UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
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Endangered Species Act (ESA) Conference Opinion and Concurrence

Alaska Railroad Company Seward Dock Repair, POA-1965-00034, Seward, Alaska

NMFS Consultation Number: AKRO-2023-03224

Action Agency/Agency: **U.S. Army Corps of Engineers**

Affected Species and Determinations:

ESA-Listed Species	Status	Is the Action Likely to Adversely Affect Species?	Is the Action Likely to Adversely Affect Critical Habitat?	Is the Action Likely to Jeopardize the Species?	Is the Action Likely to Destroy or Adversely Modify Critical Habitat?
Steller Sea Lion, Western DPS (*Eumetopias jubatus)*	Endangered	No	No	No	No
Sunflower sea star (*Pycnopodia helianthoides*)	Proposed Threatened	Yes	NA	No	NA

Consultation Conducted By: National Marine Fisheries Service, Alaska Region

Issued By:
Jonathan M. Kurland
Regional Administrator

Date: May 7, 2024

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TERMS AND ABBREVIATIONS

Abbreviation/ Acronym	Definition
µPa	Micro Pascal
2D	Two-Dimensional
3D	Three-Dimensional
Ac	Acre
AKR	Alaska Region
ARRC	Alaska Railroad Company
ASLC	Alaska Sea Life Center
BA	Biological Assessment
BSEE	Bureau of Safety and Environmental Enforcement
CI	Confidence Interval
CPUE	Catch Per Unit Effort
CSEL	Cumulative Sound Exposure Level
CV	Coefficient of Variance
CWA	Clean Water Act
dB re 1µPa	Decibel referenced 1 microPascal
DEIS	Draft Environmental Impact Statement
District Court	U.S. District Court for the District of Alaska
DP	Dynamic Positioning
DPS	Distinct Population Segment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
°F	Fahrenheit
FR	Federal Register
ft	Feet
G	Gallons
Hz	Hertz
IHA	Incidental Harassment Authorization
IPCC	Intergovernmental Panel on Climate Change
ITA	Incidental Take Authorization
ITS	Incidental Take Statement
kHz	Kilohertz
Km	Kilometers
Kn	Knots
L	Liter

Abbreviation/ Acronym	**Definition**
M	Meter
Mi	Mile
MMPA	Marine Mammal Protection Act
Ms	Milliseconds
µPa	Micro Pascal
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NSF	National Science Foundation
Opinion	Biological Opinion
Pa	Pascals
PND	PND Engineers, Inc.
PTS	Permanent Threshold Shift
RMS	Root Mean Square
ROV	Remotely Operated Vehicle
RPA	Reasonable and Prudent Alternative
S	Second
SAR	Search and Rescue
SEL	Sound Exposure Level
SFSS	Sunflower sea star
SONAR	Sound Navigation and Ranging
SSL	Steller Sea Lion
SSWS	Sea star wasting syndrome
TTS	Temporary Threshold Shift
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey

1 INTRODUCTION

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

Section 7(b)(3) of the ESA requires that at the conclusion of consultation, NMFS and/or USFWS provide an opinion stating how the Federal agency's action is likely to affect ESA-listed species and their critical habitat. If incidental take is reasonably certain to occur, section 7(b)(4) requires the consulting agency to provide an incidental take statement (ITS) that specifies the impact of any incidental taking, specifies those reasonable and prudent measures necessary or appropriate to minimize such impact, and sets forth terms and conditions to implement those measures.

Section 7(a)(4) of the ESA provides a mechanism for identifying and resolving potential conflicts between a proposed action and species or critical habitat proposed to be listed at an early planning stage. While consultations are required when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continued existence of a proposed species or destroy or adversely modify proposed critical habitat. However, Federal action agencies may request a conference on any proposed action that may affect proposed species or proposed critical habitat. Conferences follow the same procedures, contents, and format as formal consultation and biological opinion. However, the incidental take statement provided with a conference opinion does not take effect until the Services adopt the conference opinion as a biological opinion on the proposed action - after the species is listed.

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 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 herein would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions

would not be any different. A more recent proposed rule was published in the *Federal Register* on June 22, 2023 (88 FR 40753).

In this document, the action agency is the United States Army Corps of Engineers (USACE) which proposes to permit the Alaska Railroad Company (ARRC) to make repairs to the existing Seward Dock. The consulting agency for this proposal is NMFS's Alaska Region. This document represents NMFS's concurrence on the effects of the proposed action on the endangered Western distinct population segment (DPS) Steller sea lion and a conference opinion (opinion) on the effects of the proposed action on the sunflower sea star, which is proposed for listing at threatened under the ESA (88 FR 16212, March 16, 2023).

The conference opinion and ITS were prepared by NMFS Alaska Region in accordance with section 7(b) of the ESA (16 U.S.C. § 1536(b)) and implementing regulations at 50 CFR part 402.

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

1.1 Background

This opinion is based on information provided in the request for consultation and supporting materials received from the USACE. Other sources of information relied upon include additional information provided by the USACE and applicant, and conference calls. A complete record of this consultation is on file at NMFS's Juneau, Alaska, office.

The proposed project would conduct repairs on the ARRC passenger dock to extend its life and ensure it remains in service while restoring vehicle access to the dock. Construction and repairs are expected to start in the spring or summer of 2024.

This opinion considers the effects of the following in-water activities:

1. Cleaning and repair of 38 existing 20-inch wooden piles.
2. installation of protective wrap and grout fill surrounding each pile; and
3. support and material supply vessel transit.

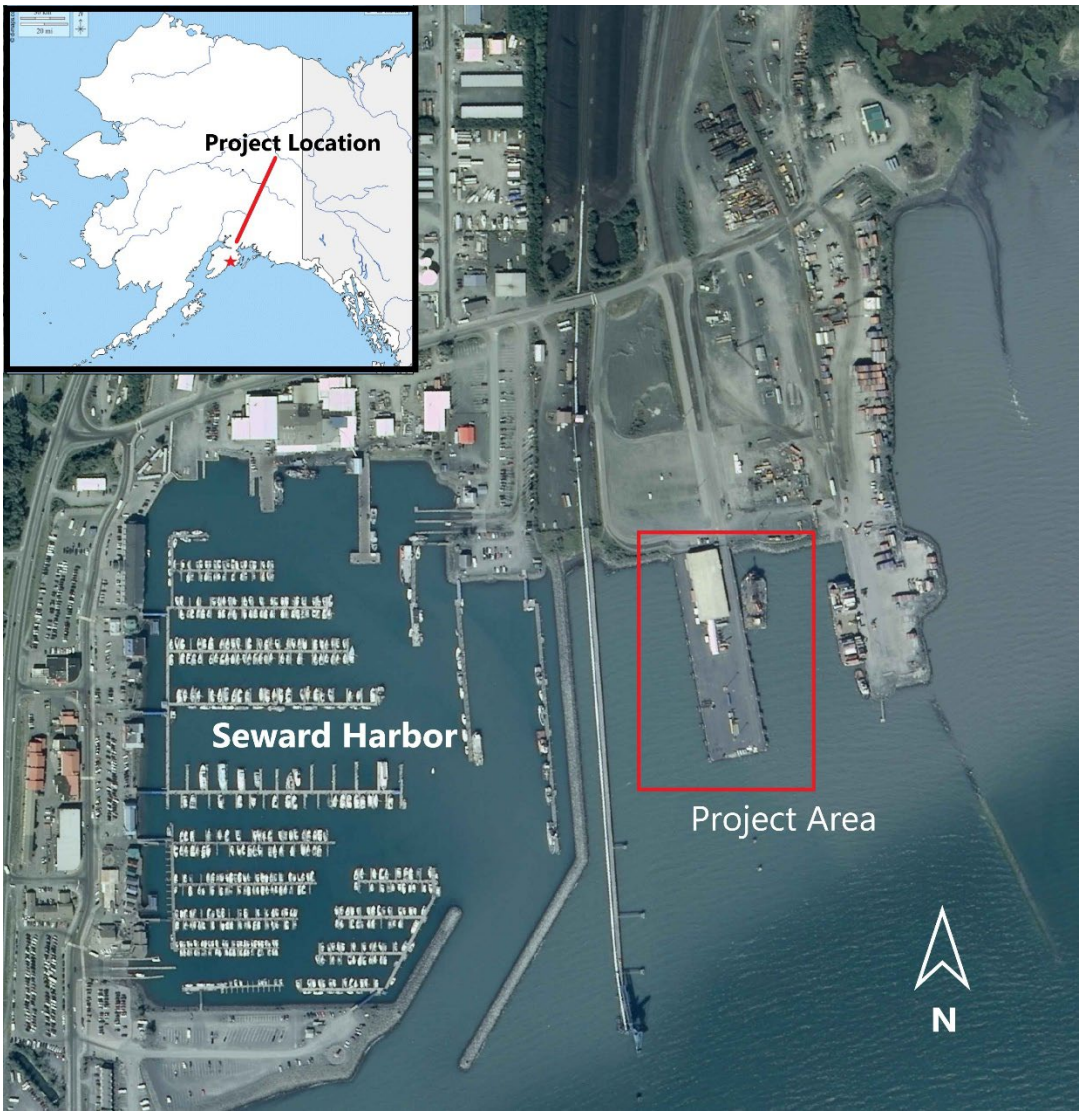

Figure 1. Project location at Seward Harbor, Seward, Alaska (PND Engineers Inc., 2023).

This opinion considers the effects of project activities on the proposed threatened sunflower sea star. The concurrence section considers the effects of project activities on the endangered Western DPS Steller sea lion (*Eumetopias jubatus*). There is no designated critical habitat located within the action area. The nearest designated critical habitat for Steller sea lions is Cape Resurrection B and C haulouts, located approximately 27 kilometers (km) southwest of the project area. NMFS is not currently proposing designating critical habitat for the sunflower sea star.

1.2 Consultation History

Our communications with the USACE regarding the consultation are summarized below.

- December 19, 2023: NMFS received an informal Section 7 consultation initiation request

from the USACE for a permit application received from PND Engineers, Inc. (PND) on behalf of the ARRC.

- December 27, 2023: NMFS submitted an additional information request and informed USACE that the sunflower sea star may be listed prior to the project's completion date.
- December 28, 2023: USACE provided an updated consultation request.
- January 4, 2024: NMFS submitted a second additional information request.
- January 22, 2024: NMFS provided a brief description of the potential for adverse effects to the sunflower sea star and suggested the project go through formal conferencing.
- January 24, 2024: The USACE requested an estimated timeline for the formal conference opinion.
- January 31, 2024: NMFS met with the USACE, PND, and ARRC to discuss the conferencing process and clarify some of the project details.
- February 1, 2024: The USACE withdrew request for a standalone informal consultation and requested a formal conference opinion for the sunflower sea star and an informal consultation for the Western DPS Steller sea lion.
- February 1, 2024: NMFS initiated consultation.

2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA

2.1 Proposed Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. 50 C.F.R. § 402.02.

The proposed project would conduct repairs on the ARRC passenger dock in Seward, Alaska, to extend its life and ensure it remains in service while restoring vehicle access to the dock. Specifically, these repairs would include work below the mean high-water line (HWL) to perform repairs to 38 20-in diameter wooden piles. Additional work that would repair and resurface the deck of the dock would be completed well above the HWL, is not likely to affect marine species, and will not be analyzed further in this document.

2.1.1 Proposed Activities

The repairs to the 38 20-in diameter wooden piles will all occur below the high-water line. No piles are proposed for removal or installation. Specific repair actions and sequence will include:

- clearing piles of any attached marine growth;
- placing spacers and reinforcing bars vertically along each pile;

- wrapping the piles with Fiberglass Reinforced Plastic (FRP) pile wrap and reinforcing bars to create a continuous shell;
- ratchet straps or similar methods will be used to temporarily secure the pile wraps to prevent separation and loss of grout into the water column;
- embedding the ends of the wrap several inches into the substrate to seal the bottoms; and
- filling the resulting space behind the wrap to reinforce the piles with an underwater grout using the tremie method.

The pump for the grout placement will be located out of the water on the dock deck. Any ratchet straps or similar materials used to secure the pile wraps will be removed at the end of the repairs. Piles will be cleaned and wrapped sequentially to minimize the time between cleaning and wrap placement. Small support vessels may be needed near the dock during repairs for diver support. Repairs made to piles are estimated to take from four to six months during the work window beginning in late spring of 2024.

Construction materials will be delivered by existing regular shipments and will follow established routes within Resurrection Bay to the site at the cruise ship terminal. Construction and repair materials will be delivered to the project site by a small barge or by truck.

2.1.2 General Mitigation Measures

Mitigation Measures for AKRO-2023-03224 ARRC Seward Dock Repairs will include:

1. The project proponent will inform NMFS of impending in-water activities a minimum of one week prior to the onset of those activities (email information to akr.prd.records@noaa.gov).

2. If construction activities will occur outside of the time window specified in this letter, the applicant will notify NMFS of the situation at least 60 days prior to the end of the specified time window to allow for reinitiation of consultation.

3. In-water work will be conducted at the lowest points of the tidal cycle when feasible.

4. Consistent with Alaska Statute 46.06.080, trash will be disposed of in accordance with state law. The project proponent will ensure that all closed loops (e.g., packing straps, rings, bands, etc.) will be cut prior to disposal. In addition, the project proponent will secure all ropes, nets, and other marine mammal entanglement hazards so they cannot enter marine waters.

Sunflower Sea Star Mitigation Measures

5. A survey for sunflower sea stars will be conducted daily, less than 24 hrs prior to in-water work, and will systematically examine all intertidal or subtidal areas that may be affected by in-water work on that day, including piles to be cleaned. Surveys may be

done on foot at low tide or by divers for areas where the substrate is not visible by foot during low tide.

6. Sunflower sea stars that are found in the affected area or attached to a pile will be gently moved into a container of water collected at the site and taken to a location away from the active cleaning/ disturbance area and gently released onto the substrate. Individuals will be held in a nylon net within a bucket of water for no more than 10 minutes. The number and approximate diameter of sunflower sea stars moved will be recorded and reported to NMFS. If it appears that a sunflower sea star has sea star wasting syndrome or if any dead sunflower sea stars are observed, take pictures of the individuals and count how many appear to be infected, but do not touch or move these individuals. All sunflower sea star survey findings will be reported to NMFS, including latitude/longitude and transect line, at akr.prd.records@noaa.gov .

7. Due to the variability in habitat quality in the project vicinity, any sea stars requiring relocation will be gently released onto the substrate at the offshore end of the Seward Freight Dock, located just to the East of the Passenger Dock.

Data Collection

The action agency will (or require their lessees or permittees to) have the following responsibilities for data collection:

8. An appointed recorder or observer will record observations on data forms or into electronic data sheets.

9. The project proponent will ensure that collected 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).

10. Appointed observers will record the following:
    a. project name, date, shift start time, shift stop time, and observer identifier;
    b. date and time of each reportable event (e.g., a listed marine mammal observation, operation shutdown, reason for operation shutdown, change in weather conditions);
    c. weather parameters (e.g., percent cloud cover, percent glare, visibility) and sea state where the Beaufort Wind Force Scale will be used to determine sea state (https://www.weather.gov/mfl/beaufort);
    d. species, numbers, and, if possible, sex and age class of observed listed marine mammal;
    e. the predominant anthropogenic activities occurring during each listed marine mammal observation;
    f. observations of listed marine mammal behaviors and reactions to anthropogenic sounds and presence;

g. geographic coordinates of initial, closest, and last location of listed species, including distance from observer to the listed species, and minimum distance from the predominant sound-producing activity to listed species; and

h. whether the presence of a listed species necessitated the implementation of mitigation measures to avoid interactions, and the duration of time that normal operations were affected by the presence of listed species.

Reporting

Unauthorized Take

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

    a. digital, queryable documents containing observations and records, and digital, queryable reports;

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

    c. description of the event;

    d. number of individuals of each listed marine mammal species affected;

    e. the time the animal(s) was first observed or entered the project area, and, if known, the time the animal was last seen or exited the area, and the fate of the animal;

    f. mitigation measures implemented prior to and after the animal was taken;

    g. if a vessel struck a listed marine mammal, the contact information for the observer on duty on the vessel or the contact information for the individual piloting the vessel; and

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

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

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

Illegal Activities

If the applicant or appointed observers/workers on site observe listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (Table 2; 1-800-853-1964).

13. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Final Report

14. A final report will be submitted to NMFS within 90 calendar days of the completion of the project. It should be emailed to akr.prd.records@noaa.gov. The report will summarize all in-water activities associated with the proposed action.

Summary of Agency Contact Information

Table 1. Summary of agency contact information.

Reason for Contact	**Contact Information**
Consultation Questions and Unauthorized Take	Sierra Franks: sierra.franks@noaa.gov ; and NOAA Consultation Biologist: Leanne Roulson leanne.roulson@noaa.gov
Reports & Data Submittal (humpback whale and Steller sea lion)	akr.prd.records@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) 1-877-925-7773
Oil Spill and Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSSpillResponse@noaa.gov
Illegal Activities *(not related to project activities, e.g., feeding, unauthorized harassment, or disturbance to marine mammals)*	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

2.2 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not

merely the immediate area involved in the action (50 CFR § 402.02). For this reason, the action area is typically larger than the project area and extends out to a point where no measurable effects from the proposed action occur.

The action area will include the perimeter of the dock. Materials for the project will be delivered to Seward on regular scheduled shipments following established routes within Resurrection Bay. Materials will be delivered to the project site from the Seward Boat harbor by barge or on land by truck. No shutdown zone is proposed for material transport.

Figure 2. Action Area map for ARRC Seward dock repairs. Map includes transit to and from Seward Boat Harbor and the perimeter of the dock, around the pile repair area (© 2024 Google Earth).

3 RANGEWIDE STATUS OF THE SPECIES

This opinion and concurrence consider the effects of the proposed action on the species specified in Table 2. The nearest designated critical habitat for Western DPS Steller sea lion is Cape Resurrection B and C haulouts located approximately 27 km southwest of the project area. Therefore, there is no potential of adverse effects to Steller sea lion designated critical habitat based on the project description. There is no critical habitat proposed for the sunflower sea star at this time.

3.1

Table 2. ESA-listed Species in the Action Area, Critical Habitat

Species	Status	Listing	Critical Habitat
WDPS Steller Sea Lion (*Eumetopias jubatus*)	Endangered	NMFS 1997, 62 FR 24345	NMFS 1993, 58 FR 45269 None in the action area
Sunflower Sea Star *(Pycnopodia helianthoides)*	Proposed Threatened	Proposed, 88 FR 16212	Not proposed at this time

3.2 Climate Change

Global climate change is a threat that affects all species. Because it is a shared threat, we present this narrative here rather than in each of the species-specific effect analyses that follow. A vast amount of literature is available on climate change and for more detailed information we refer the reader to these websites which provide the latest data and links to the current state of knowledge on the topic:
https://www.ipcc.ch/reports/
https://climate.nasa.gov/evidence/
http://nsidc.org/arcticseaicenews/
https://arctic.noaa.gov/Report-Card

The listed and proposed species we consider in this opinion live in the ocean and depend on the ocean for nearly every aspect of their life history. Factors which affect the ocean, like temperature and pH, can have direct and indirect impacts on listed and proposed species and the resources they depend upon. Global climate change may affect all the species we consider in this opinion, but it is expected to affect them differently. First, we provide background on the physical effects climate change has caused on a broad scale; then we focus on changes that have occurred in Alaska.

3.3 Species Not Likely to be Adversely Affected by the Action

NMFS uses two criteria to identify those endangered or threatened species that are likely to be adversely affected. The first criterion is exposure or some reasonable expectation of a co-occurrence between one or more potential stressors associated with the proposed activities and a listed species or designated critical habitat. The second criterion is the probability of a response given exposure.

We applied these criteria to the species listed above and determined that Western DPS Steller sea lions are not likely to be adversely affected by the proposed action.

3.3.1 Steller sea lions

More detailed background information on the status of WDPS Steller sea lions can be found in

the latest stock assessment report (Muto et al. 2019) and the recovery plan for WDPS Steller sea lions (NMFS 2008). Information on Steller sea lion biology, threats, and habitat (including critical habitat) is available online at: https://www.fisheries.noaa.gov/species/steller-sea-lion.

3.3.1.1 Status and Population Structure

On November 26, 1990, NMFS issued the final rule to list Steller sea lions as a threatened species under the ESA (55 FR 49204). In 1997, NMFS reclassified Steller sea lions as two DPSs based on genetic studies and other information (62 FR 24345; May 5, 1997). 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 (EDPS) was removed from the endangered species list (78 FR 66140).

The most recent surveys of WDPS Steller sea lions in Alaska suggest a minimum population estimate of 54,267 individuals; estimates for WDPS in Russia suggest there may be approximately 23,000 animals, which is less than the 1960 levels but more than the low in 2005 (Muto et al. 2019). Overall, the WDPS Steller sea lion population in Alaska (non-pups only) was estimated to be increasing at about 2.14 percent per year from 2002-2017 (Muto et al. 2019). Population modeling suggests decreased juvenile survival likely played a major role in the decline of sea lions in the central Gulf of Alaska during 1975-1985 (Pascual and Adkison 1994, York 1994, Holmes and York 2003).

3.3.1.2 Presence in the Action Area

Within the action area, Steller sea lions are anticipated to be predominantly from the WDPS because Seward is west of the assumed DPS and stock boundary at 144° W longitude (Hastings et al. 2020). Recent work indicated that only WDPS region-born females cross the stock boundary (Jemison et al. 2013). Virtually no branded, Eastern Stock region-born females have been observed in the Western Stock region in contrast to 6.7% of branded, Western Stock region-born females in the Eastern Stock region at age 5 years (Jemison et al. 2013). In contrast, males from both populations regularly cross the stock boundary, at least temporarily, especially males born in Prince William Sound and in southern Southeast Alaska, and males ≤ 5 years of age (Jemison et al.2013). Therefore, for the purposes of this opinion, NMFS considers that a discountable percent of the total Steller sea lions in the action area are from the delisted EDPS and the vast majority are from the endangered WDPS.

Steller sea lions are likely to be present in the area surrounding the Seward Boat Harbor and moving through the vicinity of the project. The possible stressors related to the project include noise from the activities and human interactions during the work on the piles. The project will not employ any gear or methods that would pose a risk of entanglement to sea lions.

The noise generated by the repair work is not likely to generate sound at levels that would disturb or harm Steller sea lions because no large equipment will be used below the high-water line and there will be no pile driving activities. Seward is an active transit harbor and there is substantial boat traffic including cruise ships and fishing vessels year-round. The pile cleaning will use hand tools to scrape biological material from the pile surface. The pump used to fill the

pile wrap with grout will be located on the dock surface and its operation is unlikely to generate measurable sound waves in the water below. Therefore, the work on the dock and associated activities are unlikely to add noticeable levels of noise or vessel activity to the area or contribute to potential vessel strike for Steller sea lions.

Steller sea lions may be attracted to the work area due to the presence of dislodged biological material that may be perceived as potential prey. Although unlikely, it is possible that construction materials, support vessels, or dislodged matter may present a risk to Steller sea lions. We believe this risk is discountable because Steller sea lions are unlikely to be at the dock location due to the project activities themselves. Should some be curious enough to investigate the underwater work, there are no activities involved that would cause effects to become adverse. NMFS concludes that the proposed action is not likely to adversely affect Western DPS Steller sea lions. This species will not be discussed further.

3.4 Status of Listed Species Likely to be Adversely Affected by the Action

This opinion examines the status of each species that is likely to be adversely affected by the proposed action. Species status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR § 402.02.

For each species, we present a summary of information on the population structure and distribution of the species to provide a foundation for the exposure analyses that appear later in this opinion. Then we summarize information on the threats to the species and the species' status given those threats to provide points of reference for the jeopardy determinations we make later in this opinion. That is, we rely on a species' status and trend to determine whether an action's effects are likely to increase the species' probability of becoming extinct.

This opinion examines status of the proposed threatened sunflower sea star which is likely to be adversely affected by the proposed action.

3.4.1 Sunflower Sea Star

On August 18, 2021, the Center for Biological Diversity petitioned NMFS to list the sunflower sea star (*Pycnopodia helianthoides*) under the ESA. NMFS determined that the proposed action may be warranted (86 FR 73230, December 27, 2021) and began a full status review to evaluate overall extinction risk for the species. NMFS issued a proposed rule to list the species as threatened on March 16, 2023, (88 FR 16212). NMFS has not proposed to designate critical habitat at this time.

Prior to 2013, the global abundance of sunflower sea star was estimated at several billion animals, but from 2013–2017 sea star wasting syndrome (SSWS) reached pandemic levels, killing an estimated 90 percent or more of the population (Lowry 2022). Sunflower sea stars are currently estimated to number approximately 600 million (Lowry 2022). Declines in the northern

portion of its range (i.e., Alaska and British Columbia) were less pronounced than in the southern portion, but still exceeded 60 percent. Species-level impacts from SSWS, both during the pandemic and on an ongoing basis, have been identified as the major threat affecting the long-term persistence of the sunflower sea star (Lowry 2022).

Recent counts in areas of Alaska near Cook Inlet, Prince William Sounds, and the Kenai Fjords showed large increases in sunflower sea star abundance in 2022 compared to previous years (Heather Coletti et al. 2023).

3.4.1.1 Distribution and Habitat Use

The sunflower sea star is a large (up to one meter in diameter), fast-moving (up to 160 cm/minute), many-armed (up to 24) echinoderm native to the west coast of North America (Lowry et al. 2022). Sunflower sea stars occur in a wide range of intertidal and subtidal habitats from northern Baja California, Mexico, to the central Aleutian Islands, Alaska (Jewett et al. 2015; Gravem et al. 2021; Lowry 2022). They occupy waters from the intertidal to at least 435 m deep, but is most common at depths less than 25 m and rare in waters deeper than 120 m (Lambert 2000; Hemery et al. 2016; Gravem et al. 2021). Sunflower sea stars occur over a broad array of soft-, mixed-, and hard-bottom habitats, and are most abundant in Alaska and British Columbia (Gravem et al. 2021).

They are found along the outer coasts and inside waters, which have complex geophysical features including glacial fjords, sounds, embayments, and tidewater glaciers. Preferring temperate waters, they inhabit kelp forests and rocky intertidal shoals (Shivji et al. 1983; Lowry 2022), and are regularly found in eelgrass meadows as well (Dean and Jewett 2001; Gravem et al. 2021).

3.4.1.2 Presence in the Action Area

No recent surveys have been conducted at the Seward passenger dock or in the Seward Boat Harbor. The site iNaturalist (https://www.inaturalist.org), a citizen science site has 16 records, listing sunflower sea stars, (11 from 2023) within Resurrection Bay and accompanying photos for verification (https://www.inaturalist.org/observations?place_id=any&subview=map&taxon_id=47673). The closest observations were within 1.1 km (0.75 mi) of the project site. Therefore, it is reasonable to assume that there may be sunflower sea stars present in the action area.

3.4.1.3 Reproduction and Growth

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

reproduction and the period over which a mature individual is capable of reproducing (Lowry et al. 2022).

3.4.1.4 Feeding and Prey Selection

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

3.4.1.5 Threats to the Species

Brief descriptions of threats to sunflower sea stars follow. More detailed information can be found in the draft ESA Status Review report for the species (Lowry et al. 2022).

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

The causative agent of SSWS is currently unknown and various hypotheses regarding transmission dynamics and the lethality of SSWS under diverse physiochemical conditions exist. A number of factors ranging from environmental stressors to the microbiome in sea stars may play a role (Lloyd and Pespeni 2018; Konar et al. 2019; Aquino et al. 2021). Ocean warming has also been linked to SSWS outbreaks, hastening disease progression and severity (Harvell et al. 2019; Aalto et al. 2020).

4 ENVIRONMENTAL BASELINE

The “environmental baseline” refers to the condition of the proposed listed species in the action area, without the consequences to the proposed listed species caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action areas that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation process. The consequences to listed or proposed listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline (50 CFR § 402.02).

Seward is located at the northern end of Resurrection Bay on the northeast end of the Kenai Peninsula. Seward Boat Harbor is approximately 35 km (22 mi) from the open Pacific Ocean.

Seward is protected by the curved shape of the bay that reduces its exposure to waves and weather somewhat. Resurrection Bay and the Seward area is generally characterized by semidiurnal tides with a mean tide range of 2.54 m (8.3 feet), the diurnal tide range is 3.24 m (10.62 feet), and the extreme range is 5.78 m (18.98 feet) (data for Station 9455090, NOAA 2024). The mouth of the Resurrection River is adjacent to the Seward port and deposits substantial amounts of sediments into the bay; however, a breakwater limits some of the deposition in the harbor area (Figure 1). The bathymetry of the sound is variable depending on location and proximity to shore, islands, or rocks. Depths approach approximately 295 meters (970 feet) within Resurrection Bay but near the mouth of the Resurrection River and in the harbor area depths range from 6.7 meters (22 feet) to 15.3 m (50 feet).

4.1 Sea Star Wasting Syndrome

SSWS is the primary threat and stressor to sunflower sea stars across their range. A SSWS pandemic occurred across the range of the sunflower sea star from 2013-2017. SSWS is known to occur in sunflower sea stars and other species at smaller geographic and temporal scales and is expected to occur in the future. But the magnitude of future outbreaks is unknown. The pathogen that caused the 2013-2017 is unknown. As stated above, the 2022 Status Review Report for this species identified SSWS as the factor of greatest concern for the species throughout its range, including in the action area. SSWS is thought to be exacerbated by warming ocean temperatures and other climate change related characteristics.

4.2 Climate Change

Climate change is expected to lead to warming ocean temperatures, more extreme fluctuations in ocean temperatures, and more storm events. These characteristics may exacerbate SSWS events in sunflower sea stars, or result in marine habitat or ecological shifts that negatively affect the species (Lowry 2022). Warming ocean temperatures, extreme fluctuations in ocean temperature, harmful algal blooms, ocean acidification, and low dissolved oxygen events, all byproducts of anthropogenic climate change, could impose direct and indirect stress on *P. helianthoides* and increase their vulnerability over the coming decades. There is uncertainty regarding causal links between climate change and impacts to *P. helianthoides*, and the scale over which these potential impacts are taking place. For example, local temperature-related stress, low dissolved oxygen events, and harmful algal blooms may be buffered by the refuge that a broad geographic and depth range provides to this species.

4.3 Pollution

Pollution into the marine environment from runoff, spills, or outfall pipes may compromise the microbiome of sunflower sea stars leading to death, or making them vulnerable to other stressors (Aquino et al. 2021; McCracken et al. 2023). Relative to SSWS, this is minor threat that is limited in spatial and temporal scope. There is no direct evidence that this stressor is directly impacting sunflower sea stars in the action area.

4.4 Bycatch/Overexploitation

Sunflower sea stars are caught as bycatch in pot gear in the action area. Most of these are likely returned to the marine environment without serious injury. Handling stress in sea stars is not well understood but is not likely to measurably impact the species in the action area. We note that the Alaska Sea Life Center successfully keeps sunflower sea stars in their touch tank exhibit. Some sunflower sea stars may be collected by the public, but these numbers are expected to be small and may not result in significant stress if the animals are quickly returned to the marine environment.

4.5 Prior Section 7 Consultations

Based on a search of the Environmental Consultation Organizer (ECO), there have been no Section 7 consultations conducted for projects in the Resurrection Bay area since 2017. There is one formal Section 7 consultation in process approximately 5 km (3.1 mi) southeast of the Seward project area (Table 3)(AKRO-2024-00243). The main stressor being assessed in this concurrent consultation is acoustic disturbance.

Table 3. Recent and Ongoing Section 7 consultations within a three-mile radius of the ARRC Seward Dock Repair project

Project ID	Project Title	Consultation Category
AKRO-2024-00243	United States Coast Guard Seward Dock Project	Formal

The records are linked in the Environmental Consultation Organizer (ECO) at https://appscloud.fisheries.noaa.gov/suite/sites/eco/page/home

5 EFFECTS OF THE ACTION

"Effects of the action" are all consequences to listed or proposed 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).

This conference opinion relies on the best scientific and commercial information available. We try to note areas of uncertainty, or situations where data is not available. In analyzing the effects of the action, NMFS aims to minimize the likelihood of false negative conclusions (i.e. concluding that adverse effects are not likely when such effects are, in fact, likely to occur).

We organize our effects analysis using a stressor identification – exposure – response – risk assessment framework for the proposed activities.

We conclude this section with an *Integration and Synthesis of Effects* that integrates information presented in the *Status of the Species* and *Environmental Baseline* sections of this opinion with the results of our exposure and response analyses to estimate the probable risks the proposed action poses to endangered and threatened species.

NMFS identified and addressed all potential stressors; and considered all consequences of the proposed action, individually and cumulatively, in developing the analysis and conclusions in this opinion regarding the effects of the proposed action on ESA-listed species and designated critical habitat.

5.1 Project Stressors

Stressors are any physical, chemical or biological phenomena that can induce an adverse response. The effects section starts with identification of the stressors produced by the constituent parts of the proposed action.

Based on our review of the data available, the proposed pile repair activities may cause these primary stressors:

1. Injury to sunflower sea stars due to removal from a pile or being struck during wrap placement;
2. Injury to a sunflower sea star due to impacts from construction detritus or grout that escapes the wrap during placement;
3. Stress and disturbance due to being handled and relocated to an alternative site;
4. Increased risk of predation due to relocation or loss of shelter provided by the pile environment;
5. Temporary loss of habitat and prey sources due to pile repair; and
6. Pollution from unauthorized spills.

5.1.1 Minor Stressors on ESA-Listed Species and Critical Habitat

Based on a review of available information, we determined the following stressors are either unlikely to occur or likely to have minimal impacts on sunflower sea stars.

1. Injury to a sunflower sea star due to impacts from construction detritus or grout that escapes the wrap during placement, and
2. Pollution from unauthorized spills.

The applicant has agreed to implement general Mitigation Measures (See Section 2.1.2), including several specific to the sunflower sea star. The pre-work surveys and relocation protocol will reduce the likelihood that a sea star will be near enough to a pile being actively cleaned to be affected by construction materials or grout that escapes the wrap. The project description includes methods that will limit the potential for grout to be spilled outside of the pile wrap. The project work that would require handling fuel or other potential pollutants will all take place on

land rather than on the dock or near the water. These factors limit the risk of a sea star coming into contact or interacting with construction materials, pollutant spills, or grout. Therefore, we conclude that such interactions are extremely unlikely to occur.

5.1.2 Major Stressors on Sunflower Sea Stars

The primary stressor for sunflower sea stars will be removal and relocation from the piles during the cleaning process, which could lead to physical injury and/or stress. Sea stars may be attached to the piles before they are cleaned as part of this action. Marine invertebrates such as mussels and barnacles, have likely settled and grown on these pilings. These are prey items for sunflower sea stars, meaning it is possible that a few individual sea stars will be attracted onto or near the pilings prior to the pilings' cleaning. New wrap material for the pilings will come in contact with the benthic environment prior to being filled with grout and could hit or injure a sea star on the seafloor during installation.

Activities impacting the benthic environment due to placing the wrap around and securing it to the piles have potential to injure sunflower sea stars on the sea floor or on the pilings. A sea star may be subject to greater predation risk after being released during the relocation process before it is able to attach to the substrate or find shelter. Although the piles are likely to support attached benthic organisms and provide habitat for sea stars after the project is completed, the sea stars and other attached organisms will lose access to this habitat for several weeks or months until they are able to recolonize the piles. These activities have the potential to directly, adversely affect (e.g., harm, wound, kill, collect) sunflower sea stars, as well as sunflower sea star habitat.

Sunflower sea stars may be affected if they are temporarily unable to use the site for forage or refuge habitat due to construction activities and physical relocation. Although sea stars and their prey will be temporarily unable to access the dock piles, these effects will be insignificant given the project's limited footprint and availability of similar habitat nearby (intertidal habitat and similar piles and submerged dock structures). Any disturbances to sea stars or their prey would be temporary, limited to one to two months of in-water construction, after which animals will be able to return to the site.

Because there is similar available habitat nearby where sea stars will be relocated and the applicant has agreed to implement mitigation measures for sunflower sea stars (See Section 2.1.2) that will ensure that individual sea stars will be relocated quickly, we do not expect relocation to cause long-term stress or reduction in fitness for sunflower sea stars.

5.2 Exposure Analysis for the Proposed Sunflower Sea Star

Exposure analyses are designed to identify the listed or proposed species that are likely to co-occur with the effects in space and time and the nature of that co-occurrence. In this step of our analysis, we estimate the number of individuals that are likely to be exposed to an action's effects and the populations or subpopulations those individuals represent.

As discussed in Section 2 above, ARRC has agreed to mitigation measures that should avoid or minimize exposure of listed species to one or more stressors from the proposed action.

5.2.1 Sunflower Sea Star Occurrence and Exposure Estimates

Prior to the SSWS pandemic, sunflower sea star abundance varied geographically in Alaska. They were reported as quite common in western Prince William Sound (average 0.233/m2) (Konar et al.2019). Post-pandemic densities are much lower and range from 0 to 0.04/m 2 at the sites that once had the highest density (western Prince William Sound) (Traiger et al. 2022).

No recent surveys have been conducted at the Seward passenger dock or in the Seward Boat Harbor. The site iNaturalist (https://www.inaturalist.org), a citizen science site has 13 records (11 from 2023) of sunflower sea stars within Resurrection Bay and accompanying photos for verification. The closest observations were within 1.1 km (0.75 mi) of the project site. Therefore, it is reasonable to assume that there may be sunflower sea stars present in the action area.

The proposed project would clean 38 20-inch diameter piles, with each pile submerged to a depth of between four and 14 feet, giving an average submerged depth of 10 ft. Each pile would have approximately 4.86 m^2 (52.3 ft^2) of submerged surface area. In total, all 38 piles would have a combined surface area of 184.75 m^2 (1,988.67 ft^2). Based on the estimated density of sunflower sea stars present pre-pandemic and the estimated decline in the population, the expected density in the action area would be 0.04-sunflower sea star per m^2. Thus, approximately 7.4 sea stars would be likely to be encountered/impacted in the 184.75 m^2 affected by the pile cleaning. We are rounding this up to 8.

5.3 Response Analysis

Response analyses determine how listed species or proposed listed species are likely to respond after being exposed to an action's effects on the environment or directly on species themselves. Our assessments try to detect the probability of lethal responses, physical damage, physiological responses (particular stress responses), behavioral responses, and social responses that might result in reducing the fitness of listed individuals. Ideally, our response analyses consider and weigh evidence of adverse consequences, beneficial consequences, or the absence of such consequences.

As described in the *Exposure Analysis*, sunflower sea stars are expected to occur in the action area and are expected to overlap with disturbance and possible relocation associated with pile cleaning and wrap installation activities. We assume that some individuals are likely to be exposed and respond to these disturbances. The mitigation measures (section 2.1.2) provide for greater care in removal of any sunflower sea stars encountered, which will reduce the likelihood of injury or mortality due to the cleaning. Sunflower sea stars that are alive and not exhibiting SSWS will be relocated quickly and placed in areas of similar- or better-quality habitat. Relocation will introduce some stress for sea stars and as noted earlier may expose them to greater predation risk as they move to find shelter and attach to the substrate.

We expect most animals would not return to the area during pile cleaning activities if they were relocated. Although we do not have specific research on sea star response to being handled as part of a relocation it is reasonable to conclude that gentle removal and relocation is less likely to incur injury than leaving the sea stars where they would be subject to mechanical scraping necessary for the pile cleaning. There are large sea stars held at the Alaska Sea Life Center where they are touched and handled gently without apparent behavioral or survival effects. The individual and cumulative energy costs of the behavioral responses we have discussed are not likely to increase the energy budgets of sunflower sea star individuals, and their probable exposure to these stressors are not likely to reduce their fitness.

6 CUMULATIVE EFFECTS

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

We searched for information on non-Federal actions reasonably certain to occur in the action area. We did not find any information about non-Federal actions other than what has already been described in the Environmental Baseline (Section 4 of this Opinion). Some continuing non-Federal activities are reasonably certain to contribute to climate change within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline versus cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the Environmental Baseline (Section 4).

7 INTEGRATION AND SYNTHESIS

The Integration and Synthesis section is the final step of NMFS's assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 5) to the environmental baseline (Section 4) and the cumulative effects (Section 6) to formulate the agency's opinion as to whether the proposed action is likely to: (1) result in appreciable reductions in the likelihood of both the survival or recovery of the species in the wild by reducing its numbers, reproduction, or distribution; or (2) result in the adverse modification or destruction of critical habitat as measured through direct or indirect alterations that appreciably diminish the value of designated critical habitat as a whole for the conservation of the species. These assessments are made in full consideration of the status of the species (Section 3).

The risk analyses begin by asking whether the probable physical, physiological, behavioral, or social responses of the proposed threatened species are likely to reduce the fitness of individuals

or the growth, annual survival or reproductive success, or lifetime reproductive success of those individuals.

As part of our risk analyses, we identified and addressed all potential stressors and considered all consequences of exposing the proposed threatened sunflower sea star to all the stressors associated with the proposed action, individually and cumulatively, given that the individuals in the action area for this consultation are also exposed to other stressors in the action area and elsewhere in their geographic range.

7.1 Sunflower Sea Star Risk Analysis

Our consideration of probable exposures and responses of proposed threatened sunflower sea stars to construction activities associated with the proposed action is designed to help us assess whether those activities are likely to increase the extinction risk or jeopardize the continued existence of the species. Assuming a density of 0.04 sea stars/ m^2 (Lowry 2023), we estimate that a maximum of ~7.4 sea stars could be impacted by direct human contact during the proposed activities.

Sea stars may be impacted by direct human contact during removal from piles prior to cleaning activities or injured by construction materials. If a sea star is found in the vicinity of a pile that will be cleaned, it will be moved out of the work area in accordance with mitigations measures. As discussed in section 5, the major stressors are the relocation, the exposure to increased predation after relocation, and the potential exclusion from previously occupied habitat until recolonization can occur. Compared to the amount of habitat the species can occupy throughout Alaska and other parts of its range (e.g., low intertidal and subtidal zones down to 435 m, but most common above 25 m), and the expected non-lethal impacts of direct human contact and other project activities due to mitigation measures in place, the proposed action is not expected to decrease the likelihood of survival or recovery of the sunflower sea star.

The geographic scope of this project is small relative to the entire range of the species. Habitat and prey impacts for the sunflower sea star are expected to be extremely small. The number of individuals that will be affected is very small relative to the estimated population of sunflower sea stars (over 600 million) (Lowry 2022). Based on some evidence of recent recruitment and localized abundance increases, the current coastal construction regime in Alaska does not appear to be limiting sunflower sea star recovery.

The primary threat to sunflower sea stars identified in the draft Status Review Report (Lowry 2022) and proposed rule to list the sunflower sea star as threatened (88 FR 16212; March 16, 2023), is SSWS. Based on our analysis and the limited geographic and temporal scope of the project, no aspect of the proposed action is expected to increase the prevalence of SSWS in sunflower sea stars. Other threats include pollution and by-catch/overexploitation. These risk factors are in addition to those operating on a larger scale, such as climate change. Sunflower sea stars may be affected by multiple threats at any given time, compounding the impacts of the individual threats. All of these activities are expected to continue to occur into the foreseeable future.

8 CONCLUSION

After reviewing the current status of the species, the environmental baseline within the action area, the effects of the proposed action, and cumulative effects, it is NMFS's conference opinion that the proposed action is not likely to jeopardize the continued existence of the sunflower sea star. No critical habitat has been designated or proposed for this species; therefore, none will be affected. Further, it is NMFS's opinion that the proposed action is not likely to adversely affect the Western DPS Steller sea lion.

This concludes the conference for the ARRC Seward Dock Repair project. You may ask NMFS to confirm the conference opinion as a biological opinion issued through formal consultation if the species is listed. The request must be in writing. If NMFS reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, NMFS will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

9 INCIDENTAL TAKE STATEMENT

Section 9 of the ESA prohibits the take of endangered species unless there is a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. § 1532(19)). "Incidental take" is defined as take that results from, but is not the purpose of, the carrying out of an otherwise lawful activity conducted by the action agency or applicant (50 CFR § 402.02). Based on NMFS guidance, the term "harass" under the ESA 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 ESA does not prohibit the take of proposed or threatened species unless special regulations have been promulgated, pursuant to ESA section 4(d), to promote the conservation of the species. ESA section 4(d) rules have not been proposed for sunflower sea star at this time; therefore, ESA section 9 take prohibitions do not apply to this species. This ITS includes numeric limits on the take of sunflower sea star because specific amounts of take were analyzed in our jeopardy analysis. These numeric limits provide guidance to the action agency on its requirement to re-initiate consultation if the amount of take estimated in the jeopardy analysis of this conference opinion is exceeded. This ITS includes reasonable and prudent measures and terms and conditions designed to minimize and monitor take of these threatened species.

In order to monitor the impact of incidental take, USACE must monitor and report on the progress of the action and its impact on the species as specified in the ITS (50 CFR § 402.14(i)(3)).

9.1 Amount or Extent of Take

Section 7 regulations require NMFS to estimate the number of individuals that may be taken by

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

For this consultation, the USACE anticipates that take is reasonably certain to occur. The primary source of take will be by due to handling; however, injury or mortality are possible as sea stars may be injured during the removal and relocation process or suffer predation shortly after relocation.

Individual sunflower sea stars may be encountered on a pile during cleaning. Seas stars are likely to be adults or sub-adults. Incidental take would occur when these individuals are removed from a pile and relocated to a suitable site outside of the active project area.

The proposed project would clean 38 20-inch diameter piles, with each pile submerged to a depth of between 4 and 14 feet, giving an average submerged depth of 10 ft. Each pile would have approximately 4.86 m^2 (52.3 ft^2) of submerged surface area. In total, all 38 piles would have a combined surface area of 184.75 m^2 (1,988.67 ft^2). Based on the estimated density of sunflower sea stars present pre-pandemic and the estimated decline in the population, the expected density in the action area would be 0.04-sunflower sea star per m^2. Thus, approximately 7.4 sea stars would be likely to be encountered/impacted in the 184.75 m^2 affected by the pile cleaning. We are rounding this up to 8.

Based on the estimated density of sunflower sea stars in the action area and calculations of the area to be affected by pile cleaning, we expect that less than 8 sunflower sea stars in total will be taken due to pile cleaning and relocation of the sea stars encountered (e.g., harm, wound, kill, collect).

Table 4. Summary of expected incidental take of ESA-listed species.

Species	Expected Number of Takes	Anticipated Temporal Extent of Take
Sunflower sea star (*Pycnopodia helianthroides*)	8	May 1, 2024 through September 31, 2024

9.2 Effect of the Take

In Section 9 of this opinion, NMFS determined that the level of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species.

9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" (RPMs) are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take." (50 CFR 402.02).

RPMs are distinct from the mitigation measures that are included in the proposed action (described in Section 2.2). We presume that the mitigation measures will be implemented as described in this conference opinion. The failure to do so will constitute a change to the action that may require reinitiation of consultation pursuant to 50 CFR § 402.16.

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

1. USACE must implement a monitoring program that includes all items described in the mitigation measures section of this opinion (Section 2.1.2) and reports the total amount of take as a percentage of the ITS estimate so that NMFS AKR can evaluate the exposure estimates contained in this conference opinion and that underlie this ITS.
2. USACE must submit a final report to NMFS AKR that evaluates the mitigation measures and reports on any sunflower sea stars that were observed and/or relocated.

9.4 Terms and Conditions

"Terms and conditions" implement the reasonable and prudent measures (50 § 402.14(i)(2)).

These terms and conditions are in addition to the mitigation measures included in the proposed action, as set forth in Section 2.1.2 of this opinion. The USACE or ARRC has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR § 402.14(i)(3)).

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

To carry out RPM #1, USACE must undertake (or require their lessees or permittees to undertake) the following:

a) The individuals completing the pile cleaning must be able to accurately identify sunflower sea stars in order to document observed incidents of harm or injury as described in the mitigation measures associated with this action.

b) If take of sunflower sea stars totals 80 percent (6 individuals) of takes anticipated in the conference opinion and ITS, USACE must notify NMFS by email, attention: leanne.roulson@noaa.gov and cc sierra.franks@noaa.gov to discuss if there is a need for reinitiation of consultation.

To carry out RPM #2, USACE must undertake (or require their lessees or permittees to undertake) the following:

1. Adhere to all monitoring and reporting requirements in the mitigations section as described in this conference opinion.
2. Submit a project specific report within 90 days of the conclusion of the project that analyzes and summarizes interactions with sunflower sea stars during this project to the Protected Resources Division, NMFS by email to AKR.prd.records@noaa.gov. This report must also contain information described in the mitigation measures located in Section 2.1.2 of this opinion.

10 CONSERVATION RECOMMENDATIONS

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

1. USACE or ARRC should ensure that the entities responsible for conducting the sunflower sea star surveys have practice and expertise with the methodology they use to conduct the survey, prior to conducting the actual surveys. In addition, USACE or ARRC should invite PRD biologists to the site when a sunflower sea star survey is being conducted or the equipment to do the survey is being tested to enable PRD to better understand the efficacy of the selected methods and equipment.

In order to keep NMFS's Protected Resources Division informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, The USACE should notify NMFS of any conservation recommendations they implement in their final action.

11 REINITIATION OF CONSULTATION

As provided in 50 CFR § 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount of incidental take is exceeded, section 7 consultation must be reinitiated immediately (50 CFR § 402.14(i)(4)).

12 DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

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

12.1 Utility

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

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

12.2 Integrity

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

12.3 Objectivity

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the ESA Consultation Handbook, ESA Regulations, 50 CFR § 402.01 et seq.

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

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

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

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