23 June 2014

Ms. Jolie Harrison, Supervisor
Incidental Take Program
Permits and Conservation Division
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

Dear Ms. Harrison:

The Marine Mammal Commission (the 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 (the MMPA) to take marine mammals by harassment. The taking would be incidental to pile driving and removal in association with a wharf construction project in Hood Canal at Naval Base Kitsap in Bangor, Washington. The authorization would be in effect from 16 July 2014 to 15 July 2015. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 6 June 2014 notice (79 Fed. Reg. 32828) 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.

BACKGROUND

The Navy plans to install and remove piles during construction of the new explosive handling wharf-2 (EHW-2) at Naval Base Kitsap. The project began two years ago and will continue for at least the next year. The requested incidental harassment authorization would be valid for one year and the Navy will seek renewal for an additional year, if needed. During the project, the Navy would install 1,250 permanent steel piles ranging in size from 24 to 48 inches in diameter. The Navy also would install and then remove up to 150 18- to 24-in temporary falsework steel piles. The Navy could use up to three vibratory hammers and one impact hammer to install and/or remove piles simultaneously. It expects pile installation and removal to take 195 days (weather permitting) between 16 July 2014 and 15 February 2015. It would limit activities to daylight hours only.

NMFS preliminarily has determined that, at most, the proposed activities would temporarily modify the behavior of small numbers of harbor seals, California sea lions, Steller sea lions, harbor porpoises, and transient killer whales. It also anticipates that any impact on the affected species and stocks would be negligible. NMFS 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—

(1) restricting in-water activities after 16 February[1];
(2) installing and removing piles using a vibratory hammer during the period between sunrise and sunset;
(3) installing piles using an impact hammer during the period between two hours after sunrise to two hours before sunset from 16 July through 15 September[2] and between sunrise and sunset from 16 September through 15 February;
(4) 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;
(5) using soft-start, delay, and shut-down procedures;
(6) using qualified protected species observers to monitor the harassment zones for 15 minutes before, during, and for 15 minutes after pile driving and removal;
(7) 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;
(8) reporting any pinniped hauled out at unusual sites (e.g., in work boats) immediately to the local stranding network, and as soon as time allows to NMFS, and following any procedures or measures stipulated by the stranding network;
(9) reporting injured and dead marine mammals to the regional stranding network and NMFS using NMFS's phased reporting approach and suspending activities, if appropriate; and
(10) submitting draft and final monitoring reports to NMFS.

RATIONALE

Harbor seal density estimates

The Commission has made previous recommendations regarding the manner in which the Navy has estimated its harbor seal densities, which in general have been underestimated. In previous incidental harassment authorizations, the Navy used 1.31 animals per km^2 as the harbor seal density estimate[3]. NMFS indicated in previous *Federal Register* notices that the 1.31 density estimate (reduced by the proportion of seals hauled out at any given time) was corroborated by results of the Navy's vessel-based marine mammal surveys at Naval Base Kitsap in 2008 and 2009–10, in which an average of five individual harbor seals per survey were observed in the 3.9 km^2 survey area equating to 1.3 animals per km^2 (Tannenbaum et al. 2009, 2011). The Tannenbaum et al. (2009, 2011) data are absent from the proposed incidental authorization for this year's activities.

Rather, NMFS included justification in the *Federal Register* notice for the corrected density of 1.06 animals per km^2 based on the lack of dedicated harbor seal haul-out sites in the immediate area and on the supposition that only those animals embarking on foraging trips and entering the project area would be exposed. The Commission does note that harbor seals have been observed by the Navy to haul out on the floating security fence, floating booms, and more recently on overwater structures under the piers and in workboats within the immediate project area. Furthermore,

[1] Primarily to protect juvenile salmon.
[2] Primarily to protect breeding marbled murrelets.
[3] The density estimate from previous incidental harassment authorizations was based on a lesser overall area of Hood Canal, specifically 291 rather than 358 km^2.

irrespective of the proximity of dedicated haul-out sites, seals have been observed in large numbers over the years in the project area (Tannenbaum et al. 2009, Tannenbaum et al. 2011, HDR 2012a, HDR 2012b, Department of the Navy 2014), and any seals observed swimming in the area, foraging or not—would be exposed to the pile driving activities. In addition, NMFS indicated in the *Federal Register* notice that harbor seals are relatively concentrated near areas of interest including haul-out sites in Dabob Bay and foraging areas. NMFS also indicated that past monitoring efforts have confirmed that harbor seals are less abundant in the deeper waters of Hood Canal, which generally is where harbor porpoises are observed. However, data from Tannenbaum et al. (2011) and HDR (2012a, b) indicate that harbor seals are found in deeper waters of Hood Canal and their distribution overlaps with that of harbor porpoises. Harbor porpoise sightings occur in the same areas as harbor seals, and, in fact, observations of harbor seals are actually more numerous in those areas.

In the proposed incidental harassment authorization, the Navy again decreased the estimated harbor seal density in Hood Canal by the proportion of seals expected to be hauled out at a given time, effectively decreasing the estimate from 3.04 to 1.06[4] animals per km^2. That reduced value may provide a reasonable estimate of the number of seals in the water at any given instant, but it is not appropriate when the Navy is using an area x density method to determine the number of seals taken on any given day. The proposed activities would be conducted using up to four hammers for 7 to 15 hours per day. Based on past monitoring reports, pile driving has occurred for an average of 7 hours per day at any time during the day, including during tidal stages when harbor seals are more likely to be in the water. Given that information, virtually all of the harbor seals in the project area could be in the water at some time when sound-producing activities are being conducted and could 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 likely is a fraction of the number of seals that actually could be affected.

In addition, the Navy assumed that 35 percent of the harbor seals are in the water at any given time, equating to a haul-out correction factor of 1.53[5] (Huber et al. 2001, Jeffries et al. 2003[6])—a combined correction factor for both coastal and inland waters of Washington. Huber et al. (2001) also determined an inland correction factor of 1.57, which may be more applicable to Hood Canal. NMFS indicated in the *Federal Register* notice that there was no significant difference between the combined and inland haul-out correction factors and further stated that there were no existing data indicating that the proportion of individuals entering the water within the predicted area of effect during pile driving would be dramatically greater than 35 percent. The Commission does not agree. London et al. (2012) recently determined haul-out correction factors within Hood Canal that ranged from 1.10 to 1.32[7]. The proportion of seals in the water based on London et al. (2012) ranged from 0.76 to 0.91, a much greater proportion than used by the Navy and subsequently NMFS. The London et al. (2012) data not only are more recent than those from Huber et al. (2001) and Jeffries et al. (2003) but also directly applicable to Hood Canal, and thus should be considered the best available science. Moreover, the *Federal Register* notice indicated that 86 percent of the seals that were observed during surveys of Naval Base Kitsap from 2007–8 were observed swimming[8],

[4] Based on the Hood Canal area of 358 km^2.
[5] Haul-out correction factors are based on the reciprocal of the proportion of seals hauled out. In this instance, 65 percent of the seals would be hauled out at a given time.
[6] Neither of the studies occurred in Hood Canal.
[7] Based on data collected at 12 noon.
[8] Presumably those data originated from Tannenbaum et al. (2009).

which also is significantly greater than 35 percent. Accordingly, the Commission recommends that NMFS require the Navy to re-estimate the number of harbor seal takes using the density estimate[9] adjusted by a haul-out correction factor from London et al. (2012). Even if that correction factor is used, the Commission does not support the Navy and NMFS reducing any density estimate by the proportion of animals in the water at a given instant when using an area x density method. Such a reduction only is applicable to methods or models that incorporate a time element and animat simulation, which the Navy has not used for the proposed incidental harassment authorization. If NMFS continues to believe the Navy's harbor seal density estimate should be reduced further based on the proportion of seals in the water at any given time, the Commission recommends that NMFS require the Navy to apply the percentage of time seals are in the water from London et al. (2012) rather than Huber et al. (2001) or Jeffries et al. (2003).

Mitigation and monitoring measures

Monitoring the impacts of the proposed activity is a basic requirement of any incidental harassment authorization. The Navy's monitoring strategy should be sufficient to determine accurately the numbers of animals taken during the activities and to observe and document any changes in marine mammal behavior as a function of distance from the activities. The Navy has indicated that it intends to use observers to monitor the disturbance zone (with a radius of up to 13.8 km for vibratory pile driving). Neither the Navy nor NMFS specified the number of observers that would be monitoring at a given time or the location(s) of those observers. The draft monitoring report from the previous incidental harassment authorization indicated the observers used the Level B harassment zone of 464 m for impact pile driving as a guideline during vibratory pile-driving activities (Department of the Navy 2014). That observed area generally was confined to the waterfront restricted area. Since only a subset of the total area[10] was consistently monitored (464-m radius from the pile or 0.68 km^2 as outlined in the Navy's monitoring plan), the Navy extrapolated the numbers of marine mammals taken in the remaining 98 percent of the Level B harassment zone (Department of the Navy 2014). While, the Commission understands that the total ensonified area is a large area to monitor, it does not believe that the Navy conducted its due diligence by monitoring less than 2 percent of that area. Furthermore, the Navy indicated that no harbor porpoises were observed during the monitoring period (EHW-2 year 2; 2013-14)[11], because no boat was present in the main channel of Hood Canal to conduct surveys beyond the waterfront restricted area (Department of the Navy 2014). The Navy contractors recommended in the draft monitoring report that marine mammal observers be placed outside the waterfront restricted area to observe harbor porpoise or other cetacean baseline behaviors and any changes in those behaviors during the proposed activities.

In the past, the Navy has used both land- and vessel-based observers. The Commission recommended last year that NMFS require the Navy to monitor the extent of the Level B harassment zone using additional shore- or vessel-based observers beyond the waterfront restricted area to (1) determine the numbers of marine mammals taken during pile-driving and -removal

[9] 711 harbor seals within 358 km^2.
[10] The Navy indicated in its draft monitoring report that the total area was 34.5 km^2, however, the *Federal Register* notice and previous notices indicated that area to be 41.4 km^2. The Commission understands that the Navy is correcting that error for the final monitoring report.
[11] Harbor porpoises had been observed during previous monitoring efforts at Naval Base Kitsap.

activities and (2) characterize the effects on those mammals. The Commission believed that 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 Level B harassment zone for vibratory pile driving. NMFS indicated that it had developed, in consultation with the Navy, a strategy that is appropriate to accomplish the stated objectives of the Commission's recommendation and that the Navy had designed a comprehensive, multi-year approach for its monitoring strategy. Accordingly, NMFS did not require additional shore- or vessel-based observers beyond the waterfront restricted area. Apparently, based on the draft monitoring report referenced herein, the Navy's strategy was not sufficient either to monitor for pinnipeds beyond the Level B harassment zone for impact pile driving or more importantly to monitor for cetaceans in general. The Commission has continued concerns regarding the Navy's monitoring strategy and again believes that the Navy could position observers on elevated platforms at the construction site, along the Hood Canal shoreline, or on watercraft throughout the Canal. Therefore, the Marine Mammal Commission recommends that NMFS require the Navy to monitor the extent of the Level B harassment zone for vibratory pile driving and removal using additional platform-, shore-, or vessel-based observers beyond the waterfront restricted area to (1) determine the numbers of marine mammals taken during pile-driving and -removal activities and (2) characterize the effects on those mammals, including cetaceans.

Because the Navy only estimated the numbers of marine mammals, namely pinnipeds, taken within less than 2 percent of the Level B harassment zone, it extrapolated its takes for the remaining 98 percent of the zone[12]. For example, the Navy estimated that it had harassed up to 4,761 harbor seals[13] during 133 days of vibratory pile driving based on its density estimate for the remaining 98 percent of the zone. Extrapolating the actual number of seals observed to be taken to the extent of the harassment zone (which is a method action proponents generally use to estimate the total numbers of animals taken), more than 18,000 harbor seals could have been harassed[14]. The Commission does not assert that the Navy actually harassed up to 18,000 harbor seals, but it does believe that extrapolating takes based on the flawed density estimate for nearly 98 percent of the area will certainly produce an underestimate.

Furthermore, estimating the numbers of cetaceans, specifically killer whales, taken based on a density estimate rather than observed sightings likely produced an overestimate of the number of killer whales taken. If killer whales had been present in Hood Canal or near Naval Base Kitsap, the Navy and the public likely would have been aware of it. These issues further support the Commission's view that the Navy should use additional observers to estimate more accurately the numbers of marine mammals taken during pile-driving and -removal activities. If the Navy uses an extrapolation method to estimate the numbers of animals taken for the upcoming incidental harassment authorization, it should be basing that calculation on the numbers of marine mammals

[12] The Commission understands that the Navy plans to amend its monitoring report to include takes for the full 41.4 km^2, in which case the Navy monitored an even lesser percentage of the total Level B harassment zone than indicated in the draft monitoring report.

[13] The Navy used 1.06 rather than 1.31 animals/km^2 and 33.8 rather than 40.72 km^2 as the basis for that calculation, which would have resulted in 7,095 seals not 4,761. The Commission understands that the Navy will be correcting those errors in the final monitoring report.

[14] Based on 365 harbor seals taken within 2 percent of the Level B harassment zone for vibratory pile driving—those 365 seals could represent the number of individuals or number of instances an individual was taken.

observed beyond the waterfront restricted area. Accordingly, the Commission recommends that NMFS require the Navy to use better methods to estimate the numbers of marine mammals taken rather than the extrapolation method recently used for EHW-2 activities—the Commission would be willing to work with NMFS on this matter.

For the second year, NMFS would not require soft-start procedures to be implemented for vibratory pile driving and removal. The *Federal Register* notice indicated that soft-start procedures during previous vibratory pile-driving activities at Naval Base Kitsap led to equipment failure and serious human safety concerns. The Commission would not suggest implementing mitigation measures that endanger human lives. However, the Commission noted in its 2013 letter regarding the activities at Naval Base Kitsap that multiple operators (specifically Washington Department of Transportation and California Department of Transportation) implement soft-start procedures during vibratory pile driving and removal and have not reported such incidents. Further, the Commission recommended that, prior to eliminating the Navy's requirement to implement those measures, NMFS require the Navy to consult with the Washington Department of Transportation and/or the California Department of Transportation to determine if soft-start procedures can be used safely with the vibratory hammers used by the Navy. NMFS agreed to consult with the relevant entities and is still working to facilitate such a discussion.

Nevertheless, NMFS also determined that vibratory soft-start procedures would not be required for the proposed incidental harassment authorization and the remainder of the EHW-2 project (i.e., for any subsequent future EHW-2 activities). The Commission is concerned that NMFS made that determination without the discussion amongst relevant parties having occurred. Moreover, NMFS indicated that vibratory soft-start procedures are unnecessary to provide the means of effecting the least practicable impact on marine mammals. The Commission interprets that to mean the mitigation measure is not effective for minimizing impacts because the Level A harassment zones are so small. The Commission is unsure if NMFS plans to cease requiring soft-start procedures for all vibratory pile-driving activities or a portion of them on a case-by-case basis. Removing the requirement for implementing soft-start procedures may be advisable in some cases, but may not be advisable in other cases involving larger piles (e.g., greater than 48-in in diameter) and hence larger Level A harassment zones.

The Commission appreciates 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,

Rebecca J. Lent, Ph.D.
Executive Director

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