WINDY CORNER ENVIRONMENTAL ASSESSMENT

APPENDIX D

THREATENED AND ENDANGERED SPECIES CONSULTATION



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

October 28, 2015

Ms. Sandra Garcia-Aline Division Administrator Federal Highway Administration P.O. Box 21648 Juneau, Alaska 99802-1648

Re: Seward Highway MP 105-107, Turnagain Arm, Alaska; AKR-2015-9420

Dear Ms. Garcia-Aline:

The National Marine Fisheries Service (NMFS) has completed informal consultation with the Federal Highway Administration (FHWA) under section 7(a)(2) of the Endangered Species Act (ESA) regarding proposed improvements to the Seward Highway from Milepost (MP) 105-107. The purpose of the proposed project is to address the high crash rate and improve pedestrian safety along this heavily traveled highway segment by adding safety improvements. These safety improvements will require the highway and railroad to be realigned, and parking and wildlife viewing areas improved in the project corridor. The FHWA has determined that this project may affect, but is not likely to adversely affect, endangered Cook Inlet beluga whales (*Delphinapterus leucas*) or their critical habitat.

NMFS received your May 29, 2015 request for consultation as well as the Biological Assessment dated April 2015. NMFS reviewed your request, applicable scientific literature, and other sources of information. Based on our analysis of this information, NMFS concurs with your determination that this project is not likely to adversely affect Cook Inlet beluga whales or adversely modify their critical habitat. A complete administrative record of this consultation is on file in this office.

Description of the Proposed Action and Action Area

This project will realign the highway and the railroad along a 3.2 kilometer (km) (2 mile [mi]) segment of the Seward Highway in the vicinity of Windy Corner, between MP 105-107 (Figure 1). The segment is proposed to be designed as a two-lane divided highway to meet current design standards. The railroad tracks at Windy Corner will also be realigned and extended into filled areas of Turnagain Arm in order to provide space for the proposed highway realignment. As a secondary objective, the new alignment at Windy Corner creates space for new and expanded roadside recreational facilities and wildlife viewing areas, which includes parking, walkways, and acceleration and deceleration lanes for turning traffic. The realignment and relocation of the



highway and railroad corridors will involve the relocation and reconstructions of adjacent utilities. Water access for emergency responders and search-and rescue teams will also be created as a result of project activities.



Figure 1: Proposed design for the Windy Corner project.

The effects to beluga whales associated with this road and railroad realignment involve impulsive noise from land-based blasting and continuous noise from fill placement associated with highway and railroad realignment and ramp construction.

The Alaska Department of Transportation and Public Facilities (DOT&PF) plans to begin construction on the proposed project in 2016 during the ice-free season (typically April-October). However, in-water work will not occur from April 1 through June 15 in order to minimize potential project impacts to beluga whales and migrating eulachon and salmon.

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.

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 is currently developing comprehensive guidance on sound levels likely to cause injury and behavioral disruption to marine mammals. However, until such guidance is available, NMFS

uses the following conservative thresholds of underwater sound pressure levels $(SPL)^1$, expressed in root mean square $(rms)^2$, 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}

NMFS uses the following conservative thresholds for underwater sound pressure levels from broadband sounds that cause injury, referred to as Level A harassment under section 3(18)(A)(i) of the MMPA:

- 180 dB re $1\mu Pa_{rms}$ for whales
- 190 dB re 1μ Pa_{rms} for pinnipeds (seals and sea lions)

The action area for the Windy Corner project includes the construction boundary plus the inwater area that will become ensonified at or above the 160 dB re 1 μ Pa_{rms} SPL. The action area extends between MP 103.5-109.5 along the Seward Highway and 1.5 km (4,921 ft.) into Turnagain Arm (Figure 2). The planned blasting activities, using ammonia nitrate and fuel oil (ANFO), will produce the loudest noise of any of the activities associated with the project.

Near-shore on-land explosives produce a reduction of source level (SL) when the energy reaches the water, especially at the higher frequencies. For this reason the source positions of the construction explosives were modeled as the nearest point in the water, with a reduced SL (HLS 2014). The distance from the blasting source to the 180 dB isopleth (i.e., threshold for injury to beluga whales from impulsive sound) is about 358 m (1,175 ft.) from the center of each blast site; and the distance to the 160 dB isopleth (i.e., threshold for beluga whale harassment) is less than 1.5 km (4,921 ft.) from the center of each blast site. Because the 160 dB isopleth has a greater area than the 180 dB isopleth, the Windy Corner project action area encompasses all areas that may be affected by underwater sounds equal to or greater than 160 dB (Figure 2).

General Blasting Plan

Rock blasting will occur at Windy Corner proper and at Gorilla Rock to create space for the road and railroad realignment. In addition, rock blasting will occur at Material Site (MS) 1 and/or MS 6 to create fill material for this project. Although only MS 1 is expected to be developed, MS 6 will be permitted in case there is a need for additional fill following extraction from MS 1.

Blasting activities were estimated for each blast site of the Windy Corner project based on preliminary project designs and standard construction practices. There will be no more than two blasts per day and no more than one site would be blasted on any given day. However, it is likely that no more than a single blast would occur each day.

¹ Sound pressure is the sound force per unit micropascals (μ Pa), 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 μ Pa, and the units for underwater sound pressure levels are decibels (dB) re 1 μ Pa.

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



Figure 2. The action area for the Seward Highway Windy Corner safety improvement project for MP 105-107, includes the MS 1 and MS 6, which extends the construction boundary for this project between MP 104-109. The sound generated by blasting extends the project action area from MP 103.5-109.5 and 1.5 km (4,921 ft.) into Turnagain Arm.

Fill Placement

In order to realign the highway and railroad at Windy Corner, approximately 38 acres of fill will be placed in the Turnagain Arm mudflats (Figure 3) during the ice-free season (typically April-October) and during daylight hours only. Throughout the spring (April 1 through June 15), fill placement will only occur onto intertidal mudflats while the tide is out and the area is largely void of standing water. This will avoid direct impacts to beluga whales and migrating fish:

- Approximately 1.5 million m³ (2 million yd³) of fill material is needed. Rock fill will primarily or entirely come from MS 1, and will consist of clean rock with varying grades or grain sizes.
- Fill from MS 1, and if necessary, MS 6, will be hauled to the embankment by trucks to be dumped.
- Prior to new fill being placed adjacent to the existing AKRR track, the coastal armament (armor stone, riprap) along the existing track will be removed.
- Once fill in this area achieves the appropriate elevation, construction efforts will shift to placing armor stone along the south side (Turnagain Arm) of the AKRR tracks. This embankment will be placed for the project's length and given time to consolidate and settle.
- Rock fill will be placed onto mudflats at low tide when the mudflats are exposed. In some cases, rock fill will be placed in or near a low-tide channel, where rock must be placed below water, during the low tides.



Figure 3. Approximately 38 acres will be filled for the Windy Corner project.

All fill activities will occur from shore, with seaward expansion occurring from atop previous fill. Barges and other vessels will not be used for fill activities, and dredging is not required.

Rescue-craft ramp construction

The rescue-craft ramp will be constructed in the Turnagain Arm mudflats (Figure 1) during the ice-free season (typically April-October) and during daylight hours only. The rescue-craft ramp will start on the proposed fill embankment and will end 76 m (250 ft.) out into Turnagain Arm, still on the fill embankment. Pre-fabricated concrete slabs will be brought in and placed on graded rock on the silt. Slab placement will take place during low tide.

Mitigation Measures

We understand that DOT&PF will follow the following mitigation measures to protect beluga whales and their critical habitat:

- 1) The proposed highway and railroad realignments were shifted 34 m (110 ft.) inland and the fill placement was reduced by 7 acres (originally proposed to fill 45 acres)
- 2) In-water fill placement will not occur from April 1 through June 15.
- 3) Fill placement will only occur during daylight hours, and will be restricted to within six hours of low tide (three hours before and/or after local low tide).
- 4) On-shore blasting will only occur during daylight hours, and will be restricted to within six hours of low tide (three hours before and/or after local low tide).
- 5) Blasting activities will not occur at or below the intertidal zone.

6) Protected Species Observers (PSOs) will be on site to accurately identify beluga whales at safety zone distances identified for the 160 dB and the 120 dB isopleths (Table 1).

Table 1. The proposed impulsive (160 dB) and continuous noise (120 dB) activities in Turnagain Arm and the required safety zones.

Activity	Threshold dB re 1 µPa _{rms} SPL	Safety Zone
Blasting	160	1.5 km (4,921 ft.)
Fill and Pre-Fabricated Concrete Slab Placement	120	300 m (984 ft.)

- 7) PSOs will scan the 160 dB safety zone prior to impulsive acoustic output and the120 dB safety zone prior to continuous acoustic output for beluga whales and other marine mammals for 30 minutes, before commencing in-water noise activities.
 - a. If one or more beluga whales or other marine mammals are present within the 160 dB safety zone for impulsive noise or 120 dB safety zone for continuous noise during this 30 minute observation period, in-water noise activities shall not begin until all marine mammals vacate the safety zone of their own accord; or until no marine mammals have been observed in the safety zone for 30 minutes.
 - b. The PSO will continuously monitor the 160 dB safety zone during work producing impulsive noise, and the120 dB safety zones during work producing continuous noise to prevent takes of any marine mammals.
 - c. Should the activity producing in-water noise cease for more than 60 minutes, PSOs shall scan the 160 dB or the 120 dB safety zone for beluga whales and other marine mammals for 30 minutes before again commencing work resulting in in-water noise of more than 120 dB.
- 8) Blasting activities will only occur when all marine waters within 1.5 km (4,921 ft.) of the blasting site are visible by the PSO.
- 9) PSOs will have binoculars, charts, compass, and a rangefinder, (or equivalent) and have the ability to use these instruments to plot the position of all observed marine mammals within 100 m (328 ft.) of the marine mammals' location; and shall keep a record of all marine mammal sightings and associated data.
- 10) PSOs will have the authority and means (direct communication) to shutdown or stop activities producing in-water noise capable of harassing a marine mammal when a marine mammal(s) is detected within or is about to enter the 160 dB safety zone (for impulsive noise) or the 120 dB safety zone (for continuous noise).
- 11) PSOs will work shifts of four hours or less with at least a one hour break between shifts, and shall not work more than 12 hours in a 24 hour period.
- 12) PSOs will stop in-water noise-producing activities immediately if one or more beluga whales or other listed marine mammals enter the safety zone for the equipment in use, or in the opinion of the PSO, are about to enter that safety zone.
- 13) A preliminary report on activities and results of the monitoring and mitigation program will be submitted to NMFS AKR within 90 days after terminating the construction season.
 - The report will provide summaries of the dates and locations for construction operations and a copy of the completed marine mammal observation spreadsheet.

- All technical reports will provide full documentation of the methods, results, and interpretation for all monitoring tasks.
- 14) The final report on activities and results of the monitoring and mitigation program will be submitted to NMFS AKR within 120 days of the terminating the construction season.
- 15) Access to the rescue-craft ramp will be controlled via a locked gate and/or locked posts preventing access and use by the general public.
- 16) Permanent signs will be posted and maintained at the ramp to inform the public that the ramp is only for emergency rescue-craft and authorized use, as determined by DOT&PF.
- 17) Staging areas will be located in upland areas adjacent to the proposed project area.
- 18) DOT&PF will develop and implement a Storm Water Pollution Prevention Plan and Spill Prevention Control and Countermeasure Plan.

Listed Species and Critical Habitat

Cook Inlet Beluga Whales

The best available historical abundance estimate of the Cook Inlet beluga whale population was from a survey in 1979 which resulted in an estimate of 1,293 whales (Calkins 1989). NMFS began conducting comprehensive and systematic aerial surveys of the beluga population in 1994. These surveys documented a decline in beluga abundance from 653 whales in 1994 to 347 whales in 1998, a decline of nearly 50%. In response to this decline, in 2000, NMFS designated the Cook Inlet beluga whale population as depleted under the Marine Mammal Protection Act (65 FR 34590, May 31, 2000). Abundance data collected since 1999 indicate that the population did not increase, and the lack of population growth led NMFS to list the Cook Inlet beluga whale as endangered under the ESA on October 22, 2008 (73 FR 62919). The most recent comprehensive abundance survey (from 2014) indicates a population estimate of 340 beluga whales, with the population continuing to show a negative trend since 1999.

The distribution of Cook Inlet belugas has changed significantly since the 1970s. Fewer beluga whale sightings in the lower Inlet in recent decades (Hansen and Hubbard 1999; Speckman and Piatt 2000; Rugh et al. 2000, 2010) indicate that the summer range has contracted to the mid and upper Inlet, coincident with their decline in population size. The range contraction brings these whales proximal to Anchorage during summer months, where there is increased potential for disturbance from human activities. Information on Cook Inlet beluga whale biology and habitat (including critical habitat) is available at:

http://alaskafisheries.noaa.gov/protectedresources/whales/beluga.htm.

Since 1999, 18 beluga whales were captured in upper Cook Inlet and fitted with satellite tags to provide information on their movements during late summer, fall, winter, and spring. Data from tagged whales (14 tags deployed from June 1999 through May 2003) show that beluga whales used upper Cook Inlet, specifically Chickaloon Bay and Knik Arm, intensively from June-November. From December-May, these whales spent more time in mid Cook Inlet and Turnagain Arm (Goetz et al. 2012).

A monitoring program along the Seward Highway was conducted in 2006 to document the presence, habitat use, and behavior of beluga whales in Turnagain Arm, emphasizing lower Turnagain Arm, at the Windy Corner area at MP 105-107 (Markowitz et al. 2007).

PSOs drove by lower Turnagain Arm (Windy Corner area) when transiting to areas in upper Turnagain Arm (Twentymile River) from May 8 through November 20, 2006. Monitoring was conducted for a total of 748 hours on 136 days. Beluga whales were not seen around the Windy Corner area during these transits in May, June, and July. Dedicated surveys in lower Turnagain Arm (Windy Corner area) were conducted from September 23 through November 25, 2006. Beluga whales were only observed in lower Turnagain Arm on two days in September, at the Windy Corner project action area on both days

During 2006-2014 a beluga whale photo-identification project conducted 100 land-based surveys along Turnagain Arm (McGuire et al. 2014, McGuire unpublished data). Although the survey effort was concentrated in upper Turnagain Arm (Twentymile River), all beluga whales encountered in the lower Turnagain Arm (including Windy Corner) were photographed and documented. Surveys were conducted during August-October 2006-2014, with the greatest effort mid-August through mid-September. Observations of beluga whales within 5 km (3 mi) of the Windy Corner Project construction area occurred during August and September, 2011, 2012, 2013, and 2014 (Figures 4, 5, and 6).



Figure 4. The general route and beluga whale group(s) encountered for the 2011 land-based surveys along Turnagain Arm, upper Cook Inlet, Alaska (McGuire et al. 2014).



Figure 5. The general route and beluga whale group(s) encountered for the 2012 land-based surveys along Turnagain Arm, upper Cook Inlet, Alaska (McGuire et al. 2014).



Figure 6. The general route and beluga whale group(s) encountered for the 2013 land-based surveys along Turnagain Arm, upper Cook Inlet, Alaska (McGuire et al. 2014).

Whale groups were most often observed moving west to east with the rising tide, and east to west with the falling tide. Turnagain Arm dewaters during low tide, therefore, it is assumed that beluga whales observed in upper Turnagain Arm (Twentymile River) during high tide had to first pass by lower Turnagain Arm (Windy Corner). These whales were not detected by the shore-based observer in the lower arm, perhaps because whales in the lower arm were 1) spread out over a larger area, 2) found along the south shore of the arm, or 3) moved through this area at a less predictable time with respect to the tide. The beluga whale sightings closest to the Windy

Corner project occurred 4.8 and 2.9 hours after high tide (i.e., low and falling, respectively), which suggests that beluga whales are more likely to occur along this section of the Seward Highway closer to mid-to-low tide periods, rather than mid-to-high tide periods, when they were seen in the upper Arm (Markowitz et al. 2007). Monitoring efforts in lower Turnagain Arm were scheduled around the mid-to-high tides, with each shift approximately 5.5 hours long. This coverage of the tidal cycle indicates that the observed whales in lower Turnagain Arm (Windy Corner) during the mid-to-low tide period was not simply an artifact of the sampling schedule.

Critical Habitat

NMFS designated critical habitat for the Cook Inlet beluga whale (76 FR 20180; April 11, 2011), including two areas in Cook Inlet that comprise 7,804 square kilometers (km²) (3,013 square miles [mi²]).

Area 1 is 1,919 km² (741 mi²) of marine habitat north of a line from the mouth of Threemile Creek (61°08.5' N, 151°04.4' W) connecting to Point Possession (61°02.1' N, 150°24.3' W), with the exception of waters by the Port of Anchorage. Area 2 is 5,892 km² (2,275 mi²) of marine habitat, south of Area 1 to southern parts of Cook Inlet, including Kachemak Bay. The proposed project occurs in Cook Inlet Beluga Whale Critical Habitat Area 1.

Effects of the Action

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). To concur that an action may affect, but is not likely to adversely affect, listed species, NMFS must find that all of the direct and indirect effects of the proposed action are expected to be insignificant, discountable, or entirely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where a take will occur. Discountable effects are those that are extremely unlikely to occur. Based on best judgment, one would not: 1) be able to meaningfully measure, detect, or evaluate insignificant effects; or 2) expect discountable effects to occur. Beneficial effects are contemporaneous positive effects with no adverse effects to listed species.

Noise

The ability to hear and transmit sounds is vital to marine mammal survival. Marine mammals use sound to gather information about their environment, communicate, and detect prey and predators. Blasting near water is known to produce loud underwater sounds. The sound from blasting varies depending on: water depth, substrate density or resistance, bottom topography and composition (Blackwell et al. 2004; Richardson et al. 1995), type of the blasting materials, and depth of blasting materials.

Underwater noise produced during the Seward Highway MP 105-107 construction activities could affect beluga whales. Possible impacts to beluga whales exposed to loud sounds include: mortality that results directly from the noise or indirectly from a reaction to the noise; injury; and disturbance that ranges from severe (e.g., abandonment of vital habitat) to mild (e.g., startled response). However, these noises are not expected to adversely affect Cook Inlet beluga whales

due primarily to the construction timing (seasonal and tidal) and the requirement for PSOs to ensure that the safety zone is free of marine mammals.

This project will produce underwater noise in the course of blasting and fill placement. The effects on Cook Inlet beluga whales from project noise include one or more of the following: 1) masking of natural sounds; 2) interrupted or altered behavior; 3) behavioral disturbance leading to displacement and altered habitat use; 4) tolerance; 5) temporary or permanent hearing impairment; and 6) non-auditory physical or physiological effects, such as stranding or increased stress levels (Richardson et al. 1995; Nowacek et al. 2007; Southall et al. 2007).

The Windy Corner project will generate noise from rock blasting and fill placement. Use of the rescue craft ramp created by the project would also generate in-water noise. Direct effects of noise on beluga whales could potentially range from physical injury to behavioral changes to increases in acute or chronic stress. In addition, noise could indirectly affect beluga whales if it affects their prey or other components of their critical habitat.

Low tide will result in a greater distance between the blasting activities and the water, and any beluga whales that happen to be in the area. For example, the cove around Gorilla Rock becomes dry or almost dry during low tide, where the extent of drying depends on the lunar phase. Inwater noise does not travel as far during low tide because noise attenuates more rapidly in dewatered and nearly dewatered mudflats than in the same areas when they are flooded.

Noise Produced by Blasting

Explosives will be used to blast rock at up to four land-based locations in the Windy Corner project action area. DOT&PF commissioned Heat, Light, and Sound Research (HLS) to conduct an analysis of the sound that would be produced by land-based blasting activities from the Windy Corner project. Models were used to predict the sound levels produced by blasting and how far they would travel through the water. Peak explosive energy is predicted to occur around 100 Hz. Because information was unavailable regarding the exact weight of the explosives to be used as well as the exact location for the explosive placement, a conservative/precautionary approach was modeled as if blasting occurred in the water (HLS 2014). In reality, blasting will only occur in rock on land, which will decrease the impact range from the sound created by the blasting. The Windy Corner ambient aquatic sound levels across all tidal stages in August 2014 were measured at 74-108 dB re 1 μ Pa (Burgess 2014).

Possible effects from the noise caused by the blast-warning air horn were also considered. HLS (2014) concluded that air horns would not be a significant source of in-water noise because the impedance contrast between air and water, and the entry angle of the air horn sound being greater than 13 degrees; the point at which sound tends to reflect off the surface of the water rather than penetrate it. Horizontal propagation of in-water sound resulting from air horn noise that does enter the water will be miniscule.

There is a possibility that marine mammals in the vicinity of the blasting activity may incur temporary threshold shifts (TTS), as sounds are expected to be as high as 180 dB re 1 μ Pa_{rms} about 358 m (1,175 ft.) from the land-based blasting site. Sound levels that may cause permanent threshold shift (PTS) would occur much closer to the source. Should some individuals be

exposed to blasting, it is unlikely the land-based blasting would be at a sufficiently high level for a sufficiently long period to cause more than mild TTS, typically a temporary and entirely reversible phenomenon. However, temporary hearing reduction can have temporary effects with long term consequences (e.g. failure to detect approaching predators). Consequently, blasting will not occur during those times of year and tidal stages when beluga whales are most likely to be in the Windy Corner project action area. In addition, PSOs will monitor all blasting activities and have authorization to shut-down operations if beluga whales or other marine mammals are seen within 1.5 km (4,921 ft.) of blasting activities.

Madsen et al. (2006) argued that significant communication and echolocation masking effects would be unlikely during impact pile driving given the intermittent nature of these sounds and short signal duration; we conclude that this lack of masking would also apply to the impulsive sound results from blasting. The beluga whale's extensive vocal repertoire includes trills, whistles, clicks, bangs, chirps, and other sounds (Schevill and Lawrence 1949; Ouellet 1979; Sjare and Smith 1986a). The dominant frequencies in beluga whistles are 2-6 kilohertz (kHz) (Sjare and Smith 1986a). Other beluga whale call types reported by Sjare and Smith (1986a, b) included sounds at mean frequencies ranging upward from 1 kHz. Echolocation clicks are unlikely to be masked during Windy Corner project activities. Beluga whale echolocation signals have peak frequencies from 40-120 kHz (Au et al. 1985, 1987; Au 1993). In general, most vocalizations and echolocation clicks produced by beluga whales have frequency ranges above those produced at highest intensity by blasting and other construction activities, predicted at 100 Hz (HLS 2014). Thus, the masking effects are expected to be limited and will be further reduced through monitoring and mitigation efforts. Therefore, we conclude that any effects from underwater noise associated with blasting are insignificant. Furthermore, the implementation of mitigation measures renders the probability of any such deleterious effects discountable.

Noise Produced by Fill Placement

Various types of construction equipment will generate in-air noise (Table 2). Noise will automatically be reduced from these levels as it enters the water via the impedance contrast that reduces how much in-air sound passes through the air-water interface. Noise that does enter the water may not be detectable above the Windy Corner ambient aquatic sound levels, 74-108 dB re 1 μ Pa (Burgess 2014). The noise levels from the construction equipment do not reach the threshold levels considered by NMFS to be harmful or injurious to marine mammals, nor do they reach levels considered to constitute harassment. Therefore, we conclude that any effects from underwater noise associated with fill placement construction machinery are insignificant.

All noise related to fill placement will originate in shallow waters or on substrates without surface water, and will be placed within three hours either side of low tide. Sound levels associated with fill placement are typically far less than sound levels associated with blasting. It is likely that beluga whales will not be observed within the 120 dB safety zone (within 300 m [984 ft.] of the sound source) during these activities. PSOs will further reduce the probability that whales may be harassed by these fill-placement activities. Therefore, we conclude that any effects from underwater noise associated with fill placement are insignificant.

Tuble 2. Mean in an noise levels for various types of construction equipment (end 2001).					
Equipment Type	Mean In-Air Noise		Equipment Type	Mean In-Air Noise	
	Level at 15 m (50 ft.)			Level at 15 m (50 ft.)	
Air Compressor	81 dB		Loader	84 dB	
Backhoe	85 dB		Paver	89 dB	
Concrete Mixer	85 dB		Pneumatic Tool	85 dB	
Concrete Pump	82 dB		Pump	76 dB	
Concrete Vibrator	76 dB		Rock Drill	98 dB	
Crane, Derrick	88 dB		Roller	80 dB	
Crane, Mobile	83 dB		Saw	78 dB	
Dozer	87 dB		Scraper	88 dB	
Generator	70 dB		Shovel	02 dB	
Grader	85 dB		Truck	88 dB	
Jackhammer	88 dB				

Table 2. Mean in-air noise levels for various types of construction equipment (URS 2004).

Noise Produced by Vessel Use of the Rescue-Craft Ramp

The rescue-craft ramp may lead to an increase in watercraft in the project area, which in turn would create noise. While small vessel noise is well documented as having the potential to cause take, the operation of emergency response watercraft from this ramp will be sufficiently rare as to result in an insignificant amount of disturbance. Use of the ramp by recreational boaters will be prohibited.

Harassment due to Increased Visitor Access to Shoreline

The creation of parking and wildlife viewing areas for the Windy Corner project may lead to an increase in beluga watching and possible illegal harassment from shore. However, such illegal harassment would require individuals to illegally trespass on railroad property to gain access to the shoreline. We assume that the vast majority of site visitors will abide by the law, and consequently, we conclude that this project will result in insignificant effects on marine mammals due to harassment by visitors.

Contaminants

The proposed project will follow refueling and containment regulations implemented by the Alaska Department of Environmental Conservation (ADEC), Environmental Protection Agency (EPA), and U.S. Coast Guard, including placement of refueling stations and containment at least 30.5 m (100 ft.) from a water body. Furthermore, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented during all construction phases. The SWPPP will be approved through EPA during the permitting process. DOT&PF will obtain all appropriate federal and state water quality permits.

Effects on Cook Inlet Beluga Whale Critical Habitat

The proposed action has the potential to affect beluga whales through the disturbance or modification of their critical habitat. Five physical and biological features of this habitat (primary constituent elements [PCEs]) are essential to the beluga whale conservation (76 FR 20180; April 11, 2011):

<u>PCE 1: Intertidal and subtidal waters of Cook Inlet with depths less than 30 ft. Mean Lower Low</u> Water and within 5 mi of high and medium flow anadromous fish streams

Anadromous fish streams do not exist within the Windy Corner project action area. The project has the potential to indirectly affect nearby anadromous streams via increased noise, pollution, sedimentation, or turbidity; however, these effects will be minimized through the proposed mitigation measures. Therefore, we conclude that adverse impacts from construction activities to PCE 1 would be insignificant.

<u>PCE 2: Primary prey species consisting of four species of Pacific salmon (Chinook, chum, coho, and sockeye), Pacific eulachon, Pacific cod, walleye pollock, saffron cod, and yellowfin sole</u> Eulachon and salmon are seasonally found in Turnagain Arm and may be affected by this project. Pacific cod, walleye pollock, saffron cod, and yellowfin sole have not been documented in the action area (LGL 2015).

Eulachon spawn in Cook Inlet between mid-May and mid-June, with notable runs occurring in the Kenai, Susitna, Twentymile, and Placer rivers (Shields 2010, Shields and Dupuis 2013). Twentymile and Placer rivers in upper Turnagain Arm are frequently visited by beluga whales in the spring during these eulachon runs (76 FR 20180), moving past lower Turnagain Arm (Windy Corner area) in the process. Throughout the summer, Chinook, chum, coho, and sockeye salmon may be found migrating through the action area, with coho predominating in late summer. Beluga whale movements in Turnagain Arm typically coincide with the eulachon run during mid-May to mid-June; and coho salmon run during August-November (76 FR 20180).

It is unlikely that this proposed project will impact the Cook Inlet beluga whale primary prey species by displacement or injury from proposed project-associated noise and habitat loss by fill placement. Project construction plans will avoid the relatively large and important runs of eulachon and salmon smolt outmigration (no in-water work April 1 through June 15). In-water construction will be localized (Windy Corner) and temporary (three hours around low tide), so other prey species will be able to avoid the disturbance. We conclude that noise from upland blasting and marine fill placement will not affect fish or predator-prey relationships to a degree that will affect beluga whales. Any effects upon prey species will be temporary and will not measurably affect beluga whale prey availability. Consequently, we conclude that the proposed project will have insignificant and discountable effects on PCE 2.

<u>PCE 3: Waters free of toxins or other agents of a type or amount harmful to Cook Inlet beluga</u> <u>whales</u>

Contaminants, stormwater runoff, and accidental hazardous material spills associated with the proposed project may occur. Although fill placement along the Seward Highway will be free of contaminants, ground disturbance from construction could possibly result in stormwater runoff transporting contaminants to water. With the increase in the area of impermeable surfaces (ex., roadway, rescue-craft ramp, and parking lots), the runoff patterns could be altered.

The proposed project will follow refueling and containment regulations implemented by EPA and ADEC, including placement of refueling stations and containment at least 30.5 m (100 ft.) from a water body. Furthermore, an approved SWPPP will be developed and implemented during all construction phases. DOT&PF will obtain all appropriate federal and state water

quality permits. However, should contaminants from stormwater or sediments find their way into fluvial or nearshore waters, it is anticipated that they will be quickly dispersed and diluted, due to rapid mixing in Turnagain Arm. As a result, we have determined that the effects from this proposed project upon PCE 3 will be insignificant.

PCE 4: Unrestricted passage within or between the critical habitat areas

NMFS expects beluga whale passage will remain unrestricted as a result of this project because beluga whales are expected to adapt to, and continue to travel along, the newly positioned rock-armored shorelines in Turnagain Arm, just as they adapted to and now travel along the current rock-armored shorelines. Some whales may temporarily experience restrictions to passages into upper Turnagain Arm due to noises associated with the proposed project. However, we do not expect that effect will appreciably reduce the value of critical habitat for the conservation of these whales because: 1) the construction effects will be temporary; 2) construction will be limited in spatial extent at any given time, ensuring that alternative habitat sites remain available to the whales; 3) working within three hours either side of low tide will ensure dewatered and nearly dewatered mudflats as the work sites; and 4) in-water work will not occur from April 1 through June 15. Therefore, we conclude that any adverse effects to this PCE will be insignificant and discountable.

<u>PCE 5: Waters with in-water noise below levels resulting in the abandonment of critical habitat</u> <u>areas by Cook Inlet beluga whales</u>

The primary impact to beluga whales due to this proposed project is most likely to arise due to underwater noise associated with this project, primarily from fill placement.

PSOs will be present during all in-water activity. This will reduce the chance of exposing beluga whales to in-water noise above the 160 dB re 1 μ Pa threshold for impulse noise and 120 dB re 1 μ Pa threshold for continuous noise. DOT&PF will implement a shutdown radius for the safety zones at:

- 1) 1.5 km (4,921 ft.) for impulsive noise for land-based blasting.
- 2) 300 m (984 ft.) for continuous noise for marine fill placement.

If beluga whales are observed entering these safety zones, noise levels from the proposed project will be reduced to below harassment level or activities will be shut down until the safety zone is void of beluga whale.

Although there are currently numerous sources of in-water noise in Cook Inlet, there is no evidence that these noise levels have resulted in the abandonment or decreased use of any critical habitat areas. We therefore determine that noise effects from the proposed project are extremely unlikely to result in the abandonment or measureable decreased use of critical habitat areas by Cook Inlet beluga whales, and are therefore insignificant and discountable. PSO monitoring further reduces the probability that beluga whales will encounter project-associated noises sufficient to result in habitat abandonment.

Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed action may affect, but is not likely to adversely affect, the endangered Cook Inlet beluga whale or its designated critical habitat.

Reinitiation of consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and if: 1) take of listed species occurs, 2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, 3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter, or 4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

Please direct any questions regarding this letter to Barbara Mahoney at (907) 271-3448 or barbara.mahoney@noaa.gov.

Sincerely,

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

Cc: Mark Boydston Brian Elliott John McPherson

mark.boydston@alaska.gov brian.elliott@alaska.gov John.McPherson@hdrinc.com

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