



# MARINE MAMMAL COMMISSION

9 January 2020

Ms. Jolie Harrison, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Alaska Marine Lines, Inc., (AML) seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA) to take small numbers of marine mammals by harassment. The taking would be incidental to improving a dock in Lutak Inlet, Alaska. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 26 November 2019 notice (84 Fed. Reg. 65117) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

AML would remove and install piles during modification of a barge cargo dock in Lutak Inlet near Haines, Alaska. Operators would (1) remove 12 16-in steel pipe piles using a vibratory hammer or direct pull or cutting the piles at the mudline and (2) install four 24-in, three 30-in, and six 36-in steel pipe piles using a vibratory hammer, impact hammer, and/or down-the-hole (DTH) hammer. AML's activities could occur on up to eight days, weather permitting. It would limit pile-driving and -removal activities to daylight hours from June 2020 to June 2021.

NMFS preliminarily has determined that, at most, the proposed activities could cause Level A and/or B harassment of small numbers of seven marine mammal species. NMFS anticipates that any impact on the affected species and stocks would be negligible. NMFS also does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation measures. The proposed mitigation, monitoring, and reporting measures include—

- restricting activities from March through May to minimize impacts on marine mammals during eulachon and herring runs;
- ceasing pile-driving and -removal activities if any marine mammal comes within 10 m of the equipment;
- using three land-based qualified protected species observers (PSOs) to monitor the Level A and B harassment zones for 30 minutes before, during, and for 30 minutes after the proposed activities;
- using standard soft-start, delay, and shut-down procedures;

- using delay and shut-down procedures, if a species for which authorization has not been granted or if a species for which authorization has been granted but the authorized takes are met, approaches or is observed within the Level A and/or B harassment zone;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Alaska Regional Stranding Coordinator using NMFS's phased approach and suspending activities, if appropriate; and
- submitting a draft and final report.

### General comments

The Commission informally noted a number of issues with the *Federal Register* notice<sup>1</sup> and draft incidental harassment authorization<sup>2</sup>. Those included—

- use of inconsistent terminology and methods for pile removal in the *Federal Register* notice—the Commission understands that AML could use direct pull<sup>3</sup>, cut the piles at the mudline, *or* use a vibratory hammer to remove the 16-in steel piles. This type of information is necessary for understanding whether and how taking of marine mammals could occur.
- lack of relevant site-specific information for harbor and Dall's porpoises, consistent with the type of information included in other recent authorizations in the same general area<sup>4</sup> (Alaska Department of Transportation (AK DOT) Haines Ferry, 82 Fed. Reg. 47704 and White Pass and Yukon Route, 83 Fed. Reg. 64556). This information is necessary for determining whether the species are expected to be in the project area, how often, and whether estimated numbers of takes are sufficient.
- lack of pertinent information regarding subsistence use of the various species, in particular pinnipeds, consistent with the type of information included in other recent authorizations (AK DOT Haines Ferry, 82 Fed. Reg. 47703-47705 and White Pass and Yukon Route, 83 Fed. Reg. 64545-64548). This information is necessary for determining whether the proposed activities could have an unmitigable adverse impact on subsistence use.

---

<sup>1</sup> In addition to noting omission of some basic information (e.g., pile removal can result in the taking of marine mammals, as well as pile installation and standard verbiage regarding the definitions of unmitigable adverse impact under NMFS's implementing regulations) and errors (e.g., vibratory pile driving would occur for 1 hour not 60 hours as stated in Table 4 and clearance time after a delay or shut down is 15 minutes as noted in the draft authorization rather than 30 minutes as included in the *Federal Register* notice).

<sup>2</sup> In addition to the omission of necessary information or requirements (e.g., the various Level A harassment zones, particularly those that exceed the 200-m shut-down zone and limiting pile-driving and -removal activities to daylight hours only as were included in the *Federal Register* notice).

<sup>3</sup> Which generally entails using a choker cable or chain and a crane.

<sup>4</sup> And for other species mentioned in the *Federal Register* notice, including those that were not considered further (e.g., sperm whales).

- use of an inconsistent characterization of DTH drilling as a *non-impulsive*, continuous source rather than an *impulsive*<sup>5</sup>, continuous source<sup>6</sup> as referenced in other recent authorizations (City of Astoria, 84 Fed. Reg. 68133). This information is essential for using the appropriate Level A harassment threshold<sup>7</sup> to estimate the Level A harassment zones and for determining whether Level A harassment takes should be authorized.
- use of an underestimated and inappropriate source level<sup>8</sup> to represent the impulsive characteristics of DTH drilling compared to other recent authorizations<sup>9</sup> (City of Astoria, 84 Fed. Reg. 68139<sup>10</sup> and CTJV, 84 Fed. Reg. 64863<sup>11</sup>). This information is necessary for estimating the Level A harassment zones and determining whether Level A harassment takes should be authorized.
- lack of appropriate acoustic terminology and detailed methodology for determining a combined source level for vibratory and DTH drilling activities—the Commission understands that AML estimated the combined source level based on taking a linear average<sup>12</sup> of the source levels prorated to the number of hours that each activity would occur<sup>13</sup> rather than taking a ‘log average of the sources’<sup>14</sup> as noted in the *Federal Register*

---

<sup>5</sup> Chesapeake Tunnel Joint Venture (CTJV) assumed that impulsive, thus intermittent, characteristics predominated at its site when the DTH hammer was used and in-situ measurements were obtained by Denes et al. (2019; 84 Fed. Reg. 64854-64855). Denes et al. (2019) determined that approximately 7 pulses occurred during a 1-sec waveform and CTJV assumed that one hour for each of two piles to be installed per day was equivalent to 25,200 pulses. The resulting Level A harassment zones extended up to more than 860 m depending on the functional hearing group of the affected species. AML expects that DTH drilling would occur for up to 6 hours per day. Thus, the Level A harassment zones would be even greater.

<sup>6</sup> In-situ measurements obtained by the Federal Aviation Administration (FAA) at Bioka Island (Guan pers. comm.) and White Pass and Yukon Route (Reyff and Heyvaert 2019) also have confirmed *impulsive*, continuous aspects of DTH drilling, as depicted in the spectrograms and time-series waveform data. The Commission understands that NMFS’s acoustic expert has consulted with acousticians who have conducted measurements of DTH drilling and indicated that DTH drilling has impulsive characteristics and that source levels do increase with increasing pile size, similar to impact pile driving. Furthermore, if one were to assume that DTH drilling was *non-impulsive*, the sound exposure level (SEL) source levels would need to be adjusted for the number of pulses per second, which have ranged from 7 pulses for CTJV to 13 or 14 pulses for FAA (Guan pers. comm.). The latter resulted in an SEL source level that was 11 dB greater than the single-strike SEL (SEL<sub>s-s</sub>) source level, which was adjusted for the number of pulses per second. For non-impulsive, continuous sources, NMFS routinely assumes that source levels based on root-mean-square sound pressure level (SPL<sub>rms</sub>) are comparable to SELs, which is not the case for DTH drilling.

<sup>7</sup> A point to note, Level A harassment thresholds are based on whether the source is considered *impulsive* or *non-impulsive*. The Level B harassment thresholds are based on whether the source is considered *intermittent* or *continuous*. Level A harassment thresholds for impulsive sources are 13 to 18 dB greater than non-impulsive sources based on the relevant functional hearing group (see Table 3 of the *Federal Register* notice).

<sup>8</sup> NMFS assumed a source level of 171 dB re 1  $\mu\text{Pa}_{\text{root-mean-square (rms)}}$  at 10 m, which is based on the 90 percentile value and is still an underestimate.

<sup>9</sup> And as referenced in other monitoring reports. Reyff and Heyvaert (2019) indicated that the source levels were 199 dB 1  $\mu\text{Pa}_{\text{peak}}$ , 184 dB 1  $\mu\text{Pa}_{\text{rms}}$ , and 179 dB re 1  $\mu\text{Pa}^2\text{-sec}_{\text{single-strike (s-s)}}$  at 10 m

<sup>10</sup> In which the source level for impact installation of 24-in piles and the related Level A harassment zones were used as proxies for the Level A harassment zones for DTH drilling. NMFS used source levels of 200 dB 1  $\mu\text{Pa}_{\text{peak}}$ , 187 dB 1  $\mu\text{Pa}_{\text{rms}}$ , and 171 dB re 1  $\mu\text{Pa}^2\text{-sec}_{\text{s-s}}$  at 10 m.

<sup>11</sup> In which the in-situ measured source levels of 190 dB 1  $\mu\text{Pa}_{\text{peak}}$ , 180 dB 1  $\mu\text{Pa}_{\text{rms}}$ , and 164 dB re 1  $\mu\text{Pa}^2\text{-sec}_{\text{s-s}}$  at 10 m were used for DTH drilling

<sup>12</sup> Which is the average sound energy over the 10 hours of activities. Source levels in decibels are converted to microPascals, prorated based on the hours of activities, averaged, and then converted back to decibels.

<sup>13</sup> 4 hours of vibratory driving and 6 hours of DTH drilling.

<sup>14</sup> Neither NMFS’s acoustic experts nor the Commission’s acoustic experts have ever heard of taking a log average of log-based values, which are what decibels are. It is not a method that is employed in underwater acoustics.

- notice. This information is essential for determining whether the combined source level was estimated based on appropriate acoustic rather than statistical methods.
- use of two different references for the source levels used as proxies for impact installation of 36-in piles—the Commission understands that AML used Caltrans (2015) for the source levels based on peak sound pressure levels ( $SPL_{peak}$ ) and  $SEL_{s-s}$  and Denes et al. (2016) for the source level<sup>15</sup> based  $SPL_{rms}$ <sup>16</sup>, because the latter was more conservative by 1 dB than Caltrans (2015). Although the Commission appreciates AML’s attempt to be conservative, it has not been and is not NMFS’s practice to choose individual source levels based on the three metrics from different references. If Caltrans (2015) was used for proxy source levels for Level A harassment, source levels from Caltrans (2015) must be used for estimating Level B harassment zones as well.
  - lack of information regarding whether AML’s activities overlap in time and space with known hunting activities, whether the local Native Alaskan communities that hunt marine mammals were contacted, and whether any concerns were conveyed consistent with other recent authorizations (City of Juneau, 84 Fed. Reg. 55939 and AK DOT Whittier, 84 Fed. Reg. 56444). Although AML indicated that marine mammals comprise less than 1 pound per capita of all resources harvested by Haines residents (based on a household survey of wildfood resource harvest as cited in Haines (2007)), that information is more than a decade old<sup>17</sup> and does not address whether AML’s activities overlap in time and space with known hunting activities. AML did clarify that it contacted the Central Council of the Tlingit and Haida Indian Tribes and the Chilkoot Indian Association in August, but it has yet to receive any response. This information is necessary for determining whether the proposed activities could have an unmitigable adverse impact on subsistence use and whether additional mitigation measures should be implemented.
  - inconsistent requirement in the *Federal Register* notice to report that the specified activity clearly caused the take of a marine mammal in a manner prohibited by the IHA, such as serious injury or mortality, to the Alaska Regional Office rather than the Alaska Regional Stranding Coordinator consistent with the draft authorization and numerous other *Federal Register* notices for activities occurring in Alaska (e.g., AK DOT Whittier, 84 Fed. Reg. 56442; Auke Bay, 84 Fed. Reg. 22471; Tongass Narrows, 84 Fed. Reg. 34160; City of Juneau, 84 Fed. Reg. 55937; City of Ketchikan 84 Fed. Reg. 11526; City and Borough of Sitka 84 Fed. Reg. 7038; Mr. Erickson 84 Fed. Reg. 50405). It is imperative that animals that are injured or killed be reported immediately to the Stranding Coordinator to await further direction of how to proceed.
  - omission of the requirements to (1) extrapolate Level A harassment takes of harbor porpoises to unobserved portions of the Level A harassment zone, similar to Level B harassment takes, as included in condition 6(a)(xii) of the draft authorization and the *Federal Register* notice and (2) keep a running tally of the total number of takes<sup>18</sup>, both observed and

---

<sup>15</sup> NMFS omitted this source level from the *Federal Register* notice altogether.

<sup>16</sup> Source levels from Caltrans (2015) were based on impact installation of 36-in piles, while source levels from Denes et al. (2016) were based on impact installation of 30-in piles.

<sup>17</sup> As the Commission informally noted, more recent information was provided in the proposed authorizations for AK DOT Haines Ferry (82 Fed. Reg. 47703-47705) and White Pass and Yukon Route (83 Fed. Reg. 64545-64548) regarding the subsistence use of the affected stocks, which indicated that hunting for subsistence purposes had increased by approximately 60 percent in the area in more recent years.

<sup>18</sup> NMFS recently informed the Commission that Jordan Cove Energy Project, LP, would be keeping a running tally of observed and extrapolated takes.

extrapolated, in the draft authorization and *Federal Register* notice. It is imperative that AML estimate and report the numbers of animals taken by both Level A and B harassment in an accurate manner to ensure the takes are within the authorized limits and the numbers of takes are not exceeded.

NMFS indicated that it would fix a few of the aforementioned issues. In some instances, NMFS requested that the Commission provide the relevant information. The Commission had provided information available in previous authorizations or related to characterizing different activities with its informal comments, such as the site-specific information for both porpoise species, known subsistence use of the various species, and extensive guidance on the characterization and source levels for DTH drilling. In other instances, such as stipulating whether and which Native communities were contacted and whether concerns were conveyed, such information must be provided by the applicant.

The Commission's comments are intended to ensure that NMFS is using best available science to (1) estimate the relevant Level A and B harassment zones and numbers and types of taking, (2) ensure its mitigation, monitoring, and reporting measures are adequate, and (3) substantiate fully its determinations of negligible impact and small numbers and AML's proposed activities not having an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes. As such, the Commission recommends that NMFS (1) include in the *Federal Register* notice relevant site-specific information for harbor and Dall's porpoises, pertinent information regarding subsistence use of the various marine mammal species, whether AML's activities overlap in time and space with known hunting activities, whether the local Native Alaskan communities that hunt marine mammals were contacted, whether any concerns were conveyed, whether additional mitigation measures are warranted, and the requirement to report unauthorized taking (including injured and dead marine mammals) to the Alaska Regional Stranding Coordinator; (2) include in the notice and final authorization, if issued, the requirements to extrapolate Level A harassment takes to unobserved portions of the Level A harassment zone, similar to Level B harassment takes and to keep a running tally of total Level A and B harassment takes based on both observed and extrapolated takes; and (3) re-estimate the Level B harassment zone for impact installation of 36-in piles based on the source level of 193 dB re 1  $\mu$ Pa at 10 m as provided in Caltrans (2015) and consistent with the other source level metrics used to estimate the Level A harassment zones.

Additionally, the Commission asserts that NMFS must take a precautionary approach to estimating the harassment zones and associated numbers of takes during DTH drilling. As described in the three most recent in-situ monitoring data and reports noted herein, and alluded to by Denes et al. (2016) and Dazey et al. (2012)<sup>19</sup>, DTH drilling has impulsive characteristics. Those characteristics are especially prevalent when used in areas where rock is present—which was the case for all three monitoring datasets and was noted to be the case for AML's project site. AML's application stated that a DTH hammer would be used to drill and socket the piles into bedrock and

---

<sup>19</sup> The Commission only knows of one other reference that includes source levels for DTH drilling. Dazey et al. (2012) indicated that the pneumatic percussive drilling aspects of DTH drilling occurred closer to shore where fewer underwater obstacles were encountered. Thus, the substrate likely was sandier and the source levels were lower and more comparable to auger drilling that occurred farther offshore where more underwater obstacles (likely rock) were encountered.

specifically that a pneumatic percussion hammer chips away rock and other material during DTH drilling. It is unclear why NMFS appears to be ignoring that DTH drilling has impulsive characteristics<sup>20</sup> and that recent in-situ measurements have indicated that AML's presumed source level has the potential to be underestimated by 9 to 13 dB, which would result in a vast underestimation of the Level A harassment zones for DTH drilling and has the potential to result in additional Level A harassment takes. NMFS has based proxy source levels on fewer datasets or on methods and pile types that are not the same as those proposed for use by other action proponents. Thus, the perceived paucity of available data should not hinder NMFS from using them. For Level B harassment, the Level B harassment zone is clipped by land<sup>21</sup> and re-estimating the extent of that zone would be unnecessary from a practical standpoint. However, from a completeness standpoint, NMFS could re-estimate it as well. Consistent with other recent authorizations and recent in-situ monitoring reports, the Commission recommends that NMFS (1) re-estimate the Level A harassment zones for DTH drilling based on source levels provided either by Reyff and Heyvaert (2019) or Denes et al. (2019) and NMFS's Level A harassment thresholds for impulsive sources and (2) increase the numbers of Level A harassment takes accordingly.

If NMFS believes that sufficient data are not available to characterize DTH drilling appropriately at this time, then the Commission recommends that NMFS require all applicants that propose to use a DTH hammer to install piles, including AML, to conduct in-situ measurements and adjust the Level A and B harassment zones accordingly. A few years ago only a few action proponents proposed to use DTH drilling. However, in recent years and particularly in Alaska, numerous action proponents are using the method. Thus, it is imperative that this sound source be characterized appropriately and the associated source levels be provided accordingly.

Moreover, it is apparent that NMFS needs to finalize<sup>22</sup> its recommended proxy source levels for pile driving<sup>23</sup>. Not only are action proponents choosing source levels on an ad hoc basis, they apparently are choosing source levels based on the  $SPL_{peak}$ ,  $SPL_{rms}$ , and  $SEL_{s-s}$  metrics from different references. Therefore, the Commission recommends that NMFS finish reviewing and finalize its recommended proxy source levels for both impact and vibratory installation of the various pile types and sizes. If the proxy source levels for impact pile driving are finalized prior to vibratory pile driving and removal, they should be made available to action proponents and the public at that time and should not be held until the vibratory source levels are finalized.

---

<sup>20</sup> As noted in each of the five available datasets and/or described with regards to its pneumatic percussive attributes in the associated reports and references.

<sup>21</sup> Based on the 120-dB re 1  $\mu$ Pa threshold being used for continuous sources.

<sup>22</sup> Which also was included as a recommendation in the Commission's [18 December 2019 letter](#).

<sup>23</sup> The Commission notes that, similar to it being inappropriate to take log averages of log-based values, it is similarly inappropriate to use simple logistic regressions to estimate source levels of piles for which data are lacking or scant. This could unnecessarily underestimate source levels for smaller-sized piles and overestimate source levels for larger-sized piles where data are lacking. Generalized linear models that include the relevant contributing factors (e.g., pile diameter, pile material, substrate type, etc.), exponential regressions that are the inverse of a logistic regression, or simple assumptions that source levels of the next larger-sized pile be used in lieu of available data (i.e., source levels of 24-in piles used for 18-in piles) would be more appropriate methods. Interpolation also could be used if sufficient data are available for piles smaller and larger than the pile size with scant data (i.e., interpolation between the linear medians of 24-in and 36-in piles could be used for determining source levels of 30-in piles). NMFS's acoustic experts must be consulted in this process.

## Proposed one-year authorization renewals

NMFS has indicated that it may issue a one-year incidental harassment authorization renewal for this and other future authorizations if various criteria are met and after an expedited public comment period of 15 days. The Commission and various other entities (e.g., 84 Fed. Reg. 31035 and 52466) have asserted and continue to consider that the renewal process is inconsistent with the statutory requirements under section 101(a)(5)(D) of the MMPA. As such, the Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated *Federal Register* notice process. That process is similarly expeditious and fulfills NMFS's intent to maximize efficiencies.

Over the past few years, NMFS informed the Commission that a renewal would be issued as a one-time opportunity, after which time a new authorization application would be required. NMFS also has included such verbiage in its response to comments regarding renewals. Specifically, NMFS indicated that it had modified the language for future proposed incidental harassment authorizations to clarify that all authorizations, including renewal authorizations, are valid for no more than one year and that the agency will consider *only one renewal* for a project at this time (e.g., 84 Fed. Reg. 36892 from 30 July 2019). However, NMFS has yet to stipulate that the agency will consider *only one renewal* or that a renewal is a *one-time opportunity* in any *Federal Register* notice requesting comments on the possibility of a renewal, on its webpage detailing the renewal process<sup>24</sup>, or in any draft or final authorization that includes a term and condition for a renewal (including section 8 of the AML's draft authorization).

In response to the Commission's 29 November 2019 letter recommending that NMFS stipulate those specifics in the relevant documents and on its webpage, NMFS indicated that, in the 'summary' portion of its notices, it requests comments on a possible *one-year renewal* that could be issued under certain circumstances and if all requirements are met (84 Fed. Reg. 68131). However, neither the notices nor the webpage or final authorizations state that *one-year renewals* are *one-time opportunities*. NMFS also indicated that, for notices involving proposed renewals, it has not included an option of an additional renewal (84 Fed. Reg. 68131). Absent specifics regarding one-year renewals being a one-time opportunity in the *Federal Register* notices, on NMFS's webpage, and more importantly as a term and condition in its draft and final authorizations, NMFS appears to knowingly allow that door to remain open. If NMFS chooses to continue proposing to issue renewals, the Commission recommends that it (1) stipulate that a renewal is a *one-time opportunity* (a) in all *Federal Register* notices requesting comments on the possibility of a renewal, (b) on its webpage detailing the renewal process, and (c) in all draft and final authorizations that include a term and condition for a renewal and, (2) if NMFS refuses to stipulate a renewal being a one-time opportunity, justify why it will not do so in its *Federal Register* notices, on its webpage, and in all draft and final authorizations.

---

<sup>24</sup> <https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-harassment-authorization-renewals>

Ms. Jolie Harrison  
9 January 2020  
Page 8

Please contact me if you have questions regarding the Commission's recommendations.

Sincerely,



Peter O. Thomas, Ph.D.,  
Executive Director

## References

- Caltrans. 2015. Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. State of California Department of Transportation, Sacramento, California. 532 pages.
- Dazey, E., M. McIntosh, S. Brown, and K.M. Dudzinski. 2012. Assessment of underwater anthropogenic noise associated with construction activities in Bechers Bay, Santa Rosa Island, California. *Journal of Environmental Protection* 3:1286–1294.
- Denes, S.L., G.J. Warner, M.E. Austin, and A.O. MacGillivray. 2016. Hydroacoustic pile driving noise study: Comprehensive report. Document 001285, Version 2.0. JASCO Applied Sciences, Anchorage, Alaska. 238 pages.
- Denes, S., J. Vallarta, and D. Zeddies 2019. Sound source characterization of down-the-hole hammering: Thimble Shoal, Virginia. Version 1.0. JASCO Applied Sciences (USA) Inc., Silver Spring, Maryland. 80 pages.
- Haines. 2007. Haines coastal management program: Final plan amendment. Haines Borough and Sheinberg Associates, Juneau, Alaska. 160 pages.
- Reyff, J., and C. Heyvaert. 2019. White Pass & Yukon railroad mooring dolphin installation pile driving and drilling sound source verification: Skagway, Alaska. Illingworth & Rodkin, Inc., Cotati, California. 94 pages.