Evaluate ways to enhance the quality, utility, and clarity of the information to be collected; and (d) Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of information technology.

Comments that you submit in response to this notice are a matter of public record. We will include or summarize each comment in our request to OMB to approve this ICR. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you may ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary for Economic Affairs, Commerce Department.

[FR Doc. 2024–16759 Filed 7–29–24; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XE018]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Washington State Department of Transportation's Seattle Slip 3 Vehicle Transfer Span Project in Washington State

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from Washington State Department of Transportation (WSDOT) for authorization to take marine mammals incidental to Seattle Slip 3 Vehicle Transfer Span (VTS) Replacement Project in Seattle, Washington. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, 1-year renewal that could be issued under certain circumstances and if all requirements are met, as described in Request for Public Comments at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorization and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than August 29, 2024.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service and should be submitted via email to *ITP.demarest@noaa.gov.* Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* In case of problems accessing these documents, please call the contact listed below.

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.,* name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Austin Demarest, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the ''take'' of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other ''means of effecting the least practicable adverse impact'' on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as ''mitigation''); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must review our proposed action (*i.e.,* the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NAO 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On December 19, 2023, NMFS received a request from WSDOT for an IHA to take marine mammals incidental to Seattle Slip 3 VTS Replacement Project in Elliott Bay of the Puget Sound, Seattle, WA. Following NMFS' review of the application, WSDOT submitted revised versions on March 4, April 8, April 18, and April 29, 2024. A final revised monitoring plan was

submitted on May 14, 2024 and a final revised application was submitted on May 16, 2024. The application was deemed adequate and complete on May 20, 2024. WSDOT's request is for take of 12 species of marine mammals, by Level B harassment only. Neither WSDOT nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Proposed Activity and Anticipated Impacts

Overview

WSDOT is proposing to replace the Seattle Slip 3 VTS at Colman Dock which is located in Elliott Bay of the Puget Sound in Seattle, Washington. The purpose of the construction project is to preserve the transportation function of an aging, seismically deficient transfer span. The existing VTS will be removed and replaced with a hydraulic transfer span consisting of steel drilled shafts and a new steel wingwall. In-water construction includes cutting sheet piles, installation and removal of steel piles with a vibratory hammer, and proofing steel piles with an impact hammer to drive them to the maximum depth and ensure load bearing capacity. In-water pile removal and driving with vibratory and impact hammers may result in incidental take by Level B harassment of 12 marine mammal species within Elliott Bay and the Central Puget Sound. The effective construction window for the project, which is expected to require a maximum of 19 days, is from August 1, 2024 through February 15, 2025. Replacement of the Seattle Slip 3 VTS will allow WSDOT to continue to provide safe and reliable transportation services throughout the Puget Sound and San Juan Islands.

Dates and Duration

Construction for the Seattle Slip 3 VTS Replacement Project has an effective work window from August 1, 2024 through February 15, 2025 to avoid when ESA listed salmonids are most likely to be present. A maximum of 19 in-water construction days will occur, which includes a flexibility for adverse weather conditions and equipment malfunction. Operation hours for in-water construction will occur during daylight hours from sunrise to sunset but will be contingent upon weather conditions with good visibility. The IHA would be valid for 1 year from the date of issuance.

Specific Geographic Region

Seattle Slip 3 VTS Replacement Project is part of the Seattle Ferry Terminal at Colman Dock and located along the Seattle waterfront in Elliott Bay (Figures 1 and 2). Elliott Bay is an urban embayment that is approximately 8 square miles (mi^2) (21 square kilometers (km^2)), central in the Puget Sound, Washington. The Seattle waterfront is highly urbanized with residential, business, and industrial areas including the Port of Seattle container loading facility, the Pioneer Square Historic District, and local parks.

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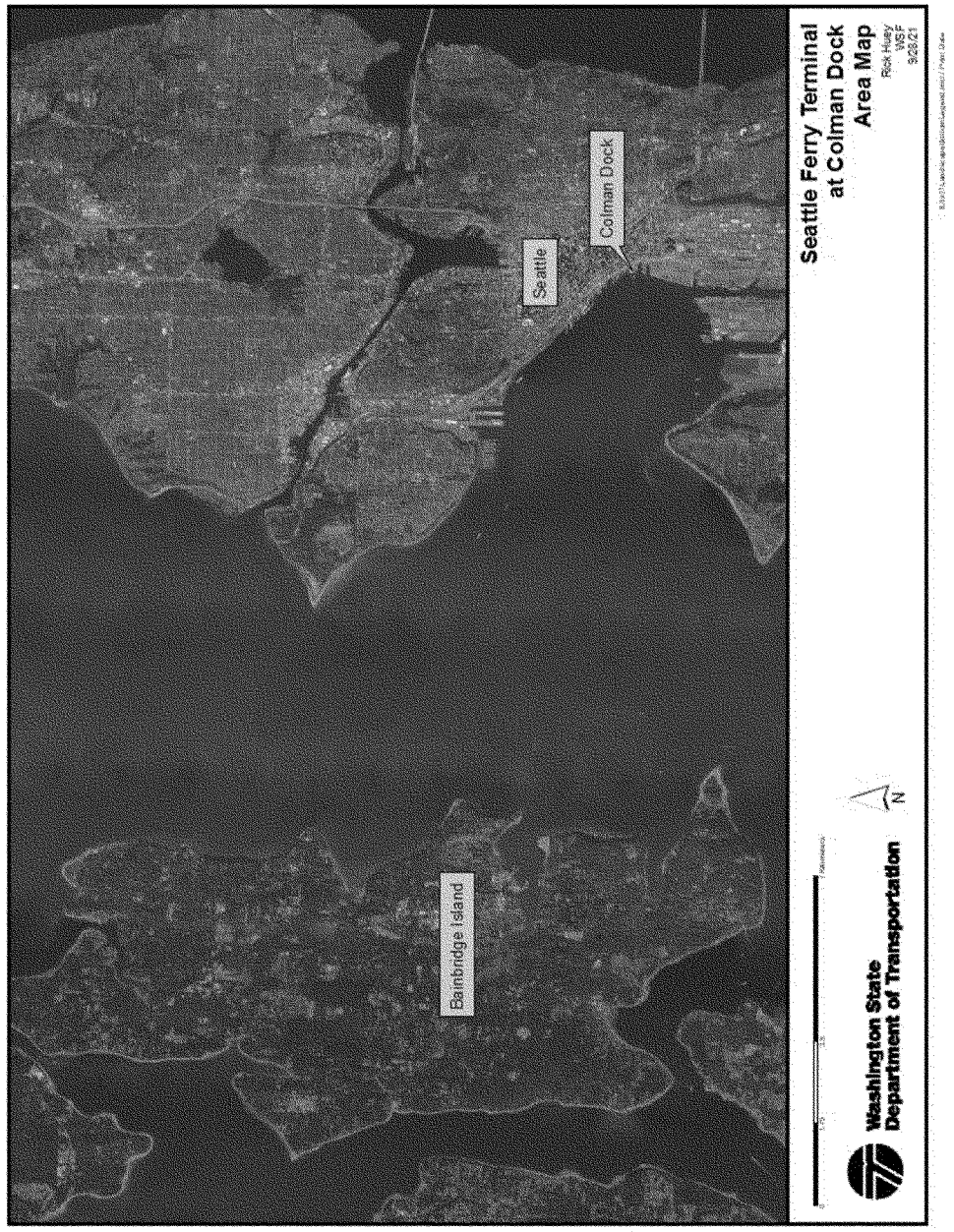

Figure 1 – Map of Proposed Project Area

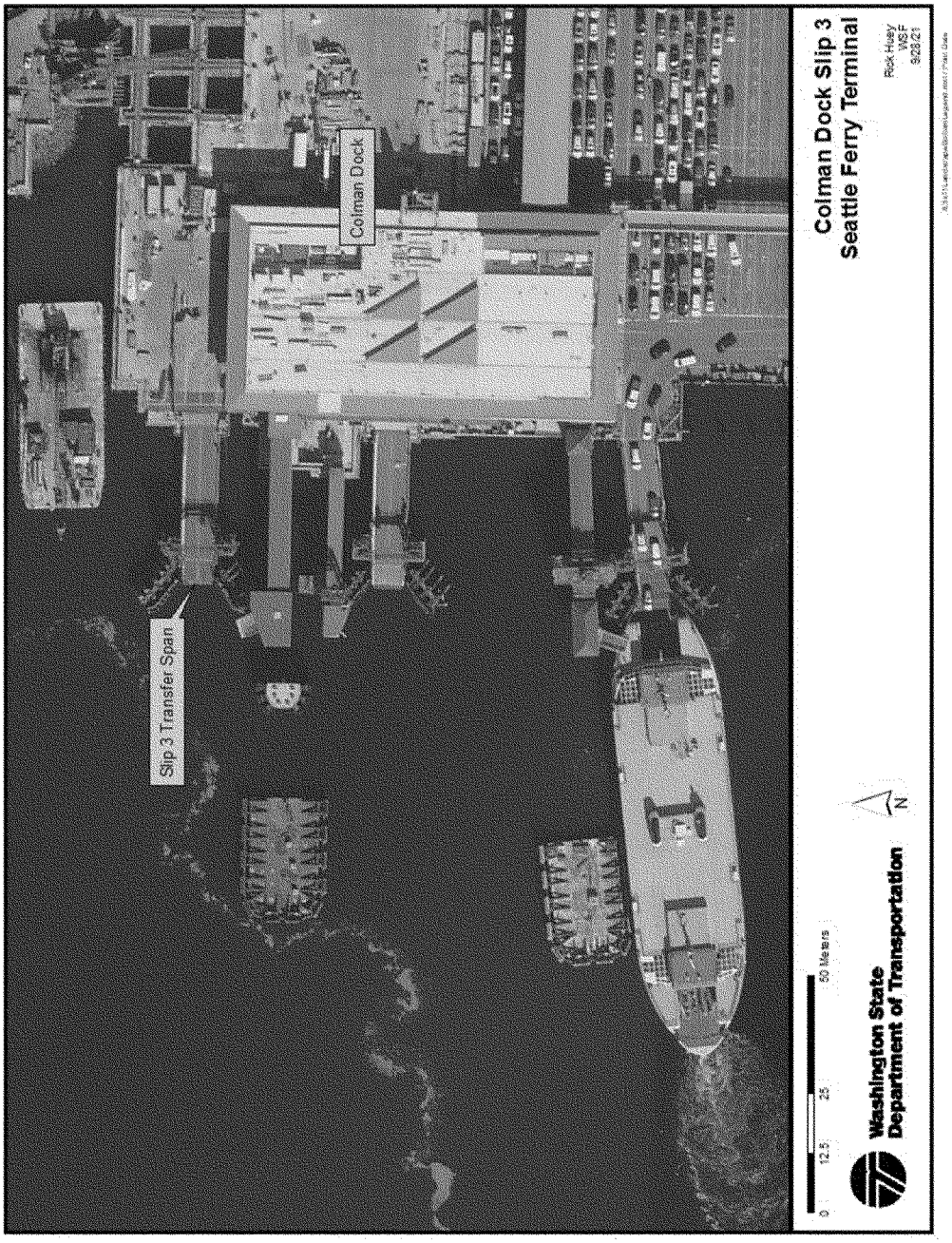

Figure 2 – Map of Proposed Project Features

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Detailed Description of the Specified Activity

Removal of the existing VTS and wingwall pile includes the extraction of 16 14-inch steel H-piles with a vibratory hammer and removal of a 30-inch concrete filled wingwall pile that would be cut at or below the mudline. Following removal of the VTS, 12 24-inch steel piles would be temporarily installed via a vibratory hammer and proofed with an impact hammer to confirm load bearing capacity for a temporary work platform. WSDOT would then permanently install 2 78-inch hollow steel drilled shafts via vibratory hammer. All the materials inside the 78-inch steel shafts would be extracted with an auger or clamshell bucket and then dewatered for the hydraulic VTS. A 30-inch steel wing wall pile would then be installed with a vibratory hammer and then the 12 24-inch temporary steel piles would be extracted via a vibratory hammer which concludes in-water construction. Table 1 provides a summary of the number of piles that would be removed and installed, the driving method, pile size, number of piles per day, time needed to drive each pile, and the maximum number of days needed to complete the Seattle Slip 3 VTS Replacement Project.

Pile driving activities described above may result in Level B harassment of marine mammals in Elliott Bay and the central Puget Sound to the eastern shore of Bainbridge Island. Cutting the 30-inch wingwall pile and removal of the material from inside the 78-inch piles is expected to produce negligible in-water sound, which is unlikely to cause any incidental take of marine mammals. In-water construction would be a

maximum of 19 days from August 1, 2024 through February 15, 2025. The Seattle Slip 3 VTS Replacement Project would not use multiple hammers for installation or removal concurrently but vibratory and impact hammer could be used on the same day.

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see Proposed Mitigation and Proposed Monitoring and Reporting).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions, instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species).*

TABLE 1—SUMMARY OF PILES TO BE INSTALLED AND REMOVED FOR THE SEATTLE SLIP 3 VTS REPLACEMENT PROJECT

Pile size and type	Method	Install or remove	Number of piles	Piles per day (24 hours)	Duration per pile (minutes)	Duration (days)
78-inch steel	Vibratory	Install	2	1	60	2
30-inch steel	Vibratory	Install	1	1	60	1
24-inch steel	Vibratory	Install	12	3	30	4
24-inch steel	Impact	Install	12	3	30	4
Subtotal						11
24-inch steel	Vibratory	Remove	12	3	30	4
14-inch steel	Vibratory	Remove	16	4	30	4
Subtotal						8
Total						19

Table 2 lists all species or stocks for which take is expected and proposed to be authorized for this activity and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no serious injury or mortality is anticipated or proposed to be authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. Survey abundance (as compared to stock or species abundance) is the total number of individuals estimated within the survey area, which may or may not align completely with a stock's geographic range as defined in the SARs. For some species, this geographic area or surveys may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Pacific and Alaska SARs. All values presented in table 2 are the most recent available at the time of publication (including from the draft 2023 SARs) and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.*

TABLE 2—SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [2]	Stock abundance (CV, N_{min}, most recent abundance survey) [3]	PBR	Annual M/SI [4]
Order Artiodactyla—Cetacea—Mysticeti (baleen whales)						
Family Eschrichtiidae:						
Gray whale	*Eschrichtius robustus*	Eastern N Pacific	-, -, N	26,960 (0.05, 25,849, 2016)	801	131
Minke whale	*Balaenoptera acutorostrata*	CA/OR/WA	-, -, N	915 (0.792, 509, 2018)	4.1	0.19
Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Killer whale [5]	*Orcinus orca*	West Coast Transient	-, -, N	349 (N/A, 349, 2018)	3.5	0.4
Bottlenose dolphin	*Tursiops truncatus*	CA/OR/WA offshore	-, -, N	3,477 (0.696, 2,048, 2018)	19.70	≥0.82
Long beaked common dolphin.	*Delphinus capensis*	CA	-, -, N	83,379 (0.216, 69,636, 2018)	668	≥29.7
Pacific white-sided Dolphin.	*Lagenorhynchus obliquidens*	CA/OR/WA	-, -, N	34,999 (0.222, 29,090, 2018)	279	7
Family Phocoenidae (porpoises):						

TABLE 2—SPECIES LIKELY IMPACTED BY THE SPECIFIED ACTIVITIES—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [2]	Stock abundance (CV, N_{min}, most recent abundance survey) [3]	PBR	Annual M/SI [4]
Dall's porpoise	*Phocoenoides dalli*	CA/OR/WA	-, -, N	16,498 (0.61, 10,286, 2018)	99	≥0.66
Harbor porpoise	*Phocoena phocoena*	Washington Inland Waters	-, -, N	11,233 (0.37, 8,308, 2015)	66	≥7.2
Order Carnivora—Pinnipedia						
Family Otariidae (eared seals and sea lions):						
CA sea lion	*Zalophus californianus*	U.S.	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	>321
Steller sea lion [6]	*Eumetopias jubatus*	Eastern	-, -, N	36,308 (N/A, 36,308, 2022)	2,178	93.2
Family Phocidae (earless seals):						
Harbor seal	*Phoca vitulina*	Washington Northern Inland Waters.	-, -, N	16,451 (0.07, 15,462, 2019)	928	40
Northern elephant seal [7]	*Mirounga angustirostris*	CA Breeding	-, -, N	187,386 (N/A, 85,369, 2013)	5,122	13.7

[1] Information on the classification of marine mammal species can be found on the web page for The Society for Marine Mammalogy's Committee on Taxonomy (*https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/;* Committee on Taxonomy (2022)).

[2] ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[3] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region.* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.

[4] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

[5] Nest is based upon count of individuals identified from photo-ID catalogs in analysis of a subset of data from 1958–2018.

[6] Nest is best estimate of counts, which have not been corrected for animals at sea during abundance surveys. Estimates provided are for the U.S. only.

[7] There is uncertainty in available population estimates due to limited surveys, limited reproductive data, and uncertainty in stock relationships and harvest statistics.

As indicated above, all 12 species in table 2 spatially and temporally co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the proposed project areas are included in table 3 of the IHA application. While southern resident killer whales (SRKW), and humpback whales (HW) (Central America/Southern Mexico—California-Oregon-Washington, Mainland Mexico—California-Oregon-Washington, and Hawaii stocks) have been documented in the area, the temporal and/or spatial occurrence of these species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here.

Generally SRKWs are considered common in the Puget Sound (Olson *et al.,* 2018). During the Seattle Multimodal Project 170 observations of SRKWs occurred over 377 construction days. Although SRKWs are relatively common in the construction area, WSDOT has expertise with monitoring for SRKWs and halting construction when they approach or enter established shutdown zones. For the Seattle Slip 3 VTS Replacement Project, WSDOT would establish shutdown zones for SRKWs at the estimated Level B harassment zones rounded up to the nearest 50 meters. WSDOT would also monitor marine mammal occurrence and movement with the Orca Network and the Whale Report Alert System (WRAS) networks daily for this project. Considering SRKWs frequency of occurrence in the project area and WSDOTs experience mentioned above, take of SRKW is not expected.

The occurrence of HWs in Puget Sound is considered common with the greatest density of sightings off the south end of Vancouver Island in the Strait of Juan de Fuca (Olsen *et al.,* 2024). During the Seattle Multimodal Project 8 observations of HWs occurred over 377 construction days. Since the Seattle Slip 3 VTS Replacement Project is in the same area, HW occurrence in the construction area is expected to be rare. WSDOT would establish shutdown zones and monitor marine mammal occurrence and movement for HWs (identical to the measures described above for SRKWs). Therefore take of HWs in not expected. Details about mitigation measures, shutdown zones, and protected species observers (PSOs) can be found in the Proposed Mitigation and the Proposed Monitoring and Reporting sections below.

Due to these mitigation measures and these species being highly conspicuous, incidental take of SRKWs or HWs is not expected for the duration of this project.

Gray Whale

Generally, the Eastern North Pacific stock of gray whales feed in the Arctic in summer and fall months and then breed during winter and spring months off the coast of Mexico (Carretta *et al.* 2022, Calambokidis *et al.* 2024). During migration from Mexico to the Arctic, a subpopulation of the Eastern North Pacific stock of Gray whales, commonly referred to as the Pacific Coast Feeding Group (PCFG), stop and feed along the coasts of Oregon and Washington including the Northern Puget Sound (Calambokidis *et al.* 2024). A subgroup of the PCFG that feed in the Puget Sound, recently termed as ''Sounders'' gray whales, are the most abundant from February through May. The highest concentrations Sounders Gray Whales occurs on the Southern ends of Whidbey and Camano Islands in the North Puget Sound (Calambokidis *et al.* 2024). Although Sounders gray whale observations are the highest in the Northern Puget Sound but observations also occur in the Southern Puget Sound and Elliott Bay, which is in the proposed action area (Orca Network, 2021).

There are Biologically Important Areas (BIAs) for migrating gray whales in the inland waters of the Northern Puget Sound from January through July and October through December and for feeding gray whales between February and June (Calambokidis *et al.,* 2015; Calambokidis *et al.,* 2024).

The NMFS declared an unusual mortality event (UME) for gray whales on May 30, 2019 after elevated numbers of strandings occurred along the Pacific coast of North America, The UME started December 17, 2018 and was closed on November 9, 2023, with peak standings occurring from December 17, 2018 through December 31, 2020. The

UME included 690 gray whale standings, 347 in the United States, 316 in Mexico, and 27 in Canada. Necropsies were performed on a subset of the dead whales and malnutrition was common followed by evidence of killer whale predation, entanglement, vessel strikes, and biotoxins were found in some carcasses as in years without UMEs. NMFS concluded that the nutritional conditions of live gray whales was lower prior to and during the UME. Gray whale abundance declined and calf production decline following the UME but calf production has begun to rebound. Additional information about this UME can be found at *https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2023-eastern-north-pacific-gray-whale-ume-closed.*

Minke Whale

The International Whaling Commission (IWC) recognizes three stocks of minke whales in the North Pacific: The Sea of Japan/East China Sea, the rest of the western Pacific west of 180° N, and the remainder of the Pacific (Donovan 1991). Minke whales are relatively common in the Bering and Chukchi seas and in the Gulf of Alaska, but are not considered abundant in any other part of the eastern Pacific (Brueggeman *et al.,* 1990). In the far north, minke whales are thought to be migratory, but they are believed to be year-round residents in coastal waters off the west coast of the United States (Dorsey *et al.,* 1990).

Minke whales are reported in Washington inland waters year-round, although few are reported in the winter (*i.e.,* during the anticipated in-water work window for these projects; Calambokidis and Baird 1994). They are relatively common in the San Juan Islands and Strait of Juan de Fuca (especially around several of the banks in both the central and eastern Strait), but are relatively rare in Puget Sound and the Orca Network has no sighting records of minke whales in the project areas. Although minke whales are considered rare within the Puget Sound, three minke whales were observed during the Seattle Multimodal Project during the 377 days of marine mammal monitoring from 2017–2021.

Killer Whale

There are three distinct ecotypes, or forms, of killer whales recognized in the north Pacific: resident, transient, and offshore. The three ecotypes differ morphologically, ecologically, behaviorally, and genetically. Resident killer whales exclusively prey upon fish, with a clear preference for salmon (Ford and Ellis 2006; Hanson *et al.,* 2021; Ford *et al.,* 2016), while transient killer whales exclusively prey upon marine mammals (Caretta *et al.,* 2019). Less is known about offshore killer whales, but they are believed to consume primarily fish, including several species of shark (Dahlheim *et al.,* 2008). Currently, there are eight killer whale stocks recognized in the U.S. Pacific (Carretta *et al.,* 2021; Muto *et al.,* 2021). Of those, individuals from the West Coast Transient stock may occur in the project areas and be taken incidental to WSDOT's proposed activities.

Within Puget Sound, transient killer whales primarily hunt pinnipeds and porpoises, though some groups will occasionally target larger whales. The West Coast Transient stock of killer whales occurs from California through southeast Alaska (Muto *et al.,* 2021). The seasonal movements of transients are largely unpredictable, although there is a tendency to investigate harbor seal haulouts off Vancouver Island more frequently during the pupping season in August and September (Baird 1995; Ford 2014). Transient killer whales have been observed in central Puget Sound in all months (Orca Network 2021). During WSDOTs Seattle Multimodal Project, 79 transient killer whales were observed throughout the 377 days of in water work from 2017 through 2021 with a maximum of 20 individuals observed on a single day.

Bottlenose Dolphin

Bottlenose dolphins are distributed worldwide from approximately 45° N to 45° S. Bottlenose dolphins inhabiting west coast U.S. waters are considered to be in either the California coastal stock, which ranges from Mexico to the San Francisco area within approximately 1 kilometer of shore, or the California/Oregon/Washington offshore stock, which is most commonly found along the California coast, northward to about the Oregon border. NMFS offshore surveys from 1991 to 2014 resulted in no sightings during study transects off the Oregon or Washington coasts (Carretta *et al.,* 2019). In September 2017, however, multiple sightings of a bottlenose dolphin throughout the Puget Sound and in Elliott Bay were reported to Cascadia Research Collective and Orca Network. One of the individuals was identified as belonging to the California coastal stock (Cascadia Research Collective, 2017). Although bottlenose dolphins are considered rare in Puget Sound, six were observed during construction of the Seattle Multimodal Project from 2017 through 2022 (WSDOT 2022).

Long-Beaked Common Dolphin

Long-beaked common dolphins are commonly found along the U.S. West Coast, from Baja California, Mexico (including the Gulf of California), northward to about central California (Carretta *et al.,* 2020). The Salish Sea is not considered part of their typical range (Carretta *et al.,* 2020), but there have been reports of long-beaked common dolphins in inland waters. Two individual common dolphins were observed in August and September of 2011 (Whale Museum, 2015). The first record of a pod of long-beaked common dolphins in this area came in the summer of 2016. Beginning on June 16, 2016 long-beaked common dolphins were observed near Victoria, B.C. Over the following weeks, a pod of 15 to 20 (including a calf) was observed in central and southern Puget Sound. They were positively identified as long-beaked common dolphins (Orca Network 2016). Marine mammal monitors observed two long-beaked common dolphins during construction for the Washington State Ferries Multimodal Project at Colman Dock in Seattle from 2017–18 construction window (WSDOT 2022).

Pacific White-Sided Dolphin

The Pacific white-sided dolphin is found in cool temperate waters of the North Pacific from the southern Gulf of California to Alaska. Across the North Pacific, it appears to have a relatively narrow distribution between 38° N and 47° N (Brownell *et al.,* 1999). In the eastern North Pacific Ocean, the Pacific white-sided dolphin is one of the most common cetacean species, occurring primarily in shelf and slope waters (Green *et al.,* 1993; Barlow 2003, 2010). It is known to occur close to shore in certain regions, including (seasonally) southern California (Brownell *et al.,* 1999). Results of aerial and shipboard surveys strongly suggest seasonal north-south movements of the species between California and Oregon/Washington; the movements apparently are related to oceanographic influences, particularly water temperature (Green *et al.,* 1993; Forney and Barlow 1998; Buchanan *et al.,* 2001). During winter, this species is most abundant in California slope and offshore areas; as northern waters begin to warm in the spring, it appears to move north to slope and offshore waters off Oregon/Washington (Green *et al.,* 1992, 1993; Forney 1994; Forney *et al.,* 1995; Buchanan *et al.,* 2001; Barlow 2003). The highest encounter rates off Oregon and Washington have been reported during March-May in slope and offshore

waters (Green *et al.,* 1993). Large groups of Pacific white-sided dolphins have been observed in San Juan Channel (Orca Network 2012), north of Puget Sound, and may rarely occur in Central Puget Sound. During construction for the Washington State Ferries Multimodal Project at Colman Dock in Seattle, only 2 Pacific white-sided dolphins were observed on one of the 377 days of construction from 2017 through 2021 (WSDOT 2022).

Dall's Porpoise

Dall's porpoises are endemic to temperate waters of the North Pacific Ocean. Off the U.S. West Coast, they are commonly seen in shelf, slope, and offshore waters (Morejohn 1979). Sighting patterns from aerial and shipboard surveys conducted in California, Oregon, and Washington (Green *et al.,* 1992, 1993; Forney and Barlow 1998; Barlow 2016) suggest that north-south movement between these states occurs as oceanographic conditions change, both on seasonal and inter-annual time scales. Dall's porpoise are considered rare in Puget Sound. During construction for the Washington State Ferries Multimodal Project at Colman Dock in Seattle, only 8 Dall's porpoises were observed, with a maximum of 5 individuals observed on a single day during the 377 construction days from 2017 through 2021 (WSDOT 2022).

Harbor Porpoise

In the eastern North Pacific Ocean, harbor porpoise are found in coastal and inland waters from Point Barrow, along the Alaskan coast, and down the west coast of North America to Point Conception, California (Gaskin 1984). Harbor porpoise are known to occur year-round in the inland trans-boundary waters of Washington and British Columbia, Canada (Osborne *et al.,* 1988), and along the Oregon/Washington coast (Barlow 1988, Barlow *et al.,* 1988, Green *et al.,* 1992). There was a significant decline in harbor porpoise sightings within southern Puget Sound between the 1940s and 1990s but sightings have increased seasonally in the last 10 years (Carretta *et al.,* 2019). Annual winter aerial surveys conducted by the Washington Department of Fish and Wildlife from 1995 to 2015 revealed an increasing trend in harbor porpoise in Washington inland waters, including the return of harbor porpoise to Puget Sound. The data suggest that harbor porpoise were already present in Juan de Fuca, Georgia Straits, and the San Juan Islands from the mid-1990s to mid-2000s, and then expanded into Puget Sound and Hood Canal from the mid-2000s to 2015, areas they had used historically but abandoned. Changes in fishery-related entanglement was suspected as the cause of their previous decline and more recent recovery, including a return to Puget Sound (Evenson *et al.,* 2016).

Seasonal surveys conducted in spring, summer, and fall 2013–2015 in Puget Sound and Hood Canal documented substantial numbers of harbor porpoise in Puget Sound. Observed porpoise numbers were twice as high in spring as in fall or summer, indicating a seasonal shift in distribution of harbor porpoise (Smultea 2015). The reasons for the seasonal shift and for the increase in sightings is unknown. During 377 total days of construction at the Washington State Ferries Multimodal Project at Colman Dock in Seattle from 2017 through 2021, 413 sightings of harbor porpoises were recorded in total, with a maximum of 40 sightings on a single day.

California Sea Lion

The California sea lion is the most frequently sighted pinniped found in Washington waters and uses haul-out sites along the outer coast, Strait of Juan de Fuca, and in Puget Sound. Haul-out sites are located on jetties, offshore rocks and islands, log booms, marina docks, and navigation buoys. This species also may be frequently seen resting in the water, rafted together in groups in Puget Sound. Only male California sea lions migrate into Pacific Northwest waters, with females remaining in waters near their breeding rookeries off the coast of California and Mexico. The California sea lion was considered rare in Washington waters prior to the 1950s. More recently, peak numbers of 3,000 to 5,000 animals move into the Salish Sea during the fall and remain until late spring, when most return to breeding rookeries in California and Mexico (Jeffries *et al.,* 2000).

There are four commonly used haul-out sites near the construction site, with the closest haul-out site located 3 km (2 mi) southwest. During the Seattle Multimodal Project from 2017 through 2021, a total of 3,669 sightings of California sea lions were recorded over 377 days with a maximum of 29 observations on a single day.

Steller Sea Lion

Steller sea lions range along the North Pacific Rim from northern Japan to California (Loughlin *et al.,* 1984). There are two separate stocks of Steller sea lions, the Eastern U.S. stock, which occurs east of Cape Suckling, Alaska (144° W), and the Western U.S. stock, which occurs west of that point. Only the Western stock of Steller sea lions, which is designated as the Western DPS of Steller sea lions, is listed as endangered under the ESA (78 FR 66139; November 4, 2013). Unlike the Western U.S. stock of Steller sea lions, there has been a sustained and robust increase in abundance of the Eastern U.S. stock throughout its breeding range. The eastern stock of Steller sea lions has historically bred on rookeries located in Southeast Alaska, British Columbia, Oregon, and California. However, within the last several years a new rookery has become established on the outer Washington coast (at the Carroll Island and Sea Lion Rock complex), with more than 100 pups born there in 2015 (Muto *et al.,* 2020).

Steller sea lions use haul-out locations in Puget Sound, and may occur at the same haul-outs as California sea lions, but are considered rare visitors to Elliott Bay and the Seattle waterfront area. Few Steller sea lions have been observed during monitoring of recent construction projects in the area; typically fewer than 5 total observations per year (*e.g.,* Anchor QEA 2018, 2019). However, a total of 112 sightings of Steller sea lions were recorded over 377 days of monitoring from 2017 through 2021 at the Seattle Multimodal project with a maximum of 10 sightings on a single day.

Harbor Seal

Harbor seals inhabit coastal and estuarine waters off Baja California, north along the western coasts of the continental United States, British Columbia, and Southeast Alaska, west through the Gulf of Alaska and Aleutian Islands, and in the Bering Sea north to Cape Newenham and the Pribilof Islands (Carretta *et al.,* 2014). They haul out on rocks, reefs, beaches, and drifting glacial ice and feed in marine, estuarine, and occasionally fresh waters. Harbor seals generally are non-migratory, with local movements associated with such factors as tides, weather, season, food availability, and reproduction (Scheffer and Slipp 1944; Fisher 1952; Bigg 1969, 1981). Within U.S. West Coast waters, 5 stocks of harbor seals are recognized: (1) Southern Puget Sound (south of the Tacoma Narrows Bridge); (2) Washington Northern Inland Waters (including Puget Sound north of the Tacoma Narrows Bridge, the San Juan Islands, and the Strait of Juan de Fuca); (3) Hood Canal; (4) Oregon/Washington Coast; and (5) California. Harbor seals in the project areas would be from the Washington Northern Inland Waters stock.

Harbor seals are the only pinniped species that occurs year-round and breeds in Washington waters (Jeffries *et al.,* 2000). Pupping seasons vary by geographic region, with pups born in coastal estuaries (Columbia River, Willapa Bay, and Grays Harbor) from mid-April through June; Olympic Peninsula coast from May through July; San Juan Islands and eastern bays of Puget Sound from June through August; southern Puget Sound from mid-July through September; and Hood Canal from August through January (Jeffries *et al.,* 2000). The most recent estimate for the Washington Northern Inland Waters Stock is 16,451 based on surveys conducted in 2019 (Carretta *et al.,* 2023).

There is only one routinely used harbor seal haulout near Elliott Bay and the Seattle waterfront at Blakely Rocks, approximately 10.6 km (6.6 mi) west of the project sites. The haulout, which is estimated at less than 100 animals, consists of intertidal rocks and reef areas (Jefferies *et al.,* 2000). Harbor seals are a commonly observed marine mammal in the area of potential effects and are known to be comfortable and seemingly curious around human activities. Observations of harbor seals were reported during many recent construction projects along the Seattle waterfront. During construction for the Washington State Ferries Multimodal Project at Colman Dock in Seattle, a maximum of 32 harbor seals were observed on a single day from 2017 through 2021 for all 377 construction days.

Northern Elephant Seal

Northern elephant seals breed and give birth in California (U.S.) and Baja California (Mexico), primarily on offshore islands (Stewart *et al.,* 1994), from December to March (NOAA 2015). Males migrate to the Gulf of Alaska and western Aleutian Islands along the continental shelf to feed on benthic prey, while females migrate to pelagic areas in the Gulf of Alaska and the central North Pacific Ocean to feed on pelagic prey (Le Boeuf *et al.,* 2000). Adults return to land between March and August to molt, with males returning later than females. Adults return to their feeding areas again between their spring/summer molting and their winter breeding seasons (Carretta *et al.,* 2015).

During all 377 construction days for the Washington State Ferries Multimodal Project at Colman Dock in Seattle from 2017 through 2021, only one northern elephant seal was observed. Elephant seals are generally considered rare in Puget Sound. However, a female elephant seal has been reported hauled-out in Mutiny Bay on Whidbey Island periodically since 2010. She was observed alone for her first three visits to the area, but in March 2015, she was seen with a pup. Since then, she has produced two more pups, born in 2018 and 2020. Northern elephant seals generally give birth in January but this individual has repeatedly given birth in March. She typically returns to Mutiny Bay in April and May to molt. Her pups have also repeatedly returned to haul-out on nearby beaches (Orca Network 2020)

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc.*). Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in table 3.

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.,* 2006; Kastelein *et al.,* 2009; Reichmuth *et al.,* 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information.

TABLE 3—MARINE MAMMAL HEARING GROUPS

[NMFS, 2018]

Hearing group	Generalized hearing range *
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz.
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz.
High-frequency (HF) cetaceans (true porpoises, *Kogia,* river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*).	275 Hz to 160 kHz.
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz.

* Represents 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 as 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).

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section provides a discussion of the ways in which components of the specified activity may impact marine mammals and their habitat. The Estimated Take of Marine Mammals section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The Negligible Impact Analysis and Determination section considers the content of this section, the Estimated Take of Marine Mammals section, and the Proposed Mitigation section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and whether those impacts are reasonably expected to, or reasonably likely to, adversely affect the

species or stock through effects on annual rates of recruitment or survival.

Acoustic effects on marine mammals during the specified activities can occur from impact pile driving and vibratory driving and removal. The effects of underwater noise from WSDOT's proposed activities are expected to result in only Level B harassment of marine mammals in the action areas.

Description of Sound Sources

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far (ANSI 1995). The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.,* waves, wind, precipitation, earthquakes, ice, atmospheric sound), biological (*e.g.,* sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.,* vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise ''ambient'' or ''background'' sound—depends not only on the source levels (as determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the environment. In turn, sound propagation is dependent on the spatially and temporally varying properties of the water column and sea floor, and is frequency-dependent. As a result of the dependence on a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10–20 decibels (dB) from day to day (Richardson *et al.,* 1995). The result is that, depending on the source type and its intensity, sound from the specified activities may be a negligible addition to the local environment or could form a distinctive signal that may affect marine mammals.

In-water construction activities associated with the project would include impact pile driving, vibratory pile driving, and vibratory pile removal. The sounds produced by these activities fall into one of two general sound types: impulsive and non-impulsive. Impulsive sounds (*e.g.,* explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI, 1986; NIOSH, 1998; ANSI, 2005; NMFS, 2018). Non-impulsive sounds (*e.g.,* aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems) can be broadband, narrowband or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound pressure with rapid rise/decay time that impulsive sounds do (ANSI, 1995; NIOSH, 1998; NMFS, 2018). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Southall *et al.,* 2007).

Two types of pile hammers would be used on this project: impact and vibratory. Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels. Vibratory hammers install piles by vibrating them and allowing the weight of the hammer to push them into the sediment. Vibratory hammers produce non-impulsive continuous sounds and produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during impact pile driving of the same-sized pile (Oestman *et al.,* 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards, 2002; Carlson, *et al.,* 2005).

Potential or likely impacts on marine mammals from WSDOT's proposed construction include both non-acoustic and acoustic stressors. Non-acoustic stressors include the physical presence of equipment, vessels, and personal. However, impacts from WSDOT's proposed construction is expected to primarily be acoustic in nature. Expected stressors from WSDOT's proposed activities are expected to be a result of heavy equipment operation for impact driving and vibratory driving and removal.

Acoustic Impacts

The introduction of anthropogenic noise into the aquatic environment from pile driving and removal is the primary means by which marine mammals may be harassed from WSDOT's specified activity. In general, animals exposed to natural or anthropogenic sound may experience physical and behavioral effects, ranging in magnitude from none to severe (Southall *et al.,* 2007, 2021). Generally, exposure to pile driving noise has the potential to result in auditory threshold shifts (TS) and behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses such an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of pile driving noise on marine mammals are dependent on several factors, including, but not limited to, sound type (*e.g.,* impulsive vs. non-impulsive), the species, age and sex class (*e.g.,* adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.,* 2004; Southall *et al.,* 2007). Here we discuss physical auditory effects (TSs) followed by behavioral effects and potential impacts on habitat. No physiological effects other than TTS are anticipated or proposed to be authorized, and therefore are not discussed further. Discussion of physical auditory effects (TSs), behavioral effects, and potential impacts on habitat are described below.

NMFS defines a noise-induced TS as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). The amount of threshold shift is customarily expressed in dB. A TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS, including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of the TS, time to recovery (seconds to minutes or hours to days), the frequency range of the exposure (*i.e.,* spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how animal uses sound within the frequency band of the signal; *e.g.,* Kastelein *et al.,* 2014), and the overlap between the animal and the source (*e.g.,* spatial, temporal, and spectral).

Permanent Threshold Shift (PTS)—NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference

level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.,* 1958, 1959; Ward, 1960; Kryter *et al.,* 1966; Miller, 1974; Ahroon *et al.,* 1996; Henderson *et al.,* 2008). PTS levels for marine mammals are estimates, because there are limited empirical data measuring PTS in marine mammals (*e.g.,* Kastak *et al.,* 2008), largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS, 2018).

Temporary Threshold Shift (TTS)—A temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS, 2018). Based on data from cetacean TTS measurements (Southall *et al.,* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.,* 2000; Finneran *et al.,* 2000, 2002). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SELcum) in an accelerating fashion: At low exposures with lower SELcum, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SELcum, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.,* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.,* mostly tones and octave-band noise) in laboratory settings (Finneran, 2015). TTS was not observed in trained spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran, 2015). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. No data are available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.* (2007), Finneran and Jenkins (2012), Finneran (2015), and table 5 in NMFS (2018).

Pile installation for this project includes impact pile driving and vibratory pile driving and removal. Vibratory and impact pile driving would not occur simultaneously but both methods could be used on the same day. There would be pauses in the activities producing impulsive and non-impulsive sounds each day. Given these pauses and the fact that many marine mammals are likely moving through the project areas and not remaining for extended periods of time, the potential for TS declines.

Behavioral Harassment—Exposure to noise from pile driving and removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Lusseau and Bejder, 2007; Weilgart, 2007; NRC, 2005).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007, 2021; Weilgart, 2007; Archer *et al.,* 2010). Behavioral reactions can vary not only among individuals but also within exposures of an individual, depending on previous experience with a sound source, context, and numerous other factors (Ellison *et al.,* 2012, Southall *et al.,* 2021), and can vary depending on characteristics associated with the sound source (*e.g.,* whether it is moving or stationary, number of sources, distance from the source). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans. For a review of the studies involving marine mammal behavioral responses to sound, see Southall *et al.,* 2007; Gomez *et al.,* 2016; and Southall *et al.,* 2021 reviews.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.,* bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.,* Croll *et al.,* 2001; Nowacek *et al.,* 2004; Madsen *et al.,* 2006; Yazvenko *et al.,* 2007). A determination of whether foraging disruptions incur fitness consequences would require information on estimates of the energetic requirements of the affected

individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

Masking—Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.,* those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.,* 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.,* snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.,* pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.,* signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.,* sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.,* on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked. Elliott Bay and the Seattle area typically have elevated background sound levels due to active commercial shipping, fishing, and ferry operations as well as recreational use of the waterway.

Marine Mammal Habitat Effects

WSDOTs proposed construction activities could have localized temporary impacts on marine mammal habitat, including prey, by increasing in-water sound pressure levels and slightly decreasing water quality. Increased noise levels associated with this project are of short duration but may adversely affect acoustic habitat (see masking discussion above) and adversely affect marine mammal prey within the vicinity of the project (see discussion below). Elevated noise levels from impact and vibratory pile driving or removal would ensonify the project area where fish and marine mammals occur, which could affect foraging success.

In-water pile driving and removal would also cause short term effects on water quality, which includes increase in turbidity. WSDOT would employ standard construction best management practices and comply with state water quality standards during all planned activities, thus reducing any impacts to water quality. Due to the nature and duration of proposed effects, combined with both measure described above, the impact from increased turbidity levels is expected to be discountable.

Pile driving and removal may temporarily increase turbidity due to increases in suspended sediment. However, possible increases in turbidity would temporary, restricted to the localized construction area, and minimal. WSDOT must also comply with state water quality standards, which would limit the extent of increased turbidity to the immediate project area. Generally, changes in turbidity is restricted to a localized radius of 25-feet around the pile (Everitt *et al.,* 1980). Cetaceans and pinnipeds are not expected to be within a radius that would have localized increases in turbidity, but if they did occur, they would likely be transiting through the area and could avoid the affected area. Therefore, the effects of turbidity to on marine mammal habitat is expected to be discountable. Lastly, pile driving and removal would not obstruct the migration or movement of marine mammals.

In-Water Construction Effect on Potential Foraging Habitat

The area likely impacted by the project is relatively small and provides marginal foraging habitat for marine mammals and fishes compared to the available habitat in Puget Sound. The area is highly influenced by anthropogenic activities. The total seafloor area affected by pile installation and removal is a small area compared to the vast foraging area available to marine mammals in the area. At best, the impact area provides marginal foraging habitat for marine mammals and fishes. Furthermore, pile driving and removal at the project site would not obstruct long-term movements or migration of marine mammals.

Avoidance by potential prey (*i.e.,* fish or, in the case of transient killer whales, other marine mammals) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish and marine mammal avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution, and behavior is anticipated. Any behavioral avoidance by fish or marine mammals of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat of similar or better quality in the nearby vicinity.

Effects on Potential Prey

Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* crustaceans, cephalopods, fish, zooplankton, other marine mammals). Marine mammal prey varies by species, season, and location. Here, we describe studies regarding the effects of noise on known marine mammal prey other than other marine mammals (which have been discussed earlier).

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.,* Zelick and Mann, 1999; Fay, 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.,* 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.,* feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving on fish; several are based on studies in support of large, multiyear bridge construction projects (*e.g.,* Scholik and Yan, 2001, 2002; Popper and Hastings, 2009). Several studies have demonstrated that impulse sounds might affect the distribution and behavior of some fishes, potentially impacting foraging opportunities or increasing energetic costs (*e.g.,* Fewtrell

and McCauley, 2012; Pearson *et al.,* 1992; Skalski *et al.,* 1992; Santulli *et al.,* 1999; Paxton *et al.,* 2017). However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Pena *et al.,* 2013; Wardle *et al.,* 2001; Jorgenson and Gyselman, 2009; Popper *et al.,* 2016).

SPLs of sufficient strength have been known to cause injury to fish and fish mortality. However, in most fish species, hair cells in the ear continuously regenerate and loss of auditory function likely is restored when damaged cells are replaced with new cells. Halvorsen *et al.* (2012a) showed that a TTS of 4–6 dB was recoverable within 24 hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death, and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.,* 2012b; Casper *et al.,* 2013).

The most likely impact to fishes from pile driving and removal and construction activities at the project areas would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution, and behavior is anticipated.

Construction activities, in the form of increased turbidity, have the potential to adversely affect forage fish in the project areas. Forage fish form a significant prey base for many marine mammal species that occur in the project areas. Increased turbidity is expected to occur in the immediate vicinity (on the order of 10 ft (3 m) or less) of construction activities. However, suspended sediments and particulates are expected to dissipate quickly within a single tidal cycle. Given the limited area affected and high tidal dilution rates any effects on forage fish are expected to be minor or negligible. Finally, exposure to turbid waters from construction activities is not expected to be different from the current exposure; fish and marine mammals in Elliott Bay are routinely exposed to substantial levels of suspended sediment from natural and anthropogenic sources.

In summary, given the short daily duration of sound associated with individual pile driving events and the relatively small areas being affected, pile driving activities associated with the proposed actions are not likely to have a permanent, adverse effect on any fish habitat, or populations of fish species. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the nearby vicinity. Thus, we conclude that impacts of the specified activities are not likely to have more than short-term adverse effects on any prey habitat or populations of prey species. Further, any impacts to marine mammal habitat are not expected to result in significant or long-term consequences for individual marine mammals, or to contribute to adverse impacts on their populations.

Estimated Take of Marine Mammals

This section provides an estimate of the number of incidental takes proposed for authorization through the IHA, which will inform NMFS' consideration of ''small numbers,'' the negligible impact determinations, and impacts on subsistence uses.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only, in the form behavioral reactions and TTS for individual marine mammals resulting from exposure to noise from impact and vibratory pile driving and removal. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.,* shutdown zones at the Level A harassment area) discussed in detail below in the Proposed Mitigation section, Level A harassment is neither anticipated nor proposed to be authorized.

As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below we describe how the proposed take numbers are estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.,* frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.,* bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.,* Southall *et al.,* 2007, 2021, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 µPa)) for continuous (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 µPa for non-explosive impulsive (*e.g.,* seismic airguns) or intermittent (*e.g.,* scientific sonar) sources. For in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 µPa (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 µPa (rms). Generally speaking, Level B harassment take estimates based on these behavioral

harassment thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that would not otherwise occur.

WSDOTs proposed activity includes the use of continuous (vibratory hammer) and impulsive (impact hammer) sources, and therefore the RMS SPL thresholds of 120 and 160 dB re 1 µPa, respectively, are applicable.

Level A Harassment—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). WSDOTs proposed activity includes the use of impulsive (impact hammer) and non-impulsive (vibratory hammer) sources.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.*

TABLE 4—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{pk,flat}$: 219 dB; $L_{E,LF,24h}$: 183 dB	*Cell 2:* $L_{E,LF,24h}$: 199 dB.
Mid-Frequency (MF) Cetaceans	*Cell 3:* $L_{pk,flat}$: 230 dB; $L_{E,MF,24h}$: 185 dB	*Cell 4:* $L_{E,MF,24h}$: 198 dB.
High-Frequency (HF) Cetaceans	*Cell 5:* $L_{pk,flat}$: 202 dB; $L_{E,HF,24h}$: 155 dB	*Cell 6:* $L_{E,HF,24h}$: 173 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{pk,flat}$: 218 dB; $L_{E,PW,24h}$: 185 dB	*Cell 8:* $L_{E,PW,24h}$: 201 dB.
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{pk,flat}$: 232 dB; $L_{E,OW,24h}$: 203 dB	*Cell 10:* $L_{E,OW,24h}$: 219 dB.

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 µPa, and cumulative sound exposure level (L_E) has a reference value of 1µPa^{2}s. In this table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.,* varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected by sound generated from the impact and vibratory pile driving components of this project.

In order to calculate distances to the Level A harassment and Level B harassment thresholds for the methods and piles used in the proposed project, NMFS used acoustic monitoring data from previous pile driving at WSDOTs Bainbridge Island Ferry Terminal Project (vibratory removal of 12-inch H-piles), Port Townsend Ferry Terminal Project (vibratory installation and/or removal of 24 and 30-inch steel piles), Phase 2 of Colman Dock construction for the Seattle Multimodal Project (impact installation of 24-inch steel piles), and the Ebey Slough Bridge Replacement Project (Vibratory installation of 72-inch steel piles). Each of the projects listed above occurred within the Puget Sound and provided the most suitable source levels due to similar physical habitat characteristics, pile sizes, and pile driving or removal methods (Table 5).

Source levels from the Bainbridge Terminal Ferry Project and the Ebey Slough Bridge Replacement Project were used as proxies for the vibratory installation of 78-inch steel pipe piles and the vibratory removal of 14-inch steel H-piles for the proposed project because source levels for identical pile sizes were unavailable. Results from the vibratory installation of 72-inch piles at the Ebey Slough Bridge Replacement Project showed that the unweighted RMS SPL source levels was 170 dB re 1 µPa at 15 m, therefore it was assumed that source levels for 78-inch piles would be 174 dB re 1 µPa at 10 m. The source levels for 14-inch H-piles was assumed to be equivalent to the vibratory removal of 12-inch H-piles at the Bainbridge Island Ferry Terminal where the unweighted RMS SPL source level was 153 dB re 1 µPa at 10 m (WSDOT 2023). Bubble curtains would be employed for impact installation of 24-inch steel piles but zero dB of effective attenuation is assumed because a bubble curtain was used at Phase 2 of Colman Dock construction for the Seattle Multimodal Project, thus source levels would be the same.

TABLE 5—SEATTLE SLIP 3 VEHICLE TRANSFER SPAN PROXY SOUND SOURCE LEVELS FOR PILE SIZES AND DRIVING METHODS

Pile type and size (in)	Method	Source Level at 10 m (dB re 1 µPA)	Reference
14-inch steel H-piles	Vibratory Removal	153 dB rms	WSDOT (2023).

TABLE 5—SEATTLE SLIP 3 VEHICLE TRANSFER SPAN PROXY SOUND SOURCE LEVELS FOR PILE SIZES AND DRIVING METHODS—Continued

Pile type and size (in)	Method	Source Level at 10 m (dB re 1 μPA)	Reference
24-inch steel pipe piles	Vibratory installation and removal	174 dB rms	Huey (2010).
24-inch steel pipe piles	Impact installation	166 SEL, 176 dB rms, 194 dB peak.	Greenbusch Group (2019).
30-inch steel sheet piles	Vibratory installation	174 dB rms	Huey (2010).
78-inch steel pipe piles	Vibratory installation	174 dB rms	WSDOT (2011).

Level B Harassment Zones

Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

TL = B * Log10 (R1/R2)

Where:

TL = transmission loss in dB
B = transmission loss coefficient; for practical spreading equals 15
R1 = the distance of the modeled SPL from the driven pile, and
R2 = the distance from the driven pile of the initial measurement

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for the WSDOTs proposed activities in the absence of specific modelling. The estimated Level B harassment zones for the WSDOTs proposed activities are shown in Tables 6 and 7.

Level A Harassment Zones

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional user spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources such as pile installation and removal, the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the duration of the activity, it would be expected to incur PTS. Inputs used in the optional User Spreadsheet tool (*e.g.,* number of piles per day, during and/or strikes per pile) are presented in table 1, and the resulting estimated isopleths and ensonified areas are reported in tables 6 and 7.

TABLE 6—LEVEL A AND LEVEL B HARASSMENT ZONES

Pile size and type	Pile driving method	Level A harassment zone (m)					Level A harassment zone (m)
		LF cetaceans	MF cetaceans	HF cetaceans	Phocids	Otarids	
14-inch steel	Vibratory removal	3.2	0.3	4.7	1.9	0.1	1,585
24-inch steel	Vibratory installation and removal.	65.8	5.8	97.3	40.0	2.8	[a] 15,410
24-inch steel	Impact installation	75.9	2.7	90.4	40.6	3.0	736
30-inch steel	Vibratory installation	50.2	4.5	74.3	30.5	2.1	[a] 15,410
78-in steel	Vibratory installation	50.2	4.5	74.3	30.5	2.1	[a] 15,410

[a] Land is reached at a maximum of 15,410 km/9.6 miles.

TABLE 7—LEVEL A AND LEVEL B HARASSMENT ZONES

Pile size and type	Pile driving method	Level A harassment zone (m)					Level B harassment zone (m)
		LF cetaceans	MF cetaceans	HF cetaceans	Phocids	Otarids	
14-inch steel	Vibratory removal	8.0	0.07	17.4	2.8	0.007	3,247,392
24-inch steel	Vibratory installation and removal.	4,524.5	5.7	6,418	1,294.6	7.07	75,844,286
24-inch steel	Impact installation	75.9	2.7	90.4	40.6	3.0	861,188
30-inch steel	Vibratory installation	1,979.2	15.9	4,336	730.6	3.5	75,844,286
78-inch steel	Vibratory Installation	1,979.2	15.9	4,336	730.6	3.5	75,844,286

Marine Mammal Occurrence and Take Estimation

In this section we provide information about the occurrence of marine mammals, including density or other relevant information which will inform proposed take incidental to WSDOTs pile driving activities for the Seattle Slip 3 VTS Replacement Project. Throughout this section the pile installation or removal will be referred to as ''pile driving'' unless specified otherwise. From 2017 through 2021 WSDOT monitored for marine mammals in Elliott Bay for the Seattle Multimodal Project. During this time, marine mammal monitoring occurred for 377 days. Since the Seattle Multimodal Project occurred in Elliott Bay, WSDOT considered this marine mammal monitoring data to be the most comprehensive and relevant for estimating take for the Seattle Slip 3 VTS Replacement Project. Therefore, this data compiled all of these monitoring results and calculated total sightings, average sightings per day, and maximum sightings per day for all species of marine mammals that were observed (table 8). WSDOT used their best professional judgement and used this data to estimate take by multiplying maximum sighting per day by 19, which is the maximum number of in-water working days WSDOT estimates it would take to complete the project in a total worst case scenario.

NMFS has carefully evaluated these methods and concludes that it is an accurate and appropriate method for estimating take for WSDOTs activities for this project.

TABLE 8—MARINE MAMMALS SIGHTED AT THE SEATTLE MULTIMODAL PROJECT

Species	Total individuals sighted [a]	Average individuals sighted/day (377 days) [a]	Maximum individuals sighted in one-day [a]	Take requested
Harbor seal	2,271	6.0	32	Yes
Northern elephant seal	1	0.003	1	Yes
California sea lion	3,669	9.7	29	Yes
Steller sea ion	112	0.3	10	Yes
Unidentified pinniped	121	N/A	N/A	N/A
Killer whale Southern resident	170	0.5	26	No
Killer whale transient	79	0.2	20	Yes
Gray whale	5	0.01	2	Yes
Humpback whale	8	0.02	1	No
Minke whale	3	0.008	1	Yes
Unidentified large whale	2	N/A	1	N/A
Unidentified small whale	10	N/A	N/A	N/A
Harbor porpoise	655	1.7	72	Yes
Dall's porpoise	8	0.02	5	Yes
Common bottlenose dolphin	6	0.02	2	Yes
Pacific white-sided dolphin	2	0.005	2	Yes
Long-beaked common dolphin	0	N/A	0	Yes
Unidentified dolphin/porpoise	46	N/A	6	N/A

[a] WSDOT 2022.

Gray Whale—Although gray whales are common on the southern ends of Whidbey and Camano Islands in the Puget Sound February through May, they are rarely sighted in the proposed construction area (Calambokidis et al. 2024). During the Seattle multimodal project only 5 gray whales were detected over 377 days of monitoring with a maximum of two individuals observed on a single day (WSDOT 2022). WSDOT estimated that up to 2 gray whales could be taken per day for the 19 days of construction, for a total of 38 takes by Level B harassment.

Since Seattle Slip 3 VTS Replacement Project construction would occur from August through mid-February, gray whales occurrence is expected to be relatively low. In this context, and given that gray whales are highly conspicuous, we have a high degree of confidence that WSDOT can successfully implement shutdowns as necessary to avoid any potential Level A harassment of gray whales. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of gray whales by Level A harassment is not anticipated or for authorization.

Minke Whale—Minke whales are uncommon during fall and winter months in the Puget Sound but are rarely sighted in the proposed construction area (Calambokidis and Baird 1994). During the Seattle Multimodal Project only three minke whale detections occurred over 377 days of monitoring with a maximum of one detection on a single day (WSDOT 2022). WSDOT estimated that up to one minke whale could be taken per day for the 19 days of construction, for a total of 19 takes by Level B harassment.

Since the Seattle Slip 3 VTS Replacement Project construction would occur from August through mid-February, minke whale occurrence is expected to be relatively low. In these circumstances, and given that minke whales are highly conspicuous, we have a high degree of confidence that WSDOT can successfully implement shutdowns as necessary to avoid any potential Level A harassment of minke whales. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of minke whales by Level A harassment is not anticipated or for authorization.

Transient Killer Whale—Transient killer whales are common in in the Puget Sound in all months and a total of 79 transient killer whale detections occurred over 377 days of monitoring for the Seattle Multimodal Project with a maximum of 20 detections in a single day (Orca Network 2021, WSDOT 2022). WSDOT estimated that up to 20 incidents of take for transient killer whales could occur per day for 19 days of construction, for a total of 380 takes by Level B Harassment. Transient killer

whales are common in the Puget Sound and are highly conspicuous.

The largest Level A harassment zone for mid-frequency cetaceans for all construction for the Seattle Slip 3 VTS Replacement Project is less than 6 m. It is highly unlikely that any cetacean would enter within 6 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of transient killer whales by Level A harassment is not anticipated or for authorization.

Bottlenose Dolphin—Bottlenose dolphins are considered to be rare in the Puget Sound but they were detected by the Cascadia Research Collective and reported via the Orca Network in 2017 (Cascadia Research Collective, 2017). They were also detected on 6 occasions with a maximum of 2 detections on a single day during the Seattle Multimodal Project (WSDOT 2022). WSDOT estimated that up to two bottlenose dolphins could be taken per day for the 19 days of construction, for a total of 38 takes by Level B harassment.

The largest Level A harassment zone for mid-frequency cetaceans for all construction of the Seattle Slip 3 VTS Replacement Project is less than 6 m. It is highly unlikely that any cetacean would enter within 6 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of bottlenose dolphins by Level A harassment is not anticipated or for authorization.

Long-Beaked Common Dolphin—No confirmed detections of long-beaked common dolphins occurred during the Seattle Multimodal Project but 6 unidentified delphinids were observed (WSDOT 2022). WSDOT assumed that up to two of these unidentified delphinids could have been long-beaked common dolphins. Therefore, WSDOT estimated that up to two long-beaked common dolphins could be taken per day for the19 days of construction, for a total of 38 takes by Level B harassment.

The largest Level A harassment zone for mid-frequency cetaceans for all construction of the Seattle Slip 3 VTS Replacement Project is less than 6 m. It is highly unlikely that any cetacean would enter within 6 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of long-beaked common dolphins by Level A harassment is not anticipated or for authorization.

Pacific White-Sided Dolphin—Pacific white-sided dolphins are rare in the Puget Sound but have been observed in San Juan Channel (Orca Network 2012). Two Pacific white sided dolphins were also observed during the Seattle Multimodal Project (WSDOT 2022). WSDOT estimated that up to two Pacific white-sided dolphins could be taken per day for the 19 days of construction, for a total of 38 takes by Level B harassment.

The largest Level A harassment zone for mid-frequency cetaceans for all construction of the Seattle Slip 3 VTS Replacement Project is less than 6 m. It is highly unlikely that any cetacean would enter within 6 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. WSDOT must also monitor the Orca Network and the Whale Report Alert System (WRAS) daily in order to maintain awareness of regional whale occurrence and movements (see Proposed Mitigation and Proposed Monitoring and Reporting sections below). Therefore, take of Pacific white-sided dolphins by Level A harassment is not anticipated or for authorization.

Dall's Porpoise—Dall's porpoises are considered rare within the project area. WSDOT recorded only 8 detections over 377 days of monitoring during the Seattle Multimodal Project (WSDOT 2022). WSDOT estimated that up to 5 Dall's porpoises could be taken per day for the 19 days of construction, for a total of 95 takes by Level B harassment.

The largest Level A harassment zone for high-frequency cetaceans for all construction of the Seattle Slip 3 VTS Replacement Project is less than 100 m. Due to the relatively short duration of construction for the Seattle Slip 3 VTS Replacement Project and infrequent detections of Dall's porpoises, WSDOT estimated that no Dall's porpoises would be likely to enter the Level A harassment zone. Take by Level A harassment of Dall's Porpoises is not anticipated or proposed to be authorized.

Harbor Porpoise—From 2017 through 2022, WSDOT recorded 655 detections of harbor porpoises with a maximum of 72 detections on a single day (WSDOT 2022). WSDOT estimated that up to 72 instances of take for harbor porpoises could occur per day for the 19 days of construction, for a total of 1,368 takes by Level B harassment.

The largest Level A harassment zone for high-frequency cetaceans is under 100 m. Although harbor porpoises are relatively common in the Puget Sound, we assume that WSDOT would be able to cease construction if harbor porpoises entered the Level A harassment zone before sufficient duration of exposure for PTS to occur. Take by Level A harassment is not anticipated or proposed to be authorized.

California Sea Lion—California sea lions are relatively common throughout the Puget Sound. During the Seattle Multimodal Project a maximum of 29 sea lions were detected on a single day with a total of 3,669 sightings over the 377 days of monitoring (WSDOT 2022). WSDOT estimated that 32 California sea lions would enter the Level B harassment zone for each of the 19 days of construction, for a total of 551 takes by Level B harassment.

The largest Level A harassment zone for Otariids for all construction of the Seattle Slip 3 VTS Replacement Project is less than 3 m. It is highly unlikely that any Otariids would enter within 3 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. Therefore, take of California sea lions by Level A harassment is not anticipated or for authorization.

Steller Sea Lion—Monitoring during the Seattle Multimodal Project recorded 112 detections of Steller sea lions over 377 days of monitoring, which is less than one detection per day. However, a maximum of 10 detections were recorded in a single day. Therefore, WSDOT estimated that 10 stellar sea lions would enter the Level B harassment zone each day for the 19 days of construction of the project, for a total of 190 takes by Level B harassment.

The largest Level A harassment zone for Otariids for all construction of the Seattle Slip 3 VTS Replacement Project is less than 3 m. It is highly unlikely that any Otariids would enter within 3 m of active pile driving, and no take by Level A harassment for any mid-frequency cetacean is expected to occur. Therefore, take of steller sea lions by

Level A harassment is not anticipated or for authorization.

Harbor Seal—Harbor seals are common in the project area. During the Seattle Multimodal Project WSDOT recorded an average of 6 harbor seal detections per day and a maximum of 32 in a single day (WSDOT 2022). WSDOT estimated that a maximum of 32 harbor seals will enter the Level B harassment zones for each of the 19 days of construction, for a total of 608 takes by Level B harassment.

The largest Level A harassment zone for high-frequency phocids is under 41 m. Although harbor seals are relatively common in the Puget Sound, we assume that WSDOT would be able to cease construction if harbor seals entered the Level A harassment zone before sufficient duration of exposure for PTS to occur. Take by Level A harassment is not anticipated or proposed to be authorized.

Northern Elephant Seal—Although northern elephant seals are rare in the Puget Sound, 1 individual was detected during the Seattle Multimodal Project. Since northern elephant seals are rare in the proposed construction area, WSDOT estimated that a maximum of 1 elephant seal would enter the Level B harassment zone per day for each of the 19 days of construction. A total of 19 takes by Level B harassment is estimated for northern elephant seals for construction associated with the Seattle Slip 3 VTS Replacement Project.

Similar to harbor seals, the largest harassment zone is less than 41 m for all construction activities. Given the anticipated rarity of occurrence for elephant seals, WSDOT does not expect northern elephant seals to enter Level A harassment zones without being detected prior to shutdown. Construction would cease if a northern elephant seal was observed entering Level A harassment zone. Therefore, no take by Level A harassment of northern elephant seals is anticipated or proposed to be authorized.

TABLE 9—ESTIMATED TAKE OF MARINE MAMMAL BY LEVEL B HARASSMENT FOR 19 DAYS OF IN-WATER CONSTRUCTION

Species	Maximum sightings/day [a]	Total takes by Level B harassment	Percent of stock
Phocids			
Harbor seal	32	608	5.51
Northern elephant seal	1	19	0.02
Otariids			
California sea lion	29	551	0.24
Steller sea lion	10	190	0.23
Cetaceans			
Killer whale transient	20	380	110
Gray whale	2	38	0.15
Minke whale	1	19	3.7
Harbor porpoise	72	1,368	16.5
Dall's porpoise	5	95	0.37
Common bottlenose dolphin	2	38	3.0
Pacific white-sided dolphin	2	38	0.13
Long-beaked common dolphin	5	38	0.05

[a] WSDOT 2022.

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, and impact on operations.

Shutdown Zones

Prior to the start of any in-water construction, WSDOT would establish shutdown zones for all planned activities. Shutdown zones are pre-defined areas within which construction would be halted upon sightings of a marine mammal or in anticipation of a marine mammal entering the established shutdown zones. Pile-driving would not re-commence until all marine mammals are assumed to have cleared these established shutdown zones.

WSDOT proposed to establish shutdown zones for SRKWs and HWs at the Level B harassment zone for the vibratory removal of 14-in piles at 1,600

m and at 750 m for impact driving 24-in piles (Table 6 and Table 10). These shutdown zones are the Level B harassment zone rounded up to the nearest 50 m for each pile size and driving method. Proposed shutdown zones for the remaining pile-driving for SRKWs and HWs would be established at 15,410 m, which is equivalent to the maximum Level B harassment area before it reaches land.

The largest Level A harassment zone for the vibratory removal of 14-in piles is 3.2 m for all cetaceans and pinnipeds. However, WSDOT proposed conservatively to implement a shutdown zone at 50 m for removal of 14-in piles. The proposed shutdown zones for the remaining pile-driving activities would be established at 100 m for all hearing groups of cetaceans (except SRKWs and HWs, as discussed above) and 50 m for all pinnipeds. The largest Level A harassment zone amongst all hearing groups of cetaceans is would be 97.3 m for the remaining pile-driving (Table 6). The largest Level A harassment zone amongst pinnipeds would be 40.6 m for the remaining pile driving (Table 6). With WSDOTs proposed shutdown zones, all incidental take would be prevented for SRKWs and HWs and only take by Level B harassment would occur for the remaining species of cetaceans and pinnipeds.

WSDOT would also establish shutdown zones for all other species of marine mammals for which take has not been authorized or for which incidental take has been authorized but the number of authorized takes has already been met. Those zones would be equivalent to Level B harassment zones provided for each activity in Table 6.

In addition to the shutdown zones mentioned above, WSDOT proposes to implement shutdown measures for SRKWs and HWs. If SRKWs or HWs are observed within or approaching established shutdown zones (see table 10), WSDOT would shut down pile driving equipment to avoid take of these species. If a killer whale approaches a Level B harassment zone, and it is unknown if it is a SRKW or a Transient killer whale, WSDOT would assume it is a SRKW and implement shutdown measures. Pile driving would only resume if the killer whale could be confirmed as a Transient killer whale.

TABLE 10—SHUTDOWN ZONES FOR ALL PILE-DRIVING ACTIVITIES FOR THE SEATTLE SLIP 3 VTS REPLACEMENT PROJECT

Pile size and type	Pile driving method	Shutdown zones (m)					SRKW and HW shutdown zones (m)
		LF cetaceans	MF cetaceans	HF cetaceans	Phocids	Otarids	
14-in steel	Vibratory removal	50	50	50	50	50	1,600
24-in steel	Vibratory installation and removal.	100	100	100	50	50	*15,410
24-in steel	Impact installation	100	100	100	50	50	750
30-in steel	Vibratory installation	100	100	100	50	50	*15,410
78-in steel	Vibratory Installation	100	100	100	50	50	*15,410

*15,410 m is the maximum distance sound can travel before reaching land.

Protected Species Observers

The monitoring locations for all protected species observers (PSOs) during all pile driving activities (described in the Proposed Monitoring and Reporting Section) would ensure that the entirety of all shutdown zones are visible. If environmental conditions deteriorate such that the entirety of shutdown zones would not be visible (*e.g.,* fog, heavy rain, Beaufort sea state, etc.), all pile driving would be delayed until PSOs are confident that marine mammals in the shutdown zones could be detected.

Monitoring for Level A and Level B Harassment

All of the harassment zones would be monitored by PSOs to the extent practicable. Established monitoring zones would allow PSOs to observe marine mammals and define clear monitoring protocols for areas adjacent to shutdown zones. The monitoring zones and protocols would enable PSOs to be aware of and communicate the presence of marine mammals in project areas and outside of project areas to prepare for potential cessation of pile driving activities should a marine mammal enter a shutdown zone.

Pre-Activity Monitoring

Prior to the start of daily in-water construction activities, or whenever a break in pile driving of 30 minutes or longer occurs, PSOs would observe shutdown and monitoring zones for a 30 minute period. The shutdown zone would be considered cleared when a marine mammal has not been observed within the zone for that 30-minute period. If pile driving is delayed or halted due to the presence of a marine mammal, the activities would not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zones or 15 minutes have passed without re-detection of the animal. When a marine mammal for which Level B harassment take is authorized is present in the Level B harassment zone and authorized take has not been met, activities may begin. If work ceases for more than 30 minutes, the pre-activity monitoring of the shutdown zones would commence. A determination that the shutdown zone is clear must be made during a period of good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

Soft Start

Soft-start procedures are used to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors would be required to provide an initial set of three strikes from the hammer at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. Soft start would be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

Bubble Curtain

A bubble curtain would be employed during impact installation or proofing of steel piles, unless the piles are driven in the dry, or water is less than 3 ft (0.9 m) in depth. A noise attenuation device would not be required during vibratory pile driving. If a bubble curtain or

similar measure is used, it would distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column. Any other attenuation measure would be required to provide 100 percent coverage in the water column for the full depth of the pile. The lowest bubble ring would be in contact with the mudline for the full circumference of the ring. The weights attached to the bottom ring would ensure 100 percent mudline contact. No parts of the ring or other objects would prevent full mudline contact.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Visual Monitoring

Marine mammal monitoring during pile driving activities would be conducted by PSOs meeting NMFS' standards and in a manner consistent with the following:

- PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods;
- At least one PSO would have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization;
- Other PSOs may substitute education (degree in biological science or related field) or training for experience; and
- Where a team of three or more PSOs is required, a lead observer or monitoring coordinator would be designated. The lead observer would be required to have prior experience working as a marine mammal observer during construction.
- PSOs must be approved by NMFS prior to beginning any activities subject to this IHA.

PSOs should have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

During all pile driving activities, a minimum of 3 PSO will monitor shutdown zones during pile driving activities. A total of 3 PSOs will monitor the area for the vibratory removal 14-in steel H-piles, 2 PSOs will monitor from the construction site and the other PSO will monitor from Pier 69/70. For the vibratory installation and removal of 24, 30, and 78-in steel pipe piles 8 PSOs will monitor shutdown zones. PSOs as described above, 1 PSO will be stationed on each of the Seattle-Bainbridge Island Ferries (2 PSOs in total on ferries), 1 PSO stationed at Alki Beach Pier on the south end of Elliott Bay, 1 PSO stationed at Magnolia Viewpoint on the north end of Elliott Bay, 1 PSO station at Rolling Bay on Bainbridge Island, and another PSO stationed at Rockaway Beach on Bainbridge Island. During impact pile driving 24-in steel pipe piles, 2 PSOs will be stationed at the construction site and an additional PSO will be stationed at pier 62 at the north end of the SRKW and HW shutdown zones (Figure 3).

Monitoring would be conducted 30 minutes before, during, and 30 minutes after all in water construction activities. In addition, observers would record all incidents of marine mammal occurrence, regardless of distance from activity, and would document any behavioral reactions in concert with distance from piles being driven or removed. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than 30 minutes.

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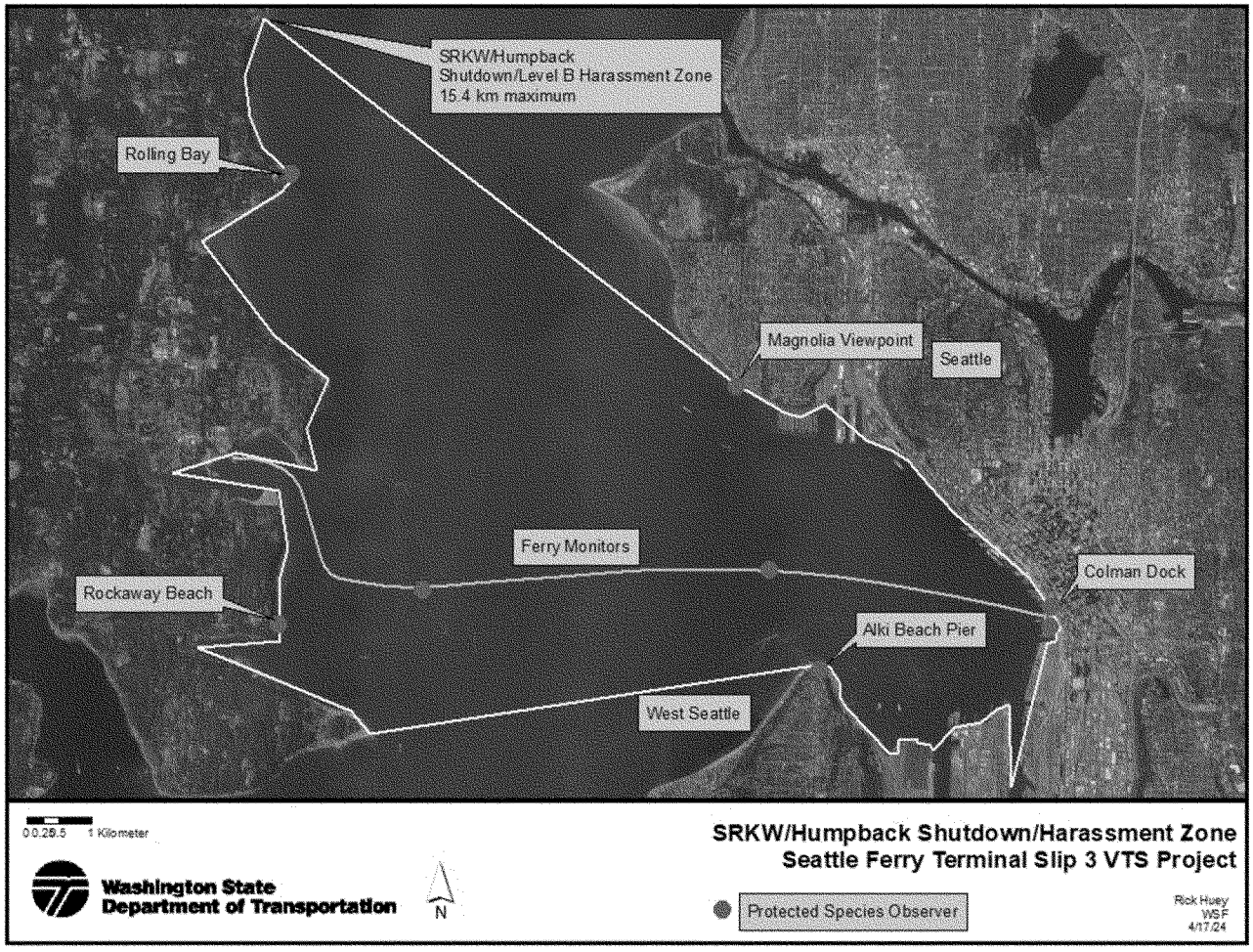

Figure 3 – Placement of Protected Species Observers

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Coordination With Marine Mammal Research Networks

Prior to the start of pile driving for the day, the PSOs would contact the Orca Network to find out the location of the nearest marine mammal sightings. Daily sightings information will be checked several times a day. The Orca Network consists of a list of over 600 (and growing) residents, scientists, and government agency personnel in the United States and Canada. Sightings are called or emailed into the Orca Network and immediately distributed to the NMFS Northwest Fisheries Science Center, the Center for Whale Research, Cascadia Research, the Whale Museum Hotline, and the British Columbia Sightings Network.

Sightings information collected by the Orca Network includes detection by hydrophone. The SeaSound Remote Sensing Network is a system of interconnected hydrophones installed in the marine environment of Haro Strait (west side of San Juan Island) to study orca communication, in-water noise, bottom fish ecology, and local climatic conditions. A hydrophone at the Port Townsend Marine Science Center measures average in-water sound levels and automatically detects unusual sounds. These passive acoustic devices allow researchers to hear when different marine mammals come into the region. This acoustic network, combined with the volunteer visual sighting network allows researchers to document presence and location of various marine mammal species.

WSDOT also participates in the Whale Report Alert System (WRAS/WhaleReport Alert System—Ocean Wise). In October 2018, the Ocean Wise Sightings Network (formerly the B.C. Cetacean Sightings Network) launched an alert system that broadcasts details of whale presence to large commercial vessels. Information on whale presence is obtained from real-time observations reported to the Ocean Wise Sightings Network via the WhaleReport app. The alerts inform shipmasters and pilots of cetacean occurrence in their vicinity. This awareness better enables vessels to undertake adaptive mitigation measures, such as slowing down or altering course in the presence of cetaceans, to reduce the risk of collision and disturbance.

All WSDOT ferry vessel crews have been trained in the use of WRAS, and input new sightings of cetaceans so data would be available to other vessels and to PSOs on the project. The lead PSO will check the WRAS sightings regularly during the day to be aware of cetaceans approaching the shutdown zones.

With this level of coordination in the region of activity, WSDOT would be able to get additional real-time information on the presence or absence of cetaceans prior to start of in-water construction each day.

Reporting

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving activities, or 60 days prior to a requested date of issuance of any future IHAs for the project, or other projects at the same location, whichever comes first. The marine mammal report would include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets. Specifically, the report would include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including: (a) How many and what type of piles were driven or removed and the method (*i.e.,* impact or vibratory); and (b) the total duration of time for each pile (vibratory driving) number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring; and
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

For each observation of a marine mammal, the following would be reported:

- Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
- Time of sighting;
- Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
- Distance and location of each observed marine mammal relative to the pile being driven or hole being drilled for each sighting;
- Estimated number of animals (min/max/best estimate);
- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
- Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- Number of marine mammals detected within the harassment zones, by species; and
- Detailed information about implementation of any mitigation (*e.g.,* shutdowns and delays), a description of specified actions that ensued, and resulting changes in behavior of the animal(s), if any.

If no comments are received from NMFS within 30 days, the draft reports would constitute the final reports. If comments are received, a final report addressing NMFS' comments would be required to be submitted within 30 days after receipt of comments. All PSO datasheets and/or raw sighting data would be submitted with the draft marine mammal report.

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, WSDOT would report the incident to the Office of Protected Resources (OPR) (*PR.ITP.MonitoringReports@noaa.gov*), NMFS and to the West Coast Region (WCR) regional stranding coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, WSDOT would immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHAs. WSDOT would not resume their activities until notified by NMFS.

The report would include the following information:

1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
2. Species identification (if known) or description of the animal(s) involved;
3. Condition of the animal(s) (including carcass condition if the animal is dead);
4. Observed behaviors of the animal(s), if alive;
5. If available, photographs or video footage of the animal(s); and
6. General circumstances under which the animal was discovered.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.,* intensity, duration), the context of any impacts or responses (*e.g.,* critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

Pile driving and removal activities associated with this project have the potential to disturb or displace marine mammals. The activities for this project may result in incidental take, in the form of Level B harassment, from underwater sound generated from pile driving or removal. Potential takes could occur if marine mammals are present in the ensonified zone when pile driving activities are underway.

The takes from Level B harassment would be due to potential behavioral disturbance and TTS. No serious injury or mortality is anticipated given the nature of the activities and measures designed to minimize the possibility of injury to marine mammals. The potential for harassment is minimized through the construction method and the implementation of the planned mitigation measures (see Proposed Mitigation section).

To avoid repetition, the discussion of our analysis applies to all the species listed in Table 2, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar in nature. Where there are special circumstances for a species or stock (*e.g.,* gray whales), they are included as a separate subsection below.

NMFS has identified key factors which may be employed to assess the level of analysis necessary to conclude whether potential impacts associated with a specified activity should be considered negligible. These include (but are not limited to) the type and magnitude of taking, the amount and importance of the available habitat for

the species or stock that is affected, the duration of the anticipated effect to the species or stock, and the status of the species or stock. The following factors support negligible impact determinations for all affected stocks.

No take by Level A harassment is anticipated or proposed to be authorized incidental to the Seattle Slip 3 VTS Replacement Project. However, take by Level B harassment is expected and proposed to be authorized for 12 marine mammal species. Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as area avoidance, increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,* Thorson and Reyff 2006 and NMFS 2018). Individual marine mammals would most likely move away from sound sources and temporarily avoid the ensonified area while pile driving is occurring. If the sound produced from the construction activities is sufficiently disturbing, marine mammals are likely to simply avoid the area while activities are occurring, particularly as the project is located on a busy waterfront with high amounts of vessel traffic. We expect that any avoidance of the project areas by marine mammals would be temporary in nature and that any marine mammals that avoid the project areas during construction would not be permanently displaced. Short-term avoidance of the project areas and energetic impacts of interrupted foraging or other important behaviors is unlikely to affect the reproduction or survival of individual marine mammals, and the effects of behavioral disturbance on individuals is not likely to accrue in a manner that would affect the rates of recruitment or survival of any affected stock.

The projects are also not expected to have significant adverse effects on affected marine mammals' habitats. The project activities will not modify existing marine mammal habitat for a significant amount of time. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected (with no known particular importance to marine mammals), the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Aside from the biologically important area (BIA) for gray whales described below, there are no known areas of importance for other marine mammals, such as feeding or pupping areas, in the project area.

For all species and stocks, take would occur within a limited, relatively confined area (Elliott Bay within central Puget Sound) of the stocks' ranges. Given the availability of suitable habitat nearby, any displacement of marine mammals from the project areas is not expected to affect marine mammals' fitness, survival, and reproduction due to the limited geographic area that will be affected in comparison to the much larger habitat for marine mammals in Puget Sound. Level B harassment will be reduced to the level of least practicable adverse impact to the marine mammal species or stocks and their habitat through use of mitigation measures described herein. Some individual marine mammals in the project areas may be present and be subject to repeated exposure to sound from pile driving on multiple days. However, these individuals would likely return to normal behavior during gaps in pile driving activity. The Seattle waterfront is a busy area and monitoring reports from previous in water pile driving activities indicate that marine mammals remain in Elliott Bay and the central Puget Sound area throughout pile driving activities. Therefore, any behavioral effects of repeated or long duration exposures are not expected to negatively affect survival or reproductive success of any individuals. Thus, even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any effects on rates of reproduction and survival of the stock.

Gray Whales

The Puget Sound is part of a BIA for gray whales as they migrate between the Arctic and Mexico (Calambokidis et al., 2024). Although the proposed project area is located within the Puget Sound, the gray whale BIA does not overlap with the ensonified zones and gray whales typically remain further north around Whidbey and Camano Islands (Calambokidis et al., 2018). Gray whales are also rarely seen in the project area. This suggests that impacts from the project would have minimal to no impact on the migration of gray whales in the BIA, and would therefore not affect reproduction or survival.

There was a UME for gray whales from 2018 through 2023 (see the Description of Marine Mammals in the Area of Specified Activities section of this notice). However, we do not expect takes proposed to be authorized for this project to have any additional affects to reproduction or survival. As mentioned previously, no take by Level A harassment, serious injury or mortality is expected. Takes proposed to be authorize by Level B harassment of gray whales would primarily be in the form of behavioral disturbance. The results from necropsies showed evidence that gray whale nutritional condition was poor during the UME. The area that would be temporarily impacted from construction does not overlap with the gray whale feeding BIA in the northern Puget Sound. Therefore, the construction associated with the Seattle Slip 3 VTS Replacement Project is unlikely to disrupt any critical behaviors (*e.g.,* feeding) or have any effect on reproduction or survival of gray whales.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- Level A harassment is not anticipated or proposed to be authorized for all 12 marine mammal species;
- Level B harassment would be in the form of behavioral disturbance, primarily resulting in avoidance of the project areas around where impact or vibratory pile driving is occurring, and some low-level TTS that may limit the detection of acoustic cues for relatively brief amounts of time in relatively confined footprint of the activities;
- Nearby areas of similar habitat value within Puget Sound are available for marine mammals that may temporarily vacate the project areas during construction activities for both projects;
- Effects on species that serve as prey for marine mammals from the activities are expected to be short-term and, therefore, any associated impacts on marine mammal feeding are not expected to result in significant or long-term consequences for individuals, or to accrue to adverse impacts on their populations from either project;
- The number of anticipated takes by Level B harassment is relatively low for all stocks for both projects;
- The ensonifed areas from the project is very small relative to the overall habitat ranges of all species and stocks, and will not adversely affect ESA-designated critical habitat, or cause more than minor impacts in any BIAs or any other areas of known biological importance;

• The lack of anticipated significant or long-term negative effects to marine mammal habitat from the project;
• The efficacy of the mitigation measures in reducing the effects of the specified activities on all species and stocks for the project; and
• Monitoring reports from similar work in Puget Sound that have documented little to no effect on individuals of the same species that could be impacted by the specified activities from the project.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted previously, only take of small numbers of marine mammals may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

For all species and stocks other than killer whales from the West Coast Transient stock, the proposed take is below one-third of the stock abundance. The proposed take of Transient killer whales as a proportion of the stock abundance is greater than one-third, if all takes are assumed to occur for different individuals. The project area represents a small portion of the stock's range from Alaska to California (Muto et al., 2019). Sighting reports from the Orca Network support that it is reasonable to suspect that the same individual Transient Killer whales would be present within the ensonified project area during the relatively short duration (19 days) of proposed activities. Since the construction area represents a small portion of Transient killer whales range and construction would occur over a short period, it is more likely that there will be multiple takes of the same individuals during proposed activities.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals would be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the ESA of 1973 (ESA; 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure 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 designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is proposed for authorization or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to WSDOT for conducting the Seattle Slip 3 VTS Replacement Project at Colman Dock in Seattle, Washington, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.*

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this notice of proposed IHA for the proposed Seattle Slip 3 VTS Replacement Project. We also request comment on the potential renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, one-year renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical activities as described in the Description of Proposed Activity section of this notice is planned or (2) the activities as described in the Description of Proposed Activity section of this notice would not be completed by the time the IHA expires and a renewal would allow for completion of the activities beyond that described in the Dates and Duration section of this notice, provided all of the following conditions are met:

• A request for renewal is received no later than 60 days prior to the needed renewal IHA effective date (recognizing that the renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA); and

• The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.,* reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take); and

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Kimberly Damon-Randall,

Director, Office of Protected Resources, National Marine Fisheries Service.

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