



MARINE MAMMAL COMMISSION

11 June 2013

Mr. P. Michael Payne, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the U.S. Navy's application seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take marine mammals by harassment. The taking would be incidental to pile driving and removal in association with a barge mooring project in Hood Canal at Naval Base Kitsap in Bangor, Washington. The authorization would be in effect from 16 July 2013 to 15 July 2014. The Commission also has reviewed the National Marine Fisheries Service's 22 May 2013 notice (78 Fed. Reg. 30273) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. The Commission has commented on previous incidental harassment authorizations for pile driving and removal at Naval Base Kitsap.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- require the Navy to re-estimate the number of harbor seal takes using more recent survey data from Tannenbaum et al. (2009 and 2011), which is based on the total estimated population rather than the Navy's flawed rationale of reducing the density for the proportion of seals hauled out and older data;
- require the Navy to implement soft-start procedures after 15 minutes if pile driving or removal is delayed or shut down because of the presence of a marine mammal within or approaching the shut-down zone;
- require the Navy to consult with the Washington Department of Transportation and/or the California Department of Transportation to (1) determine whether soft-start procedures can be used safely with the vibratory hammers that the Navy plans to use prior to eliminating the Navy's requirement to implement those measures and (2) clarify and troubleshoot the sound attenuation device implementation procedures to ensure the device's efficacy;
- require the Navy to monitor the extent of the disturbance zone using additional shore- or vessel-based observers throughout Hood Canal to (1) determine the numbers of marine mammals taken during pile-driving and -removal activities and (2) characterize the effects on those mammals;

- complete an analysis of the impact of the proposed activities together with the cumulative impacts of all the other pertinent risk factors (including but not limited to the Navy's concurrent explosive handling wharf-2 (EHW-2) project) for marine mammals in the Hood Canal area;
- encourage the Navy to combine future requests for incidental harassment authorizations for all activities that would occur in the same general area and within the same year rather than segmenting those activities and their associated impacts by requesting separate authorizations; and
- require the Navy to use the same data (e.g., source levels, sound attenuation factors, densities), methods, and justification for all pile-driving and -removal activities that occur during the same timeframe at Naval Base Kitsap.

RATIONALE

The Navy plans to install and remove piles during installation of a new research barge and associated moorings at Naval Base Kitsap. During the project, the Navy would install up to four 20-in, three 24-in, five 36-in, and eight 48-in steel pipe piles using one vibratory and one impact hammer. It also would remove one 24-in steel pipe using a vibratory hammer and seven other piles using hydraulic shears or a thermal lance. It expects pile installation and removal to take 20 days (weather permitting) between 16 July and 30 September 2013. It would limit activities to daylight hours only.

The Service preliminarily has determined that, at most, the proposed activities temporarily would modify the behavior of small numbers of harbor seals, California sea lions, harbor porpoises, and transient killer whales. It also anticipates that any impact on the affected species and stocks would be negligible. The Service does not anticipate any take of marine mammals by death or serious injury and believes that the potential for temporary or permanent hearing impairment would be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include—

- installing and removing piles using a vibratory hammer during the period between sunrise and sunset;
- installing piles using an impact hammer during the period between two hours after sunrise to two hours before sunset from 16 July through 23 September to protect breeding marbled murrelets and between sunrise and sunset from 24 through 30 September;
- using an underwater sound attenuation device (e.g., bubble curtain or other sound attenuation device) for impact pile driving and conducting a performance test prior to its use;
- using soft-start, delay, and shut-down procedures;
- using qualified protected species observers to monitor the harassment zones for 15 minutes before, during, and for 15 minutes after pile driving and removal activities;
- ceasing other heavy machinery work (i.e., activities other than pile driving and removal) if any marine mammal comes within 10 m of the vessel or equipment;

- reporting injured and dead marine mammals to the Service and local stranding network using the Service's phased reporting approach and suspending activities, if appropriate; and
- submitting draft and final monitoring reports to the Service.

In addition, the Navy plans to continue construction of explosive handling wharf-2 (EHW-2; 78 Fed. Reg. 29705), which is just north of the barge mooring project site. Those activities are subject to a separate proposed incidental harassment authorization. The in-water pile-driving and -removal activities for the barge mooring project would occur for 195 days between 16 July 2012 and 15 February 2013. The Navy could use three vibratory hammers and one impact hammer simultaneously during the EHW-2 project.

Harbor seal densities

To estimate the number of takes of harbor seals, the Navy decreased the estimated harbor seal density in Hood Canal by reducing the proportion of seals expected to be hauled out at a given time (i.e., 35 percent). That reduction effectively decreased the Navy's density estimate from 3.74 to 1.06 animals per km², which may provide a reasonable estimate of the number of seals in the water at any given instant. However, the proposed activities would be conducted from 8 to 15 hours per day and virtually all of the harbor seals in the project area would be in the water at some time when sound-producing activities are being conducted and would be taken on a daily basis. Therefore, the Navy's estimate of the total number of seals that could be taken during the course of a day is a biased fraction of what it should be. To correct this bias, the Navy should be estimating in-water takes based on the total number of seals expected to be in the water at any time during the proposed activities, which likely would be the entire population. In previous letters, the Commission has recommended that the Service refine the harbor seal density estimate based on the newer Tannenbaum et al. (2009 and 2011) data from marine mammal surveys at Naval Base Kitsap from 2008–2010 rather than using the Navy's biased estimate based on older data. The Commission's suggested approach also is consistent with the Service's decision to base the number of takes of sea lions on maximum abundance estimates at Kitsap haul-out sites and the assumption that each individual would be taken at some point on any given day. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Navy to re-estimate the number of harbor seal takes using more recent survey data from Tannenbaum et al. (2009 and 2011), which is based on the total estimated population rather than the Navy's flawed rationale of reducing the density for the proportion of seals hauled out and older data.

Mitigation and monitoring measures

The Service would require the Navy to implement soft-start procedures only at the beginning of each work day and when pile-driving or -removal activities have ceased for more 30 minutes. The Service also would require the Navy to cease pile driving or removal if a marine mammal is sighted within or on a path to enter a shut-down zone (based on Level A harassment). The Navy could resume activities when the marine mammal has cleared the zone and is on a path away from the zone or when 15 minutes has elapsed since the last sighting of that mammal. The authorization then would allow the Navy to resume pile driving and removal at full power. However, several factors indicate that a soft start is advisable at that point. First, although they

probably rarely do so, seals and sea lions are capable of diving for periods approaching 15 minutes. In such cases they are considered not “available” to be observed and it is possible that they are still in the shut-down zone (this is referred to as an availability bias). Second, even if their dive times are shorter, they may be visible at the surface for only a few seconds while they take a breath and thus observers may not always detect them when they are available to be seen (this is referred to as a detection or perception bias). For example, the observer may not detect them at the surface if s/he is not watching that specific area at that specific time. Third, seals and sea lions are more difficult to detect when sighting conditions are poor (e.g., inclement weather, poor lighting, rough sea surface conditions). Those poor conditions may increase detection (or perception) bias. In such cases, full starts would pose an excessive risk to marine mammals still in the shut-down zone but not detected. For that reason, the Commission continues to believe that soft-start procedures should be used to avoid serious injury after a shutdown of 15 minutes for pinnipeds and small- to medium-sized cetaceans (for which the same issue of short surfacing times may exist). Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Navy to implement soft-start procedures after 15 minutes if pile driving or removal is delayed or shut down because of the presence of a marine mammal within or approaching the shut-down zone.

In addition, the Service may not require soft-start procedures to be implemented for vibratory pile driving and removal. The *Federal Register* notice indicated that soft-start procedures during vibratory pile driving that occurred last year at Naval Base Kitsap led to equipment failure and serious human safety concerns, with a portion of the equipment shearing from the crane and falling to the deck. The Commission would not suggest implementing mitigation measures that endanger human lives. However, it should be noted that multiple operators (specifically Washington Department of Transportation and California Department of Transportation) implement soft-start procedures during vibratory pile driving and removal but have not reported such incidents. Moreover, the 2013 monitoring report from previously authorized EHW-2 activities indicated that the bubble curtain did not always achieve a 10-dB reduction in sound levels. The Navy attributed those shortcomings to the possibilities that (1) the bubble curtain did not fully encapsulate the pile (i.e., the lower rings were not deployed all the way at the bottom of the water column or the bottom ring sank into the mud, leaving the bottom portion of the pile exposed), (2) air to the rings was not evenly distributed, or (3) insufficient bubble flux resulted in “holes or tears” in the coverage of the bubbles around the pile. The efficacy of the bubble curtain clearly was diminished, but those shortcomings likely were due to operator error rather than equipment failure. Although the Navy would conduct performance testing on the bubble curtain prior to its use, the Commission believes it should consult with experienced operators to resolve these two issues before commencing this year’s activities. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Navy to consult with the Washington Department of Transportation and/or the California Department of Transportation to (1) determine if soft-start procedures can be used safely with the vibratory hammers that the Navy is using prior to eliminating the Navy’s requirement to implement those measures and (2) clarify and troubleshoot the sound attenuation device implementation procedures to ensure the device’s efficacy.

The *Federal Register* notice indicated that observers could monitor visually only a portion of the proposed disturbance zone (based on the Level B harassment zone that has a radius of more than 8 km for vibratory pile driving). Neither the Navy nor the Service specified the number of observers that would be monitoring at a given time or the location of those observers. Based on last

year's authorization request for the EHW-2 project, the observers could monitor out to a distance of about 1 to 2 km from the site of pile-driving and -removal activities. The area to be monitored generally was confined to the waterfront restricted area. The Navy also used both land- and vessel-based observers for its prior activities. However, the proposed monitoring requirements for the proposed incidental harassment authorization do not specify where the observers would be located.

The Commission understands that it would be difficult to monitor the entire disturbance zone for vibratory pile driving. However, the key here is not simply to employ a strategy that ensures monitoring out to a certain distance, but rather to employ a strategy that provides the information necessary to determine whether the construction activities have adverse effects on marine mammals and to describe the nature and extent of those effects. The Navy's monitoring strategy must be sufficient to determine accurately the numbers of animals taken subsequent to the activities and to observe and document any changes in marine mammal behavior as a function of distance from the activities. The Service and the Navy should be evaluating the monitoring strategy based on its adequacy in fulfilling these two purposes. Accordingly, the monitoring strategy should be viewed not simply as a perfunctory check on the proposed activities, but also the best way of learning about the potential effects of the proposed activities. To extend its monitoring capabilities, the Navy could position observers on elevated platforms at the construction site, along the Hood Canal shoreline, or on watercraft throughout the Canal. The addition of observers beyond the immediate construction site area also would be useful in estimating the taking of more cryptic species (i.e., harbor porpoise) that avoid the immediate area of the construction site but occur within the larger disturbance zone. If these options are used effectively, observers eventually should be able to collect the information needed to assess the effects of the proposed construction activities and guide future monitoring efforts. Thus, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Navy to monitor the extent of the disturbance zone using additional shore- or vessel-based observers throughout Hood Canal to (1) determine the numbers of marine mammals taken during pile-driving and -removal activities and (2) characterize the effects on those mammals.

Negligible impact determination and cumulative impacts

In 2011 the Navy applied for and the Service issued two separate incidental harassment authorizations for the Navy's pile driving and removal activities at Naval Base Kitsap (EHW-1 repair project and the test pile program), even though those activities overlapped spatially and temporally. In addition, the Navy prepared two separate environmental review documents under the National Environment Policy Act. In 2012, the Navy also applied for two separate incidental harassment authorizations (construction of EHW-2 and continued repair of EHW-1) and prepared two separate environmental review documents. For the current year (2013), the Navy has again applied for two separate incidental harassment authorizations (the barge mooring project and continued construction of EHW-2) and prepared two separate environmental review documents. Although the National Environment Policy Act documents examined the potential cumulative impact of those multiple proposed activities on marine mammals, the Commission still believes that the same information should be factored into the Service's negligible impact determination under the Marine Mammal Protection Act. That is, the significance of incidental takes of a species during a particular activity must consider not only the nature of the activity and the types and magnitudes of takes that may occur, but also the species' vulnerability to those takes. In turn, the species' vulnerability depends, at least in part, on the additional impacts of other activities in the area. In this instance, the

Navy again plans to conduct additional construction activities at the same time and in the same area as the activities that would be covered by this proposed authorization. Unless the Service and/or the Navy analyzes the cumulative impacts of these and other activities, the Commission does not see how the Service can make a sufficiently informed decision as to whether the impacts of the proposed activities indeed will be negligible. To do so without considering cumulative impacts would be to discount the context in which the proposed activities are to occur. Therefore, the Marine Mammal Commission recommends that, prior to issuing the proposed incidental harassment authorization, the National Marine Fisheries Service complete an analysis of the impact of the proposed activities together with the cumulative impacts of all the other pertinent risk factors (including but not limited to the Navy's concurrent EHW-2 project) for marine mammals in the Hood Canal area. Furthermore, the Commission again recommends that the Service encourage the Navy to combine future requests for incidental harassment authorizations for all activities that would occur in the same general area and within the same year rather than segmenting those activities and their associated impacts by requesting separate authorizations.

Consistency issues

Although both the barge mooring and EHW-2 projects would occur along the Naval Base Kitsap waterfront within a few miles of one another, the Navy submitted applications that included inconsistent information. Both types of projects involve pile driving and removal of similar sized piles. However, the Navy used the maximum source level for impact pile driving during the 2011 test pile program when determining the distances to various thresholds for the barge mooring project and then used the average source level for impact pile driving activities at numerous sites along the West Coast for the EHW-2 project. It further stated that because the size of pile that may be driven on any given day is unknown, the Navy used the most conservative estimate (i.e., the maximum source level) for the barge mooring project. The Commission supports that rationale and is unsure why the Navy, and subsequently the Service, did not use the same justification for the EHW-2 project. The Navy also used different sound attenuation factors (i.e., 8 and 10 dB for the barge mooring and EHW-2 projects, respectively) for reducing the source levels estimated to occur when using bubble curtains during impact pile driving. Those source levels and sound attenuation factors affect the Navy's estimation of distances to the various sound thresholds. In addition, the Navy proposed to use shut-down zones of 34 and 10 m (for cetaceans and pinnipeds, respectively) for impact pile-driving activities during the barge mooring project. Those zones are comparable to the modeled shut-down zones. For the EHW-2 project, it proposed to use shut-down zones of 85 and 20 m (for cetaceans and pinnipeds, respectively) during impact pile-driving activities. Those zones are greater than the modeled distances to the relevant Level A harassment thresholds and were based on in-situ measurements from the 2011 test pile program. It is unclear why the proposed shut-down zones for the barge mooring and EHW-2 projects differ substantially, as both were supposedly based on in-situ measurements from the 2011 test pile program.

Regarding density inconsistencies, the Navy used a harbor seal density of 1.06 and 1.3 seals/km² for the barge mooring and EHW-2 projects, respectively. The latter density estimate was corroborated by results of the Navy's vessel-based marine mammal surveys at Naval Base Kitsap from 2008–2010 (Tannenbaum et al. 2009 and 2011). It is unclear why the Navy and Service used two different harbor seal densities to estimate the numbers of takes that would occur at Naval Base Kitsap for activities that would occur during the same timeframe. Further, the Navy estimated that

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zero Dall's porpoises would be taken during either project. Accordingly, it requested no takes during the barge mooring project but then took a different approach and requested takes of one Dall's porpoise per day (195 total takes) during the EHW-2 project. The Navy indicated that it is possible that Dall's porpoises could be present even though the model indicated that no animals would be taken. That reasoning is inconsistent and the Navy and the Service should have applied the same justification to both projects. The Commission believes that such inconsistencies could have been minimized had the Navy prepared, and the Service required, a single incidental harassment authorization application that covered all projects that are to occur within the same timeframe (16 July through 15 February) at Naval Base Kitsap. Accordingly, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Navy to use the same data (e.g., source levels, sound attenuation factors, densities), methods, and justification for all pile-driving and -removal activities that occur during the same timeframe at Naval Base Kitsap.

We appreciate the opportunity to provide comments on the Navy's application. Please feel free to contact me should you have questions regarding the Commission's recommendations and comments.

Sincerely,

A handwritten signature in blue ink that reads "Rebecca J. Lent". The signature is written in a cursive style with a large initial "R".

Rebecca J. Lent, Ph.D.
Executive Director

References

- Tannenbaum, B.R., M. Bhuthimethee, L. Delwiche, G. Vadera, and J.M. Wallin. 2009. Naval Base Kitsap, Bangor 2008 Marine Mammal Survey Report. Prepared by Science Applications International Corporation, Bothell, WA. Prepared for BAE Systems Applied Technologies, Inc., Rockville, MD.
- Tannenbaum, B.R., W. Hafner, J. Wallin, L. Delwiche, and G. Vadera. 2011. Naval Base Kitsap, Bangor 2009–2010 Marine Mammal Survey Report. Prepared by Science Applications International Corporation, Bothell, WA. Prepared for NAVFAC NW, Silverdale, WA.