US Army Corps of Engineers
Alaska District

Supplemental Environmental Assessment and Finding of No Significant Impact

Navigation Improvements, Port Lions, Alaska

May 2016

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, as amended, the U.S. Army Corps of Engineers, Alaska District (Corps) has assessed the environmental effects of the following action:

Navigation Improvements
Port Lions, Alaska

This action has been evaluated for its effects on several significant resources, including fish and wildlife, wetlands, threatened or endangered species, marine resources, and cultural resources. No significant short-term or long-term adverse effects were identified.

This Corps action complies with the National Historic Preservation Act, the Endangered Species Act, the Clean Water Act, the Magnuson-Stevens Fishery Conservation and Management Act, and the National Environmental Policy Act. The completed environmental assessment supports the conclusion that the action does not constitute a major Federal action significantly affecting the quality of the human and natural environment. An environmental impact statement is therefore not necessary for the proposed navigation improvements at Port Lions.

for

Michael S. Brooks
Colonel, U.S. Army
Commanding

11 JULY 2016

Date

Supplemental Environmental Assessment

1.0 PURPOSE AND NEED OF THE PROPOSED ACTION

1.1 Introduction and Project Background

This supplemental environmental assessment (EA) was prepared to update the evaluation of environmental effects that may result from continued navigation improvements at Port Lions, Kodiak Island, Alaska. The currently-proposed improvements were originally assessed in an EA prepared in 2005 (USACE 2005), but were not the recommended alternatives at that time. Much of the information on resources in the project area presented in the 2005 EA is still valid, and in accordance with 40 CFR 1502.21 that EA is incorporated by reference in this document, except where assessments of resources and effects have been updated.

Port Lions is about 30 air miles northwest of the City of Kodiak, on Settle Cove and Kizhuyak Bay (figure 1). The small boat harbor at Port Lions was originally authorized in 1977 to include two rubblemound breakwaters (500 and 650 feet long). The design was revised due to cost, and a 600-foot main breakwater paired with a 170-foot stub breakwater was constructed in 1981. The

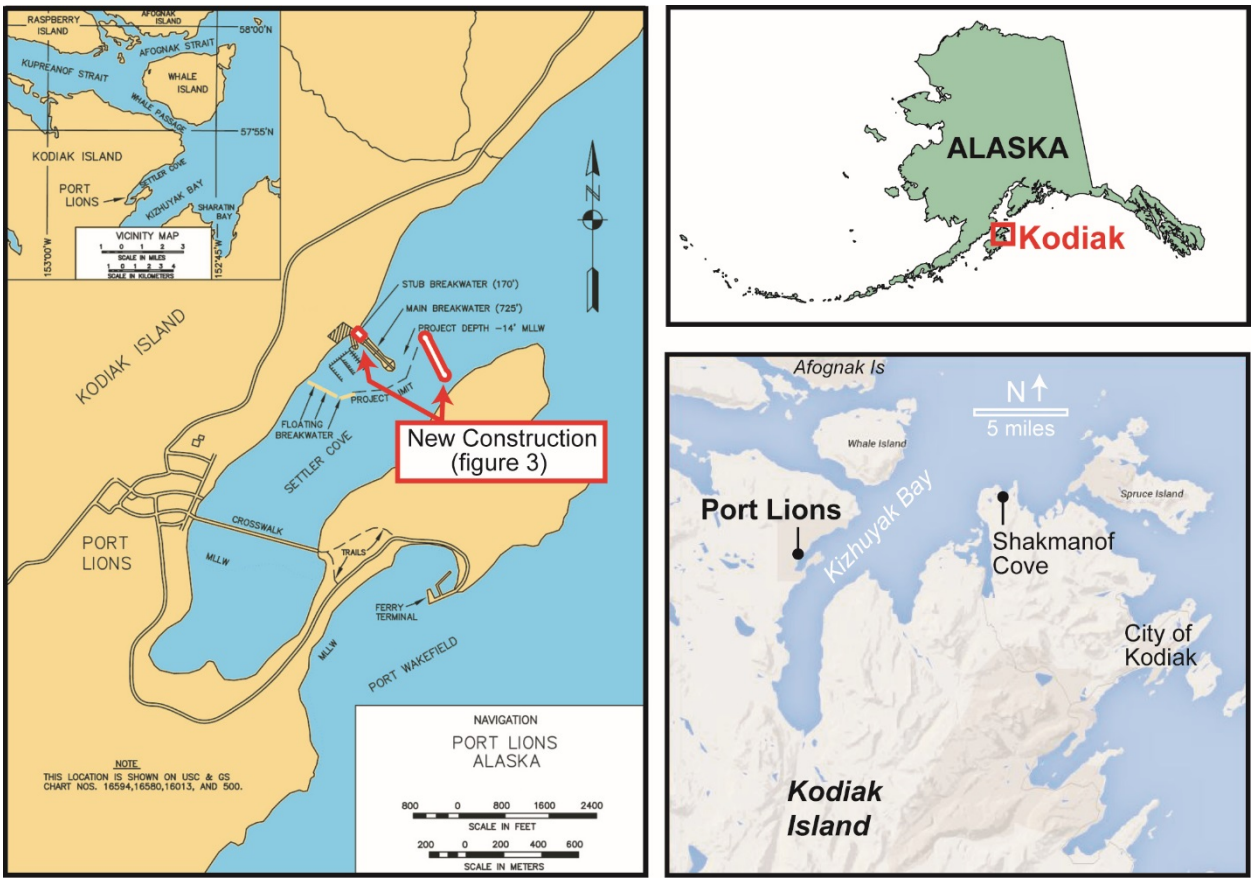

Figure 1. Location and vicinity of Port Lions, Alaska

main breakwater was damaged in a severe winter storm that same year. The main breakwater was strengthened and lengthened to its current 725 feet in 1983, but over time the revised breakwater layout was found to be inadequate to protect the harbor from strong swells entering Settler Cove from the northeast (USACE 2005; USACE 2014). The harbor was originally designed to create a basin capable of accommodating 124 vessels, but a 2005 analysis found that due to the wave energy entering the existing harbor and recurring damage to the floats, only 35 vessels could typically be moored in the harbor (USACE 2013).

The Corps' 2005 feasibility study selected a breakwater design that would have enclosed a 10-acre harbor basin from the south with a hook-shaped 1,360-foot-long rubblemound breakwater (called Alternative 3B in the feasibility study and environmental assessment). The 2005 recommended alternative would also have narrowed the gap between the existing breakwaters and the shore by extending the existing breakwaters.

In 2006, the State of Alaska transferred ownership of the harbor to the City of Port Lions. As part of the transfer, the city invested in significant upgrades to its harbor, including heavy-duty harbor floats able to withstand a more energetic wave environment. Given these changes to the harbor infrastructure, the Corps revisited its feasibility study and determined that the reinforced float system and existing floating breakwaters provided adequate protection from southerly waves and that a smaller new breakwater project would suffice to protect against northeasterly waves. In a 2013 Limited Reevaluation Report (USACE 2013), the Corps selected an alternative very similar to Alternative 1A from the 2005 feasibility study: constructing a new 700-foot-long detached rubblemound breakwater to the north and east of the existing main breakwater, and extending the existing main and stub breakwaters to narrow the fish passage gap.

In the course re-evaluating potential project environmental effects in 2015 and 2016, the Corps determined that the fish passage gap incorporated into the existing breakwater design had largely filled in with sediment and debris carried into the gap via littoral transport. According to long-time local residents, the fish passage gap began to fill in with sediment almost immediately after its construction in 1983, but the Corps had not been monitoring the condition of the fish passage. The prevailing swells entering Settler Cove from the northeast appear to coincide with a heavy littoral transport of sand, gravel, and woody debris along the west shoreline of Settler Cove to create an unusually active sedimentation scenario that was not recognized at the time the breakwater was designed and built (figure 2). A review of bathymetry data from 1983, 2005, and 2014 show the available depth within the fish passage decreasing from 5 feet below mean lower low water (MLLW) to more than 8 feet above MLLW. In addition, a shoal of trapped sediment has built up and continues to build along the north side of the breakwater, and is expected to eventually form a beach at the intersection of the breakwater and the shoreline. Maintaining the original depth of the fish passage gap would be a matter not only of regularly dredging the gap, but of maintaining a channel through the shoal outside the gap. The fish passage gap holds an estimated 600 to 800 cubic yards of material; it is unknown how much material would need to be dredged from the shoal, or how frequently the dredging would need to occur. The City of Port

Figure 2. A 4 March 2016 view of the west end of the existing main breakwater and the fish passage gap, during a high tide of 8.5 feet above MLLW; note that fish passage is blocked by sediment even during this high tide, and the accumulation of large woody debris that has been driven into the gap.

Lions has indicated that it has no upland use or storage space for the dredged sediment, so the dredged material would need to be disposed of in the ocean on a recurring basis.

Although the fish passage gap has largely filled with sediment, the remaining space between the west end of the breakwater and the rock-protected shoreline still allows damaging storm surges to enter the harbor and deposit sediment and debris at the city dock and its access road. Because the fish passage gap (a) does not fulfill its intended purpose and has not for several decades, (b) cannot feasibly be maintained to function properly in the existing sedimentation environment, and (c) significantly decreases the level of protection the existing breakwater provides to the small boat harbor, the Corps plans to extend the west end of the breakwater to the shoreline, filling in the remaining gap.

1.2 Need for Action

The current configuration of rubblemound and floating breakwaters has proven inadequate to protect the small boat harbor at Port Lions. Additional protective structures are needed to reduce the energy of strong swells entering Settler Cove.

2.0 ALTERNATIVES

2.1 No-Action Alternative

The no-action alternative would leave the existing protective structures at Port Lions harbor as they are with no augmentation.

2.2 Action Alternative

In 2013, the Corps reviewed the alternatives developed in its 2005 feasibility study to select a design to supplement the existing project. The recommended alternative was very similar to Alternative 1A in the 2005 feasibility study and EA, minus the removal of the floating breakwaters: a 700-foot-long detached rubblemound breakwater to the east of the existing breakwater, a 40-foot-long extension to the west end of the existing breakwater to reduce (but not eliminate) the gap along the shoreline, and an extension of the existing fill at the dock approach to further reduce the gap. This configuration was presented as Alternative 1C in the Corps' 2013 Limited Reevaluation Report (USACE 2013). The narrowing of the fish passage gap in the original alternative has been modified to closing the gap entirely by extending the west end of the existing breakwater to the shoreline (USACE 2016a).

As currently designed (USACE 2016a), the new detached breakwater (East Breakwater, figures 3 and 4) will be about 700 feet long along the top and 150 wide at the base, with a trapezoidal cross-section, and have a footprint of an estimated 109,769 square feet (2.52 acres). The East Breakwater will require 55,100 cubic yards of various grades of rock. The West Breakwater Extension (figures 3, 4, and 5) will be roughly 150 feet long along the top, and require 4,200 cubic yards of various grades of rock. The total footprint of the West Breakwater Extension is estimated at 13,100 square feet (0.3 acre). However, part of the extension will be resting on the existing breakwater and shore protection rock; the area of the West Breakwater Extension placed on natural sediment is estimated at 8,700 square feet (0.2 acre).

The East Breakwater will be constructed directly on the sea floor, with no need to excavate or otherwise prepare the existing site. Construction of the West Breakwater Extension will require removing some of the accumulated sediment and debris in the current fish passage gap to expose the original rockwork and allow the new rock to be seated properly on the existing rock. The Corps estimates that roughly 100 cubic yards of accumulated material, mostly sand and gravel but probably woody debris as well, will need to be cleared from the fish passage gap prior to construction of the West Breakwater Extension. This material will be placed along the seaward side of the West Breakwater and allowed work back into the beach that is forming there.

The Corps does not know what source of rock the contractor will select for this project, although the commercial quarry at Shakmanof Cove is probably the most cost-effective source of suitable material. Shakmanof Cove is on Kodiak Island, roughly 11 miles east of the project site, near the community of Ouzinkie (figure 1).

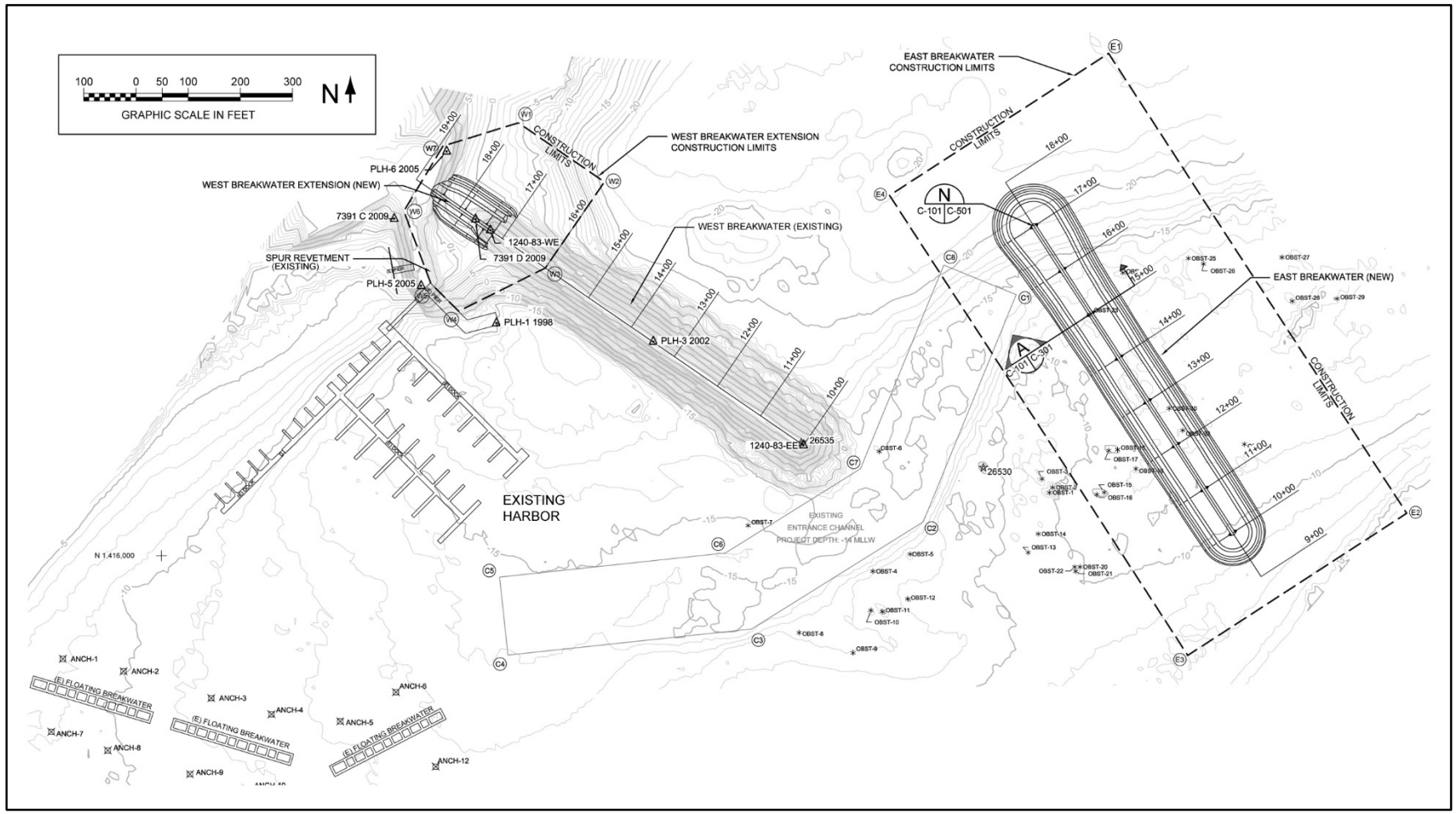

Figure 3. Plan view of the East Breakwater and the West Breakwater Extension, relative to existing Port Lions harbor features (excerpted for illustration purposes only from USACE 2016a).

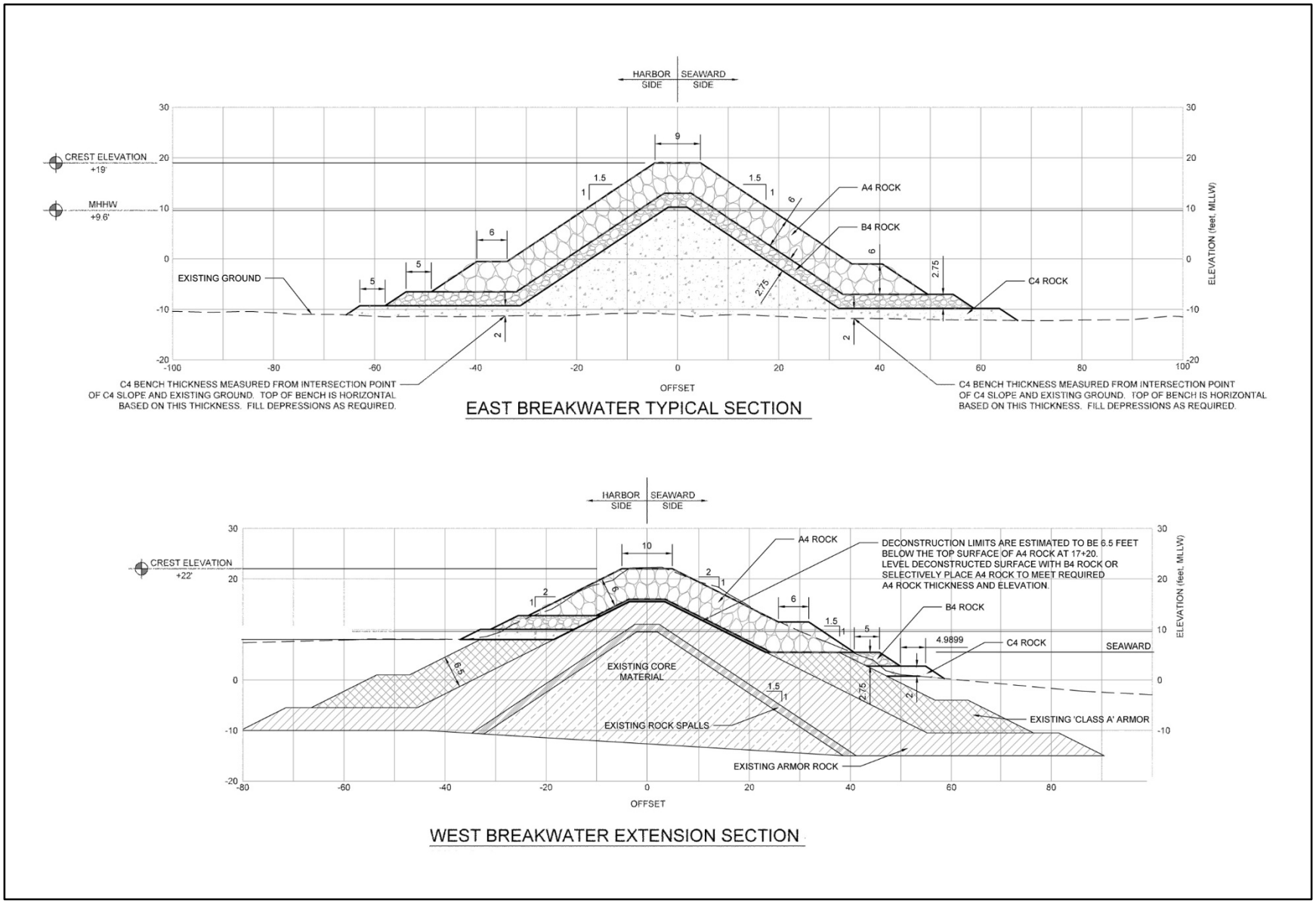

Figure 4. Representative cross section views of the breakwaters (excerpted for illustration purposes only from USACE 2016a).

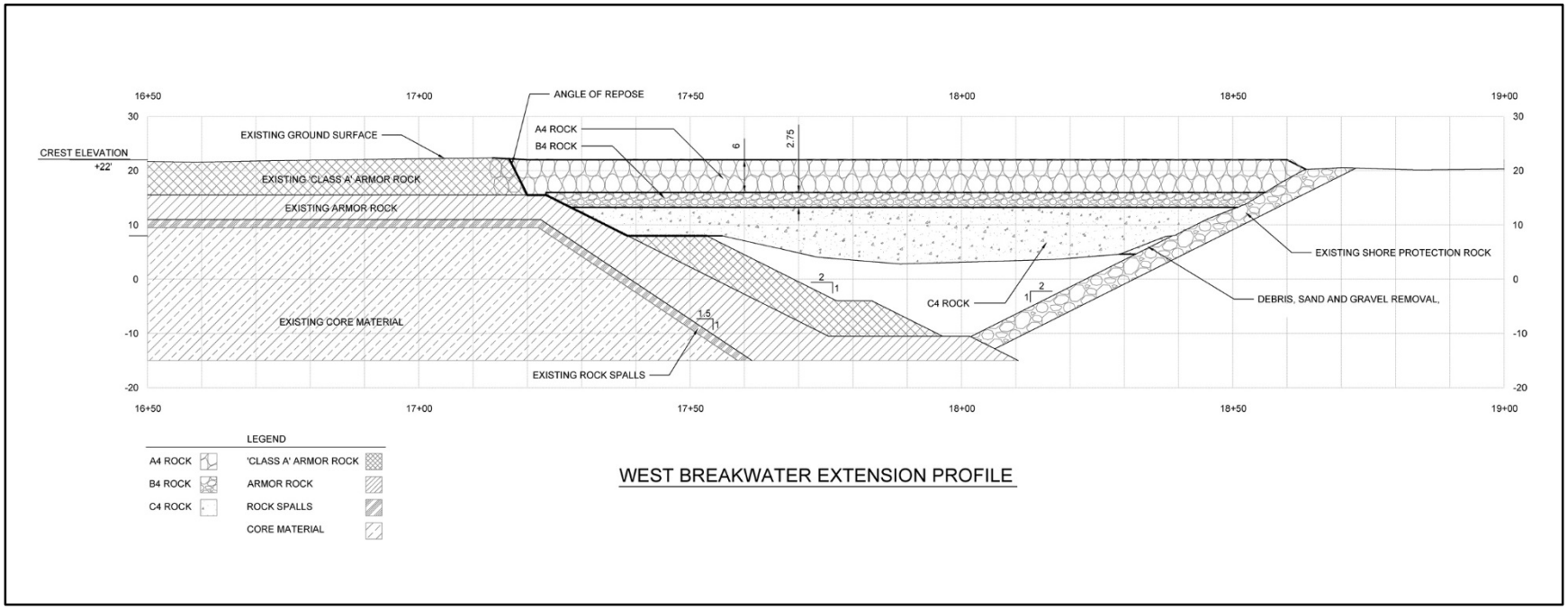

Figure 5. Conceptual profile view of the West Breakwater Extension; view is toward the south with the existing breakwater on the left (excerpted for illustration purposes only from USACE 2016a)

3.0 AFFECTED ENVIRONMENT

3.1 Community

Port Lions, Alaska, had a population of 194 in 2010. It was founded in 1964 by the inhabitants of Afognak after that village was destroyed in the 1964 Good Friday Earthquake. The community is largely Alutiiq in heritage, and relies on commercial, charter, and subsistence fishing (ADCRA 2016). Although much of the community fronts onto Settler Cove, the small boat harbor is set roughly one-half mile northeast of the community in deeper waters near the entrance of Settler Cove.

3.2 Current Land Use

The project site is mostly offshore in subtidal lands at the entrance of Settler Cove or in the modified intertidal zone immediately adjacent to the existing breakwaters.

3.3 Climate

Port Lions experiences the climate of the western Gulf of Alaska, with frequent storms, high winds, and ample precipitation. Temperatures are moderate, with an average low temperature of 19°F in January and an average high of 61°F in July (ADCRA 2016).

3.4 Topography, Soils, and Hydrology

Figure 6 is a general bathymetric representation of Settler Cove, showing a rather flat seafloor within much of Settler Cove, gradually becoming shallower towards the southern end.

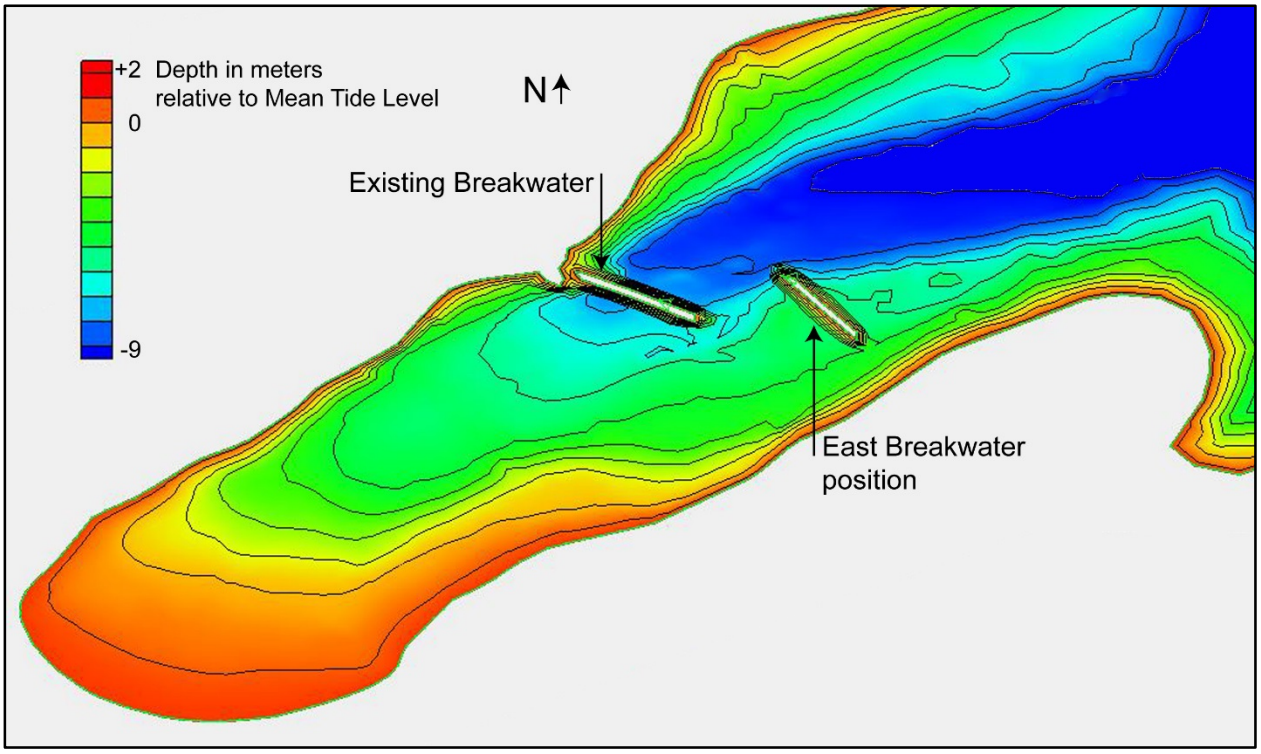

Figure 6. General bathymetry of Settler Cove (adapted from USACE 2016b).

Data from geotechnical surveys in 2003 and 2015 show the marine sediments at the project site to consist of shallow pockets (ranging from 1 to 7.5 feet thick) of fine-grained soft, silty, sandy, and clayey material overlaying a thicker (5 to 35 feet thick) layer of coarse-grained sediment believed to be a mix of sands, silts, and gravels. These sediments are underlain by bedrock at depths ranging from 15 to 60 feet below MLLW (USACE 2015b).

An underwater video survey performed at the site of the proposed detached breakwater in May 2015 showed surface sediments that were largely sandy with scattered cobbles and numerous mollusk shells (figure 7).

Table 1 provides tidal data for Port Lions and Settler Cove (USACE 2013).

Table 1. Tide Data for Port Lions (feet relative to MLLW)

Highest Observed Water Level	+14.0
Highest Predicted Tide	+12.3
Mean Higher High Water (MHHW)	+ 9.6
Mean High Water (MHW)	+ 8.7
Mean Low Water (MLW)	+ 1.1
Mean Lower Low Water (MLLW)	0.0
Lowest predicted Tide	- 4.0

3.5 Air Quality and Noise

The Port Lions area presumably enjoys good air quality because of the community's isolation, the small number of pollutant emission sources, and persistent air movement from the nearby ocean. The primary sources of air pollutants are the community's electric plant, industrial sites such as fish processing plants and quarries, individual fuel oil stoves, and vehicles such as ships, boats, trucks, and cars. There is no established ambient air quality monitoring program at Port Lions, however, and little 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. The community is not in a CAA "non-attainment" area, and the "conformity determination" requirements of the CAA would not apply to the proposed project at this time.

No specific noise data exist for Port Lions, but it is probably comparable with other small coastal Alaskan communities. Boat traffic, vehicles, construction equipment, and generators are the most likely sources of human generated noise, and aircraft on approach to the airport just north of the harbor overfly the area. Underwater noise would come primarily from commercial and recreational vessels that transit or moor within Settler Cove.

3.6 Water Quality

No specific data is available for water quality within Settler Cove. The cove is relatively enclosed, measuring roughly one-half mile across the entrance but about 1.5 miles from the

entrance to the head of the cove. Much of the southern half of the cove is very shallow, with the bottom sediments becoming exposed at low tides. The cove receives freshwater from several streams that discharge into the cove; the cove is also subject to heavy swells entering from the northeast. An extensive growth of eelgrass in the shallow southern one-third of the cove suggests generally good water quality, at least in terms of suspended sediments.

3.7 Biological Resources

3.7.1 Vegetation and Habitat

The project site for the new breakwater is near the entrance of Settler Cove, in waters roughly 18 to 24 feet deep. The Corps' May 2015 underwater video survey of this area showed the seabed to be relatively flat and sandy, with patchy areas of short-stiped kelp species anchored to cobbles, and many mollusk shells on the surface. The entrance of Settler Cove is subject to strong wave action, which presumably limits the types of marine vegetation that can exist there to those species able to anchor tightly to the available rock surfaces. No eelgrass was noted in the project

Figure 7. Screen-shot from underwater video taken along footprint of proposed detached breakwater in Settler Cove (5 May 2015).

area, although eelgrass is abundant in the shallow, more protected end of Settler Cove south of the boat harbor.

Terrestrial vegetation along the Settler Cove shoreline is dominated by a dense western hemlock-Sitka spruce forest community (USACE 2005).

3.7.2 Wildlife

The wildlife communities within Settler Cove are typical of the Gulf of Alaska's rocky shorelines, with marine mammals such as sea otters and harbor seals making use of sheltered bays, and abundant coastal fish such as salmon and herring. Marine mammals and fishes are described in more detail in the sections below. Waterfowl such as long-tail ducks, mergansers, goldeneyes, and mallards are common within Settler Cove, along with seabirds like cormorants and gulls. Bald eagles are also common, although likely to be more abundant during summer salmon runs. Terrestrial wildlife expected in the area include brown bear, red fox, and introduced Sitka black-tailed deer (USACE 2005).

3.7.3 Protected Species

Table 2 below summarizes the species protected under the ESA that are identified as potentially being in the project area.

Table 2. ESA Species Potentially Present in the Project Area.

Species	Population	Status	Agency Jurisdiction	Year Listed
Steller sea lion, *Eumetopias jubatus*	Western DPS	Endangered	NMFS	1997
Humpback whale, *Megaptera novaeangliae*	All	Endangered	NMFS	1970
N. Pacific right whale, *Eubalaena japonica*	All	Endangered	NMFS	1973
Sperm whale, *Physeter macrocephalus*	All	Endangered	NMFS	1970
Fin whale, *Balaenoptera physalus*	All	Endangered	NMFS	1970
Northern sea otter, *Enhydra lutris kenyoni*	Southwest Alaska DPS	Threatened	USFWS	2005
Stellers eider, *Polysticta stelleri*	All	Threatened	USFWS	1997
Short tailed albatross, *Phoebastria albatrus*	All	Endangered	USFWS	2000

DPS: Distinct Population Segment

The northern sea otter became an ESA candidate species in 2001, and was listed as "threatened" in August 2005, after the completion of the previous EA in July 2005. The North Pacific right whale has been listed as endangered under the ESA since 1973 when it was listed as the "northern right whale." It was originally listed as endangered under the Endangered Species Conservation Act, the precursor to the ESA, in June 1970. In 2008, the NMFS re-listed the endangered northern right whale as two separate, endangered species: the North Pacific right whale and the North Atlantic right whale, and designated critical habitat for both species.

Steller sea lions may be found occasionally in Settler Cove, primarily foraging for food. The nearest critical habitat areas for Steller sea lions, as defined in 50 CFR 226.202, and their distances from the project site, are:

- Long Island haulout (east coast of Long Island, near the City of Kodiak) – 21 nautical miles (nm) to the east-southeast
- Marmot Island rookery (northeast coast of Marmot Island) - 41 nm to the northeast)
- The Shelikof Strait special aquatic foraging area, whose eastern boundary is roughly 21 nm to the northwest of the project site.

There are no known haulouts for Steller sea lions in the Settler Cove area, and the narrow, densely-wooded shoreline offers few safe locations for on-shore gatherings. Steller sea lions would be drawn to Settler Cove primarily in pursuit of salmon. Several anadromous streams enter Settler Cove, including one, Crescent Creek, which is stocked with sockeye and silver salmon as a terminal fishery; two other creeks host natural pink salmon runs. The in-migrations of adult salmon occur in the area from early June through mid-September (Frost 2015). At least ten other salmon streams outside Settler Cove discharge into Kithuyak Bay (ADFG 2015), so the Settler Cove streams are not the only source of salmon available to marine mammals in the Port Lions area, but the tightly enclosed shape of Settler Cove may offer a unique foraging opportunity for smaller marine predators such as Steller sea lions.

Sperm and **fin whales** are far-ranging oceanic species that would be found only incidentally in the shallow, confined waters within and near Setter Cove. **Humpback** and **North Pacific right whales** are somewhat more likely to be encountered in near-shore Kodiak waters in the course of their migrations through the Gulf of Alaska (NMFS 2013; NMFS 1991), particularly in relatively deep waters such as Kizhuyak Bay (which reaches depths of roughly 400 feet along the passage between Settler and Shakmanof Coves). Of these great whale species, only the Northern Pacific right whale has designated critical habitat under the ESA, in the form of two large off-shore areas of the Bering Sea and Gulf of Alaska designated in 78 FR 19000.

Northern sea otters are known to be present in Settler Cove. Surveys performed by the Corps in January and March of 2002 found sea otters primarily in heavy kelp beds around the small island offshore of the airstrip (USFWS 2005), but local residents report them ranging into Settler Cove south of the small boat harbor.

All of Settler Cove and much of the adjacent Kizhuyak Bay are within critical habitat for sea otters designated by the USFWS (USFWS 2009). The critical habitat final rule also identified four primary constituent elements (PCEs) for sea otter habitat:

1. Shallow, rocky areas where marine predators are less likely to forage, which are waters less than 2 m (6.6 ft) in depth.
2. Near-shore waters that may provide protection or escape from marine predators, which are those within 100 m (328.1 ft) from the mean high tide line.
3. Kelp forests that provide protection from marine predators, which occur in waters less than 20 m (65.6 ft) in depth.

4. Prey resources within the areas identified by PCEs 1, 2, and 3 that are present in sufficient quantity and quality to support the energetic requirements of the species.

Only PCE #4 appears to be present in the 2.5-acre footprint of the new breakwater. The numerous clam and cockle shells visible on the seafloor suggest prey resources that may be used by sea otters. The other three PCEs are not present, as the site of the new breakwater is in waters too deep and too far from shore to provide protection from predators, and is devoid of kelp forests or other cover.

Short-tailed albatrosses breed on several small islands off the coast of Japan, but range across much of the North Pacific Ocean as adults and sub-adults. In the marine environment, the species tends to concentrate in regions along the break of the continental shelf, where upwelling and high primary productivity result in zones of abundant food resources, namely squid and pelagic fishes. The short-tailed albatross may be found in near-shore waters but commonly only where such upwellings occur near the coast (USFWS 2008). The nearest continental shelf edge is roughly 100 miles to the east of Port Lions, where the seabed drops rapidly from a few hundred feet below the surface to several thousand feet along the Aleutian Trench.

Steller's eiders are known to winter in coastal waters of the Kodiak Archipelago but use some areas preferentially. Surveys of the Settler Cove area conducted by the Corps in 2002 observed only one Steller's eider at Peregrebni Point outside the cove (USFWS 2005). The Coordination Act Report prepared by the USFWS in 2005 states that the waters near Port Lions are not typically used by Steller's eiders according to local knowledge (USFWS 2005). This species was also not reported on the list of ESA species generated by the USFWS ECOS-IPac website.

The Marine Mammal Protection Act (MMPA) provides protection for all whales, dolphins, porpoises, seals, sea lions, and sea otters, regardless of a species' listing under the ESA. The NMFS ESA/MMPA mapper website (NMFS 2015c) identifies harbor seal, northern fur seal, Cuvier's beaked whale, Dall's porpoise, harbor porpoise, gray whale, killer whale, minke whale, and Pacific white sided dolphin as non-ESA marine mammals that potentially may be found in the Port Lions area.

The Bald and Golden Eagle Protection Act, as well as the Migratory Bird Treaty Act (see below), protect bald eagles present at Port Lions 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 eagles' normal breeding, feeding, or sheltering habits (USFWS 2011).

With the exception of 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).

3.7.4 Essential Fish Habitat and Anadromous Streams

Settler Cove is within essential fish habitat (EFH) designated under the Magnuson Stevens Fishery Conservation and Management Act for several species managed under the Gulf of

Alaska Groundfish Fishery Management Plan (FMP), as well as for all five species of Pacific salmon managed under the Alaska Stocks of Pacific Salmon FMP. The descriptions of these species and evaluation of the effects of this project on their habitat were discussed in an EFH assessment provided to the National Marine Fisheries Service in 2015 (USACE 2015a) and are included in this EA.

Construction of the East Breakwater will take place in the relatively shallow (about 24 feet deep) and confined waters of Settler Cove. Beyond the cove, Kizhuyak Bay deepens gradually to over 400 feet. The flat, sandy seafloor within the footprint of the proposed East Breakwater offers habitat similar to EFH descriptions for the flatfish species listed above: arrowtooth flounder, yellowfin sole, flathead sole, and rock sole. Juveniles of these flatfish species all use shallow waters with sandy substrates. The yellowfin, flathead, and rock sole may remain in shallow waters for feeding and spawning as adults, although they may move to deeper waters during the winter to escape colder temperatures and turbulent near-shore conditions. Arrowtooth flounder, on the other hand, move to deeper waters of the middle and outer continental shelf when they reach body lengths of about 10 centimeters (NPFMC 2015).

Sculpin and octopi may be found in a wide range of habitats, from rocky shorelines to sand and mud. The project area, with its mix of sand and vegetated cobbles, offers habitat for sculpin and octopus species consistent with their EFH descriptions (NPFMC 2015).

Pacific cod, walleye pollock, and squid are mainly pelagic species that spend their life stages in the deep waters of the continental shelf and slope, although adult Pacific cod and juvenile squid may be found incidentally in near-shore waters (NPFMC 2015). The Settler Cove project area does not provide significant EFH for these species.

Insufficient information exists about the habitat requirements for skates or sharks to determine whether the project site contains valuable habitat for these species. Spiny dogfish give birth viviparously in shallow coastal waters, but it is not known if a particular type of substrate is preferred. Skates deposit eggs in horny cases in deep water of the continental shelf and slope. Adult skate and sharks may be found incidentally in near-shore waters (NPFMC 2015).

The Alaska Department of Fish and Game (ADFG) identifies three anadromous streams in the immediate Settler Cove area (figure 5) in its Anadromous Waters Catalog (AWC; ADFG 2015). The AWC notes pink and coho salmon spawning in the small Settler Cove creeks; however, the most economically-important fisheries within Settler Cove appear to be the annually-stocked terminal (a.k.a., “put and take”) coho and sockeye fisheries at Crescent Creek (AWC designation 252-36-10010). Hatchery-raised coho and sockeye fry are released at Crescent Lake and, after a year or two of rearing, make their way down Crescent Creek to Settler Cove as smolt. By definition, the terminal fishery adult coho and sockeye returning to Crescent Creek are not expected to reproduce in the limited spawning habitat, and no escapement objectives are established for that fishery. Small native fisheries of pink and coho salmon also exist within Settler Cove (Tracy 2015). The protected waters of the southern half of Settler Cove, with its extensive eelgrass beds, probably also offer good rearing habitat for juvenile salmon.

Salmon fry out-migrations occur from late March through mid-May, with smolt out-migrations from the Crescent Creek drainage happening from early May through mid-June. Adult in-migrations occur from early June through mid-September, with coho runs concentrating in early to mid-August to mid-September, and pink runs from mid-July through August. The native pink salmon runs occur annually, with no apparent even-odd biennial shifts in productivity (Tracy 2015). No EFH Habitat Areas of Particular Concern (HAPCs) or other areas protected from fishing are in or near the Corps' project area.

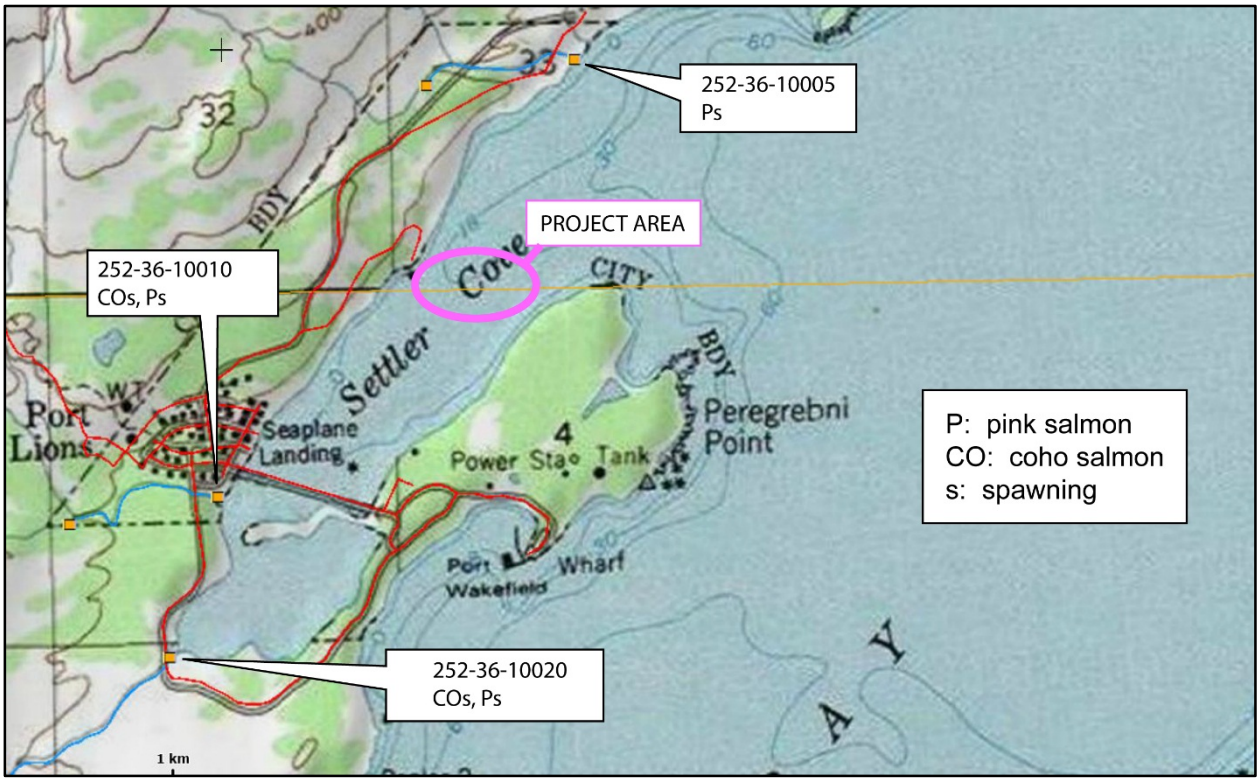

Figure 8. Annotated screen-grab from the Anadromous Waters Catalog (ADFG 2015) interactive map.

3.7.5 Protected Areas. Port Lions is near but not within portions of the Kodiak National Wildlife Refuge and Chugach National Forest.

3.8 Waters of the U.S. and Special Aquatic Sites

The proposed improvements will occur primarily in waters of the U.S., including the discharge of rock to 2.7 acres of subtidal and intertidal lands. No special aquatic sites as defined in the Clean Water Act (CWA) Section 404(b)(i) guidelines (e.g., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes) are known to exist in the immediate project area.

3.9 Cultural and Historic Resources

Corps archaeologist Shona Pierce reviewed the proposed project and examined the Alaska Historic Resources Survey (AHRS) database. Her search indicated that no known historic or prehistoric sites have been identified within the project area. Several cultural sites are located within a mile of the proposed project area; however, these sites are located outside the area of potential effect (APE).

4.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

4.1 No-Action Alternative

Under the no-action alternative, the environmental impacts described below would be avoided; however, the proposed additional protection for the small boat harbor would not be gained, and the boat harbor would continue to be affected by wave action that damages vessels and infrastructure, and limits the usability of the harbor.

4.2 Preferred Alternative

4.2.1 Effects on Community and Land Use

The primary long-term effect on the community will be the improved usability of the existing small boat harbor due to the reduction of wave energy and reduced maintenance of the barge landing and dock area due to reduction or elimination of sediment and debris currently driven through the fish passage gap. The most likely short-term effect will be possible limitations on the movement of vessels in and out of the harbor during construction. The East Breakwater construction limits (figure 3) impinge upon the existing entrance channel. Special traffic controls such as supplemental channel markers may be necessary to minimize potential encounters between vessels using the small boat harbor and project vessels maneuvering at the construction site.

4.2.2 Effects on Air Quality and Noise

Project construction may have temporary, highly-localized impacts on air quality, as project vessels and heavy construction equipment will introduce new emission sources to Settler Cove in the form of tugboats, support vessels, and heavy construction machinery. Dust emissions will likely be minimized through the wet working conditions associated with harbor construction and prevailing weather patterns in the area. Construction-related emissions would be intermittent, occurring only during work hours, and would end at the completion of construction. The project will not emplace any new emission sources at the harbor.

Construction of the new rock structures will generate noise both above and below the water surface. Water-propagated noise and its effects on marine life are discussed in section 4.2.5.2. Air-propagated noise above typical levels will be present during the operation of construction machinery and vessels during transportation and placement of rock and fill material. The nearest buildings to the project site are located almost one-half mile from the closest on-shore

construction activities, (staging of vehicles and stockpiling of materials). This should help minimize disturbances to the community during construction. The Corps will work with the community to devise work schedules and heavy equipment traffic patterns that minimize noise and disruption within the community.

4.2.3 Effects on Topography, Soils, and Hydrology.

Construction of the breakwaters will replace existing sediments with rocky material over an area of about 2.7 acres. The presence of the East Breakwater could cause a change in the way sediments propelled by storm surge are transported through the cove, perhaps resulting in an increase in sediment deposition in the lower-energy area that will be created in the lee of the breakwater. The shoal and beach formation occurring at the west end of the existing breakwater might also be accelerated somewhat by the West Breakwater Extension, as the material that is now forced into and through the fish passage gap will be trapped on the north side of the breakwater.

In order to determine the effect the East Breakwater and the closure of the fish passage would have on the mass transport of water through Settler Cove, tidal modeling was performed by the Alaska District Hydraulics and Hydrology Section to see how these features would change the magnitude and timing of the tide signal inside the cove (USACE 2016b). The change in water surface elevation due to the tide cycle was modeled for the existing condition, the addition of the East Breakwater, the closure of the fish passage gap, and for the East Breakwater and fish passage closure together. The model showed little to no change between the various scenarios in the magnitude and timing of the tidal change in water surface elevation. In other words, the mass transport of water in and out of Settler Cove will not be significantly altered by the navigation improvements at Port Lions.

4.2.4 Effects on Water Quality.

Impacts to the waters of the United States are expected to be less than significant. In the short term, placement of the breakwater's base rock will loft finer sediments into the water column and residual fines on the surface of core and armor rock will also contribute to temporary localized increases in turbidity. The placement of accumulated sand, gravel, and woody debris from the fish passage gap along the north side of the west breakwater will effectively return this material to the same near-shore environment from which it originated; this coarse material should introduce few suspended sediments into the water column. In the long term, the hydrological modeling described in section 4.2.3 indicates that the project should not affect the tidal exchange, or flushing, of water in and out of Settler Cove.

4.2.5 Effects on Biological Resources

4.2.5.1 Effects on Vegetation and Habitat

Installation of the East Breakwater would result in the loss of approximately 2.5 acres of existing submerged habitat consisting of a shallow sandy benthic community with surface cobbles providing intermittent attachment points for epilithic organisms. At a rough estimate based on the May 2015 underwater video survey correlated with available aerial photos, about 250 acres

of similar habitat exists between the mouth of Settler Cove and the small boat harbor. Therefore, roughly 1 percent or less of the existing sandy habitat would be replaced with a vertical rocky structure where none exists now. It is not certain how quickly the intertidal portions of the new breakwater will recruit new growth of marine algae and invertebrates; when viewed in May 2015, the existing breakwater at Port Lions showed signs of scouring from strong wave action. Sparse, spotty colonization by small, newly-recruited mussels and barnacles was seen on exposed rock surfaces on the seaward side, while more typical mature colonization with mussels, barnacles, and marine algae was observed on the leeward side and in crevices between the armor rock pieces. A similar distribution of organisms may be expected on the new breakwater.

Figure 8. A May 2015 view of a portion of the intertidal epilithic community on the leeward side of the existing breakwater, showing mature mussels, barnacles, limpets, with rockweed and other marine algae.

Mobile organisms such as snails and crabs would find habitat quickly within the rocky structure of the new breakwater, as would small and juvenile fish along the sub-tidal portions of the breakwater. The interface between the new rocky substrate and existing sandy seafloor may also create additional productive habitat. Marine algae appears to grow readily in the existing sub-tidal environment where cobbles or other sufficiently-firm substrate provides an attachment point, so the sub-tidal portions of the new breakwater are likely to vegetate rapidly. The breakwater would afford some protection from high-energy swells for the seafloor in its lee, perhaps allowing a more extensive growth of marine algae on seafloor cobbles and on the sub-tidal benches of the breakwater (figure 4) than is currently possible in unsheltered areas of the outer cove. The reduction of wave energy entering the cove may also allow the eelgrass beds prevalent at the south end of the cove to expand somewhat farther into the cove.

The West Breakwater Extension would replace about 0.2 acre of sandy and gravelly intertidal habitat with a vertical rocky structure. The existing habitat in the fish passage gap is frequently disrupted by tidal scour and the deposition of large debris, and is unlikely to host a significant biological community. The new portion of the extended West Breakwater would acquire an intertidal community similar to that found on the existing breakwater.

The Corps does not know what rock source the contractor would select for this project, although the quarry at Shakmanof Cove is probably the most cost-effective source of suitable material. From a mineralogical standpoint, the biotite granite produced at the Shakmanof Cove quarry appears unlikely to present acidity or toxicity characteristics that would inhibit colonization.

4.2.5.2 Effects on Wildlife

Marine mammals may avoid the area or be temporarily displaced as a result of in-water construction and project vessel movements. No blasting or pile-driving is anticipated as part of the Federal project, so injurious high-amplitude underwater noise should not result from construction. The placement of rock in the water for the creation of the breakwaters would generate relatively low-amplitude underwater noise likely to cause marine mammals to temporarily move away from the construction site. The noise generated by barges and tugs in transit to and from the work area would be similar to that generated by routine small vessel traffic in the shipping lanes. Low levels of turbidity generated by fill and rock placement may cause marine mammals to avoid the area until turbidity levels returned to background levels. The completed project would not result in the significant loss of habitat valuable to marine mammals. Conversely, the rubblemound structure can be expected to provide additional spawning and rearing habitat for forage fish species that marine mammals may be able to exploit. The detached breakwater will provide roosting habitat for birds and potential haulout locations for some marine mammals that are secure from land-based predators such as foxes.

4.2.5.3 Effects on Protected Species

Table 2 below summarizes the determinations the Corps made of project effects on the ESA-listed species identified in section 3.7.3, and concurrences obtained from the NMFS and the USFWS (NMFS 2015b; USFWS 2015). The NMFS and the USFWS do not provide concurrences with “no effect” determinations under the ESA. The concurrences by these agencies with the Corp’s determinations of “will not adversely affect” are conditional on the Corps’ adoption of measures to avoid and minimize impacts to these species; these measures are detailed in section 4.2.11.

None of the species in Table 2 except Steller sea lions and Northern sea otters are known to commonly use Settler Cove; they will not suffer a loss of habitat as a result of the project. The project footprint currently contains potential prey for Northern sea otters in the form of clams and other mollusks, but no other “primary constituent elements” of sea otter critical habitat (section 3.7.3); however, the side slopes of the East Breakwater itself may in time offer “shallow, rocky areas where marine predators are less likely to forage” (PCE #2). No critical habitat for other ESA-listed species exists in or near the project site. The project will not affect the long-

term use of Settler Cove as a foraging area for Steller sea lions. Impacts on these species are expected to be limited to short-term disturbance as a result of the construction activities, as described in section 4.2.5.2.

Table 2. Summary of ESA Determinations and Concurrences

Species	Corps Determination	Agency Jurisdiction	Agency Response
Steller sea lion, *Eumetopias jubatus*	May affect but not adversely affect	NMFS	Concur
Humpback whale, *Megaptera novaeangliae*	May affect but not adversely affect	NMFS	Concur
N. Pacific right whale, *Eubalaena japonica*	May affect but not adversely affect	NMFS	Concur
Sperm whale, *Physeter macrocephalus*	May affect but not adversely affect	NMFS	Concur
Fin whale, *Balaenoptera physalus*	May affect but not adversely affect	NMFS	Concur
Northern sea otter, *Enhydra lutris kenyoni*	May affect but not adversely affect	USFWS	Concur
Short tailed albatross, *Phoebastria albatrus*	No effect	USFWS	NA

NA: not applicable; agency does not provide concurrences on "no effect" determinations

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 (USFWS 2008). It would be highly unusual for an individual short-tailed albatross to venture into the confined coastal waters of Kizhuyak Bay and Settler Cove, and the project activities are not of a type or scale that should have an impact on albatross habitat or food resources. Steller's eiders were not included in ESA consultation with the USFWS as existing information indicates that they do not typically make use of the Settler Cove area as wintering habitat in Kodiak; additionally, Steller eiders would expected to be present in Kodiak coastal waters only from roughly November through March, a period that would overlap little if at all with the probable project construction season.

Project impacts on non-ESA marine mammals within Settler Cove, such as harbor porpoise, will be similar to those discussed in section 4.2.5.2, and the same measures (section 4.2.11) adopted to avoid and minimize impacts to Steller sea lions and sea otters will also be protective of MMPA species. If these measures are extended to all marine mammals, the Corps determines that the project activities will not result in a taking under the Marine Mammal Protection Act.

It is possible that bald eagles may nest in trees along the shore of Settler Cove. The bald eagle nesting season in Alaska extends from the beginning of March through the end of August. The construction of the East Breakwater will take place almost entirely beyond 660 feet from shore, the buffer distance recommended by USFWS policy (USFWS 2009b) for construction within sight of an active eagle nest. The West Breakwater Extension construction will be much closer to shore, although much of a 660-foot-radius circle centered on the breakwater extension site also

includes the small boat harbor and its parking lot and access road. The breakwater construction activities within the cove should not cause an adverse degree of noise and disturbance at the shoreline. The placement of rock in the existing fish passage gap and the construction support activities on shore near the small boat harbor should create only an incremental increase in the existing noise and disturbance caused by the operation of the harbor. However, the project area will be surveyed for active or potential bald eagle nesting sites, and any permitting and compliance measures will be worked out with the USFWS well before the start of construction. With these precautions, the planned project activities will not result in a taking under the Bald and Golden Eagle Protection Act.

The USFWS advises that woodland birds in the Kodiak Archipelago typically nest from early May to mid-July, and that any vegetation clearing for construction be conducted before or after that period to minimize the risk of a MBTA violation (USFWS 2009b). The project activities, however, do not include the clearing of vegetation, and will have little or no impact on bird nesting habitat. The risk of a violation of the Migratory Bird Treaty Act is negligible.

4.2.5.4 Essential Fish Habitat and Anadromous Streams

The Corps prepared an EFH assessment (USACE 2015a) and provided it to the NMFS for review in 2015. In that EFH assessment, the Corps determined that the project would eliminate about 2.5 acres of essential fish habitat for four species of Gulf of Alaska Groundfish (NPFMC 2015): arrowhead flounder, yellowfin sole, flathead sole, and rock sole. The flat, sandy, shallow seafloor within the footprint of the East Breakwater offers similar conditions to EFH descriptions for these flatfish species. At a rough estimate, based on the May 2015 underwater video survey correlated with available aerial photos, about 250 acres of similar habitat exists between the mouth of Settler Cove and the small boat harbor. Construction of the East Breakwater would therefore replace about 1 percent of existing available sandy EFH with a very dissimilar vertical rocky structure where none exists currently. The Corps determined that this is an adverse effect, but a minimal one, and one that will not impair this area's ability to support these species.

The Corps also determined that the project would have no long-term adverse effect on EFH for Pacific cod, walleye Pollock, squid, skates, and sharks, because no significant EFH exists for these species at Settler Cove. The Corps determined no long-term net adverse effect to EFH for sculpin and octopi species because the new habitat provided by the breakwater would be equally suitable for these species as the habitat to be replaced.

For all marine species, short-term effects during construction will likely consist of temporary increases in suspended sediment within the water column, which may displace fish to similar habitat nearby. Fish may be affected and displaced by noise from construction vessels and the placement of rock for the breakwaters. These effects will dissipate entirely soon after construction is completed.

For Alaska stocks of Pacific Salmon, the Corps determined that with construction timed to avoid the mid-March through mid-June period when the more-vulnerable juvenile salmon would be

out-migrating, the project will have no adverse effect on juvenile salmon EFH. Adult salmon may be affected by noise from construction vessels and the placement of rock for the breakwaters, and by temporary increases of suspended sediment in the area. These effects will dissipate entirely soon after construction is completed. The Corps also determined in that EFH assessment that the project would have no long-term adverse effect on salmon EFH if the fish passage gap in the existing breakwater is retained.

The NMFS responded to the Corps' EFH assessment on January 6, 2016, stating, "NMFS does not offer any additional EFH Conservation Recommendations and EFH consultation requirements have been satisfied" (Kelly 2016b). The Corps followed up immediately with the NMFS on what had been learned about the loss of functionality of the fish passage gap (Floyd 2016b), and continued to update the NMFS, the ADFG, and other agencies on the evaluation of options for maintaining fish passage. Ultimately, the Corps decided the fish passage gap could not be functionally maintained and should be closed to improve the performance of the West Breakwater (Floyd 2016a). The consensus among ADFG personnel familiar with the Settler Cove salmon fishery was that the decades-long absence of proper fish passage at the base of the breakwater had no discernable adverse effect on salmon in- and out-migrations (Frost 2016). In an email dated March 18, 2016, the NMFS stated that "NMFS habitat has reviewed the supplementary information you provided on the Port Lions navigation improvements and fish passage gap. The fish passage gap filled with sediment decades ago and never met its initial design goal of facilitating fish passage; however, there have been no noticeable adverse impacts on the Settler Cove salmon fishery. As described by the Corps, the defective fish passage gap will be filled, but not excavated, to improve the functionality of the breakwater. NMFS does not see a need to reengage EFH consultation at this time." (Kelly 2016a). The NMFS also reiterated an agreement with the Corps to discuss improved fish passage and design for future Corps projects.

4.2.5.5. Protected Areas

The proposed improvements will be highly localized within Settler Cove and have no effect on the nearby Kodiak National Wildlife Refuge or Chugach National Forest.

4.2.6 Effects on Waters of the U.S. and Special Aquatic Sites.

Construction of the breakwater and closure of the fish passage gap will involve discharges into waters of the U.S. No "special aquatic sites" are present at the construction sites (section 3.8).

4.2.7 Effects on Cultural Resources.

The project will have no adverse effect on historic properties as none exist in the project area of potential effect. The Corps made the determination of no adverse effect in a letter dated March 17, 2015 (Pierce 2015), with which the State Historic Preservation Officer concurred on March 20, 2015 (SHPO 2015). The Corps sent an amended letter of determination to the SHPO dated May 2, 2016 (Pierce 2016), discussing the closure of the fish passage gap, and reiterating the determination of no historic properties affected. The SHPO provided a stamped concurrence with the amended determination letter dated 27 May 2016.

4.2.8 Effects on Coastal Zone Management.

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.

4.2.9 Effects on Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires Federal agencies to identify and address any disproportionately high and adverse human health effects of its programs and activities on minority and low-income populations.

The purpose of the proposed project is to improve protection for the existing small boat harbor, which should provide a general benefit to the community. The USACE does not anticipate adverse or disproportionate environmental impacts from this project to the human population.

4.2.10 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 impact of the action when added to other past, present, and reasonably foreseeable future actions.

The project is intended to improve protection for the existing small boat harbor, not to enlarge it or increase its fleet size. However, the project should allow the harbor mooring basin to attain its design capacity of 124 vessels, effectively increasing the number of vessels able to use the harbor. The closure of the fish passage gap may allow a more permanent barge landing ramp south of the existing breakwater if closure of that gap significantly reduces the amount of debris that is forced up onto the ramp and dock areas of the small boat harbor. No other infrastructure improvements are known to be planned for this area that would become more or less feasible as a result of the proposed project. The Corps does not foresee significant cumulative effects as a result of this project.

4.2.11 Avoidance, Reduction, or Mitigation of Environmental Impacts.

The following measures have been recommended or stated as stipulations during the course of coordination with the ADFG, the USFWS, and the NMFS, and are adopted to avoid or minimize impacts upon the environment:

- To avoid adverse effects on juvenile salmon out-migrations, in-water work shall not be performed between 15 March and 15 June.
- Prior to construction, the shorelines within about 660 feet of construction areas shall be surveyed for evident or potential bald eagle nesting sites. Any such nesting sites will be reported to the USFWS for further coordination and potential permitting action.

- Project vessels will be limited to a speed of 8 knots, where consistent with safe navigation and ship-handling, to reduce the risk of collisions with protected species.
- A marine mammal observer (MMO) will be in a position that affords a clear view of the waters of Settler Cove and the entrance to Kizhuyak Bay before and during all construction activity. The MMO will have no other primary duty than to watch for and report on events related to marine mammals.
- The MMO will ensure that a 50-meter radius around the work area is clear of marine mammals at least 15 minutes prior to commencing project activity.
- If, in the opinion of the MMO, a marine mammal species appears likely to enter the 50-meter buffer zone during construction activity, operations shall cease immediately, and will not begin again until the zone is void of marine mammals.
- The contractor will prepare an Oil Spill Prevention and Control Plan as part of an Environmental Protection Plan to be submitted to the Corps for review and approval.
- The Corps will conduct pre- and post-construction surveys of the project areas to evaluate how the installation of the breakwaters affects the numbers and types of fish using the project areas, and to document the colonization of the new breakwaters by marine organisms.

5.0 Coordination and Compliance with Environmental Regulations

5.1 National Environmental Policy Act (NEPA) of 1969 (42 USC 4341 et seq).

This Act requires that environmental consequences and project alternatives be considered before a decision is made to implement a Federal project. NEPA established the requirements for preparation of an Environmental Impact Statement (EIS) for projects potentially having significant environmental impacts and an Environmental Assessment (EA) for projects with no significant environmental impacts. This EA (supplemental to the EA prepared in 2005 during the original feasibility study) has been prepared to address impacts and propose avoidance and minimization steps for the proposed project, as discussed in the CEQ regulations on implementing NEPA (40 CFR 1500 et seq.). This document presents sufficient information regarding the generic impacts of the proposed construction activities at the proposed project to guide future studies and is intended to satisfy all NEPA requirements.

The EA and Finding of No Significant Impact (FONSI) were circulated for public and agency review under a public notice dated 1 June 2016.

5.2 Clean Water Act Of 1972 (33 USC 1251 et seq)., and Rivers and Harbors Act of 1899 (33 USC 403 et seq).

The objective of the Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act (CWA) of 1977 (Public Law 92-500), is to restore and maintain the chemical,

physical, and biological integrity of the Nation's waters. Specific sections of the CWA control the discharge of pollutants and wastes into aquatic and marine environments.

The specific sections of the CWA that apply to the proposed project are Section 404, addressing the discharge of fill material to waters of the United States, and Section 401, which requires certification that the permitted project complies with the State Water Quality Standards for actions within State waters. The enforcement agency for Section 404 is the U.S. Army Corps of Engineers; the Corps does not issue permits to itself, but will prepare an evaluation of the effects of its proposed discharge under Section 404(b)(1), available in Appendix 1.

The Corps will comply with Section 401 by applying for water quality certification from the State of Alaska Department of Environmental Conservation. The major action of the project invoking this regulation is the placement of rock into nearshore waters to create the breakwaters although other actions with the potential to affect water quality (e.g. disturbance of sediment accumulated in the fish passage gap) are also considered in the 404(b)(1) evaluation.

5.3 Rivers and Harbors Act of 1899 (33 USC 403 et seq.)

Section 10 of this Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from the U.S. Army Corps of Engineers. The Corps does not issue permits to itself, so no specific permit is required under this act.

5.4 Endangered Species Act of 1973 (16 USC 1531 et seq).

The Endangered Species Act (ESA) protects threatened and endangered species by prohibiting Federal actions that would jeopardize continued existence of such species or result in destruction or adverse modification of any critical habitat of such species. The Corps is required to coordinate with both the USFWS and NMFS to identify what ESA-listed species under those agencies respective jurisdictions may be present in the project area. The Corps then assesses how the proposed Federal action may impact listed species and makes one of several determinations including: “No Effect”, “May Affect but Not Adversely Affect”, and “May Affect and Likely to Adversely Affect”. If the determination is “No Effect” then the action may proceed without consultation with USFWS/NMFS. However, ESA Section 9 prohibitions will apply if an unanticipated take to a listed species occurs.

If the determination is “May Affect but Not Likely to Adversely Affect”, USFWS/NMFS must be consulted. During consultation USFWS/NMFS will review the Biological Assessment (if prepared by the Corps) and either concur with the determination, end the consultation process and allowing the project to proceed, or not concurring and recommending changes or mitigation measures to remove any adverse effects and ending formal consultation.

The Corps has concluded informal consultation under Section 7 of the ESA with both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The USFWS concurred with a “may affect but not adversely affect” determination for Northern sea otters in a letter dated November 13, 2015; the NMFS concurred with “may affect but not adversely affect” determinations for Steller sea lions, humpback, fin, sperm, and North Pacific

right whales in a letter dated December 3, 2015. The Corps has made a determination of "no effect" on short tailed albatross in this EA; the USFWS and the NMFS do not provide concurrences with "no effect" determinations. The Corps notified both the USFWS and the NMFS in March 2016 of the proposal to close the existing fish passage gap and made determinations that the proposed change would not change its initial "determinations of effect" on ESA species. Both the USFWS and the NMFS have concurred by email that the proposed fish passage closure would not change their initial evaluations of effects on ESA species.

5.5 Fish and Wildlife Coordination Act (16 USC 661 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires the Corps to consult with the USFWS whenever the waters of any stream or other body of water are proposed to be impounded, diverted, or otherwise modified. The Act authorizes USFWS to take the lead in consultation to conduct surveys and investigations to determine the possible damages of proposed actions on wildlife resources, and to make recommendations to the Corps regarding measures to prevent the loss or damage to wildlife resources, as well as regarding the development and improvement of such resources. The Corps is authorized to transfer funds to USFWS to carry out these investigations. The Corps is required give full consideration to the reports and recommendations of the wildlife agencies and include such justifiable means and measures for wildlife mitigation or enhancement as the Corps finds should be adopted to obtain maximum overall project benefits.

The Corps invited the USFWS to update their 2003 Coordination Act Report (CAR) in March 2015, and again in January 2016. No funds were requested by or transferred to the USFWS during the FWCA follow-up for this project. In March-April 2016, the Corps conducted and provided to the USFWS a tidal circulation modeling study that had been requested in the 2003 CAR. Following several months of informal discussion and exchanges of information, the USFWS closed FWCA consultation with a letter dated 26 May 2016 (USFWS 2016). The letter's sole recommendation was that "the Corps perform fish surveys and intertidal benthic colonization surveys before and after installation of the breakwater to understand how the installation of this breakwater on a soft, low-relief sea floor changes the fish community at the project site," an activity that had been discussed between the Corps and the USFWS, and which the Corps has agreed to carry out.

5.6 Magnuson-Stevens Fishery Conservation and Management Act Fishery Conservation Amendments of 1996, (16 USC 1801 et seq).

The Magnuson-Stevens Fishery Conservation and Management Act provides for the conservation and management of all fishery resources between 3 and 200 nautical miles offshore. The 1996 amendments to this act require regional fisheries management councils, with assistance from the NMFS, to delineate Essential Fish Habitat (EFH) in Fishery Management Plans (FMPs) for all managed species. EFH is defined as an area that consists of "waters and substrate necessary for spawning, breeding, feeding or growth to maturity" for certain fish species. Federal action agencies that carry out activities that may adversely impact EFH are required to consult

with the NMFS regarding potential adverse effects of their actions on EFH. An EFH assessment is provided as an appendix to this report.

Magnuson-Stevens Fisheries Act (MSA): The Corps prepared an essential fish habitat (EFH) assessment and submitted it to the NMFS in 2015. The NMFS responded in an email dated January 6, 2016 that EFH consultation requirements had been satisfied. The Corps reinitiated EFH consultation with the NMFS in light of information that the existing fish passage had largely filled in and would not be practical to maintain, and to discuss the proposed closure of the fish passage gap. The NMFS ultimately concluded in an email dated March 11, 2016 that closure of the fish passage gap would not adversely affect EFH (section 4.2.4.5). The NMFS also stated at that time that it did not intend to reengage in EFH consultation, so the Corps did not revise its EFH assessment, but documented the updated information and consultation in this EA.

5.7 Marine Mammal Protection Act, (16 USC 1361 et seq).

The Marine Mammal Protection Act (MMPA) provides protection to marine mammals in both State waters (within 3 nautical miles from the coastline) and the ocean waters beyond. As specified in the MMPA, USFWS is responsible for the management of polar bears, walrus, and sea otters; NMFS is responsible for all other marine mammals such as whales, porpoises, and seals. The Corps is required to coordinate with these agencies on potential impacts to species covered by this act and must address these agencies' concerns and recommendations.

The Corps' coordination with NMFS included discussions of MMPA species. The measures adopted to avoid and minimize potential harm to the ESA-listed marine mammals will also be applied to any marine mammals encountered at the project site during construction.

5.8 The Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668c)

This act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Disturbance of eagles can include any action causing interference with normal breeding, nesting, or feeding activities. The Corps will survey the area around the project site for active or potential eagle nests, and coordinate further with the USFWS as needed.

5.9 Migratory Bird Treaty Act, (16 USC 703 et seq).

The essential provision of the Migratory Bird Treaty Act (MBTA) makes it unlawful, except as permitted by regulations, "to pursue, hunt, take, capture, kill…any migratory bird, any part, nest or egg," or any product of any bird species protected by the convention.

The Corps has determined that there are no grounds on which to apply for a take permit or authorization for this project under the MBTA as there are no known or likely nesting sites or areas in the project vicinity.

5.10 State of Alaska Anadromous Fish Act (AS 16.05.871-901) and Fish Passage Act (AS 16.05.841)

ADFG has the statutory responsibility for protecting freshwater anadromous fish habitat and providing free passage for anadromous and resident fish in fresh water bodies. An individual or government agency notifies and obtains authorization from the ADFG Division of Habitat for activities within or across a stream used by fish if it is determined that such uses or activities could represent an impediment to the efficient passage of resident or anadromous fish. The ADFG may issue a Fish Habitat Permit (FHP).

This project is in marine waters and not strictly speaking subject to this act. However, the freshwater anadromous fish habitat is also protected under the Magnuson-Stevens Act, and information was sought from ADFG personnel knowledgeable about anadromous fisheries in the project area.

5.10 National Historic Preservation Act of 1966, as amended (16 USC 470 et seq).

The purpose of the National Historic Preservation Act (NHPA) is to preserve and protect historic and prehistoric resources that may be damaged, destroyed, or made less available by a project. Under this Act, Federal agencies are required to identify cultural or historic resources that may be affected by a project and to consult with the State Historic Preservation Officer (SHPO) when a Federal action may affect cultural resources.

The project location has undergone evaluation by the Alaska District archeologist. The Corps determined that no historic properties will be affected by the proposed activities (Pierce 2015, 2016) and has submitted that determination to the SHPO. The SHPO concurred with that determination on 27 May 2016.

6.0 CONCLUSION

The proposed construction of new breakwater structures as discussed in this document would have minor, largely controllable short-term environmental impacts. However, in the long term it would help improve the overall quality of the human environment. This assessment supports the conclusion that the proposed project does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, a Finding of No Significant Impact has been prepared.

7.0 PREPARERS OF THIS DOCUMENT

This environmental assessment was prepared by Chris Floyd and Diane Walters of the Environmental Resources Section, Alaska District, U.S Army Corps of Engineers. The Corps of Engineers Project Manager is Thareth Casey.

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APPENDIX A

SECTION 404(b)(1) EVALUATION

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

Navigation Improvements
Port Lions, Alaska

I. Project Description and Background

A. Location: The project area is in the near-shore environment near the entrance of Settler Cove onto Kizhuyak Bay (roughly 57.87°N, 152.86°W), adjacent to the community of Port Lions, Alaska, at the north end of Kodiak Island (figure 1).

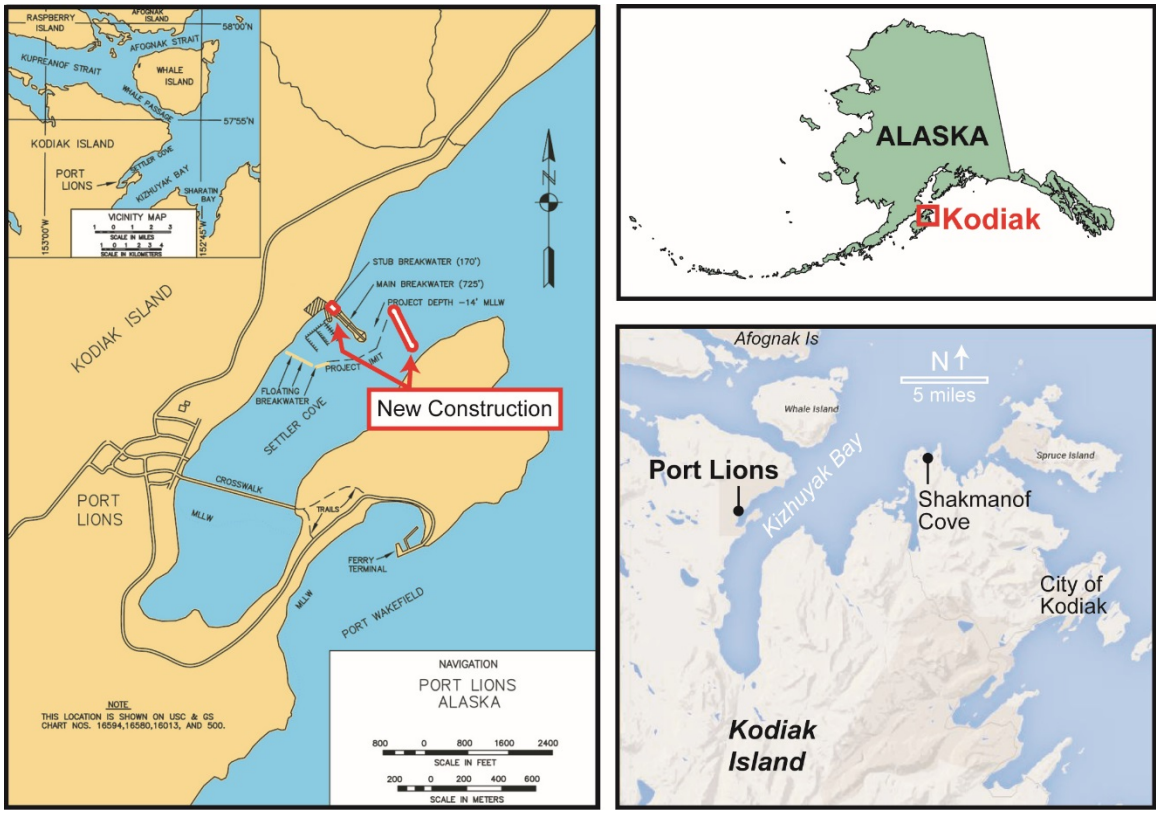

Figure 1. Location and vicinity of the navigation improvements at Port Lions, Alaska.

B. General Description: The existing rubblemound structures at Port Lions were originally constructed in 1981 as a 600-foot main breakwater paired with a 170-foot stub breakwater. The main breakwater was damaged in a severe winter storm that same year. The main breakwater was strengthened and lengthened to its current 725 feet in 1983, but over time the revised breakwater layout was found to be inadequate to protect the harbor

from strong swells entering Settler Cove from the northeast. The harbor was originally designed to create a basin capable of accommodating 124 vessels, but a 2005 analysis found that due to the wave energy entering the existing harbor and recurring damage to the floats, only 35 vessels could typically be moored in the harbor.

The current configuration of rubblemound and floating breakwaters has proven inadequate to protect the small boat harbor at Port Lions. Additional protective structures are needed to reduce the energy of strong swells entering Settler Cove.

C. Authority: The original authorization for this action is The Rivers and Harbors Act, 14 July 1960, under Section 107 (Public Law 86-645) as amended and approved by the Office of the Chief of Engineers, 9 April 1979. This authorization provides for a north breakwater 600 feet long and a stub breakwater 170 feet long to protect a 5-acre mooring basin. The additional detached breakwater and expansion of the existing breakwater were initially examined as alternatives in the 2005 feasibility study and environmental assessment, and adopted as supplemental features in a 2013 limited reevaluation report (USACE 2013). The existing breakwater will be extended to the shoreline.

D. General Description of Dredged or Fill Material: As currently designed, the new detached breakwater (East Breakwater) will be about 700 feet long along the top and 150 wide at the base, with a trapezoidal cross-section, and have a footprint of an estimated 109,769 square feet (2.52 acres). The East Breakwater will require 55,100 cubic yards of various grades of rock. The West Breakwater Extension will be roughly 150 feet long along the top, and require 4,200 cubic yards of various grades of rock. The total footprint of the West Breakwater Extension is estimated at 13,100 square feet (0.3 acre). However, part of the extension will be resting on the existing breakwater and shore protection rock; the area of the West Breakwater Extension placed on natural sediment is estimated at 8,700 square feet (0.2 acre).

The East Breakwater will be constructed directly on the sea floor, with no need to excavate or otherwise prepare the existing site. Construction of the West Breakwater Extension will require removing some of the accumulated sediment and debris in the current fish passage gap to expose the original rockwork and allow the new rock to be seated properly on the existing rock. The Corps estimates that roughly 100 cubic yards of accumulated material, mostly sand and gravel but probably woody debris as well, will need to be cleared from the fish passage gap prior to construction of the West Breakwater Extension. This material will be placed along the seaward side of the West Breakwater, and allowed work back into the beach that is forming there.

E. Description of the Proposed Discharge Site: The project site for the new detached breakwater is near the entrance of Settler Cove, in waters roughly 18 to 24 feet deep. The Corps' May 2015 underwater video survey of this area showed the seabed to be relatively flat and sandy, with patchy areas of short-stiped kelp species anchored to cobbles and many mollusk shells on the surface. No eelgrass was noted in the project area, though abundant eelgrass is present in the lower end of Settler Cove south of the boat harbor. The entrance of Settler Cove is subject to strong swells approaching from the northeast.

The intertidal areas affected by the extension to the existing West Breakwater consist of sand, gravel, and debris driven through the existing gap between the existing breakwater and revetted shoreline. Similar material is shoaling along the north side of the West Breakwater and forming a beach.

F. Description of Disposal Method: For the East Breakwater rock material would be transported to the construction site by barge and placed into position using an excavator or similar equipment. The placement of material for the West Breakwater Extension will probably be done from shore. The sediment and debris removed from the fish passage gap would be moved by excavator, with the existing rock surfaces cleaned with a water jet or similar means.

II. Factual Determinations

A. Physical Substrate Determinations:
Data from geotechnical surveys in 2015 and 2003 show the marine sediments at the project site to consist of shallow pockets (ranging from 1 to 7.5 feet thick) of fine-grained soft silty, sandy, clayey material overlaying a thicker (5 to 35 feet thick) layer of coarse-grained sediment believed to be a mix of sands, silts, and gravels. These sediments are underlain by bedrock at depths ranging from 15 to 60 feet below mean lower low water (MLLW; USACE 2015).

An underwater video survey performed at the project site in May 2015 showed surface sediments that were largely sandy with scattered cobbles and numerous mollusk shells (figure 4).

B. Water Circulation, Fluctuations, and Salinity Determinations: The project alternatives were designed in the 2005 feasibility study using circulation criteria to minimize environmental degradation associated with harbor improvements. Nece, et al. 1979 "Effects of Planform Geometry on Tidal Flushing and Mixing in Marinas" was adopted as standard practice for estimating harbor basin flushing by use of an average exchange coefficient for one tidal cycle. This work is based on physical model studies of harbor

basins of varying geometry and tidal range typical of Puget Sound in the State of Washington; the mean tidal range for the project site at Settler Cove (9.6 feet) is greater than that for the Puget Sound area (6 feet).

Calculations performed for the 2005 feasibility study indicated that the placement of the new detached breakwater would increase tidal velocities through the remaining passage, with peak velocity at ebb tide increasing by about 20 percent (from 0.80 to 0.96 feet per second).

In order to determine the effect that the East Breakwater and the closure of the fish passage would have on the mass transport of water through Settler Cove, the Alaska District Hydraulics and Hydrology Section performed tidal modeling to see how these features would change the magnitude and timing of the tide signal inside the cove. The change in water surface elevation due to the tide cycle was modeled for the existing condition, the addition of the East Breakwater, the closure of the fish passage gap, and for the East Breakwater and fish passage closure together. The model showed little to no change between the various scenarios in the magnitude and timing of the tidal change in water surface elevation. In other words, the mass transport of water in and out of Settler Cove would not be significantly altered by the navigation improvements at Port Lions, and the project would have no effect on salinity.

C. Suspended Particulate/Turbidity Determinations: Placement of the bottom course of rock for the breakwaters would loft some bottom sediment into the water column. This increase in turbidity would be short-term and highly localized. The rock itself would have a minimal layer of surficial dust and fines on its surface that would also contribute in a minor way to the short-term, localized increases in turbidity. The placement of accumulated sand, gravel, and woody debris from the fish passage gap along the north side of the West Breakwater would effectively return this material to the same near-shore environment from which it originated; this coarse material should introduce few suspended sediments into the water column.

D. Contaminant Determinations: The rock placed for the breakwaters would be clean material free of contaminants. The Corps does not know what rock source the contractor will select for this project, although the quarry at Shakmanof Cove is probably the most cost-effective source of suitable material. From a mineralogical standpoint, the biotite granite produced at the Shakmanof Cove quarry is unlikely to present acidity or toxicity characteristics that would inhibit colonization.

E. Aquatic Ecosystems and Organism Determinations: The installation of the East Breakwater would result in the loss of approximately 2.5 acres of existing submerged

habitat consisting of a shallow sandy benthic community with surface cobbles providing intermittent attachment points for epilithic organisms. At a rough estimate based on the May 2015 underwater video survey correlated with available aerial photos, about 250 acres of similar habitat exists between the mouth of Settler Cove and the small boat harbor. Therefore, roughly 1 percent or less of the existing sandy habitat would be replaced with a vertical rocky structure where none exists now. It is not certain how quickly the intertidal portions of the new breakwater would recruit new growth of marine algae and invertebrates; when viewed in May 2015, the existing breakwater at Port Lions showed signs of scouring from strong wave action. Sparse, spotty colonization by small, newly-recruited mussels and barnacles was seen on exposed rock surfaces on the seaward side, while more typical mature colonization with mussels, barnacles, and marine algae was observed on the leeward side and in crevices between the armor rock pieces. A similar distribution of organisms may be expected on the new breakwater. Mobile organisms such as snails and crabs would find habitat quickly within the rocky structure of the new breakwater, as would small and juvenile fish along the sub-tidal portions of the breakwater. The interface between the new rocky substrate and existing sandy seafloor may also create additional productive habitat. Marine algae appears to grow readily in the existing sub-tidal environment where cobbles or other sufficiently-firm substrate provides an attachment point, so the sub-tidal portions of the new breakwater are likely to vegetate rapidly. The breakwater would afford some protection from high-energy swells for the seafloor in its lee, perhaps allowing a more extensive growth of marine algae on seafloor cobbles and on the sub-tidal benches of the breakwater than is currently possible in unsheltered areas of the outer cove. The reduction of wave energy entering the cove may also allow the eelgrass beds prevalent at the south end of the cove to expand somewhat farther into the cove.

The West Breakwater Extension would replace about 0.2 acre of sandy and gravelly intertidal habitat with a vertical rocky structure. The existing habitat in the fish passage gap is frequently disrupted by tidal scour and the movement of large debris, and is unlikely to host a significant biological community. The new portion of the extended West Breakwater would acquire an intertidal community similar to that found on the existing breakwater.

F. Proposed Disposal Site Determinations: No dredging is associated with the proposed project. Construction operations associated with installing the breakwaters would have only a temporary effect on the water column. The proposed action would comply with applicable water quality standards and would have no appreciable detrimental effects on municipal and private water supplies, recreational and commercial fisheries, water-related recreation, or aesthetics.

G. Determination of Cumulative and Secondary Effects on the Aquatic Ecosystem: No similar projects are known to be planned for the Settler Cove area. The project is intended to improve protection for the existing small boat harbor, not to enlarge it or increase its fleet size. However, the project should allow the harbor mooring basin to attain its design capacity of 124 vessels, effectively increasing the number of vessels able to use the harbor. The closure of the fish passage gap may allow a more permanent barge landing ramp south of the existing breakwater, if closure of that gap significantly reduces the amount of debris that is forced up onto the ramp and dock areas of the small boat harbor. No other infrastructure improvements are known to be planned for this area that would become more or less feasible as a result of the proposed project.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

A. Adaptation of the Section 404 (b)(1) Guidelines to this Evaluation: The proposed project complies with the requirements set forth in the Environmental Protection Agency's Guidelines for Specification of Disposal Sites for Dredged or Fill Material.

B. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem: The principle discharge to waters of the U.S. proposed in this project would be the placement of rock for rubblemound breakwaters. The project requires energy attenuation structures of some sort to improve protection to the existing harbor. Floating breakwaters installed by the City of Port Lions are used along the south side of the boat harbor, but the Corps determined that floating breakwaters would not be effective on the ocean side of the harbor.

LEDPA. The 2005 feasibility report/environmental assessment (FR/EA) did not explicitly identify a “least environmentally damaging practicable alternative (LEDPA). However, the FR/EA ranked the alternatives studied on criteria of functionality and environmental impact. The 2005 recommended plan (“Alternative 3b”; a new 1,360-foot-long rubble mound breakwater and 40-foot extension of the existing breakwater), was described as “the least damaging alternative”, and scored slightly higher overall (3.7) than the alternative most closely resembling the current project (Alternative 1a; score 3.5). The two alternative’s environmental scores were similarly close (3.6 vs. 3.4). Alternative 1a’s environmental score was lower than Alternative 3a’s due solely to concerns about the effect of Alternative 1a on potential “channel constriction” and impacts on water flow patterns within Settler Cove; indeed, the FR/EA identified Alternative 1a as one of “the most damaging” because of the unanswered questions concerning its potential effects on water movement. Those concerns were addressed in a 2016 tidal modeling study performed by the Corps, which found that the current project would not significantly

affect tidal exchange rates within Settler Cove. Alternative 1a was also the smallest of the rubblemound alternatives studied in the FR, and directly impacts the least amount of subtidal habitat. Therefore, Alternative 1a/the current project is effectively the LEDPA. The closure of the fish passage gap was not an alternative addressed in either the 2005 FR/EA or 2013 LRR. However, the impacts of completing the closure of the partially-filled fish passage gap on local fish movement and tidal flow patterns have been evaluated, and found to be less than significant.

C. Compliance with Applicable State Water Quality Standards: The proposed construction 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 near Port Lions. A temporary increase in turbidity would result from construction activities. The project would comply with State water quality standards. Adherence to water quality standards would be monitored.

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: The Corps has concluded informal consultation with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act. Table 1 summarizes determinations made by the Corps and agency concurrences.

F. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection. Research, and Sanctuaries Act of 1972: Not applicable; no marine sanctuaries are present near the project site.

G. Evaluation of Extent of Degradation of the Waters of the United States: There are no municipal or private water supplies or freshwater bodies in the area that could be negatively affected by the proposed project. There would be no significant adverse impacts to plankton, fish, shellfish, or wildlife.

Table 1. Summary of ESA Determinations and Concurrences

Species	Corps Determination	Agency Jurisdiction	Agency Response
Steller sea lion, *Eumetopias jubatus*	May affect but not adversely affect	NMFS	Concur
Humpback whale, *Megaptera novaeangliae*	May affect but not adversely affect	NMFS	Concur
N. Pacific right whale, *Eubalaena japonica*	May affect but not adversely affect	NMFS	Concur
Sperm whale, *Physeter macrocephalus*	May affect but not adversely affect	NMFS	Concur
Fin whale, *Balaenoptera physalus*	May affect but not adversely affect	NMFS	Concur
Northern sea otter, *Enhydra lutris kenyoni*	May affect but not adversely affect	USFWS	Concur
Short tailed albatross, *Phoebastria albatrus*	No effect	USFWS	NA

NA: not applicable; agency does not provide concurrences on "no effect" determinations

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Environment: Incorporating the following avoidance, minimization, and conservation measures into the proposed project would help to ensure that no significant adverse impacts will occur

- To avoid adverse effects on juvenile salmon out-migrations, in water work shall not be performed between 15 March and 15 June.
- Project vessels will be limited to a speed of 8 knots, where consistent with safe navigation and ship-handling, to reduce the risk of collisions with protected species.
- A marine mammal observer (MMO) will be in a position that affords a clear view of the waters of Settler Cove and the entrance to Kizhuyak Bay before and during all construction activity. The MMO will have no other primary duty than to watch for and report on events related to marine mammals.
- The MMO will ensure that a 50-meter radius around the work area is clear of marine mammals at least 15 minutes prior to commencing project activity.
- If, in the opinion of the MMO, a marine mammal species appears likely to enter the 50-meter buffer zone during construction activity, operations shall cease immediately, and will not begin again until the zone is void of marine mammals.

- The contractor will prepare an Oil Spill Prevention and Control Plan as part of an Environmental Protection Plan, to be submitted to the Corps for review and approval.

I. On the Basis of the Guidelines the Proposed Site for the Discharge of Fill Material is: Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

FINDING OF COMPLIANCE
for
Navigation Improvements
Port Lions, Alaska

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. The principle discharge to waters of the U.S. proposed in this project would be the placement of rock for rubblemound breakwaters; the project requires breakwaters to improve the protection of the existing harbor. The current selected alternative for the East Breakwater is a little more than half as long as the preferred alternative in the 2005 feasibility study (700 feet vs. 1,360 feet), with proportionately less discharge of material into waters of the U.S.

3. The planned discharge would not violate any applicable State water quality standards, or violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

4. Use of the selected discharge site will not harm any endangered species or their critical habitat.

5. The proposed discharge will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values will not occur.

6. Appropriate steps to minimize potential adverse impacts of the discharge on aquatic systems include: avoiding adverse effects on juvenile salmon out-migrations by performing no in-water work from 15 March and 15 June; limiting project vessels to a speed of 8 knots; providing for a marine mammal observer during construction; requiring the contractor to prepare an Oil Spill Prevention and Control Plan as part of an Environmental Protection Plan, to be submitted to the Corps for review and approval.

7. On the basis of the guidelines, the proposed site of construction and discharge is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.