



MARINE MAMMAL COMMISSION

7 December 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 the City of Ketchikan (COK) 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 berth improvements in Ketchikan, Alaska, during a one-year period. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 10 November 2020 notice (85 Fed. Reg. 71612) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

COK plans to install and remove piles to accommodate larger cruise ships in Ketchikan. Operators would install up to 20 30- to 48-in steel piles using a vibratory hammer, impact hammer, and/or down-the-hole (DTH) equipment and remove up to 8 30-in steel piles using a vibratory hammer. To install tension anchors for four of those piles, a smaller 14-in casing will be inserted and a 12-in hole will be hammered using DTH equipment. COK's activities could occur on up to 120 days, weather permitting, during daylight hours only.

NMFS preliminarily has determined that, at most, the proposed activities could cause Level A and/or B harassment of small numbers of nine 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—

- ceasing in-water heavy machinery activities if any marine mammal comes within 10 m of the activity and reducing vessel speed to the minimum level required to maintain steerage and safe working conditions;
- using standard soft-start, delay, and shut-down procedures¹;

¹ The Commission informally noted that NMFS omitted from the draft authorization the condition that, if poor environmental conditions restrict visibility of the shut-down zones (e.g., from excessive wind or fog, high Beaufort sea state), pile installation and removal may not be initiated. NMFS included a similar measure in the *Federal Register* notice (85 Fed. Reg. 71629). NMFS indicated it would include the condition in section 4 of the final authorization.

- using three land-based qualified protected species observers (PSOs) to monitor the Level A² and B harassment and shut-down³ zones for 30 minutes before, during, and for 30 minutes after the proposed activities;
- 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 B harassment zone⁴;
- reporting injured and dead marine mammals to the Office of Protected Resources and the West Coast Regional Stranding Coordinator and ceasing activities, if appropriate; and
- submitting a draft and final report.

DTH pile installation

The Commission had numerous informal comments regarding NMFS's proposed source levels for DTH pile installation⁵. Some of the issues NMFS agreed to fix in the notice for issuance of the final authorization (see the Addendum for more details), while others NMFS either did not directly address or indicated it would address in the notice without an explanation of how it planned to do so. Specifically, NMFS indicated in Table 5 that the source level for DTH pile installation of 48-in piles was "extrapolated from DTH SSV studies listed below." It did not specify which of the five references⁶ were used for that extrapolation or how the data were extrapolated. When the Commission specifically asked if only the latter four of the references were used, NMFS replied that it would include all references in the final issuance rather than specifying which references it used. In addition, the portion of the *Federal Register* notice that described the proposed source levels, including those based on a single-strike sound exposure level (SEL_{s-s}; i.e., for impact installation of 48-in piles), did not include any information for the SEL_{s-s} source levels for DTH pile installation (85 Fed. Reg. 71623). This is particularly important since this is the first time NMFS has described its currently-proposed way forward regarding appropriate source characterization and source levels associated with DTH pile installation, as well as its proposed but otherwise undescribed extrapolation method.

The Commission has provided extensive comments on NMFS's previous approaches for DTH pile installation (see, for example, its [24 April 2020](#), [20 April 2020](#), [23 March 2020](#), and [10 February 2020](#) letters). The Commission appreciates that NMFS has recognized that DTH pile installation has both impulsive and non-impulsive, continuous characteristics. As such, DTH pile

² The Level A harassment zone should be 69.2 m for mid-frequency cetaceans for DTH pile installation of 30- and 36-in piles for 4–6 hours in Table 7 of the *Federal Register* notice. NMFS also rounded all of the Level A harassment zones for impact installation of 36- and 48-in piles, which is inconsistent with all other scenarios in in Table 7. NMFS indicated that it would fix the latter issue in the notice for issuance of the final authorization. NMFS needs to fix the former issue as well.

³ The Commission informally noted that the 50-m shut-down zone for otariids in Table 10 of the Federal Register and Table 2 of the draft authorization is not sufficient, as the Level A harassment zone for impact installation of 36- and 48-in piles with 501 to 1,000 strikes is 75.5 m. NMFS indicated it would revise the shut-down zone to be at least 76 m in the notice for issuance of the final authorization and Table 2 of the final authorization.

⁴ The Commission informally noted that NMFS only specified the Level B harassment zone in one portion of the *Federal Register* notice (85 Fed. Reg. 71628) and merely the harassment zone in another portion of the notice and in condition 4(g) of the draft authorization. NMFS also omitted pile removal in the measure in the notice. NMFS indicated it would revise the measure(s) in the notice for issuance of the final authorization and condition 4(g) in the final authorization.

⁵ DTH equipment produce both drilling and percussive hammering action.

⁶ Denes et al. (2016), Denes et al. (2019), Reyff and Heyvaert (2019), Guan and Miner (2020), and Reyff (2020).

installation is considered impulsive for Level A harassment (based on the thresholds in Table 4) and continuous for Level B harassment (based on the 120-dB re 1 μPa threshold; 85 Fed. Reg. 71623). However, the extrapolated source level for DTH pile installation of 48-in piles cannot be re-created from the information in the notice. The Commission informally asked whether NMFS used only the source levels for 18- and 42-in piles from Denes et al. (2019), Reyff and Heyvaert (2019), Reyff (2020), and Guan and Miner (2020). Rather than specifying which source levels it used, NMFS stated that it used “all our existing DTH source data.” It is unclear what that means, particularly since—

- Denes et al. (2019) provided mean $\text{SEL}_{\text{s-s}}$ source levels⁷.
- Reyff and Heyvaert (2019)⁸ and Reyff (2020) provided median one-second SEL source levels that were converted to $\text{SEL}_{\text{s-s}}$ based on the hammer rate in Reyff (2020)⁹.
- Guan and Miner (2020) provided median $\text{SEL}_{\text{s-s}}$ source levels¹⁰.
- Denes et al. (2016) provided an average median root-mean-square sound pressure level (SPL_{rms}) source level¹¹.

It is unclear how NMFS used source levels that were based on different metrics (one-sec SEL, $\text{SEL}_{\text{s-s}}$, and SPL_{rms}) and different measures of central tendency of the measured distributions (linear medians¹², medians of linear averages, averaged medians, linear averages, average means, etc.). Only those data that are of the same metric and generally only those of the same central tendency¹³ should be used to inform any extrapolation.

In addition, NMFS did not specify what type of extrapolation method was used. When informally asked about this, NMFS only noted that a non-linear regression was used. Non-linear regression can involve a wide variety of functional forms and assumed error structures¹⁴, the selection of which could greatly affect extrapolations. Because NMFS did not provide sufficient detail regarding its proposed methods in either the *Federal Register* notice or when that information was informally requested by the Commission, it is not possible for the Commission to evaluate the

⁷ 170.2, 162.6, and 159.1 dB re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m for three individual 42-in piles, with an average mean source level of 164 dB re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m.

⁸ The methods are described in Reyff and Heyvaert (2019), however the data were reanalyzed by Reyff (2020). The source levels provided in Reyff and Heyvaert (2019) do not represent source levels normalized to 10 m horizontally from the pile, they are based on a slant range instead. Source levels in Reyff and Heyvaert (2019) should not be used.

⁹ 164 re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m was the average median source level for two 42-in piles. Similarly, 144 dB re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m was the average median source level for two 8-in piles. The median source levels of each 42- and 8-in pile measured were not provided in Reyff (2020).

¹⁰ 145 and 147 re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m for two individual 18-in piles, with an averaged median source level of 146 dB re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m.

¹¹ 166.2 dB re 1 μPa at 10 m was the median of the linear averaged source levels for eight 24-in piles. Reyff (2020) converted that source level to $\text{SEL}_{\text{s-s}}$ source levels based on the hammer rate (see the Summary Table).

¹² Which is the same as an arithmetic median.

¹³ The Commission also reiterates a point it has made previously that NMFS must ensure that its proxy source levels do not include duplicate data (e.g., source levels from two different hydrophones for the same pile or intermittent pile driving within and across days) for the same pile. All data associated with a given pile should be analyzed based on the various median metrics before medians are taken across numerous piles. Raw data are not available for most of the references cited.

¹⁴ e.g., exponential, logarithmic, trigonometric, power, Gaussian, polynomial, and other models that include both dependent and independent variables such as Bayesian models.

proposed authorizations fully. Therefore, the Commission recommends that NMFS publish a revised authorization for public comment that fully describes its extrapolation method (including the actual source level data points¹⁵, associated references, and type of non-linear regression used¹⁶) for estimating the source level for DTH pile installation of 48-in piles before issuing any final authorization to COK and ensure its acoustic expert reviews the extrapolation method before publishing any revised notice in the *Federal Register*. There is ample time for republication since the authorization would not be effective until 1 October 2021.

The Commission also informally inquired why NMFS presumed a 10 strike/second repetition rate for DTH pile installation of 12-in piles rather than the measured repetition rate of 13 strikes/second from Guan and Miner (2020)¹⁷. DTH pile installation of smaller-sized piles elicits faster repetition rates (see the Summary Table in Reyff 2020). Reyff (2020) indicated that the repetition rate for DTH pile installation of 8-in piles was 15 strikes/second. When asked why the repetition rate data from Guan and Miner (2020) was not used, NMFS indicated that it planned to continue to use a 10 strike/second repetition rate when an applicant is unable to provide that information. NMFS should use appropriate proxy data when such data are available, as they are in this case from Guan and Miner (2020). When extrapolating to larger-sized piles, the Commission agrees that the fastest known repetition rate data of 10 strikes/second for DTH pile installation of 42-in piles should be used as a proxy for 48-in piles. The Commission recommends that NMFS use a repetition rate of 13 strikes/second and the proxy source level of 146 dB re 1 $\mu\text{Pa}^2\text{-sec}$ at 10 m from Guan and Miner (2020) to re-estimate the Level A harassment¹⁸ and shut-down¹⁹ zones for DTH pile installation of 12-in piles.

Given the scant data available for DTH pile installation in general and the lack of information for DTH pile installation of 12-in and 48-in piles in either the published or non-published, gray literature, NMFS should have proposed to require COK to conduct sound source and sound propagation measurements of DTH pile installation of at least two 12-in and two 48-in piles. To ensure appropriate information is collected, the near-field hydrophone should be positioned at 10 m from the pile and the far-field hydrophone(s) should be placed far enough away to assess sound propagation (i.e., at least a few hundred meters from the pile). Both of which should be placed mid-water column. The hydroacoustic monitoring report also should include—

- Recording device type, sampling rate, distance (m) from the pile where measurements were made, and depth of recording device(s).
- Size of pile being driven, substrate type, and method of driving (hammering versus drilling).
- Number of strikes per pile measured, repetition rate, pulse duration, one-third octave band spectrum, power spectral density plot, and propagation loss coefficients, as well as the

¹⁵ Since there are only a handful of them.

¹⁶ Including any dependent and independent variables.

¹⁷ NMFS used the source level for DTH pile installation of 18-in piles from Guan and Miner (2020) as a proxy for DTH pile installation of 12-in piles.

¹⁸ For DTH pile installation of 12-in piles for up to 6 hours, the Level A harassment zones would be 146.2 m for low-frequency (LF) cetaceans, 5.2 m for MF cetaceans, 174.2 m for high-frequency (HF) cetaceans, 78.2 m for phocids, and 5.7 m for otariids. For DTH pile installation of 12-in piles for 7–8 hours, the Level A harassment zones would be 177.1 m for LF cetaceans, 6.3 m for MF cetaceans, 211 m for HF cetaceans, 94.8 m for phocids, and 6.9 m for otariids.

¹⁹ The shut-down zone for LF cetaceans for DTH pile installation of 12 piles for 7–8 hours would need to be increased to at least 180 m.

- minimum, mean, median, and maximum sound levels at the referenced distances in SPL_{rms} ²⁰, SPL_{peak} , SEL_{s-s} , and cumulative SEL for the impulsive components of hammering.
- Timeframe over which drilling occurred, time integral over which the measurements were taken (i.e., 1-second), one-third octave band spectrum, power spectral density plot, and propagation loss coefficients, as well as the minimum, mean, median, and maximum sound levels at the referenced distances in SPL_{rms} ²¹ and cumulative SEL for the non-impulsive components of drilling.
 - Estimated distances to the Level A harassment threshold for the impulsive hammering components and the Level B harassment threshold for the continuous drilling components for each pile measured.

Until such time that more data are available for DTH pile installation, NMFS should be requiring all applicants that propose to conduct DTH pile installation to collect in-situ measurements, especially for those applicants that are proposing to install larger-sized piles for which measurements do not exist. The Commission recommends that NMFS require COK to (1) conduct sound source and sound propagation measurements of DTH pile installation of at least two 12-in and two 48-in piles using near-field (10 m from the pile) and far-field (at least a few hundred meters from the pile) hydrophones placed mid-water column and (2) include in its hydroacoustic monitoring report all of the aforementioned elements.

Take estimates

Harbor porpoises and minke whales—The Commission informally noted that the numbers of takes were underestimated for certain species. For harbor porpoises, NMFS miscalculated the proposed number of takes based on its assumption that two groups of five porpoises each would be taken two times per month during a four-month period, resulting in 40 rather than 80 takes (85 Fed. Reg. 71627). NMFS indicated that the Commission was correct and that it would revise the Level A harassment takes to 20 and the Level B harassment takes to 60 for the final authorization²².

NMFS indicated that minke whales may be present in Tongass Narrows and Clarence Strait year-round but only proposed to authorize two Level B harassment takes (85 Fed. Reg. 71627). Conversely, NMFS indicated that gray whales have not been reported in Tongass Narrows but proposed to authorize the taking of a group of two whales in each of the four months of proposed activities (85 Fed. Reg. 71627). The Commission informally noted that based on the species occurrence information in NMFS's referenced documents and in the *Federal Register* notice, the number of minke whale takes should be increased to at least two animals taken monthly, similar to gray whales. NMFS indicated that it would increase the Level B harassment takes from two to eight in the final authorization.

Harbor seals—NMFS proposed to authorize fewer takes of harbor seals than Steller sea lions²³, even though harbor seals were observed more frequently during COK's activities in the same area in 2019

²⁰ With a time window that consists of 90 percent of the acoustic energy.

²¹ With a time window that consists of 90 percent of the acoustic energy. In addition, 1-sec SEL sound levels could be reported at the referenced distances.

²² An increase from 10 Level A harassment takes and 30 Level B harassment takes.

²³ 1,080 versus 1,200 takes, respectively.

and 2020 with up to four seals observed on a given day (Sitkiewicz 2020). NMFS indicated in the *Federal Register* notice that Steller sea lions only occur seasonally in the area and the closest haul-out site is 58 km away at Grindall Island (85 Fed. Reg. 71617). Conversely for harbor seals, NMFS indicated that densities are not well known but that seals occur year-round in the project area (85 Fed. Reg. 71626) with the closest haul-out site off the tip of Gravina Island²⁴ (85 Fed. Reg. 71617). As noted in the Commission's informal comments, AFSC's data on harbor seal haul-out counts indicated that seals occurred closer to the project area, off to the southeast in survey unit AD46 (AFSC 2018). Portions of that survey unit occur within the Level B harassment zone, with 83 seals observed in 2011.

Rather than using haul-out counts or maximum daily monitoring counts from Sitkiewicz (2020)²⁵, NMFS used an "in-water" group size estimate and a presumed frequency of occurrence. NMFS specified that groups of seals ranging from one to three seals were observed during COK's previous activities (Sitkiewicz 2020) and based on that knowledge COK assumed that three groups of three seals would be taken on each of the 120 days of activities, with a third of the takes being allocated to Level A harassment (85 Fed. Reg. 71626). NMFS indicated that it agreed with COK's assumptions and proposed to authorize 360 Level A harassment takes and 720 Level B harassment takes.

In response to the Commission's comments regarding the inappropriateness of the proposed number of harbor seal takes, NMFS indicated that one cannot make assumptions based upon information in COK's previous monitoring report due to a small sample size and other potentially confounding factors (e.g., time of day and weather conditions). Yet, NMFS did use the group size estimate from COK's previous activities (Sitkiewicz 2020) to estimate the number of takes. In addition, NMFS indicated that COK could conduct its proposed activities from 7 to 14 hours per day (85 Fed. Reg. 71613), which would cover various times of day and tidal cycles. COK's monitoring of its previous activities occurred only for 30 minutes before, during, and 60 minutes after blasting events, with one blasting event per day during various weather conditions. Consequently, the number of seals observed by Sitkiewicz (2020) during COK's previous activities is likely considerably lower than the number of seals likely to occur in the area during the proposed activities.

The Commission also informally noted that harbor seal take estimates generally are not based on in-water group size estimates, but rather on the maximum number observed in a given area²⁶. In fact, NMFS has used in-water group size estimates for pinnipeds in only approximately 1 percent of the authorizations it has issued in the last decade. NMFS responded that it should not rely on a single monitoring report to inform its take estimates. This is puzzling, as NMFS did just that for its assumed group size estimate. The Commission further noted that if COK observed groups of three seals throughout the 1.12-km monitoring zone, at a minimum it should be requesting 33²⁷ rather than 9 takes per day. To this, NMFS responded that the limited sample size

²⁴ NMFS erroneously documented the proximity to Ward Cove, which is approximately 10 km north of COK's project site. The abundance estimate in survey unit AD59 was 126 seals in 2011 (Alaska Fisheries Science Center (AFSC) 2018).

²⁵ Four seals observed within the 1.12-km monitoring zone, which could be extrapolated to the 12.5 km Level B harassment zone resulting in 44 takes per day.

²⁶ This could be based on haul-out counts or numbers observed during previous monitoring efforts.

²⁷ Based on an extrapolation of a factor of 11 for COK's 1.12-km monitoring zone relative to the 12.5 km Level B harassment zone for the proposed authorization.

from COK's monitoring report means that monitoring results may not be reliable. If that is in fact NMFS's stance, then neither should it use the group size estimate of three seals from COK's monitoring report.

For the overwhelming majority of authorizations, NMFS has used haul-out counts or maximum daily monitoring counts. It is unclear why NMFS did not use that standard approach for COK's proposed authorization. Regardless, NMFS's assumption that only nine harbor seals could be taken per day in an area where they occur year-round and for a Level B harassment zone that extends to 12.5 km is not based on best available science. If it believes that the data in Sitkiewicz (2020) are unreliable and inappropriate, the Commission recommends that NMFS use the haul-out count of 83 seals from survey unit AD46 based on AFSC (2018) to inform the daily take estimate, resulting in a total of 9,960 harbor seal takes with 2,490 Level A harassment takes and 7,470 Level B harassment takes²⁸. If NMFS believes that data in Sitkiewicz (2020) are more suitable, the Commission recommends that NMFS use the maximum daily count of four seals within the 1.12-km monitoring zone multiplied by 11 to account for the extent of the Level B harassment zone to inform the daily take estimate, resulting in a total of 5,280 harbor seal takes with 480 Level A harassment takes and 4,800 Level B harassment takes.

Reporting measures

NMFS omitted from COK's draft authorization what had been standard conditions for extrapolating and reporting takes for construction-related authorizations. In this instance, NMFS has not even required COK to report the number of marine mammals taken. Condition 6(b)(ix) in the draft authorization would only require that COK report the number of marine mammals *detected* within the harassment zones, by species²⁹. That condition is (1) ambiguous, (2) omits a requirement to specify the numbers of marine mammals *taken* by Level A and B harassment, and most importantly, (3) does not require the applicant to extrapolate takes to the extents of the Level B harassment zones of 6 to 16 km.

The Commission provided comments and underlying justification on a similar example in its [25 August 2020 letter](#) regarding Navy activities at Bangor. In that case, NMFS did require that the Navy include estimates of the number of marine mammals *taken*, by species, in the draft authorizations and the final authorizations and it specified the types of takes³⁰ consistent with the Commission's recommendation (85 Fed. Reg. 68293). As such, it is unclear why NMFS has reverted to not requiring COK to include estimates of the numbers of marine mammals taken. The Commission recommends that NMFS revise condition 6(b)(ix) in the final authorization to require COK to report the number of individuals of each species detected within the Level A and B harassment zones, and estimates of number of marine mammals taken by Level A and B harassment, by species.

²⁸ This is based on NMFS's assumption that one-third of the takes would be allocated to Level A harassment and two-thirds to Level B harassment (85 Fed. Reg. 71626).

²⁹ The Commission informally noted that item 6(b)(ix) in the draft authorization did not specify the Level A and B harassment zones. NMFS indicated it would include that clarification in item 6(b)(ix) in the final authorization

³⁰ Which were both Level A and B harassment.

The Commission provided a full rationale in its [19 November 2020 letter](#) regarding why extrapolation of takes is needed and expects that to be considered in this case as well, since NMFS has yet to provide a detailed explanation of why it did not adopt the Commission's previous recommendation regarding extrapolation of takes to the full extents of the harassment zones. Instead, NMFS specified only what was and was not included in the final authorization (see 85 Fed. Reg. 68293). That response does not fulfill NMFS's obligation to provide a detailed explanation of the reasons *why* the Commission's recommendations were not followed or adopted as required under section 202(d) of the MMPA. The Commission recommends that, for the final authorization, NMFS include requirements that COK include in its monitoring report (1) the estimated percentages of the Level A and B harassment zones that were not visible consistent with the Navy's recent authorizations for Bangor, (2) an extrapolation of the estimated takes by Level A and B harassment based on the number of observed exposures within the Level A and B harassment zones and the percentages of the Level A and B harassment zones that were not visible (i.e., extrapolated takes) consistent with other authorizations, and (3) the total number of Level A and B harassment takes based on both the observed and extrapolated takes for each species. The Commission further recommends that NMFS include in the final authorization an additional table that specifies the extents of the Level A harassment zones that exceed the shut-down zones, particularly for HF cetaceans and phocids. Such tables have been routinely included in other authorizations.

Tally of takes

It is unclear from both the preamble and the draft authorization whether COK will keep a running tally of the total Level B harassment takes. Given that NMFS proposed to authorize only a small number of takes of certain species, it is imperative that COK keep a running tally of takes, both observed and extrapolated, to ensure that the numbers of authorized takes are not exceeded and inform when condition 4(g) in the draft authorization would need to be implemented. The Commission recommends that NMFS *reinforce*³¹ that COK must keep a running tally of the total Level A and B harassment takes, both observed and extrapolated, for each species consistent with condition 4(g) of the final authorization.

Proposed one-year authorization renewals

The Commission has raised ongoing concerns regarding NMFS's renewal process for a number of years. NMFS responded to those concerns most recently in summer 2020. The Commission intends to respond in detail to NMFS's letter in separate correspondence. Until that time, the Commission recommends that NMFS refrain from issuing a renewal for any authorization unless it is consistent with the procedural requirements specified in section 101(a)(5)(D)(iii) of the MMPA.

³¹ In response to this similar recommendation for the Navy's activities at Bangor, NMFS provided a response related to *ensuring* that the Navy keep a running tally (95 Fed. Reg. 68293) rather than *reinforcing* with the action proponent that it does.

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

Sincerely,



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

cc: Dr. Amy Scholik-Schlomer, NMFS

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- Reyff, J. 2020. Review of down-the-hole rock socket drilling acoustic data measured for White Pass & Yukon Route (WP&YR) mooring dolphins. Illingworth & Rodkin, Inc., Cotati, California. 8 pages.
- Sitkiewicz, S. 2020. 2019–2020 City of Ketchikan rock pinnacle removal project: Marine mammal monitoring and mitigation report. Fairweather Science, LLC, Anchorage, Alaska. 54 pages.

Addendum

The Commission informally noted the various errors, omissions, and inconsistencies in the *Federal Register* notice. Those included—

- omitting when source levels of different sized piles were used as proxies for DTH pile installation, which is inconsistent with the information provided for impact installation (85 Fed. Reg. 71623).
 - For Level A harassment, NMFS should specify that DTH pile installation source levels for 18-in piles (Guan and Miner 2020) were used as a proxy for 12-in piles and source levels for 42-in piles (Denes et al. 2019, Reyff and Heyvaert 2019, Reyff 2020) were used as a proxy for 30- and 36-in piles.
 - For Level B harassment, NMFS should specify that DTH pile installation source levels for 24-in piles (Denes et al. 2016) were used as a proxy for 12- to 48-in piles.
- incorrectly specifying the reference for impact installation of 30-in piles as Austin et al. (2016) rather than Denes et al. (2016) in Table 5.
- incorrectly specifying the “spreadsheet tab used” in Table 6. The information is not relevant to the actual spreadsheet tabs in NMF’s user spreadsheet and is incorrect for DTH pile installation, which is an impulsive, *continuous* source.
- omitting the number of strikes/second as in input for DTH pile installation of 30- and 36-in, 48-in, and 12-in piles in Table 6.
- incorrectly specifying the Level B harassment zone for DTH pile installation as 11,660 m rather than 12,023 in Table 8 of the *Federal Register* notice and 11,700 m rather than 12,100 m in Table 10 of the notice and Table 2 in the draft authorization.
- incorrectly specifying a reduced Level B harassment zone for DTH pile installation of 12-in piles in Table 10 of the *Federal Register* notice and Table 2 in the draft authorization rather than the same Level B harassment zone for DTH pile installation of all pile sizes.

References

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