



# MARINE MAMMAL COMMISSION

4 February 2021

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 National Marine Fisheries Service's (NMFS) 8 January 2021 notice (86 Fed. Reg. 1588) and the letter of authorization (LOA) application submitted by the Hampton Roads Connector Partners (HRCP) seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act (the MMPA). The taking would be incidental to construction activities for the Hampton Roads Bridge-Tunnel Expansion Project in Virginia during a five-year period. The Commission commented in its [20 April 2020 letter](#) on the first year of HRCP's construction activities authorized under an incidental harassment authorization that is effective until 9 July 2021. The Commission also provided informal comments in October 2020 on NMFS's advance notice of proposed rulemaking (ANPR) for HRCP's proposed activities.

HRCP plans to expand the Hampton Roads bridges and tunnels (HRBT). Operators would install up to 6,798 piles including 24- to 60-in steel pipe piles, 24- to 54-in concrete piles, 16-in timber piles<sup>1</sup>, and sheet piles using a vibratory hammer, impact hammer, down-the-hole (DTH) hammer, and/or jetting<sup>2</sup>. HRCP would remove up to 4,728 piles including 24- to 42-in steel pipe piles, sheet piles, and 16-in timber piles using a vibratory hammer or direct pull or by cutting them below the mudline<sup>3</sup>. HRCP could use multiple hammers simultaneously to install and remove the various piles<sup>4</sup>. Pile installation and removal would occur at North Trestle, North Island, South Island, South Trestle, Willoughby Spit, and Willoughby Bay. HRCP expects activities to occur on up to 312 days per year for a total of 1,429 days<sup>5</sup> during the five-year period, weather permitting.

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<sup>1</sup> Chromated copper arsenate rather than creosote.

<sup>2</sup> Some piles also may be pre-drilled using an auger.

<sup>3</sup> Concrete piles also would be removed by cutting them below the mudline.

<sup>4</sup> Impact hammers could be used concurrently at three to four locations, and the various hammer types could operate concurrently at up to seven locations.

<sup>5</sup> This is the information currently specified in the *Federal Register* notice (86 Fed. Reg. 1589). However, in response to the Commission's comments regarding the dates and duration of the project, NMFS indicated that activities could occur for five full years rather than a portion of the fifth year, as was denoted in the notice. If that was in fact HRCP's intent, then the total number of activity days would be 1,560 rather than 1,429. This matter is discussed further herein.

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

- using a sound attenuation device (i.e., bubble curtain) during impact driving of a portion of the 36-in steel pipe piles<sup>6</sup> and implementing various measures regarding performance standards;
- ceasing heavy machinery activities if any marine mammal comes within 10 m of the equipment;
- using standard soft-start, delay, and shut-down procedures;
- using one to five<sup>7</sup> 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 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 number of takes already has been met, approaches or is observed within the Level A or B harassment zone;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator and ceasing activities, if appropriate;
- implementing adaptive management, as necessary; and
- submitting draft and final annual reports and a draft and final comprehensive report to NMFS.

### **General comments**

Although NMFS indicated in the preamble to the proposed rule that no comments were received on its October 2020 ANPR (86 Fed. Reg. 1589), the Commission provided six pages of informal comments on HRCP's LOA application. The Commission appreciates that NMFS addressed many of its informal comments in the preamble to and the proposed rule. However, the comments that NMFS did not address have greater implications and directly affect the numbers of proposed Level A and B harassment takes, the proposed mitigation and monitoring measures, and the relevant findings under the MMPA, including ensuring that mitigation measures would effect the least practicable impact on the species and stocks.

For example, the Commission informally noted that NMFS specified in the ANPR that the proposed rule would be effective from February 2021 to January 2026 (85 Fed. Reg. 63256), while

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<sup>6</sup> Bubble curtains will be used during impact installation of steel piles in water deeper than 6 m.

<sup>7</sup> Up to four PSOs would be positioned in the Core Monitoring Area (see Figure 11-1 in HRCP's LOA application), with the fifth PSO positioned at one of the Chesapeake Bay Bridge Tunnel (CBBT) portal islands when multiple hammers are used and the Level B harassment zone encompasses CBBT.

HRCP's LOA application assumed a different timeframe<sup>8</sup>. For take estimation purposes, HRCP assumed activities would begin in September and would occur for only a portion of the fifth year, from September until March (see, as one example, Table 6-18 in HRCP's LOA application). The Commission informally indicated that the numbers of takes are dependent on monthly or seasonal data. Thus, the annual numbers of takes would change based on when HCRP planned to conduct the activities to be covered under the rule. NMFS did not address this issue in the preamble to the proposed rule, nor did it specify the timeframe during which the proposed rule would be valid—standard information contained in the “Dates and Duration” section for all incidental take authorizations that publish in the *Federal Register*. In its informal comments on the proposed rule, the Commission requested that NMFS specify when the final rule would be valid, whether it would be valid for a full fifth year of activities or a portion of that year, and how the numbers of takes would change. NMFS clarified that the rule would be valid from March 2021 until March 2026 for five full years and that the Level B harassment takes would be increased to account for the fifth full year. That method is appropriate. However, it is not transparent, as the public has not been made aware of when the activities would occur or that the numbers of Level B harassment takes would increase based on NMFS's error. Neither the public nor the Commission has been provided the revised numbers of Level B harassment takes<sup>9</sup> for all marine mammal species in Year 5.

In addition to the Commission's unresolved comments on the ANPR, the Commission provided additional informal comments on inconsistencies, omissions, and errors in the preamble to and the proposed rule<sup>10</sup>. Although NMFS agreed to rectify some of the issues, the public has not been made aware of them. Additionally, neither the public nor the Commission has been provided all the correct outstanding information and thus has not been afforded the opportunity to review an accurate preamble and proposed rule. Those outstanding issues included—

- incorrectly specifying the input parameters for estimating the extents of the Level A harassment zones in Table 14;
- incorrectly specifying the extents of the proposed shut-down zones in Table 32; and
- incorrectly proposing to authorize Level A harassment takes in Year 5.

On the day that the notice published, the Commission alerted NMFS to the first two issues and advised that it should publish a corrected notice in the *Federal Register* that included the revised tables. NMFS did not respond to that advice. The Commission understands that formatting issues and analyst errors can occur when submitting notices to the *Federal Register*. However, when they have occurred previously, particularly for proposed rules, NMFS has published a corrected notice (e.g., 83 Fed. Reg. 15117). Given that the dates for the proposed activities were not provided and the Level A and B harassment takes were incorrect as well, a corrected notice is even more warranted. The Commission recommends that NMFS publish a corrected notice in the *Federal Register* that includes, at a minimum, the dates and the correct number(s) of days within a year the activities are expected to occur, the correct input parameters for estimating the extents of the Level A harassment zones, the correct proposed shut-down zones, and the revised numbers of Level A and B harassment takes for Year 5<sup>11</sup> and provide a 30-day comment period from when the corrected notice publishes.

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<sup>8</sup> HRCP indicated that activities would begin in December 2020 in section 1.1 of its LOA application.

<sup>9</sup> By month as was included in the preamble for all years.

<sup>10</sup> Please see the Addendum for those that NMFS indicated would be addressed in the preamble to and/or the final rule.

<sup>11</sup> As well as the total numbers of takes as specified in Table 30.

Absent a corrected notice, it is unclear how NMFS is fulfilling its obligations under either the Administrative Procedures Act (the APA) or the MMPA.

The Commission notes that it made a similar recommendation in its [20 April 2020 letter](#) on HRCF's proposed incidental harassment authorization. NMFS did not revise and republish a corrected notice then, responding that, for the most part, the issues were based on differences of opinion on how available data should be applied and when there was an error or the Commission's logic was more appropriate to implement, it made the recommended changes (85 Fed. Reg. 48161). This latter point is precisely the Commission's argument. The public was not made aware of the errors and omissions<sup>12</sup> then or now and thus was not afforded an opportunity to provide informed and meaningful comments. In the absence of a corrected notice, the Commission has the following concerns and recommendations.

### **Extents of the Level A harassment zones**

To estimate the extents of the Level A harassment zones, NMFS reduced by 50 percent either HRCF's strike rate or duration necessary to install or remove a pile. Specifically, NMFS reduced the strike rate for impact pile driving, the assumed 10-Hz repetition rate for DTH pile installation, and the time to install or remove a pile for vibratory pile driving and removal (86 Fed. Reg. 1612). NMFS indicated that, because marine mammals are highly mobile, it was unlikely that an animal would remain within an established Level A harassment zone for the entire duration or number of strikes associated with installation or removal of a specified number of piles throughout a given day (86 Fed. Reg. 1612). As the Commission informally noted in its comments on the ANPR, there is no justification for such an assumption and the assumption on its face is nonsensical. For example, NMFS ultimately assumed that an animal would occur within the Level A harassment zone for 15 of the 30 minutes it would take to install each of the six 42-in piles using a vibratory hammer. That is, an animal would be expected to occur within the zone only for 15 minutes, leave and return for 15 minutes of installation of the next pile, and so on for six piles. If NMFS believes that an animal would occur within a Level A harassment zone only for a certain amount of time, that must be substantiated with data. Further, one generally would assume that an animal would occur in the area only for a portion of the piles to be installed, not a portion of *each* of the piles to be installed in a given day. Moreover, using NMFS's 50-percent reduction assumption, it ultimately assumed that an animal would occur within the Level A harassment zone for 1.5 of the 3 hours it would take to install six 42-in piles but would apparently leave the area after 15 minutes for a single 36-in pile to be installed rather than remain in the area for the 30 minutes it would take to install a single pile<sup>13</sup>. It is unclear why a harbor seal would be expected to stay in the area for 1.5 hours when a larger pile is installed and the sound levels are higher but would remain only for 15 minutes total when a smaller pile is installed.

In recent years, NMFS has made various assumptions in an effort to reduce the size of the Level A harassment zones, including a 50-percent reduction in the assumed strike rate and time

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<sup>12</sup> These are not based on differences of opinion or logic. NMFS acknowledged the errors and indicated that they would be rectified.

<sup>13</sup> NMFS similarly assumed that an animal would occur in the area for 10 sheet piles to be installed during 2.5 hours, but that an animal would occur in the area for 4 timber piles to be driven over the course of 1 hour, rather than the full 2 hours expected to drive the piles. It is quite conceivable that if an animal could be exposed for up to 2.5 hours during sheet pile installation, an animal also could be exposed for the full 2 hours it would take to install the 4 timber piles.

duration, a reduction in the estimated number of piles to be installed on a given day, and a presumed maximum timeframe during which an animal is expected to remain in the area (e.g., 1 hour). None of these assumptions have been used consistently nor have they been substantiated by data, but rather they appear arbitrary. In this case, NMFS also assumed that none of the Level A harassment zones for impact pile driving would overlap and thus add to one another. That may not necessarily be true for impact installation of 54-in concrete piles at North and South Trestle where the Level A harassment zones extend to nearly 500 m for high-frequency (HF) cetaceans and more than 400 m for low-frequency (LF) cetaceans. The Level A harassment zones would be even larger had NMFS not arbitrarily reduced the number of strikes by 50 percent. If the hammers would be in close proximity (500–700 m), the Level A harassment zones should be based on the number of piles to be installed by both hammers on a given day. While HRCP specified that only one 54-in concrete pile would be installed per day at each site, more than a single pile usually is installed at a given site per day<sup>14</sup> unless restricted by other requirements, such as U.S. Army Corps of Engineers (USACE) permits. It is unclear whether installation of a single 54-in concrete pile at both North and South Trestle represents an accurate estimation of impacts.

Beyond the intricacies specific to HRCP's proposed rule, NMFS should determine the appropriate timeframes over which sound exposure levels should be accumulated when estimating the extents of the Level A harassment zones—an issue that was not resolved prior to NMFS finalizing its Technical Guidance more than four years ago. The Commission understands that NMFS formed an internal committee to address this issue and had previously consulted with external acousticians and modelers. In the absence of relevant recovery time data for marine mammals, the Commission continues to believe that animal modeling that considers various operational and animal scenarios should be used to inform the appropriate accumulation time. Such modeling could be incorporated into NMFS's user spreadsheet that currently estimates the Level A harassment zones. The Commission recommends that NMFS prioritize resolving this issue in the near future and consider incorporating animal modeling into its user spreadsheet. Until such time that this issue is resolved, the Commission recommends that NMFS (1) refrain from using any assumed reductions in the operational parameters or presumed residency time when estimating the extents of the Level A harassment zones, (2) verify that a maximum of only one 54-in concrete pile can be installed at a given location on a given day and, if the impact hammers at North and South Trestle would be in close proximity (500–700 m), assume that the Level A harassment zones would overlap and two piles would be installed per day rather than one, and (3) re-estimate the extents of the Level A harassment zones for all scenarios for HRCP's activities, re-estimate the numbers of Level A harassment takes as necessary, and revise the shut-down zones accordingly in the preamble to and the final rule.

### **DTH pile installation**

For the ANPR, the Commission provided numerous informal comments regarding the proposed source levels for DTH pile installation<sup>15</sup>. Many of these comments were not addressed in the preamble to the proposed rule. Those included—

- omitting that the root-mean-square sound pressure level ( $SPL_{rms}$ ) source levels were based on

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<sup>14</sup> Especially when it would take approximately 30 minutes to install.

<sup>15</sup> DTH equipment produces both drilling and percussive hammering action.

- 1-second averaged source levels from Denes et al. (2016) and installation of 24-in piles that was used as a proxy for 30- to 60-in piles;
- omitting that the single-strike sound exposure level ( $SEL_{s-s}$ ) and  $SPL_{peak}$  source levels for installation of 42-in piles were used as a proxy for 30- and 36-in piles;
  - omitting and incorrectly assuming that the  $SPL_{peak}$  source level for installation of 42-in piles was used as a proxy for 60-in piles; and
  - not accurately specifying how the  $SEL_{s-s}$  source level for installation of 60-in piles was estimated.

The first two issues can easily be rectified in the preamble to the final rule. The latter two are more substantive. As an ongoing matter related to accuracy and transparency, NMFS must specify when it uses source levels associated with different pile types or sizes as proxies for those that an applicant intends to use. NMFS included that information for vibratory and impact installation of various pile types and sizes (see the footnotes in Table 11) but did not do so for DTH pile installation. The Commission recommends that for all incidental take authorizations NMFS specify when it uses source levels associated with different pile types or sizes as proxies and what the differences are.

In regard to the latter two issues, the Commission informally noted for the ANPR that an  $SPL_{peak}$  source level cannot be the same for 30-/36-in piles<sup>16</sup> and 60-in piles, particularly when the proposed  $SEL_{s-s}$  source levels differ by 11 dB (see Table 11 in the *Federal Register* notice). The  $SPL_{peak}$  and  $SEL_{s-s}$  source levels that NMFS currently uses for DTH pile installation are based on per-pulse metrics. As such, DTH pile installation source levels have been shown to increase with increasing pile or bit size (Denes et al. 2019, Guan and Miner 2020, Reyff 2020), similar to impact pile driving. For the  $SEL_{s-s}$  source level for 60-in piles, NMFS specified that Reyff (pers. comm.) was the underlying reference (86 Fed. Reg. 1610). The Commission asked NMFS to clarify whether the source level was based on expert opinion or data. NMFS responded that James Reyff provided HRCF with an estimated source level via a telecon and that the estimate was based on regression analysis of data from a number of projects including Skagway<sup>17</sup>, Biorka Island<sup>18</sup>, Kodiak<sup>19</sup>, and Chesapeake Tunnel Joint Venture (CTJV)<sup>20</sup> with data collected by JASCO Applied Sciences Inc. (JASCO) and Illingworth & Rodkin, Inc. (Illingworth and Rodkin). The Commission questions this information and the underlying approach.

First, if a regression analysis was conducted and a specific source level recommended, then data should be available to support that analysis. Second, neither JASCO nor Illingworth and Rodkin conducted measurements at Biorka Island. Those data were collected by Robert Miner Dynamic Testing of Alaska Inc. and reported in Guan and Miner (2020). Third, and as stated previously herein, the source level data reported by Denes et al. (2016) for Kodiak were based on 1-second averages not per-pulse metrics, upon which  $SEL_{s-s}$  source levels are based. Thus, CTJV data reported by Denes et al. (2016) are inappropriate and irrelevant.

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<sup>16</sup> Based on 42-in piles.

<sup>17</sup> Reyff and Heyvaert (2019) and Reyff (2020).

<sup>18</sup> Guan and Miner (2020).

<sup>19</sup> Denes et al. (2016).

<sup>20</sup> Denes et al. (2019).

NMFS's response is similar to that for its recently proposed incidental harassment authorization involving the City of Ketchikan. The Commission had numerous comments on NMFS's explanation of and extrapolation method associated with DTH pile installation in Ketchikan in its [7 December 2020 letter](#)<sup>21</sup>. As stated in that letter, NMFS did not specify which of the five references<sup>22</sup> were used for its extrapolation method or how the data were extrapolated. The Commission further noted that specifying such information is particularly important since that was the first time NMFS had described its currently-proposed way forward regarding appropriate source characterization and source levels associated with DTH pile installation, as well as its proposed extrapolation method. NMFS's extrapolation method remains unsubstantiated a few months later and apparently NMFS still believes it is not important to provide the relevant information. In fact, in the preamble to HRCF's proposed rule, NMFS did not mention that a regression analysis or extrapolation method had been used for the SEL<sub>s-s</sub> source level for 60-in piles.

As previously noted in its December 2020 letter, the Commission cannot evaluate NMFS's regression analysis or extrapolation method. In addition, it is unclear how such a method could have been used, given that—

- Denes et al. (2019) provided mean SEL<sub>s-s</sub> source levels<sup>23</sup>.
- Reyff and Heyvaert (2019)<sup>24</sup> and Reyff (2020) provided median one-second SEL source levels that were converted to SEL<sub>s-s</sub> based on the hammer rate in Reyff (2020)<sup>25</sup>.
- Guan and Miner (2020) provided median SEL<sub>s-s</sub> source levels<sup>26</sup>.
- Denes et al. (2016) provided an average median SPL<sub>rms</sub> source level<sup>27</sup>.

It is unclear how NMFS used source levels that were based on different metrics (one-sec SEL, SEL<sub>s-s</sub>, and SPL<sub>rms</sub>) and different measures of central tendency of the measured distributions (linear medians<sup>28</sup>, 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 tendency<sup>29</sup> should be used to inform any extrapolation.

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<sup>21</sup> Which should be reviewed in concert with this letter.

<sup>22</sup> Denes et al. (2016), Denes et al. (2019), Reyff and Heyvaert (2019), Guan and Miner (2020), and Reyff (2020).

<sup>23</sup> 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.

<sup>24</sup> 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.

<sup>25</sup> 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).

<sup>26</sup> 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.

<sup>27</sup> 166.2 dB re 1  $\mu\text{Pa}$  at 10 m was the median of the linear averaged source levels for eight 24-in piles. Reyff (2020) converted that source level to SEL<sub>s-s</sub> source levels based on the hammer rate (see the Summary Table).

<sup>28</sup> Which is the same as an arithmetic median.

<sup>29</sup> The Commission also reiterates a point it had made previously that NMFS must ensure that its proxy source levels do not include duplicative 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.

In addition, NMFS did not specify what type of regression analysis was used. When informally asked about this for the City of Ketchikan, NMFS noted that a non-linear regression was used for that analysis. Non-linear regression can involve a wide variety of functional forms and assumed error structures<sup>30</sup>, the selection of which could greatly affect extrapolations. Because sufficient detail regarding the proposed regression or extrapolation method was again not provided in the *Federal Register* notice (or HRCF's application), it is not possible for the Commission or the public to evaluate the proposed rule fully. These issues make it apparent that NMFS's acoustic expert is not being consulted on matters involving DTH pile installation—the expert should have been consulted for HRCF's proposed rule and should be consulted for other incidental take authorizations that involve DTH pile installation. Therefore, the Commission recommends that NMFS (1) fully describe the regression analysis or extrapolation method (including the actual source level data points<sup>31</sup>, associated references, and type of regression<sup>32</sup>) used for estimating the SEL<sub>s-s</sub> source level for DTH pile installation of 60-in piles, (2) explain why such a method was not used for SPL<sub>peak</sub> source levels and why NMFS believes that an SPL<sub>peak</sub> source level would be the same for 30-, 36-, and 42-in piles as 60-in piles, and (3) ensure its acoustic expert reviews the regression analysis for the SEL<sub>s-s</sub> source level for 60-in piles and justification for the SPL<sub>peak</sub> source level for 60-in piles before publishing any final rule, and (4) ensure its acoustic expert reviews all regression analyses, extrapolation methods, and proxy source levels for DTH pile installation for all related incidental take authorizations.

### Proxy source levels

As the Commission has noted for other authorizations involving construction activities, NMFS is using inconsistent source levels for the same pile sizes, types, and installation methods between authorizations. In this instance, the pile-driving activities associated with two different action proponents would occur in the same area and during the same timeframe<sup>33</sup>. As an example of the inconsistencies, NMFS used a source level of 162 dB re 1  $\mu\text{Pa}$  at 10 m for vibratory installation of 16-in piles for HRCF's activities in Willoughby Bay (Table 11; 86 Fed. Reg. 1610), while it used a source level of 158 dB re 1  $\mu\text{Pa}_{\text{rms}}$  at 10 for vibratory installation of 16-in piles based on the same underlying data<sup>34</sup> for the Navy's activities in Willoughby Bay (see Table 8; 85 Fed. Reg. 83014). Similarly, NMFS used source levels of 188 dB re 1  $\mu\text{Pa}_{\text{peak}}$ , 176 dB re 1  $\mu\text{Pa}_{\text{rms}}$ , and 166 dB re 1  $\mu\text{Pa}^2\text{-sec}_{\text{s-s}}$  at 10 m based on California Department of Transportation (Caltrans; 2015) for impact installation of 24-in concrete piles for HRCF's activities and source levels of 189 dB re 1  $\mu\text{Pa}_{\text{peak}}$ , 176 dB re 1  $\mu\text{Pa}_{\text{rms}}$ , and 163 dB re 1  $\mu\text{Pa}^2\text{-sec}_{\text{s-s}}$  at 10 m based on Illingworth and Rodkin (2017) for the Navy's activities involving impact installation of 24-in concrete piles. It is unclear why NMFS is deeming different source levels as best available for the same activities in the same area, including those that are based on the same underlying reference.

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<sup>30</sup> e.g., simple linear, logistic, exponential, logarithmic, trigonometric, power, Gaussian, polynomial, and other models that include both dependent and independent variables such as Bayesian models.

<sup>31</sup> Since there are only a handful of them.

<sup>32</sup> Including any dependent and independent variables.

<sup>33</sup> The Navy also proposed to conduct construction activities at Naval Station (NAVSTA) Norfolk adjacent to and within the same areas as HRCF, including in Willoughby Bay, from 2021–2026 (see the proposed rule at 85 Fed. Reg. 83001).

<sup>34</sup> Illingworth and Rodkin (2017) provided source levels for vibratory installation of 12-in timber piles that were used as a proxy for both HRCF's and the Navy's activities. HRCF indicated that the source level originated from Caltrans (2020). However, the source level was reported in Caltrans (2020), which referenced Illingworth and Rodkin (2017).



The Commission has been recommending for many years that NMFS provide guidance to applicants regarding use of consistent proxy source levels for pile-driving activities—data that were compiled more than a year and a half ago for impact pile driving and that still have not been made available. As such, the Commission again recommends that NMFS (1) have its experts in underwater acoustics and bioacoustics review and finalize as soon as possible, its recommended proxy source levels for impact pile driving of the various pile types and sizes<sup>35</sup>, (2) compile and analyze the source level data for vibratory pile driving of the various pile types and sizes in the near term, and (3) ensure action proponents use consistent and appropriate proxy source levels in all future rulemakings and proposed incidental harassment authorizations. If a subset of source level data is currently available (i.e., vibratory pile driving of 24-in steel piles), those data should be reviewed immediately and used—the data should not be ignored until the other vibratory source levels are finalized.

### **Bubble curtain efficacy**

The Commission has commented numerous times on the assumptions used by NMFS regarding the efficacy of bubble curtains (see the Commission’s [25 August 2020 letter](#) and [20 April 2020 letter](#)). Generally, NMFS uses a standard 7-dB source level reduction when bubble curtains are to be used during impact pile driving based on data from Caltrans (2015) and Austin et al. (2016; 84 Fed. Reg. 64834 and 85 Fed. Reg. 54884)<sup>36</sup>. In this instance, NMFS used a 7-dB source level reduction but referenced Denes et al. (2019) as the source (86 Fed. Reg. 1610). Denes et al. (2019) measured the source levels associated with bubble curtain use during DTH pile installation, not impact pile driving. Additionally, Denes et al. (2019) noted that four<sup>37</sup> of the five piles measured showed comparable source levels when the bubble curtain was on and when it was off. Source levels of three of the four piles were similar and the standard deviations of all four piles were within the same range. Denes et al. (2019) specifically stated that an effect of the bubble curtain could not be determined from the measured levels. As such, it is unclear why NMFS relied on those data.

In response to the Commission’s inquiry, NMFS indicated that reference to Denes et al. (2019) in the preamble to the proposed rule simply notes that a similar reduction was achieved at a nearby location and that Denes et al. (2019) had been accepted by NMFS and provides additional support of the appropriateness of use as a guideline in regulatory processes. It is clear that NMFS did not review Denes et al. (2019) before it used it as a supporting reference, given that a similar reduction was not achieved, the authors specifically stated that the effectiveness of the bubble curtain could not be determined, and the measurements did not involve impact pile driving. In addition, NMFS’s acceptance of a hydroacoustic monitoring report does not mean that NMFS is using the data contained in such a report in the appropriate manner, as referenced in this case.

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<sup>35</sup> Proxy source levels should not include duplicative 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. This applies to both impact and vibratory pile driving.

<sup>36</sup> In other recent proposed authorizations, NMFS assumed an average source level reduction of 8 dB based on Illingworth and Rodkin (2012; 85 Fed. Reg. 48218) and a 5-dB reduction based on Caltrans (2015) and Austin et al. (2016; 85 Fed. Reg. 66949), which the Commission noted was inconsistent with prior assumptions for the same reference data in its [2 November 2020 letter](#).

<sup>37</sup> Two piles with and two piles without the bubble curtain.

NMFS further specified that until additional information is available regarding the level of sound attenuation from a bubble curtain, it will assume a 7-dB source level reduction, which is supported by Department of the Navy (2015) and Illingworth and Rodkin (2020)<sup>38</sup>. Department of the Navy (2015) is not even used by the Navy to support its presumed sound level reductions, including in the inland waters of Washington. The Navy, and in turn NMFS, used Illingworth and Rodkin (2012) to support its presumed effectiveness for a recent incidental harassment authorization at Naval Base Kitsap. The Commission's [25 August 2020 letter](#) noted that Illingworth and Rodkin (2012) determined that the sound level reductions in the far field (approximately 120–750 m from the source) were only 4 to 5 dB. Those distances are well within the Level A harassment zones of all species except bottlenose dolphins and the Level B harassment zones of all species for HRCP's proposed rule. With regard to Illingworth and Rodkin (2020) and based on the Commission's request for it, NMFS indicated that it was still reviewing the report and that it would be posted on NMFS's website on or after 9 February<sup>39</sup>—the day after the comment period closes for HRCP's proposed rule. It is unclear how NMFS can substantiate its presumed 7-dB source level reduction if the agency is in fact still reviewing the report<sup>40</sup>.

Moreover, NMFS informally noted that geology and its influence on ground-borne sound are key factors affecting sound propagation and consideration of data collected at nearby locations is an important aspect of predicting sound levels for a new location. Following that reasoning, it is unclear why NMFS is using as justification presumed source level reduction factors from activities that occurred in California, Washington, and Alaska and ignoring the findings from Denes et al. (2019) that determined that the bubble curtain was not effective at CTJV. NMFS's presumed source level reductions are not substantiated by the available data, including the various data NMFS attempted to use for HRCP. The Commission again recommends that NMFS (1) refrain from using the 7-dB source level reduction factor for far-field impacts (>100 m) and (2) consult with acousticians, including those at the University of Washington-Applied Physics Laboratory (UW), regarding the appropriate source level reduction factor, if any, to use to minimize far-field effects on marine mammals<sup>41</sup>.

## Take estimates

*Harbor seals*—NMFS proposed to use the average of the average daily counts of seals observed at the CBBT haul-out sites from 2014–2019 ( $n=13.6$  seals)<sup>42</sup>, occurrence of seals from November–May of each year, and the number of pile-driving days that could occur during the timeframe in which seals

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<sup>38</sup> NMFS also noted Caltrans (2015).

<sup>39</sup> As such, the Commission has not been provided the report and thus has not reviewed it.

<sup>40</sup> The Commission further notes that NMFS's acoustic expert, who normally reviews and comments on hydroacoustic monitoring plans and reports, has since left the agency. It is imperative that NMFS's other acoustic expert(s) review Illingworth and Rodkin (2020) and any comments be rectified before the report is accepted as final. The same contractor had numerous errors in one of its previous hydroacoustic monitoring reports (Reyff and Heyvaert 2019) that were corrected in multiple drafts of that report, as well as an additional Addendum to the report (Reyff 2020). All source levels must be based on the appropriate intended metric(s), be based on a horizontal rather than a slant range, and be consistent within the text and tables of the report.

<sup>41</sup> Which includes Level A harassment as well.

<sup>42</sup> Jones et al. (2020) indicated that the maximum daily count ranged from 17–45 seals at CBBT and from 24–69 seals at ES. The maximum average daily count was 23 at CBBT and 25 at ES.

could be present in any given year<sup>43</sup> to inform its take estimates. Although the method is reasonable, some of the assumptions NMFS made are not.

NMFS used the average of average daily counts of seals at CBBT for HRCP's activities (n=13.6 seals) rather than the maximum daily count of harbor seals (n=45 seals) that NMFS used for the CTJV activities<sup>44</sup> (85 Fed. Reg. 16070). The maximum daily count of seals at CBBT should have been used for HRCP's activities as well, since the Level B harassment zones encompass the CBBT when multiple vibratory hammers are used<sup>45</sup>. In addition, NMFS failed to account for the fact that seals that haul out at the Eastern Shore (ES) haul-out sites also occur within Chesapeake Bay. As stipulated in a recent LOA application the Navy for conducting construction activities NAVSTA Norfolk<sup>46</sup>, seals move between CBBT and ES haul-out sites, and four of the seven harbor seals that were captured at the ES haul-out site and tagged with satellite-linked transmitters moved into Chesapeake Bay, including one seal that stayed in the bay until it migrated from the area (Ampela et al. 2019). The Navy also indicated that 36 percent of the trips of the ES-tagged seals occurred within Chesapeake Bay. As such, NMFS should have accounted for the seals that could enter the bay from the ES haul-out sites as well as those that occur at CBBT. As such, the Commission recommends that NMFS re-estimate the numbers of Level B harassment takes of harbor seals based on up to 52<sup>47</sup> rather than 13.6 seals potentially being taken on the various days of proposed activities.

*Level A harassment takes*—The largest Level A harassment zones occur during DTH pile installation and extend to nearly 8 km for HF cetaceans<sup>48</sup>. The Commission noted in its October 2020 informal comments on the ANPR that animals can be taken by both Level B harassment during the various installation and removal activities and by Level A harassment during DTH pile installation. Based on the size of the harassment zones and the fact that PSOs cannot keep track of individuals, particularly harbor seals, as they move amongst the numerous adjacent sites, an individual could be enumerated as being taken by both types of harassment in the same day and/or at different sites. As such, NMFS should not reduce the Level B harassment takes by the Level A harassment takes.

In addition, the Commission informally noted that NMFS's assumption that 20 percent of the total takes should be attributed to Level A harassment does not comport with the fact that the Level A harassment zones for all impact pile driving and DTH pile installation and a portion of the vibratory pile driving and removal exceed the proposed 15-m shut-down zone for those activities<sup>49</sup>. For example, the DTH pile installation and impact pile-driving activities would account for 88 percent of the activity days<sup>50</sup>, which does not account for vibratory pile driving and/or removal of

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<sup>43</sup> Based on six-day work weeks.

<sup>44</sup> Which involved construction activities at the CBBT.

<sup>45</sup> See Figure 6-1 in HRCP's LOA application and all scenarios involving piles larger than 24 in in Table 13 in the *Federal Register* notice. Table 13 only applies to three hammers being used simultaneously, even though HRCP could use up to seven.

<sup>46</sup> Some of HRCP's project sites are within or adjacent to NAVSTA Norfolk (see Figures 1-1 in HRCP's and the Navy's LOA applications; [https://media.fisheries.noaa.gov/dam-migration/navynorfolk\\_2020loa\\_app\\_opr1.pdf](https://media.fisheries.noaa.gov/dam-migration/navynorfolk_2020loa_app_opr1.pdf)).

<sup>47</sup> Based on the maximum daily count of 45 seals at the CBBT haul-out sites *and* the average of average daily counts of 18.3 seals at ES haul-out sites and 36 percent of those seals occurring in Chesapeake Bay, which would equate to an additional 7 seals.

<sup>48</sup> The zones extend to more than 6.6 km for LF cetaceans and 3.5 km for phocids.

<sup>49</sup> As denoted in the preamble text (86 Fed. Reg. 1626). The zones included in Table 32 are incorrect and NMFS's intent for each functional hearing group and the various scenarios is unclear.

<sup>50</sup> 1,140 of 1,296 days estimated in Table 2 in the *Federal Register* notice.

30-in steel piles and 42-in casings. If all such activities would have been considered, the Level A harassment zones would exceed the shut-down zones for a significantly higher percentage of activity days than assumed by NMFS. NMFS's currently-proposed number of Level A harassment takes ( $n=437$ ) could easily be exceeded, as that number allows for fewer than three seals to occur in the various Level A harassment zones each day across the multiple sites. This is an issue for the other five species as well<sup>51</sup>. For these reasons, the Commission recommends that NMFS (1) re-estimate the numbers of Level A harassment takes for each species and each of the first four years of activities<sup>52</sup> based on the percentages of days in which the Level A harassment zones exceed the shut-down zones and (2) authorize the revised numbers of Level A harassment takes *in addition* to the unreduced Level B harassment takes as estimated by the various take estimation methods in the final rule.

*Reduction of Level B harassment takes*—NMFS reduced the proposed numbers of Level B harassment takes by the numbers of Level A harassment takes. That method is reasonable when NMFS is using an area x density method for estimating both Level A and B harassment, when the Level A harassment zone is less than the Level B harassment zone for a given activity, and when individual marine mammals can be tracked. None of those conditions apply to HRCP's activities. NMFS only used an area x density method to estimate the numbers of Level B harassment takes for bottlenose dolphins, and the Level A harassment zone extends beyond the Level B harassment zone during DTH pile installation, as noted previously herein. Further, the PSOs are unable to track individual pinnipeds and small cetaceans at one site throughout the day to minimize double counting takes, let alone at up to seven locations simultaneously. As such, it is inappropriate to reduce the numbers of Level B harassment takes. Authorizing the full number of Level B harassment takes also is consistent with numerous other incidental take authorizations issued by NMFS in recent years for construction activities (e.g., 85 Fed. Reg. 68291, 85 Fed. Reg. 21399, 85 Fed. Reg. 673, 85 Fed. Reg., 4278, 84 Fed. Reg. 28474, 84 Fed. Reg. 26405, 83 Fed. Reg. 28826, etc.). For these reasons, the Commission recommends that NMFS refrain from reducing the number of Level B harassment takes by the number of Level A harassment takes and authorize the full number of Level B harassment takes for each species in each of the first four years of activities in the final rule.

### **Mitigation and monitoring measures and plans**

*Hydroacoustic monitoring*—NMFS did not propose to require HRCP to conduct sound source and sound propagation measurements of any of the various pile types. The Commission has supported NMFS including such requirements—including in its letter on HRCP's current incidental harassment authorization—particularly since measurements are scant or lacking altogether for certain pile types, sizes, and methods that HRCP would use. HRCP proposed to use source levels from impact installation of 36-in concrete piles as a proxy for 54-in piles. For DTH pile installation, source levels are lacking for 30- and 36-in piles, so  $SPL_{rms}$  source levels were based on 24-in piles and  $SPL_{peak}$  and  $SEL_{s-s}$  source levels were based on 42-in piles. Similarly, for DTH pile installation of 60-in piles,  $SPL_{rms}$  source levels were based on 24-in piles,  $SPL_{peak}$  source levels were based on 42-in

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<sup>51</sup> NMFS assumed that 22 percent of the gray seal takes should be attributed to Level A harassment, similar to harbor seals. It also assumed that 5 percent of the humpback whale takes, 33 percent of the harbor porpoise takes, and 1 percent of the bottlenose dolphin takes should be attributed to Level A harassment.

<sup>52</sup> Based on the activities proposed to occur in Year 5, Level A harassment takes would not be necessary for any of the species.

piles, and  $SEL_{s-s}$  source levels were based on expert opinion from James Reyff. Data also are lacking to substantiate the 7-dB source level reduction for impact installation of steel piles and are scant for jetting. In addition, few measurements exist for impact installation of 24-in square concrete piles (e.g., one project was reported in Caltrans (2015) and after jetting/drilling at NAVSTA Norfolk as reported in Illingworth and Rodkin (2017<sup>53</sup>))<sup>54</sup>. Further, no measurements currently exist of multiple hammer use in HRCP's project area.

It is unclear why NMFS did not propose to require HRCP to conduct sound source and sound propagation measurements, especially since NMFS did so for the Navy's activities at NAVSTA Norfolk. The Navy's proposed activities would involve less than half of the number of piles HRCP plans to install and remove<sup>55</sup>, smaller piles<sup>56</sup> than HRCP would install, better understood methods than HRCP would use<sup>57</sup>, and a single hammer<sup>58</sup>. When asked why it did not include a hydroacoustic monitoring requirement, NMFS indicated that a hydroacoustic monitoring study is a condition of the USACE and Virginia Marine Resources Commission (VMRC) permits and is being designed in collaboration with NMFS's section 7 biologists under the Endangered Species Act to minimize impacts on sturgeon. NMFS should be aware, given that it is the resource agency that authorizes the taking of both classes of animals, that a hydroacoustic monitoring plan targeting impacts on fish would have little relevance to marine mammals based on the fact that the acoustic thresholds and metrics for fish<sup>59</sup> are not the same as for marine mammals and that impacts on fish are concentrated in the near field, while impacts on marine mammals occur in both the near and far field. NMFS's response shirks its obligation under the MMPA to ensure that its proposed mitigation measures are effecting the least practicable impact on the species and stocks and that its monitoring measures will result in the authorized level of taking or impacts on populations of marine mammals. NMFS is fully capable of coordinating with its section 7 biologists to ensure that the requirements under the MMPA and ESA are able to be achieved during the same hydroacoustic monitoring study—an approach routinely taken on the west coast of United States where action proponents must abide by similar requirements from USACE and the various state agencies, as well as requirements by NMFS under the MMPA.

Given the paucity of data and the large number of piles proposed for installation, NMFS should require HRCP to conduct sound source and sound propagation measurements of installation of at least three piles or a day's worth<sup>60</sup> of each size and type of pile for the various installation methods. 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

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<sup>53</sup> Illingworth and Rodkin (2017) also measured the installation of a concrete pile driven twice at Craney Island but noted that the sound levels would not necessarily match or be reflective of the typical levels measured for the driving of a typical concrete pile due to the short duration of the drives.

<sup>54</sup> Many of the 24-in piles that have been measured have been octagonal.

<sup>55</sup> The Navy would install and remove approximately 5,200 piles compared to the more than 11,000 piles that HRCP would install and remove.

<sup>56</sup> The Navy would install piles no greater than 24-in compared to piles ranging in size up to 60-in for HRCP.

<sup>57</sup> The Navy did not propose to use DTH pile installation or a bubble curtain.

<sup>58</sup> The Navy did not propose to use multiple hammers.

<sup>59</sup> The thresholds for acoustic injury to fish are not the same as for marine mammals, and the acoustic thresholds for fish are not based on the same metrics as the behavior thresholds for marine mammals ( $SEL_{s-s}$  and  $SPL_{peak}$  vs.  $SPL_{rms}$ , respectively). In fact, NMFS does not currently use behavior thresholds for fish, which are considered far-field impacts.

<sup>60</sup> HRCP estimated that up to 6 concrete piles would be installed using a DTH hammer on a given day (Table 15 in the *Federal Register* notice).

to assess sound propagation (e.g., at 50–100 m for impact driving and DTH hammering, at least a few hundred meters out to a few kilometers for DTH drilling, and near CBBT for vibratory driving using multiple hammers). All hydrophones should be placed mid-water column. As previously stipulated by the Commission, the hydroacoustic monitoring report at a minimum 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, number of hammers used at a given time, substrate type, and method of driving (e.g., impact driving, vibratory driving, jetting, DTH hammering vs. drilling).
- Number of strikes per pile measured, pulse duration, 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  $SPL_{rms}^{61}$ ,  $SPL_{peak}$ ,  $SEL_{s-s}$ , and cumulative SEL for impact pile driving.
- Timeframe over which vibratory installation and jetting 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  $SPL_{rms}^{62}$  and cumulative SEL for vibratory pile driving and jetting.
- 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 minimum, mean, median, and maximum sound levels at the referenced distances in  $SPL_{rms}^{61}$ ,  $SPL_{peak}$ ,  $SEL_{s-s}$ , and cumulative SEL for the impulsive components of DTH 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  $SPL_{rms}^{62}$  and cumulative SEL for the non-impulsive components of DTH drilling.
- Estimated distances to the Level A harassment and Level B harassment thresholds for the various pile sizes and types, including the Level A harassment thresholds for the impulsive components of DTH hammering and the Level B harassment threshold for the continuous components of DTH drilling for each pile measured.

The Commission recommends that NMFS require HRCF to (1) conduct sound source and sound propagation measurements of (a) impact installation of at least three 24-in and three 54-in concrete piles and three 36-in piles with and three 36-piles without a bubble curtain, (b) vibratory installation using multiple hammers over multiple days of activities when three or more hammers are used in the Core Monitoring Area, (c) jetting of at least 3 42-in piles, and (4) DTH pile installation of six 30-in, three 36-in, and three 60-in piles using near-field and far-field hydrophones placed mid-water column and (2) include in its hydroacoustic monitoring report all of the aforementioned elements. The Commission also recommends that NMFS require HRCF to increase the sizes of the shut-down zones and Level A harassment zones if the measured data indicate that the zones were

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<sup>61</sup> With a time window that consists of 90 percent of the acoustic energy.

<sup>62</sup> 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.

underestimated.

*Shut-down zones*—As noted previously herein, Table 32 in the *Federal Register* notice is incorrect and NMFS's intended shut-down zones are unknown<sup>63</sup>. Neither the public nor the Commission can provide meaningful comments on NMFS's proposed shut-down zones when the information is not contained or accurately depicted in the *Federal Register* notice. Without the intended shut-down zones, the public and the Commission also are unable to comment on whether NMFS is ensuring that the mitigation measures effect the least practicable adverse impact on the species and stocks, particularly since implementing shut-down zones is the primary measure used to mitigate impacts. Establishing and monitoring Level A and B harassment zones does not minimize impacts, it fulfills monitoring and reporting requirements (86 Fed. Reg. 1625). Furthermore, the use and efficacy of bubble curtains is questionable, while the use and efficacy of soft starts has never been formally investigated. The Commission again recommends that NMFS refrain from publishing any final rule until the correct shut-down zones have been made available for the public to provide meaningful comments during a 30-day comment period, which fulfills NMFS's requirements under the APA.

*Daylight hours*—NMFS indicated in the preamble to the proposed rule that pile installation and removal would occur only during daylight hours when visual monitoring can be conducted<sup>64</sup> and that installation or removal of new piles would not commence after daylight hours (86 Fed. Reg. 1625). However, NMFS did not stipulate in the proposed rule<sup>65</sup> that new piles could not be installed or removed after daylight hours. It is unclear why NMFS did not include the mitigation measure in HRCF's proposed rule, as similar measures have been included in other final authorizations<sup>66</sup> and the measure would help to ensure that HRCF is effecting the least practicable adverse impact on the affected species and stocks<sup>67</sup>. The Commission recommends that NMFS prohibit HRCF from installing or removing new piles after daylight hours in section 217.24 of the final rule and in any LOA issued under the final rule.

## Reporting measures

NMFS omitted from the HRCF's proposed rule what had been standard conditions for extrapolating and reporting takes for construction-related authorizations. In this instance, NMFS has not even required HRCF to report the number of marine mammals taken. Section 217.25(f)(9) in the proposed rule would only require that HRCF report the number of marine mammals *detected* within

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<sup>63</sup> For example, Table 32 indicated that the shut-down zone for vibratory installation of a single 36-in steel pile during a 25-minute timeframe would be 15 m/85 m for mid-frequency (MF) cetaceans. The Level A harassment zone was specified as 1 m in Table 16 for MF cetaceans, and the preamble noted that the minimum shut-down zone would be 10 m for MF cetaceans and 85 m for HF cetaceans when multiple hammers are used (86 Fed. Reg. 1626). As another example, Table 32 omitted the shut-down zones for jetting, DTH pile installation, and impact pile installation for phocids and incorrectly denoted the zones to be 21 m/85 m for vibratory installation for 24-in piles for phocids. Again, the 85-m shut-down zone applies to HF cetaceans, which also appears to be the case for the denoted 21-m zone since Table 16 specified the Level A harassment zone for 24-in piles as 6 m for phocids.

<sup>64</sup> NMFS did note that pile installation and removal may extend into evening or nighttime hours as needed to ensure the pile is driven to design tip elevation and the activities would continue after dark only for piles in the process of being installed or removed to maintain pile integrity and follow safety precautions (86 Fed. Reg. 1589).

<sup>65</sup> Or indicate that such a requirement would be included in any LOA issued under the final rule.

<sup>66</sup> See condition 4(h) in the final authorization issued to the City of Juneau ([https://media.fisheries.noaa.gov/dam-migration/statter\\_year2\\_2020\\_iha.pdf](https://media.fisheries.noaa.gov/dam-migration/statter_year2_2020_iha.pdf)).

<sup>67</sup> Since the Navy did not request Level A harassment takes.

the harassment zones, by species. That condition is (1) ambiguous, (2) omits a requirement to specify the numbers of marine mammals *taken* by harassment, and most importantly, (3) does not require the applicant to extrapolate takes to the extents of the Level A and B harassment zones of nearly 8 km<sup>68</sup> and more than 34 km, respectively. Furthermore, NMFS's assertion in the preamble to the final rule that the PSOs will be able to see at least a radius around the construction site that exceeds the largest Level A harassment zone (86 Fed. Reg. 1628) is false. Even with experienced PSOs on an elevated platform with high-powered optics, as informally referenced by NMFS, PSOs are incapable of detecting harbor porpoises at nearly 8 km and harbor seals at more than 3.5 km.

The Commission provided comments and underlying justification on a similar example in its [25 August 2020 letter](#) regarding Navy activities at Bangor regarding the need to report the numbers of animals taken and to extrapolate the numbers of takes. 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<sup>69</sup> and it specified the types of takes<sup>70</sup> consistent with the Commission's recommendation (85 Fed. Reg. 68293). As such, it is unclear why NMFS has reverted to not requiring applicants to include estimates of the numbers of marine mammals *taken*. The Commission recommends that NMFS revise section 217.25(f)(9) in the final rule to require HRCP to report the number of individuals of each species detected within the Level A and B harassment zones, and estimates of the number of marine mammals taken by Level A and B harassment, by species.

Because NMFS had 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, the Commission provided a full rationale in its [19 November 2020 letter](#) regarding why extrapolation of takes is needed and the Commission expects that to be considered in this case as well. In its response NMFS specified only what was and was not included in that final authorization (see 85 Fed. Reg. 68293). This does not fulfill NMFS's obligation to provide a detailed explanation of *why* the Commission's recommendations were not followed or adopted as required under section 202(d) of the MMPA. In this instance, extrapolation of takes during nighttime hours also would be necessary, which is consistent with requirement 6(a)(ix) in the final authorization issued to the City of Juneau<sup>71</sup>. The Commission recommends that, for the final rule, NMFS include requirements in section 217.25(f) that HRCP 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, and the estimated percentage of activities that occurred during nighttime hours, (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 or percentage of activities that occurred during nighttime hours (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.

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<sup>68</sup> Which is based on the 50-percent reduction in the repetition rate for the DTH hammer.

<sup>69</sup> The Navy also was required to report the estimated percentages of the Level B harassment zones that were not visible.

<sup>70</sup> Which were both Level A and B harassment.

<sup>71</sup> [https://media.fisheries.noaa.gov/dam-migration/statter\\_year2\\_2020\\_iha.pdf](https://media.fisheries.noaa.gov/dam-migration/statter_year2_2020_iha.pdf).



## Tally of takes

It is unclear from both the preamble to and the proposed rule whether HRCP will keep a running tally of the total Level A and B harassment takes. Given that NMFS proposed to authorize only a small number of takes of certain species, it is imperative that HRCP keep a running tally of takes, both observed and extrapolated, to ensure that the numbers of authorized takes are not exceeded and inform when mitigation requirement 217.24(a)(10) in the proposed rule would need to be implemented. The Commission recommends that NMFS *reinforce*<sup>72</sup> that HRCP must keep a running tally of the total Level A and B harassment takes, both observed and extrapolated, for each species consistent with section 217.24(a)(10) of the final rule.

## Ongoing concerns regarding transparency and scientific integrity

The Commission has repeatedly expressed concern over errors, inconsistencies, and omissions in applications, *Federal Register* notices, proposed incidental harassment authorizations, and proposed rules. The presence of conspicuous omissions and errors in the *Federal Register* notice for HRCP's proposed rule casts doubt on whether NMFS undertook an adequate level of review to determine the appropriateness and sufficiency of the information provided. As noted herein, full and transparent public review has not occurred for this action. The public is unaware of the various issues raised by the Commission, and neither the Commission nor the public have been made aware of what NMFS's intentions originally were or how the issues would be resolved. In recent years, the Commission *has repeatedly* recommended that NMFS conduct a more thorough review of applications and *Federal Register* notices to ensure not only accuracy, completeness, and consistency, but also to ensure that they are based on best available science, prior to submitting them to the *Federal Register* for public comment. In this case, NMFS has failed at fulfilling either obligation.

The Commission acknowledges that it may not always agree with NMFS on certain matters. However, policies and analyses cannot be based on unsubstantiated and arbitrary assumptions or unrelated and inappropriate data. Previous efforts undertaken to streamline the regulatory process and maximize efficiencies must be superseded by efforts to ensure that statutorily-required determinations are based on sound analyses and best available science.

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

Sincerely,



Peter O. Thomas, Ph.D.  
Executive Director

cc: Amy Scholik-Schlomer, NMFS

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<sup>72</sup> 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.

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## Addendum

The Commission informally noted the various errors, omissions, and inconsistencies in the preamble to and the proposed rule. Those included—

- specifying that 13 42-in steel piles would be removed at the North Trestle in the preamble to the proposed rule (86 Fed. Reg. 1592) and 36 42-in piles would be removed in Table 6. NMFS indicated that 36 42-in piles would be removed and the preamble to the final rule would be revised accordingly.
- omitting what the asterisks denoted in Tables 2, 3, and 4. NMFS indicated that the footnotes defined each acronym and would be included in the associated tables in the preamble to the final rule.
- incorrectly specifying the total number of template piles as 7,584 rather than 7,548 in Table 7. NMFS indicated that the table would be revised accordingly in the preamble to the final rule.
- incorrectly specifying that the source level for jetting was based on vibratory installation of piles rather than the source level for the Caviblaster® from Austin (2017) and practical spreading<sup>73</sup> in the preamble to the proposed rule. NMFS indicated that preamble to the final rule would be revised accordingly.
- incorrectly specifying that the source level for jetting was based on Austin et al. (2016) rather than Austin (2017) in Table 11. NMFS indicated that the table would be revised accordingly in the preamble to the final rule.
- incorrectly specifying that the combined vibratory installation of 42-, 30-/36-, and 42-in piles was 172 rather than 173 dB in Table 13. NMFS indicated that the table would be revised accordingly in the preamble to the final rule.
- incorrectly specifying the input parameters (i.e., source levels, numbers of piles to be installed, and durations to install piles) for estimating the Level A harassment zones in Table 14. NMFS indicated that it would include the correct input parameters in the table in the preamble to the final rule.
- incorrectly proposing to authorize Level A harassment takes of harbor porpoises, bottlenose dolphins, harbor seals, and gray seals in Year 5 in Tables 26, 29, and 30. NMFS indicated that Level A harassment takes would not be authorized in Year 5 for any species<sup>74</sup> and the tables would be revised accordingly in the preamble to the final rule and any LOA issued under the rule.
- omitting the four Level A harassment takes for the Northern North Carolina Estuarine System (NNCES) stock of bottlenose dolphins from Table 31. NMFS indicated that it revise the table accordingly in the preamble to the final rule and any LOA issued under the rule.
- inaccurately depicting the extents of the shut-down zones in Tables 32. NMFS indicated that it would include the correct shut-down zones in the table in the preamble to the final rule and any LOA issued under the rule.

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<sup>73</sup> NMFS previously used a back-calculated source level of 176 dB re 1  $\mu$ Pa at 1 m based on Austin (2017) for the Caviblaster® (84 Fed. Reg. 12336). For HRCP's proposed rule, NMFS used the back-calculated source level and practical spreading to estimate the source level at the reference distance of 10 m, which equated to 161 re 1  $\mu$ Pa at 10 m. This must be noted in the preamble to the final rule.

<sup>74</sup> Which is consistent with what NMFS had proposed for humpback whales in Year 5 and all of which were based on the extents of the Level A harassment zones in Year 5.

- inconsistently rounding up the shut-down zones in Tables 32 and 33. NMFS indicated that it only intended to round up shut-down zones larger than 50 m and would consistently round up all shut-down zones to the next 10 m in the preamble to the final rule and any LOA issued under the rule.
- incorrectly specifying that one to four PSOs would monitor at a given time in the preamble to the proposed rule (86 Fed. Reg. 1628) rather than one to five PSOs, which would be required when multiple hammers are used and the Level B harassment zone extends to CBBT. NMFS indicated that up to five PSOs would be specified in the preamble to the final rule.
- incorrectly specifying that one to four observers would monitor in section 217.24(a)(7) of the proposed rule. NMFS indicated that up to five observers would be specified in section 217.24(a)(7) of the final rule.

## References

- Austin, M., S. Denes, J. MacDonnell, and G. Warner. 2016. Hydroacoustic monitoring report: Anchorage port modernization project test pile program. Version 3.0. JASCO Applied Sciences (Alaska) Inc., Anchorage, Alaska. 215 pages.
- Austin, M. 2017. Acoustic monitoring of a gas pipeline leak and repair activities: Middle Ground Shoal, Cook Inlet, Alaska. Document 01396, Version 1.0. JASCO Applied Sciences, Anchorage, Alaska. 32 pages.