

FINDING OF NO SIGNIFICANT IMPACT
Cordova Harbor Rebuild Project

This Finding of No Significant Impact is submitted pursuant to:

45 CFR Part 900

Decision

The Denali Commission (DC) has determined that the selected course of action of Cordova Harbor Rebuild Project will have no significant impact on the human or natural environment. The selected course of action is described as the Proposed Action in the Cordova Harbor Rebuild Project Environmental Assessment (EA), hereafter referred to as the Selected Alternative. The Selected Alternative meets the stated purpose and need of the project while minimizing impacts to the human and natural environment. The U.S. Department of Transportation Maritime Administration analyzed the impacts of the project in an EA. That EA is attached and incorporated by reference.

The EA was prepared in compliance with NEPA, which considers the effects of federally-funded projects on the quality of the human and natural environment. T

Selected Alternative

The DC is proposing to undertake overdue repairs and enhancements to the City of Cordova's (Cordova) Harbor. Phase 1 of the projects includes removing the existing float system in the South Harbor and replacing it with a new float layout. Additionally, a new bulkhead would be installed in the South harbor to improve vehicle parking and overall harbor function. Phase 11 improvements would include removing aging infrastructure, installing a new bulkhead in the North Harbor, install a new net mending float in the North harbor, expanding the boat launch, and replacing pilings on the three-stage dock. The Cordova Harbor Rebuilding Project Environmental Assessment considers all the components of both phases.

Environmental Consequences of the Selected Alternative

The EA analyzed the effects of the Selected Alternative on numerous resources. No significant impacts to these resources were identified. These findings are based on the evidence and conclusion set forth in the EA, which is incorporated by reference.

Public Involvement

The Draft FONSI and EA was published on November 22, 2023 and is available for public comment for 15 calendar days. Public comments can be sent to jwhittington@denali.gov.

Approved by:

John Whittington, General Counsel

Date

Environmental Assessment
City of Cordova Harbor Rebuild Project

November 22, 2023

Pursuant to section 900.302 of the Denali Commission's NEPA regulations the Commission adopts the U.S. Department of Transportation Maritime Administration which analyzed the impacts of the project in an EA. That EA is attached and incorporated by reference.

Final Environmental Assessment

City of Cordova Cordova Harbor Rebuild Project Cordova, Alaska

October 2023

Prepared for:

U.S. Department of Transportation Maritime Administration
and

City of Cordova
114 Nicholoff Way
Cordova, AK 99574

Prepared by:



2607 Fairbanks Street Suite B
Anchorage, Alaska 99503

Table of Contents

1	Introduction	1
1.1	Project Location	2
1.2	Proposed Project Description.....	2
2	Purpose and Need	4
2.1	Existing Conditions	4
2.2	Purpose	6
2.3	Need.....	6
3	Alternatives Considered.....	8
3.1	Proposed Action.....	8
3.1.1	Construction Components.....	8
3.1.2	Construction Methods.....	15
3.2	No Action Alternative.....	16
3.3	Alternatives Considered and Dismissed	17
4	Affected Environment and Environmental Consequences.....	18
4.1	Resources Not Considered in this Environmental Assessment.....	18
4.1.1	Coastal Zones	18
4.1.2	DOT Section 4(f) and parks/recreational resources.....	18
4.1.3	Visual Impacts	18
4.1.4	Groundwater	18
4.2	Resources Considered in this Environmental Assessment	18
4.2.1	Habitat and Vegetation	18
4.2.2	Wildlife, Migratory Birds, and Eagles.....	23
4.2.3	Endangered Species, Critical Habitat, and Protected Marine Mammals	23
4.2.4	Fish and Essential Fish Habitat	27
4.2.5	Wetlands and Waters of the U.S.	30
4.2.6	Invasive Species.....	31
4.2.7	Soil, Geology, & Seismicity	31
4.2.8	Floodplains	32
4.2.9	Land Use and Zoning	32
4.2.10	Public Services and Utilities	33
4.2.11	Hazardous Materials and Waste Management	34
4.2.12	Surface Water Quality	36
4.2.13	Air Quality.....	37
4.2.14	Climate Change and Energy.....	37
4.2.15	Cultural and Tribal Resources	39
4.2.16	Environmental Justice	40
4.2.17	Traffic and Safety.....	41
4.2.18	Noise and Vibration	41

5	Indirect and Cumulative Impacts	43
5.1	Essential Fish Habitat and Endangered Species	44
5.2	Wetlands and Tidal Environments	44
5.3	Hydrology, Floodplains, and Water Quality.....	44
5.4	Transportation Systems and Facilities.....	44
6	Mitigation Measures.....	45
6.1	Required Permits	45
6.2	Wildlife, Migratory Birds, and Eagles	45
6.3	Endangered Species, Critical Habitat, and Protected Marine Mammals	45
6.4	Essential Fish Habitat	46
6.5	Invasive Species	46
6.6	Hazardous Materials and Waste Management	46
7	Agency Coordination and Public Involvement	48
7.1	Section 106 Consultation	48
7.2	Other Consultations	48
7.3	Public Notification/Controversy	48
8	List of Preparers.....	49
9	References	50

Figures

Figure 1.	Photo of the Cordova Harbor Rebuild Project Area.....	1
Figure 2.	Cordova Harbor Rebuild Project Location	2
Figure 3.	Cordova Harbor Existing Infrastructure	5
Figure 4.	Cordova Harbor Conditions	7
Figure 5.	Cordova Harbor Rebuild Project South Harbor Site Plans – Phase I	11
Figure 6.	Cordova Harbor Rebuild Project South Waterfront Site Plans – Phase I.....	12
Figure 7.	Cordova Harbor Rebuild Project North Waterfront, Three-Stage Dock, and Boat Launch Ramp Site Plans – Phase II.....	13
Figure 8.	Cordova Harbor Rebuild Project North Waterfront Site Plans – Phase II	14
Figure 9.	Cordova South Harbor’s Intertidal Area (left) and Piles (right) in September 2022.....	20
Figure 10.	Cordova North Harbor’s Intertidal Area	20
Figure 11.	Cordova Harbor Rebuild Project Eelgrass Bed Locations	22
Figure 12.	Anadromous Streams Near the Proposed Cordova Harbor Rebuild Project.....	28

Tables

Table 1. Cordova Harbor Rebuild Project Pile Installation and Removal Summary	10
Table 2. Cordova Harbor Rebuild Project Groundwork Summary – Phase I and II	16
Table 3. Essential Fish Habitat Salmon Species in Action Area	27
Table 4. Essential Fish Habitat Groundfish Species in Action Area	28
Table 5. Cordova Harbor Rebuild Project Construction GHG Emissions	39

Appendices

Appendix A. Project Location and Site Plans
Appendix B. South Harbor Condition Assessment
Appendix C. Intertidal Habitat and Vegetation
Appendix D. Endangered Species Consultation and Other Agency Correspondence for Protected Species
Appendix E. Essential Fish Habitat Assessment
Appendix F. Wetlands Mapping
Appendix G. Floodplains Mapping
Appendix H. Land Use and Zoning
Appendix I. Hazardous Materials and Waste Management
Appendix J. Greenhouse Gas Emissions and Social Cost of Carbon Analysis
Appendix K. Section 106 Consultation and Concurrence
Appendix L. Environmental Justice
Appendix M. Supporting Resolutions and Documents

Acronyms and Abbreviations

%	percent
ACCS	Alaska Center for Conservation Science
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Conservation
ADF&G	Alaska Department of Fish and Game
AHRS	Alaska Heritage Resources Survey
APE	Area Of Potential Effects
BMPs	best management practice
CO ₂	carbon dioxide
CO ₂ -e	carbon dioxide equivalent
CWA	Clean Water Act
DPS	distinct population segment
EFH	Essential Fish Habitat
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEMA	United States Federal Emergency Management Agency
GHG	greenhouse gas
HMRP	Hazardous Materials Response Plan
HTL	high tide line
HUD	U.S. Department of Housing and Urban Development
IHA	Incidental Harassment Authorization
IPaC	Information for Planning and Consultation
IWG	International Working Group
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation & Management Act
CH ₄	methane
MARAD	Maritime Administration
MGD	million gallons per day
MLLW	Mean Lower Low Water
MMPA	Marine Mammal Protection Act
N ₂ O	nitrous oxide
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
PIDP	Port Infrastructure Development Program
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
SC-GHG	Social Cost of Greenhouse Gases
SCC	Social Cost of Carbon
SHPO	State Historic Preservation Officer
SPCC	Spill Prevention and Corrosion Control
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
WWPI	Western Wood Preservers Institute

1 Introduction

Through the Cordova Harbor Rebuild Project, the City of Cordova is proposing to undertake overdue repairs and necessary enhancements to the City's Harbor (Figure 1). The Cordova Harbor Rebuild Project is a combination of two harbor improvement efforts, with separate grant funding sources, and consists of two construction phases. Using United States (U.S.) Department of Transportation Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant program funding, Phase I would include removing the existing float system in the South Harbor and replacing it with a new float layout. Additionally, during Phase I, a new bulkhead would be installed in the South Harbor to improve vehicle parking and overall harbor function. Phase II harbor improvements would be funded with other grant funding ¹ and would include removing aging infrastructure, installing a new bulkhead in the North Harbor, installing a new net mending float in the North Harbor, expanding the boat launch, and replacing piling on the three-stage dock. This Cordova Harbor Rebuild Project Environmental Assessment considers all of the components of both phases.

Figure 1. Photo of the Cordova Harbor Rebuild Project Area



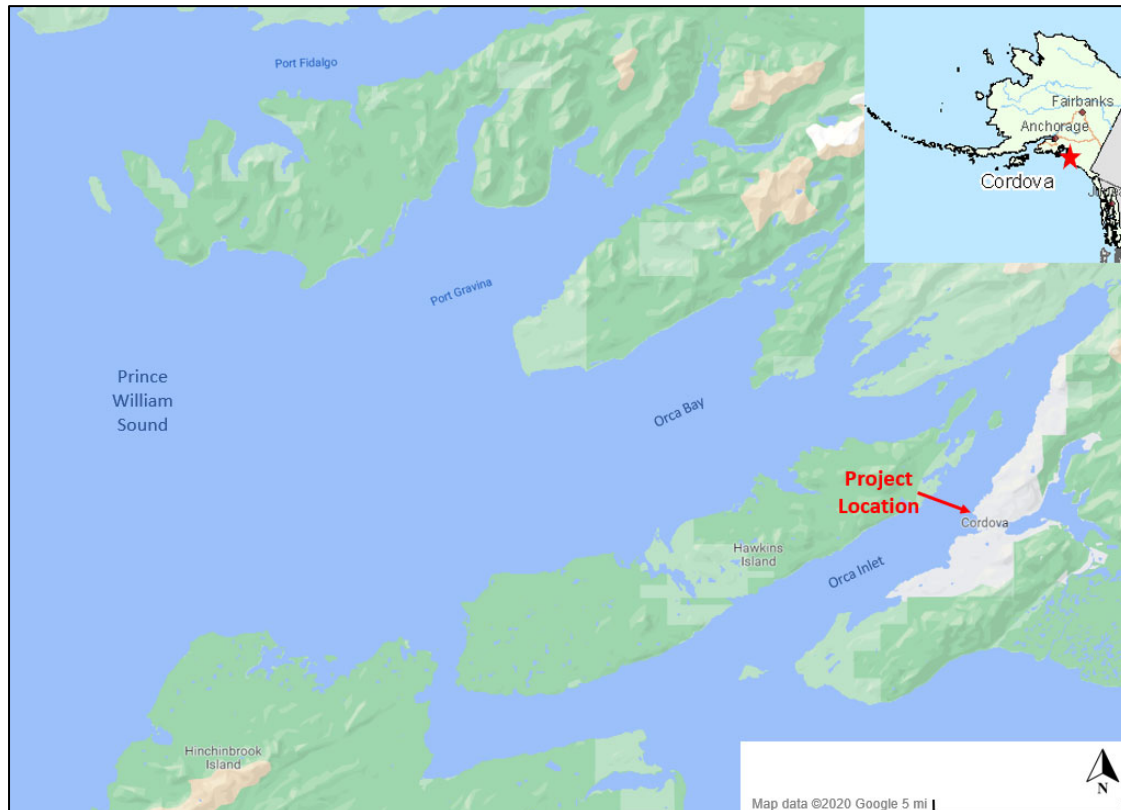
(Source: U.S. Department of Agriculture Forest Service 2006)

¹ The City of Cordova is seeking funding, and this document has been prepared to meet National Environmental Policy Act requirements.

1.1 Project Location

The proposed Cordova Harbor Rebuild Project is located within the City of Cordova in Orca Inlet within eastern Prince William Sound, Alaska. Cordova is located 150 miles southeast of Anchorage at Township 15S, Range 3W, Section 28 in the Copper River Meridian (Figure 1 and Figure 2). The harbor is located southeast of Spike Island and west of downtown Cordova and accessed via road from Nicholoff Way (from the south), Breakwater Avenue (from the north), and Railroad Avenue (from the east). The harbor consists of two areas: the South Harbor and the North Harbor.

Figure 2. Cordova Harbor Rebuild Project Location



1.2 Proposed Project Description

The City of Cordova is proposing various replacements and improvements to the City's harbor which are summarized below, discussed in more detail in this section, and shown in detailed design drawings in Appendix A.

The following components are proposed for Phase I:

- South Harbor float system replacements
- New drive-down transfer bridge and service float (drive-down dock)
- New South Harbor bulkhead
- South Harbor parking improvements and new walkway

The following components are proposed for Phase II:

- Three-stage dock improvements

- Additional boat launch ramp lane
- New North Harbor net mending float
- New North Harbor bulkhead
- North Harbor parking improvements and new sidewalk
- Additional crane capacity on the T Dock

Under Phase I, the proposed replacements, repairs, and upgrades would remove all piles and floats for the existing 506 slips in the South Harbor, including 5 concrete main walk floats, one 40+ year-old timber main walk connected to a headwall, 3 timber trestles with steel gangways, and 1 concrete seaplane float. In the South Harbor, 130 existing creosote treated timber piles would be removed. For the new float system in the South Harbor, 255 steel piles would be installed to support between 5 main floats (G, H, I, J, K floats), 2 end floats (N, N' floats), 2 gangways, 1 access trestle, and a drive down transfer bridge and service float. These upgrades would provide 446 full-service slips for vessels ranging from 20 to 60 feet in length in the South Harbor. Electrical service lighting, potable water service, fire suppression lines, and safety equipment would be installed, and communications with wireless connections would be replaced within the South Harbor.

The existing South Harbor floatplane dock and associated pedestrian gangway would be replaced with a drive-down dock consisting of a new 15-foot by 125-foot vehicle access ramp and 80-foot by 80-foot service float. Two five-ton mounted hydraulic cranes and a sewer pump out station would be installed on the service dock to allow for convenient vessel loading. An approximately 1,150-linear-foot bulkhead would be installed above the high tide line (HTL, +16.2 feet) along the southside of the South Harbor floats supported by H-piles and would require excavating 10,000 cubic yards. There would be no dredging or excavation below HTL required within the South Harbor. Following excavation and installation of bulkhead H-piles, 15,000 cubic yards of a combination excavated soil and imported gravel fill would be placed behind the bulkheads. The South Harbor bulkhead would add at a minimum 81 vehicle parking spaces along the waterfront. There would be no changes to the adjacent parking areas available at the South Harbor on the south side of Nicholoff Way.

Under Phase II, the City of Cordova proposes to remove the creosote-timber pile supported "Science Center approach" (or "Old Grid") which is abandoned and no longer in use in the North Harbor. Approximately 800 linear feet of bulkhead supported by sheet and H-piles would be installed along the north side of the North Harbor that would require dredging 22,000 cubic yards. The existing 205 slips available to vessels in the North Harbor would remain. Following dredging and installation of sheet piles, 47,300 cubic yards of a combination of dredge soil and imported gravel fill would be placed behind the bulkhead. The North Harbor bulkhead would include approximately 120 vehicle parking spaces, add lease areas, and alleviate related traffic issues on Breakwater Avenue, north of the harbor. Phase II would also include adding a five-ton mounted hydraulic crane on the T Dock. A new pile-supported net mending dock with moorage for two float planes would be added in the North Harbor. In the South Harbor, creosote-treated timber fender piles (16) protecting the existing three-stage would be replaced with steel piles, and a new boat launch ramp lane with fender piles would be added.

2 Purpose and Need

2.1 Existing Conditions

Cordova Harbor is a transportation and service hub for the region surrounding the City of Cordova, offering year-round vessel access to dedicated fishing grounds and safe harbor to mariners. The harbor is contained by a breakwater and centrally located within the community. There are two main harbor areas, the North Harbor, and the South Harbor, with mooring capacity for 711 vessels (Figure 3).

The harbor was originally owned by the State of Alaska. The North Harbor, sometimes referred to as the “Old Harbor,” was first constructed in 1938 and had to be replaced in 1964 following the magnitude 9.2 earthquake. The South Harbor was constructed in 1983 with an anticipated service life of 25 years. In 2003, the State transferred the harbor’s title to the City of Cordova and provided funds for the rehabilitation of the North Harbor.

The existing South Harbor includes 506 slips across 5 main floats and an end float that are accessed by 3 pedestrian gangways. Additional infrastructure for accessing and servicing vessels in the South Harbor currently includes a seaplane float, three-stage dock, boat launch ramp, and boat grid. Parking spaces are provided along Nicholoff Way, which also houses the Harbor Master’s office, including restroom and shower facilities, and the Fisherman’s Memorial (Figure 3).

The North Harbor, with upgraded floats from 2005, provides 205 slips for vessels 20 to 70 feet in length. The slips are accessed via pedestrian gangways and a loading dock that was re-decked in 2010. Parking spaces are available along Breakwater Avenue; however, this area has been eroding into the harbor. There is also a dock known as the “Science Center approach” (or “Old Grid”) in the North Harbor with a building that formally housed the Prince William Sound Science Center.

The U.S. Army Corps of Engineers (USACE) constructed the south breakwater and part of the north breakwater in 2012 and is responsible for the maintenance. USACE also is responsible for maintaining the navigation lane between North Harbor and South Harbor, which includes maintenance dredging to ensure sufficient depth for vessel egress.

Figure 3. Cordova Harbor Existing Infrastructure

2.2 Purpose

The purpose of this project is to improve Cordova's Harbor to offer safe vessel mooring and better accommodate the current and future commercial fishing industry and associated freight to protect the local economy. Improvements would include replacing all the floats and gangways and adding a new drive-down floatplane and vessel service facility (drive-down dock) in the South Harbor. It would also include adding bulkheads and expanded upland areas to the North and South Harbors.

The harbor is the center of the Cordova's economy. With a capacity of 711 vessels, the harbor is one of Alaska's largest single basin harbors and houses one of the largest commercial fishing fleets in the country. Fishing vessels and seafood processors working out of the harbor are the reason Cordova ranked sixteenth in the US in 2018 for fishery landings with 59 million pounds delivered and eighteenth in the nation for value. In 2018, the total landings were worth \$55 million. Out of approximately 2,600 year-round residents in Cordova, roughly 400 people hold commercial fishing licenses and work out of the harbor (City of Cordova 2022; City of Cordova 2023). About 950 employees work at five seafood processing facilities that are process fish supplied by vessels that use the harbor. The City estimates that over 1,000 jobs in Cordova (not counting fishermen) are related to fisheries.

2.3 Need

The South Harbor float and gangway are deteriorated and unsafe and need to be replaced to improve the function of critical infrastructure central to the city's economic stability. Gangways, access ramps, floats, and piles throughout the South Harbor show serious signs of wear, and the floats lack proper buoyancy. After 37 years of heavy use, the South Harbor has exceeded its design life and has reached the end of its service life (Figure 4). Prior to an extension of the harbor basin's north breakwater in 2014, the South Harbor float system experienced excessive wear and damage from inadequate wave protection. A commissioned assessment of the harbor facilities in 2016 conducted by PND Engineering, Inc. (PND) rated the condition of the float system as "poor to serious" (Appendix B). Many of the South Harbor issues present safety risks and without action, further deterioration is expected to advance those risks. Additionally, South Harbor gangways have a steep slope during low tide and are not compliant with the Americans with Disabilities Act (ADA; PND 2016).

The drive-down dock at the South Harbor is needed to facilitate essential commercial activities, including freight loading, and unloading, the transfer of products to market by small independent fishers, direct waterside access for service trucks to complete repairs, and direct access for emergency response vehicles to the inner harbor facilities, vessels, and medivac floatplanes. The current loading areas (three-stage dock, seaplane float, boat launch ramp, and North Harbor loading dock) are overcrowded and have limited vessel access at times, resulting in traffic congestion. The South Harbor drive-down dock would decrease congestion and improve safety and efficiency. Additionally, the drive-down dock would enable vessel repairs at all tide levels.

The North and South Harbor bulkheads and uplands are needed to provide additional vehicle parking and laydown areas to improve the overall productivity and functionality of the harbor. Due to the current lack of parking available at the North Harbor, fishers must park far from the

harbor and carry heavy supplies and equipment over long distances to their boats. In addition, Breakwater Avenue is sloughing into the North Harbor and may become impassible without repair. These aspects of the harbor are past their useful life and are no longer able to adequately support the vessels use and freight movement from the harbor, and some facilities are vacant and no longer in use (Prince William Sound Science Center relocated to a new facility).

Access to the road system from Cordova is limited to the state-run ferry, private vessel traffic, and commercial or private air travel. As a result, the harbor improvements are also needed to support the community's year-round access to external goods and services. The proposed drive-down dock would facilitate convenient loading and transfer of equipment, goods, and supplies for commercial operations.

Figure 4. Cordova Harbor Conditions



(Source: SolsticeAK Site Visit April 2022)

3 Alternatives Considered

3.1 Proposed Action

3.1.1 Construction Components

The Cordova Harbor Rebuild Project would involve improvements and repairs to the North and South Harbors over two construction phases.

Under Phase I, the proposed project would remove the following existing components from the South Harbor:

- All (5) concrete main walk floats and associated creosote-treated timber piles and steel piles that access 506 boat slips
- All (3) timber trestles and associated piles attached to steel gangways that connect to the main walk floats
- Concrete seaplane float and associated piles
- Approximately 10,000 cubic yards of material from above HTL on the south side of the harbor through excavating

Phase I of the proposed project would add the following within the South Harbor (Table 1; Figures 5 and 6):

- Two (2) 6-foot-wide by 80-foot-long ADA-compliant pedestrian gangways with 28-foot by 15-foot gangway floats connected to the main float complexes and accessed by a trestle (south access) or fixed dock (north access)
- Five (5) main walk floats (G, H, I, J, K floats) each with an end float and numerous stall floats arranged in two complexes
 - G main float: 8-foot by 1,000-foot
 - H main float: 8-foot by 1,084-foot
 - I main float: 8-foot by 1,035-foot
 - J main float: 8-foot by 952-foot
 - K main float: 8-foot by 884-foot
- A total of 450 slips of the following sizes:
 - 4-foot by 32-foot
 - 4-foot by 40-foot
 - 5-foot by 50-foot
 - 6-foot by 60-foot
- Two (2) 8-foot-wide main walk floats connecting the main walk floats and gangways (N [419-foot-long] and N' [119-foot-long] floats)
- A 15-foot by 125-foot drive-down transfer bridge leading to an 80-foot by 80-foot drive-down dock with 5-ton mounted hydraulic cranes (2), sewer pump out station, potable water, electrical connections, and access to the eastward float complex
- Other float components such as bull rail, floating fenders, mooring cleats, electricity connections, potable water service, fire suppression waterlines, wireless connections, lighting, and hand rails
- Uplands service area with a parking area expansion, a walkway connecting the Fisherman's Memorial with the Veterans Memorial (to remain in the same location),

greenspace, and stormwater treatment capabilities to include an oil water grit separator (note: all upland components would be installed out of the water)

- Steel piles to support floats and access ramp infrastructure (see Table 1)
- Approximately 1,150 linear feet of bulkhead wall supported by H-piles

Under Phase II, the proposed project would remove the following existing components from the North Harbor and boat launch area:

- All (16) timber fender piles from the existing three-stage dock
- The western-most float (Science Center approach/old boat grid) including the decking and creosote-treated timber piles (252)
- Approximately 22,000 cubic yards of material along the north side of the harbor through dredging

Phase II of the proposed project would add the following infrastructure within the harbor (Table 1; Figures 7 and 8):

- A 30-feet by 80-feet net mending dock support by steel piles and accessed by a 6-foot by 80-foot pedestrian gangway (North Harbor)
- Approximately 800 linear feet of sheet pile supported by H piles to create expanded uplands bulkhead (North Harbor)
- A 20-foot by 160-foot boat launch ramp lane added to the existing launch to increase launch capacity (South Harbor)
- Install fender piles (2) for the boat launch ramp (South Harbor)
- Sixteen (16) steel fender piles on the three-stage dock and install a 5-ton mounted hydraulic crane (South Harbor)
- Expanded uplands facilities with expanded parking areas, greenspaces, commercial lease areas, and appropriate stormwater management capabilities to include an oil water grit separator (note: all upland components would be installed out of the water)
- A concrete sidewalk between the North and South Harbors

Table 1. Cordova Harbor Rebuild Project Pile Installation and Removal Summary

Project Component	Piles									
	Permanent Pile Remove		Temp. Pile Install	Temp. Pile Remove	Permanent Pile Install					
Diameter of Piles (inches)	12	12	24	24	16	18	24	30	H	Sheet
Pile Type	Timber	Steel								
Phase I										
South Harbor Demolition	130	61	--	--	--	--	--	--	--	--
G Float	--	--	11	11	--	28	--	--	--	--
H Float	--	--	12	12	42	20	--	2	--	--
I Float	--	--	11	11	55	--	--	2	--	--
J Float	--	--	10	10	37	--	--	2	--	--
K Float	--	--	9	9	--	15	--	--	--	--
N and N' Floats	--	--	8	8	15	7	--	--	--	--
Drive Down Float and Trestle	--	--	10	10	--	--	--	24	--	--
Gangway Trestle	--	--	--	--	6	--	--	--	--	--
South Harbor Bulkhead	--	--	60	60	--	70	--	--	140	--
Phase I Total	130	61	131	131	155	140	0	30	140	0
Phase II										
Science Center Approach	252	--	--	--	--	--	--	--	--	--
Net Mending Float	--	--	--	--	--	--	6	--	--	--
North Harbor Bulkhead	--	--	31	31	--	--	--	--	80	80
Three-Stage Dock	16	--	--	--	--	--	16	--	--	--
Boat Launch Lane	--	--	--	--	--	--	2	--	--	--
Phase II Total	268	0	31	31	0	0	24	0	80	80
Total Number of Piles	398	61	162	162	155	140	24	30	220	80

CORDOVA SITE PLAN
1 : 1500

Figure 6. Cordova Harbor Rebuild Project South Waterfront Site Plans – Phase I

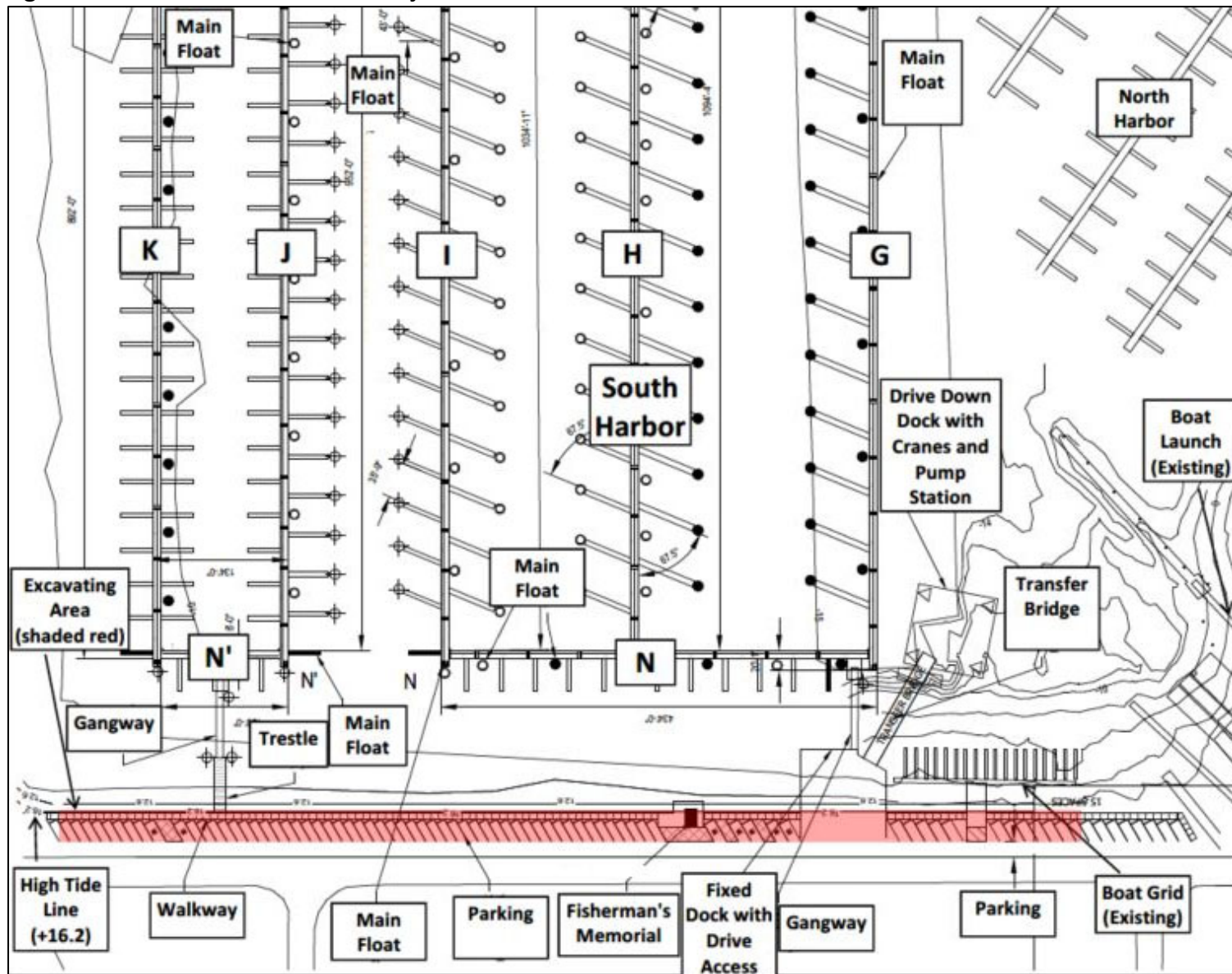
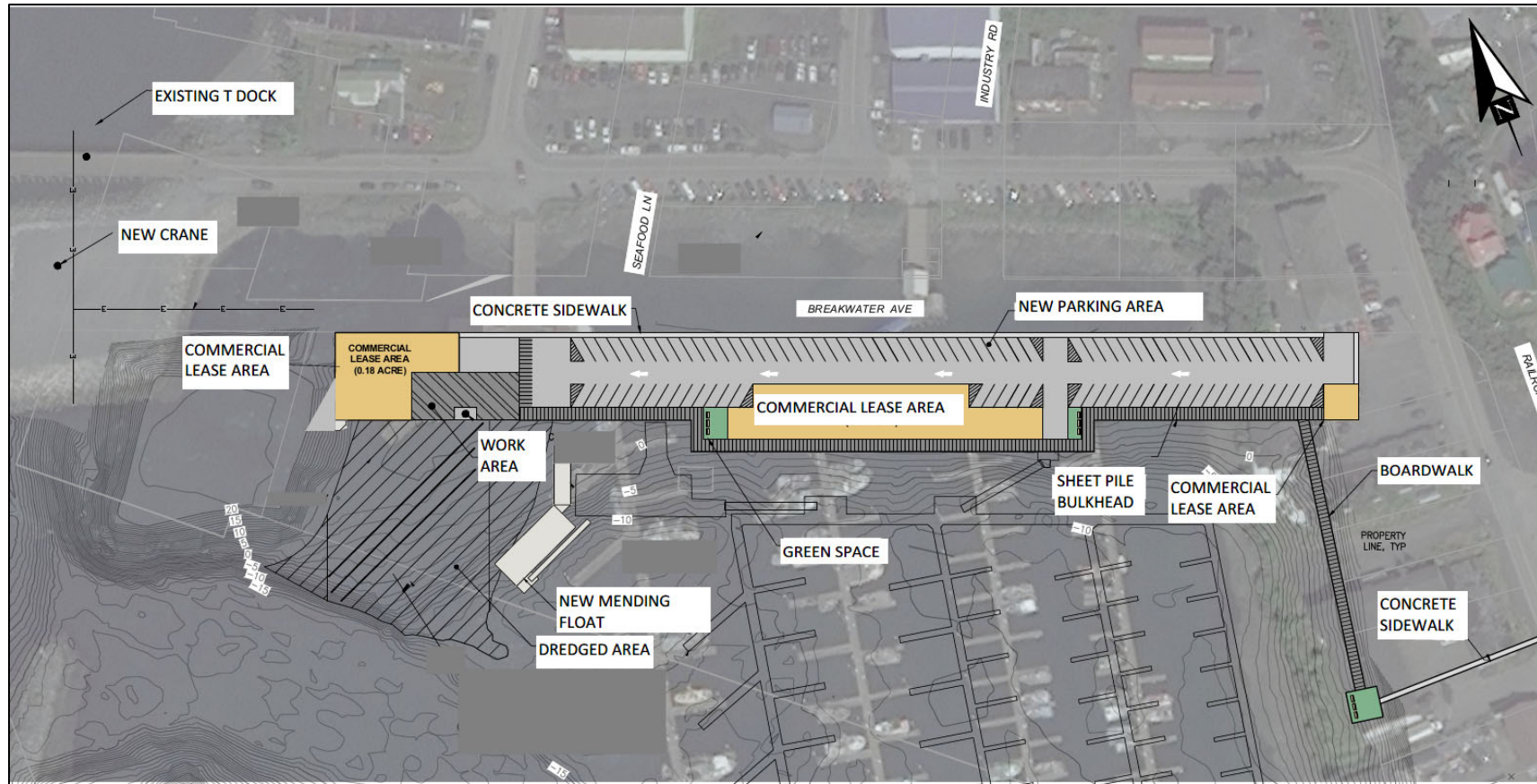


Figure 7. Cordova Harbor Rebuild Project North Waterfront, Three-Stage Dock, and Boat Launch Ramp Site Plans – Phase II

Figure 8. Cordova Harbor Rebuild Project North Waterfront Site Plans – Phase II

3.1.2 Construction Methods

In-water work (float removal, dredging, pile driving, and placement of in-water fill) for the proposed project would be limited to the fall and winter months, outside of the busiest part of the commercial fishing and private vessel use seasons. In-water work for Phase I would be expected to begin in late November, 2023 and in-water work for Phase II would be expected to occur the following fall/winter season (2024).

Removal of Existing Piles and Dock Components

All existing timber (130) and steel (61) piling supporting floats, slips, trestles, and gangways would be removed from the South Harbor during Phase I using the deadpull method and if necessary, vibratory hammer. Additional timber piles from the Three-Stage Dock (16) in the South Harbor and the Science Center approach float (252) in the North Harbor would be removed using the same methods during Phase II.

Installation and Removal of Temporary (Template) Piles

A maximum of 131 and 31 template 24-inch-diameter piles would be installed and removed using a vibratory hammer in constructing the project trestle and bulkheads during Phase I and Phase II, respectively.

Installation of Permanent Piles

All permanent piles would be initially installed with a vibratory hammer. After vibratory driving, if needed, piles would be impacted into the bedrock with an impact hammer. For some piles, a down-the-hole drill would be needed to drive piles the final few inches of embedment.

Other In-water Construction and Heavy Machinery Activities

In addition to the activities described above, both phases of the proposed action would involve other in-water construction and heavy machinery activities. Examples of other types of activities include using standard barges, tug boats, or other equipment to place and position piles on the substrate via a crane (i.e., “stabbing the pile”).

Excavating and Dredging Methods

To develop the South Harbor bulkhead, the project would require excavating 10,000 cubic yards above HTL (+16.2 feet relative to mean lower low water [MLLW; USACE 2017]) in Phase I. Excavating would be expected to occur for 300 hours over 35 days in the South Harbor during Phase I. To develop the North Harbor bulkhead, the project would require dredging 22,000 cubic yards in Phase II. Dredge material would be alluvial fill, gravel, and riprap from silted-in sections of the harbor. Dredging would be expected to occur for 660 hours over 77 days in the North Harbor during Phase II. Approximately 1.5 acres in the North Harbor would be dredged between the +5 to -10 feet MLLW to remove sediment accumulation and allow development of bulkheads (Table 2). For context, current depths in areas that would be dredged range from a +40 to -14 feet MLLW.

Dredged and excavated soils will be stored at an upland location to dry before being used as fill within the proposed bulkheads. All unused removed material will be properly disposed of at a permitted offsite location.

Filling Methods

Following dredging and installation of piling for bulkheads, dredge soil and imported gravel fill would be placed within the bulkhead to support the structure, totaling 15,000 cubic yards for the South Harbor during Phase I and 47,300 yards for the North Harbor during Phase II (Table 2). Placement of fill would be expected to occur over for 300 hours over 35 days for the South Harbor and 946 hours over 110 days for the North Harbor. The fill would be placed using an excavator and dozer and then compacted using a vibratory soil compactor.

There would be additional improvement of upland facilities adjacent to the harbor within existing developed parking areas. There would be no in-water noise impacts from placement of fill for the bulkheads and other upland construction to species since these activities would occur within the newly installed bulkhead structures.

Additionally, during Phase II, placement of a small volume of in-water fill would be required to development the additional boat launch ramp lane in the South Harbor. Placement of 670 cubic yards of fill would be expected to occur over 5 hours and 1 day and may occur from land or water.

Table 2. Cordova Harbor Rebuild Project Groundwork Summary – Phase I and II

Construction Activity	Description					
	Soil Type	Phase (Harbor)	Area (acres)	Total Quantity (cubic yards)	Total Time (hours)	# of Days
Excavating (above HTL)	Alluvial, Gravel, and Riprap	I (South)	1.0	10,000	300	35
Dredging	Alluvial, Gravel, and Riprap	II (North)	1.5	22,000	660	77
Filling	Alluvial, Gravel, and Riprap	I (South) (above HTL)	1.0	15,000	300	35
		II (North and Boat Launch)	1.5	47,970	946	110

3.2 No Action Alternative

A No Action Alternative was considered. Under this alternative, the existing float system would not be replaced, a drive-down dock would not be added, and bulkheads with uplands facilities would not be added to the harbor. The No Action would not meet the project's purpose and need to provide safe mooring and better accommodate the existing and future fleet of vessels operating out of Cordova. Without replacement, the harbor facilities would continue to deteriorate to dangerous conditions and eventually become inoperable. No specific, direct, or indirect impacts would occur as a result of the No Action Alternative; therefore, no additional discussion relative to the identified resources will be included. Because the No Action alternative does not meet the purpose and need of the proposed project, it is not discussed in detail in this EA.

3.3 Alternatives Considered and Dismissed

A few variations to the design of the Cordova Harbor Rebuild Project were considered during development of the preferred alternative. Alternative float layouts were considered for the South Harbor including a sixth main float as part of the float complex. This alternative was eliminated because the harbor does not have sufficient space to accommodate an additional float while providing a safe navigation lane for vessel egress. At earlier stages of the design process, larger footprints were also considered for various aspects of the drive down dock. These alternatives were dismissed because smaller components were found to meet the project need while reducing the project footprint and expanding navigation lanes for vessel maneuvering. Additionally, the City of Cordova considered relocating the boat launch ramp to the far end of the South Harbor to reduce traffic congestion, but this alternative was dismissed because dredging would compromise the existing breakwater's structural integrity.

4 Affected Environment and Environmental Consequences

4.1 Resources Not Considered in this Environmental Assessment

4.1.1 Coastal Zones

Currently, the State of Alaska does not have a Coastal Zone Management Plan. Alaskan projects are not subject to this requirement.

4.1.2 DOT Section 4(f) and parks/recreational resources

The harbor does not contain publicly owned parks, recreational areas, wildlife and waterfowl refuges, or historical sites (detailed in Section 4.2.14); therefore, U.S. Department of Transportation Section 4(f) does not apply to this project.

4.1.3 Visual Impacts

The proposed project would not result in a substantial change to the visual landscape of the project area since the Cordova Harbor is currently operational.

4.1.4 Groundwater

The Environmental Protection Agency (EPA) Sole Source Aquifers mapper did not identify any sole source aquifers in the project area (EPA 2022). Additionally, there are no drinking water wells or intake sources in the harbor or adjacent to the harbor; the City provides piped drinking water to all businesses and residences in the area. No direct or indirect impacts would occur to groundwater resources.

4.2 Resources Considered in this Environmental Assessment

4.2.1 Habitat and Vegetation

Existing Conditions

The City of Cordova is within the Gulf of Alaska coastal maritime climate zone, receiving a significant amount of precipitation. On average, the area sees cold winters, mild summers, and frequent cloudiness and fog. Cordova receives an average of 167 inches of total precipitation annually, including 80 inches of snowfall (City of Cordova 2021). Upland vegetation in Cordova is predominantly made up of Sitka spruce and western hemlock, along with an abundance of alder, cottonwood, and willow trees. Due to previous development for the existing harbor and nearby infrastructure, most vegetation has been cleared from the project area.

Based on an observational intertidal survey field visit conducted in September 2022 (Appendix C), on the southside of the South Harbor is comprised primarily of very soft substrate consisting of deep silt. The southeast side of the harbor between the boat launch ramps and the Fisherman's Memorial has a patchy eelgrass (*Zostera marina*) bed (Figure 9, left below and Appendix C). The bed extends from approximately 0 feet to -15 feet MLLW. Nearer to the shoreline on the riprap and piles, there are blue mussels (*Mytilus trossulus*) and barnacles (*Balanus balanoides*), and variety of green and brown algal species (Figure 9, right below and Appendix C). Little eelgrass growth was observed adjacent to the breakwater along the west side of the harbor.

The North Harbor also has a very soft silt substrate (Figure 10). An eelgrass bed in the northwest area of the harbor extends from the North Breakwater, around the Science Center

Approach Dock, to just beyond the west gangway in the 0 feet to -15 feet MLLW range (Figure 11). Piles supporting North Harbor structures have some invertebrate and algae growth, but less than piles in the South Side, likely because they were installed later. Little eelgrass growth was observed in September 2022 on the northeast or east side of the harbor.

A map of eelgrass beds observed in the project area during a site visit in September 2022 are provided in Figure 11 and Appendix C.

Orca Inlet is a shallow waterbody off of Orca Bay in Prince William Sound surrounded by Hawkins Island, Hinchinbrook Island, and the City of Cordova on the mainland. Downtown Cordova and the Cordova Harbor are located along the east shore of the Inlet. The inlet, about 30 miles long, 2.5 miles wide, and about 60 feet at its deepest, is separated from Orca Bay by Hawkins Island (NOAA 2010).

The mean tide range of Orca Inlet is 10.17 feet, and the diurnal tide range is 12.59 feet (MLLW; NOAA 2022). The inlet is characterized by shallow waters as a result of sediment deposited over time from the nearby mouths of glacial rivers, including the Copper River. Although the Copper River delta is located south of Orca Inlet and more than 15 nautical miles from Cordova Harbor, its sediments dominate inlet conditions. The seafloor in the inlet and harbor contains a large area of sediment and USACE performs maintenance dredging for navigation lanes within the harbor about every 12 years (USACE 2019). Salinity levels of the waterbody are stable, and turbidity is low. Habitats in the inlet range from small protected embayments to expansive mud flats. According to NMFS online ShoreZone Mapper, the following characteristics are present along the Orca Inlet shoreline near the Cordova Harbor (NMFS 2022):

- Habitat Classes: Protected/anthropogenic permeable; protected/partially mobile/sediment or rock and sediment; protected/immobile/rock; and protected/mobile/sediment
- Coastal Class: Man-made permeable; mudflat; sand and gravel flat or fan; sand and gravel beach narrow; cliff with gravel/sand beach; ramp with gravel/sand beach; organics/fines; rock cliff; and cliff with sand beach
- Biological Wave Exposure: Protected
- Environmental Sensitivity Index: Sheltered tidal flats; rip-rap (man-made); sheltered scarps in bedrock, mud, or clay (impermeable); fine to medium-grained sand beaches; mixed sand and gravel beaches; and salt and brackish water marshes

Figure 9. Cordova South Harbor's Intertidal Area (left) and Piles (right) in September 2022



Figure 10. Cordova North Harbor's Intertidal Area



Environmental Consequences

Excavating is expected occur for 8.5 hours a day for 300 hours over 35 days in the South Harbor during Phase I. Dredging would be expected to occur 660 hours over 77 days in the North Harbor during Phase II. Some short-term impacts could occur over 5 hours during Phase II during the placement of in-water fill associated with 670 cubic yards placed for the boat launch. The placement of fill for bulkheads would occur within newly installed bulkheads and is not expected to have short-term impacts to aquatic habitat since it will be contained.

Dredging, placement of fill and piles, and installation of the 1.5-acre North Harbor bulkhead would reduce available intertidal habitat. Approximately, 50 square feet of eelgrass bed areas in the South Harbor would be impacted and 4,425 square feet of eelgrass bed areas in the North Harbor, potentially impacting productive habitats with important biological functions (Figure 11; Appendix C). Impacts to marine mammal and Essential Fish Habitat are detailed below.

Although dredging and fill permanently eliminates area intertidal habitat, the project footprint is entirely within the existing harbor which is not considered pristine habitat. Given that the project location within the harbor footprint and breakwaters and would be within the hardscape footprint of the Cordova waterfront, expanding the Cordova Harbor uplands is not expected to impact hydrological conditions.

Figure 11. Cordova Harbor Rebuild Project Eelgrass Bed Locations

4.2.2 Wildlife, Migratory Birds, and Eagles

Existing Conditions

Cordova lies within the Chugach National Forest and along Prince William Sound, which are areas home to diverse wildlife, such as mountain goats, moose, and bear.

Migratory birds, which are common in Cordova are protected under the Migratory Bird Treaty Act. The March 2, 2023, U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) report generated for this project identifies 25 different migratory bird species that may be present within the project area (Appendix D; USFWS 2023). For discussion of Endangered Species Act (ESA)-listed short-tailed albatross, see Section 4.2.3.

Bald and golden eagles and their nests are protected from take, including disturbance under the federal Bald and Golden Eagle Protection Act. According to a September 9, 2022 review of the State of Alaska Documented Eagle Nest Sites database, there are no documented Bald Eagle nests within or adjacent to the project area (State of Alaska Open Data Geoportal 2022). Also, minimal tall vegetation or structures that could be used for nesting exist within 660 feet of the project area.²

Environmental Consequences

Given that the project footprint is entirely within the harbor's previously developed area, impacts to nests would not be expected. Mitigation measures to protect migratory birds and eagles during construction are outlined in Section 6.

4.2.3 Endangered Species, Critical Habitat, and Protected Marine Mammals

Existing Conditions

The National Marine Fisheries Service (NMFS) endangered species and critical habitat mapper indicates four marine mammal species listed under the ESA that have the potential to be in the vicinity of the project: endangered Western Distinct Population Segment (DPS) Steller sea lions, threatened Mexico DPS humpback whales, endangered Western North Pacific DPS humpback whales, and endangered fin whales (NMFS 2023). The harbor and much of Prince William Sound is designated as critical habitat for Western DPS Steller sea lions, and critical habitat is designated for Mexico and Western North Pacific DPS humpback whales less than 1 mile (1 kilometer) from the harbor (NMFS 2023).

ESA-listed endangered short-tailed albatross (*Phoebastria albatrus*) have a mapped range that overlaps with the project area; however, short-tailed albatross are a pelagic species and are not expected to frequent a near-shore area like Cordova Harbor. The nearest sightings on *eBird* have been 50 to 75 miles off of Montague Island and Middleton Island, respectively, which is approximately 425 miles from the project area (The Cornell Lab of Ornithology 2022).

Additionally, based on communication with scientists at the Prince William Sound Science Center and with the Cordova Harbormaster about protected species observed in the project area, short-tailed albatrosses have never been observed in the vicinity of Cordova Harbor (Prince William Sound Science Center 2022; Schinella 2022). Based on correspondence with

² The USFWS recommends limiting work involving the "installation or expansion of marinas with a capacity of 6 or more boats" to at least 660 feet from a bald eagle nest (USFWS 2007).

USFWS, the project would have no effect on this species, and additional ESA Section 7 consultation with USFWS is not required (Appendix D).

Marine Mammal Protection Act (MMPA)-protected species under NMFS jurisdiction that have potential to be in the vicinity of the project area include the ESA-listed species above and northern fur seals, harbor seals, killer whales, Pacific white-sided dolphins, harbor porpoises, Dall's porpoises, minke whales, and gray whales (NMFS 2023). Northern sea otters, MMPA-protected species under USFWS's jurisdiction, are also found in the action area (USFWS 2023).

Communication with the Cordova Harbormaster and scientists at the Prince William Sound Science Center indicated that Steller sea lions, sea otters, and harbor seals are often sighted within the harbor and its immediate vicinity. Harbor seals are seen in the harbor for extended periods. Numerous sea otters inhabit the harbor in the winter, and large groups of sea otters occasionally gather in the shallow waters outside the harbor south of Orca Inlet. Sightings of Dall's porpoise and killer whales are less prevalent. Humpback whales can be found in deeper marine waters beyond Hawkins Island, approximately six miles outside the harbor, where Orca Inlet meets Orca Bay. Communication with the Cordova Harbormaster and scientists at the Prince William Sound Science Center indicated that no other marine mammals have been observed in the project vicinity (Schinella 2022; Prince William Sound Science Center 2022).

Environmental Consequences

MARAD initiated consultation with NMFS on November 22, 2022. The Biological Assessment was submitted to NMFS February 14, 2023. Since neither ESA-listed fin whales or humpback whales are expected in the project action area, the proposed project would not likely adversely affect these species. However, WDPS Steller sea lions and its critical habitat are expected within the project action area and could be adversely affected by habitat loss and construction activities due to the proposed project. Impacts to ESA-listed marine mammal species the project is likely to adversely affect are discussed below and addressed in detail in the Biological Opinion (Appendix D) issued by NMFS on September 28, 2023 completing Section 7 formal consultation under the ESA. Sunflower sea stars, proposed as threatened under ESA, are also considered in the event this species is listed under ESA during the project duration (Appendix D).

Approximately 1.5 acres of habitat for ESA and MMPA-listed species would be permanently lost due to dredging and the placement of fill and floats in marine waters and intertidal areas below HTL, primarily in the North Harbor (Figure 11). Although most of the proposed overwater structures would replace existing floats, this project includes the placement of some new overwater structures in marine waters, such as the South Harbor drive down dock, North Harbor net mending float, and additional pedestrian gangways. Although the harbor is mapped as Steller sea lion critical habitat, Cordova Harbor is not a pristine marine water and is not likely to be important for the species' survival. Permanent impacts from the proposed project are not expected to jeopardize any marine mammal since the area directly affected by the project within a developed harbor, is a relatively small portion of available habitat.

Noise associated with the project's in-water construction from impact, vibratory, and down-the-hole pile driving, dredging, and placement of in-water fill has the potential to result in Level A (injury) and Level B (behavioral) harassment (via disturbance reactions and/or masking) of

marine mammals, including ESA-listed species, within the project action area.³ Steller sea lions could be temporarily displaced from the action area due to elevated noise levels produced by in-water construction; however, displacement would be temporary and impacts would be limited to short-term effects on the local population.

If fin whales or humpback whales are observed in or approaching the action area, construction would be shut down before any individuals enter the action area such that the project would not adversely impact these ESA-listed species. Steller sea lions are common in the action area. As a result, ESA-listed Steller sea lions could be adversely affected by construction noise at Level A and Level B harassment thresholds.

Implementation of shutdown zones and a Marine Mammal Monitoring and Mitigation Plan (included as an appendix to the Biological Opinion; Appendix D) will ensure construction is shut down if any fin whales or humpback whales are observed approaching areas above Level A or Level B harassment thresholds. Level A or Level B incidental takes of Steller sea lions has been addressed and approved through an Incidental Harassment Authorization (IHA) issued from NMFS, described below.

Vessel traffic generated during construction could result in vessel strikes of marine mammals. However, the risk of project vessels striking marine mammals in the proposed project area is low given: 1) vessels transporting project materials to Cordova will follow well-established, frequently used routes; 2) a limited number of vessels would be needed for construction (likely no more than 4 round trip barge trips); and 3) the limited geographic extent and duration of construction. Although construction vessel traffic (barge traffic limited to mobilizing and demobilizing and consistent skill activity) would be small compared to baseline vessel activity in the region (active cargo and private vessel traffic), operating vessels has a risk of potentially striking marine mammals. Based on documented incidents, vessel strikes are more likely to affect large whales, notably humpback whales, than other marine mammals in the region. Fewer Steller sea lion and other marine mammal vessel strikes have been recorded. No known whale-vessel collisions have occurred in the project area, as the probability of strike events depends largely on vessel speed (Neilson et al. 2012; Freed et al. 2022).

The likelihood of marine mammals, including ESA-listed species, exhibiting behavior responses due to vessel traffic is also low. Marine mammals are likely habituated to vessels because there is a high amount of existing vessel traffic in the project area. Steller sea lions frequent the Orca Inlet and the harbor area, but there are no known Steller sea lion rookeries or haulouts within the project area or Orca Inlet; therefore, the chances of stress on overall population health due to construction vessel traffic within critical habitat is unlikely.

The probability of project impacts to marine mammals, including ESA-listed species, from accidental spills or other pollution due to construction is very small. The risk of spills and pollutants related to the proposed project would be mitigated by implementing best

³ The project action area refers to the area the project will be ensounded by in-water construction noise above designated thresholds for marine mammals. The size of the action area varies depending on the in-water construction method, although all methods are contained within Orca Inlet. Action area maps are found in the Biological Opinion in Appendix D.

management practices (BMPs) and policies to prevent accidental spills during construction and operation (see Section 6). If a spill were to occur, plans would be in place and materials would be available for cleanup activities.

Impacts to marine mammal prey species, such as walleye pollock, Pacific herring, and salmon, are expected to be minor and temporary. The most likely impact to fish and krill from the project would be temporary behavioral avoidance and displacement from the immediate Harbor area from elevated noise levels from construction. The area around the harbor in which any disturbance to prey species would occur is relatively small (area depends on construction method; 470-acre maximum) compared to the available foraging habitat around Prince William Sound. Further, mitigation measures would be implemented to reduce impacts of noise on habitat as described in the Biological Opinion, Marine Mammal Monitoring and Mitigation Plan, and Essential Fish Habitat Assessment (Appendices D and E).⁴ Therefore, indirect effects on marine mammal prey, including ESA-listed species prey, during the proposed project are expected to be minor and short term.

Impacts to MMPA-listed species would be similar to those outlined above. Northern sea otters and harbor seals are common in the action area. As a result, these species could be adversely affected by construction noise at Level A and Level B harassment thresholds. Killer whales and Dall's porpoise are occasionally observed near the action area. As a result, these species could be adversely affected by construction noise at Level B harassment thresholds. Construction will be shut down if these species are observed approaching areas within the Level A harassment threshold. The project is not requesting Level A or B take of northern fur seals, Pacific white-sided dolphins, harbor porpoises, minke whales, or gray whales because they are not expected in the action area. If any individuals of these species are observed approaching the action area, construction will be shut down such that the project would not adversely impact these species.

Northern sea otters (MMPA-listed) haul out on floats in Cordova Harbor in the winter, and there is the potential for the animals to continue to haul out on floats once the new floats are installed. Since this project would not add substantially to the overall area of floats within Cordova Harbor, there is no expected change in sea otter behavior as a result of completing this project. As a result, there would be no changes to the potential for negative human interactions and the potential for unavoidable vessel interactions from current conditions.

Separate IHA applications for the Cordova Harbor Rebuild Project were submitted to NMFS and to USFWS for take of specific marine mammals by harassment during construction. The take authorizations will be in place prior to the start of any construction work. NMFS issued an IHA on September 29, 2023 authorizing Level A takes of Steller sea lions and harbor seals, and Level B takes of Steller sea lions, harbor seals, killer whales, and Dall's porpoise. USFWS is still processing the IHA application requesting Level A and Level B take of northern sea otters. Take of any other marine mammals (including ESA-listed humpback and fin whales) will not be

⁴ Consultation is ongoing with NMFS and USFWS and mitigation measures will be refined through agency consultation. Mitigation measures in final documents will be implemented during project construction and operation.

requested, since they are not expected in the area and since construction would be shut down if any other species approaches the Level B monitoring area.

4.2.4 Fish and Essential Fish Habitat

Existing Conditions

The waters in Orca Inlet are designated as Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for all five species of Pacific salmon and 12 species of Gulf of Alaska groundfish (NMFS 2022a; Table 3 and 4). EFH is defined by the Magnuson-Stevens Act as those “waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity”.

Harbors are not pristine habitats, and Cordova Harbor does not offer substantial EFH because the high vessel traffic and other industrial operations in the area. The Alaska Department of Fish & Game (ADF&G) Anadromous Waters Catalog of important spawning, rearing, or migration water for anadromous fish lists anadromous streams with mouths near the action area, which is defined as the area where sound from Project construction could be experienced by fish (ADF&G 2020; Figure 12).

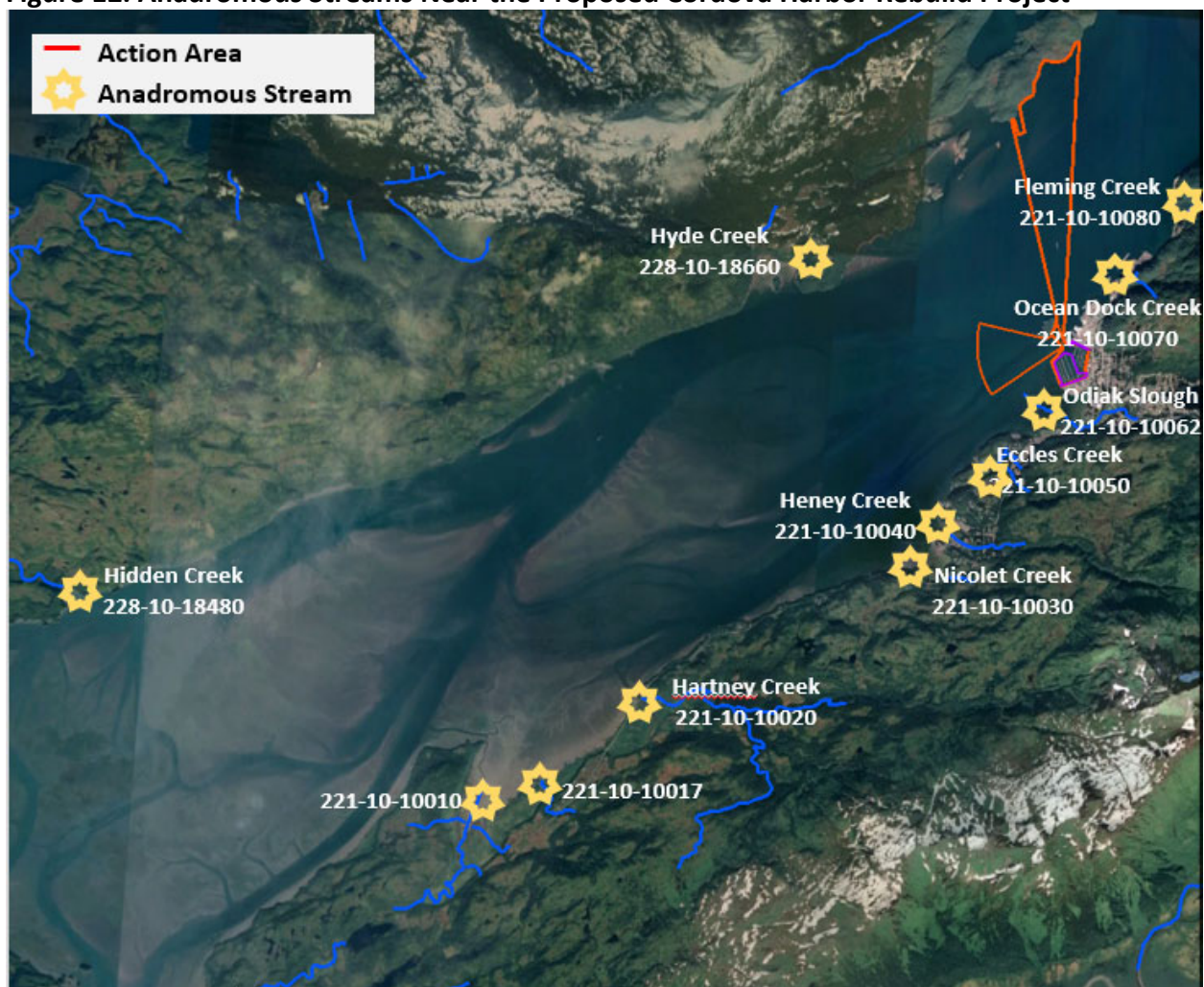
Cordova Harbor has been characterized on the NMFS ShoreZone Mapper and has a protected/anthropogenic permeable habitat class and man-made permeable rip rap environmental sensitivity index (NMFS 2022). Although the project area is not a highly sensitive area, the attached EFH Assessment in compliance with the Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), outlines the effects to EFH and EFH-listed species from construction of the proposed action and conservation measures (Appendix E).

Table 3. Essential Fish Habitat Salmon Species in Action Area

Salmon Species	Marine Juvenile	Marine Immature Adult	Marine Mature Adult
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)		X	X
Coho Salmon (<i>O. kisutch</i>)	X		X
Pink Salmon (<i>O. gorbuscha</i>)	X		X
Chum Salmon (<i>O. keta</i>)	X	X	X
Sockeye Salmon (<i>O. nerka</i>)	X	X	X

Table 4. Essential Fish Habitat Groundfish Species in Action Area

Ground Fish Species	Egg (Summer)	Larvae (Summer)
Walleye Pollock (<i>Gadus chalcogrammus</i>)	X	X
Sablefish (<i>Anoplopoma fimbria</i>)		X
Pacific Cod (<i>G. macrocephalus</i>)		X
Yellowfin Sole (<i>Limanda aspera</i>)	X	
Northern Rock Sole (<i>Lepidopsetta polyxystra</i>)		X
Alaska Plaice (<i>Pleuronectes quadrituberculatus</i>)	X	X
Rex Sole (<i>Glyptocephalus zachirus</i>)	X	X
Dover Sole (<i>Microstomus pacificus</i>)	X	X
Flathead Sole (<i>Hippoglossoides elassodon</i>)	X	X
Arrowtooth Flounder (<i>Atheresthes stomias</i>)		X
Pacific Ocean Perch (<i>Sebastes alutus</i>)		X

Figure 12. Anadromous Streams Near the Proposed Cordova Harbor Rebuild Project

Environmental Consequences

Pile driving sound can affect the distribution and behavior of juvenile pink and chum salmon. Other species of fish may change migration routes to avoid the area or leave the area entirely and habitat. Sound can stun small fish and make them more susceptible to predation. Physical injury to fish such as fatal damage to swim bladders in small fish and compromised swim bladders in larger fish can also result from exposure to underwater sound (Limpinsel et al. 2017).

Pile removal can cause the suspension of sediments which may result in harmful levels of turbidity and the release of contaminants contained in those sediments (Limpinsel et al. 2017). However, the removal of 382 creosote timber piles associated with the Cordova Harbor Rebuild Project provides long-term benefits to EFH since chemicals from the piles are known to leach out over time, introducing toxins into the water column (Perkins 2009).

Dredging and placement of 1.5 acres of in-water fill for the solid fill bulkheads would temporarily increase sedimentation, turbidity, and available light. Increased turbidity can injure fish by temporarily impacting feeding efficiency and clogging or damaging fish gills from suspended solids, leading to possible suffocation and increased energy demands (Limpinsel et al. 2017). In addition, releasing contaminated sediment into the marine environment during dredging is always a concern in harbors.

Long-term impacts as a result of the proposed additional overwater structures could result in slight changes in ambient light conditions and minor alterations to wave and current energy regimes. Shade caused by the proposed floats may limit the distributions of plants, invertebrates, and fish or reduce complexity of the habitat below the structures. Reduced-light conditions can also directly adversely impact fish species that rely on visual cues for spatial orientation, prey capture, schooling, predator avoidance, and migration, encouraging avoidance of shaded areas (Limpinsel et al. 2017).

If treated wood must be used for the project, it is likely that NMFS would require that any wood that comes in contact with water to be treated with waterborne preservatives in accordance with BMPs developed by the Western Wood Preservers Institute (WWPI; WWPI 2021). The agency would likely require treated wood to be inspected before installation to ensure that no superficial deposits of preservative material remain on the wood. In addition, NMFS would likely prohibit grounding of floats outside the harbor at any tidal stage and recommend that oil spill response equipment be on-site during construction.

The EFH assessment, which concluded that the proposed project may have adverse effects to EFH, was submitted to NMFS on March 8, 2023. NMFS provided their response to the EFH assessment on March 31, 2023 and concurred with MARAD's determination of adverse effects. NMFS further agreed that potential adverse effects would be minimized if permit requirements and MARAD identified mitigation measures are complied with and best management practice followed. As such, NMFS did not identify any additional Conservation Recommendations for the proposed project (Appendix E). The Proposed mitigation includes, but not limited to: pile installation and removal would be conducted between September and April to minimize impacts when larval and juvenile stages of EFH fish species are present; impact hammer use will be minimized, and when

impact hammers are used, the pile will first be driven as deep as possible with a vibratory hammer; creosote-treated timber piles will be properly disposed; minimizing the areal extent of dredging and fill in EFH to the extent practicable; and materials used for the overwater portions of the harbor facilities will allow some ambient light to penetrate to the water surface when possible.

4.2.5 Wetlands and Waters of the U.S.

Existing Conditions

Although the USFWS National Wetlands Inventory (NWI) mapping (USFWS 2021; Appendix F) shows approximately 31.5 acres of estuarine open water wetlands (E1UBL) and approximately 9.5 acres of tidal and wind-tidal flats, topographically low wetlands (E2USN) within Cordova Harbor, it does not appear to be accurate based on current conditions in the proposed project area. The mapping does follow bathymetry mapping to map the general wetland boundary within the harbor or to distinguish between the two types of wetlands. In addition, the NWI mapping shows the developed upland area south of the harbor (outside the project area) as an estuarine wetland, as shown in Appendix F, the area has extensive urban development with large buildings, roads, and parking areas.

The intertidal field survey conducted on September 2022 (Section 4.2.1) found approximately 41.5 acres of E1UBL wetlands extend below MLLW and 6.8 acres of E2USN wetlands are found between MLLW and the HTL (Appendix C). Given that the harbor shoreline is fully developed, with riprap and fill, there are no wetlands above the HTL. The area between the HTL and mean high water is regulated under the Clean Water Act (CWA) and described in Section 4.2.1. The area below the HTL is considered navigable and regulated under the CWA and the Section 10 of the Rivers and Harbors Act of 1899.

Environmental Consequences

Approximately 1.5 acres of E2USN wetlands would be dredged below mean high tide (long the southern edge of North Harbor waters (Table 2). Dredged soils would be placed inside a sheet pile bulkhead installed along the northeastern side of the harbor to fill the bulkhead area above HTL (Figure 11). No dredging is expected for development of the South Harbor bulkhead. Instead, excavated soils, taken from above the HTL and outside wetlands and waters of the U.S., would be used to fill the South Harbor bulkhead.

Dredging and in-water filling (0.06 acres for the boat launch ramp) would result in impacts below HTL which would require authorization from USACE under the Section 404 of the CWA and Section 10 of the Rivers and Harbor Act; however, impacts from this project would be minor since most of the project would occur within a previously impacted and heavily used area. As outlined below in Section 6, stipulations and mitigations will be outlined during the permitting process with USACE. Given that all impacts to wetlands and waters of the U.S. will be below HTL, no formal wetland boundary survey is needed for this project.

Given that the project is occurring entirely within the existing harbor footprint, there are no impacts to other waters of the U.S., such as Orca Inlet, or other navigable waters in the vicinity as a result of the project.

4.2.6 Invasive Species

Existing Conditions

Executive Order 13112 Safeguarding the Nation from the Impacts of Invasive Species, as amended on December 5, 2016, requires federal agencies to prevent and control the introduction of invasive species to minimize the economic, ecological, and human health effects that invasive species may cause. The Alaska Exotic Plant Information Clearinghouse database administered by the Alaska Center for Conservation Science (ACCS) at the University of Alaska Anchorage identifies red clover (*Trifolium pratense*), orange hawkweed (*Hieracium aurantiacum*), and common tansy (*Tanacetum vulgare*) within the footprint of the proposed North Harbor bulkhead and expanded uplands (ACCS 2021).

Prince William Sound Regional Citizens' Advisory Council actively monitors for marine invasive species on 10 fouling panels distributed throughout Cordova Harbor year-round. In addition, Prince William Sound is monitored in several locations for marine invasive species primarily because of the high risk of their introduction via the high volumes of ballast waters outputs from oil tankers associated with the Tran-Alaska Pipeline and Marine Terminal near Valdez. According to ADF&G's Invasive Species Program and Prince William Sound Regional Citizens' Advisory Council, no marine invasive species have been documented in the Cordova area (Davis 2022 and Verna 2022).

Environmental Consequences

Construction activities have the potential to increase vectors for invasive species introduction and dissemination through vessel and construction equipment activity. To reduce the risk of spreading or introducing invasive species, mitigation measures for invasive species management will be implemented for uplands construction and are outlined in Section 6.

4.2.7 Soil, Geology, & Seismicity

Existing Conditions

The City of Cordova sits on the eastern shore of Orca Inlet, Prince William Sound. The topography of the Cordova Harbor and the immediately surrounding area is generally flat and slightly undulating, and the terrain becomes steep and mountainous at the base of Eyak Mountain, approximately 0.5 miles northeast of the harbor. There are no designated soils of local importance in Cordova or the greater Prince William Sound area (U.S. Department of Agriculture 2015). No national or state soil designations have been made in Alaska.

The proposed project is located in a seismically active area. The Heney Fault is located approximately 4.5 miles south of the Cordova Harbor (U.S. Geological Survey [USGS] 2018). There are no fault traces mapped within the Cordova Harbor, and ground rupture is not anticipated at the project site. The Alaska Earthquake Center has published guidance for the City of Cordova in the event of distant and local source tsunami events (Alaska Earthquake Center 2020).

The Copper River Delta, southeast of Cordova, releases disproportionately high loads of sediment due to glacial activity and associated erosion and ablation (Adelfio 2016). These sediments are widely dispersed by tidal currents and storms, contributing to the shallow waters in Orca Inlet.

Environmental Consequences

Since the project footprint is within the existing footprint of Cordova Harbor and associated developed waterfront area, the proposed project is not expected to have an effect on soil or local geology. There are no impacts to soils anticipated as a result of the proposed uplands work because the uplands footprint is within existing paved and graded surfaces. The proposed Cordova Harbor Rebuild Project would comply with the applicable engineering standards and harbor engineering criteria. Through compliance with appropriate requirements and engineering standards, no adverse effects associated with seismically induced liquefaction of settlement would be expected, and mitigation is not required.

4.2.8 Floodplains

Existing Conditions

The proposed Cordova Harbor Rebuild Project is located within a 100-year floodplain as mapped by U.S. Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer Viewer (FEMA 2020), and the City of Cordova participates in the National Flood Insurance Program. The waters in the harbor are within a Zone AE Special Flood Hazard Area. FEMA defines the AE flood zone as areas of inundation by the 1-percent annual-chance flood, including areas with the 2-percent wave runup, elevation less than 3.0 feet above the ground, and areas with wave heights less than 3.0 feet. See Appendix G for a FEMA National Flood Insurance Program Flood Insurance Rate Map for the project area. The base flood elevation in the project area is 15 feet.

Environmental Consequences

The mapped flood zone within the project area is associated with the marine environment and would not be affected by this project. Since the project would not result in raising the base flood elevation of the project area, there would be no additional risk of flood or higher flood events due to the project. However, given the inherent potential for flooding within and adjacent to a marine environment, all project components would be designed and constructed to withstand flood events, and a building/floodplain permit will be acquired for the project prior to construction.

As discussed in Section 2.2 and Section 2.3, to achieve the purpose and need of the proposed project, the repairs and improvements to the Cordova Harbor must be constructed within the floodplain. Because the proposed project's purpose and need cannot be achieved outside the floodplain, the proposed project is the only practicable alternative.

4.2.9 Land Use and Zoning

Existing Conditions

The project would occur completely within the existing Cordova Harbor. The City of Cordova owns the tidelands, harbor, and much of the adjacent uplands. The entrance breakwater, western breakwater and associated silt barrier, and north breakwater were constructed by the USACE, and they own and maintains these features.

The South Harbor area is zoned commercial and industrial, and it houses one seafood processor, one grocer, the harbormaster's office, and a marine supply store. The area adjacent to the North Harbor is zoned marine support only and houses four seafood processors and two

freight companies (City of Cordova 2015). The entire harbor area is designated for harbor-related uses.

Environmental Consequences

Most of the Cordova Harbor Rebuild Project would replace existing harbor features in kind; therefore, there would be no change in land use within or surrounding the harbor. Installation of the North and South Harbor bulkheads would involve work adjacent to the existing breakwater which is owned and maintained by the USACE (Figure 3). The proposed project could have some impact to the breakwater. Based on consultation with the USACE and because these improvements could alter infrastructure constructed by the USACE, compliance with Section 408 (pursuant to 33 U.S. Code 408) is necessary for this project (Appendix H). The City of Cordova has initiated this process with the USACE, and this environmental assessment will be used to support this effort.

4.2.10 Public Services and Utilities

Existing Conditions

Electric System

The local electrical utility, Cordova Electric Cooperative, provides electricity to the harbor, which connects to harbor lighting and boat slips.

Water Supply and Distribution System

The City of Cordova water is supplied by four (4) sources. The three main sources are open sources that are fed by rainfall and snowmelt. The backup system is Eyak lake which is used to supplement potable water if needed, typically for one of the following reasons: the summer is dry, snowmelt is low, and canneries are operating at full capacity which adds to water demand. Outside of salmon processing season, the daily average water usage for the city is 0.793 million gallons per day (MGD). When all canneries are operating at full capacity during the salmon season, water use can reach 3.4 MGD. The water supply and distribution system are maintained in compliance with the CWA by City of Cordova.

Currently each harbor boat slip has a potable water connection; however, some are in poor condition and may leak. Potable water is shut off in the winter to keep the system from freezing.

Wastewater Collection and Treatment Facilities

The City of Cordova wastewater plant is designed to process 0.7 MGD. The average daily sewage processed is 0.215 MGD, and the daily peak flow is 0.45 MGD. As with water consumption, the salmon season increases the average gallons of wastewater produced. The wastewater treatment system is in compliance with the CWA. The City is authorized to discharge wastewater from the City of Cordova Wastewater Treatment Plant by Alaska Pollutant Discharge Elimination System Individual Permit number AK0021547 (ADEC 2017).

Stormwater System

There is no public stormwater utility in Cordova; however, the City of Cordova has a piped and ditch stormwater system which helps to control stormwater flows throughout the community, including within the uplands surrounding the harbor.

Environmental Consequences

Electric System

The proposed harbor upgrades would involve replacing electrical lines to each boat slip and new lighting fixtures in the South Harbor which would improve the system by decreasing electrical line loss and increasing efficiency. Since the proposed upgrades would not increase use of the harbor, it would not increase the burden on the electric utility cooperative.

Water Supply and Distribution System

The proposed harbor upgrades would involve replacing the potable water lines to each boat slip in the South Harbor. Replacement of the system would likely result in less water use at the harbor since leaky faucets located on the docks would be replaced.

Wastewater Collection and Treatment Facilities

The wastewater system rating capacity of 0.7 MGD would handle the additional influx of the limited wastewater from the proposed sewer pump out station estimated to be at or below 50 gallons per minute.

Stormwater System

Adding new stormwater conveyance pipes and oil water grit separators in the uplands surrounding the harbor would result in an overall benefit to the City of Cordova's stormwater system.

4.2.11 Hazardous Materials and Waste Management

Existing Conditions

Hazardous Materials

According to the Alaska Department of Environmental Conservation's (ADEC) Contaminated Sites mapper, there are no active contaminated sites in the direct vicinity of the project location (ADEC 2021). There is one active contaminated site in Cordova (Cordova Electric Coop. - Eyak Lake, file number 2215.38.007), located approximately 0.75 miles from Cordova Harbor (ADEC 2021a). At this site, waste oil and diesel spills since the 1960s resulted in soil and groundwater contamination. Contamination migrating into Eyak Lake from the groundwater has been controlled by the installation and operation of a groundwater pump-and-treat system, and long-term monitoring of the site is ongoing.

USACE maintains an ongoing maintenance dredging program within Cordova Harbor. Most of the dredged harbor sediment over the past few years were appropriate for deep water disposal off the coast of Spike Island (USACE 2019). Sampling within the harbor in 2006 detected some presence of contaminants, and these sediments were disposed of at the Cordova Landfill.

There are over 398 creosote treated timber piles within the harbor associated with existing old floats and other infrastructure. Creosote is a highly toxic wood preservative that is commonly used to protect timber piles. Creosote-treated pile leach polycyclic aromatic hydrocarbons into the water. These compounds negatively impact the surrounding water quality, posing risks to fish and invertebrates (Environmental Protection Agency [EPA] 2021).

Currently, there is no sewer pump out station in harbor. Federal law prohibits the discharge of untreated sewage from such vessels into U.S. coastal waters extending to three miles from

shore (EPA 2023); however, it is likely that it occurs within Prince William Sound because there are no easily accessible sewer pump out facilities at the harbor.

Solid Waste Management

The City of Cordova solid waste department consists of a transfer station and a 60-acre landfill. The landfill opened in 1999 and has a life expectancy of 80 years at its current rate of use. At the landfill, solid waste is compacted and covered daily. Residential trash is collected weekly, and homes outside the City's pick-up area bring their garbage to the local transfer facility. Commercial properties use dumpsters that are picked up once or twice each week depending on need. Hazardous waste, construction debris, appliances, furniture, and other large objects may be deposited at the transfer station during regular business hours. All solid waste is hauled to the landfill from the transfer site.

Currently, the City stockpiles scrap metal at the landfill. This includes old cars, machinery, Conex boxes, metal boats, and other metal. When recycling prices are high, the City barges collected scrap metal out of state.

The City collects and bales aluminum cans for recycling in Anchorage. The City also collects glass, which is taken to the landfill and broken down to extend the ground cover supply and reduce volume in the landfill.

Environmental Consequences

Hazardous Materials

No offshore disposal of dredged sediment is planned. Excavated and dredged sediment would be used as fill within the South and North Harbor bulkhead, respectively. If deemed unacceptable for fill during construction due to the presence of contamination, sediments would be disposed at an appropriate facility, as determined through the permitting process (see Section 6.1). It is likely that contaminated sediment would be contained and shipped out of state to a permitted facility.

The proposed Cordova Harbor Rebuild Project would remove 398 creosote-treated timber piles from the harbor. Removing creosote-treated wood piles from the marine environment and replacing them with steel piles would prevent additional harmful water quality impacts in Cordova Harbor. Treated wood piles would be removed in a way that minimizes the release of harmful compounds from the creosote piles in accordance with EPA Region 10 (Pacific Northwest) BMPs for Piling Removal (EPA 2016). ADEC confirmed that creosote-treated piles removed from this project could be disposed of at the Cordova Landfill (Appendix I)

As mentioned in Section 4.2.4, the proposed new floats would be constructed of modern treated timber and galvanized steel fasteners. All wood preservative treatment will be in accordance with BMPs as set forth by the WWPI, including selecting a wood preservative and amount of preservative that best fits the project and environmental conditions and applying the preservative to the wood in a manner that ensures retention of the preservative within the wood. In addition, prior to shipping the treated wood materials to the Cordova for installation, the manufacturer ensures that: 1) the preservative is placed on clean wood free of dirt and saw dust; 2) there is no excessive residual or surface deposits of preservative on the wood; and 3) the wood has no excessive bleeding of preservative (WWPI 2021).

This project proposes to install a new sewer pump out station on the new drive down dock in the South Harbor. The discharge of raw and inadequately treated sewage from boats can negatively impact human health and the environment (EPA 2023). With a new pump out station, there will likely be fewer occurrences of illegal dumping of vessel sewage into Prince William Sound.

Construction of the drive-down floating service facility would reduce the risk of unauthorized discharges at the Cordova Harbor. Commercial fishing vessels often require continuous operations over multiple days, and oil changes are common. Currently, transportation of waste oil, used filters, absorbents, and other oily and hazardous waste to the recycle facility requires multiple trips up and down the existing gangways via wheeled carts. Despite users' efforts, liquids are prone to spilling during transport, particularly during low tides when the gangway becomes very steep. The drive down facility would greatly reduce access ramp angles and allow for contained transportation of waste in vehicles, providing safer waste disposal at the harbor.

Hazardous materials, such as fuel and lubrication oils will be used in equipment used to construct the proposed project. A Hazardous Materials Response Plan (HMRP) and Spill Prevention, Control, and Countermeasures (SPCC) plan would be developed by the construction contractor to address appropriate storage, use, and disposal of any hazardous materials during project construction to ensure that all hazardous materials are stored and handled properly for the duration of the project.

Solid Waste Management

Construction debris from the one-time disposal of existing docks, floats, pilings, etc., would be hauled by dump trucks from the harbor to the landfill. Salvageable metal from the demolition associated with this project would be stored in the scrap pile at the landfill for future recycling. Any additional, easily salvageable metal would also be added to the stockpile. While the project would result in a considerable amount of solid waste, the landfill has more than sufficient capacity to receive the construction debris created by the proposed dock removal.

4.2.12 Surface Water Quality

Existing Conditions

Cordova Harbor is located within the Orca Inlet-Frontal Prince William Sound watershed, which is not included in the ADEC's Section 303(d) list of impaired waters. The local Native Village of Eyak initiated a Harbor Water Quality Improvement Program in 2014 to address the presence of oily sheen and general debris throughout the harbor. The Tribe worked with the harbormaster's office to install a new antifreeze shed, a lead battery shed, dumpster fences, and educational signage to improve handling of hazardous materials, in addition to holding clean up events (Native Village of Eyak 2018). There is no Storm Water Pollution Protection Plan (SWPPP) in place for Cordova Harbor.

Environmental Consequences

Development of additional upland impervious surfaces proposed at the harbor would minorly increase stormwater runoff. Stormwater runoff can cause sedimentation and siltation and increase contaminants in tidal habitats. Oil water grit separators would be included within the bulkheads' stormwater systems to minimize stormwater pollutants from entering the harbor

from the new parking areas (Figure 6 and 8). Greenspaces within the North Harbor uplands would also help clean, slow, and minimize stormwater runoff. Since this project would not add to the capacity of the harbor, a SWPPP would not be necessary for harbor operations following completion of the project. A Hazardous Materials Response Plan (HMRP) and Spill Prevention Control and Countermeasures (SPCC) plan will be required to be in place during construction to address appropriate storage, use, and disposal of any hazardous materials during construction.

4.2.13 Air Quality

Existing Conditions

Cordova is in an attainment area because it meets the National Ambient Air Quality Standards for major air pollutants and is not located in a nonattainment area. Per the Alaska Administrative Code 18 Section 50.015, Cordova, Alaska is considered a Class II area. Stringent air quality standards in Class II areas have been established for sulfur dioxide, nitrogen oxides, and particulate matter, and cannot be exceeded. This project is located in a remote rural community with no air quality concerns or emission producers because the community is mainly powered by hydroelectricity, and there are no major industrial emissions.

Environmental Consequences

The Cordova Harbor Rebuild Project would not be considered a “major source of air pollutants” and would not require an operating permit under Title V of the Clean Air Act. The Erosion and Sediment Control Plan for the project would address temporary impacts to air quality from construction (dust). It is not anticipated that the area will be brought out of attainment as a result of the proposed project. Greenhouse Gas (GHG) emissions associated with project construction are addressed in Section 4.2.14.

4.2.14 Climate Change and Energy

Existing Conditions

The health and stability of Prince William Sound’s fisheries and their habitats are at risk as anthropogenic contributions to climate change (like GHG emissions) continue to change the nutrient and biogeochemical makeup of the Gulf of Alaska from warming ocean temperatures, ocean acidification, altered ocean currents, and increase glacial runoff (Prince William Sound Science Center 2016). Glacial river runoff in glacier-fed waters such as Prince William Sound will increase dramatically as glaciers continue to melt as a result of climate change, further affecting the marine environment.

Environmental Consequences

Pursuant to Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, Appendix J includes a summary of local initiatives to reduce GHG emissions, an analysis and quantification of the GHG emissions that may result from the proposed Cordova Harbor Rebuild Project, and a Social Cost of Carbon (SCC) analysis.

This analysis includes a quantitative estimate of GHG emissions and their associated effects that may result from the proposed action. The scope of this analysis is limited to the transport of materials and construction activities related to the project because the project is not anticipated to change the existing GHG emissions created by the harbor and its users.

Additional vessel traffic is not expected once the project is completed because the project would not increase the number of boat slips within the harbor.

Cordova's primary power source is hydroelectric plants. In the summer, the energy demand from seafood processing facilities exceeds the available hydropower. During these periods, diesel power is used to augment the power system. Currently, the South Harbor is thought to have considerable "ghost loads" where electricity is wasted due to aging electrical wiring within the old floats. It is expected the new power transmission system associated with the South Harbor's new floats will result in less electrical use and could reduce the amount of diesel power use in the summer, potentially reducing GHG emissions. Given that precise values are not available for this emissions reduction, it is not included in this analysis.

Short term GHG emissions would occur as a result of the project due to construction activities including demolition, excavation, pile driving, and placement of fill. These activities would include the use of an excavator, a dozer, a soil compactor, a vibratory hammer, a crane, a small skiff, a construction barge, dump trucks, an impact hammer, a DTH drill, and a material transport barge.

Table 5 summarizes the findings of the GHG emissions analysis from carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) attributable to material transport and project construction.

The Cordova Harbor Rebuild Project would also realize approximately 3 metric tons annually of CO₂ emissions savings from switching to light-emitting diode lighting and reduced idling at the launch ramp. These calculations were conducted as part of a cost benefit analysis included in the Cordova Harbor Rebuild Project application to the 2022 PIDP discretionary grant program. Estimated emissions reductions from these changes are available in Appendix J (City of Cordova 2022).

The SCC was also calculated for this project and available in Appendix J. The Appendix contains summaries of the SCC of CO₂, CH₄, and N₂O emissions for the years 2023 through 2050 based on the estimates provided by the Interagency Working Group (IWG) on the Social Cost of GHGs (SC-GHG).

The SCC is a monetary measure of the long-term damage from one metric ton of CO₂ emissions accrued over time. This measure, in dollars, can also represent the value of a CO₂ reduction or the damages that are avoided by a reduction in emissions (EPA 2016). SCC is meant to be a comprehensive estimate of climate-change-related damages including changes in agricultural productivity, affects to human health, property damages from flooding, and changes in energy systems costs.

The estimation of SCC is based on a calculation of the present monetary value of damages from emitting one metric ton of CO₂. Similar to a cost-benefit analysis, the SCC uses integrated assessment models to estimate the monetary value of these damages at a future date based on various discount rates applied to emissions released at the present. For example, at the average 3 percent (%) discount rate, 1 metric ton of CO₂ valued at \$51 dollars in 2020 increases to \$85 in 2050 (IWG SC-GHG 2021). By discounting the value of the damages over time, the analysis considers these impacts in the context of the present and future value.

Table 5. Cordova Harbor Rebuild Project Construction GHG Emissions

CO₂ Emissions (metric tons CO₂ equivalent [CO₂-e])	CH₄ Emissions (metric tons CO₂-e)	N₂O Emissions (metric tons CO₂-e)	Total GHG Emissions (metric tons CO₂-e)
1,071.17	13.49	4.31	1,088.97

4.2.15 Cultural and Tribal Resources

Existing Conditions

A cultural resource investigation of the Cordova Harbor Rebuild Project's Area of Potential Effect (APE) and adjacent areas was conducted. A search of the Alaska Heritage Resources Survey (AHRs) database on February 2, 2021 identified no AHRs sites within the project APE (Appendix K).

The distinguished Anna Jackman (also known as Marine Vessel [M/V] Discovery) (COR-000589), constructed in the 1950s, is sometimes moored in Cordova Harbor and may be near the APE. The boat has not been evaluated for listing on the National Register of Historic Places (National Register). The boat is commercially chartered and travels in and out of the harbor during the summer. Since the boat is mobile and actively used, it could be moored outside the APE for the duration of the project.

Tribal entities in the region include the Native Village of Eyak, the Eyak Corporation, the Native Village of Tatitlek, the Tatitlek Corporation, the Native Village of Chenega, and the Chenega Corporation, and the project is obliged to consult with these entities.

Environmental Consequences

On March 26, 2021, Solstice Alaska Consulting, on behalf of the City of Cordova, sent a letter to the Alaska State Historic Preservation Office (SHPO) stating that the proposed South Harbor Rebuild Project would result in a "No Historic Properties Affected" finding under Section 106 of the National Historic Preservation Act (NHPA; Appendix K). MARAD concurred with the determination of no historic properties affected. On April 8, 2021, SHPO concurred with the finding.

On March 8, 2021, Solstice Alaska Consulting, on behalf of the City of Cordova, initiated the NHPA Section 106 process with the Native Village of Eyak, the Eyak Corporation, the Native Village of Tatitlek, the Tatitlek Corporation, the Native Village of Chenega, and the Chenega Corporation. No responses were received.

On February 2, 2022, in keeping with a government-to-government relationship, and in compliance with Section 106 of the NHPA, MARAD invited the Cheesh-Na Tribe, the Native Village of Chenega, the Chickaloon Native Village, the Native Village of Chitina, the Native Village of Gakona, the Native Village of Kluti Kaah, the Native Village of Tatitlek, and the Native Village of Tazlina to participate in the Section 106 process as a consulting party. MARAD requested information that identifies any resources that may hold traditional religious or cultural significance to the Tribes that could be affected by the proposed work, and, if applicable, assist in developing alternatives that would avoid, minimize, or mitigate any adverse effects. No responses were received.

4.2.16 Environmental Justice

Existing Conditions

The City of Cordova is located within the Valdez-Cordova census area. Of the 9,636 residents of the Valdez-Cordova census area, approximately 26% are minority races (mainly Alaskan Native) and 8% live below the poverty level (Appendix L; U.S. Census Bureau [USCB] 2010). In addition, the five seafood processing plants in Cordova employ a disproportionate higher percent of minority races. Although some seafood processing plant employees live in Cordova year-round, this workforce increases the population in Cordova by more 1,000 people, primarily in the summer months (City of Cordova 2022). During the summer fishing season, seafood processor plant employees live in on-site worker housing adjacent to the harbor. Many seafood processing plant employees depend on public services in downtown Cordova, notably free internet at the Civic Center. The project is not located in a U.S. Department of Housing and Urban Development (HUD) Opportunity Zone (HUD 2022).

Cordova is located within in a subsistence area regulated by Section 804 of the Alaska National Interest Lands Conservation Act. Alaska Natives have used subsistence resources, including sea lions and harbor seals, in Prince William Sound for thousands of years. The Alutiiq and Eyak people of Prince William Sound traditionally harvested marine mammals, land mammals, birds, shellfish, and fish, mostly salmon and herring. Subsistence harvesting went into sharp decline after the Exxon Valdez Oil Spill of 1989 and full recovery has not yet been achieved (Keating et al. 2020). Currently, salmon, halibut, shellfish, and plant species such as wild berries are the majority of subsistence species in Prince William Sound. The most recent community-level survey of subsistence in Cordova occurred in 2014. At the time, 504 households were surveyed and harvesting results exceeded 100,000 pounds for both wild game and fish (ADF&G 2022).

Environmental Consequences

This project would benefit all users of the City of Cordova Harbor, including local residents and transient workers, by reducing safety risks posed by the current state of the South Harbor float system and providing ADA-compliant access to the facilities. The project footprint would not expand beyond the existing harbor boundaries. In addition, improving the flow of traffic and safe pedestrian pathways around the harbor would directly benefit the seafood processing plant employees' day to day activities, a direct benefit to minority and low-income populations. This project is also expected to benefit the year round and seasonal populations by providing a safe space to dock and load and unload boats, which are used for business, travel, and subsistence activities. The improved harbor facilities would improve economic opportunities for the community by providing a more reliable connection to vital resources and markets, boosting the local economy which further benefits minority and low-income populations. Additionally, noise is not expected to affect any residences, including minority and low-income residences, within the project vicinity because there is no residential zoning adjacent to the harbor (City of Cordova 2105) and because construction would not occur during the summer fishing season when seafood processor plant workers are housed near the harbor. Given these anticipated benefits, the proposed project would not result in disproportionate adverse human health or environmental impacts relative to minority and low-income populations.

4.2.17 Traffic and Safety

Existing Conditions

The Cordova Harbor is accessed via road from Nicholoff Way (from the south), Railroad Avenue (from the east), and Breakwater Avenue (from the north). The South Harbor area experiences substantial vehicle congestion due to boat launch traffic and commercial traffic because of its proximity to the town's commercial center. The town's two grocery stores, the harbormaster's office, an automotive/marine supply parts store, two restaurants, a commercial fishing supply store, and Native Village of Eyak's offices are in the area. The roads around the North Harbor serve three primary user groups that are non-compatible on a single roadway: fisherman parking, processor/freight transport, and seafood processor worker pedestrian foot traffic.

The single harbor launch ramp is located at the corner of Nicholoff Way and Railroad Ave. The waiting area for vehicles preparing to launch is across Nicholoff Way. This leads to congestion and pedestrian safety issues as vehicles need to cross a busy intersection to launch. During busy times, the boat launch can have wait times of up to two hours and traffic congestion. In addition, vehicles with trailered boats up to 60 feet long block traffic while waiting to launch.

Within the harbor waters, the boats waiting for the single launch ramp to pull out of the water cause vessel congestion within the harbor, and the three-stage dock is overcrowded and limited to one large vessel at a time, resulting in additional long wait times and vessel congestion.

Environmental Consequences

Because the proposed harbor improvements would not provide additional vessel capacity, this project would not cause an increase the number of vehicles in the harbor area. The proposed South and North Harbor bulkheads will enable more vehicle parking, which would greatly improve vehicle traffic and congestion. The proposed additional boat launch ramp would greatly improve issues with landside vehicle congestion by lessening traffic congestion in the area surrounding the harbor. It would also reduce waterside vessel crowding by allowing more boats to be taken out of the water more quickly. The proposed boardwalks and sidewalk will increase the safety of pedestrians, including seafood processor workers, and the efficiency of drivers by reducing congestion and user conflicts along the three roads adjacent to the harbor basin.

4.2.18 Noise and Vibration

Existing Conditions

The project action area is situated in the economic center of Cordova, situated between downtown Cordova to the east and industrial development to the north. The seafood processing plants at the harbor produce noise 24 hours a day during the summer. Although no documented research has been done for fish processing plants in Alaska, fish processing plants have been recorded producing between 64 and 71 decibels of noise (Bradford 2020).⁵ Regular use by vessels and vehicles continually contribute noise to the underwater and in-air acoustic baselines in the action area. Since Cordova is disconnected from the road system, it receives a

⁵ For context: 70 dB=radio or TV-audio, vacuum cleaner; 60dB=Conversation in restaurant, office, background music.

high frequency of marine vessel traffic. Commercial fishing, recreational, freight, and ferry vessels regularly transit Orca Bay, accessing Orca Inlet from the northeast.

Environmental Consequences

There are no noise sensitive areas (i.e., educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, permanent residences, or cultural and historical sites) within 1,500 feet of the approximate center of the project area that could be affected by the project. Temporary in-air impacts from construction activities, including impact pile driving and the operation of heavy machinery, are anticipated to add to the lower baseline noise levels from the canneries and other uses of the harbor for the commercial districts that surround the harbor. However, noise impacts would be short term and would end at construction completion. (Impacts to animals from underwater noise are described in Sections 4.2.3 and 4.2.4.).

5 Indirect and Cumulative Impacts

The Cordova Harbor Rebuild Project would replace and enhance existing harbor infrastructure and would not contribute to an overall increase in the number of slips available to vessels at the harbor, the type of vessels using the harbor or the frequency of trips per vessel would not change as a result of this project; therefore, the project is not expected to have any indirect impacts. In addition, because the purpose of the project is to replace existing deteriorating infrastructure and help lessen congestion throughout the harbor area, project is not expected to induce any indirect development.

Cumulative impacts are caused by the incremental impact of a project when considered in conjunction with other past, present, or reasonably foreseeable future actions. Cumulative impacts are based on the following criteria: 1) effects occur but are not localized to the same general area; 2) effects to a resource are similar in nature; and 3) effects are long-term rather than short-term in nature. Cumulative effects can result from several individually minor impacts, which may be collectively substantial over time. Several other projects and developments in the Cordova area have occurred recently or have been proposed that could contribute to cumulative effects on resources. This section considers the cumulative effects of the proposed project as compared to the No Action Alternative when combined with past, present, and reasonably foreseeable future projects.

Generally, the Cordova Harbor Rebuild Project would be part of a pattern of continued development in Cordova since the community returned to its fishing roots in the early 1940s. The current City of Cordova Comprehensive Plan displays a prioritization of continued growth and development, reflecting Cordova residents' desire for further enhancements to quality of life and continued residential, industrial, and commercial growth in their community. Past, present, and reasonably foreseeable future projects planned, but not associated with this project, in Cordova include:

- Relocation and expansion of the Prince William Sound Science Center (completed in 2021)
- Northern Region Deep Culvert replacement at Milepost 0.6 of New England Cannery Road (completed in 2021)
- Copper River Highway Milepost 21 culvert replacement (completed in 2022)
- Cordova Center pedestrian connector, including stairs connecting Main Street to the harbor via the Cordova Center Building (completed in 2022)
- Construction of an oil response facility at Shepard Point, including an access road to the facility and a deep-water dock (construction expected to start in 2023)
- Whitshed pedestrian upgrades (construction expected to start in 2023)
- Second Avenue upgrades (construction expected to start in 2024)
- Demolition and/or redevelopment of aging properties in key areas such as First Street
- Sewer treatment plant upgrades east of downtown on the south side of Eyak Lake
- Construction of a new public safety building in Cordova
- Eyak Lake recreation infrastructure improvements, including improving or relocating the boat ramp, expanding parking, and improving Skater's cabin

Minor cumulative impacts to certain resources from the proposed project are described below.

5.1 Essential Fish Habitat and Endangered Species

Some of the planned projects in Cordova, including the Shepard Point dock and access road, could impact some marine protected species habitat and EFH through impacts from construction activities, such as pile driving and placement of fill. In addition, planned culvert replacements projects could impact anadromous streams. All projects with impacts to marine mammals would require authorizations from NMFS and USFWS (Appendix D). Similarly, any project with freshwater stream impacts would complete permitting with ADF&G. Since construction activities would be temporary and the expected footprints are small in comparison to available habitat within Prince William Sound, the temporary and permanent impacts from construction of the Cordova Harbor Rebuild Project is not expected to cumulatively impact the protected species or EFH when considered in conjunction with other planned projects in and near Cordova.

5.2 Wetlands and Tidal Environments

This project would not eliminate freshwater wetlands and would not contribute cumulatively to the loss of such wetlands. Planned projects, including Shepard Point dock and access road, would have impacts to intertidal and subtidal areas, and impacts to the subtidal environment from the placement of this project's floats and piles would contribute to cumulative loss of these areas (Figure 11 and Appendix C). Impacts to the intertidal and subtidal environment from additional projects in and near Cordova would be minimized and mitigated through USACE permitting requirements. Cumulative impacts to intertidal and subtidal areas between applicable projects would be small compared to the total intertidal and subtidal area available near Cordova.

5.3 Hydrology, Floodplains, and Water Quality

Cumulative impacts to the marine water quality of Orca Inlet near Cordova could occur primarily from soil erosion and sedimentation. When mitigation measures are considered, the incremental impact of the Cordova Harbor Rebuild Project considered with other reasonably foreseeable development on hydrology and water quality would be minor. All upland infrastructure, e.g., bulkheads, parking, and walkways, would be constructed outside of the floodplain (Appendix G), and there would be minimal cumulative impacts on coastal flood zones, since neither the proposed project nor any other planned projects would be sufficient to raise sea levels and substantially encroach on the coastal flood zone.

5.4 Transportation Systems and Facilities

There may be minor impacts to transportation facilities such as the harbor and community roads from the construction of projects not related to the Cordova Harbor Rebuild Project. Many future projects planned in the City of Cordova involve improvements to transportation infrastructure and facilities and would address future potential negative impacts of other projects. Taken together with other planned projects, including the upgrades to Second Avenue, the Cordova Harbor Rebuild Project would have a positive impact on transportation systems by helping to alleviate traffic congestion near downtown Cordova.

6 Mitigation Measures

6.1 Required Permits

The Cordova Harbor Rebuild Project is required to complete the various permitting and consultation processes through federal and state agencies. The project will comply with all mitigation measures determined through the following consultation and permitting processes:

- ADEC General Construction Permit
- ADEC Section 401 CWA Water Quality Certification (Submitted April 18, 2023)
- ADF&G Fish Habitat Permit
- City of Cordova Building/Floodplain Permit
- NMFS ESA Consultation (See Appendix D, initiation complete September 28, 2023)
- NMFS Magnuson-Stevens Act EFH Assessment (See Appendix E, completed March 31, 2023)
- NMFS MMPA IHA (Issued September 29, 2023)
- USACE Section 404 / Section 10 Permit (Submitted April 18, 2023)
- USFWS MMPA IHA (Submitted February 28, 2023)

In addition, the Cordova Harbor Rebuild project will adhere to the mitigation measures outlined in the following sections as closely as possible.

6.2 Wildlife, Migratory Birds, and Eagles

- If a Bald Eagle nest is discovered prior to construction, the USFWS will be consulted and the National Bald Eagle Management Guidelines (USFWS 2007) and avoid habitat alterations and disturbance (including repeated human activity) within 660 feet.

6.3 Endangered Species, Critical Habitat, and Protected Marine Mammals

Incorporating the following mitigation measures will help to avoid and minimize adverse impacts to ESA and MMPA-protected species and critical habitat in the Project area.

- The proposed project will use the smallest-diameter and number of piles practicable.
- Floats or barges will not be grounded at any tidal stage.
- The contractor will provide and maintain a spill cleanup kit on-site at all times as part of a safety plan and any fueling equipment will be checked regularly for drips or leaks.
- Oil spill prevention and response equipment will be readily available for oil or other fuel spill containment and response should any release occur.
- Measures will be implemented to prevent petroleum products, cement, chemicals, or other deleterious materials from entering surface waters.
- As is standard with marine construction projects, a detailed Marine Mammal Monitoring and Mitigation Plan (Appendix D) has been developed and will be followed during construction activities. The plan includes the following and other measures listed in the issued Biological Opinion and IHAs:
 - When marine mammals are present, there will be a 10-meter shutdown zone for construction-related activity where acoustic injury is not an issue. For these activities, monitoring will take place beginning 15 minutes prior to initiation of noise-inducing activities until the activity is complete.

- Protected Species Observers (PSOs) will be present during pile driving and removal and pile driving/removal will not begin until a PSO has given a notice to proceed following.
- Pile caps (pile softening material) will be used to minimize the noise generated during pile installation
- A sediment curtain will be employed during all DTH-drilling activities to contain drill spoils as much as possible to allow them to settle to the sea floor in the immediate area rather than increasing turbidity over a wider area.
- To minimize impacts to marine mammals, a “soft start” technique will be used when impact pile driving with an initial set of three strikes from the impact hammer at 40% energy, followed by a one-minute waiting period, then two subsequent three-strike sets.
- Shutdowns will be implemented if a marine mammal appears likely to enter a shutdown zone as established in the ESA and IHA processes.
- All work will be performed during daylight hours and under appropriate weather conditions to allow for visual monitoring.

6.4 Essential Fish Habitat

- The project will employ the fewest number of pilings necessary to support the floats and other in-water infrastructure and to allow light into under-pier areas, minimizing impacts to the substrate (Appendix E).
- Operation protocols will require vessels to operate at sufficiently low speeds to reduce wake energy, and follow no-wake zones designated near sensitive habitats.
- ADF&G best practices for in-water construction, including avoiding construction during sensitive life stages to avoid and minimize impacts to fish, will be followed (ADF&G 2023).
- Impact hammer use will be minimized, and piles will first be driven as deep as possible with a vibratory hammer.

6.5 Invasive Species

Measures to minimize or eliminate the potential for introduction, establishment, and spread of invasive species will be implemented during construction. Construction equipment that will be used for out-of-water activities will be pressure washed to remove soil, seed, and plant material prior to moving onto or off the Project site. Clean fill material, native plants, and certified native seed mix will be used, removing the risk of seeding exposed areas with invasive species.

Stabilization of disturbed areas will occur as soon as practicable, reducing the risk of invasive species establishing themselves in the exposed soils. Stabilization can include paving, laying down a gravel layer, and/or seeding and vegetating. Certified native seed or locally produced seed mix will be used when seeding is the selected stabilization method.

6.6 Hazardous Materials and Waste Management

A HMRP and SPCC plan will be required from the construction contractor to address appropriate storage, use, and disposal of any hazardous materials during construction. All construction waste will be managed and disposed of in accordance with all state and federal solid-waste-management laws and regulations. If contaminated sediments are encountered

during construction, the contractor will immediately notify the City of Cordova and stop work until coordination on the appropriate response occurs with ADEC.

6.6 Surface Water Quality

- A vessel sewer pump out station will be installed and improve water quality by reducing unauthorized discharges in harbor and other marine waters
- Oil water grit separators and green spaces will be installed in the South Harbor and North Harbor bulkhead areas to help clean, slow, and minimize stormwater runoff.
- EPA Region 10 BMPs for Piling Removal, including removing piles slowly to minimize turbidity and sediment disturbance; minimizing damage to treated wood piles during removal; and not removing or cleaning adhering material from the pilings.
- Construction contractor will prepare and adhere to ADEC-required General Construction Permit, Erosion and Sediment Control Plan, and Stormwater Pollution and Prevention Plan.

7 Agency Coordination and Public Involvement

7.1 Section 106 Consultation

As described in Section 4.2.14, consultation with the Alaska State Historic Preservation Office (SHPO) concurred with a finding of No Historic Properties Affected on April 8, 2021. Tribes and tribal entities (Native corporations) were consulted on March 8, 2021 and February 2, 2022. A copy of Section 106 SHPO consultation, SHPO concurrence, and tribal consultations are attached (Appendix K).

7.2. Other Consultations

The City met with the USACE to discuss requirements under Section 408 on March 12 and 29 and October 4 and 12, 2022. This consultation process will continue as the design is further developed.

Consultation with NMFS regarding EFH and ESA was completed during this NEPA process as provided by the ESA Biological Opinion (Appendix D) and EFH Assessment (Appendix E).

7.3 Public Notification/Controversy

The development of Cordova Harbor Rebuild Project has been a part of the City of Cordova's community planning process for the past decade. The Cordova Comprehensive Plan, City of Cordova Capitol Projects List, and Cordova Harbor Commission all name the project as the number one priority for the community. Resolutions were approved by the City of Cordova Harbor Commission (04-19-01) and the City of Cordova Planning Commission (19-05) which supported the application to receive funds for the Cordova Harbor renovations (Appendix M). The Cordova City Council passed resolutions in 2016, 2019, and 2021 designating Cordova Harbor restoration as one of the City's Capital Improvement projects (Appendix M). Letters of support for the project were received from a variety of entities, including the Native Village of Eyak, the City of Cordova Chamber of Commerce, the Prince William Sound Economic Development District, State and Federal Congressional Delegations, and a number of local businesses and individuals.

Citizens of the City of Cordova passed a five-million-dollar bond for the required grant match for the application to receive Alaska Department of Transportation & Public Facilities funds and passed a 0.5% fish tax and increased harbor fees to repay the bond.

The City of Cordova City Council has consistently discussed Cordova Harbor infrastructure project during publicly accessible City Council meetings (Appendix M).

No public controversy or objections have been raised to this project.

8 List of Preparers

Individual	Position	Role
Kennedy Kruchoski	Environmental Planner, Solstice Alaska Consulting, Inc.	Author/Reviewer
Natalie Kiley-Bergen	Environmental Planner, Solstice Alaska Consulting, Inc.	Author/Reviewer
Robin Reich	Senior Environmental Planner, Solstice Alaska Consulting, Inc.	Reviewer

9 References

- Adelfio, L.A. 2016. Geomorphic and Climatic Controls on Water Temperature and Streambed Scour, Copper River Delta, Alaska: Implications for Understanding Climate Change Impacts to the Pacific Salmon Egg Incubation Environment. MS thesis, Water Resources Science, Oregon State University, Corvallis. Accessed at https://ir.library.oregonstate.edu/concern/graduate_thesis_or_dissertations/4j03d234z on January 17, 2023.
- Alaska Center of Conservation Science (ACCS). 2021. Alaska Exotic Plants Information Clearinghouse (University of Alaska Anchorage). Accessed at <https://accs.uaa.alaska.edu/invasive-species/non-native-plants/> on March 26, 2021.
- Alaska Department of Environmental Conservation (ADEC). 2021. Contaminated Sites. Accessed at <https://dec.alaska.gov/spar/csp/> on March 26, 2021.
- ADEC. 2021a. Site Report: Cordova Electric Coop. – Eyak Lake. Accessed at <https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/27> on March 26, 2021.
- ADEC. 2017. Alaska Pollutant Discharge Elimination System, Individual Permit – Final. Permit Number AK0021547.
- Alaska Earthquake Center. 2020. Maritime Guidance for Distant and Local Source Tsunami Events: Cordova Harbor, Alaska. Accessed at <https://scholarworks.alaska.edu/handle/11122/10915> on March 26, 2021.
- Alaska Department of Fish & Game (ADF&G). 2023. Habitat Permits: Dock and Ramps Best Practices. Accessed at https://www.adfg.alaska.gov/index.cfm?adfg=uselicense.docksramps_bestpractices on January 17, 2023.
- ADF&G. 2022. Subsistence Harvest Information for Community: Cordova. Accessed at <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvestCommSelComm> on January 22, 2023.
- ADF&G. 2020. Anadromous Waters Catalog. Accessed at <https://adfg.maps.arcgis.com/apps/MapSeries/index.html?appid=a05883caa7ef4f7ba17c99274f2c198f> on December 15, 2020.
- Alaska Department of Labor and Workforce Development, Research and Analysis Section. 2023. Seafood Processing Workforce by Borough or Census Area: Southcentral, 2020. Accessed at https://live.laborstats.alaska.gov/seafood-processing-workforce-by-borough-or-census-area?field_seafood_data_ne_region_target_id=98&field_taxonomy_years_target_id=77 on January 5, 2023.
- Bradford, T.A. 2020. Seafood processor meets noise requirements, test show neighborhood contributes to noise issue. Gloucester Daily Times, January 5, 2020. Accessed at https://www.gloucestertimes.com/news/fishing_industry_news/seafood-processor-meets-

- [noise-requirements-tests-show-neighborhood-contributes-to-noise-issue/article_194ca434-27c7-58ab-969c-8de8b6d87483.html](https://www.cityofcordova.net/cordova-economy/) on January 17, 2023.
- City of Cordova. 2023. Cordova Economy. Accessed at: <https://www.cityofcordova.net/cordova-economy/> on January 17, 2023.
- City of Cordova. 2022. Application for 2022 PIDP Grant: Cordova Harbor Rebuild. May 2022.
- City of Cordova. 2021. About Cordova: Climate. Accessed at <https://www.cityofcordova.net/about-cordova/> on March 26, 2021.
- City of Cordova. 2015. City of Cordova Official Zoning Map. Accessed at <https://www.cityofcordova.net/wp-content/uploads/2021/01/2015-Cordova-Official-Zoning-Map.pdf> on March 3, 2023.
- Cornell Lab of Ornithology. 2022. eBird: Short-tailed Albatross. Accessed at <https://ebird.org/species/shtalb/US-AK-261> on March 7, 2023.
- Davis, T. 2022. Email correspondence between Tammy Davis, ADF&G, and Robin Reich, SolsticeAK, regarding invasive marine species in the Cordova Area on October 13, 2022.
- Environmental Protection Agency (EPA). 2023. A Recreational Boater's Guide to Vessel Sewage. Accessed at https://www.epa.gov/sites/default/files/2021-06/documents/a_recreational_boaters_guide_to_vessel_sewage.pdf on January 17, 2023.
- EPA. 2022. Map of Sole Source Aquifer Locations. Accessed at <https://www.epa.gov/dwssa/map-sole-source-aquifer-locations> on June 6, 2022.
- EPA. 2021. Creosote. Accessed at <https://www.epa.gov/ingredients-used-pesticide-products/creosote> on March 26, 2021.
- EPA. 2021a. Green Book. Current Nonattainment Counties for All Criteria Pollutants. Accessed at <https://www3.epa.gov/airquality/greenbook/ancl.html> on January 17, 2023.
- EPA. 2016. Region 10 Best Management Practices for Piling Removal and Placement in Washington State. Accessed at <https://www.nws.usace.army.mil/Portals/27/docs/regulatory/RGPs/RGP6/EPA%20BMPs%20for%20Piling%20Removal%202-18-16.pdf?ver=2017-02-07-230329-363> on January 17, 2023.
- EPA. 2016a. EPA Fact Sheet, Social Cost of Carbon. Accessed at https://www.epa.gov/sites/default/files/2016-12/documents/social_cost_of_carbon_fact_sheet.pdf on May 20, 2022.
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer Viewer. 2020. Accessed at <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd&extent=-146.41410285156272,60.37252263251384,-145.0847571484372,60.71020795481538> on December 15, 2020.
- Freed, J. C., Young, N. C., B. J. Delean, V. T. Helker, M. M. Muto, K. M. Savage, S. S. Teerlink, L. A. Jemison, K. M. Wilkinson, and J. E. Jannot. 2022. Human-caused mortality and injury of

- NMFS-managed Alaska marine mammal stocks, 2016-2020. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-442, 116 p. Accessed at <https://repository.library.noaa.gov/view/noaa/44638> on March 26, 2021.
- Interagency Working Group (IWG) on Social Cost of Greenhouse Gases (SC-GHG), United States Government. 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. Accessed at https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf on March 26, 2021.
- Keating, J.M., D. Koster, and J.M. Van Lanen. 2020. Recovery of a Subsistence Way of Life: Assessments of Resource Harvests in Cordova, Chenega, Tatitlek, Port Graham, and Nanwalek, Alaska since the Exxon Valdez Oil Spill. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 471, Anchorage.
- Limpinsel, D. E., M. Eagleton, and J. Hanson. 2017. Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska. EFH 5 Year Review: 2010 through 2015. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/AKR-14, 229p. Accessed at <https://repository.library.noaa.gov/view/noaa/17256> on March 26, 2021.
- National Marine Fisheries Service (NMFS). 2023. Species Distribution Mapper. Accessed at <https://alaskafisheries.noaa.gov/portal/apps/webappviewer/index.html?id=446543503a2e4660b0f5ee55e6407d27> on March 7, 2023.
- NMFS. 2022. Alaska ShoreZone Mapper. Accessed at https://alaskafisheries.noaa.gov/mapping/sz_js/ on October 18, 2022.
- NMFS. 2022a. Essential Fish Habitat – Data Inventory. Accessed at <https://www.habitat.noaa.gov/application/efhinventory/index.html> on October 18, 2022.
- NMFS. 2021. Humpback Whale Critical Habitat Maps and GIS Data. Accessed at <https://www.fisheries.noaa.gov/resource/map/humpback-whale-critical-habitat-maps-and-gis-data> on March 26, 2021.
- NMFS. 2021a. Occurrence of Endangered Species Act (ESA) Listed Humpback Whales off Alaska. Accessed at <https://media.fisheries.noaa.gov/2021-07/occurrence-humpbacks-alaska.pdf?null#:~:text=Three%20DPSs%20of%20humpback%20whales,not%20protected%20under%20the%20ESA> on March 26, 2021.
- National Oceanic and Atmospheric Administration (NOAA). 2010. Orca Bay and Inlet, Channel Islands to Cordova. Accessed at <https://www.charts.noaa.gov/PDFs/16710.pdf> on January 17, 2023.
- Neilson, J. L., C. M. Gabriele, A. S. Jensen, K. Jackson, and J. M. Straley. 2012. Summary of reported whale-vessel collisions in Alaskan waters. Journal of Marine Sciences Volume 2012, Article ID 106282, 18 pages.

- Patton, I. 2019. Native Village of Eyak Exxon Valdez Oil Spill NOAA Harbor Protection Program Final Report Harbor Water Quality Improvement Program Exxon Valdez Oil Spill Trustee Council Project 16120112-A Final Report.
- Perkins, R. 2009. Creosote treated timber in the Alaskan marine environment. Volume I. FHWA-AK-RD-09-08. Prepared for the Alaska Department of Transportation & Public Facilities by Alaska Department of Transportation, Research, Development, and Technology Transfer.
- PND Engineers, Inc. 2016. South Harbor Conditions Assessment. Prepared for the City of Cordova.
- Prince William Sound Science Center. 2022. Personal communications between Scott Pegau and Katrina Hoffman, Prince William Sound Science Center, and Natalie Kiley-Bergen, Solstice Alaska Consulting, regarding marine mammals expected in the Cordova Area on March 21, 2022.
- Prince William Sound Science Center. 2016. Climate Change in the Gulf of Alaska. Accessed at <https://pwssc.org/nasa-usgs-glaciers/> on January 17, 2023.
- Schinella, Tony. 2022. Personal communications with Tony Schinella, Cordova Harbor Master, and Natalie Kiley-Bergen, Solstice Alaska Consulting, regarding marine mammals expected in the Cordova Area on March 21, 2022.
- State of Alaska Open Data Geoportal. 2022. Documented Eagle Nest Sites. Accessed at <https://gis.data.alaska.gov/datasets/seakgis::documented-eagle-nest-sites/about> on October 18, 2022.
- U.S. Army Corps of Engineers (USACE). 2019. Condition of Improvements: Cordova Harbor, Alaska. December 30, 2019. Accessed at <https://www.poa.usace.army.mil/Portals/34/docs/operations/RH/cordova/2019Cordova.pdf?ver=2020-04-23-170307-443> on January 17, 2023.
- USACE. 2017. Tidal Data. Accessed at <https://www.poa.usace.army.mil/Portals/34/docs/regulatory/TidalData.pdf> on January 20, 2022.
- U.S. Census Bureau. 2010. Total Population: Valdez-Cordova Census Area, Alaska (2010 Decennial Census). Accessed at <https://data.census.gov/table?g=05000000US02261&tid=DECENNIALPL2010.P1> on March 3, 2023.
- U.S. Department of Agriculture. 2015. Natural Resources Conservation Service: Prime and Important Farmlands. Accessed at https://www.nrcs.usda.gov/wps/portal/nrcs/ak/soils/surveys/NRCS142P2_035988/# on January 17, 2023.
- U.S. Department of Housing and Urban Development. 2022. Opportunity Zones Mapper. Accessed at <https://hud.maps.arcgis.com/apps/Embed/index.html?webmap=605f19bdc1594a9d99e72c478a01a8ac&extent=-127.3008,24.4482,->

62.0703,52.6438&zoom=true&scale=true&search=true&searchextent=true&disable_scroll=true&theme=light on January 22, 2023.

U.S. Fish and Wildlife Service (USFWS). 2023. Information for Planning and Consultation. Accessed at <https://ipac.ecosphere.fws.gov/> on March 3, 2023.

USFWS. 2021. National Wetlands Inventory Wetlands Mapper. Accessed at <https://www.fws.gov/wetlands/data/mapper.html> on March 26, 2021.

USFWS. 2007. National Bald Eagle Management Guidelines. May 2007. Access at https://www.aphis.usda.gov/plant_health/plant_pest_info/emt/downloads/EaglePrtctnGuidance.pdf on January 22, 2023.

U.S. Geological Survey. 2018. Interactive Quaternary Faults Map. Accessed at <https://www.usgs.gov/media/images/interactive-fault-map> on October 18, 2022.

Verna, T. 2022. Email correspondence between Danielle Verna, Prince William Sound Citizens Advisory Council, and Robin Reich, SolsticeAK, regarding invasive marine species in the Cordova Area on October 14, 2022.

Western Wood Preservers Institute (WWPI). 2021. Specifiers Guide: Best Management Practices. Accessed at <https://preservedwood.org/portals/0/documents/BMP.pdf> on January 17, 2023.

List of Appendices

Appendix A. Project Location and Site Plans

- Location and Vicinity Map
- Project Location
- USGS Map Cordova C-5 SW
- Site Plans: City of Cordova South Harbor Rebuild – Conceptual Drawings
- Site Plans: Waterfront Improvements
- Cordova Harbor Bathymetry

Appendix B. South Harbor Condition Assessment, PND Engineers, Inc.

Appendix C. Intertidal Habitat and Vegetation

Cordova Harbor Rebuild Project Observational Intertidal Survey Field Visit (Memorandum)

Appendix D. Endangered Species Consultation and Other Agency Correspondence for Protected Species

- USFWS Endangered Species List
- MMPA Consultation Letter (USFWS)
- ESA Section 7 Formal Consultation Initiation Letter (NMFS)
- ESA Consultation Letter (NMFS)
- MMPA Consultation Letter (NMFS)
- ESA Section 7 Notice of Complete Initiation Package (NMFS)
- Biological Opinion

Appendix E. Essential Fish Habitat Assessment

- NMFS EFH Consultation Response Letter
- NMFS EFH Consultation Letter
- Essential Fish Habitat Assessment

Appendix F. Wetlands Mapping

- USFWS National Wetlands Inventory: City of Cordova Harbor Wetlands
- USACE CWA Consultation Letter

Appendix G. Floodplains Mapping

- FEMA National Flood Insurance Program Flood Insurance Rate Map

Appendix H. Land Use and Zoning

- Section 408 Correspondence (USACE)

Appendix I. Hazardous Materials and Waste Management

- Letter from City of Cordova Public Works Director

Appendix J. Greenhouse Gas Emissions and Social Cost of Carbon Analysis

- Greenhouse Gas Emissions Analysis
- Greenhouse Gas Emissions Calculations
- 2022 PIDP Cost Benefit Analysis and Calculations

Appendix K. Section 106 Consultation and Concurrence

SHPO Consultation and Concurrence

Tribal Consultation

Appendix L. Environmental Justice

Total Population: Valdez-Cordova Census Area, Alaska (2010 Decennial Census; USCB)

Appendix M. Supporting Resolutions and Documents

City of Cordova Harbor Commission April 2019 Meeting and Resolution 04-19-01

City of Cordova Planning Commission Resolution 19-05

City of Cordova Council Resolutions 12-16-38 and 05-21-22

City Council Meeting Minutes, May 2019 and April 2022

Letters of Support