March 10, 2017

Jon Kurland
Assistant Regional Administrator for Protected Resources
NMFS, Alaska Region
PO Box 21668
Juneau, AK 99802

Re: Request for Initiation of Informal Consultation under section 7(a)(2) of the Endangered Species Act (ESA) for the Sitka Channel Sea Plane Float Dock Maintenance, POA-2016-362

Dear Mr. Kurland:

The U.S. Army Corps of Engineers, Alaska District proposes to permit the proposed action as described below. We request initiation of informal consultation under section 7(a)(2) of the Endangered Species Act for the Sitka Channel Sea Plan Float Dock Maintenance. We have determined that the proposed activity may affect, but is not likely to adversely affect the threatened Mexico Distinct Population Segment (DPS) humpback whale (*Megaptera novaengliae*) or the endangered western DPS of Steller sea lion (*Eumetopias jubatus*). Our supporting analysis is provided below. We request your written concurrence if you agree with our determinations.

Project Description

This proposed project is intended to maintain the function of the existing sea plane float dock. We expect work to commence during the spring of 2016 depending on weather and hammer availability. Pile driving is anticipated to take two days to complete (approximately March 24-25 2016), and is anticipated to be completed by the end of March 2016.

The Corps is proposing to permit Dan Tadic to perform maintenance activities and install the following structures over and in Sitka Channel navigable waters:

- Install five 18-inch (46 cm) diameter galvanized steel pile;
- Install secure coated foam billets under the lower float; and
- Install 6 inch x 6 inch vertical members to secure lower sills/stringers/upper sills by lagging to existing materials, add bolts to stringer plates, bring stringers up from the bottom and re-bolt connections.

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. While work is conducted in the water, anchored barges will be used to stage construction materials and equipment.

Piles will installed with a vibratory hammer, and if required with an impact hammer. The following equipment will be used:

- Vibratory Hammer: ICE 44B/12,450 lbs static weight
- Diesel Impact Hammer: Delmag D30/Max Energy 75,970 ft-pounds (lbs)

Piles will be installed through overlying sediment with a vibratory hammer and in the underlying bedrock with an impact hammer. In this case, two to five blows of an impact hammer would be used per pile to confirm that piles are set into bedrock. Table 1 provides a conservative estimate of the amount of time required for pile installation.

Table 1. Anticipated number of piles, size, and estimated number of hours required for installation associated with the proposed action.

Description	Pile Installation	Installation/Day (max)
# piles	5	3/Day
Pile Size (Diameter)	18-inch	--
Total Vibratory Time	5 hours	1 hour
Total Strikes (Impact)	5	5
Total Impact Hammer Time	5 minutes	5 minutes

Previous pile driving operations in Sitka Channel indicate loose sediment type, with little resistance during pile installation. Sitka Channel is a narrow waterway that is anticipated to significantly reduce potential noise propagation. Sound propagation will be attenuated by manmade structures including harbors, ramps, docks, piers, piles, shipwrecks, and finally a breakwater at approximately 2,000 meters from the project site; and by natural site conditions including a narrow channel, shallow water, obstructions, shallow reefs, and land masses including small islands to the south of the project.

Vibratory pile driving generates lower peak sound pressure levels than impact pile driving, but the total energy imparted to the pile is somewhat comparable because the vibratory hammer operates continuously and the piles require more time to install (ICF Jones & Stokes and Illingworth and Rodkin Inc. 2012).

Without site-specific sound source verification, we must use the best available information to assess effects to ESA-listed species. For this project we used the recent hydroacoustic study information from the Kake, AK construction project (MacGillivray et al. 2015). The Kake project is the most similar and closest project where sound source verification measurements were taken. Kake involved 18-inch (46 cm) steel pipe pile removal. We anticipate noise levels associated with removal would be similar to installation. For vibratory pile driving 18-inch piles, the 90th percentile near source level measurements for Kake were 161.1 dB re 1µPa at 10 m (JASCO 2016). The distance to the SPL threshold of 120 dB re 1µPa$_{rms}$ from vibratory pile removal ranged from a mean of 940 m to the 90th percentile distance of 1,269 m. Considering this information was gathered at a different site and for extraction, we are using the 90th percentile distance to be precautionary in estimating the 120 dB threshold for the proposed action.

There were no near source level measurements for impact pile driving for 18-inch steel piles in Alaska. However, there were measurements for impact driving 24-inch steel piles in Kodiak, AK. The near source level for Kodiak was 182.7 dB re 1µPa at 10 m (Warner and Austin 2016). The distance to the SPL threshold of 160 dB re $1\mu Pa_{rms}$ from impact pile driving ranged from a mean of 145 m to the 90^{th} percentile distance of 183 m. For the proposed action we will use the 90^{th} percentile distance of 183 m in estimating the 120 dB threshold distance. However, the Corps is applying a conservative shutdown zone of 1,300 m for both vibratory and impact pile driving.

Mitigation Measures

To minimize the risk of harm to listed marine species from pile driving, the Corps agrees to implement the following mitigation measures:

1. One or more protected species observer (PSOs), able to accurately identify and distinguish species of Alaska marine mammals, will be present before and during all in-water construction and demolition activities.
2. Prior to in-water construction activities, an exclusion (i.e., shut-down) zone will be established. For this project, the exclusion zone includes all marine waters within 1,300 meters of the sound source.
3. Pile-driving will not be conducted unless all waters within and adjacent to the exclusion zone are clearly visible.
4. The PSO(s) will be positioned such that the entire exclusion zone is visible to them (e.g., situated on a platform, elevated promontory, boat or aircraft).
5. The PSO(s) will have the following to aid in determining the location of observed listed species, to take action if listed species enter the exclusion zone, and to record these events:
    a. Binoculars
    b. Range finder
    c. GPS
    d. Compass
    e. Two-way radio communication with construction foreman/superintendent
    f. A log book of all activities which will be made available to the Corps and NMFS upon request.
6. The PSO(s) will have no other primary duties than watching for and reporting on events related to marine mammals.
7. The PSO(s) will have the 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, and will have the authority to order a shutdown of noise-producing operations in the event that a marine mammal is observed within or is judged likely to enter the exclusion zone.
8. The PSO(s) will work in shifts lasting no longer than 4 hrs with at least a 1-hr break between shifts, and will not perform duties as an PSO for more than 12 hrs in a 24-hr period (to reduce PSO fatigue).
9. The PSO(s) will scan the exclusion zone for the presence of listed species for 30 min before any pile-driving or removal activities take place.

a. If any listed species are present within the exclusion zone, pile-driving and removal activities will not begin until the animal(s) has left the exclusion zone or no listed species have been observed in the exclusion zone for 15 min (for pinnipeds) or 30 min (for cetaceans).

10. Throughout all pile-driving activity, the PSO will continuously scan the exclusion zone to ensure that listed species do not enter it.
    a. If any listed species enter, or appear likely to enter, the exclusion zone during pile-driving or removal activities, all driving or removal activity will cease immediately. Pile-driving or removal activities may resume when the animal(s) has been observed leaving the area on its own accord. If the animal(s) is not observed leaving the area, pile-driving activity may begin 15 min (for pinnipeds) or 30 min (for cetaceans) after the animal is last observed in the area. Note: If a marine mammal is first observed within the exclusion zone during construction operations, the PSO will notify NMFS immediately after ordering a shut-down of operations.
11. Ramp-up (soft start) procedures will be applied prior to beginning pile-driving activities each day and/or when pile-driving hammers have been idle for more than 30 min:
    a. For impact pile-driving, contractors will be required to provide an initial set of three strikes from the hammer at 40 percent energy, followed by a 30-sec waiting period. This procedure shall be repeated two additional times prior to operation of impact pile driving.
12. All in-water work will be completed by end of May 2016
13. The Corps will require the applicant to provide NMFS, within 60 days of project completion, a report of all sightings of listed species (or confirmation on absence of sightings), estimated distance from project operations, and any shutdown during pile driving or pile removal activities due to listed species approaching or occurring within the exclusion zone.

Description of the Action Area

The action area is defined in the ESA regulations (50 CFR 402.02) as the area within which all direct and indirect effects of the project will occur. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area, therefore, extends out to a point where no measurable effects from the project are expected to occur.

The action area for this project includes: (1) Sea Plane Float project site where installation will occur; and (2) sound propagation from in-water work (see Figure1).

Project Location

The project site is located within Sections 35, T55S, R63E, Copper River Meridian; USCG Quad Map Sitka A-5; Latitude 57.05208°N, Longitude l35.34454°W; within the Sitka Channel, Sitka, Alaska.

Sound Propagation

Since 1997 NMFS has used generic sound exposure thresholds to determine whether an activity produces underwater sounds that might result in impacts to marine mammals (70 FR 1871).

NMFS recently developed comprehensive guidance on sound levels likely to cause injury to marine mammals through onset of permanent and temporary threshold shifts (PTS and TTS; Level A harassment) (81 FR 51693). 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,[1] expressed in root mean square[2] (rms), 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}

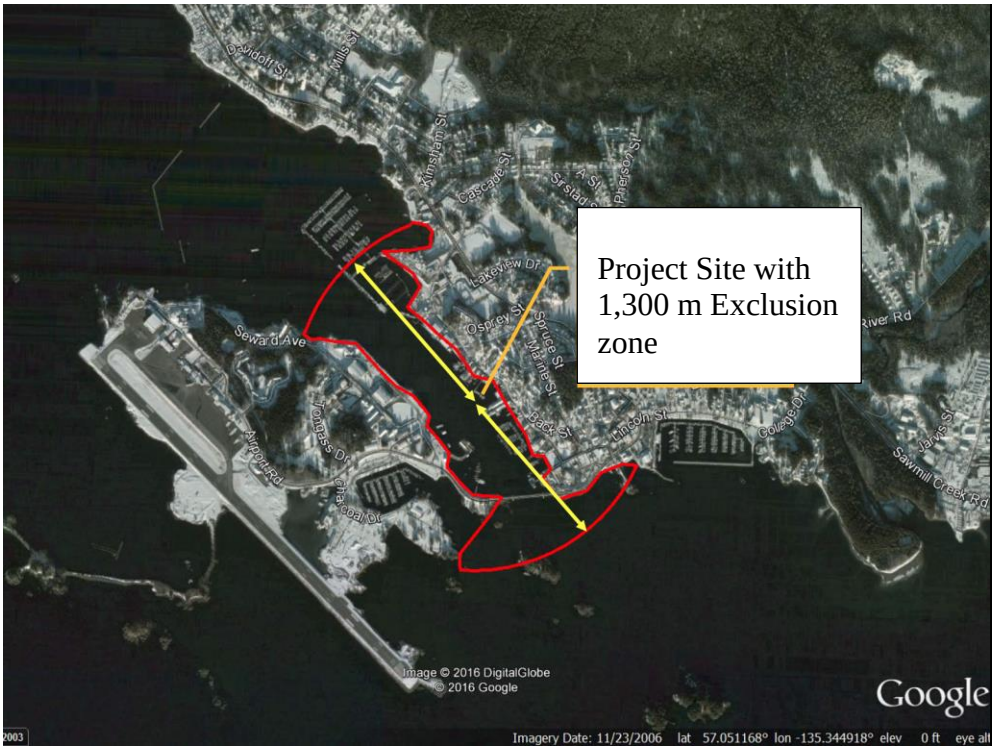

Figure 1. Project Location and Proposed 1,300 m Exclusion Zone (Corps 2016).

For this project, the action area includes the ensonified area within which project-related noise levels are ≥120 dB re 1μPa_{rms} (i.e., the point where no take from the project would occur). Received sound levels associated with vibratory pile driving are anticipated to decline to 120 dB re 1μPa_{rms} within 1,300 m of the source. To define the action area, we considered the diameter and type of piles, the pile-driving method, and empirical measurements of noise from similar projects (MacGillivray et al. 2015) to estimate the area within which marine mammals are likely to be harassed or injured by noise.

[1] 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.
[2] Root mean square (rms) is the square root of the arithmetic average of the squared instantaneous pressure values.

NMFS Listed Species and Critical Habitat in the Action Area

The threatened Mexico DPS humpback whale and endangered western DPS of Steller sea lion may occur in the action area. Critical habitat has not been designated for the humpback whale, and the nearest Steller sea lion critical habitat is the Gran Point haulout (over 18 air miles south of the proposed action).

Mexico DPS Humpback Whale

The humpback whale was listed as endangered under the Endangered Species Conservation Act (ESCA) on December 2, 1970 (35 FR 18319). Congress replaced the ESCA with the ESA in 1973, and humpback whales continued to be listed as endangered. NMFS recently conducted a global status review and changed the status of humpback whales under the ESA. The Mexico DPS (which includes a small proportion of humpback whales found Southeast Alaska) is listed as threatened, and the Hawaii DPS (which includes most humpback whales found in Southeast Alaska) is not listed (81 FR 62260; September 8, 2016).

Relatively high densities of humpback whales occur throughout much of Southeast Alaska and northern British Columbia, particularly during the summer months. The abundance estimate for humpback whales in the Southeast Alaska is estimated to be 6,137 (CV= 0.07) animals which includes whales from the Hawaii DPS (94%) and Mexico DPS (6%) (Wade et al. 2016). Although migration timing varies among individuals, most whales depart for Hawaii or Mexico in fall or winter and begin returning to Southeast Alaska in spring, with continued returns through the summer and a peak occurrence in Southeast Alaska during late summer to early fall. However, there are significant overlaps in departures and returns (Baker et al. 1985, Straley 1990). Given their widespread range and their opportunistic foraging strategies, Mexico DPS humpback whales may be in the vicinity during the proposed project activities. Humpback whales are common in the inside waters of the Alexander Archipelago and are regularly sighted in the Inside Passage and coastal waters of Southeast Alaska from Yakutat Bay south to Queen Charlotte Sound, including within the action area.

The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring and euphausiids. Important feeding areas include Glacier Bay and adjacent portions of Icy Straight, Stephens Passage/Frederick Sound, Seymour Canal, and Sitka Sound. Glacier Bay and Icy Straight appear to be important feeding areas early in the season, when whales prey heavily on herring and other small, schooling fishes. Frederick Sound is important later in summer, when whales feed on swarming euphausiids. During autumn and early winter, humpbacks move out of the Sound to areas where herring are abundant, particularly Seymour Canal (NMFS 1991b).

Humpback whales produce a variety of vocalizations ranging from 20 Hz to 10 kHz (Winn et al. 1970, Tyack and Whitehead 1983, Payne and Payne 1985, Silber 1986, Thompson et al. 1986, Richardson et al. 1995b, Au 2000, Frazer and Mercado III 2000, Erbe 2002, Au et al. 2006a, Vu et al. 2012). NMFS categorizes humpback whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2016b).

Additional information on humpback whale biology and natural history is available at: http://www.nmfs.noaa.gov/pr/species/mammals/whales/humpback-whale.html

http://alaskafisheries.noaa.gov/pr/humpback
http://www.fisheries.noaa.gov/pr/sars/pdf/stocks/alaska/2015/ak2015_humpback-cnp.pdf

Western DPS Steller Sea Lion

There are two Steller sea lion populations in Alaska: the western DPS generally occurs west of Cape Suckling, and the eastern DPS generally occurs east of Cape Suckling (144°W). Steller sea lions are not known to migrate annually, but individuals may widely disperse outside of the breeding season (late-May to early-July) (Allen and Angliss 2015). 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); at that time the eastern DPS was listed as threatened and the western DPS was listed as endangered. On November 4, 2013, the eastern DPS was removed from the endangered species list (78 FR 66139).

We expect some Steller sea lions in the action area to be from the western DPS (Jemison et al. 2013, NMFS 2013). Fritz et al. (2013) estimated an average annual breeding season movement of western DPS Steller sea lions to southeast Alaska of 917 animals.

Steller sea lions are opportunistic predators, feeding primarily on a wide variety of fishes and cephalopods, including Atka mackerel (*Pleurogrammus monopterygius*), walleye pollock (*Theragra chalcogramma*), Pacific herring (*Clupea pallasi*), capelin (*Mallotus villosus*), Pacific cod (*Gadus macrocephalus*), Pacific sand lance (*Ammodytes hexapterus*), and salmon (*Oncorhynchus* spp.) (Pitcher 1981, Merrick et al. 1997). The foraging strategy of Steller sea lions is strongly influenced by seasonality of sea lion reproductive activities on rookeries, and the ephemeral nature of many prey species. Steller sea lions are generalist predators that eat a variety of fishes and cephalopods (Pitcher 1981, Calkins and Goodwin 1988, NMFS 2008), and occasionally other marine mammals and birds (Pitcher and Fay 1982, NMFS 2008).

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 2016b). 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 the air between 0.25 to 30 kHz (Mulsow and Reichmuth 2010).

Additional information on Steller sea lion biology and habitat is available at:
http://alaskafisheries.noaa.gov/pr/steller-sea-lions

Steller Sea Lion Critical Habitat

NMFS designated critical habitat for Steller sea lions on August 27, 1993 (58 FR 45269). In Alaska, designated critical habitat includes: 1) a 37-km (23-mi) seaward buffer around all major haulouts and rookeries west of 144^{o} W longitude; 2) 0.9-km (0.6-mi) terrestrial, air, and aquatic zones around major haulouts and rookeries east of 144^{o} W longitude, and 3) three special aquatic foraging areas: the Shelikof Strait, Bogoslof, and Seguam Pass areas. The Gran Point haulout (over 18 miles north of the proposed action) is the closest designated critical habitat and is well outside the action area.

Effects Determination

For purposes of the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is "not likely to adversely affect" listed species or critical habitat is that all of the effects of the action are expected to be insignificant, discountable, or completely beneficial. "Insignificant effects" relate to the size of the impact and are those that one would not be able to meaningfully measure, detect, or evaluate, and should never reach the scale where take occurs. "Discountable effects" are those that are extremely unlikely to occur. "Beneficial effects" are contemporaneous positive effects without any adverse effects to the species.

The potential effects of the proposed action on listed species and critical habitat include acoustic disturbance (noise) and habitat alteration.

Acoustic Disturbance

Possible impacts to marine mammals exposed to loud underwater noise include mortality (directly from the noise, or indirectly from a reaction to the noise), injury, and disturbance ranging from severe (e.g., abandonment of vital habitat) to mild (e.g., startle response). In-water noise is the primary concern for the species covered in this consultation. Pile driving introduces noise into the underwater environment that has the potential to negatively impact marine mammals (Thompson et al. 2013). Though proposed pile driving and vessel activity will introduce continuous sounds into the water, the activities are not expected to adversely affect Mexico DPS humpback whales or western DPS Steller sea lions due to the implementation of mitigation measures.

Pile Driving

Without site-specific sound source verification, we must use the best available information to assess effects to ESA-listed species. For this project we used the recent hydroacoustic study information from the Kake, AK construction project (MacGillivray et al. 2015). The Kake project is the most similar and closest project where sound source verification measurements were taken. Kake involved 18-inch (46 cm) steel pipe pile removal. We anticipate noise levels associated with removal would be similar to installation. For vibratory pile driving 18-inch piles, the 90th percentile near source level measurements for Kake were 161.1 dB re 1µPa at 10 m (JASCO 2016). The distance to the SPL threshold of 120 dB re 1µPa$_{rms}$ from vibratory pile removal ranged from a mean of 940 m to the 90th percentile distance of 1,269 m. Considering this information was gathered at a different site and for extraction, we are using the 90th percentile distance to be precautionary in estimating the 120 dB threshold for the proposed action.

There were no near source level measurements for impact pile driving for 18-inch steel piles in Alaska. However, there were measurements for impact driving 24-inch steel piles in Kodiak, AK. The near source level for Kodiak was 182.7 dB re 1µPa at 10 m (Warner and Austin 2016). The distance to the SPL threshold of 160 dB re 1µPa$_{rms}$ from impact pile driving ranged from a mean of 145 m to the 90th percentile distance of 183 m. For the proposed action we will use the 90th percentile distance of 183 m in estimating the 120 dB threshold distance. However, the Corps is applying a conservative shutdown zone of 1,300 m for both vibratory and impact pile driving.

We do not anticipate that this project will expose Mexico DPS humpback whales or western Steller sea lions to sound pressure levels that reach Level B acoustic thresholds because: 1) we expect few listed species to be present in the nearshore area, 2) the project incorporates monitoring and mitigation measures with exclusion zones which minimize the risk of exposure for any individual that enters it, and 3) the project duration is short, thereby reducing the likelihood of exposure to listed species. We do not anticipate that Mexico DPS humpback whales or western Steller sea lions will be exposed to project-related noise, and if exposure were to occur, mitigation measures would make exposure to sound levels in excess of Level B MMPA take thresholds extremely unlikely. Therefore, we conclude such effects are discountable.

Noise generated from vibratory hammers can reduce the fitness and survival of fish in areas used by foraging marine mammals; however, given the small area of the project site and the fact that any physical changes to this habitat would not be likely to reduce the localized availability of fish (Fay and Popper 2012), it is unlikely that Mexico DPS humpback whales or western Steller sea lions would be affected. We consider potential impacts to prey resources as insignificant.

Vessel Noise

Vessel noise associated with the proposed action would include one 65 ton crane on a 33-foot by 85-foot barge for a total of 14 days. The barge will not be positioned by a tug.

While the source level of the barge is anticipated to range from 145-166 dB re 1 μPa at 1m, this noise is anticipated to attenuate quickly due to reduced low frequency propagation in shallow water. Similar to construction noise, we do not anticipate that marine mammals will be exposed to noise associated with vessel transit due to the transitory short-term presence of a single vessel. If animals are exposed they may exhibit slight deflection from the noise source, engage in low-level avoidance behavior, short-term vigilance behavior, or short-term masking behavior, but these behaviors are not likely to result in adverse consequences for the animals. Humpback whale reactions to approaching boats are variable, ranging from approach to avoidance (Payne 1978, Salden 1993). Whales have been known to tolerate slow-moving vessels within several hundred meters, especially when the vessel is not directed toward the animal and when there are no sudden changes in direction or engine speed (Wartzok et al. 1989, Richardson et al. 1995a, Heide-Jorgensen et al. 2003). Few authors have specifically described the responses of pinnipeds to boats, and most of the available information on reactions to boats concerns pinnipeds hauled out. However, the mere presence and movements of ships in the vicinity of seals can cause disturbance to their normal behaviors (Henry and Hammill 2001, Ferland and Decker 2005, Shaughnessy et al. 2008, Jansen et al. 2010).

The single vessel associated with the proposed action would have a transitory and short-term presence within the action area (two weeks), and the potential overlap with listed species is relatively small considering the spring timing of the action, the limited sightings of the species in the action area, and the shallow waters where the action would be occurring. Humpback whales and Steller sea lions routinely encounter vessels and likely are habituated to associated noise. We therefore consider effects from vessel noise to be insignificant and discountable.

<u>Habitat Alteration</u>

The proposed action would occur more than 18 air miles from the nearest Steller sea lion critical habitat. This project is not expected to impact any of the essential features that define critical

habitat for Steller sea lions. Pile driving and construction will briefly disturb the substrate and increase the turbidity of the water due to stirred up sediment. Sedimentation associated with the project is not likely to have detectable effects on humpback whales or Steller sea lions. Humpback whales typically do not use the shallow waters where the project will occur. Indirect effects to prey due to sediment in the water would be minimal due to the temporary nature of the activity, and are expected to be undetectable to listed species and are considered insignificant.

Conclusions

Based on the analysis that all effects of the proposed action will be insignificant and/or discountable, we have determined that the proposed action not likely to adversely affect any listed species or critical habitat under NMFS's jurisdiction. We have used the best scientific and commercial data available to complete this analysis. We request your concurrence with this determination.

Sincerely,

for James W. Balsiger, Ph.D.
Administrator, Alaska Region

Refrences

ICF Jones & Stokes, and Illingworth and Rodkin Inc. 2012. Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Final report prepared by ICF Jones & Stokes, Sacramento, California, and Illingworth and Rodkin, Inc., Petaluma, California, for California Department of Transportation.

JASCO. 2016. Field Results Summary: Alaska DOT&PF Hydroacoustic Pile Dricing Noise Study. Presented September 18, 2016.

MacGillivray, A., G. Warner, and C. McPherson. 2015. Alaska DOT Hydroacoustic Pile Driving Noise Study: Kake Monitoring Results. JASCO Document 01093, Version 2.0. Technical report by JASCO Applied Sciences for Alaska Department of Transportation and Public Facilities.

Warner, G., and M. Austin. 2016. Alaska DOT Hydroacoustic Pile Driving Noise Study: Kodiak Monitoring Results. JASCO Document 01167, Version 2.0. Technical report by JASCO Applied Sciences for Alaska Department of Transportation and Public Facilities.