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

March 2, 2023

Kevin Pendergast
Deputy State Director
Bureau of Land Management, Alaska
222 West 7th, Avenue, #13
Anchorage, Alaska 9951-7504

Re: Willow Master Development Plan Letter of Concurrence, NMFS AKRO-2022-03505

Dear Mr. Pendergast:

The National Marine Fisheries Service (NMFS) has completed informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) regarding the proposed Willow project, including barge transport and delivery of construction materials to Oliktok Dock, screeding, and nearshore barge transport (lightering), included in the development on federal oil and gas leases located in in the northeastern area of the National Petroleum Reserve in Alaska (NPR-A) (Fig. 1 & 2). The Bureau of Land Management (BLM) requested written concurrence that the proposed action may affect, but is not likely to adversely affect: the bowhead whale (*Balaena mysticetus*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), North Pacific right whale (*Eubalaena japonica*), Western North Pacific DPS gray whale (*Eschrichtius robustus*), Western North Pacific distinct population segment (DPS) or Mexico DPS humpback whale (*Megaptera novaeangliae*), sperm whale (*Physeter macrocephalus*), Arctic subspecies ringed seal (*Phoca hispida hispida*), Beringia DPS bearded seal (*Erignathus barbatus*), or the Western DPS Steller sea lion (*Eumetopias jubatus*). They additionally requested concurrence that the project would not destroy or adversely modify critical habitat for the North Pacific right whale, Western North Pacific or Mexico DPS humpback whale, Arctic subspecies ringed seal, Beringia DPS bearded seal, or Steller sea lion. Based on our analysis of the information you provided to us, and additional literature cited below, NMFS concurs with your determination.

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 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for a 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.

This letter underwent pre-dissemination review in compliance with applicable Data Quality Act guidelines. A complete administrative record of this consultation is on file in this office.

Consultation History

NMFS received your request for consultation on December 16, 2022. Since issuance of the 2020 LOC, critical habitat has been designated for the Western North Pacific and Mexico DPS humpback whale, Arctic subspecies ringed seal, and Beringia DPS bearded seal, which needed to be accounted for in BLM's effects analysis for the project. NMFS and BLM met on December 27, 2022 to discuss updates to the project since the initial LOC was issued in 2020, as well as consultation timelines. NMFS provided BLM with a list of standard mitigation measures that NMFS suggests for all action agencies. NMFS met with BLM and ConocoPhilips Alaska, Inc. (CPAI) on January 9 and 18, 2023 to discuss the mitigation measures. On January 19, 2023, NMFS emailed BLM with responses to questions posed during the previous meetings, and BLM provided NMFS with additional information regarding the proposed mitigation measures on January 25, 2023. NMFS provided comments regarding the mitigation measures to BLM on January 27, 2023, and BLM indicated they would adopt these measures on January 30, 2023. NMFS initiated consultation on January 30, 2023.

Description of the Proposed Action

BLM is proposing to develop federal oil and gas leases in NPR-A. The majority of the proposed work will take place inland on leased federal lands (e.g., infrastructure development including roads, pipeline tie-ins, and a gravel mine site) and will not directly affect ESA-listed marine mammals or their critical habitat. The proposed project activities that have the potential to affect ESA-listed marine mammals and critical habitat are described below. The starting timeline of the described activities is contingent upon timing of the record of decision by BLM, issuance of permits by USACE, and work conditions on the North Slope, with the potential for work to commence in winter 2023-2024.

Barge Delivery to Oliktok Dock

Sealift barges will be used for delivery of construction materials from Dutch Harbor to Oliktok Dock for four open-water seasons (between June 15 and October 15 in project years 2-4, and 6). Barges and associated tug boats will travel along regularly used routes through the Bering, Chukchi, and Beaufort seas (Fig. 1). Barges will arrive at a lightering station 3.3 km (1.8 nmi) from Oliktok Dock and materials will then be transported by support vessels from the lightering station to the dock (Fig. 2). The expected amount of barge and support vessel traffic is outlined in Table 1.

Table 1: Barge and Support Vessel Traffic

Marine Transport Type	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Sealift Barges[a] Dutch Harbor to Oliktok Dock	0	0	8	0	1	**9**
Other Barges[b] Dutch Harbor to Oliktok Dock	6	8	5	0	2	**21**
Tugs[c] Dutch Harbor to Oliktok Dock	9	12	20	0	9	**50**
Support Vessels [c] Lightering Area to Oliktok Dock	66	88	106	0	25	**258**
Total Vessels	**81**	**108**	**139**	**0**	**37**	**365**

[a]Includes large-module sealift barges only
[b]Includes barges for small modules and bulk materials (i.e., material small enough that is can be transported to the Willow area via the Alpine annual resupply ice road)
[c]Includes crew boats, tugs supporting sealift barges, screeding barge, and other support vessels

Screeding

To accommodate construction material delivery, barges will be grounded during lightering. This activity requires annual screeding around both the lightering station and Oliktok Dock. The screeding process, which uses a barge manipulated by two tug boats, will redistribute the seabed materials to provide a flat and even surface on which the barges can be grounded. An excavator may be used as needed to groom significant depressions or humps in the seabed. A total of ~0.05 km^2 (12.1 acres) of screeding will be completed, ~0.04 km^2 (9.6 acres) at the lightering station and ~0.01 km^2 (2.5 acres) at Oliktok Dock, in the summers of Years 2-4, and 6, shortly before barges begin to arrive.

Improvements to Oliktok Dock

Improvements will be made to Oliktok Dock to help accommodate the large barges that will be used for delivering project materials. The dock will be raised six feet and a gravel ramp added. The modifications will not expand the current footprint of the dock and all construction will be on land, minimizing any effects of underwater noise or other impacts on ESA-listed marine mammals.

Pipeline Crossing of the Colville River

Seawater and diesel pipelines will be installed in the winter of Year 4, roughly 19 km (12 mi) upstream from the mouth of the Colville River and 121 m downstream from an existing horizontal directional drilling (HDD) crossing for the Alpine Sales Pipeline (Fig. 2). A third, smaller pipeline will contain anodes for cathodic protection to reduce potential corrosion of the other two pipelines.

The pipelines will be constructed using HDD and will be 18 m (60 ft) apart. Boreholes for each pipeline will extend ~1370 m (4,490 ft) between two new gravel pads that will be built 91 m

(~300 ft) from the riverbank on each side of the river. The boreholes will reach a depth of ~21 m (70 ft) below the river channel bottom at the center of the crossing. When installed, pipelines will be insulated in an outer casing that will prevent heat from being transferred to surrounding permafrost and will help to contain any spills or leaks that may occur.

Spill Prevention and Response

Spill prevention and response measures will be in place in the event that a project-related spill occurs. These measures will be outlined in a Project Oil Discharge Prevention and Contingency Plan (ODPCP) and a Spill Prevention Control and Countermeasures (SPCC) Plan, consistent with NPR-A ROP A-3 (BLM 2022b). Specifically for the Colville River pipeline crossing, pre-staged response equipment will be located across the action area to be rapidly deployed if needed. Necessary equipment will be stored in close proximity to the pipeline site for easy accessibility if a spill were to occur. Project employees will receive training on preventing spills and participate in spill response drills in coordination with federal, state, and local agencies. The pipeline will be inspected regularly through visual and forward-looking infrared equipment to ensure equipment integrity.

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 measurable effects from the project are expected to occur.

NMFS defines the action area for this project as the area within which project-related noise levels are ≥120 dB_{rms} re 1µPa or approaching ambient noise levels (i.e., the point where project-related sound attenuates to levels below non-anthropogenic sound).[1] Received sound levels associated with barge and support vessel traffic are anticipated to decline to 120 dB_{rms} re 1µPa within 2154 m (1.3 mi) of the source. This includes the area within 2.4 km (1.5 mi) on both sides of the barge delivery route (total width of 4.8 km (3 mi); Fig. 1) and 2.4 km (1.5 mi) along the lightering route for support vessels and barges to and from Oliktok Dock (BLM 2022a); Fig. 2). Received sound levels associated with screeding are anticipated to decline to 120 dB_{rms} re 1µPa within 300 m (984 ft) of the source. The installation site for seawater and diesel pipelines under the Colville River is also included in the action area (Fig. 2).

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

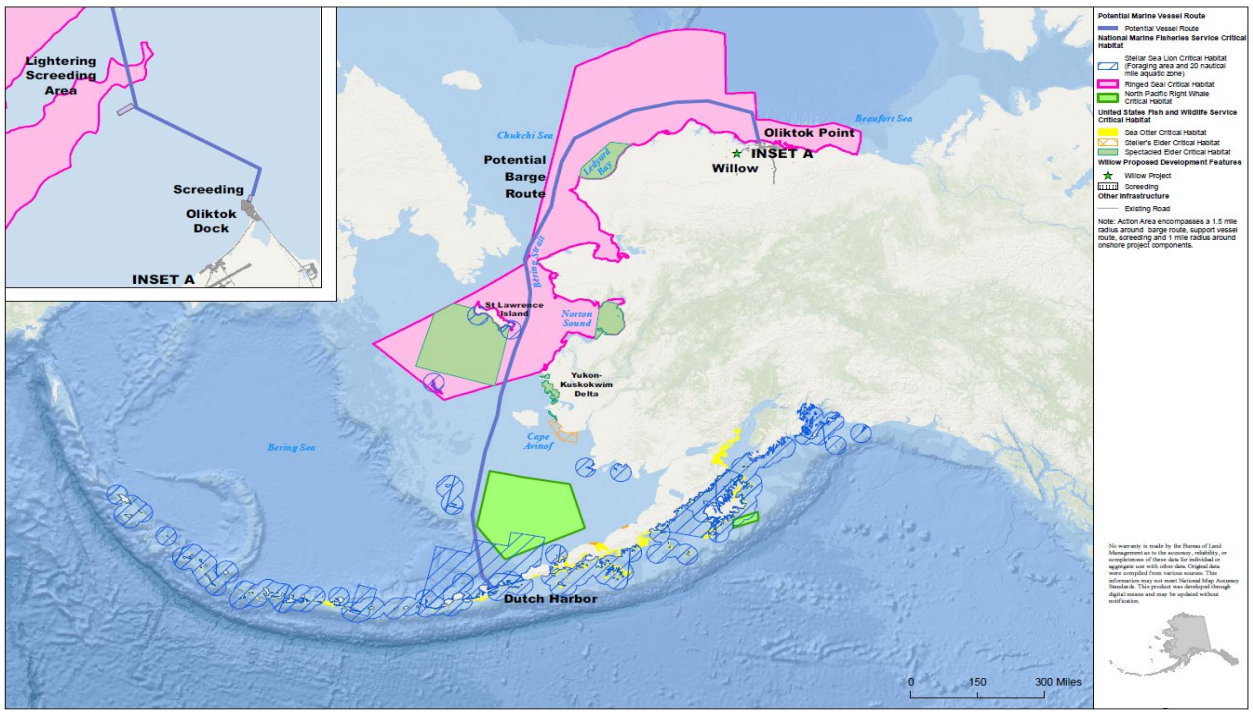

Figure 1. Barge delivery route (blue line) from Dutch Harbor to Oliktok Dock. This portion of the action area includes the area within 2.4 km on each side of the entire route (for a total width of 4.8 km). Also shown is critical habitat for North Pacific right whales (green), ringed seals (pink), and Steller sea lions (blue lines).

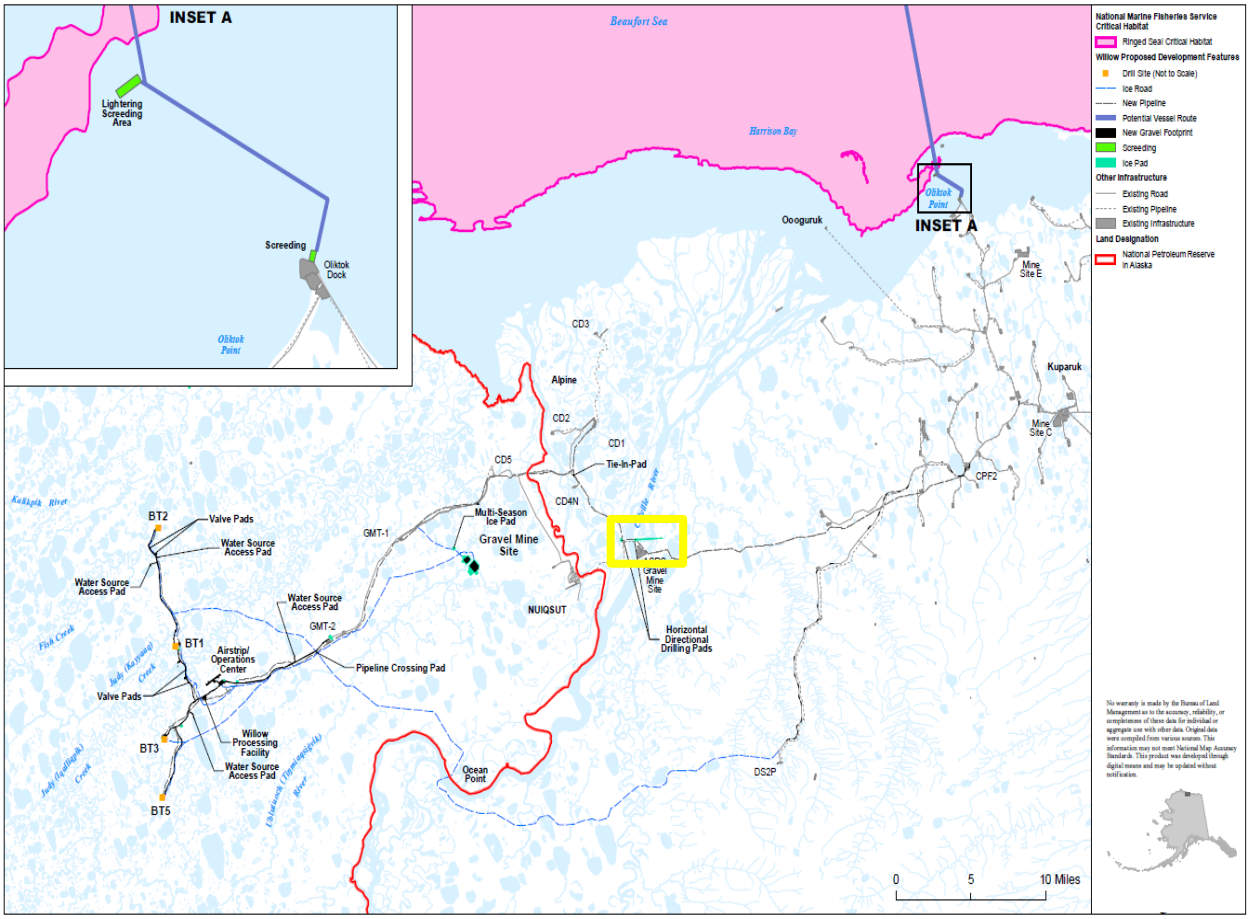

Figure 2. Project action area on the North Slope. The yellow box indicates the horizontal directional drilling (HDD) site along the Colville River.

Mitigation Measures

To help mitigate impacts of the project activities on species and habitats protected by the ESA, CPAI will abide by applicable existing NPR-A lease stipulations (LSs) and required operating procedures (ROPs) described in the NPR-A Integrated Activity Plan (BLM 2022b). BLM, CPAI, and NMFS also developed and agreed upon a set of mitigation measures (described below) that supersedes the measures listed in section 3.3.3. of the Biological Assessment provided to NMFS as part of the ESA section 7 consultation package (BLM 2022a).

For all reporting that results from implementation of these mitigation measures, NMFS will be contacted using the contact information specified in Table 3. In all cases, notification will reference the NMFS consultation tracking number (i.e., AKRO-2022-03505)

The BLM informed NMFS via email on January 30, 2023, that the project will incorporate the following mitigation measures:

General Mitigation Measures

1. The BLM will inform NMFS of impending in-water activities a minimum of one week

prior to the onset of those activities.

2. If construction activities will occur outside of the time window specified in this letter (i.e., outside of June 15 through October 15 of project years), the applicant will notify NMFS of the changed action at least 60 days prior to the end of the specified time window to allow for reinitiation of consultation.
3. Project-associated staff will cut all materials that form closed loops (e.g., plastic packing bands, rubber bands, and all other loops) prior to proper disposal in a closed and secured trash bin. Trash bins will be properly secured with locked or secured lids that cannot blow open, preventing trash from entering into the environment, thus reducing the risk of entanglement in the event that waste enters marine waters.
4. Project-associated staff will properly secure all ropes, nets, and other marine mammal entanglement hazards to ensure they do not blow or wash overboard.

Protected Species Observer (PSO) Measures

5. One or more PSOs will perform PSO duties onsite throughout barge transit, screeding, and lightering.
6. For each in-water activity, PSOs will monitor all marine waters within the indicated shutdown zone radius for that activity (Table 2).

Table 2. Shutdown Zones for Project Activity.

Activity	Zone Radius (m)
Screeding	300 meters

7. PSOs will be positioned such that they will collectively be able to monitor the entirety of the shutdown zone. The action agency will coordinate with NMFS on the placement of PSOs prior to commencing in-water work.
8. Prior to commencing screeding, PSOs will scan waters within the 300 m shutdown zone and confirm no listed species are within the shutdown zone for at least 30 minutes immediately prior to initiation of the in-water activity. If one or more listed species are observed within the shutdown zone, the in-water activity will not begin until the listed species exit the shutdown zone of their own accord, or the shutdown zone has remained clear of listed species for 30 minutes immediately prior to screeding or lightering.
9. This pre-construction activity observation period will take place at the start of each day of in-water activities, each time in-water activities have been shut down or delayed due the presence of a listed species, and following cessation of in-water activities for a period of 30 minutes or longer.
10. The on-duty PSOs will continuously monitor the shutdown zone and adjacent waters during screeding operations for the presence of listed species.
11. In-water activities will take place only:

a. between local sunrise and sunset (but see measure 13);

b. during conditions with a Beaufort Sea State of 4 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).

12. If visibility degrades such that a PSO can no longer ensure that the shutdown zone remains devoid of listed species during screeding, the crew will cease in-water work until the entire shutdown zone is visible and the PSO has indicated that the zone has remained devoid of listed species for 30 minutes.

13. If lightering occurs outside local sunrise and sunset, PSOs will be provided with night vision equipment (e.g., night vision binoculars, monocles, or spotting scopes) to support viewing and maintaining the nearshore area.

14. The PSO will order the screeding activities to immediately cease if one or more listed species has entered, or appears likely to enter, the associated shutdown zone.

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

16. Following a lapse of screeding activities of more than 30 minutes, the PSO will authorize resumption of activities 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.

17. If a listed species is observed within a shutdown zone or is otherwise harassed, harmed, injured, or disturbed, PSOs will report that occurrence to NMFS within one business day using the contact information specified in Table 3.

18. PSOs must be independent (i.e., not construction personnel or vessel operators) and have no other assigned tasks during monitoring periods.

19. The action agency or its designated non-federal representative will provide resumes or qualifications of PSO candidates to the NMFS consultation biologist or section 7 coordinator for approval at least one week prior to in-water work. NMFS will provide a brief explanation of lack of approval in instances where an individual is not approved.

20. At least one PSO will have prior experience performing the duties of a PSO during construction activity.

21. At least one PSO on the project will complete PSO training prior to deployment. The 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 MMPA regulations;

d. proper equipment use;

e. methodologies in marine mammal observation and data recording and proper reporting protocols; and

f. an overview of PSO roles and responsibilities.

22. PSOs will:

a. have vision that allows for adequate monitoring of the entire 300 m zone for screeding;

b. have the ability to effectively communicate orally, by radio and in person, with project personnel;

c. be able to collect field observations and record field data accurately and in accordance with project protocols;

d. be able to identify to species all marine mammals that occur in the action area;

e. have writing skills sufficient to create understandable records of observations

23. PSOs will work in shifts lasting no longer than 4 hours with at least a 1-hour break from monitoring duties between shifts. PSOs will not perform PSO duties for more than 12 hours in a 24-hour period.

24. PSOs will have the ability and authority to order appropriate mitigation responses, including shutdowns, to avoid takes of all listed species.

25. The PSOs will have the following equipment to address their duties:

a. tools which enable them to accurately determine the position of a marine mammal in relationship to the shutdown zone;

b. two-way radio communication, or equivalent, with onsite project manager;

c. tide tables for the project area;

d. watch or chronometer;

e. binoculars (7x50 or higher magnification) with built-in rangefinder or reticles (rangefinder may be provided separately);

f. night vision binoculars, monocles, or spotting scopes;

g. instruments that allow observer to determine geographic coordinates of observed marine mammals;

h. a legible copy of this LOC and all appendices;

i. legible and fillable observation record form allowing for required PSO data entry.

26. Prior to commencing in-water work 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 listed species are observed likely to enter or within the shutdown zone, and will request that the point of contact instruct the crew to notify the PSO when a marine mammal is observed. If the point of contact goes "off shift" and delegates his duties, the PSO must be informed and brief the new point of contact.

Dredging/Screeding

27. All vessels involved in dredging, screeding, and underwater excavating operations, including survey vessels, will transit at velocities below 10 knots.

28. Dredging, screeding and underwater excavating activities must shut down whenever a listed marine mammal approaches within 300 m.

Vessels[2]

29. Vessel operators will:
    a. maintain a watch for marine mammals at all times while underway;
    b. stay at least 91 m (100 yds) away from listed marine mammals, except they will remain at least 460 m (500 yards) from endangered North Pacific right whales;
    c. travel at less than 5 knots (9 km/hour) when within 274 m (300 yards) of a whale;
    d. avoid changes in direction and speed when within 274 m (300 yds) 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. check the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged;
    g. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 km (1 mi) or less;

30. 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)) (note: these regulations apply to all humpback whales). Specifically, pilot and crew will not:
    a. 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;
    b. cause a vessel or other object to approach within 100 yards of a humpback whale; or
    c. disrupt the normal behavior or prior activity of a whale by any other act or omission.

31. If a whale's course and speed are such that it will likely cross in front of a vessel that is

[2] Vessel measures will be implemented provided doing so does not endanger the vessel or crew.

underway, or approach within 91 m (100 yds) 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 m (500 yds) from North Pacific right whales.

32. Vessels will take reasonable steps to alert other vessels in the vicinity of whale(s).
33. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear. No materials capable of becoming entangled around marine mammals will be discarded into marine waters.

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

34. Vessels will:
    a. remain at least 460 m (500 yards) from North Pacific right whales.
    b. avoid transiting 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; or at 10 knots or less while PSOs maintain a constant watch for marine mammals from the bridge;
        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 Critical Habitat.

35. Vessels will not approach within 5.5 km (3 nm) of rookery sites listed in (50 CFR § 224.103(d)).
36. Vessels will not approach within 914 m (3,000 ft) of any Steller sea lion haulout or rookery which is not listed in 50 CFR § 224.103(d)).

General Data Collection and Reporting

Data Collection

37. PSOs will record observations on data forms or into electronic data sheets.
38. The action agency 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).
39. PSOs will record the following:
    a. the date, shift start time, shift stop time, and PSO identifier;
    b. date and time of each reportable event (e.g., a marine mammal observation, operation shutdown, reason for operation shutdown, change in weather);
    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, numbers, and, if possible, sex and age class of observed marine mammals, and observation date, time, and location;

e. the predominant anthropogenic sound-producing activities occurring during each marine mammal observation;

f. bearing and direction of travel of observed marine mammal(s);

g. observations of marine mammal behaviors and reactions to anthropogenic sounds and presence;

h. initial, closest, and last location of marine mammals, including distance from observer to the marine mammal, and minimum distance from the predominant sound-producing activity or activities to marine mammals;

i. whether the presence of marine mammals necessitated the implementation of mitigation measures to avoid acoustic impact, and the duration of time that normal operations were affected by the presence of marine mammals;

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

Data Reporting

40. All observations of North Pacific right whales (including in critical habitat) will be reported to NMFS within 24 hours. These observation reports will include the following information:

    a. date, time, and geographic coordinates of the observation(s);

    b. number of North Pacific right whales observed, including number of adults/juveniles/calves observed, if determinable;

    c. Environmental conditions as they existed during each observation event, including sea conditions, weather conditions, visibility, lighting conditions, and percent ice cover;

    d. Photos and videos of the whales if possible.

41. If project vessels are travelling within North Pacific right whale critical habitat in a manner that requires the use of PSOs (i.e., vessel is travelling within North Pacific right whale critical habitat at greater than 5 kts), PSOs will collect, organize, and report on vessel travel within North Pacific right whale critical habitat and on non-North Pacific right whale marine mammal observations made within that critical habitat. These reports will be submitted to AKR.section7@noaa.gov by the end of the calendar year. The report will outline the following information:

    a. species, date, and time for each observation;

    b. number of animals per observation event; and number of adults/juveniles/calves per observation event (if determinable);

    c. geographic coordinates for the observed animals, with the position recorded by using the most precise coordinates practicable (coordinates will be recorded in

decimal degrees, or similar standard (and defined) coordinate system);

d. environmental conditions as they existed during each observation event, including sea conditions, weather conditions, visibility, lighting conditions, and percent ice cover.

42. Observations of humpback whales will be transmitted to AKR.section7@noaa.gov by the end of the calendar year, including information specified in General Data Collection and Reporting (above) and photographs and videos obtained of humpback whales, most notably those of the whale's flukes.

Unauthorized Take

43. 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(s) is observed entering a shutdown zone before operations can be shut down, or is injured or killed as a direct or indirect result of this 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. all information to be provided in the final report (see Mitigation Measures under the *Final Report* heading below):

    b. number of animals of each threatened and endangered species affected;

    c. the date, time, and location of each event (provide geographic coordinates);

    d. description of the event;

    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; and

    g. if a vessel struck a marine mammal, the contact information for the PSO on duty, or the contact information for the individual piloting the vessel if there was no PSO on duty;

    h. Photographs or video footage of the animal(s) (if available).

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

44. If PSOs observe an injured, sick, or dead marine mammal (i.e., stranded marine mammal), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773 (Table 3). 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 marine mammals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

45. If PSOs observe 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 3).
46. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Final Report

47. A draft of the final report will be submitted to NMFS within 90 calendar days of the completion of the project (i.e., after Year 6 activities are complete) summarizing the data recorded and submitted to AKR.section7@noaa.gov. A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report may be considered final. The report will summarize all in-water activities associated with the proposed action, and results of PSO monitoring conducted during the in-water project activities.
48. The final report 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;
    b. date and time of marine mammal observations, geographic coordinates of marine mammals at their closest approach to the project site, marine mammal species, numbers, age/size/gender categories (if determinable), and group sizes.
    c. number of marine mammals observed (by species) during periods with and without project activities (and other variables that could affect detectability);
    d. observed marine mammal behaviors and movement types versus project activity at time of observation;
    e. numbers of marine mammal observations/individuals seen versus project activity at time of observation
    f. distribution of marine mammals around the action area versus project activity at time of observation.
    g. digital, queryable documents containing PSO observations and records, and digital, queryable reports.

Summary of Agency Contact Information

Table 3. Summary of agency contact information.

Reason for Contact	**Contact Information**
Consultation Questions & Unauthorized Take	Greg Balogh: greg.balogh@noaa.gov and Jenna Malek: jenna.malek@noaa.gov
Reports & Data Submittal	AKR.section7@noaa.gov (please include NMFS AKRO tracking number in subject line)
Stranded, Injured, or Dead Marine Mammal *(not related to project activities)*	Stranding Hotline (24/7 coverage) 877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 & 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

Listed Species and Critical Habitat

Bowhead Whale

The bowhead whale (*Balaena mysticetus*) was listed as endangered under the Endangered Species Conservation Act (ESCA) on June 2, 1970 (35 FR 8491 (baleen whales listing); 35 FR 18319, December 2, 1970 (bowhead whale listing)), and continued to be listed as endangered following passage of the ESA in 1973. 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 2011 ice-based abundance estimate was 16,892 (Givens et al. 2013). Using 2019 aerial survey bowhead abundance data, the North Slope Borough reports a population estimate of

17,175 (CV=0.24). Based on concurrent passive acoustic and ice-based visual surveys, Givens et al. (2016) reported that the Western Arctic stock of bowhead whales increased at a rate of 3.7% (95% CI = 2.94.6%) from 1978 to 2011, during which time abundance tripled from approximately 5,000 to approximately 16,820 whales (Givens et al. 2016).

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) (Muto et al. 2018).

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:

https://www.fisheries.noaa.gov/species/bowhead-whale

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-species-stock#cetaceans---large-whales

NMFS expects that bowhead whales may be present along the barge delivery route and possibly the lightering portions of the action area based on the location of reproductive, migratory, and feeding Biologically Important Areas (BIAs) within the action area in September and October (Clarke et al. 2015). In addition to the BIAs that intersect with the action area, the Aerial Surveys of Arctic Marine Mammals (ASAMM) project found bowhead whales in the proximity of Oliktok Dock and the transit area in September (Clarke et al. 2020). Though bowheads do not tend to swim close to shore in this area, incoming barges will be passing through deeper waters as they approach the lightering area and thus may encounter cows with calves, feeding, and/or migrating whales.

Blue Whale

The blue whale was listed as an endangered species under the ESCA on June 2, 1970 (35 FR 8491 (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 Marine Mammal Protection Act (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. 2021). 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 US 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).

Information on blue whale biology and habitat is available at:

https://www.fisheries.noaa.gov/species/blue-whale

https://www.afsc.noaa.gov/nmml/species/species_blue.php

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

NMFS does not expect blue whales to be present in the Oliktok Dock portion of the action area as their range does not extend that far north. Barges transiting from Dutch Harbor to Oliktok Dock may encounter blue whales but, based on the low population size of the two stocks found in Alaska and their preference for feeding in the Gulf of Alaska and south of the Aleutian Islands during the project timeframe, an encounter is unlikely to occur.

Fin Whales

The fin whale was decimated by commercial whaling in the 1800s and early 1900s. It was listed as an endangered species under the ESCA on June 2, 1970 (35 FR 8491 (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 the fin whale.

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). 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 (Brower et al. 2018; Escajeda et al. 2020).

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 et al. 2018). During similar aerial surveys in 1982–1991, there was a complete lack of sightings of these whales (Brower et al. 2018).

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 et al. 2021).

Fin whales produce a variety of low-frequency sounds in the 10 Hz to 0.2 kHz range (Edds 1988; Watkins et al. 1987). 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).

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

https://www.fisheries.noaa.gov/species/fin-whale

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

NMFS expects fin whales may be present along the barge delivery route, but not near Oliktok Dock as there has been no documentation of fin whales occurring in the Beaufort Sea. Ferguson et al. (2015) identified a feeding BIA for fin whales in the Bering Sea where the highest densities of fin whales occur from June to September. Transit of project vessels (mid-June through the fall) overlaps with timing of the highest densities of fin whales in this area.

North Pacific Right Whales

The right whale (*Eubalaena spp*.) was listed as an endangered species under the ESCA on June 2, 1970 (35 FR 8491 (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 the listed taxon of 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). 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).

There are likely fewer than 500 North Pacific right whales remaining. Only about 30 individuals are estimated to remain of the Eastern stock that visits Alaskan waters.
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. 2022).

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).

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 (Goddard and Rugh 1998; Moore 2000; Moore et al. 2002; Rone et al. 2012; Rone et al. 2010; Zerbini et al. 2009). Fishers sighted two feeding North Pacific right whales just north of Unimak Pass in February 2022, which was the first documented sighting of right whales feeding in that area during the winter (NMFS 2022). In recent years, there have been opportunistic sightings and acoustic detections of right whales around St Lawrence Island and near the Bering Strait (J. Crance, pers comm), suggesting that the species may be extending its range into Northern Bering Sea.

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

https://www.fisheries.noaa.gov/species/north-pacific-right-whale

http://www.adfg.alaska.gov/index.cfm?adfg=rightwhale.main

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

We expect that North Pacific right whales may be present along the barge delivery route, which runs just to the west of North Pacific right whale critical habitat (see Fig. 1). Though project vessels will be avoiding critical habitat to the maximum extent possible, North Pacific right whales may be found outside of critical habitat along the barge route. 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.

Gray Whale

There are two genetically distinct populations of gray whales in the North Pacific Ocean (Cooke et al. 2013; Lang et al. 2010). The western North Pacific population that was listed as endangered in 1970 (35 FR 18319; December 2, 1970) under the ESCA and shows no apparent signs of recovery, and the eastern North Pacific population that has recovered from exploitation and was removed from listing under the ESA in 1994 (Carretta et al. 2013; Swartz et al. 2006). Estimated western North Pacific 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. 2019; Cooke et al. 2017). Cooke et al. (2017) notes that not all of these animals belong to the Western North Pacific stock of gray whales and proposes an upper limit of approximately 100 whales from Sakhalin that could belong to the Western North Pacific breeding population. Critical habitat has not been designated.

Gray whales travel alone or in small, unstable groups and are known as bottom feeders that eat "benthic" amphipods. Western North Pacific gray whales feed during the summer and fall in the Okhotsk and Bering Seas off northeastern Japan and eastern Russia, respectively. The non-ESA-listed Eastern North Pacific population of gray whales also feeds in the Bering Sea, in addition to the Beaufort and Chukchi Seas and the coastal waters of western North America. This population is estimated to be comprised of around 26,960 individuals, while the Western North Pacific population is comprised of around 290 individuals (Carretta et al. 2019). Therefore, we expect no more than 1.1 percent of the gray whales observed in the North Pacific Ocean feeding grounds outside of the Okhotsk Sea to belong to the Western North Pacific population (Table 4).

Previous studies have observed approximately 30 gray whales from the Western North Pacific population in the Western and Eastern North Pacific Ocean (including coastal waters of Canada, the U.S., and Mexico), as some gray whales from the Western North Pacific population are thought to migrate to the eastern North Pacific Ocean in winter, while others from this population migrate south to waters off Japan and China (Carretta et al. 2019). The migration route is unknown. Using an estimate of 30 animals, we expect no more than 0.1 percent of gray whales observed in the Eastern North Pacific Ocean breeding grounds to belong to the Western North Pacific population (Table 4).

Table 4. Probability of encountering gray whales from the Eastern North Pacific and Western North Pacific populations in the North Pacific Ocean in various summer feeding areas (NMFS 2019). Note: Bering Sea feeding area is off of eastern Russia, not in Alaska.

Summer Feeding Areas	Eastern North Pacific Population	Western North Pacific Population
Chukchi Sea	100%	0%
Beaufort Sea	100%	0%
Western North America (Kodiak Island, Alaska and northern California)	99.9%	0.1%
Bering Sea	98.9%	1.1%
Okhotsk Sea	0%	100%

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 et al. 1984). 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). 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 et al. 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:

https://media.fisheries.noaa.gov/2021-08/2020-Pacific-SARS-Western_Graywhale.pdf

Western North Pacific gray whales have not been detected in the Chukchi or Beaufort seas, and their typical migratory route from the Sea of Okhotsk and North America is through the Gulf of Alaska (Mate et al. 2015). Given that few western North Pacific gray whales occur in U.S. waters, it is possible but unlikely that western North Pacific gray whales would be encountered by project vessels along the barge delivery route from Dutch Harbor to Oliktok Dock (Carretta et al. 2017).

Western North Pacific and Mexico DPS Humpback Whales

The humpback whale was listed as endangered under the ESCA on June 2, 1970 (35 FR 8491 (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. In 2015, NMFS conducted a global status review that led us to change the status of humpback whales under the ESA and divide the species into 14 distinct population segments (DPS), three of which occur in waters of Alaska. The Western North Pacific DPS (which includes a small proportion of humpback whales found in the Aleutian Islands, Bering Sea, and Gulf of Alaska) is listed as endangered; the Mexico DPS (which includes a small proportion of humpback whales found in the Aleutian Islands, Bering Sea, Gulf of Alaska, and Southeast Alaska) is listed as threatened; and the Hawaii DPS (which includes most humpback whales found in the Aleutian Islands, Bering Sea, Gulf of Alaska, and Southeast Alaska) is not listed (81 FR 62260; September 8, 2016). Critical habitat for the Western North Pacific and Mexico DPS humpback whales was designated April 20, 2021 (86 FR 21082) (Fig. 4).

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%), Mexico DPS (7%), and Western North Pacific DPS (2%) ((NMFS 2021; Wade 2021). These same DPS proportions apply for the Chukchi and Beaufort seas (Table 5).

Based on an analysis of migration between winter mating/calving areas and summer feeding areas using photo-identification, Wade (2021) concluded that whales feeding in Alaskan waters belong primarily to the Hawaii DPS (recovered, not listed), with small numbers from the Western North Pacific DPS (endangered) and Mexico DPS (threatened). Along the proposed barge delivery route through the Aleutian Islands and Bering and Chukchi seas, we consider

Hawaii DPS individuals to compromise 91 percent of the humpback whales present, Mexico DPS individuals to comprise 7 percent, and the Western North Pacific DPS individuals to comprise 2 percent (NMFS 2021; Wade 2021).

The Hawaii DPS is not listed under the ESA and is comprised of 11,540 animals (CV=0.04). The annual growth rate of the Hawaii DPS is estimated to be between 5.5 and 6.0 percent. The Mexico DPS is threatened, and 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) and the population trend for the Western North Pacific DPS is unknown. 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.

Table 5. 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)**			
	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.				

Humpback whales produce a variety of vocalizations ranging from 20 Hz to 10 kHz (Au and Green 2000; Au et al. 2006; Erbe 2002; Frazer and Mercado 2000; Payne and Payne 1985; Richardson et al. 1995; Silber 1986; Thompson et al. 1986; Tyack and Whitehead 1983; Vu et al. 2012; Winn et al. 1970). 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).

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

https://www.fisheries.noaa.gov/species/humpback-whale

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

NMFS expects that humpback whales may be present along the barge delivery route from Dutch Harbor to Oliktok Dock, particularly during the summer months. Humpback whales are found throughout the Aleutians Islands and the eastern Bering Sea during the summer (Zerbini et al. 2006) and have been found as far north as the northeastern Chukchi Sea (Clarke et al. 2014). Ferguson et al. (2015) identified a humpback whale feeding BIA in the Aleutian Islands that includes both the north and south side of Unalaska, with the highest densities of humpbacks occurring from June through September, making it likely that project vessels may encounter humpback whales.

Sperm Whales

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

Sperm whales are primarily found in deep waters, and sightings of sperm whales in water less than 300 m (984 ft) are uncommon. 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). A minimum estimate of the total annual level of human-caused mortality and serious injury for North Pacific sperm whales in 2013-2017 is 4.9 whales in U.S. commercial fisheries (Muto et al. 2020).

Sperm whales produce a variety of vocalizations ranging from 0.1 to 20 kHz (Goold and Jones 1995; Weilgart and Whitehead 1993; Weir and Goold 2007). Sperm whales are odontocetes (tooth 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).

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

https://www.fisheries.noaa.gov/species/sperm-whale

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

We expect sperm whales may be in the southern part of the proposed barge delivery route as they commonly occur around the Aleutian Islands during the summer months (Mizroch and Rice 2013)

Artic Ringed Seal

The Arctic ringed seal subspecies was listed as threatened under the ESA on December 28, 2012, primarily due to expected impacts on the population within the foreseeable future due to climate-

driven declines in sea ice and snow cover (77 FR 76706). Critical habitat for the Arctic ringed seal was designated April 1, 2022 (87 FR 19232).

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.

Ringed seals reproduce and molt during spring and summer months (Fig. 3).

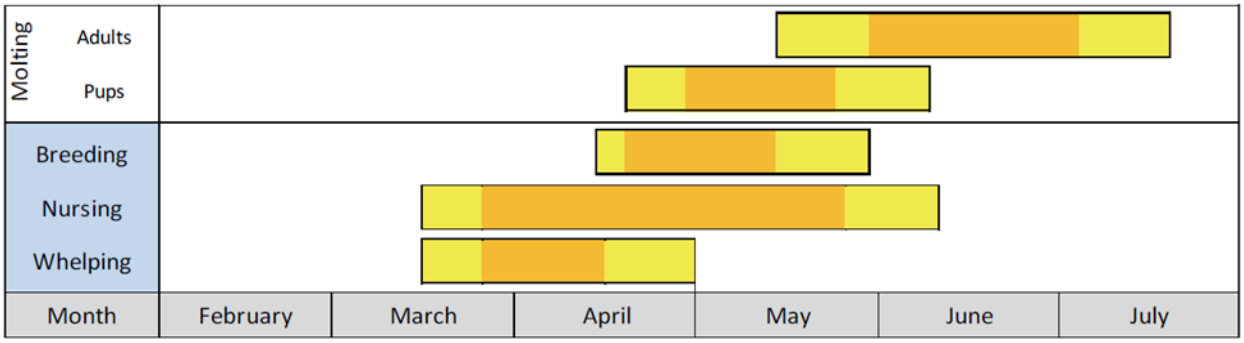

Figure 3. Approximate annual timing of Arctic ringed seal reproduction and molting. Yellow bars indicate the "normal" range over which each event is reported to occur and orange bars indicate the "peak" timing of each event(Kelly et al. 2010).

Tracking data indicate that ringed seals extensively use the continental shelf waters of the Chukchi and Beaufort seas during the open-water period (Crawford et al. 2012; Quakenbush et al. 2019; Von Duyke et al. 2020). During winter and spring, ringed seals are found throughout the Chukchi and Beaufort seas (Frost 1985; Kelly et al. 1988). In the Bering Sea, they use nearly the entire ice field over the Bering Sea shelf (Braham et al. 1981).

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 (Quakenbush et al. 2020; Quakenbush et al. 2011b). Fish of the cod family tend to dominate the diet from late autumn through early spring in many areas (Kovacs 2007). Invertebrate prey seem to become more important in the diet of Arctic ringed seals in the open-water season and often dominate the diet of young animals (Holst et al. 2001; Lowry et al. 1980).

Ringed seals produce underwater vocalizations associated with territorial and mating behaviors. NMFS defines the functional hearing range for phocids (seals) as 50 Hz to 86 kHz (NMFS 2018).

More information on ringed seal biology, habitat, and distribution is available at: https://www.fisheries.noaa.gov/species/ringed-seal

https://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.icesealmovements&tab=tagging-activities#2019

We expect ringed seals may be present along the barge delivery route in the Bering, Chukchi, and Beaufort seas, and near screeding activities at Oliktok Dock and the lightering area. Ringed seals are frequently observed in Harrison Bay and in waters adjacent to the Colville River Delta and Oliktok Point (Green et al. 2007; Green and Negri 2005; Green and Negri 2006; Hauser et al. 2008). A shipboard monitoring program has documented hundreds of ringed seals during the open-water season from Oliktok Point (east of the Colville River) to Cape Halkett (west of the

Colville River) (Green et al. 2007; Green and Negri 2005; Green and Negri 2006). Ringed seals are expected to be the most commonly occurring pinniped in the proposed action area year-round.

Beringia DPS Bearded Seal

NMFS listed the Beringia DPS and Okhotsk DPS of bearded seals as threatened under the ESA on December 28, 2012 (77 FR 76739). Only the Beringia DPS of the bearded seal occurs in U.S. waters, therefore the Okhotsk DPS is not discussed further. Critical habitat for the Beringia DPS bearded seal was designated April 1, 2022 (87 FR 19180).

A reliable population estimate is not available (Muto et al. 2021). In a core area of their range in the central and eastern Bering Sea, the Beringia DPS abundance was estimated to be 61,800 seals (Ver Hoef et al. 2013). Another study estimated the abundance for the entire range of the Beringia DPS at 155,150 seals (Cameron et al. 2010).

Bearded seals are associated with pack ice, and only rarely use shorefast ice. Sea ice provides bearded seals isolation from terrestrial and aquatic predators, and serves as a platform out of the water 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).

Bearded seals winter in the Bering Sea along the ice front, but as the ice recedes in the spring, bearded seals migrate from their winter grounds in the Bering Sea north through the Bering Strait (mid-April to June) to areas along the margin of the multi-year ice in the Chukchi Sea or to nearshore areas of the central and western Beaufort Sea (Burns 1967). Seals move south towards their wintering grounds in the fall as sea ice forms (Burns 1981; Frost et al. 2008).

Their summer distribution is quite broad. While adult bearded seals have rarely been seen hauled out on land (Burns 1981; Nelson 1981), juvenile bearded seals may use terrestrial sites during the period of minimum ice extent (Olnes et al. 2020). Juvenile seals have been observed hauled out on land along lagoons and rivers in some areas of Alaska, such as in Norton Bay (Huntington 2000), near Wainwright (Nelson 1982), and on sandy islands near Barrow (Cameron et al. 2010).

Bearded seals of the Beringia DPS primarily feed on clams and crustaceans (crabs, shrimps and snails), but fishes such as sculpins, cods, and flatfishes that are on or near the seafloor less than 200 m deep can also be a significant component of their diet (Quakenbush et al. 2011a). 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 and Boveng 2009; Cameron 2005).

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).

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

https://www.fisheries.noaa.gov/species/bearded-seal

https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-211.pdf

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

https://www.govinfo.gov/content/pkg/FR-2022-04-01/pdf/2022-06173.pdf

NMFS expects bearded seals to be present along the barge delivery route through the Bering, Chukchi, and Beaufort seas and near the screeding activities at Oliktok Dock and the lightering area. During the open-water period when the majority of the project activities will occur, marine mammal monitoring programs (FEX Barging Project in 2005-2007) and geophysical surveys (Shell Offshore, Inc in 2010) have documented bearded seals in the waters seaward of the barrier islands near Oliktok Dock (Green et al. 2007; Green and Negri 2005; Green and Negri 2006; Hauser et al. 2008). Brandon et al. 2011 also documented bearded seals seaward and landward of the barrier islands during seismic surveys. Though bearded seals may occur in much lower numbers compared to ringed seals during this time of year, they are still likely to be found in the proposed action area.

Western DPS Steller Sea Lions

The Steller sea lion (*Eumetopias jubatus*) was listed as a threatened species under the ESA on November 26, 1990 (55 FR 49204). On May 5, 1997, NMFS reclassified 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, the eastern DPS was removed from the endangered species list (78 FR 66140). NMFS designated critical habitat for Steller sea lions on August 27, 1993 (58 FR 45269) (Fig. 6).

Steller sea lions range throughout the North Pacific Ocean from Japan, east to Alaska, and south to central California (Loughlin et al. 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 et al. 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 (Fritz et al. 2016; Jemison et al. 2013; Lander et al. 2009; Raum-Suryan et al. 2004; Sigler et al. 2017; Trites et al. 2006). 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. During summer, Steller sea lions feed mostly over the continental shelf and shelf edge. Females attending pups forage within 20 nm of breeding rookeries (Merrick and Loughlin 1997), which 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 are generalist predators that eat a variety of fishes and cephalopods (Calkins and Goodwin 1988; NMFS 2008; Pitcher and Calkins 1981), and occasionally other marine mammals and birds (NMFS 2008; Pitcher and Fay 1982).

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).

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

Information on Steller sea lion biology and habitat (including critical habitat) is available at: https://www.fisheries.noaa.gov/species/steller-sea-lion

https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region

NMFS expects western DPS Steller sea lions to be present in the action area around the southern and possibly central portions of the barge delivery route. Steller sea lions are common in and around Dutch Harbor, which is within a 40 km radius of three western DPS Steller sea lion haulouts and one rookery. The barge route also crosses through the Bogoslof foraging area (see Steller Sea Lion Critical Habitat section below), and within ~20 nm of an additional haulout site on the east side of St. Lawrence Island (Fig. 6).

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). The physical or biological features (PBFs) deemed necessary for the conservation of North Pacific right whales include the presence of specific copepods (*Calanus marshallae*, *Neocalanus cristatus*, and *N. plumchris*), and euphausiids (*Thysanoessa Raschii*) 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).

In March 2022, NMFS received a petition to revise critical habitat for North Pacific right whales (CBD 2022). Based on the information provided in the petition and in our own files, NMFS published a positive 90-day finding that the petitioned revision may be warranted (87 FR 41271, July 12, 2022). A 12-month finding is currently being drafted at the time of this consultation and will be published in 2023.

The barge delivery route from Dutch Harbor to Oliktok Dock passes just west of designated critical habitat (see Fig. 1). While transport vessels are not expected to enter North Pacific right whale critical habitat (see Fig. 1), in the event that conditions require them to do so, mitigation measures are in place to ensure proper vessel conduct and reporting that will minimize impacts to the PBFs (see measures 34, 40-42).

Humpback Whale Critical Habitat

Critical habitat for the Western North Pacific and Mexico DPS humpback whales was designated April 20, 2021 (86 FR 21082) (Fig. 4). 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.

For the Western North Pacific DPS, the physical and biological features associated with critical habitat include: Prey species, primarily euphausiids (*Thysanoessa* and *Euphausia*) and small pelagic schooling fishes, such as Pacific herring (*Clupea pallasii*), capelin (*Mallotus villosus*), juvenile walleye pollock (*Gadus chalcogrammus*) and Pacific sand lance (*Ammodytes personatus*) of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

For the Mexico DPS, the physical and biological features associated with critical habitat include: Prey species, primarily euphausiids (*Thysanoessa, Euphausia, Nyctiphanes*, and *Nematoscelis*) and small pelagic schooling fishes, such as Pacific sardine (*Sardinops sagax*), northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), capelin (*Mallotus villosus*), juvenile walleye pollock (*Gadus chalcogrammus*), and Pacific sand lance (*Ammodytes personatus*) of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

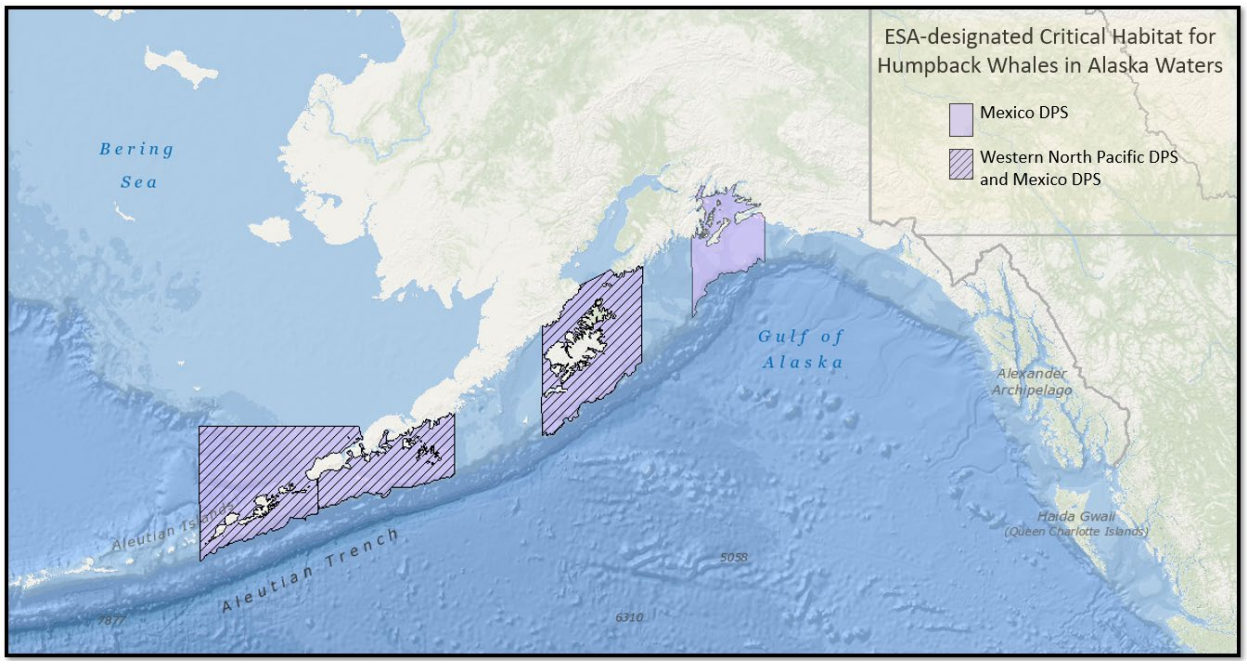

Figure 4. Critical habitat for Western North Pacific and Mexico DPS humpback whales in waters off Alaska.

The barge delivery route will overlap with critical habitat for both Western North Pacific and Mexico DPS humpback whales for a very short stretch upon leaving from and arriving in Dutch Harbor.

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 ringed seal extends to an area of marine habitat in the northern Bering, Chukchi, and Beaufort seas (Fig. 1).

Physical and biological features associated with critical habitat include: 1) snow-covered sea ice suitable for the formation and maintenance of subnivean lairs, defined as waters 3 meters or more in depth, with seasonal landfast ice or stable pack ice having snow drifts of at least 45 centimeters in depth to form and maintain birthing, whelping and nursing lairs; 2) sea ice for molting is defined as waters of 200 meters depth or less, with a pack ice concentration of at least 15%; and 3) primary prey to support ringed seals occurring in waters of 200 meters depth or less and containing benthic organisms and fishes found on or near the seafloor.

The barge delivery route overlaps with ringed seal critical habitat starting at the southern end off Cape Romanzof all the way up to Oliktok Dock. The lightering station and Oliktok Dock both sit outside of critical habitat, so screeding and lightering activities will not occur within ringed seal critical habitat.

Beringia DPS Bearded Seal Critical Habitat

Critical habitat for the Beringia DPS bearded seal was designated April 1, 2022 (87 FR 19180). Critical habitat for the Beringia DPS bearded seal 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) (Fig. 5).

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%; 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%; 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.

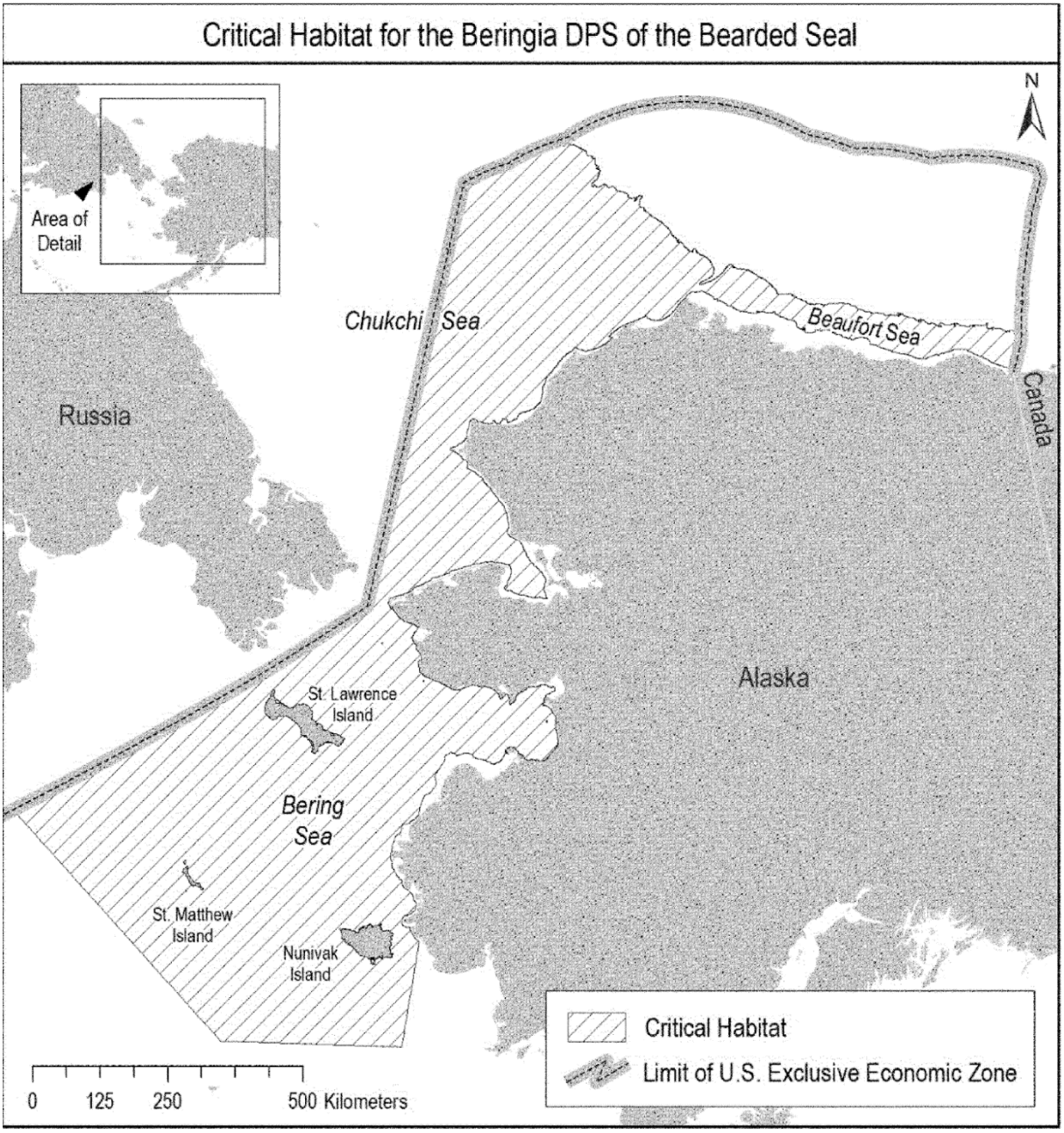

Figure 5. Federally designated critical habitat for the Beringia DPS bearded seal.

The barge delivery route overlaps with bearded seal critical habitat starting at the southern end by Nunivak Island all the way up to Oliktok Dock. The lightering station and Oliktok Dock both sit outside of critical habitat, so screeding and lightering activities will not occur within bearded seal critical habitat.

Steller Sea Lion Critical Habitat

NMFS designated critical habitat for Steller sea lions on August 27, 1993 (58 FR 45269) (Fig. 6). 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).

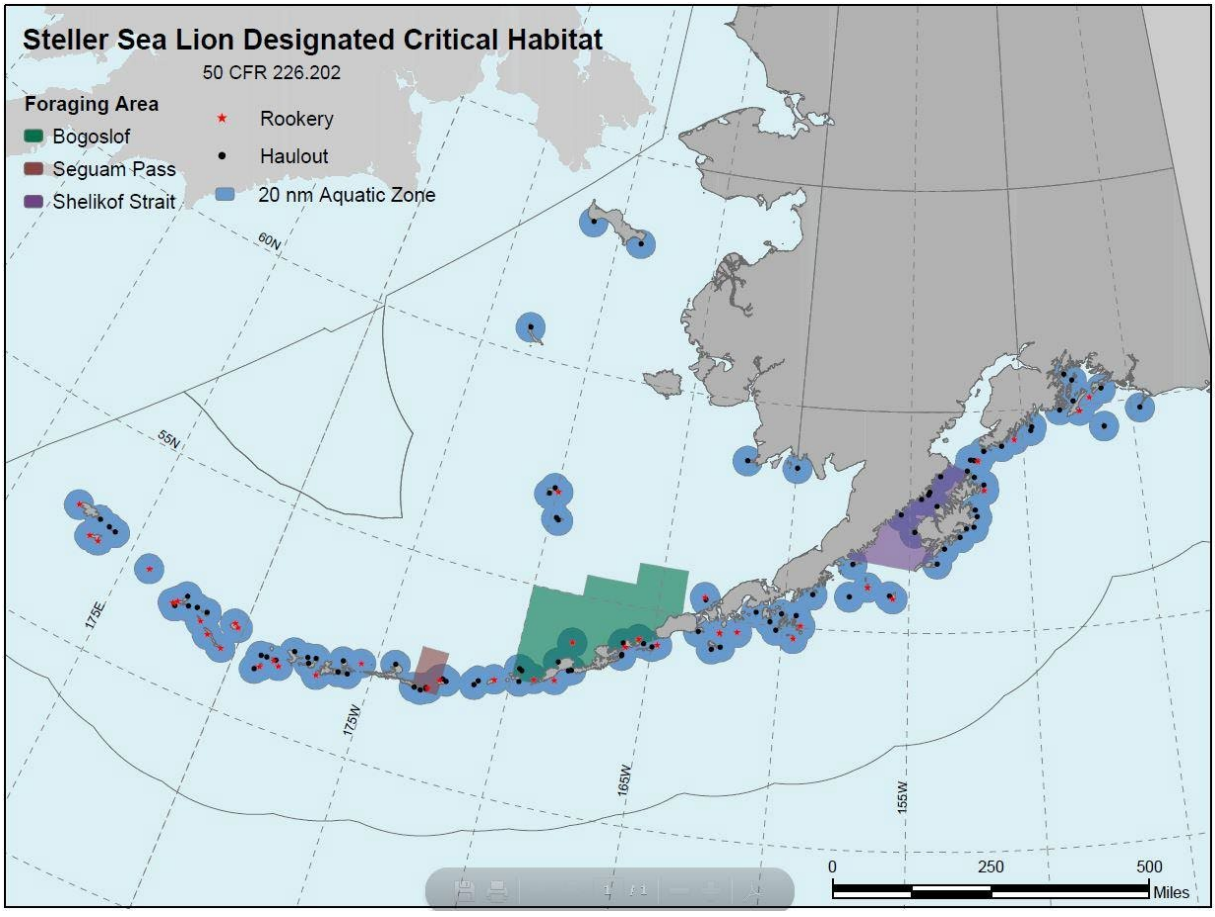

Figure 6. Designated Steller sea lion critical habitat in Alaska.

The action area is within 20 nm of four Western DPS Steller sea lion haulouts and one rookery along the barge delivery route from Dutch Harbor to Oliktok Dock. The barge route also runs through the Bogoslof special foraging area.

Climate Change

The listed marine mammals and their respective critical habitat that we consider in this letter of concurrence live in the ocean and thus factors that affect the ocean (e.g., temperature and pH) can have direct and indirect impacts on marine mammals and the resources on which they depend. For an example of potential impacts of climate on the species considered here, please see sections 4 (Rangewide Status of the Species and Critical Habitat) and 5 (Environmental Baseline) in our biological opinion for the National Petroleum Reserve-Alaska Integrated Activity Plan (NMFS 2020).

Effects of the Action

For purposes of 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 magnitude 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.

This consultation includes NMFS guidance on the term "harass" under the ESA, which means to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (Wieting 2016).

The potential effects of the proposed action on listed species and critical habitat include acoustic disturbance, vessel strike, habitat alteration, contamination, and invasive species.

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, 1872; January 11, 2005). NMFS developed comprehensive guidance on sound levels likely to cause injury to marine mammals through onset of permanent and temporary threshold shifts (PTS/TTS; Level A harassment) (83 FR 28824; June 21, 2018). NMFS is in the process of developing guidance for behavioral disruption (Level B harassment onset). 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 Marine Mammal Protection Act (MMPA) (16 U.S.C. § 1362(18)(A)(ii)):

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

The generalized hearing range for each hearing group is provided in Table 6.

Table 6. Underwater marine mammal hearing groups (NMFS 2018).

Hearing Group	ESA-listed Marine Mammals In the Action Area	Generalized Hearing Range[1]
Low-frequency (LF) cetaceans (Baleen whales)	Blue, bowhead, fin, North Pacific right, gray, sperm, and humpback whales	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans *(dolphins, toothed whales, beaked whales)*	Sperm whales	150 Hz to 160 kHz
High-frequency (HF) cetaceans *(true porpoises)*	None	275 Hz to 160 kHz
Phocid pinnipeds (PW) *(true seals)*	Ringed and bearded seals	50 Hz to 86 kHz
Otariid pinnipeds (OW) *(sea lions and fur seals)*	Western DPS Steller sea lion	60 Hz to 39 kHz

[1]Respresents the generalized hearing range for the entire group as a composite (i.e., all species within the group), where individual species' hearing ranges are typically not a broad. Generalized hearing range chosen based on ~65 db threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall et al. 2007) and PW pinniped (approximation).

Acoustic Disturbance

Possible impacts to marine mammals exposed to loud underwater or in-air noise include mortality (directly from the noise, or indirectly from a reaction to the noise), injury, and disturbance ranging from severe (e.g., abandonment of vital habitat) to mild (e.g., startle response) (Hildebrand 2009; Shannon et al. 2016; Weilgart 2007). For the proposed project, vessel operations and screeding will introduce continuous sounds into the water and have the potential to result in Level B harassment. However, as we explain in more detail below, these activities are not expected to adversely affect these species due to the short-term nature of these operations and the implementation of the mitigation measures described above, including the 300 m shutdown zone for screeding operations if marine mammals are in the area.

Vessel Noise

Vessels associated with the proposed action will likely expose listed marine mammals to acoustic stressors. However, the nature of the exposure (primarily vessel noise) will be low-frequency, with much of the acoustic energy emitted by project vessels at frequencies below the best hearing ranges of listed marine mammals in the proposed action area. In addition, because vessels will be in transit, the duration of the exposure to vessel noise will be temporary. For

vessels travelling at 12 knots with a source level of 170 dB and a practical spreading transmission loss coefficient of 15, vessels will expose a fixed point in space to sounds above 120 dB for a maximum of about 6 minutes. In addition, the project vessels, emitting continuous sound while in transit, will alert marine mammals before the received sound level exceeds 120 dB. Therefore, a startle response is not expected. Rather, slight deflection and avoidance are expected to be common responses in those instances where there is any response at all. The implementation of mitigation measures described above is expected to further reduce marine mammal reaction to transiting vessels. NMFS concludes that any disturbance of marine mammals from vessel noise will be temporary, unlikely to alter normal behavioral patterns, and unlikely to rise to the level of take and, thus considers the effects to listed species from vessel noise to be insignificant.

Screeding

Noise created by screeding operations is dependent on factors such as equipment type, substrate type, bathymetry, geomorphology of the waterway, site-specific hydrodynamic conditions, equipment maintenance status, and skill of the equipment operator. Sound received by listed species will depend on these factors as well as the transmission loss through the water and distance from the source. There are no specific national or international standards for measuring the radiated sound of screeding equipment nor of other ships operating in shallow water. Sound source verification studies cannot be reliably applied to operations that are not co-located and identical in their use of materials and equipment. Due to the absence of empirical data to accurately model sound fields associated with screeding operations typical for Alaskan waters, we used the most common screeding equipment used in Alaska to determine that screeding sound is likely to attenuate to less than 120 dB within 300 m of sound sources.

Because screeding sound is broadband, with most energy below 1 kHz (Reine et al. 2014; Robinson et al. 2011), it is extremely unlikely likely to cause damage to the auditory systems of marine mammals (McQueen et al. 2020; Suedel et al. 2019; Todd et al. 2015). Screeding sound is much lower in intensity than many other underwater sounds emanating from common development activities in Alaska such as pile driving, seismic surveys, use of explosives, dynamic positioning thrusters, and certain high intensity electronically-generated sounds such as long-range sonars. We therefore conclude that screeding sound will have much less impact on marine mammals than these other activities.

Additionally, many of the listed species considered in this consultation are not likely to be found in the portion of the action area where screeding will occur. The shallow water depths and location on the landward side of a series of barrier islands will likely deter large whale species from entering the area during screeding. While ringed and bearded seals can be found in the area, the lack of sea ice during the summer will enable these wide-ranging species to temporarily relocate; there is nothing to indicate that the waters near the location of screeding are especially valuable to these species as summer habitat. Steller sea lions have been documented as far north at Utqiaġvik, but are unlikely to occur as far east as the area around Oliktok Dock and the lightering station. We therefore do not expect endangered Western DPS Steller sea lions to encounter screeding sounds from this project.

With the implementation of mitigation measures, including use of PSOs in the 300 m shutdown zone, and the small likelihood of most listed species being within the screeding portion of the action area due to shallow water depths and work being conducted during the ice-free season, we conclude that acoustic disturbance from screeding on any of the listed species addressed in this letter to be insignificant and extremely unlikely to occur.

Marine Mammal Prey

Marine mammal prey such as zooplankton, benthic organisms (crab, shrimp, clams), and fish maybe be affected by noise from projects vessels and screeding. Impacts from sound energy generated by vessels would be expected to have a very minor impact on zooplankton, limited to within a few meters of the project activity, which, in turn, covers a miniscule portion of the overall feeding range of listed marine mammal species. Benthic populations would not be affected by vessel sound but may be affected by screeding.

Screeding will occur in shallow waters that are regularly ice-scoured, which would promote benthic species that can recolonize disturbed habitat, leading to temporary effects on very localized benthic populations. These local populations represent a miniscule proportion of overall feeding habitat for listed marine mammal species.

Fish are a primary prey for ringed and bearded seals in the Beaufort Sea and bowhead whales, fin whales, humpback whales, sperm whales, bearded seals, and Steller sea lions elsewhere in the action area. These marine mammal species may consume fish species throughout the proposed action area, particularly the barge delivery route. Vessel sound source levels in the audible range for fish are typically 150–170 dB re 1 µPa/Hz (Richardson et al. 1995). There may be some avoidance by fish in the immediate area or temporary behavioral changes of prey species at close range, such as a startle or stress response. Project-related vessel sounds are not expected to cause direct injury to fish and will behaviorally affect fish only at close range and for a short period of time.

The expected impact of acoustic disturbance on marine mammal prey for all project activities will be localized in space and time across an extremely small proportion of available habitat, and thus any adverse effects due to impacts on prey for listed marine mammal species will be insignificant.

Vessel Strike

Ship strikes can cause severe wounds or death to marine mammals. An animal at the surface could be struck directly by a vessel, a surfacing animal could hit the bottom of a vessel, or a vessel's propeller could injure or kill an animal below the water's surface. An examination of all known ship strikes for large (baleen and sperm) whales from all shipping sources indicates vessel speed is a principal factor in whether a vessel strike results in death (Vanderlaan and Taggart 2007). In assessing records with known vessel speeds, Laist et al. (2001) found that most lethal ship strikes on large whales occurred when a vessel was traveling at 14 knots or faster.

Bowhead whales are among the slowest moving of whales, which may make them particularly susceptible to ship strikes (Halliday et al. 2022; Laist et al. 2001). However, visible evidence of vessel strikes on bowhead whales harvested for subsistence are rare – only 2 %, or 10 of 505 examined whales from 1990 to 2012 – showed clear evidence of scarring from ship propeller injuries and there has been one reported vessel strike mortality of a bowhead whale between

2012-2019 (NMFS unpub. data). The proposed project has a small number of vessels transits from Dutch Harbor to Oliktok Dock (Table 1) compared to the overall increasing amount of vessel traffic in the region. These barges and tugs will be traveling at slow speeds and will be abiding by the vessel-specific mitigation measures outlined above. Nearshore lightering transits, while higher in number (Table 1), will be at speeds even slower than the other project vessels and will be taking place in areas where bowhead whales do not tend to frequent (e.g. shoreward of barrier islands). Based on the slow speeds and implementation of mitigation measures, we conclude that vessel strikes on bowhead whales from project-related vessels are very unlikely to occur.

Between 1978 and 2011, there were 108 reports of whale-vessel collisions in Alaska waters, of which 93 were humpback whales (Neilson et al. 2012), with an additional 29 humpback whale strikes reported between 2012 and 2019 (NMFS unpub. data). While humpback whales are among the marine mammal species most prone to ship strikes in Alaska, the majority of these strikes occur in Southeast Alaska (Neilson et al. 2012). Of the 122 reported vessel strikes of humpback whales in Alaska between 1978 and 2019, none have occurred in the proposed action area.

Between 2012 – 2019, in addition to the previously mentioned bowhead whale, there have been 2 reported vessel strikes along the proposed barge delivery route; one sperm whale and one fin whale (Muto et al. 2022). Due to the low densities and high dispersal of large whale species throughout the action area, as well as the slow speeds of the vessel transporting materials from Dutch Harbor to Oliktok Dock, and the low number of reported vessel strikes along the barge delivery route, we conclude that a project-related vessel strike of blue, fin, North Pacific right, Western North Pacific or Mexico DPS humpback, western North Pacific gray, or sperm whales is extremely unlikely to occur.

The agility of pinnipeds is likely to preclude collision with vessels. There have been no reported vessel strikes of ringed or bearded seals in the Arctic, and four documented strikes of Steller sea lions statewide, with an unknown proportion of them occurring to animals from the listed Western DPS. We conclude that vessel strike of a pinniped by project vessels is highly unlikely to occur.

Habitat Alteration

Screeding

Benthic disturbance associated with project activities will likely result in temporary suspension of sediments in the water column. Sediment suspension will be localized in space, well within the confines of the 300 m-radius shutdown area.

While bowhead whales are rarely observed shoreward of the barrier islands, ringed and bearded seals are regularly documented near the project location. However, the impact of habitat alteration is expected to be minor due to the extremely small proportion of habitat that is subjected to screeding (10 acres per year) compared to the millions of acres of available summer feeding habitat. Thus, adverse effects to ringed and bearded seals will be insignificant. Water quality would be temporarily affected in the localized area surrounding Oliktok Dock by increased turbidity. Turbidity and sedimentation rates are naturally high in this region due to riparian outflow, ice scouring, wind action and coastal erosion. Consequently, the additional

suspension of sediment from screeding over a limited amount of time and area is not anticipated to have a measurable impact on water quality or to marine mammals.

Marine Mammal Prey

Much of the sediment that would be re-suspended from screeding is expected to quickly settle back into the substrate. Disruption and harm caused to the small number of prey that may be affected by temporarily re-suspended sediments will be immeasurable in terms of prey availability in the project area. Because of the small spatial and temporal scale at which this project may affect the widely-dispersed and expansive bearded and ringed seal foraging grounds, and the absence of bowhead whales from such shallow waters, we consider the effects of this project on listed species via disruption to marine mammal prey to be insignificant.

Contamination

Vessel Traffic and Pipeline Installation

Accidental spills or releases of petroleum products and other contaminants may occur during vessel transit, lightering, and the installation and operation of the pipeline crossing the Colville River. The size and composition of the spill influences the number of individuals that will be exposed to released 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 cetaceans, and presumably pinnipeds, 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). For small spills there is anticipated to be a rapid dissipation of toxic fumes into the atmosphere from rapid aging of fresh refined oil, which limits potential exposure of whales and pinnipeds to prolonged inhalation of toxic fumes.

Because any small spills of harmful pollutants from project-related vessels will be very localized and will disperse, evaporate, and weather rapidly due to wind and tidal currents, NMFS concludes that small spills of harmful pollutants during project activities are extremely unlikely to result in exposure of marine mammals to those pollutants.

For the pipeline in the Colville River, which would contain sales-quality crude oil, CPAI will have dedicated spill response equipment in close proximity to facilities and infrastructure, ready for immediate deployment should a spill from the pipeline occur. As explained in the description of the action above, the pipeline will run ~21 m under the river bottom, which would slow any release of oil into the river itself. The pipeline crossing is ~19 km from marine habitat and there will be spill response equipment available in several areas between the pipeline and marine habitat. Additionally, diversionary or exclusion booms may be deployed in the river during summer, as well as in the Colville River Delta as a precautionary action, further reducing the likelihood of any oil reaching marine mammals or their habitat. Implementation of CPAI's mitigation measures, LSs, and ROPs will further reduce the likelihood of such exposure, making a spill of crude oil highly unlikely.

Marine Mammal Prey

An accidental release of contaminants could affect marine mammal prey through displacement, mortality, or reduced growth and fecundity. We do not expect that a pipeline breach will occur that will notably affect marine mammal prey because the pipeline will run beneath the Colville river, and spills in the thaw lake environment will allow ample opportunity for cleanup to occur before contaminated water reaches marine habitats. Project vessels that operate in marine waters may spill petroleum products, but their volume would be within the range of small spills in size, and any product spilled would be refined petroleum that is low in molecular weight and that would rapidly volatize. In the instances of a spill from a project vessel, effects would occur within a localized area within which spilled product had not evaporated. Marine mammal prey could be affected by product entrained within the water column, but the spatial range of these effects would be extremely small relative to the range of the listed marine mammals feeding in this area. Therefore, the effects of accidental spills associated with the proposed project on listed species via disruption to marine mammal prey are expected to be insignificant.

Invasive Species

The impact of nonnative species in marine systems includes extirpation of native species through competition or predation, a decline in biodiversity, shifts in ecosystem food webs, and changes to the physical structure of the habitat (Norse and Crowder 2005; Trombulak et al. 2004). Ballast water, used by vessels associated with this project, is a potential vector for introducing invasive species.

State and federal regulations are in place to reduce the transfer of aquatic invasive organisms (33 CFR 151). We conclude that CPAI's compliance with the protective federal and state rules and regulations will minimize the potential to introduce invasive species to Dutch Harbor or Harrison Bay to the extent that effects to listed species from invasive species are extremely unlikely.

Effects Upon Critical Habitat

North Pacific Right Whale Critical Habitat

NMFS identified physical and biological features essential for conservation of the North Pacific right whale (also known as primary constituent elements, or PCEs) in the final rule to designate critical habitat (73 FR 19000; April 8, 2008). The physical or biological features deemed necessary for the conservation of North Pacific right whales include the presence of specific copepods (*Calanus marshallae*, *Neocalanus cristatus*, and *N. plumchris*), and euphausiids (*Thysanoessa Raschii*) that act as primary prey items for the species, and physical and oceanographic forcing that promote high productivity and aggregation of large copepod patches.

The potential effects of the action that may overlap with North Pacific right whale critical habitat include: acoustic disturbance from vessels transiting between Dutch Harbor and Oliktok Dock and exposure to spilled or otherwise-discharged fuel or other chemicals. While project vessels plan to avoid designated critical habitat, in the event that they do have to traverse through the area, we expect that effects of noise on aggregations of copepods or euphausiids from transiting project vessels would be insignificant due to the short-term exposure to transiting vessels.

Given the small number of trips by project vessels between Dutch Harbor and Oliktok Dock (30 between Years 2 and 6) and the low likelihood of a spill occurring, we find it extremely unlikely

that a fuel spill, other chemical spill, or discharge will occur as a result of this vessel traffic that would have more than a de minimis effect on the PBF for North Pacific right whale critical habitat. Even if a small spill were to occur within or close to critical habitat, it would be expected to evaporate and dissipate within 24 hours, such that any effects to this PBF would be immeasurably small.

Humpback Whale Critical Habitat

Critical habitat for the Western North Pacific and Mexico DPS humpback whales was designated April 20, 2021 (86 FR 21082). 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.

For the Western North Pacific DPS, the physical and biological features associated with critical habitat include: Prey species, primarily euphausiids (*Thysanoessa* and *Euphausia*) and small pelagic schooling fishes, such as Pacific herring (*Clupea pallasii*), capelin (*Mallotus villosus*), juvenile walleye pollock (*Gadus chalcogrammus*) and Pacific sand lance (*Ammodytes personatus*) of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

For the Mexico DPS, the physical and biological features associated with critical habitat include: Prey species, primarily euphausiids (*Thysanoessa, Euphausia, Nyctiphanes*, and *Nematoscelis*) and small pelagic schooling fishes, such as Pacific sardine (*Sardinops sagax*), northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), capelin (*Mallotus villosus*), juvenile walleye pollock (*Gadus chalcogrammus*), and Pacific sand lance (*Ammodytes personatus*) of sufficient quality, abundance, and accessibility within humpback whale feeding areas to support feeding and population growth.

Similar to North Pacific right whale critical habitat, acoustic disturbance from vessels transiting between Dutch Harbor and Oliktok Dock and exposure to spilled or otherwise-discharged fuel or other chemicals may also overlap with critical habitat for both DPSs of humpback whales. While project vessels will traverse through a small portion of critical habitat, we do not expect that noise from the vessels would result in long-term negative effects on aggregations of euphausiids or schools of fish such as herring, sand lance, and walleye Pollock. Therefore, we conclude that impacts of acoustic disturbance on these PBFs will be insignificant.

Given the small number of trips by project vessels between Dutch Harbor and Oliktok Dock (30 between Years 2 and 6) and the low likelihood of a spill occurring, we find it extremely unlikely that a fuel spill, other chemical spill, or discharge will occur as a result of this vessel traffic that would have more than a de minimis effect on the PBFs for Western North Pacific and Mexico DPS humpback whale critical habitat. Even if a small spill were to occur within or close to critical habitat, it would be expected to evaporate and dissipate within 24 hours, such that any effects to these PBFs would be immeasurably small.

Steller Sea Lion Critical Habitat

NMFS identified physical and biological features essential for 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. Proposed project activities may impact Steller sea lion critical habitat through

acoustic disturbance and contamination. We evaluate effects to each of the 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 proposed project does not include any terrestrial activities that overlap with major haulouts and rookeries. In-water activities could impact the terrestrial zone if any spills or contaminant releases from a vessel occur that result in these hazardous materials reaching the shore of a haulout or rookery. Mitigation measures will be implemented so that project vessels will avoid approaching within 3 nm (5.5 km) of known Steller sea lion rookeries and major haulouts, reducing the likelihood of released contaminants affecting critical habitat before dispersal and evaporation occurs. Therefore, effects of the proposed project on the terrestrial zones of Steller sea lion critical habitat are not likely to occur.

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

   There will be no project activities that would affect the air zone about major haulouts and rookeries. There will be noise given off by vessels transiting from Dutch Harbor to Oliktok Dock, but these vessels will avoid approaching within 3 nm (5.5 km) of known Steller sea lion rookeries and major haulouts, making impacts of airborne noise insignificant and unlikely to occur.

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.

   No project activities will take place 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.

   While project vessels will avoid approaching within 3 nm (5.5 km) of known Steller sea lion rookeries and major haulouts, they may still create acoustic disturbance within the aquatic zones. However, because of the slow speed, and thus reduced sound, of barges and tugs, and the short-term presence of vessels in a given area along the transit route (about 6 minutes maximum exposure above 120 dB for any given point) within critical habitat aquatic zones, acoustic impacts of the project on the aquatic zones around major haulouts and rookeries will be insignificant.

   As mentioned previously, spills or contaminant release from vessels could occur, which would enter the aquatic zones around rookeries and haulouts. However, rapid dispersal and evaporation of contaminants is likely in open water areas along the transit route, making impacts on the aquatic zones unlikely to occur.

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).

   The Bogoslof foraging area historically supported large aggregations of spawning pollock (Ianelli et al. 2023). While vessels transiting from Dutch Harbor to Oliktok Dock will pass through the Bogoslof foraging area for a short period, noise associated with vessel operations is not anticipated to impact foraging. Similarly, any minor contaminant spills

from passing vessels are not expected to negatively impact this foraging area as contaminants are anticipated to evaporate or disperse quickly in open water.

Arctic Ringed Seal and Beringia DPS Bearded Seal Critical Habitat

Physical and biological features associated with ringed seal critical habitat include: 1) snow-covered sea ice suitable for the formation and maintenance of subnivean lairs, defined as waters 3 meters or more in depth, with seasonal landfast ice or stable pack ice having snow drifts of at least 45 centimeters in depth to form and maintain birthing, whelping and nursing lairs; 2) sea ice for molting is defined as waters of 200 meters depth or less, with a pack ice concentration of at least 15%; and 3) primary prey to support ringed seals occurring in waters of 200 meters depth or less and containing benthic organisms and fishes found on or near the seafloor. The PBFs for bearded seal 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%; 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%; 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.

Project activities that will take place in ringed or bearded seal critical habitat will occur during the ice-free season and therefore there will be no effect of these activities on PBFs 1 and 2 for either species' critical habitat, which are directly linked to sea ice.

It is possible that acoustic disturbance from vessels and screeding activities, or habitat alteration from screeding and lightering could affect primary prey species for ringed or bearded seals within the action area. Acoustic disturbance may cause mobile prey species to leave the immediate area, but this impact is not expected to cause lasting changes in the local prey pool as acoustic disturbance will be short in duration and infrequent (e.g., screeding is one week per year in four of the six project years). Similarly, habitat alteration, such as sedimentation from screeding or landing of barges at the lightering station and Oliktok Dock, will be temporary. As stated above, the waters within the barge landing portion of the action area (where screeding will occur), have high sediment loads due to natural processes such as riparian outflow, coastal erosion, ice scouring, wind and wave action, so any sedimentation caused by project activities is not likely to alter the local habitat in a way that will adversely impact ringed or bearded seal prey species. Therefore, we conclude that impacts of project activities on ringed and bearded seal critical habitat will be insignificant.

Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed action may affect, but is not likely to adversely affect, bowhead whale (*Balaena mysticetus*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), North Pacific right whale (*Eubalaena japonica*), Western North Pacific stock gray whale (*Eschrichtius robustus*), Western North Pacific distinct population segment (DPS) or Mexico DPS humpback whale (*Megaptera novaeangliae*), sperm whale (*Physeter macrocephalus*), Arctic subspecies ringed seal (*Phoca hispida hispida*), Beringia DPS bearded seal (*Erignathus barbatus*), or the Western DPS Steller sea lion (*Eumetopias jubatus*), or critical habitat for the North Pacific right whale, Western North Pacific or Mexico DPS humpback whale, Steller sea lion, Arctic subspecies ringed seal or Beringia DPS bearded seal. Reinitiation of consultation is required where discretionary federal

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

Please direct any questions regarding this letter to Jenna Malek at jenna.malek@noaa.gov, 907-271-1332, and to akr.section7@noaa.gov.

Sincerely,

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