US Army Corps of Engineers
Alaska District

Environmental Resources Section

Public Notice

Alaska District
U.S. Army Corps of Engineers

Date 20 September 2019 Identification No.ER-19-013
Please refer to the identification number when replying.

The U.S. Army Corps of Engineers (Corps) has prepared an environmental assessment (EA) and draft Finding of No Significant Impact (FONSI) for the following project:

Harbor Maintenance
Homer Small Boat Harbor
Homer, Alaska

These documents describe the proposed continuation of annual maintenance dredging at Homer Small Boat Harbor, and assess the potential environmental impacts. The proposed action is to dredge up to 16,500 cubic yards of sediment from the Federal channel and U.S. Coast Guard berth. The dredged material will be dewatered and stockpiled at established areas on Homer Spit. All or some of the dredged material may be used for beach nourishment at locations along Homer Spit experiencing coastal erosion.

The enclosed EA and draft FONSI is available for public review and comment for **15** days from the date of this notice. It may also be viewed on the Alaska District's website at: www.poa.usace.army.mil. Click on the Reports and Studies button, look under Documents Available for Public Review, and then click on the Operations and Maintenance link.

To obtain a printed copy, please send a request via email to: Christopher.B.Floyd@usace.army.mil or send a request to the address below. The FONSI will be signed upon review of comments received and resolution of significant concerns. Please submit comments regarding the proposed action to the above email or to the following address:

U.S. Army Corps of Engineers, Alaska District
ATTN: CEPOA-PM-C-ER
P.O. Box 6898
Joint Base Elmendorf-Richardson, Alaska 99506-0898

For information on the proposed project, please contact Chris Floyd of the Environmental Resources Section at the above email or Corps postal address.

STATE OF ALASKA WATER QUALITY CERTIFICATION

Notice is hereby given that the Corps will be applying for State Water Quality certification from the Alaska Department of Environmental Conservation (ADEC). ADEC may certify there is a reasonable assurance this proposed action and any discharge that might result will comply with the Clean Water Act, Alaska Water Quality Standards, and other applicable State laws. ADEC's certification may authorize a mixing zone and/or a short-term variance under 18 AAC 70, Water Quality Standards, amended as of April 6, 2018. ADEC may also deny or waive certification. Any person desiring to comment on the project with respect to Water Quality Certification may submit written comments to the address below or to the email address dec-401cert@alaska.gov within **15** days of the date of this Public Notice. Mailed comments must be postmarked on or before the last day of the public comment period.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WDAP/401 CERTIFICATION
555 CORDOVA STREET
ANCHORAGE, AK 99501-2617
PHONE: (907) 269-2711 | EMAIL: dec-401cert@alaska.gov

Sincerely,

Michael R. Salyer

Michael R. Salyer
Chief, Environmental Resources Section

US Army Corps of Engineers
Alaska District

Environmental Assessment and Finding of No Significant Impact

Harbor Maintenance
Homer Small Boat Harbor
Homer, Alaska

September 2019

FINDING OF NO SIGNIFICANT IMPACT

Harbor Maintenance
Homer Small Boat Harbor
Homer, Alaska

I. In accordance with the National Environmental Policy Act, I have reviewed and evaluated the documents concerning planned continued maintenance dredging at the Homer Small Boat Harbor in Homer, Alaska:

a. Up to approximately 16,500 cubic yards of sediment each year will be dredged from the Federal channel and the U.S. Coast Guard berth.

b. The dredged material will be dewatered and stockpiled at previously used locations on Homer Spit.

c. The dredged material may be used for beach nourishment at several locations along the west shore of Homer Spit that are experiencing severe coastal erosion. The dewatered dredged material would be placed at these locations between +10 feet mean lower low water (MLLW) and +20 feet MLLW so that the existing wave, tidal, and nearshore current actions will disperse the sediments along the shoreline.

As part of my evaluation, I have considered:

a. Existing resources and the No Action Alternative.

b. Impacts to existing resources from the Preferred Alternative.

II. The possible consequences of these alternatives have been studied for physical, environmental, cultural, and social effects. My evaluation of significant factors has contributed to my finding:

a. No significant impacts to federally listed endangered or threatened species are anticipated.

b. No significant impacts are anticipated to natural resources, including fish and wildlife. The proposed work would have no adverse effect on historic properties or archaeological resources. There would be no appreciable degradation to the physical environment (e.g., water quality and air quality) as a result of the proposed activities.

c. The No Action Alternative was evaluated and determined to be unacceptable, as the U.S. Army Corps of Engineers is responsible for maintaining the Federal channel depths at Homer Harbor in order to provide safe, reliable, efficient, and environmentally

sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation.

III. Based on the evaluation and disclosure of impacts contained within the Environmental Assessment, I find no significant impacts to the human environment are likely to occur as a result of the proposed action. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with the proposed maintenance dredging at Homer Harbor in Homer, Alaska.

_____ _____

Phillip J. Borders
Colonel, U.S. Army
Commanding

Date

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1.0 PURPOSE AND NEED

1.1 Introduction

The U.S. Army Corps of Engineers, Alaska District (USACE) prepared this Environmental Assessment (EA) to describe the proposed maintenance dredging and placement of dredge material at Homer, Alaska's Small Boat Harbor (SBH). Also, this report will discuss the potential environmental effects of these activities. This EA describes the placement of dredged material in previously identified sites along the Homer Spit. A new and beneficial site along the Homer Spit has been identified on the northwestern side of the spit.

1.2 Federal Project Authorities and Histories

The original project was authorized by the River and Harbor Act of 3 July 1958, Section 101 (P.L. 85-500, authorizing recommendations contained in House Doc. 34, 85th Congress, 1st Session, Cook Inlet and Tributaries, Alaska). The recommendation was for a 300-foot by 400-foot boat basin at a depth of -12 feet mean lower low water (MLLW) protected by an 850-foot long rubble-mound jetty. Harbor dimensions were later revised to 180-feet by 672 feet with an 840-foot jetty. Construction was completed in September 1962.

The earthquake of 27 March 1964 caused major damage to the project. The Amendments to the Alaska Omnibus Act of 19 August 1964, Section 55 (P.L. 88-451), authorized modifications to previously authorized civil works projects in Alaska adversely affected by the 1964 earthquake and subsequent seismic waves to meet changed conditions and to provide for current and reasonably prospective requirements of the communities they serve. Construction of the modified harbor was completed in May 1965 resulting in approximately 10 acres dredged to a depth of -12 feet MLLW over 2.75 acres and -15 feet MLLW over 7.25 acres that included an entrance channel, a 1,018-foot main rock breakwater, and a 238-foot secondary rock breakwater. The boat basin was expanded again by local interests, under USACE supervision to ensure the integrity of the Federal project, in 1969-70.

In 1985 the harbor was enlarged to a total of 50 acres as authorized by Section 107 of the River and Harbor Act of 14 July 1960 (P.L. 86-645) resulting in the current

configuration. The project has 920 individual slips for vessels that are 21 to 75 feet long, and 6,000 linear feet of transient moorage tie-up space (USACE 2017a).

1.3 Purpose and Need

The purpose of the proposed action is to continue annual maintenance of the Homer SBH navigation channel at the federally authorized depths and widths by periodically removing naturally occurring sediments that restrict the channel and fill in the U.S. Coast Guard (USCG) berth adjacent to the harbor entrance. These ongoing maintenance dredging activities will provide continued, safe, reliable, and efficient vessel access to the moorage areas.

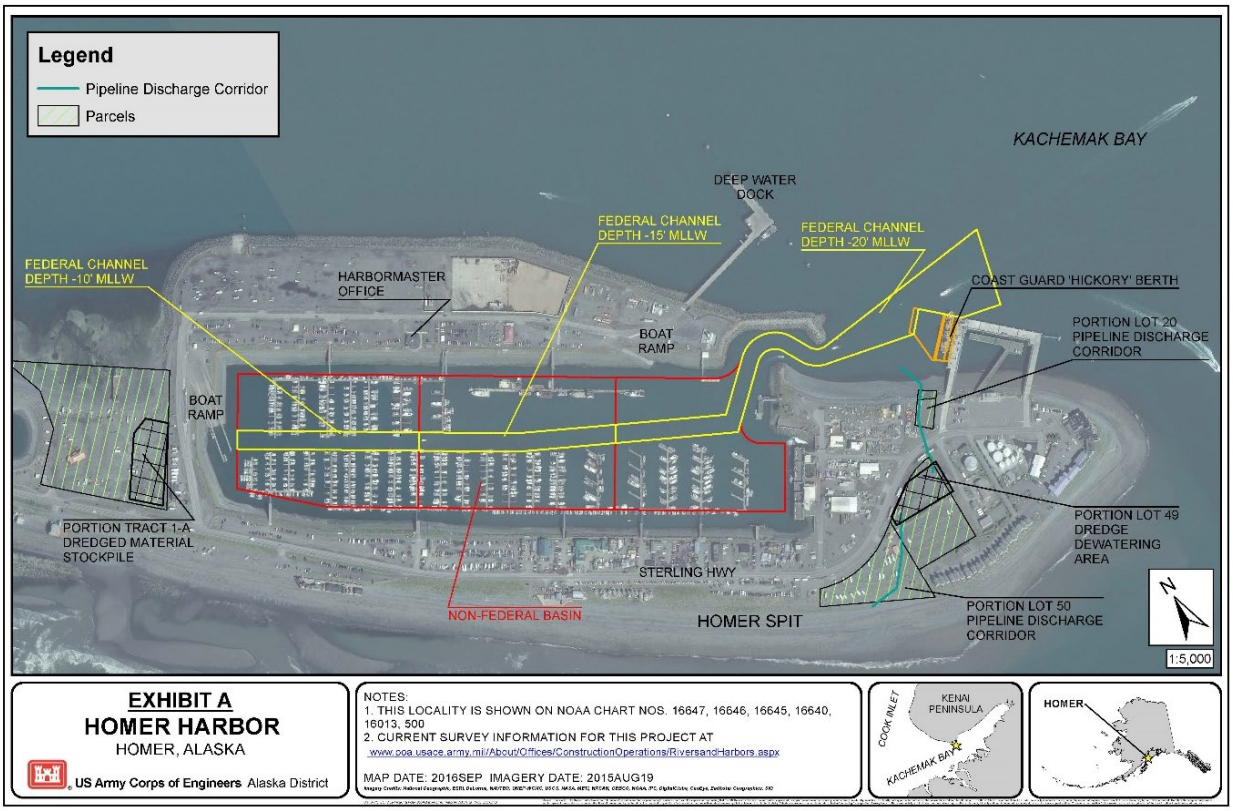


Figure 1. Location and layout of dredging, dewatering, and stockpile areas at Homer SBH (from USACE 2017a)

In addition to stockpiling dredged sediments for utilization by the city of Homer, the USACE has identified an opportunity to beneficially place dewatered dredge sediments between +10 and +20 feet MLLW along the Homer Spit at locations where beach erosion is occurring.

2.0 ALTERNATIVES AND PROPOSED ACTION

2.1 No-Action Alternative

The no-action alternative would defer the USACE responsibility to maintain authorized project depths in the Federal channel and terminate a Memorandum of Agreement with the USCG. This would result in no maintenance dredging of Homer SBH and the adjacent USCG berth by USACE in 2020, or future annual dredging cycles, and therefore there would be no need to dispose/place dredged material. Over time, the no-action alternative would lead to a hazardous shoal forming in the navigation channel which may contribute to environmental impacts as a result of vessel groundings or the diverse fleet of harbor users seeking other alternatives to access safe moorage. While it would also avoid temporary restricted access to the harbor, as described in section 4.2.1, the long-term impacts on harbor access would be far more severe under the no-action alternative and have a negative effect on the economy, national security, and recreation at a local and regional level.

2.2 Dredging and Sediment Transport Alternatives

Any dredging action requires a dredging method, a location to place the dredged material, and the means of transporting the dredged material to the disposal/placement site(s). The basic choices of dredge types are mechanical (e.g., clamshell) versus hydraulic (suction) with transport via a barge/scow, hopper dredge, or pipeline.

2.2.1 Mechanical Dredge

A clamshell dredge deployed by a barge-mounted crane is often used for dredging in areas around harbor floats and other infrastructure where maneuvering space is limited. Where the area to be dredged is in shallow waters, a large, long-armed excavator can also be used. The dredged sediment is typically deposited onto a barge or in a scow and loses much of its entrained water as it is transferred to or held in this equipment. The dredged material is partially dewatered before being placed at the disposal or stockpiling location. In comparison to other dredging methods, mechanical dredging can result in less lofting of sediment into the water column.

2.2.2 Hopper Dredge

A hopper dredge operates by use of suction “drag heads” that extend from the hull of the floating plant down into the substrate to be dredged. Materials are suctioned up into the open hull of the dredge until the hopper is full and materials can then be moved to a dredged material placement site. The suction of material brings in significant volumes of water along with the sediment; the excess water is allowed to overflow the hopper and

flow back into the waterbody. The overflow water can increase turbidity and cause water quality issues.

2.2.3 Pipeline Dredge

A pipeline dredge, like the hopper dredge, uses a suction head to bring up sediment from the bottom of the harbor and/or channel. The suction head is often fitted with a rotating cutter to loosen the substrate during the dredging process. However, a pipeline dredge does not have a hopper to contain the material. Instead, the material is moved through a floating or submerged, metal or high density plastic, pipe directly to the placement site. As with a hopper dredge, water is removed with the sediment. The excess water helps to keep the sediment “fluid” so that it can be pumped to the dredged material disposal/placement facility. The pipeline dredge must have a placement or dewatering location within pumping range of the dredge; otherwise, booster pumps may be necessary to transport the dredged slurry further distance.

2.3 Dredged Material Placement or Disposal Alternatives

The typical alternatives for the placement of dredged material include

- onshore (upland) placement or disposal;
- off-shore or near-shore placement as fill for construction or environmental-enhancement purposes; and
- off-shore disposal.

2.3.1 Onshore Placement or Disposal

The dredged material, if shown to meet State of Alaska standards for “non-polluted” soil, may be used on-shore (upland) for fill, cover, or other purposes such as beneficial use. This requires enough upland space to dewater and stockpile the dredged material, and also the identification of a party willing to take responsibility for the material and put it to a legitimate use. Under some conditions, contaminated dredged material may be useable for cover at a nearby landfill, but must meet the policies of the State of Alaska Solid Waste Division.

2.3.2 Off-Shore or Near-Shore Placement

The USACE and the U.S. Environmental Protection Agency (EPA) have policies encouraging the use of dredged material for construction or environmental enhancement. Such use requires the identification of a coinciding construction project, or a legitimate environmental restoration or enhancement project, that can receive the dredged material. Contaminated dredged material can be placed within specially designed confined disposal facilities (CDFs).

2.3.3 Off-Shore Disposal

Dredged material that meets certain criteria may be disposed of within inland waters of the U.S., if it can be demonstrated under Section 404(b)(1) of the Clean Water Act that there is no practicable upland alternative for placement or disposal of the material. A territorial sea closing line has been established at the entrance to Kachemak Bay, between Anchor Point to the north and Point Pogibshi to the south; the entirety of Kachemak Bay to the east of this line is designated as “inland waters”.

2.4 Preferred Alternative

2.4.1 Maintenance Dredging – Pipeline Dredge

The Preferred Alternative is the continued maintenance dredging and placement of materials from the Federally designated channel at Homer SBH and the adjacent berthing facility used by the USCG. Due to natural accretion of sediments in the Homer SBH navigational channel and at the face of the USCG dock, USACE intends to use the same maintenance dredging procedures, equipment (i.e. hydraulic cutter head and pipeline suction dredge), dewatering site, and if necessary, the dredged material stockpile site to be used as in years past. The amount of material annually dredged varies each year; however, USACE expects up to 16,500 cubic yards of material to be dredged from the Homer SBH’s entrance and outer maneuvering channel and the face of the USCG dock in any one year. Work typically occurs biannually, with the USCG berth dredged in the spring (April) and both the Homer SBH channel and USCG berth dredged in the fall (September to early October). The entrance channel and outer maneuvering channel would continue to be dredged to the Federal project depth of -20 feet MLLW. The face of the USCG dock would continue to be dredged to a project depth of -26 feet MLLW, 40 feet out from the face of the dock, with the remaining area dredged to -22 feet MLLW. As necessary, USACE also proposes to continue maintenance dredging of the inner maneuvering channel where the project depths vary from -20 feet MLLW to -10 feet MLLW. The frequency of dredging in this portion of the channel is far less and likely not to exceed 4,500 cubic yards over a 5-10 year interval.

2.4.2 Dredged Material Placement for Beneficial Use

Typical maintenance operations at Homer SBH is for dredged material to be conveyed via a hydraulic pipeline from a floating dredge to the dewatering site on the south side of the spit, using a portion of City Lot 49 coupled with other lots identified to accommodate the pipeline corridor (Figure 1). After dewatering, the material would be loaded into trucks and placed in the stockpile area (Figure 1) using a portion of Tract 1-A located northwest of the harbor and used in accordance with City of Homer Ordinance 11-09.

The 2017 Dredged Material Management Guidance (DMMG, USACE 2017b) for Homer SBH identified nine sites on or near the Homer Spit for dredged material placement.

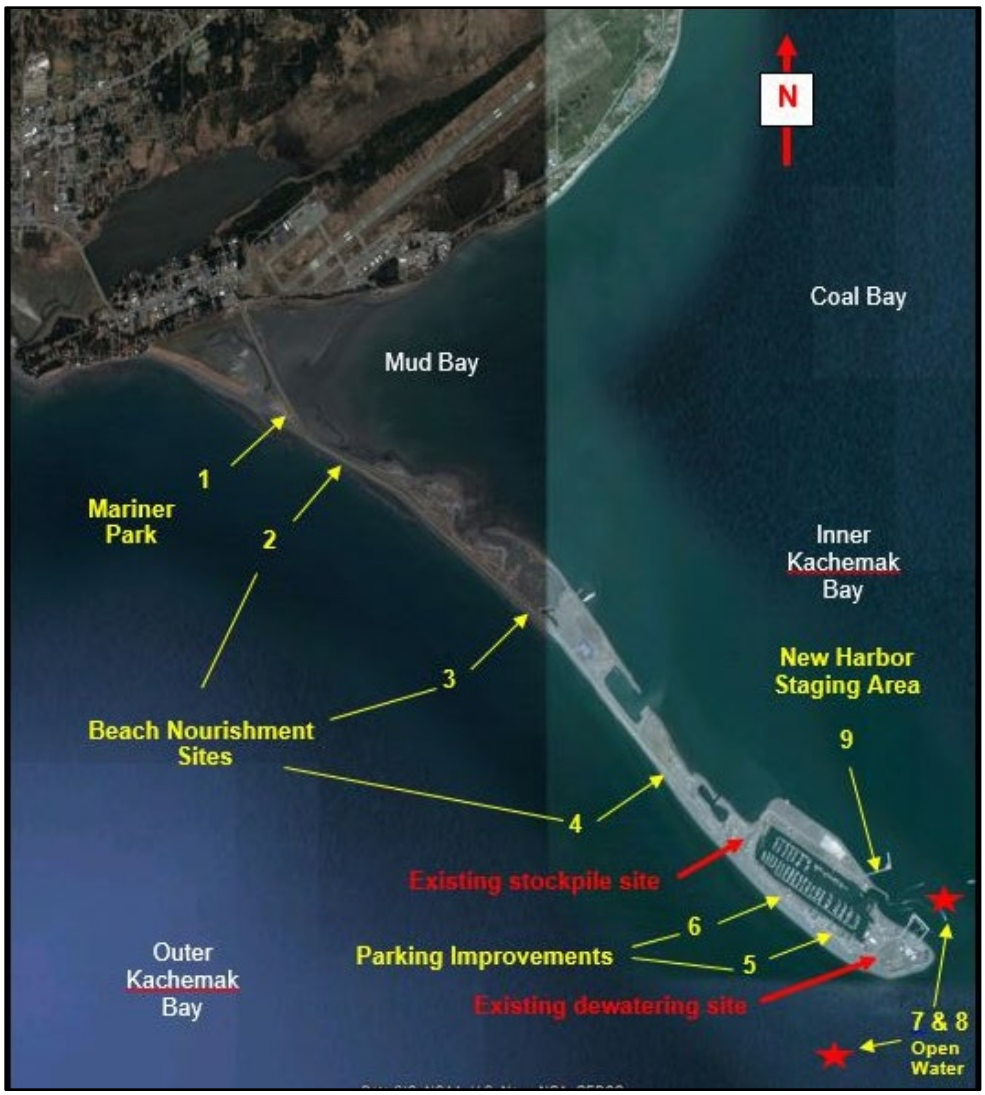
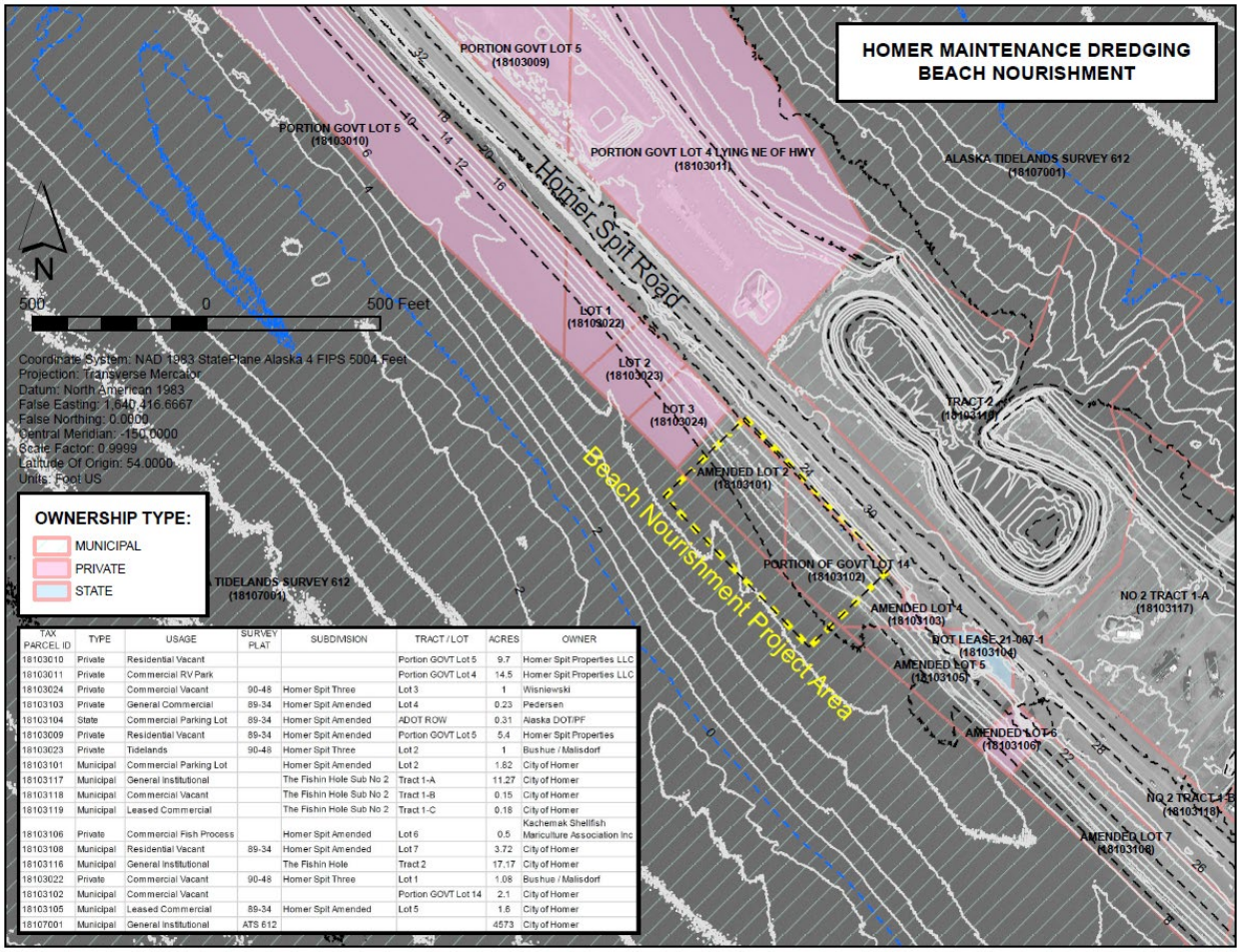


Figure 2. Dredged material placement and disposal sites under consideration (adapted from USACE 2017b).

The sites include three beach nourishment sites, two offshore disposal sites, three parking pad development sites, and harbor facilities improvement sites (Figure 2). Section 3.8.1 describes the three beach nourishment sites in more detail. The first beach nourishment site likely to be used corresponds to site “4” (Figure 2), or “BN 3” (Figure 5). Figure 3 shows the area where dewatered dredged material would be placed between +10 feet MLLW and +20 feet MLLW so that the existing wave, tidal, and nearshore current actions will disperse the sediments along the shoreline.



TAX PARCEL ID	TYPE	USAGE	SURVEY PLAT	SUBDIVISION	TRACT / LOT	ACRES	OWNER
18103010	Private	Residential Vacant			Portion GOVT Lot 5	9.7	Homer Spit Properties LLC
18103011	Private	Commercial RV Park			Portion GOVT Lot 4	14.5	Homer Spit Properties LLC
18103024	Private	Commercial Vacant	90-48	Homer Spit Three	Lot 3	1	Wisniewski
18103103	Private	General Commercial	89-34	Homer Spit Amended	Lot 4	0.23	Pedersen
18103104	State	Commercial Parking Lot	89-34	Homer Spit Amended	ADOT ROW	0.31	Alaska DOT/PF
18103009	Private	Residential Vacant	89-34	Homer Spit Amended	Portion GOVT Lot 5	5.4	Homer Spit Properties
18103023	Private	Tidelands	90-48	Homer Spit Three	Lot 2	1	Bushue / Malisdorf
18103101	Municipal	Commercial Parking Lot		Homer Spit Amended	Lot 2	1.82	City of Homer
18103117	Municipal	General Institutional		The Fishin Hole Sub No 2	Tract 1-A	11.27	City of Homer
18103118	Municipal	Commercial Vacant		The Fishin Hole Sub No 2	Tract 1-B	0.15	City of Homer
18103119	Municipal	Leased Commercial		The Fishin Hole Sub No 2	Tract 1-C	0.18	City of Homer
18103106	Private	Commercial Fish Process		Homer Spit Amended	Lot 6	0.5	Kachemak Shellfish Mariculture Association Inc
18103108	Municipal	Residential Vacant	89-34	Homer Spit Amended	Lot 7	3.72	City of Homer
18103116	Municipal	General Institutional		The Fishin Hole	Tract 2	17.17	City of Homer
18103022	Private	Commercial Vacant	90-48	Homer Spit Three	Lot 1	1.08	Bushue / Malisdorf
18103102	Municipal	Commercial Vacant			Portion GOVT Lot 14	2.1	City of Homer
18103105	Municipal	Leased Commercial	89-34	Homer Spit Amended	Lot 5	1.6	City of Homer
18107001	Municipal	General Institutional	ATS 612			4573	City of Homer

Figure 3. Proposed priority site for beach nourishment.

2.5 Sediment Quality Considerations.

In March 2019, sediment samples were collected from the Federal channel and USCG berth project areas and analyzed for chemical properties. The project areas were divided into three dredged material management units (DMMUs). All samples were collected using hand tools from the upper layer of the DMMU. The sample from DMMU1, the entrance channel, was collected using a bucket dredge and consisted of coarse grained sediments and fragments of coal. The sample from DMMU2, near the USCG dock, was collected using a hand auger and was composed of fine sand. The sample from DMMU3, inside the harbor, was also collected from a bucket dredge and consisted of fine-grained sediments (USACE 2019).

The sediment samples were analyzed for a wide variety of metals, fuels, and organic compounds that commonly contribute to harbor sediment contamination. The chemical results were compared to Alaska Department of Environmental Conservation (ADEC)

soil cleanup criteria to determine the suitability of the sediments for unrestricted upland placement (18 AAC 18). The suitability of the dredged material for beach nourishment was also evaluated by comparing the chemical results to marine sediment screening levels in the Northwest Regional Evaluation Framework (RSET 2016).

Diesel range organics (DRO) were detected at a concentration exceeding the soil cleanup criterion in the sample from the entrance channel (DMMU1). The DRO results were atypical of petroleum hydrocarbons and thought to be interference from the fragments of coal that weather out of the shoreline next to the spit and pervade the local marine sediments. The inner harbor sediment sample (DMMU3) exceeded the ADEC cleanup criteria for zinc, and the RSET screening level for selenium. The same sample had a much higher concentration of copper than any other sediment or soil sample, which, taken with the elevated zinc and selenium concentrations, suggests that a fragment of brass marine hardware may have been entrained in the sediment sample and analyzed along with the sediment. Arsenic, a naturally occurring metal often abundant in Alaskan soils, was present in all sediment and soil samples at concentrations exceeding the ADEC cleanup criteria. However, the elevated arsenic results were determined statistically to be within upland soil background ranges (USACE 2019).

Potential dewatering and upland placement sites for dredged materials were tested for metals to decide whether dredged materials have a potential to contaminate those areas above background levels. Sixteen primary soil samples and two duplicates were taken to determine background metals concentrations at the dewatering area and at a potential placement area. Sediment arsenic concentrations were elevated but are comparable to both the dewatering and placement area soils, and metals concentrations in the dredged materials are not expected to negatively impact storage or reuse sites. The USACE determined that the harbor sediment is suitable for upland placement at these sites, or for use as beach nourishment material (USACE 2019).

Figure 4. Typical dredged material from Homer SBH after dewatering, composed of sand, gravel, and small cobbles (USACE 2017b).

2.6 Construction Considerations and Minimization of Environmental Impacts

2.6.1 Contaminant Discharge Prevention

The dredging contractor will be required to prepare an Oil Spill Prevention and Control Plan. Reasonable precautions and controls would be used to prevent incidental and accidental discharge of petroleum products or other hazardous substances. Fuel storage and handling activities for equipment would be sited and conducted to prevent petroleum contamination of the ground, surface runoff or water bodies. Equipment would be inspected daily for leaks. In case of leaks, equipment would not be used and pulled from service until the leak is repaired. During construction, spill response equipment and supplies such as sorbent pads shall be available and used immediately to contain and cleanup oil, fuel, hydraulic fluid, antifreeze, or other pollutant spills. Any spill amount must be reported in accordance with Discharge Notification and Reporting Requirements (AS 46.03.755 and 18 AAC 75 Article 3).

2.6.2 Timing of Construction Activities

USACE will not conduct proposed project activities May 1-July 15 of each year, in order to protect juvenile salmon during a critical portion of their life cycle.

2.6.3 Protected Species

As described further in sections 4.2.9 and 4.2.10, risk to protected marine mammals during the planned dredging activities will be avoided and minimized through the use of protected species observers (PSOs) and exclusion zones, and through speed limits on project watercraft.

3.0 AFFECTED ENVIRONMENT

3.1 Community and People

Homer has a population of 5,000 (2010 certified population) and is located 218 air miles southwest of Anchorage, Alaska. The city can be accessed by road, air or water transportation. The city population is about 89.3% white, 4.1% Alaska Native or Native American, 1% Asian, .4% African American and .1% Pacific Islander (ADCRA 2019).

3.2 Project Setting and Current Land Use

The Homer Spit is one of the longest occupied natural sand spits in the world, extending southeast from the city of Homer, approximately 4.5 miles into Kachemak Bay. The spit is a natural, dynamic system, which is constantly being shaped by deposition and erosion of sediments. The spit is sensitive to changes in the natural environment and to human activities, both on the spit itself and in the uplands of the mainland. The spit is unusual in that much of the land is owned by the city of Homer. It is a working port and harbor, a wildlife refuge, a place for outdoor recreation, and a place for employment and business. An economic engine for the region, the spit is also the center of Homer's thriving fishing industry and has become one of Alaska's most popular tourism destinations (Homer Spit Comprehensive Plan, 2011).

3.3 Climate

Homer falls within the gulf coast maritime climate zone. It is characterized as a rainy atmosphere, long, cold winters, and mild summers. This area lacks prolonged periods of freezing weather at low altitudes and is characterized by cloudiness and frequent fog. The combination of heavy precipitation and low temperatures at high altitudes in the coastal mountains of southern Alaska accounts for the mountain glaciers (ADCRA 2019).

3.4 Soils, Geology and Oceanography

Homer is on a bench underlain by glacial lake deposits composed of poorly sorted clay and silt. These deposits lay on top of the Kenai formation of poorly consolidated and interbedded sandstone, siltstone, and clay stone with minor amounts of conglomerate (Alaska District, 1974). Homer Spit's foundation is the remnant of a terminal glacial moraine, and is composed of silts, sands, gravels, and some boulders that overlie marine clay.

The Homer Spit is a dynamic system in which change is a normal process. On the exposed coast (Cook Inlet side) the direction of littoral sediment transport is toward the

southeast, and the movement of sand-sized material from along shore and also possibly onshore is a result of wind-generated wave processes. The sheltered environment of Coal Bay (Kachemak Bay side) is a zone of fine-grained sediments that are transported primarily in suspension. The transport direction in Coal Bay converges from the northeast along the north shore of Kachemak Bay and from the southeast along the north shore of Homer Spit. Because of deep water off the distal point of Homer Spit, it is believed that little sediment is transported around to the north shore from the more exposed south shore (Woodward-Clyde, 1980).

The dewatering area and stockpile areas are on well-drained sandy soil underlain with gravel and cobbles. There is no hydric soil characteristic of wetlands on the dewatering and stockpile areas. Material on the beach where effluent might be discharged is round gravel/cobbles at the high tide line grading into sand with gravel at lower tidal elevations. Substrate in the subtidal zone is silt and sand.

The Homer Spit and project location is in a high-risk earthquake hazard zone and might be over topped by a tsunami wave in the event of a major earthquake.

3.5 Tides, Currents, and Sediment Transport

Tides at Homer are semidiurnal, with a pronounced diurnal inequality. The high Coriolis force of the 56-degree latitude and the inlet geometry cause strong crosscurrents and turbulence during both ebb and flood tides. Tide levels at Homer Spit are presented in table 1. The mean tide range is 20 feet. Tidal currents can reach 3 to 5 knots near constrictions.

Table 1. Tide levels at Homer Spit

Tide level	Elevation (feet MLLW)
Mean High Tide (estimated)	+23.4
Mean Higher High Water (MHHW)	+18.4
Mean High Water (MHW)	+17.6
Mean Low Water (MLW)	+1.6
Mean Lower Low Water (MLLW)	0.0
Extreme Low Water (estimated)	-5.6

The Homer Spit and project location is in a high-risk earthquake hazard zone. Tsunami waves caused by earthquake would be a distinct possibility in the project area.

The Homer Spit is narrow, low in elevation, and porous. There is no natural underground freshwater of any consequence on the Homer Spit. Freshwater from rain and snowmelt evaporates or percolates into the porous sand and gravel where it is sometimes temporarily perched on localized clay lenses. Salt water percolates underground through the Spit. The ocean-influenced water table rises and falls with the tide.

3.6 Water Quality

Water quality in Kachemak Bay and Lower Cook Inlet is minimally impacted by the current level of human development, but there are several local sources of potential contamination including fish processing outfalls and releases of petroleum products associated with the harbor.

Natural turbidity around the Homer Spit varies significantly depending where on the Spit the reading is taken, the depth, tide level, and the prevailing wind and current conditions. During periods with high surf or surface runoff, for example, near-shore waters can be turbid for extended periods. The mud flats on the bay side north of the harbor would most likely have higher turbidity readings than on the ocean side or at the end of the Spit because of its shallow depth and the mud in the zone of deposit. Data characterizing natural turbidity in waters surrounding the spit is limited. But, the turbidity readings in Table 2 illustrate the variability in natural turbidity that exists.

Table 2. Turbidity Measurements from Kachemak Bay

Month/year	Taken by:	Depth	Turbidity (NTU)	Where taken
3/2003	USACE	Surface	40	Inside harbor at end of boat ramp
2/2003	ADFG	Surface	126	Bay side offshore of mudflats between harbor and fishing hole
2/2003	ADFG	Surface	5	Ocean side off existing effluent pipeline
8/01-12/02	ADFG	1m off bottom	9.65 (13 month avg.)	Off ferry dock-bay side near end of spit

3.7 Air Quality

The Homer area enjoys generally good air quality due to a low density of pollutant emission sources. For regulatory purposes, Homer does not have an established ambient air quality monitoring program. There is insufficient existing data to compare with the National Ambient Air Quality Standards (NAAQS) established under the Clean Air Act (CAA). These air quality standards include concentration limits on the “criteria pollutants” carbon monoxide, ozone, sulfur dioxide, nitrogen oxides, lead, and particulate matter. Due to insufficient air quality data to declare the area as either “attainment or non-attainment”, the proper category is considered “unclassifiable” according to ADEC. As a result, the project area is not in a CAA “non-attainment” area, and the “conformity determination” requirements of the CAA would not currently apply to the proposed project.

Potential sources of air pollution include both non-point/mobile sources and fixed point sources. Major non-point source emissions would include particulates and carbon monoxide from cars, trucks, and boats, and also particulates from wood-burning stoves. Non-point source pollution can also come from natural phenomena, such as forest fires and volcanic eruptions.

3.8 Biological Resources

3.8.1 Habitat

The lands surrounding Homer SBH, the dewatering area, and the stockpile area, are heavily developed and modified, and devoid of vegetation except for a fringe of sea grasses and opportunistic forbs. Yet, Homer Spit and the surrounding waters host a variety of birds and marine mammals. Breakwaters and harbor structures attract black-legged kittiwakes; several other species of gull are also present. Common murres, red-necked grebes and surfbirds are at the entrance to the small boat harbor and the ferry terminal. Loons, sandpipers, sea ducks and bald eagles overwinter here; look for Steller’s and common eiders on the west side of the spit in the winter. Harbor seals and sea otters are common offshore during spring and summer. Steller sea lions also visit the shore in January and February (ADFG 2019a).

The three candidate beach nourishment sites along the west shoreline of Homer Spit differ in substrate and habitat types.

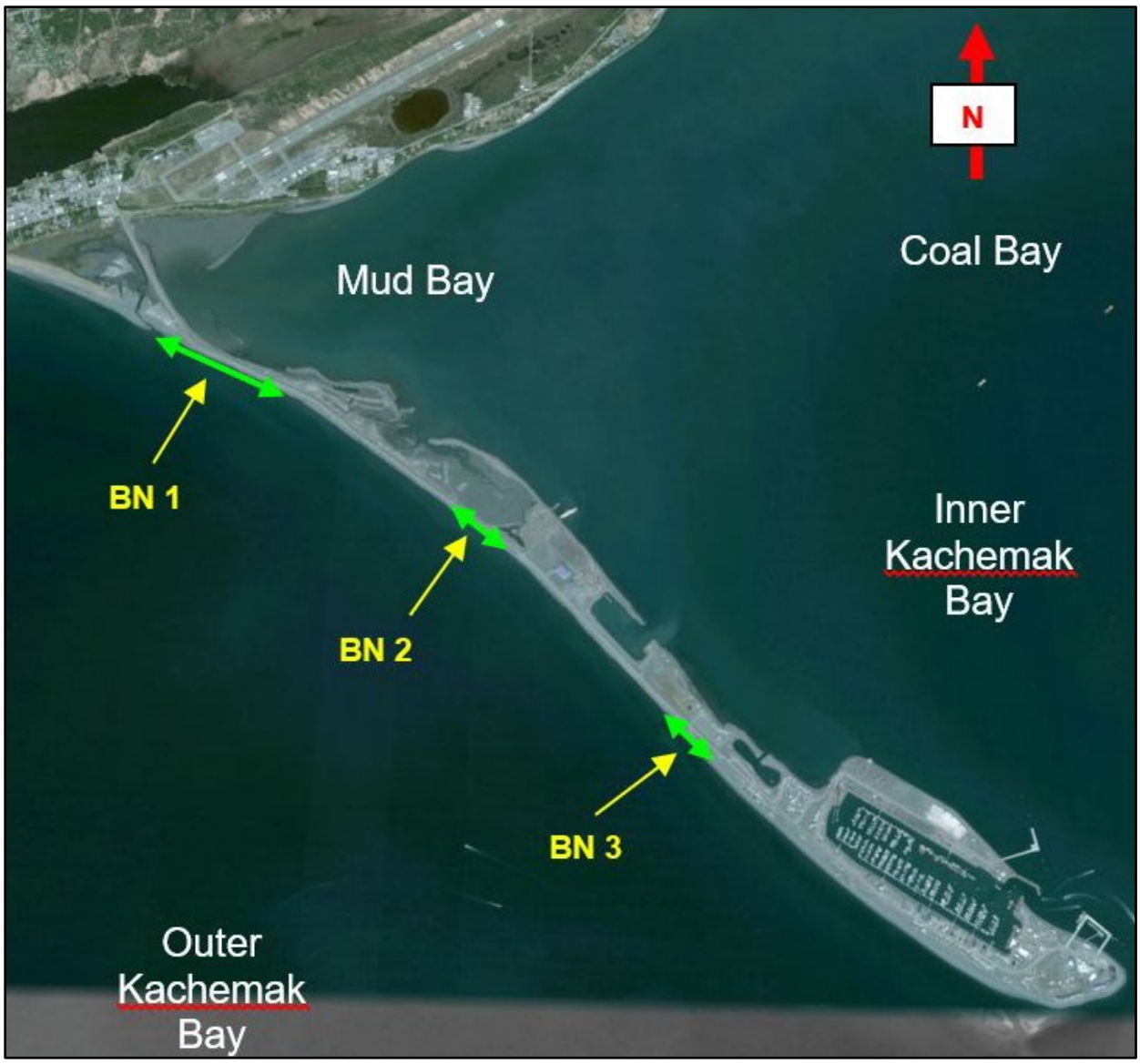


Figure 5. Potential beach nourishment sites along the west shore of Homer Spit (USACE 2017b).

"BN 1" extends approximately 2,900 feet southeast along shore from Mariner Park and next to a rock revetment. An expansive sandy/muddy tidal flat extends offshore and is pocketed with tidal drainages and tide pools. Biologically diverse areas are associated with the rocky habitat in tide pools and tidal drainages that pocketed an otherwise vast area of sandy/muddy tide flats devoid of epifauna and infauna. The benthic habitat offshore from Mariner Park was very different from the other areas investigated. The intertidal substrate between 0 and 300 feet from shore was a mix of course sand, pebbles, cobble, and occasional boulders with no evidence of epifauna or infauna (Figure 6). Sandy tide flats/sandbars beyond 300 feet and approximately 500 feet were also devoid of marine organisms. Between 550 and 600 feet, however, the substrate

Figure 6. Representative photo of BN 1 (from USACE 2017b).

mix of cobble/pebble within a tidal drainage had barnacles, amphipods and a large amount of algal detritus. “BN 2” extends approximately 1,400 feet along a rock revetment on the west side of the Spit, and is composed of a gravel mix of pebbles, cobble and boulders. The first downward-sloping 35 feet is clean gravel without any epifauna and infauna. Beyond 35 feet a 40-foot-wide band of cobble substrate exists that is uniformly covered with silt and a non-filamentous green algae. Amphipods were the predominant invertebrate found beneath the cobble substrate. Scattered within this offshore substrate were tide pools about 1 foot deep, each having an established brown and green algae community (*Fucus* sp., *Ulva* sp., ribbon kelp, etc.) as well as being inhabited by blue mussels, acorn barnacles, amphipods, and sponges (USACE 2017b).

Figure 7. Representative photo of BN 2 (from USACE 2017b).

“BN 3” extends approximately 550 feet opposite the Heritage RV Park. The site begins near the southern end of a 3,700-foot-long rock revetment and 500-foot-long rock transition area the Corps constructed in 1998, and ends in an area of shoreline without any constructed shoreline protection measures. This area contains no epi- or infaunal organisms within the footprint of the nourishment area. Longshore movement of bottom sediment periodically covers and then exposes bands of cobble/gravel habitat, which likely support similar benthic communities found in the other beach nourishment sites; however, the predominant nearshore benthic habitat appears to be sand bars and mud flats devoid of an established epifaunal community (USACE 2017b).

Figure 8. Representative photo from BN 3 (from USACE 2017b).

Nearly all of the Kachemak Bay marine setting is included in the Kachemak Bay Critical Habitat Area, administered by the Alaska Department of Fish and Game (ADFG). A Special Area Permit is required for any activities that alter the shoreline or may disturb fish and wildlife. Kachemak Bay State Park, managed by the Alaska Department of Natural Resources (ADNR), occupies much of the land across Kachemak Bay from Homer Spit, as well as a small area to the northeast of Homer (Figure 9).

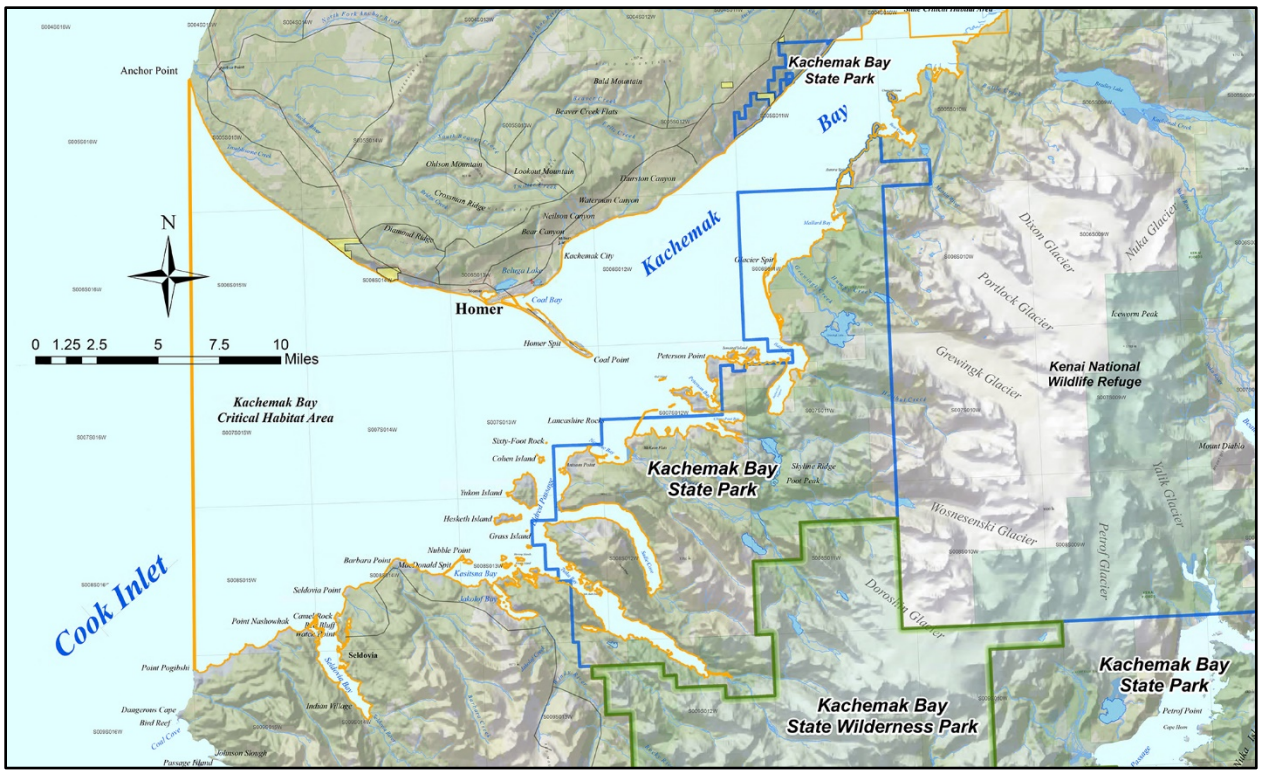


Figure 9. Boundaries of Kachemak Bay Critical Habitat Area (in orange) and Kachemak Bay State Park (in blue; adapted from ADNR 2019)

3.8.2 Endangered and Threatened Species

Based on discussions with the National Marine Fisheries Service (NMFS; NMFS 2019a) and online information provided by the NMFS (NMFS 2019b), and U.S. Fish and Wildlife Service (USFWS; USFWS 2019a), the species listed in Table 3 have been identified as ESA-listed species that may be present in the project area, or along the route of project construction-related vessels traveling a presumptive route between Anchorage, AK, and Homer, AK.

Table 3. ESA-Listed Species Potentially in Project Area

Species	Listed Population	ESA Status	Jurisdictional Agency
Beluga whale, *Delphinapterus leucas*	Cook Inlet DPS	Endangered	NMFS
Steller sea lion, *Eumetopias jubatus*	Western DPS	Endangered	NMFS
Humpback whale, *Megaptera novaeangliae*	W. Pacific DPS	Endangered	NMFS
	Mexico DPS	Threatened	NMFS
Fin whale, *Balaenoptera physalus*	All	Endangered	NMFS
Steller's eider, *Polysticta stelleri*	All	Threatened	USFWS
Short tailed albatross, *Phoebastria albatrus*	All	Endangered	USFWS

DPS: Distinct Population Segment

3.8.2.1 Beluga Whale

Beluga whales are small, toothed whales generally found in shallow coastal and estuarine waters. The endangered Cook Inlet DPS of beluga whales could be encountered anywhere in Cook Inlet year round; although, they tend to concentrate at the northern end of Cook Inlet during the summer and disperse through the inlet during autumn, winter, and spring (NMFS 2016b). Critical habitat (CH) designated for Cook Inlet belugas is divided into a CH Area 1 protecting the summer concentration area, and a CH Area 2 representing the broader coastal and estuarine habitat used the rest of the year (Figure 10).

Kachemak Bay is included in CH Area 2 and beluga whales could potentially be present in the waters around Homer Spit during the spring (April) dredging period; they would less likely be present during the autumn (September) dredging period.

3.8.2.2 Steller Sea Lion

The Steller sea lion was listed as a threatened species under the ESA in November 1990 (55 FR 49204). In 1997, NMFS reclassified Steller sea lions into two DPSs based on genetic studies and other information (62 FR 24345); at that time, the eastern DPS was listed as threatened and the western DPS was listed as endangered (NMFS 2008).

Steller sea lions prefer the colder temperate to sub-arctic waters of the North Pacific Ocean. Haul outs and rookeries consist of beaches (gravel, rocky or sand), ledges, and rocky reefs. Critical habitat (CH) for Steller sea lions was designated in 1993 and is described in 50 CFR §226.202. Critical habitat in Alaska west of 144°W longitude consists of:

a) Aquatic zones that extend 20 nautical miles (nm), or 37 km, seaward of each major haul out and major rookery (as listed in Tables 1 and 2 to 50 CFR §226).
b) Terrestrial zones that extend 3,000 feet (0.9 km) landward from each major haul out and major rookery.
c) Air zones that extend 3,000 feet (0.9 km) above the terrestrial zone of each major haul out and major rookery in Alaska.
d) Three special aquatic foraging areas: the Shelikof Strait area, the Bogoslof area, and the Seguam Pass area, as specified at 50 CFR §226.202(c).

Steller sea lions are commonly seen foraging in Kachemak Bay. No critical habitat for this species exists in Kachemak Bay or in upper Cook Inlet. The nearest major haul-outs are to the southwest at the entrance to Cook Inlet, and their 20-nm aquatic zones do not extend into Kachemak Bay.

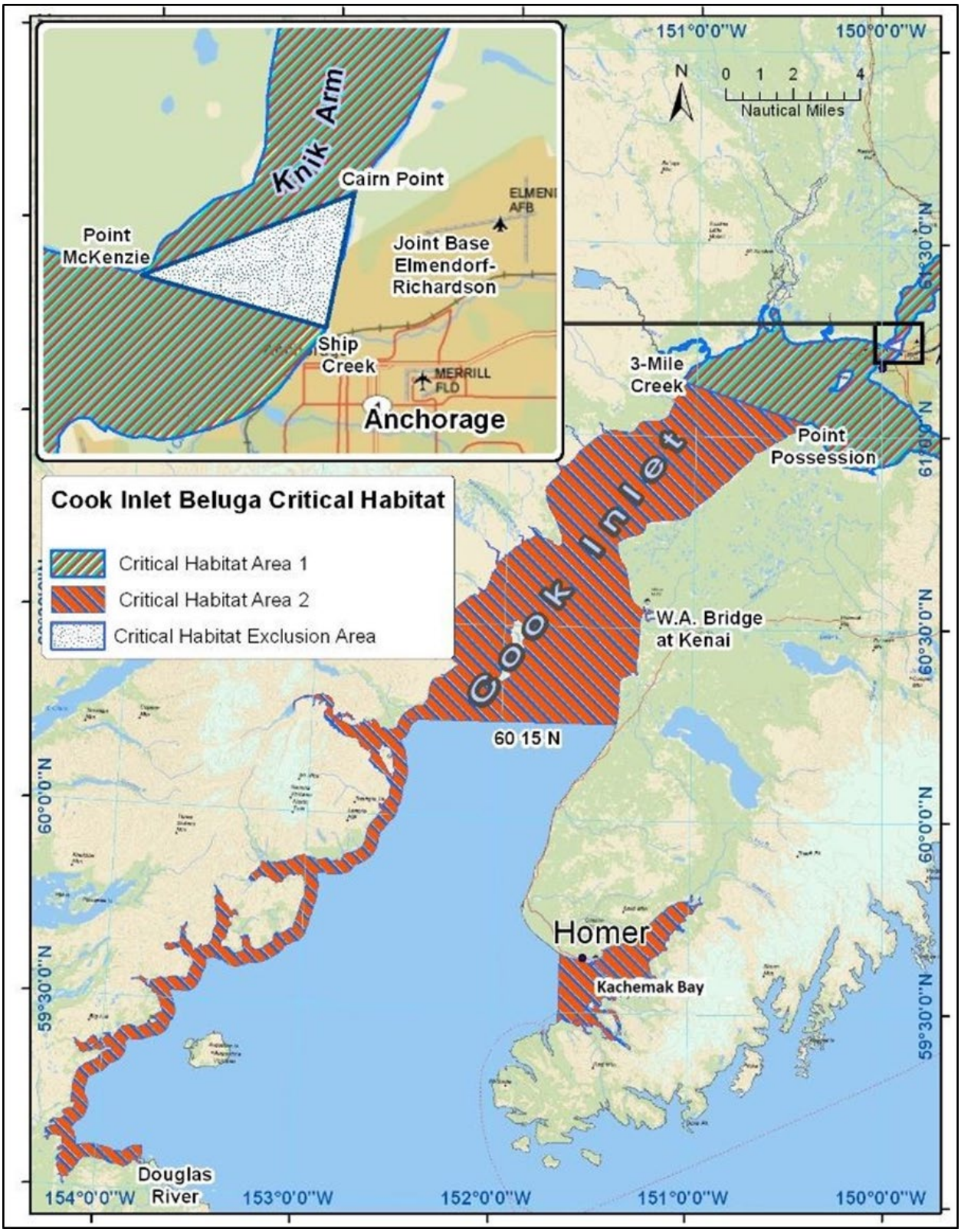


Figure 10. Critical Habitat for Cook Inlet Beluga Whales (NMFS 2016b).

3.8.2.3 Humpback Whale

Humpback whales were first listed as endangered under the ESA in 1973. The NMFS has recently reviewed the listing status of humpback whales; guidance from the NMFS on humpback whales occurring in Alaskan waters (NMFS 2016) discusses three DPS:

1. Western North Pacific DPS (ESA endangered);
2. Mexico DPS (ESA threatened); and
3. Hawaii DPS (not listed under the ESA).

Whales from these three DPSs overlap to some extent in feeding grounds off Alaska. An individual humpback whale encountered in Kachemak Bay has an 89 percent probability of being from the unlisted Hawaii DPS, a 10.5 percent chance of being from the threatened Mexico DPS, and a 0.5 percent chance of being from the endangered Western North Pacific DPS (Table 4). No CH is designated in Alaskan waters for humpback whales.

Table 4 Humpback Whale DPS Distribution in Alaskan Waters

Summer Feeding Areas	Hawaii DPS (not listed)	Mexico DPS (threatened)	Western North Pacific DPS (endangered)
Aleutian Islands, Bering, Chukchi, and Beaufort Seas	86.5%	11.3%	4.4%
Gulf of Alaska	89.0%	10.5%	0.5%
Southeast Alaska	93.9%	6.1%	0%

(NMFS 2016)

The humpback whale is seasonally migratory, mating and calving in tropical and subtropical waters in winter, but spending summers feeding in temperate and subpolar seas. In Alaskan waters, humpbacks concentrate in southeast Alaska, Prince William Sound, lower Cook Inlet, and along the Aleutian Islands in summer. Humpback whales are frequently seen foraging in the deeper waters of Kachemak Bay during the summer; they are unlikely to be present in Kachemak Bay during the typical spring (April) dredging period at Homer SBH, but might linger into the autumn (September) dredging period.

3.8.2.4 Fin Whale

These great whales are deep-water oceanic species that range throughout the North Pacific Ocean and would be encountered, incidentally, by project-related vessels. Fin whales are migratory, generally spending the spring and early summer in cold, high

latitude feeding waters. Populations tend to return to low latitudes for the winter breeding season, though may stay in residence in their high latitude ranges if food resources are plentiful. In the eastern Pacific, fin whales typically spend the winter off the central California coast and into the Gulf of Alaska. In summer, they migrate as far north as the Chukchi Sea (ADFG 2008). Kachemak Bay is within the potential range of fin whales, but is not known to be a place where this species concentrates. No CH has been designated for fin whales.

3.8.2.5 Steller's Eider

Steller's eider is a sea duck, and the smallest of the eider species. It nests in northeastern Siberia, with less than 1 percent of the population breeding in North America. Alaska's breeding population nests primarily on the Arctic Coastal Plain, with small numbers found nesting on the Y-K Delta. Most of the world's Steller's eider population winters in the Aleutian Islands and along the Alaska Peninsula into the Kodiak Archipelago. Wintering Steller's eiders are reported in Kachemak Bay, but would be near the eastern limit of their known winter range; they are unlikely to be present in the project area during the typical spring (April) or autumn (September) dredging periods at Homer SBH.

3.8.2.6 Short-Tailed Albatross

Short-tailed albatross range across much of the North Pacific Ocean as adults and sub-adults. They tend to concentrate along the break of the continental shelf, where upwelling and high primary productivity result in abundant food resources. The major threats to short-tailed albatross are large-scale fishing operations within the species' characteristic feeding areas and impacts to their limited breeding sites near Japan (USFWS 2008). While Kachemak Bay is potentially within the range of this species, a sighting of a short-tailed albatross off of Homer Spit would be highly unusual. There is no designated CH for this species in Alaska.

3.8.3 Marine Mammal Protection Act

Marine mammals in the area not listed under the ESA but protected by the Marine Mammal Protection Act (MMPA) include:

- Steller sea lion (Eastern DPS).
- Humpback whale (Hawaii DPS).
- Harbor seal.
- Northern fur seal.
- Harbor porpoise.

- Dalls porpoise.
- Pacific white-sided dolphin.
- Killer whale.
- Minke whale.
- Gray whale.
- Northern sea otter (under USFWS jurisdiction).

Northern sea otters (*Enhydra lutris kenyoni*) within Kachemak Bay are not part of the ESA-listed Southwestern DPS for that species, but are protected by the MMPA. Sea otters are non-migratory, and usually remain within a few kilometers of their established feeding grounds. They generally occur in shallow waters near the shoreline, most often with the 40-meter (131-foot) depth profile. Unlike the other marine mammals listed above, which may appear sporadically or seasonally around Homer Spit, sea otters are abundant in Kachemak Bay, and very frequently observed in the vicinity of Homer SBH and in nearshore waters along the southern tip of the spit.

3.9.4 Bald and Golden Eagle Protection Act

The bald eagles commonly seen along the Southeast Alaska coast are protected under the Bald and Golden Eagle Protection Act, as well as the Migratory Bird Treaty Act (Section 3.9.5). In addition to prohibiting direct takes such as killing eagles or destroying nests, this act also regulates human activity or construction that may interfere with eagle's normal breeding, feeding, or sheltering habits (USFWS 2011).

3.9.5 Migratory Bird Treaty Act

Except for the state-managed ptarmigan and grouse species, all native birds in Alaska (including active nests, eggs, and nestlings) are protected under the Federal Migratory Bird Treaty Act (MBTA; USFWS 2009).

3.9.6 Essential Fish Habitat and Anadromous Streams

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act established the essential fish habitat (EFH) provision to identify and protect important habitats of federally-managed marine and anadromous fish species. Federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to assess the potential effects of their actions on EFH, consult with National Marine Fisheries Service (NMFS) regarding any potential adverse effects on EFH, and respond in writing to NMFS recommendations.

Based on information provided by the NMFS Alaska EFH Mapper web application (NMFS 2019c), the marine waters near Homer Spit contain EFH for numerous groundfish species, and all five Pacific salmon species, during seasons and stages of development (Table 5).

Table 5. Fish Species Having Designated EFH in the Waters of Kachemak Bay

Alaska plaice	Pygmy rockfish
Alaska skate	Quillback rockfish
Aleutian skate	Red banded rockfish
Bering skate	Red striped rockfish
Bigmouth sculpin	Rex sole
Black rockfish	Rosethorn rockfish
Black spotted rockfish	Rougheye rockfish
Dark rockfish	Sablefish
Dover sole	Salmon, chinook
Flathead sole	Salmon, chum
Great sculpin	Salmon, coho
Green striped rockfish	Salmon, pink
Harlequin rockfish	Salmon, sockeye
Kamchatka flounder	Sharpchin rockfish
Longspine thornyhead rockfish	Shortraker rockfish
Northern rock sole	Southern rock sole
Northern rockfish	Walleye Pollack
Octopus	Yellow irish lord
Pacific cod	Yelloweye rockfish
Pacific Ocean Perch	Yellowfin sole
Pollack	

NMFS 2019b.

EFH for all Pacific salmon species includes freshwater habitat. It extends to all streams, lakes, wetlands, and other water bodies currently or historically assessable to salmon. These waters and their salmon fisheries are managed by the State of Alaska. The location of freshwater bodies used by salmon are contained in documents organized and maintained by the Alaska Department of Fish and Game (ADFG). Alaska Statute 16.05.870 requires ADFG to specify the various streams that are important for spawning, rearing, or migration of anadromous fishes. This is accomplished through the *Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes* and the *Atlas to the Catalog of Waters Important for Spawning, Returning or Migration of Anadromous Fishes*. (ADFG 2019b).

No anadromous or fish-bearing streams exist on Homer Spit. A stocked fishing lagoon is maintained by the city of Homer immediately north of Homer SBH. The Nick Dudiak Fishing Lagoon is stocked with coho and Chinook salmon as a public attraction. Adult Chinook salmon return to the lagoon mid-May to early July; coho salmon have an early

run mid-July to early August, followed by a late run from early August to mid-September (City of Homer 2019).

3.10 Special Aquatic Sites

Special aquatic sites, identified as part of the Clean Water Act, are waters of the U.S. possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general environmental health or vitality of the entire ecosystem of a region. The following ecosystems are considered to be special aquatic sites:

- Wetlands
- Coral reefs
- Sanctuaries and refuges
- Mudflats
- Vegetated shallows
- Riffle and pool complexes (in freshwater streams)

None of these categories are known to exist in the areas affected by the planned activities. The Clean Water Act defines vegetated shallows as “permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass and eelgrass in estuarine or marine systems as well as a number of freshwater species in rivers and lakes” (40 CFR 230.43). This definition does not cover the marine algae found in intertidal areas of the BN 2 beach nourishment area.

3.11 Cultural and Historic Resources

Six known cultural resources are at the end of the Homer Spit. Five of the sites have not yet been evaluated for eligibility on the National Register of Historic Places, and one site has been evaluated but found not eligible. The “Seagoing Buoy Tender Sedge” (SEL-00277) is a floating resource, and is moveable; uncertain from current data if it is moored outside the harbor or not, but can be moved prior to the proposed dredging and returned to its present location. The Sterling Highway (SEL-00379) extends from the tip of the Homer Spit to the northwest, past both the harbor and the beach nourishment site (Sparaga 2019).

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 No-Action Alternative

The no-action alternative would avoid the direct and indirect environmental impacts described in Section 4.2, but would not accomplish the objective of returning the harbor and USCG berth to their authorized design depths.

4.2 Action Alternative

As described in Chapter 2, the USACE has identified hydraulic dredging of harbor sediments and placement of the dredged material for beneficial uses as the preferred alternative for the proposed maintenance. Beneficial uses include upland stockpiling for use by the city of Homer in accordance with local ordinance 11-09 and/or beach nourishment at one or more of the identified sites.

4.2.1 Effects on Community and People

The intent of the proposed maintenance dredging is to benefit commerce, national security, and recreation by ensuring local and transient vessels have safe, reliable, and efficient access to the harbor mooring areas. Homer has a diverse economy with commercial fishing, tourism, and various marine trades being prominent components. While the presence of the dredge and support vessels within the confines of the channel may cause temporary obstruction and restricted access to moorage, these effects can be adequately minimized by close coordination with the harbormaster and other stakeholders, and will be scheduled to the least disruptive time periods to the extent possible. Additionally, on-shore dewatering and stockpiling activities will occur in established locations that are used annually. Adequate controls have been successfully established and implemented in recent years to minimize effects of upland and near-shore operations on the Homer Spit associated with the annual maintenance dredging.

The USACE determines that there will be no significant impacts to economic, subsistence, or recreational activities in the limited area affected by the agency's preferred alternative.

4.2.2 Effects on Land Use

The agency's preferred alternative will not change the harbor or any surrounding lands except for the short-term limitations on harbor access during dredging, as described above. Placement of dredged material for beach nourishment may temporarily displace or discourage public use of a limited part of the beach.

The USACE determines that there will be no significant impacts to land use.

4.2.3 Climate

The USACE determines that the agency's preferred alternative will have no discernable effect on climate. The beach nourishment is intended to temporarily improve the climate resilience of the Homer Spit infrastructure.

4.2.4 Effects on Topography, Soils, and Hydrology

The dredging action will remove clean, naturally occurring shoaled sediment from the bottom of the Federal channel and USCG berth, returning them to their design contours in the areas dredged. The placement of dewatering berms and stockpiled dredge material in upland sections will add an earthen fill to the Homer Spit which will be of temporary duration. USACE through the dredging contractor will be responsible for managing the dewatering berms during maintenance operations, to include storm water pollution prevention measures, and the city of Homer will manage the stockpiled dredged material following operations. The placement of dredged material for beach nourishment will temporarily extend the beach profile in that area.

The USACE determines that there will be no significant impacts to topography, soils, or hydrology.

4.2.5 Effects on Tides, Currents, and Sediment Transport

The removal of sediment from the Federal channel and USCG berth will return the project contours to their original design; this may have a small effect on water movement through the harbor versus pre-dredging conditions. The placement of dredged material for beach nourishment will temporarily displace wave energy offshore at the placement location, and add to the material moved by the natural sediment transport process.

The USACE determines that there will be no significant adverse impact to tides, currents, or sediment transport.

4.2.6 Effects on Water Quality

Due to the small quantity of fines in the Homer SBH sediment dredged each year and the use of hydraulic dredging equipment, the dredging activity creates minimal turbidity

that is confined primarily to the Federal channel and USCG berth. Fine material that is transported by the suction pipeline to the bermed dewatering facility is allowed to settle out with the entrained water. Effluent from the dewatering site drains through pipes connected to a manifold at the dewatering site. The effluent flows through the pipes, diffused to mitigate erosion, and discharged onto the beach, where it is further filtered by the coarse beach material (USACE 2017b). The dewatered dredged material placed at the beach nourishment sites should contain minimal fines. Concurrent with the public review of this EA, the USACE will apply for a CWA Section 401 Certification of Reasonable Assurance from the State of Alaska Division of Water.

The USACE determines that the planned activities will not cause significant adverse impacts on water quality.

4.2.7 Effects on Air Quality

The operation of construction equipment and vessels during the agency's preferred alternative would, in the short term, add incrementally to the air pollutant emissions ordinarily generated by vessels and machinery along Homer Spit. The dredging equipment and construction machinery likely to be used during the project would be primarily diesel-powered, and comparable to existing mobile emission sources at Homer. Direct, short term project-related impacts to air quality in the greater Homer area would be highly variable and transitory, where noticeable at all. The planned activities will not create any new stationary source of air emissions.

The USACE determines that the agency's preferred alternative will not cause significant adverse impacts on air quality.

4.2.8 Effects on Habitat

The Federal channel and USCG berth host frequently-disturbed, low-complexity benthic habitat that will be temporarily disrupted by the planned maintenance dredging activities, but not significantly degraded in the long term. Crab and other slow-moving invertebrates within the designated dredging areas may be killed and/or entrained by the dredge. The benthic conditions upon completion of the project will be reasonably similar to the initial conditions, and those areas will be recolonized by a similar community of organisms. The existing intertidal substrate at BN 1 and BN 3 is similar in grain-size distribution to the dewatered dredged material; BN 2, with its complex tidepool habitat, will be avoided as a beach nourishment site if possible.

The USACE determines that the agency's preferred alternative will not have a significant long term impact on habitat.

4.2.9 Effects on Endangered and Threatened Species

Except for the two bird species, all the ESA-listed species in table 3 are marine mammals. As the proposed project will affect the marine mammal species in similar ways, the evaluation of potential effects is organized here by type of effect, rather than individual species. The project may have short-term potential effects associated with construction, as well as long-term effects caused directly or indirectly by the finished project.

Generally speaking, marine mammals face common threats from human activities:

- Vessel strikes
- Noise and disturbance
- Direct impacts from human fishing (e.g., entanglement in fishing gear)
- Indirect impacts from human fishing (e.g., competition for food resources)
- Contaminants and pollutants
- Habitat degradation caused by human activities
- Hunting and illegal killings

4.2.9.1 Short-Term Effects

The main potential threats to marine mammals from the planned activities include noise and disturbance, vessel strikes, and release of pollutants.

4.2.9.1.1 Noise and Disturbance:

The NMFS has developed comprehensive guidance on sound levels likely to cause injury to marine mammals through onset of permanent and temporary threshold shifts (PTS and TTS; Level A harassment; 81 FR 51693). Under the PTS/TTS Technical Guidance (NMFS 2018), the NMFS uses the following thresholds for underwater sounds that cause injury, referred to as Level A harassment under section 3(18)(A)(i) of the MMPA. These acoustic thresholds are presented using dual metrics of cumulative sound exposure level (LE) and peak sound level (PK) for impulsive sounds and LE for non-impulsive sounds (Table 6).

Table 6. Marine Mammal Hearing Groups and Level A Acoustic Thresholds

Hearing Group	Relevant Species	Generalized Hearing Range	PTS Onset Acoustic Thresholds	
			Impulsive	Non-Impulsive
Low-Frequency Cetaceans (LF)	**Humpback whale** NP right whale NWP gray whale Blue whale **Fin whale**	0.007 to 35 kHz	$L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB
Mid-Frequency Cetaceans (MF)	Sperm whale **Beluga whale**	0.15 to 160 kHz	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB
High-Frequency Cetaceans (HF)	**Porpoises**	0.275 to 160 kHz	$L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	$L_{E,MF,24h}$: 173 dB
Phocid Pinnipeds (PW)	Ringed seal Bearded seal **Harbor seal** Spotted seal	0.05 to 86 kHz	$L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	$L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW)	**Steller sea lion**	0.06 to 39 kHz	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 219 dB

PTS: Permanent Threshold Shift: a permanent reduction in the ability to hear.
kHz: kilohertz (sound frequency)
dB: Decibels, unweighted (sound intensity)
L_{pk}: Peak sound level; "flat" = unweighted within the generalized hearing range.
L_E: Cumulative sound level; "24h" = 24-hour cumulative period.
LF, MF, HF, PW, OW: defined in "Hearing Group" column
(Adapted from NMFS 2016c)

The NMFS is in the process of developing guidance for behavioral disruption (Level B harassment). Until such guidance is available, NMFS uses the following conservative thresholds of underwater sound pressure levels (measured in micropascals, or µPa), expressed in root mean square (rms), from broadband sounds that cause behavioral disturbance, and referred to as Level B harassment under section 3(18)(A)(ii) of the MMPA.

- impulsive sound: 160 dB re 1 μPa_{rms}
- continuous sound: 120 dB re 1μPa_{rms}

For air-transmitted sound, the NMFS has developed the following Level B thresholds:

- 100 dB re 20μPa_{rms} for non-harbor seal pinnipeds
- 90 dB re 20μPa_{rms} for harbor seals

The major sources of noise and disturbance expected during construction of this project are:

- hydraulic dredging;
- project-related vessels (tugboats and small survey watercraft);

Dredging. The major processes contributing to hydraulic pipeline dredging sounds include:

- dredged material collection sounds that result from the rotating cutterhead coming in contact with the sediment bed and intake of the sediment-water slurry,
- sounds generated by pumps and impellers driving the suction of material through the pipes,
- transport sounds involving the movement of sediment through the pipes, and
- ship and other machinery sounds (Reine & Dickerson 2014).

The underwater noise generated by a hydraulic dredge is essentially continuous, and it is difficult to isolate the individual sounds from the different mechanisms involved. Pumps and generators operated above the waterline during hydraulic dredging may transmit similar levels of sound energy into the water column as are emitted by the submerged cutter head. USACE researchers studied the underwater sounds produced by hydraulic dredges operating in California (Reine & Dickerson 2014), and were able to back-calculate mean source levels of 151.48 to 157.43 dB_{rms} re 1µPa at 1 meter. A smaller dredge in the study, the 30.3-meter *Veracious*, was estimated to have a source level of 152.9 dB_{rms} re 1µPa at 1 meter. These source levels are below the Level A thresholds presented in Table 3, but above the Level B threshold of 120 dB_{rms} for continuous sounds. Most of the sound measured was at frequencies below 1000 Hz, and most commonly in a band between 350 and 100 Hz; this is within, but at the lower extremity of, the hearing range of most marine mammals (Table 6).

Project vessels. Tugboats may generate significant underwater noise, especially when maneuvering or holding a barge in position against a dock or the shore. During a 2001 acoustic survey of Cook Inlet (Blackwell and Greene 2002), the highest level underwater broad-frequency noise recorded (149 decibels (dB) re 1µPa, at a distance of 102 meters) was generated by a tugboat docking a gravel barge. The same tug/barge combination generated a maximum level of 125 dB re 1µPa, at a distance of 190 meters, when in transit. The underwater noise level generated by a tugboat can vary greatly with the size/horsepower of the tugboat engine and whether noise-reducing features, such as propeller cowlings, are present. Diesel-powered tugs typically generate underwater noise at relatively low frequencies, roughly in the 0.02 to 1 kHz range (USACE 1998).
At 0.02 to 1 kHz, the typical frequency range of underwater noise generated by a tugboat engine (USACE 1998) places it at the lower end of the generalized hearing range of low frequency (LF) cetaceans, and below or at the very lower limit of the hearing range of other marine mammals (Table 6). The noise generated by the tugboat engine is assumed to be non-impulsive/continuous; no source of impulsive noise from the tug and barge is anticipated other than brief, incidental sounds from docking or landing. The 125 dB re 1µPa, at a distance of 190 meters, of a tug and barge in transit (Blackwell and Greene 2002) falls well below the Level A harassment (injury) acoustic

thresholds for non-impulsive noise shown in Table 3, but slightly exceeds the 120 dB re 1µPa_{rms} default conservative threshold for a Level B disturbance from continuous noise. There is the potential for LF cetaceans within a few hundred meters of proposed action-related vessels in transit to experience a Level B disturbance (behavioral disruption) due to underwater noise. Other marine mammals would likely be insufficiently sensitive to the low-frequency engine noise to experience a disturbance.

Air-transmitted noise levels generated by tugboat diesel engines are comparable to those of large construction equipment, generally 70 to 100 A-weighted decibels (dBA) within 50 feet of the engine (Navy 1987; USACE 2011; Dyer and Lundgard 1983). Thornton (1975) measured in-air barge noise at levels between 88 and 93 dBA in the aft deck of two barges. These levels fall below the level B disturbance threshold for pinnipeds (or at the threshold for harbor seals).

The transmission of land-generated air-transmitted noise into an adjacent waterbody is not well studied. The transfer of sound energy from air into water via sound waves striking the air/water interface at a shallow angle is generally understood to be poor (Zhang 2002); noise generated on land at an elevation not far above the surface of an adjacent water body will be to a significant degree reflected off of the water's surface, and not transmitted into the water.

Sound energy can also be transmitted from ground-based sources into water via vibration. Vibration from non-impact construction machinery transmitted through the ground is typically very low frequency, in the 10-30 Hz (0.01-0.03 kHz) range (Roberts 2009).

4.2.9.1.2 Vessel Strikes:

Project vessel activity during and in support of construction will likely consist of a tug or dredge tender maneuvering the dredge, pipeline, and swing anchors around the immediate project area, and small support and survey watercraft. The effects of proposed project vessels would be an incremental increase over the effects of the many similar vessels that operate out of Homer SBH or between Homer and Anchorage every year. The probability of strike events depends on the frequency, speed, and route of the marine vessels, as well as distribution of marine mammals in the area. An analysis of ship strikes in Alaskan waters (Neilson et al, 2012) found that whale mortalities are more likely when large vessels travel at speeds greater than 12 knots. Another study (Vanderlaan and Taggart 2007) used observations to develop a model of the probability of lethal injury based upon vessel speed, projecting that the chance of lethal injury to a whale struck by a vessel is approximately 80 percent at vessel speeds over 15 knots, but approximately 20 percent at 8.6 knots. The relatively low speed of a typical ocean-

going barge and tug (typically no more than 9 knots), together with a barge's blunt prow and shallow draft, make it far less likely to strike and inflict injury upon a marine mammal than larger, faster ocean-going vessels such as cruise ships and cargo ships. The limited maneuverability and long stopping-distance of a barge and tug would make it difficult for the vessels to avoid an observed marine mammal, and in many circumstances unsafe for them to attempt to do so. Conversely, however, the vessels' low speed and consistent course would enable marine mammals to avoid the path of the barge and tug well before there was a danger of collision.

4.2.9.1.3 Release of Contaminants:

The increased vessel activity during project construction is an increased risk of accidental leaks and improper discharges of fuel or other pollutants. Such releases may come from the dredge, support equipment, tugboats and/or survey vessels. Onshore discharges from land-based construction equipment (excavators, bull dozers, front end loaders, etc.) could potentially contaminate marine waters.

4.2.9.2 Long-Term Effects

The purpose of the planned maintenance dredging is to return the Federal channel and USCG berth to their design depths. This activity has been performed annually in the Federal channel since 1972 (USACE 2017) without any sign of long-term adverse effects to protected species. Agreements with the USCG to perform maintenance dredging of the USCG berth date back to 1997 and likewise have resulted in no signs of long-term adverse effects to protected species. The planned beach nourishment along the west shore of Homer Spit will have transient effects on sediment transport within the intertidal zone, and is unlikely to cause any discernable impacts to marine mammals.

4.2.9.3 Proposed Avoidance and Minimization Measures

4.2.9.3.1 Noise and Disturbance*:*

The specific hydraulic dredging system to be used at Homer SBH is unknown, but the tight confines of the harbor greatly limit size of the dredge floating plant that can run within the harbor. Hydraulic dredges used previously at Homer SBH have tended to be about 50 feet long and 20 feet wide, with 10- to 12-inch pipelines. This is considerably smaller than the *Veracious* dredge cited above, which was 100 feet long and employed a 16-inch hydraulic pipeline (Reine & Dickerson 2014).

The noise generated by hydraulic dredges is continuous rather than impulsive, so a Level B harassment threshold of 120 dB is appropriate. Using the source level

estimated for the *Veracious* (152.9 dB_{rms} re 1µPa at 1 meter) as a highly conservative surrogate for the Homer SBH dredge, and using the "practical spreading" attenuation model, we calculate an isopleth for the underwater noise 120-dB Level B disturbance threshold as 156 meters from the dredge. Figure 11 illustrates a 160-meter standoff distance from the planned dredging areas. This 160-meter radius will also be protective of harbor seal exposure to air-transmitted noise.

Figure 11. The 120 dB isopleth (in blue) from all points within the planned dredging area (in yellow). *Adapted from USACE 2017*.

A protected species observer (PSO), able to accurately identify and distinguish species of Alaska marine mammals, will be present at all times before and during dredging activities.

Monitoring:

a. Before dredging activities, an exclusion (i.e., shut-down) zone will be established. For this project, the exclusion zone includes all marine waters within 160 meters (Figure 8) of the sound source.

b. Dredging will not be conducted when weather conditions or darkness restrict clear and visible observations of all waters within and surrounding the exclusion zone.

c. The PSO will be positioned such that the entire exclusion zone is visible.

d. The PSO will have the following to aid in determining the location of observed listed species, to take action if listed species enter the exclusion zone, and to record these events:

- Binoculars
- Range finder
- GPS
- Two-way radio communication with construction foreman/superintendent.
- A log book of all activities which will be made available to the Corps and NMFS upon request.

e. The PSO will have no other primary duty than to watch for and report on events related to marine mammals.

f. The PSO will scan the exclusion zone for the presence of marine mammals for 30 minutes before any dredging activities take place.

- If any listed species are present within the exclusion zone, dredging activities will not begin until the animal(s) has left the exclusion zone or no listed species have been observed in the exclusion zone for 15 minutes (for pinnipeds) or 30 minutes (for cetaceans).
- Throughout all dredging activities, the PSOs will continuously scan the exclusion zone to ensure that listed species do not enter it.
- If any listed species enter, or appear likely to enter, the exclusion zone during dredging activities, all dredging activity will cease immediately. Dredging activities may resume when the animal(s) has been observed leaving the area on its own accord. If the animal(s) is not observed leaving the area, dredging activity may begin 15 minutes (for pinnipeds) or 30 minutes (for cetaceans) after the animal is last observed in the area.

Reporting:
Monthly PSO reports, a final PSO report, and Cook Inlet beluga observation forms will be provided to NMFS.

a. The reporting period for each monthly PSO report will be the entire calendar month, and reports will be submitted by close of business on the fifth day of the month following the end of the reporting period (e.g., the monthly report covering April 1 to 30, 2020, will be submitted to the NMFS by close of business on May 5, 2020).

b. PSO report data will also include the following for each listed species observation or “sighting event” if repeated sightings are made of the same animal(s):

    i. Species, date, and time for each sighting event.
    ii. Number of animals per sighting event; and number of adults/juveniles/calves per sighting event.
    iii. Primary, and, if observed, secondary behaviors of the marine mammals in each sighting event.
    iv. Geographic coordinates for the observed animals, with the position recorded by using the most precise coordinates practicable (coordinates must be recorded in decimal degrees, or similar standard, and defined coordinate system).
    v. Time of the most recent dredging or other project activity prior to marine mammal observation.
    vi. Environmental conditions as they existed during each sighting event, including weather conditions, visibility (km/mi), lighting conditions, and percent ice cover.

c. A final report will be submitted to NMFS within 90 days after the final dredging work has been completed for the project. The report will summarize the results of listed species monitoring conducted during the in-water project activities. The report will include items from the list above as well as the following:

    i. Summaries of monitoring efforts including total hours, total distances, and listed species distribution through the study period, accounting for sea state and other factors that affect visibility and detectability of listed species.
    ii. A description of any factors that may have influenced detectability of listed species (e.g., sea state, number of observers, fog, glare, etc.).
    iii. Species composition, occurrence, and distribution of listed species sightings, including date, water depth, numbers, age/size/gender categories (if determinable), group sizes, and ice cover.
    iv. Number of listed species observed (by species) during periods with and without project activities (and other variables that could affect detectability), such as:

        1. Initial listed species sighting distances versus project activity at time of sighting.
        2. Observed listed species behaviors and movement types versus project activity at time of sighting.
        3. Numbers of listed species sightings/individuals seen versus project activity at time of sighting.
        4. Distribution of listed species around the action area versus project activity at time of sighting.

Though take is not authorized, if a listed species is taken (i.e., a listed species is observed entering the 156 m exclusion zone before dredging operations can be shut down), re-initiation of consultation is required, and the take must be reported to NMFS within one business day (contact listed below). PSO records for listed species taken by project activities must include:

a. All the information that must be listed in the PSO report.
b. Number of listed species taken.
c. The date and time of each take.
d. The cause of the take (e.g., listed marine mammal entered the shutdown zone before dredging operations were able to shut down).
e. The time the listed species entered the exclusion zone, and, if known, the time it exited the zone.
f. Mitigation measures implemented prior to and after the listed species entered the exclusion zone.

Prior to the start of dredging activities (minimum of one week), the applicant must notify the NMFS Protected Resources Division.

Monthly and final reports and reports of take will be submitted to the NMFS Protected Resources Division, Anchorage Office.

4.2.9.3.2 Vessel Strikes:

To reduce the risk of collisions with protected species, project vessels will be limited to a speed of 8 knots, or the slowest speed above 8 knots consistent with safe navigation. Vessels operating within Homer SBH will obey posted speed limits.

4.2.9.3.3 Release of Contaminants:

The contractor will be required to prepare and implement an Environmental Protection Plan, to include an Oil Spill Prevention and Control Plan describing steps to avoid and mitigate releases of hazardous substances.

4.2.9.3.4 Special Conservation Measures*:*

The NMFS has recommended special conservation measures to minimize the impacts of vessel strikes on Cook Inlet beluga whales within their designated CH. Vessels should exercise special caution in the vicinity of the Susitna Delta to minimize the impacts of vessels within this seasonally vital Cook Inlet beluga whale habitat. The Susitna Delta Exclusion Zone (Figure **12**) is defined as the union of the areas defined by:

- a 10-mile (16 km) buffer of the Beluga River thalweg seaward of the mean lower low water (MLLW) line,
- a 10-mile (16 km) buffer of the Little Susitna River thalweg seaward of the MLLW line, and,
- a 10-mile (16 km) seaward buffer of the MLLW line between the Beluga River and Little Susitna River.
- The buffer extends landward along the thalweg buffers to include intertidal area up to mean higher high water (MHHW). The seaward boundary has been simplified so that it is defined by lines connecting readily discernable landmarks.

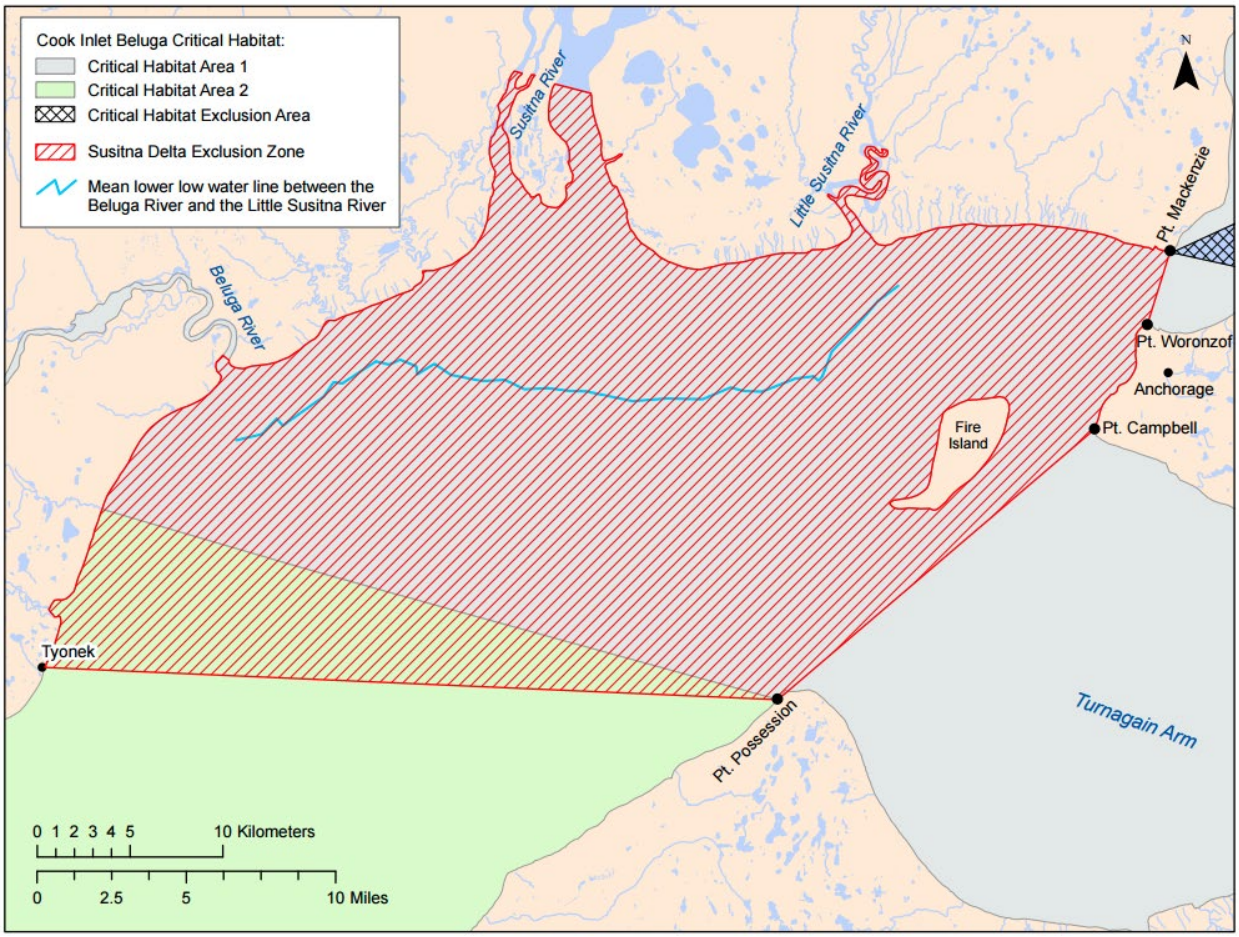


Figure 12. Boundaries of the Susitna Delta Exclusion Zone.

For vessels operating in the Susitna Delta Exclusion Zone, the following should be implemented:

- All vessels operating within the designated Susitna Delta area should maintain a speed below 4 knots. Crews must note the numbers, date, time, coordinates, and

proximity to vessels of any belugas observed during operations, and report these observations to NMFS.

- PSOs must be in place to monitor for ESA-listed species prior to and during all vessel movements when vessels are under power (propellers spinning) within the Susitna Delta Exclusion Zone. PSOs are not required to observe when vessels are not under power (in gear).
- PSOs must be located in a position that affords a view of all waters within a 100-meter radius of all vessels under power (in gear).
- Exercise special caution in the vicinity of the Susitna Delta to minimize the impacts of vessels within this seasonally vital Cook Inlet beluga whale habitat.
- Vessel operators must avoid moving their vessels when PSOs are unable to adequately observe the 100-meter zone around vessels under power (in gear) due to darkness, fog, or other conditions, unless necessary for ensuring human safety.
- If any vessels enter the Susitna Delta Exclusion Zone at any time, PSOs must record and email to NMFS: date, time, number, and geographic coordinates of ESA listed marine mammals observed during vessel movements, and descriptions of any deferred vessel movements or vessel re-directions.

4.2.9.4 Short-tailed Albatross and Steller's Eider

The chance of the dredge or project vessels encountering a short-tailed albatross within Cook Inlet or Kachemak Bay, let alone having an adverse effect on it, is very small. The USACE determines that the agency's preferred alternative will have no effect on this species. Steller's eiders would potentially be present in Kachemak Bay only from roughly November through March, well outside of the typical dredging season; the USACE determines that the planned activities will have no effect on this species.

4.2.9.5 Summary of ESA Determinations of Effect

Table 7 summarizes the determinations of effect that the USACE has made for this project under the ESA.

Table 7. USACE Determinations of Effect for ESA Species

Species	Listed Population	Jurisdictional Agency	USACE Determination
Beluga whale, *Delphinapterus leucas*	Cook Inlet DPS	NMFS	May affect, but not likely to adversely affect
Steller sea lion, *Eumetopias jubatus*	Western DPS	NMFS	May affect, but not likely to adversely affect
Humpback whale, *Megaptera novaeangliae*	W. Pacific DPS	NMFS	May affect, but not likely to adversely affect
	Mexico DPS	NMFS	May affect, but not likely to adversely affect
Fin whale, *Balaenoptera physalus*	All	NMFS	May affect, but not likely to adversely affect
Steller's eider, *Polysticta stelleri*	All	USFWS	No effect
Short tailed albatross, *Phoebastria albatrus*	All	USFWS	No effect

4.2.10 Effects on Marine Mammals

The anticipated effects on cetaceans or pinnipeds not listed under the ESA (section 3.9.3), are expected to be the same as described above for the ESA-listed marine mammals. The same avoidance and minimization measures as described in Section 4.2.9.3 would apply for any whales, porpoises, dolphins, sea lions, or seals.

4.2.10.1 Effects on Sea Otters

Northern sea otters, although taxonomically distant from other marine mammals, are believed to have underwater hearing sensitivities and frequency ranges similar to otariid pinnipeds such as Steller sea lions (table 6; NMFS 2018). However, in a recent proposed authorization for sea otter incidental takes under the MMPA (USFWS 2019), the USFWS posits that a Level B harassment threshold of 120-dB is likely to overestimate the likelihood of harassment effects on sea otters, and states that in-water noise levels greater than 160 dB will be considered as sea otter Level B take for both continuous and impulsive noises.

The surrogate hydraulic dredge source level described in section 4.2.10.3 (152.9 dB_{rms} re 1µPa at 1 meter) is actually less than this 160-dB level B harassment threshold; therefore, the underwater noise generated by the project dredge would not represent a risk of taking by harassment of northern sea otters. The primary risk to sea otters from

project activities is physical contact with the dredge equipment and project vessels within the confines of Homer SBH.

4.2.10.2 Proposed Avoidance and Minimization Measures for Sea Otters

The PSO requirements and marine mammal monitoring procedures described in section 4.2.9.3.1 will also apply to northern sea otters, but with an exclusion radius of 50 meters.

The project watercraft speed restrictions and spill prevention requirements described in section 4.2.9.3.3 will also be protective of northern sea otters.

The USACE determines that the agency's preferred alternative will not result in a taking under the MMPA.

4.2.11 Effects on Eagles and Migratory Birds

The area surrounding Homer SBH is highly developed, with few trees and very little potential eagle nesting habitat within the recommended 660-foot buffer distance (USFWS 2011). Any eagles frequenting the area will be highly acclimated to human noise and activity. The USACE determines that the agency's preferred alternative will not result in a taking under the Bald and Golden Eagle Protection Act.

According to USFWS guidance (USFWS 2009), migratory birds in the Homer area nesting in "shrub or open" habitat have a typical nesting window of 1 May to 15 July. Routine dredging operations are unlikely to destroy or force abandonment of bird nests. It is possible that ground nesting birds such as sandpipers and terns might attempt to nest in the beach nourishment placement areas. A potential taking under the MBTA could be avoided by placing the beach nourishment material before or after the nesting window, or by installing passive hazing devices (e.g., reflective streamers) in the area prior to the nesting window.

The USACE determines that the agency's preferred alternative will not result in a taking under the MBTA.

4.2.12 Effects on Essential Fish Habitat and Anadromous Streams

The Federal navigation channel and USCG berth offer very limited, and regularly disrupted, habitat for fish. Individuals of some of the fish species listed in table 5 may enter Homer SBH, but the harbor is unlikely to contain habitat necessary for the reproduction, growth, feeding, and shelter of these species. The placement of dredged

material for beach nourishment may affect the nearshore environment of juvenile fish in limited areas, but the effect will mostly mimic natural processes of sediment transport. USACE will not conduct proposed project activities during the period between May 1 and July 15 of each year, in order to protect juvenile salmon during a critical portion of their lifecycle.

The USACE determines that the agency's preferred alternative will not adversely affect marine or freshwater EFH.

4.2.13 Effects on Cultural and Historic Resources

The Alaska State Historic Preservation Officer (SHPO) concurred with the USACE determination of "no historic properties affected" (Sparaga 2019) on 22 August 2019.

4.2.14 Effects on Environmental Justice and Protection of Children

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations was issued in 1994. The purpose of the order is to avoid disproportionate adverse environmental, economic, social, or health effects from federal activities on minority and low-income populations.

The lands at the end of Homer Spit are zoned "marine industrial", "marine commercial", and "open space recreational" (City of Homer 2016). Residential or lodging land use is limited to a hotel/resort and a small number of condominiums; there are no established residential neighborhoods on the spit. The USACE anticipates no disproportionate adverse effects on minority or low-income populations as a result of the agency's preferred alternative.

On April 21, 1997, Executive Order 13045, Protection of Children from Environmental Health and Safety Risks, was issued to identify and assess environmental health and safety risks that may disproportionately affect children.

There are no schools in the project area. The long-established dewatering area is on a lot adjacent to a group of condominiums, but the presence of children living in the condominiums is unknown. The dewatering area presents no special physical or chemical hazard to the public. The USACE anticipates no disproportionate health or safety risks to children as a result of the agency's preferred alternative.

4.2.15 Cumulative Effects

Federal law (40 CFR 651.16) requires that NEPA documents assess cumulative effects, which are the impact on the environment resulting from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

By their nature, the planned annual maintenance activities are intended to return the Federal project to its designed configuration. The dredging of Homer SBH will be coordinated with the City of Homer and USCG to minimize disruption of activities at the harbor. No direct or indirect cumulative effects are anticipated.

5.0 REGULATORY COMPLIANCE AND AGENCY COORDINATION

5.1 Compliance with Laws and Regulations

National Environmental Policy Act. This EA and unsigned Finding of No Significant Impact (FONSI) were prepared using information gathered during iterations of this project, and the most recent correspondence with state and federal resource agencies. Per the NEPA process and USACE regulations and guidance, the EA and unsigned FONSI are subject to a public review period. If requested, a public meeting may be held to discuss project alternatives and ask for public views and opinions.

Clean Water Act. The high tide line at Homer Spit is approximately 23.4 feet above MLLW; dredged material placed between +20 and +10 feet MLLW will be a discharge to waters of the U.S. under Section 404 of the Clean Water Act. The USACE does not issue Section 404 permits for its own actions. A Section 404(b)(1) evaluation has been prepared by the USACE and appended to this EA (Appendix A).

Endangered Species Act. The USACE has engaged in informal consultation under the ESA with the NMFS. The NMFS Protected Resources Division confirmed an ESA species list in an email dated 21 August 2019. The USACE submitted a letter dated 23 August 2019 to the NMFS, requesting concurrence with the determination that the planned activities “may affect but not likely to adversely affect” ESA-listed species under NMFS jurisdiction. The NMFS concurred in an expedited review letter dated 10 September 2019.

The USACE has determined the project will have no effect on two ESA-listed species under USFWS jurisdiction; no further coordination is required.

Magnuson-Stevens Fisheries Conservation and Management Act. The USACE has reviewed information on EFH in the project area, and has made the determination that the planned activities would have no adverse effect on EFH. No further coordination is required.

National Historic Preservation Act. Coordination with Section 106 of the NHPA has been completed, with the SHPO's concurrence with the USACE determination of "no historic properties affected".

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments. Federal departments and agencies are required to consult with Native American tribal governments when considering policies or actions that would impact tribal communities. The USACE will identify and consult with Federally-recognized tribes whose interests may be affected

Fish and Wildlife Coordination Act. Maintenance dredging projects that return established navigation projects to their design parameters and use upland or established in-water disposal sites are generally regarded by the USACE, in the absence of unusual impacts or circumstances, to not be subject to the Fish and Wildlife Coordination Act (FWCA). The USFWS will be asked to review the planned placement of dredged material for beach nourishment.

Alaska Statute 16.20.500 Critical Habitat Areas. The USACE has applied for and received a Special Area Permit (Permit # 19-V-0232-SA, expires 31 December 2022) from the ADFG, for its planned activities within the Kachemak Bay Critical Habitat Area (Section 3.8.1).

Alaska withdrew from the voluntary National Coastal Zone Management Program (http://coastalmanagement.noaa.gov/programs/czm.html) on July 1, 2011. Within the State of Alaska, the Federal consistency requirements under the Coastal Zone Management Act do not apply to federal agencies, those seeking forms of federal authorization, and state and local government entities applying for federal assistance.

Federal and state agencies with whom this project has been coordinated include:

- Protected Resources Division, National Marine Fisheries Service.
- U.S. Environmental Protection Agency.
- Division of Water, Department of Environmental Conservation, State of Alaska.
- Office of History and Archaeology, Department of Natural Resources, State of Alaska.
- Department of Fish and Game, State of Alaska.

A checklist of project compliance with relevant Federal, state, and local statutes and regulations is shown in Table 8.

Table 8. Environmental Compliance Checklist

FEDERAL	Compliance
Archeological & Historical Preservation Act of 1974*	FC
Clean Air Act	FC
Clean Water Act	PC*
Coastal Zone Management Act of 1972	NA
Endangered Species Act of 1973	FC
Estuary Protection Act	FC
Federal Water Project Recreation Act	FC
Fish and Wildlife Coordination Act	NA
National Environmental Policy Act	PC**
Land and Water Conservation Fund Act	FC
Marine Protection, Research & Sanctuaries Act of 1972	NA
National Historic Preservation Act of 1972	FC
River and Harbors Act of 1899	FC
Magnuson-Stevens Fishery Conservation & Management Act	FC
Marine Mammal Protection Act	FC
Bald Eagle Protection Act	FC
Watershed Protection and Flood Preservation Act	FC
Wild & Scenic Rivers Act	NA
Executive Order 11593, Protection of Cultural Environment	FC
Executive Order 11988, Flood Plain Management	FC
Executive Order 11990, Protection of Wetlands	FC
Executive Order 12898, Environmental Justice	FC
Executive Order 13045, Protection of Children	FC
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments	PC***
STATE AND LOCAL	
State Water Quality Certification	FC
Alaska Statute 16.20.500 Critical Habitat Areas	FC
Alaska Coastal Management Program	NA

PC = Partial compliance, FC = Full compliance
*Full compliance will be attained upon receipt of a CWA Section 401 water quality certification from ADEC.
**Full compliance will be attained upon the signing of the FONSI.
***Full compliance will be attained upon coordination with the pertinent Federally-recognized tribe(s).

6.0 CONCLUSION

The completed Environmental Assessment supports the conclusion that the proposed maintenance dredging does not constitute a major federal action significantly affecting the quality of the human and natural environment. An environmental impact statement (EIS) is therefore not necessary for the agency's preferred alternative, and the prepared Finding of No Significant Impact (FONSI) may be signed.

7.0 DOCUMENT PREPARATION

This Environmental Assessment was prepared by Chris Floyd, Joseph Sparaga, and Joyce Scott of the Environmental Resources Section, Alaska District, U.S Army Corps of Engineers. The Corps of Engineers Project Manager is Michael Tencza.

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APPENDIX A

EVALUATION UNDER
SECTION 404(b)(1) CLEAN WATER ACT 40 CFR PART 230

EVALUATION UNDER
SECTION 404(b)(1) CLEAN WATER ACT 40 CFR PART 230
Maintenance Dredging Actions at Homer Small Boat Harbor and US Coast Guard Dock

I. Project Description

The U.S. Army Corps of Engineers, Alaska District (USACE) maintains the Federal navigational features of the Homer small boat harbor (SBH) and conducts biannual maintenance dredging of the U.S. Coast Guard (USCG) dock immediately adjacent to the Homer SBH entrance channel. USACE was previously issued a Certificate of Reasonable Assurance (CRA) (Reference # ER-07-24, dated January 9, 2013 and re-issued October 26, 2016) by the Alaska Department of Environmental Conservation (ADEC) for its maintenance dredging actions and procedures at the Homer SBH and USCG dock that expires December 31, 2019.

Due to the natural accretion of sediments in the Homer SBH navigational channel and at the face of the USCG dock, USACE intends to enact the same maintenance dredging procedures, equipment (i.e. hydraulic cutterhead and pipeline suction dredge), dewatering site, and if necessary, the dredged material stockpile site to be used as in years past. However, USACE would also incorporate the additional action of placing dewatered sediments along areas of the Homer Spit as a form of beach nourishment. Dredged material would be conveyed via a pipeline from a floating dredge to a temporary dewatering basin constructed near the harbor basin. Suspended sediment would be permitted to settle within the bermed basin prior to effluent being allowed to discharge via a pipeline into the outer Kachemak Bay area, which is within the Kachemak Bay Critical Habitat Area (KBCHA). Dredging operations would cease when the settling basin reaches its capacity of settled-out dredged material and would begin after the dewatered dredged material is excavated out of the basin, loaded into trucks, and transported to a City of Homer-identified dredged material stockpile area on the Homer Spit. At its discretion, and in conformance to City Code 1967 § 1-100.1, the City of Homer utilizes stockpiled dredge material for beneficial upland application along the Homer Spit.

The amount of material annually dredged varies each year; however, USACE does not expect more than approximately 16,500 cubic yards of material to be dredged from the Homer SBH's entrance and outer maneuvering channel and the face of the USCG dock in any one year. The entrance channel and outer maneuvering channel would continue to be dredged to the Federal project depth of -20 feet mean lower low water (MLLW). The face of the USCG dock would continue to be dredged to a project depth of -26 feet MLLW, 40 feet out from the face of the dock, with the remaining area dredged to -22 feet MLLW. USACE-conducted sediment sampling analyses in 2019 indicated that the sediment in the project areas does not exceed the most stringent Alaska Department of Environmental Conservation cleanup levels for the under 40-inch zone (ADEC 18 AAC 75.341 Table B1/B2), except for the naturally occurring heavy metals arsenic and chromium, which are found in concentrations that are representative of the naturally occurring background levels.

Late winter storms in early 2019 led to severe coastal erosion along the western margins of the Homer Spit, most notably, a popular recreational area of beach immediately west of the Nick Dudiak Fishing Lagoon, approximately 1600 feet from the existing dewatered dredge material stockpile site. USACE intends to enact beach nourishment actions at this site of coastal erosion with either the entirety, or a portion of each year's annual dredge material volume. Dredge material will be placed between +10 feet MLLW and +20 feet MLLW in such a fashion (application and elevation graduation of the material at low tide) that the characteristics of the existing wave, tidal, and nearshore current action disperse the sediments along the shoreline and amongst the inter- and subtidal zones.

USACE strives to protect juvenile salmon using the harbor area during a critical portion of their life cycle. Therefore, dredging is not proposed to occur during the period of May 1 through July 15. USACE coordinates with the Alaska Department of Fish and Game (ADFG) for Special Area Permitting within the KBCHA, and was most recently issued Permit #16-V-306-SA (expiring December 31, 2019). USACE is renewing the Special Area Permit concurrent with this analysis. ADEC and ADFG shall be consulted immediately if a deviation from the presented plan-of-operation is considered.

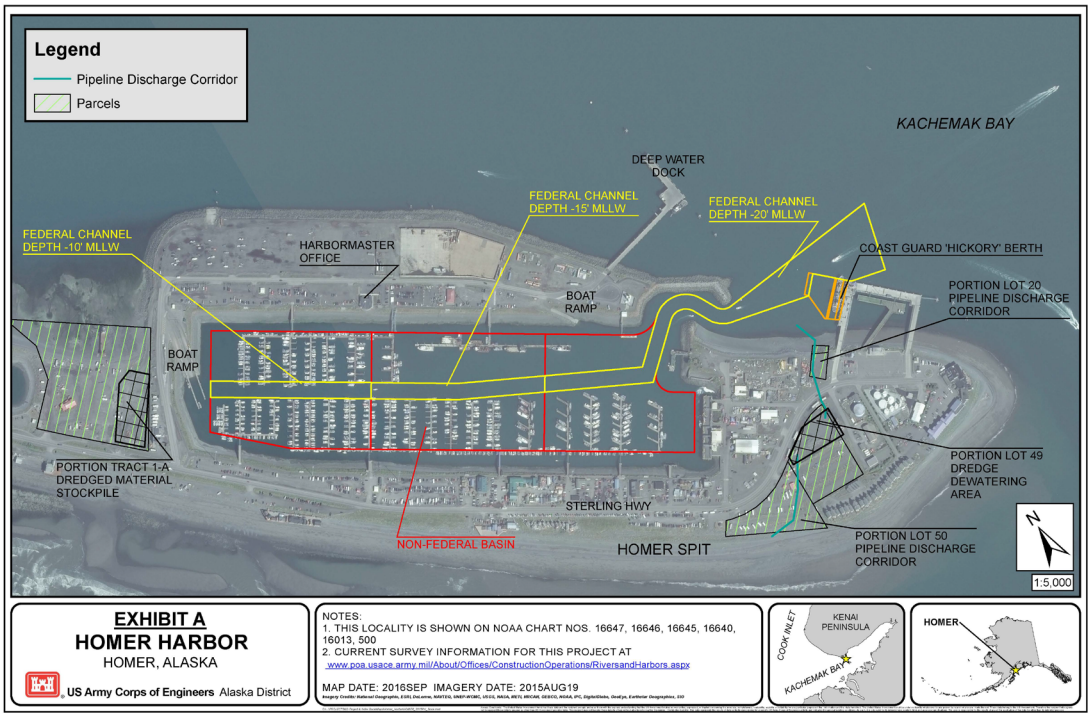
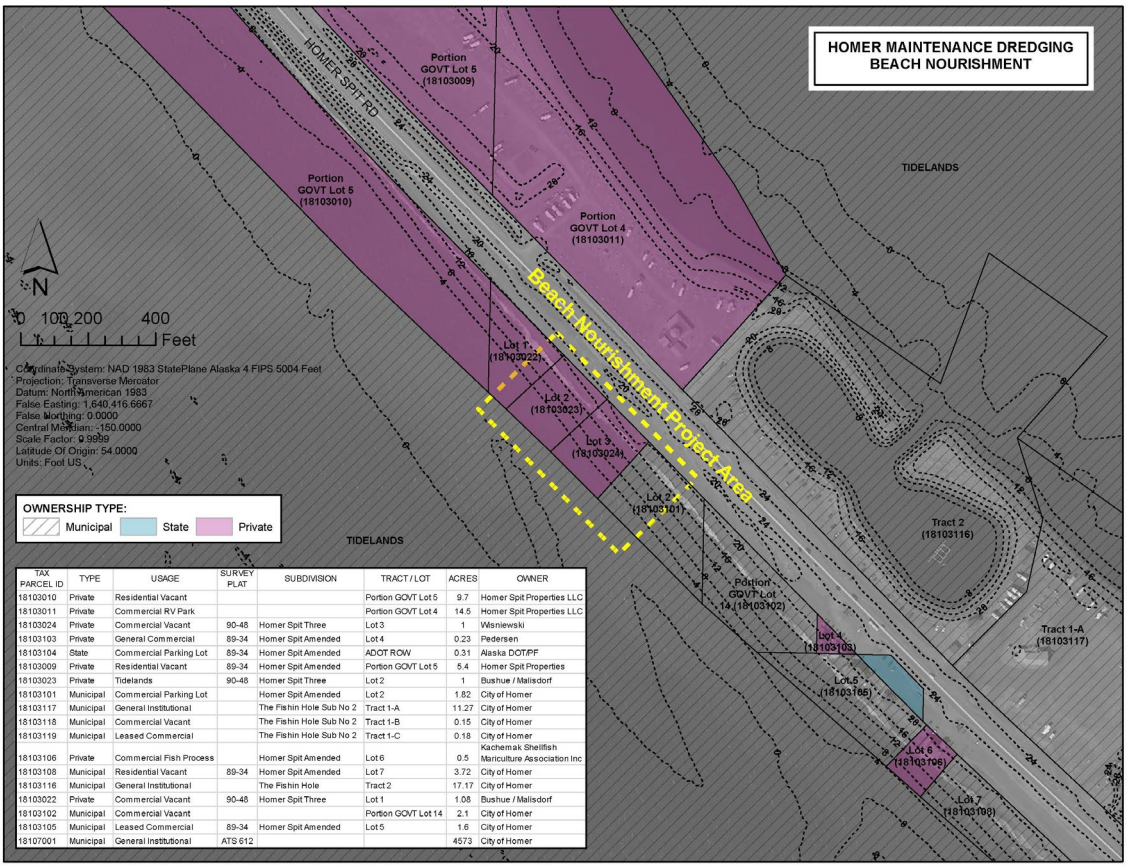


Figure 1. Existing Project Footprint



TAX PARCEL ID	TYPE	USAGE	SURVEY PLAT	SUBDIVISION	TRACT / LOT	ACRES	OWNER
18103010	Private	Residential Vacant			Portion GOVT Lot 5	9.7	Homer Spit Properties LLC
18103011	Private	Commercial RV Park			Portion GOVT Lot 4	14.5	Homer Spit Properties LLC
18103024	Private	Commercial Vacant	90-48	Homer Spit Three	Lot 3	1	Wisniewski
18103103	Private	General Commercial	89-34	Homer Spit Amended	Lot 4	0.23	Pedersen
18103104	State	Commercial Parking Lot	89-34	Homer Spit Amended	ADOT ROW	0.31	Alaska DOT/PF
18103009	Private	Residential Vacant	89-34	Homer Spit Amended	Portion GOVT Lot 5	5.4	Homer Spit Properties
18103023	Private	Tidelands	90-48	Homer Spit Three	Lot 2	1	Bushue / Malisdorf
18103101	Municipal	Commercial Parking Lot		Homer Spit Amended	Lot 2	1.82	City of Homer
18103117	Municipal	General Institutional		The Fishin Hole Sub No 2	Tract 1-A	11.27	City of Homer
18103118	Municipal	Commercial Vacant		The Fishin Hole Sub No 2	Tract 1-B	0.15	City of Homer
18103119	Municipal	Leased Commercial		The Fishin Hole Sub No 2	Tract 1-C	0.18	City of Homer
18103106	Private	Commercial Fish Process		Homer Spit Amended	Lot 6	0.5	Kachemak Shellfish Mariculture Association Inc
18103108	Municipal	Residential Vacant	89-34	Homer Spit Amended	Lot 7	3.72	City of Homer
18103116	Municipal	General Institutional		The Fishin Hole	Tract 2	17.17	City of Homer
18103022	Private	Commercial Vacant	90-48	Homer Spit Three	Lot 1	1.08	Bushue / Malisdorf
18103102	Municipal	Commercial Vacant			Portion GOVT Lot 14	2.1	City of Homer
18103105	Municipal	Leased Commercial	89-34	Homer Spit Amended	Lot 5	1.6	City of Homer
18107001	Municipal	General Institutional	ATS 612			4573	City of Homer

Figure 2. Proposed Material Placement Site

II. Factual Determinations

A. Physical Substrate Determinations

In March of 2019, USACE conducted sediment chemical constituent analyses on those sediments comprising the dredge prism, the dewatering area, and the stockpiling area, respectively. The subsequent report, appended to this analysis, defined the physical characteristics of these sediments as coarse-grained sand and gravels. These observations are consistent with USACE's 2013 sediment analysis that characterized sediments in the basin as well-graded sandy gravel, composed of 62% gravel, 36% sand, and 2% fines. 2013's observations similarly describe the sediments of the entrance channel to be 98% gravel, 2% sand, and 0.2 % fines. Sediment analyses of the beach nourishment site are forthcoming and are expected to occur August-September 2019.

B. Water Circulation, Fluctuations, and Salinity Determinations

The greater Kachemak Bay experiences semi-diurnal tidal activity with a mean range of approximately 15.5 feet, as measured at the tide and meteorological monitoring station at Seldovia, approximately 11 miles southwest of the Homer SBH. At thalweg, near the Homer SBH, the bay exhibits depths of approximately 150 to 700 feet. As such, USACE's maintenance dredging, anticipated material volumes, material placement

strategy, the location of the actions, and the approximate rate of dredge material excavation and placement would not affect the area's salinity concentrations or water circulation and fluctuations.

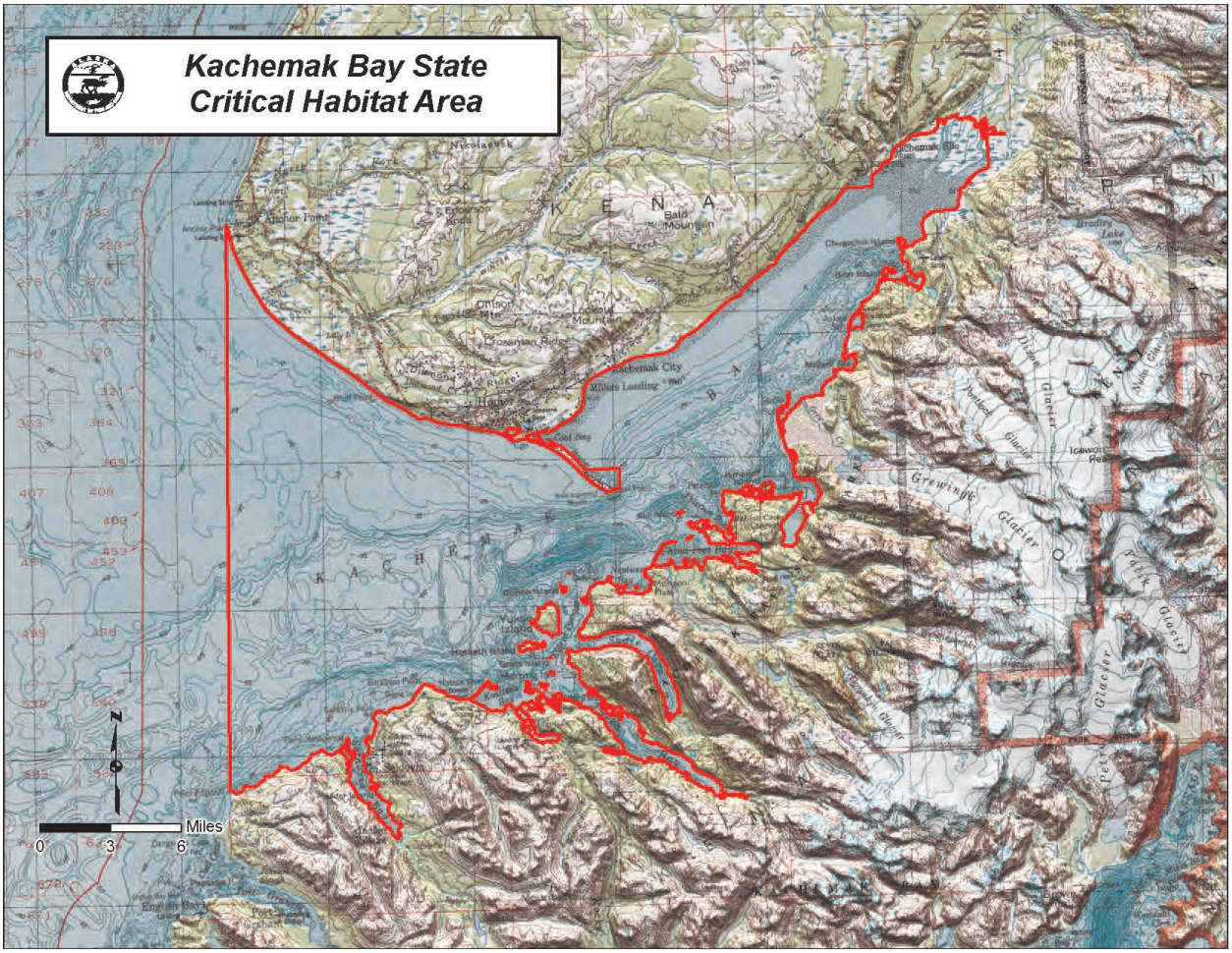


Figure 3. Kachemak Bay Critical Habitat Area

C. Suspended Particulate/Turbidity Determinations

Water quality sampling conducted by USACE in 2002 reported ocean background turbidity and total suspended solids (TSS) levels of 1.50 NTU and 10.8 mg/l, respectively at low tide and 20.0 NTU and 108 mg/l, respectively, at high tide. Approximately 60 feet from the operating dredge, in the path of the incoming tide, turbidity and TSS levels were 0.80 NTU and 9.25 mg/l, respectively. The highest measured parameters were at the inflow to the settling/dewatering basin, with turbidity measuring 116 NTU and TTS measuring 429 mg/l in a sample collected beneath the discharge pipe. Turbidity and TSS levels decreased as the dredging effluent traveled through the settling basin; turbidity and TSS were 60.0 and 118 mg/l, respectively, at the outflow. A measure of the potential impact to surface waters during high tide from dredged effluent was calculated as 40.0 NTU turbidity and 10 mg/l TSS. Impacts to receiving waters could not be calculated for the low tide because the distance from the discharge pipes to receiving

waters was over 300 feet at low tide. This circumstance at low tide creates the potential for the discharge effluent to drop some of its residual sediment load and become less turbid as it travels down the gently sloping beach towards the water's edge. It should also be noted that during high tide, the flow in the discharge pipes backs up to some degree, as the discharge pipes are completely submerged, and the waves hitting the shoreline negatively affect the effluent's alongshore movement.

In conclusion, maintenance dredging would result in highly localized and short-term increases of turbidity and TSS in the vicinity of the cutter head while dredging, at the point where effluent is discharged from the dewatering area/settling basin, and again where wave and current action interacts with and re-suspends portions of the dewatered sediments placed between +10 and +20 feet MLLW. Discharges from dewatering activities at high tide have the potential to exceed the State of Alaska Water Quality Standard of 25 NTU for discharge in marine waters; however, such localized and short-term elevated levels in such a dynamic system would not have any significant impact on the marine resources in the zone of influence.

D. Contaminant Determinations

In March of 2019, USACE conducted a survey that characterized the chemical constituents of the sediments within the Homer SBH and USCG dock area. A total of three primary sediment samples, and one duplicate, were taken from three dredged material management units (DMMUs).

Diesel Range Organics (DRO) were detected in sediments collected from DMMU1, the outer entrance to the Homer SBH, at a concentration exceeding screening criteria. Sediments in this area were comprised of coarse grained material (gravels) as well as pieces of coal. The total organic carbon result for this sample was 560,000 mg/kg, indicating that a significant portion of the sample mass was coal. The laboratory narrative noted that the peak profile present in sample 19HH-DMMU1SL is atypical of a hydrocarbon pattern and consists of discrete peaks. The peak profile was reviewed and determined to not be typical of a hydrocarbon pattern. Due to the high TOC and atypical peak profile, it is assumed that a piece of coal was present in the laboratory sample and was analyzed. Ultimately, the presence of such high concentrations of carbon in the sample has created a false positive for the DRO result.

Selenium was detected at a concentration exceeding screening criteria in DMMU3, a portion of the Federal navigation channel where the depth is -20 feet MLLW. Elevated levels of zinc and copper were also found in the sample indicating that a piece of brass was present in the sample container and was digested with the sample. Selenium is a common metal to mix with zinc and copper in order to reduce the amount of lead required in a brass alloy. This does not indicate that selenium is widely present in harbor sediments.

Arsenic was detected above ADEC screening criteria in all samples. However, concentrations of this metal are consistent across the site and appear to be background. There are no known anthropogenic sources of arsenic at this site and all concentrations are within published statewide background ranges. Additionally, hypothesis testing on arsenic concentrations show that the placement of dredged sediments in both the

dewatering and placements areas will not statistically increase the concentration of arsenic in those areas.

DRO and selenium results appear to be artifacts of non-sediment materials being present in the sediment and analyzed by the lab (coal and brass respectively). These two exceedances do not indicate either DRO or selenium contamination of the project sediments. Zinc was detected at a concentration exceeding the marine screening levels in the Sediment Evaluation Framework for the Pacific Northwest. It is suspected that this zinc was also present in the brass that was digested as part of the sample mass and does not indicate a significant level of contamination. Arsenic was present in all samples at concentrations exceeding ADEC criteria. However, concentrations are within natural background ranges. Sediment arsenic concentrations are comparable to both the dewatering and stockpiling area soils.

In addition to the determined suitability of USACE's project sediments for upland placement, USACE has similarly determined that because of the following sediment analysis guidelines as described in 40 CFR 230.60(a), its project sediments are also suitable for intertidal placement for the purpose of beach nourishment. First, there exists a long history of sediment sampling and analysis that describes the sediments that shoal in the Homer SBH entrance channel and adjacent USCG dock, dating back some 40 years to the inception of the project. And while some contamination had been described a past sampling effort, those particular sediment tracts are no longer included within the project area; the entirety of the project is free of contamination with exception of arsenic which is present in environmental background levels. Second, according to the ADEC Contaminated Sites mapping tool, there are no active, or cleanup-active contaminated sites located along the Homer Spit, and thus no known avenues for known contamination infiltration of the project sediments. Third, the sediments' physical attributes vary from sand to gravel with very few fines. Coarse sediments such as these do not readily adhere environmentally persistent contaminants, and are indicative of a relatively higher-energy system, one that liberates finer particulates and disperses them along slower water velocity gradients.

E. Aquatic Ecosystems and Organism Determinations

Subtidal habitats comprising USACE's project footprint at the Homer SBH and USCG dock appear to be of low value compared to adjacent habitats of the encompassing greater Kachemak Bay area. Annual shoaling and excavation of coarse grained substrates make these areas less than optimal for the establishment of benthic epiflora and epifauna. Similarly, those sessile and low-motility organisms that contribute to the region's benthic infaunal diversity may find it difficult to endure such a rate of disturbance. Much higher quality habitat exists immediately adjacent to USACE's project footprint; i.e., inter- and subtidal elements of the hardened Homer SBH breakwater structure, and the contiguous benthic habitat that surrounds USACE's project footprint. Despite the poor habitat condition of the dredge footprint, any established epibenthic and benthic infaunal organisms would necessarily be destroyed by USACE's dredging activities.

In the context of the overall scale and timing that is required to execute USACE's maintenance dredging, dewatering, and material placement activities, there will be no significant impact to Kachemak Bay's plankton and nekton community, local food webs,

and Special Aquatic Sites (40 CFR 230.3, q-1: Sanctuaries and Refuges, Wetlands, Mud Flats, Vegetated Shallows, Coral Reefs, Riffle and Pool Complexes).

Marine waters surrounding the Homer Spit are recognized to be part of a larger, unique aquatic ecological system, and have been designated as a critical habitat area by the State of Alaska. USACE's project would introduce relatively small volumes of effluent that meet state water quality standards into the KBCHA. Furthermore, USACE will not conduct proposed project activities during the period between May 1 and July 15 of each year, in order to protect juvenile salmon during a critical portion of their lifecycle.

Sea otters and harbor seals are the two species of marine mammal that are most frequently observed in the waters surrounding the Homer SBH. Neither sea otters nor harbor seals are known to routinely inhabit the Homer SBH basin; however, individual animals have likely become habituated to the anthropogenic acoustic baseline that exists as a regular function of harbor operations and are sometimes observed in close proximity to boats, floats, breakwaters, piers, and other anthropogenic features of the Homer SBH. Federally threatened or endangered Humpback whales, fin whales, Cook Inlet beluga whales, and Steller sea lion are far less likely to be observed in the vicinity of the Homer SBH, and much less so in the basin itself. However, as a best management practice and through coordination with USCG and NMFS, USACE employs a work stoppage radius designed to protect marine mammals from potential hydroacoustic impacts associated with the operation of the dredge. This radius is enforced by on-board observers familiar with both local marine mammal identification and behavioral characteristics. USACE biologists provide marine mammal familiarization and reporting requirement briefings to the dredge crew prior to dredge deployment in the spring or fall.

F. Proposed Material Placement Site Determinations

USACE's proposed placement location, portrayed in Figure 2, was selected because of the severe erosion it endured during a late winter storm in early 2019. The erosion site itself is located in a recreationally significant area; in close proximity to the Homer SBH, local businesses, and the main thoroughfare. Because dredge materials associated with this project are proven to be free of anthropogenic contamination, and most closely resemble the physical characteristics of the immediate inter- and subtidal substrates along the Homer Spit, the proposed action to place dredge materials between +10 and +20 feet MLLW would comply with applicable water quality standards and would have no appreciable detrimental effects on municipal and private water supplies, recreational or commercial fisheries, water related recreation, Essential Fish Habitat, marine mammals, or aesthetics. Furthermore there exists the potential for compounded benefits by the placement of this material in the form of storm damage reduction and restored recreational access.

G. Determination of Cumulative and Secondary Effects on the Aquatic Ecosystem

Maintenance dredging of the Homer SBH entrance and maneuvering channels has been ongoing since 1972. In each case, those benthic infaunal organisms, primarily invertebrates such as polychaete worms and small bivalves, which had colonized the newly shoaled material, were destroyed when USACE's dredging activities were

executed. Because much higher quality habitat exists in areas immediately adjacent to the USACE's project footprint, these impacts to benthic infaunal communities are not significant, either in the short- or long-term.

The primary impact associated with USACE's maintenance dredging actions is the temporary, yet slight elevation in suspended solids at the point where sediments are agitated by the dredge's cutter head, at the point where the dewatering effluent intermixes with waters of Kachemak Bay, and likely again where wave action comes into contact with dewatered dredged material placed between +10 and +20 feet MLLW at the beach nourishment site. When considered independently, combined, or in the context of cumulative impacts, these USACE project elements do not represent significant effects to the overall water quality or long-term ecological health of Kachemak Bay or to its human resources (recreation, tourism, ecotourism, etc.,). USACE does not anticipate secondary effects to the short- or long-term health of the Kachemak Bay aquatic ecosystem as a result of its ongoing maintenance dredging and associated activities at Homer SBH. Conversely, the beneficial placement of dredged materials represents an opportunity to preserve recreational and aesthetic resources while concurrently enhancing coastal storm resiliency.

III. Findings of Compliance with the Restrictions on Discharge

A. Adaptation of the Section 404 (b)(1) Guidelines to this Evaluation

The preceding evaluation was prepared by using "U.S. Army Corps of Engineers ER 1105-2-100 Planning Guidance Notebook, Appendix C, Environmental Compliance, Exhibit C-1, Recommended Outline for Section 404(b)(1) Evaluation without making any significant adaptations to Section 404(b)(1) guidelines (40 CFR 230).

B. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem

Currently, the City of Homer utilizes stockpiled dredge material for beneficial upland application along the Homer Spit. Beneficial placement of dredged sediments for the purpose of beach nourishment from the Homer SBH and USCG dock is consistent with Homer City Code 1967 § 1-100.1, and at this time, represents the most practical utilization of dredged materials. USACE's project, as proposed, requires only 1600 feet of additional sediment transport from the dewatering area to the beach nourishment site has the added benefit of maintaining the local coastal sediment budget.

C. Compliance with Applicable State Water Quality Standards

The proposed project would not be expected to have an appreciable adverse effect on water supplies, recreation, growth and propagation of fish, shellfish and other aquatic life, or wildlife. It would not be expected to introduce petroleum hydrocarbons, radioactive materials, residues, or other pollutants into the waters of Kachemak Bay. Overall, the project would comply with State of Alaska Water Quality Standards (18 AAC 070).

D. Compliance with Applicable Toxic Effluent Standards or Prohibition Under Section 307 of the Clean Water Act

No toxic effluents that would affect water quality parameters are associated with the proposed project. Therefore, the project complies with toxic effluent standards of Section 307 of the Clean Water Act.

E. Compliance with Endangered Species Act of 1973

USACE is in compliance with the Endangered Species Act. Current endangered species monitoring efforts and shutdown radii are derived from the Letter Of Concurrence between USCG and NMFS regarding dredging of the USCG dock (NMFS reference #: AKR-2018-9720, February 16, 2018).

F. Evaluation of Extent of Degradation of the Waters of the United States

There are no municipal or private water supplies in the area that could be negatively affected by the proposed project. Recreational, commercial, coastal storm resilience, and USCG interests would benefit from maintenance actions. There would be no significant adverse impacts to plankton, fish, shellfish, wildlife, and/or special aquatic sites USACE ensures that prior to the commencement of dredging activities, a comprehensive Stormwater Pollution Prevention Plan be in place.