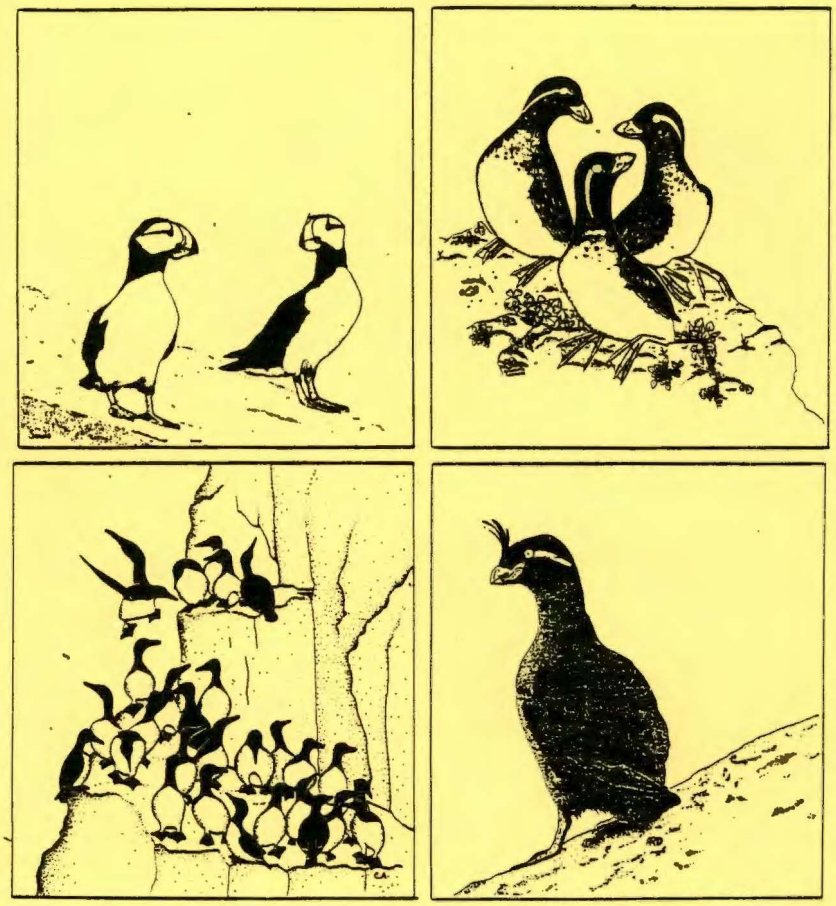
ENVIRONMENTAL ASSESSMENT OF PROPOSED DREDGING AND DISPOSAL ACTIVITIES AT THE ST. GEORGE ISLAND SMALL BOAT HARBOR

Planning Aid Report - Reconnaissance Stage

Prepared for
U. S. Army Corps of Engineers
Alaska District



Prepared by
U. S. Department of the Interior
Fish and Wildlife Service
Western Alaska Ecological Services
Anchorage, Alaska

December, 1984

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Alaska Ecological Services
Sunshine Plaza, Suite 2B
411 W. 4th Avenue
Anchorage, AK 99501

IN REPLY REFER TO:

WAES

19 DEC 1984

Colonel Neil E. Saling
District Engineer
Alaska District
Corps of Engineers
Pouch 898
Anchorage, Alaska 99506

Dear Colonel Saling:

The enclosed Planning Aid Report (PAR) presents an environmental assessment of proposed dredging and disposal activities at the St. George Small Boat Harbor, located in Zapadni Bay, St. George Island, Alaska, and is being provided for equal consideration of fish and wildlife conservation in the planning of this project.

This document was prepared in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Fiscal Year 1985 Scope of Work. The PAR but does not constitute the report of the Secretary of the Interior within the meaning of Section 2(B) of the Act, nor does it constitute consultation required under Section 7 of the Endangered Species Act (87 Stat. 884, as amended).

Fish and wildlife information presented in our report was obtained in coordination with the Alaska Department of Fish and Game, National Marine Fisheries Service and members of your environmental staff. Findings herein are based on project information provided by project engineer, Mr. Scott Schupe.

Please review our report and provide us written comments within 30 days.

Sincerely,

Robert Bowker

Field Supervisor

Enclosure

cc: Lloyd, ADF&G, Anchorage
Smith, NMFS, Anchorage
City of St. George
FWS/ES, Washington, D.C.
FWS, Alaska Maritime NWR-Aleutian Island/Bering Sea Units, Homer

ENVIRONMENTAL ASSESSMENT OF PROPOSED DREDGING AND DISPOSAL ACTIVITIES AT THE ST. GEORGE SMALL BOAT HARBOR

RECONNAISSANCE STAGE

PLANNING AID REPORT

Submitted to Alaska District
U. S. Army Corps of Engineers
Anchorage, Alaska

Prepared by: Wayne M. Crayton, Fish and Wildlife Biologist
Approved by: Robert G. Bowker, Field Supervisor

Western Alaska Ecological Services Field Office
U. S. Fish and Wildlife Service
Anchorage, Alaska

December, 1984

SUMMARY

The Alaska District of the U.S. Army Corps of Engineers is presently investigating the feasibility of dredging and maintaining inner harbor depths at the proposed St. George Island small boat harbor, located in Zapadni Bay, Alaska. The project requires removing 62,556 cubic yards of material from 30 subtidal acres and placing it in a 4.5 acre area north of the harbor to form a barge staging facility.

Zapadni Bay supports a diverse resident population of marine birds, mammals, fish, and invertebrates. Eleven seabird species inhabit the sea cliffs and beaches bordering the project area. Two fur seal rookeries (Zapadni and South Rookeries) are located east of the project site. The only terrestrial mammal found in the project area is the artic fox. Sandy, inter- and subtidal areas are generally devoid of organisms; however, rocky, kelp-covered subtidal habitat supports a diverse assemblage of marine invertebrates.

The types of environmental impacts possibly resulting from dredging and disposal activities at the St. George Island small boat harbor include: 1) bottom topographic and hydrodynamic changes, 2) suspension of sediments, 3) degradation of water quality, 4) physical disruption of benthic habitat, 5) harassment of local seabird colonies and fur seal rookeries by blasting and human presence, and 6) spills of petroleum products and/or hazardous wastes.

Mitigation of impacts to intertidal and subtidal invertebrates, seabirds, and fur seal communities appears to be limited to incorporating preventative procedures into the project plan. Foremost among these is a blasting restriction which should be in effect from April 15 to September 30 to prevent significant adverse impacts to seabird and fur seal populations. To minimize human disturbances to seabird and fur seal populations, construction workers should be made aware of the ecological significance of the Island's fish, wildlife, and marine resources. Additionally, controls on workers leisure time activities should be developed and enforced to prevent unnecessary disruption of seabird and fur seal reproductive processes. In order to confine the affects of sedimentation and turbidity to the smallest area, silt curtains should be placed around dredge and disposal sites. To prevent accidental fuel spills from entering the marine environment, an oil spill contigency plan should be developed to capably handle any fuel spill resulting from daily operations or equipment failure.

The FWS believes that an Environmental Impact Statement should be prepared because the project: 1) initiates dredging and disposal activities and possibly maintenance dredging operations, 2) is of a controversial nature which is generating national public interest, 3) occurs in an internationally recognized environmentally sensitive region of the Bering Sea, and 4) could cause significant environmental impacts if not properly mitigated.

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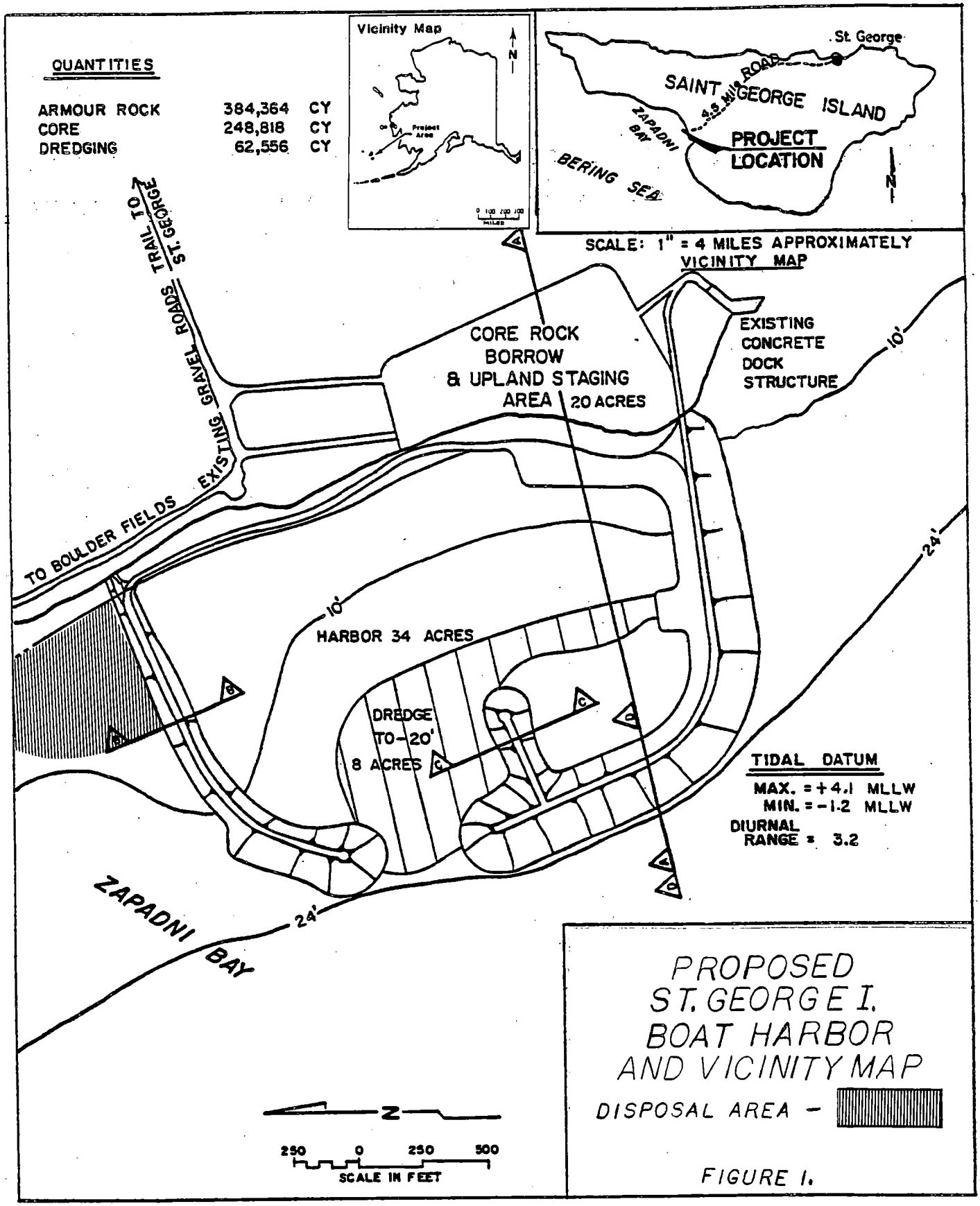
INTRODUCTION

At the request of the City of St. George, Alaska, the Alaska District of the U. S. Army Corps of Engineers (CE) is presently investigating the feasibility of dredging and maintaining inner harbor depths at the proposed St. George Island small boat harbor, located in Zapadni Bay (Figure 1). This Planning Aid Report (PAR) constitutes the U. S. Fish and Wildlife Service's (FWS) reconnaissance level, environmental assessment of the CE's proposed activities. The PAR describes local fish and wildlife resources, assesses project related impacts, and provides recommendations which could precipitate project criteria or modifications necessary to mitigate adverse impacts on fish and wildlife resources.

Harbor and navigation improvement studies at St. George Island have been on-going since the National Marine Fisheries Service (NMFS) announced that their Pribilof Islands fur seal harvesting program would be imminently terminated. Foreseeing the urgent need for an alternate employment base, the Alaska Legislature made appropriations in 1980 and 1981 to the Department of Transportation and Public Facilities (DOT/PF) for harbor development at St. George Island. The boat harbor would enable the people of St. George to enter the fisheries development market. On January 19, 1984, DOT/PF applied for a CE permit to construct a small boat harbor at St. George Island in Zapadni Bay: on July 11, 1984, the permit was issued with special conditions (Number 071-OYD-2-830573). The City of St. George has since become project sponsor after receiving project funding from the State of Alaska.

The CE began its own study, concurrently with DOT/PF, after St. George Island's Tanaq Village Corporation requested that the CE investigate (under Section 107) the feasibility of building a small boat harbor at St. George Island. In it's reconnaissance study the CE concluded that harbor development on St. George Island warranted further study. However, the CE terminated their investigation because the scope of the facility greatly exceeded the federal involvement under Section 107 authority and the local sponsor did not have the capability to fund the cost beyond the federal involvement. In 1984, the CE was requested by the City of St. George, to evaluate the City's harbor plans for compliance with Federal standards. The CE concluded that they were not able to endorse the project's plans and specifications as designed; and therefore, the City of St. George was not eligible for Federal funding. The City of St. George, instead of redesigning their project, requested the CE to investigate only the dredging involvement under Section 107 authority.


QUANTITIES
ARMOUR ROCK 384,364 CY
CORE 248,818 CY
DREDGING 62,556 CY
Vicinity Map
Project Area
St George
SAINT GEORGE ISLAND
4.5 MILE ROAD
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SCALE: 1" = 4 MILES APPROXIMATELY
VICINITY MAP
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EXISTING GRAVEL ROADS
TO BOULDER FIELDS
CORE ROCK BORROW & UPLAND STAGING AREA 20 ACRES
EXISTING CONCRETE DOCK STRUCTURE
10'
24'
HARBOR 34 ACRES
DREDGE TO -20' 8 ACRES
TIDAL DATUM
MAX. = +4.1 MLLW
MIN. = -1.2 MLLW
DIURNAL RANGE = 3.2
ZAPADNI BAY
250 0 250 500
SCALE IN FEET
PROPOSED ST. GEORGE I. BOAT HARBOR AND VICINITY MAP
DISPOSAL AREA -
FIGURE 1.

PROJECT DESCRIPTION

The CE's project description is based on the following technical information contained in DOT/PF's permit application to the CE dated January 19, 1984:

> Approximately 62,556 cubic yards of material will be excavated from a 30-acre area to provide a boat basin with a project depth of 20 feet (Figure 1). The dredged material will be removed by a clamshell dredge, transported in trucks and loaders, and placed in a 4.5-acre area north of the harbor to form a beach. The beach disposal site would have a final elevation of +10 feet mean lower low water and be used in equipment transfer to and from barges.

FISH AND WILDLIFE RESOURCES

St. George Island: Overview

St. George Island, the second largest island of the Pribilof group, supports large and diverse resident populations of marine birds, mammals, fish, and invertebrates. More than 2.5 million seabirds nest along the cliffs, steep terrains, and fault scarps of the Island (Sowls et al., 1982). St. George Island has the largest thick-billed murre (Uria lomvia) colony in the North Pacific-Bering Sea region with an estimated 1.5 million birds (Hickey and Craighead, 1977). Ninety-eight percent of the world-wide population of red-legged kittiwakes (Rissa brevirostris) also breed on St. George Island.

Twenty percent of the estimated 1.25 million northern fur seals (Callorhinus ursinus) using the Pribilofs are found on St. George Island. Northern sea lions (Eumetopias jubata) also breed on St. George Island (O'Clair et al., 1979). Harbor seals (Phoca vitulina) and re-introduced sea otters (Enhydra lutris) are frequently observed along the island's coastline.

St. George Island itself is treeless, consisting mostly of moist tundra and grass vegetation. Pribilof shrews (Sorex pribilofensis) and the brown lemming, (Lemmus nigripes) are the only native terrestrial mammals on the island. Artic fox (Alopex lagopus) and reindeer (Rangifer arcticus) are introduced inhabitants.

Zapadni Bay

Avifauna:

Passerines, shorebirds, and seabirds are represented in Zapadni Bay. The rosy finch (Leucosticte tephrocotis), the most abundant passerine in the project area, occurs along sea cliffs and beaches (Dames and Moore, 1982). Winter wrens (Troglodytes troglodytes) and snow buntings (Plectrophenax nivalis) occur throughout the project area. The most abundant shorebird in Zapadni Bay, the rock sandpiper (Calidris ptilocnemis), is found in both rocky and sandy intertidal areas (Dames and Moore, 1982).

Seabirds are the most numerous birds inhabiting the project area. Eleven species have been observed (Dames & Moore and Norgaard (USA) Inc., 1982; Hickey, 1976; Hickey and Craighead, 1977). Table 1 describes the general nesting habitats and nesting phenology of seabirds breeding in Zapadni Bay.

A small beach east of the project area and Zapadni Dock is used by several thousand least auklets (Aethia pusilla) for nesting, and local residents for collecting eggs during early summer (Figure 2). Immediately behind the project site 50 pair of parakeet auklet (Cyclorrhynchus psittacula) nest on a sand and gravel beach even though the area is accessible to fox (Dames & Moore and Norgaard (USA) Inc., 1982). Behind the sand and gravel beach at the face of sea cliffs lie boulder piles and talus which least auklet use for nesting. Immediately west of the project site lies Zapadni Beach, a long stretch of sandy habitat backed by short rocky bluffs which do not support seabird nesting. West of Zapadni Beach, large concentrations of seabirds use high quality sea cliff habitat for nesting (Figure 2).

Zapadni Bay's sea cliffs and other coastal cliffs on St. George Island were purchased in 1982 by the FWS. Boundaries of the FWS 1982 purchase and those areas recommended for future purchases are shown in Figure 3. The sea cliffs were selected and purchased because they contain valuable breeding habitat for eleven species of seabirds. The FWS intends to purchase upland areas adjacent to previously purchased sea cliffs so that a protective buffer for the seabird colonies can be established (Baker, 1982).

Marine Mammals:

Two fur seal rookeries are located east of the project area: the Zapadni Rookery and the South Rookery (Figure 4). The NMFS (1981) reports that halting commercial fur seal harvests at the two rookeries in 1973 has increased the numbers of males and decreased the numbers of females and pups. Fur seals are only present at these rookeries during the late spring, summer, and fall. Dames and Moore (1982) adapted the following fur seal life history from Braham, (1982) and McLean et al. (1977):

> Bulls arrive first in early May followed by the females and younger males in June. By late June and July pupping begins. The pups are fed by the mothers until fall. At that time she abandons the young to begin the migration southward. In October, seals begin dispersing and the rookeries are empty by the end of December.

TABLE 1

GENERAL NESTING HABITATS AND NESTING PHENOLOGY OF BIRDS
BREEDING IN ZAPADNI BAY
(adapted from Hunt 1981)

Species	Nesting Habitat	Nesting Phenology[a]			
		Arrival	Egg Laying	Incubation (da)	Fledging
Northern Fulmar	Cliffs - usually over 61 m	March or April	Mid-late May	48	Mid September
Red-faced cormorant	Cliffs - usually below 122 m	Resident	Early May	31	Late August
Black-legged kittiwake	Cliffs - lower sections	Mid April	Late June	27	Mid-late September
Red-legged kittiwake	Cliffs - sheltered with overhang optimum	Early-mid April	Mid June-early July	30	Mid-late September
Common murre	Cliffs - with wider ledges	Late April	Early June	31	Late August
Thick-billed murre	Cliffs - with narrow ledges	Mid April	Mid-late June	34	Mid-late August
Parakeet auklet	Crevices and small caves or in talus	April	Late June	35	Late August
Least auklet	Crevices or talus or under beach boulders	Mid April	Early June	31	Mid August
Horned puffin	Rock crevices in cliff	May	Mid June - mid July	42	Mid September - mid October
Tufted puffin	Burrows	May	Mid July	42	Mid October

(a) Phenology of nesting can vary considerably over time.

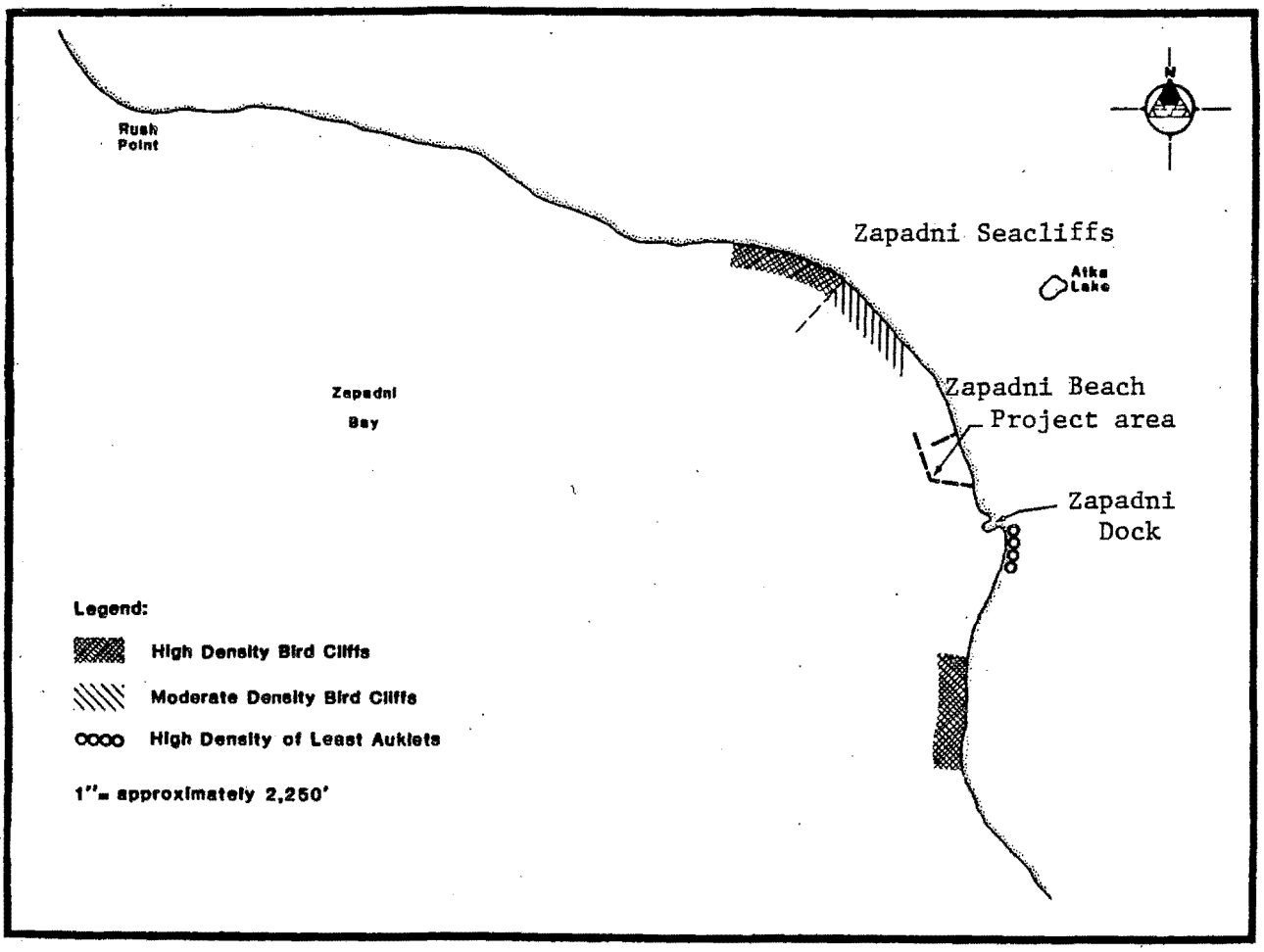

Figure 2. Location of major seabird nesting areas, Zapadni Bay, (from Dames & Moore, 1982).

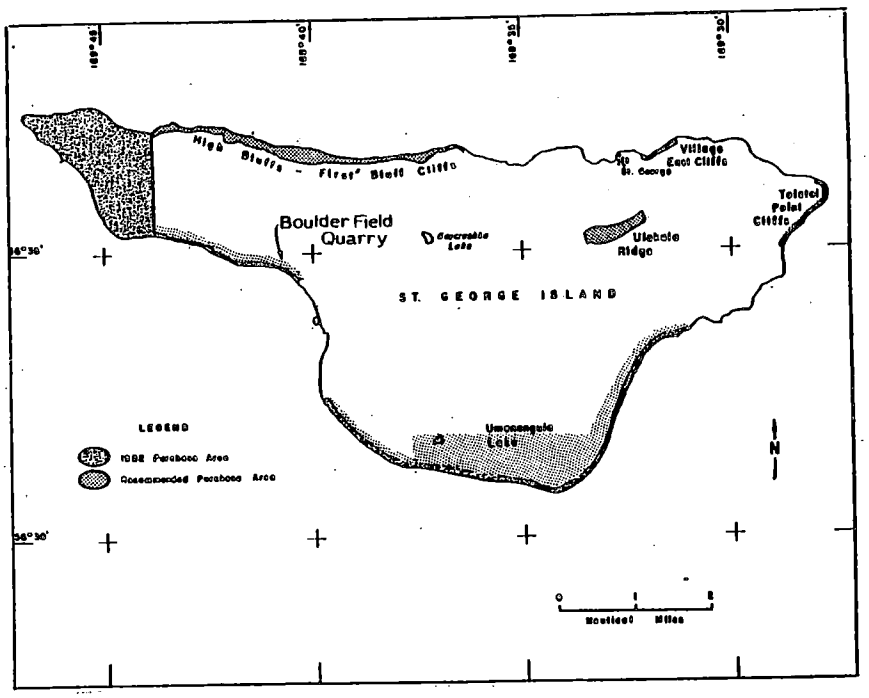

Figure 3. U.S. Fish and Wildlife Service 1982 seacliff purchases and recommended purchase areas on St. George Island.

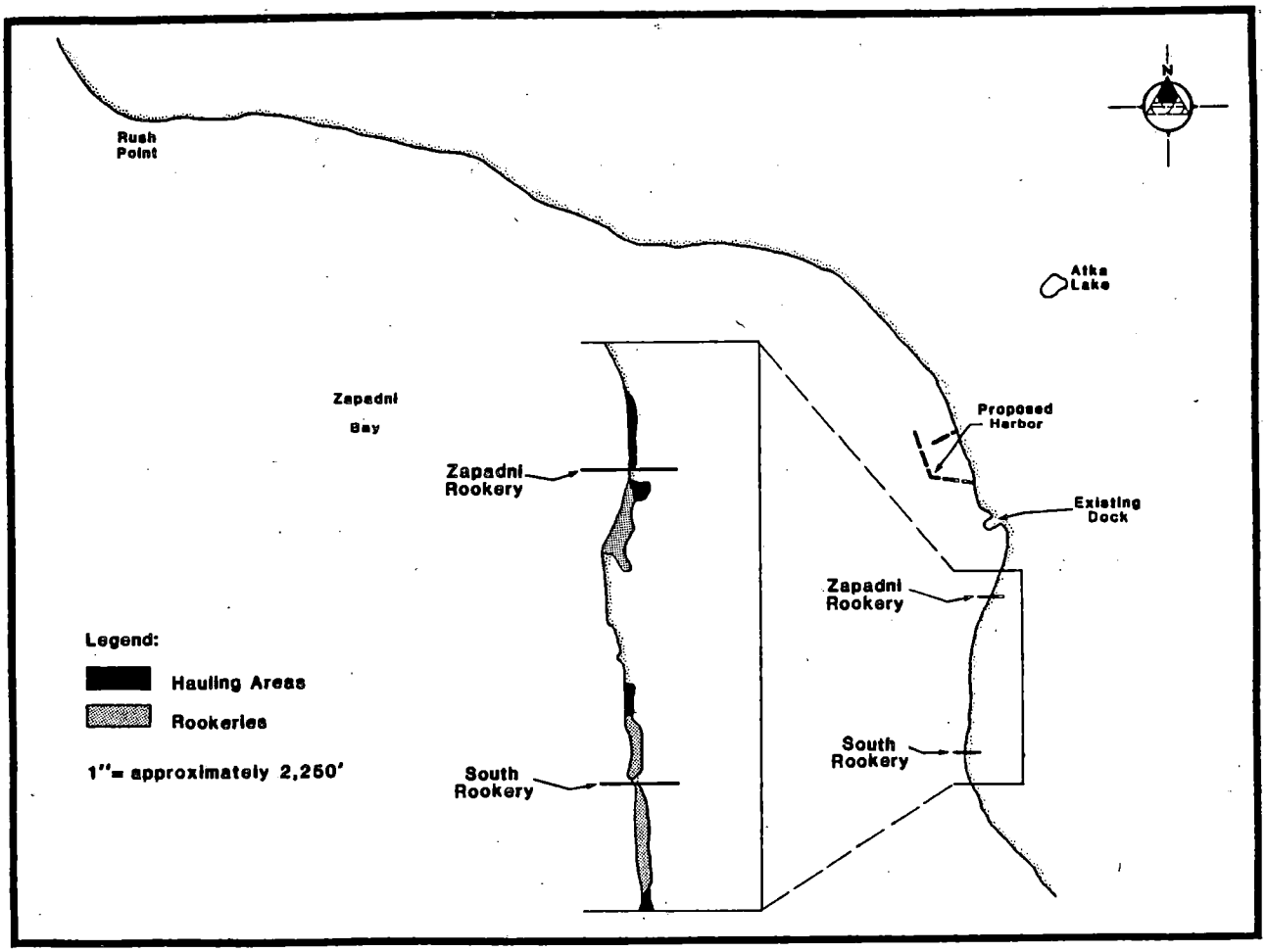

Figure 4. Location of fur seal rookeries and hauling areas in Zapadni Bay. Source: NMFS, 1981 in Dames & Moore, 1982.

Terrestrial Mammals:

The artic fox is the only terrestrial mammal reportedly found in the project area. Fox are reported to den along the Zapadni Bay coast and feed on nesting seabirds along the tops of neighboring bluffs (Dames & Moore, 1982).

Benthic Assemblages:

The project area's upper intertidal habitat consists of a medium gradient sandy beach occasionally pocketed with boulders and bedrock benches (O'Clair et al., 1979) (Figure 5). Sandy beach intertidal zones generally lack diverse benthic assemblages (Dames and Moore, 1982). An impoverished flora includes Urospora sp. and drift fragments of several algae species; fauna includes flatworms, oligochaetes, cumaceans and mysids (Dames & Moore and Norgaard (USA) Inc., 1982). O'Clair et al. (1979) found few macro-organisms on dynamic sandy beaches anywhere in the Pribilofs. In the intertidal zone boulders are sparsely covered with organisms (O'Clair et al., 1979). Littorina sitkana is commonly found grazing on the boulder's periphytic algae. The macroscopic algaes Halosaccion glandiforme and Fucus distichus occur in dense patches on the tops and sides of some boulders. Cryptic organisms inhabiting the boulder patches include anemones, nudibranchs, and compound ascidians.

The lower intertidal zone consists of a flat bedrock bench with little topographic relief; subsequently, tide pools and hummocks are common (O'Clair et al., 1979). Crevices filled with coarse sand and broken shell separate the hummocks. The crevices, in conjunction with kelp (Alaria taeniata and Laminaria groenlandica) holdfasts, trap sand and shell fragments to create a species rich micro-habitat. Organisms inhabiting the crevices include sponges, nemerteans, oligochaetes, polychaetes, harpacticoid copepods, bivalves, sea cucumbers, sea urchins, and tunicates. Organisms found foraging on kelps include the gastropods Haloconcha reflexa and Margarites helicinus (O'Clair et al., 1979). Hummock surfaces are covered with patches of Lithothamnion, Ralfsia, Palmaria, Pterosiphonia and Ptilota. Found, but not abundant, are the chitons Katharina tunicata and Scizoplax brandtii, and the gastropods Buccinum baeri and Nucella lima. Barnacles are sparsely scattered on hummock surfaces. O'Clair et al. (1979) believes that the presence of sea ice may preclude the development of extensive barnacle populations, either physically by scouring or physiologically by hampering growth and development.

The most abundant subtidal substrate in the study area consists of medium to fine sand (Figure 5). Although infauna diversity is low, density is relatively high, with the bivalve Tellina muculoides being the most abundant infaunal organism present (Dames and Moore, 1982). Species occurring in less density than Tellina include three gammarid amphipods and one cumacean.

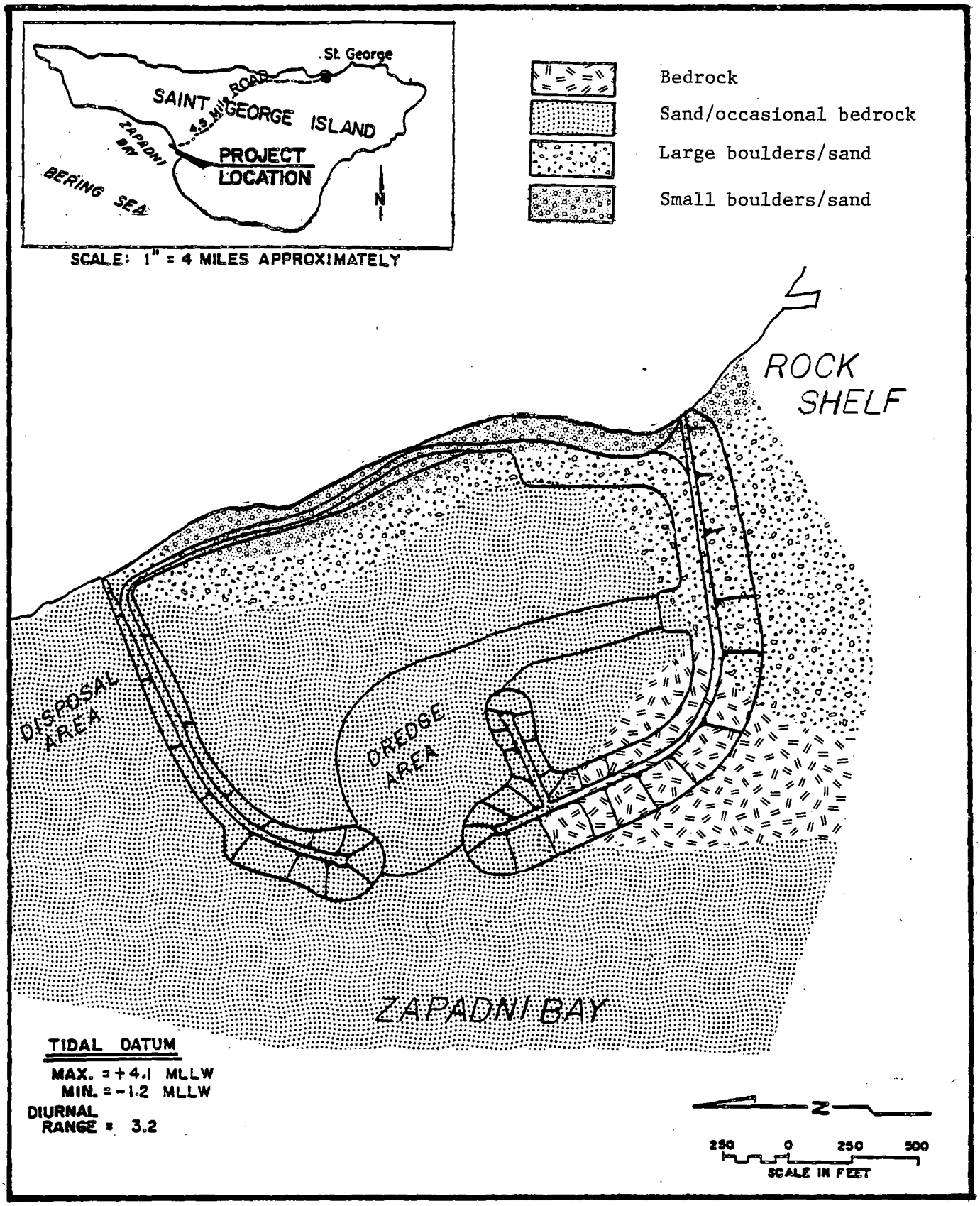

Figure 5. Project area benthic habitat map, Zapadni Bay.

Subtidal macrofauna found on the sandy bottom include the hermit crab Pagurus hirsuitiusculus, the sand dollar Echinarachnius parma, mysids, and the snail Nucella sp. Bedrock benches, heavily colonized by the green urchin Strongylocentrotus drobachiensis, commonly occur throughout the project's subtidal area. The location of bedrock patches are reported to change seasonally and from year to year in relation to onshore and longshore transport of sand (Dames and Moore, 1982). Fish species present in the study area include sand lance, (Ammodytes hexapterus), small flounder and sculpin.

Southeast of the project area, boulders (ranging from less than 0.5 meter in diameter to greater than 2 meters) are strewn throughout the nearshore subtidal habitat (Dames & Moore, 1982) (Figure 5). A dense Alaria fistulosa kelp canopy covers most of the rocky subtidal area. Encrusting coralline algae, Laminaria, blue mussels, gastropods, and littorines abundantly occur on boulder surfaces.

A comprehensive description of the project area's fishery resources is lacking. Dames and Moore (1982) reports that sand lance, (Ammodytes hexapterus), small flounder, and sculpin inhabit the sandy nearshore habitat. It is anticipated that sand lance, an important foraging species for seabirds, use sandy beach segments for spawning.

DISCUSSION

Project Impacts

The types of environmental impacts possibly resulting from dredging and disposal of dredged materials at St. George Harbor include: 1) bottom topographic and hydrodynamic changes, 2) suspension of sediments, 3) degradation of water quality, 4) physical disruption of benthic habitat, 5) harassment of local seabird colonies and fur seal rookeries by blasting and human presence, and 6) spills of petroleum products and/or hazardous wastes.

Long-shore currents and sediment transport will determine the magnitude of bottom topographic and hydrodynamic changes caused by dredging and disposal. Northern long-shore currents could erode the beach staging/disposal area and deposit sediments in the lee of the breakwater. The probability of erosion is high because currents periodically expose and subsequently cover bedrock shelves with sand. Dames and Moore (1982) reported that the project area is a high energy environment; heavy surf is common and four- to six-inch ripplemarks oriented parallel to the beach were observed.

Dredging and disposal activities will unavoidably cause increased sedimentation, turbidity, and a short-term degradation of water quality. Resident fauna and flora are adapted to natural fluctuations of turbidity. Excessive turbidity however, can interfer with filter-feeding activities of invertebrates, irritate and clog fish gills, and interfer with photosynthesis by reducing light penetration. The release of sediment-bound toxicants by dredging is not expected to occur at the project site because

sediment contamination activities (i.e. fish processing, vessel mooring) have not previously occurred in the area. However, harbor sediments are expected to become contaminated over time once harbor associated activities commence. Maintenance dredging and disposal will result in cumulative destruction of existing habitats and biological communities in the chosen area.

All benthic organisms occurring in the dredge area will be destroyed. Recolonization is expected to occur; however, a predictable recolonization sequence is not known. Recolonization will be dependent upon: 1) adjacent undisturbed communities providing a pool of replacement organisms capable of recolonizing the site by adult migration or larval recolonization, 2) water quality, and 3) substrate quality.

Organisms inhabiting the 4.5 acre dredge disposal/staging area will be permanently destroyed because the top elevation of the disposal site will be plus ten feet mean lower low water (plus six feet above Extreme High Water) thereby preventing recolonization. Positioning the dredge disposal/staging area north of the harbor as proposed will shield the Zapadni and South fur seal rookeries from outer- and inner-harbor activities. Seabird colonies located in the Zapadni Seacliffs are positioned far enough away not to be significantly impacted from intermittent staging area activities.

One of the more environmentally damaging activities associated with obtaining an adequate inner harbor depth is blasting. Untimely blasts will adversely affect the breeding success of those seabird colonies inhabiting nearby FWS sea cliffs. Murres are particularly sensitive because of their tendency towards panic flights when disturbed. Panic flights can result in severe egg and chick mortality when large numbers of adults suddenly evacuate crowded and narrow breeding ledges. Additionally, the pressure waves and vibrations generated by blasts and heavy equipment could cause bird mortality and a permanent loss of nesting habitat should large slabs of rock become dislodged and fall. Blasting associated with achieving the desired inner harbor depth could be fatal or cause injury to diving birds and fur seals in the immediate vicinity. Blasting could also disrupt fur seal breeding and pupping at the nearby Zapadni Rookery and eventually cause the seals to abandon the area. Fur seals have, however, been shown to be highly traditional in the use of sites for breeding and for hauling in spite of certain disturbances. The proximity of the North Rookery to the village of St. George and the St. George runway illustrates the fur seal's ability to accomodate certain levels of disturbances (Dames and Moore, 1984).

Increased human activity during dredging and disposal activities could raise new unforeseen impacts. For example, workers can be highly disruptive if they operate their boats erratically near seabird colonies and fur seal rookeries.

Because local seabird colonies and fur seal rookeries depend on marine resources as a food source, adjacent marine waters should remain free of petroleum products. Both seabirds and fur seals are highly vulnerable to oiling (Braham, 1982, Strauch and Hunt 1982). Therefore, a large percentage of individuals contacting an oil slick can be expected to die. Alcids (auklets, murres, and puffins) which spend considerable time resting on the

water offshore from breeding cliffs, would have the greatest probability of oil contact and are among the most vulnerable to the effects of oil. Alcids also have a low fecundity that would prolong recovery periods (Strauch and Hunt, 1982). Fur seals at the Zapadni and South Rookeries would be most vulnerable to an oil slick that moved south of the project area along the shoreline. During August the majority of the several thousand pups and breeding females on these rookeries may be in the water at some time during each day and would likely contact oil in the area.

Mitigation

The susceptibility of local seabirds and fur seals to impacts from project-related activities could be significant if not properly mitigated. The FWS cannot suggest a comprehensive mitigation plan until the CE's project plan becomes more detailed; however, enough project information is available to begin plan development (Appendix A).

On the basis of Zapadni Bay's known fish and wildlife resources, the FWS has selected the following evaluation species: 1) northern fulmar, 2) red-faced cormorants, 3) black-legged kittiwake, 4) red-legged kittiwake, 5) common murre, 6) thick-billed murre, 7) parakeet auklet, 8) crested auklet, 9) least auklet, 10) horned puffin, 11) tufted puffin, 12) sand lance, and 13) northern fur seal. As project plans develop in more detail, the evaluation species list will be narrowed to include only those species most susceptible to specific project features and/or activities. The final evaluation species list will be used to assess the environmental impacts of the project and develop a mitigation plan.

Mitigation of impacts to intertidal and subtidal invertebrates and seabird and fur seal communities appears to be limited to incorporating preventative procedures into the project plan. Foremost among these is a blasting restriction. By prohibiting blasting at the dredge site between April 15 and September 30, significant adverse impacts to seabird and fur seal populations will be prevented. This blasting restriction was chosen to coincide with seabird and fur seal reproductive cycles. Dames and Moore (1984), in their environmental assessment of proposed armor rock excavation activities on St. George Island, recommended that blasting be prohibited during the period May 1 to December 1 and be coordinated with the NMFS Fur Seal Manager.

To minimize human disturbances to seabird and fur seal populations, construction workers should be made aware of the ecological significance of the island's fish, wildlife, and marine resources. Additionally, controls on workers leisure time activities should be developed and enforced to prevent unnecessary disruption of seabird and fur seal reproductive processes. Appendix B contains an environmental brief which the FWS recommends each construction worker read and sign as a condition of employment. The brief was originally prepared in coordination with DOT/PF when FWS reviewed and commented on DOT/PF's permit application to build the St. George Island small boat harbor.

Clean sand and gravel is proposed to be dredged from the harbor; therefore, the degradation of local water quality and the adverse effects of sedimentation are expected to be transitory. If the composition of dredge materials are found to include silt, clay, and/or muds, silt curtains should be placed around the project area to confine sedimentation and turbidity impacts to the smallest possible area. Sediment quality tests may become necessary prior to commencing a maintenance dredging operation because St. George Island's harbor sediments are expected to become contaminated from harbor and associated on-shore activities.

The CE should develop a contingency plan to prevent accidental fuel spills from entering the marine environment. At the minimum the plan should require containment structures around petroleum storage facilities and sorbent pads and booms on site to clean up any fuel spill resulting from daily operations or equipment failures.

NEPA Report: EIS or EA/FONSI

The National Environmental Protection Act (NEPA) of 1970 requires a project sponsor to identify the environmental impacts of their project and suggest mitigation alternatives. The impact assessment can be reported in an Environmental Impact Statement (EIS) or in a Environmental Assessment report (EA).

An EA is a brief document which provides information on potential environmental effects of a proposed action and its alternatives to the project sponsor. After analyzing the EA the project sponsor will determine if the proposed action will have a significant effect on the environment. If so, an EIS will typically be prepared; if not, a Finding of No Significant Impact (FONSI) will be prepared to accompany the EA. However, an EA and accompanying FONSI may be prepared, rather than an EIS, if the EA indicates that significant environmental impacts may be reduced to less than significant levels with mitigation. Specific mitigation measures may be relied upon to make a FONSI/EA only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal (Council of Environmental Quality- March 16, 1981; Questions and Answers About the NEPA Regulations). As a general rule, the regulations direct agencies to use a broad approach in defining significance and not rely on the possibility of mitigation as an excuse to avoid the EIS requirement (40 CFR Sections 1508.8, 1508.27).

According to Corps of Engineers policy and procedures for implementing NEPA (ER 200-2-2, changes 2 March 1981), actions normally requiring an EIS include: 1) legislative initiatives, 2) feasibility studies, which include continuing authority studies, 3) projects in a construction status, and 4) operation and maintenance projects. Actions normally requiring a FONSI/EA include: 1) feasibility studies with a limited range of planning objectives and plans, 2) specific design feature studies, 3) operation and maintenance projects proposing disposal areas not discussed in a final EIS, 4) real estate management and disposal actions, and 5) regulatory actions.

Solely based on CE planning criteria, the proposed dredging and disposal activities at the St. George Island small boat harbor project would normally require an EIS, especially if maintenance dredging is required. Alternatively, a EA/FONSI could be prepared because the CE's proposed project has: 1) a limited range of planning objectives, and 2) anticipated environmental impacts which may be capable of being reduced to less than significant levels with mitigation.

To decisively determine which NEPA document should be prepared, three additional criteria need to be considered. First is the controversial nature of the over-all harbor project in light of recent Freedom of Information (FOI) requests. FOI requests pertaining to development activities in the Pribilofs has catapult public involvement nationally. By issuing a "Notice of Intent" to prepare an EIS, the Corps will clearly formalize and maximize public involvement (scoping) procedures required by NEPA. The second criteria involves the "significancy" of the avifauna and marine mammal resources affected. The "significance" of St. George Island's seabird colonies and fur seal rookeries are known internationally. Several Federal laws and treaties protect seabirds and/or fur seals from being adversely impacted: The Migratory Bird Treaty Act (16 U.S.C. 703-711), The Marine Mammal Protection Act of 1972 (16 U.S.C. 1371-1384), Convention for the Protection of Migratory Birds (39 Stat. 1702, T.S. No. 628), Convention for the Protection of Migratory Birds and Birds in Danger of Extinction, and their Environment (25 U.S.T. 3329, T.I.A.S. No. 7990). The last criteria involves cumulative impacts. Cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonable foreseeable actions. Individual minor impacts could collectively become significant over time because 1) maintenance dredging of the St. George Island small boat harbor is most probable, and 2) the City of St. George plans to develop the harbor area for a fishing industry.

Considering the aforementioned planning and additional criteria en masse, the FWS believes that an EIS should be prepared because the project: 1) initiates dredging and disposal activities, and possibly maintenance dredging operations, 2) is of a controversial nature which is generating national public interest, 3) occurs in an internationally recognized environmental sensitive region of the Bering Sea, and 4) could cause significant environmental impacts if not properly mitigated.

RECOMMENDATIONS

The following FWS recommendations are made on the basis of design information made available to date and published and/or reported environmental information. As data are developed and engineering analysis are completed, additional recommendations will be provided to assist project planning.

1. Blasting should be prohibited at the dredge site during the period April 15 to September 30.

2. Should conditions warrant, silt curtains should be placed around dredge and disposal areas to confine impacts of sedimentation and water quality degradation.

3. All construction workers should be made aware of the ecological significance of the island's marine resources, their sensitivity to disturbance, and the ways to minimize adverse impacts.

4. An oil and hazardous substance spill contingency plan should be developed and submitted to the NMFS, FWS, and the Alaska Department of Environmental Conservation for review and approval.

5. An Environmental Impact Statement should be prepared for proposed dredging and dredge disposal activities at the St. George Island Small Boat Harbor.

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APPENDIX A: St. George Small Boat Harbor Dredging and Disposal Activties Mitigation Statement

Under the Fish and Wildlife Coordination Act (FWCA) and the National Environmental Policy Act (NEPA) regulations, the Fish and Wildlife Service (FWS) has responsibilities to insure that project-related losses to fish and wildlife resources are identified and mitigated. As part of our participation in the planning and evaluation of dredging and disposal activities at the St. George Island small boat harbor, a mitigation plan should be developed in accordance with the FWS Mitigation Policy (FR Vol. 46, No. 15, January 23, 1982) and in consultation with the National Marine Fisheries Service (NMFS), the Environmental Protection Agency (EPA), and the Alaska Department of Fish and Game (ADF&G). The plan would provide guidance for evaluating and mitigating impacts of the proposed project to fish and wildlife.

A mitigation plan is developed by first selecting fish and wildlife habitats from among the full range of habitats occurring within the area to be impacted by both direct as well as indirect impacts. These are chosen either because they represent resources which are most characteristic of the area or because the Fish and Wildlife Service has mandated responsibilities for them. By narrowing the scope in this way, the analyses can focus on areas where significant changes are most likely to occur and not be unduly burdened by inclusion of areas with low wildlife value.

After identifying important habitats, evaluation species, which function as indicators of habitat quality and quantity, are chosen. Selection of evaluation species has an important role in determining the extent and type of mitigation achieved. A combination of two sets of criteria is typically used to choose species for this purpose. The first is to pick species with high public interest, subsistence, or economic values while the second is to select species which utilize habitats having significant ecological values.

Fish and wildlife habitats are then assigned to one of the four Resource Categories delineated in the FWS Mitigation Policy (Table 1). Designation of habitat into Resource Categories ensures that the level of mitigation recommended is consistent with the value of that habitat and its relative abundance on an ecoregion or national basis.

The determination of the relative scarcity or abundance of evaluation species habitat from the national perspective is based upon (1) the historical range and habitat quality and (2) the current status of that habitat. A significant reduction in either the extent or quality of habitat for an evaluation species indicates that it is scarce or becoming scarce, while maintenance of historical quantity and quality is the basis for considering it abundant.

Table 1. Resource Categories and Mitigation Planning Goals.[1/]

Resource Category	Designation Criteria	Mitigation Planning Goal
1	Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section.	No loss of existing habitat value.
2	Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section.	No net loss of in-kind habitat value.
3	Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis.	No net loss of habitat value while minimizing loss of in-kind habitat value.
4	Habitat to impacted is of medium to low value for evaluation species.	Minimize loss of habitat value.

[1/] Taken from FWS Mitigation Policy (FR Vol. 46, No. 15, 23 January 1981.

For all Resource Category 1 habitat, the FWS will recommend that all losses of existing habitat be prevented as these one-of-the-kind areas cannot be replaced. Insignificant changes that do not result in adverse impacts on habitat value may be acceptable provided they will have no significant cumulative impact.

Specific ways to achieve the mitigation goal for Resource Category 2 when loss of habitat value is unavoidable include: 1) physical modification of replacement habitat to convert it to the same type lost, 2) restoration or rehabilitation of previously altered habitat, 3) increased management of similar replacement habitat so that the in-kind value of lost habiat is replaced, or 4) a combination of these measures. By replacing habitat value losses with similar habitat values, populations of species associated with that habitat may remain relatively stable in the area over time.

The mitigation goal of in-kind replacement of lost habitat, however, cannot always be achieved. When opposition to a project on that basis alone is not warranted, deviation from this goal may appropriate. Two such instances occur when either different habitats and species available for replacement are determined to be of greater value than those lost, or when in-kind replacement is not physically or biologically attainable in the ecoregion. In either case, replacement involving different habitat kinds may be recommended, provided that the total value of the lost habitat is compensated.

For Resource Category 3, in-kind replacement of lost habitat is preferred though not always possible. Substituting different habitats or increasing management of different habitats so that the value of the lost habitat is replaced may be ways of achieving the planning goal of no net loss of habitat value.

For Resource Category 4, the FWS will recommend ways to avoid or minimize losses. If losses are likely to occur, then FWS will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then FWS may make a recommendation for compensation, depending on the significance of the potential loss.

However, because these areas possess relatively low habitat values, they will likely exhibit the greatest potential for significant habitat value improvements. FWS personnel will fully investigate these areas' potential for improvement, since they could be used to mitigate Resource Category 2 and 3 losses.

APPENDIX B: St. George Island Environmental Orientation Brief

Natural Resources

The marine bird and animal life on St. George Island supports marine resources of immense regional and even global significance. Of the estimated 1.25 million northern fur seals using the Pribilofs some 20 percent are found on St. George Island. The coastline of the island is also frequented by harbor seals, Steller sea lions, and re-introduced sea otters. Over twenty species of marine mammals including several endangered whale species also pass near the Pribilof Islands.

The Pribilof Islands support perhaps the largest seabird colony in the northern hemisphere and St. George Island is where the immensity of this colony is clearly apparent. St. George Island is the breeding site for approximately 2.5 million seabirds. The largest thick-billed murre colony in the North Pacific and the vast majority of the worldwide population of red-legged kittiwakes breed on the island.

Sources of Biological Impacts

The intense level of activity associated with building a boat harbor at Zapadni Bay will cause various degrees of disturbance to fish and wildlife in the coastal environment. Noise and physical disturbance are primarily caused by an increase in helicopter, fixed-wing aircraft, and boat traffic; by heavy machinery used during site preparation and construction of on-shore facilities; by blasting; and by an increase in human presence.

When birds or mammals are disturbed by noise or human presence, they may either abandon forever or temporarily discontinue using favored breeding, feeding, nesting, staging, or molting areas. The impacts from noise and disturbance can be especially severe if they occur during critical periods in the life cycle of birds and mammals. These periods include such activities as breeding, nesting, pupping, and hatching. As a result of disturbance during critical periods, reproductive success may be reduced resulting in lower population.

Loud or unpredictable sounds, such as noises from rapidly approaching boats and aircraft, gunshots, or explosions, are usually disturbing to nesting birds, and can result in direct mortality to eggs or young. Sudden noises alarm nesting seabirds, causing them to move about and knock eggs or young off cliffs or out of nests thereby exposing them to predators such as gulls. Seabirds unnecessarily flushed from their nests for longer periods of time can also cause their eggs to cool and die.

Marine mammals are detrimentally affected by noise and disturbance. Helicopters, low-flying aircraft, noisy boat traffic, and human presence are primary causes of pup mortality and the declining use of some areas by marine mammals.

Ways to Reduce Impacts

In order to minimize impacts to the aforementioned resources of St. George Island, the following procedures will be adhered to by all individuals involved with the construction of the St. George Island Boat Harbor at Zapadni Bay:

1. Helicopters and fixed-wing aircraft will maintain a vertical distance of at least 500 feet, and a horizontal distance of one-half mile from seabird colonies and fur seal rookeries from May through September. Helicopters are not to hover unnecessarily or circle over animals.

2. All boats will maintain a distance of at least one-half mile from bird colonies and fur seal rookeries from May through September.

3. Sirens or horns are not to be used near bird colonies or marine mammal haulouts.

4. Employees will not enter any seabird colonies and/or fur seal rookeries from May through September. Wildlife observations should be made from behind blinds or from distances which would preclude causing any disturbances.

I have read the aforementioned narrative and hereby agree to comply with the said stipulations.

_____

SIGNATURE OF EMPLOYEE