:1	N/A
Land Requirement					
Tidal, Intertidal or Subtidal land dredged for total project	None	28 acres subtidal (Existing channel)	Same as alternate 1	Same as alternate 1	None
Environmental Quality					
<u>Water Quality</u>					
Dissolved Oxygen require- ment increase	No	Temporary increase during dredging-no long term impacts	Same as alternate 1	Same as alternate 1	N/A
Increased turbidity- producing activity	No	Temporary increase during dredging-no long term impacts	Same as alternate 1	Same as alternate 1	No
Temperature change	No	No	No	No	No
Increased short-term fuel emissions from construction equipment	No	Temporary slight increase from dredging equipment	Same as alternate 1	Same as alternate 1	No
<u>Visual Impact</u>					
Increased commercial boating activity	No	Potential increase of boat activity. No sign- ificant impact since channel and basin are already heavily used.	Same as alternate 1	Same as alternate 1	Decrease in boat usage of harbor.

Table 1 (cont'd)

	No Action Plan	Alternate 1 Variable 16- to 17-foot Channel Depth	Alternate 2 12-foot Channel Depth	Alternate 3 14-foot Channel Depth	Alternate 4 Limit Harbor Use to Boats Under 50 Feet in Length (8-foot Drafts)
<u>Social Well-Being</u>					
Disruption of commercial enterprises in project area	Yes- some boats and fishing industry would have to relocate	No	Some boats may have to relocate.	Same as alternate 2	Same as no action plan.
Revenue to Port increases	No	Yes	No	Yes	No
<u>Land Use</u>					
Wetlands lost	N/A	No	No	No	N/A
Disruption of land-water interface	No	No	Some fish receiving stations may have to relocate	Same as alternate 2	Same as alternate 2
Consistent with all land use plans and policies	N/A	Yes	Yes	Yes	Yes
<u>Plants and Animals</u>					
Upland vegetation removed	No	Potential vegetation loss on North Spit disposal site	Same as alternate 1	Same as alternate 1	N/A
Benthic fauna lost	No	Temporary loss of benthic organisms. No increase over periodic losses which occur through maintenance dredging.	Same as alternate 1	Same as alternative 1	No
Permanently disrupts fish habitat	No	No	No	No	No
Known rare and endangered species impacted	No	No	No	No	No
<u>Energy Considerations</u>					
Energy expenditure	Existing from delays and cross hauling from other parts	Savings expected due to less delays and cross hauling	Less than alternate 1	Less than alternate 1	Same as no action plan.
Energy investment in materials	None	Temporary increase during dredging	Same as alternate 1	Same as alternate 1	N/A

c. Alternate 3, 14-foot Channel Depth. This alternate satisfies draft requirements of boats up to 12 feet which currently moor or call at Charleston. There would be substantial benefits from reduced damages due to groundings and lost fishing time. The potential of a 14-foot channel to meet future demands is minimal, and economic growth of the Charleston fishing industry would be reduced. Due to minimal environmental impact and potential economic benefits, alternate 3 was studied further.

d. Alternate 4, Limit Harbor Use to Boats Under 50 feet in Length (8-foot-draft). This alternate would have minimal implementation costs and be the least environmentally damaging other than the no action plan. The alternate has been designated the Environmental Quality Plan. The economic effect would be detrimental to public and private facilities at Charleston. A majority of the fishing boats moored at the basin would not meet the limiting criteria, and would either suffer the economic losses due to groundings and delays, or relocate. There exists no other small-boat basin or fueling and icing facilities in the Coos Bay area. The fish processing industry at Charleston would suffer significant economic loss and then be forced either to endure the extra costs, relocate, or close. This plan would decrease rather than improve social and economic potential of the area. For these reasons, this plan was dropped from further consideration.

37. The Selected Plan. After comparative evaluation of various planning objectives, technical criteria and economic aspects associated with each alternative, alternate 1, variable 16-/17-foot channel depth was chosen. That alternate satisfies planning objectives, has minimal environmental impacts, and maximizes the national economic benefits. Annual benefits from a variable 16-/17-foot deep channel compared to a 14-foot deep channel exceeded additional annual costs (see paragraph 68). Alternate 1 was therefore selected over alternate 3. The variable 16-/17-foot deep channel is within the financial capability of, and has the support of the local sponsor, Port of Coos Bay.

PLAN OF IMPROVEMENT

38. Plan Description. The most feasible plan for providing access for commercial fishing boats to the mooring basin and related facilities at Charleston is dredging a variable 16- to 17-foot-deep channel along the alignment of the presently authorized 10-foot-deep channel. Principal features of the proposed plan are presented below.

a. Dredge to a depth of minus 17 feet mllw (plus 2-foot overdepth) the first 3,200 feet and minus 16 feet mllw (plus overdepth) the remaining 3,600 feet of the existing 150-foot-wide channel. The 180-foot-wide by 900-foot-long turning basin and the 100-foot-wide by 400-foot-long access channel (as shown on plate 1) would also be dredged to -16 feet mllw. Blasting may be required to remove the rock.

b. All materials excavated would be transported to, and disposed of within the designated interim ocean disposal site or in the north spit disposal site, as shown on figure 1. The ocean disposal site has interim approval through issuance of the Federal Register paragraph 228.12, published 11 January 1977. The north spit site has received archeological clearance.

39. Plan Accomplishments. The authorized 10-foot-deep entrance channel is inadequate to allow safe operation of boats with drafts greater than 8 feet. Because of fishing industry economics and changing practices, fishermen are operating larger boats than in the past in order to remain competitive. Without the proposed improvements, over one-third of the commercial boats mooring at the basin, and even a larger proportion of transient vessels, would either absorb grounding and delay costs or land their catches elsewhere. Larger, more productive, commercial boats would be forced to relocate and fish out of other ports. The fish processing industry at Charleston would suffer significant economic losses and likely be forced to relocate or close. A variable minus 16- to 17-foot-deep channel would permit continued operation and high economic use of the facilities at Charleston. The plan would provide safe and convenient access for larger commercial boats thereby attracting them to the area, substantially enhancing the local economy. Major benefits resulting from the proposed plan are reduction of hull and boat damages from

groundings, and reduced costs to commercial fishermen and seafood processors due to delays.

40. Effect of Plan on the Environment. Environmental effects of proposed channel deepening are identified in the environmental assessment (see paragraph 90). Recommendations in the Fish and Wildlife Coordination Act Report (exhibit 4) and Supplement (exhibit 8) were given full consideration. Environmental impacts are summarized below.

a. Removal of 213,200 cubic yards of bottom material (primarily sand) and 12,200 cubic yards of rock will temporarily displace benthic organisms. Past periodic maintenance dredging will have prevented establishment of major benthic population; therefore, removal of this material would not significantly impact the benthic environment. Turbidity and vibrations produced during excavation will have a temporary effect on organisms in the local area.

b. Disposal of dredged material would be at an approved interim ocean disposal site or an alternate dredge disposal site on north spit (see figure 1). If the upland site is used, runoff would be controlled and the area would be permitted to revegetate. Both disposal sites have undergone previous disturbance by disposal of dredged material. Impacts on the environment are considered minimal.

c. Water quality within the immediate vicinity would be temporarily impaired during operation. Long term salinity, water quality, or flushing characteristics of the South Slough would not be affected by channel deepening.

d. No known archeological or historical sites are within the proposed dredging or disposal areas (see exhibit 7).

e. Listed endangered species or their habitat would not be affected by the proposed project (see exhibit 6).

41. Executive Order 11990, Protection of Wetlands. The Federal project involves no effects to wetlands as defined in Section 7(c) of Executive Order

11990. All dredging would be in a subtidal area. Dredged material would be disposed of in an approved interim ocean disposal site, or an approved upland site. The area to be dredged or the designated disposal sites do not meet the requirements of being a wetland as defined by Executive Order 11990.

42. Executive Order 11988, Effects on the Flood Plain. The proposed project would not detrimentally effect flow capacity of any river or bay. Disposal of material in an ocean disposal site or on the north spit would not increase the potential for future flood damages. The project would not alter the flood plain nor effect flood heights. The surrounding area suitable for development is nearly all developed at this time. Any new development attracted by the project must comply with local flood plain regulations which meet minimum requirements of the National Flood Insurance Program.

43. Water Quality. Physical analysis of sediments in the channel indicate material is almost completely composed of grain sizes larger than silt (figure 2). Volatile solid levels were below 1 percent. Research indicates that most contaminants of concern adsorb to fine grain or organic materials and that these substances are usually responsible for high suspended solids levels. Given these factors, dredging and discharging the sediments in Charleston Channel at either upland or ocean disposal sites should not cause any significant impacts on water quality. The proximity of the project area to the mouth of Coos Bay and ocean indicate that considerable tidal flux will occur. The exchange of water from the tide, plus the nonorganic character of the dredged material indicate that little if any impact to dissolved oxygen, pH, temperature, or oxidation reduction potential would result from dredging operations.

44. Harborline. According to 33 CFR, Part 209.155, no Federal money may be spent for dredging shoreward of harborlines. Expansion of the small-boat basin in 1981 reduced the turning basin area by approximately 4 acres. For purpose of dredging, a boundary line was established beyond the expansion of the mooring basin. No other harborlines or pierhead lines exist at Charleston.

45. Coastal Zone Management Consistency. The proposed plan is consistent with Oregon State's Coastal Management Program and other applicable statewide goals, and is provided for in the Draft Coos Bay Estuary Management Plan (see environmental assessment section and exhibits 9, 10, 11 and 16).

46. Design. Criteria for channel depth design have been established in "Design and Construction of Small Craft Harbors".¹ Vessel draft, squat, keel clearance and wave height all enter into channel depth design. Survey of moored boats at Charleston and estimates of transient vessels by fish packers, Port officials and County extension agent place drafts of commercial fishing vessels at 14 feet. To accommodate boats of this size, a channel depth of 17-feet was determined to be the minimum necessary to provide safe and convenient navigation in Charleston Channel for the first 3,200 feet and 16-feet thereafter. The additional foot of depth in the entrance was needed to accommodate higher waves beyond the breakwater and minimum keel clearance over rocky or hard bottoms. Overdepth for maintenance was established at 2 feet.

47. Hydrographic surveys and subsurface explorations were conducted to estimate quantities and evaluate sedimentation rates. Water jet probes taken in October 1981 (see plate 2) indicate an inferred rock layer of probable sandstone near the entrance of South Slough. Depth varies from 10 feet to over 40 feet mllw, in a 800-foot section of the Charleston Channel (see plate 1). Side slopes in rock were assumed to be 4-V on 1-H. Side slopes of the channel in sedimentary material is 1-V on 3-H based on previous studies for this area.

48. Existing channel boundaries are adequate to service public and private facilities. The location of fish-receiving stations and servicing docks at the tip of the basin breakwater and upper reaches of the channel north of the Cape Arago highway bridge crossing require the existing alignment be maintained. Relocation of those facilities was not considered.

49. Disposal Sites. Disposal sites in the vicinity of Charleston Channel are limited. U.S. Fish and Wildlife Coordination Act recommendations were given full consideration in selecting disposal sites. The following sites were evaluated.

a. Ocean Disposal Site. The location of the approved interim ocean disposal site is shown on figure 1. The site has undergone previous disturbance and impacts would be minimal (see Section 103 Evaluation). The USFW in their Coordination Act Report determined this site to be the least environmentally damaging.

b. North Spit Site. This site (figure 1) was used during the dredging of Coos Bay main channel. The site has received archeological clearance and biological assessment has determined impacts are minimal. USFW has recommended the north spit site as an alternate site. The site, on Corps administered property, has been designated a disposal area in the Draft Coos Bay Estuary Management Plan (see exhibit 16) and is consistent with Oregon's Coastal Management Plan (see exhibit 10). Access and right-of-way would be provided by the Port of Coos Bay.

50. Disposal sites at Barview State Wayside Park, and inwater disposal north of the basin breakwater were evaluated and eliminated because of detrimental environmental impacts and limited capacity. Disposal at the ocean or north spit sites will be determined by contractor's choice.

51. Access and Right-of-Way. Access to the site is via the federally-maintained channel in Coos Bay. Disposal site access, if not ocean disposal, will be provided by the Port of Coos Bay. Landward access and provisions for a contractor's staging area are the responsibility of the project sponsor.

52. Construction Schedule. Awarding of a contract for work described in this report is presently scheduled for Fiscal Year 1983. Dredging would be limited to the period 1 August to 15 January to protect juvenile fish within the estuary. Blasting would be restricted to a period from 15 October to 31 December to protect anadromous fish runs. Blasting period extensions by the contractor would require further coordination with Oregon Department of Fish and Wildlife by the contractor (see exhibit 12). One working season will be required to complete the work. Dredging would likely be accomplished by hydraulic pipeline or clamshell dredge. Impacts associated with dredging are discussed in the environmental assessment section.

53. Operation and Maintenance. Maintenance of the proposed variable minus 16- to 17-foot-deep entrance and access channels and turning basin would be accomplished by the Federal Government. Disposal of materials is presently limited to the interim approved ocean disposal site (see figure 1). The estimated annual 29,000 cubic yards of maintenance dredging is expected to continue to be disposed of at the ocean disposal site. Operation and maintenance of the moorage area, piers, docks and boats, as well as shoreside and service facilities would remain the responsibility of the local sponsor, Port of Coos Bay.

54. Aids to Navigation. Navigational aids presently exist on the east and west sides of the channel and are considered adequate. The U.S. Coast Guard has determined that no additional aids are necessary (personal communication, 27 January 1982).

ECONOMICS OF THE SELECTED PLAN

55. Methodology. The economic justification of the proposed channel deepening was determined by comparing estimated costs with estimated benefits accruing to the facilities served by the channel over an assumed 50-year economic life at an interest rate of 7-5/8 percent. Benefits are reflected in reduced commercial fishing hull damages and groundings, and reduced running and manpower costs to commercial fishermen and food processors.

COSTS

56. Estimated First Cost. The estimated first cost of deepening the existing Charleston Channel to minus 16 to 17 feet mllw is based on January 1982 prices and is summarized in table 2.

57. Annual Maintenance. Annual maintenance has averaged 23,000 cubic yards. An increase in dredging requirements of 6,000 cubic yards annually is estimated to occur as a result of the variable minus 16- to 17-foot channel depth. At \$4.50 per cubic yard, the average annual maintenance cost is estimated at \$27,000.

Table 2
SUMMARY OF ESTIMATED FIRST COSTS AND PROJECT COSTS*

Dredging 213,200 c.y. at \$3.00/c.y.	639,600
Rock Removal 12,200 c.y. at \$41.00/c.y.	500,200
Mobilization and Demobilization	157,500
Contingencies @ 15%	<u>194,600</u>
TOTAL CONTRACT PRICE	\$1,491,900
Engineering and Design @ 5%	74,600
Supervision and Administration @ 10%	<u>149,200</u>
TOTAL COST FOR CHANNEL DEEPENING	\$1,715,700
Rounded to	\$1,716,000
Less Cash Contribution** (Port of Coos Bay)	0
Net Federal Cost, Corps of Engineers	1,716,000
Study Costs, Corps of Engineers	<u>113,300</u>
TOTAL NET FEDERAL COST, CORPS OF ENGINEERS	\$1,829,300
Aids to Navigation, U.S. Coast Guard	<u>0</u>
TOTAL FEDERAL COST	\$1,829,300
Non-Federal Cost***	<u>0</u>
TOTAL FEDERAL FIRST COST	\$1,829,300

* Numbers rounded.

** See paragraph 70.

*** Subject to change depending upon choice of disposal site.

58. Estimated Annual Costs. Total annual costs for the proposed improvements are estimated as follows (number rounded).

Table 3
SUMMARY OF ESTIMATED ANNUAL COSTS

<u>Corps of Engineers</u>	
Interest and amortization for 50 years @ 7-5/8% (\$1,716,000) (.0782349)	\$134,250
Maintenance (6,000 c.y.) (\$4.50/c.y.)	<u>27,000</u>
 TOTAL ANNUAL COST TO CORPS OF ENGINEERS	 \$161,250
	Rounded to \$161,300
 TOTAL NON-FEDERAL ANNUAL COSTS	 0
 TOTAL ANNUAL COST	 \$161,300

BENEFITS

59. General. Analysis of benefits for proposed Charleston Channel improvements are based upon a 50-year economic life, January 1982 price levels and a 7-5/8 percent interest rate. Benefits attributable to the project are reduced delays to existing commercial fishing vessels and fish processors; and reduced vessel damage. Field data were obtained from interviews conducted during an analysis of Charleston breakwater extension and groin structure in 1978. The following data were verified and updated for this study.

60. Commercial fishing craft operating out of Charleston total approximately 415, plus an additional 15 charter boats. A total of 115 of the commercial boats have lengths greater than 50-feet and drafts exceeding 11-feet. About 40 of those boats are moored locally and 75 use the channel as transient boats; to take on fuel and supplies, or to unload fish. A trend is developing toward combination boats 40 to 60 feet in length which are equipped to harvest several fisheries, and vessels 70 to 120 feet in length which are referred to

as mid-water capacity boats. Those boats fish for high volume species in depths 300 to 600 feet in the mid-water zone. Economics of the industry have caused this trend. In order to compete successfully with other fishermen up and down the coast, fishermen at Charleston are purchasing boats having drafts approaching 15 feet.

61. The number of 60- to 90-foot vessels have more than doubled since the addition of the 70 berths in 1981. However, the efficiency and economy of the larger vessels cannot be realized at Charleston because of the restrictive channel depths. The Marine Extension Agent reported that in June 1981, 90-foot trawlers (with 14-foot loaded drafts), which had been fishing the scallop beds off Coos Bay, were tying up at rented timber company docks in Coos Bay due to channel depth and congestion in Charleston Channel. Table 4 shows vessel characteristics for the existing Charleston fleet.

62. Damage to shafts, propellers and hulls occur when large commercial vessels drag or hit the channel bottom. On the average, 12 to 15 groundings a month are reported during peak summer fishing months. Field data indicate that medium-sized vessels are prone to more frequent and costly damage than larger boats. This is due to a greater number of fishing trips per season by medium-sized boats, less sophisticated depth finding equipment on smaller vessels, and the tendency for larger vessels to offload at Empire or upper Coos Bay when they are unable to work the tides. Table 5 shows average annual vessel damage to hulls, shafts and propellers.

Table 5
VESSEL DAMAGE

<u>Boat Size</u>	<u>No. of Boats</u>	<u>Average Damage for Shaft/Propeller</u>	<u>Average Damage for Hull</u>	<u>Total Damage for All Boats*</u>
Medium	43	\$1,000	\$900	\$ 81,700
Medium/Large	44	800	700	66,000
Large	28	800	500	<u>36,400</u>
			TOTAL	\$184,100

* Assumes damage to shaft, propeller and hull once a season for all vessels. Data was obtained from the local Harbormaster's office, individual boat owners and marine repair facilities.

63. Time losses accrue to charter boats, commercial fishing boats and fish processors when vessels are delayed by insufficient channel depths. Deeper draft commercial vessels, especially when loaded, must often wait for higher tides before navigating the channel. Losses accrue to these vessels in the form of increased operating costs and lost fishing time. Table 6 depicts time losses for commercial boats.

Table 6
 DELAYS TO COMMERCIAL FISHING VESSELS
 (Excluding Charters)

<u>Size</u>	<u>Type</u>	<u>Direct Hourly Cost*</u>	<u>No. of Boats</u>	<u>Hours Delay per Season per Boat**</u>	<u>Total Cost of Delays</u>
Medium (11-ft draft)	Bottom Fish	\$47.04	19	27	\$24,132
	Shrimper	47.56	24	24.5	<u>27,965</u>
				TOTAL	\$52,097
				Round to	\$52,100
Medium/Large (13-ft draft)	Shrimper	\$59.20	11	27	\$17,582
	Bottom Fish	58.80	13	27	20,639
	Combination	72.46	20	24	<u>34,781</u>
				TOTAL	\$73,002
				Round to	\$73,000
Large (15-ft draft)	Trawlers	\$85.40	17	19	\$27,584
	Combination	87.60	11	21	<u>20,236</u>
				TOTAL	\$47,820
				Round to	\$47,800

* Direct costs were taken from OSU Marine Economic Data sheets.

** Information was provided by the hatchmaster and individual fishermen.

TABLE 4
CHARLESTON COMMERCIAL FISHING FLEET*

<u>Size</u>	<u>Type</u>	<u>Draft</u>	<u>Length</u>	<u>Number in Fleet</u>		<u>Length of Season (days)</u>	<u>Avg. No. Trips per Season (1 trip=3 days)</u>		<u>Total No. of Trips by size</u>
				<u>Local</u>	<u>Transient</u>		<u>Local</u>	<u>Transient</u>	
Medium									
	Bottomfisher	11'	40-60'	8	11				
	Shrimper	11'	46-60'	7	17				
				<u>15</u>	<u>28</u>	150	50	40	1,870
Medium/Large									
	Bottomfisher	13'	60-70'	6	7				
	Shrimper	13'	60-75'	4	7				
	Combination	13'	to 65'	4	16				
				<u>14</u>	<u>30</u>	170	40	30	1,460
Large									
	Trawler	15'	to 85'	7	10				
	Combination	15'	to 85'	4	7				
				<u>11</u>	<u>17</u>	180	50	30	1,060

* Data provided by Charleston Harbormaster, fish processors and individual fishermen.

64. Charter boats, like other medium-sized vessels incur time losses due to insufficient channel depth and tide. This time loss translates into direct loss of revenue when potential charter passengers are unwilling to wait 2 to 4 hours for the next possible fishing trip. Tourists in the area, will often, on the spur of the moment, include a fishing trip in their vacation plans, if a charter is available. However, a potential delay of two or more hours makes such a trip prohibitive. Information on charter operations was provided by boat owners and by the harbormaster's office. It was estimated that substantial delays to the areas 15 charter boats occur on about 10 percent of their trips. Charter boats average 5 to 7 trips a week during the 20-week season (May through October). The individual fee for a charter boat trip ranges from \$25 to \$30 and an estimated 2 persons per boat will forego the trip due to excessive delay.

Charter time loss damages are calculated below:

15 Charter boats x 20 week season x 6 trips per week x .10 delay time
= 180 trips per season that incur delay

180 trips x loss of 2 passengers x \$26 average loss of revenue per person
= \$9,360 round to \$9,000

65. Six processors and three receiving stations face additional operating costs when waiting for commercial boats to navigate the channel. Processing crews are often paid overtime rates while awaiting the next offloading of fish. Other expenses include extra handling and cross-hauling charges when large-size vessels off-load at Empire or Upper Coos Bay. Employment for those facilities varies from 350 to 600 persons during the peak season. Calculation of lost time to processors is dependent upon vessel size, frequency of trip and tidal fluctuation. Medium-sized boats fill faster, make more trips, and thus, must frequently work the tides. Larger capacity vessels can time their arrivals and departures with a bit more care. Table 7 lists added annual costs incurred by processors.

Table 7
 DELAYS TO PROCESSORS
 (Excluding Charters)

<u>Size</u>	<u>No. of Boats</u>	<u>No. of Trips When Problems Occur*</u>	<u>Added Cost to Processor Per Trip*</u>	<u>Total Added Cost</u>
Medium	43	1,100	\$100	\$110,000
Medium/Large	44	700	100	70,000
Large	28	150	250**	37,500
			TOTAL	\$217,500

* Based on discussions with processors and boat operators.

** Larger dollar figure due to extra cross-hauling and handling charges.

66. Total time lost by vessel size for -10 foot mllw channel is summerized in table 8.

Table 8
 ANNUAL DOLLAR DAMAGES - LOST TIME

<u>Size</u>	<u>Processors</u>	<u>Commercial Boats</u>	<u>Charter Boats</u>	<u>Total</u>
Medium	\$110,000	\$52,100	\$9,000	\$171,100
Medium/Large	70,000	73,000	---	143,000
Large	37,500	47,800	---	85,300
			TOTAL	\$399,400

67. Benefits (reduced damages) for alternative channel depths were calculated in correspondence with damage estimates for the existing 10-foot channel. Time losses for each alternative are based on vessel draft, frequency of trip by vessel size and tidal frequency curve. A 12-foot channel (with a 2-foot overdepth) would eliminate all damages to medium-sized boats (11-foot drafts). Vessel damages to medium/large and large boats would remain, while time losses would be reduced. A 14-foot channel (with a 2-foot overdepth) would eliminate all damages to medium and medium/large vessels. Large boats would experience further reduction in time losses but vessel damages would remain. A minus 16- to 17-foot variable channel (with a 2-foot overdepth) would substantially

eliminate vessel damage and time losses to all boats. Benefits for each channel alternative are listed in table 9.

Table 9
SUMMARY OF BENEFITS
(Average Annual Basis)

Channel Depth	Damage to Hulls Shafts & Propellers	Time Loss Damage to Commercial Fishermen, Charter Boats and Food Processors	Total Damages
12	\$ 81,700	\$276,000	\$357,700
14	147,700	339,800	487,500
16	184,100	399,400	583,500

68. Benefit-to-Cost Ratio. Annual benefits for the proposed variable minus 16- to 17-foot-deep project are calculated to be \$583,500 and annual costs are estimated to be \$161,300. The annual net benefits for this alternative are \$422,200 and the benefit-to-cost ratio is 3.6 to 1. Annual benefits for a 14-foot-deep channel are calculated to be \$487,500, and annual costs are estimated to be \$82,000. The benefit-to-cost ratio of the 14-foot alternative is 5.9 to 1 with annual net benefits of \$405,500. Additional benefits for the variable minus 16- to 17-foot-deep channel are calculated at \$96,000 and increase costs are \$79,300. Incremental benefit-to-cost ratio of providing a variable minus 16- to 17-foot-deep channel is 1.2 to 1. Annual net benefits are maximized at the 16- to 17-foot-deep channel. The ratios and benefits indicate that Federal participation in the desired improvements is feasible and the variable minus 16- to 17-foot-deep channel is therefore the chosen alternative.

DIVISION OF PLAN RESPONSIBILITIES

69. Federal participation is limited to construction and maintenance of the general navigation facility of the proposed plan. The general navigation facility here is defined as Charleston Channel, deepened to minus 17 feet mllw for the initial 3,200 feet and minus 16 feet mllw thereafter. Maintenance

dredging of the moorage area; construction and maintenance of piers, floats, docks and slips; construction and maintenance of shoreside facilities and dikes to retain dredged material, if the upland disposal method is selected, are the responsibility of local interests and are not eligible for Federal participation. The cost apportionment is based on Federal legislation and administration policies governing small navigation projects.

70. First Costs. Benefits to be realized by the project are totally commercial. Therefore, the Federal Government would assume 100 percent of the first cost of general navigation facilities up to \$2 million, including pre-authorization study costs. Non-Federal interests would not be required to make a cash contribution, since no recreational or land enhancement benefits would be realized from the proposed action.

71. Operation. Upon completion of construction, the Port of Coos Bay would operate the Charleston Small Boat Basin under the guidelines set forth in this report (see Non-Federal Responsibility Section) and in accordance with applicable laws, regulations and established Federal policy.

72. Maintenance. The Federal Government would assume the cost of maintenance of general navigation facilities and aids to navigation.

FEDERAL RESPONSIBILITIES

73. The estimated total cost of construction of general navigation facilities including engineering and design, and supervision and inspection is \$1,716,000. As the proposed basin would benefit commercial interests only, total construction costs of general navigation facilities would be borne by the Federal Government. The total first cost does not include preauthorization study cost which is currently estimated to be \$113,300. The total is less than the \$2,000,000 limitation.

74. The Federal Government will design and prepare detailed plans and specifications and will construct the general navigation facilities if the project is authorized and funded.

NON-FEDERAL RESPONSIBILITIES

75. Local interests would not be required to contribute funds for the general navigation facilities. The local sponsor, Port of Coos Bay, has agreed to provide items of local cooperation listed in exhibit 13.

LOCAL COOPERATION AND AGENCY COORDINATION

76. Local Sponsorship. By letter dated 16 March 1982, signed by Mr. Bruce Laird, Port of Coos Bay has agreed to furnish the items of local cooperation. That letter is shown in exhibit 14 of this report.

77. Public Involvement. The public has been informed of the proposed project plan by means of an informational brochure and map, which describes the intent of the project, requests comments and states availability of the detailed project report upon request. The draft detailed project report, environmental assessment, and Section 103 evaluation have been distributed to agencies and environmental groups as required by regulations, and to the general public upon request. News releases will be made as appropriate.

78. Agency Coordination. The Fish and Wildlife Coordination Act Report prepared by USFW is included as exhibit 4. A subsequent letter from the USFW dated 29 January 1982 (exhibit 8) supplements the Coordination Act Report. The report and supplement were reviewed by National Marine Fisheries Service, and also have concurrence from Oregon Department of Fish and Wildlife, as indicated in their letters dated 9 October 1981 and 26 January 1982 (exhibits 4 and 8). Modifications of several recommendations have been agreed to by members of Oregon Department of Fish and Wildlife and USFW during a 9 February 1982 meeting. Corps letter dated 22 February 1982 listed these changes (exhibit 12). The USFW confirmed these modifications in a letter dated 16 March 1982 shown as exhibit 15. All recommendations have been considered and agreed to with some minor modifications. A letter of cultural resource clearance approval for the upland disposal site on the north spit was received from the Oregon State Historic Preservation Office, dated 27 January 1977 (exhibit 7).

79. Coordination with Federal, State, and local agencies and organizations has also been achieved through issuance of an informational brochure and map, and through release of this draft detailed project report which contains a public notice for ocean disposal of dredged materials under provisions of the Marine Protection Research Sanctuary Act of 1972 (Section 103) and an environmental assessment. Responses received during public review were given full consideration. Letters from the USFW and Coos County Board of Commissioners (exhibits 16 and 17) need no response. We have responded to the National Marine Fisheries Service comments (exhibit 18) regarding dredging impacts on dungeness crabs through revisions in the environmental assessment. Comments by the Environmental Protection Agency (exhibit 19) were addressed by revisions in paragraphs 17, 52 and 53, and the environmental assessment. Exhibit 20 is the Governor's letter of support.

CONCLUSION

80. General. Studies made during preparation of this detailed project report provide planning and design necessary to determine project feasibility, and the writing of detailed plans and specifications for a contract to provide navigation improvements in Charleston Channel. The proposed project would be accomplished under authority contained in Section 107 of the 1960 River and Harbor Act, as amended. The project would increase the authorized depth of the existing entrance channel, turning basin, and access channel at Charleston to a variable depth of minus 16 to 17 feet mllw (see plate 1).

81. The proposed improvements are based on draft requirements of commercial fishing boats which moor or call at Charleston. The proposed plan provides safe and convenient channel clearances to accommodate the newer, larger boats and future needs of commercial fishing vessels. The plan offers the best balancing of economic, environmental, social well-being, and engineering factors in view of stated objectives.

82. Alternatives which would fulfill study objectives are limited, as the proposed work is a modification of existing facilities which dictate locations of entrance and access channels. Other than the no action plan, alternatives

were restricted to channel depth variations and boat size restrictions. Channel depth alternatives studied were minus 12-, 14-, variable 16- to 17-foot depths. A fourth alternate considered maintaining the present basin with no change, but limiting use to smaller boats. That alternate was evaluated as a nonstructural alternative. Cost comparisons and relative impacts of alternates evaluated are listed in table 1.

83. A biological assessment required by Section 7 of the Endangered Species Act has concluded the dredging and disposal activities will not effect the listed endangered species or their habitat. A letter from USFS listed the brown pelican and bald eagle as endangered species within the influence of the project. The State Historic Preservation Office reports that no cultural resources of National Register potential have been identified which are likely to be impacted by the project. Public Law 89-665 and Executive Order 11593 have been complied with.

84. A Section 103 evaluation under the Marine Protection, Research and Sanctuaries Act of 1972 (PL 92-532) was written describing the disposal of dredged materials in the ocean. The evaluation found no significant adverse effects to marine life, marine ecosystems, esthetics, recreation or economic value.

85. The proposed project complies with Executive Order 11988 which directs all agencies to provide Federal leadership by exemplary action in order to reduce flood losses, and to recognize the significant values of flood plains, and to consider public benefits that would be realized from restoring and preserving flood plains. Materials dredged from general navigation facilities would be disposed of in an approved ocean disposal site or upland site and therefore, will not effect the flood plain.

86. Executive Order 11990, issued for the protection of wetlands, is complied with. No wetlands will be affected by the Federal portion of the project.

RECOMMENDATIONS

87. I recommend that the existing Federal project at Charleston Channel, Oregon, be modified in accordance with the selected plan described in this report. Modification would consist of deepening to -17 feet mllw the initial 3,200 feet and -16 feet mllw the remaining channel, turning basin and access channel. The work would be accomplished in the existing Charleston Channel. Federal cost of construction is estimated at \$1,716,000. Annual Federal maintenance costs are estimated at \$27,000. The Port of Coos Bay has agreed to sponsor the project.

88. This recommendation is made with the provision that the sponsor formally provide, prior to commencement of construction, the following items of local cooperation.

a. Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction and subsequent maintenance of the project and for aids to navigation; including suitable spoil disposal areas with any necessary retaining dikes, bulkheads, and embankments, therefor, or the cost of such retaining works.

b. Accomplish without cost to the United States alterations and relocations as required in sewer, water supply, drainage, and other utility facilities.

c. Hold and save the United States free from damages due to construction, operation and maintenance of the project, excepting damages due to the fault or negligence of the United States or its contractors.

d. Continue to provide and maintain berthing areas, floats, piers, slips, and similar mooring facilities as needed for transient and local vessels as well as necessary access roads, parking areas, and other needed public-use shore facilities open and available to all on equal terms.

e. Continue to provide, maintain, and operate without cost to the United States an adequate public landing or wharf with provisions for the sale of motor fuel, lubricants, and potable water, open to all on equal terms.

f. Assume full responsibility for all project costs in excess of Federal cost limitation of \$2 million as provided in Section 107 of River and Harbor Act of 1960, as amended, 33 U.S.C., Section 577.

g. Establish regulations prohibiting discharge of pollutants into the waters of the improved channels by users thereof, which regulations shall be in accordance with applicable laws or regulations of Federal, State and local authorities responsible for pollution prevention and control.

89. In addition to the foregoing requirements listed in the Section 107 authority, the Port of Coos Bay must agree that it will:

a. Comply with the Department of Defense Directive under Title VI of the Civil Rights Act of 1964 (Public Law 88-352) (78 Stat. 241) and all requirements imposed by or pursuant to the Directive (32 CFR Part 300, issued as Department of Defense Directive 5500.11, 28 December 1964) to the end that no person in the United States shall, on the grounds of race, color, religion, sex, national origin or age be excluded from participation in, be denied the benefit of, or be otherwise subjected to discrimination under any program or activity for which the sponsor receives Federal financial assistance from the Corps of Engineers, Department of the Army, in connection with this project.

b. Assure that it is legally constituted with full authority and capability to perform the terms of its agreements and to pay damages, if necessary, in the event of failure to perform. Section 221 of Public Law 91-611, commonly referred to as the Flood Control Act of 1970, approved 31 December 1970 is deemed controlling under this assurance.

c. Comply with Sections 210 and 305 of Public Law 91-646, approved 2 January 1971, entitled Uniform Relocation Assistance and Land Acquisition Policies Act of 1970.



ROBERT L. FRIEDENWALD
Colonel, Corps of Engineers
District Engineer

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ENVIRONMENTAL ASSESSMENT

90. Introduction. This assessment addresses the environmental impacts of deepening the entrance channel for the commercial boat basin at Charleston, Oregon. General information about the Coos Bay estuary, as well as specific information on the Charleston area, is contained in the final environmental impact statement (EIS) entitled "Channel Maintenance Dredging, Coos Bay," which was filed with the Council on Environmental Quality on 3 December 1976. In addition to a description of the existing environment, this statement contains discussions of environmental impacts associated with maintenance dredging of the existing Charleston access channel.

91. Proposed Action and Alternatives.

a. Proposed Action. The proposed action is to deepen the Charleston Channel to minus 17 feet mllw with a 2-foot maintenance overdepth cut for the initial 3,200 feet and minus 16 feet mllw plus overdepth in the remainder of the project. Disposal of an estimated 225,400 cubic yards of dredged material would be at an approved interim ocean disposal site or upland site on north spit (see figure 1).

b. Alternatives. Alternatives investigated included: dredging to a depth of minus 12 and 14 feet mllw; restricting channel use to boats under 50 feet in length; inwater disposal adjacent to the breakwater at Charleston; disposal at Barview Wayside; and no action. The inwater disposal and Barview Wayside disposal sites have been eliminated from further study because of social and environmental impacts and limited site capacity.

92. Affected Environment. The Charleston Channel, located in the Coos Bay estuary, extends from the main navigation channel at river mile 2 for a distance of about 6,800 feet to the Cape Arago highway bridge. The existing 150-foot-wide channel is authorized to a depth of minus 10 feet mllw with a 2-foot overdepth. Depth soundings in the channel taken in November 1980 indicate depths averaging minus 14 feet mllw along most of the length with several higher shoaled areas.

93. The Charleston Channel extends through two estuarine subsystems--marine and slough--as defined in the Oregon Department of Fish and Wildlife's "Natural Resources of the Coos Bay Estuary."³ The marine subsystem is subjected to strong currents and wave energies while the slough subsystem is influenced more by tidal action and freshwater inflow. The area has been modified extensively through channel dredging, construction of the breakwater and boat basin, numerous docks, and construction of the highway bridge. Sediment sampling from various channel locations show that the bottom materials are mostly sand with a very low percentage of volatile solids (see figure 2). The channel and immediate areas are subtidal with eelgrass and algal beds located near the east boundary of the channel in the vicinity of the breakwater. Biological surveys of the Charleston Channel area have been conducted over the past several years by the Oregon Institute of Marine Biology and the Oregon Department of Fish and Wildlife. Aquatic species identified on these studies include sculpin, perch, herring, English sole, flounder, sub-adult and juvenile dungeness crab, and shrimp. Anadromous fish species identified include chinook salmon, coho salmon, and steelhead. Benthic species inhabiting the Charleston area include softshell, bentnose, cockle, gaper, and piddock clams, and razor clams in the sand shoal north of the breakwater. Other invertebrate species located in and near the Charleston Channel include a variety of snails, sponges, nudibranchs, hydrozoans, ctenophores, anemones, and tubelarians.

94. The Charleston area attracts many species of waterfowl and shorebirds, both resident and migratory. Birds observed using this portion of the estuary included cormorant, common murre, gulls, scoters, loons, grebes, mallard, and American wigeon. Shorebirds in the vicinity of the channel include dunlin, sanderling, western sandpiper, killdeer, great egret, and great blue heron. Marine mammals frequenting the area include harbor seal and harbor porpoise.

95. Consultation with the U.S. Fish and Wildlife Service under Section 7(c) of the Endangered Species Act of 1973 determined that brown pelican (*Pelecanus occidentalis*) and bald eagle (*Haliaeetus leucocephalus*) utilize the estuary near the proposed channel work. There are approximately 4,300 acres of the South Slough which have been designated an estuarine sanctuary.

96. The proposed disposal sites are located in the ocean approximately 1.5 miles west of the Coos Bay entrance. These two sites have been approved by the Environmental Protection Agency (EPA) for interim dredged material disposal. The sites have been the subject of intensive physical and biological studies initiated by the Corps of Engineers and EPA. The interim results of these studies indicate that the site has physical, chemical and biological characteristics which are compatible with the proposed dredged material (see attached Section 103 Evaluation).

97. The alternate upland disposal site is located on the north spit. This site has been previously designated and approved for disposal in the Coos Bay operation and maintenance dredging EIS. A cultural resource investigation was conducted at that time and clearance was received from the State Historic Preservation Office (see exhibit 7). Most of this site has been utilized for dredged material disposal during the Coos Bay channel deepening in 1978. The habitats represented in the disposal area are identified as wet and dry hummocks, coniferous forest, and dredged material. Vegetation of the hummock areas includes beach silvertop, seashore lupine, beachgrasses, and coast strawberry. Coniferous forest areas contain shore pine and Sitka spruce. These habitats support various songbirds and raptors, as well as small mammals such as brush rabbit and deer mice. Snowy plover, a species of concern in Oregon have been observed nesting on the existing disposal site.

98. Environmental Impacts of the Proposed Action. Dredging a deeper channel would remove the existing subtidal habitat at least for a short period of time. Benthic organisms would be disturbed or temporarily lost and turbidity levels would be increased during the dredging operation. Benthic organisms would recolonize the area within a certain time period, but periodic maintenance dredging may prevent reestablishment of anything but remnant populations. Thus, there may be a significant loss of gaper, cockle and piddock clams in the channel area. Direct effects on fish are expected to be minimal because they would probably avoid the dredging activity. Indirectly, however, the loss of benthic food organisms would impact fish, but the extent of the impact cannot be determined. It is expected that there will be some juvenile and sub-adult dungeness crab mortality caused by the dredging activity. The extent of this impact would, in part, depend upon the method of dredging. In

general, hopper dredging has considerably greater impacts on crabs than clamshell or pipeline dredging. The method of dredging would most likely be either by clamshell dredge or hydraulic pipeline. In addition, dredging would occur during the winter when crab populations are generally low due to the large inflow of fresh water from river runoff.

99. Dredging of the channel would not have any significant effects on wildlife; noise levels may cause some displacement of waterfowl, but this impact is expected to be temporary.

100. Biological assessment for brown pelican and bald eagle was conducted pursuant to Section 7(c) of the Endangered Species Act of 1973. This assessment determined that no adverse impacts are expected to occur for these species due to the proposed action.

101. Increases in turbidity levels during dredging may disturb or disrupt Pacific herring spawning within the channel. It could also temporarily effect angling within the channel vicinity. Channel deepening would lead to increased boat traffic to and from the marina with possible adverse impacts on water quality. Basically, however, the changes in water quality would be short-term and have no significant impact on aquatic resources. Turbidity levels in the South Slough Estuarine Sanctuary are not expected to increase significantly during activity in the channel.

102. Impacts associated with ocean disposal include temporary loss of benthic, crustacean, and molluscan shellfish communities, temporary disturbance to pelagic species, and turbidity during disposal operations. Additional discussion of ocean disposal impacts are included in the attached Section 103 report.

103. Disposal of dredged material on the north spit would result in the loss of some vegetation in the immediate area of the disposal sites. This vegetation consists primarily of beachgrasses, scotch broom, and shore pine. This would result in some loss of habitat for songbirds, raptors, and small burrowing animals.

104. The dredging activity would be timed to minimize impacts to Pacific herring, dungeness crab breeding periods, and benthic organisms. To protect these resources the optimum time for inwater work would be from 1 August to 15 January. Any blasting activity, if required for rock removal, would be limited to 15 October to 31 December.

105. Dredging of the channel would possibly increase salinity in the channel and lead to a change in the surrounding aquatic flora. Increased salinity would mean extension of the range of the marine species but some less saline-tolerant species may be adversely impacted. Increased salinity would have a stimulating effect on eelgrass production. However, any great increases in salinity (which is unlikely) could foster a decrease in salt marsh vegetation along the shore. Salinity in the estuarine sanctuary is not expected to change significantly.

106. Impacts of Alternatives: Dredging the channel to depths of minus 14 feet or minus 12 feet mllw with a 2-foot overdepth would have similar but smaller impacts than the proposed plan. Shallower depths would reduce the usability of the Charleston Boat Basin by the larger commercial fishing vessels.

107. Consultation Requirements.

a. Clean Water Act of 1977: No in-water fill pertaining to this Act is proposed.

b. Clean Air Act of 1973, as amended: Gives the EPA authority to review all project reports and proposals which would impact their responsibilities.

c. Coastal Zone Management Act of 1972, as amended: The Oregon Department of Land Conservation and Development has concurred with the Federal Determination of Consistency for this project (see exhibits 9, 10 and 11).

d. Fish and Wildlife Coordination Act: A Fish and Wildlife Service Coordination Act report was received for the project in October 1981 (exhibit 4). A supplement was prepared in January 1982 (exhibit 8).

Concurrence with the final report was coordinated with other Federal and State resource agencies, and they are in agreement with its conclusions and recommendations (exhibits 12 and 15). All recommendations with minor modifications were incorporated into the proposed plan.

e. Endangered Species Act of 1973, as amended: The U.S. Fish and Wildlife Service has been consulted and determined that brown pelican (*Pelecanus occidentalis*) and bald eagle (*Haliaeetus leucocephalus*) utilize the estuary near the proposed channel work. A biological assessment was conducted following this determination and found that these species or their habitats would not be adversely affected by the proposed action.

f. Marine Protection, Research and Sanctuaries Act of 1972, as amended: The attached Section 103 report has been prepared in compliance with the requirements of this Act.

g. Cultural Resources Acts: A cultural resource investigation of the upland disposal sites on the north spit had been conducted for the Coos Bay maintenance dredging, and determined no cultural resources would be affected by the disposal of dredged material. The State Historic Preservation Office was consulted and agreed with the findings (see exhibit 7). Since the location and dimensions of the alternative disposal sites on the north spit have not changed, and no other earth disturbing activities are proposed, it was determined that no additional cultural resource letter is required.

h. Executive Order 11988, Flood Plain Management, 24 May 1977: The project will not significantly affect the flood height or velocity in Coos Bay. The project is consistent with local flood plain regulations.

i. Executive Order 11990, Protection of Wetlands, 24 May 1977: The proposed action would have no effect on wetlands as defined in Section 7(c) of this Executive Order.

j. Analysis of Prime and Unique Farmlands, 30 August 1976: Not applicable.

108. Coordination. This Environmental Assessment, along with a Section 103 Evaluation, was distributed by Public Notice on 15 July 1982 for a 30-day review. The notice was distributed to all pertinent Federal, State, and local agencies, news media, environmental groups, and interested public. Comments received from the agencies indicate their approval of the work as proposed (see exhibits 17, 18, 19 and 20). We have responded to the National Marine Fisheries Service comments regarding dredging impacts on Dungeness crabs through text revision in the environmental impacts discussion.

FINDING OF NO SIGNIFICANT IMPACT
CHARLESTON CHANNEL DEEPENING
COOS BAY, OREGON

The proposed action is to increase the existing Charleston Channel depth from its authorized depth of minus 10 feet mllw to minus 17 feet mllw for the initial 3,200 feet and minus 16 feet mllw for the remaining channel, turning basin and access channel. I have reviewed the Environmental Assessment and have determined that the proposed action will not significantly affect the quality of the human environment and that an Environmental Impact Statement is not required.

Date: 5 OCT. 1982



ROBERT L. FRIEDENWALD
Colonel, Corps of Engineers
District Engineer

SECTION 103 EVALUATION

109. Introduction. Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 requires that all actions involving the transportation of dredged material with the intent to dispose of the material into ocean waters be evaluated for environmental effects prior to making the disposal. This evaluation assesses the effects of the discharge utilizing the criteria set forth by the Environmental Protection Agency under the authority of Section 102(a) of the Act.

110. Proposed Action. The proposed action subject to this 103 evaluation is the transportation and disposal of 225,400 cubic yards of dredged material at approved interim ocean disposal sites located offshore from the mouth of Coos Bay (see figure 1). The dredged material would be removed from Charleston Channel as part of the proposed channel deepening project.

111. Determination of Exclusion from Further Technical Evaluation. The dredged material is composed predominantly of sand, as determined by site sampling (see figure 2), and rock. The material is also located in a high wave and current energy area of the bay and meets criteria set forth in paragraph 227.13, subparts 1, 2, and 3 of the 1977 Federal Register and is excluded from the need for further biological and chemical evaluation. The proposed disposal sites are those interim sites approved by EPA. These sites have been the subject of extensive studies conducted by the Corps of Engineers and Environmental Protection Agency.⁴ The results of these studies indicate that the substrate of the disposal site is substantially the same as the proposed dredged material.

112. An EIS which will address all of the approved interim ocean disposal sites has been initiated under the direction of the Environmental Protection Agency. The purpose of this EIS is to provide the basis for a decision on permanent approval of the sites.

113. The Charleston Channel site is far removed from any known existing or historical source of pollution. The only activities occurring in the

Charleston Channel vicinity have been commercial and recreational fishing and related activities. Normal effluents from these activities are not expected to be a significant source of pollutants. Based on the data obtained in the previously referenced Oregon State University studies over the past 3 years, no dredged material monitoring efforts should be required.

114. Need for Ocean Dumping. Several alternative disposal sites were investigated in addition to the ocean disposal sites. Only one of these alternatives, the north spit upland location, proved to be environmentally and economically feasible. The north spit site is one of the few potential upland disposal sites remaining adjacent to Coos Bay. The continual maintenance dredging of the Coos Bay main navigation channel will require either upland or inwater disposal. Sites such as those located on the north spit are important to retain for future disposal, particularly where the dredging activity occurs in close proximity to the disposal site. In addition, the Charleston Channel material meets the exclusion criteria for ocean disposal, whereas the condition of future maintenance dredging material is not known. The Fish and Wildlife Coordination Act report has determined that ocean disposal would have less harmful environmental effects than disposal on the north spit upland site.

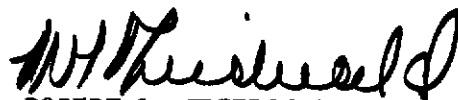
115. Impact of the Proposed Dumping on Esthetic, Recreational, and Economic Values. The proposed ocean disposal site is utilized for both commercial and recreational fishing, and beaches in the vicinity of the site are utilized for recreation during the summer months. The disposal sites have been used extensively in the past with only short-term impacts on recreational fishing and esthetics. Past disposal activities have caused short-term turbidity and dispersal of organisms at the disposal site, as well as temporary deposition of rocky material on the beach. Similar effects are anticipated for the proposed disposal. The proposed timing of the disposal (August to January) would occur during the period of lowest recreational use. No known concentrations of pathogenic organisms, toxic chemicals, persistent or bioaccumulative chemicals, or any other constituents which might significantly affect marine organisms of commercial or recreational value are present in the dredged material. No effects on economic values for fishing, tourism, mineral

exploitation, etc., related to the disposal site and vicinity, are anticipated. There are no known prohibited materials listed in paragraph 227.5 nor constituents prohibited as other than trace contaminants listed in paragraph 227.6.

116. Impact of the Proposed Dumping on Other Uses of the Ocean. Except as noted in paragraph 115, no impacts on known uses of the ocean are anticipated.

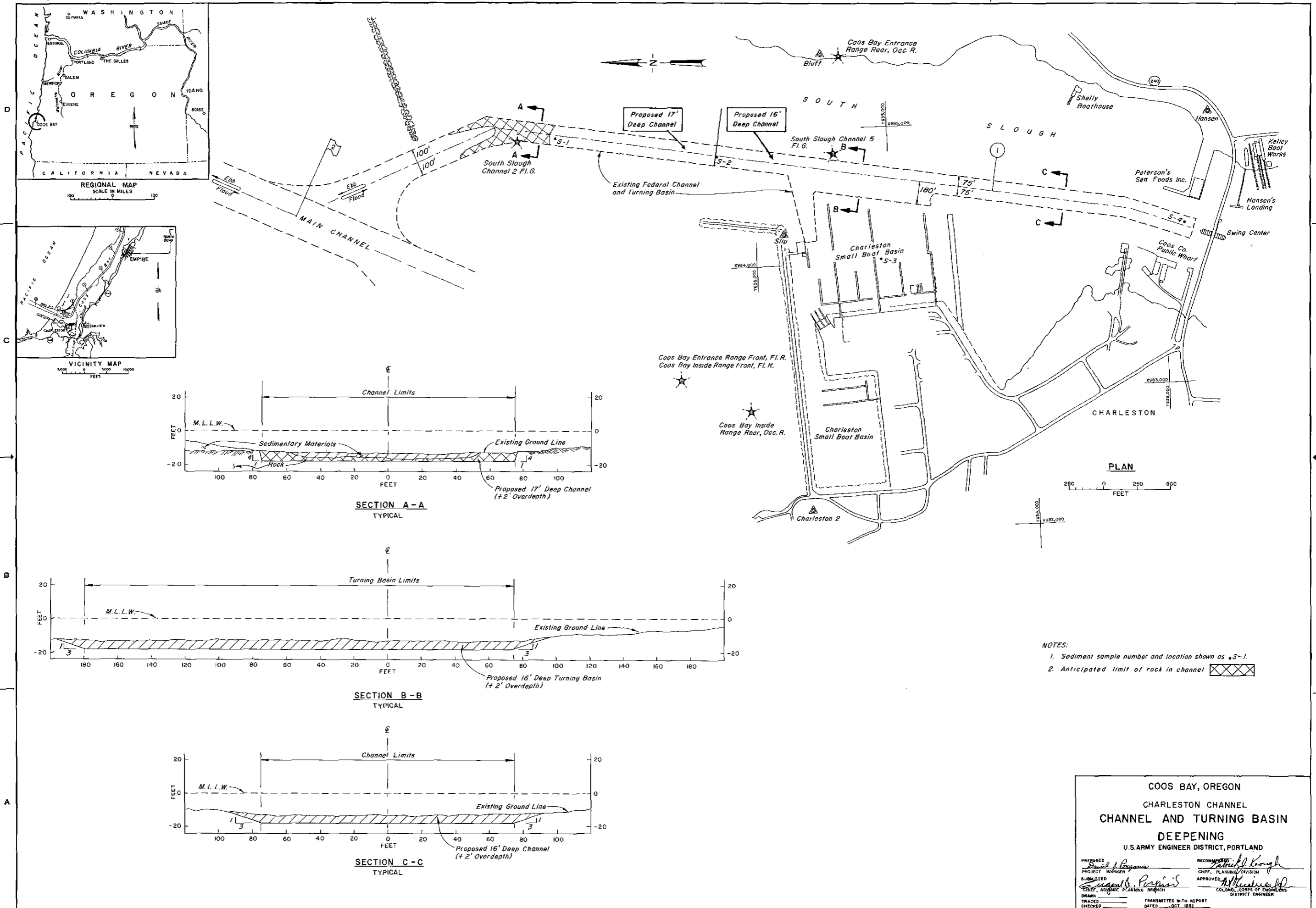
117. Findings. On the basis of the guidelines, the proposed ocean disposal is determined to be acceptable.

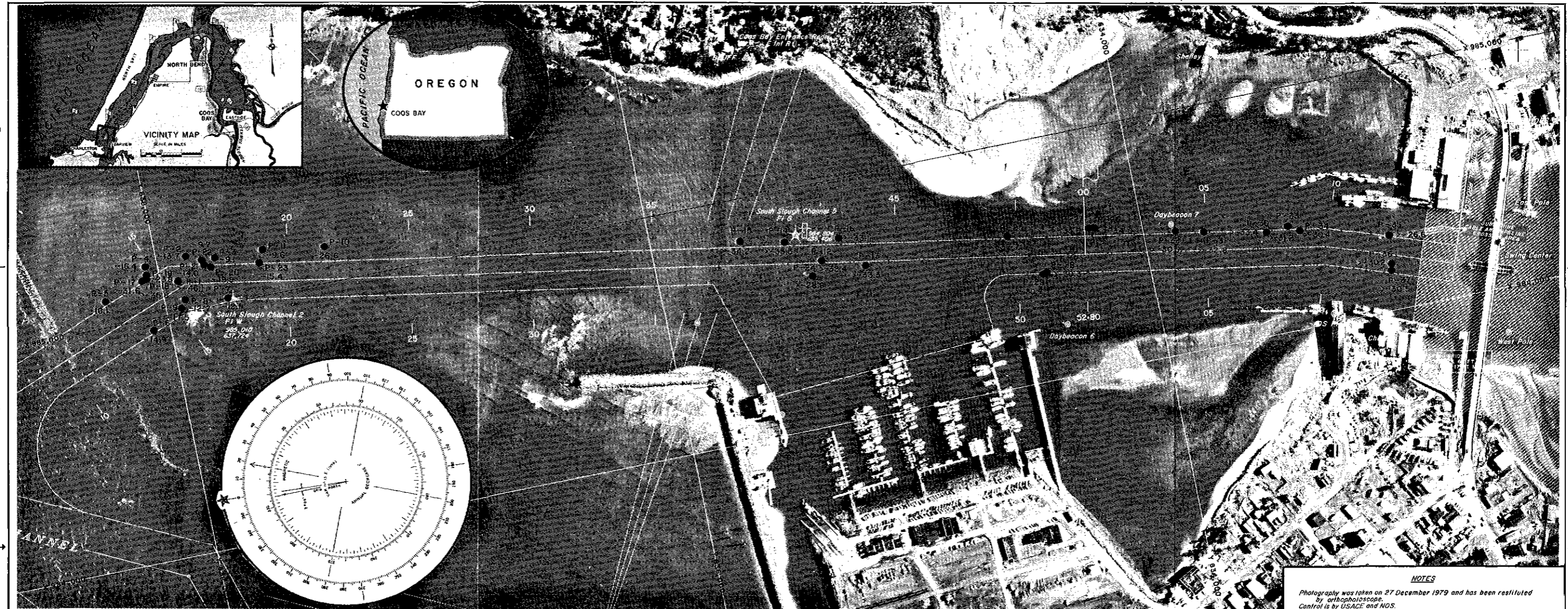
Date: 5 OCT. 1982


ROBERT L. FRIEDENWALD
Colonel, Corps of Engineers
Commanding

REFERENCES

1. Durham and Finn, 1974, Small Craft Harbors: Design, Construction and Operation, Special Report No. 2 Coastal Engineering Research Center, 375 p.
2. American Society of Civil Engineers, 1969, Report on Small Craft Harbors: ASCE - Manuals and Reports on Engineering Practice - No. 50. Task Committee on Small Craft Harbors, Committee on Ports and Harbors, Waterways and Harbors Division. 345 East 47th St., New York, N.Y. 10017.
3. Oregon Department of Fish and Wildlife, Natural Resources of the Coos Bay Estuary, Volume 2, Number 6, 1979.
4. Hancock, et al, Oregon State University, Coos Bay Offshore Disposal Site Investigation, Phase 1, Dec. 1980.





P-20 Probe number, location and bottom elevation of penetration.
 -19.9
 (P-28.8 refusal not attained at this elevation)

WATER JET PROBE RESULTS
 OCTOBER 1981

WATER JET PROBES - EXPLANATION

NOTES
 Photography was taken on 27 December 1979 and has been restituted by orthorectification.
 Control is by USACE and NOS.
 Coordinates are based on the Lambert Projection for Oregon, South Zone. Datum is Mean Lower Low Water (MLLW) is 3.43 feet below National Geodetic Vertical Datum of Charleston, 1947 adjustment.
 Soundings are shown in feet and indicate depths below MLLW. Elevations are shown thus: +2, indicating height in feet above MLLW. The MLLW plane is shown thus: _____
 The project depth curve is shown thus: _____
 Reference is Navigation Chart No. 18587.
 The information depicted on this map represents the results of surveys made on the dates indicated and can only be considered as indicating the general condition existing at that time.

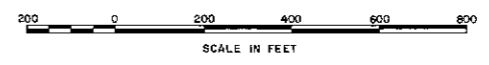
PROBE NO.	TOP OF GROUND ELEVATION BELOW MLLW (FEET)	PROBE REFUSAL ELEVATION BELOW MLLW (FEET)	THICKNESS MATERIAL PENETRATED (FEET)	INFERRED MATERIAL PENETRATED *	INFERRED MATERIAL CAUSING REFUSAL *
P-1	-11.3	>-46.1	34.8	Sa	RNA
P-2	-8.9	-13.7	4.8	"	Ss
P-3	-8.8	-9.1	0.3	"	"
P-4	-14.1	-16.4	2.3	"	"
P-5	-10.3	-16.1	5.8	"	"
P-6	-14.7	-14.9	0.2	"	"
P-7	-11.7	-12.5	0.8	"	"
P-8	-12.5	-12.7	0.2	"	"
P-9	-16.4	-17.5	1.1	"	"
P-10	-13.8	-26.6	12.8	CL or Si & Sa	"
P-11	-9.3	-9.6	0.3	Si & Sa	Decomp Ss or BD
P-12	-16.5	>-32.4	15.9	"	RNA
P-13	-15.8	>-33.3	17.5	"	"
P-14	-15.9	>-33.5	17.6	"	"
P-15	-14.3	>-34.2	19.9	"	"
P-16	-16.5	>-33.1	16.6	"	"
P-17	-11.5	>-31.6	20.1	"	"
P-18	-10.9	>-35.8	24.9	"	"
P-19	-14.3	-23.8	9.5	"	Ss
P-20	-13.6	-19.9	6.3	"	"

PROBE NO.	TOP OF GROUND ELEVATION BELOW MLLW (FEET)	PROBE REFUSAL ELEVATION BELOW MLLW (FEET)	THICKNESS MATERIAL PENETRATED (FEET)	INFERRED MATERIAL PENETRATED *	INFERRED MATERIAL CAUSING REFUSAL *
P-21	-13.1	-14.0	0.9	Si & Sa	Ss
P-22	-9.1	-9.7	0.6	"	"
P-23	-12.8	-15.4	1.6	"	"
P-24	-14.4	>-28.8	14.2	"	RNA
P-25	-13.8	>-37.7	13.9	"	"
P-26	-14.4	>-34.0	19.6	"	"
P-27	-14.1	>-33.9	19.8	"	"
P-28	-14.9	>-30.3	15.4	"	"
P-29	-12.9	>-30.7	17.8	"	"
P-30	-15.2	>-33.4	18.2	"	"
P-31	-16.5	>-32.8	16.3	"	"
P-32	-15.7	>-30.5	14.8	"	"
P-33	-14.0	>-31.2	17.2	"	"
P-34	-14.4	>-30.4	16.0	"	"
P-35	-13.5	>-26.6	13.1	Si, Sa, Gr & BD	Lg Gr (1)
P-36	-14.1	>-30.2	16.1	Si, Sa & Gr	" (1)
P-37	-11.5	>-30.5	19.0	"	" (1)

(1) Strong Tidal Surges
 * Explanations: CL (Clay); Si (Silt); Sa (Sand); Gr (Gravel); Ss (Sandstone); BD (Buried Sunken Buried Logs, Timbers, Ballast, etc); RNA (Refusal Not Attained); Decomp (Decomposed); Lg (Large).

1. THE PROBE CONSISTED OF 10-FOOT SECTIONS OF #1 (1 3/4-INCH O.D.) FLUSH JOINTED DRILL RODS WITH A 0.4-FOOT LONG TAPERED PROBE TIP. THE DISCHARGE END OF THE PROBE TIP IS APPROXIMATELY 1/4-INCH IN DIAMETER. WATER PRESSURE WAS BETWEEN 200 P.S.I. AND 350 P.S.I. AT THE PROBE TIP.
2. THE WORK WAS ACCOMPLISHED FROM THE CARGO HOLD DECK OF THE WHEEL DREDGE - SANDTICK - A CONVERTED LCI (LANDING CRAFT - MEDIUM). PROBING WAS DONE THROUGH A 10-INCH DIAM. PER DRILLING WELL SET FLUSH WITH THE HOLD DECK, 35.0 FEET FORWARD OF THE WHEELHOUSE FRONT AND ON THE KEEL. THE PROBING PROCEDURE WAS AS FOLLOWS:
 - a. THE PROBE WAS LOWERED UNTIL THE PROBE TIP RESTED ON THE BOTTOM, FREE OF SUPPORT AND UNDER ITS OWN WEIGHT WITHOUT WATER PRESSURE.
 - b. THE PROBE WAS THEN PULLED OFF THE BOTTOM ABOUT 1.5 FEET, WATER PRESSURE APPLIED AND THE PROBE LOWERED UNDER ITS OWN WEIGHT. PROBING WAS ACCOMPLISHED WITH ADDITIONAL DOWN PRESSURE SUPPLIED MANUALLY BY THE DRILLER AND/OR HELPER. THE PROBE WAS "BOUNCED" IN INCREMENTS OF ABOUT 1 ± FOOT TO FACILITATE PENETRATION.
 - c. PROBING WAS CONTINUED UNTIL REFUSAL WAS OBTAINED OR A MINIMUM LENGTH OF 40.0 FEET OF DRILL RODS WERE LOWERED.
3. PROBE PENETRATION REFUSAL WAS ATTRIBUTED TO ONE OR MORE OF THE FOLLOWING REASONS:
 - a. ROCK WAS ENCOUNTERED
 - b. HARD MATERIALS ENCOUNTERED, GRAVELS, BURIED LOGS OR DECOMPOSED BED ROCK
 - c. TIDAL AND/OR STORM SURGES SHIFTED ANCHORS
 - d. INSUFFICIENT PROBE WEIGHT
 - e. INSUFFICIENT WATER PRESSURE AND,

- f. SMALL PROBE I.D. LIMITED AMOUNT OF WATER AVAILABLE FOR FLUSHING AWAY MATERIAL SURROUNDING PROBE.
4. THE BEDROCK CONSISTS OF MASSIVE SOFT TO MODERATELY HARD SANDSTONE AND SILTSTONE WITH INTERBEDDED THICK TO THIN LAYERS AND LENSES OF MODERATELY HARD TO HARD CALAREOUS FOSSILIFEROUS SANDSTONE AND SILTSTONE AND INTERVALS OF SPHERICAL SANDSTONE CONCRETIONS. CORE LOG DESCRIPTIONS FROM MAY 1977 EXPLORATIONS ARE ON FILE IN GEOLOGY SECTION.
5. PROBE HOLE LOCATIONS WERE DETERMINED BY USING A HAND HELD SEXTANT AND PLOTTED WITH A THREE ARM PROTRACTOR. PROBE ACCURACY ESTIMATED AT ± 10 FEET.
6. ACCURACY OF THE PROBE LOCATIONS MAY BE AFFECTED BY BOAT MOVEMENT CAUSED BY STRONG SURGE TIDES AND/OR ROUGH WATER AND GALE FORCE WINDS AND HEAVY RAINS OBLSCURING THE SEXTANT SIGHTINGS.



THE EXISTING PROJECT
 provides for a channel 10 feet deep and 150 feet wide from deep water in the main channel at river mile 2.0 up South Slough to the highway bridge with a mooring basin 10 feet deep, 300 feet wide and 900 feet long at Charleston.
 Present Probing Completed 15 Oct. 1981

LEGEND

Primary Control Points... Benchmarks...
 Coordinated Survey Points... Gages... Staff... Recording...
 Uncoordinated Survey Points...
 Dredging Ranges... Front... Rear...
 River Mileage from Mouth...
 Flow Arrows... Straight... Tidal... Flood...
 Harbor Lines...
 Store Boundary

Aids to Navigation

Lighthouses...
 Lights... Flashing...
 Lighted Ranges...
 Lighted Buoys...
 Unlighted Buoys...
 Daybeacons...
 Seasonal Lights and Lighted Dredging Ranges.

REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, PORTLAND			
COOS BAY, OREGON			
CHARLESTON CHANNEL			
PROBE HOLE LOCATIONS AND DATA			
SUPERVISED BY: D. E. Sanderson	DESIGNED BY:	DRAWN BY: S. KILLINGER	CHECKED BY:
DATE:	SHEET:	PLATE:	
CB-20-10			

A

B

C

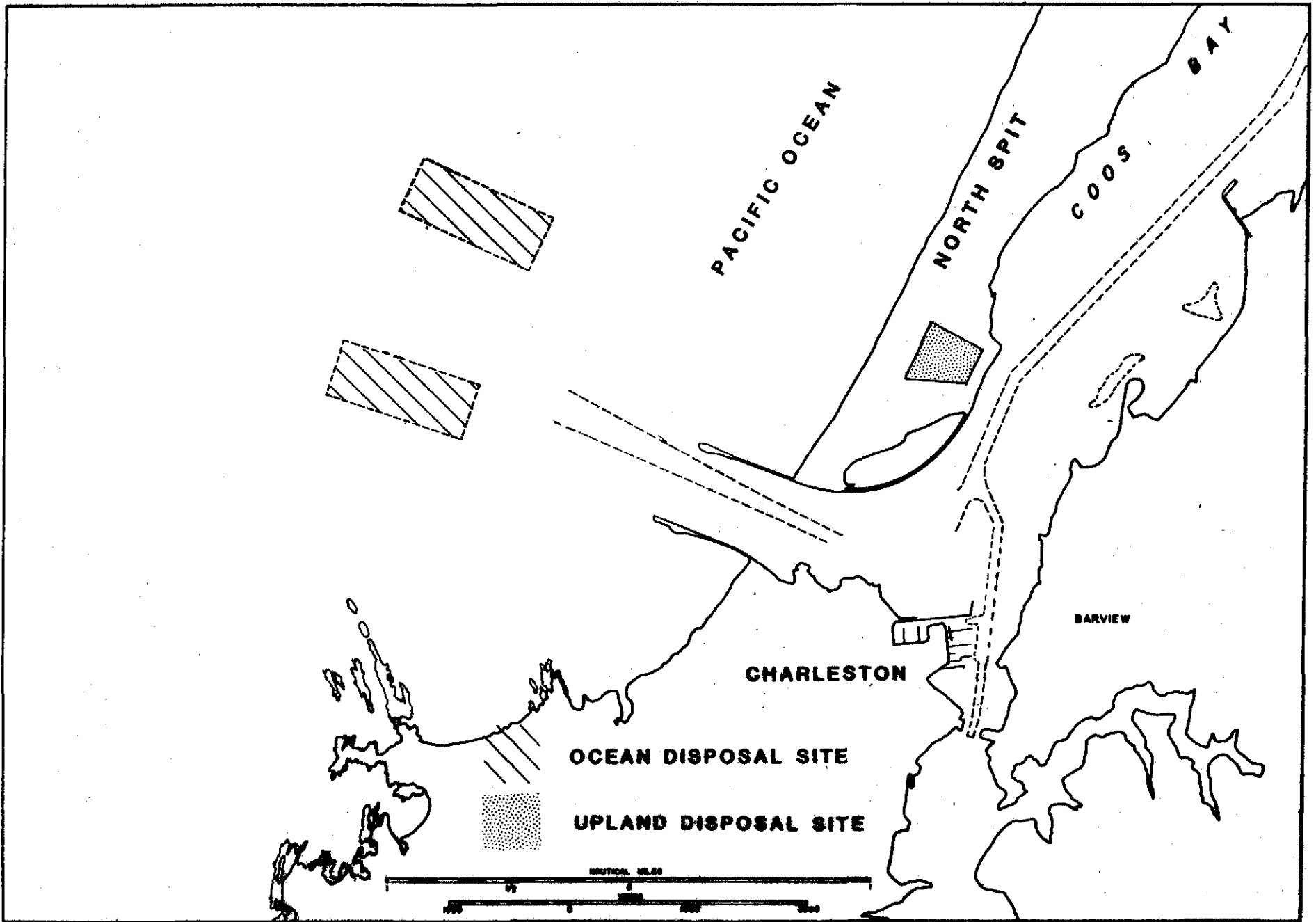
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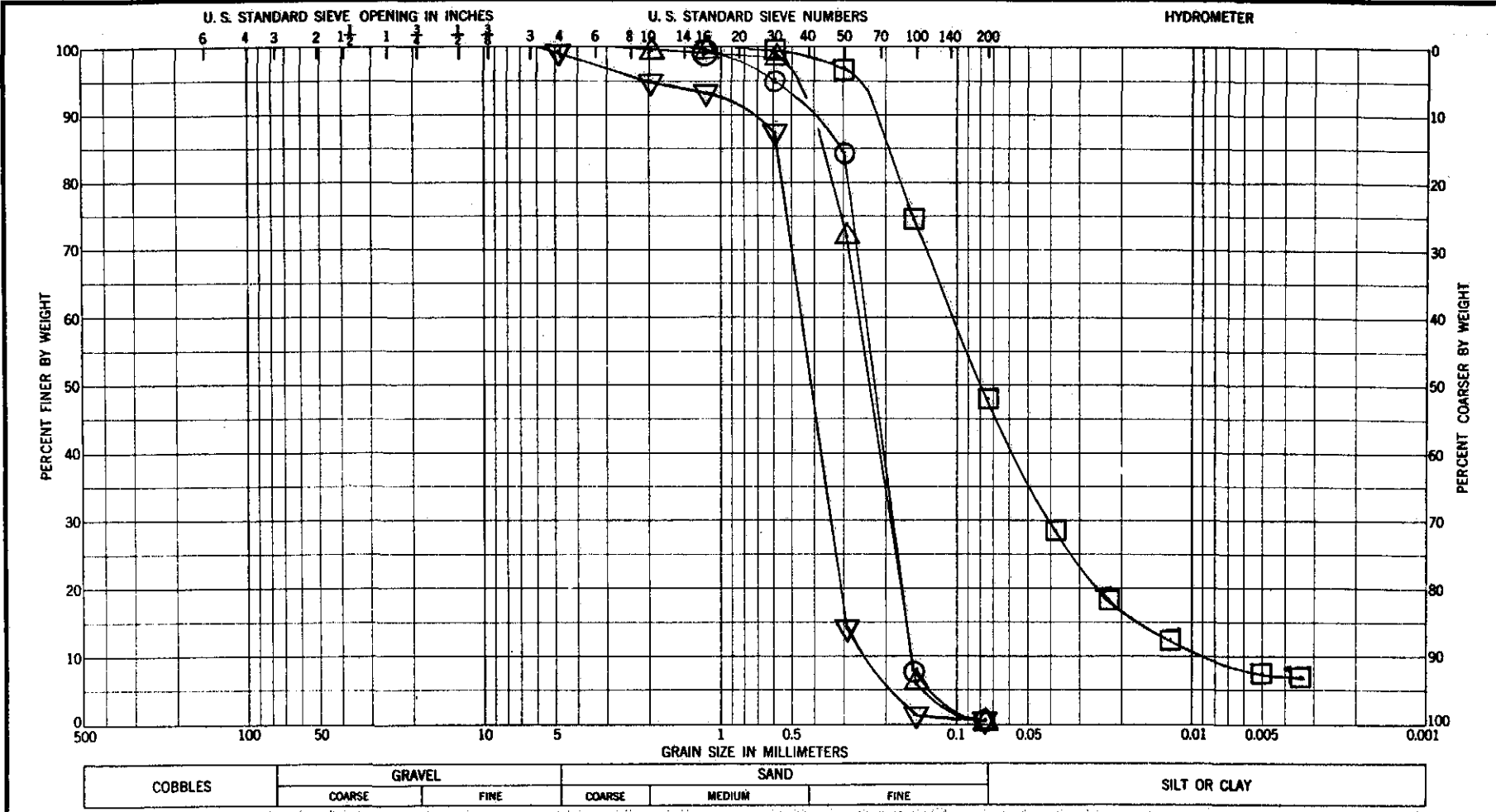
D



CHARLESTON SMALL BOAT BASIN

COOS BAY, OREGON

Figure 2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No. *	Elev or Depth	Classification	Nat w %	LL	PL	PI	Project River/Coastal Sediment Analysis Area Charleston Channel Boring No. Date 23 February 1981 (81-S-816)
○ S-1 (Light #1)		Sand (SP)					
△ S-2 (Light #2A)		Sand (SP)					
□ S-3 (Third Dock)		Si. Sand (SM)					
▽ S-4 (50' N. of bridge)		Sand (SP)					

* - Location of samples shown on plate 1.

GRADATION CURVES

TIDAL CUMULATIVE PROBABILITY CURVE
(MLLW = 0.0 FEET)

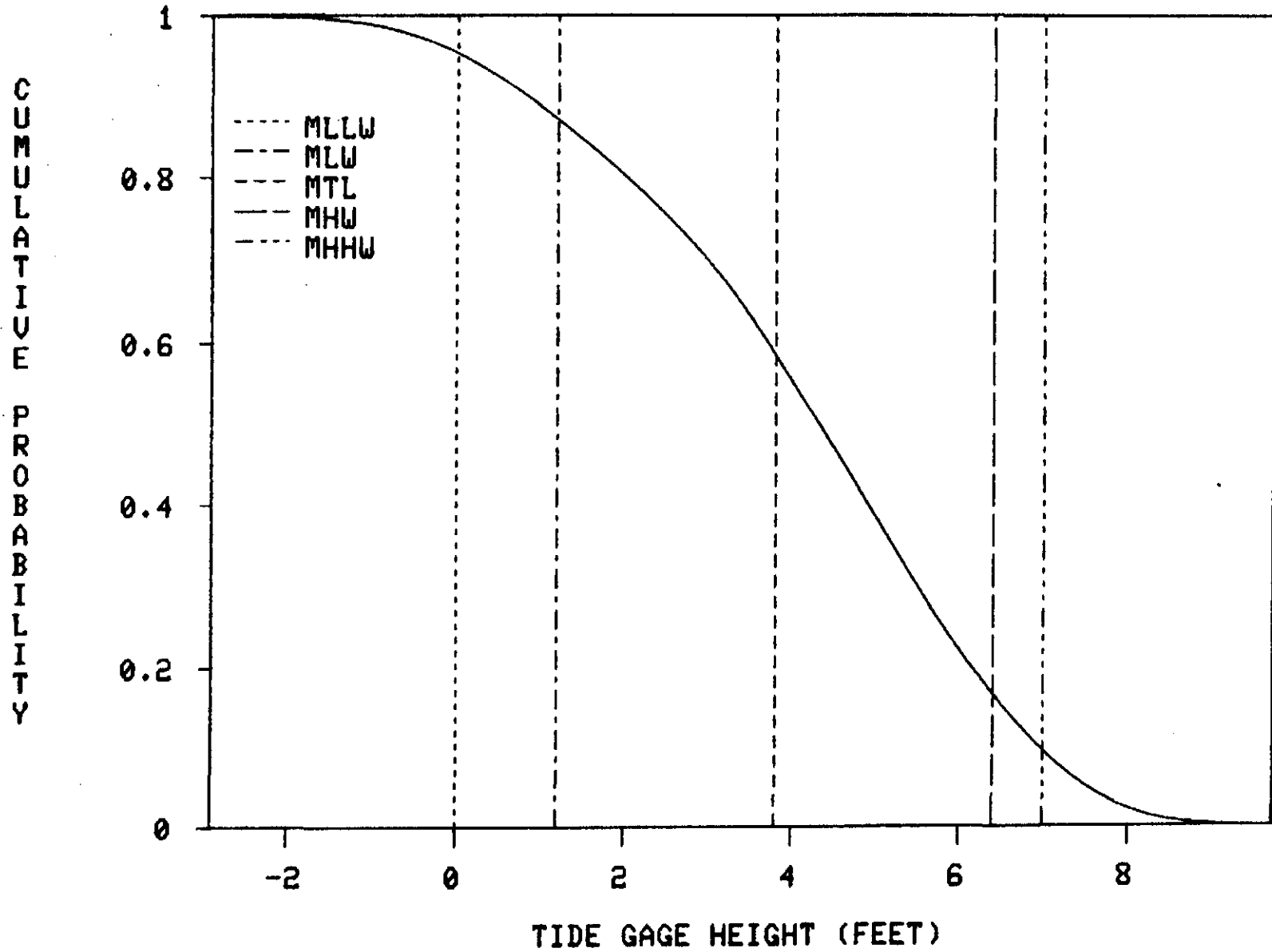


Figure 3

WORLD'S LEADING FOREST PRODUCTS PORT

Port of Coos Bay

TELEPHONE (503) 269-1131

POST OFFICE BOX 1226

COOS BAY, OREGON 97420

October 25, 1976

Col. Harvey L. Arnold, Jr.
District Engineer
Portland District
U.S. Army Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Sir:


Re: Charleston Channel Stabilization Project

Under your direction, the District staff is working on solving the problems of the Charleston harbor entrance. A separate but corresponding problem that we have is the subsidence of the jetty which provides the northern protection for our Boat Basin. In several times past, proposals have been introduced and considered for the construction of a new and more substantial jetty to the north of the present one. This would, of course, solve the problem of the deterioration of the existing breakwater, with the additional benefits of providing a new basin site for much needed expansion. It would also seem possible that construction of a jetty at this site could contribute to the stabilization of the channel entrance.

The current work involves gathering data for a mathematical model. At this time, we would like to request that inclusion of a proposed new northerly breakwater be incorporated into the model study in order that we have the benefit of the resulting data.

If benefits to channel maintenance can be demonstrated, perhaps construction could be implemented under the 107 Program. The additional benefits outlined previously could make this a very viable, acceptable project.

Yours truly,



Steve Felkins
Port Administrator

SF:lh

J. LARRY QUALMAN, President
ROBERT YOUNKER, Vice-President

C. E. LAPP, Secretary
KENNETH L. LEWIS, Treasurer

WILBUR CRAIG, Commissioner
Exhibit 1

WORLD'S LEADING FOREST PRODUCTS PORT

Port of Coos Bay

TELEPHONE (503) 269-1131

POST OFFICE BOX 1226

COOS BAY, OREGON 97420

October 26, 1976

Col. Harvey L. Arnold, Jr.
District Engineer
U.S. Army Corps of Engineers
Portland District
P. O. Box 2946
Portland, Oregon 97208

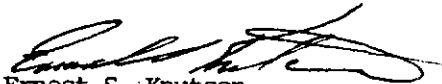
Dear Sir:

The Port of Coos Bay requests that the U.S. Army Corps of Engineers initiate a study under 107 authority to construct a breakwater approximately 600 feet north of and paralleling the existing breakwater at the Charleston Boat Basin. This project could be tied to the mathematical study now being done to predict current flows, and it could possibly be of great value in controlling the silting problem in the South Slough channel and the erosion on the banks of the east side of the channel. Portions of the area between the breakwater would be a good disposal area for the materials that have to be removed from the channel.

The purpose of the second breakwater would allow the Port of Coos Bay to expand their moorage facilities at the Boat Basin to accommodate the 200 commercial boats now on the waiting list for moorage.

This letter is a supplement to the letter written by Mr. Steve Felkins on October 25th. Attached is a map of the area showing the proposed expansion plans.

Yours truly,



Ernest S. Knutson
Manager, Charleston Boat Basin

ESK:lh

Attachment

J. LARRY QUALMAN, President
ROBERT YOUNKER, Vice-President

C. E. LAPP, Secretary
KENNETH L. LEWIS, Treasurer

WILBUR CRAIG, Commissioner

WORLD'S LEADING FOREST PRODUCTS PORT

Port of Coos Bay

POST OFFICE BOX 1926

COOS BAY, OREGON 97420

November 27, 1978

Mr. Gene Pospisil
Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Dear Gene:

In response to L.J. Stein's letter of 17 November 1978, I would like to re-emphasize the Port of Coos Bay's interest in both a 15' authorized channel in Charleston, as well as additional moorage either to the south of the existing basin or to the north.

Whether existing moorage is expanded or not, the need for a deeper authorized channel (15' MLW) is becoming more and more apparent. Larger vessels with draft much in excess of the 10' now available are rapidly replacing smaller shallow-draft vessels. Since the major share of the processing facilities depend on the Charleston channel, effect on the local economy can be expected to increase as the vessels' draft increases.

The expansion of the moorage facility to the south is now facing a serious challenge. The permit to do this expansion has been denied by state and federal agencies (letter enclosed) but there are plans to appeal this denial. It would not be proper to ask the Corps of Engineers to proceed on this project, but the Port of Coos Bay would like the project to remain under consideration until all appeals have been heard. If the appeals are denied, the Port will notify the Corps of Engineers.

Mr. Gene Pospisil
Page Two
November 27, 1978

In closing, I would like to stress that the possible denial of the moorage expansion should not slow the 15' authorized channel depth project. The Port of Coos Bay will assist in any way possible to facilitate this proposal.

Sincerely,



Jeff F. Kaspar
Operations Manager

JFK/ea

encl.



**UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE**



CHARLESTON CHANNEL NAVIGATION IMPROVEMENT

COOS BAY, OREGON

Fish and Wildlife Coordination Act Report

October 1981

REGION ONE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Area Office - Olympia
2625 Parkmont Lane S.W.
Olympia, Washington 98502

October 30, 1981

Colonel Terence J. Connell, District Engineer
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Colonel Connell:

This is the Fish and Wildlife Service's detailed report on the effects that deepening and realigning the navigation channel at Charleston, Coos Bay, Coos County, Oregon will have on fish and wildlife resources of the project area. It has been prepared in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and is consistent with the intent of the National Environmental Policy Act. The project is authorized under Section 107 of the River and Harbor Act of 1960, as amended. This report is intended for inclusion with your Detailed Project Report.

This report has been coordinated with and has the concurrence of the Oregon Department of Fish and Wildlife as indicated in the attached letter dated October 9, 1981 from James B. Haas. Information provided in this report was also developed in cooperation with the National Marine Fisheries Service which is in general agreement with its contents.

This report does not constitute the review comments of the Department of the Interior on the environmental assessment being prepared for this project by your agency. It should also be noted that the proposed project may be subject to permits over which this Department has review responsibilities. Accordingly, our comments do not preclude an additional and separate evaluation by the U.S. Fish and Wildlife Service, pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661, et seq.), if eventual project development requires a permit from the U.S. Coast Guard and/or the Corps of Engineers, U.S. Army (Sections 9 and 10 of the River and Harbor Act of 1899 and Section 404 of P.L.-92-500). All such permits are subject to separate review by the Service under existing statutes, executive order, memorandum



of agreement and other authorities. In review of permit applications, the Fish and Wildlife Service may concur, with or without stipulations, or object to the proposed work, depending on specific construction practices which may impact fish and wildlife resources.

Our analysis of project impacts is based on: (1) project information and engineering data provided by you prior to August 20, 1981; (2) an appraisal of existing resources; and (3) a projection of future conditions using current information and techniques. The analysis contained in this report will not remain valid if modifications are made in the described project plan, if the resource base is altered, or if anticipated future conditions differ significantly from that assumed during the preparation of this report.

The plans evaluated include: (1) deepening the existing navigation and access channel to either -13 or -15 feet with a 2-foot overdepth; and (2) realignment of the navigation channel and dredging to the same depths. Dredged material will amount to 94,000 cubic yards, 181,000 cubic yards, 85,000 cubic yards, and 175,000 cubic yards for the four alternatives. Several sites are being considered for disposal including the North Spit, Barview State Wayside Park, approved ocean sites, and an area adjacent to the breakwater at Charleston boat basin.

To minimize the potential adverse effects of this proposed project, the Fish and Wildlife Service recommends that:

1. Dredging activities be limited to the period between September 15 and January 15. This work should be coordinated with the Oregon Department of Fish and Wildlife.
2. The channel be dredged to -13 feet with a 2-foot overdepth to minimize possible adverse effects on aquatic flora, clams, Pacific herring, and Dungeness crab.
3. Dredged material be disposed of at an approved ocean site or, as an alternative, at designated sites on the North Spit or at Barview State Wayside.
4. No dredged material be placed in the intertidal zone.
5. Any upland disposal sites be permitted to revegetate, where practical, with vegetation similar to that in close proximity to these sites; i.e., Scotch broom, beachgrass, shore pines, etc.

Please notify us of your proposed actions regarding our recommendations. We would also appreciate notification of any changes or refinements in project plans so that we may make any necessary revisions to this report.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Joseph A. Blum', with a large, sweeping flourish extending to the left.

Joseph A. Blum
Area Manager

CHARLESTON CHANNEL NAVIGATION IMPROVEMENT

Coos Bay, Oregon

October 1981

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PREFACE

This is a detailed report of the impacts on fish and wildlife resources of deepening and realigning the Charleston navigation channel at Coos Bay. The proposed navigation improvements are being studied by your agency at the request of the Port of Coos Bay under the authority of Section 107 of the River and Harbor Act of 1960. The findings presented in this report are based on available data, field investigations, and on a project life of 50 years.

DESCRIPTION OF AREA

Coos Bay, in which the proposed project lies, is located approximately 230 miles south of the mouth of the Columbia River on the Oregon coast (Figure 1). It is a complex system of sloughs and tributaries covering a 605 square mile drainage area. Coos Bay is estimated to have 12,380 surface acres evenly divided between tidelands and submerged lands. Mean tidal range for the bay is 7.0 feet at the entrance and 7.3 feet at the City of Coos Bay. The bay is considered to be well mixed except during the month of November when it is considered only partially mixed. Sediments from the entrance to approximately river mile (RM) 12 consist primarily of fine sand. One of the known areas of sediment deposition is at the entrance to the Charleston Channel.

The Corps of Engineers maintains a dredged ship channel from the mouth of Coos Bay to RM 17. At the entrance bar, the channel is 45 feet deep and 700 feet wide, decreasing to 35 feet deep and 300 feet wide at RM 1. Shallower depths are maintained in several other channels within the bay, including the Charleston Channel in South Slough which connects to the main ship channel in the bay. This portion of the Federal project presently consists of: 1) a turning basin 180 feet by 900 feet located east of the Charleston boat basin, 2) an access channel 100 feet by 400 feet to a fish unloading dock, 3) a channel 10 feet deep by 150 feet wide from deep water in Coos Bay to the Charleston highway bridge, 4) a breakwater at the northern end of the boat basin, and 5) a bulkhead along the western edge of the basin.

PROJECT DESCRIPTION

The proposed project is to increase the depth in the navigation channel and access channel at Charleston (Figure 1) to either -13 or -15 feet mean lower low water (MLLW) with a 2-foot overdepth. Realignment of the channel approximately 50 feet east of the present channel is also being considered in order to take advantage of a possible self-maintaining channel. Initial dredging for the -13 foot depth will amount to 33,000 cubic yards, plus 61,400 cubic yards for the 2-foot overdepth cut. Dredging

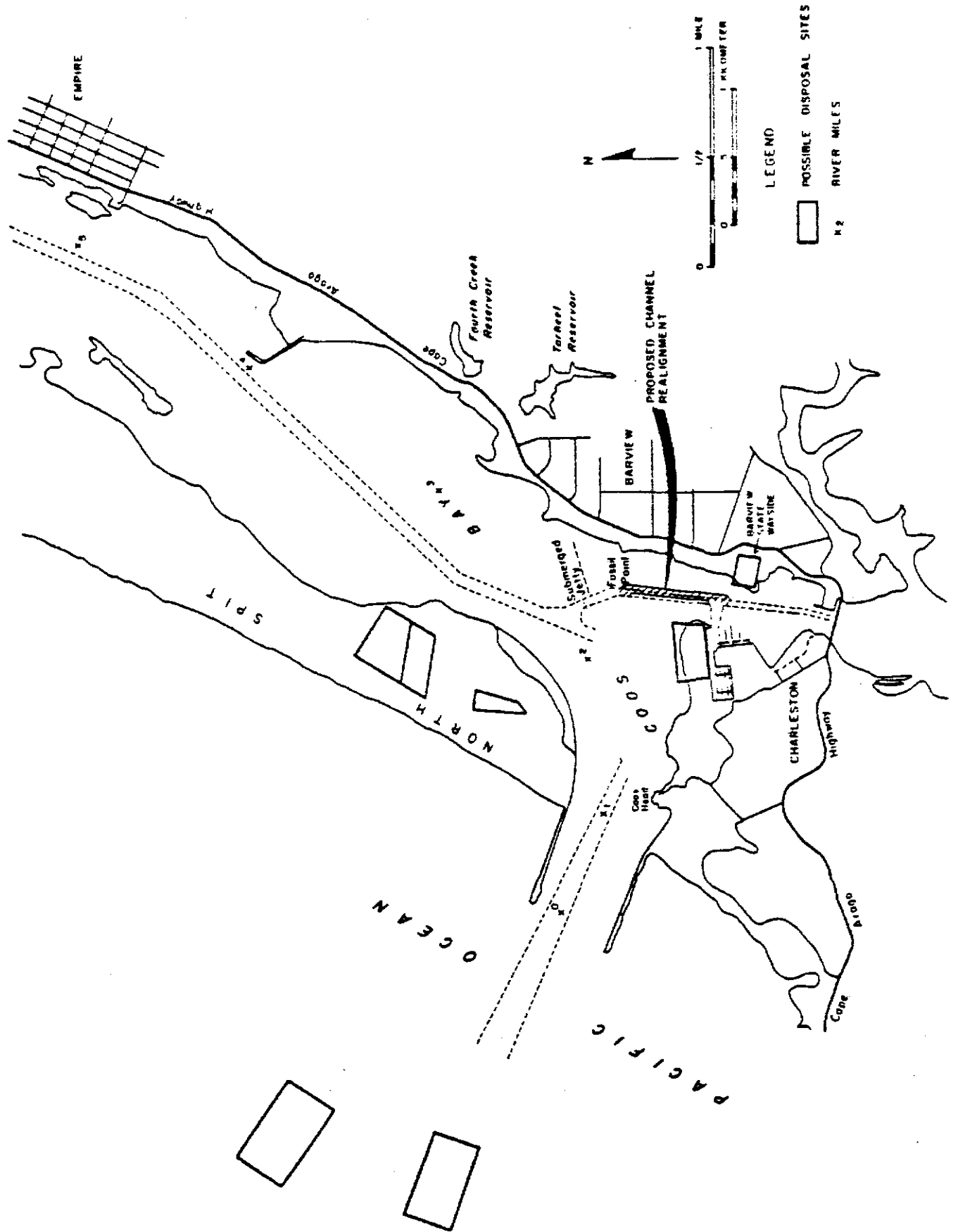


Figure 1. Navigation Improvement Project, Charleston Channel Coos Bay, Oregon

to -15 feet MLLW would amount to 94,400 cubic yards plus 86,300 cubic yards for the 2-foot overdepth. Annual maintenance dredging would be 3,800 and 5,200 cubic yards for -13 feet and -15 feet, respectively. Estimates of dredging quantities for the channel realignment amount to 85,200 cubic yards at the -13 foot depth and 174,500 cubic yards at the -15 foot depth.

Several disposal sites are being considered. Among these are upland disposal at designated sites on either the North Spit or at Barview State Wayside Park (see Figure 1); ocean disposal; and inwater disposal on the sand shoal near the basin breakwater.

ECOLOGICAL EVALUATION

EXISTING CONDITIONS

Vegetation

The algal flora of Coos Bay is similar to that of most other Oregon coast estuaries. The greatest variety of algal species is found near the mouth of the estuary in areas where moderate wave action allows for attachment to hard substrates. In-bay, algae is found attached to rock outcroppings and pilings. Ulva and Fucus are some of the more common attached algae in the channel area and appear to stratify according to substrate type. Ulva is generally found on sandstone-clay substrate at mean tide and Fucus on exposed rock within the splash zone. Diatoms are prevalent throughout the bay and range from strictly marine species near the mouth of the estuary to more brackish-water species in-bay. This same continuum occurs along the main ship channel. Chaetoceros, Skeletonema, and Thalassiosira predominate in the lower bay.

Coos Bay contains large stands of seagrasses, including eelgrass (Zostera marina) and ditchgrass (Ruppia sp.). Eelgrass is associated with lower intertidal and shallow subtidal flats, including those adjoining the Charleston Channel. Approximately 1,400 acres of tideflats in Coos Bay are covered by eelgrass. Within the lower bay it occurs as almost pure stands, but it is mixed with ditchgrass in the upper bay.

There are approximately 2,700 acres of tidal marshes in the Coos Bay Estuary. They are located primarily in the many sloughs and inlets adjoining the bay proper, and vary from low silt to bulrush and sedge types. Fringe marshes have developed along the shoreline of the main channel near Empire, and extend down channel to the vicinity of the Charleston Channel.

Vegetation at the proposed dredge spoil disposal sites on the North Spit consists primarily of European beachgrass (Ammophila

arenaria), scotch broom (Cytiscus scoparius), shorepine (Pinus contorta), mixed grasses, and low scattered shrubs. This vegetation is common in the hummocks and deflation plain east of the foredune. Vegetation at the proposed disposal site at Barview State Wayside is a mixture of beachgrass, Scotch broom, and alder (Alnus sp.). A small salt marsh is located south of the designated disposal site.

Aquatic

Coos Bay can be divided into three main subsystems based on sediments, habitat, tidal influence, and geographic location. These subsystems are designated marine, bay (lower and upper), and riverine-slough. Charleston boat basin and the navigation and access channels to this facility all lie within the marine subsystem (mouth to RM 2.5). Sixty-six species of fish are known to inhabit the estuary, with the greatest variety of species found in the marine and lower bay (RM 2.5 to RM 9) subsystems. Fall chinook (Oncorhynchus tshawytscha) and coho salmon (O. kisutch), as well as steelhead (Salmo gairdneri) and cutthroat trout (S. clarki) are found throughout the Coos Bay system. Chum salmon (O. keta) are present but in limited numbers. Coos Bay also supports a large population of striped bass (Morone saxatilis). These fish move upriver from May through July to spawn, but return to the bay to feed. They tend to seek out the deeper waters, including the channels, and are thought to remain in the bay year round. Other species found in the bay area, including the Charleston Channel area, are Pacific herring (Clupea harengus pallasii), American shad (Alosa sapidissima), pile perch (Rhacochilus vacca), starry flounder (Platichthys stellatus), and striped seaperch (Embiotoca lateralis). Pacific herring spawn in the Charleston Channel from February to April.

The ocean sport fishery for salmon is very popular, with approximately 24,000 coho and 1,100 chinook caught offshore in 1978. Striped bass are also sought extensively by sport fishermen. This species is taken throughout the estuary at all times of the year. Shad are fished commercially in Coos Bay from April 20 to June 21. Average annual commercial catch of shad for the period 1973-1977 was 19,310 pounds. The sport fishery for shad takes place in the South Coos and Millicoma Rivers during the same time period.

There are many invertebrate species associated with the various substrates found in Coos Bay. Studies have shown that the infauna of the ship channel in the lower bay is more diverse than that in the upper portion of the bay. Corophium, an invertebrate species of dietary importance to juvenile salmonids, is present in South Slough, into which a portion of the Charleston Channel extends.

Coos Bay supports large populations of clams. Gaper (Tresus capax), cockle (Clinocardium nuttali), butter (Saxidomus giganteus), and littleneck (Protothaca staminea) clams can be found within and adjacent to the Charleston Channel. A small population of bodega clams (Tellina bodegensis) inhabits the western side of the Channel. Softshell (Mya arenaria), macoma, gaper, littleneck, cockle, and butter clams are especially prevalent in the area known as "Coastal Acres" located south of and adjacent to the boat basin. Tidel flats along the North Spit are also major habitat for gaper clams. On the northern side of the boat basin breakwater is a large sand shoal area. The eastern tip of this area contains the only population of razor clams (Siliqua patula) within the project boundaries. Cockle and butter clams are also present, but not in the same magnitude as razor clams.

Recreational clamming occurs in each of the above areas with the North Spit tidel flats producing the greatest recreational harvest of gaper clams. The "Coastal Acres" site is a particularly popular harvest area for cockle clams while the sand shoal near the boat basin is heavily utilized for recreational harvesting of razor clams.

Dungeness (Cancer magister) and red rock crabs (Cancer productus) are found subtidally throughout Coos Bay. These crabs generally prefer sandy or muddy bottom types and are found in the Ulva or eelgrass beds associated with the Charleston Channel. Dungeness crabs breed in the area of the channel between the submerged jetty and the Charleston bridge (Figure 1). Other crab species, including the purple shore crab (Hemigrapsus nudus) and the square-shelled rock crab (Pachygrapsus sp.) are found in rock crevices within the high tide zone.

Dungeness crab are fished both recreationally and commercially in Coos Bay. Most of the recreational crab fishing activity occurs in the lower bay; however, crabbing is also popular from the docks within the boat basin. Dungeness crab account for approximately 77 percent of the recreational crab catch. Red rock crab make up the balance of the catch. Of the total Oregon commercial catch of Dungeness crab in 1977, approximately 58 percent was taken from Coos Bay.

Other invertebrate species located in and near the Charleston Channel include a variety of snails, sponges, nudibranchs, hydrozoans, ctenophores, anemones, and tubelarians. These species serve as important links in the marine food chain.

A variety of waterfowl and coastal birds frequent the Coos Bay area. These birds depend on the estuary for resting, feeding, nesting, and/or wintering habitat. Coastal

birds and waterfowl associated with the lower bay and channel include the pelagic cormorant (Phalacrocorax pelagicus), common murre (Uria aalge), mew gull (Larus canus), surf scoter (Melanitta perspicillata), common loon (Gavia immer), coot (Fulica americana), mallard (Anas platyrhynchos), western grebe (Aechmophorus occidentalis), bufflehead (Bucephala albeola), and American wigeon (Anas americana). These birds feed on fish, invertebrates, and/or marine seaweeds and algae.

Marine mammals frequent the marine and lower bay subsystems of the estuary. Harbor seals (Phoca vitulina) and harbor porpoises (Phocaena phocaena) are resident species utilizing the estuary for feeding. Harbor seals have been observed using the lower (southern) end of the North Spit as a pupping area. Nonresident marine mammals utilizing the lower bay on an infrequent basis include the California sea lion (Zalophus californicus), Stellar sea lion (Eumetopias jubata), grey whale (Eschrichtius glaucus), and killer whale (Orcinus orca).

Terrestrial

Shorebirds and marsh birds present in the project area include the dunlin (Calidris alpina), sanderling (C. alba), western sandpiper (C. mauri), killdeer (Charadrius vociferus), common egret (Casmerodius albus), and great blue heron (Ardea herodias). They are common along the intertidal shore and in the marshes within the lower bay. These species feed on fish, invertebrates, and/or detrital matter at the edge of the tide.

Snowy plover (Charadrius alexandrinus), a species of concern in Oregon, is a resident of the marine and lower bay area and can be found nesting on the North Spit.

Several raptors are associated with the marine, lower bay, and riverine areas of the estuary. The marsh hawk (Circus cyaneus) is a resident of the bay area, while the red-tailed hawk (Buteo jamaicensis) is present during fall, winter, and spring. The bald eagle (Haliaeetus leucocephalus) is also a resident species. These birds feed on fish, other birds, amphibians, and small mammals (primarily rodents) associated with the coastal shorelands.

Raccoon (Procyon lotor), muskrat (Ondatra zibethica), fox (Vulpes fulva), mink (Mustela vison), bobcat (Lynx rufus), deer (Odocoileus hemionus columbianus), and skunk (Mephitis mephitis) utilize the salt marshes for feeding and cover. Small rodents such as shrews and mice are associated with log debris in the marshes.

Wildlife use of the North Spit is extensive. Over 200 species of birds, 80 species of mammals, 12 species of amphibians, and 3

species of reptiles depend on the spit's various habitat types. Typical species found on the spit include sooty shearwater (Puffinus griseus), great blue heron, western gull (Larus occidentalis), myrtle warbler (Dendroica coronata), black-tailed deer, brush rabbit (Sylvilagus bachmani), deer mouse (Peromyscus maniculatus), Pacific tree frog (Hyla regilla), and common garter snake (Thamnophis sirtalis).

Endangered and Threatened Species

Endangered and threatened species associated with the estuary include the brown pelican (Pelicanus occidentalis californicus) and the bald eagle. The brown pelican (endangered) is present during the late summer and fall, primarily in the intertidal areas along the North Spit. The bald eagle (threatened) inhabits the estuary proper and the North Spit throughout the year, primarily for resting and feeding purposes.

FUTURE WITHOUT PROJECT

Vegetation

Sedimentation is occurring at the mouth of the Charleston Channel. This could lead to a buildup of land along the Channel shoreline with concomitant increases in eelgrass beds and fringe marsh expansion into the tideflats.

The vegetation on the southern end of the North Spit will continue to change with fluctuations in the foredune, and expansion of the east and west sides of the deflation plain. The wet hummock areas may eventually merge into early successional deflation plain habitat. This would mean successional changes from European beachgrass, beach silvertip (Glehnia leiocarpa), and beach knotweed (Polygonum paronychia) to beachgrasses, rushes (Juncus sp.), sedge (Carex sp.), willow (Salix hookeriana), and shore pine.

The dredge spoil areas will probably increase in size as dredging activity continues in the bay. Little change in vegetation will occur, but there will be an increase in sand, sediments, and shell fragments on the spit. It is possible that the dredge spoil sites will begin to extend into adjacent hummock or plantation zone areas. The plantation zone areas are comprised primarily of stabilizing vegetation such as Scotch broom, European beachgrass, and shore pine. A decrease in this vegetation will lead to destabilization of the foredune and problems with sand scouring and/or sand encroachment into other vegetational habitats.

Vegetation at the Barview State Wayside site will remain relatively undisturbed since this site has been designated in the Coos Bay Estuary Plan as an emergency site only, and will probably not receive much use as a disposal site.

Aquatic

With expansion of marsh vegetation into the tideflats, there will be some loss of shellfish habitat and a subsequent reduction in the number of gaper, macoma, and softshell clams. Sedimentation of the channel and reduction in intertidal flats will also mean the loss of breeding habitat for the Dungeness crab. Increased density of eelgrass beds, however, will provide for additional Pacific herring spawning habitat. The sand shoal near the breakwater at the boat basin will fluctuate with seasonal runoff, but will probably increase in size thus providing for additional razor clam habitat. Overall, these impacts reflect an exchange of productivity between trophic levels with little effect on the total productivity of the estuary.

Terrestrial

Increased marsh habitat near the Charleston Channel will provide for increases in furbearer and small mammal populations with corresponding increases in a food source for raptors. Shorebird and wading bird populations will be reduced due to lack of intertidal feeding areas. Black brant (Branta nigricans) habitat will increase with the increase in eelgrass beds.

Changes in vegetation types on the North Spit will lead to corresponding changes in wildlife use of the spit. An increase in dredge spoil material may attract more snowy plover to the area. Transition from hummock-associated vegetation to deflation plain vegetation will mean an increase in habitat more suitable to waterfowl, shorebirds, and wading birds. Such habitat will provide feeding, nesting, and cover for birds as well as for several furbearers and amphibious species.

Endangered and Threatened Species

Since the bald eagle frequents almost all habitat types on the North Spit, the long-term effects of changes from one habitat type to another will not be significant. However, overall reduction of habitat types via future industrial expansion on the North Spit and/or shoreline development around the bay could adversely effect bald eagle use of the area. Brown pelicans flock at the southern tip of the North Spit and utilize the north jetty rocks for roosting. Continued dredged material deposition in this area from other dredging projects could have an effect on brown pelican use of the spit, but it is not known how serious an effect this would be.

FUTURE WITH PROJECT

Vegetation

Dredging of the channel will possibly increase salinity in the channel and lead to a change in the surrounding aquatic flora. Increased salinity will mean extension of the range of the marine species but some less saline-tolerant species may be adversely impacted. Increased salinity will have a stimulating effect on eelgrass production. However, any great increases in salinity (which is unlikely) could foster a decrease in salt marsh vegetation along the shore.

Disposal of dredged material on the North Spit will result in the loss of some vegetation in the immediate area of the spoil sites. This vegetation consists primarily of beachgrasses, Scotch broom, and shore pine which help to stabilize the dune. Encroachment of dredged material into this habitat may accelerate its deterioration. Disposal at the Barview State Wayside site will mean loss of some stabilizing vegetation and possible encroachment into the marsh south of the disposal site.

Aquatic

The dredging and/or realignment of the boat channel will disturb and displace benthic organisms and temporarily increase turbidity levels. Benthic organisms will recolonize the area within a certain time period, but periodic maintenance dredging may prevent reestablishment of anything but remnant populations. Thus, there may be a significant loss of gaper and cockle clams in the channel area. Direct effects on fish are expected to be minimal because they will probably avoid the dredging activity. Indirectly, however, the loss of benthic food organisms will impact fish, but to what extent cannot be determined.

Dredging of the channel will not have any significant effects on wildlife; noise levels may cause some displacement of waterfowl, but this impact is expected to be temporary.

Increases in turbidity levels during dredging may disturb or disrupt Pacific herring spawning within the channel. It could also temporarily affect angling within the channel vicinity. Channel deepening will lead to increased boat traffic to and from the marina with possible adverse impacts on water quality. Basically, however, the changes in water quality will be of short-term nature and have no significant impact on aquatic resources.

Disposal of dredged material will impact various fish and invertebrate species, depending on the site chosen. Intertidal

disposal will mean the loss of important benthic, crustacean and molluscan shellfish communities which contribute to the overall productivity of the estuary. Specifically, disposal on the sand shoal near the marina breakwater will mean the loss of nereid worms, polychaetes, crab larvae, amphipods, and flatfish larvae. However, because these organisms are not particularly prevalent due to the "shifting sand" nature of this area, disposal impacts on the productivity of the estuary would not be great. The major impact of disposal on the sand shoal would be the loss of the razor clam populations on its eastern edge. Since this area contains the largest population of razor clams within Coos Bay, its loss would be significant, both to the estuary as a whole, and to the recreational fishery for these clams.

Impacts associated with ocean disposal are similar to those listed for intertidal disposal but of less severity; i.e., benthic communities on the ocean floor are not as diverse as in the bay. Shellfish communities would not be significantly effected by ocean disposal.

Terrestrial

Terrestrial resources will not be impacted unless dredged materials are disposed of on an upland site. Disposal on the North Spit in other than designated areas will mean loss of bird nesting habitat, loss of cover and resting habitat, and loss of burrowing habitat for small mammals. In addition, a feeding area and food supply for raptors will be adversely impacted. Disposal at designated sites will cause loss of some vegetation, but may actually attract snowy plover. Disposal at the Barview State Wayside will mean loss of habitat for small mammals and raptors. Encroachment into the marsh adjacent to the disposal site will cause loss of shorebird and wading bird feeding areas.

Endangered and Threatened Species

An official list of endangered and threatened species potentially affected by this project is attached as is a memorandum describing construction agency responsibilities with regard to these species. For information on possible project impacts on these species relating to requirements under the Endangered Species Act of 1973, please contact the Endangered Species Team Leader, Fish and Wildlife Service, 2625 Parkmount Lane, Olympia, Washington 98502.

DISCUSSION

Channel dredging and disposal of the dredged material will have varying effects on aquatic and terrestrial resources ranging from

temporary displacement of waterfowl to long-term damage to clam beds, and possible damage to the dune habitat on the North Spit. To minimize such impacts, a number of considerations must be incorporated into the project design.

To protect Pacific herring, Dungeness crab breeding periods, and benthic organisms, the dredging activity must be timed to prevent or lessen impacts on these resources. The preferred time period for this work is September 15 to January 15. The Oregon Department of Fish and Wildlife should be consulted prior to implementation of this portion of the project.

The actual depth of the existing channel, as well as that of the realigned portion of the channel, should be selected so as to minimize effects on channel organisms. The less the magnitude of dredging, the less effect on algae, clams, crabs, and fish.

Dredged material disposal site selection must be accomplished with care, since disposal has the greatest potential to negatively impact fish and wildlife resources. Of the three options for disposal, ocean disposal would have the least impact on fish and wildlife resources, followed by upland disposal (at designated sites). In-water disposal at the site north of the Charleston breakwater would not be an acceptable alternative and would be opposed by the Service because of the loss of benthic organisms, particularly the razor clam population.

Natural revegetation of upland disposal sites on the spit should be permitted to stabilize the site and provide for some habitat for wildlife.

RECOMMENDATIONS

To minimize adverse effects of the proposed project on fish and wildlife resources, it is recommended that:

1. Dredging activities be limited to the period between September 15 and January 15. This work should be coordinated with the Oregon Department of Fish and Wildlife.
2. The channel be dredged to -13 feet with a 2-foot overdepth to minimize possible adverse effects on aquatic flora, clams, Pacific herring, and Dungeness crab.
3. Dredged material be disposed of at an approved ocean site or, as an alternative, at designated sites on the North Spit or at Barview State Wayside.
4. No dredged material be placed in the intertidal zone.

5. Any upland disposal sites be permitted to revegetate, where practical, with vegetation similar to that in close proximity to these sites; i.e., Scotch broom, beachgrass, shore pines, etc.

REFERENCES

- Anonymous. 1979. Charleston Breakwater Extension and Groin Structure, Final Environmental Impact Statement Supplement, No. 1. Corps of Engineers, Portland District, Portland, Oregon.
- Anonymous. 1980. Coos Bay Estuary Management Plan (Draft). Wilsey and Ham, Portland, Oregon.
- English, Scott. 1980. Wildlife and Biological Profile of the North Spit of Coos Bay, Oregon. Northwest Biological Consulting, Ashland, Oregon.
- Roye, Cyndi. 1979. Natural Resources of Coos Bay Estuary. Oregon Department of Fish and Wildlife, Portland, Oregon.

LISTED AND PROPOSED ENDANGERED AND THREATENED
SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR
WITHIN THE AREA OF THE PROPOSED
CHARLESTON CHANNEL PROJECT
COOS COUNTY, OREGON
NUMBER #1-3-81-SP-225

LISTED

Bald Eagle (Haliaeetus leucocephalus)
Brown Pelican (Pelecanus occidentalis californianus)

PROPOSED

None

CANDIDATE

None

FEDERAL AGENCIES' REQUIREMENTS UNDER SECTION 7(c)

Biological Assessments

This process is initiated by a Federal agency in requesting a list of proposed and listed endangered, and threatened species that may be within the area of a construction project.¹ The purpose of the assessment is to identify any proposed and/or listed species which are/is likely to be affected by a construction project. When present in the project area, proposed species are included on the list even though they do not have legal protection under the Act. Their inclusion recognizes that they may be listed at anytime and have the portent to cause delays or modifications to the proposed action. In light of this, we recommend that those species be included in the biological assessment. The assessment should be completed within 180 days after initiation of the assessment (or within such a time period as is mutually agreed to by our two agencies). The assessment should begin within 90 days after receipt of the species list or a new list should be requested. No irreversible commitment of resources is to be made during the biological assessment process which would result in violation of your requirement under Section 7(a) of the Act. Planning, design, and administrative actions may be taken by your agency; however, no construction may begin.

Your agency should conduct an on-site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species. Review literature and scientific data to determine species distribution, habitat needs, and other biological requirements. Interview experts including those within Fish and Wildlife Service, National Marine Fisheries Service, State conservation departments, universities and others who may have data not yet published in scientific literature. Review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat. Analyze alternative actions that may provide conservation measures. At the conclusion of the assessment as described above, the Federal agency shall prepare a report documenting the results of the biological assessment. The report shall also include a discussion of study methods used, any problems encountered, and other relevant information. The report should be forwarded to this office with a request for formal consultation if you have concluded that the project may affect a listed species.

^{1/} "Construction Project" means any major Federal Action which significantly affects the quality of the human environment designed primarily to result in the building or erection of man-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorization or approval which may result in construction.



Department of Fish and Wildlife

OFFICE OF THE DIRECTOR

506 S.W. MILL STREET, P.O. BOX 3503, PORTLAND, OREGON 97208

October 9, 1981

Mr. Joseph Blum, Manager
Olympia Area Office
U.S. Fish and Wildlife Service
2526 Parkmont Lane
Olympia, Washington 98502

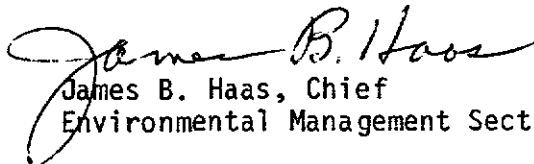
Dear Mr. Blum:

The Oregon Department of Fish and Wildlife has completed the final draft review of your agency's Fish and Wildlife Coordination Act Report on the effects that deepening the navigation channel at Charleston, Coos Bay, Oregon will have on fish and wildlife resources.

Our Department concurs with the report's identification of expected environmental impacts associated with the project and supports the reports' recommendations.

Thank you for the opportunity to review your report. If we could be of further help, please call.

Sincerely,


James B. Haas, Chief
Environmental Management Section

SW



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Area Office
2625 Parkmont Lane, S. W.
Olympia, Washington 98502

December 2, 1981

Refer to: 1-3-82-SP-67
1-3-82-SP-68
1-3-82-SP-69
1-3-82-SP-70

Mr. Patrick J. Keough
Chief, Planning Branch
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Mr. Keough:

This is in response to your letter, dated November 20, 1981, for information on listed and proposed endangered and threatened species which may be present within the area of the proposed projects listed below:

1. Charleston Channel Improvement Project, Coos Bay, Oregon
2. Holt Bank Protection Project, Marion County, Oregon
3. Serres-May Bank Protection Project, Clackamas County, Oregon
4. Leino/Nelson Bank Protection Project, Columbia County, Oregon.

Your request and this response are made pursuant to Section 7(c) of the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq.

To the best of our present knowledge, there are no listed or proposed species occurring within the area of the Holt Bank Protection Project, Marion County, Oregon, or the Serres-May Bank Protection Project, Clackamas County, Oregon. Should a species become officially listed or proposed before completion of your project, you will be required to reevaluate your agency's responsibilities under the Act.

I have attached a list of endangered and threatened species (Attachment A) that may be present in the area of the proposed Charleston Channel Improvement Project, Coos Bay, Oregon, and the Leino/Nelson Bank Protection Project, Columbia County, Oregon. These lists fulfill the requirement of the Fish and Wildlife Service under Section 7(c) of the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq. Your Endangered Species Act requirements are outlined in Attachment B.

Should your biological assessment determine that a listed species is likely to be affected (adversely or beneficially) by the project, your agency should request formal Section 7 consultation through this office. Even if your biological assessment shows a "no effect" situation, we would appreciate receiving a copy of your assessment for our information.

If you have any additional questions regarding your responsibilities under the Act, please contact Mr. Jim Bottorff, Endangered Species Team Leader, (206) 753-9440, FTS 434-9440, at the following address:

U. S. Fish and Wildlife Service
Endangered Species Team
2625 Parkmont Lane, S. W.
Olympia, Washington 98502.

Your interest in endangered species is appreciated.

Sincerely,

Joseph R. Blum
Area Manager

Attachments

LISTED AND PROPOSED ENDANGERED AND THREATENED
SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR
WITHIN THE AREA OF THE PROPOSED CHARLESTON CHANNEL
IMPROVEMENT PROJECT, COOS BAY, OREGON
1-3-82-SP-67

LISTED:

Brown Pelican (Pelecanus occidentalis)
Bald Eagle (Haliaeetus leucocephalus)

PROPOSED:

None.

CANDIDATE:

None.

Charleston Channel Improvement Project
Biological Assessment - Brown Pelican and Bald Eagle

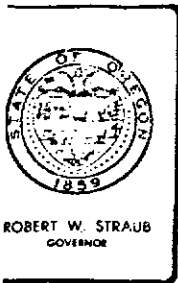
Pursuant to Section 7(c) of the Endangered Species Act of 1973, 16 U.S.C. 1513, et seq., a biological assessment for brown pelicans (Pelecanus occidentalis) and bald eagles (Haliaeetus leucophalus) was conducted for the Charleston Channel Improvement Project.

Information concerning the general distribution and period of occurrence for brown pelicans along the Oregon Coast was presented previously in the biological assessment developed for the Siuslaw River Jetty Extension Project. Alan McGie, ODFW (personal communication 1982), who has conducted almost daily birding trips at Charleston for several years, indicated that brown pelicans forage in the channel entrance and also loaf on rocks just inside the north jetty and on islands adjacent to the North Spit. Period of occurrence generally coincided with that reported in the Siuslaw biological assessment. Maximum numbers observed at Coos Bay were approximately 100 birds in September.

No adverse impact to brown pelicans is expected although the dredging period (15 September - 15 January) coincides in part with expected brown pelican occurrence in the project vicinity. Should hydraulic dredging be used, some avoidance in the immediate area of the pipeline by brown pelicans may occur. This avoidance would not pose an adverse energetic drain, nor would it preclude brown pelicans from more than a minor portion of the available habitat.

Bald eagles are also present in the Coos Bay area although they are considered rare in the immediate project vicinity (Alan McGie, ODFW, personal communication 1982). McGie observed bald eagles generally around Coos Head. Months of occurrence were April, May, August, October, November, and December. Typically, only one bird was sighted frequenting the area each time. Ruth Jacobs (U.S. Army Corps of Engineers) has recorded bald eagles on the North Spit only three times during her avian censusing (personal communication 1982). Roseann Deering only observed bald eagles on Coos Bay North Spit three times during her assessment of bald eagle use there. Bob Anthony (Oregon Cooperative Wildlife Research Unit, OSU, personal communication 1982) reported that three bald eagle territories are known in Coos County. Two territories are approximately 16 and 30 km north of the project; one territory is approximately 15 km south of the project. These territories have contained active nests, except the southern territory during 1980, each year with varying degrees of success in fledging young.

No adverse impact is expected to occur for bald eagles relative to project activity. Their occurrence in the project vicinity is sporadic in nature, hence project activities should not exclude bald eagles from an important location for foraging or other activities. Nesting territories are sufficiently removed from the project such that no project related impact will occur.



Department of Transportation
STATE HISTORIC PRESERVATION OFFICE
Parks and Recreation Branch
525 TRADE STREET S.E., SALEM, OREGON 97310

January 27, 1977

Mr. L.J. Stein, Chief
Engineering Division
US Army Corps of Engineers
PO Box 2946
Portland, OR 97208

Dear Mr. Stein:

Thank you for your letter of January 17 and the additional reports and map.

After consultation with archeologists Ron Stubbs, John Fagan and Edward Long, and the clarification of the boundary limits of disposal site 30a, this office can offer the following comments.

We now feel that if the boundary lines in figure 8B are the actual limits of dredge spoils deposition, then no harm should come to the archeologic sites identified by Prof. Stubbs. The Coos Bay Channel Maintenance Dredging should therefore have no effect on cultural resources and is in compliance with Public Law 89-665, Executive Order 11593 and N.E.P.A.

Sincerely,

Paul B. Hartwig
Historic Preservation Coordinator

EL:ko



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Area Office - Olympia
2625 Parkmont Lane
Olympia, Washington 98502

January 29, 1982

Colonel Terence J. Connell, District Engineer
Portland District, Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Dear Colonel Connell:

This is a supplement to the Fish and Wildlife Service's detailed report dated October 1981 on the proposed navigation channel improvements at Charleston, Coos Bay, Coos County, Oregon. It has been prepared in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and is consistent with the intent of the National Environmental Policy Act. The project is authorized under Section 107 of the River and Harbor Act of 1960, as amended. This report is intended for inclusion with your Detailed Project Report.

This report has been coordinated with and has the concurrence of the Oregon Department of Fish and Wildlife as indicated in the attached letter dated January 26, 1982 from James B. Haas. Information provided in this report was also developed in cooperation with the National Marine Fisheries Service which is in general agreement with its contents.

PROJECT DESCRIPTION

Changes in the proposed project involve the deepening of the navigation channel and access channel to either -14 or -16 feet mean lower low water (MLLW) with a 2-foot overdepth as opposed to the -13 to -15 feet MLLW originally indicated in our report. Blasting of certain portions of the channel is also being considered to remove rock which will be encountered at the lower depth. Your agency has also requested that the beginning of the dredging period specified in the Coordination Act Report be changed from September 15 to August 1. This extension is requested to allow for ocean disposal of the dredged material.

ECOLOGICAL EVALUATION

EXISTING CONDITIONS

These conditions are as described in the Coordination Act Report

FUTURE WITHOUT PROJECT

Conditions will remain as described.

FUTURE WITH PROJECT

Vegetation

Deepening the channel to -16 feet MLLW will increase the chances for greater salt intrusion into the channel. This increase, in turn, will mean greater damage to saline intolerant marsh vegetation, although eelgrass beds are expected to react favorably to such changes in the regime.

Aquatic

Deepening the Charleston Channel an additional foot will not have considerably greater impacts to fish and wildlife resources than those already noted in our report. However, blasting associated with the dredging will negatively affect aquatic species. Gaper, cockle, butter, and littleneck clams are found within and adjacent to the channel. Since blasting will affect a larger area than dredging alone, a greater number of clams will be destroyed or displaced. The same is also true for Dungeness and redrock crab which inhabit the channel area. Fish located at the blasting site will be killed or injured. However, the majority of the fish species utilizing the channel will not be affected. Coastal birds and waterfowl may be disturbed by the blasting, but will not suffer any permanent damage.

Extending the dredging period time frame will expose more species to dredging impacts. Generally, fish and crab are more abundant in the channel area during the late summer than in the fall. Therefore, extending the time frame for dredging by beginning on August 1 rather than September 15 will have a greater effect on these species. However, this effect will not be significant over the long term.

DISCUSSION

Of the three changes in project design, the blasting of the navigation channel will have the greatest impact on fish and wildlife resources. It is important then that if blasting occurs, it be timed to coincide with the period when fewest species are present in the channel. This

would be between November 1 and December 31. With regard to extending the dredging period and the additional deepening of the channel, it is important that measures be taken to minimize dredging impacts. One method of accomplishing this is to utilize the least disruptive dredging operation so as to lessen turbidity and other physical disruptions, particularly during the extended time period. Use of a hopper dredge would help to minimize damage to fish and invertebrates in the channel area.

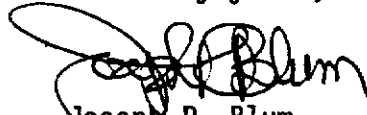
RECOMMENDATIONS

To minimize adverse effects of the proposed project on fish and wildlife resources, it is recommended that:

1. Any blasting associated with the dredging be limited to the period November 1 to December 31.
2. Dredging activities be limited only to the period between August 1 and January 15. This work should be coordinated with the Oregon Department of Fish and Wildlife.
3. Dredging be accomplished with a hopper dredge in order to minimize impacts on fish and wildlife resources.

Please notify us of your proposed actions regarding our recommendations. We would appreciate notification of any changes or refinements in project plans so that we may make any necessary revisions to this report.

Sincerely yours,


Joseph R. Blum
Area Manager

Attachment



Department of Fish and Wildlife

506 S.W. MILL STREET, P.O. BOX 3503, PORTLAND, OREGON 97208

January 26, 1982

Mr. Joseph Blum, Manager
Olympia Area Office
U. S. Fish and Wildlife Service
2526 Parkmont Lane
Olympia, Washington 98502

Dear Mr. Blum:

The Oregon Department of Fish and Wildlife has completed review of the draft supplement review of your agency's Fish and Wildlife Coordination Act Report on the effects that additional deepening of the navigation channel at Charleston, Coos Bay, Oregon will have on fish and wildlife resources.

Our Department concurs with the report's identification of expected environmental impacts associated with the project and supports the reports' recommendations. However, before we can support the proposed project we must review additional information that justifies the need for the requested channel modification.

Thank you for the opportunity to review your report. If we could be of further help, please call.

Sincerely,

James B. Haas, Chief
Environmental Management Section

JBH:sjw



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

MPPEN-PL-AE

28 April 1982

Mr. James Ross, Director
Oregon Department of Land
Conservation and Development
1175 Court Street N.E.
Salem, OR 97310

Dear Mr. Ross:

The Portland District is conducting a study, at the request of the Port of Coos Bay, Oregon, to improve the Charleston channel. The proposed action would consist of deepening the navigation channel from its authorized 10-foot depth to minus 16 feet, mean lower low water, with a 2-foot overdepth.

We have reviewed our proposed plan in relation to the State's land use requirements and have determined that it is consistent to the maximum extent practicable with Oregon's Coastal Management Program. A detailed description of the proposed plan and a list of each statewide planning goal with our corresponding consistency statement are inclosed. We request your review and statement of concurrence with these findings.

If you have any questions regarding our determination, please contact David Ponganis, of my staff, at 221-6465.

Sincerely,

2 Incls
as stated

PATRICK J. KEOUGH
Acting Chief, Engineering Division

PROJECT DESCRIPTION

Charleston channel is part of the Coos Bay navigation project. The channel serves the Charleston small-boat basin, and several private fish receiving and packing facilities. The Port of Coos Bay operates and maintains the basin with a current capacity of 500 boats.

Changing commercial fishing practices, and the economy and efficiency of larger boats have created a trend toward larger, deeper draft vessels. The Corps proposed project is in response to this developed trend. Principal features of the proposal are presented below.

a. The existing 150-foot-wide by 6,800-foot-long channel, 180-foot-wide by 900-foot-long turning basin, and the 100-foot-wide by 400-foot-long access channel would be dredged to a depth of minus 16 feet mllw; existing authorized depth is 10 feet mllw (see figure 1). Near the channel entrance, 5,400 cubic yards of rock would be removed. Blasting may be required to remove the rock.

b. The channel and turning basin would be dredged an extra 2 feet for overdepth. The dredging would likely be accomplished by clam shell or pipeline dredge. The proposed operation would occur between 1 August and 15 January, and any blasting would be limited to 15 October to 31 December to avoid or lessen impacts to aquatic organisms.

c. All materials excavated would be transported to, and disposed of within the designated interim ocean disposal site or in the upland north spit disposal site, as shown on figure 1.

CONSISTENCY WITH OREGON'S STATEWIDE
PLANNING GOALS AND GUIDELINES

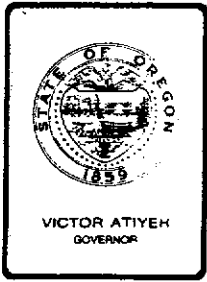
Oregon Statewide Goals	Consistency Statement
1. Citizen involvement	Citizen input will be received through the Environmental Assessment public review process.
2. Planning process	The action is being coordinated with local, State, and Federal agencies, and is compatible with the Draft Coos Bay Estuary Plan.
3. Agricultural lands	Not applicable.
4. Forest lands	Not applicable.
5. Open spaces, scenic and historic areas, and natural resources	No known historic features would be impacted by the proposed action. Scenic quality would be only slightly altered during the dredging operations. If the dredged material is disposed of on the designated north spit disposal site, some minor impacts on natural resources would occur. These impacts could result in the loss of vegetation, such as beachgrass, shore pine, and scotch broom, and loss of associated habitat for songbirds and small burrowing mammals. Snowy plover, a listed species of concern in Oregon, utilizes the existing dredged material site for nesting. The disposal of material on the site would not occur during the nesting season and could enhance the long-term potential for snowy plover habitat.
6. Air, water, land resources quality	The proposed action would cause a temporary increase in air, water, and noise pollution during construction. Water quality would be slightly reduced due to increased marine traffic.
7. Areas subject to natural disasters and hazards	The proposed action would not affect areas subject to natural disasters and hazards.
8. Recreational needs	The proposed action would slightly increase recreational boating and fishing opportunities in Coos Bay.
9. Economy of the State	The proposed action would stimulate additional commercial fishing activity.
10. Housing	A minor increase in housing demand would be anticipated.
11. Public facilities	The proposed action would not place additional demands on public facilities and services. Existing water, sewer, police and fire protection, and transportation systems would adequately accommodate the additional commercial fishing activity and related development.

CONSISTENCY WITH OREGON'S STATEWIDE
PLANNING GOALS AND GUIDELINES
(Continued)

Oregon Statewide Goals	Consistency Statement
12. Transportation	The proposed action would improve marine transportation to Charleston. No significant impacts to land transportation systems are anticipated.
13. Energy conservation	Providing additional channel depth at Charleston would reduce the need for off-loading at locations more distant from the bay entrance.
14. Urbanization	The proposed action is located within an existing urban development area with service facilities capable of handling additional development.
15. Willamette River Greenway	Not applicable.
16. Estuarine resources	The proposed action is compatible with existing estuary classification and the designated management unit in the Draft Estuary Plan. The action would meet the criteria specified in the goal: (1) the channel requires an estuarine location; (2) a public need is demonstrated by the project objective, which protects existing uses of the estuary; (3) no alternative upland locations exist; and, (4) adverse impacts would be minimized as much as feasible.
17. Coastal shorelands	The proposed action provides for water-dependent uses of the shoreline.
18. Beaches and dunes	The alternative north spit disposal site contains areas of stabilized hummocks along with previously disposed dredged material. This is a designated upland disposal site (Coos Bay O&M Dredging EIS, Aug 76) and use of the site for dredged material disposal is compatible with the requirements of this goal.
19. Ocean resources	The preferred dredged material disposal site is the interim EPA-approved ocean disposal site located off the Coos Bay entrance. The material to be dredged from the channel meets the exclusion criteria for ocean disposal and would not detract from the use of the

CONSISTENCY WITH OREGON'S STATEWIDE
PLANNING GOALS AND GUIDELINES
(Continued)

Oregon Statewide Goals	Consistency Statement
	Continental shelf for fishing, navigation, or recreation, or from the long-term protection of renewable resources.



Department of Land Conservation and Development

1175 COURT STREET N.E., SALEM, OREGON 97310 PHONE (503) 378-4926

May 10, 1982

Robert P. Flanagan, Chief
Engineering Division
Portland District, Corps of Engineers
P.O. Box 2946
Portland, OR 97208


Dear Mr. Flanagan:

The Department has reviewed The Corps feasibility study for channel improvement in the Charleston Channel. The analysis of consistency with Oregon's Coastal Management Program that was included with the project description is correct in stating the proposal supports an existing permitted use which is consistent with a development management unit designation in the Coos Bay Estuary.

We therefore concur with the Corps determination that this project as described is consistent with the Statewide Planning Goals. Provided that it is ultimately carried out in a manner consistent with any relevant state statutes (i.e., the State Fill and Removal Law and DEQ water quality standards), the proposal would also be consistent with Oregon's Coastal Management Program.

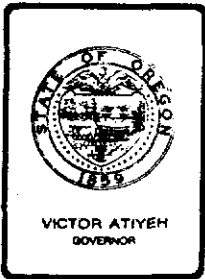
Thank you for coordinating the development of this proposal with us. Jeff Michel of my staff is available to help with any future questions you might have. He can be reached at 378-5052.

Sincerely,


James F. Ross
Director

JFR:JM:af
9587A/5B

cc: Earl Johnson, DSL
Glen Carter, DEQ
Glen Hale, Coastal Field Office



Department of Land Conservation and Development

1175 COURT STREET N.E., SALEM, OREGON 97310-0590 PHONE (503) 378-4926

August 30, 1982

Dave Ponganis
Portland District Corps of Engineers
P. O. Box 2946
Portland, OR 97208

Dear Dave:

The Department of Land Conservation and Development has reviewed the July 1982 Draft Detailed Project Report and Environmental Assessment for Charleston Channel Improvements in Coos Bay, Oregon. We note that since our previous correspondence of May 10 the project description has been modified to increase the proposed channel depth from minus 16 feet MLLW to minus 17 feet MLLW for the initial 3,200 feet of the channel.

The Department has reviewed the Draft Detailed Project Report and Environmental Assessment, and finds that the project, as modified, is consistent with Oregon's Coastal Management Program. Our determination of consistency was based, in part, on the following information contained in the Draft Project Report and Environmental Assessment:

1. The discussion on the need for the proposed project on pages 9, 19, 24 and 25;
2. The discussion on the impacts of dredging and dredged material disposal contained in the U.S. Fish and Wildlife Coordination Act Report and supplement (Appendix, Exhibits 4 and 8);
3. The biological assessment for endangered species (Appendix, Exhibit G);
4. The Section 103 evaluation of ocean disposal of dredged material on pages 38-40 of the document text; and
5. The Statements of Consistency with Oregon's Statewide Planning Goals and Guidelines contained in the Appendix.

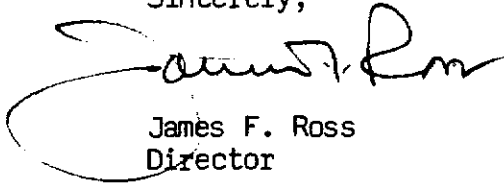
Dave Ponganis

-2-

August 27, 1982

Thank you for the opportunity to comment on this Draft Detailed Project Report and Environmental Assessment. If you have any questions on the Department's response, please contact Gail McEwen of my staff at 378-5052.

Sincerely,

A handwritten signature in black ink, appearing to read "James F. Ross". The signature is written in a cursive style with a large, sweeping initial "J".

James F. Ross
Director

JFR:GM:af
1071B/3B

cc: Marg Akers



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

NPPEN-PL-AE

22 February 1982

Mr. Joseph R. Blum, Area Manager
U.S. Fish & Wildlife Service
2625 Parkmont Lane S.W.
Olympia, WA 98502

Dear Mr. Blum:

This is in response to the 29 January 1982 supplement to the U.S. Fish and Wildlife Coordination Act Report on proposed deepening of Charleston Channel, Coos Bay, Oregon. Except for some minor modifications, recommendations made in the supplement and 30 October 1981 report have all been incorporated into our planning. Revisions to the recommendations were agreed to by members of Oregon Department of Fish & Wildlife (ODFW) and U.S. Fish and Wildlife Service during our 9 February 1982 meeting.

As stated in our 9 December 1981 letter, dredging activities will be limited to a period of 1 August to 15 January. Agreements reached at above cited meeting are: (a) dredging will not be restricted to any one method; (2) Any extension to the revised blasting time period of 15 October to 31 December will be coordinated with ODFW and the contractor will be required to obtain a permit from ODFW.

The supplement was prepared due to a revision in the proposed alternatives. Three of the recommendations in the 30 October 1981 report still pertain and have been incorporated into the proposed project. Disposal will be limited to an approved ocean disposal site or upland site on the North Spit. No material will be placed in the intertidal zone and the upland site, if utilized, will be permitted to revegetate.

We appreciate the comments and coordination provided by the U.S. Fish & Wildlife Service. Please contact David Ponganis at (503) 221-6465 or FTS 423-6465 for any questions you have regarding the proposed project.

Sincerely,

PATRICK J. KEOUGH
Chief, Planning Branch



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

MPPEN-PL-AR

2 MAR 1982

Mr. Jeff Kaspar
Port of Coos Bay
P.O. Box 1226
Coos Bay, OR 97420

Dear Mr. Kaspar:

We are finalizing for review the draft copy of the Corps Detailed Project Report on the channel deepening in the Charleston Channel as authorized in Section 107 of the 1960 Rivers and Harbors Act, as amended. Federal participation would consist of deepening the existing 1.3-mile channel to provide depths of 16 feet. Our studies, to date, indicate project feasibility and we hope to complete and distribute review copies sometime this spring. The Port of Coos Bay will be given the opportunity to review the report prior to submittal for approval. The total cost for providing a 16-foot channel is currently estimated to be \$1,287,000.

Before we can complete our report, however, there are some sponsor commitments which must be secured and included in our report. The first of those requirements is a copy of the document or state statute under which the Port of Coos Bay legally operates, and a copy of the Port's financial statement for the past two (2) years. The second is a letter of intent from the Port Commissioners agreeing to sponsor the proposed project and to provide the items of local cooperation. Even though the boat basin at Charleston is in existence and presently providing many of these requirements, assurances of these items must be included within our study report. The required items are as follows:

a. Assume full responsibility for all project costs in excess of Federal cost limitation of \$2 million as provided in Section 112 of Public Law 91-611, approved 31 December 1970, as amended, by Public Law 94-587, approved 22 October 1976.

b. Provide, maintain, and operate without cost to the United States an adequate public landing or wharf with provisions for the sale of motor fuel, lubricants, and potable water, open to all on equal terms.

c. Provide without cost to the United States all necessary lands, easements, and rights-of-way necessary for construction and subsequent maintenance of the project and for aid to navigation, including suitable spoil disposal areas with any necessary retaining dikes, bulkheads, and embankments therefor, or the cost of such retaining works.

d. Hold and save the United States free from damages due to construction, operation, and maintenance of the project, excepting damages due to the fault or negligence of the United States or its contractors.

HPFEN-PL-AE
Mr. Jeff Kaspar

2 MAR 1971

e. Accomplish without cost to the United States alterations and relocations as required in sewer, water supply, drainage, and other utility facilities.

f. Provide and maintain berthing areas, floats, piers, slips, and similar mooring facilities as needed for transient and local vessels as well as necessary access roads, parking areas, and other needed public-use shore facilities open and available to all on equal terms.

g. Establish regulations prohibiting discharge of pollutants into the waters of the improved channels by users thereof, which regulations shall be in accordance with applicable laws or regulations of Federal, State, and local authorities responsible for pollution prevention and control.

In addition to the foregoing requirements listed in the Section 107 authority, the Port of Coos Bay must agree that it will:

a. Comply with the Department of Defense Directive under Title VI of the Civil Rights Act of 1964 (Public Law 88-352) (78 Stat. 241) and all requirements imposed by or pursuant to the Directive (32 CFR Part 300, issued as Department of Defense Directive 5500.11, 28 December 1964) to the end that no person in the United States shall, on the grounds of race, color, religion, sex, national origin or age of between 40 and 65 years be excluded from participation in, be denied the benefit of, or be otherwise subjected to discrimination under any program or activity for which the sponsor receives Federal financial assistance from the Corps of Engineers, Department of the Army, in connection with this project.

b. Assure that it is legally constituted with full authority and capability to perform the terms of its agreements and to pay damages, if necessary, in the event of failure to perform. Section 221 of Public Law 91-611, commonly referred to as the Flood Control Act of 1970, approved 31 December 1970 is deemed controlling under this assurance.

c. Comply with sections 210 and 305 of Public Law 91-646, approved 2 January 1971, entitled Uniform Relocation Assistance and Land Acquisition Policies Act of 1970.

Due to our scheduling procedures we would appreciate a response at your earliest possible convenience. If you have any questions, please contact Mr. David Ponganis, (503) 221-6465.

Sincerely,

TERENCE J. CONNELL
Colonel, Corps of Engineers
District Engineer

WORLD'S LEADING FOREST PRODUCTS PORT

Port of Coos Bay

TELEPHONE (503) 269-1131

POST OFFICE BOX 1226

COOS BAY, OREGON 97420

March 16, 1982

Colonel Terence J. Connell
District Engineer
U.S. Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Dear Colonel Connell:

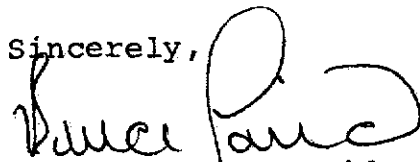
This letter is to indicate the Port of Coos Bay Commission's intent to sponsor the Charleston Channel deepening project to provide a 16' channel for 1.3 miles as proposed by the U.S. Corps of Engineers Section 107 study.

Because of the advantages to be offered the local fishing industry by the deepening project, the Port of Coos Bay is anxious to assure the U.S. Corps of Engineers of our willingness to provide the requirements of a local project sponsor. Items "A" through "G", and additional items a, b, and c (Corps letter of 3/2/82) will be acceptable.

A unanimous vote of support by the Port of Coos Bay Commission at their regular meeting on March 9, 1982 for this project further substantiates the commitment to the project.

Please contact Port staff if any other information is necessary. We appreciate the opportunity to work with the Corps on such a project.

Sincerely,



Bruce Laird, President
Port of Coos Bay Commission

BAL:JFK/ea

enclosures

cc: Charleston Fishing Companies



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
Portland Field Office
727 N. E. 24th Avenue
Portland, Oregon 97232

Reference: ES

March 16, 1982

Colonel Terence J. Connell, District Engineer
Portland District, Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Dear Colonel Connell:

We received your agency's February 22, 1982 letter signed by Mr. Cooper regarding modifications to dredging recommendations contained in our supplemental report on the Charleston Channel Navigation Improvements Project. These modifications were discussed at an interagency meeting on February 9, 1982 and have been accurately summarized in Mr. Cooper's letter. As stated in the letter, these revisions were made with the consent of the Oregon Department of Fish and Wildlife and the Service.

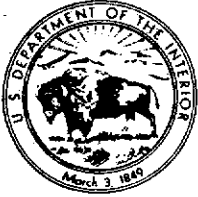
We appreciate your agency's efforts in resolving the dredging issue as well as your positive response to the remaining recommendations contained in our report. By way of a copy of this letter and your agency's letter of February 22, we are notifying recipients of our supplemental report of the changes affecting our original dredging recommendations.

If there should be any additional changes in the project, please notify us so that we may make any necessary comments.

Sincerely yours,

Russell D. Peterson
Field Supervisor

cc:
CE, Division Engineer
EPA
NMFS
ODFW
ARD-E
ES, DC
AM Olympia
Pub. Affairs



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Division of Ecological Services
Portland Field Office
727 N.E. 24th Avenue
Portland, Oregon 97232

Reference: ES

August 18, 1982

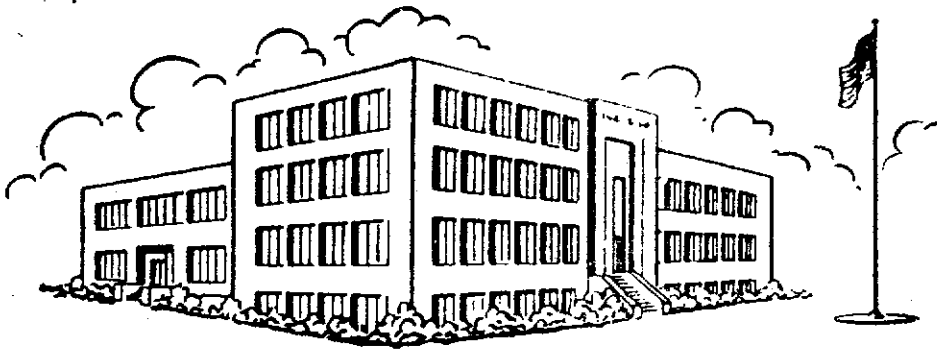
Colonel R.L. Friedenwald, District Engineer
Portland District, Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Dear Colonel Friedenwald

We have reviewed the draft Detailed Project Report and Environmental Assessment on the Charleston Channel Improvements dated July, 1982. The report accurately reflects the information and recommendations contained in our Coordination Act reports on the project and we, therefore, have no objections to the proposed work.

Sincerely yours,

Russell D. Peterson
Field Supervisor



County of Coos

BOARD OF COMMISSIONERS
COOS COUNTY COURTHOUSE
COQUILLE, OREGON 97423
Phone: 396-3121

Ed "Doc" Stevenson
Jack L. Beebe, Sr.
R.A. "Bob" Emmett

August 3, 1982

District Engineer
Department of the Army
Portland District, Corps of Engineers
P.O. Box 2946
Portland, OR 97208

Re: Draft project report and Environmental
Assessment, Charleston Channel Improvement

Dear Sir:

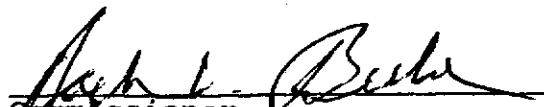
The Coos County Board of Commissioners has examined the project report and environmental assessment for the Charleston Channel Improvement. We would like to submit the following comments:

- 1) Deepening of the authorized channel is provided for in the Draft Coos Bay Estuary Management Plan. It is recognized that the current depth is insufficient and causes serious problems for larger fishing vessels.
- 2) The proposed dredged material disposal sites (North Spit and ocean disposal) are both designated in the Plan, and will have no significant environmental impacts.
- 3) It appears that environmental impacts will be relatively minor, and no greater than for periodic maintenance dredging of the same area.
- 4) We are therefore satisfied that there will be no significant impacts and that no Environmental Impact Statement is required.

We welcome this project as a much needed improvement to the Charleston area which will remove some of the impediments to a revival of the local fishing industry.

Sincerely,
COOS COUNTY BOARD OF COMMISSIONERS


Chairman


Commissioner





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

ENVIRONMENTAL & TECHNICAL SERVICES DIVISION
847 NE 19th AVENUE, SUITE 350
PORTLAND, OREGON 97232
(503) 230-5400

August 18, 1982

F/NWR5:CRB

Colonel Robert L. Friedenwald
District Engineer, Portland District
Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

Re: Charleston Channel Improvements, Coos Bay, Oregon - Draft Detailed
Project Report and Environmental Assessment

Dear Colonel Friedenwald:

We have reviewed the above referenced draft report and environmental assessment prepared for the proposed navigation improvements to the Charleston Channel, Coos Bay, Oregon.

Development of a plan for the proposed work has been closely coordinated with pertinent fish and wildlife agencies throughout the planning process. The National Marine Fisheries Service (NMFS) has participated in this coordination process through review of previously provided information and attendance at meetings to discuss the proposed project.

Based on our review of the above referenced reports we have no particular comments on the information presented. However, we would like to note that a recent study (Stevens, 1981)¹ conducted for the Seattle District, Corps of Engineers in Grays Harbor, Washington by the Washington Department of Fisheries, revealed that significant numbers of Dungeness crabs were often entrained by suction-type dredges. Information presented in the environmental assessment indicates considerable usage of the project area by Dungeness crabs and also red rock crabs. The Seattle District is continuing to provide research money to investigate crab mortalities associated with navigational dredging in Grays Harbor. It would appear that the existing information as well as future research developed by the Seattle District on entrainment of Dungeness crabs by suction dredges would be of interest to the Portland District.

Although to our knowledge population levels of Dungeness crabs in the Charleston Channel area have not been accurately surveyed, the general feeling is that numbers are quite high on a seasonal basis. The Portland District at present, proposes to schedule the channel dredging at a time which avoids the period of active breeding in the area by Dungeness crabs. We support this timing restriction, but at the same time are concerned about the numbers of Dungeness crabs in the area during the period when dredging would occur. If population levels are high during this period and the results of the studies conducted in Grays Harbor are applicable to the Coos Bay Estuary, considerable numbers of

¹ Stevens, Bradley G. 1981. Grays Harbor Navigation Study, Maintenance Dredging Dredging-Related Mortality of Dungeness Crabs Associated with Four Dredges operating in Grays Harbor, Washington. Washington Dept. of Fisheries, U.S Army Corps of Engineers Contract #DACW 67-79-C-0045



crabs could be entrained and thus lost to the local fishery.

In view of the above we recommend that the Portland District evaluate this potential adverse impact prior to conducting the work. If this proves an infeasible task we would suggest that some type of monitoring program be implemented to determine relative entrainment rates during the dredging operations. Should entrainment rates be high, as revealed by the monitoring program, we would suggest that work be stopped to consider potential methods to reduce entrainment mortality. Members of my staff are available to discuss this matter if additional information is required.

Sincerely yours,



Dale R. Evans
Division Chief

cc: Oregon Department of Fish & Wildlife
Division of State Lands
Fish and Wildlife Service, ES, Portland
Environmental Protection Agency

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

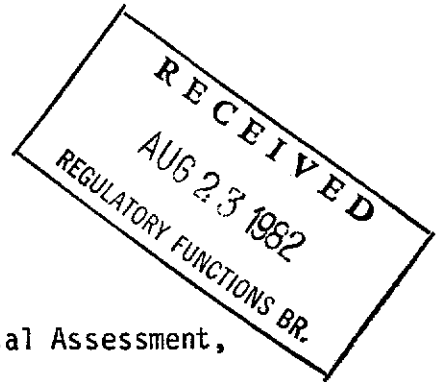


REPLY TO
ATTN OF: M/S 423

AUG 17 1982

Colonel Terence J. Connell
District Engineer, Portland District
Corps of Engineers
P. O. Box 2946
Portland, Oregon 97208

Subject: Charleston Channel Improvements
Draft Detailed Project Report and Environmental Assessment,
July 1982



Dear Colonel Connell:

We appreciate the opportunity to comment on the draft project report and environmental assessment for Charleston Channel Improvements, in Coos Bay, Oregon.

As addressed by the report, the purpose is to discuss the feasibility of deepening the Federal navigation channel providing access to the boat basin and waterfront industries at Charleston. Investigated were a no action plan and four alternatives, including: alternative 1, variable 16/17 foot channel depths; alternative 2, 12-foot channel depth; alternative 3, 14-foot channel depth; and alternative 4, limit harbor use to boats under 50 feet in length (8-foot drafts).

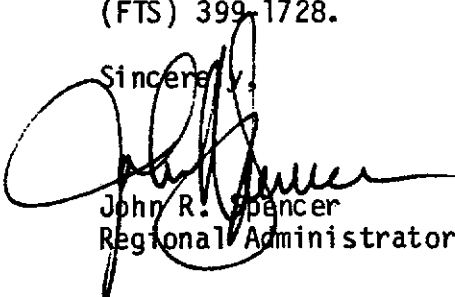
The following topics are suggested for further consideration in the final detailed project report and environmental assessment:

- 1) Pages 2 and 6 of the draft report state that the upper reaches of the South Slough are designated as a National Marine Sanctuary. We are informed that approximately 4,300 acres of the South Slough were designated in 1975 as a National Estuarine Sanctuary. A National Marine Sanctuary is administered solely by the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce. In contrast, a National Estuarine Sanctuary is designated under the auspices of the Coastal Zone Management Act, and is the responsibility of the state after consultation with NOAA. The final report on Charleston Channel improvements might include a more detailed discussion of potential adverse impacts to the sanctuary, and the State's estuarine sanctuary management plan.

- 2) Concerning the disposal options discussed in the draft report, EPA supports the Section 103 evaluation required by the Marine Protection, Research and Sanctuaries Act, and concurs with the Corps and U.S. Fish and Wildlife Service conclusion that ocean disposal of the dredged material is a feasible and acceptable alternative. The final report should also consider future disposal sites for the continuing maintenance dredging needs of the channel. It is likely that the North Spit location may not be able to contain this material. Therefore, future maintenance dredging estimates should be discussed along with locating upland disposal sites.
- 3) Further discussion is needed on the type of vessel available for the dredging operation, alternative dredging methods, and the associated impacts of each.

If you would like to discuss our comments, please contact Mr. Dick Thiel, Chief of Region 10's Environmental Evaluation Branch, at (206) 442-1728 or (FTS) 399-1728.

Sincerely,



John R. Spencer
Regional Administrator

VICTOR ATIYEH
GOVERNOR



OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM, OREGON 97310

September 29, 1982

District Engineer
Corps of Engineers
U. S. Army
Portland District
P.O. Box 2946
Portland, OR 97208

Att: J. F. Beckly, Chief
Navigation Division

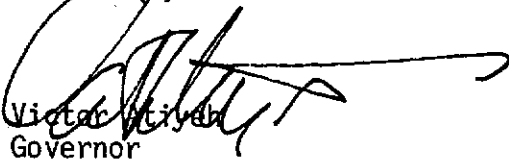
Ref: PN NPPPL-AP
Coos Bay - Charleston Channel Improvements

Dear Sir:

The natural resource agencies have completed their review of the above referenced project. I approve the Draft Detailed Project Report and Environmental Assessment, as modified, for the Charleston Small Boat Basin proposed channel improvements in Coos Bay, Oregon.

The Department of Land Conservation and Development finds the project consistent with Oregon's Coastal Management Program. On September 27, 1982, the Department of Environmental Quality certified there was reasonable assurance that the project, as described, would not violate applicable water quality standards.

Sincerely,


Victor Atiyeh
Governor

VA:gh

cc: Department of Environmental Quality
Department of Fish and Wildlife
U. S. Fish and Wildlife Service
National Marine Fisheries Service
Division of State Lands



Department of Environmental Quality

522 S.W. 5th AVENUE, BOX 1760, PORTLAND, OREGON 97207

September 27, 1982

Director
Division of State Lands
1445 State St.
Salem, OR 97310

Subject: U. S. Army Corps of Engineers PN No. NPPPL-AP; reference to Portland District, Corps of Engineers, Charleston Channel Improvements (Draft Detailed Project Report and Environmental Assessment) in Coos Bay, Coos County, Oregon.

Dear Sir:

The Oregon Department of Environmental Quality hereby certifies that the project listed above will comply with the applicable provisions of Title 33, United States Code, Sections 1311, 1312, 1316 and 1317, i.e., there is reasonable assurance that it will not violate applicable water quality standards.

Sincerely,



Glen D. Carter
Water Quality Analyst
Planning Section
Water Quality Division

GDC:pn

cc: U. S. EPA, Oregon Operations
Oregon Department of Fish & Wildlife