DRAFT

ENVIRONMENTAL IMPACT STATEMENT

MAINTENANCE DREDGING
ROCKLAND HARBOR, MAINE

Prepared by

U.S. ARMY ENGINEER DIVISION
NEW ENGLAND
WALTHAM, MASS.
July 1973

TABLE OF CONTENTS

PLATES

SUMMARY SHEET
MAINTENANCE DREDGING
ROCKLAND HARBOR, MAINE

(X) Draft ( ) Final Environmental Statement

Responsible Office: U.S. Army Engineer Division, New England, Waltham, Mass.

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

2. Description of Action: Maintenance dredging of the Federal navigation channel at Rockland Harbor, Maine. Approximately 95,000 cubic yards of spoil material will be excavated and deposited at an ocean dump area located in Penobscot Bay. The project is scheduled for FY 74 with dredging tentatively set for October 1973. It is estimated that the project will require three (3) months for completion.

3. a. Environmental Impacts: The project as the term "maintenance" implies will restore the Federal shipping channel to its authorized dimensions, thereby alleviating existing shoal areas. Overall, the action will insure continued safe ship passage and subsequent viability of local economy dependent upon the harbor's resources.

b. Adverse Environmental Impacts: Some marine organisms will be destroyed in the dredge/spoil areas, particularly attached, sedentary species and shallow burrowing forms. Water quality will suffer temporary degradation during the work period.

4. Alternatives: Two methods of dredging are considered: hydraulic and clamshell dredging. No dredging is the only alternative to dredging. Three different areas for ocean disposal of the spoil were investigated.

5. Comments Requested:

a. Government Agencies

Assistant Secretary, Department of Interior

Assistant Secretary, Department of Commerce
Environmental Protection Agency
U.S. Coast Guard
Department of Health, Education and Welfare
(Regional Office, Boston and Regional Shellfish Consultant, Waltham, Mass.)

5. <u>Comments Requested:</u> (Cont'd)

b. <u>State Agencies</u>
Maine Department of Sea and Shore Fisheries
Maine State Planning Office
Maine Environmental Improvement Commission
Maine Port Authority
Natural Resources Council of Maine
Atlantic Sea Run Salmon Commission

c. <u>Private</u>
Maine Audubon Society
University of Maine IRA Darling Research Center
The Research Institute of the Gulf of Maine (TRIGOM)
Sierra Club

d. <u>Local</u>
Town of Rockland

6. Draft statement sent to CEQ 21 NOV 1973.
Final statement sent to CEQ ______________.

1. <u>Project Description</u>

Rockland Harbor, Maine is located just inside the southwestern entrance to Penobscot Bay and about 75 miles northeast of Portland. It is formed by a broad high peninsula to the southeast and Jameson Point to the northeast. From Jameson Point, a breakwater extends about 4,350 feet southerly toward the peninsula. The harbor entrance between the end of the breakwater and the peninsula is 5,000 feet wide of which 3,000 feet has depths in excess of 50 feet. Within the breakwater the harbor length is about 7,000 feet (E-W) with a width of approximately 10,000 feet (N-S). Depths in the harbor area range from 50 feet (M.L.W.) in the outer portion to less than 2 feet in considerable areas of shoal water along the north and south shore. Opposite the entrance and along the westerly shore, two projecting points of land form three coves, the most northerly of which is Lermond Cove. The shore line of Rockland Harbor is intensively developed with industries dependent upon access to waterborne commerce.

This project, authorized by the River and Harbor Act of 14 June 1880, and on 29 June 1956 by S. Doc. 82, 84th Congress, 1st Session, consists of an 18 feet deep, below mean low water, 200 feet wide, 1,000 feet long entrance channel joined by various 14 feet deep branches, 150 feet wide totaling about 6,500 feet in length. The project was completed in 1959.

The purpose of the proposed maintenance work is to restore the Federal Channel to its authorized depths of 14 feet and 18 feet below mean low water from 7 feet and 15 feet respectively in some areas. The proposed work will be the first maintenance dredging to be done on this project since its completion. This work will entail the dredging and disposal of an estimated 95,000 cubic yards of material. Dredging will be accomplished by means of a clamshell type dredge and associated dump scows. It is planned to dispose of the spoil material in Penobscot Bay at a point in the center of:

> An area 3,000 feet square (sides running true N-S and E-W) from the center of which Owls Head Light bears 226° (T) 4,900 yards and Lowell Rock Light bears 316° (T) 7,250 yards with depths ranging from 221 to 266 feet at mean low water.

The proposed dump area is not an established disposal ground and therefore has never received previous dredge spoil sediments. However, the site does represent the deepest water available between Vinalhaven Island and Rockland Harbor while maintaining a substantial distance from their respective shores. The approximate round trip distance of 10.5 miles is not excessive for scow transport of spoils and the 230 foot depth of the area is more than adequate to receive the spoil while imposing a minimal impact upon the environment. Disposal of materials will be under controlled conditions so as to provide data on the general effects of sea dumping. The contractor will be required to point dump at a buoy to be set by the Government within the bounds of the dump. Each scow will be held at a complete halt at the buoy before and during dumping. The operations will be witnessed by Federal and State Government personnel.

The dredging and disposal operations will be monitored by the Maine Department of Sea and Shore Fisheries. Dredging is scheduled to begin in October 1973 and will require approximately three months for completion.

The project was constructed between 1957 and 1959 when approximately 422,000 cubic yards of material, including 23,000 yards of ledge rock, were removed to complete the authorized project. No maintenance dredging has been undertaken since 1959.

2. Environmental Setting Without Project

Rockland is a principal port and commercial center for Knox, and portions of Lincoln and Waldo Counties in Maine. The major industrial activities at Rockland, center around the handling and processing of fish, shellfish, and marine products. Ship repairing and the manufacture of Portland Cement and agricultural lime are other important industries. The harbor also serves as a terminal for four ferries operated by the State of Maine, which serve several Penobscot Bay Island communities with commodities and passenger transportation from the mainland. The Maine State Ferry service has reported groundings in the channel, with a vessel that draws 9 feet of water.

During 1970, there was 7,418 trips made by vessels drawing up to 15 feet of water, in which 29,907 tons of commerce were handled at Rockland Harbor facilities. More than 80% of the total tonnage handled was brought in by vessels that draw more than 12 feet. Principal items of waterborne commerce are fresh fish, shellfish, petroleum products, fabricated metal products, and commodities to the islands. Figures are not available for recreational use during this same period, however, it is known that many recreational and fishing craft are home ported at Rockland. The harbor also receives extensive transients during the summer months. Two or three cruise schooners make weekly 6 day trips out of Rockland Harbor in June, July, and August.

The port ranks second only to Boston and New Bedford, Massachusetts in commercial fishery landings and is the nation's leading lobster port. Fish processing plants, fish filleting and freezing plants, sardine packers and lobsters wholesalers handled close to 81.1 million pounds of seafood products in a single year (Maine Port Authority 1971-1972).

3. The Environmental Impact of the Proposed Action

a. Beneficial Impacts

The maintenance dredging will serve to maintain the carrying capacity of the channel for efficient transport of commercial navigation. A vessel drawing 15 feet of water at rest requires an additional depth of approximately 3½ feet in which to safely navigate when underway due to squat and cushion requirements. When a ship or boat is underway, the stern will sit deeper in the water than it will when not underway. This is called "squat." Vessels that draw 15 feet at rest will squat about 1½ feet when they are underway. A "cushion" of 2 feet is required to provide a clearance to allow for any pitching of the vessel and to minimize bottom sediment riling. Hence for the safe transit of a vessel that draws 15 feet, channel depths of at least 18 feet below mean low water are required. If this depth is not provided, expensive delays waiting for a favorable tide to enter the harbor will be incurred by shipping interests.

b. Potential Environmental Impacts

Dredging and dumping operations may have several ecological implications, the more obvious being direct alteration or destruction (physical damage) of benthic and pelagic habitats and biota. Turbidity of the water interferes with shellfish feeding mechanisms and results in a decline in survival and growth rate. Water borne sediments may also be deposited on the surface of shellfish growing areas impairing respiratory functions with mortality resulting from suffocation. Suspended sediments can also modify the quality and quantity of light penetration resulting in a subsequent reduction in photosynthetic processes. Siltation can further clog and damage gills of many marine animals and reduce the buoyancy of their eggs. Dredging may release offensive gases such as hydrogen sulfide (H_2S) and toxic chemicals which are injurious to planktonic and nektonic organisms.

Specifics regarding selected case studies concerning effects of suspended and deposited sediments on estuarine organisms, have been compiled and annotated by Sherk and Cronin 1970. The Marine Minerals Technology Center, Tiburon, California (technical memorandum ERL MMTC-3, 1971) has also compiled a similar bibliography on environmental disturbances caused by coastal engineering operations. The report also summarizes laboratory and field investigations of suspended materials including dredge spoils.

The net effects of any dredging and disposal operation depends on several variables. Among these are the project location, magnitude and duration, the season of the year, type of dredge and spoiling technique, and physiochemical make-up of the sediments to be dredged. In addition, the life history stage and general condition of local species populations and individuals should be considered. Some species are known to be more tolerant to environmental change and high degrees of pollution than others. Differences in resistance to toxic conditions are also exhibited between larval, juvenile and adult forms of an individual species.

Perhaps the most important factor with respect to assessing and predicting environmental impacts of a given project is the diversity of marine or estuarine biota at the project site (s). The degree of adversity is directly proportional to the kinds and numbers of organisms present. The greatest changes or adverse effects will be demonstrated under optimum habitat conditions. Optimum conditions for survival and growth probably do not exist at present within the environs of Rockland Harbor. This is not to imply that such conditions cannot be reversed or improved upon.

Some benthic mud and sand dwelling (in fauna) organisms as well as motile epifaunal forms will be destroyed or redistributed along the channel length. These populations, however, are capable of sustaining such short-term impacts being replaced through natural reproduction and recruitment. Turbidity in the immediate vicinity of the dredge can be expected to increase during dredging operations, thus reducing oxygen levels. Some juvenile fish species or invertebrate larval faunas are especially susceptible to such conditions. The natural flushing actions caused by tides and currents will serve to disperse much of the suspended materials thereby minimizing these stress situations.

To predict effects of dredging, Cronin et al. 1971 recommended undertaking the following research:

(1) Studies on sedimentation in the areas to be dredged i.e. what new substrates will be created, and what types are destroyed.

(2) Determine relations between sediments and the biota to develop ability to predict natural populations from estimates of substrate types.

(3) Investigate the use of the channel particular deep areas, by fish and invertebrates.

(4) Study the effects of Salinity changes in estuary.

(5) Determine effects of suspended and deposited sediments on principal estuarine and coastal species.

From available published information, it would appear that ocean disposal of dredge spoil is detrimental to marine resources. However, there is still a lack of specific knowledge of spoil disposal effects on the ocean environment. Results of studies made by the University of Rhode Island on the Providence Harbor dump site and numerous investigations conducted in the New York Bight have provided a basis for evaluating spoil dumping impacts in these areas. Overall, however, the present state of knowledge does not permit the establishment of firm criteria for ocean disposal or selection of suitable sites. The variety of dredge spoil materials dictates that the guidelines be flexible to meet varying conditions.

In some cases the results from dredging and disposal operations are visible and quite obvious. Under less obvious situations, mortalities may not be as evident but original faunal or floral communities can and have become altered or replaced. Appraisals of project impacts must acknowledge the fact that each study area is unique into itself. That is to say that each water body is governed by a unique set of environmental conditions, and caution must be exercised in extrapolating effects from one area to that of another.

For the past three years, the New England Division, Corps of Engineers, in an effort to formulate a regulatory program for ofshore dredge spoil dumping and associated research has co-sponsored annual conferences on ocean disposal. The first conference was held at Woods Hole in February 1971 and was attended by marine scientists from the Woods Hole Oceanographic

a) For containment, the disposal area should maximize burial and minimize dispersal.

b) Disposal areas chosen for containment of toxic materials should be selected only from dumping areas now in use, presently designated as dump sites, and only if they meet the criteria outlined in (a).

c) To enhance the survival of biological communities subjected to' disposal of toxic materials, we feel that an effort should be made to put sand on sand, silt on silt, etc. Often species living on one sediment type cannot live on another.

(ii) Most non-toxic spoils and also those with high organic content subject to decomposition should be dispersed.

a) In order to determine areas which are suitable for dispersal, the continental shelf should be classified and mapped according to criteria outlined in section 1 above.

Four basic criteria deemed important in determining the degree of dispersal or containment of a prospective ocean dump area are:

1) Physiography and sea floor sediments
2) Current (surface and bottom) regime
3) Nature of the spoil material (grain size, cohesiveness, water content)
4) Biotic productivity

The third annual Ocean Disposal Conference sponsored by the Corps was co-chaired and hosted by the Maine Department of Sea and Shore Fisherees at the Boothbay Harbor Biological Laboratory, April 12th and 13th.

The conference was held primarily to discuss results from Corps contract study sites at Rockland, Maine, Buzzards Bay, Rhode Island Sound, New Haven and Long Island Sound. Detailed presentations were made by scientists from NOAA, EPA, Yale University, University of Connecticut, URI, New England Aquarium and Maine Sea and Shore Fisheries.

c. Sediment Quality Analysis

Sediment samples were collected in August 1971 at seven selected sites within the project area. The bottom sediments of the harbor vary from black organic silt-clay to black organic silty fine sand, and silty gravel. All stations exhibited organic material and decomposed vegetation with a pungent odor. Because of its high organic content, one would expect that anaerobic conditions exist a few centimeters into the sediment. As might be anticipated, values for some of the trace (heavy) metals were relatively high. This is not surprising since the Penobscot Bay region is known to contain high metal values in its bottom sediments (Dow and Hurst, 1972). Studies by the Maine Department of Sea and Shore Fisheries have attributed the high background levels in part to mining operations. It can be assumed also that shipping activities and waste water discharges have contributed their share of metal and organic pollutants to the harbor environs. Heavy metal values calculated from core samples collected in the harbor are considerably lower than background concentrations known from adjacent areas.

Assessment of heavy metal effects on the marine environs due to dredge spoil activities is extremely difficult because of so many variables that are intrinsically involved. Concentration of heavy metals leached into the water column is, of course, important but there are other variables - physical and chemical - that can render them toxic or nontoxic, almost irrespective of concentration. Chemical species is also important (whether it is in a soluble or insoluble state). Presence of copper tend to have a synergistic (increase in) effect on the toxicity of zinc and mecuric salts in the water column; whereas calcium has an antagonistic (lessens) effect on lead. The amount of dissolved oxygen, temperature, and hardness or softness of the water are other variables that can affect the degree of toxicity of heavy metals.

Even if certain heavy metals were in non-toxic levels, marine organisms do concentrate certain metals in their system many times over the concentration of its surroundings, and therefore may eventually lead to death or alteration of its reproductive capacity.

There are some investigations presently involved in determining heavy metal effects on marine organisms, which are being funded by the Army Corps of Engineers. The University of Rhode Island is conducting such studies with respect to the Newport, R. I., dump site, and Yale University has recently concluded a study at the New Haven spoil disposal area.

Although measurements have yet to be made, ambient turbidity in the harbor is probably fairly high. Dredging therefore will not likely cause appreciable increases to the natural turbidness of the water. However, upheaval of bottom sediments is expected to increase the biochemical (BOD)

TABLE I: ANALYSIS OF BOTTOM SAMPLES FROM CHANNELS IN ROCKLAND HARBOR, MAINE

Pollution Parameter	No. of Samples	Maximum Concentration	Minimum	Average
			%(dry weight basis)	
Volatile Solids	7	23.51	2.07	13.57
Chemical Oxygen Demand (COD)	7	22.64	0.77	12.50
Total Kjeldahl Nitrogen (TKN)	7	0.37	0.04	0.22
Hexane Solubles (Oil-Grease)	7	0.642	0.032	0.274
Mercury	7	0.000057	0.000012	0.000031
Lead	7	0.019	0.002	0.007
Zinc	7	0.023	0.007	0.013

1 All samples were sested for radioactivity and found to be non-radioactive.
2 All tests were performed in accordance with EPA "Chemistry Laboratory Manual," and are based on dry sample weights.

and chemical oxygen demand in the water column, as potentially indicated from the high values of volatile solids and COD (Table I). High BOD and COD readings indicate an oxygen deficit or depression in the water column which can be detrimental to life, depending on the extent and duration of the oxygen sag. In Rockland Harbor, any upsurge in BOD and/or COD will only be temporary because of tidal circulation and dilution factor. Spoiling offshore will also increase the BOD and COD at the dump site but this again will only be an ephimeral increase because of tidal circulation and dilution.

With such generally high parameter values, water quality will no doubt become vitiated in the work areas. This will only be a transient phenomenon and once sediment parameters become diluted and dispersed, water quality will be quickly restored.

Benthic samples from the proposed dredge and disposal areas show the dominant organisms to be deposit feeding bivalves and various species of marine annelids. These organisms are highly adapted to the existing conditions and exhibit a wide tolerance range for turbidity and sedimentation.

d. Effects of Dredging

Aside from potential chemical emmities from dredged sediments, physical action of dredging activities can also cause localized damage in the work areas. The areal extent to dredging is confined to less than 30 acres within the authorized channel limits. An unquantifiable number of benthic marine organisms will be buried, smothered or displaced. However, animals with burrowing or highly mobile capabilities will stand a better chance of survival than attached organisms and those with weakly developed means of transportation. It is not foreseen, however, that mortalities that can be attributed to this dredging will significantly add to the natural mortalilty rates of the affected species. Once, dredging is completed, inherent recruitment and repopulation of the work areas will occur.

Since the dredging has been scheduled for October, the peak periods for spawning of planktonic and invertebrate organisms, feeding and migratory activities of finfish and recreational boating is avoided. Thus the dredging/disposal operation will only create minimal, if any, inconvenience t o these activities.

e. Effects of Spoil Disposal

The dredged material from Rockland Harbor will be loaded on scows and transported to (Site C) disposal site in Penobscot Bay some five miles offshore (Figure 2). As previously indicated, the dump site will be buoyed for point disposal. The dump site as defined as an area 300 by 3000 feet imprises an area of approximately 210 acres. Point dumping is intended to concentrate all spoil in the smallest area possible within the dump site. The 95,000 cubic yards would cover an area of 20 acres to a depth of 3 feet, an area of 60 acres to a depth of 1' and, if dispersed to a 3 inch depth, it would cover approximately 240 acres.

The operations will be monitored by the Maine Department of Sea and Shore Fisheries. Field investigations have been initiated at 3 potential disposal sites located in Western Penobscot Bay (Figure 2). Detailed sampling of sediments and benthos as well as bathymetry, are being made for comparison of the sites with respect to minimum ecological damage. Random benthic samples (Ponar Grab) are being obtained in a seasonal basis from the harbor and Penobscot Bay area immediately adjacent. A total of (4) four casts are made at each station for statiscal comparison. Benthic grab sampling at the proposed dump area will follow a standard grid station pattern.

A total of 20 sediment cores have been obtained by the Sea and Shore Fisheries using a modified Kullenberg Piston Core. Three core samples were taken at each proposed dump site and all other samples were obtained from Bay area within a five (5) mile radius of the project site.

During the actual operations, visual observations will be made and benthos and sediment sampling will be repeated in the disposal ground after dumping. Sites A and B will serve as reference or control sites and will be monitored concurrent with the operation. Five monitoring stations will be maintained at Site C, the proposed dump area. In addition to benthic and sediment samples, suspended solids, D.O., temperature, salinity and nutrient levels will be obtained at surface, 25 meters and bottom depths.

The proposed disposal site is an active mixing area with substantial currents running in a N-S direction. Thus considerable dispersal of the spoil anticipated. Generally speaking, a dumping ground, which maximizes dispersal, would impose a greater effect on water quality and planktonic organisms. The plankton, however, would suffer only transitionally. The seafloor at the disposal site is predominantly silt-clay which is compatible with the material to be spoiled. The area supports a fairly rich infauna and epi fauna but with commercially important species lacking. The present operation schedule (October) was chosen essentially for three reasons: (1) the environment is well mixed at this time which will allow rapid dilution of spoil; (2) there is the least amount of fishing at this time of year, with it falling between the lobster and scallop seasons; and public exposure would be minimal.

Dean and Schnitker, 1971 reported that suspended solids in sediments dredged from Belfast Harbor, Maine tended to remain suspended at the surface when dumped but were dissipated by surface currents within a half hour. There was no evidence of smothering or harm to benthic organisms in the spoil area and only a light sprinkling of black spoil particles were detectable at the bottom. This is mainly due to the fact that spoils were deposited under open ocean conditions which favored rapid dispersal. Such conditions exist at the proposed Rockland dump area and similar results are predicted.

4. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PLAN BE IMPLEMENTED

Some benthic invertebrates residing within channel limits will be damaged or killed by the dredging process. Damages will be localized and temporary since vacated areas will be re-established by surrounding populations.

At the offshore spoil area, the impact will probably be minimal because the dredge sediment is being deposited on a similar bottom type. In any event, dispersal of the spoil will prevent much of the material from settling out over this area. Recovery of the benthos is expected to be rapid.

Releasing high organic matter and hexane solubles from dredged sediments will temporarily degrade the water quality but should not create any adverse problems. Of more concern is the effects of sediment quality on life at its ultimate deposition site. The infauna would be affected the severest but only if sediment accumulation exceeded several centimeters. An overlay of new sediment however is only a short-term destruction of habitat compared to what sediment quality can have on the marine life. Benthic invertebrates can conceivably concentrate some of the high heavy metal content into their system which could impair reproductive and metabolic processes, produce death or affect larval and juvenile stages.

5. ALTERNATIVES TO THE PROPOSED ACTION

There are essentially two conventional methods of dredging employed in the New England navigational maintenance projects; hydraulic dredging and bucket dredging. The use of hydraulic pipeline dredges depends on whether or not suitable land is available for onshore spoil disposal. Hydraulic dredging is more expedient and efficient for excavation of soft sediments as opposed to bucket and scow method. The impact of offshore spoiling would also be precluded by the hydraulic method.

The highly development waterfront at Rockland Harbor restricts the availability of land disposal sites leaving offshore disposal as the only immediate solution to the problem.

In recent years, offshore disposal of dredged and other material is often criticized on the anticipated effects on water quality and fishing resources. Alternate disposal areas or methods are easily suggested or recommended. However execution is another matter. Four different areas for the disposal of the spoil have been investigated. The proposed disposal sites are described as follows:

(1) Site A-An area 3,000 feet square (sides running true N-S and E-W) from the center of which Rockland Harbor Breakwater Light bears 226° (T) 1,150 yards, with depths ranging from 55 to 69 feet at mean low water.

(2) Site B-An area 3,000 feet square (sides running true N-S and E-W) from the center of which Owes Head Light bears 226° (T) 4,000 yards and Lowell Rock Light bears 316° (T) 7,250 yards, with depths ranging from 221 to 266 feet at mean low water.

(3) Site C- An area in West Penobscot Bay, 3,000 feet square (sides running true N-S and E-W) from the center of which Owls Head Light bears 217° 57' (T) and 2.7 nautical miles, Lowell Rock Light bears 311° 39' (T) and 3.1 nautical miles, and Rockland Breakwater Light 245° 24' (T) and 3.4 nautical miles. Water depths range from 221 to 266 feet MLW.

(4) Site D- An area one nautical mile square (sides running true N-S and E-W) from the center of which Little Green Island bears 7° 30' (T) 9,600 yards and Matinicus Rock Light bears 109° 30' (T) 18,100 yards. The depth of water ranges from 205 feet to 232 feet (M.L.W.) in the area.

From a purely economical standpoint, Site A is preferable as a result of its close proximity to the work. The same area was utilized for dredging disposal in 1959, when the project was completed. From an environmental standpoint, the close proximity of the site to the harbor and local current regime suggest the possibility of redistribution of the spoil back into the harbor area. Lobsters and scallops are found to inhabit the site and commercial trawling and pot fishing is conducted throughout the area. Also, disposal operations at this site may be found objectionable to some people from an aesthetic viewpoint .

Site B as in the case of Site A, contains lobster and scallop populations and supports a modest fishery for these species.

The utilization of area (4) Site D will be costly due to the 45 mile round trip distance that would be involved. This area therefore is the least economically desirable of the four for that reason.

The reasons for selection of the proposed disposal site (area 3) are discussed in Section 3 of this statement. In as much as criteria for disposal site selection are only in the formative state of development, the recommendations set forth by the 1971 Woods Hole Ocean Disposal Conference served as a "state of the art" basis for consideration and evaluation of the forementioned disposal areas.

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

Periodic maintenance dredging of Rockland Harbor will insure safe passage, mooring and anchorage of commercial and recreational vessels utilizing the harbor either as a homeport or a temporary stop over. There will be no immediate change to the harbor environs if this project is not undertaken. However, in the long-term continued shoaling will impede navigation and could eventually restrict all waterborne commerce. The harbor will become increasingly hazardous as the channel alignment shifts with increasing shoaling. As the channels become shoaled, costly tidal delays will occur hampering those captains bold enough to risk running in and out of the harbor during high water periods.

Waterfront facilities dependent on the shipping commerce will deteriorate as the free flow of commerce is impeded by increasing shoal areas. Over a long time period, it may become necessary for these concerns to utilize other most costly means of transportation or to relocate their operation.

Degradation of water quality and destruction of marine life within channel boundaries are short-term effects. Long-term productivity of natural resources of the harbor can be maintained if periodic dredging is carefully planned so as to avoid or minimize any conflicts with climacteric activities of marine life.

Long-term productivity of the offshore spoil area is much more difficult to ascertain because of the lack of knowledge of its present biological situation. Short-term use could extirpate some biotic life, but this is not an irreversible loss. Extended consequences of sediment quality on the benthos (such as long-term heavy metal effects) may or may not be significant but should be noted since the sediment material is high in metals.

7. IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

It is an incumbency of the Army Corps of Engineers to maintain and restore the Federal navigation project in Rockland Harbor, as authorized by the River and Harbor Acts of 1880 and 1956. Any commitment of human resources to this end (labor, capital, etc.) will be irretrievable.

Destruction of marine life in the project and spoil areas will not be an irreversible loss. Commitment of the offshore area to spoiling, based on its being used for this project alone, is not expected to result in an irretrievable or irreversible loss.

8. COORDINATION WITH OTHER AGENCIES

Coordination of the proposed project has been maintained with the U.S. Environmental Protection Agency, Bureau of Sport Fisheries and Wildlife and the Maine Department of Sea and Shore Fisheries. The research monitoring project was discussed among Corps and Sea and Shore Fisheries biologists at meetings on March 21st and April 11th and 12th. The latter mentioned dates represent the 3rd Ocean Disposal Conference which was held at Boothbay and which included a summary of the planned Rockland Harbor research investigations.

Copies of this draft Environmental Impact Statement will be sent to Federal, State and local agencies which have particular expertise or interest in the proposed action. After all interested parties have had the opportunity to comment, a final Environmental Impact Statement will be prepared incorporating all comments received and then will be made available to the public.

References

Dow, R.L. and J.W. Hurst, Jr. 1972. Renewable Resource Problems of Heavy Metal Mining in Coastal Maine. Maine Department of Sea and Shore Fisheries, Rec. Bull. # 35 9 pp.

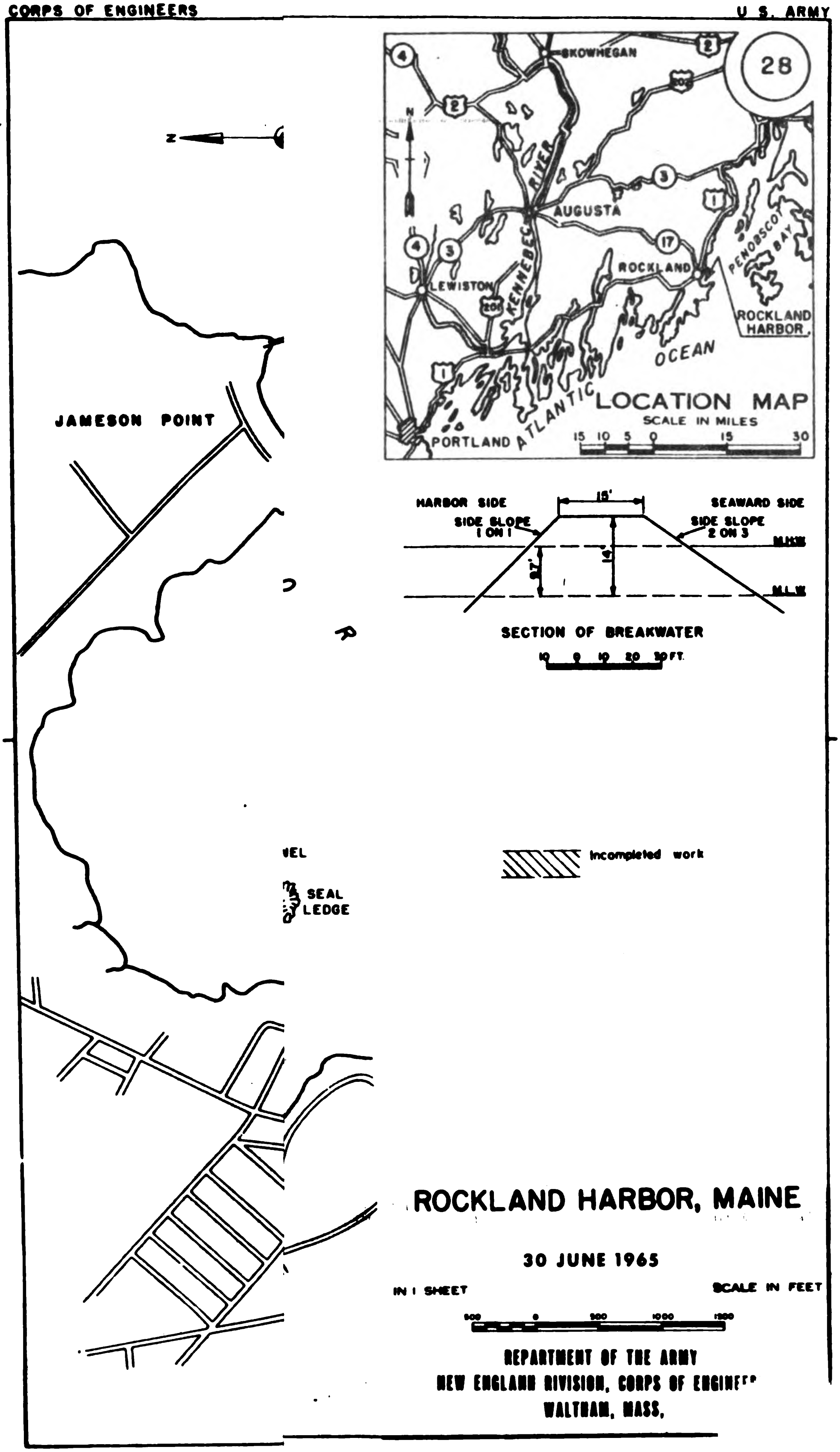
Dean, D. and D. Schnitker, 1971. Report of the Studies Related to Dredging in Belfast Harbor, Maine and Deposition of Spoil South of Isle Au Haut. IRA C. Darling Center for Oceanographic Research. University of Maine. Walpole. Ref. No. 71-13. Unpublished.

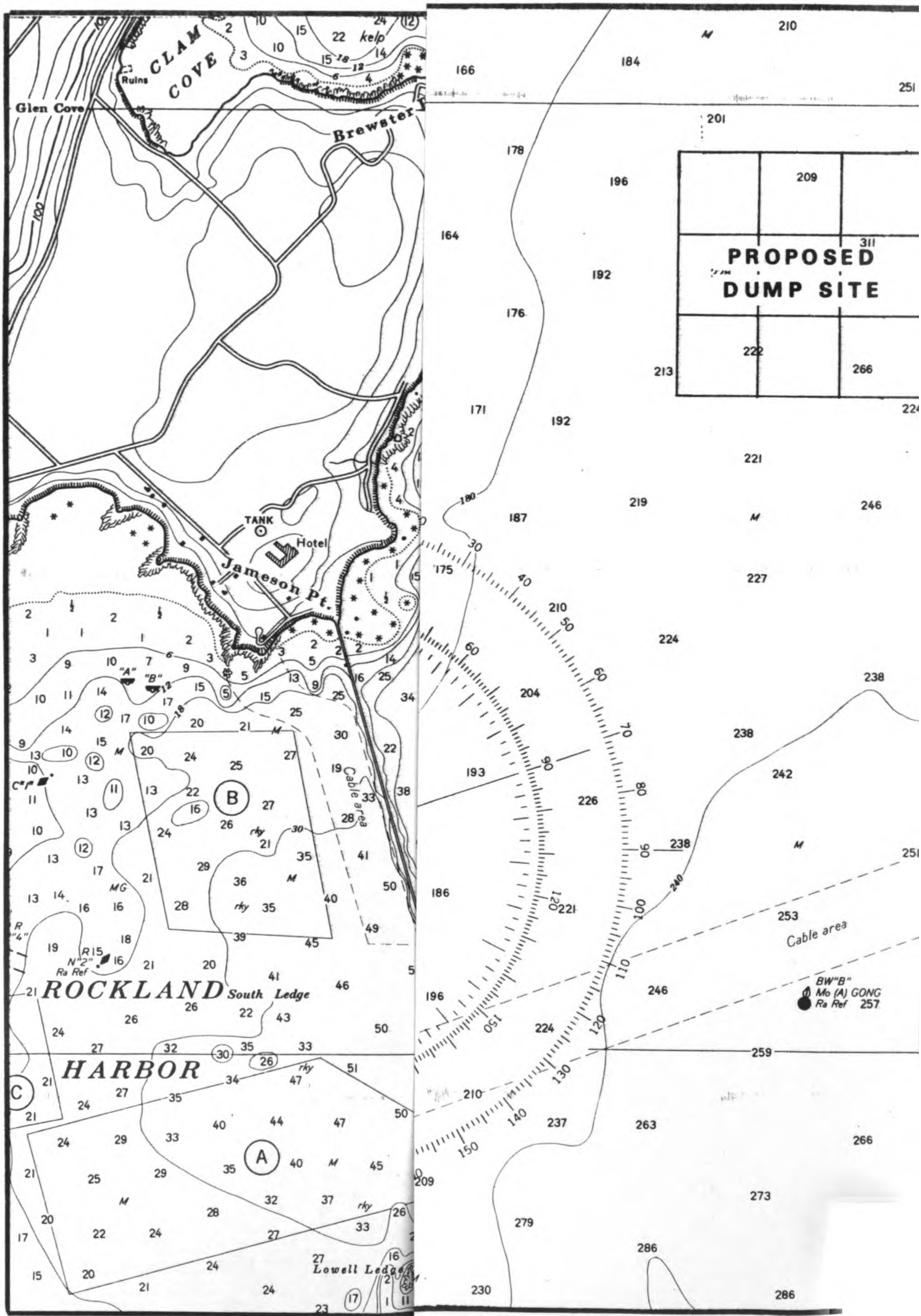
Saila, S.B., Pratt, S.D. and Polgar, T.T. 1971.

Maine Port Committee, 1972, State of Maine. Greater Portland Chamber of Commerce, 1971-1972. pp. 99-100

Sherk, J.A., Jr. and Cronin, L.E. 1970. The Effects of Suspended and Deposited Sediments on Estuarine Organisms - An Annotated Bibliography of Selected References. Chesapeake Biological Laboratory, Ref. No. 70-19.

CORPS OF ENGINEERS U. S. ARMY




CLAM COVE
Ruins
Glen Cove
kelp
Brewster
TANK
Hotel
Jameson Pt.
Cable area
ROCKLAND
South Ledge
HARBOR
Lowell Ledge
PROPOSED DUMP SITE
Cable area
BW"B"
Mo (A) GONG
Ra Ref 257