IV. Request for Comments

Comments are invited on: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology.

Comments submitted in response to this notice will be summarized and/or included in the request for OMB approval of this information collection; they also will become a matter of public record.

Dated: June 27, 2012.

Gwellnar Banks,

Management Analyst, Office of the Chief Information Officer.

[FR Doc. 2012–16168 Filed 7–2–12; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XB041

Small Takes of Marine Mammals Incidental to Specified Activities; Pile Driving in Port Townsend Bay, WA

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

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received a complete and adequate application from the Washington State Department of Transportation/Ferries Division (WSF) for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to pile driving during replacement of the Port Townsend Ferry Terminal Transfer Span. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS proposes to issue an IHA to incidentally harass, by Level B harassment only, 11 species of marine mammals during the specified activity within a specific geographic area and requests comments on its proposal.

DATES: Comments and information must be received no later than August 2, 2012.

ADDRESSES: Comments on the application and this proposal should be addressed to Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225. The mailbox address for providing email comments is *ITP.Hopper@noaa.gov.* NMFS is not responsible for email comments sent to addresses other than the one provided here. Comments sent via email, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.nmfs.noaa.gov/pr/permits/incidental.htm* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

An electronic copy of the application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Brian D. Hopper, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce 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 specific 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 authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined ''negligible impact'' in 50 CFR 216.103 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.''

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) further established a 45-day time limit for NMFS' review of an application, followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Except with respect to certain activities not pertinent here, 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].

Summary of Request

In August 2011, NMFS received an application from WSF, requesting an IHA for the take, by Level B harassment, of small numbers of harbor porpoises (*Phocoena phocoena*), Dall's porpoises (*Phocoenoides dalli*), Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), killer whales (*Orcinus orca*), gray whales (*Eschrichtius robustus*), humpback whales (*Megaptera novaeangliae*), minke whales (*Balaenoptera acutorostrata*), Pacific harbor seals (*Phoca vitulina richardii*), California sea lions (*Zalophus californianus*), northern elephant seals (*Mirounga angustirostris*) and Steller sea lions (*Eumatopius jubatus*) incidental to pile driving activities conducted during the replacement of a transfer span at the Port Townsend ferry terminal, which is located inside Port Townsend Bay in northern Puget Sound (see Figure 1–9 in the WSF IHA application). Upon receipt of additional information and a revised application (submitted October 2011), NMFS determined the application complete and adequate on January 5, 2012.

The applicant proposes to replace the current cable-lift transfer span at Slip 1 of the Port Townsend ferry terminal with a hydraulic lift H span (see Figure 1–3 in the WSF IHA application). The proposed project would include removal of the existing transfer span, lift towers, tower foundations, and a portion of the bridge seat and replace them with a new transfer span, bridge seat, and lift cylinder shafts. During the proposed project, up to 56 piles will be removed (40 timber and 16 steel), and require installation of up to 26 piles (16 steel, 8 temporary H-piles, and 2 cylinder shaft casings). Because elevated sound levels from pile driving have the potential to result in marine mammal harassment, NMFS proposes to issue an IHA for take incidental to the specified activity.

Description of the Specified Activity

The proposed project would replace an aging cable-lift transfer span with a new hydraulic lift span at the Port Townsend ferry terminal in northern Puget Sound, Washington. Transfer spans are moveable traffic bridges that connect ferries with the terminal dock, allowing the transfer span to be raised or lowered depending on the daily tide levels (see Figure 1–2 in WSF's IHA application). The new hydraulic lifts, or H-spans, would be operated vertically by two hydraulic cylinders located under the offshore ends of the transfer span. The proposed project would involve the removal of the existing transfer span, lift towers, tower foundations, and a portion of the bridge seat. Once the old structures are removed, they would be replaced with a new transfer span, bridge seat, and lift cylinder shafts (see Appendix A of the IHA application).

To replace the aging transfer span, 40 timber piles and 16 steel piles (four 30-inch and four 24-inch wingwall steel piles, and eight temporary piles) will be removed using a vibratory hammer. The vibratory hammer will then be used to install up to 8 steel piles (five 30-inch and up to three 24-inch), up to 8 temporary steel piles, up to 8 piles for the new wingwall fender panels and reaction frames (up to four 24-inch and up to four 30-inch), and two 80-inch cylinder shafts that will house the hydraulic lifts. The use of an impact hammer will be limited to the ''proofing'' of five 30-inch piles and three 24-inch piles in order to drive them the last two feet into the substrate. A breakdown of pile types and associated activity are shown in Table 1.

TABLE 1—SUMMARY OF TOTAL PILE REMOVAL AND INSTALLATION ACTIVITIES

Activity	Number of piles (maximum)	Total time to remove/install	Days to complete
Removal of timber piles	40	10 hours	2
Removal of steel wingwall piles	16	4 hours	4
Install steel piles	8 (5 30-inch and up to 3 24-inch)	2 hours 40 minutes	3
Install temporary piles	8	2 hours	2
Install wingwall piles	8	2 hours 40 minutes	3
Install cylinder shaft casing	2 (80-inch)	40 minutes	2
Proofing of steel piles	8	1 hour 20 minuntes	2

Of the eight 24- and 30-inch steel piles, three 24-inch piles would be installed to support the platform for the new Hydraulic Power Unit (HPU) and five 30-inch piles would be installed for the new bridge seat. Up to eight temporary steel piles would be installed using a vibratory hammer to support a template for construction of the cylinder shafts. The vibratory hammer would then be used to install the two 80-inch hollow steel cylinder shafts. The final eight 24- and 30-inch steel piles would be installed using a vibratory hammer for the new wingwall reaction frames and wingwall fender panels at the terminus of the transfer span.

Although the exact duration of pile driving would vary depending on the installation procedures and geotechnical conditions, the applicant estimates that the 16 24-to 30-inch permanent piles would each require 20 minutes of vibratory installation. Five 30-inch piles and up to three 24-inch piles would each require 10 minutes of impact driving or ''proofing'' to verify capacity. The vibratory driving of eight temporary piles that support the template for the hydraulic cylinder shafts would each require 15 minutes to install because it would not be necessary to drive these piles as deep as the permanent piles. The two 80-inch cylinder shaft casing would take approximately 20 minutes each to install using a vibratory hammer. All piles would be installed with an APE Model 400 (or equivalent) vibratory hammer; however, it will be necessary to proof the five 30-inch bridge seat piles and three 24-inch HPU support piles using an impact hammer. Proofing would require 10 minutes of impact pile driving for each of these eight piles to verify load-bearing capcity. Sound attenuation devices, such as a bubble curtain, would be used during impact hammering. The wingwall temporary piles and the 80-inch cylinder shafts would be driven solely with a vibratory hammer.

In addition to pile installation, a total of 56 piles would also be removed using vibratory extraction or a crane. These consist of the 16 steel piles and 40 old timber piles. If a timber pile breaks below the mudline—something older timber piles are prone to do—pile stubs will be removed with a clamshell bucket, but noise associated with this activity is expected to be negligible. Once piles and fragments of piles are removed, they will be loaded onto a barge or container and disposed of at an approved offsite location. There could be barges in the water to support these pile removal activities; however, these would be concentrated in the direct vicinity of the ferry terminal. Because direct pull and clamshell pile removal, and use of barges do not release loud sounds into the environment, marine mammal harassment from these activities is not anticipated.

Region of Activity

The proposed activity would occur at the Port Townsend ferry terminal located in northern Puget Sound inside Port Townsend Bay.

Dates and Duration of Activity

The Washington Department of Fish and Wildlife's recommended in-water work window for this area is July 16 through February 15. Timing restrictions such as this are used to avoid in-water work when ESA-listed salmonid species are most likely to be present. Proposed pile installation and removal activities are scheduled to occur between December 2012 and February 15, 2013, in agreement with the state's recommendation. The on-site work will last approximately 16 weeks with actual pile removal and driving activities taking place approximately 25 percent of that time (approximately 4 weeks).

Sound Propagation

Sound is a mechanical disturbance consisting of minute vibrations that travel through a medium, such as air or water, and is generally characterized by several variables. Frequency describes the sound's pitch and is measured in hertz (Hz) or kilohertz (kHz), while sound level describes the sound's loudness and is measured in decibels (dB). Sound level increases or decreases exponentially with each dB of change. For example, 10 dB yields a sound level 10 times more intense than 1 dB, while a 20 dB level equates to 100 times more intense, and a 30 dB level is 1,000 times more intense. Sound levels are compared to a reference sound pressure (micro-Pascal) to identify the medium. For air and water, these reference pressures are ''re: 20 μPa'' and ''re: 1 μPa,'' respectively. Root mean square (RMS) is the quadratic mean sound pressure over the duration of an impulse. RMS is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick, 1975). RMS accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper, 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units rather than by peak pressures.

Data from other Washington State Ferries projects were used for the noise analysis of vibratory removal of 12-inch timber piles as well as the vibratory removal and driving of 30-inch and 24-inch hollow steel piles (Laughlin, 2005; Laughlin, 2010; Laughlin, 2011). Due to the lack of information related to the vibratory driving of 80-inch hollow steel cylinder shafts, noise levels recorded for a project using similar equipment in Richmond, California were used to estimate sound levels (CalTrans, 2007). For impact pile driving, WSF relied on measurements for steel piles at other Puget Sound ferry terminal locations (Laughlin, 2005). Sound levels for impact and vibratory pile driving are shown in Table 2. Ambient underwater sound levels in the vicinity of Port Townsend were measured in April 2010 (Stockham *et al.,* 2010). These data show that local background levels are below 120 dB (50th percentile between 100 and 104 dB), at least during April; therefore, the Level B harassment threshold for continuous sound sources (120 dB) was not adjusted for this location. WSF conducted a site specific vibratory test pile project in coordination with NMFS at the Port Townsend Ferry Terminal to determine the distances at which vibratory pile removal or driving attenuate down to the 120 dB threshold (i.e., the threshold level used to measure Level B harassment for continuous sounds). The site specific test allowed physical factors in Port Townsend Bay that can influence sound attenuation rates to be taken into account, such as absorption in seawater, absorption in the sub-bottom, scattering from inhomogeneities (lack of uniformity) in the water column and from surface and bottom roughness and water depth (bathymetry). During the test, two hollow steel piles, one 36-inch and one 30-inch, were driven and removed using a vibratory hammer. An array of hydrophones measured in-water noise during the test project. Vibratory driving of the 36-inch steel pile generated 159 to 177 dB rms at 10 m, and vibratory driving of the 30-inch steel pile generated 164 to 174 dB rms at 10 m. Vibratory removal of the 30-inch steel pile generated 171 dB rms at 10 m. Based on these results, the sound generated from vibratory installation and removal of 30-inch piles may take up to 4.2 miles (6.8 km) to attenuate to below 120 dB. Because of the project area's location on a river bend and across from Hayden Island, sound transmission will be stopped by land masses much earlier in certain directions. In-air sound from pile driving also has the potential to affect marine mammals. However, in-air sound is not a concern here because there are no pinniped haul-out sites near the project area.

TABLE 2—DISTANCES TO HARASSMENT THRESHOLDS

[Vibratory hammer]

Pile type and size	Hammer type	Sound levels (rms)			
		190 dB	180 dB	160 dB	120 dB
Timber (removal)	Vibratory	n/a	n/a	n/a	2.2 km (1.4 miles).
24-inch steel (removal)	Vibratory	n/a	n/a	n/a	4 km (2.4 miles).
24-inch steel (install)	Vibratory	n/a	n/a	n/a	6.3 km (3.9 miles).
30-inch steel (removal)	Vibratory	n/a	n/a	n/a	18.5 km (15.6 miles).
30-inch steel (install)	Vibratory	n/a	n/a	n/a	39.8 km (24.7 miles).
80-inch steel (install)	Vibratory	n/a	n/a	n/a	50 km (31 miles).

TABLE 3—DISTANCES TO HARASSMENT THRESHOLDS WITHOUT MITIGATION

[Impact hammer]

Pile type and size	Hammer type	Sound levels (rms)		
		190 dB	180 dB	160 dB
30-inch steel	Impact	5 m	22 m	465 m.

Description of Marine Mammals in the Area of the Specified Activity

Due to Port Townsend's location on the boundary between two inland water regions, 11 marine mammal species may occur at some time of year in the vicinity of the ferry terminal: Harbor porpoise, Dall's porpoise, Pacific white-sided dolphin, killer whale, gray whale, humpback whale, minke whale, Pacific harbor seal, California sea lion, northern elephant seal, and Steller sea lion.

Harbor Porpoise

Harbor porpoise on the west coast are divided into two stocks: (1) The Washington Inland Waters Stock; and (2) the Oregon/Washington Coast Stock (Carretta *et al.,* 2007b). Neither stock is listed as ''endangered'' or ''threatened'' under the ESA or as ''depleted'' under the MMPA. The Washington Inland Waters Stock occurs in waters east of Cape Flattery (Strait of Juan de Fuca, San Juan Island Region, and Puget Sound) and has a mean abundance estimate of 10,682 (J. Laake, unpubl. data as cited in Carretta *et al.,* 2007b). Abundance estimates of harbor porpoise for the Strait of Juan de Fuca and the San Juan Islands in 1991 were approximately 3,300 animals (Calambokidis *et al.,* 1993). Harbor porpoise were once considered common in southern Puget Sound (Scheffer and Slipp, 1948); however, there has been a significant decline in sightings within southern Puget Sound since the 1940s (Everitt *et al.,* 1980, Calambokidis *et al.,* 1985, 1992, Carretta *et al.,* 2007b). They are found in coastal and inland waters of the eastern North Pacific Ocean from Point Barrow, Alaska, south to Point Conception, California (Gaskin, 1984). Although harbor porpoises have been spotted in deep water, they tend to remain in shallower shelf waters (<150 meters) where they are most often observed in small groups of 1 to 8 animals (Baird, 2003). Harbor porpoises are high-frequency cetaceans with an estimated auditory bandwidth of 200 Hz to 180 kHz (Southall *et al.,* 2007) with a maximum sensitivity between 16 and 140 kHz (73 FR 41318).

Dall's Porpoise

Dall's porpoise occur in the North Pacific Ocean and is divided into two stocks: (1) California, Oregon, and Washington; and (2) Alaska (Carretta *et al.,* 2007). Neither stock is listed as ''endangered'' or ''threatened'' under the ESA or as ''depleted'' under the MMPA. The California, Oregon, and Washington stock mean abundance estimate of Dall's porpoises is 57,549 (Barlow, 2003; Forney, 2007). In 1994, Calambokidis and Baird (1994) estimated the Juan de Fuca population at 3,015 animals and the San Juan Island population at about 133 animals. More recently, the segment of the population within Washington's inland waters was last assessed by aerial surveys in 1996 and estimated that 900 animals annually inhabit Washington's inland waters (Calambokidis *et al.,* 1997). During a ship line-transect survey conducted in 2005, Dall's porpoise was the most abundant cetacean species off the Oregon and Washington coast (Forney, 2007). Dall's porpoise are migratory and appear to have predictable seasonal movements associated with changes in oceanographic conditions (Green *et al.,* 1992, 1993). This species is commonly found in shelf, slope, and offshore waters (Carretta *et al.,* 2007). Like harbor porpoises, Dall's porpoises are high-frequency cetaceans with an estimated auditory bandwidth of 200 Hz to 180 kHz (Southall *et al.,* 2007).

Pacific White-Sided Dolphin

Pacific white-sided dolphins are divided into northern and southern stocks comprising two discrete, non-contiguous areas: (1) Waters off California, Oregon, and Washington; and (2) Alaskan waters (Carretta *et al.,* 2007). Neither stock is listed as ''endangered'' or ''threatened'' under the ESA or as ''depleted'' under the MMPA. The California, Oregon, and Washington stock mean abundance estimate is 25,233 Pacific white-sided dolphins (Forney, 2007). Surveys in Oregon and Washington coastal waters resulted in an estimated abundance of 7,645 animals (Forney, 2007). Fine-scale surveys in Olympic Coast slope waters and the Olympic Coast National Marine Sanctuary resulted in an estimated abundance of 1,196 and 1,432 animals, respectively (Forney, 2007), but there are no population estimates for Washington's inland waters. Aerial surveys conducted by Washington Department of Fish and Wildlife between 1992 and 2008 only reported a single group of three Pacific white-sided dolphins in the Strait of Juan de Fuca. Pacific white-sided dolphins are occasionally reported in the northernmost part of the Strait of Georgia and in western Strait of Juan de Fuca, but are generally only rarely seen in Puget Sound (Calambokidis and Baird, 1994). Pacific white-sided dolphins have been documented primarily in deep, offshore areas (Green *et al.,* 1992, 1993; Calambokidis *et al.,* 2004). Pacific white-sided dolphins are mid-frequency cetaceans with an estimated auditory bandwidth of 150 Hz to 160 kHz (Southall *et al.,* 2007).

Killer Whale

Two distinct forms, or ecotypes, of killer whales—''residents'' and ''transients''—are found in the greater Puget Sound. These two ecotypes are different populations of killer whales that vary in morphology, ecology, behavior, and genetics. Although the range of transient and resident killer whales overlaps, the two ecotypes do not interact or interbreed with one another. Killer whales of both ecotypes are mid-frequency cetaceans (Southall *et al.,* 2007) with an estimated auditory bandwidth of 50 Hz to 100 kHz and peak sensitivity around 15 kHz (73 FR 41318, July 18, 2008).

The ''resident'' population that could occur in the proposed project area is the Southern Resident killer whale (SRKW). This population contains three pods (or stable family-related groups)—J pod, K pod, and L pod—and is considered a stock under the MMPA. The Southern Resident killer whale population is currently estimated at about 86 whales (Center for Whale Research, 2011). In 2005, NMFS listed this population as endangered under the ESA (70 FR 69903, November 18, 2005). This population is also listed as depleted under the MMPA. Their range during the spring, summer, and fall includes the inland waterways of Puget Sound, Strait of Juan de Fuca, and Southern Georgia Strait. Their occurrence in the coastal waters off Oregon, Washington, Vancouver Island, and more recently off the coast of central California in the south and off the Queen Charlotte Islands to the north has been documented. Little is known about the winter movements and range of the Southern Resident stock. Resident killer whales feed exclusively on fish such as salmon (Calambokidis and Baird, 1994).

Southern resident killer whale presence is possible but unlikely in the proposed project area. Based on the sighting records kept by The Whale Museum in Friday Harbor, between 1990 and 2005 an average of 1.75 killer whale group sightings were annually reported in the quadrant that includes Port Townsend. Most sightings (primarily J Pod) occurred between September and December, and March; therefore, encountering killer whales during the project work window is very low, although encountering a single group is possible.

Transient killer whales occur throughout the eastern North Pacific, primarily in coastal waters. Individual transient killer whales have been documented as traveling great distances, reflecting a large home range. Pod structure is small (e.g., fewer than 10 whales) and dynamic in nature. Transient killer whales feed exclusively on other marine mammals such as dolphins, sea lions, and seals.

The transient killer whale population that could occur in the proposed project area is the West Coast transient stock. This stock of killer whale is not designated as ''depleted'' under the MMPA nor is it listed under the ESA. It is a trans-boundary stock, which includes killer whales from British Columbia. In the proposed activity area, small groups of one to five individuals are sighted intermittently throughout the year. Within inland water, transient killer whales may frequent areas near seal rookeries when pups are weaned (Baird and Dill, 1995).

Preliminary analysis of photographic data results in a minimum of 314 killer whales belonging to the West Coast transient stock (Angliss and Allen, 2009). This number is also considered the minimum population estimate of the population since no correction factor is available to provide a best estimate of the population. At present, reliable data on trends in population abundance for the West Coast transient stock of killer whales are unavailable (Angliss and Allen, 2009).

Gray Whale

Gray whales migrate within 5 to 43 km of the Washington cast during their annual north/south migrations (Green *et al.,* 1995). Small numbers of gray whales have been observed in Northern Puget Sound between the months of September and January, with peak numbers reported from March through May (J. Calambokidis pers. comm. 2007). The North Pacific gray whale stock is divided into two distinct geographically isolated stocks: Eastern and western (Rice *et al.,* 1984; Angliss and Outlaw, 2007). Individuals in the Pacific Northwest are part of the Eastern North Pacific stock. Population surveys estimate that the Eastern North Pacific stock is at or just below its carrying capacity (~26,000 individuals) (Rugh *et al.,* 1999; Calambokidis *et al.,* 1994; Angliss and Outlaw, 2007). Abundance estimates calculated for the area between Oregon and southern Vancouver Island, including the San Juan Islands and Puget Sound, suggest there were 137 to 153 individual gray whales from 2001 through 2003 (Calambokidis *et al.,* 2004). In 1994, the Eastern North Pacific stock of gray whales was removed from listing under the ESA and are no longer considered depleted under the MMPA (Angliss and Outlaw, 2007).

Humpback Whale

Few humpback whales have been seen in Puget Sound, but more frequent sightings occur in the Strait of Juan de Fuca and near the San Juan Islands. These whales are members of the Eastern North Pacific stock, which is one of three distinct stocks of humpback whale recognized in the North Pacific. Recent estimates of the Eastern North Pacific stock indicate that the population is between 1,100 and 1,300 individuals (Caretta *et al.,* 2007; Calambokidis *et al.,* 2008). Abundance estimates for Washington and southern British Columbia are less than 500 (Calambokidis *et al.,* 2008). Humpback whales are listed as endangered under the ESA and the Eastern North Pacific stock is listed as depleted and strategic under the MMPA.

Minke Whale

Worldwide, minke whales are one of the most abundant whales (Calambokidis and Baird, 1994). The northern minke whale is separated into two distinct subspecies: The Northern Pacific and the Northern Atlantic. Within U.S. waters, the North Pacific stock is divided into three separate stocks for management purposes: (1) The Alaskan stock; (2) the California/Oregon/Washington stock; and (3) the Hawaiian stock (NMFS, 2008). Minke whales within the inland Washington waters of Puget Sound and the San Juan Islands are part of the California/Oregon/Washington stock (Dorsey *et al.,* 1990; Carretta *et al.,* 2007). The total population size for the entire North Pacific population is unknown (Calambokidis and Baird, 1994; Carretta *et al.,* 2007). Some estimates indicate as many as 9,000 individuals in the North Pacific (Wade, 1976; Green *et al.,* 1992), but this number is uncertain (Calambokidis and Baird, 1994). The number of minke whales in the California/Oregon/Washington stock is estimated between 500 and 1,015 individuals (Barlow, 2003; Carretta *et al.,* 2007; NMFS, 2008). Minke whales are not listed under the ESA nor considered depleted under the MMPA.

Minke whales are reported in Washington inland waters year-round, although few are reported in the winter (Calambokidis and Baird, 1994). Minke whales are more 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. Infrequent observations occur in Puget Sound south of Admiralty Inlet (Orca Network, 2011). There have been no reported sightings of minke whales in Puget Sound in the months of December and January. Although the likelihood of encountering a minke whale is remote, based on the sighting records, it is possible that minke whales could occur in Port Townsend during the proposed work window.

Like other baleen whales, gray whales, humpback whales, and minke whales are low-frequency cetaceans. Although no direct measurements of auditory capacity have been conducted for these large whales, hearing sensitivity has been estimated by Southall *et al.* (2007) from various studies or observations of behavioral responses, vocalization frequencies used most, body size, ambient noise levels, and cochlear morphometry (Southall *et al.,* 2007). A generalized auditory bandwidth of 7 Hz to 22 kHz has been estimated for all baleen whales, including gray whales, humpback whales, and minke whales (Southall *et al.,* 2007).

Pacific Harbor Seals

Pacific harbor seals reside in coastal and estuarine waters off Baja, California, north to British Columbia, west through the Gulf of Alaska, and in the Bering Sea. Harbor seals in Puget Sound are part of the Oregon/Washington coastal stock. The most recent NMFS stock assessment report estimated this stock to be at least 22,380 individuals and the population is likely at carrying capacity and no longer increasing (NMFS, 2007). The Oregon/Washington stock is not listed under the Endangered Species Act (ESA) nor considered depleted under the MMPA.

Harbor seals are the most numerous marine mammal within the proposed action area. Harbor seals are non-migratory with local movements associated with such factors as tides, weather, season, food availability, and reproduction (Scheffer and Slipp, 1944; Fisher, 1952; Bigg, 1969, 1981). They are not known to make extensive pelagic migrations, although some long distance movement of tagged animals in Alaska (174 km) and along the U.S. west coast (up to 550 km) have been recorded (Pitcher and McAllister, 1981; Brown and Mate, 1983; Herder, 1983).

Harbor seals haul out on rocks, reefs, beaches, and drifting glacial ice 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). Within the region of activity, there are numerous harbor seal haulout sites located on intertidal rocks, reefs, and islands. Nearest known haulout sites to the ferry terminals and number of haulout sites within 5 miles of terminals are listed in Table 3–2 of the application.

Group sizes range from small numbers of animals on intertidal rocks to several thousand animals found seasonally in coastal estuaries. Numerous haulouts in the region of activity have between 100 and 500 individuals, while others have 100 or less (Jeffries *et al.,* 2000) (see Figure 3–1 in the application).

Pinniped hearing is measured for two mediums, air and water. In water hearing ranges from 1–180 kHz with peak sensitivity around 32kHz. In air, hearing capabilities are greatly reduced to 1–22kHz with peak sensitivity at 12kHz. This in-air hearing range is comparable to human hearing (0.02 to 20 kHz). Harbor seals have the potential to be affected by in-air and in-water noise associated with construction activities.

California Sea Lions

California sea lions reside throughout the Eastern North Pacific Ocean in shallow coastal and estuarine waters, ranging from Central Mexico to British Columbia, Canada. Their primary breeding range extends from Central Mexico to the Channel Islands in Southern California. The U.S. stock abundance is estimated at 238,000 sea lions (NMFS, 2007). This stock is approaching carrying capacity and is reaching ''optimum sustainable population'' limits, as defined by the MMPA. California sea lions are not listed under the ESA nor considered depleted under the MMPA. It is estimated that approximately 1,000 California sea lions occur in Puget Sound (P. Gearin pers. comm. 2008).

In Washington, California sea lions use haul-out sites within all inland water regions (Jeffries *et al.,* 2000). The nearest California sea lion haul-out to the action area is a channel buoy (used by less than 10 animals) located off Bush Point 12.9 km southeast of the ferry terminal. The nearest large (100–500 animals) haul-out is located 42 km to the southeast at the Everett Harbor log boom. California sea lions may also be seen resting in the water (rafting) together in Puget Sound (Jeffries *et al.,* 2000).

Northern Elephant Seals

Northern elephant seals present in the proposed action area are considered part of the California breeding stock, which is considered an isolated population from the Mexican stock (Carretta *et al.,* 2007a). Northern elephant seals are not listed as ''endangered'' or ''threatened'' under the ESA nor as ''depleted'' under the MMPA. By 2001, the California breeding stock was estimated at 101,000 individuals based on pup counts (Carretta *et al.,* 2007a; Carretta *et al.,* 2002) Pup estimates in California indicate that the population of northern elephant seals in 2005 was 124,000 (Carretta *et al.,* 2007b). Based on current trends and pup counts in California, the population of northern elephant seals appears to be stable (Carretta *et al.,* 2007b). Current estimates indicate that the minimum population would be 74,193 or twice the current pup count (Carretta *et al.,* 2005). Abundance estimates for inland Washington waters are not available due to the infrequency of sightings and the low numbers encountered incidentally (Calambokidis pers. comm. 2008). Rough estimates suggest less than 100 individuals (Jeffries pers. comm. 2008a).

Inland Washington waters primarily in the Strait of Juan de Fuca are used by elephant seals to feed, haulout, and pup. Small numbers of juveniles haul out throughout this area for periods of over a month to molt (Calambokidis and Baird, 1994). Rat Island across the bay from the Port Townsend ferry terminal is occasionally used by juvenile elephant seals (Jeffries pers. comm. 2008a).

Haulout areas are not as predictable as for the other species of pinnipeds found there. In recent years pups have been seen at beaches at Destruction, Protection, and Smith/Minor Islands in the Strait of Juan de Fuca (Jeffries *et al.,* 2000). WDFW has identified seven haulout sites in inland Washington waters. There are regular haulout sites at Smith and Minor Islands, Dungeness Spit, Protection Island, and Race Rocks in the Strait of Juan de Fuca (Jeffries pers. comm. 2008a; Figure 3–3 in the application). Typically these sites have only two to ten adult males and females, but pupping has been reported at all of these sites of the past ten years (Jeffries pers. comm. 2008a).

Steller Sea Lions

Steller sea lions reside along the North Pacific Rim from northern Japan to California, with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands, respectively. Steller sea lions in Puget Sound are part of the eastern distinct population segment, which is listed as threatened under the ESA, but currently the subject of a proposed rule to delist (77 FR 23209, April 18, 2012), and designated as depleted under the MMPA. Based on pup counts conducted between 2002 and 2005, the eastern stock of Steller sea lions is estimated to be between 48,519 and 54,989 individuals. The estimate for Washington, including the outer coast, is 651 individuals (non-pups only) (Pitcher *et al.,* 2007).

For Washington inland waters, Steller sea lion abundances vary seasonally 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 (S. Jeffries pers. comm. 2008). However, the number of haul-out sites has increased in recent years and includes most navigation buoys in Admiralty Inlet, and the Craven Rock haul-out site east of Marrowstone Island, approximately 7 km southeast of the ferry terminal. There are no Steller sea lion rookeries in Washington.

All pinniped species produce a wide range of social signals, most occurring at relatively low frequencies (Southall *et al.,* 2007), suggesting that hearing is keenest at these frequencies. Pinnipeds communicate acoustically both on land and underwater, but have different hearing capabilities dependent upon the medium (air or water). Based on numerous studies, as summarized in Southall *et al.* (2007), pinnipeds are more sensitive to a broader range of sound frequencies underwater than in air. Underwater, pinnipeds can hear frequencies from 75 Hz to 75 kHz. In air, pinnipeds can hear frequencies from 75 Hz to 30 kHz (Southall *et al.,* 2007).

Potential Effects on Marine Mammals

Impact and vibratory pile driving are the construction activities associated with the proposed action with the potential to take marine mammals. Elevated in-water sound levels from pile driving in the proposed project area may temporarily impact marine mammal behavior. However, elevated in-air sound levels are not expected to affect marine mammals because the nearest pinniped haul-out is approximately 3 km away.

Marine Mammals and Sound

Marine mammals are continually exposed to many sources of sound. For example, lightning, rain, sub-sea earthquakes, and animals are natural sound sources throughout the marine environment. Marine mammals also produce sounds in various contexts and use sound for various biological functions including, but not limited to, (1) social interactions; (2) foraging; (3) orientation; and (4) predator detection. Exposure to sound can affect marine mammal hearing or cause changes in behavior. When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data, Southall *et al.* (2007) designate functional hearing groups for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): Functional hearing is estimated to occur between approximately 7 Hz and 22 kHz;
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): Functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;
- High frequency cetaceans (six species of true porpoises, four species of river dolphins, two members of the genus *Kogia,* and four dolphin species of the genus *Cephalorhynchus*): Functional hearing is estimated to occur between approximately 200 Hz and 180 kHz; and
- Pinnipeds in water: Functional hearing is estimated to occur between approximately 75 Hz and 75 kHz, with the greatest sensitivity between approximately 700 Hz and 20 kHz.

As mentioned previously in this document, four pinniped and seven cetacean species may occur in the proposed project area during the project timeframe. Harbor porpoise and Dall's porpoise are classified as high frequency cetaceans (Southall *et al.,* 2007). Pacific white-sided dolphin and killer whale are classified as mid frequency cetaceans (Southall *et al.,* 2007). Gray whale, humpback whale, and minke whale are classified as low frequency cetaceans (Southall *et al.,* 2007).

Potential Effects of Pile Driving Sound

The effects of sounds from pile driving might generally result in one or more of the following: Temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, and masking (Richardson *et al.,* 1995; Gordon *et al.,* 2004; Nowacek *et al.,* 2007; Southall *et al.,* 2007). The effects of pile driving on marine mammals are dependent on several factors, including the size, type, and depth of the animal; the depth, intensity, and duration of the pile driving sound; the depth of the water column; the substrate of the habitat; the standoff distance between the pile and the animal; and the sound propagation properties of the environment. Impacts to marine mammals from pile driving activities are expected to result primarily from acoustic pathways. As such, the degree of effect is intrinsically related to the received level and duration of the sound exposure, which are in turn influenced by the distance between the animal and the source. The further away from the source, the less intense the exposure should be. The substrate and depth of the habitat affect the sound propagation properties of the environment. Shallow environments are typically more structurally complex, which leads to rapid sound attenuation. In addition, substrates that are soft (e.g., sand) would absorb or attenuate the sound more readily than hard substrates (e.g., rock) which may reflect the acoustic wave. Soft porous substrates would also likely require less time to drive the pile, and possibly less forceful equipment, which would ultimately decrease the intensity of the acoustic source.

In the absence of mitigation, impacts to marine species would be expected to result from physiological and behavioral responses to both the type and strength of the acoustic signature (Viada *et al.,* 2008). The type and severity of behavioral impacts are more difficult to define due to limited studies addressing the behavioral effects of sound on marine mammals. Potential effects from impulsive sound sources can range in severity, ranging from effects such as behavioral disturbance, tactile perception, physical discomfort, slight injury of the internal organs and the auditory system, to mortality (Yelverton *et al.,* 1973; O'Keefe and Young, 1984; DoN, 2001b).

Hearing Impairment and Other Physical Effects

Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak *et al.,* 1999; Schlundt *et al.,* 2000; Finneran *et al.,* 2002, 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is not recoverable, or temporary (TTS), in which case the animal's hearing threshold would recover over time (Southall *et al.,* 2007). Marine mammals depend on acoustic cues for vital biological functions, (e.g., orientation, communication, finding prey, avoiding predators); thus, TTS may result in reduced fitness in survival and reproduction, either permanently or temporarily. However, this depends on the frequency and duration of TTS, as well as the biological context in which it occurs. TTS of limited duration, occurring in a frequency range that does not coincide with that used for recognition of important acoustic cues, would have little to no effect on an animal's fitness. Repeated sound exposure that leads to TTS could cause PTS. PTS, in the unlikely event that it occurred, would constitute injury, but TTS is not considered injury (Southall *et al.,* 2007). It is unlikely that the project would result in any cases of temporary or especially permanent hearing impairment or any significant non-auditory physical or physiological effects for reasons discussed later in this document. Some behavioral disturbance is expected, but it is likely that this would be localized and short-term because of the short project duration.

Several aspects of the planned monitoring and mitigation measures for this project (see the ''Proposed Mitigation'' and ''Proposed Monitoring and Reporting'' sections later in this document) are designed to detect marine mammals occurring near the pile driving to avoid exposing them to sound pulses that might, in theory, cause hearing impairment. In addition, many cetaceans are likely to show some avoidance of the area where received levels of pile driving sound are high enough that hearing impairment could potentially occur. In those cases, the avoidance responses of the animals themselves would reduce or (most likely) avoid any possibility of hearing impairment. Non-auditory physical effects may also occur in marine mammals exposed to strong underwater pulsed sound. It is especially unlikely that any effects of these types would occur during the present project given the brief duration of exposure for any given individual and the planned monitoring and mitigation measures. The following subsections discuss in somewhat more detail the possibilities of TTS, PTS, and non-auditory physical effects.

Temporary Threshold Shift (TTS)

TTS is the mildest form of hearing impairment that can occur during exposure to a loud sound (Kryter, 1985). While experiencing TTS, the hearing threshold rises and a sound must be louder in order to be heard. TTS can last from minutes or hours to days, occurs in specific frequency ranges (e.g., an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz), and can occur to varying degrees (e.g., an animal's hearing sensitivity might be reduced by 6 dB or by 30 dB). For sound exposures at or somewhat above the TTS-onset threshold, hearing sensitivity recovers rapidly after exposure to the sound ends. Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals. Southall *et al.* (2007) considers a 6 dB TTS (i.e., baseline thresholds are elevated by 6 dB) sufficient to be recognized as an unequivocal deviation and thus a sufficient definition of TTS-onset. Because it is non-injurious, NMFS considers TTS as Level B harassment that is mediated by physiological effects on the auditory system; however, NMFS does not consider onset TTS to be the lowest level at which Level B harassment may occur. Southall *et al.* (2007) summarizes underwater pinniped data from Kastak *et al.* (2005), indicating that a tested harbor seal showed a TTS of around 6 dB when exposed to a non-pulse noise at SPL 152 dB re: 1 μPa for 25 minutes. In contrast, a tested sea lion exhibited TTS-onset at 174 dB re: 1 μPa under the same conditions as the harbor seal. Data from a single study on underwater pulses found no signs of TTS-onset in sea lions at exposures up to 183 dB re: 1 μPa (peak-to-peak) (Finneran *et al.,* 2003).

Vibratory pile driving emits low-frequency broadband noise, which may be detectable by marine mammals within the proposed project area. There are limited data available on the effects of non-pulse noise (for example, vibratory pile driving) on pinnipeds while underwater; however, field and captive studies to date collectively suggest that pinnipeds do not react strongly to exposures between 90 and 140 dB re: 1 μPa; no data exist from exposures at higher levels. Jacobs and Terhune (2002) observed wild harbor seal reactions to high-frequency acoustic harassment devices around nine sites. Seals came within 44 m of the active acoustic harassment devices and failed to demonstrate any behavioral response when received SPLs were estimated at 120–130 dB. In a captive study (Kastelein, 2006), scientists subjected a group of seals to non-pulse sounds between 8 and 16 kHz. Exposures between 80 and 107 dB did not induce strong behavioral responses; however, a single observation from 100 to 110 dB indicated an avoidance response. The seals returned to baseline conditions shortly following exposure. Southall *et al.* (2007) notes contextual differences between these two studies; the captive animals were not reinforced with food for remaining in the noise fields, whereas free-ranging animals may have been more tolerant of exposures because of motivation to return to a safe location or approach enclosures holding prey items. While most of the pile driving at the proposed project site would be vibratory, an impact hammer (pulse noise) may be used to complete installation of seven piles (five 30-inch and two 24-inch). Vibratory and impact pile driving may result in anticipated hydroacoustic levels between 159 and 195 dB rms at 10 m (unattenuated). Southall *et al.* (2007) reviewed relevant data from studies involving pinnipeds exposed to pulse noise and concluded that exposures to 150 to 180 dB generally have limited potential to induce avoidance behavior.

The proposed action includes vibratory removal of 12-inch timber piles, vibratory removal and driving of 30-inch and 24-inch hollow steel piles, and vibratory installation of 72-inch hollow steel cylindrical shafts. Based on previous in-water measurements at the Port Townsend ferry terminal, removal of the 12-inch timber piles generated 149 to 152 dB rms, with an overall average rms value of 150 dB, at 16 m. In-water measurements conducted during another test pile project at the Port Townsend ferry terminal indicated that vibratory pile removal of a 30-inch steel pile generated 171 dB rms at 10 m, and vibratory pile driving of a 30-inch steel pile generated 170 dB rms at 10 m with the highest measured sound of 174 dB rms at 10 m (Laughlin, 2010). Based on in-water measurements at the WSF Friday Harbor ferry terminal, vibratory pile driving of 24-inch steel piles generated 162 dB rms at 10 m (Laughlin, 2005). Vibratory pile removal data for 24-inch steel piles is not available, so a reduction of 3 dB rms will be assumed, which is the same reduction as the 30-inch vibratory removal at Port Townsend. The average value of 174 dB rms from a Washington State Department of Transportation monitoring project of vibratory installation of a 36-inch steel pipe pile at Port Townsend was used in the noise analysis for vibratory pile installation (WSDOT, 2010). There is also a lack of information available for the 80-inch cylinders. The closest in-water measurement available were for 72-inch cylinders from the California Pile Driving Compendium (Caltrans, 2007), which generated 180 dB rms at 5 m and equals 175.5 dB rms at 10 m (Laughlin, 2011). The Caltrans report is considered to be the best available data for estimating the sound source levels for installing 80-inch cylinders with a vibratory hammer; therefore, this source level will be applied.

Permanent Threshold Shift

When PTS occurs, there is physical damage to the sound receptors in the ear. In severe cases, there can be total or partial deafness, while in other cases the animal has an impaired ability to hear sounds in specific frequency ranges (Kryter, 1985). There is no specific evidence that exposure to pulses of sound can cause PTS in any marine mammal. However, given the possibility that mammals close to pile driving activity might incur TTS, there has been further speculation about the possibility that some individuals occurring very close to pile driving might incur PTS. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage, but repeated or (in some cases) single exposures to a level well above that causing TTS onset might elicit PTS.

Relationships between TTS and PTS thresholds have not been studied in marine mammals but are assumed to be similar to those in humans and other terrestrial mammals. PTS might occur at a received sound level at least several decibels above that inducing mild TTS if the animal were exposed to strong sound pulses with rapid rise time. Based on data from terrestrial mammals, a precautionary assumption is that the PTS threshold for impulse sounds (such as pile driving pulses as received close to the source) is at least 6 dB higher than the TTS threshold on a peak-pressure basis and probably greater than 6 dB (Southall *et al.,* 2007). On an SEL basis, Southall *et al.* (2007) estimated that received levels would need to exceed the TTS threshold by at least 15 dB for there to be risk of PTS. Thus, for cetaceans, Southall *et al.* (2007) estimate that the PTS threshold might be an M-weighted SEL (for the sequence of received pulses) of approximately 198 dB re 1 μPa^2-s (15 dB higher than the TTS threshold for an impulse). Given the higher level of sound necessary to cause PTS as compared with TTS, it is considerably less likely that PTS could occur.

Non-Auditory Physiological Effects

Non-auditory physiological effects or injuries that theoretically might occur in marine mammals exposed to strong underwater sound include stress, neurological effects, bubble formation, resonance effects, and other types of organ or tissue damage (Cox *et al.,* 2006; Southall *et al.,* 2007). Studies examining such effects are limited. In general, little is known about the potential for pile driving to cause auditory impairment or other physical effects in marine mammals. Available data suggest that such effects, if they occur at all, would presumably be limited to short distances from the sound source and to activities that extend over a prolonged period. The available data do not allow identification of a specific exposure level above which non-auditory effects can be expected (Southall *et al.,* 2007) or any meaningful quantitative predictions of the numbers (if any) of marine mammals that might be affected in those ways. Marine mammals that show behavioral avoidance of pile driving, including some odontocetes and some pinnipeds, are especially unlikely to incur auditory impairment or non-auditory physical effects.

Measured source levels from impact pile driving can be as high as 214 dB re 1 µPa at 1 m (3.3 ft). Although no marine mammals have been shown to experience TTS or PTS as a result of being exposed to pile driving activities, captive bottlenose dolphins and beluga whales exhibited changes in behavior when exposed to strong pulsed sounds (Finneran *et al.,* 2000, 2002, 2005). The animals tolerated high received levels of sound before exhibiting aversive behaviors. Experiments on a beluga whale showed that exposure to a single watergun impulse at a received level of 207 kPa (30 psi) p-p, which is equivalent to 228 dB p-p re 1 µPa, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within four minutes of the exposure (Finneran *et al.,* 2002). Although the source level of pile driving from one hammer strike is expected to be much lower than the single watergun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more sound exposure in terms of SEL than from the single watergun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran *et al.,* 2002). However, in order for marine mammals to experience TTS or PTS, the animals have to be close enough to be exposed to high intensity sound levels for a prolonged period of time. Based on the best scientific information available, these SPLs are far below the thresholds that could cause TTS or the onset of PTS.

Disturbance Reactions

Disturbance includes a variety of effects, including subtle changes in behavior, more conspicuous changes in activities, and displacement. Reactions to sound, if any, depend on species, state of maturity, experience, current activity, reproductive state, time of day, and many other factors (Richardson *et al.,* 1995; Wartzok *et al.,* 2004; Southall *et al.,* 2007; Weilgart, 2007). Behavioral responses to sound are highly variable and context-specific. For each potential behavioral change, the magnitude of the change ultimately determines the severity of the response. A number of factors may influence an animal's response to sound, including its previous experience, its auditory sensitivity, its biological and social status (including age and sex), and its behavioral state and activity at the time of exposure.

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003/04). Animals are most likely to habituate to sounds that are predictable and unvarying. The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure. Behavioral state may affect the type of response as well. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; NRC, 2003; Wartzok *et al.,* 2003/04).

Controlled experiments with captive marine mammals showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud pulsed sound sources (typically seismic guns or acoustic harassment devices, but also including pile driving) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds, 2002; Caltrans, 2001, 2006; see also Gordon *et al.,* 2004; Wartzok *et al.,* 2003/04; Nowacek *et al.,* 2007). Responses to continuous sound, such as vibratory pile installation, have not been documented as well as responses to pulsed sounds.

With both types of pile driving, it is likely that the onset of pile driving could result in temporary, short term changes in an animal's typical behavior and/or avoidance of the affected area. These behavioral changes may include (Richardson *et al.,* 1995): Changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located; and/or flight responses (e.g., pinnipeds flushing into water from haul-outs or rookeries). Pinnipeds may increase their haul-out time, possibly to avoid in-water disturbance (Caltrans, 2001, 2006). Since pile driving typically occurs for short periods of time, and because marine mammals present at the ferry terminal are likely acclimated to a loud environment and heavy urban and industrial usage of the area, it is unlikely to result in permanent displacement. Any potential impacts from pile driving activities could be experienced by individual marine mammals, but would not be likely to cause population level impacts, or affect the long-term fitness of the species.

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 expected to be biologically significant if the change affects growth, survival, or reproduction. Significant behavioral modifications that could potentially lead to effects on growth, survival, or reproduction include:

- Drastic changes in diving/surfacing patterns (such as those thought to be causing beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cessation of feeding or social interaction.

The onset of behavioral disturbance from anthropogenic sound depends on both external factors (characteristics of sound sources and their paths) and the specific characteristics of the receiving animals (hearing, motivation, experience, demography) and is difficult to predict (Southall *et al.,* 2007).

Auditory Masking

Natural and artificial sounds can disrupt behavior by masking, or interfering with, a marine mammal's ability to hear other sounds. Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher levels. Chronic exposure to excessive, though not high-intensity, sound could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions. Masking can interfere with 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. If the coincident (masking) sound were man-made, it could be potentially harassing if it disrupted hearing-related behavior. It is important to distinguish TTS and PTS, which persist after the sound exposure, from masking, which occurs during the sound exposure. Because masking (without resulting in TS) is not associated with abnormal physiological function, it is not considered a physiological effect, but rather a potential behavioral effect.

The frequency range of the potentially masking sound is important in determining any potential behavioral impacts. Because sound generated from in-water pile driving is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds made by porpoises. However, lower frequency man-made sounds are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey sound. It may also affect communication signals when they occur near the sound 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).

Masking has the potential to impact species at population, community, or even ecosystem levels, as well as at individual levels. Masking affects both senders and receivers of the signals and can potentially have long-term chronic effects on marine mammal species and populations. Recent research 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 that most of these increases are from distant shipping (Hildebrand, 2009). All anthropogenic sound sources, such as those from vessel traffic, pile driving, and dredging activities, contribute to the elevated ambient sound levels, thus intensifying masking. However, the sum of sound from the proposed activities is confined in an area of inland waters that is bounded by landmass; therefore, the sound generated is not expected to contribute to increased ocean ambient sound. The most intense underwater sounds in the proposed action are those produced by impact pile driving, although the proposed activity involves the striking of only relatively small diameter piles, meaning that source levels would be much lower than are typically produced by impact pile driving. Given that the energy distribution of pile driving covers a broad frequency spectrum, sound from these sources would likely be within the audible range of animals in the vicinity. Impact pile driving activity is relatively short-term, with rapid pulses occurring for short periods of time. The probability for impact pile driving resulting from this proposed action masking acoustic signals important to the behavior and survival of marine mammal species is likely to be negligible. Vibratory pile driving is also relatively short-term, producing sound from rapid oscillations. It is possible that vibratory pile driving resulting from this proposed action may mask acoustic signals important to the behavior and survival of marine mammal species, but the short-term duration and limited affected area, coupled with high levels of ambient noise in the action area, would result in a negligible impact from masking.

Airborne Sound Effects

Marine mammals that occur in the project area could be exposed to airborne sounds associated with pile driving that have the potential to cause harassment, depending on their distance from pile driving activities. Airborne pile driving sound would have less impact on cetaceans than pinnipeds because sound from atmospheric sources does not transmit well underwater (Richardson *et al.,* 1995); thus, airborne sound would only be an issue for hauled-out pinnipeds in the project area or those pinnipeds in the water but with their heads above water. Given the busy and loud environment within which the proposed activities would occur and the distance to the nearest pinniped haul-out site, it is unlikely that airborne sound from pile driving would cause behavioral responses similar to those discussed above in relation to underwater sound. However, anthropogenic sound could potentially cause pinnipeds to exhibit changes in their normal behavior, such as reduction in vocalizations, or cause them to temporarily abandon their habitat and move further from the source. Studies by Blackwell *et al.* (2004) and Moulton *et al.* (2005) indicate a tolerance or lack of response to unweighted airborne sounds as high as 112 dB peak and 96 dB rms.

Based on the available information, NMFS expects any impacts to marine mammal behavior to be temporary, Level B harassment, for two reasons: First, animals may avoid the area around the hammer, thereby reducing their exposure to elevated sound levels; and second, pile removal and driving does not occur continuously throughout the day. Depending on the size of the pile, the vibratory hammer would operate for about 15–20 minutes per pile and the impact hammer would operate for about 10 minutes per pile. The applicant anticipates about 6 days of pile removal and approximately 9 total hours of pile driving activity, averaging about two hours of active pile driving for each construction day. Disturbance to marine mammal behavior may be in the form of temporary avoidance of the pile driving location. In addition, because a vibratory hammer would be used for the majority of pile removal and installation, and the distance to the Level A harassment isopleth for the impact hammer is 22 m for cetaceans (180 dB) and 5 m for pinnipeds (190 dB), marine mammal injury or mortality is not likely. Impact pile driving would cease if a marine mammal (including pinnipeds) is observed nearing or within the 180 dB isopleth. For these reasons, NMFS expects any changes to marine mammal behavior to be temporary, site-specific, and has preliminarily determined will result in a negligible impact to affected species and stocks.

Anticipated Effects on Habitat

WSF has run the state ferry system since the 1950s. Since acquiring control of the most used ferry system in the world, WSF has developed and routinely uses the best guidance available (e.g., best management practices (BMPs) and mitigation measures) to avoid and minimize (to the greatest extent possible) impacts to the environment, ESA species, designated critical habitats, and species protected under the MMPA. To protect habitat, WSF must adhere to the measures outlined in the Implementing Agreement (IA) with the Washington State Department of Ecology (Ecology)/WSDOT dated February 13, 1998 (to be superseded by any agreement that is more current that the 1998 IA). Precautionary measures such as using bubble curtains to protect salmonids from injurious noise levels, protecting eelgrass beds, preparation and implementation of a Spill Prevention, Control, and Countermeasures (SPCC) plan, compliance with appropriate water quality standards, ensuring no leakage of petroleum products, fresh cement, lime or concrete, chemicals, or other toxic or deleterious materials into terminal waters, proper disposal of wash water resulting from washdown of equipment or work areas, and minimizing and confining use of equipment to defined corridors where beach access is required will aid in minimizing direct and indirect impacts to marine mammal habitat. More information on habitat related protection measures can be found in WSF's application.

Marine mammals in the action area primarily feed on salmonids and other fishes present in Puget Sound. Use of a bubble curtain will prevent injurious level sounds from entering into the aquatic environment. Popper *et al.* (2006) recommend a dual criterion of 208 dB (peak) and 187 dB re: 1 microPa^2-s as interim guidance to protect fish from physical injury and mortality for a single pile driving impact. During a test pile study at the Mukilteo ferry terminal, none of the single strike SEL values calculated on the absolute peak pile strike exceeded the proposed threshold of 187 dB SEL and none of the calculated cumulative SEL values exceeded the benchmark of 220 dB SEL based on the total number of pile strikes for each individual pile and total pile strikes for the entire day (Laughlin, 2007). Mitigation measures also reduce noise pollution released into marine mammal habitat. In addition, pile driving is not occurring continuously and at each site would occur for only 2 hours per day for a maximum of 11 days. Based on the intermittent nature of pile driving, limited pile driving days/hours, and mitigation measures employed by WSF, NMFS has preliminarily determined that pile driving for ferry terminal repair and maintenance will not adversely impact marine mammal habitat.

Installation and removal of piles will result in short-term, site-specific increase in turbidity. In general, turbidity is the amount of particulate matter suspended in the water. High levels of turbidity can reduce the amount of light reaching lower depth, which can inhibit the growth of aquatic plants, and affect the ability of fish gills to absorb dissolved oxygen. Cetaceans are not expected to be close enough to the ferry terminal to experience turbidity and any pinnipeds that use the area as a transit corridor could detect in-water activities that create turbidity and avoid the area. Removal of the 40 creosote-treated wood piles will result in the temporary re-suspension of sediment containing contaminants often associated with creosote, such as polycyclic aromatic hydrocarbons (PAHs) that cause cancers and mutations. However, the actual removal of the wood piles from the marine environment has long-term benefits due to improvements in water and sediment quality.

In conclusion, the impacts on marine mammal habitat from the proposed project are likely to be in the form of underwater noise, temporary increase in turbidity levels, and changes in prey species distribution. The impact of habitat loss during construction due to noise or water quality (turbidity) is expected to be minimal. Marine mammals that utilize habitat in the vicinity of the ferry terminal are primarily transiting through the area; however, a harbor seal haul-out site is located 3 km away. Any impacts to prey species during construction will be short-term and localized. Given the large numbers of fish and other prey species in Puget Sound, the short-term and localized effects on fish species, the mitigation measures employed, and the BMPs designed to protect salmonids, the proposed project is not expected to have measurable effects on the distribution or abundance of marine mammal prey species.

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 adverse 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.

The applicant has proposed the following mitigation measures to minimize adverse impacts to marine mammals:

Temporal Restrictions

The Washington Department of Fish and Wildlife recommends an in-water work window of July 16 through February 15, annually. This work window was designed to avoid in-water work when ESA-listed salmonids are most likely to be present, but may also be beneficial to marine mammals that prey on salmon. Actual construction activities are planned to take place from December 2012 through February 15, which would ensure these activities do not coincide with salmonid use of the action area.

Use of Noise Attenuation During Pile Driving With Impact Hammer

To the extent possible, a vibratory hammer would be used to drive all piles. It is anticipated that an impact hammer will be necessary to ''proof'' five 30-inch hollow steel piles. During impact pile driving, a bubble curtain will be used as an attenuation device to reduce hydroacoustic sound levels and avoid the potential for injury. In the event that hydroacoustic monitoring during in-water construction activities involving impact pile driving indicates that the proper attenuation is not being achieved, the proposed harassment and exclusion zones (described next) will be modified to account for the reduced attenuation.

Establishment of an Exclusion Zone

During impact pile driving, WSF would establish a marine mammal exclusion zone of 22m around each pile to avoid exposure to sounds at or above 180 dB. The 190 dB (pinniped) injury isopleth is contained within the 22m exclusion zone. The exclusion zone would be monitored during all impact pile driving to ensure that no marine mammals enter the 22m radius. The purpose of this area is to prevent Level A harassment (injury) of any marine mammal species. An exclusion zone for vibratory pile driving is unnecessary to prevent Level A harassment, as source levels would not exceed the Level A harassment threshold.

Pile Driving Shut Down and Delay Procedures

Monitoring will be initiated 30 minutes prior to the commencement of pile driving activities. If a protected species observer sees a marine mammal within or approaching the exclusion zone prior to start of impact pile driving, the observer would notify the on-site construction manager (or other authorized individual), who would then be required to delay pile driving until the marine mammal has moved outside of the exclusion zone or if the animal has not been resighted within 15 minutes. If a marine mammal is sighted within or on a path toward the exclusion zone during pile driving, pile driving would cease until that animal has cleared and is on a path away from the exclusion zone or 15 minutes has lapsed since the last sighting.

Soft-Start Procedures

A ''soft-start'' technique would be used at the beginning of each pile installation to allow any marine mammal that may be in the immediate area to leave before the pile hammer reaches full energy. For vibratory pile driving, the soft-start procedure requires contractors to initiate noise from the vibratory hammer for 15 seconds at 40–60 percent reduced energy followed by a 1-minute waiting period. The procedure would be repeated two additional times before full energy may be achieved. For impact hammering, contractors would be required 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 pile will take approximately 20 minutes to install, followed by 20 minutes of monitoring for the presence of marine mammals. Marine mammal monitoring will also be required for 30 minutes before installing subsequent piles. During pile driving activities, these time periods will overlap; therefore, if the driving of a new pile begins before the 50-minute (or less) total observation periods is complete, and no marine mammals are observed within the exclusion zone, a soft-start will not be required. However, if the total 50-minute observation period has lapsed before beginning the next pile, a soft-start will be required.

In-Water Pile Driving Weather Delays

Should environmental conditions (e.g., fog, high sea state, poor lighting) obscure the harassment zone, pile driving will be suspended until visibility returns.

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: (1) The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation, including consideration of personnel safety, and practicality of implementation.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable adverse impacts on marine mammals 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 IHAs 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.

WSF has developed a monitoring plan that includes monitoring the harassment and exclusion zones during pile driving and collecting sighting data for each marine mammal species observed during in-water construction activities. To implement this plan, qualified marine mammals observers will be on-site at all times during pile removal and installation. WSF must designate at least one biologically-trained, on-site individual, approved in advance by NMFS, to monitor the area for marine mammals 30 minutes before, during, and 20 minutes after all impact pile driving activities and call for shut down if any marine mammal is observed within or approaching the designated exclusion zone (preliminarily set at 22m). In addition, at least two NMFS-approved protected species observers would conduct behavioral monitoring at least two days per week to estimate take and evaluate the behavioral impacts pile driving has on marine mammals out to the Level B harassment isopleths. Note that for impact hammering, this distance is about 465 m. For vibratory hammering, this estimated distance is about 6.8 km. Protected species observers would be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, spotting scopes, compass, and range-finder) in order to determine if animals have entered into the exclusion zone or Level B harassment isopleth and to record species, behaviors, and responses to pile driving.

WSF also plans to conduct acoustic monitoring during vibratory pile installation of 24-inch and 80-inch steel piles. Acoustic monitoring during timber pile removal and installation and removal of 30-inch steel piles will not be conducted because data from these activities was collected in 2010 during the Port Townsend test pile driving project (Laughlin, 2010; Stockham *et al.,* 2010) and during a 2010 dolphin replacement project in Port Townsend.

Protected species observers would be required to submit a report to NMFS within 120 days of expiration of the IHA or completion of pile driving, whichever comes first. The report would include data from marine mammal sightings (such as species, group size, and behavior), any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, 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].

Based on the application and subsequent analysis, the impact of the described pile driving operations may result in, at most, short-term modification of behavior by small numbers of marine mammals within the action area. Marine mammals may avoid the area or temporarily alter their behavior at time of exposure.

Current NMFS practice regarding exposure of marine mammals to anthropogenic noise is that in order to avoid the potential for injury (PTS), cetaceans and pinnipeds should not be exposed to impulsive sounds of 180 and 190 dB or above, respectively. This level is considered precautionary as it is likely that more intense sounds would be required before injury would actually occur (Southall *et al.,* 2007). Potential for behavioral harassment (Level B) is considered to have occurred when marine mammals are exposed to sounds at or above 160 dB for impulse sounds (such as impact pile driving) and 120 dB for non-pulse noise (such as vibratory pile driving), but below the aforementioned thresholds. These levels are also considered precautionary.

Based on empirical measurements taken by WSDOT and Caltrans (which are presented in the *Description of Specified Activities* section above), estimated distances to NMFS' current threshold sound levels from pile driving during the proposed construction activities are presented in Table 4. The 22 m distance to the Level A harassment threshold provides protected species observers a reasonably sized area to monitor during impact pile driving. Monitoring this zone would prevent marine mammals from being exposed to sound levels that reach the Level A harassment threshold.

TABLE 4—DISTANCES TO NMFS' MARINE MAMMAL HARASSMENT THRESHOLDS

[Without attenuation]

	Level A (190/180 dB)	Level B harassment (160 dB)	Level B harassment (120 dB)
Impact hammering	22 m	465 m	n/a
Vibratory hammering	n/a	n/a	6.8 km

For each of the 11 marine mammal species that may occur within the proposed action area, incidental take was determined by estimating the likelihood of a marine mammal being present with the Zone of Influence (ZOI) during pile driving activities (Table 5). Typically, incidental take is estimated by multiplying the area of the ZOI by the local animal density. This provides an estimate of the number of animals that might occupy the ZOI at any time; however, there are no density estimates for marine mammal populations in Puget Sound. Therefore, the take requests were estimated using local marine mammal data sets (e.g., Orca Network, state and federal agencies), opinions from state and federal agencies, and incidental observations from WSF biologists. Expected marine mammal presence was determined by past observation and general abundance near the Port Townsend ferry terminal during the construction work window. Distances to the applicable NMFS thresholds for Level A and Level B harassment take for each type of pile (vibratory and impact) were presented in Section 1.6.6 in the IHA application. These distances were used to calculate the various ZOIs or area ensonified by sounds at or greater than threshold. For example, for the Level A threshold, the estimated distance to the 180 dB isopleth was 22 m for impact pile driving, which equates to a 1,520 square meter ZOI. The distance to the 160 dB isopleths during impact pile driving was estimated at 465 m, which equates to a 0.45 square km (only half the area is water). The distance to the 120 dB threshold for vibratory pile driving was estimated at 6.8 km, which equates to a ZOI of approximately 42 square km in water. Both of these areas will be monitored during construction to report actual marine mammal takes by Level B harassment.

TABLE 5—POPULATION ABUNDANCE ESTIMATES, TOTAL PROPOSED TAKE, AND THE PERCENTAGE OF THE POPULATION OR STOCK THAT MAY BE EXPOSED TO SOUNDS RESULTING IN LEVEL B HARASSMENT DURING THE PROPOSED FERRY TERMINAL REPLACEMENT PROJECT

Species	Abundance	Proposed take authorization	Percentage of population or stock
Gray Whale	20,000	2	0.01
Humpback Whale	1,100	2	0.18
Minke Whale	1,000	2	0.2
Killer Whale	[1] 314	30	[1] 9.5
	[2] 86		[2] 35
Harbor Porpoise	10,682	50	0.5
Dall's Porpoise	57,000	9	0.02
Pacific White-sided Dolphin	25,233	10	0.04
Harbor Seal	14,612	45	0.3
California Sea Lion	3,000–5,000	18	0.6–.36
Northern Elephant Seal	101,000	5	0.005
Steller Sea Lion	1,000–2,000	35	3.5–1.75

[1] (Transient).
[2] (Southern Resident).

Airborne noises can affect pinnipeds, especially resting seals hauled out on rocks or sand spits. The airborne 90 dB Level B threshold for hauled out harbor seals was estimated at 81 m, and the airborne 100 dB Level B threshold for other pinnipeds was estimated at 17 m. No haulout sites are within the disturbance threshold distances; the nearest harbor seal haulout is approximately 3 km from the ferry terminal. In addition, the airborne noise harassment ZOI is smaller than both the impact and vibratory hammer underwater noise harassment ZOIs, and therefore is encompassed in the underwater noise take estimates.

Surveys conducted during the fall/winter of 2009/2010 by biologists contracted by the Snohomish Public Utility District recorded about 10 harbor seals per day (Tollit *et al.,* 2010). The applicant estimates that the total number of pile driving and removal hours would not exceed 21.5 hours, or about 3 eight-hour work days; therefore, the estimated number of seals that could be harassed would be 30. For conservative purposes, based on their predilection for embayments like Port Townsend Bay, WSF requests authorization to harass 45 harbor seals. The survey conducted by Tollit *et al.* (2010) also recorded sightings of California sea lions passing Admiralty Head (located directly across Admiralty Inlet from Port Townsend) and reported six animals over the course of 88 days between October 2009 and February 2010. Similarly, the Washington Department of Fish and Wildlife recorded eight California sea lions in Admiralty Inlet during vessel-based surveys in Puget Sound between 1992 and 2004. Based on the results from these surveys, WSF estimates that up to six California sea lions could enter the 160 dB harassment zone per day, or a total of 18 during the 3 eight-hour work days that would involve in-water pile installation and removal activities.

These surveys did not, however, report any sightings of northern elephant seals in Admiralty Inlet. Wintering elephant seals haul out on Protection Island, which is 12 km to the west of Port Townsend, and Smith and Minor Islands 24 km to the north, but may forage as far south as Admiralty Inlet. Therefore, it is possible that elephant seals could enter Port Townsend Bay during the proposed activity at the ferry terminal, and WSF believes that a couple northern elephant seals could be exposed to sound from pile driving and removal activities each day, especially since they are capable of spending prolonged periods below the water where they cannot be detected. Based on these considerations, WSF requests a total of 5 northern elephant seal takes by Level B harassment during for the three eight-hour work days that involve pile driving and removal. Among pinnipeds, Steller sea lions are relatively common in Admiralty Inlet during the winter as they move between the Strait of Juan de Fuca and Puget Sound; hauling out at Craven Rock east of Marrowstone Island, or on channel buoys. The survey conducted by Tollit *et al.* (2010) recorded nearly 800 Steller sea lions over 88 days, or about 9 Steller sea lions per day. Considering that pile driving activities are expected to take about three work days to complete, WSF estimates that 27 Steller sea lions could be exposed to sound resulting in Level B harassment. However, for conservative purposes, WSF requests authorization for 35 Steller sea lion takes by Level B harassment to account for variations in Steller sea lion distribution.

Take estimates for cetaceans also relied on recent survey data because density estimates for the inland waters of Washington are not available. Harbor porpoises are frequently observed in Admiralty Inlet, Tollit *et al.* (2010) recorded over 1,500 harbor porpoises during 88 survey days between October 2009 and February 2010, or approximately 17 per day. WSF estimates that 21.5 hours of pile driving equates to about three work days, and approximately 50 harbor porpoises may be exposed to sound levels resulting in Level B harassment during this period. The survey by Tollit *et al.* (2010) did not positively identify any Dall's porpoises, and their preference for deeper waters and spatial distribution in Puget Sound make it unlikely that Dall's porpoises transiting through Admiralty Inlet would regularly enter the shallow waters of Port Townsend Bay; however, it is possible for Dall's porpoises to approach close enough to the proposed pile-driving activity to be exposed to sound resulting in Level B harassment. Therefore, based on an average winter group size of three animals (PSAMP data), WSF estimates that three Dall's porpoise may enter the Level B harassment zone three times during pile driving activities, and request a total of nine Dall's porpoise takes by Level B harassment. The inland distribution of Pacific white-sided dolphins is largely limited to the Strait of Juan de Fuca and Haro Strait on the west side of the San Juan Islands. Because these dolphins appear confined to the deeper channels of the inland waters of Washington State, they may occur in Admiralty Inlet, but are unlikely to enter the shallower waters of Port Townsend Bay. In addition, these animals move to warmer waters in the fall and winter and may be entirely absent from the area during the proposed ferry terminal replacement project. Without better evidence on the reports of Pacific white-sided dolphins sighted in Admiralty Inlet during the winter or on the likelihood of these dolphins occurring in the vicinity of the ferry terminal, WSF requests 10 takes of Pacific white-sided dolphins by Level B harassment, which is based on their average group size exposed to one day of pile driving activity. Similar to Pacific white-sided dolphins, killer whales are not expected to be present near Port Townsend during the proposed fall/winter activity period. Transient killer whale rarely occur in Puget Sound, and Southern Resident killer whales spend much of the winter in the vicinity of the Fraser River; however, based on the unpredictable nature of transient movements and past records of Southern Resident sightings, it is possible that a pod of killer whales could pass through Admiralty Inlet and be within the Level B harassment zone. For example, Tollit *et al.* (2010) did report three sightings of Southern Resident killer whales passing Admiralty Head in October 2009, and one group of transients passed by in December 2009 (neither group entered Port Townsend Bay). Therefore, WSF requests 30 killer whale takes by Level B harassment, which equates to one group of three transients plus the 27 animals that comprise J pod—the Southern Resident pod most likely to occur in Puget Sound during the proposed activity period.

The IHA application also request takes of three species of baleen whale—gray whale, humpback whale, and minke whale. Gray whales generally enter the inland waters of Washington from March through May and sightings during the fall and winter are infrequent. However, because gray whales that enter Puget Sound tend to localize around Admiralty Inlet and Possession Sound, the possibility of a gray whale occurring in the vicinity of Port Townsend Bay during the proposed pile driving activity cannot be discounted. Therefore, based on the average gray whale group size, WSF requests two gray whale takes by Level B harassment. Humpback whales are also occasionally observed in Puget Sound, but most sightings occur during the summer months and nearly all recent winter and fall sightings have been confined to the vicinity of the San Juan Islands. Although humpback whales are not expected in the vicinity of Port Townsend Bay during the proposed action, the possibility of a sighting cannot be fully discounted. Based on the average group size, WSF requests two humpback whale takes by Level B harassment. Minke whales are also very rare in Puget Sound during the winter; however, of the few reported sightings in Puget Sound, most have occurred in the vicinity of Admiralty Inlet. Given the rarity of these animals in winter, WSF only anticipates that minke whales would make an occasional transit, if any, of Admiralty Inlet during the proposed activity with the remote possibility of one or two whales entering Port Townsend Bay. Therefore, based on these considerations, WSF requests two minke whale takes by Level B harassment.

To summarize, WSF requests takes of 45 harbor seals, 18 California sea lions, 5 northern elephant seals, 35 Steller sea lions, 50 harbor porpoises, 9 Dall's porpoises, 10 Pacific white-sided dolphins, 30 killer whales, 2 gray whales, 2 humpback whales, and 2 minke whales. These numbers do not take the proposed mitigation measures into consideration, and are likely overestimates representing the maximum number of animals expected to occur within the Level B harassment isopleth. The actual number of animals that may be harassed is likely to be less.

Negligible Impact and Small Numbers Analysis and Preliminary Determination

NMFS has defined ''negligible impact'' in 50 CFR 216.103 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.'' In making a negligible impact determination, NMFS considers a number of factors which include, but are not limited to, number of anticipated injuries or mortalities (none of which would be authorized here), number, nature, intensity, and duration of Level B harassment, and the context in which takes occur.

Marine mammals would not be exposed to activities or sound levels which would result in injury (PTS), serious injury, or mortality. Pile driving would occur in shallow coastal waters of Port Townsend Bay. The action area (waters around the ferry terminal) is not considered significant feeding or reproductive habitat for pinnipeds. The closest haul-out is 3 km away, which is outside the project area's largest harassment zone for airborne noise. Any marine mammals—most likely pinnipeds—approaching the action area would likely be traveling or opportunistically foraging. The amount of take WSF requested for each species, and NMFS proposes to authorize, is considered small (less than five percent) relative to the estimated populations or stocks of 14,612 Pacific harbor seals, 238,000 California sea lions, 101,000 northern elephant seals, 48,500 Steller sea lions, 10,632 harbor porpoises, 57,000 Dall's porpoises, 25,233 Pacific white-sided dolphins, 20,000 gray whales, 1,100 humpback whales, and 1,000 minke whales. The request of up to 30 takes of killer whales by Level B harassment represents a larger percentage of the local killer whale population; this number was estimated because Southern Resident killer whales travel in large groups. Although killer whales are unlikely to occur in the vicinity of the ferry terminal during pile driving, if they were to appear, it may be as a full group or pod, which necessitates the need for a larger number of takes requested. Marine mammals may be temporarily impacted by pile driving noise. However, marine mammals are expected to avoid the area to some degree, thereby potentially reducing exposure and impacts. Pile driving activities are expected to occur for approximately 4 weeks. Although marine mammal prey species may be affected by pile driving activities, any impacts would be short in duration and limited to the immediate vicinity of the ferry terminal. NMFS expect that any fish that exhibit behavioral responses (i.e., avoidance) while in-water construction activities occur would resume normal behavior following the cessation of the activity. Furthermore, Puget Sound is a highly populated and industrialized area, so animals are likely tolerant or habituated to anthropogenic disturbance, including low level vibratory pile driving operations, and noise from other anthropogenic sources (such as vessels) may mask construction related sounds. There are no known areas within Port Townsend Bay where any of these species concentrate specifically for breeding or feeding. Based on all the information considered, there is no anticipated effect on annual rates of recruitment or survival of affected marine mammals.

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 mitigation and monitoring measures, NMFS preliminarily determines that the proposed pile removal and installation would result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the total taking would have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action.

Endangered Species Act (ESA)

The Southern Resident killer whale is listed as endangered under the ESA and the eastern stock of Steller sea lion is listed as threatened. Both species may occur within the action area. NMFS is in the process of consulting internally on the issuance of an IHA under section 101(a)(5)(A) of the MMPA for the takes of Southern Resident killer whales and Steller sea lions incidental to the proposed activity. ESA consultation will be concluded prior to a determination on the issuance of a final IHA.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500–1508), and NOAA Administrative Order 216–6, NMFS is preparing an Environmental Assessment (EA) to consider the direct, indirect, and cumulative effects to marine mammals and other applicable environmental resources resulting from issuance of a one-year IHA and the potential issuance of additional authorizations for incidental harassment for the ongoing project. Upon completion, this EA will be available on the NMFS Web site listed in the beginning of this document.

Dated: June 27, 2012.

Helen M. Golde,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XC063

Incidental Taking of Marine Mammals; Taking of Marine Mammals Incidental to the Explosive Removal of Offshore Structures in the Gulf of Mexico

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

ACTION: Notice; issuance of a Letter of Authorization (LOA).

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) and implementing regulations, notification is hereby given that NMFS has issued a one-year LOA to take marine mammals incidental to the explosive removal of offshore oil and gas structures (EROS) in the Gulf of Mexico.

DATES: This authorization is effective from July 1, 2012 through June 30, 2013.

ADDRESSES: The application and LOAs are available for review by writing to Tammy Adams, Acting Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3235 or by telephoning the contact listed here (see **FOR FURTHER INFORMATION CONTACT**), or online at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Howard Goldstein or Jolie Harrison, Office of Protected Resources, NMFS, 301–427–8401.

SUPPLEMENTARY INFORMATION: Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce (who has delegated the authority to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by United States citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region, if certain findings are made and