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

November 15, 2023

Col. Jeffrey Palazzini
U.S. Army Corps of Engineers, Alaska District
Regulatory Division
PO Box 6898
JBER, Alaska 99506-0898

Re: Programmatic Consultation for the U.S. Army Corps of Engineers AK-SLOPES Program, Letter of Concurrence
POA-2022-00349; AKRO-2023-01834

Dear Colonel Palazzini:

Following extensive coordination with your Regulatory Division staff, the National Marine Fisheries Service (NMFS) has completed an informal, programmatic consultation pursuant to section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended, for three types of projects regularly permitted by the U.S. Army Corps of Engineers (Corps). The projects would implement Alaska standard local operating procedures for endangered species (AK-SLOPES) in the Pacific Ocean and Bering, Chukchi, and Beaufort seas in coastal regions of Alaska. The Corps has determined that specific activity categories, provided they meet the project design criteria (PDC) outlined in this programmatic consultation, are not likely to adversely affect (NLAA) ESA-listed species and designated critical habitat. In 2020, the Corps and NMFS agreed to collaborate to conduct this programmatic consultation to streamline the consultation process for routine small projects with understood effects. Through this collaboration, the Corps prepared a Biological Assessment (BA) (Corps 2023) which consists of specific activities, procedures, project types, and species-specific criteria to minimize adverse effects to listed species and their habitats from projects, individually or in aggregate, to insignificant and/or highly improbable levels.

We concur with the Corps that the three activity categories addressed in the enclosed document are not likely to adversely affect the following ESA-listed species and designated critical habitat under our jurisdiction: endangered bowhead whale (*Balaena mysticetus*), endangered fin whale (*Balaenoptera physalus*), endangered blue whale (*Balaenoptera musculus*), endangered sei whale (*Balaenoptera borealis*), endangered North Pacific right whale (*Eubalaena japonica*), endangered Western North Pacific distinct population segment (DPS) gray whale (*Eschrichtius robustus*), endangered sperm whale (*Physeter macrocephalus*), endangered Western North Pacific DPS humpback whale (*Megaptera novaeangliae*), threatened Mexico DPS humpback

whale, endangered Cook Inlet beluga whale (*Delphinapterus leucas*), threatened Arctic subspecies of ringed seal (*Phoca hispida hispida*), threatened Beringia DPS bearded seal (*Erignathus barbatus nauticus*), endangered Western DPS Steller sea lion (*Eumetopias jubatus*), and proposed threatened sunflower sea star (*Pycnopodia helianthoides*), and critical habitat for the North Pacific right whale, Western North Pacific and Mexico DPSs of humpback whale, Cook Inlet beluga whale, ringed seal, bearded seal, and Steller sea lion.

Together with the activity categories, PDC, Verification Form, and Mitigation Measures that are appendices to the enclosed document, this programmatic consultation and concurrence form the basis of the AK-SLOPES Program.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the District Court's July 5, 2022 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the letter of concurrence would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different. New proposed rules were published in the Federal Register on June 22, 2023 (88 FR 40753-64).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). A complete record of this consultation is on file with the NMFS Alaska Region.

Please direct any questions regarding this letter to akr.section7@noaa.gov.

Sincerely,

Jonathan M. Kurland
Regional Administrator

Enclosure

Cc: Roberta Budnik (Roberta.K.Budnik@usace.army.mil)

Alaska Standard Local Operating Procedures for Endangered Species (AK-SLOPES)

November 2023

1 Background

The Corps has the authority to authorize and issue permits for:

(1) the discharge of dredged or fill material into waters of the United States (U.S.), under Section 404 of the Clean Water Act;

(2) work and structures that may affect the course, location, condition or capacity of navigable waters of the U.S., under Section 10 of the Rivers and Harbors Act of 1899; and

(3) the transportation of dredged material for ocean disposal under Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972.

Many of these projects include activities that are minor, non-controversial, recurring, and predictable in nature, and share similar requirements for Corps regulatory approval. Under this AK-SLOPES program, applications for proposed actions that the Corps finds to be within the range of effects considered in the corresponding concurrence letter would be issued a permit under the authorities referenced above with conditions, including the mitigation measures found herein.

Nationwide Permits (NWPs) authorize certain activities under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 that have no more than minimal individual and cumulative adverse environmental effects. NWPs are typically permits issued for a five-year period by the Corps for a suite of actions that fit within a detailed set of sideboards. When an applicant proposes to perform a regulated activity that qualifies for authorization by a NWP, the Corps will verify that the project fits the terms and conditions of the NWP and the permittee may have up to one year after the expiration of the NWP to complete the project. Depending on when the verification is issued during the NWP cycle, the permittee could have up to six years to complete the authorized project.

Similary, Corps Letters of Permission (LOP) and Individual Permits (IP), issued under the same authorities but through an abbreviated processing procedure, are issued for five years in most cases. The permittee has five years from the date their LOP or IP is issued to complete the activities that fall under the coverage of this programmatic consultation. This timeline is important to note, as the Corps typically does not shorten the expiration of issued permits for any reason. It should be understood that direct and indirect impacts (consequences) resulting from a project could occur at any given time prior to the expiration of the LOP or IP, unless a timing window special condition is added to the LOP or IP. If a timing window special condition is added to the authorization, the permittee could complete the authorized project within that timing window in any given year for which the authorization is valid. Projects with consultations conducted under this programmatic consultation may be undertaken and completed during the

project's Corps-permitted time interval without the need for reinitiation, provided other reinitiation triggers are not met (see Conclusions section).

Programmatic consultations address an agency's multiple actions on a program, region, or other basis and allow the Services to consult on the effects of programmatic actions such as multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas. 50 CFR §402.02. Programmatic consultations can be used to evaluate the expected effects of such agency actions that are expected to be implemented in the future, even where specifics of individual projects, such as project location, are not definitively known. A programmatic consultation must identify project design criteria (PDC) and/or standards regarding activity effects and stressors that will be applicable to all future projects implemented under the program, or in this case, a suite of projects and associated stressor thresholds located across a broad geographic area. The PDC for the AK-SLOPES include the measures contained within the Corps BA to avoid and minimize impacts, and define which projects can be consulted on under this programmatic consultation, versus those that need individual section 7 consultation (informal or formal). These criteria serve to ensure that projects covered by the AK-SLOPES Program have effects on listed species and critical habitat that are insignificant, discountable, or wholly beneficial.

Programmatic consultations allow for streamlined project-specific consultations, in this case through use of a Verification Form, because the effects analysis is completed up front. Under this programmatic consultation, a proposed project would be reviewed to determine if it can be implemented in accordance with the PDC identified in the programmatic consultation. The following elements should be included in a programmatic consultation to ensure its consistency with ESA section 7 and its implementing regulations.

1. PDC that will prevent or limit future adverse effects on listed species and critical habitat;

2. A description of the manner in which projects to be implemented under the programmatic consultation may affect listed species and critical habitat and an evaluation of expected level of effects from these projects;

3. A process for evaluating expected, and tracking of actual, aggregate or additive effects of all projects anticipated under the activity category. The programmatic consultation document must demonstrate that when the PDC or standards are applied to each project, the aggregate effect of all projects are not likely to adversely affect listed species or their critical habitat;

4. Procedures for streamlined project-specific consultations will be established. The Corps will provide a description of a proposed project, or batched projects, and an assurance that the project(s) will be implemented in accordance with the PDC. We will review the submission and either concur with the determinations, or identify adjustments to the project(s) necessary to make it (them) consistent with this programmatic consultation document; and,

5. Procedures for monitoring projects, reporting requirements, and validating effects predictions will be established.

This programmatic consultation will not expire, but will be reviewed periodically to evaluate the

program's effectiveness, efficiencies gained, whether listed species are protected as intended, and whether additions or deletions or other revisions are needed. Both agencies will meet annually to discuss the implementation of this programmatic consultation and may indicate in writing their desire to continue participating in it.

At these annual meetings, NMFS and USACE will: 1) evaluate and discuss the continued effectiveness of the AK-SLOPES project criteria and procedures (including compliance with reporting requirements) for ensuring listed species and critical habitat are not likely to be adversely affected from projects permitted by the Corps, and 2) update procedures, criteria, and maps, if necessary. At or before each annual meeting, the Corps will provide NMFS a table showing how many times AK-SLOPES was used during the prior year in each category (e.g., Table 1).

The Corps' authorization and NMFS' concurrence for AK-SLOPES can end at any time if: 1) the Corps elects to end AK-SLOPES, 2) NMFS withdraws concurrence because we determine that AK-SLOPES is not being implemented as intended, 3) the Corps fails to provide annual AK-SLOPES reports summarizing the prior year's projects covered by this programmatic consultation, or 4) reinitiation of consultation is required pursuant to 50 CFR § 402.16.

2 Consultation History

July 17, 2020: Corps indicated full support in development of this programmatic consultation. Discussions commenced regarding sideboards for this programmatic consultation and standard Mitigation Measures that would apply.

March 12, 2022: NMFS completed development of standard Mitigation Measures for most coastal development projects that could be covered by this programmatic consultation. Talks continued regarding sideboards for projects that would be covered (e.g. geographic range, potentially affected species, duration of activity, geographic extent of activities, sound source levels, and other factors).

2022: Monthly coordination meetings between the Corps and NMFS.

Spring 2023: Development of Verification Form.

January-July 2023: Weekly coordination meetings between the Corps and NMFS.

July 13, 2023: BA received from the Corps.

August 2, 2023: Consultation initiated.

3 Description of the Proposed Action

"Action" means all activities or programs of any kind authorized, finded, or carried out, in whole or in part, by Federal agencies in the United States of upon the high seas (50 CFR § 402.02).

The Corps' proposed action here is the issuance of permits regulated under Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section

10) to applicants conducting three types of common activities (see below) occurring in coastal waters of Alaska. Under AK-SLOPES, the Corps will apply conditions when they issue Section 404 and Section 10 permits that will minimize risk to ESA-listed species and comply with the AK-SLOPES program. The Corps will use AK-SLOPES to ensure compliance with the ESA for the following types of projects subject to the permitting authorities above:

1. Pile Installation, and/or Removal;
2. New or maintenance Dredging and/or Screeding; and
3. Intertidal Fill/Bank Stabilization and Maintenance

Each of these activities are briefly described below. For a complete description of the activities, refer to the associated BA (Corps 2023).

To estimate the volume of projects that may be eligible for consultation under this programmatic consultation, the Corps provided a summary table of all of the projects that NMFS concurred were NLAA for listed species and critical habitat from 2017 to 2021 (see Table 1).

Table 1. Number of Alaskan coastal projects with a NLAA determination which would have fit within the parameters of this programmatic consultation. Data provided by the Corps on September 1, 2023.

Project Description	2017	2018	2019	2020	2021	2022	TOTAL
Vibratory pile installation/removal	8	8	7	5	5	11	44
Vibratory pile installation/removal & Impact pile driving	3	0	0	3	2	3	11
Vibratory pile installation/removal & Intertidal fill	0	0	1	0	0	0	1
Impact pile driving	2	5	6	2	6	2	23
Dredging/screeding	0	1	0	1	2	1	5
Intertidal fill	0	0	0	1	0	0	1
Total Consultations Which Would Fit the Parameters of AK-SLOPES:							**85**

We believe these data represent the approximate proportion of the projects within each category requiring consultation that would also fall within the parameters of AK-SLOPES. We conservatively estimate that 85 out of the 165 informal consultations conducted since 2017 would have been covered by AK-SLOPES had it been in place.

3.1 Project Design Criteria (PDC)

Certain measures were included in the Corps' BA to avoid or minimize project impacts to endandered species. These measures, or "PDCs," have been incorporated into the eligible projects in order to prevent or limit future adverse effects on ESA listed species and critical habitat. Projects outside the scope of these PDC are not authorized without further review, which consists of an individual section 7 consultation, unless proper justification for the project's inclusion is provided. Projects within the scope of the PDC may be processed under the appropriate project type and have been determined "not likely to adversely affect." Additional conditions that exist as intrinsic parts of the permits and under the Corps Standard Operating Procedures (SOPs) will also aid in limiting potential negative effects to NMFS-managed species/critical habitat to levels that are insignificant and/or discountable.

3.2 Framework for Further Project Review

All projects proposed for authorization under AK-SLOPES will require review by a Corps project manager in order to be covered by this programmatic ESA section 7 consultation. The process will include the following steps:

1. The Corps will confirm whether a proposed project is within the range of an ESA-listed species or designated critical habitat, and make a determination regarding each project stressor upon each listed species in the action area.

2. If the Corps determines that the project may affect an ESA-listed marine species or critical habitat, they will review the project for applicability under AK-SLOPES based on the following criteria:
    a) The proposed project conforms with all applicable requirements and limitations described herein;

    b) The AK-SLOPES conditions can be applied to the project; and

    c) All potential effects on ESA-listed marine species or critical habitats are within the range of effects considered in the programmatic consultation for the implementation of AK-SLOPES. Projects that do not initially comply with AK-SLOPES may be brought into compliance through technical assistance between the applicant, the Corps, and NMFS, or else they would require separate consultation;

3. The Corps will submit the AK-SLOPES Verification Form (Attachment 1) with a list of all AK-SLOPES conditions that are applicable to the proposed project to NMFS to request verification that the project is within the scope of AK-SLOPES; and

4. NMFS will confirm whether the given project complies with AK-SLOPES.

Projects which do not meet all of the PDC and relevant thresholds for associated stressors will require an individual section 7 consultation, which will result in NMFS issuing a letter of concurrence (LOC) or a Biological Opinion for that specific project. Such projects would require a more extensive analysis because the scope of the project appears to be outside the boundaries of those considered and analyzed in this consultation, or because it is not feasible to assess the effects of such an activity *a priori* without knowing specific details related to the particular project.

Whenever there is a question about a project's eligibility for consultation under the AK-SLOPES programmatic consultation via the Verification Form, the Corps project manager/biologist tasked with permitting/authorizing the activity should reach out to the NMFS Alaska Region Protected Resources Division (AKR PRD) section 7 coordinator (AKR.prd.section7@noaa.gov) for technical assistance.

3.3 Implementation of Verification Form

For those projects that fit within the scope of project types and stressor thresholds included in this programmatic consultation, the Corps will submit a complete Verification Form to NMFS that demonstrates the project meets the criteria for coverage. The form will serve as a record to certify that the action agency has determined the project may affect, but is not likely to adversely affect, species or critical habitat listed under the ESA, and is consistent with this programmatic consultation. This will also allow any aggregate effects to be tracked and analyzed on an annual basis. A copy of the Verification Form is included in this consultation package (Attachment 1). The Corps will provide the completed form to NMFS with the required information. NMFS will then review the Verification Form and note one of the following conclusions:

1. In accordance with the 2023 AK-SLOPES programmatic consultation, NMFS concurs with the Corps' determination that the project complies with all applicable PDC and therefore is not likely to adversely affect listed species or critical habitat;
2. As written, the project does not qualify for coverage under the 2023 AK-SLOPES programmatic consultation. If the project cannot be modified to fit within the PDC of AK-SLOPES, then an individual ESA section 7 consultation is required.

3.4 Project Descriptions

The Corps will use this programmatic consultation to satisfy the requirements of the ESA when evaluating applications for Corps permits which fall within the parameters set forth herein (sections 3.4.1 to 3.4.3). If a project seeking a permit does not fall within all of these parameters, this programmatic consultation cannot be utilized, and a project-specific informal or formal ESA section 7 consultation will be required.

3.4.1 Pile Removal and/or Installation

Steel piles (pipe, shell, or H piles) which meet the following specifications may be installed or removed:

a. Piles installed/removed with a vibratory hammer must be ≤18 inches in diameter;
b. Piles installed with an impact hammer must be ≤ 18 inches in diameter;
c. Total number of piles removed plus the number of piles installed does not exceed 40.
d. Projects must be completed in 30 or fewer days of in-water removal and/or installation.
e. There will be a shutdown zone of 2,154 meters (m) for all pile driving (pile removal/installation) activities;
f. At least one Protected Species Observer (PSO) or Project Lookout (collectively referred to as observers when the activity could be completed by either a PSO or a Project Lookout) must observe the entire shutdown zone whenever pile driving is occurring. If the 2,154 m zone cannot be clearly seen by one observer (e.g. topography or buildings obscure part of the zone) more observers must be deployed. Qualifications and duties of the PSOs and Project Lookouts are presented in the Mitigation Measures (section 3.7)

3.4.2 New or Maintenance Dredging/Screeding

Dredging/screeding projects are only allowed from Bristol Bay north, along the western and northern coasts of Alaska, outside the range of the sunflower sea star. New or existing coastal dredging/screeding sites must fall within the following parameters:

a. Dredging or screeding spoils must be ≤50,000 cubic yards of material annually (500,000 cubic yards total);
b. Dredged project area must be ≤10 acres;
c. A PSO must observe and implement a 300 m shutdown zone when dredging/screeding is occurring;
d. Dredged material may be placed on shore above High Tide Line for beach nourishment, used to create barge or other vessel landing sites, or placed in a Corps-approved offshore disposal area.

3.4.3 Intertidal Fill/Bank Stabilization and Maintenance

In order to avoid impacts to sunflower seastars, marine fill projects that are located in waters east of 157º W and north of 62º N; or west of 157º W and north of 58º N may occur. A shutdown zone is not required for the placement of fill and therefore a PSO or Project Lookout is not required for fill projects. Intertidal fill projects must fall within the following parameters:

a. ≤ 1 acre below High Tide Line may be filled
b. Fill material will not introduce any contaminants, pollutants, or non-native species into the water.

3.5 Excluded Activities

There are projects that, while they may meet some AK-SLOPES parameters, are explicitly excluded from authorization under AK-SLOPES and require individual consultation. Other projects may be excluded, depending on circumstances as described above; the listed projects

below, however, have been pre-determined to fall outside of this programmatic consultation. Explanation of each of these excluded activities is provided in the Corps BA (Corps 2023). Excluded activities are:

1. Any project that is within 10 nm of Cook Inlet beluga whale critical habitat. However, personnel and materials may be transported across critical habitat, abiding by Mitigation Measures #88 and #89.

2. Any non-impulsive sound-producing activity whose estimated received sound level exceeds 120 dB_{rms} at 2,154 meters.

3. Any impulsive sound-producing activity whose estimated received sound level exceeds 160 dB_{rms} at 2,154 meters.

4. Installation of treated timber piles (new or re-used).

5. Any project that will include blasting or use of explosives.

6. Any project that involves pile driving through ice.

7. Any project including fill, dredging or screeding, or deposition of dredged materials in waters along the coast of Alaska that are:

    - east of 157° W and south of 62° N; or
    - west of 157° W and south of 58° N.

8. Any terrestrial or marine project that is within 3,000 feet (0.9 km) of a major Steller sea lion haulout or major Steller sea lion rookery listed in Table 1 or Table 2 to Part 226 of 50 CFR.

3.6 Action Area

The action area is defined in the ESA regulations (50 CFR § 402.02) as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. 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 measureable effects from the project are expected to coccur.

Projects covered by this programmatic could occur in coastal areas of the Beaufort, Chukchi, and Bering seas; along the coastal areas of the Aleutian Islands and Kodiak Archipelago; the Gulf of Alaska, Cook Inlet, and Southeast Alaska. The action area includes all areas affected by project-generated received sound levels over 120 dB, turbidity, construction-related disturbance, vessel transit, small accidental discharges, and long-term direct and indirect effects from new or replaced structures. For each future activity location, the most appropriate measure of the full extent of effects is the distance that construction sound propagates to a level that could cause a measurable behavioral effect. We expect that the greatest extent of noise during construction will come from pile driving projects, which under the conditions of this programmatic consultation will not ensonify waters beyond 2,154 m above 120 dB for non-impulsive sources or 160 dB for

impulsive sources. The shape of the area ensonified will depend on the topography at specific project sites.

Although dredging will also introduce sound into the water, we expect that the continuous noise from the dredge will be below 120 dB within 300 m from the dredge. Thus, the typical action area from dredging will be confined to a small discrete coastal area adjacent to a dock or a narrow band along the shoreline. Depending on the substrate composition and local currents, turbidity may extend beyond 300 m. However, given coastal wave action, currents, and the short term project duration (typically a week or less) we expect that suspended solids will either settle within the 300 m zone or be diluted and dispersed for a short distance beyond the 300 m zone within 24 hours.

Intertidal fill and bank stabilization projects are expected to create very intermittent and low levels of sound that will attenuate quickly as the work is shore based. The action area for these projects is the length of shoreline being treated out to the depths that may be effected directly by the fill or indirectly through increased turbidity.

The action area also includes the paths of vessels traveling to and from the future activity locations. We do not consider or analyze delivery of materials or equipment transported by regularly scheduled barges delivering goods and supplies. However, the action area includes the ensonified area around any vessel that is project-specific and is needed to deliver materials or equipment solely because of a proposed project. These are vessels that would not be transiting to a site but for the proposed project. The applicant must state on the Verification Form how many project specific vessel trips will be needed to deliver materials to the project site, where one round trip equals two transits. We expect that these deliveries will be made by a barge or a tug pulling a barge. To qualify under this programmatic consultation, these vessels must travel at 12 knots or less (Mitigation Measure #84). Based on the sound sources measured for tugs and tugs pulling barges, we expect that continuous sound will attenuate to below 120 dB within 2,154 m of either side of the vessel.

3.7 Mitigation Measures

General Mitigation Measures

1. The project proponent will inform NMFS of impending in-water activities a minimum of one week prior to the onset of those activities (email information to akr.section7@noaa.gov).
2. If construction activities will occur outside of the time window specified in the AK-SLOPES Verification Form, the project proponent will notify NMFS and the Corps of the situation at least 60 days prior to the end of the specified time window to allow for separate consultation for that project.
3. In-water work will be conducted at the lowest points of the tidal cycle feasible. For example, if the project is in an area with large tidal ranges, pile removal/installation may be feasible within two (2) hours of either side of low tide to reduce sound transmission in the water column.
4. Consistent with AS 46.06.080, trash will be disposed of in accordance with state law. The project proponent will ensure that all closed loops (e.g., packing straps,

rings, bands, etc.) will be cut prior to disposal. In addition, the project proponent will secure all ropes, nets, and other marine mammal entanglement hazards so they cannot enter marine waters.

Protected Species Observer (PSO) and Project Lookout Mitigation Measures

Two marine mammal observer options are available for projects. One option employs a PSO who has the required qualifications to distinguish between listed and non-listed marine mammals, and has the ability, authority, and obligation to call for a shut down when a listed marine mammal enters, or appears likely to enter, the shutdown zone. The other option allows for the use of a Project Lookout who has the ability, authority, and obligation to call for a shut down when **any** marine mammal enters or appears likely to enter the shutdown zone.

When Project Lookouts are deployed, no distinction is made between listed and non-listed species, and the project shuts down when a marine mammal enters, or appears likely to enter, the shutdown zone regardless of species.

PSOs will follow Mitigation Measures #5 – #41. Project Lookouts will follow Mitigation Measures #42 –#78. PSOs have more training and/or experience than Project Lookouts and PSOs are required to record more detailed information about the marine mammal observations they make. The use of PSOs is encouraged but we recognize that there are situations in which a PSO may not be available or cannot be accommodated in certain remote settings. Resumes or qualifying experience must be provided to NMFS for both PSOs and Project Lookouts. The type of observer that will be used (PSO or Project Lookout) must be declared on the Verification Form (Attachment 1).

PSO Requirements and Procedures (Mitigation Measures 5 – 41 apply to PSOs)

PSO Requirements

5. PSOs will have one or more of the following qualifications: a PSO certification course and certificate, on the job training (≥ 40hrs), NMFS approved PSO training specific to Alaska, or prior approval as a PSO from NMFS.

6. PSO training will include:
    a. field identification of marine mammals and marine mammal behavior;
    b. ecological information on marine mammals and specifics on the ecology and management concerns of those marine mammals;
    c. ESA and Marine Mammal Protection Act (MMPA) regulations;
    d. proper equipment use;
    e. methodologies in marine mammal observation and data recording and property reporting protocols; and
    f. an overview of PSO roles and responsibilities.

7. PSOs will be individuals independent from the project proponent and must have no other assigned tasks during monitoring periods.
8. PSOs will:
    a. collectively be able to effectively observe the entirety of the shutdown zone;
    b. be able to identify marine mammals and accurately record the date, time, and species, of all observed marine mammals in accordance with project protocols;
    c. be able to identify listed marine mammals that occur in the action area at a distance equal to the outer edge of the applicable shutdown zone and determine marine mammal's distance from sound source;
    d. have the ability to effectively communicate orally, by radio or in person with project personnel to provide real-time information on listed marine mammals;
    e. possess a copy of PSO requirements; and
    f. possess template data forms (see Attachment 2 for sample form).
9. PSOs will not scan for marine mammals for more than four hours without at least a one hour break from monitoring duties between shifts. PSOs will not perform PSO duties for more than 12 hours in a 24-hour period.

PSO Procedures

10. PSOs will have the ability, authority, and obligation to order appropriate mitigation response, including shutdown, to avoid takes of listed marine mammals.
11. One or more PSOs will perform PSO duties onsite throughout the authorized activity.
12. Where a team of three or more PSOs are required, a lead observer or monitoring coordinator will be designated.
13. For each in-water activity, PSOs will monitor all marine waters within the indicated shutdown zone radius for that activity (Table 2).

Table 1. Shutdown Zones for Each Activity.

Activity	Zone Radius (m)
Pipe Pile and H Pile Removal and/or Installation	2,154 m
Dredging/Screeding/Underwater Excavating Activities	300 m

14. PSOs will be positioned such that they will collectively be able to monitor the entirety of each activity's shutdown zone.

15. Prior to commencing any activity listed in Table 2, PSOs will scan waters within the appropriate shutdown zone and confirm no listed marine mammals are within the shutdown zone for at least 30 minutes immediately prior to initiation of the in-water activity. If one or more listed marine mammals are observed within the shutdown zone, the in-water activity will not begin until the listed marine mammals exit the shutdown zone of their own accord, or the shutdown zone has remained clear of listed marine mammals for 30 minutes immediately prior to the commencement of the activities listed in Table 2.

16. The on-duty PSOs will continuously monitor the shutdown zone and adjacent waters during any of the activities listed in Table 2 for the presence of listed marine mammals.

17. Activities listed in Table 2 will only take place:

    a. between sunrise and sunset;
    b. during conditions with a Beaufort Sea State of 3 or less; and
    c. when the entire shutdown zone and adjacent waters are visible (e.g., monitoring effectiveness is not reduced due to rain, fog, snow, haze, or other environmental/atmospheric conditions).

18. If visibility degrades such that PSOs can no longer ensure that the shutdown zone remains devoid of listed marine mammals during any of the activities listed in Table 2, the crew will stop activities until the entire shutdown zone is visible and the PSO has indicated that the zone remained devoid of listed marine mammals for 30 minutes.

19. The PSO will order ongoing activities listed in Table 2 to immediately cease if one or more listed marine mammals has entered, or appears likely to enter, the shutdown zone.

20. If any of the activities listed in Table 2 are shut down for less than 30 minutes due to the presence of listed marine mammals in the shutdown zone, the activities may commence when the PSO provides assurance that listed marine mammals were observed exiting the shutdown zone. Otherwise, the activities may only commence after the PSO provides assurance that listed marine mammals have not been seen in the shutdown zone for 30 minutes (for cetaceans) or 15 minutes (for pinnipeds).

21. If a listed marine mammal is observed within the shutdown zone or is otherwise harassed, harmed, injured, or disturbed, the PSO will immediately report that occurrence to NMFS using the contact information specified in Table 3.

22. Prior to commencing any activity listed in Table 2 or at changes in watch, PSOs will establish a point of contact with the construction crew. The PSO will brief the point of contact as to the shutdown procedures if the PSO observes that listed marine mammals are likely to enter or enter the shutdown zone. If the point of contact goes "off shift" and delegates their duties, the point of contact must inform the PSO and brief the new point of contact.

Impact Pile Installation (pipe piles or H piles)

23. If no listed marine mammals are observed within the applicable shutdown zone (see Table 2) for 30 minutes immediately prior to pile installation, soft-start procedures will be implemented immediately prior to activities. Soft-start procedures require contractors to provide an initial set of strikes at no more than half the operational power, followed by a 30-second waiting period, then two subsequent reduced-power-strike sets. A soft-start must be implemented:
    a. at the start of each day's impact pile installation;
    b. any time pile installation has been shut down or delayed due to the presence of a listed marine mammal;
    c. whenever pile installation has temporarily stopped (≤30 min) and PSO observation has also stopped; or
    d. whenever pile installation has temporarily stopped for more than 30 min and PSO observation has also stopped.
24. Following the soft-start procedure, operational impact pile installation may commence and continue provided listed marine mammals remain absent from the shutdown zone.
25. Following a lapse of impact pile installation activities of more than 30 minutes, the PSO will authorize resumption of impact pile installation only after the PSO provides assurance that listed species have not been present in the shutdown zone for at least 30 minutes immediately prior to resumption of operations.

Vibratory Pipe Pile Removal and Installation

26. If no listed species are observed within the applicable shutdown zone (see Table 2) for 30 minutes immediately prior to pile removal or installation, vibratory pile removal or installation may commence. This pre-pile removal or installation observation period will take place at the start of each day's vibratory pile removal or installation, each time pile removal or installation has been shut down or delayed due to the presence of a listed species, and following a cessation of pile driving for a period of 30 minutes or longer.
27. Following a lapse of vibratory pile removal or installation activities of more than 30 minutes, the PSO will authorize resumption of vibratory pile removal or installation only after the PSO provides assurance that listed species have not been present in the shutdown zone for at least 30 minutes immediately prior to resumption of operations.

Dredging/Screeding/Underwater Excavating Activities

28. All vessels involved in dredging, screeding, and underwater excavating operations, including survey vessels, will transit at velocities ≤10 knots.
29. Dredging, screeding, and underwater excavating activities will shut down whenever a listed marine mammal enters, or appears likely to enter the applicable shutdown zone (see Table 2).
30. Following a lapse of dredging, screeding, and underwater excavating activities of more than 30 minutes, the PSO will authorize resumption of the activity only after the PSO provides assurance that listed marine mammals have not been present within the shutdown zone for at least 30 minutes immediately prior to resumption of operations.
31. If dredged spoils are deposited at an in-water site, the site must have a current of greater than 3 knots, the vessel making the deposit must keep moving at 3 knots or more throughout disposal, and the site must be outside of Cook Inlet beluga whale critical habitat.

Data Collection

PSOs have the following responsibilities for data collection:

32. PSOs will record observations on data forms or into electronic data sheets.
33. The project proponent will ensure that PSO data will be submitted electronically in a format that can be queried such as a spreadsheet or database (i.e., digital images of data sheets are not sufficient).
34. PSOs will record the following:
    a. Project name, date, shift start time, shift stop time, and PSO identifier;
    b. date and time of each reportable event (e.g., a listed marine mammal observation, operation shutdown, reason for operation shutdown, change in weather conditions);
    c. weather parameters (e.g., percent cloud cover, percent glare, visibility) and sea state where the Beaufort Wind Force Scale will be used to determine sea state (https://www.weather.gov/mfl/beaufort);
    d. species and number of individuals, and, if possible, sex and age class of observed listed marine mammals;
    e. the predominant anthropogenic sound-producing activities occurring during each listed marine mammal observation;
    f. observations of listed marine mammal behaviors and reactions to anthropogenic sounds and presence;
    g. geographic coordinates of listed marine mammals at their closest approach to the project site, and
    h. whether the presence of a listed marine mammal necessitated the implementation of Mitigation Measures to avoid acoustic impact (i.e., shutdown), and the duration of time that normal operations were affected by the presence of listed marine mammals.

Unauthorized Take

35. If a listed marine mammal is determined by the PSO to have been disturbed, harassed, harmed, injured, or killed (e.g., a listed marine mammal is observed entering a shutdown zone before operations can be shut down, or is injured or killed as a direct or indirect result of the action), the PSO will report the incident to NMFS within one business day, with information submitted to akr.section7@noaa.gov. These PSO records will include:
    a. digital, queryable documents containing PSO observations and records, and digital, queryable reports.
    b. the date, time, and location of each event (provide geographic coordinates);
    c. description of the event;
    d. number of individuals of each listed marine mammal species affected;
    e. the time the animal(s) was first observed or entered the shutdown zone, and, if known, the time the animal was last seen or exited the zone, and the fate of the animal;
    f. mitigation measures implemented prior to and after the animal was taken;
    g. if a vessel struck a listed marine mammal, the contact information for the PSO on duty on the vessel or the contact information for the individual piloting the vessel; and
    h. photographs or video footage of the animal(s), if available.

Stranded, Injured, Sick or Dead Listed Marine Mammal (not associated with the project)

36. If the PSO observes an injured, sick, or dead marine mammals (i.e., stranded), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773. The PSOs will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded individuals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

37. If the PSO observes listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement at 1-800-853-1964.
38. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Final Report

39. A final report will be submitted to NMFS within 90 calendar days of the completion of the project summarizing the data recorded by emailing it to

akr.section7@noaa.gov. The report will summarize all in-water activities associated with the proposed action, and results of PSO monitoring conducted during the in-water activities.

40. The final report for commercial projects will include:
    a. summaries of monitoring efforts, including dates and times of construction, dates and times of monitoring, dates and times and duration of shutdowns due to listed marine mammal presence;
    b. dates and times of listed marine mammal observations, geographic coordinates of listed marine mammals at their closest approach to the project site.
    c. number of listed marine mammals observed (by species) during periods with and without project activities (and other variables that could affect detectability);
    d. observed listed marine mammal behaviors and movement types versus project activity at the time of observation;
    e. numbers of marine mammal observations/individuals seen versus project activity at time of observation;
    f. digital, queryable documents containing PSO observations and records, and digital, queryable reports.
41. The final report for private, non-commercial projects will include:
    a. summaries of monitoring efforts, including dates and times of construction, dates and times of monitoring, dates and times and duration of shutdowns due to listed marine mammal presence; and
    b. dates and times of listed marine mammal observations, geographic coordinates of listed marine mammals at their closest approach to the project site, including date, water depth, species, age/size/gender (if determinable), and group sizes.

Table 2. Summary of agency contact information.

Reason for Contact	**Contact Information**
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	AKR.section7@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage) 1-877-925-7773

Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSSpillResponse@noaa.gov
Illegal Activities *(not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals)*	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

Project Lookout Requirements and Procedures (Mitigation Measures #42 – #78 apply to Project Lookouts)

Project Lookout Requirements

42. Qualifying experience for Project Lookouts includes one or more of the following: AKPRD PSO training (in development)[1], a college degree, college courses that included field or laboratory work, prior marine mammal observation employment (≥8hrs), or volunteer marine mammal observation experience (e.g. ≥8hrs as a trained AK Beluga Monitoring Program observer (https://akbmp.org/)).
43. Project Lookouts will be individuals independent of the project proponent and must have no other assigned tasks during monitoring periods.
44. Project Lookouts will:
    a. collectively be able to effectively observe the entirety of the shutdown zone;
    b. be able to spot marine mammals and accurately record the date and time of all observed marine mammals in accordance with project protocols;
    c. be able to see marine mammals that occur in the action area at a distance equal to the outer edge of the applicable shutdown zone;
    d. have the ability to effectively communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals;
    e. possess a copy of Project Lookout requirements; and
    f. possess a notebook or template data forms (see Attachment 2 for sample forms).

[1] Training is under development and will be available online. Completion of course will qualify a person to be a Project Lookout. This Programmatic consultation will be updated to include this training when it becomes available.

45. Project Lookouts will not scan for marine mammals for more than four hours without at least a one hour break from monitoring duties between shifts. Project Lookouts will not perform Project Lookout duties for more than 12 hours in a 24-hour period.

Project Lookout Procedures

46. Project Lookouts will have the ability, authority, and obligation to order appropriate mitigation response, including shutdown, to avoid takes of listed marine mammals.
47. One or more Project Lookouts will perform Project Lookout duties onsite throughout the authorized activity.
48. Where a team of three or more Project Lookouts are required, a lead observer or monitoring coordinator will be designated.
49. For each in-water activity, Project Lookouts will monitor all marine waters within the indicated shutdown zone radius for that activity (Table 4).

Table 3. Shutdown Zones for Each Activity.

Activity	Zone Radius (m)
Pipe Pile and H Pile Removal and/or Installation	2,154
Dredging/Screeding/Under water Excavating Activities	300

50. Project Lookouts will be positioned such that they will collectively be able to monitor the entirety of each activity's shutdown zone.
51. Prior to commencing any activity listed in Table 4, Project Lookouts will scan waters within the appropriate shutdown zone and confirm no marine mammals are within the shutdown zone for at least 30 minutes immediately prior to initiation of the in-water activity. If one or more marine mammals are observed within the shutdown zone, the in-water activity will not begin until the marine mammal(s) exit the shutdown zone of their own accord, or the shutdown zone has remained clear of marine mammals for 30 minutes immediately prior to the commencement of any of the activities listed in Table 4.
52. The on-duty Project Lookouts will continuously monitor the shutdown zone and adjacent waters during any of the activities listed in Table 4 for the presence of

marine mammals.

53. Activities listed in Table 4 will only take place:
    a. between sunrise and sunset;
    b. during conditions with a Beaufort Sea State of 3 or less; and
    c. when the entire shutdown zone and adjacent waters are visible (e.g., monitoring effectiveness is not reduced due to rain, fog, snow, haze, or other environmental/atmospheric conditions).

54. If visibility degrades such that Project Lookouts can no longer ensure that the shutdown zone remains devoid of marine mammals during any of the activities listed in Table 4, the crew will stop activities until the entire shutdown zone is visible and the Project Lookout has indicated that the zone remained devoid of marine mammals for 30 minutes.

55. The Project Lookouts will order ongoing activities listed in Table 4 to immediately cease if one or more marine mammals has entered, or appears likely to enter, the shutdown zone.

56. If any of the activities listed in Table 4 are shut down for less than 30 minutes due to the presence of marine mammals in the shutdown zone, the activities may commence when the Project Lookout provides assurance that the marine mammals were observed exiting the shutdown zone. Otherwise, the activities may only commence after the Project Lookout provides assurance that marine mammals have not been seen in the shutdown zone for 30 minutes (for cetaceans) or 15 minutes (for pinnipeds).

57. If a marine mammal is observed within a shutdown zone or is otherwise harassed, harmed, injured, or disturbed, the Project Lookout will immediately report that occurrence to NMFS using the contact information specified in Table 5.

58. Prior to commencing any activity listed in Table 4, project lookout must become proficient in the use of a rangefinder, or, if a rangefinder is not being used, the Project Lookout must use stationary objects (e.g. buildings, buoys, islands, docks) at a known distance from their observation station to calibrate their perception of how far away the edge of the shutdown zone lies. At least one object should be in the range of 1,900 to 2,200 m for pile driving activities and 200 to 400 m for dredging/screeding. This self-calibration procedure will be done each day before observations begin.

59. Prior to commencing any activity listed in Table 4 or at changes in watch, the Project Lookout will establish a point of contact with the construction crew. The Project Lookout will brief the point of contact as to the shutdown procedures if a marine mammal is observed likely to enter or has entered the shutdown zone. If the point of contact goes “off shift” and delegates their duties, the Project Lookout must be informed and brief the new point of contact.

Impact Pile Installation (pipe piles or H piles)

60. If no marine mammals are observed within the applicable shutdown zone (see Table 4) for 30 minutes immediately prior to pile installation, soft-start procedures will be implemented immediately prior to activities. Soft-start procedures require contractors to provide an initial set of strikes at no more than half the operational power, followed by a 30-second waiting period, then two subsequent reduced-power-strike sets. A soft-start must be implemented:
    a. at the start of each day's impact pile installation;
    b. any time pile installation has been shut down or delayed due to the presence of a marine mammal;
    c. whenever pile installation has temporarily stopped (≤30 min) and Project Lookout observation has also stopped;
    d. whenever pile installation has temporarily stopped for more than 30 min and Project Lookout observation has also stopped.
61. Following the soft-start procedure, operational impact pile installation may commence and continue provided marine mammals remain absent from the shutdown zone.
62. Following a lapse of impact pile installation activities of more than 30 minutes, the Project Lookout will authorize resumption of impact pile installation only after the Project Lookout provides assurance that marine mammals have not been present in the shutdown zone for at least 30 minutes immediately prior to resumption of operations.

Vibratory Pipe Pile Removal and Installation

63. If no marine mammals are observed within the applicable shutdown zone (see Table 4) for 30 minutes immediately prior to pile removal or installation, vibratory pile removal or installation may commence. This pre-pile removal or installation observation period will take place at the start of each day's vibratory pile removal or installation, each time pile removal or installation has been shut down or delayed due to the presence of a marine mammal, and following a cessation of pile driving for a period of 30 minutes or longer.
64. Following a lapse of vibratory pile removal or installation activities of more than 30 minutes, the Project Lookout will authorize resumption of vibratory pile removal or installation only after the Project Lookout provides assurance that marine mammals have not been present in the shutdown zone for at least 30 minutes immediately prior to resumption of operations.

Dredging/Screeding/Underwater Excavating Activities

65. All vessels involved in dredging, screeding, and underwater excavating operations, including survey vessels, will transit at velocities ≤10 knots.
66. Dredging, screeding, and underwater excavating activities will shut down whenever a marine mammal enters, or appears likely to enter the applicable shutdown zone (see Table 4).

67. Following a lapse of dredging, screeding, and underwater excavating activities of more than 30 minutes, the Project Lookout will authorize resumption of the activity only after the Project Lookout provides assurance that marine mammals have not been present within the shutdown zone for at least 30 minutes immediately prior to resumption of operations.
68. If dredged spoils are deposited at an in-water site, the site must have a current of greater than 3 knots, the vessel making the deposit must keep moving at 3 knots or more throughout disposal, and the site must be outside of Cook Inlet beluga whale critical habitat.

Data Collection

Project Lookouts have the following responsibilities for data collection:

69. Project Lookouts will record observations on data forms or into electronic data sheets.
70. The project proponent will ensure that Project Lookout data will be submitted electronically in a format that can be queried such as a spreadsheet or database (i.e., digital images of data sheets are not sufficient).
71. Project Lookouts will record the following:
    a. Project name, date, shift start time, shift stop time, and Project Lookout identifier;
    b. date and time of each reportable event (e.g., a marine mammal observation, operation shutdown, reason for operation shutdown, change in weather conditions);
    c. weather parameters (e.g., percent cloud cover, percent glare, visibility) and sea state where the Beaufort Wind Force Scale will be used to determine sea state (https://www.weather.gov/mfl/beaufort);
    d. number of marine mammals observed and, if possible, whether they are cetaceans (i.e., whales) or pinnipeds (i.e., sea lions, seals).
    e. the predominant anthropogenic sound-producing activities occurring during each listed species observation; and
    f. whether the presence of a marine mammal necessitated the implementation of a shutdown, and the duration of time that normal operations were affected by the presence of marine mammals.

Unauthorized Take

72. If a marine mammal is determined by the Project Lookout to have been disturbed, harassed, harmed, injured, or killed (e.g., a marine mammal is observed entering a shutdown zone before operations can be shut down, or is injured or killed as a direct or indirect result of the action), the Project Lookout will report the incident to NMFS within one business day, with information submitted to akr.section7@noaa.gov. These Project Lookout records will include:

a. digital, queryable documents containing PSO observations and records, and digital, queryable reports.
b. the date, time, and location of each event (provide geographic coordinates);
c. description of the event;
d. number of individuals of each listed marine mammal species affected;
e. the time the animal(s) was first observed or entered the shutdown zone, and, if known, the time the animal was last seen or exited the zone, and the fate of the animal;
f. mitigation measures implemented prior to and after the animal was taken;
g. if a vessel struck a listed marine mammal, the contact information for the PSO on duty on the vessel or the contact information for the individual piloting the vessel; and
h. photographs or video footage of the animal(s), if available.

Stranded, Injured, Sick or Dead Listed Species (not associated with the project)

73. If the Project Lookout observes an injured, sick, or dead marine mammal or sunflower sea star they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773. The Project Lookout will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded individuals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

74. If the Project Lookout observes listed species or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement at 1-800-853-1964 (Table 5).
75. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Final Report

76. A final report will be submitted to NMFS within 90 calendar days of the completion of the project summarizing the data recorded by emailing it to akr.section7@noaa.gov. The report will summarize all in-water activities associated with the proposed action, and results of the Project Lookout's monitoring conducted during the in-water activities.
77. The final report for projects will include:
    a. a summary of the monitoring efforts, including dates and times of construction, dates and times of monitoring, dates and times and duration of shutdowns due to marine mammal presence;

b. dates and times of marine mammal observations and group sizes;
c. number of marine mammals observed during periods with and without project activities (and other variables that could affect detectability);
d. numbers of marine mammal observations/individuals seen versus project activity at time of observation;
e. digital, queryable documents containing Project Lookout observations and records, and digital, queryable reports.

78. The final report for private, non-commercial projects will include:
a. summaries of monitoring efforts, including dates and times of construction, dates and times of monitoring, dates and times and duration of shutdowns due to marine mammal presence; and
b. dates and times of marine mammal observations and group sizes.

Table 4. Summary of agency contact information.

Reason for Contact	**Contact Information**
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	AKR.section7@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage) 1-877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSSpillResponse@noaa.gov
Illegal Activities *(not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals)*	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

Intertidal Fill/Bank Stabilization and Maintenance

79. Fill material will consist of rock fill that is free of fine sediments to the extent practical, or will come from on-site dredged material.
80. Fill material will be obtained from local sources or will be free of non-native marine and terrestrial vegetation species.

Project-Dedicated Vessels (vessel and crew safety should never be compromised)

81. Vessel operators will:
    a. maintain a watch for marine mammals at all times while underway;
    b. stay at least 91 meters (100 yards) away from listed marine mammals, except that they will remain at least 460 meters (500 yards) away from endangered North Pacific right whales;
    c. travel at less than 5 knots when within 274 meters (300 yards) of a whale;
    d. avoid changes in direction and speed within 274 meters (300 yards) of a whale, unless doing so is necessary for maritime safety;
    e. not position vessel(s) in the path of a whale, and will not cut in front of a whale in a way or at a distance that causes the whale to change direction of travel or behavior (including breathing/surfacing pattern);
    f. shift into neutral and remain in neutral when marine mammals are within 25 m of their vessel;
    g. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 kilometers (1 mile) or less; and
    h. adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b); these regulations apply to all humpback whales). Specifically, pilot and crew will not:
        i. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
        ii. cause a vessel or other object to approach within 100 yards of any humpback whale; or
        iii. disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.
82. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 91 meters (100 yards) of the vessel, and if maritime conditions safely allow, the engine will be put in neutral and the whale will be allowed to pass beyond the vessel, except that vessels will remain 460 meters (500 yards) from North Pacific right whales.
83. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear.
84. Project-specific barges will travel at 12 knots or less.

Vessel Transit, North Pacific Right Whales, and their Designated Critical Habitat

85. Vessels will:
    a. remain at least 460 meters (500 yards) from North Pacific right whales; and
    b. not travel through designated North Pacific right whale critical habitat if practicable (50 CFR 226.215). If traveling through North Pacific right whale critical habitat cannot be avoided, vessels will:
        i. travel through North Pacific right whale critical habitat at 5 knots or less (without a PSO or Project Lookout on watch); or at 10 knots or less while

PSOs or Project Lookouts maintain a constant watch for marine mammals from the bridge; and

ii. maintain a log indicating the time and geographic coordinates at which vessels enter and exit North Pacific right whale critical habitat.

Vessel Transit, Western DPS Steller Sea Lions, and their Designated Critical Habitat

86. Vessels will not approach within 5.5 kilometers (3 nautical miles) of rookery sites listed in 50 CFR § 224.103(d); and
87. Vessels will not approach within 914 meters (3,000 feet) of any Steller sea lion haulout or rookery.

Vessel Transit, Cook Inlet Beluga Whales, and their Designated Critical Habitat

88. Project specific vessels that originate or end in Cook Inlet to deliver equipment and supplies to a project outside of Cook Inlet will maintain a distance of at least 1.5 miles south of the mean lower low water (MLLW) line between the Little Susitna River and Beluga River (Figure 1).

89. Project-specific barges will travel 12 knots or less in Cook Inlet.

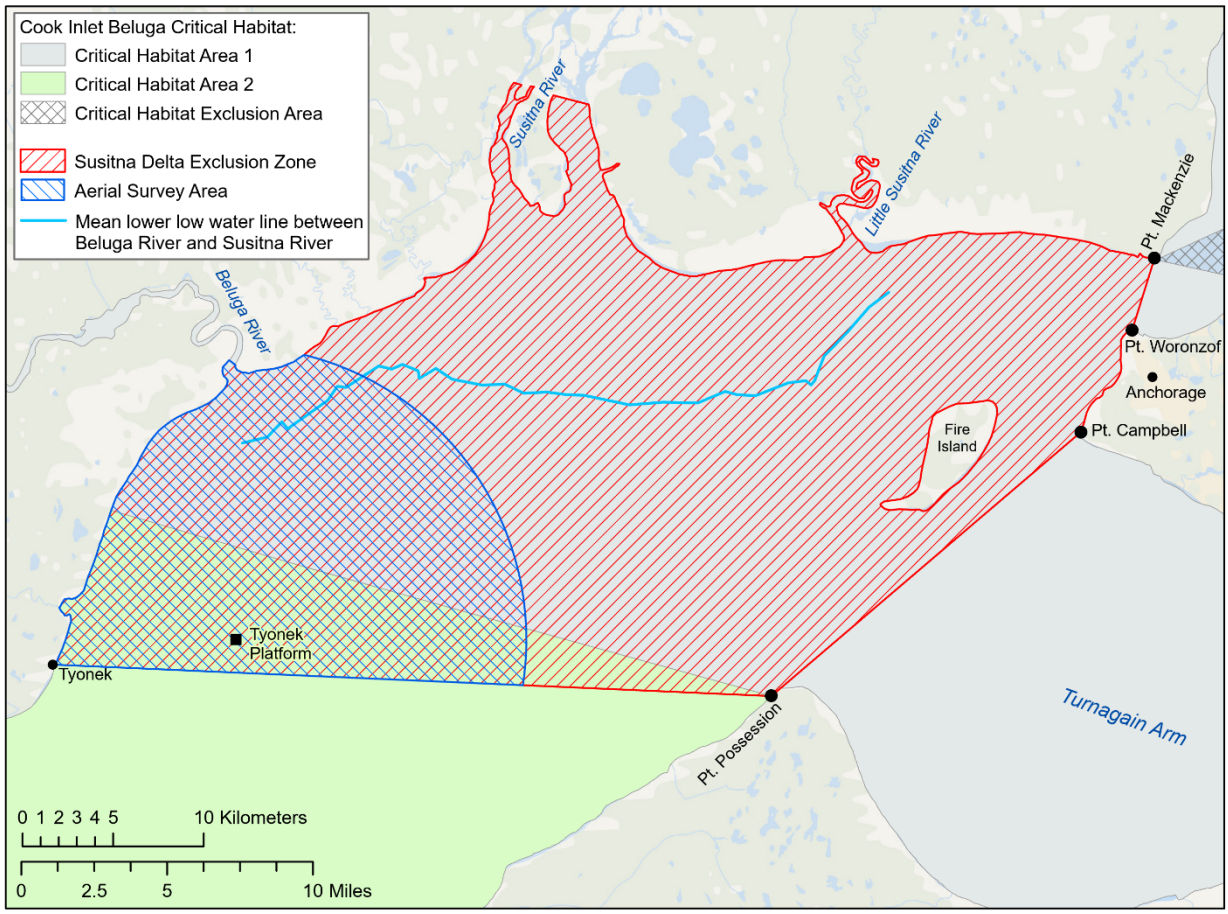

Figure 1. Susitna Delta Exclusion Zone, showing MLLW line between the Beluga and Little Susitna Rivers (light blue line).

4 Listed Species and Critical Habitat in the Action Area

In this section we consider all of the ESA-listed species that occur within the action area (coastal waters of Alaska), as well as multiple areas of critical habitat (Table 6). In requesting concurrence with NMFS that this programmatic consultation can be applied to a project, the Corps will provide NMFS with a list of ESA-listed species (included in the Verification Form) which may occur within the action area, and state whether the action area is located within designated or proposed critical habitat.

Table 5. Listed species and critical habitat considered in this programmatic consultation.

Species	Status	Listing	Critical Habitat
Bowhead whale (*Balaena mysticetus*)	Endangered	NMFS 1970 35 FR 18319	Not designated
Bearded seal, Beringia DPS *(Erignathus barbatus nauticus*)	Threatened	NMFS 2012 77 FR 76740	NMFS 2022 87 FR 19180
Ringed seal, Arctic subspecies (*Phoca hispida hispida*)	Threatened	NMFS 2012 77 FR 76706	NMFS 2022 87 FR 19232
Gray whale, Western North Pacific DPS (*Eschrichtius robustus*)	Endangered	NMFS 1970 35 FR 18319	Not designated
North Pacific right whale (*Eubalaena japonica*)	Endangered	NMFS 2008 73 FR 12024	NMFS 2008 73 FR 19000
Fin whale (*Balaenoptera physalus*)	Endangered	NMFS 1970 35 FR 18319	Not designated
Blue whale (*Balaenoptera musculus*)	Endangered	NMFS 1970 35 FR 18319	Not designated
Sperm whale (*Physeter macrocephalus*)	Endangered	NMFS 1970 35 FR 18319	Not designated
Sei whale (*Balaenoptera borealis*)	Endangered	NMFS 1970 35 FR 18319	Not designated
Cook Inlet beluga whale (*Delphinapterus leucas*)	Endangered	NMFS 2008 73 FR 62919	NMFS 2011 76 FR 20180
Humpback whale, Mexico DPS (*Megaptera novaeangliae*)	Threatened	NMFS 2016 81 FR 62260	NMFS 2021 86 FR 21082

Species	Status	Listing	Critical Habitat
Humpback whale, Western North Pacific DPS (*Megaptera novaeangliae*)	Endangered	NMFS 2016 81 FR 62260	NMFS 2021 86 FR 21082
Steller sea lion, Western DPS (*Eumetopias jubatus*)	Endangered	NMFS 1997 62 FR 24345	NMFS 1993 58 FR 45269*
Sunflower sea star *Pycnopodia helianthoides*	Proposed as Threatened	NMFS 2023 88 FR16212	Not designated

* Critical habitat for Steller sea lions was designated for the entire species, not for the Western DPS only.

4.1 Bowhead Whale

The bowhead whale (*Balaena mysticetus*) was listed as endangered under the Endangered Species Conservation Act (ESCA) in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (bowhead whales)), and continued to be listed as endangered following passage of the ESA. The only bowhead whale stock found in U.S. waters is the Western Arctic stock. Western Arctic bowhead whales are distributed in seasonally ice-covered waters of the Arctic and near-Arctic, generally north of 60°N and south of 75°N. Critical habitat has not been designated for the bowhead whale.

The most recent estimates of abundance for this stock were made in 2019; an ice-base survey estimated 14,025 (CV = 0.228) whales (Givens et al. 2021) while an aerial survey estimated 17,175 (CV = 0.237) (Ferguson et al. 2022). The population has steadily increased in abundance since the 1980s (Givens et al. 2021) and may be approaching carrying capacity (Citta et al. 2023).

In Alaska, the majority of bowhead whales migrate annually from northern Bering Sea wintering areas (December to March), through the Chukchi Sea in spring (April to May), to the Beaufort Sea, where they spend much of the summer (June through early to mid-October) before returning to Bering Sea wintering areas in fall (September through December)(Citta, Quakenbush and George 2020). A shift after 2012–2013 shows some bowheads are remaining in southern Chukchi Sea rather than moving through the Bering Strait and into the northwestern Bering Sea for the winter (Citta et al. 2023, Szesciorka and Stafford 2023). Spring northward migration into the southern Chukchi Sea was earlier in years with less mean January–March Chukchi Sea ice area and delayed in years with greater sea ice area. As sea ice continues to decline, northward spring-time migration could shift earlier or more bowhead whales may overwinter at summer feeding grounds (Szesciorka and Stafford 2023).

Bowheads feed almost exclusively on marine invertebrates, including small to moderately sized crustaceans, such as shrimp-like euphausiids (i.e., krill) and copepods. They are continuous filter feeders engulfing a steady stream of water carrying tiny copepods, mysids, euphausiids, and other schooling plankton which are captured on their baleen plates (Werth and Sformo 2021).

NMFS categorizes bowhead whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018). Inferring from their

vocalizations, bowhead whales should be most sensitive to frequencies between 20 Hz-5 kHz, with maximum sensitivity between 100-500 Hz (Erbe 2002).

Additional information on bowhead whale biology and habitat is available at:

Bowhead Whale Species Description

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

The most likely time that project activities could overlap with bowhead whales is in the summer or fall when they begin their westward migration across the shelf waters of the Beaufort and Chukchi seas. In some years this migration occurs far from the coast (Clarke et al. 2020) but in most years bowheads travel much closer to land (e.g., Brower, Willoughby and Ferguson 2022). Although bowhead whales may travel relatively close to land during their spring migration when they follow open water leads through the ice (within 50 km of the Alaskan coastline (Citta, Quakenbush and George 2020)), it is highly unlikely that projects would occur in northwest Alaska in April and May. Once past Point Barrow, migrating whales travel farther from shore, mostly between 80 and 250 km of the Alaskan coastline in the Beaufort Sea (Citta, Quakenbush and George 2020). Bowheads rarely are found inside the barrier islands that are found along the north coast. Project dedicated vessels could overlap with habitat occupied by bowhead whales in the summer and fall.

4.2 Bearded Seal

NMFS published a final rule listing the Beringia DPS of bearded seals (*Erignathus barbatus*) as threatened under the ESA on December 28, 2012, primarily due to threats associated with long-term reductions in sea ice expected to occur within the foreseeable future stemming from climate change (77 FR 76740).

A reliable population estimate is not available (Muto et al. 2022). However, as discussed by Muto et al. (2022), using a limited sub-sample of spring aerial survey data collected from the U.S. portion of the Bering Sea in 2012, Conn et al. (2014) calculated a preliminary abundance estimate of 301,836 bearded seals (95 percent confidence interval: 238,195 to 371,147) in these waters.

Bearded seals are associated with moving pack ice that produces leads and other openings in the ice, and only rarely use areas of thick, continuous shorefast ice. They use sea ice as a platform for whelping and nursing of pups, pup maturation, and molting (shedding and regrowing hair and outer skin layers), as well as for resting (Cameron et al. 2010).

In late winter and early spring, bearded seals are widely but not uniformly distributed in broken, drifting pack ice the Bering Sea (Burns 1981, Braham et al. 1984). Some bearded seals also inhabit such pack ice the Chukchi and Beaufort seas over winter and spring (MacIntyre et al. 2015, Frouin-Mouy, Zeddies and Austin 2016, Olnes et al. 2020). As the ice recedes in spring, many of the bearded seals that winter in the Bering Sea migrate north through the Bering Strait (mid-April to June) and spend the summer along the ice edge in the Chukchi and Beaufort seas,

though some remain in open-water areas from the Bering Sea north (Burns 1981, Olnes et al. 2020).

During the open-water season, some bearded seals (largely juveniles) occur in small bays, lagoons, near river mouths, and up some rivers, particularly in late summer and fall (Gryba et al. 2021). While adult bearded seals have rarely been seen hauled out on land in Alaska (Burns 1981, Nelson 1981), (solitary) juvenile bearded seals have been observed or documented via satellite telemetry during the open-water season hauled out on land in some areas (Huntington 2000, Gadamus et al. 2015, Olnes et al. 2020).

Bearded seals of the Beringia DPS primarily feed on benthic organisms (crabs, shrimp, worms, and snails), and fishes such as sculpins, cods, and flatfishes that are on or near the seafloor less than 200 m deep (Dehn et al. 2007, Quakenbush, Citta and Crawford 2011, Crawford, Quakenbush and Citta 2015, Quakenbush et al. 2020). Satellite tagging indicates that adults, subadults, and to some extent pups show some level of fidelity to feeding areas, often remaining in the same general area for weeks or months at a time (Cameron 2005, Cameron and Boveng 2009).

Bearded seals are an important source of subsistence food for Alaskan natives and are hunted by approximately 65 communities in western and northern Alaska (Ice Seal Committee 2019).

Bearded seals vocalize underwater in association with territorial and mating behaviors. Crance et al. (2022) found that calling activity increased from September through February and reached sustained levels from March through June, at which point calling ceased abruptly regardless of ice cover. NMFS defines the functional hearing range for phocids as 50 Hz to 86 kHz (NMFS 2018). However, recent research with captive bearded seals showed they had peak sensitivity near 50 dB re 1 µPa they had a broad frequency range of best hearing extending from approximately 0.3 to 45 kHz (Sills et al. 2020).

Project activities could overlap with bearded seals in the open water season, primarily off the north coast of Alaska. Although it is unlikely that land based project effects would overlap with bearded seals, project specific vessels could pass through marine waters they occupy. In conducting monitoring for seismic surveys, Richardson (1998) concluded that bearded seals were widely distributed but highly dispersed in the central Alaskan Beaufort Sea. Aerial surveys for bowhead whales have also regularly recorded bearded seals in open water from mid-July to late October along the north coast of Alaska (Clarke et al. 2020, Brower, Willoughby and Ferguson 2022)

Additional information on bearded seal biology and habitat is available at:

Bearded Seal Species Description

2010 Status Review

Marine Mammal Stock Assessment Report: Pinnipeds-Phocids

Bearded Seal Critical Habitat

4.2.1 Beringia DPS Bearded Seal Critical Habitat

Critical habitat for the Beringia DPS bearded seal was designated April 1, 2022 (87 FR 19180), and extends to the outer boundary of the U.S. Exclusive Economic Zone (EEZ) in the Chukchi and Beaufort seas and south over the continental shelf in the Bering Sea (Cameron et al. 2010) Figure 2.

Physical and biological features associated with critical habitat include: 1) sea ice habitat suitable for whelping and nursing, which is defined as waters of 200 meters depth or less, with a pack ice concentration of at least 25 percent; 2) sea ice for molting, which is defined as waters of 200 meters depth or less, with a pack ice concentration of at least 15 percent; and 3) primary prey to support bearded seals occurring in waters of 200 meters depth or less and containing benthic organisms and fishes found on or near the seafloor (50 CFR § 226.229).

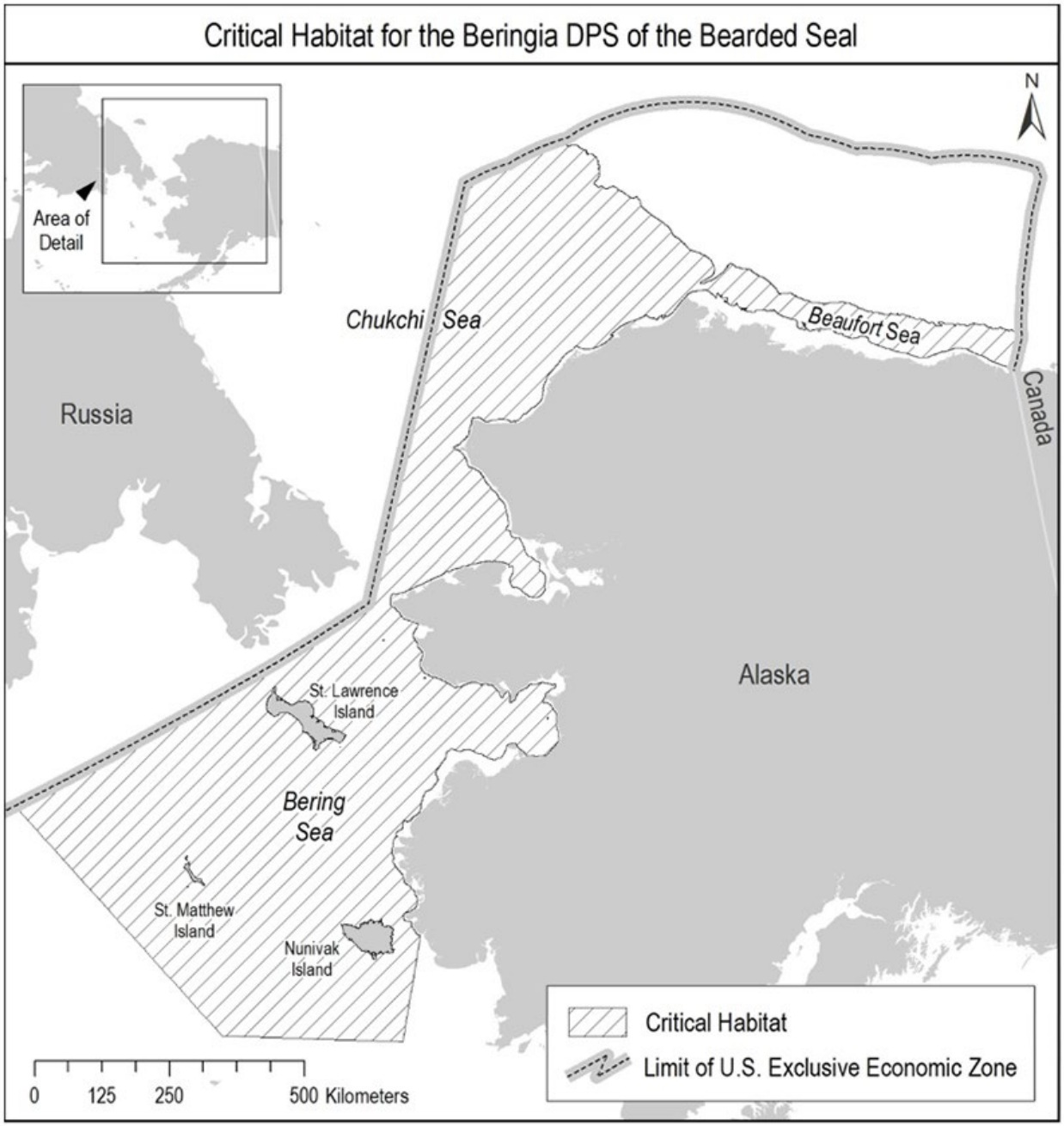

Figure 2. Bearded seal critical habitat.

Because the available information indicates that in the Beaufort region, the 20-m isobath provides a reasonable approximation of the average stable extent of landfast ice, the 20-m isobath (relative to MLLW) was selected as the shoreward boundary of critical habitat in the Beaufort region. The 10-m isobath (relative to MLLW) was selected as the shoreward boundary in the Chukchi region, and the 5-m isobath (relative to MLLW) as the shoreward boundary in the Bering region. These boundaries were selected because shallower waters are likely to contain

landfast ice and are therefore less likely to contain the sea ice essential features that the bearded seals require.

Two of the PBFs for bearded seal critical habitat describe suitable sea ice characteristics; sea ice would not be affected by any coastal development project considered in this consultation. The third PBF focuses on prey resources. Dredging/screeding projects and pile driving could overlap with prey resources.

4.3 Arctic Ringed Seal

NMFS published a final rule listing the Arctic subspecies of ringed seals (*Pusa hispida hispida*) as threatened under the ESA on December 28, 2012, primarily due to threats associated with long-term reductions in sea ice and on-ice snow expected to occur within the foreseeable future (77 FR 76706). Kelly et al. (2010) estimated the total population of ringed seals in the Chukchi and Beaufort seas in Alaska to be at least 300,000. This is likely an underestimate since the Beaufort Sea surveys were limited to within 40 km of shore.

A reliable population estimate is not available (Muto et al. 2022). However, as discussed by Muto et al. (2022), using a limited sub-sample of aerial survey data collected from the U.S. portion off the Bering Sea in 2012, Conn et al. (2014) calculated an abundance estimate of 174,418 ringed seals (95 percent confidence interval: 141,588 to 201,090) in these waters. Because this estimate did not account for availability bias or include ringed seals in shorefast ice, the actual number of ringed seals in the U.S. portion of the Bering Sea is likely much higher (Muto et al. 2022). Kelly et al. (2010) estimated the total population of ringed seals in the Chukchi and Beaufort seas in Alaska to be at least 300,000 based on estimates from aerial surveys conducted in the late 1990s and 2000 (Frost et al. 2004, Bengtson et al. 2005), which they noted is likely an underestimate since the Beaufort Sea surveys were limited to within 40 km of shore.

Arctic ringed seals are highly associated with sea ice, which they use as a platform for whelping and nursing pups in spring, molting in spring to early summer, and resting throughout the year (Kelly et al. 2010)(Figure 3). Ringed seals are able to open and maintain breathing holes in the ice, which allows them to inhabit heavily ice-covered areas. At some breathing holes with sufficient snow cover, ringed seals excavate lairs in snowdrifts on the surface of the ice within which they rest and give birth to and nurse pups (Smith and Stirling 1975, Williams et al. 2006, Hauser, Frost and Burns 2021). These subnivean lairs are important to pup survival because they provide shelter from extreme cold and concealment from predators (Smith and Lydersen 1991, Hauser, Frost and Burns 2021).

During winter and spring, ringed seals are found throughout the Chukchi and Beaufort seas (Frost 1985, Kelly 1988), and aerial surveys indicate that they use nearly the entire ice field over the Bering Sea shelf (Braham et al. 1984, Lindsay et al. 2021). Most ringed seals that winter in the Bering and southern Chukchi seas are thought to migrate north in spring as the ice recedes (Frost 1985). Tracking data indicate that ringed seals extensively use the continental shelf waters of the Chukchi and Beaufort seas during the open-water season, and some seals make excursions into deep waters north of the shelf break (Crawford et al. 2012, Quakenbush et al. 2019, Quakenbush et al. 2020, Von Duyke et al. 2020). Ringed seals (primarily juveniles) have also

been observed near river mouths and in lagoons in some areas during the open water season, especially during fall (Gryba et al. 2021). Ringed seals reproduce and molt during spring and summer months (Figure 3).

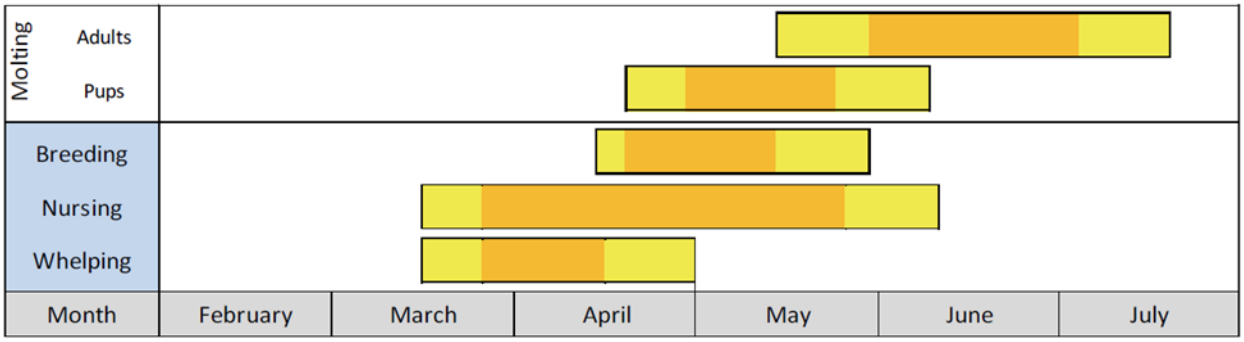

Figure 3. Approximate annual timing of Arctic ringed seal reproduction and molting. Yellow bars indicate the "normal" range over which each event is reported to occur and orange bars indicate the "peak" timing of each event (Kelly et al. 2010).

Arctic ringed seals typically lose a significant proportion of their blubber mass in late winter to early summer and then replenish their blubber reserves during late summer or fall and into winter (Young and Ferguson 2013, Quakenbush et al. 2020). Diet studies indicate that ringed seals in Alaska eat a wide variety of vertebrate and invertebrate prey species, but certain prey species, such as Arctic cod, saffron cod, shrimps, and amphipods, occupy a prominent role in their diet ((Crawford, Quakenbush and Citta 2015, Quakenbush et al. 2020).

The behavioral context of ringed seal underwater vocalizations is not well known, but they are thought to play a role in the seals' reproductive behavior (Stirling 1983). NMFS defines the functional hearing range for phocids (seals) as 50 Hz to 86 kHz (NMFS 2018).

Project activities could overlap with ringed seals in the open water season, primarily off the north coast of Alaska. Although it is unlikely that land based project effects would overlap with ringed seals, project specific vessels could pass through marine waters they occupy. In conducting monitoring for seismic surveys Richardson (1998) reported that ringed seals were widely distributed throughout the central Alaskan Beaufort Sea, including both nearshore and offshore waters. However, there was some evidence that ringed seals prefer waters deeper than 20 m, farther offshore. Aerial surveys conducted for bowhead whales rarely record ringed seals specifically because they are difficult to identify at the altitudes flown for the bowhead surveys. However, unidentified small seals are always recorded (Clarke et al. 2020, Brower, Willoughby and Ferguson 2022).This category would include ringed seals as well as spotted seals and juvenile bearded seals.

More information on ringed seal biology, habitat, and distribution is available at:

Ringed Seal Species Description

Marine Mammal Stock Assessment Report: Pinnipeds-Phocids

2010 Status Review

Arctic Ringed Seal Critical Habitat

4.3.1 Arctic Ringed Seal Critical Habitat

Critical habitat for the Arctic ringed seal was designated April 1, 2022 (87 FR 19232). Critical habitat for the Arctic subspecies of ringed seal includes large swaths of marine habitat in the northern Bering, Chukchi, and Beaufort seas (Figure 4).

The following physical and biological features were identified as essential to the conservation of the species: 1) snow-covered sea ice habitat suitable for the formation and maintenance of subnivean lairs used for sheltering pups during whelping and nursing, which is defined as waters 3 meters or more in depth (relative to mean lower low water, MLLW) containing areas of seasonal landfast (shorefast) ice or dense, stable pack ice, that have undergone deformation and contain snow drifts of sufficient depth to form and maintain birth lairs (typically at least 54 centimeters deep); 2) sea ice habitat suitable as a platform for basking and molting, which is defined as areas containing sea ice of 15 percent or more concentration in waters 3 m or more in depth (relative to MLLW); and 3) primary prey to support Arctic ringed seals, which are defined to be small, often schooling, fishes, in particular, Arctic cod, saffron cod, and rainbow smelt; and small crustaceans, in particular, shrimps and amphipods (50 CFR § 226.228).

Two of the PBFs for ringed seal critical habitat describe suitable sea ice characteristics; sea ice would not be affected by any coastal development project effects considered in this consultation. The third PBF focuses on prey resources. Dredging/screeding and pile driving projects could overlap with a small portion of ringed seal prey.

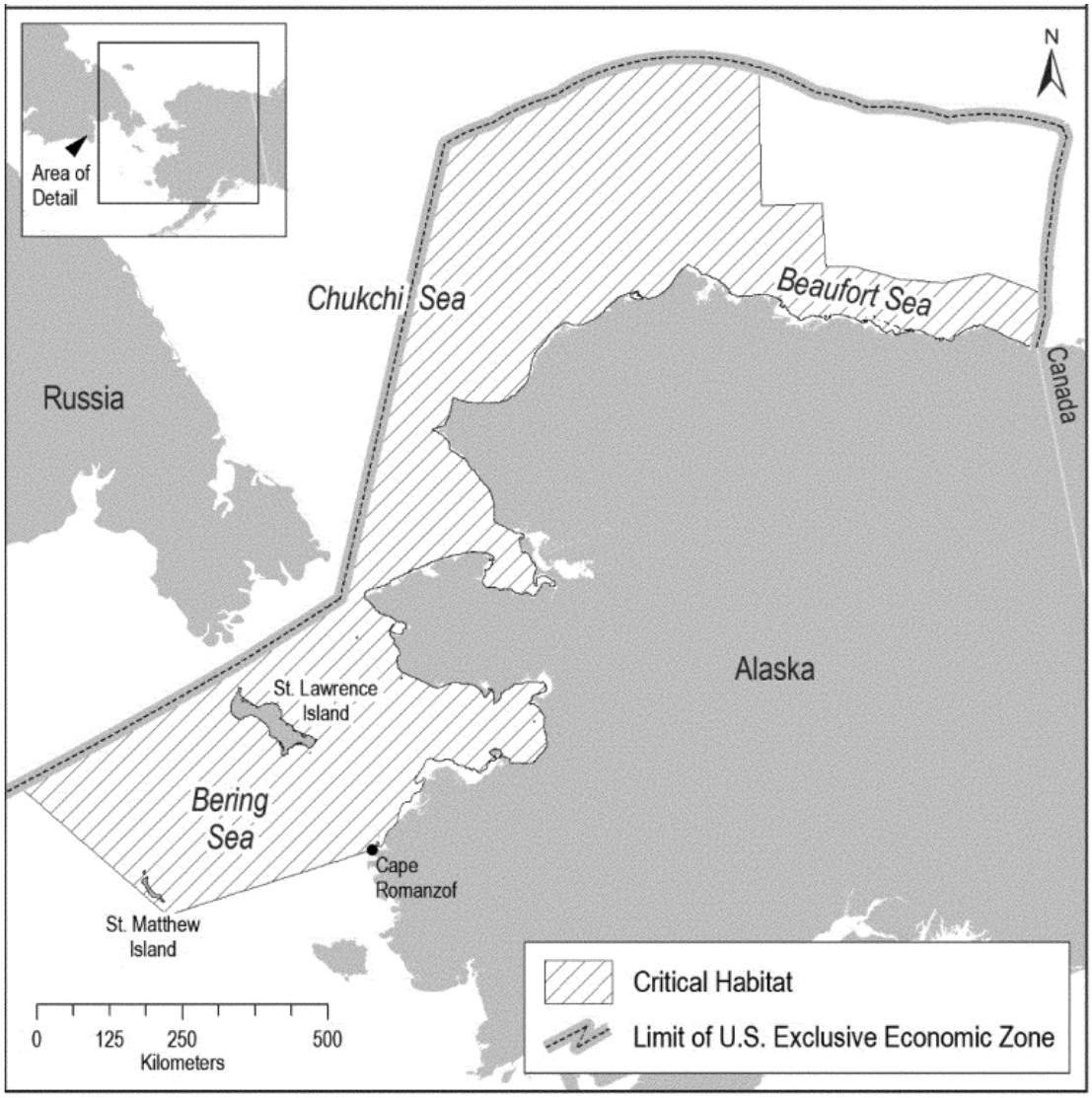

Figure 4. Ringed seal critical habitat.

4.4 Western North Pacific DPS Gray Whale

The gray whale (*Eschrichtius robustus*) was originally listed as endangered in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (gray whales)). The Eastern North Pacific stock was officially delisted on June 16, 1994 (59 FR 31094), when it reached pre-exploitation numbers. The Western North Pacific (WNP) population of gray whales remains listed as endangered. Critical habitat has not been designated for WNP DPS gray whales. The Western North Pacific gray whales are considered to be gray whales that spend all or part of their lives in the western North Pacific in the waters of Vietnam, China, Japan, Korea (Republic of Korea and/or Democratic People's Republic of Korea), or the Russian Far East, including southern and southeastern Kamchatka but not necessarily areas north of 55°N in eastern Kamchatka (NMFS 2023). Some WNP DPS gray whales spend part of their time in U.S. waters, most notably during their seasonal migrations in spring and fall. The endangered Western North Pacific DPS gray whales population size from photo-ID data for Sakhalin and Kamchatka

in 2016 was estimated at 290 whales (90 percentile intervals = 271-311; Cooke et al. 2017, Cooke 2018). The non-ESA-listed Eastern North Pacific gray whale population is estimated at 26,960 individuals (Muto et al. 2022).

Gray whales travel alone or in small, unstable groups and are bottom feeders that remove infaunal invertebrate prey and sediments by suction (Oliver and Slattery 1985). Western North Pacific gray whales feed during the summer and fall in the Okhotsk Sea off northeast Sakhalin Island, Russia, and off southeastern Kamchatka in the Bering Sea (NMFS 2023). The non-ESA-listed Eastern North Pacific population of gray whales feed mainly in the Chukchi, Beaufort and northwestern Bering Seas, with the exception of a small number of whales that summer and feed along the Pacific coast between Kodiak Island, Alaska and northern California (Muto et al. 2022). The strong matrilineal fidelity exhibited by the whales feeding off Sakhalin Island, suggests behavioral separation of the Western North Pacific DPS of gray whales from the Eastern North Pacific gray whales feeding in the northern Bering Sea (NMFS 2023). Therefore, we do not expect WNP DPS gray whales to be in the Alaskan waters of the Bering Sea.

In the North Pacific Ocean, the current migratory routes and wintering areas of western gray whales is a complex matter and not fully understood (Weller et al. 2015, 2016). Recent studies support a trans-Pacific migration for some whales during the winter to areas off Canada, the U.S. West Coast, and Mexico. However, other western gray whales stay in the western Pacific and migrate south along the Asian coast in the winter (Brownell Jr, Kasuya and Weller 2007, Weller et al. 2015) (Omura 1988, Weller and Brownell Jr 2012, Weller et al. 2016). Based on population modeling that incorporated data on known movements of western gray whales into the eastern North Pacific, Cooke (2020) concluded that approximately 48 percent of Sakhalin whales migrate to the eastern North Pacific in the winter, indicating that about 52 percent migrate elsewhere, likely to wintering areas off the Asian coast. Thus the number of western gray whales remaining in the western North Pacific year-round is small (fewer than 100 whales; Cooke 2018). The specific migration route and timing of the Western North Pacific grays are unknown making it very difficult to predict when and where they will be passing through the Aleutian chain or along the coast of Alaska. However, NMFS expects that approximately 0.4 to 1.6% of the gray whales found in their western hemisphere migratory corridor (United States West Coast [Alaska, Washington, Oregon, and California], Canada, and Mexico) are from the Western North Pacific DPS. During non-migration periods, NMFS does not expect WNP DPS gray whales to be in Alaska waters. Therefore, there is a very low likelihood that a WNP DPS gray whale will be encountered at a coastal Alaskan project location, especially during typical summer construction seasons (NMFS internal memo from Kimberly Damon-Randall, October 16, 2023).

No data are available regarding Western North Pacific population of gray whale hearing and little regarding communication. We assume that Eastern North Pacific population of gray whale communication is representative of the Western North Pacific population of gray whale. Individuals produce broadband sounds within the 100 Hertz to 12 kHz range (Dahlheim, Fisher and Schempp 1984, Jones and Swartz 2009). The most common sounds encountered are on feeding and breeding grounds, where “knocks” with a source level of roughly 142 decibels have been recorded (Thomson and Richardson 1995), Jones and Swartz 2002). Gray whale rattles, clicks, chirps, squeaks, snorts, thumps, knocks, bellows, and sharp blasts at frequencies of 400 Hz to 5 kHz have been recorded in Russian foraging areas (Petrochenko, Potopov and Pryadko

1991). NMFS categorizes gray whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

More information can be found at:

Gray Whale Species Description

Marine Mammal Stock Assessment Report: Cetaceans-Large Whales

Western North Pacific DPS of Gray Whale 5-Year Review

Overlap of WNP DPS gray whale individuals and project activities could occur during the infrequent need for a project specific delivery of materials to a project site. It is possible that the barge would pass through areas occupied by Western North Pacific gray whales. The rarity of the whales and the expected rarity of project specific barge trips around the Aleutian Islands makes likelihood of encounters extremely rare.

4.5 North Pacific Right Whale

The right whale (*Eubalaena* spp.) was listed as an endangered species under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (right whales listing)), and continued to be listed as endangered following passage of the ESA. NMFS later divided northern right whales into two separate endangered species: North Pacific right whales (*E. japonica*) and North Atlantic right whales (*E. glacialis*) (73 FR 12024, March 6, 2008). There are likely fewer than 500 North Pacific right whales remaining. Only about 26 individuals are estimated to remain of the Eastern stock that visits Alaskan waters (Muto et al. 2022).

The North Pacific right whale is distributed from Baja California to the Bering Sea with the highest concentrations in the Bering Sea, Gulf of Alaska, Okhotsk Sea, Kuril Islands, and Kamchatka area. They are primarily found in coastal or shelf waters but sometimes travel into deeper waters. In spring through fall their distribution is dictated by the distribution of their prey. In the winter, pregnant females move to shallow waters in low latitudes to calve; the winter habitat of the rest of the population is unknown.

Analyses of the data from acoustic recorders deployed between October 2000, January 2006, May 2006, and April 2007 indicate that right whales remain in the southeastern Bering Sea from May through December with peak call detection in September (Munger et al. 2008, Stafford and Mellinger 2009). Recorders deployed from 2012 to 2013 have not yet been fully analyzed, but indicate the presence of right whales in the southeastern Bering Sea almost year-round, with a peak in September and a sharp decline in detections in mid-November (Muto et al. 2018).

The North Pacific right whale is the first right whale species documented to produce song and it is hypothesized that these songs are reproductive displays (Crance et al. 2019). The singers whose sex could be determined were all males and it is unknown if females also sing. Four distinct song types were recorded at five distinct locations in the southeastern Bering Sea from 2009-2017. A study of right whale ear anatomy suggests a total possible hearing rage of 10 Hz to 22 kHz (Parks et al. 2007). NMFS categorizes right whales in the low-frequency cetacean

functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

4.5.1 Gulf of Alaska

Recent detections of right whales have been very rare in the Gulf of Alaska, even though large numbers of whales were caught there in the 1800s. From 2004 to 2006, four sightings occurred in the Barnabas Trough region on Albatross Bank, southeast of Kodiak Island. This area represents important habitat for the relic population of North Pacific right whales, and a portion of this area was included in the critical habitat designation (50 CFR § 226.215). Acoustic monitoring from May 2000 to July 2001 at seven sites in the Gulf of Alaska detected right whale calls at only two: one off eastern Kodiak and the other in deep water south of the Alaska Peninsula (detection distance 10s of kilometers) (Mellinger et al. 2004). There have been a handful of sightings in more recent years with one spotted in the northeast Gulf of Alaska in 2018, two in Barnabas Trough and two in the Trinity Islands of western Kodiak Island in 2021, and two near Unimak Island in 2022.

4.5.2 Bering Sea

Right whales have been consistently detected in the southeastern Bering Sea around the localized area of designated critical habitat during spring and summer feeding seasons (Moore et al. 2002, Zerbini et al. 2009, Rone et al. 2010, Rone et al. 2012). Of the 184 recent right whale sightings reported north of the Aleutian Islands, 182 occurred within the area designated as critical habitat in the Bering Sea. Recent sightings include two in the southeastern Bering Sea and three near Saint Lawrence Island in 2018.

Overlap with North Pacific right whale individuals and project activities could occur during the infrequent need for a project specific delivery of materials to a project site. It is possible that the barge would pass through areas occupied by North Pacific right whales. The rarity of the whales and the expected rarity of project specific barge trips makes the likelihood of encounters extremely rare.

Information on biology and habitat of the North Pacific right whale is available at:

North Pacific Right Whale Species Description

2017 Status Review

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

North Pacific Right Whale Critical Habitat

4.5.3 North Pacific Right Whale Critical Habitat

Critical habitat for the northern right whale was designated in the North Pacific Ocean on July 6, 2006 (71 FR 38277), and the same areas of critical habitat for the North Pacific right whale was re-designated in the eastern Bering Sea and in the Gulf of Alaska on April 8, 2008 (73 FR 19000) (Figure 5). The physical or biological features (PBFs) deemed necessary for the conservation of North Pacific right whales include the presence of specific copepods and

euphausiids that are primary prey items for the species, and physical and oceanographic forcing that promote high productivity and aggregation of large copepod patches (50 CFR § 226.215).

Overlap with North Pacific right whale critical habitat and project activities could occur during the infrequent need for a project specific delivery of materials to a project site. It is possible that the barge would pass through critical habitat.

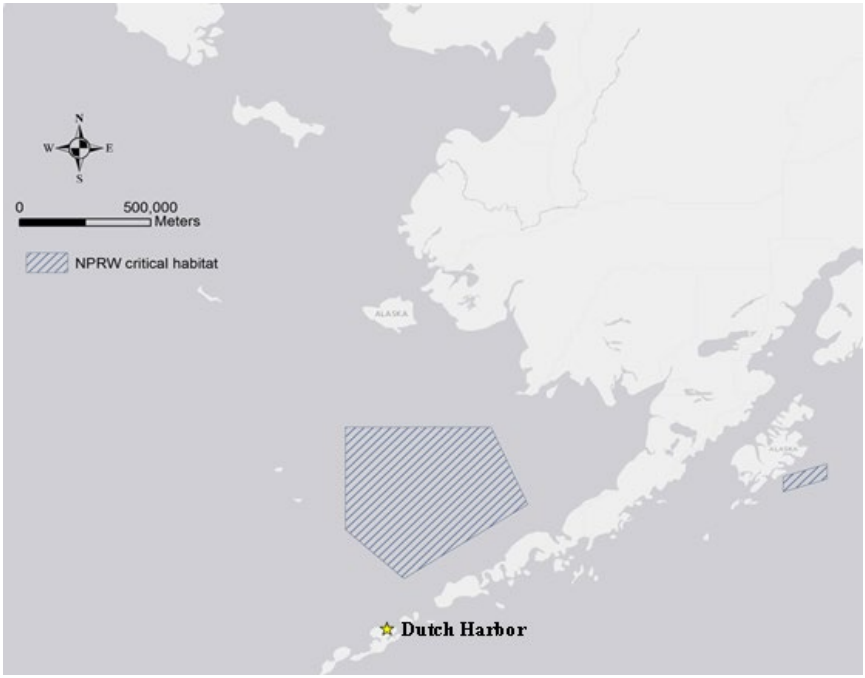

Figure 5. North Pacific right whale critical habitat in the Bering Sea and Gulf of Alaska.

4.6 Fin Whale

The fin whale (*Balaenoptera physalus*) was decimated by commercial whaling in the 1800s and early 1900s. It was listed as an endangered species under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (fin whale listing)), and continued to be listed as endangered following passage of the ESA. Critical habitat has not been designated for fin whales.

Coastal and pelagic catch data from the first half of the twentieth century indicate that fin whales were not uncommon near Unalaska Bay and around Unalaska Island (Nishiwaki 1966, Reeves et al. 1985); however, fin whales have been documented infrequently around Unalaska Island since whaling ended (Stewart et al. 1987, Zerbini et al. 2006). High concentrations of fin whales are found around Kodiak Island, indicating the region's importance for foraging (Angliss and Outlaw 2007, Stafford et al. 2007, Ferguson, Curtice and Harrison 2015, Rone et al. 2017, Brower, Willoughby and Ferguson 2022). Five passive acoustic monitoring sites in the Gulf of Alaska recorded fin whales year-round with more calls at sites on or near the continental shelf compared to seamount sites in deeper water (Rice et al. 2021).

Fin whale sounds have increasingly been recorded during surveys in the eastern Chukchi Sea (67°–72°N, 157°–169°W) from July to October primarily over the continental shelf (Brower, Clarke and Ferguson 2018). During similar aerial surveys in 1982–1991, there was a complete lack of sightings of these whales (Brower, Clarke and Ferguson 2018). Fin whale sightings have been increasing during surveys conducted in the U.S. portion of the northern Chukchi Sea from July to October, and fin whale calls were recorded each year from 2007 to 2010 in August and September in the northeastern Chukchi Sea and August to October just north of the Bering Strait, suggesting they may be re-occupying habitat used prior to large-scale commercial whaling (Muto et al. 2020).

In 2012, a fin whale was recorded by a passive recorder located 50 km north of Utqiagvik, Alaska, which was approximately 280 and 365 km northeast of the previous closest acoustic detection and confirmed visual sighting of a fin whale, respectively (Crance et al. 2015). A passive recorder located in the southern Chukchi Sea from 2012 to 2015 documented fin whale songs from August to November (Furumaki, Tsujii and Mitani 2021).

Fin whales produce a variety of low-frequency sounds in the 10 Hz to 0.2 kHz range (Thompson, Findley and Vidal 1992, Rice et al. 2021). While there is no direct data on hearing in low-frequency cetaceans, the applied frequency range is expected to be between 7 Hz and 35 kHz (NMFS 2018). Estimates based on scans of a fin whale calf skull indicate the range of best hearing for fin whale calves to range from approximately 20 Hz to 10 kHz, with maximum sensitivities between 1 to 2 kHz (Cranford and Krysl 2015).

Fin whales are typically found in deep water (Matsuoka, Mizroch and Komiya 2013, Rone et al. 2017) away from the immediate coast (Clarke et al. 2020); consequently it is unlikely that they would overlap with effects from coastally-based construction activities. However, project-dedicated barges could pass through waters occupied by fin whales.

Additional information on fin whale biology and habitat is available at:

Fin Whale Species Description

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

2019 Status Review

4.7 Blue Whale

The blue whale (*Balaenoptera musculus*) was listed as an endangered species under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (blue whale listing)), and continued to be listed as endangered following the passage of the ESA. Although blue whales have been divided into stocks for management purposes under the MMPA, distinct population segments have not been adopted under the ESA. Blue whales from both the Northeast Pacific and Central/Western Pacific populations are found in Alaska (Rice et al. 2020). A recovery plan was published in 1998 (NMFS 1998) but critical habitat has not been designated. Ship strike and entanglement with commercial fishing gear are two current sources of mortality (Carretta et al. 2020).

Blue whales were significantly depleted by commercial whaling activities worldwide. Between 1905 and 1971 an estimated 3,411 blue whales were removed from the eastern North Pacific by commercial whaling (Monnahan et al. 2014). An analysis of line-transect survey data from 1996-2014 provided a range of blue whale estimates from a high of approximately 2,900 whales in 1996 to a low of 900 whales in 2008 (Barlow 2016). Photographic mark-recapture estimates of abundance from 2005 to 2011 range from 1,000 to 2,300 whales (Calambokidis and Barlow 2013). The most recent abundance estimate for blue whales in the eastern North Pacific is 1,898 whales, based on the Chao model and the most recent data from 2015-2018 (Calambokidis and Barlow 2020).

The U.S. West Coast is an important feeding area in summer and fall for blue whales from the Eastern North Pacific stock, and they are increasingly found feeding north and south of this area in summer and fall. Most of this stock is believed to migrate south to spend the winter and spring in high productivity areas off Baja California, the Gulf of California, and on the Costa Rica Dome. Blue whales from the Central North Pacific stock feed southwest of Kamchatka, south of the Aleutians, and in the Gulf of Alaska during the summer, and migrate to lower latitudes in the western and central Pacific, including Hawaii in the winter (Carretta et al. 2020).

Blue whales make low frequency calls between 10 and 40 Hz lasting between ten and thirty seconds. NMFS categorizes blue whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

Blue whale individuals are a deep water species (Rone et al. 2017) Matsuoka et al. 2013) and not expected to overlap with any effects of project construction activities, however, if a project specific barge were needed, it could pass through habitat occupied by blue whales.

More information on blue whale biology and habitat is available at:

Blue Whale Species Description

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

2020 Status Review

4.8 Sperm Whale

The sperm whale (*Physeter macrocephalus*) was listed as an endangered species under the ESCA in 1970 (35 FR 8491, June 2, 1970; 35 FR 18319, December 2, 1970), and continued to be listed as endangered following passage of the ESA. Critical habitat has not been designated for sperm whales.

Sperm whales are primarily found in deep waters, and sightings of sperm whales in water less than 300 m (984 ft) are uncommon. They are usually found far offshore, except in cases where the shelf break or submarine canyons occur close to land (Mizroch and Rice 2013). They feed primarily on medium-sized to large-sized squids but also take substantial quantities of large demersal and mesopelagic sharks, skates, and fishes (Rice 1989). The northern extent of their known range is 62°N, where Soviet catches of females occurred in Olyutorsky Bay (Muto et al. 2018). During summer, males are found in the Gulf of Alaska, Bering Sea, and waters around the

Aleutian Islands (Mizroch and Rice 2013). There are no recent and reliable estimates for population size or trend for sperm whales off Alaska (i.e., the North Pacific Stock).

Sperm whales produce a variety of vocalizations ranging from 0.1 to 20 kHz (Weilgart and Whitehead 1993, Goold and Jones 1995, Møhl et al. 2003, Weir and Goold 2007). Sperm whales are odontocetes (toothed whales) and are considered mid-frequency cetaceans with an applied frequency range of 150 Hz to 160 kHz (NMFS 2018). The only direct measurement of hearing was from a young stranded individual from which auditory evoked potentials were recorded and indicated a hearing range of 2.5 to 60 kHz (Carder and Ridgway 1990).

4.8.1 Bering Sea/Aleutian Islands

Sperm whales have been frequently documented in the western Aleutian Islands, from Unalaska to the east out to the far islands. During 12 cetacean surveys in the summers of 2001-2007 and 2009-2010, 393 sightings of adult male sperm whales were made ((Fearnbach et al. 2012). They were considered the most frequently sighted large cetacean in coastal waters around the central and western Aleutian Islands (Allen and Angliss 2011). In February 2008, a group of approximately 50 female and immature sperm whales were seen near Koniuji Island, in the central Aleutian Islands (Fearnbach et al. 2012). This was the first time such a large aggregation of females and juveniles were seen so far north since whaling ended.

4.8.2 Gulf of Alaska

Results from acoustic surveys indicate that sperm whales are present in the Gulf of Alaska year-round where they are most common in the summer months along the continental shelf waters (Mellinger, Stafford and Fox 2004, Straley et al. 2014, Diogou et al. 2019). They have been documented interacting with demersal longline fisheries in the Gulf of Alaska since the 1970s (Straley et al. 2014, Wild et al. 2017, Hanselman, Pyper and Peterson 2018). In July of 2021, a sperm whale became entangled in gear used by the Alaska Fisheries Science Center's Alaska Longline Survey. The interaction resulted in a live release; the whale swam away with no visible gear wrapped around it and is assumed to have survived with no major effects (Eco49 2022).

4.8.3 Southeast Alaska

Sperm whales are widely distributed and may be present in waters of Southeast Alaska year-round (Muto et al. 2022), typically in deeper offshore waters. In 2019, a sperm whale carcass was found in Lynn Canal and the cause of death was determined to be trauma from a vessel strike (Freed et al. 2022).

Because sperm whales occur in coastal waters of the central Aleutian Islands, there is the possibility that they might be near the action area of construction projects in these areas. Near Kodiak and the Gulf of Alaska they are typically found in deep water (Matsuoka, Mizroch and Komiya 2013, Rone et al. 2017). It is less likely that individual whales would overlap with the effects of project construction activities in these areas. However, if a project specific barge were needed, it could pass through habitat occupied by sperm whales.

Additional information on sperm whale biology and habitat is available at:

Sperm Whale Species Description

2015 Status Review

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

4.9 Sei Whale

The sei whale (*Balaenoptera borealis*) was listed as an endangered species under the ESCA in, 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (sei whale listing)), and continued to be listed as endangered following the passage of the ESA. Under the MMPA, two stocks of sei whales are currently recognized within the U.S. Pacific waters: Eastern North Pacific and Hawaii (Carretta et al. 2020). The two stocks are not recognized separately under the ESA. Critical habitat has not been designated for sei whales.

Sei whale abundance in the North Pacific pre-whaling was estimated to be 42,000 whales (Tillman 1977). Based on visual line-transect surveys conducted between 2010 and 2012, sei whale abundance in the central and eastern North Pacific is estimated at 29,632 whales (Hakamada et al. 2017). The best estimate of abundance for California, Oregon, and Washington waters is 519 whales, based on line transect surveys in 2008 and 2014 (Barlow 2016).

Sei whales are distributed far out to sea in temperate waters worldwide and do not appear to be associated with coastal features. In Alaskan waters, sei whales have been reported primarily south of the Aleutian Islands, in Shelikof Strait and waters surrounding Kodiak Island, in the Gulf of Alaska, and inside waters of southeast Alaska (Leatherwood et al. 1982). The fine baleen structure of the sei whales allows them to skim the surface waters for patches of their preferred copepod prey. Sei whales also feed on euphausiids, shoals of fish, and squid if they are encountered (Harwood 2017).

Sei whales make low and mid frequency vocalizations including upsweep and downsweep calls, pulse trains, and growls. NMFS categorizes sei whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

Because sei whales are not associated with coastal features we do not expect that any individuals would be affected by effects from coastal construction projects. It is possible that a project-dedicated barge could pass over habitat occupied by sei whales.

Because sei whales are not associated with coastal features we do not expect that any individuals would be affected by effects from coastal construction projects. It is possible that a project-dedicated barge could pass over habitat occupied by sei whales.

More information on sei whale biology and habitat is available at:

Sei Whale Species Description

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

2021 Status Review

2016 Recovery Plan

4.10 Cook Inlet beluga whale

NMFS designated the Cook Inlet beluga (*Delphinapterus leucas*) population as depleted under the MMPA in 2000 (65 FR 34590, May 31, 2000) after its population dropped from approximately 1,300 individuals in 1979 to 347 in 1998. A lack of subsequent population growth led NMFS to publish a final rule listing the Cook Inlet beluga as endangered under the ESA on October 22, 2008 (73 FR 62919). Currently, the best abundance estimate for the Cook Inlet beluga whale population is 331 whales (95 percent probability interval 290 to 386 whales) based on a 2022 beluga aerial survey (Goetz et al. 2023).

The distribution of Cook Inlet belugas has changed significantly since the 1970s. In general, during the summer and fall, beluga whales occur in shallow coastal waters and are concentrated near the Susitna River Delta, Knik Arm, Turnagain Arm, and Chickaloon Bay, Fire Island in the upper inlet (Shelden et al. 2015, Castellote et al. 2016, McGuire et al. 2020), and the Kenai River Delta in the lower Inlet (McGuire et al. 2020). During the winter, they are more dispersed, occurring in deeper waters in the mid-inlet to Kalgin Island, and in the shallow waters along the west shore of Cook Inlet to Kamishak Bay. There have been fewer sightings of belugas in Lower Cook Inlet in recent decades (Hansen and Hubbard 1999, Rugh, Shelden and Mahoney 2000, Speckman and Piatt 2000, Rugh, Shelden and Hobbs 2010). The range contraction puts belugas into closer proximity to Anchorage during summer months, where there is increased potential for disturbance from human activities. While belugas are concentrated primarily in the upper inlet during the summer and fall months, the area around the East Forelands between Nikiski, Kenai, and Kalgin Island appears to provide important habitat in winter, early spring, and fall.

Cook Inlet beluga whales have diverse diets (Quakenbush et al. 2015, Nelson et al. 2018), foraging on fish and benthos, often at river mouths. Primary prey species consist of four species of Pacific salmon (Chinook, sockeye, chum, and coho), Pacific eulachon, Pacific cod, walleye pollock, saffron cod, and yellowfin sole. Belugas seasonally shift their distribution within Cook Inlet in relation to the timing of fish runs and seasonal changes in ice and currents (NMFS 2016).

NMFS categorizes Cook Inlet beluga whales in the mid-frequency cetacean functional hearing group, with an applied frequency range between 150 Hz and 160 kHz (NMFS 2018).

More information on Cook Inlet beluga whales is available at:

Beluga Whale Species Description

Marine Mammal Stock Assessment: Cetaceans-Small Whales

2022 Status Review

2016 Recovery Plan

Cook Inlet Beluga Critical Habitat

No project considered in this programmatic may occur within 10 nm of Cook Inlet beluga whale critical habitat. With very few exceptions, critical habitat represents the area where the belugas are known to occur. Therefore, it is extremely unlikely that belugas will be exposed to effects from coastal projects covered by this programmatic consultation.

4.10.1 Cook Inlet Beluga Whale Critical Habitat

NMFS published the final rule designating critical habitat for the Cook Inlet beluga whale on April 11, 2011 (76 FR 20180; 50 CFR § 226.220), delineating two areas (aptly named Area 1 and Area 2) that generally describe summer vs. winter habitat, respectively (Figure 6).

Cook Inlet beluga whale critical habitat includes five Physical or Biological Features (PBFs) that were deemed essential to the conservation of the stock (50 CFR § 226.220(c)):

1. Intertidal and subtidal waters of Cook Inlet with depths less than 30 feet mean low low water (MLLW) and within five miles of high and medium flow anadromous fish streams.
2. Primary prey species consisting of four species of Pacific salmon (Chinook, sockeye, chum, and coho), Pacific eulachon, Pacific cod, walleye Pollock, saffron cod, and yellowfin sole.
3. Waters free of toxins or other agents of a type and amount harmful to Cook Inlet beluga whales.
4. Unrestricted passage within or between the critical habitat areas.
5. Waters with in-water noise below levels resulting in the abandonment of critical habitat areas by Cook Inlet beluga whales.

NMFS excluded from critical habitat two areas in upper Cook Inlet near the Port of Anchorage and Joint Base Elmendorf-Richardson (50 CFR § 226.220).

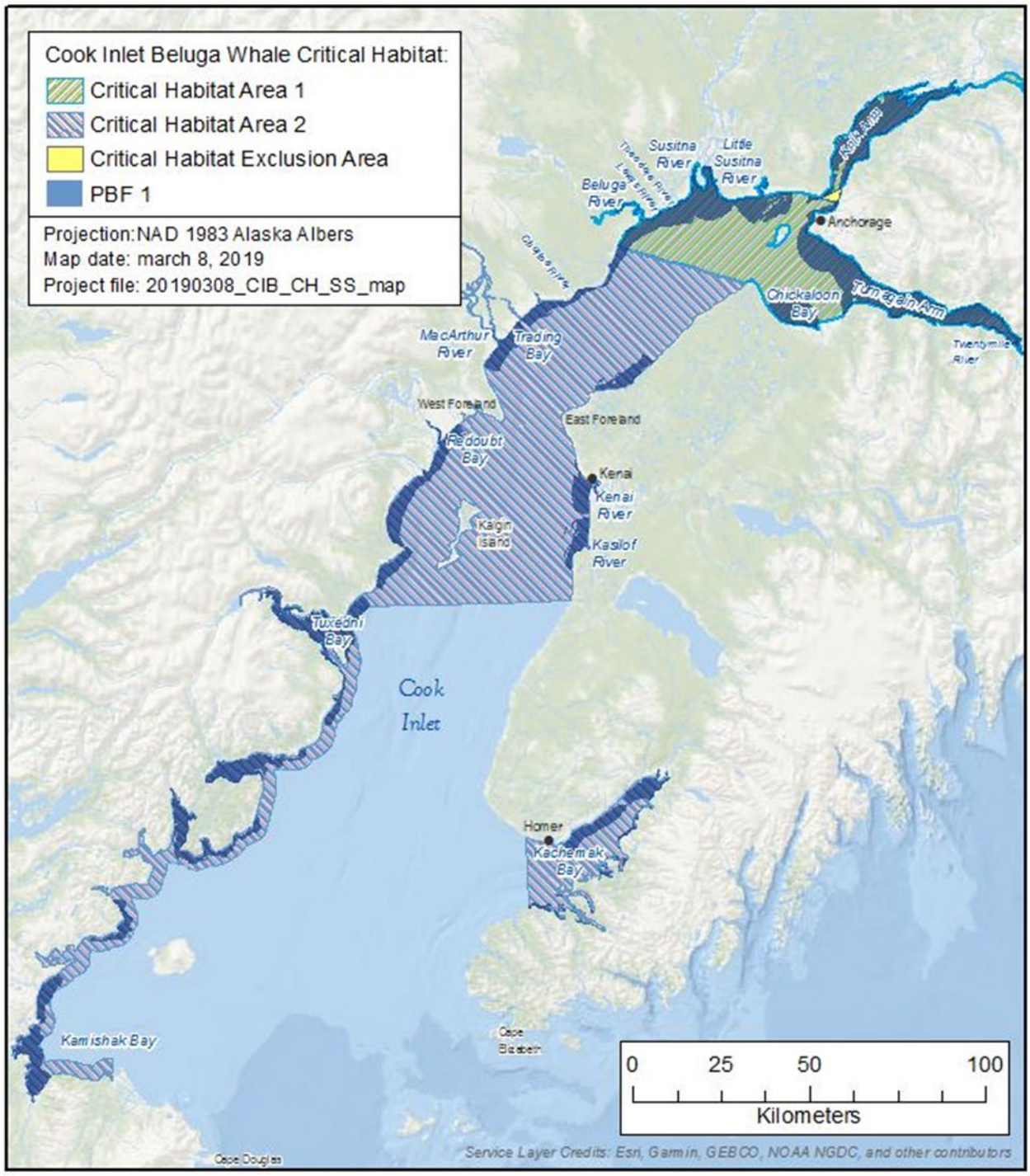

Figure 6. Cook Inlet Beluga Whale Critical Habitat (50 CFR § 226.220).

Although no projects covered under this programmatic consultation may occur in critical habitat, it is possible that a project specific barge may travel across critical habitat. The Port of Anchorage is the most likely port from which to ship or receive project specific materials.

4.11 Mexico DPS Humpback Whale

The humpback whale (*Megaptera novaeangliae*) was listed as endangered under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (humpback whale listing)). Congress replaced the ESCA with the ESA in 1973, and humpback whales continued to be listed as endangered. NMFS conducted a global status review that led to changing the status of humpback whales under the ESA and dividing the species into 14 distinct population segments (DPS) (81 FR 62260, September 8, 2016). Of these 14 DPSs, NMFS listed four as endangered, one as threatened, and delisted the remaining nine. Three DPSs occur in waters of Alaska. The Western North Pacific DPS is listed as endangered; the Mexico DPS is listed as threatened; and the Hawaii DPS is not listed (81 FR 62260; September 8, 2016).

The Hawaii DPS is population is estimated to be 11,540 animals (CV=0.04) with an annual growth rate between 5.5 and 6.0 percent. The Mexico DPS is comprised of approximately 2,913 animals (CV=0.07) (Wade 2021) with an unknown, but likely declining, population trend (81 FR 62260). Approximately, 1,084 animals (CV=0.09) comprise the Western North Pacific DPS (Wade 2021). Humpback whales in the Western North Pacific remain rare in some parts of their former range, such as the coastal waters of Korea, and have shown little sign of recovery in those locations.

Whales from these three DPSs overlap on feeding grounds off Alaska, and are visually indistinguishable unless individuals have been photo-identified on breeding grounds and again on feeding grounds. All waters off the coast of Alaska may contain ESA-listed humpbacks.

Humpback whales produce a variety of vocalizations ranging from 20 Hz to 10 kHz (Silber 1986, Richardson et al. 1995, Au 2000, Erbe 2002, Au et al. 2006, 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 2018).

Given their widespread range, relative abundance, their opportunistic foraging strategies, and frequent near-shore occurrence, Mexico DPS humpback whales may occur in the vicinity of projects covered in this programmatic consultation.

4.11.1 Bering Sea/Aleutian Islands/Chukchi and Beaufort Seas

The abundance estimate for humpback whales in the Bering Sea and Aleutian Islands is estimated to be 7,758 (CV= 0.2) animals, which includes whales from the Hawaii DPS (91 percent), threatened Mexico DPS (7 percent), and endangered Western North Pacific DPS (2 percent) (NMFS 2021, Wade 2021)(Table 5). These same DPS proportions apply for the Chukchi and Beaufort seas. Humpback whales have increasingly been recorded during surveys in the eastern Chukchi Sea (67°–72°N, 157°–169°W) from July to October primarily over the continental shelf (Brower, Clarke and Ferguson 2018). During similar aerial surveys in 1982–1991, there was a complete lack of sightings of these whales (Brower, Clarke and Ferguson 2018). It is unknown if this is an indicator of population recovery, climate change, or increased survey effort (Brower, Clarke and Ferguson 2018).

The area around the Aleutian Islands from Umnak Island northeastward along the Alaska Peninsula has been identified as a Biologically Important Area for humpback whales (Brower,

Willoughby and Ferguson 2022). Telemetry data from Kennedy et al. (2014) supported findings of historical data showing that humpback whales congregate in the shallow, highly productive coastal waters north of the eastern Aleutian Islands, between Unimak and Samalga Passes. The extremely high proportion of foraging within the narrow band 200 km east and west of Unalaska Bay further emphasizes the importance of the waters off the eastern Aleutian Islands for humpback whales (Kennedy et al. 2014). Annual vessel-based, photo-identification surveys in the Shumagin Islands from 1999 to 2015 identified 654 unique individual humpback whales between June and September (Witteveen and Wynne 2017).

4.11.2 Gulf of Alaska

The abundance estimate for humpback whales in the Gulf of Alaska is 2,129 (CV=0.08) animals, which includes whales from the Hawaii DPS (89 percent), threatened Mexico DPS (11 percent), and endangered Western North Pacific DPS (1 percent) (Wade 2021)(Table 7). Humpback whales occur throughout the central and western Gulf of Alaska from Prince William Sound to the Shumagin Islands. Seasonal concentrations are found in coastal waters of Prince William Sound, Barren Islands, Kodiak Archipelago, Shumagin Islands, and south of the Alaska Peninsula. Large numbers of humpbacks have also been reported in waters over the continental shelf, extending up to 100 nm offshore in the western Gulf of Alaska (Rone et al. 2017, Wade 2021).

4.11.3 Southeast Alaska

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 5,890 (CV= 0.08) animals, which includes whales from the Hawaii DPS (98 percent) and threatened Mexico DPS (2 percent) (Wade 2021)(Table 7). 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).

Table 6. Percent probability of encountering humpback whales from each DPS in the North Pacific Ocean (columns) in various feeding areas (on left) (Wade 2021).

Summer Feeding Areas	**North Pacific Distinct Population Segments (DPS)** (percent)			
	Western North Pacific (endangered)[a]	**Hawaii (not listed)**	**Mexico (threatened)**	**Central America (endangered)[1]**
Kamchatka	91	9	0	0
Aleutian I/ Bering/ Chukchi Seas	2	91	7	0
Gulf of Alaska	1	89	11	0
Southeast Alaska / Northern BC	0	98	2	0
Southern BC / WA	0	69	25	6
OR/CA	0	0	58	42
Note that in the past iteration of this guidance, upper confidence intervals were used for endangered DPSs. However, the revised estimates do not have associated coefficients of variation to cite. Therefore, the point estimate is being used for each probability of occurrence.				

Additional information on humpback whale biology and natural history is available at:

Humpback Whale Species Description

Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales

Humpback Whale Critical Habitat

4.12 Western North Pacific DPS Humpback Whale

All of the information presented for the Mexico DPS of humpback whales also applies to the Western North Pacific DPS. The only difference is that the percent probability of a humpback in SE Alaska being from the Mexico DPS is 2 percent, while the percent probability of a humpback whale in SE Alaska being from the Western North Pacific DPS is roughly 0 (and in the Gulf of Alaska, the probability is 1 percent that a given humpback is from the Western North Pacific DPS). Projects occurring in SE Alaska would have no effect on humpback whales in this DPS. However, in the Gulf of Alaska, in the Bering Sea, the Aleutian Islands, and the Chukchi and Beaufort seas there is the possibility that individuals of the Western North Pacific DPS could occur in the vicinity of projects covered in this programmatic consultation.

Given their widespread range, relative abundance, their opportunistic foraging strategies, and frequent near-shore occurrence, Mexico DPS humpback whales and Western North Pacific humpback whales may occur in the vicinity of projects covered in this programmatic consultation.

4.12.1 Humpback Whale Critical Habitat

The final rule designating critical habitat for the Mexico and Western North Pacific DPS humpback whales was published on April 20, 2021 (86 FR 21082) (Figure 7). Critical habitat for the Western North Pacific DPS includes areas in the eastern Aleutian Islands, the Shumagin Islands, and around Kodiak Island, and for the Mexico DPS includes those same areas plus the Prince William Sound area (50 CFR § 226.227).

For the Mexico DPS, the physical and biological features associated with critical habitat include: prey species, primarily euphausiid zooplankton and small pelagic schooling fishes, such as Pacific sardines, northern anchovy, Pacific herring, capelin, juvenile walleye pollock and Pacific sand lance of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

For the Western North Pacific DPS, the physical and biological features associated with critical habitat include: prey species, primarily euphausiid zooplankton and small pelagic schooling fishes, such as Pacific herring, capelin, juvenile walleye pollock, and Pacific sand lance of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

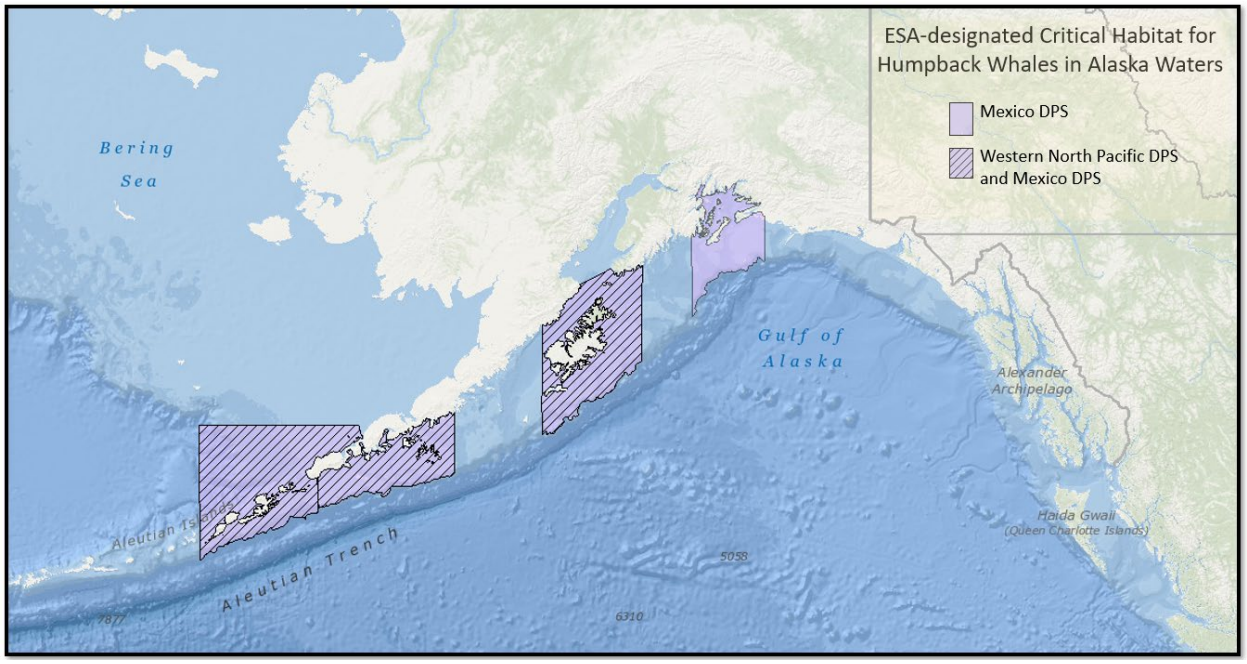

Figure 7. Critical habitat for Mexico DPS and Western North Pacific DPS humpback whales in waters off Alaska.

Project-specific vessels could pass through humpback whale critical habitat when delivering supplies to remote locations.

4.13 Western DPS Steller Sea Lion

The Steller sea lion (*Eumetopias jubatus*) was listed as a threatened species under the ESA in 1990 (55 FR 49204, November 26, 1990). On May 5, 1997, NMFS published a rule reclassifying Steller sea lions into two DPS's 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, NMFS published a rule removing the eastern DPS from the endangered species list (78 FR 66140).

Steller sea lions range throughout the North Pacific Ocean from Japan, east to Alaska, and south to central California (Loughlin, Rugh and Fiscus 1984). They range north to the Bering Strait, with significant numbers at haul-outs on St. Lawrence Island in the spring and fall (Kenyon and Rice 1961). Breeding range extends along the northern edge of the North Pacific Ocean from the Kuril Islands, Japan, through the Aleutian Islands and Southeast Alaska, and south to California (Loughlin, Rugh and Fiscus 1984). Based on Hastings et al. (2020), NMFS concludes that Western DPS Steller sea lions are common north of Sumner Strait.

Rookery and haulout sites are located on isolated islands, rocky shorelines, and jetties from Cape Suckling, through the Bering Sea and into the Sea of Okhotsk (Muto et al. 2020). Steller sea lions are not known to migrate annually, but individuals may widely disperse outside of the breeding season (Raum-Suryan et al. 2004, Trites et al. 2006, Lander et al. 2009, Jemison et al. 2013, Fritz et al. 2016, Sigler, Gende and Csepp 2017). Males arrive at breeding sites in May with females following shortly afterwards, and pups are born from mid-May to early July, with a peak in mid-June (Pitcher and Calkins 1981, Pitcher et al. 2001).

At-sea behavior of Steller sea lions varies greatly within and among individuals and is influenced by age, gender, time-of-day, weaning status (for juveniles), region, season, and lunar phase (Raum-Suryan et al. 2004, Fadely et al. 2005, Pitcher et al. 2005, Rehberg and Burns 2008, Lander et al. 2010, Lander et al. 2011) as well as the distribution and abundance (including the aggregation and predictability) of primary prey (e.g. (Sigler, Womble and Vollenweider 2004, Womble et al. 2005, Womble and Sigler 2006, Sigler et al. 2009, Womble, Sigler and Willson 2009). Foraging dives may be benthic or epipelagic, but their short foraging trips during the breeding season limit females to nearshore waters, although this varies with location (Lander et al. 2020) and is the basis for designated critical habitat around rookeries and major haulout sites.

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 generally target fish and cephalopod species, including those that are densely schooled in spawning or migratory aggregations on the continental shelf or along oceanographic boundary zones (Sinclair and Stabeno 2002, Sinclair et al. 2013). They may also target 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 2018).

A project-specific vessel could travel through water occupied by Western DPS Steller sea lions. Haulouts and rookeries, where Steller sea lions are most susceptible to disturbance, are typically on rocky outcrops, headlands, or small islets where projects are unlikely to occur. Consequently, overlap of effects from coastal construction covered in this programmatic consultation are also unlikely to occur. In addition, construction would not be allowed in critical habitat ensuring that if a project were proposed near a haulout or rookery, it would have to be at least 0.9 km away.

Information on Steller sea lion biology and habitat is available at:

Steller Sea Lion Species Description

Marine Mammal Stock Assessment Reports: Pinnipeds-Otariids

2018 Status Review

Steller Sea Lion Critical Habitat

4.13.1 Steller Sea Lion Critical Habitat

NMFS published a final rule designating critical habitat for Steller sea lions on August 27, 1993 (58 FR 45269) (Figure 8 and Figure 9). In Alaska, designated critical habitat includes the following areas as described at 50 CFR § 226.202.

1. Terrestrial zones that extend 3,000 feet (0.9 km) landward from each major haulout and major rookery in Alaska.
2. Air zones that extend 3,000 feet (0.9 km) above the terrestrial zone of each major haulout and major rookery in Alaska.
3. Aquatic zones that extend 3,000 feet (0.9 km) seaward of each major haulout and major rookery in Alaska that is east of 144° W longitude.
4. Aquatic zones that extend 20 nm (37 km) seaward of each major haulout and major rookery in Alaska that is west of 144° W longitude.
5. Three special aquatic foraging areas: the Shelikof Strait area, the Bogoslof area, and the Seguam Pass area, as specified at 50 CFR § 226.202(c).

Although we do not know where projects will occur, it is possible that project specific barges will need to pass through Steller sea lion critical habitat.

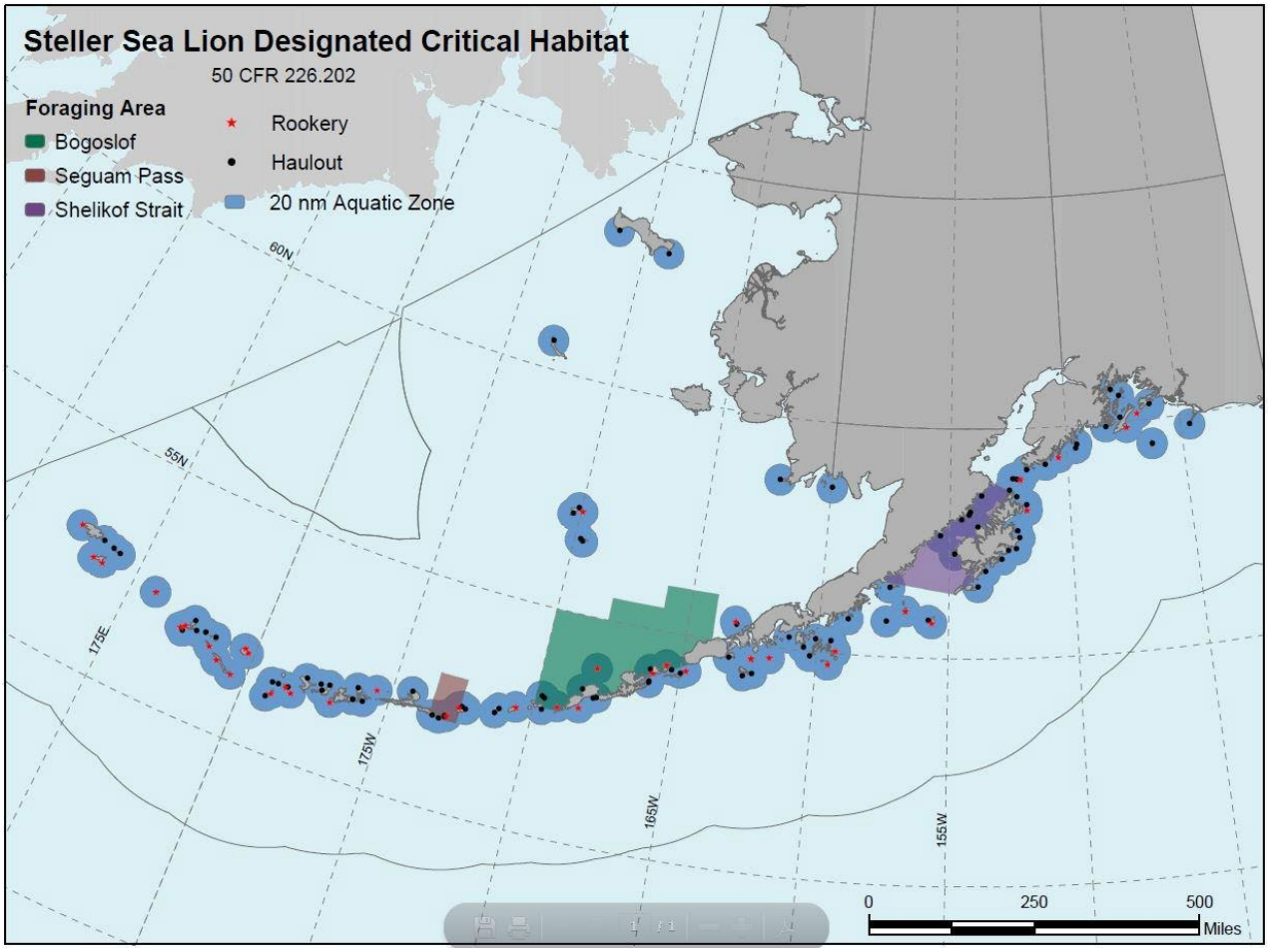

Figure 8. Designated Steller sea lion critical habitat in Alaska.

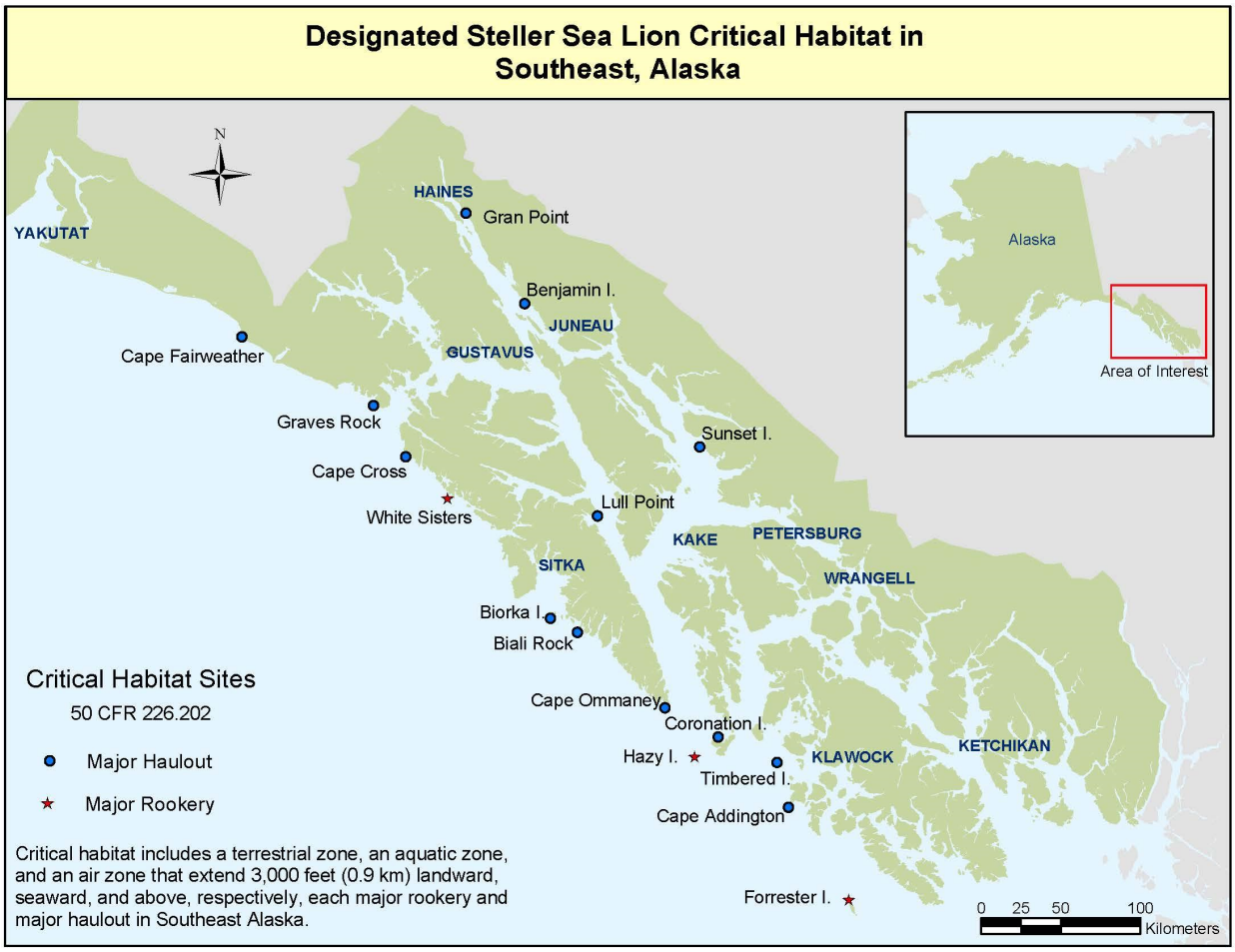

Figure 9. Designated critical habitat for Steller sea lions in Southeast Alaska.

4.14 Sunflower Sea Star

On August 18, 2021, the Center for Biological Diversity petitioned NMFS to list the sunflower sea star (*Pycnopodia helianthoides*) under the ESA. NMFS determined that the proposed action may be warranted (86 FR 73230, December 27, 2021) and began a full status review to evaluate overall extinction risk for the species. NMFS determined that the sunflower sea star is likely to become an endangered species within the foreseeable future throughout its range and on March 16, 2023, and published a proposed rule to list the sunflower sea star as a threatened species (88 FR 16212). As part of that proposal, NMFS did not propose to designate critical habitat.

The sunflower sea star is a large (up to 1 m in diameter), fast-moving (up to 160 cm/minute), many-armed (up to 24) echinoderm native to the west coast of North America (Lowry et al. 2022). It occupies waters from the intertidal zone to at least 435 m deep, but is most common at depths less than 25 m and rare in waters deeper than 120 m (Lambert 2000, Hemery et al. 2016, Gravem et al. 2021). Sunflower sea stars occur over a broad array of soft-, mixed-, and hard-bottom habitats from the Aleutian Islands to Baja California, Mexico, but are most abundant in waters off southeastern and southcentral Alaska and British Columbia (Gravem et al. 2021).

Prior to 2013, the global abundance of sunflower sea star was estimated at several billion animals, but from 2013–2017 sea star wasting syndrome (SSWS) reached pandemic levels, killing an estimated 90 percent or more of the population (Lowry et al. 2022). Declines in the northern portion of its range were less pronounced than in the southern portion, but still exceeded 60 percent. Species-level impacts from SSWS, both during the pandemic and on an ongoing basis, have been identified as the major threat affecting the long-term persistence of the sunflower sea star (Lowry et al. 2022).

The species has separate sexes and is a broadcast spawner with a planktonic larval stage (Lundquist and Botsford 2011). Females can release a million eggs or more (Strathmann 1987, Chia and Walker 1991, Byrne 2013). Reproduction also occurs via larval cloning, enhancing potential reproductive output beyond female fecundity (Bosch, Rivkin and Alexander 1989, Balser 2004). Sea stars also have the ability to regenerate lost rays/arms and parts of the central disc (Chia and Walker 1991). Rays may detach when a sea star is injured or as a defense reaction when attacked by a predator. The longevity of *P. helianthoides* in the wild is unknown, as is the age at first reproduction and the period over which a mature individual is capable of reproducing (Lowry et al. 2022).

The sunflower sea star hunts a range of bivalves, gastropods, crustaceans, and other invertebrates using chemosensory stimuli and will dig for preferred prey in soft sediment (Mauzey, Birkeland and Dayton 1968, Paul and Feder 1975, Herrlinger 1983). It preys on sea urchins and plays an important role in controlling sea urchin numbers in kelp forests (Lowry et al. 2022). While generally solitary, they are also known to seasonally aggregate, perhaps for spawning purposes.

Currently we assume that the sunflower sea star occupies inter-and sub-tidal habitats throughout Southeast Alaska, the Gulf of Alaska, marine waters in lower Cook Inlet (south of the mouth of Kachemak Bay), and around the Kodiak Archipelago. Although surveys and data are sparse, and records of their presence are few, we also assume that they occupy coastal areas surrounding the Aleutian Islands.

This programmatic consultation excludes projects that include fill, dredging, screeding, or dredge spoil deposition in waters that are east of 157° W and south of 62° N; or in waters that are west of 157° W and south of 58° N. Because sunflower sea stars are not known to occur in unexcluded waters, we do not expect that projects covered by this programmatic consultation are likely to adversely affect sunflower seastars.

More information on the sunflower sea star can be found at:

Proposed Rule to List Sunflower Sea Stars as Threatened Under the ESA

Sunflower Sea Star Status Review

5 Effects of the Action

Under the ESA, “effects of the action” means all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not

occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the 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, extremely unlikely to occur, 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; insignificant effects should never reach the scale where take occurs.

While the ESA does not define "harass," NMFS issued guidance interpreting the term "harass" under the ESA to mean: "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).

The potential effects of the proposed action on listed species and critical habitat include:

- acoustic disturbance from:
    - barge transit
    - pipe and sheet pile driving
    - dredging/screeding
- habitat alteration including suspended sediment exposure
    - pile driving
    - dredging/screeding
    - fill
- vessel strike
- pipe pile strike (upon sea stars)
- visual disturbance
- pollution from unauthorized spills from vessel activities
- long-term direct and indirect effects

5.1 Acoustic Thresholds

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; January 11, 2005). NMFS developed comprehensive guidance on sound levels likely to cause injury to marine mammals through onset of permanent threshold shifts (PTS; Level A harassment) and temporary threshold shifts (TTS) (83 FR 28824, June 21, 2018). 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, expressed in root mean square (rms), from broadband sounds that cause behavioral disturbance, and referred to as Level B harassment under section 3(18)(A)(ii) of the MMPA (16 U.S.C. § 1362(18)(A)(ii)):

- impulsive sound: 160 dB_{rms} re 1 µPa
- continuous sound: 120 dB_{rms} re 1µPa

5.2 Acoustic Disturbance

Acoustic disturbance to marine mammals has received the most attention by researchers and we have the most complete information of the effects of noise to marine mammals. Fish, especially anadromous fish such as salmon, have also received some level of attention, especially in regards to the impulsive sounds created by pile driving. Acoustic impacts to invertebrates are much less studied, and it is currently almost impossible to come to clear conclusions on the nature and levels of man-made sound that have potential to cause effects upon these animals (Hawkins, Pembroke and Popper 2015, Solé et al. 2023). For this reason we will forego drawing conclusions on the acoustic effects of noise to the sunflower sea star. If information becomes available indicating the sorts of sound that may affect this species, this programmatic consultation will be reinitiated as warranted.

5.2.1 Vessel Noise Associated with Barge Transit

5.2.1.1 Cetaceans

The routes for the seagoing project-specific barges and tugs are unknown, but we expect that they could overlap with the ranges of the bowhead whale, Western North Pacific DPS gray whale, blue whale, sperm whale, North Pacific right whale, sei whale, fin whale, both DPSs of humpback whales, and Cook Inlet beluga whale. We expect that for the majority of projects, materials can be delivered to ports that have regularly scheduled deliveries of goods and materials. We expect that because the projects that qualify for AK-SLOPES are small and routine, if a project-specific barge is needed, the number of transits would likely be six or fewer.

Vessel noise varies widely based on horsepower, vessel size, power source, condition and design of the propellers, and vessel speed (Kipple and Gabriele 2004, Abrahamsen 2012, Viers et al. 2016, Halliday et al. 2021). Non-impulsive (continuous) sounds from sea going barges have been measured at a peak sound source level of 170 dB re 1 µPa rms at 1 m (broadband), and emitted at dominant frequencies of less than 5 kHz, and generally less than 1 kHz (Miles, Malme and Richardson 1987, Richardson et al. 1995). Coastal barges and tugs produce a peak sound source level of approximately 164 dB re 1 µPa rms at 1 m (Richardson et al. 1995) and tugs pulling empty barges can produce source levels of 145 to 170 dB re 1 µPa-m (Richardson et al. 1995). Measuring the sound levels of 337 tugs, Viers et al. (2016) found that they had a mean source level of 170 ±5 dB re 1 µPa. Sound levels are correlated with speed of the ship (Kipple and Gabriele 2003, Frankel and Gabriele 2017). To qualify for coverage under this programmatic consultation, vessels may travel at no more than 12 knots (Mitigation Measure #84). At this speed we expect that a sound source level of 170 dB re 1 µPa is a reasonable estimate of the vessel sound that will be produced by sea going barges and that smaller coastal barges will produce less sound.

The barges will be traveling over a range of water depths from shallow to very deep and transmission loss coefficients vary with depth. For the greatest part of their transit we expect these vessels will be over deep water and will only be in shallow water for a relatively short time when leaving and approaching their destinations, which will be at slower speeds. Using a conservative transmission loss coefficient of 15, which we typically apply to coastal development projects in shallow waters, the ensonified area around the ship is expected to be less than or equal to 2,154 m to either side of the vessel.

Project vessels could have a short-term presence in the marine waters of the Bering, Chukchi, and Beaufort seas, the Gulf of Alaska, Cook Inlet, and SE Alaska. The U.S. Committee on the Marine Transportation System (CMTS) reported that the number of vessels operating in the Chukchi and Beaufort seas increased 128 percent from 2008 to 2018. The vessels were used for research, natural resource exploration and extraction, commercial shipping, government/law enforcement/search and rescue, and tourism. Of the 255 vessels that transited through the U.S. Arctic and surrounding region from 2015-2017, over 50 percent were tug, towing, and cargo vessels. We expect that for any given area, additional project-specific vessel transits will be an extremely small and temporary incremental increase to the existing level of vessel traffic.

Unlike other regions of Alaska, there currently is no available assessment of vessel traffic traversing the Gulf of Alaska (GOA) so NMFS is unable to determine how project-specific traffic will contribute to the overall vessel activity in GOA. In 2012, vessel Automated Identification System (AIS) data recorded 5,501 transits through the North Pacific (Aleutian Islands, including transits in both directions), the majority of which were bulkers or carriers (Nuka Research and Planning Group 2015). Many additional fishing vessels that are not in the AIS system ply these same waters. Because we expect that only a few of the projects in any given year will require project-specific barges, and even fewer will require multiple trips, we conclude that even over a period of five years or more, the barge transits will represent an insignificant increase in overall vessel traffic.

Ships in transit travel in a consistent and predictable direction and speed, essentially providing acoustic warning of their arrival long before arriving at a given location. Consequently, we would not expect a startle response from any individual cetacean. Individuals may exhibit deflection from the noise source, engage in low level avoidance behavior, exhibit short-term vigilance behavior, or experience and respond to short-term acoustic masking behavior, but these behaviors are expected to be very short in duration and not likely to result in significant disruption of normal behavioral patterns.

Some cetaceans could receive sound levels in exceedance of the acoustic threshold of 120 dB from the vessels or be disturbed by their visual presence. NMFS has interpreted the term "harass" (as used in the ESA) (Wieting 2016) as: 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." While listed marine mammals will likely be exposed to acoustic stressors from vessel transit, the nature of the exposure will be low-frequency, with much of the acoustic energy emitted by the vessels at frequencies below the best hearing ranges of the marine mammals expected to occur within the action area. In addition, because vessels will be in transit, the duration of the exposure will be very brief (a vessel with a source level of approximately 170 dB at 1 meter travelling at 10 knots will be audible at received levels exceeding 120 dB at a fixed point in space for a maximum duration of about 12 minutes).

Although a few whales may be exposed to short-term vessel noise, the effects are expected to be too small to detect or measure and are not likely to significantly disrupt normal whale behavioral patterns. Based on the low number of transits, a vessel speed of 12 kn or less, the implementation of Mitigation Measures (#81 – #85, #88, and #89), the transitory and short-term exposure, and the expected low level of response, NMFS concludes that any disturbance of cetaceans from

vessel noise will be temporary and have a minor, if any, effect on their behavior and no long term effect on their survival or fitness.

5.2.1.2 Pinnipeds

5.2.1.2.1 Ringed and Bearded Seals

Ringed and bearded seals could overlap with barge transits during the open water season when the barges could be transporting material north to project sites along the Bering, Chukchi, or Beaufort Sea. Typically ringed and bearded seals haul out on ice, not land. Disturbances from vessels may cause seals to leave their haulout and enter the water (Kucey 2005), but they are expected to return to their normal activities when the vessel passes.

Bisson et al. (2013) reported on behavioral observations of seals during vessel-based monitoring of exploratory drilling activities by Shell in the Chukchi Sea during the 2012 open-water season. The majority of seals (42 percent) responded to moving vessels by looking at the vessel, while the second most identified behavior was no observable reaction (38 percent). Other common reactions to both moving and stationary vessels included splashing and changing direction. Richardson et al. (1995) found vessel noise does not seem to strongly affect seals in the water, concluding that seals on haul outs often respond more strongly to the presence of vessels. Greene and Moore (1995) concluded that the effects of vessel traffic on seals are generally negligible to non-existent when they are in the water.

Based on our interpretation of the best available information, we expect that vessel noise will likely briefly interrupt a seal's behavior until the vessel moves away from the seal or until the seal moves away from the vessel (or both). While a seal may be exposed to vessel noise in open water or when hauled out on land or ice, the effects of the vessel noise are likely to be temporary and transient. Such an effect is not expected to disrupt seal behavioral patterns for more than a brief period of time and in a minor or immeasurably small manner. In summary, vessel noise is not expected to significantly disrupt normal seal behavioral patterns (breeding, feeding, sheltering, resting, migrating).

5.2.1.2.2 Steller sea lions

Steller sea lions may overlap with project-specific barges in the Bering Sea up to Saint Lawrence Island, around the Aleutian Islands, Kodiak Island, Gulf of Alaska, and southeast Alaska. Steller sea lions communicate under water using clicks, growls, snorts, and bleats (Poulter 1968). Anthropogenic noise, such as noise from vessel traffic, could mask and/or reduce the effectiveness of underwater sea lion communication. NMFS (2008) ranked disturbance by vessel traffic as a minor threat to the recovery of the Steller Sea lion population.

Sea lions in the action area are more likely to respond to vessel noise when a vessel passes a haulout than when a vessel passes a sea lion in the water (NMFS 2019). The effects of vessel presence on sea lions in open water is expected to be temporary and transient in nature as the vessel approaches and passes sea lions.

Although a few Steller sea lions may be exposed to short-term vessel noise, the effects are expected to be too small to detect or measure and are not likely to significantly disrupt normal behavioral patterns. Based on the low number of expected transits, a vessel speed of 12 kn or less (Mitigation Measure #84), the implementation of Mitigation Measures (#86 and #87), the transitory and short-term exposure, and the expected low level of response, NMFS concludes

that any disturbance of Steller sea lions from vessel noise will be temporary and have a minor, if any, effect on their behavior and no long term effect on their survival or fitness.

5.2.2 Pile driving

Both vibratory and impact pile driving are permitted under this programmatic consultation. However, pile size must not exceed 18", a total of 40 piles or less may be driven, H-piles, pipe piles, and the work must be completed in 30 days or less. Treated timber piles are not covered under this programmatic consultation to eliminate issues with preservatives that can contaminate marine environments and down-the-hole pile driving may not be used because this method typically creates greater amounts of in-water sound than vibratory or impact pile driving, resulting in large shutdown zones that are difficult to monitor.

These parameters were selected, in conjunction with the Mitigation Measures, to minimize impacts to listed marine mammals. Based on the best available information, our current proxy level for vibratory driving of pipe and H piles ≤18" in Alaska is 155 dB rms at 10 m. Applying a transmission loss coefficient of 15 yields a shutdown zone of 2,154 m radius. Beyond the shutdown zone, we expect that received sound levels will reach 120 dB_{rms} re 1µPa or less, a level that will avoid harassment of marine mammals. See Attachment 3 for sound source proxy levels for common sound sources in Alaska.

As with vibratory pile driving, the sound source levels for impact pile driving varies by substrate type, water depth, and pile driver energy. Given the same sized pile, the ensonified zone for impact pile driving is less than that for vibratory pile driving because the sound from impact pile driving is intermittent rather than continuous. For ease of implementation of this programmatic consultation, and to be conservative, the Corps decided to keep both the pile size limitations and the shutdown zone the same for vibratory and impact pile driving.

The means by which these actions are avoiding or minimizing effects to listed species and other marine mammals is through the shutdown zone and required use of PSOs or Project Lookouts. When PSOs are deployed, the project will shut down when ESA-listed marine mammals enter or appear likely to enter the project shutdown zone. When Project Lookouts are deployed, no distinction is made between listed and non-listed marine mammal species, and the project shuts down when any species of marine mammal enters or appears likely to enter the project's shutdown zone.

A second consequence of pile driving is the potential that the facilities constructed through this activity will allow for increased vessel traffic. This could occur at a location that currently has no dock, leading to vessel traffic where currently there is none. Alternatively, if a renovated dock is enlarged, it could lead to increased vessel traffic or accommodate larger vessels.

The intent of the AK-SLOPES program is to streamline section 7 consultations for the types of small coastal projects on which the two agencies consult frequently. When it comes to pile driving, most of these projects involve installation, modification, or repair of a small dock (Corps 2023). In these situations, we do not expect the vessel traffic would change in a manner that would pose an increased risk of harassment or harm to marine mammals from vessel traffic because the number and type of vessels is expected to remain similar. Although a new dock

could allow vessels to access an area that currently has none, the majority of new docks are built in areas that are near towns or where other residents already have docks (Corps 2023). Both the Corps analysts and the NMFS biologists are trained to look for indirect and direct effects of projects on listed species. Any new dock project or dock expansion that would lead to a significant increase in vessel traffic, increased commercial use of the dock, or would accommodate larger vessels would not be covered under this programmatic consultation, and would have to undergo regular ESA section 7 consultation.

5.2.2.1 Cetaceans

Project locations could be anywhere along the coastline of Alaska, except for specifically excluded areas in Cook Inlet or within 0.9 km of Steller sea lion critical habitat. Because all of the authorized projects will occur at the water's edge, we would expect no effect from construction activities on blue whale, sperm whale, North Pacific right whale, or sei whale because they inhabit deep water offshore, beyond the 2,154 m area that would be ensonified over 120 dB_{rms} re 1µPa by pile driving. We do not expect that these whales would overlap with noise created by the pile driving.

Bowhead whales may travel near shore on their northward migration in early spring in leads through the ice. However this movement occurs before we would expect any projects to be underway (e.g. https://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.bowhead). During the fall migration bowhead whales travel closer to shore than during the spring migration in water ranging from 15 to 200 m depth (Miller et al. 2002, Clarke et al. 2012). The location of individuals during the fall migration trajectory varies annually (Moore and Reeves 1993, Treacy, Gleason and Cowles 2006, Clarke et al. 2020, Brower, Willoughby and Ferguson 2022). Treacy, Gleason and Cowles (2006) found that the main migration corridor for bowhead whales during the fall migration was 73.4 km offshore in years of heavy ice conditions, 49.3 km offshore during moderate ice conditions, and 31.2 km offshore during light ice conditions. From 1989 to 2020, the Aerial Surveys of Arctic Marine Mammals recorded bowheads at 2 km or closer to shore on 4 occasions (Brower, Willoughby and Ferguson 2022). Over the same 30 year time frame the mean and median distances to the normalized shoreline were 18.4 km and 16.1 km, respectively (Brower, Willoughby and Ferguson 2022). These data indicate that under the right set of circumstances (concentrated prey) individual bowheads could occur close to the shutdown zone of a project in some years, primarily in the vicinity of Utqaiġvik. However, given the rare occurrence of bowheads in close proximity to the shore, their large size (easily spotted), and the protective shutdown zone, we conclude that it is extremely unlikely that a bowhead would be exposed to noise from pile driving.

Western North Pacific DPS gray whales feed in coastal areas, but as described in section 4.4, the only time they would be close to a coastal area in Alaska is when they are migrating from the western Bering Sea, likely through the Aleutian Islands, on their way to feeding areas in the Eastern North Pacific Ocean or winter breeding areas in Mexico. The timing of the migration is unknown. Based on the small number of migrating animals, the limited amount of time they might be present around the Aleutian Islands while migrating, and the limited number of small projects we expect to be proposed in the Aleutian Islands, we conclude that it is extremely unlikely that individuals from the Western North Pacific DPS of gray whales would be exposed to effects from small construction projects considered in this programmatic consultation.

Within Cook Inlet, only projects located at least 10 nm away from beluga whale critical habitat may be covered by this programmatic consultation. This restriction limits programmatic coverage to those coastal projects along the eastern shore of lower Cook Inlet. As described in section 4.10, the range of the belugas appears to have contracted and they are currently observed most often in Upper Cook Inlet. The area around the East Forelands between Nikiski, Kenai, and Kalgin Island appears to provide important habitat in winter, early spring, and fall which potentially puts individuals closer to project sites. However, as projects would likely not commence in early spring or winter, the only likely period of overlap between coastal development and beluga presence in lower Cook Inlet would be in the fall. Cook Inlet beluga whales travel very close to the shoreline at times, potentially putting them in close proximity to project effects. However, because of the very low likelihood of spatio-temporal overlap and because of the protective shutdown zone for pile driving, it is highly unlikely that an individual would be exposed to the noise of pile driving at levels that would cause a measureable response. Therefore, we conclude that the adverse effects from pile driving noise on Cook Inlet beluga whales are extremely unlikely to occur.

Humpback whales are the whales most frequently observed in coastal areas, especially in the summer. Far less numerous but sometimes present in coastal areas are fin whales. Consequently, these are the two whale species most likely to overlap in time and space with the acoustic effects of pile driving. Because they are large whales and their blows are easily observed, we expect they will be detected by a PSO or Project Lookout at a distance greater than the 2,154 m shutdown zone, ensuring that activities are shut down before a whale could enter the ensonified area. It is highly unlikely that Mexico DPS humpback whales, Western North Pacific DPS humpback whales, or fin whales will be exposed to project-related noise ≥120 dB_{rms} re 1µPa created by vibratory pile driving or ≥160 dB_{rms} re 1µPa from impact pile driving. If a whale were to closely approach the shutdown zone, pile driving would be stopped before the whale was exposed to sounds capable of harassing it.

Noise generated from impact hammers can reduce the fitness and survival of marine mammal prey. Because very intense received sounds are needed to produce barotrauma in fish, it is likely that only fish very close to impact pile driving (< 10 m) would risk serious injury (Popper et al. 2014b). For injury to occur the fish must be extremely close to the sound source, they must have repeated exposure, and the sound source must be loud (SEL of 187 dB re 1 μPa^2) (Popper et al. 2014b). It is highly likely that any fish near pile driving will leave the immediate area once the pile driving begins. In terms of population level effects, the number of fish likely to die from barotrauma is an infinitesimally tiny portion of the overall population, even on a local scale. Given the small and constrained area of the project site, and the fact that any physical changes to this habitat would not measurably reduce the localized availability of fish (Fay and Popper 2012), it is unlikely that fish which are prey for humpback whales or Cook Inlet Belugas would be measurably affected by impact pile driving. Vibratory pile driving is not expected to have any effect on fish or other marine mammal prey.

We conclude that adverse effects to cetaceans from noise produced by pile driving are highly unlikely. We expect no spatial overlap between blue whale, sperm whale, North Pacific right whale, or sei whale ranges and noise from pile driving in Alaska. In addition, we expect no temporal overlap between Western North Pacific gray whale range and noise from pile driving in Alaska. We expect the Mitigation Measures will minimize or eliminate the likelihood of

exposure of cetaceans to sounds capable of causing harassment or harm. Because pile driving would immediately cease, exposure to construction sound would be brief and not result in a measureable effect that affects survival or fitness. Therefore, we conclude that the adverse effects from pile driving noise on bowhead whales, Cook Inlet beluga whales, Mexico DPS humpback whales, Western North Pacific DPS humpback whales, and fin whales will be insignificant.

5.2.2.2 Pinnipeds

5.2.2.2.1 Ringed and bearded seals

Because ringed and bearded seals are both closely associated with sea ice, we don't expect either species to be in the immediate area of construction projects, as we expect projects will happen in summer when the ice has moved away from land. Ringed seals are not known to haul out on land and bearded seals do so very infrequently. These life history traits, in combination with the 2,154 m shutdown zone combine to make exposure of ringed and bearded seals to harassing levels of pile driving sound highly unlikely. If a seal were to enter the shutdown zone, it's exposure to noise over 120 dB_{rms} re 1µPa would be very brief and would not rise to a level which would affect its overall fitness or survival.

5.2.2.2.2 Steller sea lions

Steller sea lions are widely dispersed in coastal areas and they could be in the vicinity of coastal projects covered by this programmatic consultation. We do not expect that projects covered in this programmatic consultation will expose Steller sea lions to sound pressure levels that reach Level B acoustic thresholds because: 1) the project design criteria require monitoring and Mitigation Measures that include shutdown zones which minimize the risk of exposure of Steller sea lions to project sound, and 2) because we are consulting on small routine projects, we expect the project duration will be short thereby reducing the likelihood of exposure to listed species. We do not expect that Steller sea lions will be exposed to project-related noise, and if exposure were to occur, Mitigation Measures will make exposure to sound levels in excess of 120 dB_{rms} re 1µPa extremely unlikely.

Noise generated from impact hammers can reduce the fitness and survival of fish used by foraging marine mammals. Because very intense received sounds are needed to produce barotrauma in fish, it is likely that only fish very close (< 10m) to the impact pile driving face a risk of serious injury ((Popper et al. 2014a). For injury to occur the fish must be extremely close to the sound source, they must have repeated exposure, and the sound source must be loud (SEL of 187 dB re 1 μPa^2, (SELcum of 207 dB re 1 μPa^2)) (Popper et al. 2014a). It is highly likely that any fish near pile driving will leave the immediate area once the pile driving begins when they are startled by the activity and noise. In terms of population level effects, the number of animals likely to die from barotrauma is an infinitesimally tiny portion of the overall population, even on a local scale. Given the small and constrained area of the project site, and the fact that any physical changes to this habitat would not measurably reduce the localized availability of fish (Fay and Popper 2012), it is unlikely that Steller sea lions will be affected by a change in prey. We consider potential impacts to prey resources to be insignificant.

For these reasons we conclude that it is unlikely that Steller sea lions will be exposed to the acoustic effects of pile driving. If a Steller sea lion, or its prey, were exposed to noise from pile

driving the exposure would be brief and would not have a measureable effect on the individual's fitness or survival.

5.2.3 Dredging/Screeding

Noise created by dredging and screeding operations is dependent on factors such as dredge type, substrate type, bathymetry, geomorphology of the waterway, site-specific hydrodynamic conditions, equipment maintenance status, and skill of the dredge operator (McQueen, Suedel and Wilkens 2019). Sound received by listed species will depend on these factors as well as the transmission loss through the water and distance from the source. Because dredging noise is broadband, with most energy below 1 kHz (Robinson et al. 2011, Reine, Clarke and Dickerson 2014, Reine and Dickerson 2014, McQueen, Suedel and Wilkens 2019) it is not likely to cause damage to the auditory systems of marine mammals (Todd et al. 2015, Suedel et al. 2019).

Screeding is accomplished by using a vessel to drag a metal plate across the substrate with the intent of leveling out the seafloor. This is usually done near the face of a dock or along the shore where a barge needs to anchor or beach temporarily. Unevenness in the seabed can damage the bottom of the barge. The amount of material disturbed is generally small and localized; no sediments are removed and no new fill material is added. An excavator may be used to assist where required.

As discussed above for pile driving, it is highly unlikely that blue whale, sperm whale, Western North Pacific DPS gray whales, North Pacific right whale, or sei whale would be affected by dredging and screeding noise because they inhabit deep water offshore. Consequently, we expect no acoustic disturbance to this group of whales from dredging and screeding activities. The whales with potential to overlap with dredging and screeding effects are the bowhead, fin, Mexico and Western North Pacific DPSs of humpback whales and the Cook Inlet beluga whale.

Based on available studies we have concluded that, beyond 300 m, dredging and screeding noise will not exceed 120 dB_{rms} re 1µPa (Dickerson, Reine and Clarke 2001, Greene, Blackwell and McLennan 2008). This threshold distance is based upon the most commonly used dredging and screeding equipment used in Alaska, and upon our interpretation of the acoustic data available on this topic. In general, sound pressure levels from dredging activities are similar to levels reported for underwater sound associated with commercial shipping, with most energy below 1 kHz and not likely to cause damage to auditory systems (Todd et al. 2015, McQueen, Suedel and Wilkens 2019, Suedel et al. 2019). In Alaska, clam shell dredges and backhoe dredges are used most often for coastal dredging projects. The sound created by these dredges is non-continuous (Reine, Clarke and Dickerson 2014). Consequently, the sound level to 160 dB is used to calculate the shutdown zone. If the highest measured sound pressure level created by these dredgers (179 dB re 1 µPA@1m) is used to calculate the shutdown zone using the practical spreading model (15 logR), a distance of 215 m is obtained. Because the size, power, and mechanical condition of the dredgers that may be used under this consultation are unknown and the specific site characteristics are also unknown, we conservatively adopt a shutdown zone of 300 m for all dredging, screeding, and underwater excavation activities. With this size shutdown zone, we are confident that acoustic disturbance to listed marine mammals will be insignificant.

Cutterhead and trailing suction dredges are infrequently used in Alaska. They produce continuous sounds and potentially create a larger ensonified (and shutdown) area. However, the most important variable for these dredges is the material being sucked up. Soft silt and mud create much less noise than larger (e.g. gravel) particles. For suction dredges in soft substrates, source levels are typically less than 157 dB re 1 µPA@1m (e.g. (Reine and Dickerson 2014). Using the practical spreading model, a distance of 293 m is the calculated shutdown zone for this sound source level.

We expect that mobile species will avoid areas of behavioral sound disturbances during the limited time the work is occurring and will return once it is complete. We also considered if the sound generated would affect important biological functions including feeding, sheltering, and reproduction and determined that the 300 m shutdown zone would avoid adverse effects to these functions. We believe that the behavioral effects will be insignificant and will not alter any important biological functions because listed marine mammals are mobile and can move away from these sound sources and continue to use similar habitat in surrounding areas.

5.3 Habitat Alteration Including Suspended Sediment Exposure

Suspended sediment/turbidity may be created by pile driving, dredging, screeding, or by bank stabilization projects. Because sunflower sea stars live on the substrate, one dredging/screeding project could potentially affect a large number of individuals. Consequently, this programmatic consultation covers dredging and screeding projects only from Bristol Bay north, along the western and northern coasts of Alaska, outside the known range of the sunflower sea star.

5.3.1 Pile driving

The installation of piles will disturb bottom sediments and may cause a temporary increase in suspended sediment in an area. Using available information collected from a project in the Hudson River, we expect pile driving activities to produce total suspended sediment concentrations of approximately 5.0 to 10.0 mg/L above background levels within approximately 300 feet (91 meters) of the pile being driven (FHWA 2012). Pile removal is also expected to cause a temporary increase in turbidity. The resulting sediment plume is expected to settle out of the water column in a few hours or less. Studies of the effects of turbid water on fish suggest that concentrations of suspended sediment can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). The total suspended solid levels expected for pile driving or removal (5.0 to 10.0 mg/L) are well below those shown to have adverse effect on benthic communities (390.0 mg/L (USEPA 1986) and fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in (Burton 1993) . Invertebrates (including the sunflower sea star) and fish species living close to the shore are adapted to harsh conditions created by waves, tidal fluctuations, freshwater input, ice scour and storm surge (Dunton et al. 2005, Dunton, Schonberg and Cooper 2012, Konar et al. 2019). Due to the location (nearshore) and small spatial and temporal scale of substrate disturbance and increased turbidity, we conclude that any habitat alteration due to pile driving is not likely to measurably impact any of the species we are considering in this consultation.

5.3.2 Dredging/Screeding

Dredging and screeding are used primarily to create or maintain shipping channels, to remove sediment from the face of docks, or to create landing areas for barges. For this reason it is most likely to affect species that inhabit the nearshore waters. We do not expect any of the whale species to be affected by dredging or screeding because we do not expect any aspect of the habitat alteration to extend into the deeper waters that they inhabit. Steller sea lions, and ringed and bearded seals could potentially be affected by dredging and screeding effects if their prey is affected by habitat alteration (discussed in section 5.9, Effects to Critical Habitat). However, as discussed here, negative effects to the animals themselves are unlikely. Because dredging and screeding projects covered by this programmatic are only allowed from Bristol Bay north, and along the western and northern coasts of Alaska, we do not consider effects to the sunflower sea star because none would be found where dredging/screeding is allowed under this programmatic consultation.

Substrate disturbance associated with dredging/screeding can result in the temporary suspension of sediments in the water column. The grain size of the material being dredged will determine the length of time it is in suspension. Clay particles can remain suspended for a long time while sand grains and larger particles drop out of suspension in less than a few minutes. Potential effects of suspended solids on organisms are best measured by the product of sediment concentration and duration of exposure (Newcombe and MacDonald 1991) and we expect that because of tidal action and currents, detectable elevated concentrations of suspended solids would be present for a matter of hours, not weeks. The area affected by turbidity will depend on the strength of currents and tidal action at the site. Most sediment plumes are 500 m or less in length (Clarke, Engler and Wilber 2000, Todd et al. 2015). Ringed seals, bearded seals, and Steller sea lions live in a harsh environment with variable conditions including episodes of elevated suspended solids. They are agile, strong swimmers. We expect that they are fully capable of avoiding small areas of elevated suspended sediment at low energetic cost as abundant undisturbed habitat would be available to them within meters of the disturbed area.

Given the small size of the dredging projects (≤ 10 acres), the low number of expected projects (based on a review of projects over the last 5 years (Table 1) (Corps 2023)), and the ability of mobile organisms like seals and sea lions to avoid suspended sediment, we conclude that the turbidity created by dredging and screeding will have an insignificant effect on ringed seals, bearded seals, or Steller sea lions.

We do not expect that any of the listed species considered in this programmatic consultation will be disturbed or injured by direct exposure to dredging equipment because of the 300 m shutdown zone around the dredging operation. In addition, we conclude that the effects due to the temporary suspension of sediments associated with this project will have no measurable effect on Steller sea lions, ringed, and bearded seals that may be in the vicinity of the project as they could easily avoid the turbid water. The effects of dredging on the prey of Steller sea lions, ringed, and bearded seals is discussed in the Effects to Critical Habitat section (5.9).

5.3.3 Fill

Fill operations are not expected to affect the quality or quantity of habitat for any of the species of whales considered in this consultation. The primary reason for this conclusion is that fill occurs either on shore or right at the shoreline, and any effects from fill would be very localized and would not extend to areas occupied by whales. Likewise, given the small size of the projects, the low number of expected projects (Table 1), and the mobility of bearded seals, ringed seals, and Steller sea lions, we expect that they will easily avoid effects from fill projects. Potential effects to their prey are considered in section 5.9., Effects to Critical Habitat. Because this consultation does not cover fill projects in areas potentially occupied by the sunflower sea star, we do not expect that fill projects covered under this programmatic consultation are likely to adversely affect them due to lack of spatial overlap.

The fill for small projects often comes from the immediate project area as that is most efficient and cost effective. In some cases the fill is identical to what is found in the project area because dredged material from the site is used as fill. In many cases fill is placed behind a restraint such as sheet piles or boulders to protect a road, railway, or boat ramp. Depending on the grain size of the fill (from clay to cobbles) it could either cause temporary localized turbidity if it comes in contact with water or it could result in no increase in turbidity at all if the fill is isolated from the water. Due to the location (on shore or very nearshore) and small spatial scale, we conclude that any habitat alteration due to fill operations is not likely to measurably impact any of the species we are considering in this consultation.

5.4 Vessel Strike

5.4.1 Cetaceans

Between 1978 and 2011, there were 108 reports of whale-vessel collisions in Alaska waters (Neilson et al. 2012). Among larger whales, humpback whales are the most frequent victims of ship strikes in Alaska, accounting for 86 percent of all reported collisions. The minimum mean annual mortality and serious injury rate due to ship strikes reported in Alaska for humpback whales between 2014 and 2018 was 2.6 whales (Muto et al. 2021). Most vessel collisions with humpbacks are reported from Southeast Alaska; however, there are also reports from the southcentral, Kodiak Island, and Prince William Sound areas of Alaska (Young et al. 2020). A few bowhead whales are also struck (George et al. 2017) but because of the remoteness of their habitat, it is difficult to know if or how many bowhead whales may be struck and killed in a year. George et al. (2017) found scars associated with ship strike on approximately 2 percent of harvested bowhead whales. Due to the remoteness and geographical range of bowhead whales, it is likely that others are struck and killed and go unreported or undetected.

The difference in ship strike rates between Southeast Alaska and other portions of the humpback whale range in Alaska may be due to differences in observer effort, reporting, amount of vessel traffic, densities of animals, and/or other factors (Muto et al. 2021). Ship-struck humpbacks represent a very small fraction of the total humpback whale population and currently do not pose a risk to population growth or recovery (Laist et al. 2001, Gende, Hendrix and Schmidt 2018).

Around the world, fin whales are killed and injured in collisions with vessels more frequently than any other whale (Laist et al. 2001, Jensen and Silber 2004, Douglas et al. 2008). Fin whale

mortality due to ship strikes in Alaskan waters was reported to the NMFS Alaska Region marine mammal stranding network in 2014, 2016, and 2018 (Young et al. 2020), resulting in a minimum mean annual mortality and serious injury rate of 0.6 fin whales per year due to ship strikes between 2014 and 2018 (Muto et al. 2021). Documented ship strikes of blue, sperm, sei, north pacific right, WNP gray, and bowhead whales are rare in Alaska and we cannot measure or estimate population-level consequences of these events. For example, there is evidence of apparent vessel scarring from ship strikes on a small percentage of bowhead whales taken by subsistence hunters (George et al. 2017), but carcasses from such events are extremely rare and the population continues to grow at rates that are near the estimated maximum biological potential for the species, despite subsistence take of dozens of bowheads per year.

Vessel speed is a principal factor in whether a vessel strike will occur and its effect (Laist et al. 2001, Vanderlaan and Taggart 2007, Halliday and Ferguson 2020). Ship size is also a factor. Although all types and sizes of vessels may hit whales, most lethal and serious injuries to whales are caused by vessels 80 m or longer (Laist et al. 2001). We expect small project-specific barges to be much smaller than 80 m. We expect the slow operational speeds of project vessels (12 knots or less), the implementation of Mitigation Measures (#81 – #85, and #88 – #89), and the low number of transits needed will minimize the risk of collision for listed whales to the point that vessel strike is improbable.

5.4.2 Pinnipeds

5.4.2.1 Ringed and Bearded Seals

We expect that some projects will require project-specific barges to deliver materials to remote sites. Project-associated barges or tugs pulling barges must go 12 knots or less in order to be covered by this programmatic consultation. At this speed we expect that ringed and bearded seals could easily avoid vessel collision.

To date, no bearded or ringed seal carcasses have been found with propeller marks and there is no record of bearded or ringed seal stranding due to vessel strike (Delean et al. 2020). A ship strike of a seal is highly unlikely due to the maneuverability of seals and their general avoidance of ships (NMFS internal data). The probability of a ship striking a seal in the water is very small and thus adverse effects to bearded or ringed seals are extremely unlikely to occur.

5.4.2.2 Steller sea lions

Similar to the ringed and bearded seals, the agility of Steller sea lions is likely to preclude vessel strikes. While risk of ship strike has not been identified as a significant concern for Steller sea lions (Loughlin and York 2000), this species 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). Since 2000, there have been four reported vessel strikes of Steller sea lions within Alaska (NMFS Alaska Regional Office Stranding Database accessed May 2022). However, with speed limit Mitigation Measure (#84), and buffers around rookeries and haulouts (Mitigation Measures #86 and #87) where Steller sea lions are more likely in the water, the chances of a barge hitting a Steller sea lion is greatly reduced. In addition, project-related vessels will make up an extremely small proportion of overall vessel traffic in Alaska. The probability of a project-related vessel striking a Steller sea lion is extremely small and thus adverse effects to this species are extremely unlikely to occur.

5.5 Pipe pile strike

Pipe pile strike is not considered a threat to marine mammals in light of the 2,154 m shutdown zone to protect marine mammals. Pipe pile strike also would not be a consideration for sunflower sea star for projects north of Bristol Bay or the western and northern coasts of Alaska where the sunflower sea star does not occur. However, there would be spatial overlap between the sunflower sea star range and pile driving projects that occur around the Aleutian islands, Kodiak archipelago, Gulf of Alaska, and Southeast Alaska.

Projects that install up to 40 piles are covered by this programmatic consultation. Based on past consultations, however, we expect that the majority of projects will use one to ten piles (Corps 2023). Nonetheless, because 40 piles are authorized, we look at the number of sunflower sea stars that could be affected using 40 pipe piles and current sunflower sea star density numbers. Further, the analysis assumes the use of an 18-inch pipe pile, the largest size pipe pile allowable under this programmatic. A 18-inch (45.7 cm) pipe pile has a foot print of 0.164 m^2. Consequently, if 40 piles were installed, a total area of 6.56 m^2 of substrate would be covered by pipe piles (40 x 0.164 m^2). Assuming a density of 0.04 sea stars/m^2, less than one sea star (0.26) (6.56 m^2 x 0.04 sea stars/m^2) might be impacted for the largest qualifying project (40 piles), 0.0065 sea stars might be struck by a single pile and 0.06 sea stars might be struck for a project using 10 piles. Because sunflower sea stars are typically solitary and do not aggregate, it is unlikely that one pile would strike more than two individuals or arms of two individuals. As noted in section 4.14, sunflower sea star arms may detach when they are injured and the sea star can regenerate lost arms and parts of the central disc (Chia and Walker 1991). Consequently, it is likely that a pile would need to land squarely on a whole individual for it to be killed.

Because sunflower sea stars occur at low densities, the probability of a pile landing on a sunflower sea star are very low. Sea star wasting syndrome has been, and continues to be, the primary stressor threatening the continued existence of the sunflower sea star (Lowry et al. 2022). Pile driving will not contribute to the underlying causes of SSWS. Because of their dispersed distribution, low density, and the very small footprint of the piles considered in this programmatic consultation, we conclude that the probability of a pile striking a sunflower sea star is discountable.

5.6 Visual disturbance

Visual disturbance refers to the reaction marine mammals may have to an approaching vessel. Because vessels move in a predictable, uniform path and advertise their approach with sound, we do not expect any of the whales considered in this programmatic to be startled by an ocean-going vessel. The same would be true of bearded and ringed seals and Steller sea lions in the water. Ringed and bearded seals do not haul out in dense aggregations, and when they haul out it is nearly always on ice floes; thus injury of seals from stampedes is not observed. If project specific vessels are needed, we expect they will be transporting materials in the ice free season.

Bisson et al. (2013) reported on behavioral observations of seals during vessel-based monitoring of exploratory drilling activities by Shell in the Chukchi Sea during the 2012 open-water season.

The majority of seals (42 percent) responded to moving vessels by looking at the vessel, while the second most identified behavior was no observable reaction (38 percent). Other common reactions to both moving and stationary vessels included splashing and changing direction. Richardson et al. (1995) found vessel noise does not seem to strongly affect seals in the water, concluding that seals on haul outs often respond more strongly to the presence of vessels. Greene and Moore (1995) concluded that the effects of vessel traffic on seals are generally negligible to non-existent when they are in the water. Because these studies indicate a small percentage of seals in the water showed a reaction indicative of harassment from vessel presence, we conclude it is highly unlikely that ringed or bearded seals will be visually disturbed.

The species most likely to be affected by visual disturbance is the Steller sea lion. Frequently Steller sea lions are observed hauling out in areas with a high level of vessel traffic and human activity, such as boat marinas and navigation buoys (Jeffries et al. 2000, Fisheries and Oceans Canada 2010). These observations indicate that that Steller sea lions can become habituated to vessels in some high use areas, especially to repeated slow vessel approaches, which result in minimal response. Vessels that approach rookeries and haulouts at slow speed, in a manner that allows sea lions to observe the approach, have less effects than vessels that appear suddenly and approach quickly (NMFS 2008). Occasional disturbance may have long-term effects if the disturbance results in stampedes and injury or crushing of pups. However, we expect project-specific barges will use established navigation routes and there will be no reason for them to approach any haulouts or rookeries and thus stampedes will be avoided. The implementation of Mitigation Measures #86 and #87 will greatly minimize, if not avoid visual disturbance to Steller sea lions that are hauled out.

For the reasons provided, we conclude that effects from visual encounters that may occur to the listed marine mammals considered in this programmatic consultation will be insignificant or highly unlikely to occur.

5.7 Pollution from unauthorized spills

The Alaska Department of Environmental Conservation, the Alaska Department of Transportation (AKDOT), and the U.S. Coast Guard all have regulations regarding training of personnel, equipment required on land and/or on vessels, and procedures to be followed in the event of a small spill. We have not included specific Mitigation Measures regarding spills because the Corps has determined, and we agree, the existing regulations mandated by these agencies provide adequate mitigation to prevent spills to the extent possible, and to contain and clean up the accidents that may occur. Accidental spills or releases of petroleum products may occur from a variety of sources during the construction and/or operations phase of projects including vessel leaks, onboard spills, and spills at shore-based operations. The size and composition of the spill influences the number of individuals that will be exposed to spilled material and the duration and severity of that exposure. Contact through the skin, eyes, or through inhalation and ingestion could result in temporary irritation or long-term endocrine or reproductive impacts, depending on the duration of exposure. The greatest threat to marine mammals is likely from the inhalation of the volatile toxic hydrocarbon fractions of fresh oil, which can damage the respiratory system (Hansen 1985, Neff 1990), cause neurological disorders or liver damage (Geraci and St. Aubin 1990), have anaesthetic effects (Neff 1990), and cause death (Geraci and St. Aubin 1990). However, for small spills we expect rapid dissipation

of toxic fumes into the atmosphere from rapid degradation of fresh refined oil, which limits potential exposure to prolonged inhalation of toxic fumes.

While the potential effects of pollution, particularly oil pollution, can be severe, the vessels associated with this action will be carrying relatively small volumes of refined fuel and other petroleum products such as lubricating oils and solvents. Refined fuel will contain a higher proportion of lower molecular weight toxic aromatic compounds, which pose a greater risk for lung damage if vapors are inhaled, but which also evaporates rapidly. Equipment used on shore, for pile driving, fill, or dredging must abide by their Hazardous Material Control Plan and Spill Prevention, Control and Countermeasure Plan required by the AKDOT. Given the small size of potential spills and the existing regulations to prevent and control them from vessels and from land based equipment, we conclude that small spills are unlikely to reach marine waters. Because small spills of harmful pollutants, if they do occur, would be very localized and would disperse, evaporate, and weather rapidly due to wind and tidal currents, we conclude that small spills of harmful pollutants are extremely unlikely to result in exposure of listed marine mammals to those pollutants.

5.8 Long-term Direct and Indirect Effects

By definition the projects that qualifiy for this programmatic consultation are small in size. Although some projects will be installing a new in-water structure or dock, based on our knowledge of typical projects, many will repair existing docks. For all projects, nearly all of the effects are expected to be short term in nature and are discussed in sections 5.2 through 5.7. For example, the noise associated with pile driving and fill will happen over one to 30 days and will not recur. Any increase in turbidity will likewise subside during or immediately after the projects are finished. As discussed in section 5.3, for dredging, screeding, and fill, the area of habitat disturbance is exceedingly small. Given the harsh environmental conditions of the Alaskan shoreline, habitat alteration that will occur is within the range normally experienced by coastline fish and invertebrate communities. Over time, the project components (i.e. piles, fill) become integrated into the shoreline ecological communtiy. Piles add habitat complexity and provide additional hard substrate for a variety of species to colonize. Likewise, fill that consists of cobble or boulders, adds stable substrate that can be colonized by sessile invertebrates or used for cover by small fish and mobile invertebrates (e.g. species of crab). Consequently, the long term direct effects of the structural changes created by these projects may be insignificant, neutral, or positive.

We do not expect significant long term effects from the construction or repair of docks that qualify under this programmatic consultation. Although large docks may be repaired or replaced, we expect that the vessel use of those docks would remain very similar to current use. Waterfront projects that could use up to the 40 pile limit are often constructed to provide more deck storage space, accomodations, boardwalks, or provide more area for the manuervering of vehicles or cargo. In these situations we would expect no change in vessel use over time. The 18” inch limit on pile size provides a built in limit on the size of vessels that may use docks constructed under this programmatic as docks servicing large vessels typically require pile sizes that are 24” or greater. For these reasons, we do not expect an increase in the number of large vessels, which are louder and potentially more harmful to marine mammals. If a new personal-use dock were constructed in a pristine place, the noise in that area could increase from use by small boats.

However, for the following reason we conclude that the effects of the small vessels will have a minor effect on marine mammals:

- Small vessels are very maneuverable and less likely to strike a whale or pinniped;
- Small vessels are less likely to cause serious injury if they were to strike a whale or pinniped;
- Vessel use would likely be intermittent (not every day, and only an few hours on any given day) and short term (most likely summer months).

The Verification Form (Attachment 1) which must be filled out for each project, asks three specific questions related to potential long term indirect effects of projects:

- Estimated increase in commercial vessel number upon project completion;
- Will the project lead to increased vessel use? and
- Will the project allow larger vessels to dock?

Because this programmatic consultation has a requirement for annual meetings between NMFS and the Corps to evaluate and discuss the continued effectiveness of the AK-SLOPES program criteria and procedures (including compliance with reporting requirements), answers to these questions can be reviewed to determine if long term effects are occurring or are likely to occur. In addition, at the five-year mark, when a program review is required, the cumulative effect of the answers to these questions can be evaluated. If it is determined that long term indirect effects are occurring from increased vessel use or size, new project design criteria may be required.

5.9 Effects to Critical Habitat

5.9.1 Ringed seal and Bearded Seal

Because the PBFs for these two species are very similar and the effects to critical habitat from the coastal projects are similar we consider critical habitat for both species together. The essential features of bearded and ringed seal critical habitat focus on the presence and characteristics of sea ice and prey resources (Sections 4.2.1 and 4.3.1). We do not expect that the coastal construction projects covered by this programmatic consultation will have any effect on the amount or characteristics of sea ice on which the seals depend. We expect that barge transits will happen in the open water season when sea ice has moved away from the coast. Consequently, barge transits are also not expected to have any effect on sea ice characteristics or amount. The project activities that could affect PBF 3 (primary prey to support bearded seals occurring in waters of 200 meters depth or less and containing benthic organisms and fishes found on or near the seafloor; and primary prey to support Arctic ringed seals, defined as small, schooling fishes, in particular, Arctic cod, saffron cod, and rainbow smelt; and small crustaceans, in particular, shrimps and amphipods) are habitat alteration from pile driving, dredging/screeding, and fill.

5.9.1.1 Pile Driving

As discussed in section 5.5, the amount of substrate (prey habitat) that may be lost to pile driving is exceedingly small compared to the amount of habitat available. The largest projects could

install 40, 18-inch piles equaling a loss of 6.56 m^2 of habitat available to invertebrate prey. We expect the majority of projects will be much smaller. Critical habitat does not start at the shoreline but is at the 5 to 20 m isobaths offshore depending on the location. Because pile driving typically occurs at the shoreline, we conclude that the direct effects of pile driving will not overlap with critical habitat for ringed and bearded seals.

Pile driving may also temporarily cause a very localized increase in suspended solids. However, any invertebrate or fish living at the shoreline is adapted to a harsh environment which intermittently has increased turbidity from tidal action or storm surges. We do not expect that the small, temporary increase in turbidity from pile driving will have a significant effect on bearded and ringed seal prey.

5.9.1.2 Dredging/Screeding

Based on information provided to us by the Corps, we expect that the majority of the project proposals for dredging along western and northern coasts of Alaska will occur at sites that currently are dredged annually or biennially and are authorized under multi-year permits. Under this scenario, the habitat has been disturbed on a regular basis over many years. Annual dredging would likely lead to lower invertebrate productivity of long-lived, larger sized prey utilized by bearded seals and ringed seals and therefore would not be an area that they typically utilize. Fish are commonly eaten by ringed seals and the annual dredging that occurs near oil and gas facilities in the Beaufort Sea could reduce habitat diversity and food resources for fish on an extremely local scale. However, it is unlikely that fish density and size (small) adjacent to the shoreline represents important foraging habitat for ringed seals, and the amount of habitat altered, and prey affected by this activity will be a vanishingly small proportion of what is available on a regional basis.

Dredging at a pristine site will cause a greater loss of invertebrates than at a disturbed site. However, new projects represent a small percent of total dredging projects authorized in a year (Corps 2023). Of the dredging/screeding projects which underwent informal consultation in the past six years, and which would fit the terms and conditions of this programmatic consultation, approximately two were new dredging/screeding projects. The remainder of the projects were ongoing, previously
authorized dredging/screeding operations.

Under the terms of this programmatic consultation, the area disturbed by dredging for each project can be up to 10 acres. A distance from shore that is dredged can be reasonably expected to be 150 m, based on past authorized actions. If we assume all projects will dredge the maximum 10 acres (few are this large), that the area of dredging extends out to 150 m and that 5 projects will qualify under this programmatic consultation over the five-year time frame (recent historical average), then a total of 1.8×10^{-3} percent of Alaskan coastline will be disturbed every 5 years by dredging. This estimate includes the following inputs: 47,300 miles of shoreline in Alaska, 1 dredge project per year (a conservative estimate) that is 10 acres in size (a conservative estimate) and that dredges out to 150 m from shore.

Because of our conservative assumptions, the area disturbed by dredging covered under this programmatic consultation will almost certainly be a far smaller proportion than 1.8×10^{-3} percent. Although small patches of coastal habitat may be disturbed by dredging, sometimes multiple times, it is clear that the overwhelming majority of shoreline will be untouched by dredging or screeding.

Because of the disturbance caused by waves, ice scour, prior dredging/screeding, and variable salinities from freshwater river discharge, prey resources are typically sparse near shore (Dunton et al. 2005, Dunton, Schonberg and Cooper 2012). In addition, critical habitat does not start at the shoreline but is at the 5 to 20 m isobaths offshore depending on the location. Because dredging typically occurs at the shoreline, overlap with critical habitat is reduced. In locations where overlap may occur, because projects will be small in size, especially in relationship to designated critical habitat, and located where density of prey is expected to be poor, we conclude that effects to bearded and ringed seal critical habitat (prey resources) from dredging and screeding would be immeasurably small.

We expect that suspended solids and turbidity will be localized in the immediate area of the dredging/screeding activity. Mobile organisms (fish) can avoid unsuitable conditions and will generally only be exposed to higher levels of suspended solids for minutes to hours unless they are attracted to the plume. Many sessile invertebrates (e.g. mussels, clams, oysters) are silt-tolerant organisms, as are many species of shrimp, unless they are exposed to extremely high levels over an extended period of time (one to two weeks) (Clarke, Engler and Wilber 2000).

The dredged material is either taken to an approved upland disposal site or to an authorized in-water disposal site. Any new marine deposition sites would need authorization; this process helps ensure that sensitive habitats will not be impacted. The marine deposition of dredged material could smother and kill benthic organisms but Mitigation Measures #31 and #68 were written to minimize the impacts to the benthos. The Mitigation Measure requires that either there is current to distribute the spoils or that the vessel travels as it is dumping so that the spoils are dispersed across a greater area. Although a small area of productive habitat could be temporarily lost by spoils deposition, the area would be insignificant in comparison to the total area of sea floor, and over time (two to four years) if there were areas where all invertebrates were lost, the area would be recolonized (Harvey, Gauthier and Munro 1998, Bolam and Rees 2003, Fredette and French 2004) and would reach former levels of productivity. For these reasons, although the deposition of dredged material in the marine habitat could lead to localized patches of temporarily reduced benthic productivity, this loss would be an insignificant percent of total benthic productivity and the benthos would recover from this disturbance in a relatively short time. Consequently, in-water dredged material disposal, consistent with practices outlined in the Mitigation Measures, will have an insignificant impact on prey availability for bearded and ringed seals. Critical habitat for bearded and ringed seals covers an immense area (Figure 2 and Figure 4). We do not expect that deposition of ≤50,000 cubic yards of material in a year will significantly reduce the amount of prey available to these species. In summary, we expect that dredging and screeding will have an insignificant effect on prey resources essential to bearded and ringed seal critical habitat.

5.9.1.3 Fill

Critical habitat for bearded and ringed seals does not start at the shoreline but is at the 5 to 20 m isobaths offshore depending on the location effectively eliminating overlap of fill projects with critical habitat. The small amount of area that could potentially be disturbed by fill over a five year period is infinitesimally small compared to the available coastline. Because very few projects are expected to overlap with critical habitat, ringed and bearded seals do not forage in areas likely to be filled, and because there are few desirable prey resources near the shoreline, we conclude that fill will not reduce the quantity or quality of prey available to bearded seals or ringed seals in a measureable or meaningful way in their critical habitat.

5.9.2 North Pacific right whale

As presented in section 4.5, the physical or biological features deemed necessary for the conservation of North Pacific right whales include the presence of specific copepods and euphausiids that act as primary prey items for the species, and physical and oceanographic forcing that promote high productivity and aggregation of large copepod patches. There is no aspect of project construction that we can envision affecting the number, diversity, or health of the zooplankton upon which North Pacific right whales depend or affecting factors that cause the prey to aggregate. We conclude this because these food aggregations are far offshore, the projects are coastal and small, and we foresee no lasting effects from the projects that could affect these PBFs.

Likewise the occasional passage of a barge or a tug pulling a barge on the water's surface is not going to have a significant effect on the number, diversity, or health of the zooplankton. Although some may be temporarily displaced as the vessel moves through the water and a small number could be injured or killed by the propeller, the number effected would be infinitesimally small compared to the number available. In addition, because of the Mitigation Measures, we expect that the areas of critical habitat will be avoided whenever possible. If a pilot choses to transit across critical habitat, it will be at a speed of 5 knots (without a Project Lookout or PSO) or 10 knots (with a Project Lookout or PSO) , creating an immeasurably small disturbance to zooplankton aggregations.

5.9.3 Cook Inlet beluga whale

No coastal projects may occur within 10 nm of Cook Inlet beluga whale critical habitat and we do not expect any effects from the small coastal construction projects covered in this programmatic consultation to extend to this species' critical habitat. However, barges or tugs pulling a barge could travel across or within beluga critical habitat. Five PBFs have been identified for Cook Inlet beluga whale critical habitat (Section 4.10.1). The only PBF that could potentially be affected is number 5 "Waters with in-water noise below levels resulting in the abandonment of critical habitat areas by Cook Inlet beluga whales." In spite of regular ship traffic to and from the Port of Alaska, beluga whales have not abandoned habitat in and around the port. Large cargo ships with much louder sound sources than we expect from project-related barges covered by this consultation have not caused abandonment of that habitat. We expect that the use of either the Port of Alaska or the port in Homer for project-specific barges will be infrequent and will represent an insignificant increase in vessel traffic at these ports. For these

reasons, we conclude that projects covered by this programmatic consultation will have immeasurably small effects upon Cook Inlet beluga whale critical habitat.

5.9.4 Mexico and Western North Pacific DPSs Humpback whale.

For the humpback whales, the primary biological features that were found essential to their critical habitat are an abundance of preferred prey (i.e., euphausiids and small pelagic schooling fishes, such as Pacific sardine and herring). For projects covered by this programmatic consultation, there is no aspect of coastal project construction that we can envision that would affect the number, diversity, or health of the prey that the humpback whales depend on or affect factors that cause the prey to aggregate. We conclude this because these food aggregations are offshore, the projects are coastal and small, and we foresee no effects from the coastal construction projects that could affect their prey.

Likewise the occasional passage of a barge or a tug pulling a barge on the water's surface is not going to have a significant effect on the number, diversity, or health of the small schooling fishes or zooplankton. The eddies or wake of a vessel across the surface of the water may cause temporary mixing or displacement of a relatively small number of the prey but we do not expect that this disturbance would affect the prey distribution or abundance in a meaningful or measurable way.

5.9.5 Steller sea lion

NMFS identified physical and biological features essential for the conservation of Steller sea lions in the final rule to designate critical habitat (58 FR 45269, August 27, 1993) including terrestrial, air, and aquatic habitats (as described at 50 CFR §226.202) that support reproduction, foraging, rest, and refuge. We evaluate the effects to each of these physical or biological features below.

1. Terrestrial zones that extend 3,000 feet (0.9 km) landward from each major haulout and major rookery in Alaska.

   The purpose of this PBF is to prevent disturbance to sea lions from activities occurring on land. We do not know the location of the projects that may qualify for this programmatic consultation. However, any project proposed within 3,000 ft (0.9 km) of any terrestrial zone of Steller sea lion critical habitat would not be covered under this consultation. Any project proposed near a major haulout or rookery would be closely scrutinized and it is likely that it would need to follow the standard consultation process.

2. Air zones that extend 3,000 feet (0.9 km) above the terrestrial zone of each major haulout and major rookery in Alaska.

   We do not expect that aircraft will be needed for any of the small construction projects covered by this programmatic consultation.

3. Aquatic zones that extend 3,000 feet (0.9 km) seaward of each major haulout and major rookery in Alaska that is east of 144º W longitude. We do not know the location of the projects that may qualify for this programmatic consultation. However, any project proposed within or 3,000 feet (0.9 km) seaward of a major haulout or a major rookery

would not be covered in this consultation.

Although it is highly unlikely that project specific barges would need to transit near a haul out or rookery, two Mitigation Measures (#86 and #87) would prevent effects to this PBF.

> 86. Vessels will not approach within 5.5 kilometers (3 nautical miles) of rookery sites listed in 50 CFR § 224.103(d); and
>
> 87. Vessels will not approach within 914 meters (3,000 feet) of any Steller sea lion haulout or rookery.

4. Aquatic zones that extend 20 nm (37 km) seaward of each major haulout and major rookery in Alaska that is west of 144° W longitude.

The primary purpose of this PBF is to protect foraging areas near haulouts and rookeries, especially for females nursing young and juveniles. Reduction in food availability, quantity, and/or quality is considered to be a possible factor in the Steller sea lion population decline. Most of the data on the causes of the Alaska sea lion decline pointed to reduced juvenile survival as a significant factor. There are also indications that decreased juvenile survival is due to a lack of food postweaning and during the winter/spring of the first year.

A project activity could overlap with this PBF when a project-specific barge passes through one of these aquatic zones. Because the passage on the water surface would not affect the fish and benthic invertebrates in the water and substrate below, vessel transit would have no effect on this PBF.

This PBF could also be affected by the dumping of dredged material within the aquatic zone. The marine deposition of spoils could smother and kill benthic organisms but Mitigation Measure # 31and # 68 requires that either there is current to distribute the spoils or that the vessel travels as it dumps so that the spoils are lightly dispersed across a greater area. Although a small area of productive habitat could be temporarily lost by spoils deposition, we expect the area would be insignificant in comparison to the total area of critical habitat and that over time, if there were areas where all invertebrates were lost, the area would be recolonized and would reach former levels of productivity. Because aquatic invertebrates represent only a portion of the Steller sea lion diet, the small spatial scale of invertebrate loss, and the expected recovery of the benthos, we conclude that the infrequent dumping of dredged material within the 20 nm zone will have an insignificant effect on this PBF.

5. Three special aquatic foraging areas: the Shelikof Strait area, the Bogoslof area, and the Seguam Pass area, as specified at 50 CFR § 226.202(c).

Similar to PBF 4, the purpose of this PBF is to protect prey resources for Steller sea lions. The primary means by which a project activity could overlap with this PBF is through the passage of a project-specific barge passing through one of these special aquatic foraging areas. Because the passage on the water surface would in no way affect the fish and benthic invertebrates in the water below, project activities covered in this programmatic consultation would have no effect on this PBF.

As with PBF 4, this PBF could also be affected by the dumping of dredged material within the special foraging area. The marine deposition of spoils could smother and kill benthic organisms but Mitigation Measures #31and #68 require that either there is current to distribute the spoils or that the vessel travels as it dumps so that the spoils are lightly

dispersed across a greater area. Although a small area of productive habitat could be temporarily lost by spoils deposition, we expect the area would be insignificant in comparison to the total area of critical habitat, and that over time, if there were areas where all invertebrates were lost, the area would be recolonized and would reach former levels of productivity (Harvey, Gauthier and Munro 1998, Bolam and Rees 2003). Because aquatic invertebrates represent only a portion of the Steller sea lion diet, the small spatial scale of invertebrate loss, and the expected recovery of the benthos, we conclude that the infrequent dumping of dredging spoils within the special aquatic foraging area will have an insignificant effect on this PBF.

6 Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed actions covered by this programmatic consultation may affect, but are not likely to adversely affect the endangered bowhead whale, endangered fin whale, endangered blue whale, endangered sei whale, endangered North Pacific right whale, endangered Western North Pacific DPS gray whale, endangered sperm whale, endangered Western North Pacific DPS humpback whale, threatened Mexico DPS humpback whale, endangered Cook Inlet beluga whale, threatened Arctic subspecies of ringed seal, threatened Beringia DPS bearded seal, endangered Western DPS Steller sea lion, proposed threatened sunflower sea star, or critical habitat for North Pacific right whale, Western North Pacific DPS humpback whale, Mexico DPS humpback whale, ringed seal, bearded seal, or Steller sea lion.

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). However, if NMFS lists the sunflower sea star under the ESA, that would not trigger reinitiation of this consultation because we have already assessed effects to the species herein.

We encourage the Corps to pursue ESA section 7(a)(1) opportunities that may arise during the implementation of this programmatic consultation. Because projects considered herein are primarily small coastal projects, many could overlap with habitat occupied by the sunflower sea star. Because the coastline of Alaska is so extensive, very few sites have been surveyed for sunflower sea star. We encourage the Corps and their applicants to help us document occupied habitats. This could be accomplished with the submittal of photos taken of sunflower sea stars in addition to site coordinates, site description, date, tidal stage and any ancillary information the photographer found pertinent or interesting (e.g. behavior of sea star, spacing of individuals, size, missing arms, presence of SSWS). The more information we can gather about the presence, health, and abundance of sunflower sea stars in Alaska, the greater opportunity we will have to create meaningful conservation measures.

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Verification Form

The U.S. Army Corps of Engineers (Corps) Alaska District and NOAA's National Marine Fisheries Service (NMFS) Alaska Protected Resources Division have jointly developed the following procedures and project criteria for Corps-authorized projects (2023 AK-SLOPES program). Adoption of these procedures and project criteria will ensure that the proposed projects in coastal Alaska described here are not likely to adversely affect 18 listed entities (species, distinct population segments (DPS), or designated critical habitats) in Alaska. Effects to the sunflower sea star, proposed for listing in 2023, were also considered. These procedures and criteria are part of the basis for Corps' request to NMFS for concurrence with the Corps' "not likely to adversely affect" programmatic determination for the project types described in this document and referred to as the AK-SLOPES program. The Corps may use these procedures and criteria for applicable projects for five years (2023-2028) as described below.

The AK-SLOPES allows two options for marine mammals observers. One option employs a Protected Species Observer (PSO) who can distinguish between listed and non-listed marine mammals, and has ability, authority, and obligation to call for a shut down when a listed marine mammal enters or appears likely to enter the shutdown zone. The other option allows for the use of a Project Lookout who has the authority to call for a shut down for any marine mammal that enters or appears likely to enter the shutdown zone (without necessarily distinguishing between species of marine mammals). PSOs have more training and/or experience than Project Lookouts and are required to record slightly more detailed information about the marine mammal observations they make. The use of PSOs is encouraged, but we recognize that there are situations in which a PSO may not be available or cannot be accommodated in certain remote locations in Alaska. Resumes or qualifying experience must be provided to NMFS for both PSOs and Project Lookouts. See the Mitigation Measures (Section 3.7) in the Letter of Concurrence (LOC) for the AK-SLOPES programmatic consultation for a complete description of PSO and Project Lookout requirements and procedures. NOTE: PSOs will follow Mitigation Measures #5 – #41. Project Lookouts will follow Mitigation Measures #42 – #78 in the LOC.

The USACE shall submit a signed version of this completed form, together with any project plans, maps, supporting analyses, to NOAA's National Marine Fisheries Service (NMFS), Alaska Regional Protected Resources Division (AK PRD) at AKR.section7@noaa.gov with "AK-SLOPES Program: [Project Title or Number]" in the subject line. **Note:** project design contractors and/or consultants may assist in preparing the form, but only Corps staff shall sign off on it on the final page.

Project Activity Type (check all that apply to the entire action):

	Pile installation
	Pile removal
	Dredging/Screeding
	Intertidal Fill
	Project-specific vessel

Project Information

Name of Project			
Corps POA Number			
Corps POC Name			
POC Phone		Email	
Anticipated Project Start Date		Anticipated Project End Date	
Project Latitude			
Project Longitude			
Nearest Town/Village			
Water Body		Cove, Bay, Inlet	
Project Description and Purpose (you may also append a project description to this form)			

ESA Listed species and or critical habitats in the action area (Check all that apply).

☐	Bowhead whale	☐	Fin whale
☐	Blue whale	☐	Sei whale
☐	North Pacific right whale	☐	Western North Pacific DPS gray whale
☐	Sperm whale	☐	Western North Pacific DPS humpback
☐	Mexico DPS humpback whale	☐	Arctic ringed seal
☐	Beringia DPS bearded seal	☐	Western DPS Steller sea lion
☐	Western North Pacific DPS humpback whale critical habitat	☐	Mexico DPS humpback whale critical habitat
☐	North Pacific right whale critical habitat	☐	Arctic ringed seal critical habitat
☐	Beringia DPS bearded seal critical habitat	☐	Steller sea lion critical habitat
☐	Sunflower sea star (proposed)		

* Please consult AK PRD's ESA Section 7 Mapper for ESA-listed species and critical habitat information for your action area at: https://alaskafisheries.noaa.gov/portal/apps/webappviewer/index.html?id=446543503a2e4660b0f5ee55e6407d27

The following stressors are applicable to the action:

☐	Underwater noise
☐	Water quality/turbidity
☐	Habitat alteration
☐	Vessel traffic
☐	Human/vessel presence or visual disturbance
☐	Other (specify)

Protected Species Observers (PSOs) and Project Lookouts

If the project requires marine mammal monitoring (e.g., any project involving pile driving and dredging/screeding) indicate whether a PSO or Project Lookout will be used. If more than one PSO or Project Lookout is needed for full coverage of the shutdown zone, indicate the number of PSOs or Project Lookouts that will be used.

	PSO(s)
	Project Lookout(s)

Project Design Criteria (PDC) Checklist

The Corps shall incorporate all general PDCs and all applicable PDCs in the appropriate project categories. The Corps shall check the corresponding box for each PDC that will be incorporated into the project or indicate if not applicable.

General Project Design Criteria			
Yes	No	N/A	PDC Description
☐	☐	☐	Ensure all operators, employees, and contractors are aware of all Corps environmental commitments, including these PDCs, when working in critical habitat or in areas where ESA-listed species may be present. Refer to Section 3.5 in LOC for activities that are excluded from the AK-SLOPES programmatic.

Pile Driving PDCs			
Yes	No	N/A	PDC Description
			All cylindrical piles will be 18” in diameter or less
			Piles will be steel or untreated wood
			Project will use 40 piles or less
			Project’s in-water work will be completed in 30 days or less
			Project Proponent will implement all mitigation measures for pile driving

Pile Driving Details

Pile material (e.g., steel, untreated wood)	Pile diameter/width	Number of piles	Installation method (e.g. impact hammer, vibe start and then impact hammer to depth, vibe only, helical piles)

Dredging/Screeding PDCs			
Yes	No	N/A	PDC Description
			Project is on western or northern coasts of Alaska, north of Bristol Bay
			Dredged material will be less than 50,000 cubic yards annually
			Dredged area is less than 10 acres
			Spoils will be placed in upland area or Corps-authorized marine area
			Project Proponent will implement all applicable mitigation measures for dredging/screeding

Dredging/Screeding Details

Number of acres to be dredged/screeded	
Width and length of area to be dredged (ft)	
Permit covers what length of time?	
Is annual dredging permitted?	

Intertidal Fill PDCs			
Yes	No	N/A	PDC Description
			Project is on western or northern coasts of Alaska, north of Bristol Bay
			≤ 1 acre below High Tide Line will be filled
			Project Proponent will implement all applicable mitigation measures for intertidal fill

Intertidal Fill Details

Number of acres to be filled	
Width and length of area to be filled (ft)	
Fill material	

Vessel Traffic PDCs			
Yes	No	N/A	PDC Description
			All mitigation measures applicable to vessel transit will be followed

Additional Vessel Details

Project specific vessel needed? (Y or N)	
Vessel departure port	
Vessel destination	
Will project lead to increased vessel use?	
If answer to prior question was "yes", describe increase in commercial/private vessel number upon project completion (i.e. additional ports of call per year, increase in private use in boats/day)	
Will project result in larger vessels being able to dock at this location?	

Corps Verification of Determination (To be filled out by Corps staff only)
By submitting this Verification Form, the Corps indicates that they determined that the proposed activity described above is not likely to adversely affect (NLAA) ESA-listed species or designated critical habitat under NMFS jurisdiction in accordance with the AK-SLOPEs program, and all effects (direct and indirect) are either insignificant (so small they cannot meaningfully be measured, detected, or evaluated) or discountable (extremely unlikely to occur).

☐	In accordance with the 2023 AK-SLOPEs Program, the Corps has determined that the proposed action complies with all applicable PDCs.
☐	In accordance with the 2023 AK-SLOPEs Program, the Corps has determined that the proposed action is not likely to adversely affect listed species.
☐	In accordance with the 2023 AK-SLOPEs Program, we have determined that the action is not likely to adversely affect listed species per the justifications and/or special conditions provided above.

Corps Signature	Date

By providing your determination and signature, you are certifying that to the best of your knowledge the information provided in this form is accurate and based upon the best available scientific information. If a non-federal representative has been designated for the proposed project by the Corps, such representative must complete and sign this form.

AK PRD Concurrence (To be filled out by AK PRD biologist)
After receiving the Verification Form, AK PRD will contact the Corps with any concerns and indicate whether AK PRD concurs with the Corps' determination.

☐	In accordance with the 2023 AK-SLOPEs Program, AK PRD concurs with the Corps' determination that the proposed action complies with all applicable PDCs.
☐	In accordance with the 2023 AK-SLOPEs Program, AK PRD concurs that the proposed action is not likely to adversely affect listed species or critical habitat.
☐	In accordance with the 2023 AK-SLOPEs Program, AK PRD concurs with the Corps' determination that the action is not likely to adversely affect listed species or critical habitat per the justifications and/or special conditions provided above.
☐	AK PRD does not concur with the Corps' determination that the action complies with the applicable PDCs (with or without justifications), and recommends an individual Section 7 consultation to be completed independent from the SLOPEs Program.
AK PRD Biologist Signature	Date:

AK-SLOPES Attachment 2: EXAMPLE Monitoring Data Sheets

Instructions

Electronic version available upon request. In the electronic version, the tabs in the spreadsheet contain printable observation forms as well as tabs that can be used for data entry. There is a daily overview log that covers data collection of monitoring effort, project activities, & environmental conditions. There is also a marine mammal sighting form that covers data collection when marine mammals are observed. These are example forms and therefore can be modified to be project specific. Below outlines each data attribute and the corresponding definition. If additional attributes are added or definitions are alternate, please make sure the make the updates below. It is ideal that all fields be filled out each day on the printable observation forms to help ensure that information isn't forgotten. Use a "dash" if the information is unknown or n/a is the field is not applicable.

Data Attribute	Definition
Project Name	Indicate the name of the project.
Location	Specify the project location or observation station. This is extremely important if there are multiple observation stations.
Observer(s)	Indicate the observer(s) at the station during monitoring effort. If the observer(s) switch in the middle of the day indicate the time of the switch.
	Monitoring Effort
Start and end times	Record start and end times of all monitoring effort in a given day. Breaks in the middle of the day when monitoring does not occur should be recorded. The total time includes only on effort monitoring time. Military time is preferable.
	Project Activities
Start and end times	Record start and end times of all in-water activities. Make sure to record breaks in any in-water activities. Military time is preferable.
Type of Activity	Specify the type of in-water activity and make sure to indicate specifics specifics such as bubble curtain use. Types of activities may include soft-start, impact pile installation (w/ or w/o bubble curtain), vibratory pile installation or removal (w/ or w/o bubble curtain), down the hole drilling, dredging, vessel activity, anchor handling, fill placement, or other sources of in-water disturbance.
	Environmental Conditions (Record every 30 minutes or as conditions change)
Time	Time in which the environmental condition was recorded. Military time is preferable.
Overall monitoring conditions	Indicate on a scale of 1 - 10 ((1) poor, (5) moderate, (10) excellent) the monitoring conditions.
Weather conditions	(S) Sunny, (PC) Partly Cloudy, (OC) Overcast, (L) Light Rain, (R) Steady Rain, (F) Fog, (LS) Light Snow, (SN) Snow
Light conditions	(1) Light, (2) Twilight, (3) Dark
Beaufort sea state	Beaufort Sea State - (0) calm, mirror like; (1) ripples, wave height <1/2 ft; (2) small wavelets (1/2 to 1 ft); (3) large wavelets (up to 2 ft), crests begin to break; (4) small waves (up to 3 ft), fairly frequent white caps; project activities should shutdown if the beaufort sea state is > 4
Visibility	Distance the observer could reliably detect a marine mammal.
Glare	Percent of monitoring area obsecured by glare.
	Daily Total Marine Mammal Count
Species, # of groups, & # of animals	Indicate the species observed that day, the total number of groups seen and the total number of animals observed.
	QA/QC Data

EXAMPLE Monitoring Data Sheets for Informal Consultations

Initial and Date	Each datasheet should be double checked that all the information is included and accurate on a daily basis. The individual that QA/QCs the form should initial/date the form.
	Marine Mammal Sighting
Group Identifier	Each group of marine mammals will be given a unique identifier. This group indentifer is not species specific. This identifier can be used to identify a group, requiring the use of multiple data sighting rows.
Initial and final sighting time	Time the group was initial sighting and the time the group was last observed.
Species	Identify the species observed. If multiple species are observed to be interacting, give each species a different group number but indicate in the notes the interaction with the other species. (BE) beluga whale, (HW) humpback whale, (FW) fin whale, (GW) gray whale, (KW) killer whale, (SW) sperm whale, (BW) bowhead whale, (NW) North Pacific right whale, (HP) harbor porpoise, (SL) Steller sea lion, (RS) ringed seal, (BS) bearded seal, (SS) spotted seal, (HS) harbor seal, (FS) fur seal, (UW) unidentified cetacean, (UP) unidentified pinniped
# of animals (age class)	If possible, indicate the number of adults, juveniles, and calves in the group. If the age class is undeterminable, use the unknown field. The total represents the total number of animals in the group. Cook Inlet beluga whales - adults are typically large write to dull white in color, juveniles are light to medium gray, and calves are dark gray, relatively small (<2/3) the total length of white belugas), almost always swimming within 1 body length of larger whale.
Behavior	(T) traveling - moving in a linear or near-linear direction without interruption (M) milling - moving in a non-linear, weaving or circular pattern within an area (HO) hauled out - hauled out on land (D) diving - moving downward through the water column (rapidly or slowly), often showing tail fluke before dive (V) vocalizing - snorting, whistling, or chirping (BR) breaching - leaps clear out of water (SH) spyhopping - holding body vertically with head out of water for several seconds or more (ST) startled - rapidly changing behavior, dispersing or travelling that indicates a response to external event (**must describe disturbance in the notes**) (F) flush from haulout - enters water in response to disturbance (**must describe disturbance in the notes**) (CH) change direction - sudden change in direction that may be caused by disturbance (**must describe in notes**) (A) avoidance - avoiding an area (**must describe in notes**) (O) unclassified behavior (**must describe in notes**) (U) unknown - behavior indistinguishable due to monitoring conditions and/or lack of ability to watch marine mammal for length of time to determine (no comment is necessary) **(All behavioral changes caused by the project activities or other activities must be described in the notes. Incldue a detailed description of of activities/animals behavior before and after potential project related behavior change)**
Initial Distance	Distance from marine mammal(s) to project activities when animals were first observed.

EXAMPLE Monitoring Data Sheets for Informal Consultations

Closest Distance	Closest distance marine mammals were to project activities.
In-water work occurring at initial sighting time?	Indicate if in-water work was occurring when the marine mammals were initially sighted (i.e. yes or no).
Type of Activity	If in-water work was occurring when marine mammals were observed, indicate the type of activity.
Shutdown or Delay Implemented	Indicate if a shutdown or delay was implemented due to marine mammals being observed.
Animal(s) inside Level B zone prior to shutdown?	Indicate if animals were inside the Level B zone prior to shutdown.
Duration of Shutdown or Delay	If a shutdown or delay occurred due to marine mammal presence, indicate how long the shutdown or delay lasted.
Sighting Notes	Include any additional information, include specifics about marine mammal behavioral changes from project activities.

Date: _____ **Daily Monitoring Effort, Environmental Conditions,**
(DD MMM YY, Example 05 MAY 20) **and Project Activities Log**

(fill it all data fields, use a "dash" if unknown or n/a for not applicable)

Project Name: Location: Observer(s):

Monitoring Effort

(indicate new start and stop times if there are breaks in the day that monitoring is not occurring)

Start Time	End Time	Start Time	End Time	Start Time	End Time	Start Time	End Time	**Total Time**

In-water Activities

Start Time	End Time	Type of Activity	Comments (explain the reason for shutdowns)

Type of Activity - soft-start, impact pile installation (w/ or w/o bubble curtain), vibratory pile installation or removal (w/ or w/o bubble curtain), down the hole drilling, dredging, vessel activity, anchor handling, fill placement, or other sources of in-water disturbance

Environmental Conditions

(Record every 30 minutes or as conditions change)

Time	Overall Conditions	Weather	Light	Beaufort Sea State	Visibility (km)	Glare (%)	Comments (include ice coverage)

Overall Monitoring Condition - Scale 1 - 10; (1) poor, (5) moderate, (10) excellent
Weather Condition - (S) Sunny, (PC) Partly Cloudy, (OC) Overcast, (L) Light Rain, (R) Steady Rain, (F) Fog, (LS) Light Snow, (SN) Snow
Light Condition - (1) Light, (2) Twilight, (3) Dark
Beaufort Sea State - (0) calm, mirror like; (1) ripples, wave height <1/2 ft; (2) small wavelets (1/2 to 1 ft); (3) large wavelets (up to 2 ft), crests begin to break; (4) small waves (up to 3 ft), fairly frequent white caps; project activities should shutdown if the beaufort sea state is > 4
Glare - percent of monitoring area covered by glare

Daily Total Marine Mammal Count

Species	# of Groups	# of Animals	Species	# of Groups	# of Animals	QA/QC Data (Initial/Date)

Date: ___________________

(DD MMM YY, Example 05 MAY 20)

Marine Mammal Sighting Log

(fill it all data fields, use a "dash" if unknown or n/a)

Project Name: | Location: | Observer(s):

Group Id	Initial Sighting Time	Final Sighting Time	Species	# of Animals					Behavior	Initial Distance (m)	Closest Distance (m)	Environmental Conditions			
				Adults	Juveniles	Calves	Unknown	Total				Weather	Sea State	Visibility	Glare (%)

Project Activities during Sighting					Sighting Notes
In-water work occurring at initial sighting time? (y or n)	Type of Activity	Shutdown or Delay Implemented	Animal(s) inside Level B zone prior to shutdown?	Duration of Shutdown or Delay	

Group Id	Initial Sighting Time	Final Sighting Time	Species	# of Animals					Behavior	Initial Distance (m)	Closest Distance (m)	Environmental Conditions			
				Adults	Juveniles	Calves	Unknown	Total				Weather	Sea State	Visibility	Glare (%)

Project Activities during Sighting					Sighting Notes
In-water work occurring at initial sighting time? (y or n)	Type of Activity	Shutdown or Delay Implemented	Animal(s) inside Level B zone prior to shutdown?	Duration of Shutdown or Delay	

Group Id	Initial Sighting Time	Final Sighting Time	Species	# of Animals					Behavior	Initial Distance (m)	Closest Distance (m)	Environmental Conditions			
				Adults	Juveniles	Calves	Unknown	Total				Weather	Sea State	Visibility	Glare (%)

Project Activities during Sighting					Sighting Notes
In-water work occurring at initial sighting time? (y or n)	Type of Activity	Shutdown or Delay Implemented	Animal(s) inside Level B zone prior to shutdown?	Duration of Shutdown or Delay	

Group Id	Initial Sighting Time	Final Sighting Time	Species	# of Animals					Behavior	Initial Distance (m)	Closest Distance (m)	Environmental Conditions			
				Adults	Juveniles	Calves	Unknown	Total				Weather	Sea State	Visibility	Glare (%)

Project Activities during Sighting					Sighting Notes
In-water work occurring at initial sighting time? (y or n)	Type of Activity	Shutdown or Delay Implemented	Animal(s) inside Level B zone prior to shutdown?	Duration of Shutdown or Delay	

Species - (BE) beluga whale, (HW) humpback whale, (FW) fin whale, (GW) gray whale, (KW) killer whale, (SW) sperm whale, (BW) bowhead whale, (NW) North Pacific right whale, (MW) minke, (HP) harbor porpoise, (DP) dall's porpoise, (SL) Steller sea lion, (RS) ringed seal, (BS) bearded seal, (SS) spotted seal, (HS) harbor seal, (FS) fur seal, (UW) unidentified cetacean, (UP) unidentified pinniped (O) other (indicate species in notes)

Behavior - (T) traveling, (M) milling, (HO) hauled out, (D) diving (V) vocalizing, (BR) breaching, (SH) spyhopping, (ST) startled - describe in notes, (F) flush from haulout - describe in notes, (CH) change direction - describe in notes, (A) avoidance - describe in notes, (O) other - unclassified behavior, (U) unknown, **(All behavioral changes caused by the project activities or other activities must be described in detail in the notes. Including activities/animals behavior before/after behavior change**).

QA/QC Data (Date/Initial)

Draw estimated tracklines for each group on hardcopy map, indicate the group number with each line, and the initial sighting location.

AK-SLOPES Attachment 3: PROXY RECOMMENDATIONS FOR ALASKA (11/14/2023)

SEE SEPARATE DTH GUIDANCE FOR DTH PROXY LEVELS

IMPACT

Pile Material	Pile Size (inches)	Peak (dB)	RMS (dB)	SELss (dB)	Reference	Projects included in analysis
AZ steel sheet	24"	205	190	180	Caltrans 2015	Berth 23, Port of Oakland, CA; Napa River, CA
Timber	12"-14"	180	170	160	Caltrans 2020	Ballena Bay, CA; Pier 39 San Francisco, CA; Santa Cruz Wharf, CA; Port of Benicia, CA
Plastic/Polymer/ Composite/ Fiberglass	13"	177	153	NA	Caltrans 2015	SR37 Napa, CA
steel H-pile	12"	200	183	170	Caltrans 2015	San Rafael, CA; Noyo River, CA; Ballena Isle, Alameda, CA; Hazel Bridge, CA; Parson Slough, CA; Petaluma River, CA
Concrete**	<20"	185	170	160	Caltrans 2020	Noyo Harbor, CA; Westside Boat Launch, CA; Pier 2 Concord, CA; Kawaihae Small boat harbor, HI; Berkley Marina, CA; Pier 12 Honolulu, HI
concrete	24 - 30"	188	176	166	Caltrans 2015	Craney Island, VA; Berths 22, 32, 23 Port of Oakland; Humboldt Aquatic Center, CA; Pier 40 San Francisco, CA; Naval Station Norfolk, VA; Choctawhatchee Bay Test Pile Program/Walton County, FL
Steel Pipe	12 - 13"	192	177	167	Caltrans 2015, 2020	Sausalito, CA; Point Isabel, CA; Sand Mound Test Pile, CA; Mad River Slough, CA
Steel Pipe	14 - 18"	200	185	175	Caltrans 2020	Richmond/San Rafael Bridge, CA; Airport Road Bridge, CA; Sand Mound Test Pile, CA
Steel Pipe	20 - 24"	203	190	177	Caltrans 2015	Stockton WWTP, CA; Bradshaw Bridge, CA; Rodeo Dock, CA; Tongue Point Pier, OR; Cleer Creek WWTP, CA; SR 520 Test Pile, WA; Portlant Light Rail, OR; Port of Coeyman, NY; Pritchard Lake, CA; Amorco Wharf, CA; 5th Street Bridge, CA; Schuyler Heim Bridge, CA; Tanana River, AK, NBK EHW2, WA; Crescent City, CA; Avon Wharf, CA; Orwood Bridge Replacement, CA; Tesoro Amorco Wharf, CA; USCG Floating Dock, CA; Norfolk, VA; Plains Terminal, CA
Steel Pipe	30"	210	190	177	Caltrans 2015	Richmond/San Rafael Bridge, CA; Siuslaw River Bridge, OR; SR520 Test Pile, WA; Avon Wharf, CA; Render Replacement, Redwood City, CA
Steel Pipe	36"	210	193	183	Caltrans 2015, 2020	Humbold Bay Bridges, CA; Coliseum Way Bridge, CA; NB Kitsap, EHW2, WA; WETA, Vallejo CA; AVON Wharf, CA; Philadelphia, PA
Steel Pipe	40 - 48"	213	192	179	Caltrans 2020	Alameda Bay, CA; Russian River Geyserville, CA; Terminial Replacment, Antioch, CA; AVON Wharf, CA; Nval Base Kitsap EHW, WA; Philadelphia, PA
Steel Pipe	60 - 72"	210	195	185	Caltrans 2020	Richmond San Rafael Bridge, CA; Fender Replacement Redwood City, CA; Norther Rail Extension, Tanana River, AK; Terminal Replacement, Antioch, CA; AVON Wharf CA
Steel Pipe	>72"	220	205	195	Caltrans 2015	Richmond San Rafael Bridge, CA; Benicia Martinez Bridge, CA; SFOBB 2000 (multiple projects) CA

VIBRATORY

Pile Material	Pile Size (inches)	Peak (dB)	RMS (dB)	SELss (dB)	Reference	Projects included in analysis
Steel pipe	12 - 13"	NA	160	NA	PR1 2023 Calculations[1]	Anacortes, WA (Sexton, 2007)
	18"		155		Denes et al. 2016	Kake, AK
	20 - 24"		163		PR1 2023 Calculations[1]	Naval Base Kitsap Bangor Test Pile (Navy (2012)) and EHW-2 (Navy (2013)), Gustavus (Miner, 2020)
	30"		166			Denes et al. 2016 (Auke Bay, Ketchikan, Kake), Edmonds Ferry Terminal (Laughlin 2011, 2017), Colman Dock - Seattle Ferry Terminal (Laughlin 2012), Kodiak Pier 3 (PND Engineers, 2015)
	36"		166			Naval Base Kitsap Bangor Test Pile (Navy (2012)) and EHW-2 (Navy (2013)), Anacortes (Sexton, 2007), Edmonds Ferry Terminal (Laughlin 2011, 2017), Gustavus (Miner, 2020)
	42"	182	170			Skagway, AK (White Pass /Yukon) (Illingworth and Rodkin, 2019)
	48"	NA	171			Naval Base Kitsap Bangor Test Pile (Navy (2012)) and EHW-2 (Navy (2013))
Timber	12 - 16"	NA	162	NA	Caltrans 2020	Norfolk Naval Station, VA; Seattle, WA
Plastic/ Polymer/ Composite/ Fiberglass	**No data available - recommend using timber or concrete as proxy values**					
Concrete*	20"	NA	163	NA	NAVFAC SW 2022	Pier 6, San Diego, CA
AZ steel sheet (typical)	24"	175	160	NA	Caltrans 2015	Berth 23, 30, 35/37 Port of Oakland, CA; Tanana River, AK; Norfolk Naval Station, VA; Mayport, FL
steel H-pile	12 - 16"	165	150	NA	Caltrans 2015	San Rafael, CA; Norfolk Naval Station, VA; Cheveron Long Wharf, CA; JEB Little Creek, Norfolk, VA

1 - Methodology followed Navy (2015) and included available data from Puget Sound, WA and Southern Alaska

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