UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion

Kodiak Transient Float Construction

NMFS Consultation Number: AKR-2016-9596

Action Agencies: National Marine Fisheries Service (NMFS), Office of Protected Resources

U.S. Army Corps of Engineers (Corps), Alaska District

Affected Species and Determinations:

ESA-Listed Species	Status	Is Action Likely To Jeopardize the Species?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?	Is Action Likely to Adversely Affect:	
				Species	CH
Steller Sea Lion, Western DPS (*Eumetopias jubatus*)	Endangered	No	No	Yes	No
Humpback Whale, Western North Pacific DPS (*Megaptera novaeangliae*)	Endangered	No	N/A	No	N/A
Humpback Whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened	No	N/A	Yes	N/A
Fin Whale (*Balanea mysticetus*)	Endangered	No	N/A	No	N/A

Consultation Conducted By: National Marine Fisheries Service, Alaska Region

Issued By: FOR _____

James W. Balsiger, Ph.D.

Regional Administrator

Date: __2/7/17_____

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TERMS AND ABBREVIATIONS

4MP	Marine Mammal Monitoring and Mitigation Plan
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AKR	Alaska Region
BA	Biological Assessment
BC	British Columbia
CFR	Code of Federal Regulations
cm	Centimeters
dB	Decibels
DOC	United States Department of Commerce
DOI	United States Department of the Interior
DPS	Distinct Population Segment
EEZ	Exclusive Economic Zone
ESA	Endangered Species Act
FR	Federal Register
ft	Foot or feet

HF	High Frequency (referring to cetacean hearing)
IHA	Incidental Harassment Authorization
IPCC	Intergovernmental Panel on Climate Change
ITS	Incidental Take Statement
KTF	Kodiak Transient Float
km	Kilometer/s
L_E	Cumulative sound exposure level
L_{pk}	Peak sound pressure level
LF	Low Frequency (referring to cetacean hearing)
Log	Logarithm
m	Meter(s)
MF	Mid-frequency (referring to cetacean hearing)
MMPA	Marine Mammal Protection Act
M/V	Merchant Vessel
nm	Nautical mile/s
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NRC	National Research Council
OW	Otariid Pinnipeds
PR1	NMFS Office of Protected Resources – Permits and Conservation Division
PSO	Protected Species Observer
PTS	Permanent Threshold Shift
PW	Phocid Pinnipeds
R	Radius
RL	Received Level
SL	Source Level
TL	Transmission Loss
TTS	Temporary Threshold Shift
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDPS	Western Distinct Population Segment
ZOI	Zone of Influence

1.0 INTRODUCTION

Section 7(a)(2) of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. § 1536(a)(2)) requires each Federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. When a Federal agency's action "may affect" a protected species or critical habitat, that agency is required to consult with the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (USFWS), depending upon the endangered species, threatened species, or designated critical habitat that may be affected by the action (50 CFR § 402.14(a)). Federal agencies may fulfill this general requirement informally if they conclude that an action "is not likely to adversely affect" endangered species, threatened species, or designated critical habitat, and NMFS or the USFWS concurs with that conclusion (50 CFR § 402.14(b)).

Section 7(b)(3) of the ESA requires that promptly after the conclusion of consultation NMFS and/or USFWS provide an opinion stating how the Federal agency's actions is likely to affect ESA-listed species and their critical habitat (16 U.S.C. § 1536(b)(3)). If jeopardy or adverse modification of critical habitat is not found but incidental take of the species is reasonably certain to occur, section 7(b)(4) requires NMFS and/or USFWS to provide an incidental take statement (ITS) that specifies the impact of any incidental taking (16 U.S.C. § 1536(b)(4)). The ITS also specifies those reasonable and prudent measures necessary to minimize such impact, and sets forth terms and conditions to implement those measures (16 U.S.C. § 1536(b)(4)(C)).

The actions that are the subject of this consultation are: (a) NMFS Office of Protected Resources – Permits and Conservation Division's (PR1) proposed issuance of an Incidental Harassment Authorization (IHA) to take marine mammals by harassment under the Marine Mammal Protection Act (MMPA) incidental to the City of Kodiak's proposed replacement of the Near Island Channel Transient Float, Kodiak, Alaska; and (b) the U.S. Army Corps of Engineers, Alaska District (Corps), proposed issuance of a Rivers and Harbors Act Section 10 permit for the float replacement project (Reference Number: POA-2016-174). The consulting agency for this proposal is NMFS's Alaska Region. This document represents NMFS's biological opinion (Opinion) on the effects of these proposed authorizations on endangered and threatened species and designated critical habitat.

The Opinion and incidental take statement were prepared by NMFS in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531, *et seq*.), and implementing regulations at 50 CFR Part 402.

The Opinion and ITS are in compliance with the Data Quality Act (44 U.S.C. § 3504(d)(1), *et seq*.) and underwent pre-dissemination review.

1.1. Background

This Opinion considers the effects of the Kodiak transient float (KTF) replacement project on endangered and threatened species that may be present in the project action area. These species include the threatened Western Distinct Population Segment (DPS or WDPS) of Steller sea lion

(*Eumatopias jubatus*), the threatened Mexican DPS of humpback whale (*Megaptera novaeangliae*), the endangered Western North Pacific DPS humpback whale (*Megaptera novaeangliae*), and the endangered fin whale (*Balaenoptera physalus*).

This Opinion is based on information provided in the: (a) Endangered Species Act Section 7 Biological Assessment for Listed Species and Critical Habitats under the Jurisdiction of the National Marine Fisheries Service for the City of Kodiak Transient Float Replacement Project

Kodiak, Alaska October 2016 (Solstice 2016a); (b) Request for an Incidental Harassment Authorization City of Kodiak Transient Float Replacement Project (Solstice 2016b); (c) relevant literature; and (d) email exchanges and telephone conversations between NMFS Alaska Region, NMFS PR1 staff, project applicants, and consultants. A complete record of this consultation is on file at NMFS's Anchorage, Alaska office.

1.2. Consultation History

This Opinion follows a previous consultation for the Kodiak Ferry Terminal project, completed in July 2015 (NMFS 2015a). That project, although unrelated to this one, was located approximately100 meters west of the transient float. This Opinion incorporates information generated during that consultation, including the results of a sound source verification (JASCO 2016) and Marine Mammal Monitoring Report for the Kodiak Ferry Terminal project (ABR 2016).

In May 2016, the City of Kodiak (City) and its representative initiated discussions with NMFS Permits Division and the Corps on the IHA application and section 7 consultation processes for the non-lethal taking of marine mammals in conjunction with the replacement of the KTF, proposed to occur during the winter-spring of 2017. Several drafts and extensive communication between the applicant's representative and NMFS ensued, and later document drafts incorporated the new NMFS Acoustic Guidance, which was finalized in August of 2016 (NMFS 2016b). Both the IHA application and the biological assessment were accepted as complete on October 21, 2016. NMFS Permits Division and the Corps determined that the project was likely to adversely affect WDPS Steller sea lions and Mexico DPS humpback whales, but was not likely to adversely affect Western North Pacific DPS humpback whales and fin whales and was not likely to adversely affect Steller sea lion critical habitat. NMFS requested initiation of formal consultation on November 2, 2016, and the Corps' request was received on November 9, 2016. The proposed IHA and request for comments was published in the Federal Register on November 10, 2016. Formal consultation for this action began on November 2, 2016.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1. Proposed Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification (50 CFR § 402.02). Interdependent actions are those that have no independent utility apart from the action under consideration (50 CFR § 402.02).

This Opinion considers the effects of the issuance of: (1) Corps Permit # POA-2016-174, to authorize the City of Kodiak to replace the transient float pursuant to the Rivers and Harbors Act, and (2) an IHA to take marine mammals by harassment under the MMPA incidental to the proposed float replacement. The City requests that the IHA be valid for 1 year, from January 1, 2017, through December 31, 2017.

The City proposes to remove the existing timber float and steel gangway (Figure 1) and replace it in its entirety. The existing transient float, which provides moorage for vessels commuting from six villages and a diverse transient commercial fishing fleet from all over Alaska and the West Coast, needs to be replaced due to its poor condition and reduced capacity. The existing ramp is damaged from vessel impact; it is steep, slippery when wet, does not meet Americans with Disabilities Act (ADA) requirements, and creates an unnecessary safety risk to users.

The purpose of this project is to replace the float and ramp with ones that meet modern standards for vessel mooring and public safety for the next 50 years. The replacement float and gangway will be located within the operational footprint of the existing facility, but will be approximately 45 ft shorter than the existing float (Figure 2) to improve accessibility within City right-of-way limits. In the project footprint, the shoreline along the transient float is heavily armored with riprap, and impervious surfaces directly abut the shoreline adjacent to the float (Figure 1).

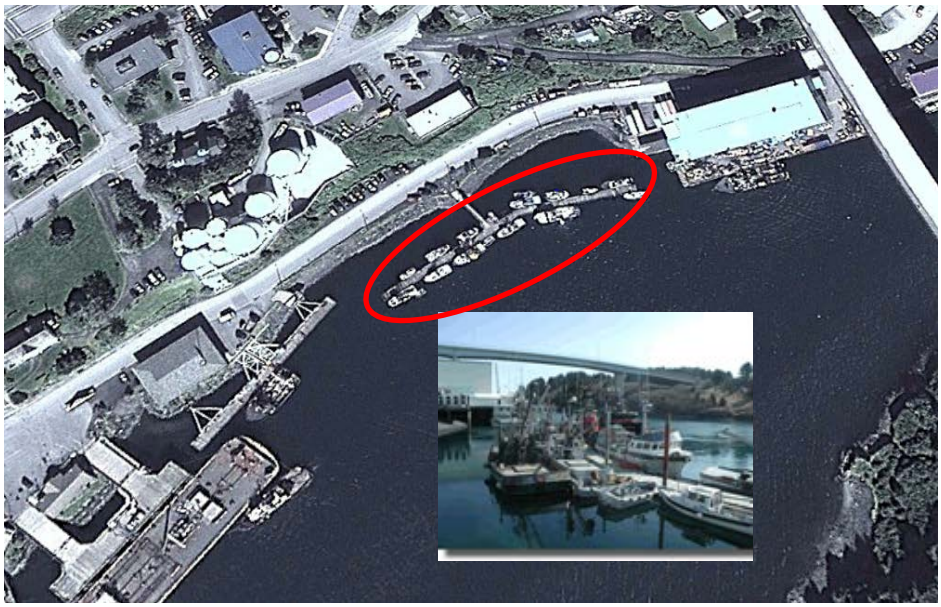

Figure 1. Aerial view of existing Kodiak transient float (red ellipse) with inset, looking east, towards the bridge.

The proposed action includes removing the existing timber float and its timber and steel piles, and installing the replacement float and steel piles. No fill, dredging, or blasting is proposed as part of the project.

The exact means and methods for construction will be determined by the contractor. It is expected that materials and equipment will be transported to the project site by barge and road. While in-water work is conducted, anchored barges will be used to stage construction materials and equipment.

2.1.1. Proposed Activities

The applicant proposes to:

- Remove the existing 12 foot x 387 foot (3.7 x 118 m) timber float and 5 foot x 50 foot (1.5 x 15.2 m) steel gangway, including nineteen 12-inch (30.5 cm) diameter steel piles in the water. Two 12-inch (30.5 cm) creosote-treated timber piles in the existing abutment will remain in place, and two additional timber piles that are located on-shore will also be removed; in total, 21 piles will be extracted;

- Replace the existing float with a 12 foot by 330 foot (3.7 x 100.6 m) floating dock, a 5 foot x 80 foot (1.5 x 24.4 m) aluminum gangway, and a 24 foot x 20 foot (7.3 x 6.1 m) gangway float, anchored by twelve 24-inch (61 cm) diameter steel piles. This work would occur at and below the mean high water (MHW) mark (+7.6 feet [2.3 m] above the mean low low water (MLLW) mark of 0 feet (0 m) elevation) of Near Island Channel;

- Install twelve-foot tall (3.7 m) electrical service illumination poles, life rings, and fire extinguishers on the new float; and

- Install a 4 foot wide x 10 foot long x 3 foot tall (1.2 x 3 x 0.9 m) concrete gangway abutment in uplands.

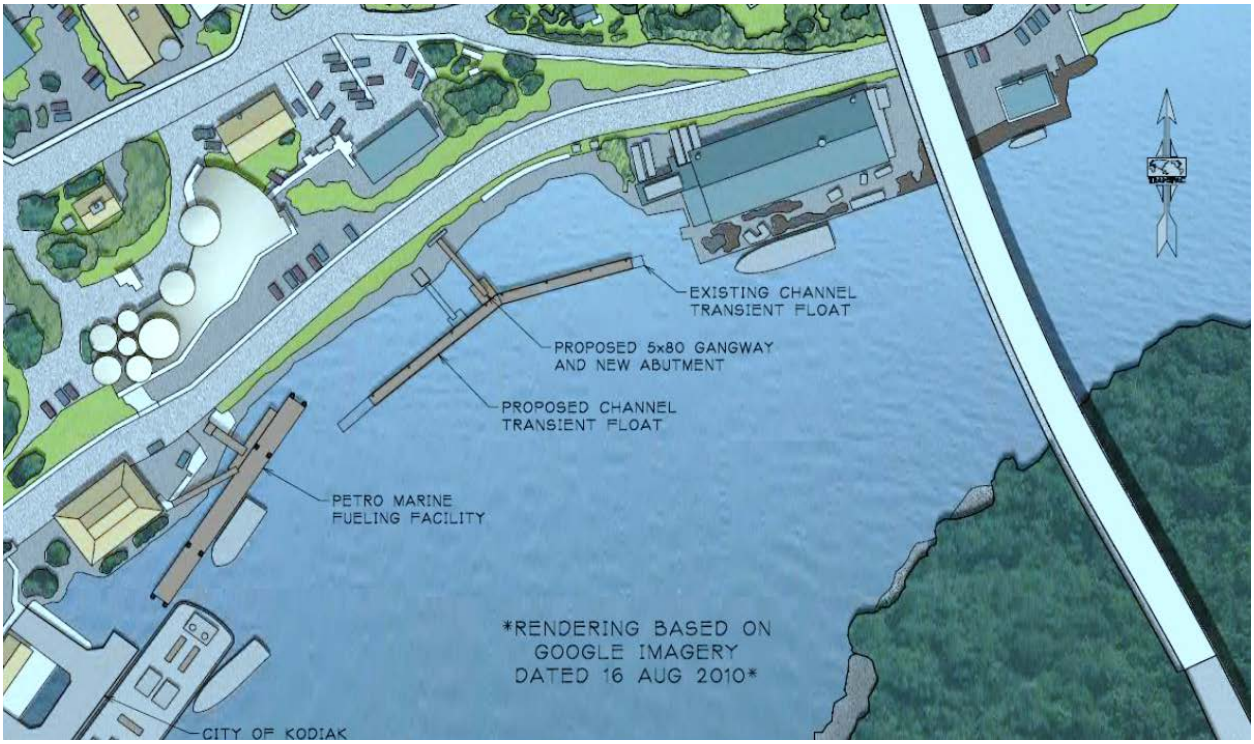

Figure 2. Rendering of existing and proposed transient float.

The twelve 24-inch piles will first be driven 3-5.6 m (10-15 ft) through sediment with a vibratory hammer and drilled another 3m (10 ft) into bedrock with a down-hole drill, which uses a pulse mechanism to break up the harder materials at the bottom of the hole. The head extends so that the drilling takes place below the pile. Drill cuttings are expelled from the top of the pile as dust

or mud. Finally, the vibratory hammer will be used again to finish driving the piles into bedrock.

The exact methods for construction will be determined by the contractor. It is estimated that vibratory pile extraction will take 20 minutes for each of the 19 piles, or an estimated 6.33 hours of total time for pile extraction. Installing each of the 24-inch steel piles will require an estimated 10 minutes of vibratory pile-driving and 4 hours of down-hole drilling per pile, for a total of 2 hours of total vibratory driving and 48 hours of total time using down-hole drilling.

Although impact pile-driving is not expected for this project, the contractor may choose to impact-proof the piles after down-hole drilling. In this case, two to five blows of an impact hammer would be used to confirm that piles are set into bedrock, for an expected maximum time of 3 minutes of impact hammering per pile. If the impact hammer is employed for proofing, a pile cap or cushion will be placed between the impact hammer and the pile.

The proposed action will require an estimated total of 8.33 hours of vibratory extraction and installation and 48 hours of down-hole drilling (Table 1). Note that this is an estimate of the number of days when an activity may occur at some point during the day. All construction is anticipated to be completed within 2.5 months.

Table 1. Estimated hours required for pile extraction and installation

Pile Type, Location, Method	#of Piles	Vibratory Hammer		Down-hole Drill		Impact Hammer	
		# of Piles	Hours	# of Piles	Hours	# of Piles	Hours
12-inch Timber Creosote Existing Abutment Remain in Place	2	0	0	0	0	0	0
12-inch Untreated Wood Existing Float Extraction, Out-of-Water	2	2	0.67	0	0	0	0
12-inch Steel Existing Float Extraction, In-Water	19	19	6.33	0	0	0	0
24-inch Steel Replacement Float Installation, In-Water	12	12	2	12	48	12	0.6
Total Hours Out-of-Water		--	**0.67**	--	**0**	--	**0**
Total Hours In-Water		--	**8.33**	--	**48**	--	**0.6**

The City anticipates that the project will require the use of two barges, which will remain on site throughout project construction. One barge will directly support pile driving activities, and the other barge will carry and hold the new piles and the old piles and materials that would be removed from the existing dock. Additionally, a small skiff will be used to support construction activities like helping put the pile driver in place and moving personnel and smaller equipment around the site.

2.1.2 Time Frame

Construction is expected to occur over 2.5 months. Original information from the applicant indicated that work would begin in January 2017 and end in March 2017. However, more recent information from the contractor indicates that work will begin in March 2017. PR1 has indicated that the IHA time frame will remain unchanged, extending from January 1, 2017, through December 31, 2017.

Pile installation and removal will take approximately 57 hours and is expected to take place over a period of 12 (not necessarily consecutive) days. The estimated 2.5-month construction duration includes the time required to mobilize materials and resources, and accounts for potential delays in material deliveries, equipment maintenance, inclement weather, and shutdowns that could occur if marine mammals come within disturbance zones associated with the project area. The City has requested an authorization for up to one year of construction activities in case unforeseen construction delays occur. The timing of the project has been specifically scheduled to avoid major runs of salmon, steelhead, and halibut, which occur collectively from June through September.

2.1.3 Construction Mitigation Measures

The City proposes a number of construction mitigation measures, indicated below, as well as marine mammal monitoring and mitigation measures discussed in Section 2.1.4 and also presented in detail in Appendix 1.

Pile Removal and Installation Mitigation Measures:

The replacement float uses a design that incorporates the smallest diameter piles practicable while still minimizing the overall number of piles. This design was selected to minimize noise impacts associated with larger piles.

- To minimize construction noise levels as much as possible the contractor will first attempt to direct pull piles; if those efforts prove to be ineffective, they will proceed with a vibratory hammer.

- All in-water construction activities not involving pile-driving, extraction, or drilling (e.g., positioning piles on the substrate via crane ("stabbing") and removing piles from the water column or substrate via crane ("deadpull") will be shut down if a Steller sea lion approaches within 10 m (33 ft) or if a humpback whale approaches within 100 m (330 ft) (See Section 2.1.4).

- Vibratory hammers and down-hole drilling methods will be used to install piles; the impact hammer will be used only to ensure the piles are secure (proofed) in bedrock.

- Before impact or vibratory pile driving begins, the contractor will employ "soft start" procedures.[1]

[1] The soft start or "ramp–up" procedure for vibratory driving is a requirement of the U.S Fish and Wildlife Service to mitigate noise impacts on Northern sea otters and Steller's eiders as outlined in their August 7, 2012 Observer

- In the unlikely case that impact hammers are used, pile caps or cushions will be employed for sound attenuation.

- As recommended by Alaska Department of Fish & Game, to minimize impacts to pink salmon fry and coho salmon smolt, the contractor will refrain from impact pile driving from May 1 through June 30, within the 12-hour period beginning daily at the start of civil dawn.

2.1.4 Marine Mammal Monitoring and Mitigation Plan

The City has developed a Marine Mammal Monitoring and Mitigation Plan (4MP) as a part of its IHA application. The 4MP is presented in its entirety in Appendix 1 and summarized below. Protected Species Observers will be present during all in-water work. If marine mammals are observed likely to enter the Level A injury zones (described in Section 6.2.1 below), shut-down procedures will be implemented to prevent exposure to project-related sounds that could result in injury. If a marine mammal is observed within the Level B zones (described in Section 6.2.2 below), the sighting will be documented as a Level B exposure. If the number of Steller sea lions or humpback whales observed within the Level B zone during noise-producing project activities approaches the number of takes authorized in the ITS, the City will notify NMFS and request that the Corps and PR1 reinitiate consultation. The project will also incorporate soft start or ramp-up procedures when beginning or resuming pile installation and extraction activities after an interruption of activity lasting more than 30 minutes.

2.2 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR § 402.02). For this reason, the action area is typically larger than the project area and extends out to a point where no measurable effects from the proposed action occur.

The proposed project is located in Near Island Channel in the City of Kodiak, Alaska (57.788162° North, -152.400287° West). Near Island Channel is approximately 200 m (656 ft) wide and up to 15 m deep near the transient float. The channel is located within Chiniak Bay, which opens to the Gulf of Alaska. The proposed project is located in a busy industrial area. Channel Side Services' seafood packing facility is located approximately 25 m (82 ft) east of the float, and Petro Marine Services floating fuel dock is located approximately 20 m (66 ft) west of the float (Figure 2). Pier 1, the Alaska Marine Highway Ferry dock, is located 100 m (328 ft) southwest of the float; Trident Seafood's shore-based seafood processing plant is located approximately 175 m (574 ft) to the southwest.

In defining the action area, the applicant considered that NMFS uses sound exposure thresholds to determine when an activity produces sound intensities that can affect marine mammals (70 FR 1871; January 11, 2005 and 81 FR 51694; August 4, 2016). These acoustic thresholds identify the levels at which different categories of noise (impulsive or non-impulsive) have the potential to injure (Level A harassment pursuant to the MMPA) or to disturb (Level B harassment) marine

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mammals. NMFS Permits Division does not anticipate and is not proposing to authorize any Level A harassment for endangered or threatened species related to this project.

We define the action area for this consultation to include the maximum area within which project-related noise levels are expected to reach or exceed 120 dB re 1 μPa $_{RMS}$ (henceforth 120 dB), i.e., ambient noise levels (where no measureable effect from the project would occur). Based on JASCO's modeled sound propagation estimates, received levels from drilling operations (the loudest noise source) is expected to decline to 120 dB within 7 km of the project location (Warner and Austin 2016). Therefore, the action area for this action extends to all marine waters within 7 km of the transient float replacement project (Figure 3; see Section 6 of this Opinion for further explanation). The action area also includes the transit area for vessels involved in construction, and traffic lanes during operation of the transient float. These areas are all encompassed within the 7 km noise propagation zone.

Our assessment indicates that although the action itself is largely confined to Near Island Channel, the Level B exposure zone for this project will extend out seven kilometers from the project site when the down-hole drill is operating (Figure 3). See Section 6.2.2 for further explanation.

3.0 APPROACH TO THE ASSESSMENT

Section 7(a)(2) of the ESA requires Federal agencies, in consultation with NMFS, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitat. The jeopardy analysis considers both survival and recovery of the species. The adverse modification analysis considers the impacts to the conservation value of the designated critical habitat.

To "jeopardize the continued existence" of a listed species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR § 402.02). As NMFS explained when it promulgated this definition, NMFS considers the likely impacts to a species' survival as well as likely impacts to its recovery. Further, it is possible that in certain, exceptional circumstances, injury to recovery alone may result in a jeopardy biological opinion (51 FR 19926, 19934; June 2, 1986).

Under NMFS's regulations, the destruction or adverse modification of critical habitat "means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species"; such "alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (50 CFR § 402.02).

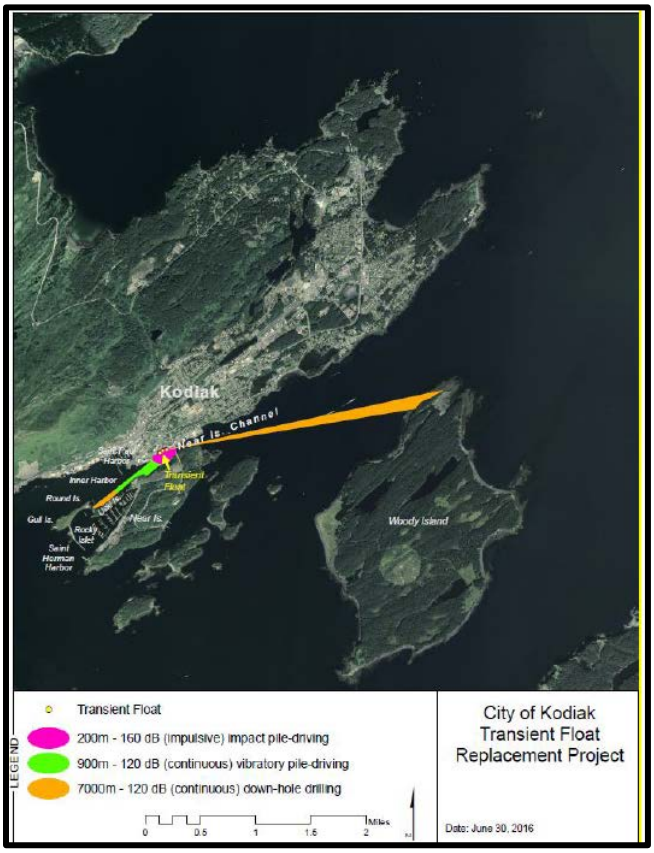

Figure **3**. Extent of action area to Level B exposure zones –Transient Float Replacement Project

The designation(s) of critical habitat for Steller sea lions uses the term primary constituent element (PCE) or essential features. The new critical habitat regulations (81 FR 7414; February 11, 2016) replace this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this Opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

In this Opinion, we use the following steps to determine whether the proposed action described in Section 2.1 is likely to jeopardize listed species or destroy or adversely modify critical habitat:

1. Identify the current status of each listed species and its critical habitat range-wide, and their occurrence in the action area (Section 4 of this Opinion)

2. Describe the environmental baseline in the action area (Section 5 of this Opinion)

3. Identify and analyze those aspects of the proposed action that are likely to have direct or indirect effects on listed species or critical habitat (Section 6 of this Opinion)

4. Determine whether and how listed species are likely to respond given their exposure (Section 6.3 of this Opinion)

5. Describe any cumulative effects (Section 7 of this Opinion)

6. Integrate and synthesize the above factors to assess the risk that the proposed action poses to listed species and critical habitat (Section 8 of this Opinion)
7. Reach conclusions regarding the likelihood of jeopardizing the species' continued existence and of destroying or adversely modifying critical habitat (Section 9 of this Opinion).

4.0 RANGEWIDE STATUS OF THE SPECIES AND CRITICAL HABITAT

Four species of ESA-listed marine mammals under NMFS's jurisdiction may occur in the action area: the endangered fin whale, the threatened Mexico DPS humpback whale, the endangered Western North Pacific DPS humpback whale, and the endangered Western DPS Steller sea lion (Table 2). The action area also includes designated critical habitat for Steller sea lions.

Table 2. Listing status and critical habitat designation for marine mammal species considered in this Opinion.

Species	Status	Listing	Critical Habitat
Western DPS Steller Sea Lion (*Eumetopias jubatus*)	Endangered	NMFS 1997, 62 FR 24345	NMFS 1993, 58 FR 45269
Western North Pacific DPS Humpback Whale (*Megaptera novaeangliae*)	Endangered	NMFS 2016, 81 FR 62260	Not designated
Mexico DPS Humpback Whale (*Megaptera novaeangliae*)	Threatened	NMFS 2016, 81 FR 62260	Not designated
Fin Whale (*Balaneoptera physalus*)	Endangered	NMFS 1970, 35 FR 18319	Not designated

4.1 Species and Critical Habitat Not Considered Further in this Opinion

We reviewed the species and critical habitats listed above and determined that the following species and designated critical habitats were not likely to be adversely affected by the proposed action: Fin whales, Western North Pacific DPS humpback whales, and Steller sea lion critical habitat. These analyses are provided below.

4.1.1 Fin whale

The fin whale was listed as an endangered species under the Endangered Species Conservation Act in 1970 (35 FR 18319; December 2, 1970) and continued to be listed as endangered following passage of the ESA in 1973. Information on fin whale biology and habitat is available at www.nmfs.noaa.gov andwww.fisheries.noaa.gov.

A migratory species, fin whales generally spend the spring and early summer feeding in cold, high latitude waters as far north as the Chukchi Sea, with regular feeding grounds in the Gulf of Alaska, Prince William Sound, along the Aleutian Islands, and around Kodiak Island, primarily on the western side. In the fall, fin whales tend to return to low latitudes for the winter breeding season, though some may remain in residence in their high latitude ranges if food resources remain plentiful. In the eastern Pacific, fin whales typically spend the winter off the central California coast and into the Gulf of Alaska. Panigada *et al*. (2005) found water depth to be the most significant variable in describing fin whale distribution, with more than 90% of sightings occurring in waters deeper than 2,000 m.

During aerial surveys of Steller sea lion critical habitat in the Kodiak area from 2001 to 2004, Wynne and Witteveen (2005) observed fin whales in every month of the year, though they were seen most frequently during spring and summer. The greatest number of sightings were along the west coast of Kodiak Island; fin whales were rarely observed on the tracklines north of Afognak Island or along the eastern shore of Kodiak Island (the Kodiak Harbor side).

An "Unusual Mortality Event" (UME) of large whales (including fin whales) began in the western Gulf of Alaska in May of 2015. See information at: www.nmfs.noaa.gov. The event has included six fin whales in the immediate vicinity of Kodiak Island; however, the majority of fin whale carcasses have been located on the west side of Kodiak, along Shelikof Strait. This comports with aerial survey results, indicating that fin whales rarely occur nearshore on the east side of Kodiak Island.

Data on fin whale density in the vicinity of Kodiak Island are limited. Based on visual and acoustic cetacean surveys covering 760 km in the central Gulf of Alaska Naval Training Exercise Area (at the closest, over 100 km east of the project area), Rone *et al.* (2009) estimated a maximum density of 0.011 fin whales per km^2.

Fin whales are not expected to be found near the project area because of its location in the narrow and shallow Near Island Channel and the high level of boat traffic in the area (NMFS 2016a). The City has not requested, and NMFS PR1 does not intend to authorize, any injury or harassment of fin whales in association with the project. Given their expected low density in the project area, the shallowness of the Near Island Channel relative to the species' preferred foraging depths (Panigada *et al*. 2005), and the short project duration (fewer than 60 hours total construction time, spread out over 2.5 months), we conclude that it would be extremely unlikely to encounter a fin whale in the action area, and thus any effects to this species are discountable. We therefore concur with the determination that the KTF Replacement Project is not likely to adversely affect fin whales.

4.1.2 Western North Pacific DPS Humpback Whale

As described in Section 4.3.2 of this Opinion, NMFS recently published a final rule revising the listing status of humpback whale species into 14 DPSs, designating four of these as endangered, one as threatened, and finding that the nine remaining DPSs do not warrant ESA listing (81 FR 62260; September 8, 2016). The Western North Pacific DPS is one of the four endangered DPSs.

Based on an analysis of migration between winter mating/calving areas and summer feeding areas using photo-identification, Wade *et al.* (2016) concluded that whales feeding in Alaskan waters belong primarily to the non-listed Hawaii DPS. In the Gulf of Alaska area, we consider recovered Hawaii DPS individuals to comprise 89 percent, threatened Mexico DPS individuals to comprise 10.5 percent, and endangered Western North Pacific DPS individuals to comprise 0.5 percent of the humpback whales present. As indicated in Section 6.2.4 of this Opinion, NMFS PR1 estimates that, at most, one humpback whale could be present in the area on half of the 12 days of in-water construction, and therefore proposes to authorize six Level B exposures of humpback whales (81 FR 79350; November 10, 2016). Of these six whales, an estimated 0.005 x 6, or three one-hundredths of one, endangered Western North Pacific DPS humpback whale would be expected to occur in the action area. We therefore consider it extremely unlikely that a Western North Pacific DPS humpback whale will be harmed or harassed due to project noise. Consequently, we find the effects on this DPS to be discountable, and we concur with the determination that the KTF Replacement Project is not likely to adversely affect endangered Western North Pacific DPS humpback whales.

4.1.3 Steller Sea Lion Critical Habitat

The 20-mile aquatic zones surrounding rookeries and major haulout sites provide foraging habitats, prey resources, and refuge considered essential to the conservation of lactating female, juvenile, and non-breeding Steller sea lions (58 FR 45269; August 27, 1993). As detailed in Section 4.3.1 below, the action area overlaps with the 20-nautical mile critical habitat areas around two Steller sea lion major haulouts, located approximately 7 km (4 nm) and 24 km (13 nm) from the project footprint. The in-air and underwater sound generated by project activities will attenuate to sound levels below 120 dB at these haulouts, due to both distance from the source and the intervening geography, and any effects on the suitability of this critical habitat area for Steller sea lions would be too small to detect or measure.

Sounds produced by this project are insufficient to affect Steller sea lion prey resources beyond several meters. Though we lack data on effects of pile driving on fish, effects of much louder seismic airgun arrays have been studied. In their detailed review of studies on the effects of airguns on fish, Dalen *et al*. (1996) concluded that airguns can have deleterious effects on fish eggs and larvae out to a distance of 16 ft. (5.0 m), but that the most frequent and serious injuries are restricted to the area within 5.0 ft. (1.5 m) of the airguns. Given the very small area of critical habitat that may experience noise sufficient to disrupt Steller sea lion prey, any effects on the suitability of critical habitat for feeding would be too small to detect or measure.

We therefore conclude that sound from this project will have an insignificant effect on the essential features of critical habitat, and thus we concur with the determination that the KTF Replacement Project is not likely to adversely affect Steller sea lion critical habitat.

4.2 Climate Change

Climate change is a factor potentially affecting the range-wide status of all species (including humans) and is of particular relevance for Arctic species. The general discussion in this Section applies to all species addressed in this Opinion. Additional information may be found in the Environmental Baseline Section. We note that the duration of this action is one year, January 1, 2017, through December 31, 2017, and all construction is anticipated to be completed in 2.5 months. Over such a short project duration, climate change-driven changes to the effects of this action are expected to be *de minimis*.

Since the 1950s the atmosphere and oceans have warmed, snow and sea ice have diminished in both areal extent and volume, sea level has risen, and concentrations of greenhouse gases have increased. The time period 1983-2012 was likely the warmest 30-year period in the Northern Hemisphere in the last 1400 years (IPCC 2013). There has been strong scientific consensus over the past two decades that atmospheric temperatures are increasing, affecting many of the earth's climate-related processes (IPCC 1990; Houghton *et al.* 2001; Oreskes 2004; Frame and Stone 2013; NASA 2016). The overwhelming majority of climate scientists agree that human activities, especially the burning of fossil fuels (coal, oil, and gas), are responsible for most of the climate change currently being observed (NRC 2012).

Effects to marine ecosystems from increased atmospheric CO_2 and climate change include ocean acidification, expanded oligotrophic gyres, and shifts in temperature, circulation, stratification, and nutrient input (Doney *et al*. 2012). Altered oceanic circulation and warming cause reduced subsurface oxygen concentrations (Keeling *et al*. 2010). These large-scale shifts have the potential to disrupt existing trophic pathways as change cascades from primary producers to top level predators (Doney *et al*. 2012, Salinger *et al*. 2013). Effects to marine mammals could include changes in the distribution of temperatures suitable for rearing young, the distribution and abundance of prey, and the distribution and abundance of competitors or predators.

The potential impacts of climate and oceanographic change on whales will likely affect habitat availability and food availability. Site selection for whale migration, feeding, and breeding may be influenced by factors such as ocean currents and water temperature. For example, there is some evidence from Pacific equatorial waters that sperm whale feeding success and, in turn, calf production rates are negatively affected by increases in sea surface temperature (Smith and Whitehead 1993, Whitehead 1997). Any changes in these factors could render currently used habitat areas unsuitable. Changes to climate and oceanographic processes may also lead to decreased prey productivity and different patterns of prey distribution and availability. Such changes could affect whales that are dependent on those affected prey. Variations in sea-surface temperatures and the extent of sea-ice cover during the winter months have been linked to variations in the recruitment of krill (*Euphausia superba*) and the reproductive success of krill predators. Different species of whales will likely react to these changes differently. For example, range size, location, and whether or not specific range areas are used for different life history activities (e.g., feeding, breeding) are likely to affect how each species responds to climate change (Learmouth *et al*. 2006).

Climate change will affect pinnipeds on land where they rest and give birth to young, and at sea where they forage. On land, sea level rise and larger, more frequent storms may reduce or eliminate resting and birthing areas. (Learmouth *et al*. 2007; NPS 2016). Changes in ocean

currents, ocean acidification, and other alterations in climate cycles such as changes in the frequency of El Nino events are likely to alter ocean food webs and affect the abundance and diversity of prey items. These changes may also affect susceptibility to diseases. Some changes may be positive. For example, new suitable habitats may become available for some species (Learmouth *et al*. 2006, NPS 2016).

The strongest warming is expected in the north, exceeding the estimate for mean global warming by a factor or 3, due in part to the "ice-albedo feedback loop." As the reflective areas of Arctic ice and snow retreat, the earth absorbs more heat, accentuating the warming (NRC 2012). Climate change is projected to have substantial direct and indirect effects on individuals, populations, species, and the structure and function of marine, coastal, and terrestrial ecosystems in the foreseeable future (NRC 2012).

4.3 Status of Listed Species Considered in this Opinion

This Section consists of narratives for each of the endangered and threatened species that occur in the action area and that may be adversely affected by the proposed action.

4.3.1 Western DPS Steller Sea Lion

Description and Status

The family Otariidae, to which Steller sea lions belong, encompasses "eared" seals, including fur seals. Steller sea lions, the largest otariids, show marked sexual dimorphism with males 2-3 times larger than females. On average, adult males weigh 566 kg (1,248 lbs.) and adult females are much smaller, weighing on average 263 kg (580 lbs.; Fiscus 1961; Calkins and Pitcher 1982; Winship *et al*. 2001).

The Steller sea lion was listed as a threatened species under the ESA on November 26, 1990 (55 FR 49204). In 1997, NMFS reclassified Steller sea lions as two DPSs based on genetic studies and other information (62 FR 24345; May 7, 1997). At that time, the eastern DPS (which includes animals born east of Cape Suckling, Alaska, at 144°W longitude) was listed as threatened, and the western DPS (which includes animals breeding west of Cape Suckling, both in Alaska and Russia) was listed as endangered. On November 4, 2013, the eastern DPS was removed from the endangered species list (78 FR 66140). Information on Steller sea lion biology, threats, and habitat (including critical habitat) is available online in the revised Steller Sea Lion Recovery Plan (NMFS 2008).

As summarized most recently by Muto *et al*. (2016), the western stock of Steller sea lions decreased from an estimated 220,000-265,000 animals in the late 1970s to less than 50,000 in 2000. Factors that may have contributed to this decline include incidental take in fisheries, legal and illegal shooting, predation, exposure to contaminants, disease, and ocean regime shift/ climate change (NMFS 2008; Miller and Trites 2005). The most recent comprehensive aerial photographic and land-based surveys of western Steller sea lions in Alaska (DeMaster 2014) estimated a total Alaska population (both pups and non-pups) of 49,500 (Muto *et al.* 2016). Although Steller sea lion abundance continues to decline in the western Aleutians, numbers are thought to be increasing in the eastern part of the western DPS range. In fact, the Eastern Gulf of Alaska Region, which includes the action area, has the highest positive growth rate (5.07%/year, 2000-2015) of any of the nine WDPS Steller sea lion sub-regions (Muto *et al.* 2016).

Range

Steller sea lions prefer the colder temperate to sub-arctic waters of the North Pacific Ocean. They range along the North Pacific Rim from northern Japan to California, with centers of abundance in the Gulf of Alaska and Aleutian Islands (Loughlin *et al.* 1984). Although Steller sea lions seasonally inhabit coastal waters of Japan in the winter, breeding rookeries outside of the U.S. are located only in Russia (Burkanov and Loughlin 2005). The eastern DPS includes sea lions born on rookeries from California north through Southeast Alaska; the western DPS includes those animals born on rookeries from Prince William Sound westward, with an eastern boundary set at 144°W (Figure 4). Steller sea lions are not known to migrate annually, but individuals may widely disperse outside of the breeding season (late-May to early-July) (Jemison *et al.* 2013; Allen and Angliss 2015). Most Steller sea lions in the action area for the proposed action are expected to be from the western DPS (Jemison *et al*. 2013).

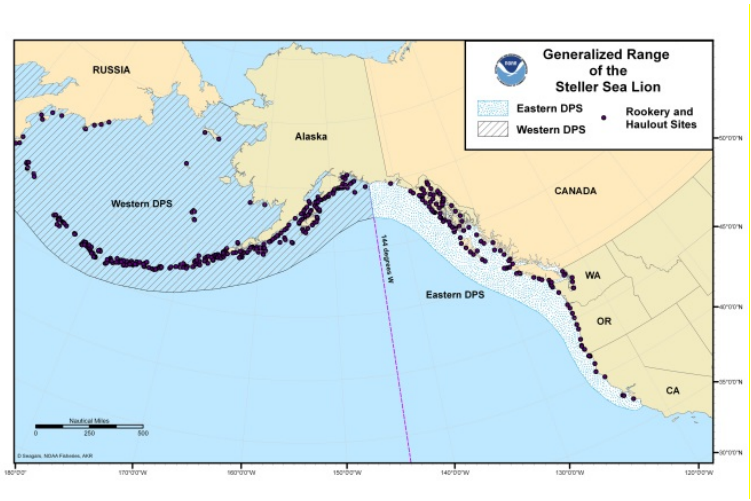

Figure 4. Generalized ranges of WDPS and EDPS Steller sea lions

Distribution in the Project Area

WDPS Steller sea lions frequent Kodiak Harbor and the action area. Many sea lions have become habituated to human activity in the Kodiak Harbor area and use Dog Bay float in St. Herman Harbor, about 1400 m (4,600 ft) from the transient float (Figure 5). The Dog Bay float is a section from an old floating breakwater that was relocated in 2000 to be a dedicated sea lion haulout. Sea lions prefer this relatively undisturbed haulout (Figure 6), and it has proven effective in reducing sea lion-human conflicts in Kodiak's docks and harbors. Despite this innovative solution, Steller sea lion interactions still present problems, particularly for fishing vessels in and around Kodiak Harbor (Figure 7). The proposed IHA for this project (NMFS 2016a) notes that the seafood processing facilities in Kodiak are regularly visited by sea lions looking for food. Sea lions in the Kodiak harbor area are habituated to fishing vessels and are skilled at gaining access to fish. It is likely that some of the same animals follow local vessels to the nearby fishing grounds and back to town; however, the project is scheduled to occur prior to the peak fishing season in the region. Based on numbers at the Dog Bay float and sea lion behavior, it is estimated that about 40 unique individual sea lions likely pass by the project site each day (cited in NMFS 2016a).

Bi-weekly census of Steller sea lions at the Dog Bay float conducted from November 2015 to June 2016 (in association with the Kodiak Ferry Terminal project) revealed maximum numbers (>100) from mid-March through mid-June (ABR 2016). The highest average hourly number of sea lions (11-15/hr) within the entire Kodiak Ferry Terminal observation area occurred from February through April 2016 (ABR 2016).

Figure 5. Location of Dog Bay float (middle left) relative to the transient float

Figure 6. Steller sea lions hauled out on the Dog Bay float in St. Herman Harbor

Figure 7. Steller sea lions on and near a vessel delivering fish to a processing facility in Near Island Channel

Hearing Ability

The ability to detect sound and communicate underwater is important for a variety of Steller sea lion life functions, including reproduction and predator avoidance. NMFS categorizes Steller sea lions in the otariid pinniped functional hearing group, with an applied frequency range between 60 Hz and 39 kHz in water (NMFS 2016). Studies of Steller sea lion auditory sensitivities have found that this species detects sounds underwater between 1 to 25 kHz (Kastelein *et al.* 2005), and in air between 250 Hz and 30 kHz (Muslow and Reichmuth 2010; Reichmuth and Southall 2011). Sound signals from pile installation and extraction operations are anticipated to be within the hearing range of Steller sea lions.

Critical Habitat

NMFS designated critical habitat for the Steller sea lion on August 27, 1993 (58 FR 45269), citing the physical and biological habitat features that support reproduction, foraging, rest, and refuge, including terrestrial, air, and aquatic zones (58 FR 45269). Steller sea lion critical habitat in western Alaska includes a 20 nautical mile buffer around all major haulouts and rookeries, as well as associated terrestrial, air, and aquatic zones, and three large offshore foraging areas (Shelikof Strait, Bogoslof, and Seguam Pass). The 20-mile critical habitat radii around haulouts and rookeries serve to minimize disturbance around these important areas and also to provide an adequate food supply close to rookeries for lactating females, who alternate foraging trips at sea with nursing their pups on land.

The 20-nautical mile buffers of two haulouts (Long Island and Cape Chiniak) overlap the action area, with the haulouts located approximately 7 km (4 nm) and 24 km (13 nm), respectively, from the transient float. The Ugak Island haulout and Marmot Cape rookery occur in the general vicinity, but critical habitat associated with those sites does not overlap the action area (Figure 8).

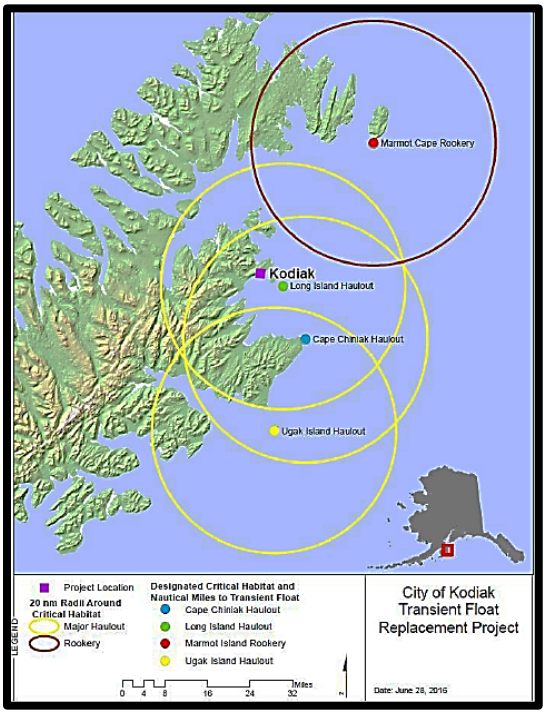

Figure 8. Steller sea lion critical habitat in the vicinity of the Kodiak Transient Float Project

4.3.2 Mexico DPS Humpback Whale

Description, Status, and Range

Humpbacks are classified in the cetacean suborder Mysticeti, whales characterized by having baleen plates for filtering food from water, rather than teeth like the toothed whales (Odontoceti). The humpback whale is one of the larger baleen whales, weighing up to 25-40 tons (50,000-80,000 pounds; 22,000-36,000 kg) and up to 60 feet (18 m) long, with females larger than males. Newborns are about 15 feet (4.5 m) long and weigh about 1 ton (2,000 pounds; 900 kg).

Humpback whales reach sexual maturity at 4-7 years, and their lifespan is probably around 50 years or more. The species is well known for long pectoral fins, which can be up to 15 feet (4.6 m) long. The body coloration is primarily dark grey, but individuals have a variable amount of white on their pectoral fins and belly. This variation is so distinctive that tail fluke pigmentation patterns are used to identify individual whales, analogous to human fingerprints. Humpbacks filter feed on tiny crustaceans (mostly krill), plankton, and small fish; they can consume up to 3,000 pounds (1,360 kg) of food per day. Several hunting methods involve using air bubbles to herd, corral, or disorient fish. Additional information on humpback whale biology and habitat is available at www.fisheries.noaa.gov and www.nmfs.noaa.gov.

The humpback whale is distributed worldwide in all ocean basins, with a total population of at least 80,000. Humpback whales are found in all oceans of the world with a broad geographical range from tropical to temperate waters in the Northern Hemisphere and from tropical to near-ice-edge waters in the Southern Hemisphere. Nearly all populations undertake seasonal migrations from their tropical calving and breeding grounds in winter to their high-latitude feeding grounds in summer. Humpbacks may be seen at any time of year in Alaska, but most animals winter in temperate or tropical waters near Mexico, Hawaii, and in the western Pacific near Japan. In the spring, the animals migrate back to Alaska where food is abundant. They tend to concentrate in several areas, including Southeast Alaska, Prince William Sound, Kodiak, the Barren Islands at the mouth of Cook Inlet, and along the Aleutian Islands. The Chukchi Sea is the northernmost area for humpbacks during their summer feeding, although, in 2007, humpbacks were seen in the Beaufort Sea east of Barrow, which would suggest a northward expansion of their feeding grounds (Zimmerman and Karpovich 2008).

In 1970, the humpback whale was listed as endangered worldwide, under the Endangered Species Conservation Act of 1969 (35 FR 8491; June 2, 1970), primarily due to decimation from whale harvest. When the ESA was enacted in 1973, humpback whales were included in the List of Endangered and Threatened Wildlife and Plants as endangered and were considered as "depleted" under the MMPA.

Following the cessation of most legal whale harvest, humpback whale numbers increased. NMFS recently completed a global status review of humpback whales (Bettridge *et al.* 2015). After analysis and extensive public review, NMFS published a final rule on September 8, 2016 (81 FR 62260), recognizing 14 DPSs, designating four of these as endangered and one as threatened, with the remaining nine not warranting ESA listing status. Wade *et al.* (2016) provides information on the basis for DPS designation and the status of each DPS.

Based on an analysis of migration between winter mating/calving areas and summer feeding areas using photo-identification, Wade *et al.* (2016) concluded that whales feeding in Alaskan waters belong primarily to the Hawaii DPS (recovered), with small contributions of Western North Pacific DPS (endangered) and Mexico DPS (threatened) individuals. In the action area of the Kodiak float replacement project (Gulf of Alaska area), we consider Hawaii DPS individuals to comprise 89 percent of the humpback whales present, Mexico DPS individuals to comprise 10.5 percent, and Western North Pacific DPS individuals to comprise 0.5 percent (Table 3).

Abundance

Within the summer feeding area of the Gulf of Alaska, Wade *et al*. (2016) estimates the abundance of humpback whales to be 2,089 (CV=0.089). Based on the probability of occurrence (Table 3), we would anticipate Gulf of Alaska may contain approximately 11 humpback whales of the WNP DPS, 1,859 from the Hawaii DPS, and 219 from the Mexico DPS.

Distribution in the Project Area

Humpback whales generally begin their migration from the warm waters of Hawaii and Mexico in February, arriving in Alaska waters in April. These whales could be present during the latter part of the anticipated March-May time frame of the proposed project. Although the Gulf of Alaska waters surrounding Kodiak Island provide important feeding areas for humpback whales (Witteveen 2007; Calambokidis *et al.* 2001; Wade *et al.* 2016), NMFS has heretofore not

expected the species to be present in the relatively shallow and narrow Near Island Channel adjacent to the proposed project (NMFS 2013; NMFS 2015a). However, during marine mammal monitoring for the Kodiak ferry terminal project, a single humpback whale was seen transiting through the channel on March 15, 2016 (ABR 2016). Based on the analysis of Wade *et al*. (2016)

Table 3. Probability of encountering humpback whales from each DPS in the North Pacific Ocean (columns) in various feeding areas (rows). Adapted from Wade *et al*. (2016).

Summer Feeding Areas	**North Pacific Distinct Population Segments in Alaska**		
	Western North Pacific DPS (endangered)	Hawaii DPS (not listed)	Mexico DPS (threatened)
Kamchatka	100%	0%	0%
Aleutian Islands, Bering, Chukchi, Beaufort	4.4%	86.5%	11.3%
Gulf of Alaska	0.5%	89.0%	10.5%
Southeast Alaska/ Northern BC	0%	93.9%	6.1%
NOTE: For the ESA-listed DPSs, these percentages reflect the upper limit of the 95% confidence interval of the probability of occurrence in order to give the benefit of the doubt to the species and to reduce the chance of underestimating potential takes			

there is an 89% probability that this whale belonged to the non-listed Hawaii DPS (Table 3). Although we still consider the presence of any humpback whale in Near Island Channel to be a rare event, its probability cannot be discounted. Further, should such an unlikely event occur, there is only a 10.5% probability that the animal would belong to the threatened Mexico DPS.

Hearing Ability

Because of the lack of captive subjects and logistical challenges of bringing experimental subjects into the laboratory, no direct measurements of mysticete hearing are available. Consequently, hearing in mysticetes is estimated based on other means such as vocalizations (Wartzok and Ketten, 1999), anatomy (Houser *et al*. 2001; Ketten 1997), behavioral responses to

sound (Edds-Walton 1997), and nominal natural background noise conditions in their likely frequency ranges of hearing (Clark and Ellison 2004). The combined information from these and other sources strongly suggests that mysticetes are likely most sensitive to sound from perhaps tens of hertz to ~10 kHz. However, evidence suggests that humpbacks can hear sounds as low as 7 Hz (Southall *et al*. (2007), up to 24 kHz, and possibly as high as 30 kHz (Au *et al.* 2006; Ketten 1997).

5.0 ENVIRONMENTAL BASELINE

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process (50 CFR § 402.02).

The project vicinity is an area of high human use and habitat alteration. Ongoing human activity in the action area that impact marine mammals includes marine vessel activity, pollution, climate change, noise (e.g., aircraft, vessel, pile-driving, dredging, etc.), and coastal zone development.

5.1 Marine Vessel Activity

Ferries, fishing vessels and tenders, barges, tugboats, and other commercial and recreational vessels use the nearby channel to access harbors, fuel docks, processing plants, and other commercial facilities (NMFS 2015a). During peak fishing seasons (June – September), vessels raft up three and four deep to offload catch at the two shore-based fish processors, one immediately to the east and one a short distance to the west of the transient float.

Although risk of ship strike has not been identified as a significant concern for Steller sea lions (Loughlin and York 2000), the recovery plan for this species states that Steller sea lions may be more susceptible to ship strike mortality or injury in harbors or in areas where animals are concentrated (e.g., near rookeries or haulouts; NMFS 2008).

Vessel strikes of humpback whales present a greater concern. An examination of all known ship strikes for large (baleen and sperm) whales from all shipping sources indicates vessel speed is a principal factor in whether a vessel strike results in death (Laist *et al.* 2001; Vanderlaan and Taggart 2007). In assessing records with known vessel speeds, Laist *et al.* (2001) found a direct relationship between the occurrence of a whale strike and the speed of the vessel involved in the collision. The authors concluded that most deaths occurred when a vessel was traveling in excess of 24.1 km/h (14.9 mph; 13 kts).

Neilson *et al*. (2012) summarized 108 reported whale-vessel collisions in Alaska from 1978 to 2011. Most strikes (86%) involved humpback whales. Small vessel strikes were most common (<15 m, 60%), but medium (15–79 m, 27%) and large (≥80 m, 13%) vessels also struck humpback whales. Most strikes (91%) occurred in May through September, and there were no reports from December or January. The majority of strikes (76%) were reported in southeastern Alaska. NMFS has records of five whale-vessel interactions in the Kodiak vicinity from 2000 to 2015. The only documented lethal strike was from the Alaska ferry, M/V *Kennicott*, on July 26, 2014. All five incidences occurred from June to August.

Most vessels in the Near Island Channel travel at relatively low speeds when they approach docking areas or to avoid obstacles. For maintenance dredging operations in the project vicinity, the Corps imposes speed limits of less than 8 knots on contractor vessels moving in and around the project area.

5.2. Pollution

A number of intentional and accidental discharges of contaminants pollute the marine waters of Alaska annually. Intentional sources of pollution, including domestic, municipal, and industrial wastewater discharges, are managed and permitted by the State of Alaska Department of Environmental Conservation (ADEC). Pollution may also occur from unintentional discharges and spills.

Within the action area, there are three ADEC-permitted seafood processing discharges. These and other facilities, including the City, operate under ADEC Multi-Sector General Permit for storm water discharges. These require implementation of a Stormwater Pollution Prevention Plan (ADEC 2016). While these and other un-permitted sources have the potential to carry pollutants into the action area, there is no evidence of adverse effects to marine mammals in the Near Island Channel, which represents a very small fraction of the species' ranges.

5.3. Climate and Ocean Regime Change

As described in Section 4.2, climate change may impact marine mammals through changes in the distribution of temperatures suitable for rearing young, the distribution and abundance of prey, and the distribution and abundance of competitors or predators.

Changes in ocean climate are hypothesized to have affected the quantity, quality, and accessibility of prey, which in turn may have affected populations of marine mammals, including humpback whales and sea lions. Shifts in ocean climate are the most parsimonious underlying explanation for the broad suite of ecosystem changes that have been observed in the North Pacific Ocean in recent decades (Trites *et al*. 2007; Miller *et al.* 2005).

5.4. In-Water Noise

The Transient Float project area is subject to noise from many anthropogenic sources, including marine vessels, marine fueling facilities, cargo loading and offloading operations, shore-based processing plants, maintenance dredging, aircraft, shoreline and dock construction, and land vehicles. The project area is frequented by: fishing vessels and tenders; the M/V *Tustumena* and other ferries; barges and tugboats; and other commercial and recreational vessels. These vessels use the channel to access harbors and city docks, fuel docks, processing plants where fish catches are offloaded, and other commercial facilities. Just south of the transient float, the Petro Marine fuel dock services a wide range of vessels; Pier 1, also in the immediate project vicinity, provides docking for large vessels; and the seafood processing dock offloads fish by vacuum hose straight into the processing plant from the vessels' holds. The channel is also a primary route for local vessel traffic to access Gulf of Alaska waters and is in the flight path of the Kodiak airport.

In 2015, NMFS completed a formal consultation on improvements and repairs to the Kodiak Ferry Dock and Terminal (NMFS 2015a). In association with this project, ambient underwater sound was measured in Near Island Channel, approximately 100 m southwest and 900 m

northeast of the Transient Float, in March 2016. Measurements recorded highly variable sound pressure levels, ranging from approximately 80 to 140 dB re 1 μPa (Warner and Austin 2016). However, an author of the study confirmed that for the majority of the time, ambient sound levels in Near Island Channel were well below the NMFS acoustic threshold of 120 dB re 1 μPa for Level B harassment associated with continuous noise (M. Austin, pers. comm. October 2016). Median background sound levels in Kodiak were measured to be 100.1 dB (Warner and Austin 2016).

5.5. Coastal Zone Development

Coastal zone development results in the loss and alteration of nearshore marine mammal habitat and changes in habitat quality. The shoreline in the immediate project area is highly developed. As mentioned above, impervious surfaces directly abut the shoreline adjacent to the float, and there is no natural shoreline in the project area (see Figures 1 & 2). As mentioned in Section 4.3.1, the Dog Bay float provides an artificial near-shore resting area for Steller sea lions, which seem to have adapted remarkably well to human alterations of the natural coastline. Coastal development around the project site does not significantly affect habitat for large whales, due to their preference for deeper waters.

6.0 EFFECTS OF THE ACTION

"Effects of the action" means the "direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline" (50 CFR § 402.02). Indirect effects are "those that are caused by the proposed action and are later in time, but still are reasonably certain to occur" (50 CFR § 402.02).

We organize our effects analyses using a stressor identification – exposure – response – risk assessment framework for the proposed construction activities. We conclude this Section with an "Integration and Synthesis of Effects" that integrates information presented in the "Status of the Species" and "Environmental Baseline" Sections of this Opinion with the results of our exposure and response analyses to estimate the probable risks the proposed action poses to endangered and threatened species.

6.1 Direct and Indirect Effects

6.1.1 Acoustic Disturbance/Noise from Pile Extraction and Installation

If a sound is loud enough, it may cause discomfort or tissue damage to auditory or other systems of all animals, including humans (NIH 2014). Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Southall *et al.* 2007). TS can be permanent (PTS), in which case hearing sensitivity is not recoverable, or temporary (TTS), in which case the animal's hearing threshold can recover over time (Southall *et al*. 2007).

Marine mammals depend on acoustic cues for vital biological functions (e.g., orientation, communication, finding prey, avoiding predators); thus, TTS may result in reduced fitness in survival and reproduction. However, this depends on the frequency and duration of TTS, as well as the biological context in which it occurs (Kastak *et al*. 2005). TTS of limited duration,

occurring in a frequency range that does not coincide with that used for recognition of important acoustic cues, would have little to no effect on an animal's fitness. Although repeated TTS sound exposure could cause PTS, which constitutes injury, NMFS classifies TTS as disturbance (Level B) harassment (Southall *et al*. 2007; NMFS 2016b).

Direct impacts of noise to marine mammals depend not only on sound magnitude but also on the species receiving the sound, exposure type (e.g., continuous vs. pulse), duration, site characteristics, and individual animal characteristics such as habituation, season, or motivation (Ellison *et al*. 2012). Some of the in-water sound source levels from pile installation and extraction from the proposed action will generate noise loud enough to harm or harass WDPS Steller sea lions and Mexico DPS humpback whales at certain distances. Possible impacts include injury and disturbance ranging from mild (e.g., startle response, or masking of species-relevant sounds) to severe (e.g., abandonment of vital habitat). Masking is likely less of a concern for Steller sea lions, which vocalize both in air and water and do not echolocate or communicate with complex underwater "songs."

The impacts of masking may be greater for cetaceans, which produce complex vocalizations for different purposes and across multiple modes, such as whistling, echolocation click production, calling, and singing. Exposure to anthropogenic noise may result in changes to cetacean vocalization behavior. For example, in the presence of potentially masking signals, humpback whales and killer whales have been observed to increase the length of their songs (Fristrup *et al*. 2003; Foote *et al*. 2004), while right whales have been observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks *et al*. 2007).

Auditory interference, or masking, occurs when an interfering noise is similar in frequency and loudness to (or louder than) the auditory signal received by an animal while it is processing echolocation signals or listening for acoustic information from other animals. Masking can interfere with an animal's ability to gather acoustic information about its environment, such as predators, prey, conspecifics, and other environmental cues (Francis and Barber 2013).

The proposed activities could mask vocalizations or other important acoustic information. This could affect communication among individuals or affect their ability to receive information from their environment. However, the primary effects of project activities will occur in an industrialized harbor, where masking from vessel sounds and dock activity likely occurs frequently. We expect any additional contributions that project activities may have to masking in the environment would be very small relative to the existing conditions.

As further explained in Section 6.2, the above-ambient sound of down-hole drilling is anticipated to extend out to 7 km (see also Figure 3). Down-hole drilling is estimated to occur for 48 hours over a 2.5 month period. Given this time frame and the estimate of one Mexico DPS whale occurring within this 7 km zone during project activities, we anticipate any masking effects to Mexico DPS humpbacks to be very small.

6.1.2 Turbidity/Sedimentation

During the estimated 57 hours of in-water project construction (Table 1), a temporary and localized increase in turbidity near the seafloor will occur in the immediate area surrounding each of the 12 piles driven and 19 piles extracted. However, there is a general lack of high silt

content in the sediments within the construction footprint (NMFS 2015a). Also, with the exception of fishing vessels unloading their catches, the narrow Near Island Channel does not support an abundance of prey for Steller sea lions or humpback whales. We conclude that the temporary and localized turbidity associated with the float replacement project is unlikely to measurably affect ESA-listed species, or their prey, in the action area.

6.1.3 Vessel Operations – Potential for Disturbance and/or Strike

Although the new transient float is not anticipated to increase vessel traffic when it is operational, tugs and barges will be used to deliver materials to the project site and will remain onsite during project construction. Additionally, a small skiff will be used for day-to-day project operations. Therefore, marine mammals in the area will be exposed to some additional marine vessel traffic during construction.

Vessels transiting the marine environment have the potential to collide with, or strike, marine mammals (Laist *et al*. 2001; Nielsen *et al*. 2012). As mentioned above, the probability of strike events depends largely on vessel speed (Laist *et al.* 2001). All vessels will follow well-established, frequently utilized navigation lanes in Near Island Channel and will be traveling at slow speeds. Sea lions in the action area are habituated to ship traffic, and are unlikely to change their behavior in response to the slight increase in vessel traffic associated with this project. Humpback whales do not occur frequently in the project area, particularly during the winter months when the project will be implemented. As mentioned above, all documented whale-vessel interactions in the project vicinity occurred from June through August, when whales are more abundant in the area. This fact, coupled with slow vessel speeds, makes the risk of strike from tug and barge operation very small.

Ongoing activities within Kodiak Harbor, including dredging operations and frequent vessel traffic, contribute to elevated background levels of underwater noise in the action area. Tugs and barges can emit significant noise levels, around 171-176 dB (Richardson *et al.* 1995; Kipple and Gabriele 2004). Marine mammals in Kodiak Harbor are currently exposed to such sounds, yet they continue to use the waters of Near Island Channel. This is particularly true for Steller sea lions, which appear attracted to vessels as a potential food source. Given the transitory nature of vessels used for this project, any disturbance of a particular individual by a project-associated vessel will be very limited in space and time, and there is no expectation of increased vessel operations following completion of the new transient float.

6.1.4 Pollution

The risk of spills and pollutants related to the project will be mitigated by implementing best management practices and policies to prevent accidental spills. No discharges into marine waters are authorized for the proposed action. The probability of project effects to Steller sea lions or humpback whales from accidental spills or other pollution sources is very small.

6.2 Noise Exposure Analysis

In-Air Noise

Pinnipeds can be adversely affected by in-air noise. Loud noises can cause hauled-out pinnipeds to flush back into the water, leading to disturbance and possible injury. Pile driving and

extraction associated with this project will generate in-air noise above ambient levels within Kodiak Harbor. However, the predicted distances to the in-air noise disturbance threshold for hauled-out pinnipeds (100 dB rms) will not extend more than 10 m (33 ft) from any type of pile being driven or extracted. As indicated in Table 1, such sounds will occur for an estimated 57 hours over 2.5 months. Because there are no natural or artificial haulouts within this distance, and surrounding docks are elevated high above the surface of the water and therefore inaccessible to Steller sea lions, no in-air disturbance to hauled-out individuals is anticipated as a result of the KTF Replacement Project.

Underwater Noise

The area of impacts from the proposed KTF Project includes the injury and behavioral disturbance zones for marine mammals exposed to waterborne noises generated by pile installation and extraction. The methods used to determine the extent of these zones for this project are described in the following sub-sections.

The MMPA defines "harassment" as: "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) 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]" (16 U.S.C. § 1362(18)(A)). .

While the ESA does not define "harass," NMFS recently issued guidance interpreting the term "harass" as a means to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (Wieting 2016).

6.2.1 Estimated Extent of Activity – Level A (injury) Zone

NMFS has recently developed Technical Guidance (81 FR 51694; August 4, 2016 and NMFS 2016b) on sound levels likely to cause injury to marine mammals (Level A harassment, pursuant to section 3(18)(A)(i) of the MMPA) through the onset of PTS. Under the 2016 Technical Guidance, NMFS divides marine mammals into five groups and presents thresholds for underwater sounds that cause PTS in each group (Table 4). NMFS presents these acoustic thresholds using dual metrics of cumulative sound exposure level (L_E) and peak sound level (PK) for impulsive sounds and L_E for non-impulsive sounds.

Table 4. PTS Onset thresholds for cetaceans and pinnipeds (from NMFS 2016b)

	PTS Onset Acoustic Thresholds* (Received Level)	
Hearing Group	**Impulsive**	**Non-impulsive**
Low-Frequency (LF) Cetaceans	$L_{pk,flat}$: 219 dB $L_{E,MF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	$L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	$L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	$L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	$L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 219 dB

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.
Note: Peak sound pressure (Lpk) has a reference value of 1 µPa, and cumulative sound exposure level (LE) has a reference value of 1µPa^{2}s. The subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Pile installation and extraction sound source levels and transmission loss data were used from the recent sound source verification conducted in the same area for the Kodiak Ferry Terminal Project (Warner and Austin 2016). These data and the recently released *Technical Guidance* (NMFS 2016b) were used to derive the Level A harassment zones for humpback whales and Steller sea lions, following the user spreadsheet that accompanies the guidance (available at www.nmfs.noaa.gov). Results and proposed shut-down zones to be used during construction of the KTF are shown in Table 5.

The shut-down zones indicated in Table 5 will be thoroughly monitored, and, as indicated in the 4MP for this project (Appendix A), shut down procedures will be implemented (construction activities suspended) if a marine mammal is observed likely to enter the shutdown zone. Therefore, NMFS does not anticipate, and does not propose to authorize, any project-related Level A harassment.

Table 5. Level A and B Isopleth Distances (ZOIs) for the three proposed Kodiak Transient Float construction equipment types

Source	Source Level[a] (dB) (SL)	Transmission Loss[a] (TL)	Level B Isopleths and shut-down zones (bold) proposed by applicant		Level A Isopleths and shut-down zones (bold) proposed by applicant (m)	
			Impulsive (160 Db)	Non-impulsive (120 dB)	Sea Lions	Humpbacks
Impact pile driving	205.9	20.3	(182) **200**[b]	--	(0.3) **10**	(3.7) **100**
Vibratory Pile driving	183.8	21.9	--	(818) **900**[b]	(0.8) **10**	(7.1) **100**
Down-Hole Drilling	192.5	18.9		(6854) **7,000**[b]	(5.5) **10**	(71.7) **100**

[a] SL and TL values drawn from Warner and Austin 2016
[b] (Actual) and **rounded** values (proposed by the City)
[c] All values exceed calculated level A isopleth distance

6.2.2 Estimated Extent of Activity – Level B (disturbance) Zone

NMFS is in the process of developing guidance for behavioral disruption (Level B harassment). However, until such guidance is available, NMFS uses the following conservative thresholds of underwater sound pressure levels,[2] expressed in root mean square (rms)[3], from broadband sounds that cause behavioral disturbance, and referred to as Level B harassment under section 3(18)(A)(ii) of the Marine Mammal Protection Act (MMPA):

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

For in-water sound transmission, the radius of the applicable Level B threshold is calculated by the equation:

$$RL = SL - TL\ (Log_{10}\ R)$$

where RL is received level of sound, SL is source level, TL is the transmission loss coefficient, and R is the radius at which the source level will have attenuated to the desired (160 or 120 dB) received level. The transmission loss coefficient is site specific, depending on depth, substrate type, bottom topography, and other factors.

Where TL is unknown, NMFS applies a "practical spreading loss" coefficient of 15. However, Warner and Austin (2016) provide specific data for the KTF project vicinity for each of the equipment types to be used for construction of the transient float. Plugging their measured SL and TL values into the above equation resulted in calculated level B isopleths for each pile extraction or installation activity (Table 5). The values in Table 5 shown in bold are the zones that the City proposes to monitor in association with KTF construction.

[2] Sound pressure is the sound force per unit micropascals (μPa), where 1 pascal (Pa) is the pressure resulting from a force of one newton exerted over an area of one square meter. Sound pressure level is expressed as the ratio of a measured sound pressure and a reference level. The commonly used reference pressure level in acoustics is 1 μPa, and the units for underwater sound pressure levels are decibels (dB) re 1 μPa.
[3] Root mean square (rms) is the square root of the arithmetic average of the squared instantaneous pressure values.

6.2.3 Potential exposure of Steller sea lions to in-water noise in Near Island Channel

As noted above in Section 4.3.1, there have been numerous counts of Steller sea lions in this area over the past few years. Aerial surveys from 2004 through 2006 indicated peak winter (October–April) counts at the Dog Bay float ranging from 27 to 33 animals per day (Wynne *et al*. 2011). However, ABR (2016) found that maximal weekly counts of sea lions at Dog Bay float were only loosely correlated with the weekly average of sea lion observations per hour within the Kodiak Ferry Terminal construction area.

The number of sea lions in Near Island Channel varies depending on the season and presence of commercial fishing vessels unloading their catch. HDR biologists visiting the Kodiak Ferry Terminal project site in February 2015 observed zero to about 25 Steller sea lions at one time in the Kodiak Ferry Terminal Project area (FHWA and DOT&PF 2015). Steller sea lion counts from November 2015 to June 2016, during Kodiak Ferry Terminal project activities, averaged 33 individuals per day (ABR 2016). It has been estimated that about 40 "resident" sea lions pass by the project site each day (K.Wynne, pers. comm. to S. Speckman June 1, 2015).

Exposure of Steller sea lions to disturbance-level noise associated with the KTF replacement project was estimated by conservatively assuming that on any given day, approximately 40 unique individual Steller sea lions may be present at some time within the Level B disturbance zones during active pile extraction or installation.

Using the calculation:

Exposure estimate = Number of animals exposed/day x Number of days of activity,

we estimate that 40 sea lions/day x 12 days of activity, or 480 Steller sea lions, may be exposed to sounds at or exceeding Level B thresholds during KTF project activities. Because the same individuals may be exposed to project-related noise multiple times, both within and among days, this calculation likely overestimates the number of individual sea lions exposed to Level B noise.

The attraction of sea lions to the seafood processing plants increases the possibility of individual Steller sea lions entering the Level A harassment zone (although the largest injury zone is 5.5 m during down-hole drilling). However, a minimum 10 m shutdown zone for WDPS Steller sea lions, in effect for all construction methods, makes the potential for Level A harassment extremely unlikely. NMFS's proposed IHA for the project authorizes no Level A take for Steller sea lions.

6.2.4 Potential exposure of humpback whales to pile-installation and extraction in Near Island Channel

As noted above in Section 4.3.2, humpback whales occur in nearshore waters around Kodiak Island, but are rarely seen in the action area. Based on the amount of vessel traffic in the narrow and shallow Near Island Channel, humpback whales were considered unlikely to be in the action area of the Kodiak Ferry Terminal project, and no incidental take was authorized (NMFS 2015a). However, during the 110 days of marine mammal monitoring for that project, one humpback whale was observed in Near Island Channel, in March 2016 (not during construction activities, so no shutdown was implemented) (ABR 2016). Humpbacks may also be present in the channel between Woody Island and Near Island Channel where a narrow band of project-related

underwater sounds may be ensonified out to 7 km during down-hole drilling (Figure 3).

In the IHA proposal (81 FR 79350), NMFS estimates that at most, one individual humpback whale could be present in the area on half of the days of in-water construction, and therefore proposes to authorize six Level B exposures of humpback whales. As explained in Section 4.3.2 of this Opinion, we assume that of these six estimated individuals, 89 percent, or 5.34 (rounded to 5), would be assigned to the Hawaii DPS, and 10.5%, or 0.63 (rounded to one), would be assigned to the threatened Mexico DPS. As indicated in Section 4.1.2 above, 0.5%, or 0.03 (rounded to zero), would be from the endangered Western North Pacific DPS. Level A takes of humpbacks from any DPS are not predicted to occur and are not authorized for this species, both because humpback whales are rare in the area, and due to the conservative 100 m shutdown that will be implemented to prevent any noise-related humpback injury.

6.3 Response Analysis

Response analyses examine potential responses of listed species from exposure to the action's direct effects, as well as its effects on their environment. As described earlier in Section 6 of this Opinion, certain factors associated with this project are anticipated to have very small, or no effect, to Steller sea lions or humpback whales. These include:

- masking of species-relevant sounds;
- turbidity and sedimentation;
- disturbance and strike potential from tug and barge operations; and
- direct effects or effects to prey from pollution.

Species responses to noise associated with pile extraction and installation are discussed below.

6.3.1 Responses of WDPS Steller Sea Lions to Pile Extraction and Installation

In-Air Noise

As discussed in Section 6.2, no in-air disturbance of hauled-out Steller sea lions is anticipated to result from the KTF Replacement Project due to the short distance that such sounds will be above ambient sound levels [10 m (33 ft)] and the lack of any sea lion haulouts within this distance.

Underwater Noise

It is difficult to estimate the behavioral responses, if any, WDPS Steller sea lions in the action area may exhibit in response to underwater sounds generated by project activities. As discussed in previous Sections, it appears that western DPS Steller sea lions in Kodiak Harbor have become habituated to the presence of shipping and fishing vessels. Though the sounds that will be produced during project activities may not greatly exceed levels that Steller sea lions already experience in the industrialized harbor, the sources proposed for use in this project (pile-drivers and drills) are not among sound sources to which they are commonly exposed. Some Steller sea lions may find sounds produced by the project activities to be of greater annoyance than others

and move out of the area or change from one behavioral state to another, while other Steller sea lions may exhibit no apparent behavioral changes at all (a common observation made by PSO's during the nearby Kodiak Ferry Terminal project). Because we do not expect WDPS Steller sea lions to exhibit readily observable behavioral reactions to project activities, we do not expect project activities will have a pronounced impact on feeding, breeding, or resting opportunities.

During monitoring completed for the Kodiak Ferry Terminal and Dock Improvements Project, only 4% of Steller sea lions observed in the Level B exposure area (51 of 1,281) exhibited behaviors associated with disturbance, and five of these observations appeared to be reactions to passing vessels or killer whales, rather than construction activity (ABR 2016). If Steller sea lions behave similarly for the KTF project, then only 4%, or 19, of the 480 sea lions estimated to occur within the Level B zone of the project area during construction activities, may exhibit detectable signs of disturbance (e.g., alert, fleeing, disorientation, or swimming away from the construction site). The soft start (ramp-up) procedures described in the 4MP (Appendix 1) and IHA proposal for this project (81 FR 79350) should further decrease project impacts to Steller sea lions. The largest WDPS Steller sea lion Level A zone for this project is 5.5 m; an easily observable shutdown zone of 10 m will make it extremely unlikely that WDPS Steller sea lions are exposed to injury-level project-related sounds.

However, not all adverse responses are observable. Steller sea lions may exhibit a generalized stress response (elevated levels of "stress hormones" such as cortisol and corticosterone) to anthropogenic noise in their environment (ONR 2009; Rosen and Kumagai 2008). Little is known about long-term effects of stress on individuals and populations in marine mammals. Prolonged exposure to stress may result in immune system suppression, reproductive failure, accelerated aging, and slowed growth. Adrenal exhaustion has been observed in chronically stressed marine mammals (Clark *et al.* 2006). The estimated 12 days of pile extraction and installation will be staggered over a 2.5-month period, depending on weather and logistical constraints. These temporal breaks should allow WDPS Steller sea lions to recover from anticipated noise impacts that could occur during construction activities.

6.3.2 Responses of Humpback Whales to Pile Installation and Removal

The IHA for this project proposes to authorize Level B exposures of six humpback whales, which is a maximum estimate; we assume that one of these may be from the threatened Mexico DPS. NMFS does not propose to authorize Level A take for humpback whales due to their expected rarity in the action area and incorporation into the project design of a 100 m shutdown zone for that species.

As discussed previously, humpback whale presence in Near Island Channel is expected to be very low. However, above-ambient sounds from pile-drilling may extend in a narrow band out to a distance of 7000 m from the project area (Figure 3). The most likely response of humpback whales to noise disturbance would be to avoid the area where pile installation and extraction noise is occurring (Malme *et al.* 1988; Richardson *et al.* 1995). A whale passing through the narrow (roughly 0.4 km maximum width) band of above-ambient sound extending to the northwestern corner of Woody Island (Figure 3) might be momentarily disturbed and could exhibit a short-term change in movement or feeding behavior; however any such response is expected to be temporary. We do not expect that Mexico DPS humpback whale response to drilling sounds from this project will result in any long-term impacts to feeding, vocalization, or

reproductive behavior. NMFS does not propose to authorize Level A take for humpback whales due to their expected rarity in the action area and incorporation of a 100 m Level A shutdown zone for humpback whales into the project design.

7.0 CUMULATIVE EFFECTS

"Cumulative effects" are those effects of future state, local, tribal, or private activities, not involving Federal activities, that are reasonably certain to occur within the action area (50 CFR § 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this Section because they require separate consultation pursuant to section 7 of the ESA.

Although improved, the new float is unlikely to result in increased vessel activity in the area; the improvements are needed to maintain the safety and integrity of the float's current use levels. Additionally, the new float will be shorter than the existing float, so additional moorage space will not be created. To date, the chronic noise of the Near Island Channel has not prevented Steller sea lions from using this area. Significant increases in the baseline activity and noise levels are not predicted within the action area in the foreseeable future.

Reasonably foreseeable future activities within and immediately adjacent to Kodiak Harbor would likely involve the placement of fill, dredging, or structures in the harbor, requiring authorization from the Corps and consultation pursuant to section7 of the ESA. Therefore, such activities do not meet the ESA definition of cumulative effects and are not addressed here.

We searched for information on non-Federal actions reasonably certain to occur in the action area. We did not find any information about non-Federal actions other than what has already been described in the Environmental Baseline Section of this Opinion.

8.0 INTEGRATION AND SYNTHESIS

The Integration and Synthesis Section is the final step of NMFS's assessment, in which we analyze the risk posed to species and critical habitat as a result of implementing the proposed action. In this Section, we add the effects of the action (Section 6) to the environmental baseline (Section 5) and the cumulative effects (Section 7) to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) result in appreciable reductions in the likelihood of the survival or recovery of the species in the wild by reducing its numbers, reproduction, or distribution; or (2) result in the adverse modification or destruction of critical habitat as measured through potential reductions in the value of designated critical habitat for the conservation of the species. These assessments are made in full consideration of the status of the species (Section 4).

8.1 Steller sea lion risk analysis

The survival and recovery of western DPS Steller sea lions within the action area may be affected by climate change, anthropogenic noise, marine vessel activity (strikes), pollution, and other coastal development activities. Despite these pressures, available trend information indicates that the number of western DPS Steller sea lions is increasing east of Samalga Pass, which includes the action area for this action.

The exposure and response analyses above lead us to conclude that endangered WDPS Steller

sea lion individuals are likely to be exposed to noise levels exceeding the MMPA Level B acoustic threshold for harassment by the pile extraction and installation components of the proposed action. No individuals are likely to be harmed (Level A exposure) from project activities due to implementation of mitigation measures.

We concluded in the Effects of the Action (Section 6 of this Opinion) that WDPS Steller sea lions may be harassed by the proposed activities. We anticipate that up to 480 exposures of WDPS Steller sea lions to Level B sounds (i.e., ≥160 dB from impact pile driving, and ≥120 dB from vibratory pile extraction/driving or down-hole drilling) will occur as a part of the proposed action. We expect that these takes will be experienced by a smaller number of individual Steller sea lions that are exposed to harassment multiple times over the duration of the project. Many of these Level B exposures are likely to be repeated exposures of the same individuals from the local population of about 40 resident animals that use the Dog Bay float in Herman Harbor.

Steller sea lions in the action area are likely often exposed to Level B sounds from continuous noise sources in Kodiak Harbor, such as marine vessel traffic. They continue to return to the area to haul out and seek food from fishing vessels and processing facilities. Level B sounds from the proposed action, which will occur for an estimated 12 days over a period of 2.5 months, are not expected to have a long term impact on individual WDPS Steller sea lions, to result in a significant reduction of their distribution, current or expected future reproductive success, or to have any other population level effect.

As indicated in Section 4.3.1 of this Opinion, the most recent comprehensive surveys estimate a total population of 49,500 WDPS Steller sea lions in Alaska (Muto *et al.* 2016). Additionally, the Eastern Gulf of Alaska Region, which includes the action area, has the highest positive growth rate (5.07% per year, 2000-2015) of any of the nine WDPS Steller sea lion sub-regions (Muto *et al.* 2016). We conclude that up to 480 non-lethal Level B sound exposures to an estimated 40 WDPS Steller sea lions that frequent the project area will result in minimal risk to the species. Thus, while harassment of WDPS Steller sea lions is likely, the KTF Replacement Project is not likely to result in appreciable reductions in the likelihood of the survival or recovery of the WDPS Steller sea lion in the wild by reducing its numbers, reproduction, or distribution.

8.2 Humpback whale risk analysis

The action area is not frequented by humpback whales. During 110 days of monitoring from November 2015 to June 2016, a single humpback whale was observed in Near Island Channel on March 15, 2016, and this individual was transiting the channel, not stopping to rest or feed. Further, there is a probability of 89% that this whale was a member of the non-listed Hawaii humpback DPS (Wade *et al*. 2016). In general, humpback whales apparently avoid this narrow, shallow, and heavily trafficked channel, whether or not construction activities are occurring in it. In accordance with take estimates in the IHA proposal, we anticipate that one individual threatened Mexico DPS humpback whale may be exposed to Level B sound levels in association with this project, although the likelihood of significant disruption of a listed humpback whale's behavior is quite limited. Thus, the KTF Replacement Project is not likely to result in appreciable reductions in the likelihood of the survival or recovery of Mexico DPS humpback whales in the wild by reducing their numbers, reproduction, or distribution.

9.0 CONCLUSION

After reviewing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed action, and cumulative effects, it is our biological opinion that the issuance of NMFS Incidental Harassment Authorization and Corps permit for the KTF Replacement Project is not likely to jeopardize the continued existence of the endangered WDPS Steller sea lion or the threatened Mexico DPS humpback whale. As indicated in Section 4.1, we also concur that this proposed action is not likely to adversely affect the endangered fin whale, the endangered Western North Pacific DPS humpback whale, or Steller sea lion critical habitat.

10.0 INCIDENTAL TAKE STATEMENT

Section 9 of the ESA prohibits the take of endangered species unless there is a special exemption. In the September 8, 2016, final rule changing the status of humpback whales under the ESA (81 FR 62260), NMFS categorically extended all the protections of section 9 to the threatened Mexico DPS humpback whale. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. § 1532). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity (50 CFR § 402.02).

Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA, provided that such taking is in compliance with the terms and conditions of an Incidental Take Statement (ITS).

The terms and conditions described below are nondiscretionary. NMFS PR1 and the Corps have a continuing duty to regulate the activities covered by this ITS. In order to monitor the impact of incidental take, NMFS PR1 and the Corps must monitor the progress of the action and its impact on the species as specified in the ITS (50 CFR § 402.14(i)(3)). If NMFS PR1 and the Corps: (1) fail to require the authorization holder to adhere to the terms and conditions of the ITS through enforceable terms that are added to the authorization, and/or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The ESA does not define harassment. NMFS recently developed interim guidance interpreting "harass" under the ESA to mean: "to create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (Weiting 2016). The MMPA defines Level B harassment as: "any act of pursuit, torment, or annoyance" which 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" (16 U.S.C. § 1362(18)(A)(ii)).

The difference in the definition or interpretation of "harassment" under these two statutes hinges on the word "significantly." The question we must ask is whether any disruption of a normal behavior pattern (for example, an animal looking around momentarily after hearing a sound and then returning to its previous activity), which may be construed as Level B harassment under the MMPA, rises to the level of significant behavioral disruption under the ESA. This question of

disruption versus significant disruption is particularly relevant when developing an ITS for WDPS Steller sea lions, a group of which frequent Kodiak Harbor and are exposed to anthropogenic sounds on a daily basis.

As indicated in Section 6.3.1 of the Opinion associated with this ITS, ABR (2016) reports that fewer than 4% of the Steller sea lions observed in the Level B zone of the Kodiak Ferry Terminal project exhibited observable disturbance behaviors associated with construction activity (e.g., alert, fleeing, disorientation, or swimming away from the construction site). From this recent information gathered from sea lions frequenting the same harbor in which this proposed project will take place, we may expect that "take" pursuant to the ESA may constitute as little as 4%, or 19, of the 480 sea lions estimated to occur within the Level B zone of the KTF action area. However, in this Opinion, we analyzed the effects of "take" (via short-term behavioral harassment) of 480 WDPS Steller sea lions, the number proposed in the IHA (NMFS 2016a). We likewise analyzed the effect of take of one Mexico DPS humpback whale.

For this consultation, the NMFS Permits Division and the Corps anticipate that take will be by behavioral harassment only. Level A injurious take is neither anticipated nor authorized.

Section 7(b)(4)(C) of the ESA provides that any incidental take of marine mammals must first be authorized by section 101(a)(5) of the MMPA. Accordingly, the terms of this incidental take statement and the exemption from section 9 of the ESA become effective only upon the issuance of MMPA authorization to take the marine mammals identified here. Absent such authorization, this statement is inoperative.

10.1 Amount or Extent of Take

Section 7 regulations require NMFS to estimate the number of individuals that may be taken by proposed actions or utilize a surrogate (e.g., other species, habitat, or ecological conditions) if we cannot assign numerical limits for animals that could be incidentally taken during the course of an action (50 CFR § 402.14(i)(1); see also 80 FR 26832; May 11, 2015).

As indicated in Sections 6.2.3 and 6.2.4 above, the maximum amount of Level B sound exposure (interpreted for the purposes of this Opinion as incidental take by harassment) that is anticipated to occur during the Kodiak Float Replacement project is:

- WDPS Steller sea lion – 480 individuals
- Mexico DPS Humpback Whale – 1 individual

The anticipated temporal extent of take is from January 1, 2017, through December 31, 2017.

10.2 Effect of the Take

The only take authorized for the Kodiak Float Replacement project is take by acoustic harassment. No serious injury or mortalities are anticipated or authorized as part of this proposed action. This Opinion assumes that exposure to major noise sources might disrupt one or more behavioral patterns that are essential to an individual animal's life history. Some responses, such as elevated levels of stress hormones, with no overt behavioral reaction, may not be observable. Although the biological significance of those behavioral responses remains unknown, this Opinion has assumed that exposure to pile driving and extraction might disrupt one or more

behavioral patterns that are essential to an individual animal's life history. However, as indicated in Sections 6 through 8 of this Opinion, any such behavioral disruptions are not expected to affect the reproduction, survival, or recovery of WDPS Steller sea lions or Mexico DPS humpback whales.

In Section 9 of this Opinion, NMFS determined that the level of anticipated take, coupled with other effects of the proposed action, is not likely to jeopardize the continued existence of the WDPS Steller sea lion or the Mexico DPS humpback whale.

10.3 Reasonable and Prudent Measures (RPMs)

"Reasonable and prudent measures" are nondiscretionary measures to minimize the amount or extent of incidental take (50 CFR § 402.02).

The RPMs included below, along with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. NMFS concludes that the following RPMs are necessary and appropriate to minimize or to monitor the incidental take of WDPS Steller sea lions and Mexico DPS humpback whales resulting from the proposed action.

RPM #1: The Corps and the Permits Division must require the City of Kodiak to conduct operations in a manner that will minimize impacts to WDPS Steller sea lions and Mexico DPS humpback whales that occur within or in the vicinity of the project action area.

RPM #2: The Corps and the Permits Division must require the City of Kodiak to implement a comprehensive monitoring program to ensure that WDPS Steller sea lions and Mexico DPS humpback whales are not taken in numbers or in a manner not anticipated by this Opinion.

10.4 Terms and Conditions

"Terms and conditions" implement the reasonable and prudent measures (50 CFR § 402.14(i)(1)(iv) and (i)(2)). These must be carried out for the exemption in ESA section 7(o)(2) to apply.

For any incidental takes that result from the actions of NMFS Permits Division, the Corps, or their applicant or permittees to be exempt from the prohibitions of section 9 of the ESA, the action that causes the take must comply with the following terms and conditions (T&Cs). These non-discretionary terms and conditions implement the reasonable and prudent measures described above. These T&Cs are non-discretionary and must be a binding condition of the Permits Division's and Corps' authorizations for the exemption in section 7(o)(2) to apply. NMFS Permits Division and the Corps have a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR § 402.14(3)). If these Federal agencies (1) fail to require the authorization holder to adhere to the T&Cs of the Incidental Take Statement through enforceable terms that are added to the authorization, and/or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

These terms and conditions constitute no more than a minor change to the proposed action because they are consistent with the basic design of the proposed action.

To implement RPM #1:

1. The NMFS Permits Division and the Corps must ensure that all measures described in the proposed IHA and in the 4MP appended to this Biological Opinion are implemented as a means to minimize take of threatened and endangered species. Specifically:

    1.1. One or more[4] qualified (see qualifications below) protected species observers (PSOs) must be present for all required marine mammal monitoring. PSOs must have:

        1.1.1. No other construction-related duties;

        1.1.2. prior experience working as an observer [observers may substitute education (undergraduate degree in biological science or related field) or training for experience];

        1.1.3. visual acuity in both eyes sufficient for discernment of moving targets at the water's surface;

        1.1.4. ability to estimate target species and distance, using the naked eye, binoculars, or spotting scope;

        1.1.5. ability to conduct field observations and collect data according to assigned protocols;

        1.1.6. experience or training in the field on identification and behavior of marine mammals;

        1.1.7. writing skills sufficient to prepare a full and complete report of observations;

        1.1.8. ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

    1.2. PSOs must maintain verbal communication with the construction personnel to implement appropriate mitigation measures.

    1.3. The City or their contractors must conduct all in-water pile installation and extraction activities only when visual monitoring is possible, i.e., during daylight hours and when weather conditions (e.g., sea state, fog level, glare, etc.) permit.

[4]A sufficient number of PSOs will be required to monitor the Level A and level B zones for all pile extraction and installation activities. The different zone sizes will likely require different methods and numbers of observers. For the extensive down-hole drilling Level B zone, some means of estimating marine mammal presence using extrapolation may be acceptable. **NMFS AKR must approve the marine mammal monitoring plan prior to its implementation and commencement of construction activities.**

1.4. For all in-water demolition and construction activities, the City must establish shutdown zones of 10 m for Steller sea lions and 100 m for humpback whales. Within these zones, pile installation or removal must be shut down upon sighting of a Steller sea lion or humpback whale that is likely to enter the defined area. These shutdown zones comprise the areas in which underwater sound pressure levels equal or exceed the acoustic injury threshold (MMPA Level A injurious take) for each marine mammal hearing group.

1.5. For all in-water pile installation and extraction activities, the City must establish the following behavioral harassment zones (i.e., MMPA Level B behavioral harassment take zones):

1.5.1. 6,846 m for down-hole drilling (rounded to 7000 m),

1.5.2. 821 m for vibratory driving and removal (rounded to 900 m), and

1.5.3. 183 m for impact driving (rounded to 200 m).

These behavioral harassment zones define where received underwater sound pressure levels are greater than 120 dB_{rms} re 1µPa for non-pulse sources (e.g., vibratory hammer and down-hole drilling) and 160 dB_{rms} for pulse sources (e.g., impact hammer). Shutdown is not required if a Steller sea lion or humpback whale is recorded (through direct observation or through extrapolation) within the behavioral harassment zones during in-water demolition or construction activity; however, PSOs must document and report to NMFS all instances of Level B take.

1.6. The PSOs must monitor the Level A injury and Level B behavioral harassment zones for a period of 30 minutes prior to the start of daily in-water construction, or when pile installation or extraction activities have been stopped for longer than 30 minutes. If a Steller sea lion or humpback whale is present within the Level B behavioral harassment zone, a soft start may begin and an instance of Level B take will be recorded for each individual marine mammal present in the behavioral harassment zone during periods of acoustic exposure to project activities. Monitoring of the Level A injury and Level B behavioral harassment zones will continue for 30 minutes following the completion of pile installation or extraction activity.

1.7. PSOs must monitor the Level A injury and Level B behavioral harassment zones throughout pile extraction or installation. If a Steller sea lion or humpback whale is observed entering the Level B behavioral harassment zone, a Level B exposure will be recorded and behaviors documented. That pile segment may be completed without shutdown, unless the animal appears likely to enter the Level A injury zone. Pile installation or extraction must be halted before the animal enters the Level A injury zone.[5] Level A take is not authorized for this action. Should Level A (injurious) take occur, project in-water actions must cease pending reinitiation of formal consultation.

[5] Section 4.4 of the 4MP (Appendix 1) indicates that pile driving will be shut down if a marine mammal is observed ***in or approaching*** the shutdown zone. The proposed IHA and this Incidental Take Statement (ITS) **do not authorize Level A take.** *In order to be covered by this ITS, shutdown must occur before the animal enters the shutdown zone.*

1.8. Impact Pile Driving – Although it is not likely that impact pile driving will be required for this project, if used, the following procedures will apply:

1.8.1. The City or their contractor must use a soft start (ramp up) procedure for all impact pile driving. Soft starts must occur at the beginning of each day immediately prior to impact pile driving and at any time following a cessation of impact pile driving of 30 minutes or more. The soft start procedure will afford marine mammals the opportunity to leave the area prior to exposure to sounds that can cause injury or harassment.

1.8.2. Implementation of a soft start: The City or their contractor will conduct an initial set of three strikes at reduced energy, followed by a 1-minute waiting period, then repeat this procedure (two three-strike sets at reduced energy) two additional times.

1.8.3. If a Steller sea lion or humpback whale is present within the Level A shutdown zone, ramping up must be delayed until the animal(s) leaves the Level A shutdown zone. Activity will begin only after the PSO has determined that the animal(s) has exited the Level A shutdown zone.

1.8.4. A soft start may begin if a Steller sea lion or humpback whale is present in the Level B behavioral harassment zone during the 30-minute observation period. However, any Level B take(s) must be documented (one take recorded for each animal in the Level B behavioral harassment zone).

1.8.5. The 4MP associated with this project has indicated that pile caps or cushions will be used during any impact pile-driving activities.

1.9. As described in the 4MP associated with this project, a shutdown zone of 10 m (33 ft) will be implemented for pile work such as positioning piles on the substrate via crane (i.e., "stabbing" the pile) and removing piles from the water column or substrate via crane (i.e., "deadpull") and for maintaining safe distances from barges, tug boats, barge-mounted excavators, or clamshell equipment.

To implement RPM #2:

2. In addition to the final 90-day report provided by the applicant and detailed in the IHA, monthly PSO reports will also be required. Below we provide details about what must be included in the reports.

2.1.The reporting period for each monthly PSO report will be the entire calendar month, and reports will be submitted by close of business on the 5th business day of the month following the end of the reporting period (e.g., the monthly report covering June 1 through 30, 2017, will be submitted to NMFS Alaska Region by close of business [i.e., 5:00 pm, AKDT] on July 8, 2017).

2.1.1. Completed marine mammal observation record forms, in electronic format, will be provided to NMFS Alaska Region in monthly reports.

2.2.Observer report data will include the following for each listed marine mammal

observation (or "sighting event" if repeated sightings are made of the same animal[s]):

2.2.1. Species, date, and time for each sighting event

2.2.2. Number of animals per sighting event and number of adults/juveniles/calves/pups per sighting event

2.2.3. Primary, and, if observed, secondary behaviors of the marine mammals in each sighting event

2.2.4. Geographic coordinates for the observed animals, with the position recorded by using the most precise coordinates practicable (coordinates must be recorded in decimal degrees, or similar standard, and defined coordinate system)

2.2.5. Time and description of most recent project activity prior to marine mammal observation

2.2.6. Environmental conditions as they existed during each sighting event, including, but not limited to:

- Beaufort Sea State
- Weather conditions
- Visibility (km/mi)
- Lighting conditions
- Percentage of ice cover

2.3. Observer report data will also include the following for each take of a marine mammal that occurs in the manner and extent as described in Section 10.1 of this Opinion:

2.3.1. All information listed under Item 2.2, above

2.3.2. The distance marine mammals were spotted from operations and associated noise isopleth for active sound source, and cause of take (e.g., Steller sea lion within the Level B 160 dB isopleth approximately XX meter from pile installation)

2.3.3. Time the animal(s) entered the zone, and, if known, the time it exited the zone

2.3.4. Any mitigation measures implemented prior to and after the animal entered the zone

2.3.5. An estimate of the number (by species) of: (i) pinnipeds that have been exposed to the installation or extraction of piles (extrapolated from visual observation) at received levels greater than or equal to 120 dB re 1 µPa (rms) for vibratory and down the hole drilling, or at received levels greater than or equal to 160 dB re 1 µPa (rms) for impact pile driving, with a discussion of any specific behaviors those individuals exhibited; and (ii) cetaceans that have been exposed to

installation or extraction of piles (extrapolated from visual observation) at received levels greater than or equal to 120 dB re 1 µPa (rms) for vibratory and down the hole drilling, or at received levels greater than or equal to 160 dB re 1 µPa (rms) for impact pile driving, with a discussion of any specific behaviors those individuals exhibited.

3. A draft report will be submitted to NMFS within 90 calendar days of the completion of all project activities that require marine mammal monitoring. A final report will be prepared and submitted to NMFS within 30 days following receipt of comments from NMFS on the draft report. To the extent practicable, the PSOs will record behavioral observations that may make it possible to determine if the same or different individuals are being "taken" as a result of project activities over the course of a single day.

   3.1. The report must document:

      3.1.1. Days of observation;

      3.1.2. Length of observation periods;

      3.1.3. Locations of observation stations used each day;

      3.1.4. Numbers, species, dates, group sizes, and locations of marine mammals observed;

      3.1.5. Type of work taking place while marine mammals were observed;

      3.1.6. Descriptions of the type and duration of any noise-generating work occurring and soft start (ramp-up) procedures used while marine mammals were being observed;

      3.1.7. Distances to marine mammal sightings, including closest approach to construction activities;

      3.1.8. Descriptions of any observable marine mammal behavior in the Level A and Level B zones;

      3.1.9. Details of all shutdown events, including when work was stopped and resumed, and whether they were due to presence of marine mammals in the Level A zones, inability to clear the hazard area due to low visibility, or other reasons;

      3.1.10. Actions performed to minimize impacts to marine mammals; and

      3.1.11. Refined take estimates based on the numbers of Steller sea lions and humpback whales observed during the course of pile installation and removal activities.

   The report must include tables, text, and maps documenting details of marine mammal observations. Full documentation of monitoring methods, an electronic copy of the observation data spreadsheet, and a summary of results will also be included in the report. An example of a spreadsheet that could be used is available from NMFS AKR upon request.

11.0 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, the conservation recommendation below is a suggested discretionary measure to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or to enhance the development of information (50 CFR § 402.02).

Dis-incentivizing Steller sea lions from associating fishing vessels with food could benefit both WDPS Steller sea lions and Kodiak-area vessels. To that end, the action agencies and applicant are encouraged to take measures that would result in disassociation of fishing vessels with food for WDPS Steller sea lions.

NMFS encourages the City of Kodiak to contact our Anchorage or Juneau office to pursue testing such actions.

12.0 REINITIATION OF CONSULTATION

As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently

modified in a manner that causes an effect on the listed species or critical habitat not considered in this Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount of incidental take is exceeded, section 7 consultation must be reinitiated immediately.

13.0 DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) (Data Quality Act (DQA)) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This Section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

13.1 Utility

This document records the results of an interagency consultation. The information presented in this document is useful to NMFS, the Corps, and the general public. These consultations help to fulfill multiple legal obligations of the named agencies. The information is also useful and of interest to the general public as it describes the manner in which public trust resources are being managed and conserved. The information presented in these documents and used in the underlying consultations represents the best available scientific and commercial information and has been improved through interaction with the consulting agency.

This consultation will be posted on the NMFS Alaska Region website: alaskafisheries.noaa.gov. The format and name adhere to conventional standards for style.

13.2 Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

13.3 Objectivity

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased, and were developed using commonly accepted scientific research methods. They adhere to published standards including the ESA Consultation Handbook, ESA Regulations, 50 CFR Part 402.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the literature cited section. The analyses in this Opinion contain more background on information sources and quality.

Referencing: All supporting materials, information, data, and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA implementation, and reviewed in accordance with Alaska Region ESA quality control and assurance processes.

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