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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC957

Taking of Marine Mammals Incidental to Specified Activities; Bremerton Ferry Terminal Wingwall Replacement Project

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

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

SUMMARY: NMFS has received a request from the Washington State Department of Transportation (WSDOT) Ferries Division (WSF) for an authorization to take small numbers of six species of marine mammals, by Level B harassment, incidental to proposed construction activities for the replacement of wingwalls at the Bremerton ferry terminal in Washington State. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an authorization to WSF to incidentally take, by harassment, small numbers of marine mammals for a period of 1 year.

DATES: Comments and information must be received no later than [insert date 30 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Comments on the application 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. The

mailbox address for providing email comments is itp.guan@noaa.gov. NMFS is not responsible for e-mail comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 25-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.

A copy of the application may be obtained by writing to the address specified above 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: Shane Guan, 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 specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An 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 U.S. can apply for a 1-year authorization to incidentally take small numbers of marine mammals by harassment, provided that there is no potential for serious injury or mortality to result from the activity. Section 101(a)(5)(D) establishes 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.

Summary of Request

On August 14, 2012, WSF submitted a request to NOAA requesting an IHA for the possible harassment of small numbers of six marine mammal species incidental to construction associated with the replacement of wingwalls at the Bremerton ferry terminal in Washington State. On June 12, 2013, NMFS issued an IHA to WSF for the potential takes of marine mammals as a result of the proposed construction activities (78

FR 36527; June 18, 2013). The IHA covers the duration between September 1, 2013, and August 31, 2014. However, due to a funding shortfall, WSF was unable to conduct the proposed construction activities during the IHA period. Subsequently, on September 30, 2013, WSF submitted another IHA application for the same actions and plans to conduct wingwalls replacement work at the Bremerton Ferry Terminal during fall, 2014. NMFS is proposing to authorize the Level B harassment of the following marine mammal species: harbor seal, California sea lion, Steller sea lion, killer whale, gray whale, and humpback whale.

Description of the Specified Activity

Wingwalls are structures that protect the vehicle transfer span from direct vessel impact and help guide and hold the vessel in position when the ferry is docked. There are two types of wingwalls common at WSF ferry terminals: timber and steel. Timber wingwalls are older structures, typically constructed of creosote treated pilings lashed together by galvanized steel rope, and reinforced as needed with 13" plastic/steel core piles. The current timber wingwalls at the Bremerton terminal are near the end of their design life, and must be replaced with steel wingwalls to ensure safe and reliable functioning of the terminal.

Steel wingwalls are designed similarly to timber wingwalls in that they contain two rows of plumb piling and one row of batter piling or a third row of plumb piling. A rubber fender between the first and second rows of plumb piling absorbs much of the energy and returns the front row to its original vertical position after an impact. The second row of plumb piling is driven deeper into the sediment and braced with batter piling to minimize movement of the structure. Both pile rows are welded together with

horizontal I-beams to which rubbing timbers are attached faced with ultra-high molecular weight (UHMW) plastic, which acts as a rub surface for the ferry. They are designed for a 25-year life span.

The proposed project at the Bremerton Ferry Terminal is to replace the existing Slip 2 timber wingwalls with new standard steel design wingwalls.

Overview of the Planned Activities

The following construction activities are anticipated for the proposed wingwall replacement project:

- Remove two timber wingwalls (112 13-inch timber piles and 100 tons of creosote-treated timber) with a vibratory hammer, direct pull or clamshell removal. Vibratory pile-drive eight 24- and two 30-inch hollow steel piles for each wingwall (20 piles total). Attach rub timbers to new wingwall faces.
- A total of 100 tons of creosote-treated timbers will be removed from the marine environment. The total mudline footprint of the existing wingwalls is 206 square feet (ft^2). The total mudline footprint of the new wingwalls will be 95 ft^2, a reduction of 111 ft^2. The new wingwalls will have 20 piles, compared to the existing wingwalls, which have approximately 112 tightly clustered piles with no space between them. The footprint of the new steel wingwalls will be more open, allowing fish movement between the piles.

Construction Activity Elements

1. Vibratory Hammer Removal

Vibratory hammer extraction is a common method for removing timber piling. A vibratory hammer is a large mechanical device mostly constructed of steel (weighing 5 to

16 tons) that is suspended from a crane by a cable. It is attached to a derrick and positioned on the top of a pile. The pile is then unseated from the sediments by engaging the hammer, creating a vibration that loosens the sediments binding the pile, and then slowly lifting up on the hammer with the aid of the crane.

Once unseated, the crane would continue to raise the hammer and pull the pile from the sediment. When the pile is released from the sediment, the vibratory hammer is disengaged and the pile is pulled from the water and placed on a barge for transfer upland. Vibratory removal would take approximately 10 to 15 minutes per pile, depending on sediment conditions.

2. Direct Pull and Clamshell Removal

Older timber pilings are particularly prone to breaking at the mudline because of damage from marine borers and vessel impacts and must be removed because they can interfere with the installation of new pilings. In some cases, removal with a vibratory hammer is not possible if the pile is too fragile to withstand the hammer force. Broken or damaged piles may be removed by wrapping the piles with a cable and pulling them directly from the sediment with a crane. If the piles break below the waterline, the pile stubs would be removed with a clamshell bucket, a hinged steel apparatus that operates like a set of steel jaws. The bucket would be lowered from a crane and the jaws would grasp the pile stub as the crane pulled up. The broken piling and stubs would be loaded onto the barge for off-site disposal. Clamshell removal would be used only if necessary. Direct pull and clamshell removal are not expected to produce noise that could impact marine mammals.

3 Vibratory Hammer Installation

Vibratory hammers are commonly used in steel pile installation where sediments allow and involve the same vibratory hammer used in pile extraction. The pile is placed into position using a choker and crane, and then vibrated between 1,200 and 2,400 vibrations per minute. The vibrations liquefy the sediment surrounding the pile allowing the pile to penetrate to the required seating depth. The type of vibratory hammer that will be used for the project will likely be an APE 400 King Kong (or equivalent) with a drive force of 361 tons.

Sound Levels from Proposed Construction Activity

As mentioned earlier, the proposed project includes vibratory removal of 13-inch timber piles, and vibratory driving of 24-inch and 30-inch hollow steel piling.

No source level data is available for 13-inch timber piles. Based on in-water measurements at the WSF Port Townsend Ferry Terminal (Laughlin 2011), removal of 12-inch timber piles generated 149 to 152 dB_{rms} re 1 μPa with an overall average root-mean-square (RMS) value of 150 dB_{rms} re 1 μPa measured at 16 meters. A worst-case noise level for vibratory removal of 13-inch timber piles will be 152 dB_{rms} re 1 μPa at 16 m.

Based on in-water measurements at the WSF Friday Harbor Ferry Terminal, vibratory pile driving of a 24-inch steel pile generated 162 dB_{rms} re 1 μPa measured at 10 meters (Laughlin 2010a).

Based on in-water measurements during a vibratory test pile at the WSF Port Townsend Ferry Terminal, vibratory pile driving of a 30-inch steel pile generated 170 dB_{rms} re 1 μPa (overall average), with the highest measured at 174 dB_{rms} re 1 μPa at 10

meters (Laughlin 2010b). A worst-case noise level for vibratory driving of 30-inch steel piles will be 174 dB_{rms} re 1 μPa at 10 m.

Using practical spreading model to calculate sound propagation loss, Table 1 provides the estimated distances where the received underwater sound levels drop to 120 dB_{rms} re 1 μPa, which is the threshold that is currently used for determining Level B behavioral harassment (see below) from non-impulse noise sources based on measurements of different pile sizes.

Table 1. Estimated Distances Where Vibratory Pile Driving Received Sound Levels Drop to 120 dB_{rms} re 1 μPa Based on Measurements of Different Pile Sizes

Pile Size (inch)	Measured Source Levels	Distance to 120 dB_{rms} re 1 μPa (km)
13	152 dB_{rms} re 1 μPa @ 16 m	2.2
24	162 dB_{rms} re 1 μPa @ 10 m	6.3
30	174 dB_{rms} re 1 μPa @ 10 m	39.8

However, land mass is intersected before the extent of vibratory pile driving is reached, at a maximum of 4.7 km (2.9 miles) at the Bremerton Terminal proposed construction area.

For airborne noise, currently NMFS uses an in-air noise disturbance threshold of 90 dB_{rms} re 20 μPa (unweighted) for harbor seals, and 100 dB_{rms} re 20 μPa (unweighted) for all other pinnipeds. Using the above aforementioned measurement of 97.8 dB_{rms} re 20 μPa @ 50 ft, and attenuating at 6 dBA per doubling distance, in-air noise from vibratory pile removal and driving will attenuate to the 90 dB_{rms} re 20 μPa within approximately 37 m, and the 100 dB_{rms} re 20 μPa within approximately 12 m.

Dates, Duration, and Region of Activity

In-water construction is planned to take place between October 1, 2014, and September 30, 2015.

The number of days it will take to remove and install the pilings largely depends on the condition of the piles being removed and the difficulty in penetrating the substrate during pile installation. Duration estimates of each of the pile driving elements follow:

- The daily construction window for pile removal or driving would begin no sooner than 30 minutes after sunrise to allow for initial marine mammal monitoring, and would end at sunset (or soon after), when visibility decreases to the point that effective marine mammal monitoring is not possible.
- Vibratory pile removal of the existing timber piles would take approximately 10 to 15 minutes per pile. Vibratory removal would take less time than driving, because piles are vibrated to loosen them from the soil, then pulled out with the vibratory hammer turned off. Assuming the worst case of 15 minutes per pile (with no direct pull or clamshell removal), removal of 112 piles would take 28 hours over four days of pile removal (Table 1).
- Vibratory pile driving of the steel piles would take approximately 20 minutes per pile, with three to five piles installed per day. Assuming 20 minutes per pile, and three piles per day, driving of 20 piles would take 6 hours 45 minutes over seven days.

The total worst-case time for pile removal is four days, and seven days for pile installation. The actual number of pile-removal/driving days is expected to be less (Table 2).

Table 2. Worst Case Pile Removal and Driving for the Proposed Bremerton Wingwalls Dolphin Replacement Project

Removal/Installed	Maximum number of piles	Time	Days
Vibratory pile removal	112	28 hrs.	4
Vibratory pile installation	20	6.75 hrs.	7

Description of Marine Mammals in the Area of the Specified Activity

The marine mammal species under NMFS jurisdiction most likely to occur in the proposed construction area include Pacific harbor seal (Phoca vitulina richardsi), California sea lion (Zalophus californianus), Steller sea lion (Eumetopias jubatus), killer whale (Orcinus orca), gray whale (Eschrichtius robustus), and humpback whale (Megaptera novaeangliae).

General information on the marine mammal species found in California waters can be found in Caretta et al. (2011), which is available at the following URL: http://www.nmfs.noaa.gov/pr/sars/pdf/po2012.pdf. Refer to that document for information on these species. Specific information concerning these species in the vicinity of the proposed action area is provided below.

Harbor Seal

Harbor seals are members of the true seal family (Phocidae). For management purposes, differences in mean pupping date (Temte 1986), movement patterns (Jeffries 1985; Brown 1988), pollutant loads (Calambokidis et al. 1985), and fishery interactions have led to the recognition of three separate harbor seal stocks along the west coast of the continental U.S. (Boveng 1988). The three distinct stocks are: (1) inland waters of Washington State (including Hood Canal, Puget Sound, Georgia Basin and the Strait of Juan de Fuca out to Cape Flattery), (2) outer coast of Oregon and Washington, and (3) California (Carretta et al. 2011).

Pupping seasons vary by geographic region. For the southern Puget Sound region, pups are born from late June through September. After October 1 all pups in the inland waters of Washington are weaned.

Harbor seals, like all pinnipeds, communicate both on land and underwater. Harbor seals have the broadest auditory bandwidth of the pinnipeds, estimated by Southall et al. (2007) as between 75 hertz (Hz) and 75 kilohertz (kHz) for "functional" in-water hearing and between 75 Hz and 30 kHz for "functional" in-air hearing. At lower frequencies (below 1 kHz) sounds must be louder to be heard (Kastak and Schusterman 1998). Studies indicated that pinnipeds are sensitive to a broader range of sound frequencies in-water than in-air (Southall et al. 2007). Hearing capabilities for harbor seals in-water are 25 to 30 dB better than in-air (Kastak and Schusterman 1998).

Of the two pinniped species that commonly occur within the region of activity, harbor seals are the most numerous and the only one that breeds in the inland marine waters of Washington (Calambokidis and Baird 1994). In 1999, Jeffries et al. (2003) recorded a mean count of 9,550 harbor seals in Washington's inland marine waters, and estimated the total population to be approximately 14,612 animals (including the Strait of Juan de Fuca). The population across Washington increased at an average annual rate of 10 percent between 1991 and 1996 (Jeffries et al. 1997) and is thought to be stable (Jeffries et al. 2003).

The nearest documented harbor seal haulout site to the Bremerton ferry terminal is 8.5 km north and west (shoreline distance). The number of harbor seals using the haulout is less than 100.

From July 2006 to January 2007, a consultant completed 10 at-sea surveys in preparation for replacement of the WSDOT Manette Bridge, located in Bremerton. Marine mammals were recorded during these surveys: 29 harbor seals were observed in an area approximately the same as the Bremerton wingwalls project ZOI. Seals observed

outside of the Bremerton ZOI were subtracted from the total observed (36) during this project. According to the dates on harbor seal observation tags, the most seals seen in any one day is two (given that two tags cover others, the dates may be the same underneath).

From August 2010 to January 2012, marine mammal monitoring was implemented during construction of the Manette Bridge. Counts were conducted only during pile removal/driving days, not every day of the month. Counts were recorded in blocks of working days (not counts per day). The highest number of harbor seals observed was 93 over three days (10/18-20, 2011). The highest number observed during one day was 59 (10/18/2011). It was assumed that these included multiple observations of the same animal by different observers (David Evans & Assoc. Inc. 2011a; 2011b).

Harbor seals are not listed as endangered or threatened under the ESA or as depleted under the MMPA. They are not considered a strategic stock under the MMPA,

California Sea Lion

NMFS recognizes three stocks of California sea lion based on their geographic distribution: (1) the U.S. stock begins at the U.S./Mexico border and extends northward into Canada; (2) the Western Baja California stock extends from the U.S./Mexico border to the southern tip of the Baja California Peninsula; and (3) the Gulf of California stock, which includes the Gulf of California from the southern tip of the Baja California peninsula and across to the mainland and extends to southern Mexico (Lowry et al. 1992). California sea lions in Washington State belong to the U.S. stock.

The U.S. stock was estimated at 296,750 in the 2011 Stock Assessment Report (SAR) and may be at carrying capacity (Carretta et al. 2011). The number of California

sea lions in the San Juan Islands and the adjacent Strait of Juan de Fuca totaled fewer than 3,000 in the mid-1980s (Bigg 1985; Gearin et al. 1986). In 1994, it was reported that the number of sea lions had stabilized or decreased in some areas (Gearin et al. 1988; Calambokidis and Baird 1994). More recently, 3,000 to 5,000 animals are estimated to move into northwest waters (both Washington and British Columbia) during the fall (September) and remain until the late spring (May) when most return to breeding rookeries in California and Mexico (Jeffries et al. 2000; WSDOT 2012). Peak counts of over 1,000 animals have been made in Puget Sound (Jeffries et al. 2000).

The closest documented California sea lion haulout site to the Bremerton Ferry Terminal is the Puget Sound Naval Shipyard security barrier, located approximately 435 m SW of the ferry terminal. The next closest documented California sea lion haulout sites to the Bremerton Ferry Terminal are navigation buoys and net pens in Rich Passage, approximately nine and ten km east of the terminal, respectively. The number of California sea lions using each haulout is less than 10.

From August 2010 to February 2011, marine mammal monitoring was implemented during construction of the Manette Bridge. Counts were conducted only during pile removal/driving days, not every day of the month. Counts were recorded in blocks of working days (not counts per day). The highest number of California sea lions observed was 21 (September) over six days, an average of 3.5/day (David Evans & Assoc. Inc. 2011a; 2011b).

The Bremerton Puget Sound Naval Shipyard (PSNS) is located to the west of the Bremerton Ferry Terminal. Since November 2010, PSNS personnel have been conducting monthly counts of the number of sea lions that use the security barrier floats

as a haulout. As of June 13, 2012, the highest count has been 144 observed during one day in November 2011. All are believed to be California sea lions.

California sea lions do not avoid areas with heavy or frequent human activity, but rather may approach certain areas to investigate. This species typically does not flush from a buoy or haulout if approached.

California sea lions are not listed as endangered or threatened under the ESA or as depleted under the MMPA. They are not considered a strategic stock under the MMPA,

Steller Sea Lion

Steller sea lions comprise two recognized management stocks (eastern and western), separated at 144º W longitude (Loughlin 1997). Only the eastern stock is considered here because the western stock occurs outside of the geographic area of the proposed activity. Breeding rookeries for the eastern stock are located along the California, Oregon, British Columbia, and southeast Alaska coasts, but not along the Washington coast or in inland Washington waters (Angliss and Outlaw 2007). Steller sea lions primarily use haulout sites on the outer coast of Washington and in the Strait of Juan de Fuca along Vancouver Island in British Columbia. Only sub-adults or non-breeding adults may be found in the inland waters of Washington (Pitcher et al. 2007).

The eastern stock of Steller sea lions is estimated to be between 58,334 and 72,223 individuals based on 2006 through 2009 pup counts (Allens and Angliss 2011). Washington's estimate including the outer coast is 651 individuals (non-pups only) (Pitcher et al. 2007). However, recent estimates are that 1,000 to 2,000 individuals enter the Strait of Juan de Fuca during the fall and winter months (WSDOT 2012).

Steller sea lions in Washington State decline during the summer months, which correspond to the breeding season at Oregon and British Columbia rookeries (approximately late May to early June) and peak during the fall and winter months (Jeffries et al. 2000). A few Steller sea lions can be observed year-round in Puget Sound/Georgia Basin although most of the breeding age animals return to rookeries in the spring and summer.

For Washington inland waters, Steller sea lion abundances vary seasonally with a minimum estimate of 1,000 to 2000 individuals present or passing through the Strait of Juan de Fuca in fall and winter months. However, the number of haulout sites has increased in recent years. The nearest documented Steller sea lion haulout site to the Bremerton ferry terminal are the Orchard Rocks in Rich Passage, approximately nine and ten km east of the terminal, respectively (Kitsap Transit 2012).

From July 2006 to January 2007, a consultant completed 10 at-sea surveys in preparation for replacement of the WSDOT Manette Bridge that is located in Bremerton. Marine mammals were recorded during these surveys: no Stellar sea lions were observed (USDA 2007).

From August 2010 to February 2011, marine mammal monitoring was implemented during construction of the Manette Bridge. No Stellar sea lions were observed (David Evans & Assoc. Inc. 2011).

The Eastern Steller sea lions were listed as threatened under the Endangered Species Act (ESA). On October 23, 2013, NMFS removed the Eastern Steller sea lion from the ESA list as this stock is determined to have been recovered.

Killer Whale

Two sympatric ecotypes of killer whales are found within the proposed activity area: transient and resident. These types vary in diet, distribution, acoustic calls, behavior, morphology, and coloration (Baird 2000; Ford et al. 2000). The ranges of transient and resident killer whales overlap; however, little interaction and high reproductive isolation occurs among the two ecotypes (Barrett-Lennard 2000; Barrett-Lennard and Ellis 2001; Hoelzel et al. 2002). Resident killer whales are primarily piscivorous, whereas transients primarily feed on marine mammals, especially harbor seals (Baird and Dill 1996). Resident killer whales also tend to occur in larger (10 to 60 individuals), stable family groups known as pods, whereas transients occur in smaller (less than 10 individuals), less structured pods.

One stock of transient killer whale, the West Coast Transient stock, occurs in Washington State. West Coast transients primarily forage on harbor seals (Ford and Ellis 1999), but other species such as porpoises and sea lions are also taken (NMFS 2008a). Two stocks of resident killer whales occur in Washington State: the Southern Resident and Northern Resident stocks. Southern Residents occur within the activity area, in the Strait of Juan de Fuca, Strait of Georgia, and in coastal waters off Washington and Vancouver Island, British Columbia (Ford et al. 2000). Northern Residents occur primarily in inland and coastal British Columbia and Southeast Alaska waters and rarely venture into Washington State waters. Little interaction (Ford et al. 2000) or gene flow (Barrett-Lennard 2000; Barrett-Lennard and Ellis 2001; Hoelzel et al. 2004) is known to occur between the two resident stocks.

The West Coast Transient stock, which includes individuals from California to southeastern Alaska, was estimated to have a minimum number of 354 (NMFS 2010b).

Trends in abundance for the West Coast Transients were unavailable in the most recent stock assessment report (Angliss and Outlaw 2007).

The Southern Resident stock was first recorded in a 1974 census, at which time the population comprised 71 whales. This population peaked at 97 animals in 1996, declined to 79 by 2001 (Center for Whale Research 2011), and then increased to 89 animals by 2006 (Carretta et al. 2007a). As of October 2012, the population collectively numbers 85 individuals: J pod has 25 members, K pod has 20 members, and L pod has 40 members (Whale Museum 2012b).

Both West Coast Transient and the Southern Resident stocks are found within Washington inland waters. Individuals of both forms have long-ranging movements and thus regularly leave the inland waters (Calambokidis and Baird 1994).

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

There are only two reports of Transient killer whale in the Bremerton terminal area. From May 18-19 of 2004, a group of up to 12 individuals entered Sinclair and Dyes Inlet. From May 26-27 of 2010, a group of up to five individuals again entered the same area (Orca Network 2012b).

Southern Residents are documented in coastal waters ranging from central California to the Queen Charlotte Islands, British Columbia (NMFS 2008a). They occur in all inland marine waters within the activity area. While in the activity area, resident killer whales generally spend more time in deeper water and only occasionally enter water less than 15 feet deep (Baird 2000). Distribution is strongly associated with areas

of greatest salmon abundance, with heaviest foraging activity occurring over deep open water and in areas characterized by high-relief underwater topography, such as subsurface canyons, seamounts, ridges, and steep slopes (Wiles 2004).

West Coast Transients are documented intermittently year-round in Washington inland waters. Records from 1976 through 2006 document Southern Residents in the inland waters of Washington during the months of March through June and October through December, with the primary area of occurrence in inland waters north of Admiralty Inlet, located in north Puget Sound (The Whale Museum 2008a).

Beginning in May or June and through the summer months, all three pods (J, K, and L) of Southern Residents are most often located in the protected inshore waters of Haro Strait (west of San Juan Island), in the Strait of Juan de Fuca, and Georgia Strait near the Fraser River. Historically, the J pod also occurred intermittently during this time in Puget Sound; however, records from The Whale Museum (2008a) from 1997 through 2007 show that J pod did not enter Puget Sound south of the Strait of Juan de Fuca from approximately June through August.

In fall, all three pods occur in areas where migrating salmon are concentrated such as the mouth of the Fraser River. They may also enter areas in Puget Sound where migrating chum and Chinook salmon are concentrated (Osborne 1999). In the winter months, the K and L pods spend progressively less time in inland marine waters and depart for coastal waters in January or February. The J pod is most likely to appear year-round near the San Juan Islands, and in the fall/winter, in the lower Puget Sound and in Georgia Strait at the mouth of the Fraser River.

Under contract with NMFS, the Friday Harbor Whale Museum keeps a database of verified marine mammal sightings by location quadrants. Whale sightings do not indicate sightings of individual animals. Instead, sightings can be any number of animals. Between 1990 and 2008, in the September to February window proposed for the Bremerton project, an average of 2.9 SR killer whale sightings/month were annually reported for Quad 411 (which encompasses the Bremerton action area) (WSDOT 2012).

Between September 2009 and February 2012, there was one unconfirmed report of a single SR killer whale in the Bremerton action area (January 2009) during the proposed in-water work window for this project (Orca Network 2012b). Based on this information, the possibility of encountering killer whales during the Bremerton project is low to medium, depending on the actual work month.

In one highly unusual 1997 event, 19 L pod individuals entered Sinclair and Dyes Inlet, and remained in Dyes Inlet for 30 days, from October 21 to November 19. As this event unfolded, whale specialists became increasingly concerned that the whale's exit was blocked by shallow water and the need to pass under several bridges, even though they had passed under the same bridges to enter the inlet. After several individuals displayed signs of weight loss, hazing was considered to drive them out of the inlet. However, on day 30 the group exited on their own (Kitsap Sun 2012).

Killer whales are protected under the MMPA of 1972. The West Coast Transient stock is not designated as depleted under the MMPA or listed as "threatened or "endangered" under the ESA. The Southern Resident stock is listed as an endangered distinct population segment (DPS) under the ESA. On November 29, 2006, NMFS published a final rule designating critical habitat for the Southern Resident killer whale

DPS (71 FR 69054). Both Puget Sound and the San Juan Islands are designated as core areas of critical habitat under the ESA, but areas less than 20 feet deep relative to extreme high water are not designated as critical habitat (71 FR 69054). A final recovery plan for southern residents was published in January of 2008 (NMFS 2008a).

Gray Whale

Gray whales are recorded in Washington waters during feeding migrations between late spring and autumn with occasional sightings during winter months (Calambokidis et al. 1994, 2002; Orca Network 2011).

Early in the 20th century, it is believed that commercial hunting for gray whales reduced population numbers to below 2,000 individuals (Calambokidis and Baird 1994). After listing of the species under the ESA in 1970, the number of gray whales increased dramatically resulting in their delisting in 1994. Population surveys since the delisting estimate that the population fluctuates at or just below the carrying capacity of the species (~26,000 individuals) (Rugh et al. 1999; Calambokidis et al. 1994; Angliss and Outlaw 2007).

Gray whales migrate within 5 to 43 km of the coast of Washington during their annual north/south migrations (Green et al. 1995). Gray whales migrate south to Baja California, where they calve in November and December, and then migrate north to Alaska from March through May (Rice et al. 1984; Rugh et al. 2001) to summer and feed. A very few gray whales are observed in Washington inland waters between the months of September and January, with peak numbers of individuals from March through May. Peak months of gray whale observations in the area of activity occur outside the proposed

work window of September through February. The average tenure within Washington inland waters is 47 days, and the longest stay was 112 days.

Although typically seen during their annual migrations on the outer coast, a regular group of gray whales annually comes into the inland waters at Saratoga Passage and Port Susan from March through May to feed on ghost shrimp (Weitkamp et al. 1992). During this time frame, they are also seen in the Strait of Juan de Fuca, the San Juan Islands, and areas of Puget Sound, although the observations in Puget Sound are highly variable between years (Calambokidis et al. 1994).

Between December 2002 and May 2012, there were three reports of gray whale in the Bremerton area during the proposed in-water work window months for this project: January 8 and 10, 2008 (likely the same individual); November 28-29, 2008; and December 2-6, 2009 (Orca Network 2012b). There were also two reports of gray whale stranding, one on May 3, 2005, at the US Navy Puget Sound Naval Shipyard to the west of the Bremerton terminal (Cascadia 2005), and one on a beach in the Bremerton area on July 27, 2011. Typically, 4-6 gray whales strand every year in Washington State (Cascadia 2011).

The Eastern North Pacific stock of gray whales was removed from listing under the ESA in 1994 after a 5-year review by NOAA Fisheries (Angliss and Outlaw 2007). In 2001, NOAA Fisheries received a petition to relist the stock under the ESA, but it was determined that there was not sufficient information to warrant the petition (Angliss and Outlaw 2007).

Humpback Whale

Humpback whales are wide-ranging baleen whales that can be found virtually worldwide. They summer in temperate and polar waters for feeding, and winter in tropical waters for mating and calving. Humpbacks are vulnerable to whaling due to their tendency to feed in near shore areas. Recent studies have indicated that there are three distinct stocks of humpback whale in the North Pacific: California-Oregon-Washington (formerly Eastern North Pacific), Central North Pacific and Western North Pacific (NMFS 2011e).

The California-Oregon-Washington (CA-OR-WA) stock calve and mate in coastal Central America and Mexico and migrate up the coast from California to southern British Columbia in the summer and fall to feed (NMFS 1991; Marine Mammal Commission 2003; Carretta et al. 2011). Although infrequent, interchange between the other two stocks and the Eastern North Pacific stock occurs in breeding areas (Carretta et al. 2011). Few Eastern North Pacific stock humpback whales are seen in Puget Sound, but more frequent sightings occur in the Strait of Juan de Fuca and near the San Juan Islands. Most sightings are in spring and summer. Humpback whales feed on krill, small shrimp-like crustaceans and various kinds of small fish.

The 2007/2008 estimate of 2,043 humpback whales is the best estimate for abundance for this stock, though it does exclude some whales in Washington (Calambokidis et al. 2009).

Historically, humpback whales were common in inland waters of Puget Sound and the San Juan Islands (Calambokidis et al. 2002). In the early part of this century, there was a productive commercial hunt for humpbacks in Georgia Strait that was probably responsible for their long disappearance from local waters (Osborne et al. 1988).

Since the mid-1990s, sightings in Puget Sound have increased. Between 1996 and 2001, Calambokidis et al. (2002) recorded only six individuals south of Admiralty Inlet (northern Puget Sound).

Between September 2003 and February 2012, there was one unconfirmed report (February 24, 2012) of humpback whale in the Bremerton action area (Orca Network 2012).

Humpback whales are listed as "endangered" under the ESA, and consequently the stock is automatically considered a depleted stock under the MMPA.

Potential Effects of the Specified Activity on Marine Mammals

WSF and NMFS determined that open-water pile driving and pile removal associated with the construction activities at Bremerton Ferry Terminal has the potential to result in behavioral harassment of marine mammal species and stocks in the vicinity of the proposed activity.

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 unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall et al. 2007). Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, hearing impairment could result in the reduced ability of marine mammals to detect or interpret important sounds. Repeated noise exposure that leads to TTS could cause PTS.

Experiments on a bottlenose dolphin (Tursiops truncates) and beluga whale (Delphinapterus leucas) showed that exposure to a single watergun impulse at a received level of 207 kPa (or 30 psi) peak-to-peak (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 4 minutes of the exposure (Finneran et al. 2002). No TTS was observed in the bottlenose dolphin. 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 noise 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).

Current NMFS acoustic thresholds that identify the received sound levels above which permanent hearing impairment (permanent threshold shift, PTS) or other injury could potentially occur are 180 and 190 dB re 1 μPa (rms) for cetaceans and pinnipeds, respectively. The established 180- and 190-dB re 1 μPa (rms) criteria are the received levels above which, in the view of a panel of bioacoustics specialists convened by NMFS before direct data on temporary threshold shift (TTS) (from which PTS is primarily extrapolated) for marine mammals became available, one could not be certain that there would be no injurious effects, auditory or otherwise, to marine mammals. For the proposed wingwall replacement work at the Bremerton Ferry Terminal, only vibratory pile driving would be used. Noise levels measured near the source of vibratory hammers (10 m and 16 m from the source, see above) are much lower than the 180 dB re 1 μPa (rms) threshold currently used by NMFS. Therefore, it is very unlikely that any marine

mammals would experience TTS or PTS as a result of noise exposure to WSF's proposed construction activities at Bremerton Ferry Terminal.

In addition, chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark et al. 2009). 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.

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

Unlike TS, masking can potentially impact the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than 3 times in terms of SPL) in the

world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic noise sources, such as those from vessels traffic, pile driving, dredging, and dismantling existing bridge by mechanic means, contribute to the elevated ambient noise levels, thus intensify masking.

Nevertheless, the sum of noise from the proposed WSF construction activities is confined in an area that is bounded by landmass, therefore, the noise generated is not expected to contribute to increased ocean ambient noise. Due to shallow water depths near the ferry terminals, underwater sound propagation for low-frequency sound (which is the major noise source from pile driving) is expected to be poor.

Finally, exposure of marine mammals to certain sounds could lead to behavioral disturbance (Richardson et al. 1995), such as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities, changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping), avoidance of areas where noise sources are located, and/or flight responses (e.g., pinnipeds flushing into water from haulouts or rookeries).

The 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, and reproduction. Some of these significant behavioral modifications include:

- Drastic change 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
- Cease feeding or social interaction.

For example, at the Guerreo Negro Lagoon in Baja California, Mexico, which is one of the important breeding grounds for Pacific gray whales, shipping and dredging associated with a salt works may have induced gray whales to abandon the area through most of the 1960s (Bryant et al. 1984). After these activities stopped, the lagoon was reoccupied, first by single whales and later by cow-calf pairs.

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

The proposed project area is not a prime habitat for marine mammals, nor is it considered an area frequented by marine mammals. Therefore, behavioral disturbances that could result from anthropogenic noise associated with WSF construction activities are expected to affect only a small number of marine mammals on an infrequent basis.

Currently NMFS uses 120 dB_{rms} re 1 μPa received level for non-impulse noises (such as vibratory pile driving, saw cutting, drilling, and dredging) for the onset of marine mammal Level B behavioral harassment.

As far as airborne noise is concerned, the estimated in-air source level from vibratory pile driving a 30-in steel pile is estimated at 97.8 dB re 1 μPa at 15 m (50 feet)

from the pile (Laughlin 2010b). Using the spreading loss of 6 dB per doubling of distance, it is estimated that the distances to the 90 dB and 100 dB thresholds were estimated at 37 m and 12 m, respectively.

Potential Effects on Marine Mammal Habitat

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

Potential Impacts on Prey Species

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

The level of sound at which a fish will react or alter its behavior is usually well above the detection level. Fish have been found to react to sounds when the sound level increased to about 20 dB above the detection level of 120 dB (Ona 1988); however, the response threshold can depend on the time of year and the fish's physiological condition (Engas et al. 1993). In general, fish react more strongly to pulses of sound rather than non-pulse signals (such as noise from vessels) (Blaxter et al. 1981), and a quicker alarm

response is elicited when the sound signal intensity rises rapidly compared to sound rising more slowly to the same level.

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

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

Water and Sediment Quality

Short-term turbidity is a water quality effect of most in-water work, pile removal and driving. WSF must comply with state water quality standards during these operations by limiting the extent of turbidity to the immediate project area.

Roni and Weitkamp (1996) monitored water quality parameters during a pier replacement project in Manchester, WA. The study measured water quality before, during and after pile removal and driving. The study found that construction activity at the site had "little or no effect on dissolved oxygen, water temperature and salinity," and turbidity (measured in nephelometric turbidity units [NTU]) at all depths nearest the construction activity was typically less than 1 NTU higher than stations farther from the project area throughout construction.

Similar results were recorded during pile removal operations at two WSF ferry facilities. At the Friday Harbor terminal, localized turbidity levels (from three timber pile removal events) were generally less than 0.5 NTU higher than background levels and

never exceeded 1 NTU. At the Eagle Harbor maintenance facility, local turbidity levels (from removal of timber and steel piles) did not exceed 0.2 NTU above background levels. In general, turbidity associated with pile installation is localized to about a 25-foot radius around the pile (Everitt et al. 1980).

Cetaceans are not expected to be close enough to the Bremerton ferry terminal to experience effects of turbidity, and any pinnipeds will be transiting the terminal area and could avoid localized areas of turbidity. Therefore, the impact from increased turbidity levels is expected to be discountable to marine mammals.

Removal of the timber wingwalls at the Bremerton ferry terminal will result in 112 creosote-treated piles (100 tons) removed from the marine environment. This will result in the potential, temporary and localized sediment re-suspension of some of the contaminants associated with creosote, such as polycyclic aromatic hydrocarbons. However, the actual removal of the creosote-treated wood piles from the marine environment will result in a long-term improvement in water and sediment quality. The net impact is a benefit to marine organisms, especially toothed whales and pinnipeds that are high in the food chain and bioaccumulate these toxins. This is especially a concern for long-lived species that spend their entire life in Puget Sound, such as Southern Resident killer whales (NMFS 2008a).

Potential Impacts on Availability of Affected Species or Stock for Taking for Subsistence Uses

No subsistence harvest of marine mammals occur in the proposed action area.

Proposed Mitigation Measures

In order to issue an incidental take authorization 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.

For the proposed Bremerton Ferry Terminal wingwall replacement project, WSF proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity. These mitigation measures would be employed during all pile removal and installation activities at the Bremerton Ferry Terminal. WSF has informed NMFS that any monitoring measures required by the IHA would be imposed upon contracting parties, through the Contract Plans and Specifications, and contractors.

Since the measured source levels of the vibratory hammer involved in pile removal and pile driving are below NMFS current thresholds for Level A takes, i.e., below 180 dB re 1 μPa (rms), no exclusion zone would be established, and there would be no required power-down and shutdown measures. Instead, WSF would establish and monitor the 120 dB re 1 μPa (rms) zone of influence (ZOI, see below Proposed Monitoring and Reporting section).

One major mitigation measure for WSF's proposed pile removal and pile driving activities is ramping up, or soft start, of vibratory pile hammers. The purpose of this procedure is to reduce the startling behavior of marine mammals in the vicinity of the proposed construction activity from sudden loud noise.

Soft start requires contractors to initiate the vibratory hammer at reduced power for 15 seconds with a 1 minute interval, and repeat such procedures for an additional two times.

To ensure that marine mammal takes will not exceed the authorized levels, monitoring for marine mammal presence will take place 30 minutes before, during and 30 minutes after pile driving and removal to ensure that marine mammals takes will not exceed the authorized levels.

If the number of any allotted marine mammal takes (see Estimated Take by Incidental Harassment section below) reaches the limit under the IHA (if issued), WSF would implement shutdown and power down measures if such species/stock of animal approaches the Level B harassment zone.

Especially, to ensure that the Level B takes of Southern Resident killer whales (SRKW) does not exceed 5% of its population, shutdown measures will be taken when SRKW approach the ZOI during vibratory pile removal. Pile driving and removal will not resume until the SRKW exit the ZOI.

If killer whale approach the ZOI during vibratory pile driving and/or removal, and it is unknown whether they are SRKW or transient, it shall be assumed they are SRKW and work will be paused until the whales exit the ZOI.

If SRKW enter the ZOI undetected, up to 4 'unintentional' Level B harassment takes will be allowed. Work will be paused until the SRKW exit the ZOI to avoid further Level B harassment take.

Proposed Monitoring and Reporting

In order to issue an ITA 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 ITAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Proposed Monitoring Measures

The monitoring plan proposed by WSF can be found in its IHA application. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period. A summary of the primary components of the plan follows.

(1) Marine Mammal Monitoring Coordination

WSF would conduct briefings between the construction supervisors and the crew and protected species observers (PSOs) prior to the start of pile-driving activity, marine mammal monitoring protocol and operational procedures.

Prior to the start of pile driving, the Orca Network and/or Center for Whale Research would be contacted to find out the location of the nearest marine mammal sightings. The Orca Sightings Network consists of a list of more than 600 (and growing) residents, scientists, and government agency personnel in the U.S. and Canada. Sightings are called or emailed into the Orca Network and immediately distributed to other sighting networks including: the NMFS Northwest Fisheries Science Center, the Center for

Whale Research, Cascadia Research, the Whale Museum Hotline and the British Columbia Sightings Network.

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

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

(2) Protected Species Observers (PSOs)

WSF will employ qualified PSOs to monitor the 120 dB_{rms} re 1 μPa for marine mammals. Qualifications for marine mammal observers include:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars will be necessary to correctly identify the target.

- Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
- Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.
- Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
- Writing skills sufficient to prepare a report of observations that would include such information as the number and type of marine mammals observed; the behavior of marine mammals in the project area during construction, dates and times when observations were conducted; dates and times when in-water construction activities were conducted; and dates and times when marine mammals were present at or within the defined ZOI.

(3) Monitoring Protocols

PSOs would be present on site at all times during pile removal and driving. Marine mammal behavior, overall numbers of individuals observed, frequency of observation, and the time corresponding to the daily tidal cycle would be recorded.

WSF proposes the following methodology to estimate marine mammals that were taken as a result of the proposed Bremerton Ferry Terminal construction work:

- A range finder or hand-held global positioning system device would be used to ensure that the 120 dB_{rms} re 1 μPa Level B behavioral harassment ZOI is monitored.
- The vibratory Level B acoustical harassment ZOI would be monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile removal or driving activity.
- Monitoring would be continuous unless the contractor takes a significant break-then the 30 minutes before, during, and 30 minutes after monitoring sequence will begin again.
- If marine mammals are observed, the following information will be documented:
  - Species of observed marine mammals;
  - Number of observed marine mammal individuals;
  - Behavioral of observed marine mammals;
  - Location within the ZOI; and
  - Animals' reaction (if any) to pile-driving activities.
- During vibratory pile removal and driving, one land-based biologist would monitor the area from the terminal work site, and one monitor will move among a number of access points along the southern Sinclair Inlet shore. Binoculars shall be used during marine mammal monitoring.

NMFS has reviewed the WSF's proposed marine mammal monitoring protocol, and has determined the applicant's monitoring program is adequate, particularly as it relates to assessing the level of taking or impacts to affected species. The land-based

PSO is expected to be positioned in a location that will maximize his/her ability to detect marine mammals and will also utilize binoculars to improve detection rates. In addition, the boat-based PSO will cruise within the 120 dB ZOI, which is not a particularly large zone, thereby allowing him/her to conduct additional monitoring with binoculars. With respect to WSF's take limits, NMFS is primarily concerned that WSF could reach its Southern Resident killer whale limit. However, killer whales have large dorsal fins and can be easily spotted from great distances. Further, Southern Resident killer whales typically move in groups, which makes visual detection much easier. In addition, added underwater acoustic monitoring by Orca Network in the region would further provide additional detection, since resident killer whales are very vocal.

Proposed Reporting Measures

WSF would provide NMFS with a draft monitoring report within 90 days of the conclusion of the proposed construction work. This report will detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed.

If comments are received from the NMFS Northwest Regional Administrator or NMFS Office of Protected Resources on the draft report, a final report will be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft report will be considered to be the final report.

Estimated Take by Incidental Harassment

As mentioned earlier in this document, a worst-case scenario for the Bremerton Ferry Terminal project assumes that it may take four days to remove the existing piles and seven days to install the new piles. The maximum total number of hours of pile

removal activity is about 28 hours, and pile-driving activity is about 6.75 hours (averaging about 3.2 hours of active pile removal/driving for each construction day). The actual number of hours for both projects is expected to be less.

Also, as described earlier, for non-impulse noise, NMFS uses 120 dB re 1 μPa (rms) as the threshold for Level B behavioral harassment. The distance to the 120 dB contour Level B acoustical harassment threshold due to vibratory pile driving for the Bremerton ferry terminal project extends a maximum of 4.7 km (2.9 miles) before land is intersected. The ZOI would be monitored during construction to estimate actual harassment take of marine mammals.

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 37 m, and the airborne 100 dB Level B threshold for all other pinnipeds is estimated at 12 m.

The nearest known harbor seal haulout site to the Bremerton ferry terminal is 8.5 km north and west (shoreline distance). The nearest documented California and Steller sea lion haulout sites to the Bremerton ferry terminal are navigation buoys in Rich Passage, approximately 9 and 10 km east of the terminal. The Puget Sound Naval Shipyard security barrier California sea lion haulout is located approximately 435 m SW of the ferry terminal.

In-air noise from this project will not reach to haulout sites, but harbor seals swimming on the surface through the 37 m zone, and other pinnipeds swimming on the surface through the 12 m zone during vibratory pile removal or driving may be temporarily disturbed.

Incidental take is estimated for each species by estimating the likelihood of a marine mammal being present within a ZOI during active pile removal or driving. Expected marine mammal presence is determined by past observations and general abundance near the Bremerton Ferry Terminal during the construction window. Typically, potential 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 given moment. However, there are no density estimates for any Puget Sound population of marine mammal. As a result, 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 observations from Navy biologists.

Based on the estimates, approximately 649 Pacific harbor seals, 1,841 California sea lions, 66 Steller sea lions, 28 killer whales (24 transient, 4 Southern Resident killer whales), 8 gray whales, and 8 humpback whales could be exposed to received sound levels above 120 dB re 1 μPa (rms) from the proposed Bremerton Ferry Terminal wingwall dolphin replacement work. A summary of the estimated takes is presented in Table 3.

Table 3. Estimated Numbers of Marine Mammals that may be Exposed to Received Pile Driving and Pile Removal Levels Above 120 dB re 1 μPa (rms)

Species	Estimated marine mammal takes	Percentage
Pacific harbor seal	649	2.02%
California sea lion	1,841	0.53%
Steller sea lion	66	0.11%
Killer whale, transient	24	6.8%
Killer whale, Southern Resident	4	5.0%
Gray whale	8	0.04%
Humpback whale	8	0.39%

Negligible Impact and Small Numbers Analysis and Preliminary Determination

Pursuant to NMFS' regulations implementing the MMPA, an applicant is required to estimate the number of animals that will be "taken" by the specified activities (i.e., takes by harassment only, or takes by harassment, injury, and/or death). This estimate informs the analysis that NMFS must perform to determine whether the activity will have a "negligible impact" on the species or stock. Level B (behavioral) harassment occurs at the level of the individual(s) and does not assume any resulting population-level consequences, though there are known avenues through which behavioral disturbance of individuals can result in population-level effects. A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes alone is not enough information on which to base an impact determination.

In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS considers other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A takes, the number of estimated mortalities, and effects on habitat.

The WSF's proposed Bremerton Ferry Terminal construction project would conduct vibratory pile removal and pile driving to replace wingwall structures. Elevated underwater noises are expected to be generated as a result of pile removal and pile driving activities. However, noise levels from the machinery and activities are not expected to reach to the level that may cause TTS, injury (PTS included), or mortality to marine mammals. Therefore, NMFS does not expect that any animals would experience Level A (including injury) harassment or Level B harassment in the form of TTS from

being exposed to in-water pile driving and pile removal associated with WSF construction project.

Based on long-term marine mammal monitoring and studies in the vicinity of the proposed construction areas, it is estimated that approximately 649 Pacific harbor seals, 1,841 California sea lions, 66 Steller sea lions, 28 killer whales (24 transient, 4 Southern Resident killer whales), 8 gray whales, and 8 humpback whales could be exposed to received noise levels above 120 dB_{rms} re 1 μPa from the proposed construction work at the Bremerton Ferry Terminal. These numbers represent approximately 0.04% - 6.8% of the stocks and populations of these species could be affected by Level B behavioral harassment. As mentioned earlier in this document, the worst case scenario for the proposed construction work would only take a total of 34.75 hours (28 hours for pile removal and 6.75 hours for pile driving).

In addition, these low intensity, localized, and short-term noise exposures may cause brief startle reactions or short-term behavioral modification by the animals. These reactions and behavioral changes are expected to subside quickly when the exposures cease. In addition, no important feeding and/or reproductive areas of marine mammals is known to be near the proposed action area. Therefore, the take resulting from the proposed Bremerton Ferry Terminal construction projects is not reasonably expected to, and is not reasonably likely to, adversely affect the marine mammal species or stocks through effects on annual rates of recruitment or survival. The maximum estimated 120 dB isopleths from vibratory pile driving is approximately 4.7 km at from the pile before being blocked by landmass.

The closest documented California sea lion haulout site to the Bremerton Ferry Terminal is the Puget Sound Naval Shipyard security barrier, located approximately 435 m SW of the ferry terminal. The next closest documented California sea lion haulout sites to the Bremerton Ferry Terminal are navigation buoys and net pens in Rich Passage, approximately nine and ten km east of the terminal, respectively. However, it is estimated that airborne noise from vibratory pile driving a 30-in steel pile would fall below 90 dB and 100 dB re 1 20 μPa at 37 m and 12 m from the pile, respectively. Therefore, pinnipeds hauled out at the Puget Sound Naval Shipyard security barrier will not be affected.

For the reasons discussed in this document, NMFS has preliminarily determined that the impact of vibratory pile removal and pile driving associated with wingwall replacements at Bremerton Ferry Terminal would result, at worst, in the Level B harassment of small numbers of six marine mammals that inhabit or visit the area. While behavioral modifications, including temporarily vacating the area around the construction site, may be made by these species to avoid the resultant visual and acoustic disturbance, the availability of alternate areas within Washington coastal waters and haul-out sites has led NMFS to preliminarily determine that this action will have a negligible impact on these species in the vicinity of the proposed construction area.

In addition, no take by TTS, Level A harassment (injury) or death is anticipated and harassment takes should be at the lowest level practicable due to incorporation of the mitigation and monitoring measures mentioned previously in this document.

Proposed Incidental Harassment Authorization

This section contains a draft of the IHA itself. The wording contained in this section is proposed for inclusion in the IHA (if issued).

1. This Authorization is valid from October 1, 2014, through September 30, 2015.

2. This Authorization is valid only for activities associated in-water construction work at the Bremerton Ferry Terminals in the State of Washington.

3. (a) The species authorized for incidental harassment takings, Level B harassment only, are: Pacific harbor seal (Phoca vitulina richardsi), California sea lion (Zalophus californianus), Steller sea lion (Eumetopias jubatus), transient and Southern Resident killer whales (Orcinus orca), gray whale (Eschrichtius robustus), and humpback whale (Megaptera novaeangliae).

(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

(i) Vibratory pile removal; and

(ii) Vibratory pile driving.

(c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the Northwest Regional Administrator (206-526-6150), National Marine Fisheries Service (NMFS) and the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301) 427-8401, or his designee (301-427-8418).

4. The holder of this Authorization must notify the Chief of the Permits and Conservation Division, Office of Protected Resources, at least 48 hours prior to the start of activities identified in 3(b) (unless constrained by the date of issuance of this Authorization in which case notification shall be made as soon as possible).

5. Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 3. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required protected species observers (PSOs), required by condition 7(a), are not present in conformance with condition 7(a) of this Authorization.

6. Mitigation

(a) Ramp Up (Soft Start):

Vibratory hammer for pile removal and pile driving shall be initiated at reduced power for 15 seconds with a 1 minute interval, and be repeated with this procedure for an additional two times.

(b) Marine Mammal Monitoring:

Monitoring for marine mammal presence shall take place 30 minutes before, during and 30 minutes after pile driving.

(c) Power Down and Shutdown Measures

(i) WSF shall implement shutdown measures if southern resident killer whales (SRKWs) are sighted within the vicinity of the project area and are approaching the Level B harassment zone (zone of influence, or ZOI) during in-water construction activities.

(ii) If a killer whale approaches the ZOI during pile driving or removal, and it is unknown whether it is a SRKW or a transient killer whale, it shall be assumed to be a SRKW and WSF shall implement the shutdown measure identified in 6(c)(i).

(iii) If a SRKW enters the ZOI undetected, in-water pile driving or pile removal shall be suspended until the SRKW exits the ZOI to avoid further level B harassment.

(iv) WSF shall implement shutdown measures if the number of any allotted marine mammal takes reaches the limit under the IHA, if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during pile removal activities.

7. Monitoring:

(a) Protected Species Observers: WSF shall employ qualified protected species observers (PSOs) to monitor the 120 dB_{rms} re 1 μPa zone of influence (ZOI) for marine mammals. Qualifications for marine mammal observers include:

(i) Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars will be required to correctly identify the target.

(ii) Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).

(iii) Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.

(iv) Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.

(v) Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).

(vi) Writing skills sufficient to prepare a report of observations that would include such information as the number and type of marine mammals observed; the behavior of marine mammals in the project area during construction, dates and times when observations were conducted; dates and times when in-water construction activities were conducted; and dates and times when marine mammals were present at or within the defined ZOI.

(b) Monitoring Protocols: PSOs shall be present on site at all times during pile removal and driving.

(i) A range finder or hand-held global positioning system device will be used to ensure that the 120 dB_{rms} re 1 μPa Level B behavioral harassment ZOI is monitored.

(ii) A 20-minute pre-construction marine mammal monitoring will be required before the first pile driving or pile removal of the day. A 30-minute post-construction marine mammal monitoring will be required after the last pile driving or pile removal of the day. If the constructors take a break between subsequent pile driving or pile removal for more than 30 minutes, then additional pre-construction marine mammal monitoring will be required before the next start-up of pile driving or pile removal.

(iii) If marine mammals are observed, the following information will be documented:

(A) Species of observed marine mammals;

(B) Number of observed marine mammal individuals;

(C) Behavioral of observed marine mammals;

(D) Location within the ZOI; and

(E) Animals' reaction (if any) to pile-driving activities.

(iv) During vibratory pile removal and driving, one land-based biologist would monitor the area from the terminal work site, and one monitor will move among a number of access points along the southern Sinclair Inlet shore. Binoculars shall be used during marine mammal monitoring.

(v) WSF shall contact the Orca Network and/or Center for Whale Research to find out the location of the nearest marine mammal sightings.

(vi) WSF shall also utilize marine mammal occurrence information collected by the Orca Network using hydrophone systems to maximize marine mammal detection in the project vicinity.

8. Reporting:

(a) WSF shall provide NMFS with a draft monitoring report within 90 days of the conclusion of the construction work. This report shall detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed.

(b) If comments are received from the NMFS Northwest Regional Administrator or NMFS Office of Protected Resources on the draft report, a final report shall be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft report will be considered to be the final report.

9. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals, or if

there is an unmitigable adverse impact on the availability of such species or stocks for subsistence uses.

10. A copy of this Authorization and the Incidental Take Statement must be in the possession of each contractor who performs the construction work at the Bremerton Ferry Terminals.

11. WSF is required to comply with the Terms and Conditions of the Incidental Take Statement corresponding to NMFS' Biological Opinion.

National Environmental Policy Act (NEPA)

NMFS is currently preparing an Environmental Assessment, pursuant to NEPA, to determine whether or not the issuance of the proposed IHA may have a significant effect on the human environment. This analysis will be completed prior to the issuance or denial of the IHA.

Endangered Species Act (ESA)

The humpback whale and the Southern Resident stock of killer whale are the only marine mammal species currently listed under the ESA that could occur in the vicinity of WSF's proposed construction projects. NMFS' Permits and Conservation Division has initiated consultation with NMFS' Protected Resources Division under section 7 of the ESA on the issuance of an IHA to WSF under section 101(a)(5)(D) of the MMPA for this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to authorize the take of marine mammals incidental to WSF's Bremerton Ferry Terminal construction

projects, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: November 27, 2013

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Donna S. Wieting,

Director,

Office of Protected Resources,

National Marine Fisheries Service.

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