DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XD977

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Mukilteo Multimodal Project Tank Farm Pier Removal Project

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

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that we, NMFS, have issued an incidental harassment authorization (IHA) to the Washington State Department of Transportation Ferries System (WSF) to harass, by Level B harassment only, small numbers of eight marine mammal species incidental to construction work associated with the Mukilteo Ferry Terminal replacement project in Mukilteo, Snohomish County, Washington.

DATES: This authorization is effective from September 1, 2015 through August 31, 2016.

FOR FURTHER INFORMATION CONTACT: Robert Pauline, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Availability

An electronic copy of WSF's application and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the Internet at: *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm*. In case of problems accessing these documents, please call the contact listed above (see **FOR FURTHER INFORMATION CONTACT**).

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.

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 an authorization to incidentally take small numbers of marine mammals by harassment. 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. 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

On November 6, 2014, WSF submitted a request to NOAA requesting an IHA for the possible harassment of small numbers of eight marine mammal species incidental to construction work associated with the Mukilteo Ferry Terminal replacement project in Mukilteo, Snohomish County, Washington. The new terminal will be located to the east of the existing location at the site of the former U.S. Department of Defense Fuel Supply Point facility, known as the Tank Farm property, which includes a large pier extending into Possession Sound. Completion of the entire project will occur over 4 consecutive years. WSF plans to submit an IHA request for each consecutive year of construction. WSF previously received an IHA on July 25, 2014 (79 FR 43424) which was active from September 1, 2014 through August 31, 2015. However, the project was delayed for one year and did not begin until August 1, 2015. The IHA application currently under review would cover work from September 1, 2015 through August 31, 2016. Due to NMFS, U.S. Fish and Wildlife Service (USFWS), and Washington State Department of Fish and Wildlife (WDFW) in-water work timing restrictions to protect salmonids listed under the Endangered Species Act (ESA), planned WSF in-water construction is limited each year to

August 1 through February 15. For removal of the Tank Farm Pier, which is the first stage of the project, in-water construction will take place between August 1, 2015 and February 15, 2016; and continue between August 1, 2016 and February 15, 2017, if pier removal is not completed during the 2015/16 work window. A new MMPA IHA application will be submitted for subsequent construction years for this project. Species that may be exposed to Level B harassment include Pacific harbor seal (*Phoca vitulina richardsi*), California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), killer whale (*Orcinus orca*), gray whale (*Eschrichtius robustus*), and humpback whale (*Megaptera novaeangliae*)

Description of the Specified Activity

Overview

WSF is seeking an IHA for the first year of construction work associated with the Mukilteo Ferry Terminal replacement project in Mukilteo, Snohomish County, Washington. The IHA covers the initial phase of the project which is the demolition and removal of the Mukilteo Tank Farm Pier. Piles will be removed with a vibratory hammer or by direct pull using a chain wrapped around the pile.

Dates and Duration

WSF previously received an IHA on July 25, 2014 (79 FR 43424) which was active from September 1, 2014 through August 31, 2015. However, the project was delayed for almost a full year and did not begin until August 1, 2015. The IHA application currently under review would cover work from September 1, 2015 through August 31, 2016. All existing pier demolition and pile removal work will be done under these two successive permits. WSF in-water construction is limited each year to August 1 through February 15. For removal of the Tank Farm Pier, in-

water construction is planned to take place between August 1, 2015 and February 15, 2016; and continue in August 1, 2016 to February 15, 2017, if pier removal and dredging is not completed during the 2015/16 work window.

Specific Geographic Region

The Mukilteo Tank Farm is located within the city limits of Mukilteo and Everett, Snohomish County, Washington. The property is located on the shore of Possession Sound, an embayment of the inland marine waters of Puget Sound.

Detailed Description of Activities

We provided a description of the proposed action in our **Federal Register** notice announcing the proposed authorization (80 FR 43720; July 23, 2015). Please refer to that document; we provide only summary information here.

The Mukilteo Tank Farm Pier, which has not been used for fuel transfers since the late 1970s, covers approximately 138,080 ft^2 (3.17 acres) over-water and contains approximately 3,900 12-inch diameter creosote-treated piles. Demolition of the pier will remove approximately 7,300 tons of creosote-treated timber from the aquatic environment. Demolition will take approximately ten months over two in-water work windows. Removal of the pier will occur from land and from a barge containing a derrick, crane and other necessary equipment. Piles will be removed with a vibratory hammer or by direct pull using a chain wrapped around the pile. If piles are so deteriorated they cannot be removed using either the vibratory or direct pull method, the operator will use a clamshell to pull the piles from below the mudline, or cut at or just below the mudline (up to one foot) using a hydraulic saw. Pile removal and demolition of creosote-treated timber elements of the Tank Farm Pier will take place between August 1 and February 15 and will occur in water depths between 0 and -30 feet mean lower-low water.

Noise produced by the proposed vibratory pile extraction may impact marine mammals. Direct pull and clamshell removal are not expected to exceed noise levels that would injure or harass marine mammals.

Comments and Responses

A notice of NMFS' proposal to issue an IHA was published in the **Federal Register** on July 23, 2015 (80 FR 43720). During the 30-day public comment period, the Marine Mammal Commission (Commission) and Mystic Sea Charters (MSC) each submitted letters. These letters are available on the Internet at *www.nmfs.noaa.gov/pr/permits/incidental/construction.htm*. All comments specific to the WSF application that address the statutory and regulatory requirements or findings NMFS must make to issue an IHA are addressed in this section of the **Federal Register** notice.

Comment 1: The Commission noted that NMFS has, at times, included a much abbreviated timeframe under which it considers public comments prior to issuing authorizations. The deadline for comments on the proposed incidental harassment authorization is August 24 2015, while the proposed incidental harassment authorization would be effective starting on September 1, 2015. The Commission expressed concerned that the time between the close of the comment period and the proposed issuance date (6 business days) does not provide adequate opportunity for NMFS to consider, provide responses to, and incorporate any changes prompted by comments from the Commission and the public. The Commission recommends that NMFS allow sufficient time between the close of the comment period and the issuance of an incidental harassment authorization for NMFS to analyze, consider, and respond fully to comments received and incorporate recommended changes, as appropriate.

Response 1: The amount of time needed to fully consider comments on a proposed IHA depends on the volume and complexity of comments we receive. In this case, we believe there was sufficient time to consider and respond to the comments we received

Comment 2: MSC commented that the areas affected by the proposed project should require constant monitoring from both land and water.

Response 2: NMFS has worked with WSF to develop a monitoring plan requiring two full-time observers stationed at different locations. This scenario will provide observers with a comprehensive view of the entire zone of influence. However, if weather precludes adequate land-based observations then boat-based monitoring will be employed.

Comment 3: MSC recommended that potential impacts to wildlife other than marine mammals should also be evaluated and suggested for consideration several avian species known to occur in the area.

Response 3: NMFS ' authority under section 101(a)(5)(D) of the MMPA is limited to evaluating and minimizing impacts on marine mammals. Other statutes administered primarily by the U.S. Fish and Wildlife (FWS) have been enacted to protect and conserve a wide range of avian species. Loons and eagles are both afforded protection under the Migratory Bird Treaty Act. Eagles are subject to additional protection under the Bald and Golden Eagle Protection Act. While marbled murrelets are listed as threatened under the Endangered Species Act, FWS issued a Biological Opinion on July 8, 2013 which concluded with a "may affect, not likely to adversely affect" determination for marbled murrelets.

Comment 4: MSC expressed concern about the potential impacts of the project on harbor porpoises. MSC indicated that they have observed schools of harbor porpoises jumping into the air to escape loud sounds.

Response 4: As part of the IHA issuance process, NMFS reviewed the best available information to assess potential effects of the activity on harbor porpoises and determined that impacts will be negligible. Accordingly, NMFS has authorized the take of 1,120 harbor porpoises by Level B harassment under this IHA. The conditions of this IHA include measures to avoid injury and minimize disturbance to harbor porpoises and seven other marine mammal species.

Description of Marine Mammals in the Area of the Specified Activity

There are eight marine mammal species known to occur in the vicinity of the project which may be subjected to Level B harassment. These include the Pacific harbor seal, California sea lion, Steller sea lion, harbor porpoise, Dall's porpoise, killer (southern resident and transient), gray whale, and humpback whale.

We have reviewed WSF's detailed species descriptions, including life history information, for accuracy and completeness and refer the reader to Section 3 of WSF's application as well as the proposed incidental harassment authorization published in the **Federal Register** (80 FR 43720) instead of reprinting the information here. Please also refer to NMFS' website (*www.nmfs.noaa.gov/pr/species/mammals*) for generalized species accounts which provide information regarding the biology and behavior of the marine resources that occur in the vicinity of the Mukilteo project area. We provided additional information for the potentially affected stocks, including details of stock-wide status, trends, and threats, in our **Federal Register** notice of proposed authorization (80 FR 43720).

Table 1 lists marine mammal stocks that could occur in the vicinity of the Mukilteo project that may be subject to Level B harassment and summarizes key information regarding

stock status and abundance. Please see NMFS' Stock Assessment Reports (SAR), available at *www.nmfs.noaa.gov/pr/sars*, for more detailed accounts of these stocks' status and abundance.

Table 1: List of Marine Species under NMFS Jurisdiction that Occur in the Vicinity of the Mukilteo Tank Farm Pier Project.

Species	**ESA Status**	**MMPA Status**	**Timing of Occurrence**	**Frequency of Occurrence**
Harbor Seal	Unlisted	Non-depleted	Year-round	Common
California Sea Lion	Unlisted	Non-depleted	August-April	Common
Steller Sea Lion	Delisted	Strategic/Depleted	October-May	Rare
Harbor Porpoise	Unlisted	Non-depleted	Year-round	Occasional
Dall's Porpoise	Unlisted	Non-depleted	Year-round (more common in winter)	Occasional
Killer Whale (Southern Resident)	Endangered	Strategic/Depleted	October-March	Occasional
Killer Whale (Transient)	Unlisted	Strategic/Depleted	March- May (intermittently year-round)	Occasional
Gray Whale	Delisted	Non-depleted	January-May	Occasional
Humpback Whale	Endangered	Strategic/Depleted	April-June	Occasional

Potential Effects of the Specified Activity on Marine Mammals

The **Federal Register** notice of proposed authorization (80 FR 43720), incorporated here by reference, provides a general background on sound relevant to the specified activity as well as a detailed description of marine mammal hearing and of the potential effects of these construction activities on marine mammals. That information has not changed.

Anticipated Effects on Habitat

The **Federal Register** notice of proposed authorization (80 FR 43720), incorporated here by reference, provides information on potential impacts to habitat. In summary, the project activities would not modify existing marine mammal habitat. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences for individual marine mammals or their populations. Removal of the creosote-treated wood piles from the marine environment will result in temporary and localized sediment re-suspension of some of the contaminants associated with creosote, such as polycyclic aromatic hydrocarbons. However, the long-term result is an improvement in water and sediment quality. The net impact is a benefit to marine organisms, especially toothed whales and pinnipeds that are high on the food chain and bioaccumulate these toxins

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, "and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking" for certain subsistence uses.

Measurements from similar pile driving events were coupled with practical spreading loss to estimate zones of influence (ZOI; see "Estimated Take by Incidental Harassment"). ZOIs are often used to establish a mitigation zone around each pile (when deemed practicable) to prevent Level A harassment to marine mammals, and also provide estimates of the areas within

which Level B harassment might occur. ZOIs may vary between different diameter piles and types of installation methods. WSF will employ the following mitigation measures:

(a) Conduct briefings between construction supervisors and crews and marine mammal monitoring teams prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

(b) For in-water heavy machinery work other than pile driving (using, e.g., standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) Movement of the barge to the pile location or (2) positioning of the pile on the substrate via a crane (i.e., stabbing the pile).

Monitoring and Shutdown for Pile Driving

The following measures apply to WSF's mitigation through shutdown and disturbance:

Shutdown Zone—For all pile driving activities, WSF will establish a shutdown zone. Shutdown zones are typically used to contain the area in which SPLs equal or exceed the 180/190 dB rms acoustic injury criteria for cetaceans and pinnipeds, respectively, with the purpose being to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus preventing injury of marine mammals. For vibratory driving, WSF's activities are not expected to produce sound at or above the 180 dB rms injury criterion. WSF would, however, implement a minimum shutdown zone of 10 m radius for all marine mammals around all vibratory extraction activity. This

precautionary measure is intended to further reduce the unlikely possibility of injury from direct physical interaction with construction operations.

Disturbance Zone Monitoring—WSF will establish disturbance zones corresponding to the areas in which SPLs equal or exceed 122 dB rms (Level B harassment threshold for continuous sound, adjusted upward to account for ambient noise levels in this area) for pile driving installation and removal. The disturbance zones will provide utility for monitoring conducted for mitigation purposes (*i.e.,* shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of disturbance zones will enable observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring will be to document incidents of Level B harassment.

Ramp Up (Soft Start) - Vibratory hammer use 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. This will allow marine mammals to move away from the sound source. *Time Restrictions*— Work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted. In addition, for salmonid protection, all in-water construction will be limited to the period between August 1, 2015 and February 15, 2016; and continue in August 1, 2016 until the IHA expires on August 31, 2016.

Southern Resident Killer Whale - The following steps will be implemented for ESA-listed southern resident killer whales to avoid or minimize take (see Appendix B of the application – Monitoring Plan):

- If Southern Residents approach the zone of influence (ZOI) during vibratory pile removal, work will be paused until the Southern Residents exit the ZOI. The ZOI is the area co-extensive with shutdown and Level B harassment zones.
- If any killer whales approach the ZOI during vibratory pile removal, and it is unknown whether they are Southern Resident killer whales or transients, it shall be assumed they are Southern Residents and work will be paused until the whales exit the ZOI.
- If any Southern Residents enter the ZOI before they are detected, work will be paused until the Southern Residents exit the ZOI to avoid further Level B harassment take.

Mitigation Conclusions

NMFS has carefully evaluated WSF's proposed mitigation measures and considered their effectiveness in past implementation to determine whether they are likely to effect the least practicable 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.

Any mitigation measure(s) we prescribe should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

(2) A reduction in the number (total number or number at biologically important time or location) of individual marine mammals exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

(3) A reduction in the number (total number or number at biologically important time or location) of times any individual marine mammal would be exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

(4) A reduction in the intensity of exposure to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing the severity of behavioral harassment only).

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying particular attention to the prey base, blockage or limitation of passage to or from biologically important areas, permanent destruction of habitat, or temporary disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of WSF's proposed measures, including information from monitoring of implementation of mitigation measures very similar to those described here under previous IHAs from other marine construction projects, we have determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

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 incidental take authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Any monitoring requirement we prescribe should improve our understanding of one or more of the following:

(1) An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

(2) An increase in our understanding of how many marine mammals are likely to be exposed to levels of pile driving that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;

(3) An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;

(4) An increased knowledge of the affected species; and

(5) An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

WSF has consulted with NMFS to create a marine mammal monitoring plan as part of the IHA application for this project. The monitoring plan proposed by WSF can be found in its IHA application. A summary of the primary components of the plan follows.

(1) Marine Mammal Monitoring Coordination

WSF will 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 will be contacted to find out the location of the nearest marine mammal sightings. The Orca Sightings Network consists of a list of over 600 (and growing) residents, scientists, and government agency personnel in the 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 122 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.
- Advanced education in biological science, wildlife management, mammalogy or related fields (Bachelor's degree or higher) is preferred, but not required.

- 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 will 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 will be recorded.

WSF proposed the following methodology to estimate marine mammals taken as a result of the Mukilteo Multimodal Tank Farm Pier removal project:

- During vibratory pile removal, two land-based biologists will monitor the area from the best observation points available. If weather conditions prevent adequate land-based observations, boat-based monitoring may be implemented.
- To verify the required monitoring distance, the vibratory Level B behavioral harassment ZOI will be determined by using a range finder or hand-held global positioning system device.
- The vibratory Level B acoustical harassment ZOI will be monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile removal activity.
- Monitoring will be continuous unless the contractor takes a significant break, in which case, monitoring will be required 30 minutes prior to restarting pile removal.
- If marine mammals are observed, their location within the ZOI, and their reaction (if any) to pile-driving activities will be documented.

Data Collection

We require that observers use approved data forms. Among other pieces of information, WSF will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, WSF will attempt to distinguish between the number of individual animals taken and the number of incidents of take. We require that, at a minimum, the following information be collected on the sighting forms:

- Date and time that monitored activity begins or ends;

- Construction activities occurring during each observation period;
- Weather parameters (e.g., percent cover, visibility);
- Water conditions (e.g., sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting

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

Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as: "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has

the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]."

WSF has requested authorization for the incidental taking of small numbers of humpback whale, Steller sea lion, California sea lion, Dall's porpoise, gray whale, harbor porpoise and killer whale near the Mukilteo Tank Farm Pier that may result from vibratory pile extraction activities.

All anticipated takes would be by Level B harassment resulting from vibratory pile removal and are likely to involve temporary changes in behavior. Injurious or lethal takes are not expected due to the expected source levels and sound source characteristics associated with the activity, and the proposed mitigation and monitoring measures are expected to further minimize the possibility of such take.

Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals, it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound.

We note that this practice potentially overestimates the numbers of marine mammals taken for stationary activities, as it is reasonable to assume that some individuals may accrue a number of incidences of harassment rather than each incidence of harassment accrues to a new individual, especially if those individuals display some degree of residency or site fidelity and the impetus to use the site (e.g., because of foraging opportunities) is stronger than the deterrence presented by the harassing activity.

In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider in combination with information about marine mammal density or

abundance in the project area. We provided detailed information on applicable sound thresholds for determining effects to marine mammals as well as describing the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidences of take, in our **Federal Register** notice of proposed authorization (80 FR 43720).

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. However, since the ambient noise level at the vicinity of the proposed project area is between 122 to 124 dB re 1 μPa, depending on marine mammal functional hearing groups (Laughlin 2011b), the received level of 120 dB re 1 μPa would be below the ambient level. Therefore, for this project, 122 dB re 1 μPa is used as the threshold for Level B behavioral harassment. The distance to the 122 dB contour Level B acoustical harassment threshold due to vibratory pile removal extends a maximum of 1.6 km as is shown in Figure 1-5 in the Application.

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 Tank Farm Pier 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, in some cases 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.

Harbor seal - Based on the ORCA monitoring, NMFS' analysis uses a conservative estimate of 13 harbor seals per day potentially within the ZOI. For Year One pile removal, the duration estimate is 975 hours over 140 days. For the exposure estimate, it will be conservatively assumed that 13 harbor seals may be present within the ZOI and be exposed multiple times during the project. The calculation for marine mammal exposures is estimated by:

Exposure estimate = N * 140 days of vibratory pile removal activity, where:

N = # of animals (13)

Exposure estimate = 13 * 140 days = 1,820

NMFS is authorizing 1,820 takes by Level B harassment. However, many of these takes are likely to be repeated exposures of individual animals.

California Sea Lion- Based on the ORCA monitoring this analysis uses a conservative estimate of 6 California sea lions per day potentially within the ZOI.

Exposure estimate = 6 * 140 days = 840

NMFS is authorizing 840 takes of California sea lions by Level B harassment. Many of these takes are likely to be repeated exposures of individual animals.

Steller Sea Lion - Based on the observation data from Craven Rock, this analysis uses a conservative estimate of 12 Steller sea lions per day potentially near the ZOI. However, given the distance from this haul-out to the Tank Farm Pier, it is not expected that the same numbers would be present in the ZOI. For the exposure estimate, it will be conservatively assumed that $1/6^{th}$ of the Steller sea lions observed at Craven Rock (2 animals) may be present within the ZOI and be exposed multiple times during the project for total of 2 animals.

Exposure estimate = 2 * 140 days = 280

NMFS is authorizing 280 takes of Steller sea lions by Level B harassment. It is likely that many of these takes will be repeated exposures of individual animals.

Harbor Porpoise - Based on the water depth within the ZOI and group size, this analysis uses a conservative estimate of 8 harbor porpoises per day potentially near the ZOI.

Exposure estimate = 8 * 140 days = 1,120

NMFS is authorizing the Level B take of 1,120 takes of harbor porpoises by Level B harassment. Again, many of these takes are likely to be repeated exposures of individual animals.

Dall's Porpoise - Based on the average winter group size, as described in Section 3.0 of the Application, this analysis uses a conservative estimate of 3 Dall's porpoises per day potentially near the ZOI.

Exposure estimate = 3 * 140 days = 420

NMFS is authorizing 420 takes of Dall's porpoise by Level B harassment. A number of these anticipated takes are likely to be repeated exposures of individual animals.

Southern Resident Killer Whale - In order to estimate anticipated take, NMFS used Southern Resident killer whale density data from the Pacific Marine Species Density Database (US Navy 2014) that measured density per km^2 per season in the waters in the vicinity of the Mukilteo Tank Farm Pier. NMFS took the highest value of the summer, fall, and winter seasons multiplied by 140 days of work as well as the ensonified area (~ 5 km^2.)

Exposure estimate = (0.00090 [summer]) * 140 days *5 $km^{2 =}$

0.63 Southern Resident killer whales.

Note that pod size of Southern Resident killer whales can range from 3-50. NMFS assumed that one pod of 15 whales will be sighted during this authorization period and authorized that amount. However, it is possible that a larger group may be observed. In order to

limit the take of southern resident killer whales, NMFS is requiring additional mitigation for killer whales. These steps are described above and in Appendix B of the Application.

Transient Killer Whale - NMFS estimated the take of transient killer whales by applying the same methodology used to estimate Southern Resident killer whale.

Exposure estimate = (0.002373 [fall]) * 140 days * 5 km^2 = 1.66 transient killer whales.

However, a pod of 12 transients was spotted near the project area on August 6, 2015 August 9, 2015 (Whidbey News-Times, August 15, 2015). NMFS will assume that four pods of 12 whales will be sighted during this authorization period. Therefore, NMFS is authorizing 48 takes of transient killer whales.

Gray Whale

Based on the frequency of sightings during the in-water work window, this analysis uses a conservative estimate of 3 gray whales per day potentially near the ZOI.

It is assumed that gray whales will not enter the ZOI each day of the project, but may be present in the ZOI for 5 days per month as they forage in the area, for a total of 30 days. For the exposure estimate, it will be conservatively assumed that up to 3 animals may be present within the ZOI and be exposed multiple times during the project.

Exposure estimate = 3 * 30 days = 90

NMFS is authorizing 90 takes of gray whales by Level B harassment. It is assumed that this number will include multiple harassments of individual animals.

Humpback Whale

Based on the frequency of sightings during the in-water work window, this analysis uses a conservative estimate of 2 humpback whales potentially near the ZOI.

It is assumed that humpback whales will not enter the ZOI each day of the project, but may be present in the ZOI for 3 days per month as they forage in the area, for a total of 18 days. For the exposure estimate, it will be conservatively assumed that up to 2 animals may be present within the ZOI and be exposed multiple times during the project.

Exposure estimate = 2 * 18 days = 36

NMFS is authorizing 36 takes of humpback whales by Level B harassment. It is assumed that this number will include multiple harassments of individual animals.

Based on the foregoing, an estimated maximum of approximately 1,820 Pacific harbor seals, 840 California sea lions, 280 Steller sea lions, 1,120 Harbor porpoise, 420 Dall's porpoise, 48 transient killer whales, 15 Southern Resident killer whales, 90 gray whales, and 36 humpback whales could be exposed to received sound levels above 122 dB re 1 µPa (rms) from the proposed Mukilteo Tank Farm Pier Removal project. A summary of the estimated takes is presented in Table 2.

Table 2. Estimated numbers of marine mammals that may be exposed to vibratory hammer sound levels above 122 dB re 1 µPa (rms)

Species	Estimated marine mammal takes*	Percentage of species or stock
Pacific harbor seal	1,820	16.5%
California sea lion	840	0.3%
Steller sea lion	280	0.4%
Harbor porpoise	1,120	10.5%
Dall's porpoise	420	1.0%
Killer whale, transient	48	19.7%
Killer whale, Southern Resident	15	18.2%
Gray whale	90	0.5%
Humpback whale	36	2.0%

***Represents maximum estimate of animals due to likelihood that some individuals will be taken more than once**

Analyses and Determinations

Negligible Impact Analysis

Negligible impact is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival" (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of 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 must consider 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 harassment takes, the number of estimated mortalities, effects on habitat, and the status of the species.

To avoid repetition, the following discussion applies to the affected stocks of harbor seals, California sea lions, Steller sea lions, harbor porpoises, Dall's porpoises, gray whales and humpback whales, except where a separate discussion is provided for killer whales, as the best available information indicates that effects of the specified activity on individuals of those stocks will be similar, and there is no information about the population size, status, structure, or habitat use of the areas to warrant separate discussion.

Pile removal activities associated with the Mukilteo Tank Farm removal project, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from underwater sounds generated from pile extraction. Potential takes could

occur if individuals of these species are present in the ensonified zone when pile driving is happening.

No injury, serious injury, or mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is minimized through the construction method and the implementation of the planned mitigation measures. Specifically, vibratory hammers will be the primary method of extraction and no impact driving will occurs. Vibratory driving and removal does not have significant potential to cause injury to marine mammals due to the relatively low source levels produced (site-specific acoustic monitoring data show no source level measurements above 180 dB rms) and the lack of potentially injurious source characteristics. Given sufficient "notice" through use of soft start, marine mammals are expected to move away from a sound source. The likelihood that marine mammal detection ability by trained observers is high under the environmental conditions described for waters around the Mukilteo Tank Farm further enables the implementation of shutdowns if animals come within 10 meters of operational activity to avoid injury, serious injury, or mortality.

WSF proposed activities are localized and of relatively short duration. The entire project area is limited to water in close proximity to the tank farm. The project will require the extraction of 3,900 piles and will require 675-975 hours over 140-180 days.

These 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. Moreover, the proposed mitigation and monitoring measures, including establishment of a shutdown zone, establishment of Level B harassment area, time and seasonal restrictions on operations, special Southern resident killer

whale restrictions, and ramp up or soft start techniques, are expected to reduce potential exposures and behavioral modifications even further.

Southern Resident Killer Whale

Critical habitat for Southern Resident killer whales has been identified in the area and may be impacted. The proposed action will have short-term adverse effects on Chinook salmon, the primary prey of Southern Resident killer whales. However, the Puget Sound Chinook salmon ESU comprises a small percentage of the Southern Resident killer whale diet. Hanson et al. (2010) found only six to 14 percent of Chinook salmon eaten in the summer were from Puget Sound. Therefore, NMFS concludes that both the short-term adverse effects and the long-term beneficial effects on Southern Resident killer whale prey quantity and quality will be insignificant. Also, the sound from vibratory pile driving and removal may interfere with whale passage. For example, exposed killer whales are likely to redirect around the sound instead of passing through the area. However, the effect of the additional distance traveled is unlikely to cause a measureable increase in an individual's energy budget, and the effects would therefore be temporary and insignificant. Additionally, WSF will employ additional mitigation measures to avoid or minimize impacts to Southern Residents. These measures were described previously in the section *Monitoring and Shutdown for Pile Driving.*

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the "Anticipated Effects on Marine Mammal Habitat" section. The project activities would not modify existing marine mammal habitat. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected,

the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences. Furthermore, no important feeding and/or reproductive areas for other marine mammals are known to be near the proposed action area.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,* Thorson and Reyff, 2006; Lerma, 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to vibratory driving and removal, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile removal activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations, which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment will be reduced to the level of least practicable impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the project area while the activity is occurring.

In summary, we considered the following factors: (1) The possibility of injury, serious injury, or mortality may reasonably be considered discountable; (2) the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the absence of any significant habitat, other than identified critical habitat for Southern Resident killer whales within the project area, including rookeries, significant haul-outs, or known areas or features of special significance for foraging or reproduction; (4) the expected efficacy of the required mitigation measures in minimizing the effects of the specified activity on the affected species or stocks and their habitat to the level of least practicable impact. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. Accordingly, the take resulting from the proposed WSF Mukilteo Multimodal Project Tank Farm Pier Removal project 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.

Therefore, based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS finds that the total marine mammal take from WSF's Mukilteo Multimodal Project Tank Farm Pier Removal project will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers Analysis

Based on long-term marine mammal monitoring and studies in the vicinity of the proposed construction areas, it is estimated that approximately 1,820 Pacific harbor seals, 840 California sea lions, 280 Steller sea lions, 1,120 harbor porpoises, 420 Dall's porpoises, 48

transient killer whales, 15 Southern Resident killer whales, 90 gray whales, and 36 humpback whales (and likely fewer, given that we expect at least some takes will be from repeat exposures of individual animals rather than new animals) could be exposed to received noise levels above 122 dB rms re 1 μPa from the proposed construction work at the Mukilteo Multimodal Ferry Terminal. These numbers represent approximately 0.3% - 19.7% of the stocks and populations of these species that could be affected by Level B behavioral harassment.

The numbers of animals authorized to be taken for all species would be considered small relative to the relevant stocks or populations even if each estimated taking occurred to a new individual – an extremely unlikely scenario. 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, we find that small numbers of marine mammals will be taken relative to the population sizes of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no subsistence uses of marine mammals in the proposed project area; and, thus, no subsistence uses impacted by this action.

Endangered Species Act (ESA)

The humpback whale and 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 issued a Biological Opinion that covers the proposed action on July 31, 2013, and concluded that the proposed action is not likely to jeopardize the continued existence of Southern Resident killer whales or humpback whales, and is not likely to destroy or adversely modify Southern Resident killer whales critical habitat.

National Environmental Policy Act (NEPA)

NMFS re-affirms the document titled *Final Environmental Assessment Issuance of Marine Mammal Incidental Take Authorizations to the Washington State Department of Transportation to Take Marine Mammals* which was issued in February 2014. A Finding of No Significant Impact (FONSI) was signed on February 28, 2014. In the FONSI NMFS determined that the issuance of IHAs for the take, by harassment, of small numbers of marine mammals incidental to the WSF's Mukilteo Ferry Terminal replacement project in Washington State, will not significantly impact the quality of the human environment, as described in this document and in the Mukilteo EA. These documents are found at *http://www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.*

Authorization

As a result of these determinations, we have issued an IHA to WSF for conducting the described activities related to the Mukilteo Multimodal Project Tank Farm Pier Removal Project from September 1, 2015 through August 31, 2016 provided the previously described mitigation, monitoring, and reporting requirements are incorporated.

Dated: September 2, 2015.

Perry Gayaldo,

Deputy Director,

Office of Protected Resources,

National Marine Fisheries Service.

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