NOAA FISHERIES

PROPOSED ACTION:	Issuance of an Incidental Harassment Authorization to the Alaska Department of Transportation and Public Facilities for the Take of Marine Mammals Incidental to a Kodiak Ferry Terminal and Dock Improvements Project.
TYPE OF STATEMENT:	Environmental Assessment
LEAD AGENCY:	U.S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service
RESPONSIBLE OFFICIAL:	Donna S. Wieting Director Office of Protected Resources, National Marine Fisheries Service
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LOCATION:	Kodiak, Alaska
ABSTRACT:	This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service, Office of Protected Resources proposal to issue an Incidental Harassment Authorization, pursuant to Section 101(a)(5)(D) of the Marine Mammal Protection Act, to the Department of Transportation and Public Facilities for the take of small numbers of marine mammals incidental to construction activities as part of a Kodiak Ferry Terminal and Dock Improvements Project. The IHA would be valid from September 30, 2015 through September 29, 2016.
DATE:	September 2015

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
BA	Biological Assessment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
DOT&PF	Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FR	*Federal Register*
IHA	Incidental Harassment Authorization
MMPA	Marine Mammal Protection Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
OMB	Office of Management and Budget
Pier 1 project	Kodiak Ferry Terminal and Dock Improvements project
POP	persistent organic pollutant
Secretary	Secretary of Commerce
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
wDPS	western Distinct Population Segment

Chapter 1 Introduction and Purpose and Need

1.1. Description of Proposed Action

The Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S. Code [USC] 1631 *et seq.*), prohibits the incidental taking of marine mammals. The incidental take of a marine mammal falls under three categories: mortality, serious injury, or harassment, which includes injury and behavioral effects. The MMPA defines harassment as any act of pursuit, torment, or annoyance which: (1) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (2) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

There are exceptions to the MMPA's prohibition on take, such as the authority for us to authorize the incidental taking by harassment of small numbers of marine mammals upon the request of a United States citizen, provided we follow certain statutory and regulatory procedures and make determinations. We describe this exception, set forth in the MMPA at Section 101(a)(5)(D), in more detail in Section 1.2.

In response to the request from the Alaska Department of Transportation and Public Facilities (DOT&PF), we propose to issue an Incidental Harassment Authorization (Authorization) to the DOT&PF, which would allow the DOT&PF to take small numbers of marine mammals by Level B harassment as well as a very small number of Steller sea lions (*Eumetopias jubatus*) by Level A harassment, incidental to the Kodiak Ferry Terminal and Dock Improvements project (State Project Number 68938). This project, referred to as the Pier 1 project, involves reconstructing the existing ferry terminal at Pier 1 in Kodiak, Alaska. We do not have the authority to permit, authorize, or prohibit the Pier 1 project under Section 101(a)(5)(D) of the MMPA, as that authority lies with a different federal agency.

Our proposed action is a direct outcome of the DOT&PF's request for an Authorization under Section 101(a)(5)(D) of the MMPA as Pier 1 project has the potential to result in a take of marine mammals, by harassment, incidental to pile removal and installation activities associated with reconstructing the dock. The DOT&PF therefore requires an Authorization for incidental take.

Our issuance of an Authorization to the DOT&PF is a major federal action under the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations in 40 Code of Federal Regulations (CFR) §§1500-1508, and NOAA Administrative Order (NAO) 216-6. Thus, we are required to analyze the effects of our proposed action on the human environment.

This Environmental Assessment (EA), entitled "*Issuance of an Incidental Harassment Authorization to DOT&PF for the Take of Marine Mammals Incidental to a Kodiak Ferry Terminal and Dock Improvements Project*" (hereinafter, EA) addresses the potential environmental impacts of two alternatives, namely:

- Issue the Authorization to the DOT&PF for Level A and B harassment of marine mammals under the MMPA during the Pier 1 project, taking into account the prescribed means of take, mitigation measures, and monitoring required in the proposed Authorization; or

- Not issue an Authorization to the DOT&PF, in which case, for the purposes of NEPA analysis only, we assume that the activities would proceed without the mitigation and monitoring measures that would otherwise be prescribed in a proposed Authorization.

1.1.1. Background on Kodiak Pier 1 MMPA Application

The DOT&PF proposes to reconstruct a deteriorating timber dock facility at Kodiak, Alaska. In-water pile driving (including removal of old piles and installation of new piles) is the only portion of the proposed project with potential to incidentally take marine mammals, which would occur from September 30, 2015 through September 29, 2016. To comply with the MMPA, DOT&PF has submitted an IHA application to the National Marine Fisheries Service (NMFS) due to the persistent presence of marine mammals in the vicinity of the Pier 1 project.

1.1.2. Marine Mammals in the Action Area

The proposed Pier 1 project could adversely affect the following marine mammal species under NMFS jurisdiction:

- Steller sea lions (*Eumetopias jubatus*)
- Harbor seals (*Phoca vitulina*)
- Harbor porpoises (*Phocoena phocoena*)
- Killer whales (*Orcinus orca*)

1.2. Purpose and Need

The MMPA prohibits "takes" of marine mammals, with a number of specific exceptions. The applicable exception in this case is an Authorization for incidental take of marine mammals in Section 101(a)(5)(D) of the MMPA.

Section 101(a)(5)(D) of the MMPA directs the Secretary of Commerce (Secretary) to authorize, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock by United States citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if we make certain findings and provide a notice of a proposed authorization to the public for review. Entities seeking to obtain Authorization for the incidental take of marine mammals under NMFS jurisdiction must submit such a request (in the form of an application) to us.

We have issued regulations to implement the Incidental Take Authorization provisions of the MMPA (50 CFR Part 216) and have produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for authorizations. All applicants must comply with the regulations at 50 CFR §216.104 and submit applications requesting incidental take according to the provisions of the MMPA.

Purpose: The primary purpose of NMFS' proposed action—the issuance of an Authorization to DOT&PF—is to authorize (pursuant to the MMPA) the take of marine mammals incidental to the activities proposed by the DOT&PF. The Authorization, if issued, would exempt the DOT&PF from the take prohibitions contained in the MMPA.

To authorize the take of small numbers of marine mammals in accordance with Section 101(a)(5)(D) of the MMPA, we must evaluate the best available scientific information to determine whether the take would have a negligible impact on marine mammals or stocks and not have an unmitigable adverse impact on the availability of affected marine mammal species for certain subsistence uses. NMFS cannot issue an Authorization if it would result in more than a negligible impact on marine mammal species or stocks or if it would result in an unmitigable adverse impact on subsistence.

In addition, NMFS must prescribe, where applicable, the permissible methods of taking and other means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat (i.e., mitigation), paying particular attention to rookeries, mating grounds, and other areas of similar significance. If appropriate, NMFS must prescribe means of effecting the least practicable impact on the availability of the species or stocks of marine mammals for subsistence uses. Authorizations must also include requirements or conditions pertaining to the monitoring and reporting of such taking, in large part to better understand the effects of such taking on the species. NMFS published a Notice of Availability for a proposed Authorization in the *Federal Register* on August 24, 2015 (80 FR 51211) requesting public comment.

The purpose of this action is therefore to determine whether the take resulting from the Pier 1 project would have a negligible impact on affected marine mammal species or stocks, would not have an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses, and to develop mitigation and monitoring measures to reduce the potential impacts.

Need: On March 31, 2015 the DOT&PF submitted an application demonstrating both the need and potential eligibility for issuance of an Authorization in connection with the activities described in Section 1.1.1. The application was deemed to be adequate and complete on July 17, 2015. NMFS now has a corresponding duty to determine whether and how we can authorize take by Level A and Level B harassment incidental to the activities described in the DOT&PF application. Our responsibilities under Section 101(a)(5)(D) of the MMPA and its implementing regulations establish and frame the proposed action and its alternatives.

Our described purpose and need guide us in developing reasonable alternatives for consideration, including alternative means of mitigating potential adverse effects. Thus, we are developing and analyzing alternative means of developing and issuing an Authorization, which may require the applicant to include additional mitigation and monitoring measures for us to make our determinations under the MMPA.

1.3. The Environmental Review Process

NEPA compliance is necessary for all "major" federal actions with the potential to significantly affect the quality of the human environment. Major federal actions include activities fully or partially funded, regulated, conducted, authorized, or approved by a federal agency. Because our issuance of an Authorization would allow for the taking of marine mammals consistent with provisions under the MMPA and incidental to the applicant's activities, we consider this as a major federal action subject to NEPA.

Under the requirements of NAO 216-6 Section 6.03(f)(2)(b) for incidental harassment authorizations, we prepared this EA to determine whether the direct, indirect, and cumulative impacts related to the issuance of an Authorization for incidental take of marine mammals during the conduct of the Pier 1 project could

be significant. If we deem the potential impacts to be not significant, this analysis, in combination with other analyses incorporated by reference, may support the issuance of a Finding of No Significant Impact for the proposed Authorization.

1.3.1. Laws, Regulations, or Other NEPA Analyses Influencing the EA's Scope

We have based the scope of the proposed action and nature of the alternatives considered in this EA on the relevant requirements in Section 101(a)(5)(D) of the MMPA. Thus, our authority under the MMPA bounds the scope of our alternatives. We conclude that the analysis contained herein—when combined with the analyses in the documents listed below—fully describes the impacts associated with the proposed project with mitigation and monitoring for marine mammals. After conducting an independent review of the information and analyses for sufficiency and adequacy, we incorporate by reference the relevant analyses on DOT&PF's proposed action as well as a discussion of the affected environment and environmental consequences from the following documents per 40 CFR §1502.21 and NAO 216-6 §5.09(d):

- Our notice of the proposed Authorization in the *Federal Register* (80 FR 51211, August 24, 2015);
- *Application for Marine Mammal Protection Act Incidental Harassment Authorization for Kodiak Ferry Terminal and Dock Improvements Project*
- *Endangered Species Act Section 7 Biological Assessment for Listed Species and Critical Habitats under the Jurisdiction of the National Marine Fisheries Service for Kodiak Ferry Terminal and Dock Improvements Project*

1.3.2. MMPA Application and Notice of the Proposed Authorization

The CEQ regulations (40 CFR §1502.25) encourage federal agencies to integrate NEPA's environmental review process with other environmental reviews. We rely substantially on the public process for developing proposed Authorizations and evaluating relevant environmental information and provide a meaningful opportunity for public participation as we develop corresponding EAs. We fully consider public comments received in response to our publication of the notice of proposed Authorization during the corresponding NEPA process.

On August 24, 2015, we published a notice of proposed Authorization in the *Federal Register* (80 FR 51211), which included the following:

- A detailed description of the proposed action and an assessment of the potential impacts on marine mammals;
- Plans for the DOT&PF's mitigation and monitoring measures to avoid and minimize potential adverse impacts to marine mammals and their habitat as well as proposed reporting requirements; and
- Our preliminary findings under the MMPA.

We considered the DOT&PF's proposed mitigation and monitoring measures and preliminarily determined that they would effect the least practicable impact on marine mammals. These measures include: (1) visual monitoring for marine mammals and implementation of shutdown zones; (2) use of

soft starts or ramp up procedures; and (3) the use of pile caps as sound attenuation measures for all impact pile driving activities; and (4) implementation of measures to reduce the number of Steller sea lions in the immediate project area. Through the MMPA process, we preliminarily determined – provided that the DOT&PF implements the required mitigation and monitoring measures – that the impact on marine mammals from the proposed project would result, at worst, in a temporary modification in behavior of small numbers of certain species of marine mammals that may be present in the vicinity of the proposed activity, resulting in a negligible impact on the affected species or stocks. Additionally, there may be a small number of Steller sea lions exposed to Level A injury threshold which may include permanent threshold shift. However, it is thought that some of these sea lions are hearing impaired or deaf due to exposure to seal bombs used by local fisherman to deter these animals from stealing fish from nearby fish processing plant unloading dock. If it is observed that some sea lions found within the Level A harassment zone do not respond to mitigation efforts, these animals may have previously suffered injury in the form of PTS. Therefore, any additional auditory injury associated with the Pier 1 project would be unlikely.

The *Federal Register* notice on the proposed activity requested that the public submit comments, information, and suggestions concerning the DOT&PF's request, the content of our proposed IHA, and potential environmental effects related to the proposed issuance of the Authorization. This EA incorporates by reference, and relies on, the DOT&PF's IHA application (HDR 2015) and our notice of a proposed Authorization (80 FR 51211, August 24, 2015) to avoid duplication of analysis and unnecessary length.

In summary, those analyses support our conclusion that the issuance of an Authorization to the DOT&PF for the Pier 1 project would not result in any direct, indirect, or cumulative significant impacts. Further, the incorporation of monitoring and mitigation measures proposed by the DOT&PF would reduce the effects of the specified activities to the level of least practicable impact. Finally, the analyses support our conclusion that no additive or cumulative effects of the project on its own or in combination with other activities would occur.

1.3.3. Scope of Environmental Analysis

Given the limited scope of the decision for which we are responsible (i.e., whether to issue an Authorization, including prescribed means of take, mitigation measures, and monitoring requirements), this EA provides more focused information on the primary issues and impacts of environmental concern related specifically to our issuance of the Authorization. This EA does not further evaluate effects to the elements of the human environment listed in Table 1 because previous environmental reviews for similar projects have shown that the Pier 1 project would not significantly affect those components of the human environment. Moreover, those analyses are consistent with our analyses regarding non-significant impacts to marine mammals.

Table 1. Components of the human environment not affected by our issuance of an Authorization.

Biological	Physical	Socioeconomic / Cultural
Amphibians	Air Quality	Commercial Fishing
Humans	Essential Fish Habitat	Military Activities
Non-Indigenous Species	Geography	Oil and Gas Activities

Biological	Physical	Socioeconomic / Cultural
Seabirds	Land Use	Recreational Fishing
	Oceanography	Shipping and Boating
	State Marine Protected Areas	National Historic Preservation Sites
	Federal Marine Protected Areas	National Trails and Nationwide Inventory of Rivers
	National Estuarine Research Reserves	Low Income Populations
	National Marine Sanctuaries	Minority Populations
	Park Land	Indigenous Cultural Resources
	Prime Farmlands	Public Health and Safety
	Wetlands	Historic and Cultural Resources
	Wild and Scenic Rivers	
	Ecologically Critical Areas	

1.3.4. NEPA Public Involvement Summary

NAO 216-6 established agency procedures for complying with NEPA and CEQ's implementing regulations. Consistent with the intent of NEPA and the clear direction in NAO 216-6 to involve the public in NEPA decision-making, we requested comments on the potential environmental impacts described in the DOT&PF's MMPA application and in the *Federal Register* notice of the proposed Authorization. The CEQ regulations further encourage agencies to integrate the NEPA review process with review under the environmental statutes. Consistent with agency practice we integrated our NEPA review and preparation of this EA with the public process required by the MMPA for the proposed issuance of an Authorization.

The *Federal Register* notice of the proposed Authorization, combined with our preliminary determinations, supporting analyses, and corresponding public comment period are instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments to us for consideration in both the MMPA and NEPA decision-making processes.

The *Federal Register* notice of the proposed Authorization summarized our proposed action and the anticipated effects on the affected marine mammal species or stocks; stated that we would prepare an EA for the proposed action; and invited interested parties to submit written comments concerning the application as well as our preliminary analyses and findings, including those relevant to consideration in the EA. The notice of the proposed Authorization was available for public review and comment from August 24, 2015 through September 23, 2015.

1.3.5. Relevant Comments on Our *Federal Register* Notice

NMFS received one public comment letter from the Marine Mammal Commission (Commission). The Commission did not agree with NMFS' use of transmission loss values based on 18logR for vibratory pile

driving and 17logR for impact pile driving and recommended the use of the standard practical transmission loss factor of 15log R. The Commission does not endorse the use of in-situ transmission loss values from one location as a proxy for other locales. NMFS agrees with the Commission that the use of the standard practical transmission value is more appropriate given the range of characteristics that are unique to each distinct project site. As such, NMFS has recalculated the Level A and Level B thresholds using the recommended practical spreading loss model.

The Commission did not support NMFS' use of a Level B harassment threshold of 125 dB based on ambient conditions as opposed to the standard 120 dB threshold that is typically used vibratory driving. The Commission also noted that the ambient measurements used to justify the 125 dB threshold did not conform to the typical method used by NMFS to establish ambient sound levels. The applicant supplied NMFS with ambient noise data gathered earlier in 2015 from a location that is in close proximity to Pier 1. NMFS understood that the protocols used in the study data supplied by the applicant were not uniform with those typically used by NMFS. However, the study conducted in February and March 2015 documented ambient underwater noise levels varying from 125.3 to 138.5dBrms. The ambient levels reported during impact driving were the lowest of all methods tested, and the lowest of all reported ambient levels was 125.3dBrms. The study site is approximately 1 mile west of Pier 1, and is characterized by substantially more open water compared to the more confined, narrow channel conditions at Pier 1. The Pier 1 location features a higher density of marine traffic and likely exhibits even higher ambient conditions. NMFS conservatively applied 125dBrms as ambient at Pier 1 based on the lowest recorded ambient measurements recently measured at the study site.

1.4. Other Permits, Licenses, or Consultation Requirements

This section summarizes federal, state, and local permits, licenses, approvals, and consultation requirements necessary to implement the proposed action.

1.4.1. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and implementing regulations at 50 CFR §402 require consultation with the appropriate federal agency (either NMFS or the U.S. Fish and Wildlife Service) for federal actions that "may affect" a listed species or critical habitat. NMFS' issuance of an Authorization affecting ESA-listed species or designated critical habitat, directly or indirectly, is a federal action subject to these Section 7 consultation requirements. Accordingly, NMFS is required to ensure that its action is not likely to jeopardize the continued existence of any threatened or endangered species, or result in destruction or adverse modification of critical habitat for such species.

There is one marine mammal under NMFS' jurisdiction that is listed as endangered under the ESA with confirmed occurrence in the proposed project area—the western Distinct Population Segment (wDPS) of Steller sea lions. Steller sea lion critical habitat is associated with breeding and haulout areas in Alaska, California, and Oregon (NMFS 1993). The project area occurs within critical habitat for two major haul-outs: Long Island and Cape Chiniak.

The DOT&PF transmitted a Biological Assessment (BA) to NMFS in June 2015. NMFS' response to the BA was a Biological Opinion issued on July 31, 2015. After reviewing the current status of the wDPS Steller sea lion, the environmental baseline within the action area, the effects of the proposed action, and cumulative effects, NMFS' Biological Opinion concluded DOT&PFs proposed action is not likely to jeopardize the continued existence of the endangered western Steller sea lion wDPS. Subsequently, the analysis provided in NMFS Biological Opinion further supports the

determination that issuance of an Authorization for incidental take is not likely to jeopardize the continued existence of the endangered western Steller sea lion wDPS.

Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), federal agencies are required to consult with the Secretary regarding any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect essential fish habitat (EFH) identified under the MSFCMA. Essential Fish Habitat (EFH) has been designated within the project area for the Alaska stocks of Pacific salmon, walleye pollock, Pacific cod, yellowfin sole (*Limanda aspera*), arrowtooth flounder (*Atheresthes stomias*), rock sole (*Lepidopsetta* spp.), flathead sole (*Hippoglossoides elassodon*), sculpins (Cottidae), skates (Rajidae), and squid (Teuthoidea). The DOT&PF initiated informal EFH consultation with NMFS on April 30, 2013. NMFS determined that the project, as proposed, would not adversely affect EFH, and determined no further consultation was required (NMFS 2013).

Effects on EFH by the project and issuance of the Authorization assessed here would be temporary and minor. The main effect would be short-term disturbance that might lead to temporary and localized relocation of the EFH species or their food. The actual physical and chemical properties of the EFH will not be impacted. Therefore, NMFS, Office of Protected Resources, Permits and Conservation Division has determined that the issuance of an Authorization for the taking of marine mammals incidental to the project will not have an adverse impact on EFH, and an EFH consultation is not required. The findings of the informal EFH consultation support the determination that issuance of an Authorization for incidental take is not likely to impact EFH.

Chapter 2 Alternatives

2.1. Introduction

NEPA and CEQ's implementing regulations (40 CFR §§1500-1508) require consideration of alternatives to proposed major federal actions, and NAO 216-6 provides agency policy and guidance on the consideration of alternatives to our proposed action. An EA must consider reasonable alternatives, including Alternative 1 (Preferred Alternative). It must also consider the No Action Alternative, even if that alternative does not meet the stated purpose and need. This provides a baseline analysis against which we can compare the other alternatives.

To warrant detailed evaluation as a reasonable alternative, an alternative must meet our purpose and need. In this case, as we explained in Chapter 1 of this EA, an alternative only meets the purpose and need if it satisfies the requirements under Section 101(a)(5)(D) of the MMPA. We evaluated each potential alternative against these criteria; identified one action alternative along with the No Action Alternative; and carried these forward for evaluation in this EA.

Alternative 1 includes mitigation measures intended to minimize potentially adverse interactions with marine mammals. This chapter describes the alternatives and compares them in terms of their environmental impacts and their achievement of objectives.

As described in Section 1.2, the MMPA requires that we prescribe the "means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat." To do that, we must consider the DOT&PF's proposed mitigation measures, as well as other potential measures, and assess how such measures could benefit the affected species or stocks and their habitat. Our evaluation of potential measures includes consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, we expect the successful implementation of the measure to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

2.2. Description of DOT&PF's Proposed Activities

We presented a general overview of the Pier 1 project in our *Federal Register* notice of proposed Authorization (80 FR 5121, August 24, 2015). We incorporate those descriptions and those found in the DOT&PF's request for incidental take authorization by reference in this EA and briefly summarize them here.

2.2.1. Specified Time and Specified Area

The Kodiak Ferry Terminal at Pier 1 is located in the City of Kodiak, Alaska, on the east side of Kodiak Island, in the Gulf of Alaska (Figure 1). Pier 1 is an active ferry terminal and multi-use dock located in Near Island Channel, which separates downtown Kodiak from Near Island. The channel is approximately 200 meters (656 feet) wide in the project area. Pier 1 is situated between a marine fuel service floating dock to the northeast (Petro Marine Services) and a pile-supported dock owned by a shore-based seafood processor approximately 15 meters (50 feet) to the southwest.

The proposed Pier 1 project would require an estimated 120 days total of pile extraction and installation, including 80 days of vibratory extraction and installation, 60 days of down-hole drilling, and 22 days of

impact hammering. Note that these estimates are the number of days when each activity may occur at some point during the day, and that the number of days is not additive. Approximately 60 hours of

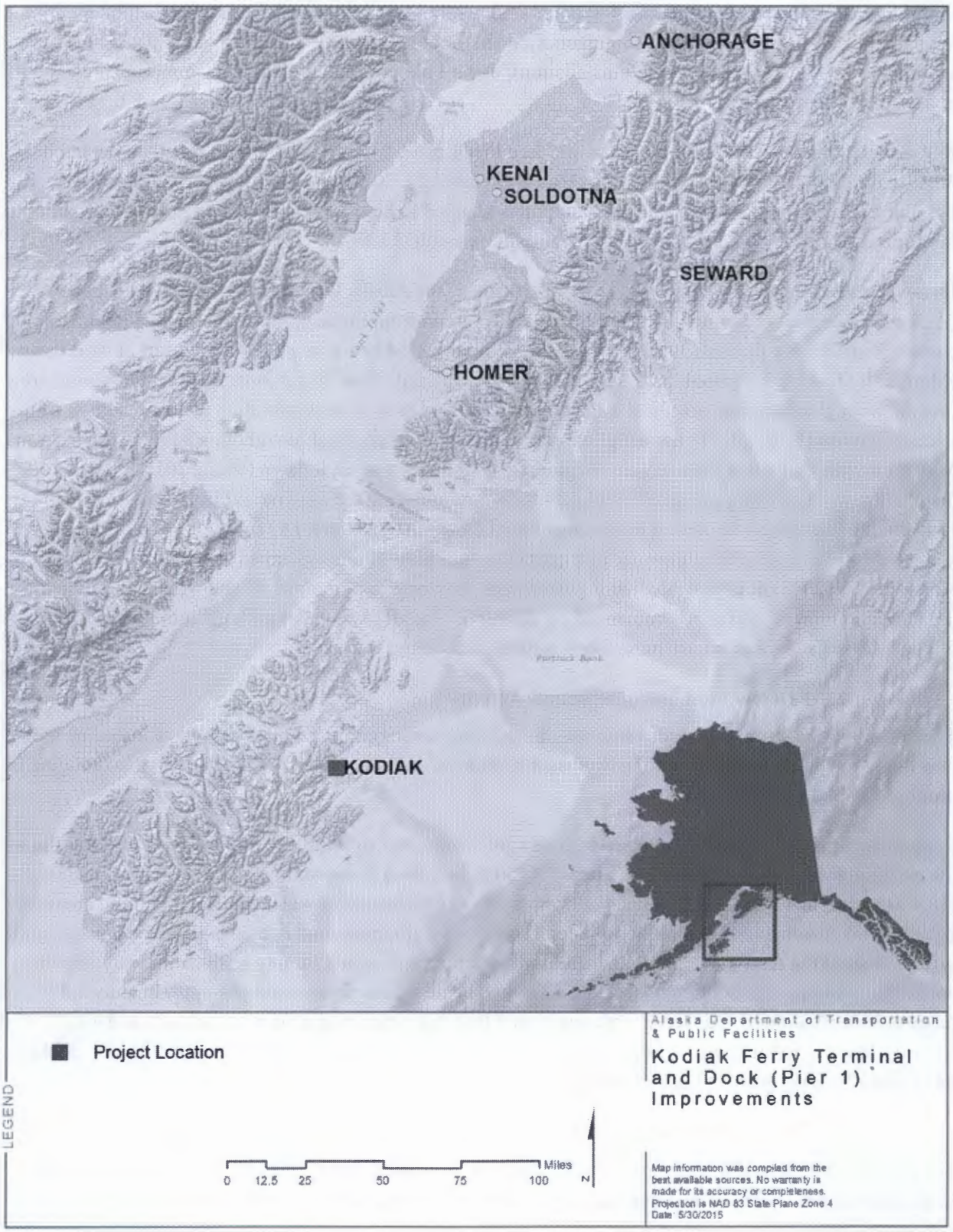

Figure 1. Site location and vicinity

vibratory pile driving and extraction, 440 hours of down-hole drilling, and 2 hours of impact hammering are anticipated. With a 25 percent contingency added to these time estimates, total anticipated hours of vibratory pile driving (extraction and installation), down-hole drilling, and impact hammering are 75, 550, and 2 hours, respectively.

Pile installation and extraction associated with the Pier 1 project would begin no sooner than September 30, 2015 and would be completed no later than September 29, 2016 (1 year following IHA issuance). If possible, in-water pile extraction and installation is planned to be completed by April 30, 2016, in order to minimize impacts to pink salmon fry and coho salmon smolt (FHWA 2013).

If in-water work cannot be completed by April 30, 2016, the Alaska Department of Fish and Game (ADF&G) recently recommended that the DOT&PF refrain from impact pile installation without a bubble curtain from 01 May through 30 June within the 12-hour period beginning daily at the start of civil dawn (Marie 2015). ADF&G stated that this is the daily time period when the majority of juvenile salmon are moving through the project area, and a 12-hour quiet period may protect migrating juvenile salmon from excessive noise (Frost 2015). Impact pile installation would be acceptable without a bubble curtain from May 1 through June 30 in the evenings, beginning at 12 hours past civil dawn (Marie 2015). Impact pile installation would also be acceptable with a bubble curtain during the time period from May 1through June 30 during the 12-hour period beginning at civil dawn. At this time, DOT&PF does not propose using bubble curtains. While in-water pile extraction and installation is planned to be completed by 30 April (FHWA 2013), it is possible that in-water work may extend past April 30 and would comply with the mitigation for salmon as recommended by ADF&G. This IHA requests authorization for up to 1 year of construction activities in case unforeseen construction delays occur.

2.2.2. Description of Construction Activities

The construction activities include removing the existing timber dock and piles as well as installing the new dock, including mooring and fender systems, utilities, and other dock appurtenances. No dredging is proposed as part of this project.

Reconstruction of the existing facilities with new pile-supported structures would increase the footprint of the existing dock from 1,128 square meters (12,150 square feet) to approximately 1,709 square meters (18,400 square feet), and this expanded dock area would provide additional staging and parking areas for vehicles and passengers to comply with federal security requirements and reduce existing congestion and safety issues at the ferry terminal. The increased dock footprint would largely result from widening the north side, where vehicles drive to access the ferry. The new dock face would be approximately 8.5 meters (28 feet) longer. A covered walkway would be constructed along the west side of the dock. Security fencing, lighting, and a new fire protection and potable water line would supply the new dock, including a hydrant near the head of the dock.

2.2.2.1. Removal of Old Piles

The existing dock consists of approximately 196 creosote-treated timber piles and 14, 16-inch-diameter, steel, fender piles. All existing piles, decking, and other dock materials would be removed. It is anticipated that when possible, existing piles would be extracted by directly lifting them with a crane. A vibratory hammer would be used if necessary to extract piles that cannot be directly lifted, which has been estimated to require 5 minutes of vibratory hammer use per pile. If the piles break below the waterline, the pile stubs would be removed with a clamshell bucket.

2.2.2.2. Installation of New Piles

The exact means and method for pile installation would be determined by the contractor; however, a few options are available within a general framework.

The new terminal and dock would be supported by approximately 88 permanent, 24-inch-diameter, steel piles. These piles would be driven 10 to 30 feet through the sediment layer and 15 feet into the bedrock. Dock fenders would be supported by 10, 18-inch-diameter, steel piles. In addition, eight, 16-inch-diameter, timber piles, which are somewhat variable in size from approximately 16 inches at the butt (top) to approximately 12 inches at the tip (bottom), would be installed as fender piles along the north side of the dock. The fender piles would be driven with a vibratory hammer to approximately 22 feet embedment, or to refusal.

Temporary steel pipe or H-piles will be installed as part of a template to ensure proper placement and alignment during driving of the permanent steel piles. Temporary piles will be driven with a vibratory hammer 10-30 feet through the overburden sediment layer but are not expected to penetrate into the bedrock. A vibratory hammer will be used to remove the temporary piles, which will then be reinstalled at a new location. Individual temporary piles will be driven and removed an estimated 88 times. It is estimated that it will take 10 minutes of vibratory pile driving per temporary pile for installation and 5 minutes each for extraction, for a total of 15 minutes of vibratory pile driving per temporary pile. For 88 temporary piles, this is an estimated 22 hours of total time using active vibratory equipment.

The sequence for installing the permanent, 24-inch piles begins with insertion through overlying sediment with a vibratory hammer for approximately 10 minutes per pile. Next, the pile will be installed in the underlying layered and fractured bedrock using a down-hole drill/hammer. A down-hole hammer is a drill bit that drills through the sediment and a pulse mechanism that functions at the bottom of the hole, using a pulsing bit to break up the harder materials or rock to allow removal of the fragments and insertion of the pile. The head extends so that the drilling takes place below the pile and advances the pile during drilling. Drill cuttings are expelled from the top of the pile as dust or mud. It is estimated that drilling would take approximately 5 hours per pile. Then, about two to five blows of an impact hammer would be used to confirm that piles are set into bedrock (proofed), resulting in less than 1 minute of impact hammering per pile. When the impact hammer is employed for proofing, a pile cap or cushion would be placed between the impact hammer and the pile.

All permanent, 18-inch, steel piles and timber piles would be driven into the marine sediment using a vibratory hammer. It is anticipated to take approximately 10 minutes of vibratory driving to install each permanent, 18-inch, steel and timber pile.

2.3. Description of Alternatives

2.3.1. Alternative 1 – Issuance of an Authorization with Mitigation Measures

The Proposed Action constitutes Alternative 1 and is the Preferred Alternative. Under this alternative, we would issue an Authorization (valid from September 30, 2015 through September 29, 2016) to DOT&PF allowing the incidental take of Steller sea lions by Level A harassment and incidental take of four species of marine mammals by Level B harassment, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the proposed Authorization, if issued.

Our *Federal Register* notice requesting comments on the proposed Authorization analyzed the potential impacts of this alternative in detail. We incorporate those analyses by reference in this EA and briefly summarize the mitigation and monitoring measures and reporting requirements that we would incorporate in the final Authorization, if issued, in the following sections.

Mitigation, Monitoring, and Reporting Measures

To reduce the potential for disturbance associated with project activities, the DOT&PF proposes to employ a number of mitigation measures to minimize the number of marine mammals potentially affected. NMFS has proposed some additional measures. The proposed monitoring and mitigation measures are described below.

The waters in the harassment zones will be scanned for 30 minutes before, during and 30 minutes after any and all pile driving and removal activities

All Construction Activities

All construction would be performed in accordance with the following *Environmental Commitments and Mitigation Measures* previously committed to during ESA Section 7 consultation from 2015 and Clean Water Act/Rivers and Harbors Act permitting processes conducted in 2013:

(1) All exposed project slopes and fills that are susceptible to erosion would be stabilized in accordance with the project-specific Water Quality Control Plan.
(2) If undocumented cultural, archaeological, or historical sites are discovered during project construction, any work that might impact these sites would be stopped and the State Historic Preservation Officer would be contacted.
(3) If contaminated or hazardous materials are encountered during construction, all work in the vicinity of the contaminated site would be stopped until the Alaska Department of Environmental Conservation (ADEC) is contacted, and a corrective action plan is approved by ADEC and implemented.
(4) Advance public notice of construction activities would be provided to reduce construction impacts on local residents, ferry travelers, adjacent businesses, and other users of Pier 1.
(5) The contractor would provide and maintain a spill clean-up kit on-site at all times.
(6) The contractor would prepare specific Best Management Practices that would be used to maintain water quality.
(7) Work in waters of the United States would be conducted in accordance with the terms and conditions of the USACE permit obtained for the project and any subsequent modifications to this authorization (Permit File Number POA-2012-769).
(8) Fill material would consist of rock fill and riprap that is free of fine sediments to the extent practical, to reduce suspended materials from entering the water column during tidal cycles. Fill material would also be free of invasive marine and terrestrial vegetation species.
(9) To minimize impacts to pink salmon (*Oncorhynchus gorbuscha*) fry and coho salmon *(O. kisutch)* smolt, work would be conducted in accordance with ADF&G recommendations. ADF&G recommended that the Contractor will refrain from impact pile installation without a bubble curtain from 01 May through 30 June within the 12-hour period beginning daily at the start of civil dawn (Marie 2015). ADF&G stated that this is the daily time period when the majority of juvenile salmon are moving through the project area, and a 12-hour quiet period may protect migrating juvenile salmon from excessive noise (Frost 2015). Impact pile installation would be acceptable with a bubble

curtain during the time period from 01 May through 30 June during the 12-hour period beginning at civil dawn. Impact pile installation would also be acceptable, without a bubble curtain, from 01 May through 30 June in the evenings, beginning at 12 hours past civil dawn (Marie 2015).

Pile Removal and Installation

DOT&PF estimates that noise pressure levels from the project would potentially result in up to 30 exposures of Steller sea lions to Level A harassment noise levels, with the remaining exposures of Steller sea lions, harbor seals, harbor porpoises, and killer whales limited to Level B harassment. Pile removal and installation mitigation measures include:

(1) Direct pull would be used to remove piles to minimize noise levels as much as possible. The vibratory hammer would be used only when needed.

(2) The preliminary project design included over 160 permanent piles, and was later revised to significantly reduce the number of piles required.

(3) The project was designed with relatively small diameter piles, which would avoid the elevated noise impacts associated with larger piles.

(4) The vibratory hammer and down-hole drilling methods would be used to install piles. The impact hammer would be used only to ensure the piles are secure in bedrock.

(5) Pile caps would be used during all impact pile driving activities.

(6) Establishment of Level B Harassment (ZOI). Before the commencement of in-water pile driving activities, the DOT&PF shall establish Level B behavioral harassment ZOI where received underwater sound pressure levels (SPLs) are higher than 120 dB (rms) re 1 μPa for and non-pulse sources (vibratory hammer). The ZOI delineates where Level B harassment would occur. For vibratory driving, the level B harassment area extends out to 1,150. Any animals listed in 1.1.2 that enter into the 1,150-meter distance will be recorded as takes and operations will be allowed to continue. During impact driving, the Level B harassment zone shall extend to 225 meters these same animals. This 225-meter distance will also serve as a Level B take zone for all other marine mammals in addition to those identified in 1.1.2.

(7) Establishment of shutdown zone. For impact pile driving activities, the DOT&PF's will establish a shutdown zone. Shutdown zones are intended to contain the area in which SPLs equal or exceed the 180/190 dB rms acoustic injury criteria, with the purpose being to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus preventing injury of marine mammals. A conservative 4-meter shutdown zone will be in effect for Steller sea lions and harbor seals. The shutdown zone for Level A injury to harbor porpoises and killer whales would be 15 meters.

(8) Before driving efforts occur, the contractor would employ soft start or ramp up procedures to minimize impacts. These procedures would be used at the beginning of each pile installation to allow any marine mammal that may be in the immediate area to leave before pile driving continues. Procedures would follow these general guidelines:

- The soft start would require pile-driving operators to initiate noise from vibratory hammers for 15 seconds, followed by a 1-minute waiting period. The procedure would be repeated two additional times.
- For impact driving, operators would be required to provide an initial set of two to three strikes from the impact hammer, followed by a 30-second waiting period, then two subsequent strike sets.

(9) Monitoring shall be conducted by qualified Wildlife Observers, as described in the IHA Application, beginning 30 minutes prior to start of pile installation/removal activities. Trained or experienced observers shall have no other construction-related tasks while conducting monitoring and shall be placed in the best vantage point(s) practicable to monitor for marine mammals and implement shutdown or delay procedures when applicable through communication with the equipment operator (Figure 2 and Figure 3). NMFS will be provided with a report of all marine mammal sightings during the project.

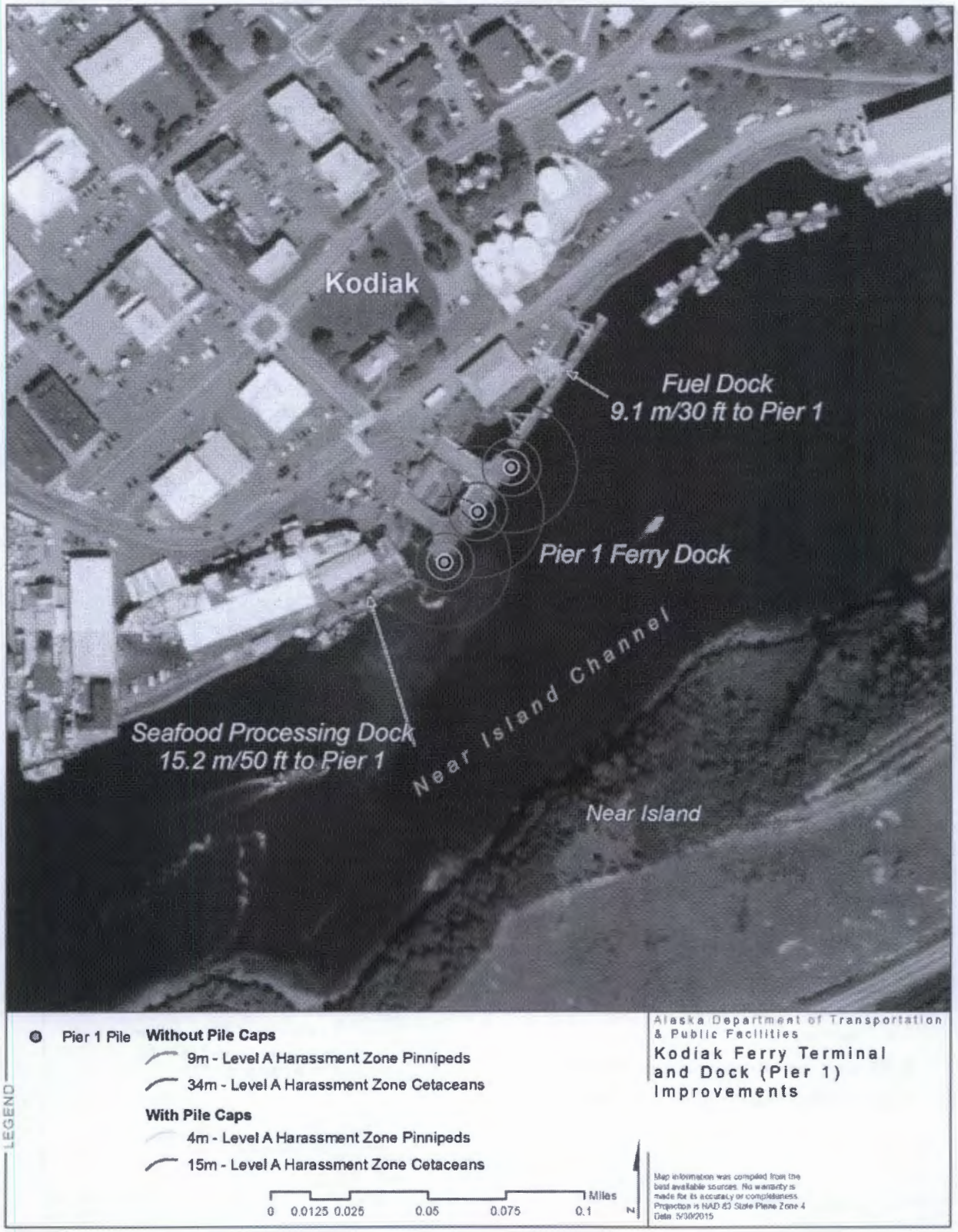

Figure 2. Distances to the underwater sound isopleths for Level A harassment for impact pile driving for cetaceans and pinnipeds

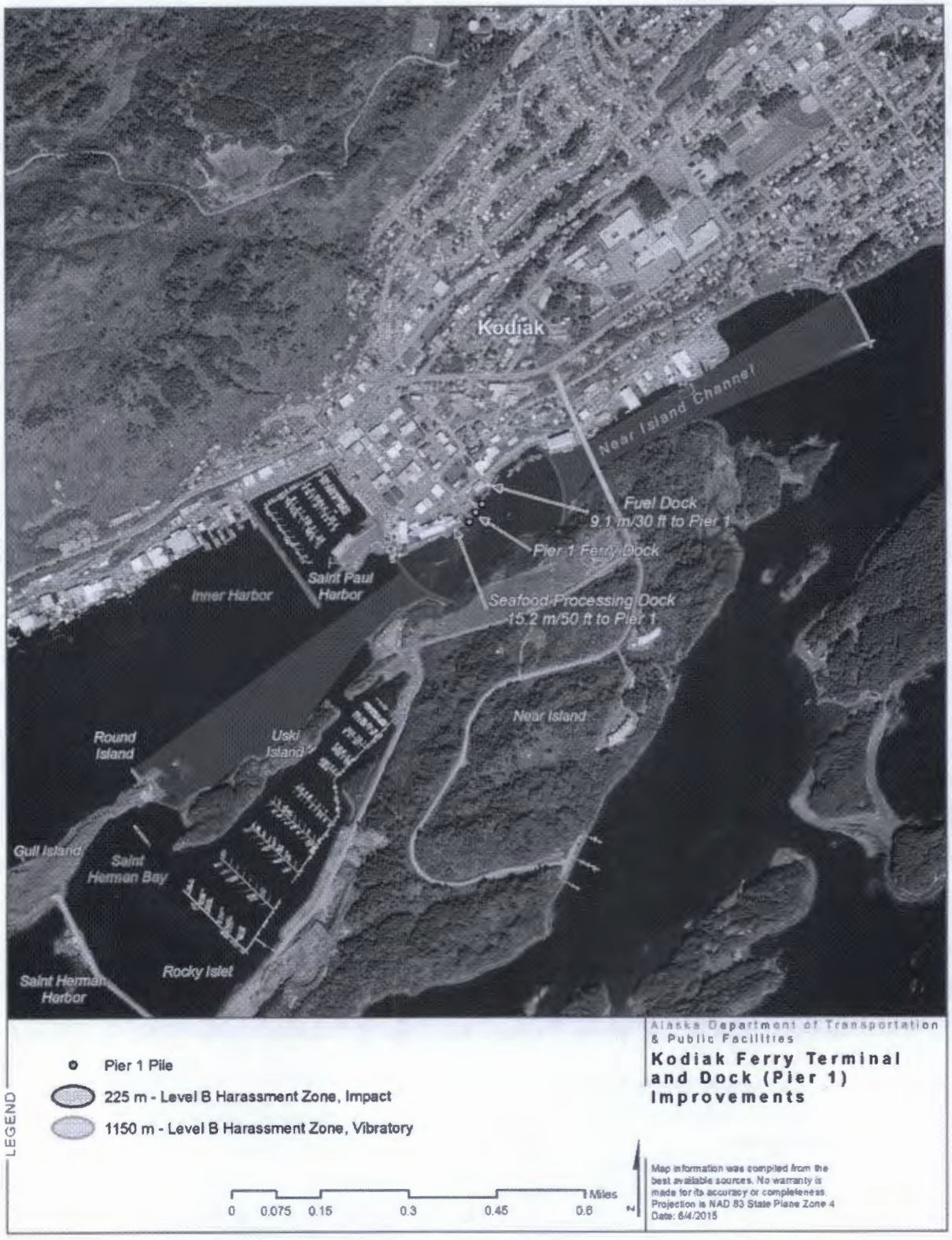

Figure 3. Distances to the underwater 125 dB rms (vibratory noise, rounded to 1,150 meters) and 160 dB rms (impact noise) Level B isopleths.

Note that the distance to the underwater 160 dB rms down-hole drilling Level B isopleth is 3 meters and is not depicted in this figure due to scale and clarity. Harassment zones are based on vectors radiating from the sound source where landforms and solid dock structures do not block sound and are illustrated accordingly.

Other Potential Mitigation Measures

Site visits to the Pier 1 area and discussions with local stakeholders have resulted in development of the following potential mitigation measures proposed by the DOT&PF related to operations at the adjacent seafood processing plant.

- Currently, vessels making deliveries to the adjacent seafood processing plant tie up at the dock on their starboard sides, with their sterns to the northeast towards the Pier 1 dock. If delivering vessels were able to tie up on their port sides, with their sterns towards the southwest, away from Pier 1, the distance between the area of attraction for sea lions (the stern, where fish may be available) and Pier 1 would be reduced by the length of the vessel (up to 100 feet or more). Therefore, port-side dockings would effectively minimize the presence of Steller sea lions in proximity to Pier 1 during off-loading of fish at the dock, particularly in relation to the impact pile-driving injury threshold (Level A) zone.

  Initial discussions with staff at the seafood processing facility indicated that reversing the typical docking orientation of delivering vessels may be an option, for some vessels, during the short periods of time when impact pile driving is planned (Lumsden 2015).

- At certain busy times during the year, multiple vessels may wait in line for their turn to make fish deliveries to the dock. Often, the vessels "raft up" out from the dock by tying up to one another, port to starboard, into the channel. This additional activity and the presence of multiple sources of food can increase the number of Steller sea lions attracted to the processing plant and the Pier 1 area. If alternative dock space were available in another place, such as at Pier 2 or Oscar's Dock in St. Paul Harbor (both City of Kodiak-owned facilities), vessel captains may choose to tie up in a less-congested area, reducing the attraction of Steller sea lions to the seafood processing dock and Pier 1.

Reporting

DOT&PF is required to submit a draft monitoring report to the NMFS Office of Protected Resources within 90 days after the conclusion of activities. A final report would be prepared and submitted within 30 days following resolution of any comments on the draft report from NMFS. A description of the activities conducted by the DOT&PF and the monitoring protocols would be included in the report.

In our *Federal Register* notice of proposed Authorization, which we incorporate by reference, we preliminarily determined that the measures included in the proposed Authorization were sufficient to reduce the effects of the DOT&PF's activity on marine mammals to the level of least practicable impact. In addition, we described our analysis of impacts and preliminarily determined that the taking of small numbers of marine mammals, incidental to the DOT&PF's project, would have a negligible impact on the relevant species or stocks and would not have an unmitigable adverse impact on affected species or stocks for taking for subsistence uses.

We have neither altered the mitigation, monitoring, and reporting requirements to be included in the final Authorization nor have we received any information that would cause us to change our preliminary determinations under the MMPA. Accordingly, this Preferred Alternative would satisfy the purpose and need of our proposed action under the MMPA–issuance of an Authorization, along with required

mitigation measures and monitoring that meets the standards set forth in Section 101(a)(5)(D) of the MMPA and the implementing regulations.

2.3.2. Alternative 2 – No Action Alternative

We are required to evaluate the No Action Alternative per NEPA and CEQ implementing regulations. The No Action Alternative serves as a baseline to compare the impacts of the Preferred and other Alternatives. Under the No Action alternative, we would not issue an Authorization to the DOT&PF for the proposed Pier 1 project.

Under the No Action Alternative, the DOT&PF could choose not to proceed with their proposed activities or to proceed without an Authorization. If they choose the latter, the DOT&PF would not be exempt from the MMPA prohibitions against the take of marine mammals and would be in violation of the MMPA if take of marine mammals occurs.

For purposes of this EA, we characterize the No Action Alternative as DOT&PF not receiving an Authorization and conducting the Pier 1 project without the protective measures and reporting requirements required by an Authorization under the MMPA. We take this approach to meaningfully evaluate the primary environmental issues—the impact on marine mammal species or stocks from these activities in the absence of protective measures.

Chapter 3 Affected Environment

This chapter describes existing conditions in the proposed action areas. Complete descriptions of the physical, biological, and social environment of the action area are contained in the documents listed in Section 1.3.1 of this EA. We incorporate those descriptions by reference and briefly summarize and supplement the relevant sections for marine mammals in the following sections.

3.1. Physical Environment

We are required to consider impacts to the physical environment under NAO 216-6. As discussed in Chapter 1, our proposed action and alternatives relate only to the authorization of incidental take of marine mammals and not to the physical environment. Certain aspects of the physical environment are not relevant to our proposed action (Section 1.3.3, Scope of Environmental Analysis). Based on the requirements of NAO 216-6, we briefly summarize the physical components of the environment here.

3.1.1. Marine Mammal Habitat

We presented information on marine mammal habitat and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed Authorization. In summary, the Steller sea lion is the only ESA-listed marine mammal with critical habitat in the project area. Harbor seals, harbor porpoises, and killer whales are infrequent visitors to the project area but might feed in the area. The project area occurs within critical habitat for two major Steller sea lion haulouts, located at Long Island and Cape Chiniak. The Long Island haulout is located approximately 4 nautical miles (7.4 kilometers) east of the project site. The Cape Chiniak haulout is located approximately 12 nautical miles (22.2 kilometers) east of the project site. The closest rookery is on the southeast corner of Marmot Island, which is approximately 30 nautical miles (55.6 kilometers) from the project area. The critical habitat surrounding the rookery at Marmot Island does not overlap with the project area. Additionally, Steller sea lions haul out on a man-made float in St. Herman Harbor approximately 0.8 nautical miles (1.3 kilometer) west of the project area. This is not a federally recognized haulout used to define critical habitat.

3.1.2. Ambient Sound

We presented information on ambient sound and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed Authorization.

The Pier 1 project area is frequented by fishing vessels and tenders; the M/V *Tustumena* and other ferries, barges, tugboats; and other commercial and recreational vessels that use the channel to access harbors and city docks, fuel docks, processing plants where fish catches are offloaded, and other commercial facilities. At the adjacent seafood processing plant, fish are offloaded by vacuum hose straight into the processing plant from the vessels' holds, and vessels raft up three and four deep to the dock during peak fishing seasons. On the northeast side of Pier 1 is the Petro Marine fuel dock, which services a range of vessel sizes, including larger vessels that can be accommodated by docking at Pier 1. Two boat harbors exist in Near Island Channel, which house a number of commercial and recreational marine vessels. The channel is also a primary route for local vessel traffic to Gulf of Alaska waters. Although ambient underwater measurements have not been conducted for the Pier 1 project, ambient underwater sound levels measured in 2008 at the Port of Anchorage may be used for comparison and ranged from 105 to 155 decibels (dB) (SFS 2009; URS 2007).

Ambient underwater noise levels in the Pier 1 project area are both variable and relatively high, and are anticipated to mask some sounds of drilling, pile installation, and pile extraction. Baseline sound levels in the Kodiak Harbor area are relatively high (NMFS 2013).

3.2. Biological Environment

3.2.1. Marine Mammal Habitat

We presented information on marine mammal habitat (including prey species) and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed Authorization. These are further described in DOT&PF's IHA application. During a site visit to Pier 1 in February 2015, HDR biologists observed a large school of forage fish immediately under the dock, with an attendant complement of predators, including Steller sea lions. Forage fish and other marine mammal prey are generally anticipated to be present in the project area but not in high densities. The DOT&PF initiated informal EFH consultation with NMFS on April 30, 2013. NMFS determined that the project, as proposed, would not adversely affect EFH, and determined no further consultation was required (NMFS 2013). Effects on EFH by the project and issuance of the Authorization assessed here would be temporary and minor. The main effect would be short-term disturbance that might lead to temporary and localized relocation of the EFH species or their food. The actual physical and chemical properties of the EFH will not be impacted.

3.2.2. Marine Mammals

We provide information on the occurrence of marine mammals most likely present in the proposed activity areas in Section 1.1.2 of this EA. The marine mammals most likely to be harassed incidentally during project activities are Steller sea lions, harbor seals, harbor porpoises, and killer whales. The marine waters near Kodiak Island support many species of marine mammals, including pinnipeds and cetaceans; however, the number of species regularly occurring near the project area is limited. Steller sea lions are the most common marine mammal in the project area, and are part of the wDPS that is listed as Endangered under the ESA. Harbor seals, harbor porpoises, and killer whales may also occur in the project area, but far less frequently and in lower abundance than Steller sea lions. Humpback whales, fin whales (*Balaenoptera physalus*), and gray whales (*Eschrichtius robustus*) occur in the nearshore waters around Kodiak Island, but are not anticipated to be found near the project area because of the narrow channel and boat traffic. Dall's porpoise (*Phocoenoides dalli*) generally inhabit more offshore habitats than the Near Island Channel. Therefore, these species are not evaluated further in this EA. The relatively large numbers of Steller sea lions in the area may serve as an additional deterrent for some marine mammals.

3.2.2.1. ESA-listed Marine Mammals

Steller Sea Lion

Steller sea lions are the most obvious and abundant marine mammals in the project area. Many individual sea lions have become habituated to human activity in the Kodiak harbor area and utilize a man-made haulout float called Dog Bay float located in St. Herman Harbor, about 1,300 meters (4,300 feet) from the project site. A section from an old floating breakwater, the float was relocated to Dog Bay in 2000 and was intended to serve as a dedicated sea lion haulout. It serves its purpose of reducing sea lion-human

conflicts at Kodiak's docks and harbors by providing an undisturbed haulout location and reducing the numbers of sea lions that haul out on vessel moorage floats.

Counts of sea lions hauled out on the Dog Bay float provide an index of the number of Steller sea lions in the harbor area. Because this float is not considered an official haulout by NMFS, few standardized surveys to count sea lions have been conducted to date (Wynne 2015a). Aerial surveys from 2004 through 2006 indicated peak winter (October–April) counts at the Dog Bay float ranging from 27 to 33 animals (Wynn et al. 2011). Counts in February 2015 during a site visit by HDR biologists ranged from approximately 28 to 45 Steller sea lions. More than 100 Steller sea lions were counted on the Dog Bay float at times in spring 2015, although the mean number was much smaller (Wynne 2015b). Together, this information may indicate a maximum population of about 120 Steller sea lions that uses the Kodiak harbor area.

Incidental take was estimated for Steller sea lions by assuming that, within any given day, about 40 unique individual Steller sea lions may be present at some time during that day within the Level B harassment zone during active pile extraction or installation. This estimate was derived from the following information, which is explained in more detail in Section **Error! Reference source not found.** of the DOT&PF's IHA application.

Steller sea lions in a more "natural" situation do not generally eat every day, but tend to forage every 1–2 days and return to haulouts to rest between foraging trips (Merrick and Loughlin 1997; Rehburg et al. 2009). On any given day, this means that a maximum of about 60 Steller sea lions from the local population may be foraging. At least four other seafood processing facilities are present in Kodiak and operate concurrently with the one located next to Pier 1, and all are visited by local Steller sea lions looking for food (Wynne 2015a). Kodiak Steller sea lions also follow and raid fishing vessels, and catch wild food. The seafood processing facility adjacent to the Pier 1 project site is not the only source of food for local Steller sea lions that inhabit the harbor area. The foraging habits of Steller sea lions using the Dog Bay float and Kodiak harbor area are not documented, but it is reasonable to assume that, given the abundance of readily available food, not every Steller sea lion in the area visits the seafood processing plant adjacent to Pier 1 every day. If about half of the foraging Steller sea lions visit the seafood processing plant adjacent to Pier 1, it is estimated that about 30 unique individual Steller sea lions likely pass through the Pier 1 project area each day and could be exposed to Level B harassment. To be conservative, exposure is estimated at 40 unique individual Steller sea lions per day.

It is assumed that Steller sea lions may be present every day, and also that take will include multiple harassments of the same individual(s) both within and among days.

3.2.2.2. Non-ESA-listed Marine Mammals

Harbor Seal

The current statewide abundance estimate for Alaskan harbor seals is 152,602, based on aerial survey data collected during 1998 to 2007 (Allen and Angliss 2010). The abundance estimate for the South Kodiak stock is 11,117, with a minimum estimate of 10,645 (Allen and Angliss 2010). Harbor seals haul out on rocks, reefs, beaches, and drifting glacial ice (Allen and Angliss 2014). They are non-migratory. Their local movements are associated with tides, weather, season, food availability, and reproduction, as well as sex and age class (Swain et al. 1996; Lowry et al. 2001; Boveng et al. 2012; Allen and Angliss 2014).

Although the number of harbor seals on eastern Kodiak haulouts has been increasing steadily since the early 1990s (Kodiak Seafood and Marine Science Center 2015), sightings are rare in the project area. Several harbor seals tagged at Uganik Bay (Northwest Kodiak Island) dispersed as far north as Anchorage and as far south as Chignik, but none were found near Kodiak (Kodiak Seafood and Marine Science Center 2015). Harbor seals are opportunistic feeders whose diet varies with season and location. Harbor seals are anticipated to be encountered occasionally in the project area.

Harbor Porpoise

In the eastern North Pacific Ocean, the harbor porpoise ranges from Point Barrow, along the Alaska coast, and down the west coast of North America to Point Conception, California. The Gulf of Alaska stock is currently estimated at 31,046 individuals, with a minimum population estimate of 25,987 (Allen and Angliss 2013). Harbor porpoises forage primarily on Pacific herring, other schooling fish, and cephalopods (Leatherwood et al. 1982). Harbor porpoises commonly frequent nearshore waters, but are rarely, if ever, noted in the Kodiak channel (Wynne 2015). Harbor porpoises are anticipated to be encountered rarely in the project area.

Killer Whale

Only the Alaska Resident stock and the Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock are considered in this EA because other stocks occur outside the geographic area under consideration. The Alaska Resident stock of killer whales is currently estimated at 2,347 individuals, and the estimate of the Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock is 587 individuals (Allen and Angliss 2013).

Transient killer whales are seen periodically in waters of Kodiak Harbor, with photo-documentation since at least 1993 (Kodiak Seafood and Marine Science Center 2015). They have been repeatedly observed and photographed attacking Steller sea lions. Killer whales occasionally occur in Near Island Channel and typically hunt Steller sea lions. Resident killer whales are rarely sighted in the project area and are anticipated to be encountered only rarely. Transient killer whales are anticipated to be occasionally encountered in the project area.

3.3. Socioeconomic Environment

3.3.1. Subsistence

No significant subsistence activity currently occurs within the immediate Pier 1 area, but Alaska Natives have traditionally harvested subsistence resources in the Kodiak area for many hundreds of years. Both Steller sea lions and harbor seals are harvested by Alaska Natives for subsistence in the surrounding Kodiak area.

An estimated 163 harbor seals were harvested in seven communities on Kodiak Island in 2011. Approximately 36 of these harbor seals were harvested near the City of Kodiak, where 32.5 percent of the Alaska Native households harvested harbor seals (ADF&G 2012). The number of harbor seals harvested near the City of Kodiak from 1992 to 2011 ranged from 7 to 71 individuals per year, with an average of 21.8 per year.

In 2011, an estimated 20 Steller sea lions were harvested on Kodiak Island, and two of them were harvested near the City of Kodiak (ADF&G 2012). Between 1992 and 2011, the number of Steller sea lions harvested per year ranged from 0 to 13 sea lions near the City of Kodiak, with an average number of

1.9 Steller sea lions harvested per year (ADF&G 2012). These numbers have been adjusted for under-reported harvest.

Chapter 4 Environmental Consequences

This chapter of the EA analyzes the impacts of the two alternatives and addresses the potential direct, indirect, and cumulative impacts of our issuance of an Authorization. The following analyses were developed based on analyses completed in the DOT&PF IHA application, NMFS' notice of a proposed Authorization, and other related environmental analyses identified previously (see Section 1.3.1).

Under the MMPA, we have evaluated the potential impacts of the DOT&PF's activities on the affected marine mammal species or stocks to determine whether to authorize incidental take of marine mammals. Under NEPA, this EA is appropriate to evaluate the potential significance of environmental impacts resulting from the issuance of our Authorization.

4.1. Effects of Alternative 1 - Issuance of an Authorization with Mitigation Measures

Alternative 1, the Preferred Alternative, would issue an Authorization to the DOT&PF allowing the incidental take, by Level A harassment of Steller sea lions and Level B harassment, of four species of marine mammals, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the proposed Authorization and outlined in Section 2.3.1.

4.1.1. Impacts to Marine Mammal Habitat

Our proposed action, the Preferred Alternative (i.e., the issuance of an Authorization for the take of marine mammals), would have no additive or incremental effect on the physical environment, or on components of the biological environment that function as marine mammal habitat, beyond those resulting from the Pier 1 project. The proposed activity area is not located within a marine sanctuary or a National Park. The proposed activities would not result in substantial damage to ocean and coastal habitats that might constitute marine mammal habitat. We do not anticipate that the project would physically alter the marine environment or negatively impact the physical environment or components of the biological environment that function as marine mammal habitat in the proposed action area. The MMPA Authorization would not impact physical or biological habitat features, such as substrates and/or water quality or availability of marine mammal prey, as the Authorization allows only for the take of marine mammals by Level A and B harassment and includes mitigation measures to reduce impacts to marine mammals. Those mitigation measures will not have any effect on the physical environment. As stated in Section 2.3.1, Best Management Practices and mitigation are used to minimize potential environmental effects from project activities under this alternative. The effects of the proposed project on marine mammal habitats are anticipated to be short-term and minor because they are associated with construction activities that would occur intermittently over a 4- to 6-month period.

Construction activities would likely have temporary impacts on habitat through increases in underwater and airborne sound from pile removal and installation. Displacement of marine mammals by noise would not be permanent and would not have long-term effects. The proposed project is not anticipated to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or their populations, because pile driving and other noise sources would be temporary and intermittent.

The project area occurs within critical habitat for two Steller sea lion haulouts. However, project-related disturbances would not be detectable at the haulouts, and the level of disturbance and habitat alteration in the project area would be insignificant and discountable, especially when considered in relation to the activity already taking place and apparent tolerance of the sea lions in the project area. The large set of

floats in St. Herman harbor is the most reliable place to find sea lions and is adjacent to industrial activity and near-constant vessel traffic.

One project component, the riprap placement, is anticipated to reduce erosion of the beach along the project site, and would therefore likely improve water quality in the area in the long term. Effects on Steller sea lions and their habitat in the riprap placement area are not anticipated to be detectable. Steller sea lions do not haul out in the area where the riprap would be placed. Effects to prey would be insignificant and discountable due to the temporary nature of the activity, and are anticipated to be undetectable to Steller sea lions. Other potential temporary indirect impacts include changes in prey species distribution.

Harbor seals, harbor porpoises, and killer whales are infrequent visitors to the project area, and their habitat would not be affected by the proposed project.

More information on potential impacts to marine mammal habitat is contained in the DOT&PF IHA application and our proposed Authorization notice, which are incorporated herein by reference.

4.1.2. Impacts to Marine Mammals

We expect that behavioral disturbance (Level B harassment) and exposure to noise that could cause injury (Level A harassment for Steller sea lions only) resulting from the activities associated with the project have the potential to impact marine mammals and comprise the only likely source of effects to marine mammals. The level of impact on marine mammals from construction activities would vary depending on the species of marine mammal, the distance between the marine mammal and the construction activity, the intensity and duration of the construction activity, and environmental conditions. Our notice of proposed Authorization and the DOT&PF's IHA application provide detailed descriptions of these potential effects of proposed project activities on marine mammals. That information is incorporated herein by reference and summarized below.

We anticipate that the marine mammal takes would result, at worst, in a temporary modification of behavior and/or temporary changes in distribution (Level B harassment) of individual marine mammals or exposure of a very few individual Steller sea lions to sound that could cause injury. Note that the goal of the minimization measures provided in Section 2.3.1 is to avoid injury (Level A harassment). However, sea lions are attracted to the area by the nearby seafood processing plant, which increases the possibility of individual sea lions occasionally entering the Level A harassment zone before they are observed and before pile driving can be shut down. Although marine mammal observers will be present at all times during pile installation, it is possible that sea lions could approach quickly and enter the Level A harassment zone, even as pile-driving activity is being shut down. This likelihood is increased by the high level of sea lion activity in the area, with sea lions following vessels and swimming around vessels at the neighboring dock. Therefore, because of the abundance of Steller sea lions and their habituation to anthropogenic sounds and activity in the project area, a small number of Level A takes of Steller sea lions is proposed to be authorized due to the unique conditions in the project area. We expect these impacts to be minor because we do not anticipate measurable changes to the population or impacts to rookeries, mating grounds, and other areas of similar significance.

We expect no long-term or substantial adverse effects on marine mammals, their habitats, or their role in the environment. We base our conclusion on the results of previous monitoring for the same activities and anecdotal observations for the same activities in the proposed area.

Estimated Take of Marine Mammals by Level A and Level B Harassment: DOT&PF has requested take by Level A (for Steller sea lions only) and Level B harassment as a result of underwater sound produced through pile driving associated with the Pier 1 project. We expect that the proposed project would cause short-term behavioral disturbance and/or displacement for marine mammals and a potential for exposure to sound that could cause injury in the proposed areas. Although the contractor would shut down all impact pile-driving operations if an individual Steller sea lion approaches the injury threshold zone (190 dB root mean square), the proximity of the adjacent seafood processing dock and the speed/mobility of Steller sea lions present a challenging shutdown scenario. Given these conditions, the potential that an individual may enter the injury zone prior to practicable shutdown of the pile driver cannot be completely discounted, and therefore a small number of Level A takes for Steller sea lions is requested.

As mentioned previously, we anticipate that the proposed activities could potentially affect Steller sea lions by Level A harassment and four species of marine mammals under our jurisdiction by Level B harassment. For each population stock, the estimates of exposure are small numbers (less than 10 percent) relative to the population sizes (Table 2). Furthermore, it should be stressed that the total number of takes requested for Steller sea lions would only affect the localized population, and will include multiple harassments of the same individual(s) both within and among days. This potentially affected population represents only 0.1% of the wDPS population, which totals approximately 52,000 sea lions.

Table 2. Summary of the estimated numbers of marine mammals potentially exposed to Level A and Level B harassment noise levels.**Species (Stock)**	**Number of Marine Mammals Potentially Exposed to Level A Noise Levels Pinnipeds (190 dB)**	**Number of Marine Mammals Potentially Exposed to Level B Noise Levels (160 dB)**	**Abundance of Stock**	**Percentage of Stock Potentially Affected**	**Populati on Trend**
Steller sea lion (western U.S. stock)	30	3,260	52,200	0.06 Level A 6.25 Level B	Stable
Harbor seal (South Kodiak)	0	40	11,117	0.36	Unknown
Harbor porpoise (Gulf of Alaska)	NA	40	31,046	0.13	Unknown
Killer whale (Eastern North Pacific Alaska Resident and Gulf of Alaska, Aleutian Islands, and Bering Sea	NA	48	22,347 Resident	0.21 Resident[a]	Stable
			587 Transient	8.18 Transient[a]	Unknown

transient stock)					

Source for all population estimates and trends: Allen and Angliss 2013, 2014.
[a] Percentages represent maxima, as if all takes were of the same stock. The percentage for the other stock would then be 0.

Our proposed Authorization notice and the DOT&PF's IHA application contain complete descriptions of how these take estimates were derived. We do not expect the proposed activities to impact rates of recruitment or survival for any affected species or stock. Further, the activities would not adversely affect marine mammal habitat.

4.1.3. Impacts to Subsistence

We anticipate that the DOT&PF Pier 1 project will have negligible effects on subsistence resources in the area. Noise from the Pier 1 project might temporarily displace wildlife from the area, but animals are anticipated to return to the area following the cessation of noise sources. Furthermore, all project activities will take place within the immediate vicinity of the Pier 1 site, which is not used as a subsistence harvest area. Potential exposure of subsistence resources to sound that could result in injury would be negligible, accounting for less than 1 percent of the Steller sea lion wDPS population, and therefore would not have an adverse impact on the availability of marine mammals for subsistence use at locations farther away. No disturbance or displacement of sea lions or harbor seals from traditional hunting areas by activities associated with the Pier 1 project is anticipated. No changes to availability of subsistence resources would result from Pier 1 project activities. There is no reported subsistence harvest of killer whales or harbor porpoises in Alaska (Allen and Angliss 2014), and therefore the project is not anticipated to have an impact on subsistence harvest of these species.

4.2. Effects of Alternative 2 – No Action Alternative

Under the No Action Alternative, we would not issue an Authorization to DOT&PF. As a result, DOT&PF would not receive an exemption from the MMPA prohibitions against the take of marine mammals and would be in violation of the MMPA if take of marine mammals occurred.

The impacts to elements of the human environment resulting from the No Action Alternative—conducting the Pier 1 project in the absence of required protective measures for marine mammals under the MMPA—Alternative 1, the Preferred Alternative.

4.2.1. Impacts to Marine Mammal Habitat

Under the No Action Alternative, no effects on the physical environment or components of the biological environment that function as marine mammal habitat would result from the DOT&PF's planned pile removal and installation activities, which we evaluated in the referenced documents (see Section 1.3.1). Even without mitigation measures, impacts to marine mammal habitat (including prey species) would be minimal and temporary because (1) the area of potential effect is limited in both space and time (e.g., short daily duration of sound associated with individual pile driving events); and (2) there are no major haulout sites nearby or ocean bottom structure of significant biological importance to marine mammals in the project area. Impacts to marine mammal habitat would occur from noise and minor impacts to the immediate substrate during installation and removal of piles during the project, or from temporary avoidance by prey species in the immediate area. This alternative would result in similar

effects as Alternative 1 on the physical environment and components of the biological environment that function as marine mammal habitat.

4.2.2. Impacts to Marine Mammals

Under the No Action Alternative, the DOT&PF's planned activities could result in increased amounts of Level A and Level B harassment to marine mammals. While it is difficult to provide an exact number of takes that might occur under the No Action Alternative, the numbers would be anticipated to be larger than those presented in Table 2 above because DOT&PF would not be required to implement measures designed to warn marine mammals of the impending increased underwater sound levels, and additional species may be incidentally taken because DOT&PF would not be required to shut down activity if any marine mammal occur in the project vicinity.

If the activities proceed without the protective measures and reporting requirements required by Alternative 1, the direct, indirect, and cumulative effects on the human or natural environment from not issuing the Authorization would include the following:

- Increases in the number of behavioral responses and frequency of changes in animal distribution, and potential takes to additional species, would occur because of the lack of mitigation measures required in the Authorization. Thus, the incidental take of marine mammals would likely occur at higher levels than we have already identified and evaluated in our *Federal Register* notice on the proposed Authorization; and

- We would not be able to obtain the monitoring and reporting data needed to assess the anticipated impact of the activity upon the species or stock, as well as increase knowledge of the species, as required under the MMPA.

4.2.3. Impacts to Subsistence

Under the No Action Alternative, the Pier 1 project would have no additive effects on subsistence beyond those resulting from the DOT&PF activities, which were evaluated in the referenced documents (see Section 1.3.1).

4.3. Compliance with Necessary Laws – Necessary Federal Permits

We have determined that the issuance of an Authorization is consistent with the applicable requirements of the MMPA, ESA, MSFMCA, and our regulations. Please refer to Section 1.4 of this EA for more information.

4.4. Unavoidable Adverse Impacts

DOT&PF's IHA application and our notice of a proposed Authorization summarize unavoidable adverse impacts to marine mammals, the populations to which they belong, or on their habitats occurring in the proposed project area. We incorporate those documents by reference.

We acknowledge that the incidental take authorized would potentially result in unavoidable adverse impacts. However, we do not anticipate DOT&PF's activities to have adverse consequences on the annual rates of recruitment or survival of marine mammal species or stocks in Alaska waters, and we do not anticipate the marine mammal populations in that area to experience reductions in reproduction, numbers, or distribution that might appreciably reduce their likelihood of surviving and recovering in the wild. We anticipate that the numbers of individuals of all species taken by harassment would be small

(relative to species or stock abundance), that the Pier 1 project and the take resulting from the proposed project activities would have a negligible impact on the affected species or stocks of marine mammals, and that there would not be an unmitigable adverse impact to subsistence uses of marine mammals in the project area.

4.5. Cumulative Effects

NEPA defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR §1508.7). Cumulative impacts can result from individually minor, but collectively significant, actions that take place over time.

Other environmental analyses identified previously summarize the potential cumulative effects to marine mammals, the populations to which they belong, or on their habitats occurring in the action area. We incorporate those documents and analyses by reference and briefly summarize them here. Thus, this cumulative effects analysis focuses on the activities that may temporally or geographically overlap with the DOT&PF activities and would most likely impact the marine mammals present in the proposed areas. We consider the impact of the DOT&PF presence and effects of conducting activities in the proposed action area to be insignificant when compared to other human activities in the area.

Past, present, and reasonably foreseeable impacts to marine mammal populations include the following: coastal development; subsistence harvesting; marine pollution; fisheries interaction; vessel traffic increasing the potential for vessel strikes and an increase in anthropogenic noise causing acoustic masking; climate change affecting the prey base and habitat quality as a result of global warming; marine mammal watching; and disease.

The Pier 1 project area contains an active ferry terminal surrounded by a variety of commercial uses that fall under these categories. The adjacent property to the west of Pier 1 is a seafood processing facility, and is one of several active seafood processing plants on Kodiak Island. The Near Island Channel has a high volume of marine traffic and is also along the flight path of the Kodiak Airport. Overhead flights have elevated in-air noise in the project area. Development, on-going marine dredging, and increased ship traffic have the potential to affect the Pier 1 project area through a reduction of available foraging habitat and increased disturbance due to noise and vessel presence.

As described in Richardson et al. (1995), marine mammals in developed areas are likely habituated and tolerant to a certain degree of anthropogenic disturbance, including noise. The Pier 1 project is not likely to add an increment of disturbance that would cumulatively result in significant adverse impacts to marine mammals or their habitats.

The following sections present a brief summary of the human-related activities affecting the marine mammals in the project area. Where applicable, we present an analysis of impacts to each activity attributed to the Pier 1 project.

4.5.1. Coastal Development

Coastal development may result in the loss of habitat, increased vessel traffic, increased pollutants, and increased noise associated with construction and activities of the projects after construction. DOT&PF has identified several coastal projects that were completed recently or are reasonably certain to occur in the project area. The adjacent Petro Marine facility (to the northeast) was replaced in 2013. In addition, the Kodiak Waterfront Master Plan identifies the need for upgrades of various piers and harbors (PND Engineers, Inc. 2010). We considered the cumulative effects associated with the Petro Marine fuel project and other minor repair work in the vicinity in the 2013 Letter of Concurrence issued for the Pier 1 project, and stated that these projects "are relatively temporary in nature and collectively add to the ongoing noise at the Kodiak port. To date, the chronic noise of the Kodiak port apparently has not prevented Steller sea lions from using this area, as indicated by the frequent use of the St. Herman Harbor float and the adjacent seafood-processing facility. Significant increases in the baseline activity and noise levels are not predicted within the action area in the foreseeable future" (NMFS 2013).

4.5.2. Subsistence Harvesting

Subsistence harvest by Alaska Natives is a reasonably foreseeable activity that may result in cumulative effects to marine mammals (particularly Steller sea lions) in the Kodiak Island area (NMFS 2011). Harbor seals and sea lions are used for subsistence near the City of Kodiak. However, no significant subsistence activity currently occurs within the immediate Pier 1 area, although Alaska Natives have traditionally harvested subsistence resources in the Kodiak area for many hundreds of years.

Wolfe et al. (2012) reported that subsistence harvest of Steller sea lions has declined since the mid-1990s, and that subsistence "take" by Alaska Native hunters has leveled off in recent decades. In 2011, 20 sea lions were taken by subsistence hunters, with the vast majority from the Old Harbor and Akhiok communities, far from the Pier 1 project area. NMFS (2011) identified Ugak Island, a major Steller sea lion haulout approximately 25 miles from the Pier 1 project area, as a potential sea lion harvest location. Due to the distance of the most commonly utilized sea lion harvest sites from the project area, the Pier 1 project is not anticipated to incrementally increase cumulative effects to subsistence harvest of Steller sea lions in the project area.

During 2011, the take of harbor seals was the lowest recorded on Kodiak Island since 1992, although subsistence hunting for harbor seals is reported from all studied communities on Kodiak Island (Wolfe et al. 2012). Despite the relative commonality of harbor seal harvest on Kodiak Island, the reported number of harvested individuals is low. Due to the temporary nature of the project and the previously-developed nature of the project area, the Pier 1 project is not anticipated to measurably affect subsistence harvest of harbor seals.

No disturbance or displacement of sea lions or harbor seals from traditional hunting areas by activities associated with the Pier 1 project is anticipated, and no changes to the availability of subsistence resources would result from Pier 1 project activities. However, to further mitigate any effects to subsistence harvest, DOT&PF plans to provide advance public notice of construction activities to reduce construction impacts on local residents, ferry travelers, adjacent businesses, and other users of Pier 1 (FHWA 2013). This would include notification to local Alaska Native Tribes that may have members who hunt marine mammals for subsistence. If significant concerns are expressed regarding project impacts to subsistence hunting of marine mammals, then further communication between DOT&PF and Tribes would occur, including provision of any project information as well as clarification of any

mitigation and minimization measures that may reduce impacts to marine mammals. With implementation of these measures, NMFS believes impacts to subsistence harvest would be avoided.

4.5.3. Marine Pollution

Marine mammals are exposed to contaminants via the food they consume, the water in which they swim, and the air they breathe. Point and non-point source pollutants from coastal runoff, at-sea disposal of dredged materials and sewage effluent, marine debris, and potential hazardous material releases from commercial vessels and on-shore users are all lasting threats to marine mammals in the project area. The long-term impacts of these pollutants, however, are difficult to measure.

The persistent organic pollutants (POPs) tend to bioaccumulate through the food chain; therefore, the chronic exposure of POPs in the environment is perhaps of the most concern to high trophic level predators such as harbor seals and Steller sea lions.

The Pier 1 project is an active ferry terminal in a busy port with vessel refueling facilities such as the adjacent Petro Marine facility, which was replaced in 2013. It is assumed that such facilities are upgraded as they are replaced, which would reduce pollutants entering the water. The Pier 1 construction activities would be temporary and are not anticipated to cause increased exposure of POPs to marine mammals in the project vicinity due to the small scale and localized nature of the activities. Additionally, removed piles and demolished decking material would be transferred off-site l for proper disposal.

4.5.4. Fisheries Interaction

State-managed commercial and sport fisheries are a reasonably foreseeable non-federal activity that may result in cumulative effects to ESA-listed species (particularly Steller sea lions) in the Kodiak Island vicinity (NMFS 2011). Commercial fishing operations in the project area would continue to provide an "artificial" food source for Steller sea lions for the foreseeable future. These operations would continue to contribute to apparent habituation of Steller sea lions to food sources aboard fishing vessels. Such fisheries may also result in direct mortality or injury to Steller sea lions and other marine mammals due to entanglement in fishing gear.

Though marine mammals are likely affected by the cumulative actions of the fishing industry in and around the Pier 1 project area, the Pier 1 project is not likely to add an incremental disturbance that would cumulatively result in significant adverse impacts to marine mammals.

4.5.5. Vessel Traffic

The Kodiak harbor/port area, and the Pier 1 project area specifically, is frequently traversed by barges, tug boats, and recreational and commercial vessels and tenders. Navigation lanes are frequently subject to dredging, an activity that produces underwater noise. Additionally, the Kodiak Waterfront Master Plan identifies the need for the need for multiuse dock space for future growth (PND Engineers, Inc. 2010). These ongoing and future uses and activities contribute to elevated background noise levels in the project area, and increased exposure of marine mammals to vessel strikes.

Tugs and barges would deliver materials to the Pier 1 project site. While marine mammals might be exposed to tug-related noises, given the transitory nature of tugs, any disturbance to a particular individual would be limited in space and time. Because tug boats would move slowly and follow well-established, common navigation lanes in the Kodiak harbor/port, there is limited potential that

incremental effects associated with Pier 1 construction vessel traffic would measurably affect marine mammals in the project area.

4.5.6. Climate Change

Climate change is a reasonably foreseeable condition that may result in cumulative effects to ESA-listed species in the Kodiak Island vicinity (NMFS 2011). The 2007 Intergovernmental Panel on Climate Change concluded that there is strong evidence for global warming and associated weather changes, and humans have "very likely" contributed to the problem through burning fossil fuels and adding other "greenhouse gases" to the atmosphere (IPCC 2007). This study involved numerous models to predict changes in temperature, sea level, ice pack dynamics, and other parameters under a variety of future conditions, including different scenarios for how human populations respond to the implications of the study.

Global climate change could significantly affect the marine resources of Kodiak Island. Possible impacts include temperature and rainfall changes, potentially rising sea levels, and changes to ocean conditions. These changes may affect the coastal marine ecosystem in the proposed project area by increasing the vertical stratification of the water column and changing the intensity and rhythms of coastal winds and upwelling. Such modifications could cause ecosystem regime shifts as the productivity of the regional ecosystem undergoes various changes related to nutrients input and coastal ocean process (USFWS 2011).

It is not clear how governments and individuals would respond to the effects of climate change, or how much future efforts would reduce greenhouse gas emissions. Although the intensity of climate change would depend on how quickly and deeply humanity responds, the models predict that the climate changes observed in the past 30 years would continue at the same or increasing rates for at least 20 years. Although we recognize that climate change is a concern for the sustainability of the entire Kodiak archipelago ecosystem, it is unclear at this time the full extent to which climate change would affect marine mammals. However, given that the Pier 1 project would replace existing infrastructure, and construction-related impacts are temporary in nature, the immediate construction project is not likely to result in an increase in vessel traffic or add an incremental disturbance that would cumulatively result in significant adverse impacts to marine mammals due to climate change.

4.5.7. Commercial and Private Marine Mammal Watching

Although marine mammal watching is considered by many to be a non-consumptive use of marine mammals with economic, recreational, educational and scientific benefits, it is not without potential negative impacts. One concern is that animals may become more vulnerable to vessel strikes once they habituate to vessel traffic (Swingle et al. 1993; Laist et al. 2001; Jensen and Silber 2004; Douglas et al. 2008). Another concern is that preferred habitats may be abandoned if disturbance levels are too high. Several recent research efforts have monitored and evaluated the impacts of people closely approaching, swimming, touching, and feeding marine mammals and has suggested that marine mammals are at risk of being disturbed ("harassed"), displaced, or injured by such close interactions. Researchers investigating the adverse impacts of marine mammal viewing activities have reported boat strikes, disturbance of vital behaviors and social groups, separation of mothers and young, abandonment of resting areas, and habituation to humans (Nowacek et al. 2001).

While there are some marine mammal operations out of Kodiak, Alaska, no marine mammal-watching operations are expected to occur in the vicinity of the proposed action area. Marine mammals that occur

in the action area could be adversely affected by such marine mammal-watching operations over time. These cumulative adverse effects, however, are not expected to be significant.

4.5.8. Disease

Very little is known about the diseases Steller sea lions may be exposed to and are vulnerable to (Alaska SeaLife Center 2015). Burek et al. (2005) studied infectious disease as a potential agent of population decline in Steller sea lions and concluded that while the disease agents they studied were unlikely to have been the primary cause of population decline, they may have contributed to population decline or impeded population recovery. Burek et al. (2005) recommended systematic monitoring for disease agents to evaluate whether infectious disease plays a role in the decline and lack of recovery in Steller sea lions, and Alaska SeaLife Center (2015) scientists and veterinarians currently are studying wild sea lions in the hopes of identifying potential diseases and parasites.

4.5.9. Conclusion

Based on the analysis of activities presented in this section, NMFS determined that the incremental impact of an Authorization for the proposed Pier 1 project would not result in a cumulative significant impact to the environment.

Based on the summation of activity in the area provided in this section, NMFS believes that incremental effects of incidental harassment associated with the Pier 1 project would not be detectable in any known measure on the health, survival, or abundance of marine mammals. This is due primarily to the temporary, localized nature of project-related noise (the subject of the Authorization), the previously-developed nature of the project area, and the extensive marine mammal monitoring requirements of the Authorization.

Chapter 5 List of Preparers and Agencies Consulted

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