BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-PR-A001

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Seattle Multimodal Project at Colman Dock in Seattle, Washington

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

ACTION: Proposed incidental harassment authorization (IHA); request for comments.

SUMMARY: NMFS has received a request from the Washington State Department of Transportation (WSDOT) for authorization to take marine mammals incidental to the Seattle Multimodal Project at Colman Dock 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 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 authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.guan@noaa.gov*.

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 received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. 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: Shane Guan, Office of Protected Resources, NMFS, (301) 427-8401. 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/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed above.

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 issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be 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 such 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 such takings are set forth.

The NDAA (Pub. L. 108–136) removed the "small numbers" and "specified geographical region" limitations indicated above and amended the definition of "harassment" as it applies to a "military readiness activity." 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 incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 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 February 7, 2019, WSDOT submitted a request to NMFS requesting an IHA for the possible harassment of small numbers of marine mammal species incidental to Seattle Multimodal Project at Colman Dock in Seattle, Washington, from August 1, 2019 to July 31, 2020. After receiving the revised project description and the revised IHA application, NMFS determined that the IHA application is adequate and complete on May 8, 2018. NMFS is proposing to authorize the take by Level A and Level B harassments of the following marine mammal species: harbor seal (*Phoca vitulina*); northern elephant seal (*Mirounga angustirostris*); California sea lion (*Zalophus californianus*); Steller sea lion (*Eumetopias jubatus*); killer whale (*Orcinus orca*); long-beaked common dolphin (*Delphinus capensis*), bottlenose dolphin (*Tursiops truncatus*), gray whale (*Eschrichtius robustus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*); harbor porpoise (*Phocoena phocoena*); and Dall's porpoise (*P. dalli*). Neither WSDOT nor NMFS expect mortality to result from this activity and, therefore, an IHA is appropriate.

This proposed IHA would cover one year of a larger project for which WSDOT obtained prior IHAs (82 FR 21579; July 7, 2017; 83 FR 35226; July 25, 2018) and intends to request take authorization for subsequent facets of the project. The larger 5-year project involves reconfiguring the Colman Dock of the Seattle Ferry Terminal while maintaining the same vehicle holding capacity as current conditions. WSDOT complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHA and information regarding their monitoring results may be found in the Estimated Take section.

Description of Proposed Activity

Overview

The purpose of the Seattle Multimodal Project at Colman Dock is to preserve the transportation function of an aging, deteriorating and seismically deficient facility to continue providing safe and reliable service. The project will also address existing safety concerns related to conflicts between vehicles and pedestrian traffic and operational inefficiencies.

Dates and Duration

Due to NMFS and the U.S. Fish and Wildlife Service (USFWS) in-water work timing restrictions to protect ESA-listed salmonids, planned WSDOT in-water construction is limited each year to July 16 through February 15. In-water pile driving work will be conducted in daylight hours only. It is expected that a total of 146 pile driving days will be needed for the 2019/2020 construction work.

Specific Geographic Region

The Seattle Ferry Terminal at Colman Dock, serving State Route 519, is located on the downtown Seattle waterfront, in King County, Washington. The terminal services vessels from the Bainbridge Island and Bremerton routes, and is the most heavily used terminal in the

Washington State Ferry system. The Seattle terminal is located in Section 6, Township 24 North, Range 4 East, and is adjacent to Elliott Bay, tributary to Puget Sound (Figure 1-2 of the IHA application). Land use in the area is highly urban, and includes business, industrial, the Port of Seattle container loading facility, residential, the Pioneer Square Historic District and local parks.

Detailed Description of Specific Activity

The project will reconfigure the Colman Dock while maintaining approximately the same vehicle holding capacity as current conditions. The construction began in August 2017. In the 2017-2018 season, the construction activities were focused on the South Trestle, Terminal Building Foundation, and the temporary and permanent Passenger Offloading Facility. In the 2018-2019 season, the construction activities were focused on the North Trestle, and Slip 3 bridge seat, overhead loading, wingwall, and inner dolphin.

In the 2019-2020 season, WSDOT plans to work on Slip 2 bridge seat, Center Trestle, Slip 2 wingwall extension, and Slips 2 and 3 inner dolphins. Both impact pile driving and vibratory pile driving and pile removal would be conducted. A total of 58 days are estimated for pile driving and 88 days for pile removal.

In-water construction activities include:

- Permanently install 36-inch (in) steel piles with a vibratory hammer, and then proof with an impact hammer for the last 5-10 feet.
- Permanently install 24-in steel piles with a vibratory hammer.
- Removal of various piles with a vibratory hammer.
- Install and removal of 24-in steel piles with a vibratory hammer.

A list of pile driving and removal activities is provided in Table 1.

Table 1. Summary of in-water pile driving activities.

Method	Pile type and size	Total # piles	# piles/ day	Work days
Vibratory drive*	Steel pipe (temp), 24"	148	8	19
Vibratory drive	Steel pipe, 24"	2	2	1
Vibratory drive**	Steel pipe, 36"	148	8	19
Impact drive (proof)**	Steel pipe, 36"	148	8	19
Vibratory removal	Timber, 14"	1,046	20	52
Vibratory removal	Steel pipe, 12"	108	11	10
Vibratory removal	Steel H, 14"	19	10	2
Vibratory removal	Steel pipe, 18"	15	10	2
Vibratory removal*	Steel pipe (temp), 24"	148	8	19
Vibratory removal	Steel pipe, 36"	3	1	3
Total		**1,489**		**146**

*Same 24" steel pipe piles.
** Same 36" steel pipe piles

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. Additional information regarding population trends and threats may be found in NMFS's 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's website (https://www.fisheries.noaa.gov/find-species).

Table 2 lists all species with expected potential for occurrence in lower Puget Sound area and summarizes information related to the population or stock, including regulatory status under

the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2016). 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's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species 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's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's 2018 U.S. Pacific Draft Marine Mammal SARs (Carretta *et al.*, 2019). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2017 SARs (Carretta *et al.*, 2018); and draft 2018 SARs (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports)*.

Table 2. Marine mammals with potential presence within the proposed project area.

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray whale	*Eschrichtius robustus*	Eastern North Pacific	N	26,960	801	138
Family Balaenopteridae						
Humpback whale	*Megaptera novaeangliae*	California/Oregon/ Washington	Y	2,900	16.7	>38.6
Minke whale	*Balaenoptera*	California/Oregon/	N	636	3.5	>1.3

	acutorostrata	Washington				
Family Delphinidae						
Killer whale	*Orcinus orca*	Eastern N. Pacific Southern resident	Y	77	0.13	0
		West coast transient	N	243	2.4	0
Long-beaked common dolphin	*Delphinus capensis*	California	N	101,305	657	>35.4
Bottlenose dolphin	*Tursiops truncatus*	California/Oregon /Washington offshore	N	1,924	198	>0.84
Family Phocoenidae (porpoises)						
Harbor porpoise	*Phocoena phocoena*	Washington inland waters	N	11,233	66	7.2
Dall's porpoise	*P. dali*	California/Oregon/ Washington	N	25,750	172	0.3
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	*Zalophus californianus*	U.S.	N	257,606	14,011	>319
Steller sea lion	*Eumetopias jubatus*	Eastern U.S.	N	41,267	2,498	108
Family Phocidae (earless seals)						
Harbor seal	*Phoca vitulina*	Washington northern inland waters	N	11,036[4]	1,641	43
Northern elephant seal	*Mirounga angustirostris*	California breeding	N	179,000	4,882	8.8

[1]Endangered Species Act (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.

[2]NMFS marine mammal stock assessment reports online at: *www.nmfs.noaa.gov/pr/sars/*. CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.

[3]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.

[4]Harbor seal estimate is based on data that are 8 years old, but this is the best available information for use here (Jefferies *et al.*, 2003; Carretta *et al.*, 2017).

All species that could potentially occur in the proposed survey areas are included in Table 2. Although the Southern Resident killer whale (SRKW) could occur in the vicinity of the project area, WSDOT proposes to implement strict monitoring and mitigation measures with assistance from local marine mammal researchers and observers. Thus, the take of this marine mammal stock can be avoided (see details in Proposed Mitigation section).

In addition, the sea otter may be found in Puget Sound area However, this species is managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

More detailed descriptions of marine mammals in the WSDOT's Seattle Multimodal project area is provided below.

Gray Whale

Within Washington waters, gray whale sightings reported to Cascadia Research and the Whale Museum between 1990 and 1993 totaled over 1,100 (Calambokidis *et al.* 1994b). Abundance estimates calculated for the small regional area between Oregon and southern Vancouver Island, including the San Juan Area and Puget Sound, suggest there were 137 to 153 individual gray whales from 2001 through 2003 (Calambokidis *et al.* 2004a). Forty-eight individual gray whales were observed in Puget Sound and Hood Canal in 2004 and 2005 (Calambokidis 2007).

Although typically seen during their annual migrations on the outer coast, a regular group of gray whales annually comes into the inland waters at Saratoga Passage and Port Susan (south Whidbey Island area) from March through May to feed on ghost shrimp (Weitkamp *et al.* 1992). The size of the group is 10-12 individuals, with some arriving as early as January and staying into July (Orca Network 2015b). During this time frame they are also seen in the Strait of Juan de Fuca, the San Juan Islands and areas of Puget Sound, although the observations in Puget Sound are highly variable between years (Calambokidis *et al.* 1994b). The average tenure within Washington inland waters is 47 days and the longest stay was 112 days (WSDOT 2019).

The occurrence of gray whale in the WSDOT's Seattle Multimodal project area is rare. There was no sighting of gray whale during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, no gray whale was sighted (WSDOT 2019).

Humpback Whale

Historically, humpback whales were common in inland waters of Puget Sound and the San Juan Islands (Calambokidis *et al*. 2004b). The California-Oregon-Washington stock of humpback whale calves and mates in coastal Hawaii, Mexico and Central America and migrates to southern British Columbia in the summer and fall to feed (NMFS 1991; Marine Mammal Commission 2003; Carretta *et al*. 2007b). Humpback whales are seen in Puget Sound, but more frequent sightings occur in the Strait of Juan de Fuca and near the San Juan Islands. Most sightings are in spring and summer.

Cascadia Research Collective has been studying humpback whales along the US West Coast since 1986. In the early 2000s, increasing numbers of humpback whales were sighted in Washington inland waters, and this trend increased in 2014 (CRC 2017).

The occurrence of humpback whale in the WSDOT's Seattle Multimodal project area is rare. There was no sighting of humpback whale during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, no humpback whale was sighted (WSDOT 2019).

Minke Whale

The California-Oregon-Washington (CA-OR-WA) stock of Minke whale is considered a resident stock (NMFS 2016), and includes Minke whales within the inland Washington waters of Puget Sound and the San Juan Islands.

Information on Minke whale population and abundance is limited due to difficulty in detection. Over a 10-year period, 30 individuals were photo-identified in the U.S./Canada trans-

boundary area around the San Juan Islands and demonstrated high site fidelity (Dorsey *et al.* 1990; Calambokidis and Baird 1994).

Minke whales are reported in Washington inland waters year-round, although few are reported in the winter (Calambokidis and Baird 1994). Minke whales 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.

There was no sighting of minke whale during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, no minke whale was sighted (WSDOT 2019).

Killer Whale

The Eastern North Pacific Southern Resident (SRKW) and West Coast Transient stocks of killer whale are both found within Washington inland waters. Individuals of both stocks have long-ranging movements and regularly leave the inland waters (Calambokidis and Baird 1994a).

Southern Resident Killer Whale

Southern Residents are documented in coastal waters ranging from central California to the Queen Charlotte Islands, British Columbia (NMFS 2008a). They occur in all inland marine waters. SRKWs generally spend more time in deeper water and only occasionally enter water less than 15 feet deep (Baird 2000). Distribution is strongly associated with areas of greatest salmon abundance, with heaviest foraging activity occurring over deep open water and in areas characterized by high-relief underwater topography, such as subsurface canyons, seamounts, ridges, and steep slopes (Wiles 2004).

In fall, all three pods occur in areas where migrating salmon are concentrated such as the mouth of the Fraser River. They may also enter areas in Puget Sound where migrating chum and Chinook salmon are concentrated (Osborne 1999). In the winter months, the K and L pods spend progressively less time in inland marine waters and depart for coastal waters in January or February. The pods spend will over 50 percent of the winter months on the outer coast (NMFS 2014). The J pod is most likely to appear year-round near the San Juan Islands, and in the fall/winter, in the lower Puget Sound and in Georgia Strait at the mouth of the Fraser River. In 2017, the Southern Residents spent less time in inland marine waters than previously recorded, which may be related to lack of prey (Orca Network 2017).

On November 29, 2006, NMFS published a final rule designating critical habitat for the SRKR. Both Puget Sound and the San Juan Islands are designated as core areas of critical habitat under the ESA, excluding areas less than 20 feet deep relative to extreme high water (71 FR 69054).

The Southern Residents live in three pod groups known as the J, K and L pods. As of January 2019, the stock collectively numbered 75 individuals (J Pod: 22, K Pod: 18, L Pod: 35) (Orca Network 2019), though the NMFS latest SAR estimates the population to be 77.

There was no sighting of Southern Resident killer whale during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, 148 SRKW (multiple sightings of some members of the population) were observed in the project area, with an average of 1.5/day (WSDOT 2019).

West Coast Transient Killer Whale

The West Coast Transient stock occurs in California, Oregon, Washington, British Columbia, and southeastern Alaskan waters. Within the inland waters, they may frequent areas near seal rookeries when pups are weaned (Baird and Dill 1995). West Coast Transients are documented year-round in Washington inland waters.

Transient killer whales generally occur in smaller (less than 10 individuals), less structured pods, though pods as large as 12 have occasionally been observed in Puget Sound. According to the Center for Whale Research (CWR 2015), they tend to travel in small groups of one to five individuals, staying close to shorelines, often near seal rookeries when pups are being weaned. Transient sightings have become more common since the mid-2000s (WSDOT 2019). Unlike the SRKW pods, Transients may be present in the area for hours as they hunt pinnipeds. There was no sighting of Transient killer whale during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, 19 Transients were observed in the project area, an average of 0.09/day (WSDOT 2019).

Long-beaked Common Dolphin and Bottlenose Dolphin

The California stock of Long-beaked common dolphins are present off the California coast. The California-Oregon-Washington stock of bottlenose dolphins are found off the coasts of California, Oregon, and Washington, though they are more prevalent off the California coast (NMFS 2017).

The occurrence of these two dolphin species in the WSDOT's Seattle Multimodal project area is rare. There was no sighting of common and bottlenose dolphins during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle

Multimodal Project in 2017/2018 season, 2 common dolphins (an average of 0.02/day) and 4 bottlenose dolphins (an average of 0.04/day) were observed in the project area (WSDOT 2019).

Harbor Porpoise

Harbor porpoises are common in the Strait of Juan de Fuca and south into Admiralty Inlet, especially during the winter, and are becoming more common south of Admiralty Inlet. Little information exists on harbor porpoise movements and stock structure near the Seattle area, although it is suspected that in some areas harbor porpoises migrate (based on seasonal shifts in distribution). Hall (2004) found harbor porpoises off Canada's southern Vancouver Island to peak during late summer, while the Washington State Department of Fish and Wildlife's (WDFW) Puget Sound Ambient Monitoring Program (PSAMP) data show peaks in Washington waters to occur during the winter. Hall (2004) found that the frequency of sighting of harbor porpoises decreased with increasing depth beyond 150 m with the highest numbers observed at water depths ranging from 61 to 100 m. Although harbor porpoises have been spotted in deep water, they tend to remain in shallower shelf waters (<150 m) where they are most often observed in small groups of one to eight animals (Baird 2003). Water depths within the Seattle Multimodal project area range from 0 to 186 m/611 ft., with the majority of the waters less than 150 m deep.

There was no sighting of harbor porpoise during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, 288 harbor porpoise were observed in the project area, an average of 3/day (WSDOT 2019).

Dall's Porpoise

Dall's porpoises are migratory and appear to have predictable seasonal movements driven by changes in oceanographic conditions (Green *et al.* 1993), and are most abundant in Puget Sound during the winter (Nysewander *et al.* 2005; WDFW 2008). Despite their migrations, Dall's porpoises occur in all areas of inland Washington at all times of year (WSDOT), but with different distributions throughout Puget Sound from winter to summer. The average winter group size is three animals (WDFW 2008).

The occurrence of these Dall's porpoise in the WSDOT's Seattle Multimodal project area is rare. There was no sighting of Dall's porpoise during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, no Dall's porpoise was observed in the project area (WSDOT 2019).

California Sea Lion

California sea lions breed on islands off Baja Mexico and southern California, with males (primarily) migrating north to feed in the northern waters (Everitt *et al.*, 1980). Females remain in the waters near their breeding rookeries. All age classes of males are seasonally present in Washington waters (WDFW 2000).

California sea lions were unknown in Puget Sound until approximately 1979 (Steiger and Calambokidis 1986). Everitt *et al.* (1980) reported the initial occurrence of large numbers at Port Gardner, Everett (northern Puget Sound) in the spring of 1979. The number of California sea lions using the Everett haulout numbered around 1,000. This haulout remains the largest in the state for sea lions in general and for California sea lions specifically (WSDOT 2019). Similar sightings and increases in numbers were documented throughout the region after the initial

sighting in 1979 (Steiger and Calambokidis 1986), including urbanized areas such as Elliott Bay (Seattle) and heavily used areas of central Puget Sound (Gearin *et al.* 1986).

California sea lions do not avoid areas with heavy or frequent human activity, but rather may approach certain areas to investigate. This species typically does not flush from a buoy or haulout if approached. In Washington, California sea lions use haulout sites within all inland water regions (WDFW 2000). The movement of California sea lions into Puget Sound could be an expansion in range of a growing population (Steiger and Calambokidis 1986).

The nearest documented California sea lion haulout sites are 3 km/2 miles southwest of the Seattle Ferry Terminal, although sea lions also make use of docks and other buoys in the area.

During the 2012 Seattle Slip 2 Batter Pile project, 15 California sea lions were observed during this 1-day project (WSDOT 2012). During the 2016 Seattle Test Pile project, 12 California sea lions were observed over 10 days in the project area, with the maximum number sighted in a single day being 4 (WSDOT 2016). During the 99 monitoring days of the 2017/18 Seattle Multimodal Project, 1,047 California sea lions were observed in the project area, an average of 11/day (WSDOT 2019).

Steller Sea Lion

Adult Eastern U.S. stock Steller sea lions congregate at rookeries in Oregon, California, and British Columbia for pupping and breeding from late May to early June (Gisiner 1985). Steller sea lion abundances vary seasonally in Washington inland water, with a minimum estimate of 1,000 to 2,000 individuals present or passing through the Strait of Juan de Fuca in fall and winter months (WSDOT 2019). The number of haulout sites has increased in recent

years. The nearest documented Steller sea lion haulout sites are 15 km/9 miles southwest of the Seattle Ferry Terminal.

There was no sighting of Steller sea lion during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, 54 Steller sea lions were observed in the project area, an average of 0.6/day (WSDOT 2019).

Harbor Seal

Harbor seals are the most numerous marine mammal species in Puget Sound. Harbor seals are non-migratory; their local movements are associated with such factors as tides, weather, season, food availability and reproduction (Scheffer and Slipp 1944; Fisher 1952; Bigg 1969, 1981).

They are not known to make extensive pelagic migrations, although some long-distance movements of tagged animals in Alaska (108 miles) and along the U.S. west coast (up to 342 miles) have been recorded (Pitcher and McAllister 1981; Brown and Mate 1983; Herder 1983).

Harbor seals haul out on rocks, reefs and beaches and feed in marine, estuarine and occasionally fresh waters. Harbor seals display strong fidelity for haulout sites (Pitcher and Calkins 1979; Pitcher and McAllister 1981).

The nearest documented harbor seal haulout to the Seattle Ferry Terminal is 10.6 km/6.6 miles west on Blakely Rocks (outside of the project Level B harassment zone), though harbor seals also make use of docks, buoys and beaches in the area. The level of use of this haulout during the fall and winter is unknown, but is expected to be much less as air temperatures become colder than water temperatures, which results in seals in general hauling out less

(WSDOT 2019). Harbor seals are known to haul out on docks and beaches throughout the project area.

During the 2012 Seattle Slip 2 Batter Pile project, 6 harbor seals were observed during this one day project (WSDOT 2012). During the 2016 Seattle Test Pile project, 56 harbor seals were observed over 10 days in the project area, with the maximum number sighted in a single day being 13 (WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in the 2017/2018 season, 813 harbor seals were observed in the project area, an average of 8/day (WSDOT 2019).

Northern Elephant Seal

Northern Elephant seals breed and give birth in California (U.S.) and Baja California (Mexico), primarily on offshore islands, from December to March. Males feed near the eastern Aleutian Islands and in the Gulf of Alaska, and females feed further south. 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 (NMFS 2015a).

The closest documented Northern Elephant seal haulout is Protection Island (88.5 shoreline km/55 shoreline miles northwest of the Seattle Ferry Terminal) (WDFW 2000). Northern Elephant seals also use area beaches as haulouts, such as a female elephant seal who has been coming to a south Whidbey Island beach to rest while molting each spring for several years, and recently gave birth to a pup (Orca Network 2015a).

The occurrence of these northern elephant seal in the WSDOT's Seattle Multimodal project area is rare. There was no sighting of northern elephant seal during the 1-day 2012 Seattle Slip 2 Batter Pile project (WSDOT 2012) or the 10-day 2016 Seattle Test Pile project

(WSDOT 2016). During the 99-day marine mammal monitoring of the previous Seattle Multimodal Project in 2017/2018 season, no elephant seal was observed in the project area (WSDOT 2019).

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. Current data indicate that 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) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. 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.

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).

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 and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Twelve marine mammal species (eight cetacean and four pinniped (two otariid and two phocid) species) have the reasonable potential to co-occur with the proposed construction activities. Please refer to Table 2. Of the cetacean species that may be present, three are classified as low-frequency cetaceans (*i.e.*, all mysticete species), three are classified as mid-frequency cetaceans (*i.e.*, all delphinid species and the sperm whale), and two are classified as high-frequency cetaceans (*i.e.*, harbor and Dall's porpoises).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The *Estimated Take by Incidental Harassment* 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 by Incidental Harassment* 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 how those impacts on individuals are likely to impact marine mammal species or stocks.

Potential impacts to marine mammals from the proposed Seattle Multimodal project at Colman Dock are from noise generated during in-water pile driving and pile removal activities.

Acoustic Effects

Here, we first provide background information on marine mammal hearing before discussing the potential effects of the use of active acoustic sources on marine mammals.

The WSDOT's Seattle Multimodal project using in-water pile driving and pile removal could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area.

Exposure to high intensity sound for a sufficient duration may result in auditory effects such as a noise-induced threshold shift (TS) —an increase in the auditory threshold after exposure to noise (Finneran *et al.*, 2005). Factors that influence the amount of threshold shift include the amplitude, duration, frequency content, temporal pattern, and energy distribution of noise exposure. The magnitude of hearing threshold shift normally decreases over time following cessation of the noise exposure. The amount of TS just after exposure is the initial TS. If the TS eventually returns to zero (*i.e.*, the threshold returns to the pre-exposure value), it is a temporary threshold shift (TTS) (Southall *et al.*, 2007).

Threshold Shift (noise-induced loss of hearing) – When animals exhibit reduced hearing sensitivity (*i.e.*, sounds must be louder for an animal to detect them) following exposure to an intense sound or sound for long duration, it is referred to as a noise-induced TS. An animal can experience TTS or permanent threshold shift (PTS). TTS can last from minutes or hours to days (*i.e.*, there is complete recovery), can occur in specific frequency ranges (*i.e.*, an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz), and can be of varying amounts (for example, an animal's hearing sensitivity might be reduced initially by only 6 dB or reduced by 30 dB). PTS is permanent, but some recovery is possible. PTS can also occur in a specific frequency range and amount as mentioned above for TTS.

For marine mammals, published data are limited to the captive bottlenose dolphin, beluga, harbor porpoise, and Yangtze finless porpoise (Finneran, 2015). For pinnipeds in water, data are limited to measurements of TTS in harbor seals, an elephant seal, and California sea lions (Kastak *et al.*, 1999, 2005; Kastelein *et al.*, 2012b).

Lucke *et al.* (2009) found a TS of a harbor porpoise after exposing it to airgun noise with a received sound pressure level (SPL) at 200.2 dB (peak-to-peak) re: 1 micropascal (μPa), which corresponds to a sound exposure level of 164.5 dB re: 1 μPa^2 s after integrating exposure. Because the airgun noise is a broadband impulse, one cannot directly determine the equivalent of root mean square (rms) SPL from the reported peak-to-peak SPLs. However, applying a conservative conversion factor of 16 dB for broadband signals from seismic surveys (McCauley, *et al.*, 2000) to correct for the difference between peak-to-peak levels reported in Lucke *et al.* (2009) and rms SPLs, the rms SPL for TTS would be approximately 184 dB re: 1 μPa, and the received levels associated with PTS (Level A harassment) would be higher. Therefore, based on these studies, NMFS recognizes that TTS of harbor porpoises is lower than other cetacean

species empirically tested (Finneran & Schlundt, 2010; Finneran *et al.*, 2002; Kastelein and Jennings, 2012).

Marine mammal hearing plays a critical role in communication with conspecifics, and interpretation of environmental cues for purposes such as predator avoidance and prey capture. 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 occurs during a time 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. Also, depending on the degree and frequency range, the effects of PTS on an animal could range in severity, although it is considered generally more serious because it is a permanent condition. Of note, 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 one can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

In addition, chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals, which utilize sound for vital biological functions (Clark *et al.*, 2009). Acoustic masking is when other noises such as from human sources interfere with animal detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being

severely masked could also be impaired from maximizing their performance fitness in survival and reproduction.

Masking occurs at the frequency band that the animals utilize. Therefore, since noise generated from vibratory pile driving is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds by odontocetes (toothed whales). However, lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (*e.g.*, Clark *et al.,* 2009) and cause increased stress levels (*e.g.*, Foote *et al.,* 2004; Holt *et al.,* 2009).

Unlike TS, masking, which can occur over large temporal and spatial scales, can potentially affect the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than three times in terms of SPL) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand, 2009). For WSDOT's dolphin relocation project, noises from vibratory pile driving and pile removal contribute to the elevated ambient noise levels in the project area, thus increasing potential for or severity of masking. Baseline ambient noise levels in the vicinity of project area are high due to ongoing shipping, construction and other activities in the Puget Sound.

Finally, marine mammals' exposure to certain sounds could lead to behavioral disturbance (Richardson *et al.,* 1995), such as 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 noise sources are located; and/or flight responses (*e.g.*, pinnipeds flushing into water from haulouts or rookeries).

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall *et al.*, 2007). Currently NMFS uses a received level of 160 dB re 1 µPa (rms) to predict the onset of behavioral harassment from impulse noises (such as impact pile driving), and 120 dB re 1 µPa (rms) for continuous noises (such as vibratory pile driving). For the WSDOT's Seattle Multimodal Project at Colman Ferry Terminal, both 120-dB and 160-dB levels are considered for effects analysis because WSDOT plans to use both impact pile driving and vibratory pile driving and pile removal.

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be biologically significant if the change affects growth, survival, and/or reproduction, which depends on the severity, duration, and context of the effects.

Potential Effects on Marine Mammal Habitat

The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by vibratory pile removal and pile driving in the area. However, other potential impacts to the surrounding habitat from physical disturbance are also possible.

With regard to fish as a prey source for cetaceans and pinnipeds, fish are known to hear and react to sounds and to use sound to communicate (Tavolga *et al.*, 1981) and possibly avoid predators (Wilson and Dill, 2002). Experiments have shown that fish can sense both the strength and direction of sound (Hawkins, 1981). Primary factors determining whether a fish can sense a sound signal, and potentially react to it, are the frequency of the signal and the strength of the signal in relation to the natural background noise level.

The level of sound at which a fish will react or alter its behavior is usually well above the detection level. Fish have been found to react to sounds when the sound level increased to about 20 dB above the detection level of 120 dB (Ona, 1988); however, the response threshold can depend on the time of year and the fish's physiological condition (Engas *et al.*, 1993). In general, fish react more strongly to pulses of sound (such as noise from impact pile driving) rather than continuous signals (such as noise from vibratory pile driving) (Blaxter *et al.*, 1981), and a quicker alarm response is elicited when the sound signal intensity rises rapidly compared to sound rising more slowly to the same level.

During the coastal construction, only a small fraction of the available habitat would be ensonified at any given time. Disturbance to fish species would be short-term and fish would return to their pre-disturbance behavior once the pile driving activity ceases. Thus, the proposed construction would have little, if any, impact on marine mammals' prey availability in the area where construction work is planned.

Finally, the time of the proposed construction activity would avoid the spawning season of the ESA-listed salmonid species.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

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 primarily be by Level B harassment, as noise generated from in-water pile driving has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high-frequency cetacean species and phocids because predicted auditory injury zones are larger than for mid-frequency species and otariids, and because these species are much smaller than mysticetes, thus they present challenges in implementing monitoring and mitigation measures. Auditory injury is unlikely to occur for low- and mid-frequency cetacean species and otariids. The proposed mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable.

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

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) and the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of 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 estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed 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 for non-explosive sources – 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 (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 μPa (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) and

above 160 dB re 1 μPa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

WSDOT's proposed activity includes the use vibratory hammer, which generates non-impulse noises, and impact hammer, which generates impulse noises. Therefore, the 120 and 160 dB re 1 μPa (rms) are applicable.

Level A harassment for non-explosive sources - 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). WSDOT's proposed activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving and pile removal) 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. Current Acoustic Exposure Criteria for Non-explosive Sound Underwater.

Hearing Group	PTS Onset Thresholds		Behavioral Thresholds	
	Impulsive	Non-impulsive	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	$L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB	$L_{rms,flat}$: 160 dB	$L_{rms,flat}$: 120 dB
Mid-Frequency (MF) Cetaceans	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB		
High-Frequency (HF) Cetaceans	$L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	$L_{E,HF,24h}$: 173 dB		
Phocid Pinnipeds (PW) (Underwater)	$L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	$L_{E,PW,24h}$: 201 dB		

Otariid Pinnipeds (OW) (Underwater)	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 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 (Lpk) has a reference value of 1 µPa, and cumulative sound exposure level (LE) has a reference value of 1µPa2s. 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 will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

Source Levels

The source level for vibratory pile driving and removal of the 18- and 24-in steel pile is based on vibratory pile driving of the 30-in steel pile at Port Townsend. The unweighted SPL_{rms} source level at 10 m from the pile is 174 dB re 1 re 1 µPa.

The source level for vibratory pile driving of the 36-in steel piles is based on vibratory test pile driving of 36-in steel piles at Port Townsend in 2010. Recordings of vibratory pile driving were made at a distance of 10 m from the pile. The results show that the unweighted SPL_{rms} for vibratory pile driving of 36-in steel pile was 177 dB re 1 µPa.

The source level for impact pile driving of the 36-in steel pile is based on the sound source verification (SSV) measurements at Colman Dock in 2018. The source levels reported are: 174 dB re 1 μPa^2-s for SEL_{ss}, 188 dB re 1 µPa for SPL_{rms}, and 206 dB re 1 µPa for SPL_{pk}. These levels were recorded with the use of bubble curtains for noise attenuation. Since WSDOT

plans to use bubble curtain for all impact pile driving, NMFS considers these measurements are appropriate for impact zone calculation.

The source level for vibratory pile removal of 14-in timber pile is based measurements conducted at the Port Townsend Ferry Terminal during vibratory removal of a 12-inch timber pile by WSDOT. The recorded source level is 152 dB_{rms} re 1 µPa at 16 m from the pile, with an adjusted source level of 155 dB_{rms} re 1 µPa at 10 m.

The source levels for vibratory pile removal of 12-in steel and 14-in steel H piles are based on vibratory pile driving of 12-in steel pipe pile measured by CALTRANS. The unweighted source level is 155 dB_{rms} re 1 µPa at 10 m.

A summary of source levels is presented in Table 5.

Table 5. Summary of Source Levels for the Seattle Multimodal Project at Colman (Year 3).

Method	Pile type / size (inch)	SEL, dB re 1 μPa^2-s	SPL_{rms}, dB re 1 µPa	SPL_{pk}, dB re 1 µPa
Vibratory driving / removal	Steel, 18- and 24"	174	174	-
Vibratory driving / removal	Steel, 36"	177	177	-
Impact pile driving (proof)	Steel, 36"	174	188	206
Vibratory removal	Timber, 14"	155	155	-
Vibratory removal	Steel, 12"	155	155	-
Vibratory removal	Steel H, 14"	155	155	-

These source levels are used to compute the Level A injury zones and to estimate the Level B harassment zones.

Estimating Harassment Zones

All distances to the Level B harassment zone except for 18-, 24-, and 36-in vibratory pile driving are based on the above source levels applying practical spreading loss, *i.e.*, 15*log(R),

where R is the distance from the pile to where Level B harassment levels are. For vibratory pile driving and pile removal, the Level B harassment level is 120 dB re 1 µPa; for impact pile driving, the Level B harassment level is 160 dB re 1 µPa.

For Level B harassment ensonified areas for vibratory pile driving and removal of the 18-in, 24-in, and 36-in steel piles, the distance is based on measurements conducted during the year 1 Seattle multimodal project at Colman. The result showed that pile driving noise of two 36-in steel piles being concurrently driven was no longer detectable at a range of 5.4 miles (8.69 km). Therefore, the distance of 8,690 m is selected as the Level B harassment distance for vibratory pile driving and removal of the 18-in, 24-in, and 36-in steel piles.

For Level A harassment zones, since the peak source levels for both pile driving are below the injury thresholds, cumulative SEL were used to do the calculations using the NMFS acoustic guidance (NMFS 2018).

When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of Level A harassment take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources (such as in-water pile driving), NMFS User Spreadsheet

predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. When calculate Level A harassment distances using NMFS' User Spreadsheet, input parameters pile driving or removal duration (for vibratory hammer) or number of strikes (for impact hammer) of each pile and the number of piles installed or removed per day.

Distances of ensonified area for different pile driving/removal activities for different marine mammal hearing groups is present in Table 6.

Table 6. Distances to Harassment Zones and Area.

Pile type, size & pile driving method	Injury zone (m) / Area (km^2)					Level B ZOI (m) / Area (km^2)
	Low-frequency cetacean	Mid-frequency cetacean	High-frequency cetacean	Phocid	Otariid	
Vibratory drive / removal, 24" steel piles, 8 piles/day, 20 min/pile	96.7 / 0.029	8.6 / 0.000	143.0 / 0.064	58.8 / 0.011	4.1 / 0.000	8,690 / 74.291
Vibratory drive 24" steel pile, 2 piles/day, 20 min/pile	38.3 / 0.005	3.4 / 0.000	56.7 / 0.010	23.3 / 0.002	1.6 / 0.000	8,690 / 74.291
Vibratory drive 36" steel pile, 8 piles/day, 20 min/pile	153.3 / 0.074	13.6 / 0.001	226.6 / 0.161	93.2 / 0.027	6.5 / 0.000	8,960 / 74.291
Impact drive (proof) 36" steel pile, 8 piles/day, 200 strikes/pile	343.2 / 0.370	12.2 / 0.000	408.7 / 0.524	183.6 / 0.106	13.4 / 0.000	736 / 1.701
Vibratory remove 14" timber pile, 20 piles/day, 15 min/pile	8.0 / 0.000	0.7 / 0.000	11.8 / 0.000	4.8 / 0.000	0.3 / 0.000	2,175 / 14.854
Vibratory remove 12" steel pile, 11 piles/day, 20 min/pile	6.5 / 0.000	0.6 / 0.000	9.6 / 0.000	3.9 / 0.000	0.3 / 0.000	2,175 / 14.854
Vibratory remove 14" steel H pile, 10 piles/day, 20 min/pile	6.1 / 0.000	0.5 / 0.000	9.0 / 0.000	3.7 / 0.000	0.3 / 0.000	2,175 / 14.854
Vibratory removal 18" steel pile, 10 piles/day, 20 min/pile	112.1 / 0.039	9.9 / 0.000	165.8 / 0.086	68.1 / 0.015	4.8 / 0.000	8,960 / 74.291
Vibratory removal 36" steel pile, 1 pile/day, 20 min/pile	38.3 / 0.005	3.4 / 0.000	56.6 / 0.010	23.3 / 0.002	1.6 / 0.000	8,960 / 74.291

Marine Mammal Occurrence and Take Estimates

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Marine mammal take calculation are based on marine mammal monitoring during the 2017/2018 season Seattle Multimodal project at Colman Dock when observation data are available, then adjusted to account for possible missed observations. These species are harbor seal, California sea lion, Steller sea lion, and harbor porpoise.

For marine mammals that were not observed, density data from the U.S. Navy Marine Species Density Report were used for take calculation.

For bottlenose dolphin and long-beaked common dolphin, no density estimate is available. Therefore, take numbers for these two species are based on prior anecdotal observations and strandings in the action area.

A summary of marine mammal abundance and density is provided in Table 7.

Table 7. Marine mammal abundance and/or density used for take calculation (numbers in parenthesis indicate adjustments made to account for possible missed observations).

Species	Abundance based on observation at WSDOT Seattle Multimodal project (animals/day)	Navy Marine Species Density Report (animals/km^2)
Humpback whale		0.0007
Minke whale		0.00003
Gray whale		0.00051
Killer whale (west coast transient)		0.002
Harbor porpoise	3	
Dall's porpoise		0.048
Harbor seal	8 (11)	
Northern elephant seal		0.00001
California sea lion	11 (14)	
Steller sea lion	0.6 (1.2)	

For marine mammals with observation data during WSDOT's 2017/2018 Seattle Multimodal project, take numbers were calculated as:

Total Take = animal abundance × pile driving days

To determine the portion of total take that would result from Level A harassment, the proportion of Level A and Level B harassment was used to apportion the total takes. Furthermore, an additional 20 takes of harbor seals by Level A harassment is added to account for the higher numbers historically sighted during monitoring and the smaller shutdown zones (see below).

For marine mammals that were not observed during the 2017/2018 season but with known densities in the general area (*i.e.*, gray, humpback, and minke whales and Dall's porpoise), take numbers were calculated as:

Take = ensonified area (Level A or Level B) × animal density × pile driving days

For long-beaked common dolphin and bottlenose dolphin, an average of 7 animals per group is determined based on sighting data from Cascadia Research (CRC 2012, 2017). Assuming that an average of one group could be encountered per month in the project area, a total of 49 takes of each species is assessed for the duration of 7 months in-water work window.

For calculated take number less than 15, such as northern elephant seals, transient killer whales, humpback whales, gray whales, and minke whales, Level B take numbers were adjusted to account for group size and the likelihood of encountering. Specifically, for northern elephant seal, take of 15 animals is estimated based on the likelihood of encountering this species during the project period. For transient killer whale, take of 30 animals is estimated based on the group size and the likelihood of encountering in the area. For gray, humpback, and minke whale, 30, 30, and 10 animals each area estimated, respectively.

WSDOT will implement strict monitoring and mitigation measures and to suspend pile driving activities when SRKWs are detected in the vicinity of the action to avoid takes of this population.

A summary of marine mammal take numbers is provided in Table 8.

Table 8. Estimated Take Numbers.

Species	Estimated Level A take	Estimated Level B take	Estimated total take	Percent population
Gray whale	0	30	30	0.11%
Humpback whale	0	30	30	1.03%
Minke whale	0	10	10	1.57%
Killer whale, transient	0	30	30	12.35%
Harbor porpoise	103	335	438	3.90%
Dall's porpoise	71	200	271	1.05%
Long-beaked common dolphin	0	49	49	0.05%
Bottlenose dolphin	0	49	49	2.55%
California sea lion	0	2044	2044	0.79%
Steller sea lion	0	175	175	0.42%
Pacific harbor seal	114	1492	1606	14.55%
Northern elephant seal	0	15	15	0.01%

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 such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such 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 such 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, we carefully consider 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, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Specific mitigation measures are proposed as follows.

1. Time Restriction.

Work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted.

2. Establishing and Monitoring Level A, Level B Harassment Zones, and Shutdown Zones.

WSDOT shall establish shutdown zones that encompass the distances within which marine mammals could be taken by Level A harassment (see Table 7 above) except for harbor seal. For Level A harassment zones that is less than 10 m from the source, a minimum of 10 m distance should be established as a shutdown zone. For harbor seal, a maximum of 60 m

shutdown zone would be implemented if the actual Level A harassment zone exceeds 60 m. This is because there are a few habituated harbor seals that repeated occur within the larger Level A zone, which makes implementing a shutdown zone larger than 60 m infeasible.

A summary of exclusion zones is provided in Table 9.

Table 9. Shutdown Zones for Various Pile Driving Activities and Marine Mammal Hearing Groups.

Pile type, size & pile driving method	Shutdown zone (m)				
	Low-frequency cetacean	Mid-frequency cetacean	High-frequency cetacean	Phocid	Otariid
Vibratory drive / removal, 24" steel piles, 8 piles/day	100	10	150	60	10
Vibratory drive 24" steel pile, 2 piles/day; or vibratory removal 36" steel pile, 1 pile/day	40	10	60	25	10
Vibratory drive 36" steel pile, 8 piles/day	160	15	230	60	10
Impact drive (proof) 36" steel pile, 8 piles/day	350	15	410	60	15
Vibratory remove 14" timber pile, 20 piles/day; or vibratory removal 12" steel pile, 11 piles/day; or vibratory removal 14" steel pile, 10 piles/day	10	10	15	10	10
Vibratory removal 18" steel pile, 10 piles/day, 20 min/pile	120	10	170	60	10

WSDOT shall also establish a Zone of Influence (ZOI) based on the Level B harassment zones for take monitoring where received underwater SPLs are higher than 160 dB_{rms} re 1 µPa for impulsive noise sources (impact pile driving) and 120 dB_{rms} re 1 µPa for non-impulsive noise sources (vibratory pile driving and pile removal).

NMFS-approved protected species observers (PSO) shall conduct an initial 30-minute survey of the exclusion zones to ensure that no marine mammals are seen within the zones before pile driving and pile removal of a pile segment begins. If marine mammals are found within the

exclusion zone, pile driving of the segment would be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor would wait 15 minutes. If no marine mammals are seen by the observer in that time it can be assumed that the animal has moved beyond the exclusion zone.

If pile driving of a segment ceases for 30 minutes or more and a marine mammal is sighted within the designated exclusion zone prior to commencement of pile driving, the observer(s) must notify the pile driving operator (or other authorized individual) immediately and continue to monitor the exclusion zone. Operations may not resume until the marine mammal has exited the exclusion zone or 30 minutes have elapsed since the last sighting.

3. Soft-start.

A "soft-start" technique is intended to allow marine mammals to vacate the area before the impact pile driver reaches full power. Whenever there has been downtime of 30 minutes or more without impact pile driving, the contractor will initiate the driving with ramp-up procedures described below.

Soft start for impact hammers requires contractors to provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 1-minute waiting period, then two subsequent three-strike sets. Each day, WSDOT will use the soft-start technique at the beginning of impact pile driving, or if pile driving has ceased for more than 30 minutes.

4. Shutdown Measures.

WSDOT shall implement shutdown measures if a marine mammal is detected within an exclusion zone or is about to enter an exclusion zone listed in Tables 8.

WSDOT shall also implement shutdown measures if SRKWs are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

If a killer whale approaches the Level B harassment zone during pile driving or removal, and it is unknown whether it is a SRKW or a transient killer whale, it shall be assumed to be a SRKW and WSDOT shall implement the shutdown measure.

If a SRKW or an unidentified killer whale enters the Level B harassment zone undetected, in-water pile driving or pile removal shall be suspended until the whale exits the Level B harassment zone to avoid further level B harassment.

Further, WSDOT shall implement shutdown measures if the number of authorized takes for any particular species reaches the limit under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

5. Coordination with Local Marine Mammal Research Network.

Prior to the start of pile driving for the day, the Orca Network and/or Center for Whale Research will be contacted by WSDOT to find out the location of the nearest marine mammal sightings. The Orca Sightings 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 other sighting networks including: 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 (incidental) visual sighting network allows researchers to document presence and location of various marine mammal species.

With this level of coordination in the region of activity, WSDOT will be able to get real-time information on the presence or absence of whales before starting any pile driving.

Based on our evaluation of the required measures, NMFS has preliminarily determined that the prescribed mitigation measures provide the means 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 in the proposed action area. 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 action; 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.

Proposed Monitoring Measures

WSDOT shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its dolphin relocation project at Bremerton and Edmonds ferry terminals. The purposes of marine mammal monitoring are to implement mitigation measures and learn more about impacts to marine mammals from WSDOT's construction activities. The PSOs will observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30

minutes after all pile removal and pile installation work. NMFS-approved PSOs shall meet the following requirements:

1. Independent observers (*i.e.*, not construction personnel) are required;

2. At least one observer must have prior experience working as an observer;

3. Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience;

4. Where a team of three or more observers are required, one observer should be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer; and

5. NMFS will require submission and approval of observer CVs.

Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power). Due to the different sizes of ZOI from different pile types, three different ZOIs and different monitoring protocols corresponding to a specific pile type will be established.

- For Level B harassment zones with radii less than 1,000 m, 3 PSOs will be monitoring from land.

- For Level B harassment zones with radii larger than 1,000 m but smaller than 2,500 m, 4 PSOs will be monitoring from land.

- For Level B harassment zones with radii larger than 2,500 m, 4 PSOs will be monitoring from land with an additional 1 PSO monitoring from a ferry.

6. PSOs shall collect the following information during marine mammal monitoring:

- Date and time that monitored activity begins and ends for each day conducted (monitoring period);

- Construction activities occurring during each daily observation period, including how many and what type of piles driven;
- Deviation from initial proposal in pile numbers, pile types, average driving times, etc.;
- Weather parameters in each monitoring period (*e.g.*, wind speed, percent cloud cover, visibility);
- Water conditions in each monitoring period (*e.g.*, sea state, tide state);
- For each marine mammal sighting:
  - Species, numbers, and, if possible, sex and age class of marine mammals;
  - Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
  - Location and distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point; and
  - Estimated amount of time that the animals remained in the Level B zone;
- Description of implementation of mitigation measures within each monitoring period (*e.g.*, shutdown or delay); and
- Other human activity in the area within each monitoring period.

To verify the required monitoring distance, the exclusion zones and Level B harassment zones will be determined by using a range finder or hand-held global positioning system device.

WSDOT will conduct noise field measurement to determine the actual Level B harassment distance from the source during vibratory pile driving. If the actual Level B harassment distance is less than modelled, the number of PSOs will be adjusted based on the criteria listed above.

Reporting Measures

WSDOT is required to submit a draft monitoring report within 90 days after completion of the construction work or the expiration of the IHA (if issued), whichever comes earlier. In the case if WSDOT intends to renew the IHA (if issued) in a subsequent year, a monitoring report should be submitted 60 days before the expiration of the current IHA (if issued). This report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. NMFS would have an opportunity to provide comments on the report, and if NMFS has comments, WSDOT would address the comments and submit a final report to NMFS within 30 days.

In addition, NMFS would require WSDOT to notify NMFS' Office of Protected Resources and NMFS' West Coast Stranding Coordinator within 48 hours of sighting an injured or dead marine mammal in the construction site. WSDOT shall provide NMFS and the Stranding Network with the species or description of the animal(s), the condition of the animal(s) (including carcass condition, if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photo or video (if available).

In the event that WSDOT finds an injured or dead marine mammal that is not in the construction area, WSDOT would report the same information as listed above to NMFS as soon as operationally feasible.

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 responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), 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's 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 environmental 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).

To avoid repetition, this introductory discussion of our analyses applies to all the species listed in Table 8, given that the anticipated effects of WSDOT's Seattle Multimodal at Colman Dock project involving pile driving and pile removal on marine mammals are expected to be relatively similar in nature. There is no information about the nature or severity of the impacts, or the size, status, or structure of any species or stock that would lead to a different analysis by species for this activity, or else species-specific factors would be identified and analyzed.

Although some marine mammals could experience, and are authorized for Level A harassment in the form of PTS if they stay within the Level A harassment zone during the entire pile driving for the day (114 harbor seals, 103 harbor porpoises, and 71 Dall's porpoise), the degree of injury is expected to be mild and is not likely to affect the reproduction or survival of the individual animals. It is expected that, if hearing impairments occurs, most likely the affected

animal would lose a few dB in its hearing sensitivity, which in most cases is not likely to affect its survival and recruitment. Hearing impairment that occur for these individual animals would be limited to the dominant frequency of the noise sources, *i.e.*, in the low-frequency region below 2 kHz. Therefore, the degree of PTS is not likely to affect the echolocation performance of the two porpoise species, which use frequencies mostly above 100 kHz. Nevertheless, for all marine mammal species, it is known that in general animals avoid areas where sound levels could cause hearing impairment. Nonetheless, we evaluate the estimated take in this negligible impact analysis.

For these species except harbor seal, harbor porpoise and Dall's porpoise, takes that are anticipated and authorized are expected to be limited to short-term Level B harassment (behavioral and TTS). Marine mammals present in the vicinity of the action area and taken by Level B harassment would most likely show overt brief disturbance (startle reaction) and avoidance of the area from elevated noise levels during pile driving and pile removal and the implosion noise. A few marine mammals could experience TTS if they occur within the Level B TTS ZOI. However, as discussed earlier in this document, TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and the hearing threshold is expected to recover completely within minutes to hours.

Portions of the SRKW range is within the proposed action area. In addition, the entire Puget Sound is designated as the SRKW critical habitat under the ESA. However, WSDOT would be required to implement strict mitigation measures to suspend pile driving or pile removal activities when this stock is detected in the vicinity of the project area. We anticipate that take of SRKW would be avoided. There are no other known important areas for other marine mammals, such as feeding or pupping, areas.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the "Anticipated Effects on Marine Mammal Habitat" subsection. There is no ESA designated critical habitat in the vicinity of the Seattle Multimodal Project at Colman Dock area. The project activities would not permanently modify existing marine mammal habitat. The activities may kill some fish and cause other fish to leave the area temporarily, thus impacting marine mammals' foraging opportunities in a limited portion of the foraging range. However, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Therefore, given the consideration of potential impacts to marine mammal prey species and their physical environment, WSDOT's proposed construction activity at Colman Dock would not adversely affect marine mammal habitat.

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 the species or stock through effects on annual rates of recruitment or survival:

- Injury – only a relatively small number of marine mammals (of three stocks) would experience Level A harassment in the form of mild PTS, which is expected to be of small degree;
- Behavioral disturbance – eleven species/stocks of marine mammals would experience behavioral disturbance and TTS from the WSDOT's Seattle Colman Dock project. However, as discussed earlier, the area to be affected is small and the duration of the project is short. In addition, the nature of the take would involve mild behavioral modification; and

- Although portion of the SWKR critical habitat is within the project area, strict mitigation measures such as implementing shutdown measures and suspending pile drivingare expected to avoid take of SRKW, and impacts to prey species and the habitat itself are expected to be minimal. No other important habitat for marine mammals exist in the vicinity of the project area.

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 above, only small numbers of incidental take 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. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The estimated takes are below 15 percent of the population for all marine mammals (Table 8).

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 will be taken relative to the population size of the affected species or stocks.

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act 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, in this case with NMFS' West Coast Region Protected Resources Division Office, whenever we propose to authorize take for endangered or threatened species.

The California-Oregon-Washington stock of humpback whale and the Southern Resident stock of killer whale are the only marine mammal species listed under the ESA that could occur in the vicinity of WSDOT's proposed construction projects. NMFS worked with WSDOT to implement shutdown measures in the IHA that will avoid takes of Southern Resident killer whale. NMFS is proposing to authorize take of California/Oregon/Washington stock of humpback whale.

The effects of this proposed Federal action were adequately analyzed in NMFS' *Reinitiation of Endangered Species Act (ESA) Section 7(a)(2) Consultation (Humpback Whales) for the Seattle Multimodal Terminal at Colman Dock Project, King County, Washington* in October 2018, which concluded that the take NMFS proposes to authorize through this IHA would not jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify any designated critical habitat.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to the Washington State Department of Transportation for conducting Seattle Multimodal Project at Colman Dock in Seattle, Washington, from August 1, 2019, to July 31, 2020, 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/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

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 issuance of an IHA to the Washington State Department of Transportation to take marine mammals incidental to its Seattle Multimodal Project at Colman Dock. We also request comment on the potential for 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 our final decision on the request for MMPA authorization.

On a case-by-case basis, NMFS may issue a second 1-year IHA without additional notice when (1) another year of identical or nearly identical activities as described in the Specified Activities section is planned or (2) the activities would not be completed by the time the IHA expires and a second IHA would allow for completion of the activities beyond that described in the Dates and Duration section, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to expiration of the current IHA;
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted beyond the initial dates either are identical to the previously analyzed activities or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, take estimates, or mitigation and monitoring requirements; 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; and

- 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 remain the same and appropriate, and the original findings remain valid.

Dated: May 29, 2019.

Donna S. Wieting,

Director,

Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2019-11574 Filed: 6/3/2019 8:45 am; Publication Date: 6/4/2019]