US Army Corps of Engineers
Alaska District

Environmental Assessment and Finding of No Significant Impact

Maintenance Dredging
Elfin Cove Navigation Channels
Elfin Cove, Alaska

March 2022

Draft for Public Review

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FINDING OF NO SIGNIFICANT IMPACT

Maintenance Dredging
Elfin Cove Navigation Channels
Elfin Cove, Alaska

I. In accordance with the National Environmental Policy Act, I have reviewed and evaluated the documents concerning planned dredging of the two Federal navigation channels in Elfin Cove, Alaska. As part of my evaluation, I have considered:

a. Existing resources and the No Action Alternative.

b. Impacts to existing resources from the Preferred Alternative.

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

a. No significant impacts to federally listed endangered or threatened species are anticipated. Potential impacts to marine mammals protected under the Marine Mammal Protection Act and Endangered Species Act will be mitigated by use of a Protected Species Observer.

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

c. The No Action Alternative was evaluated and determined to be unacceptable, as the U.S. Army Corps of Engineers is responsible for restoring the Federal project depths at Elfin Cove in order to provide safe, reliable, efficient, and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation.

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

_____ _____

DAMON A. DELAROSA
COL, EN
Commander, Alaska District
U.S. Army Corps of Engineers

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ENVIRONMENTAL ASSESSMENT

Maintenance Dredging
Elfin Cove Navigation Channels
Elfin Cove, Alaska

1.0 PURPOSE AND NEED

1.1 Introduction

The U.S. Army Corps of Engineers (USACE), Alaska District prepared this Environmental Assessment (EA) to describe the proposed maintenance dredging at Elfin Cove, Alaska and in-water placement of dredged material in nearby Port Althorp.

1.2 Federal Project Authorities and History

The Chief of Engineers Report contained in House Document Numbered 579, Seventy-sixth Congress, Third Session recommended improvement of Elfin Cove, Alaska to provide a channel 10 feet deep and 60 feet wide through the outer entrance and a channel 8 feet deep and 40 feet wide through the inner entrance. The improvements would make available a land-locked harbor of refuge where small boats operating in the vicinity can seek shelter from storms and obtain supplies. Since the benefits to accrue to local interests were deemed incidental, no contribution toward the cost of the improvement was required. The report also states that maintenance will not be required. Congressional authorization for the project was provided in the River and Harbor Act of 1945 (Public Law 79-14).

Dredging of the inner channel was conducted in November 1957. Dredging of the outer channel started in April of the following year and all dredging at Elfin Cove was completed by May 1958. A total of 2,730 cubic yards (cy) of rock and 2,146 cy of sediment were removed. Dredging has not occurred since; however, condition surveys in 2007 and 2011 have shown dredging is necessary to restore the authorized depths of the channels.

Glacial isostatic rebound has resulted in a gradual rise of the landmass and seafloor in southeast Alaska. Further, a tidal datum update published for Elfin Cove in 2006 by the National Oceanic and Atmospheric Administration (NOAA) indicated an upward vertical change of over two feet. However, the Chief of Engineers Report specifically stated that maintenance was not included and therefore efforts to accomplish additional dredging of the two navigation channels could not proceed without further Congressional action.

In 2016 Congress approved the Water Infrastructure Improvements for the Nation Act (Public Law 114-322). Section 1109 of the act allows maintenance of “federally authorized harbors of refuge to restore and maintain the authorized dimensions of the harbors.” Since this authorization, the USACE Alaska District has received funding and performed preliminary studies to assess site conditions in support of dredging to restore the authorized dimensions of the channels at Elfin Cove.

1.3 Project Need and Objectives

The USACE maintains Federally authorized navigation projects to provide safe, reliable, efficient, and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation. Elfin Cove is in southeast Alaska, which relies heavily on its network of waterborne transportation systems (Figure 1-1 and Figure 1-2). Currently, the two channels at Elfin Cove (Figure 1-3) do not provide all tide access to their authorized depths and widths resulting in disruption to transient and local vessels. The channels need to be restored before the authorized depths can be regularly maintained, which will require dredging of an estimated 9,000 cubic yards of material based on the 2011 condition survey, to realize the full benefits of this harbor of refuge.

While harbors typically need dredging due to an accumulation of sediment, the two navigation channels in Elfin Cove need to be dredged due to a combination of factors: 1) vertical datum and 2) glacial isostatic rebound. The tidal datum used for surveys prior to 2006 appears to have been established in 1961. The level of accuracy and methodology used to determine the old datum are unknown. A 2012 update of the vertical control in the project area indicates a much more gradual rate of change, approximately +0.09 feet, compared to the 2006 update. Current technology and surveying methodology should result in a more accurate datum compared to over sixty years ago. Isostatic rebound is the gradual increase in ground elevation over time due to the removal of the huge weight of ice formations during the last glacial period. While there could also be a degree of sediment accumulation, it is likely that these two factors are the major contributors for the need to dredge the navigation channels in Elfin Cove.

Figure 1-1. Elfin Cove Location Relative to the Rest of Alaska

Figure 1-2. Elfin Cove in Relation to Other Southeast Alaska Communities (yellow circles) and Features

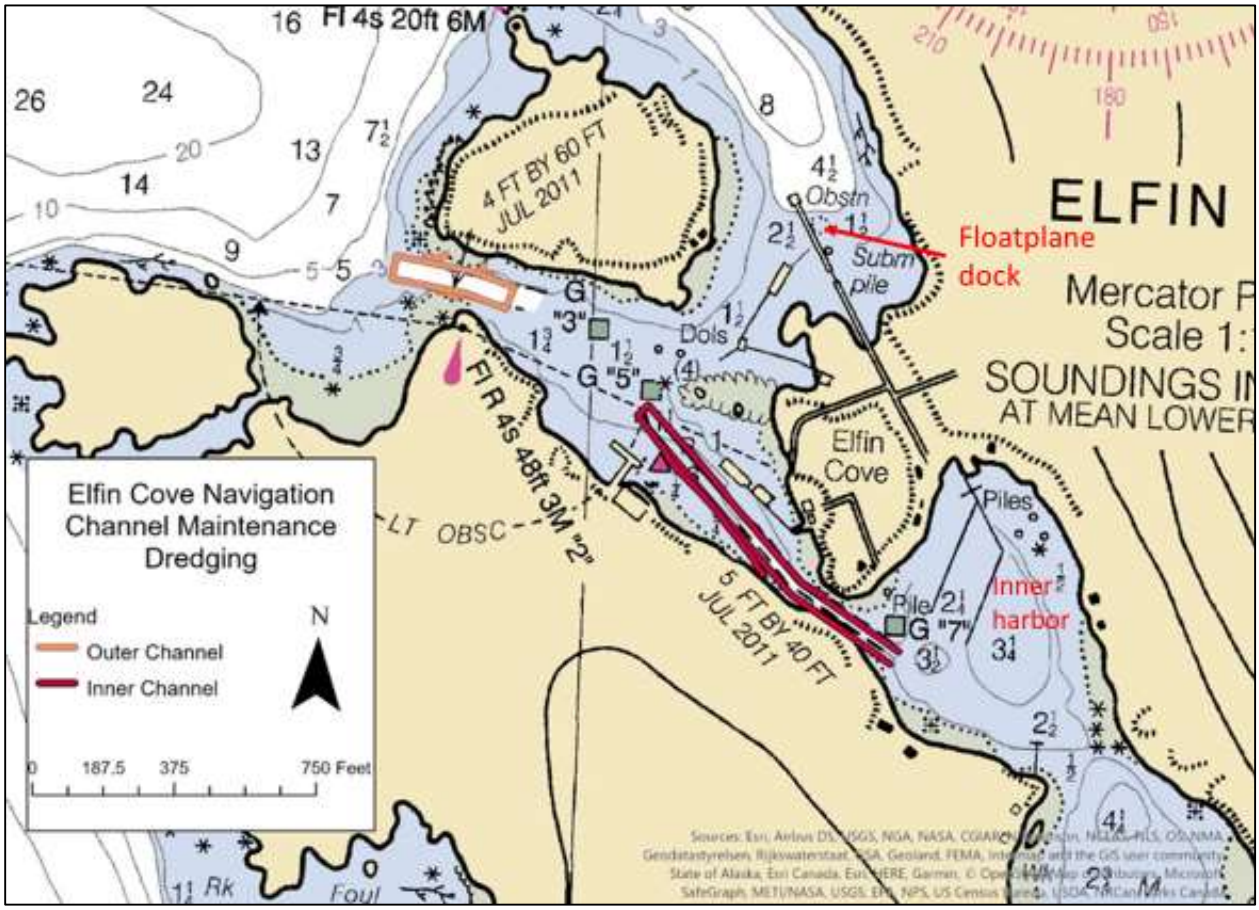

Figure 1-3. Inner and Outer Navigation Channels at Elfin Cove

The shallow depths in the navigation channels have negative consequences for local and transient vessels. These consequences range from striking bottom to having to restrict movement to periods of higher tides. One of the larger vessels in the inner harbor is a pilot vessel and needs to meet arriving or departing cruise ships to pick up or drop off pilots. It is often necessary for the pilot vessel to tie up to the float plane dock so that it is not restricted by the shallow channel depths when it needs to head out to meet a cruise ship during low tide. This takes up most of the usable space on the float plane dock, which is the only deeper water dock in Elfin Cove. Access to this dock from outside waters does not require the use of either navigation channel.

2.0 ALTERNATIVES AND PROPOSED ACTION

2.1 No-Action Alternative

The No Action alternative would result in no restoration of the Federally authorized Elfin Cove navigation channel depths. This alternative would avoid the potential environmental impacts described in later sections. However, it would also continue to prevent safe access by vessels using the harbor of refuge at Elfin Cove.

2.2 Action Alternatives

The following sections discuss the process and factors which lead to the development of a preferred alternative.

2.2.1 Dredging Method Alternatives

Mechanical Dredge

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

Mechanical dredging is the preferred alternative for Elfin Cove due to the shallow water depths, small maneuvering area for equipment, consolidated nature of the substrate, and relatively small estimated volume of material to be removed from the two navigation channels.

Hopper Dredge

A hopper dredge operates by use of suction “drag heads” that extend from the hull of the floating plant down into the substrate to be dredged. Materials are suctioned up into the open hull of the dredge until the hopper is full and materials can then be moved to a dredged material placement site. The suction of material brings in significant volumes of water along with the sediment; the excess water is allowed to overflow the hopper and flow back into the water body. The overflow water can increase turbidity and cause water quality issues. This type of equipment is routinely used on unconsolidated

materials such as silts, sands, and gravels which are easily transported in the water slurry. Large volumes of material can also be removed by a single dredge with bin capacities typically varying from 1,000 to 15,000 cubic yards.

A hopper dredge is not feasible for the Elfin Cove project due to the shallow water depths, small maneuvering area for equipment, consolidated nature of the substrate, and relatively small volume of material to be removed.

Pipeline Dredge

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

A pipeline dredge was considered feasible for the work in Elfin Cove based on the shallow water depths, small maneuvering area for equipment, consolidated nature of the substrate, and relatively small volume of material to be removed; however, this dredging methodology is not the preferred alternative because an onshore or near-shore placement/disposal area for the dredged materials could not be secured. See Section 2.2.2 for further details.

2.2.2 Dredged Material Placement or Disposal Alternatives

The typical alternatives for the placement of dredged material include:

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

2.2.2.1 Onshore Placement or Disposal Alternative

The dredged material, if shown to meet State of Alaska standards for "non-polluted" soil, may be used on shore (upland) for fill, cover, or other purposes such as beneficial use. This requires enough upland space to dewater and stockpile the dredged material as well as the identification of a party willing to take responsibility for the material and put it to a legitimate use. Due to the steep topography, thick forest, and lack of infrastructure, upland placement or disposal is not a valid option for this project. There are no roads in Elfin Cove, transportation is limited to foot traffic on an extensive wooden boardwalk, thus limiting opportunities to beneficially use the material.

2.2.2.2 Near-Shore Placement Alternative

The USACE and the U.S. Environmental Protection Agency (EPA) have policies encouraging the use of dredged material for construction or environmental enhancement. Such use requires the identification of a coinciding construction project,

or a legitimate environmental restoration or enhancement project, which can receive the dredged material. Contaminated dredged material can be placed within specially designed confined disposal facilities (CDFs).

Nearshore placement was considered for this project and the concept was to use the dredged material as fill for the creation of a helipad. This alternative would have placed the dredged material into an approximately 0.5-acre area of intertidal and shallow subtidal habitat adjacent to the fuel dock access pier (Figure 2-1). A helipad would be useful for medical evacuations (medivacs) since the only existing options are air evacuation by float plane or air evacuation using a U.S. Coast Guard helicopter landing on a small beach area available only at low tide. The helipad would have allowed for helicopter medivacs at any tide level.

Figure 2-1. Approximate Location and Fill Area of Helipad Concept

This alternative was not carried forward because of the uncertainty that the fill material placed by USACE would be used to form a functional helipad. USACE regulations allow the placement of fill for a construction project, but USACE is not authorized to construct the final project (i.e., a fully functional helipad). The fill material would have formed the base, but final grading, surfacing, marking, and any lighting or instrumentation would have been the responsibility of the community of Elfin Cove or some other project sponsor. The lack of a cooperation agreement with a project sponsor meant that there was no way to ensure that the local aspects of the helipad construction would ever be completed.

In addition to the uncertainty of whether the material would be used for a helipad, this placement location would have been a significant cost increase compared to offshore

disposal due to site access constraints with shallow water and obstructions, placement methods, and the need to place armor stone or some other controlled means around the outside of the material to keep it in place. The USACE coordinated with the community of Elfin Cove to identify potential beneficial use options (such as the helipad), but they were all more expensive than offshore disposal and additional costs would be the burden of the community. The community was unable to allocate funds to cover the difference in cost. This alternative was not carried forward and no other near-shore placement areas were identified.

2.2.2.3 Offshore Disposal

The selection of an offshore disposal site involves determining a general area where disposal might occur and then performing field investigations to determine the specific site based on biological and physical conditions for a range of alternatives. The general area determination is known as the Zone of Siting Feasibility (Section 2.2.3). The description of the specific site and the process involved in that determination are presented in section 2.2.3.

2.2.3 Zone of Siting Feasibility

The location of a potential dredged material disposal site is determined by a process known as the Zone of Siting Feasibility (ZSF). The ZSF identifies the maximum area for which the selection of a dredged material disposal site is economically and operationally feasible. The ZSF is based on several considerations, including:

- Costs of transportation to the disposal site and costs of the navigation project.
- Type of dredging and disposal plant
- Navigation restrictions
- Distance to the edge of the continental shelf
- Political and other jurisdictional boundaries

The considerations included in the ZSF are described in detail below:

Costs of transportation to the disposal site and costs of the navigation project:

The maximum extent of the ZSF should be equal to the maximum transport distance that is economically feasible. For the Elfin Cove navigation channels, the ZSF would be an area inside an arc originating from the Outer Channel and radiating offshore to a distance equal to the maximum transport distance. The maximum transport distance will be dependent on many factors, including the type and size of dredging equipment used, production rate of the dredge equipment, and acceptable production downtime.

The maximum distance that the dredged material could be economically transported is imprecisely defined due to the nature of the Operations and Maintenance (O&M) Program. The Alaska District requested Congressional funding for the entire dredging project several years before construction was expected to begin, before the identification of disposal options. Longer haul distances increase the cost of disposal by the consumption of additional fuel for the tow vessel(s) and increased idle time while the dredge waits for the dump scow(s) to return.

A transport distance of less than three nautical miles was initially selected to be consistent with other Alaska dredging projects and reduce dredge plant idle time during

scow transit to and from the disposal site. A three nautical mile buffer was applied to the Outer Channel to define the outer limits of the ZSF. The three nautical mile buffer didn't include an acceptable suite of potential disposal options due to the lack of areas that would be adequately protected from rough sea conditions, so a buffer of five miles was applied to the Outer Channel (Figure 2-2). Cost estimates for dredged material transport increased by approximately $55,000 per mile, round trip.

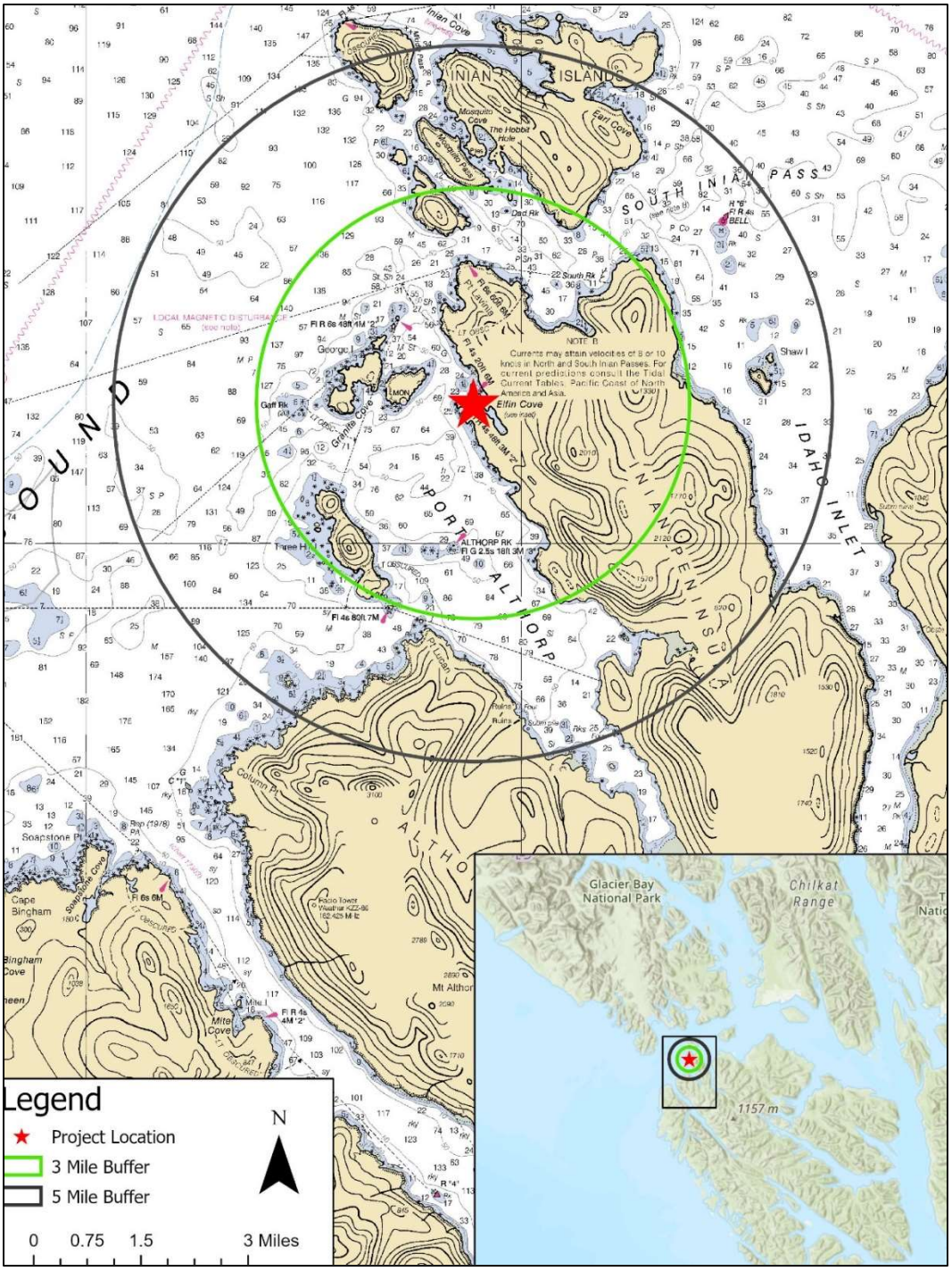

Figure 2-2. Elfin Cove Dredging Maximum Haul Distance for Offshore Disposal

Type of dredging and disposal plant:

Mechanical dredging is the recommended method for restoring the navigation channels due to the geotechnical conditions, confined operational area of Elfin Cove, and haul distances to potential disposal sites. Mechanical dredging is generally the only feasible option for "new work" dredging in Southeast Alaska due to the consolidated nature of the substrate. The restoration dredging in the Elfin Cove navigation channels can be considered “new work” dredging from a practical perspective because it would excavate previously un-dredged material introduced into the project vertically by changes in the vertical datum as well as isostatic rebound. It is appropriate to assume mechanical dredging for the purposes of establishing the ZSF in the process of selecting a dredged material disposal site. Projects of a similar scale in other parts of Alaska have used 500 cubic yards dump scows to transport the dredged material to the disposal site.

In a mechanical dredging system, the dredge and transport scow(s) are separate plants allowing dredging and transport to take place simultaneously if more than one scow is used. Mechanical dredging has slower production rates but is more cost-effective than hopper dredging as transport distances increase, assuming adequate barges are available. Mechanical dredging involves placing material in a scow, which can be transported over long distances, much like cargo. The Elfin Cove dredging project would likely employ a barge-mounted excavator or crane with a clamshell bucket to remove coarse and consolidated material from the channels. The material would be dumped from the dredge into a waiting scow. The scow would be towed to the disposal site once it is filled with dredged material, emptied at the identified site, and then towed back to the dredge location. This process repeats until the dredging is completed.

Navigation restrictions:

Navigation lanes for commercial and recreational vessels that would be impacted by the transportation and disposal of dredged material were considered in the ZSF. The dredging project is planned for winter construction to minimize impacts to the community and transient vessel traffic. The waters around Chichagof Island deepen rapidly, so the disposal of dredged material anywhere more than 1,000 feet offshore would be unlikely to create a navigational hazard; however, the operation of a scow in a navigation lane could present an obstacle to transiting vessels when the scow is being towed to the disposal area or during the act of disposal.

Cross Sound is the northern entrance to the Inside Passage, the coastal route for ships and boats along a network of passages which weave through the islands on the Pacific Northwest coast of the North American Fjordland. The Southeast Alaska Pilotage Area covers the waters from Dixon Entrance to Yakutat Bay and is a compulsory pilotage area. Comprehensive marine pilotage in Southeast Alaska is provided by Southeast Alaska Pilots' Association. Pilots are licensed by the State of Alaska and the United States Coast Guard to provide compulsory marine pilotage to all vessels entering the waters of Southeast Alaska except those vessels identified in Alaska Statute 08.62.180. Exempt vessels are generally less than 65’ overall length, fishing vessels registered in the U.S. or Canada, pleasure craft registered in the U.S., some Canadian Navy or Canadian Coast Guard craft, and other similar vessels. The Cross Sound entrance pilot

boat is stationed at Elfin Cove and meets vessels requiring pilotage at a point about 6 miles west of Elfin Cove.

Cross Sound splits into North Inian Pass and South Inian Pass at the Inian Islands. Most vessels transiting Cross Sound use the wider North Inian Pass because it is less affected by strong currents and obstacles. Automatic Identification System (AIS) transponder data from the period between September 1, 2020, and April 30, 2021, were analyzed and incorporated into the ZSF (**Error! Reference source not found.**Figure 2-3). The AIS period of analysis was established to correspond with the likely work window and represent the traffic patterns during construction.

Water depth greater than 3 fathoms is required to avoid operational impacts from discharging the dredged material in shallow water, which would create a navigational hazard by reducing available depth, and negatively impact littoral ecosystems. Marine waters inside the 3-fathom isobath are removed from the ZSF.

Powerful currents generated by the tidal exchange through Inian Pass have the potential to incur severe operational challenges for the dredged material disposal. Note B on chart 17302 states: “Currents may attain velocities of 8 or 10 knots in North and South Inian Passes. For current predictions consult the Tidal Current Tables, Pacific Coast of North America and Asia.” The currents in South Inian Pass are swift enough to overcome the thrust of the project’s tow vessel, which could create a hazardous situation for towing a barge laden with dredged material. Attempting to hold a barge on station during the discharge of the dredged material in strong currents is impractical. The trajectory and ultimate settling location in a high-current environment is also unpredictable and challenging to model. The ZSF is constrained to the waters south of South Inian Pass to avoid strong currents with the potential to present hazardous operational conditions.

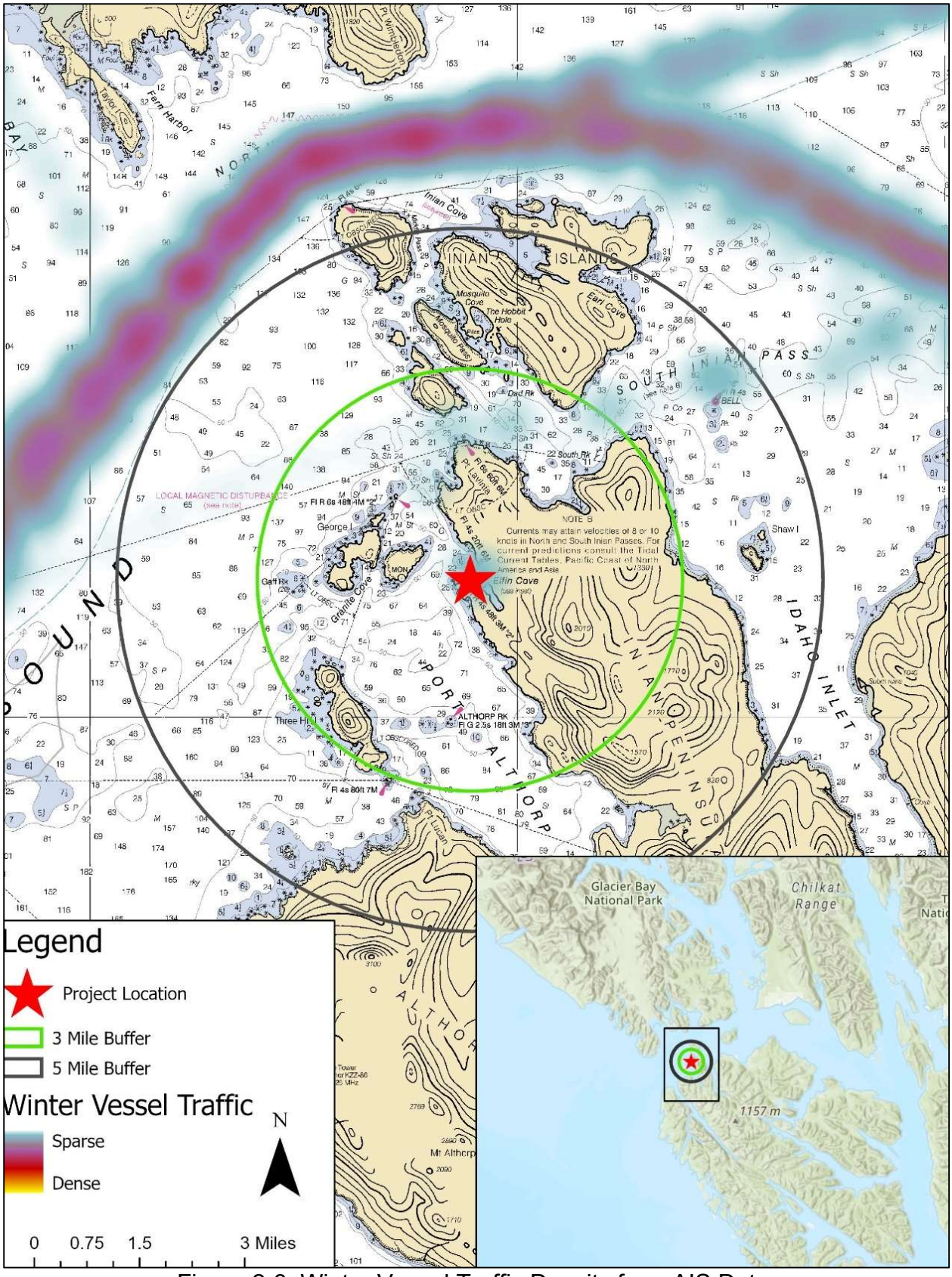

Figure 2-3. Winter Vessel Traffic Density from AIS Data

Distance to the edge of the continental shelf:

The Outer Continental Shelf Lands Act (OCSLA) of 1953 (43 U.S.C. 1331 et seq.) codified the Truman Proclamation of 1945, defining the outer continental shelf as all submerged lands lying seaward of state coastal waters, which are under U.S. jurisdiction. The State of Alaska owns most of the submerged lands along its coastline. The Submerged Lands Act of 1953 (43 U.S.C. 1301 et seq.) states that all lands permanently or periodically covered by tidal waters up to, but not above, the line of mean high tide and seaward to a line three nautical miles distant from the coast mean low tideline are owned by the State. The most proximal extent of State-owned submerged lands lies about 21 nautical miles west of the Elfin Cove navigation channels, in a bight formed by the intersection of the 3-mile limit of State ownership around Cape Spencer in the north and Cape Bingham in the south.

A topographic continental shelf is present about 45 miles west of Elfin Cove where the depth of water exceeds 12,000'. The extreme distance between Elfin Cove and the continental shelf renders the transportation of dredged material to the continental shelf (as defined by topography or regulation) for disposal impracticable.

Political and other jurisdictional boundaries:

The ZSF lies completely within Alaska State Territorial Sea. Closing lines within Territorial Sea and the ZSF delineate the area between "Inland Waters" and "Ocean Waters" for the purposes of establishing dredged material management regulatory environment. The disposal of dredged material in Inland Waters is regulated under the Clean Water Act (CWA; 33 U.S.C. 1251 et seq.), while the disposal of dredged material in Ocean Waters is regulated under the Marine Preservation, Research, and Sanctuaries Act (MPRSA; 33 U.S.C. 1401 et seq.).

In the waters south of Inian Pass: the bight east of Point Lavinia, Idaho Inlet, and the head of Port Althorp are Inland Waters enclosed by closing lines (Figure 2-4). All the waters seaward of these closing lines are Ocean Waters. No other political or jurisdictional boundary factors affect the ZSF.

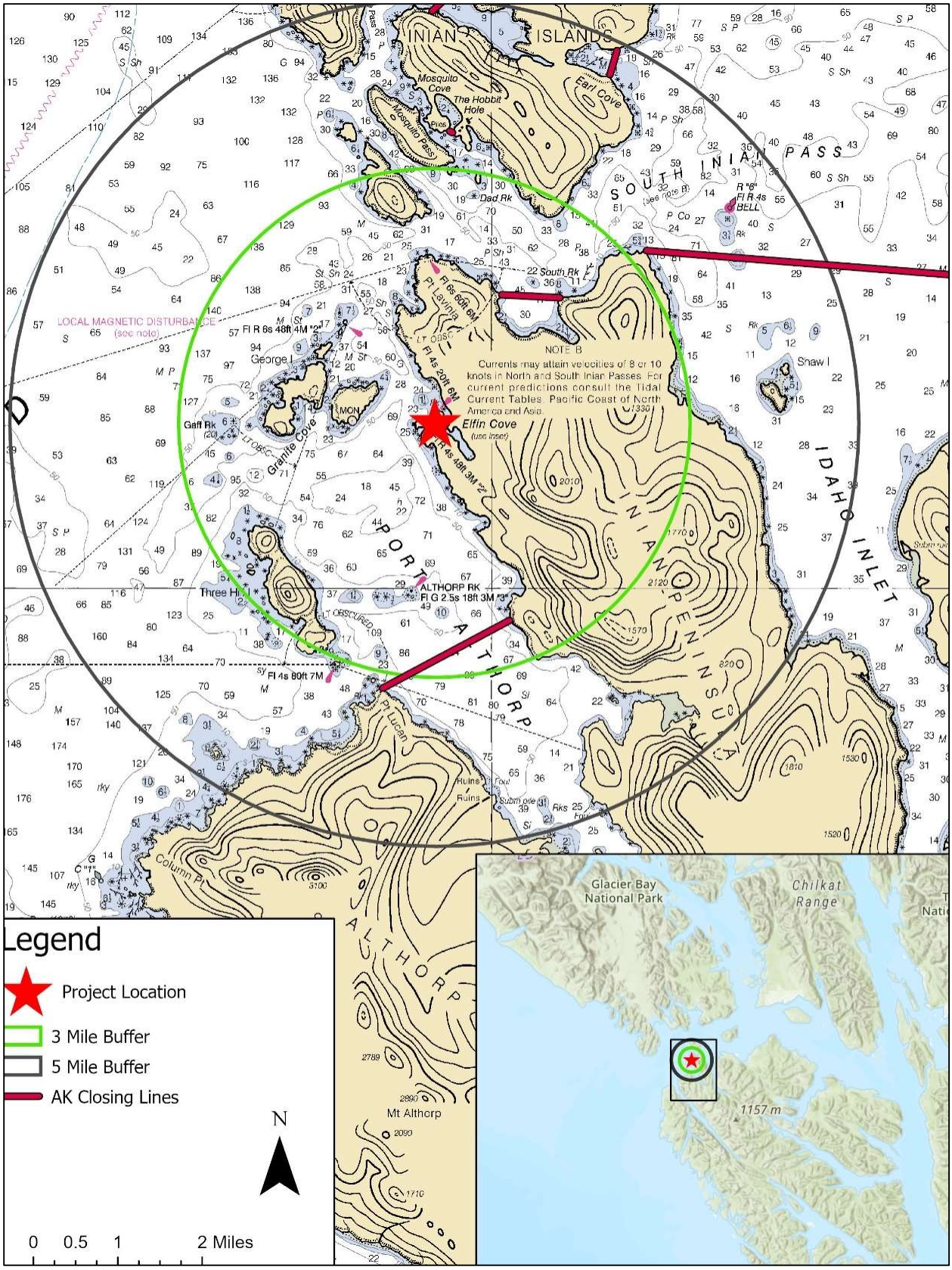

Figure 2-4. Zone of Siting Feasibility (ZSF) Closing Lines

2.2.4 Specific Disposal Site Selection

Based on the criteria described in the ZSF section above, disposal site options were limited to Port Althorp. Port Althorp has adequate water depths, does not have strong currents, and is protected from rough seas compared to waters to the west that are exposed directly to the Gulf of Alaska. Several sites in Port Althorp were sampled on a seasonal basis using underwater video, crab pots, and shrimp pots. Additionally, a barrel sampler was used on the first survey in October 2019 to collect sediment samples for a qualitative composition assessment (silt, muck, sand, gravel, etc.). The potential disposal sites that were sampled in Port Althorp are shown in Figure 2-5, Figure 2-6, and Figure 2-7. Details of the biological sampling are described later in sections 3.9.1.2 through 3.9.1.4. Site 20 was dropped from further consideration as a disposal site based on currents, wave exposure, and other observations during the four sampling trips conducted by USACE biologists of the area. Although this would have been the closest site to the dredging areas, it would not have been ideal due to the stronger currents and rougher seas. These two factors influence accuracy of material placement and safety, especially in the rougher conditions, that are typical within the proposed winter construction season of October through April.

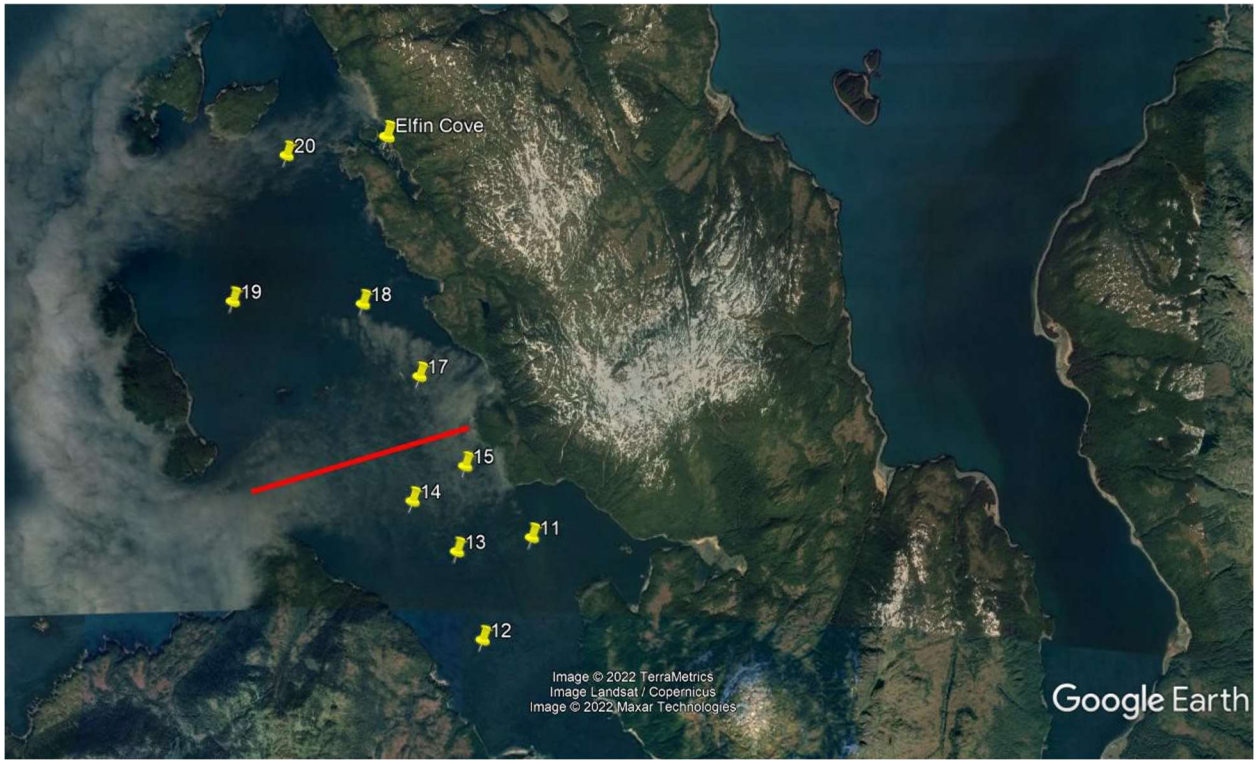

Figure 2-5. Port Althorp Disposal Site Alternatives that were Sampled in 2019 – 2021

The red line represents the closing line with waters governed under Section 404 of the Clean Water Act (sites 11-15) and Section 103 of MPRSA (sites 17-20). There was no disposal site 16 alternative.

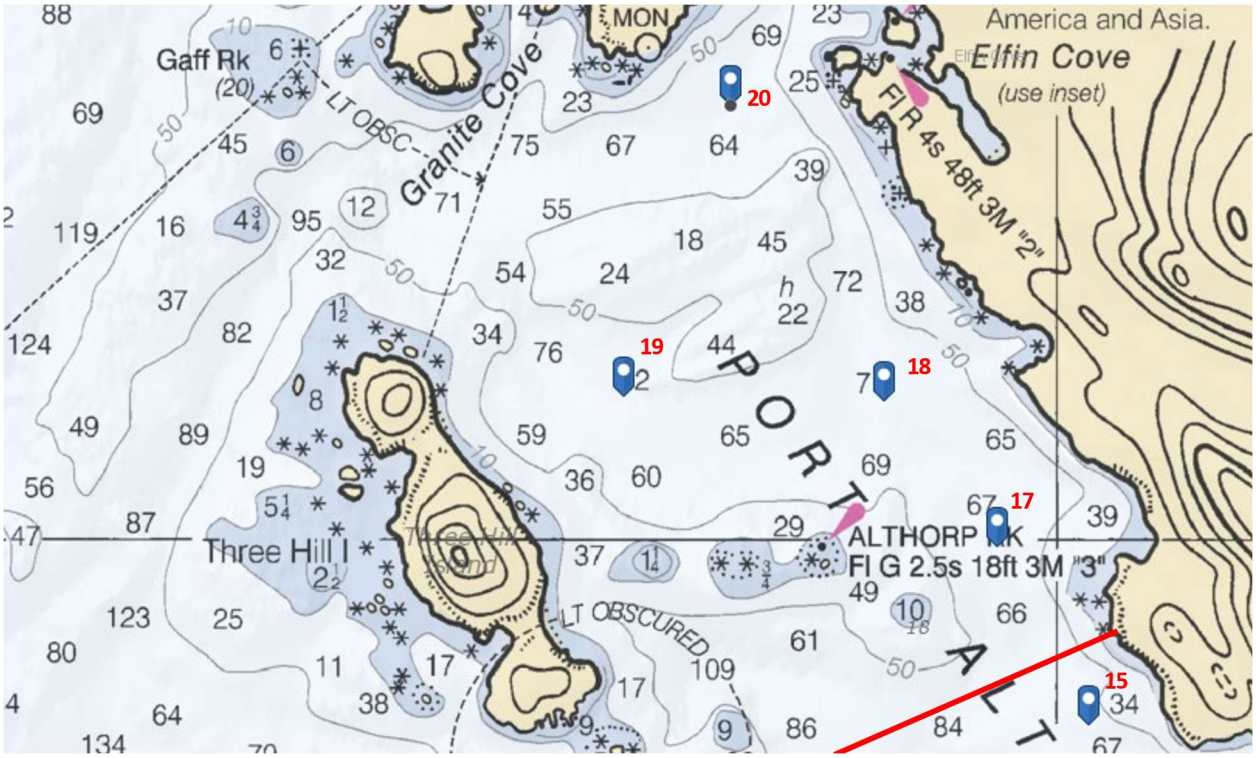

Figure 2-6. NOAA Chart Showing Depths at Disposal Site Alternatives 17-20, which are in Waters Defined by Section 103 of MPRSA, and the Red Line is the Closing Line

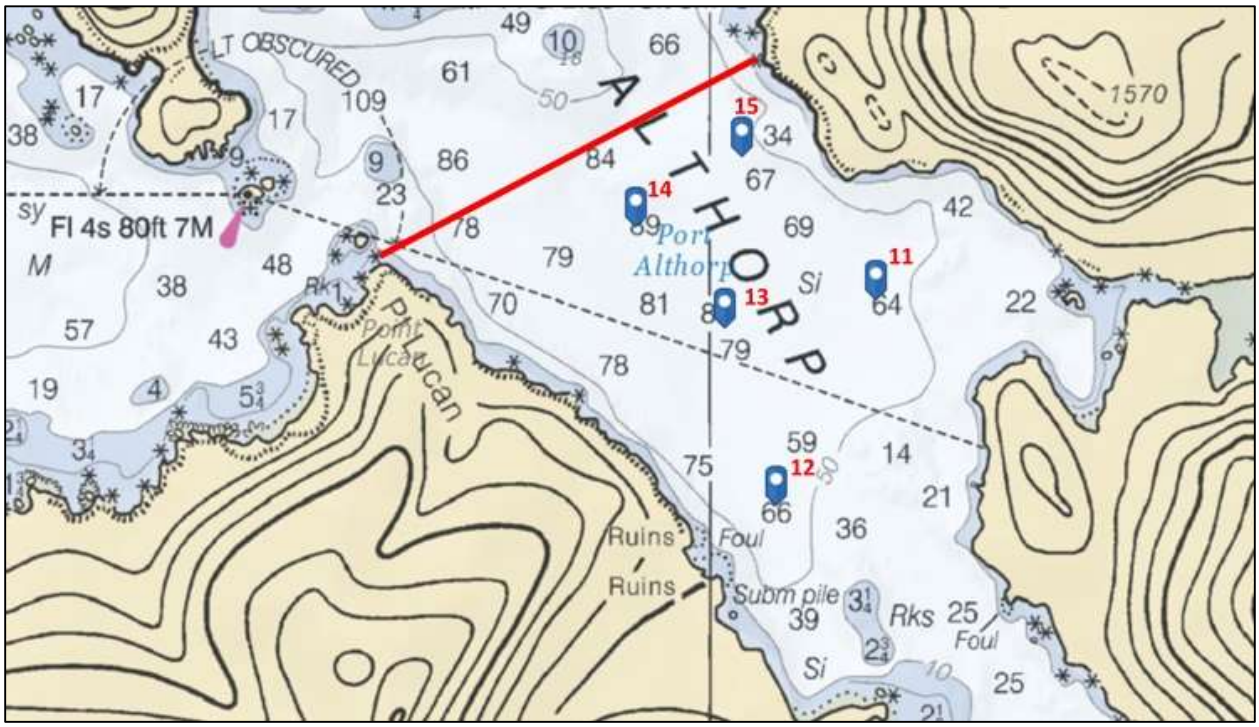

Figure 2-7. NOAA Chart Showing Depths at Disposal Site Alternatives 11-15, which are in Waters Defined by Section 404 of the Clean Water Act and the Red Line is the Closing Line.

2.3 Preferred Alternative

The preferred alternative is to restore the channels to authorized depths; 10 feet deep and 60 feet wide through the outer entrance and a channel 8 feet deep and 40 feet wide through the inner entrance. This involves dredging approximately 9,000 cubic yards of material in total from the inner and outer channels based on the survey data from July 2011. The USACE is in the process of conducting another condition survey to verify the dredging extents and quantity have not changed significantly over the last decade. The finalized survey data is anticipated by April 2022.

While dredging is taking place, access to the inner harbor would be limited overall and unavailable for some portions of time, especially during dredging of the inner channel. To minimize potential impacts on harbor users, dredging would not begin before 15 October and end by 15 April. It is expected that this dredging would take approximately three weeks to complete plus a week on each end of this period for mobilization and demobilization.

Dredging would be mechanical (an excavator or clamshell bucket on a crane) and be based on a barge. Given the topography, it is not possible to dredge either channel from shore. It is likely that dredging, especially of the inner channel, would have to be done at higher tide levels to allow adequate draft under the barge. It is also possible that some small rocky outcrops would need to be broken up by a ripper attachment on an excavator, though this would represent a small portion of the dredging and may not be necessary.

Dredged material would be placed into a barge. When full, it would be transported by use of a tugboat to the disposal area in Port Althorp, emptied, and then brought back to allow for continued dredging. The disposal area (site 14 as described below) is approximately 3.7 miles (3.2 nautical miles) away from the inner channel by the most direct vessel route. A round trip from the dredge site to the disposal site (7.4 miles or 6.4 nautical miles) would likely take between 1.5 and 2 hours. During that trip to the disposal area, dredging could continue if there was a second dump scow on the job, or the time may be used to reposition equipment or perform maintenance.

Disposal site 14 was selected from the nine offshore alternatives based on the low catch rate of fish, crabs, and other invertebrates by USACE biologists during the four seasonal sampling trips conducted from 2019 through 2021. The catch data is summarized in section 3.9.1.4. Site 14 is located at 58.151587°, -136.341259°. Water depth at site 14 is approximately 540 ft. Dredge disposal would take place within an approximately 4-acre area bounded on corners at the following coordinates:

- N58° 09' 07.72" W136° 20' 32.64"
- N58° 09' 07.88" W136° 20' 24.74"
- N58° 09' 03.71" W136° 20' 24.43"
- N58° 09' 03.54" W136° 20' 32.33"

2.3.1 Sediment Quality Considerations

Due to the strong currents, coarse material, distance from sources of contamination, and rebound-driven nature of the dredging project, the potential for contamination to be present is low. The rational for this determination is provided in the following sections.

Nature of the material:

The Alaska District collected surface sediment samples for geotechnical analysis in May of 2019 and the lab results describe the material as poorly graded sand with silt and gravel. The proportion of coarse grain material (sand and/or gravel) ranges from 95% in the Outer Channel to 90.4% in the outer part of the Inner Channel, to 98.9% in the Inner Channel (Northern Geotechnical, 2019).

Distance from sources of contamination:

The inner and outer channels are tightly constrained, narrow water bodies subject to strong tidal currents. There are no docks or moorage within the channels to provide sources of fuel-related contaminants. The fuel dock is about 500 feet (ft) from the nearest channel and out-of-line with the direct flow of water; furthermore, fuel related contaminants are primarily heavier than water and unlikely to be absorbed by coarse bottom sediments in a highly energetic hydrodynamic environment. The community of Elfin Cove is primarily seasonal; the winter population in 2019 was 4 and there are no industrial facilities to introduce industrial contaminants.

Timing of deposition:

NOAA published a tidal datum update in 2006 which indicated a vertical change of over two feet requiring dredging to achieve the authorized depths in the channel. Factors that may contribute to the vertical change include: the accuracy of the original datum believed to be established in 1961, isostatic rebound, and tectonic uplift as the Pacific plate pushes under the North American plate. Isostatic rebound, also called continental rebound, post-glacial rebound, or isostatic adjustment, is the rise of land masses that were depressed by the huge weight of ice sheets during the last ice age. The effect of this rebound is the uplift of the virgin material into the authorized project limits. There are no data for the rate of rebound at Elfin Cove, but relative sea level rise can be used to infer rates of rebound. The actual rate of rebound will be greater than the rate of relative sea level drop because relative sea level change includes the effects of eustatic sea level rise, the combined effects of melting ice and volume expansion from density changes as sea water warms. Juneau is located 70 miles away and has a rebound rate of 0.04 ft/year (13.37 mm/year). Sitka is 88 miles south of Elfin Cove and is experiencing rebound at a rate of about 0.008 ft/year (2.48 mm/year).

Influence of currents and/or tidal energy:

The navigation channels are subject to powerful tidal currents caused by the semi-diurnal exchange of water through areas constricted by topography. The channels are situated in natural “choke points” created by islands and projections in Elfin Cove. The island adjacent to the outer channel is located approximately 100 ft offshore at the narrowest point and the narrowest point of the inner channel is only about 50 ft wide. The inner harbor area of Elfin Cove is approximately 20-acres and is over 25 ft deep at the deepest point, but most of the inner harbor is between 15 ft to 20 ft deep. The tidal signature at Elfin Cove can exceed 14 ft, which would move 280 acre-feet (12,200,000 cubic feet) of water through the inner channel from high tide to low tide, which are about 6 hours and 40 minutes (400 minutes) apart. The theoretical average flow rate through

the inner channel would be approximately 30,500 cubic feet per minute (cfm) if the water moved through the inner channel at a constant rate from high tide to low tide.

2.3.2 Minimization of Environmental Impacts

The following avoidance and minimization measures are components of the preferred alternative that would be followed to reduce the risk of environmental impacts during the proposed activities.

2.3.2.1 Prevention of Contaminant Discharge

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

2.3.2.2 Timing of Construction Activities

There are no formal environmental requirements that dictate timing windows for this project. However, dredging in Elfin Cove, particularly the inner channel, will pose a major limitation to marine vessel traffic during the approximately three-week period of construction. Travel to or from the inner harbor area will not be possible when dredging in the inner channel. Likewise, travel through the outer channel will likely be very limited during dredging except for small skiffs. Safe passage will be accommodated during the dredging operations with sufficient advance coordination with the construction contractor.

To minimize the impacts of dredging on vessels at Elfin Cove, dredging would take place during an approximately three-week period between 15 October and 15 April. This timing window avoids all the summer charter vessel operations and the majority of commercial fishing activity. Access to the fuel dock and float plane dock would remain available during dredging so vessels could have access to fuel and temporary safe moorage. Access by float planes would not be impeded by any dredging activities. Access to both the fuel dock and float plane dock are available through a separate channel.

2.3.2.3 Minimization of Impacts to Protected Species

The proposed project minimizes potential impacts to protected species due to the timing of construction activities and the confined, shallow water nature of the dredged channels. Construction between 15 October and 15 April would likely result in far fewer marine mammals both in the construction area and enroute to the disposal area.

To minimize the potential harm to marine mammals, USACE will have a biologist or contracted observer on site during construction to temporarily pause dredging

operations for marine mammals within 50 meters (approximately 164 feet) of active dredging and 250 meters (approximately 820 feet) of any rock ripping. USACE biologists have extensive experience in marine mammal monitoring and observations throughout Alaska, especially around construction activities. Vessels travelling to and from the disposal area will avoid any aggregations of marine mammals within the limits of safe navigation by altering speed, course, or both.

3.0 AFFECTED ENVIRONMENT

3.1 Community and People

Elfin Cove lies on the northern shore of Chichagof Island, approximately 33 miles west of Hoonah and 70 miles by air and 85 miles by boat west of Juneau. All the land surrounding the community of Elfin Cove is part of the Tongass National Forest. The community is only accessible by small seaplane or boat. The reported population in 2020 was 24 people, but the number of people fluctuates seasonally. It is typical for only 2-5 people to spend the winter in Elfin Cove and float plane service can drop to one plane per month as weather allows. In the summer, there are far more seasonal residents with houses and cabins and large numbers of visitors to local sportfishing lodges.

Elfin Cove has no roads other than a network of boardwalks and thus no vehicles except for a small forklift and loader in a small area at the base of the fuel dock.

3.2 Climate

Elfin Cove falls within the southeast maritime climate zone, characterized by cool summers, mild winters, and heavy rain throughout the year. Temperatures are moderated by the Alaska Current, which circulates counterclockwise up the coast. Weather data from Hoonah (nearest to Elfin Cove) indicate a mean temperature of 29° Fahrenheit (F) in January and 55° F in August. The average yearly precipitation at Hoonah is 74.4 inches (1890 mm). Precipitation occurs throughout the year, with June being the driest month (3.6 in; 91 mm) and October the wettest (11.5 in.; 292 mm).

3.3 Soils and Geology

The Elfin Cove area (the northwest portion of the Inian Peninsula, Chichagof Island) is a mountainous, glaciated coastal area where mountains rise from the sea and vegetation is dense. The northwest part of Chichagof Island is underlain by highly recrystallized rocks of Mesozoic and Paleozoic age and by extensive bodies of igneous rocks (Rossman, 1959). The present-day topography and surficial deposits of Chichagof Island are largely a result of the last two glaciations, which extended over most of southeast Alaska. In the Elfin Cove area, bedrock is mapped as Jurassic age schist (Chugach terrane, a metamorphic complex consisting of schists and altered volcanic-plutonic rock) and is mantled by a discontinuous layer of alluvium, glacial outwash, till, or other glacially-derived sediments. Major bedrock faults strike northwest.

The Inian Peninsula of Chichagof Island and Elfin Cove were covered by a maximum of 3,000 to 4,000 feet of ice during the Late Pleistocene glaciations. As ice was flowing west out of the Coast Range Mountains towards the Pacific Ocean it is likely tills, ice-rafted, and post-glacial river-transported sediments were deposited unevenly throughout

the region and subsequently eroded. In the absence of site-specific geologic information, we refer to these sediments as "glacially-derived" sediments.

3.4 Tides, Currents, and Sediment Transport

The tidal influence at Elfin Cove is relatively large, and the tides are primarily diurnal. Extreme water surface elevation fluctuations occur at Elfin Cove due to storm surges. Erosion is not a major concern for Elfin Cove due to the rocky coast near the community, although landslides have deposited materials in the inner harbor. The mean tide level (arithmetic average of the Mean High Water and the Mean Low Water) is 5.79 ft, and the mean tide range (the difference between Mean High Water and Mean Low Water) is 8.66 ft (Table 3-1).

Table 3-1. Published Tidal Data for Elfin Cove, Port Althorp, Alaska

Description	Tide Level (ft)
Highest Observed Water Level (31 December 2005)	+15.03
Mean Higher High Water (MHHW)	+11.00
Mean High Water (MHW)	+10.12
Mean Tide Level (MTL)	+5.79
Mean Sea Level (MSL)	+5.73
Mean Low Water (MLW)	+1.46
Mean Lower Low Water (MLLW)	0.00 (datum)
Lowest Observed Water Level (14 December 2008)	-4.61

Source: NOAA NOS, Station ID 9452634, Tidal Epoch 1983-2001, published 10/13/2020.

3.5 Water Quality

Water quality studies have not been carried out specifically at Elfin Cove. Observations from several trips to Elfin Cove and Port Althorp are of very clear water in general with seasonal decreases in clarity due to spring phytoplankton blooms that are typical in the region. There are virtually no sources of sediment runoff in Elfin Cove or Port Althorp except for occasional avalanches or landslides. There are no known contaminated sites in Elfin Cove or Port Althorp.

3.6 Air Quality

Elfin Cove presumably enjoys good air quality because of the persistent winds off the ocean, and a relatively low number of air pollutant sources. There is no established ambient air quality monitoring program at Elfin Cove, and no current 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 (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen oxides (NO_x), lead (Pb), and particulate matter (PM_{10}, $PM_{2.5}$).

Aggregate air emissions from vessels at Elfin Cove are unmonitored, but are expected to be highly seasonal (e.g., negligible during October through April), and highly variable depending on the number, type, and activity of vessels operating within and around the harbor. A small charter boat fleet, mostly running modern 4-cycle gasoline outboard motors, is active in the area between mid-May and early September each year.

3.7 Noise

Elfin Cove is a very quiet place given there are no vehicles or industrial activities. Noise sources are limited to small boat traffic, a generator building, and occasional air traffic. In the winter when dredging would take place there is almost no boat traffic and perhaps one or two float planes per month. In fall, winter, and spring, Elfin Cove is perhaps one of the quietest places to be. Summer has more boat traffic, air traffic, and people.

3.8 Biological Resources

3.8.1 Habitat and Wildlife

3.8.1.1 Shoreline Habitat

The shoreline at Elfin Cove is a mixture of bedrock, boulder, cobble, and gravel. This substrate supports a wide variety of seaweed and invertebrates. Common green seaweeds include sea lettuce (*Ulva lactuca*), green string lettuce (*Ulva linza*), and curly sea hair (*Chaertomorpha sp*.). Typical brown seaweeds include soda straws (*Scytossiphon lomentaria*), rockweed (*Fucus distichus* subsp. *evanescens*), and ribbon kelp (*Alaria marginata*). Various red seaweeds species are present; the most common is red sea cabbage (*Turneralla mertensiana*). Figure 3-1 shows the steep vertical nature of the inner channel and the distinct vegetative bands that are present.

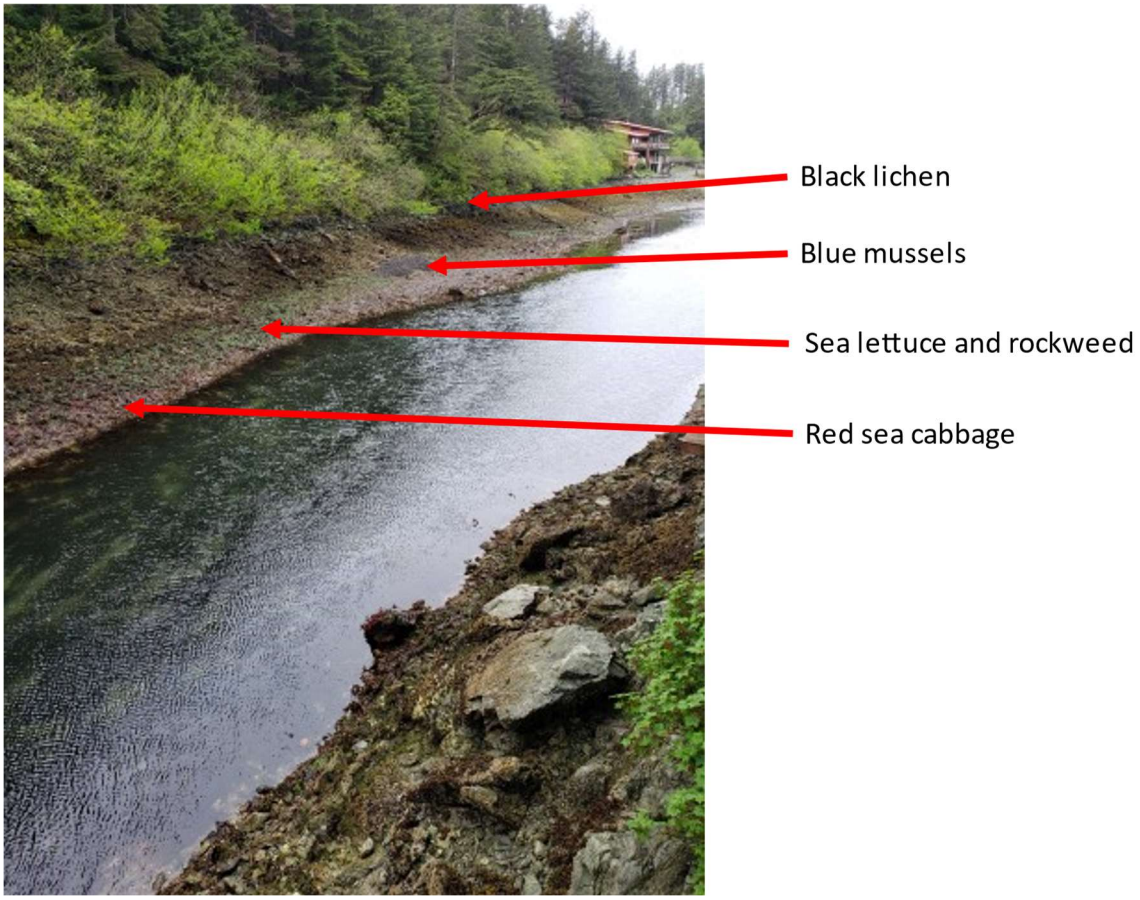

Figure 3-1.Vertical Zonation on the Intertidal Zone of the Inner Channel (Photo is during a Low Tide)

Common invertebrates in this zone are blue mussels, barnacles, and various species of small sea stars, chiton, and limpets.

3.8.1.2 Benthic Habitat

Underwater video surveys of the inner and outer entrance channels were conducted in August 2019 by USACE biologists using a towed underwater video camera. Surface substrate in the outer channel was a mixture of sand and gravel, while the inner channel was predominantly gravel with some cobble. The bottom of both channels was densely covered with a variety of seaweeds. Predominant species include red sea cabbage (*Turnella martensiana*), spiral sieve kelp (*Thalassiophyllum clathrus*), sieve kelp (*Agarum clathratum*), ribbon kelp (*Alaria marginate*), dragon kelp (*Eularia fistulosa*), and sea lettuce (*Ulva lactuca).*

Underwater video was also acquired by USACE biologists at all nine sample sites in Port Althorp. This footage was captured using a drop camera designed for deep depths where no light from the surface is present. Bottom substrate in all sites was a silt/muck composition. It was too deep for algae to grow (no light), but some pieces of loose algae were noted that had sunk from the surface. Invertebrates observed on the video were limited to occasional spot shrimp and euphasiids.

3.8.1.3 Fish

Fish were identified in underwater video of the inner and outer entrance channels. The most common fish identified on underwater video in these two areas were kelp greenlings (*Hexagrammos decagrammus*) and rock greenlings (*Hexagrammos lagocephalus*). Both species are common in shallow water environments with abundant kelp and rocky or gravel substrate.

There are no anadromous streams in Elfin Cove, although it is possible that adult and juvenile salmon can be present in Elfin Cove waters. The nearest anadromous streams are in the southern portion of Port Althorp approximately 5 miles from Elfin Cove.

Very few fish were caught in crab pots at the nine sample sites during four seasons of sampling in Port Althorp. In nine pots fished during four seasons (36 opportunities to catch fish) only 21 sablefish (*Anoplopoma fimbria*), 15 Pacific cod (*Gadus macrocephalus*), and one wolf eel (*Anarrhichthys ocellatus)* were caught in the crab pots. No fish were ever caught at site 14 (i.e., the proposed disposal area) on any of the four seasonal surveys.

Crab pots are not an ideal sampling method for many species of fish, but further anecdotal information is provided by examining the general areas in Port Althorp where charter fishing companies take their clients to catch halibut and rockfish. One of the most popular general areas is near Three Hill Island in the northwest side of Port Althorp. This island is between 1.5 and 3 miles away from the proposed dredged material disposal area in Port Althorp. Additionally, no Elfin Cove charter companies contacted by USACE fish in the area of the proposed disposal site (site 14) indicating further that this is not a productive site for sport fish like halibut or rockfish.

3.8.1.4 Marine Invertebrates

Alaska District biologists conducted vessel-based surveys targeted towards crabs and benthic fish in October 2019, January 2020, March 2021, and June 2021 (USACE, 2021; Figure 3-3; Figure 3-4; Figure 3-5; Figure 3-6). The intent was to sample in four distinct seasons at all nine disposal area alternatives to determine the least impactful site for disposal. Given the area and habitat, tanner crabs were the primary species of concern for these surveys.

Sampling was conducted utilizing crab and shrimp pots and an underwater camera. The substrate was not suitable to attempt trawl surveys. Figure 3-2 depicts the survey stations with respect to depth (in fathoms) and the bounds of the survey area. The survey area boundaries contained a range of potential dredged material placement sites that were considered suitable for the project, though only one area would be selected. The legend indicates that the locations shown are camera stations (PAC is Port Althorp Camera), but the pot locations and camera stations are the same.

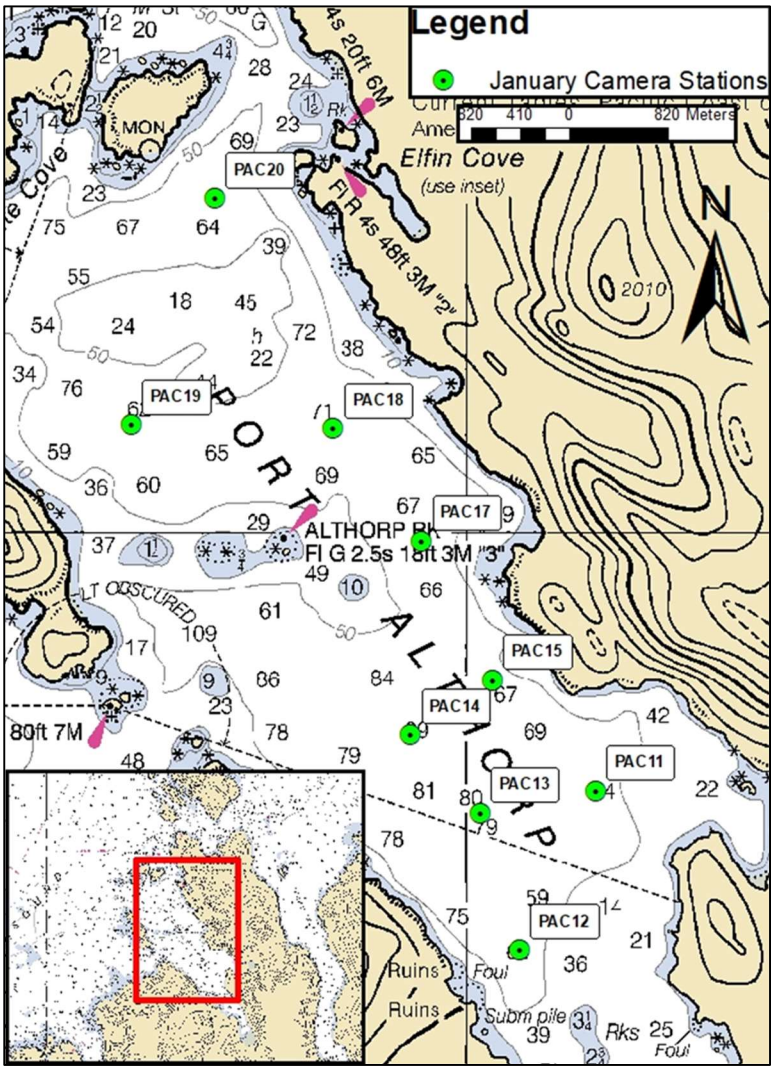

Figure 3-2. Port Althrop Pot Stations and Underwater Video Stations. Sites 11 – 15 are "Inland Waters" and sites 17 – 20 are "Ocean Waters"

Each of the nine stations were fished with a crab pot and a shrimp pot on the same line. The shrimp pot was attached to the crab pot on an approximately 20-ft line and entered the water first and came out last. Crab pots were conical and approximately six ft wide at the base with a 2-ft-wide top entry location. Shrimp pots were recreational round pots approximately 2-ft-wide with side entry locations. Escape rings on crab pots were closed off with twine to catch juveniles for the assessment of possible impacts of dredged material placement. All pots had biodegradable escape mechanisms per ADF&G regulations. All buoys were marked with the research permit information as required.

Nine crab pots and shrimp pots were baited, deployed, and allowed to fish for approximately twenty-four hours. After twenty-four hours, the catch was processed on deck. Processing involved species identification to the lowest taxonomic level possible, measurements were taken for fish and crabs, and octopus and shrimp were categorized qualitatively by size. Snails were enumerated, but not measured. All fish and invertebrates were returned to the water alive after identification and measurements were completed. No fish or invertebrate mortalities were observed, and no voucher specimens were retained.

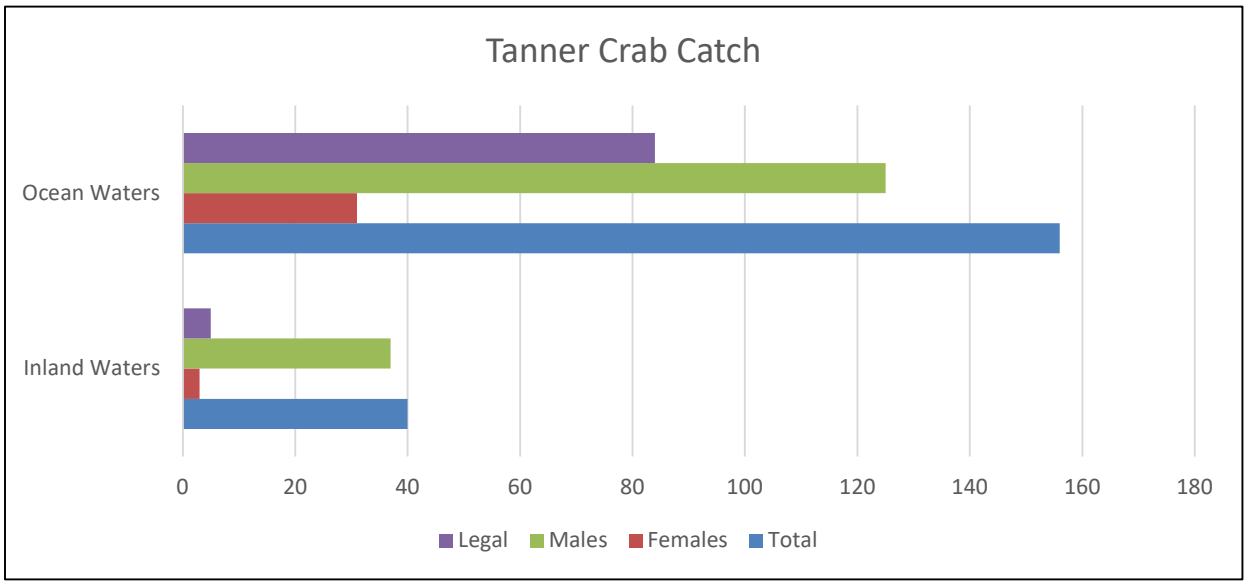

Figure 3-3. Fall (20 – 21 October 2019) Tanner Crab Catch Summary

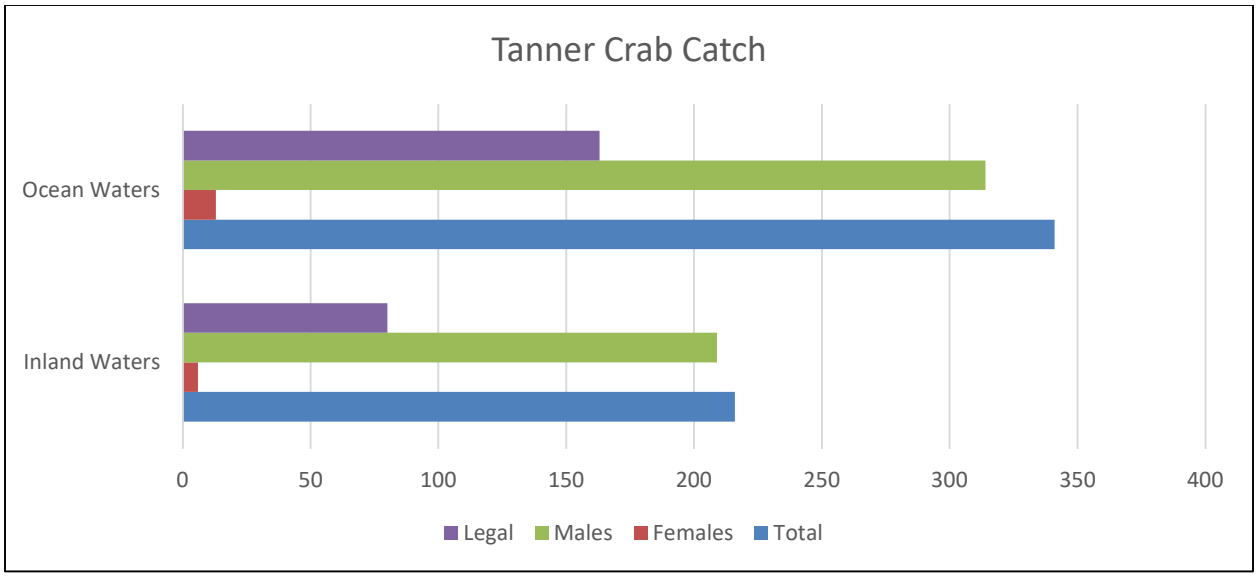

Figure 3-4. Winter (20 – 21 January 2020) Tanner Crab Catch Summary

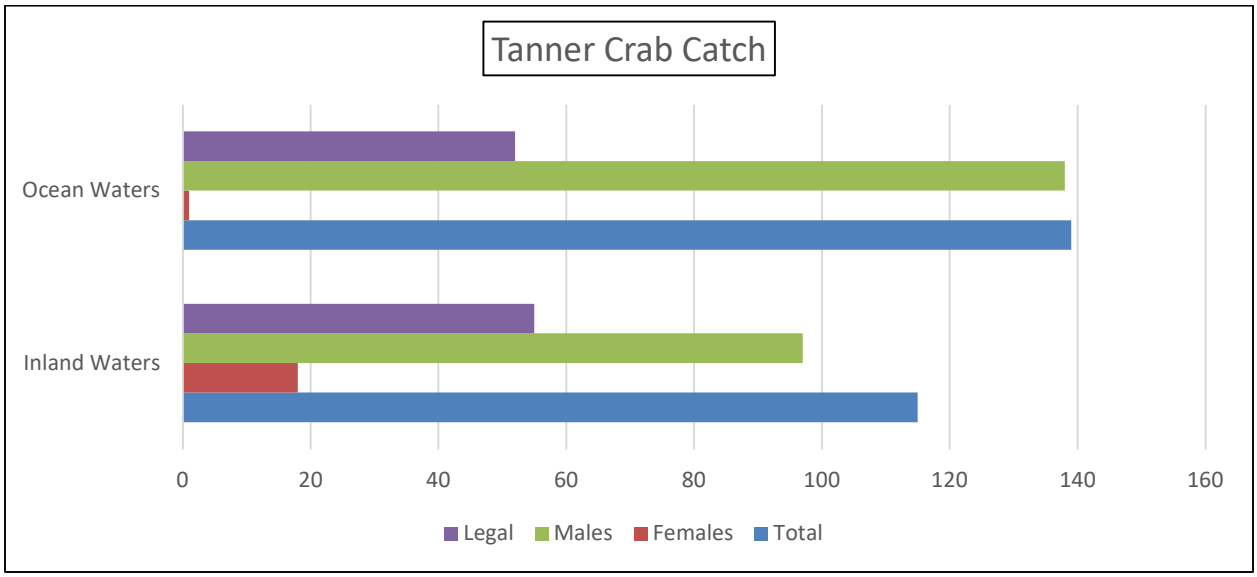

Figure 3-5. Spring (28 – 29 March 2021) Tanner Crab Catch Summary

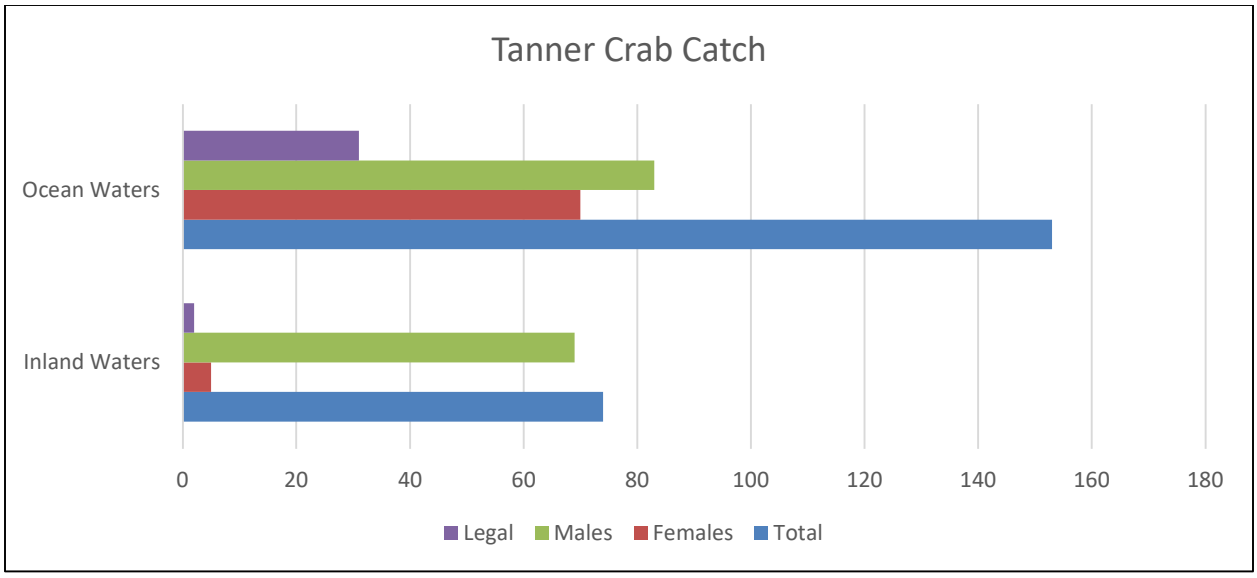

Figure 3-6. Summer (15 – 16 June 2021) Tanner Crab Catch Summary

Catch numbers on tanner crabs were consistently greater in ocean waters (sites 17-20) than inland waters (sites 11-15). Of all the inland water sites, site 14 had the overall lowest catch rate and no fish were caught. Tanner crab totals for pot 14 were 1 in fall, 1 in winter, 45 in spring, and zero in summer for a total catch of 47 tanner crabs over the four sampling events. Site 20 in the ocean waters was reliably low on crab catch as well, though there were Pacific cod and sablefish caught at site 20. As discussed in Section 2.2.2, site 20 was dropped from consideration as a disposal site due to consistently strong currents and wave exposure compared to all other sites in Port Althorp.

In addition to tanner crabs, small numbers of Giant Pacific Octopus were caught as well as small numbers of hairy triton snails and twenty-arm sea stars.

3.8.1.5 Birds

Seabirds such as gull species and kittiwakes can be found in Elfin Cove and Port Althorp in small numbers, especially in the summer around returning fishing boats. Pelagic cormorants are also common in the area, though usually in small numbers. No seabird nests or colonies were observed by USACE biologists in Elfin Cove and no nests for any species of birds were found adjacent to either entrance channel. Further, no bald eagle nests were observed within 0.25 miles of the navigation channels in Elfin Cove.

3.8.1.6 Pinnipeds and Cetaceans

Since all marine mammals are protected under the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361 et seq.) and some are afforded additional protection under the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), marine mammals are discussed in the protected species section of this document (Section 3.8.2).

3.8.2 Protected Species

3.8.2.1 Endangered Species Act

Jurisdiction under the ESA is divided by species between the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). There are no USFWS managed species in southeast Alaska. USACE has identified the ESA-listed species that may be present in the project area (Table 3-2).

Table 3-2. ESA-Listed Species Potentially Present in the Project Area

Species	Listed Population	Agency Jurisdiction	ESA Status	Critical Habitat in Area?
Steller sea lion, *Eumetopias jubatus*	Western DPS	NMFS	Endangered	No
Humpback whale, *Megaptera novaeangliae*	W. Pacific DPS	NMFS	Endangered	No
	Mexico DPS	NMFS	Threatened	

Steller Sea Lion

The Steller sea lion was listed as a threatened species under the ESA on November 26, 1990 (55 FR 49204). In 1997, NMFS reclassified Steller sea lions into two Distinct Population Segments (DPSs) based on genetic studies and other information (62 FR 24345); at that time, the eastern DPS was listed as threatened and the western DPS was listed as endangered. On November 4, 2013, the eastern DPS was removed from the threatened and endangered species list (78 FR 66139). The boundary between the two DPSs is 144˚W longitude, which is about 300 miles west of Elfin Cove. While Elfin Cove is well outside of the regulatory boundaries of the listed DPS, it is possible that a small percentage of Steller sea lions observed near Elfin Cove could be part of the listed DPS. There is no way to identify Steller sea lions of one DPS or another by visual means. As Steller sea lions are not ESA listed east of 144°W longitude, there is no designated Critical Habitat in southeast Alaska.

Small numbers of Steller sea lions will enter Elfin Cove and are particularly common in summer near the charter boat docks in the outer areas of Elfin Cove. Abundance is likely lower outside of the summer months when the charter operations are shut down. There are no anadromous streams in Elfin Cove thereby, eliminating one major source of attraction during periods where salmon are returning to natal streams in late summer and early fall. Steller sea lions could be encountered in Port Althorp, although none were observed during the USACE biological sampling trips that involved three to four days a month in October, January, March, and June.

Humpback Whale

Humpback whales were listed on the ESA in 1973. Guidance from the NMFS on humpback whales occurring in Alaskan waters (NMFS 2016) discusses three DPS:

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

Whales from the Western North Pacific, Mexico, and Hawaii DPSs overlap to some extent in feeding grounds off Alaska. An individual humpback whale encountered in southeast Alaska has a 98% chance of being from the unlisted Hawaii DPS, and a 2% chance of being from the threatened Mexico DPS. There is 0% chance of a humpback whale in southeast Alaska being from the endangered Western North Pacific DPS.

The humpback whale is seasonally migratory, mating and calving in tropical and subtropical waters in winter, but spending summers feeding in temperate and subpolar seas. In Alaskan waters, humpbacks concentrate in southeast Alaska, Prince William Sound, lower Cook Inlet, and along the Aleutian Islands in the summer. Humpback whales are most likely to be outside of Elfin Cove during the summer and early fall. Shallow water depths prevent humpback whales from entering Elfin Cove. Humpback whales could be encountered in Port Althorp, although none were observed during the USACE biological sampling trips that involved three to four days a month in October, January, March, and June. Humpback whales were routinely observed in Cross Sound and Icy Strait while transiting to and from the Elfin Cove/Port Althorp area.

3.8.2.2 Marine Mammals Protection Act

The MMPA protects all whales, dolphins, porpoises, seals, sea lions, and sea otters, regardless of a species' listing under the ESA. All of the ESA species in Table 3-2 are also protected under the MMPA. Marine mammals not currently listed under the ESA, but protected under the MMPA that may be present in the project area include:

- Harbor porpoise (*Phocoena phocoena*)
- Killer whale (*Orca orca*)
- Gray whale, other than Western North Pacific DPS (*Eschrichtius robustus*)
- Harbor Seal (*Phoca vitulina*)
- Northern Sea otter (not part of the southwest Alaska listed DPS)

3.8.2.3 Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

Except for the state-managed ptarmigan and grouse species, all native birds in Alaska (including active nests, eggs, and nestlings) are protected under the Federal Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 et seq.). Bald and golden eagles (including active nests, eggs, and nestlings) are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 688). There are no bald eagle nests in Elfin Cove. Bald eagles are present in Elfin Cove and Port Althorp as they are common throughout southeast Alaska.

3.8.3 Essential Fish Habitat and Anadromous Streams

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.) established the essential fish habitat (EFH) provision to identify and protect important habitats of federally managed marine and anadromous fish species. Federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to assess the potential effects of their actions on EFH, consult with NMFS regarding any potential adverse effects on EFH, and respond in writing to NMFS recommendations. NMFS will have the opportunity to review and comment on this EA.

The USACE has identified marine EFH in the Elfin Cove/Port Althorp area for all five species of Pacific salmon and twelve species of groundfish (Table 3-3).

Habitat areas of particular concern (HAPCs) are specific sites within marine EFH that are of particular ecological importance to the long-term sustainability of managed species, are of a rare type, or are especially susceptible to degradation or development. The North Pacific Fisheries Management Council (NPFMC) may designate specific sites as HAPCs and may develop management measures to protect habitat features within HAPCs. There are no HAPCs designated within Elfin Cove or Port Althorp.

Table 3-3. EFH Identified within the Elfin Cove/Port Althorp Project Area

Species	Life-Stage	Seasons
Pink salmon	Juvenile, mature	Spring, summer, fall
Chum salmon	Juvenile, immature, mature	Spring, summer, fall
Sockeye salmon	Juvenile, immature, mature	Spring, summer, fall
Coho salmon	Immature	Spring, summer, fall
King salmon	Immature	Spring, summer, fall
Pacific cod	Larval	Summer
Yellowfin sole	Egg	Summer
Arrowtooth flounder	Larval	Summer
Northern rock sole	Larval	Summer
Southern rock sole	Larval	Summer
Alaska plaice	Egg, larval	Summer
Flathead sole	Egg, larval	Summer
Kamchatka flounder	Adult	Spring
Rex sole	Egg, larval	Summer
Dover sole	Egg, larval	Summer
Walleye pollock	Egg, larval	Summer
Pacific Ocean perch	Larval	Summer
Sablefish	Larval	Summer

EFH for Pacific salmon includes freshwater habitat and extends to all streams, lakes, wetlands, and other water bodies currently, or historically accessible to salmon. The State of Alaska manages these waters and their salmon fisheries. The location of many freshwater water bodies used by salmon are contained in documents organized and maintained by the Alaska Department of Fish and Game (ADFG). ADFG is required to specify the various streams that are important for spawning, rearing, or migration of anadromous fishes, and this is accomplished through the *Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes* and the *Atlas to the Catalog*

of Waters Important for Spawning, Returning or Migration of Anadromous Fishes (NPFMC 2018a).

There are no anadromous streams in Elfin Cove or within approximately 2 miles of the proposed disposal area.

3.8.4 Special Aquatic Sites

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

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

Of these, only vegetated shallows are relevant to proposed project. Both the inner and outer channels are shallow and vegetated. No other categories apply.

3.8.5 Subsistence

The residents of Elfin Cove subsist primarily on salmon and other non-salmon fish, as well as a significant amount of large terrestrial mammals (ADFG 1987). Residents use personal fishing vessels moored at the harbor to the local waters to catch and harvest fish, as well as hunt from either their watercraft or hiking on land. It is likely that their subsistence catch areas are similar to people from Hoonah, Pelican, and Gustavas; it is likely that fishermen from these communities would stop in Elfin Cove for supplies or safe harbor during storms. There is no recent data that improves or defines how these resources are taken.

3.9 Cultural and Historic Resources

Chichagof Island is located along the northern portion of the Pacific Northwest, just south of Glacier Bay National Monument and the traditional regional lands of the Tlingit people. The early movement of people into the Pacific Northwest has been traced to more than 10,000 years ago. Excavations at the Shuká Káa Cave (PET-00408) on Prince of Wales Island demonstrate long term occupation of Southeast Alaska, beginning approximately 10,300 years ago (Kemp et al. 2007). The presence of marine fauna in early middens also indicates maritime adaptation, which coincides with the evidence indication of boat use. The archaeological record shows evidence of continuity in subsistence practices between the early and late periods of the region’s history through documentation of the use of salmon, fish, shellfish, both marine and terrestrial mammals, and limited bird harvesting. The archaeological evidence from sites in the region suggest that nearshore and intertidal areas were where the predominant subsistence resource efforts were focused. By the end of the Pleistocene, sea levels

reached modern levels; however, portions of the central and southeastern areas of Alaska have had significant isostatic rebound from the melting of the ice cap and continued glacial regression (Larsen et al. 2005). Although generally ice-free, some areas experienced intense glaciation into the Holocene, which impacted human settlement in more northern areas such as Yakutat (Moss 1998).

The community at Elfin Cove was likely used by local Tlingit or Eyak groups for subsistence clamming and fishing, as well as safe harbor from storms. However, there has been limited archaeological work in the area to identify if there were any permanent or seasonal camps within Elfin Cove or the immediate region. There is significant isostatic rebound at Elfin Cove; local measurements show that the cove is rising 1 inch to 1.5 inches every year (Larsen *et al*. 2005). This means that coastal archaeological sites are no longer near the coast and may be farther located inland.

Elfin Cove was used during the American Period for safe refuge for fishing boats (Figure 3-7); by the 1920's, Ernie Swanson had constructed a store, dock, and restaurant within the cove. Around the 1940's, Elfin Cove had the population to support a post office. A school was established in Elfin Cove at three different periods in the community; first the school was established in 1940's out of the fish-purchase station in the community. The school was re-established using offices connected to the Swanson shop's second floor. The third and last time the school opened; the community constructed a community center with attached classrooms. After a change in how the State of Alaska evaluates student number requirements, the school service ended in 1998 (Lord-Wild, Personal Communication).

The harbor of refuge at Elfin Cove has been used historically by fisherman, likely as far back as humans have been maritime fishing. Investigations of the Area of Potential Effect (APE) did not identify any known historic debris or objects submersed within this passageway between the cove, the narrows, and the bay that opens to the west (Figure 3-8). While there has been limited archaeological survey and investigations within the cove and local area, an underwater camera was used by the USACE biologists to view the proposed dredge locations. A USACE archaeologist has reviewed the footage and did not identify any submerged features or artifacts in the project area.

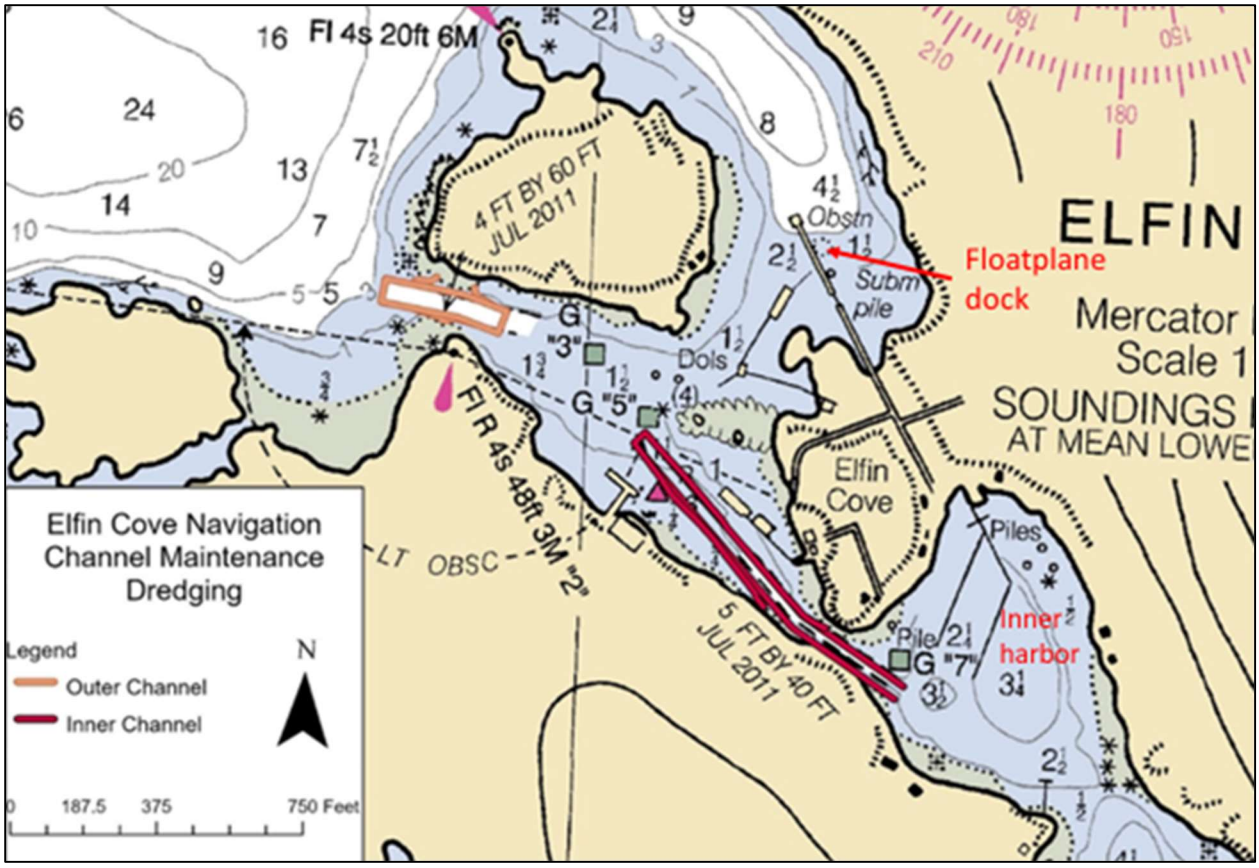

Figure 3-7. The Outlined Channels are the Locations of the Proposed APE for Dredging to Restore the Authorized Dimensions of the Channels at Elfin Cove

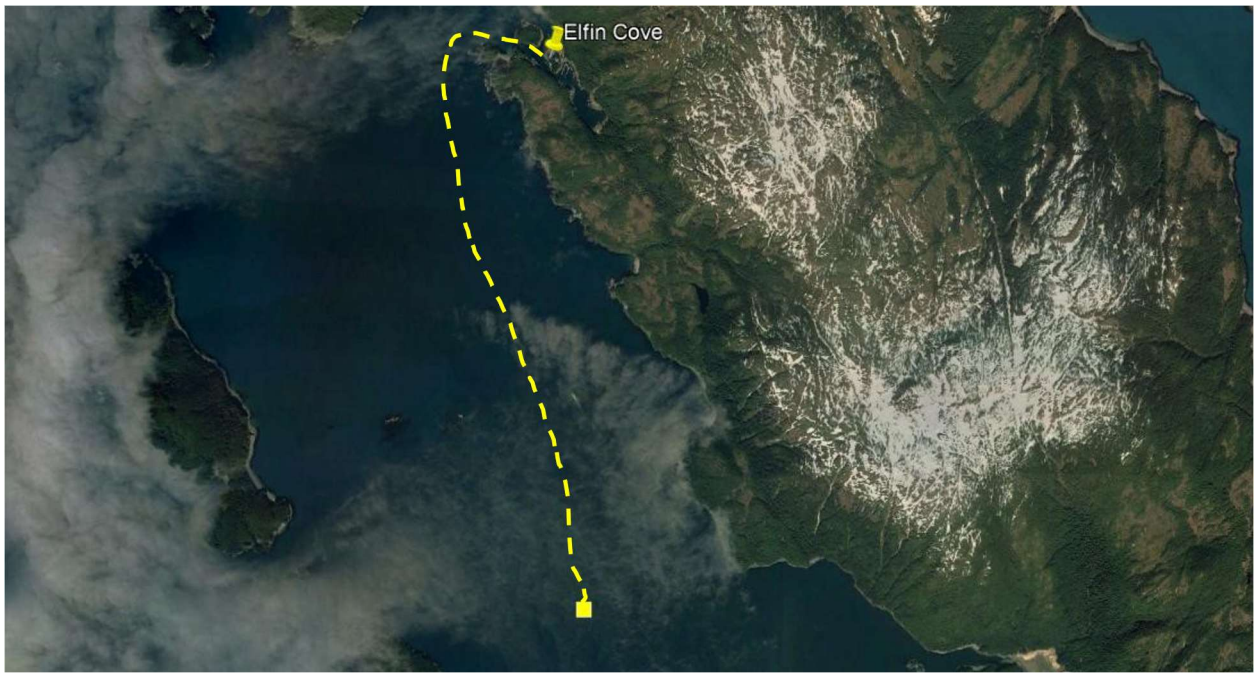

Figure 3-8. Porposed Dredge Material Placement Area APE for the Dredging Work at Elfin Cove

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 No-Action Alternative

The no-action alternative would avoid the direct and indirect environmental impacts described in Section 4.2 but would not accomplish the objective of restoring the Elfin Cove navigation channels to their authorized dimensions. Commercial, recreational, and subsistence use of the harbor of refuge at Elfin Cove would become increasingly difficult and potentially hazardous without dredging.

4.2 Action Alternative

As described in Section 2, the USACE has identified mechanical dredging of sediments and offshore disposal in Port Althorp at site 14 as the preferred alternative to restore the navigation channel dimensions at Elfin Cove.

Within each resource category, the magnitude of the effects upon that resource are evaluated using these criteria (where relevant) and best professional judgment, and tiered as follows (Doub 2014):

- Minor: effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource.
- Moderate: effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- Major: effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

In addition to these three magnitude descriptions, certain resource categories, such as marine mammals and bald eagles can be categorized as “no effect” to be consistent with language in the associated acts.

4.2.1 Effects on Community and People

The intent of the proposed restoration dredging is to benefit commerce, subsistence, and recreation by ensuring local and transient vessels have safe, reliable, and efficient access to the harbor mooring areas. While the presence of the dredge and support vessels within the confines of the channel may cause temporary obstruction and restricted access to moorage, these effects can be adequately minimized by close coordination with the community and other stakeholders and would be scheduled to the least disruptive time periods to the extent possible. Dredging during the 15 October to 15 April window is intended to minimize inconveniences to harbor users. Tongass National Forest lands will not be impacted by this project.

The USACE determines that there may be minor, but temporary and short-term, impacts to economic, subsistence, or recreational activities in the limited area affected by the action alternative.

4.2.2 Effects on Climate

The USACE determines that the action alternative will have a minor (not discernable) effect on climate.

4.2.3 Effects on Soils and Geology

The maintenance dredging would remove recently uplifted and accumulated, unconsolidated sediment and small pinnacles of bedrock from within the authorized Federal project. This would be the first dredging in the area in 64 years, and it is likely that future dredging would not be necessary again for several decades.

The dredged material would be placed in approximately 89 fathoms (approximately 534 ft) of water at site 14 in the southern portion of Port Althorp on a silt/muck substrate. Given the near absence of current in this area, the material is likely to drop nearly straight to the ocean floor. Since the substrate is soft, it is likely that it will sink into the substrate and be covered by silt over time.

The USACE determines that the action alternative will have minor to moderate, and highly localized, impacts on soils and geology.

4.2.4 Effects on Tides, Currents, and Sediment Transport

The removal of sediment from the Federal channels will return the project contours to their original design; this may have a small effect on water movement through the harbor versus pre-dredging conditions. Disposal of the dredged material in Port Althorp would not affect tides, currents, or sediment transport due to the relatively small amount of material that would be disposed of in 540 ft (165 meters) of water in a very large water body.

The USACE determines that the action alternative will have minor impacts to tides and currents, and minor impacts to sediment transport.

4.2.5 Effects on Water Quality

The proposed mechanical dredge methods would loft some sediment into the water column near the site of dredging. The dredged material is expected to be primarily gravel and sand, which would settle out of the water column quickly.

Discharge of the dredged material at the disposal site would temporarily increase the suspended solids near the placement area. As at the dredged sites, the coarse material is expected to settle out of the water column quickly. The relative lack of current in the area would likely serve to keep water quality impacts localized.

The USACE determines that the action alternative will have minor impacts on water quality.

4.2.6 Effects on Air Quality

The operation of construction equipment and vessels during maintenance dredging and disposal would, in the short term, add incrementally to the air pollutant emissions ordinarily generated by vessels and machinery (e.g., power generation) at Elfin Cove. There are a very few small sources of air emission at Elfin Cove during the proposed October to April work window. The dredging equipment and construction machinery likely to be used during the project would be primarily diesel-powered, and comparable to existing emission sources at Elfin Cove. Direct, short-term project-related impacts to air quality in the project area would be highly variable and transitory, where noticeable at all. The planned activities will not create any new stationary source of air emissions.

The USACE determines that the action alternative will have minor impacts on air quality.

4.2.7 Effects on Noise

The operation of equipment and vessels during project construction would, in the short term, add incrementally to the noise ordinarily generated by vessels and machinery at Elfin Cove. Most project-related noise would be low-frequency, low-amplitude sound generated by diesel machinery. The effects of project noise would be highly seasonal, variable, and transient.

The USACE determines that the action alternative will have minor, seasonal impacts on air-transmitted noise in the harbor area.

4.2.8 Effects on Habitat and Wildlife

Shoreline habitat would be impacted by dredging, even if it not directly dredged. Mechanical dredging equipment would scrape the sides of the channel in the more confined inner channel and lead to damage or removal of seaweed and intertidal invertebrates. This damage would be localized. Over time, these areas would recolonize; first with seaweed species in an ecological succession and then by marine invertebrates. The impacted area is adjacent to area of rich kelp distribution, so propagation during the next growing season is likely.

Similar to the shoreline habitat, the benthic habitat would be impacted, albeit more completely since removing the substrate is the sole purpose of the dredging project. Like the shoreline, these areas would begin to recolonize the next summer and over time would develop species assemblages similar to the existing environment. Benthic habitat in the disposal area would receive approximately 9,000 cubic yards of dredged material, most of which would likely sink into the silt/muck substrate and eventually be covered in silt to the point that it was no longer identifiable.

Fish in the dredged areas, primarily greenlings, would be temporarily displaced during dredging due to the construction activity. There is abundant habitat of similar composition in the area and the dredged area would eventually recolonize with algae similar to the existing conditions. While fish were not caught at the disposal site, the temporary disturbance would likely cause any fish that might be in the area to move away until the dredged material settles to the bottom and turbidity decreases. There are no anadromous streams in Elfin Cove or near the disposal area.

The disposal site was selected based on the low numbers or marine invertebrates, primarily tanner crabs, so impacts to crabs are expected to be limited and of short duration. If the dredged material placed at the disposal site does not sink into the silt/muck, it could be a source of diverse habitat in an otherwise uniform area.

The displacement of local bird populations from the project area during construction would be short term. Overall, dredging would not have a long-term effect on local bird populations. No significant adverse impacts are expected.

The USACE determines that the action alternative will have moderate short-term impacts and minor long-term impacts on habitat and wildlife in the project vicinity.

4.2.9 Effects on Protected Species

4.2.9.1 Effects on Endangered and Threatened Species

The USACE has determined that there would be “no effect” on species listed under the Endangered Species Act. There are no USFWS-listed species in southeast Alaska. It is possible the small numbers of Steller sea lions from the western DPS could be present in the project area, but it is considered unlikely in large part due to the timing of the proposed dredging (sometime between October through April for only about 3 weeks of actual dredging). There are no attractants such as seafood processors and there would be no charter fishing activity (cleaning and carcass disposal) during the work window.

The water is too shallow for humpback whales to enter Elfin Cove, though it is possible, yet unlikely, to encounter them on the outer edge of the outer navigation channel. Humpback whales could be encountered during transport to/from the disposal area, but humpback whales are much less abundant in the fall and spring and essentially absent in the winter when dredging would occur. Even so, it is estimated that only 2% of the humpback whales that might be encountered would of the listed Mexico DPS while all others would be from the unlisted Hawaii DPS.

To provide maximum protection to all marine mammals, by both the ESA and MMPA, a Corps biologist or contracted observer would be present in Elfin Cove during dredging and would suspend dredging operations as necessary if a marine mammal approached within 164 ft (50 meters) of active dredging (i.e., bucket excavating in water) or 820 ft (250 meters) of rock ripping. Given the confined nature of the channels in Elfin Cove, these radii would not extend beyond Elfin Cove except for dredging at the outer end of the outer entrance channel. Elfin Cove, given its enclosed nature and vantage points to view the two entrance areas make marine mammal monitoring highly effective and implementable. Based on previous field experience in Elfin Cove and Port Althorp during fall, winter, and spring, it is unlikely that there will be the need for many shutdowns. Vessels transiting to and from the disposal area will avoid marine mammals to the extent possible within the limits of safe navigation by altering course, speed, or both.

The species distribution, habitat conditions, time of the year and comprehensive mitigation measures all reinforce the “no effect” determination.

4.2.9.2 Effects on Marine Mammals

The anticipated effects on cetaceans or pinnipeds not listed under the ESA (section 3.8.2.1), are expected to be the same as described above for the ESA-listed marine mammals. The same avoidance and minimization measures as described in Section 4.2.9.1 would apply for any whales, porpoises, dolphins, sea lions, or seals.

The USACE determines that the action alternative would have no effect on MMPA-protected marine mammals.

4.2.9.3 Effects on Migratory Birds and Bald Eagles

The USACE determines that the action alternative will have minor impacts on birds (as described in Section 4.2.8), and that the proposed action is unlikely to result in the killing of a migratory bird, or destruction of an active nest. There are no bald eagle nests

in Elfin Cove and therefore there will be no effect to bald eagle nests. Bald eagles are present in Elfin Cove and Port Althorp in small numbers during the mid-October to mid-April construction timing window. This project will have minor and localized effects on bald eagles and be limited to the time period of construction.

4.2.10 Effects on Essential Fish Habitat and Anadromous Streams

The USACE determines that the agency's preferred alternative will have minor impacts upon and will not adversely affect marine or freshwater EFH.

4.2.11 Effects on Special Aquatic Sites

Vegetated shallows are the only category of Special Aquatic Sites present in the project area. Approximately 1.3 acres of vegetated shallows would be dredged, and the algae would be removed. Dredging would occur outside the growing season so most species of algae removed would already be drastically reduced in spatial extent. These areas would begin to recolonize during the spring and early summer after dredging is complete, but the species assemblages would likely be different due to changes in the substrate composition after dredging and because algal colonization is successional. Pioneer species would likely establish in the first year after dredging, but the species composition would change over the following few years as the species in the area naturally diversify. Likewise, marine invertebrates present in the intertidal and shallow subtidal areas would recolonize in a successional pattern over the period of a few years.

The USACE determines that the action alternative will have moderate, and highly localized, impacts on vegetated shallows that would likely persist for a few years.

4.2.12 Effects on Subsistence

Impacts on subsistence would be limited to the approximately three-week period of time during dredging in either fall, winter, or spring. In particular, dredging the inner navigation channel would limit access to and from the inner harbor area and could impact access by vessels used for subsistence activities. However, alternate mooring areas are available to these vessels in the outer harbor area where access would not be impeded. The population in Elfin Cove at the time of year when dredging would occur is typically about 5 people, so perhaps one or two vessels would have to moor in the outer harbor for a short period if they wanted full time access to the waters outside of Elfin Cove for subsistence purposes.

The USACE determines that the action alternative will have minor, short term, impacts on subsistence that would be limited to the period of construction. After construction is complete, access to subsistence areas would improve due to the restored channel depths.

4.2.13 Effects on Cultural and Historic Resources

The dredge location and disposal area are outside all known historic properties, and it is unlikely any unknown sites would be exposed from this undertaking. The National Oceanic and Atmospheric Administration's digital archive, the Wrecks and Obstructions Database, showed no shipwrecks that should be avoided or notified within the APE.

The USACE has determined that the proposed actions will have no adverse effect on historic properties and is awaiting concurrence Alaska State Historic Preservation Officer (SHPO). A letter from USACE will be sent to the SHPO in early March 2022.

4.2.14 Effects on Environmental Justice and Protection of Children

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

The proposed action would effectively increase the use of the harbor by the community, which encircles the harbor itself.

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

There are no schools in the project area. The USACE anticipates no disproportionate health or safety risks to children as a result of the agency's preferred alternative.

5.0 REGULATORY COMPLIANCE AND AGENCY COORDINATION

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

Clean Water Act. The USACE does not issue Section 404 permits for its own actions; however, it does evaluate its own actions under applicable substantive laws. A Section 404(b)(1) evaluation has been prepared by the USACE and appended to this EA (Appendix A). The USACE will request a CWA Section 401 water quality certification from the State of Alaska.

Endangered Species Act. The USACE determined the project would have "no effect" on ESA-listed species under USFWS and NMFS jurisdiction, and no further coordination is required; however, the USFWS and NMFS will have an opportunity to review this EA. There is no designated Critical Habitat in southeast Alaska for species considered in this EA.

Magnuson-Stevens Fisheries Conservation and Management Act. The USACE has reviewed information on EFH in the project area and has made the determination that the planned activities would have no adverse effect on EFH. No further coordination is required, but NMFS Habitat Division will have the opportunity to review this EA.

National Historic Preservation Act. The USACE has determined that the proposed actions will have no adverse effect on historic properties and is awaiting concurrence from the Alaska State Historic Preservation Officer (SHPO). A letter from USACE will be sent to the SHPO in early March 2022 and we are awaiting concurrence.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments. Letters inviting Government-to-Government consultation and coordination were sent to

one tribe and three Native corporations on 23 August 2019. No responses were received from these entities. The USACE plans to follow up on these letters as the EA is released for public review.

Fish and Wildlife Coordination Act. Maintenance dredging projects that return established navigation projects to their design parameters and use upland or established in-water disposal sites are generally regarded by the USACE, in the absence of unusual impacts or circumstances, to not be subject to the Fish and Wildlife Coordination Act (FWCA). The USFWS will have an opportunity to review this EA.

National Coastal Zone Management Program. Alaska withdrew from the voluntary National Coastal Zone Management Program on July 1, 2011. Within the State of Alaska, the Federal consistency requirements under the Coastal Zone Management Act do not apply to federal agencies, those seeking forms of federal authorization, and state and local government entities applying for federal assistance.

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

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

A checklist of project compliance with relevant Federal, state, and local statutes and regulations is shown in Table 5-1.

Table 5-1. Environmental Compliance Checklist

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

PC = Partial compliance, FC = Full compliance

*Full compliance will be attained upon the signing of the FONSI.

6.0 CONCLUSION

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

7.0 DOCUMENT PREPARATION

This Environmental Assessment was prepared by Chris Hoffman, Matt Ferguson, and Joey Sparaga of the Environmental Resources Section, Alaska District, U.S Army Corps of Engineers. The Corps of Engineers Project Manager is Michael Tencza.

8.0 REFERENCES

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Appendix A: 404(b)(1) CWA

Maintenance Dredging

Elfin Cove Navigation Channels

Elfin Cove, Alaska

Appendix A: 404(b)(1) CWA

US Army Corps
of Engineers
Alaska District

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

Maintenance Dredging
Elfin Cove Navigation Channels
Elfin Cove, Alaska

I. Project Description

The project would utilize mechanical dredging and rock ripping operations, if necessary, to restore the Federal channels to authorized depths; 10 feet (ft) deep and 60 ft wide through the outer entrance as well as 8 ft deep and 40 ft wide through the inner entrance (Figure 1). This involves dredging approximately 9,000 cubic yards (cy) of material in total from the inner and outer channels based on the survey data from July 2011. Dredged material would be disposed of in the southern portion of nearby Port Althorp in approximately 540 ft of water. The proposed project description and alternatives are described in detail within the accompanying Environmental Assessment (EA).

A. Authority

The Chief of Engineers Report contained in House Document Numbered 579, Seventy-sixth Congress, Third Session recommended improvement of Elfin Cove, Alaska to provide a channel 10 ft deep and 60 ft wide through the outer entrance and a channel 8 ft deep and 40 ft wide through the inner entrance. The improvements would make available a land-locked harbor of refuge where small boats operating in the vicinity can seek shelter from storms and obtain supplies. Since the benefits to accrue to local interests were deemed incidental, no contribution toward the cost of the improvement was required. The report also stated that maintenance will not be required. Congressional authorization for the project was provided in the River and Harbor Act of 1945 (Public Law 79-14).

Dredging of the inner channel was conducted in November 1957. Dredging of the outer channel started in April of the following year and all dredging at Elfin Cove was completed by May 1958. A total of 2,730 cy of rock and 2,146 cy of sediment were removed. Dredging has not occurred since; however, condition surveys in 2007 and 2011 have shown dredging is necessary to restore the authorized depths of the channels.

Glacial isostatic rebound has resulted in a gradual rise of the landmass and seafloor in southeast Alaska. Further, a tidal datum update published for Elfin Cove in 2006 by the National Oceanic and Atmospheric Administration (NOAA) indicated an upward vertical change of over two feet. However, the Chief of Engineers Report specifically stated that maintenance was not included and therefore efforts to accomplish additional dredging of the two navigation channels could not proceed without further Congressional action.

In 2016 Congress approved the Water Infrastructure Improvements for the Nation Act (Public Law 114-322). Section 1109 of the act allows maintenance of “federally authorized harbors of refuge to restore and maintain the authorized dimensions of the harbors.” Since this authorization, the U.S. Army Corps of Engineers (USACE)

Alaska District has received funding and performed preliminary studies to assess site conditions in support of dredging to restore the authorized dimensions of the channels at Elfin Cove.

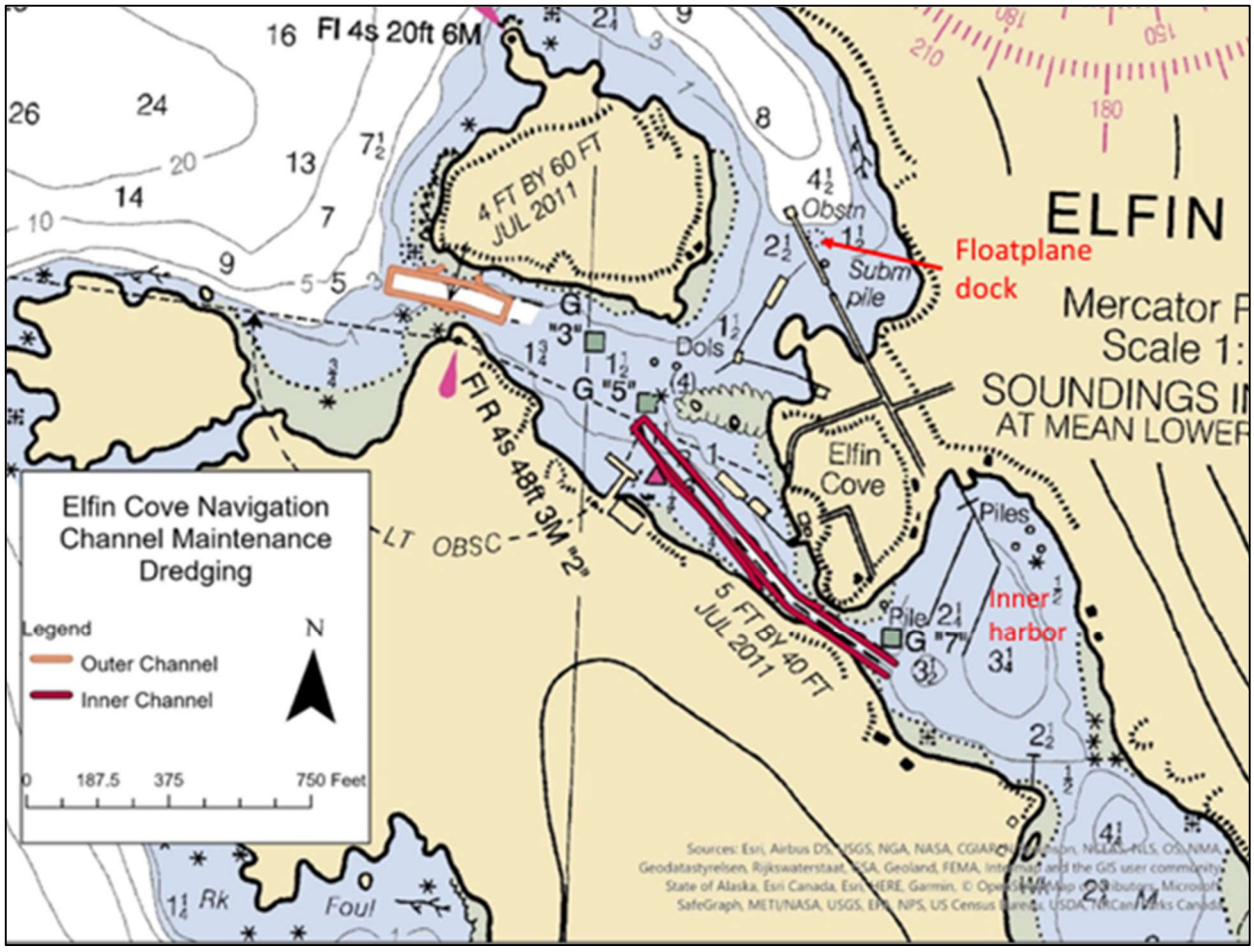

Figure 1. Preferred alternative for Elfin Cove Maintenance Dredging.

B. General Description of Dredged or Fill Material

The primary discharges to waters of the U.S. would be:

- Placement of construction dredged material for disposal.

Approximately 9,000 cubic yards of seafloor material will be dredged from the project area to deepen the navigation channels. The dredged materials are anticipated to be a mixture of sand and gravel. Geophysical data also suggests that there are pockets of softer sediment and small areas of rock outcrops.

C. Descriptions of the Proposed Discharge Site

The disposal area (site 14 as described below) is approximately 3.7 miles (3.2 nautical miles) away from the inner channel by the most direct vessel route. This disposal site in in the southern portion of Port Althorp, which is a deep and generally protected bay on the south side of Cross Sound. Disposal site 14 was selected from the nine offshore alternatives (numbered 11 to 15 and 17-20) based on the low catch rate of fish, crabs, and other invertebrates by USACE biologists during four seasonal sampling trips conducted from 2019 through 2021. Site 14 is located at 58.151587°, -

136.341259°. Water depth at site 14 is approximately 540 ft. Dredge disposal would take place within an approximately 4-acre area bounded on corners at the following coordinates:

- N58° 09' 07.72" W136° 20' 32.64"
- N58° 09' 07.88" W136° 20' 24.74"
- N58° 09' 03.71" W136° 20' 24.43"
- N58° 09' 03.54" W136° 20' 32.33"

Underwater video was acquired by USACE biologists at the disposal site in Port Althorp. This footage was captured using a drop camera designed for deep depths where no light from the surface is present. Bottom substrate at this site was a silt/muck composition.

D. Descriptions of Discharge Methods

Dredged material would be placed at the disposal site by a dump scow(s) towed by a tugboat. Dumps scows are typically split-hull design so that all the material is discharged from the scow below the waterline. Alternatively, the dredged material could be pushed over the side of a flat barge.

II. Factual Determinations

A. Physical Substrate Determinations

The dredged material, composed primarily of sand and gravel and small areas of rock, would likely sink into the soft bottom material of the disposal site in Port Althorp. The small component of soft sediment from the dredge area would also fall to the bottom but would likely rest on the top of the existing soft bottom material. It is uncertain if the dredged materials would sink into the bottom completely or if some would remain visible above the existing seafloor elevation. It is likely that any remaining dredged material that is visible above the bottom would be covered with silt in a matter of months to years. After the dredged materials sink into the bottom or are covered with silt it would be virtually undetectable from the surrounding area.

B. Water Circulation, Fluctuations, and Salinity Determinations

The removal of sediment from the Federal channels will return the project contours to their original design; this may have a small effect on water movement through the harbor versus pre-dredging conditions. Disposal of the dredged material in Port Althorp would not affect tides, currents, or sediment transport due to the relatively small amount of material that would be disposed of in 540 ft (165 meters) of water in a very large water body. There are no salinity studies available for Elfin Cove and Port Althorp, but changes are not anticipated from dredging or disposal.

The proposed project will not affect water circulation, tidal fluctuations, or salinity in any detectable way.

C. Suspended Particulate/Turbidity Determinations

The dredging is expected to be performed with a mechanical clamshell dredge or excavator, operated from a barge, and depositing the dredged materials into an adjacent scow or on a barge. Rock ripping, if necessary, contributes very little to the level of suspended particulates in the water column due to the nature of the material. In mechanical dredging, sediment becomes suspended into the water by:

a) the impact of the bucket/clamshell with the seafloor,
b) fallback of sediment as the bucket/clamshell is raised to the surface,
c) dewatering of the sediment as it is stockpiled in the scow or barge, and
d) discharge of the sediment from the scow or barge at the placement site.

The dredged material is expected to consist of sand and gravel with pockets of softer sediment and a few rock outcroppings. Sand and gravel are not as easily suspended in the water column as finer material such as silt. These coarse-grained materials tend to pass through the water column quickly and are not transported far by currents.

The proposed dredging and disposal may result in highly localized but short-term increases of turbidity and suspended solids.

D. Contaminant Determinations

Due to the strong currents, coarse material, distance from sources of contamination, and rebound-driven nature of the dredging project, the potential for contamination to be present is low. The rational for this determination is provided in the following sections.

Nature of the Material:

The Alaska District collected surface sediment samples for geotechnical analysis in May of 2019 and the lab results describe the material as poorly graded sand with silt and gravel. The proportion of coarse grain material (sand and/or gravel) ranges from 95% in the Outer Channel to 90.4% in the outer part of the Inner Channel, to 98.9% in the Inner Channel (Northern Geotechnical, 2019).

Distance from Sources of Contamination:

The inner and outer channels are tightly constrained, narrow water bodies subject to strong tidal currents. There are no docks or moorage within the channels to provide sources of fuel-related contaminants. The fuel dock is about 500 ft from the nearest channel and out-of-line with the direct flow of water; furthermore, fuel related contaminants are primarily heavier than water and unlikely to be absorbed by coarse bottom sediments in a highly energetic hydrodynamic environment. The community of Elfin Cove is primarily seasonal; the population in 2019 was 4 and there are no industrial facilities to introduce industrial contaminants.

Timing of Deposition:

NOAA published a tidal datum update in 2006 which indicated a vertical change of over two feet requiring dredging to achieve the authorized depths in the channel. Factors that may contribute to the vertical change include: the accuracy of the original datum believed to be established in 1961, isostatic rebound, and tectonic uplift as the Pacific plate pushes under the North American plate. Isostatic rebound, also called continental rebound, post-glacial rebound, or isostatic adjustment, is the rise of land masses that were depressed by the huge weight of ice sheets during the last ice age. The effect of this rebound is the uplift of the virgin material into the authorized project limits. There are no data for the rate of rebound at Elfin Cove, but relative sea level rise can be used to infer rates of rebound. The actual rate of rebound will be greater than the rate of relative sea level drop because relative sea level change includes the effects of eustatic sea level rise, the combined effects of melting ice and volume expansion from density changes as sea water warms. Juneau is located 70 miles

away and has a rebound rate of 0.04 ft/year (13.37 mm/year). Sitka is 88 miles south of Elfin Cove and is experiencing rebound at a rate of about 0.008 ft/year (2.48 mm/year). The maintenance dredging in the Elfin Cove navigation channels can be considered “new work” dredging from a practical perspective because it would excavate previously un-dredged material introduced into the project vertically by changes in the vertical datum as well as isostatic rebound.

Influence of Currents and/or Tidal Energy:

The navigation channels are subject to powerful tidal currents caused by the semi-diurnal exchange of water through areas constricted by topography. The channels are situated in natural “choke points” created by islands and projections in Elfin Cove. The island adjacent to the outer channel is located approximately 100 ft offshore at the narrowest point and the narrowest point of the inner channel is only about 50 ft wide. The inner harbor area of Elfin Cove is approximately 20-acres and is over 25 ft deep at the deepest point, but most of the inner harbor is between 15 ft to 20 ft deep. The tidal signature at Elfin Cove can exceed 14 ft, which would move 280 acre-feet (12,200,000 cubic feet) of water through the inner channel from high tide to low tide, which are about 6 hours and 40 minutes (400 minutes) apart. The theoretical average flow rate through the inner channel would be approximately 30,500 cubic feet per minute (cfm) if the water moved through the inner channel at a constant rate from high tide to low tide.

E. Aquatic Ecosystems and Organism Determinations

Effects on the aquatic ecosystem would be highly localized. Dredging would disrupt benthic habitat in the short term. These dredged areas would begin to see algal recolonization the following summer and algal species diversity would increase over a few years until a similar algal community to the existing environment was established. Fish, primarily greenlings associated with the kelp habitat have abundant adjacent habitat available until the dredged channels recolonize with the algae that is favored by the greenlings.

At the disposal site, impacts to tanner crabs are expected to be minimal, highly localized, and short term. The disposal site was selected out of nine alternative sites due to the low crab catch rate at this site. The dredged material placed at this site would likely sink into the silt/muck at the site causing a short-term turbidity plume near the bottom. Material remaining on the surface would be covered with silt over time since the rest of the bottom habitat is composed of silt. Fishes in the immediate area may be displaced in the short term by disposal-related disturbances.

F. Proposed Discharge Site Determinations

The preferred alternative would permanently place approximately 9,000 cubic yards of sand and gravel with pockets of soft sediment and small rock outcroppings in 540 ft of water in the southern portion of Port Althorp. This material would likely sink into the silt/muck substrate at the disposal site and be difficult to observe over time as it either sinks or is slowly covered with silt that is similar to the surrounding substrate.

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

After construction, the navigation channels will be restored to their authorized dimensions. While this change would allow safe passage through the channels at a

wider range of tide levels, allowing greater flexibility in terms of access, it is not expected to change the number or size of vessels that utilize Elfin Cove. Without a change to these two factors, there is no expectation that there would be changes in population, infrastructure expansion, land use, vessel numbers, or risk of environmental degradation. It is likely that the improvement to safe passage would reduce the likelihood of vessel groundings and collisions since vessels could come and go at a wider span of tide ranges. Both of these factors would reduce the likelihood of fuel and oil spills.

There are no known past, present, or reasonably foreseeable projects in Elfin Cove that would lead to cumulative impacts.

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

Upland disposal and nearshore beneficial use were considered in the accompanying EA and a complete discussion can be found in Section 2.2.2. In summary, upland disposal was considered but there is no available land for the material and making space would involve altering existing forest habitat. Nearshore placement for the foundation of a helipad was also considered, but funding through a local sponsor or stakeholder could not be secured for this alternative. Further, nearshore placement would have altered intertidal and shallow subtidal habitat without certainty that there would be any benefits. The USACE considers the disposal of dredged material within the site identified in Port Althorp to be the least environmentally damaging practicable alternative (LEDPA).

C. Compliance with Applicable State Water Quality Standards

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

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

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

E. Compliance with Endangered Species Act of 1973

The USACE has determined that there would be “no effect” on species listed under the

Endangered Species Act (ESA). There are no U.S. Fish and Wildlife Service-listed species in southeast Alaska. The only National Marine Fisheries Service-listed species for this project are Steller sea lions and humpback whales. There is no Critical Habitat listed for these species in southeast Alaska. It is possible the small numbers of Steller sea lions from the western Distinct Population Segment (DPS) could be present in the project area, but it is considered unlikely in large part due to the timing of the proposed dredging (sometime between October through April for only about three weeks of actual dredging).

The water is too shallow for humpback whales to enter Elfin Cove, though it is possible, yet unlikely, to encounter them on the outer edge of the outer navigation channel. Humpback whales could be encountered during transport to/from the disposal area, but humpback whales are much less abundant in the fall and spring and essentially absent in the winter when dredging would occur. Even so, it is estimated that only 2% of the humpback whales that might be encountered would of the listed Mexico DPS while all others would be from the unlisted Hawaii DPS.

To provide maximum protection to all marine mammals, by both the ESA and Marine Mammal Protection Act, a Corps biologist or contracted protected species observer (PSO) would be present in Elfin Cove during dredging and would suspend dredging operations as necessary if a marine mammal approached within 164 ft (50 meters) of active dredging (i.e., bucket excavating in water) or 820 ft (250 meters) of rock ripping. Given the confined nature of the channels in Elfin Cove, these radii would not extend beyond Elfin Cove except for dredging at the outer end of the outer entrance channel. Elfin Cove, given its enclosed nature and vantage points to view the two entrance areas make marine mammal monitoring highly effective and implementable. Based on previous field experience in Elfin Cove and Port Althorp during fall, winter, and spring, it is unlikely that there will be the need for many shutdowns. Vessels transiting to and from the disposal area will avoid marine mammals to the extent possible within the limits of safe navigation by altering course, speed, or both.

The species distribution, habitat conditions, time of the year and comprehensive mitigation measures all reinforce the “no effect” determination.

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

The project would not cause or contribute to significant degradation of waters of the U.S. No discharges of pollutants are anticipated as a result of dredged material disposal. Therefore, no significantly adverse effects from the discharge of pollutants are expected on human health or welfare; aquatic life and other wildlife dependent on aquatic ecosystems; ecosystem diversity, productivity, and stability; or on recreational, aesthetic, and economic values.

IV. References

Northern Geotechnical Engineering, Inc, Elfin Cove Navigation Channel Laboratory Test Results, May 10, 2019