



MARINE MAMMAL COMMISSION

30 May 2017

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

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) 27 April 2017 notice (82 Fed. Reg. 19460) and the letter of authorization (LOA) application submitted by the U.S. Navy (the Navy) seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act (the MMPA). The taking would be incidental to conducting training, testing, and routine military operations that use Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) sonar. The Commission reviewed and provided recommendations in its [27 September 2016 letter](#) on the Navy's Draft Supplemental Environmental Impact Statement/Overseas Environmental Impact Statement (DSEIS) for SURTASS LFA sonar, which underpins the Navy's LOA application.

Background

The Navy proposes to use up to four SURTASS LFA sonar systems, including the compact LFA sonar source, on four different vessels for military readiness activities during training, testing, and routine military operations from 2017–2022. Operations would occur in the Pacific, Atlantic and Indian Oceans and in the Mediterranean Sea¹. At-sea missions for each vessel would not exceed 240 days of active sonar transmissions with up to 255 hours of total transmission time. In addition to time-area closures, mitigation measures would include the use of visual, passive acoustic, and active acoustic monitoring to implement delay and shut-down procedures and real-time modeling² to determine the range to the 180-dB re 1 μPa ³ isopleth. A 1-km buffer would be added to that mitigation zone.

Uncertainty in density estimates

The Navy estimated marine mammal densities in the 26 representative mission areas based on direct estimates from line-transect surveys that occurred in or near each of the mission areas. If

¹ Operations would not occur in Arctic and Antarctic waters, see Figure 1 in the *Federal Register* notice.

² To be conducted every 12 hours or more frequently when meteorological or oceanographic conditions change.

³ root-mean-square.

density estimates were not available from a line-transect survey in a specific mission area, then the Navy extrapolated estimates from a region with oceanographic characteristics similar to the mission area. Densities for some mission areas also were derived from the Navy's Marine Species Density Database (NMSDD; Department of the Navy (DoN) 2016), which has yet to be made available to the public. The Commission noted its concern regarding availability of that information in its [27 September 2016 letter](#).

NMFS indicated in the preamble to the proposed rule that all data sources that are contained in the NMSDD have been cited, but the Commission finds it difficult to review those sources when neither the Navy nor NMFS has explained whether all sources were used and how data from various sources were analyzed to derive the various density estimates. In addition, NMFS stated in the preamble that some data sources are proprietary and therefore the Navy is unable to provide the NMSDD data in GIS shapefile format. While the Commission is not requesting the actual GIS shapefile data, it did request that the current version of NMSDD be made available to the public as soon as possible and before the LOA application was published (in October 2016). The previous versions of the NMSDD included a technical report detailing the sources and methods used to derive density data for the various species. In the past, those technical reports have been provided in addition to the actual GIS shapefile data⁴ that the Navy holds. DoN (2015) provides one example of the level of information the Commission has requested.

Given that neither DoN (2016) nor an accompanying technical report is available for review, the Commission can only assume that the methods used in that version are similar to previous versions, such as DoN (2015). If that is the case, the Commission reiterates its concerns regarding the density estimates used. Previous versions of the database included densities derived from (1) models that use line-transect survey sighting data and distance sampling theory, (2) models that use known or inferred habitat associations to predict densities (e.g., relative environmental suitability (RES) models), typically in areas where survey data are limited or non-existent, or (3) extrapolation from neighboring⁵ regional density estimates or population/stock assessments. In previous letters the Commission noted varying types of areas⁶ from which sightings or abundance estimates were extrapolated and the inappropriate use of haul-out correction factors for pinniped⁷ density estimates. It is unclear if those issues have been carried forward into the density estimates for SURTASS LFA sonar, but some other deficiencies are evident. For example, Jones et al. (2015) was the source cited for both gray and harbor seal density estimates in the Eastern North Atlantic (mission area 14), however that source does not provide actual density estimates. Those researchers compiled information on pinniped counts and telemetry data into habitat usage and distribution maps for the waters surrounding the United Kingdom. Absent details regarding the derivation of density estimates, it is not possible to evaluate them.

The Navy has acknowledged that estimates from RES models and extrapolated densities include a high degree of uncertainty (DoN 2015), but uncertainty was not discussed in the preamble to the current proposed rule or the LOA application. The Commission understands that density data are not available for all areas where, or for all times when, activities may occur and that even when

⁴ That meld the data that the Navy owns with other referenced data into a single GIS layer.

⁵ Or regions with similar oceanographic parameters.

⁶ Including the entire range of the stock, the foraging range, the geographic area of occurrence, etc.

⁷ See the Commission's 3 March 2016, 17 June 2015, and 31 March 2014 letters on these issues.

such data are available, the densities could be underestimated. Thus, the Commission continues to believe that action proponents, including the Navy, should use the best available density estimates plus some measure of uncertainty (e.g., mean plus two standard deviations, mean plus the coefficient of variation, or the upper limit of the confidence interval) in those instances.

The Navy also used multiple data sources to inform various density estimates stipulated in Table 3-2 of the LOA application. For example, the Navy cited four different sources (Tillman 1977, Ferguson and Barlow 2001 and 2003, LGL Limited 2008) for the blue whale density estimate in the West Philippine Sea (mission area 3). Two of those sources are from the eastern tropical Pacific Ocean, one is in reference to sei rather than blue whales, and the other likely includes density estimates that were themselves extrapolated from another region and/or from sightings data⁸. As another example, the Navy cited two sources (Hammond et al. 2009 and 2013) for the Risso's dolphin density in the Eastern North Atlantic Ocean (mission area 14)—one source included no mention of Risso's dolphins and the other merely stated that Risso's dolphins were sighted during surveys conducted in waters of various European countries. Not only is the representativeness of those estimates questionable, but it also is unclear whether and how sightings data were used to derive the various densities, whether surrogate estimates were used, and whether mean or maximum⁹ density estimates were used when citing multiple data sources. Further, other density estimates were apparently based solely on DoN (2016). Since neither those data nor a technical report in support of those data have been made available, it is unclear how NMFS has determined that the myriad of density estimates is based on best available science. Given the continued lack of transparency, the Commission again recommends that NMFS require the Navy to make available to the public the technical report associated with the current version of NMSDD as referenced in DoN (2016) and if a technical report does not exist, require the Navy to draft and make available such a report before the authorization is issued. The Commission further recommends that NMFS require the Navy (1) to specify, either in that technical report or an amended LOA application, how density estimates were derived, including for surrogate species estimates, and what statistic (e.g., mean, median, maximum) was used when multiple sources are referenced in Table 3-2 of the LOA application and (2) to account for uncertainty in extrapolated density estimates for all species by using the upper limit of the 95% confidence interval or the arithmetic mean plus two standard deviations and re-estimate the numbers of takes accordingly.

Single ping equivalent (SPE)

The Navy has used SPE as the metric to estimate behavioral response¹⁰ of marine mammals to SURTASS LFA sonar for more than 15 years. The Navy has described SPE as an intermediate calculation for input into the behavior risk function¹¹ that accounts for the energy of all LFA sonar

⁸ Similar issues exist for the blue whale abundance estimate in the West Philippine Sea. The Commission also notes that Thomas et al. (2016) indicated that populations of blue whales in the far west appear to have been extirpated and that abundance estimates of blue whales in the eastern North Pacific Ocean are less than 3,000. Further, NMFS's 2015 stock assessment report for the blue whale stock in the eastern North Pacific Ocean indicated a minimum population estimate of 1,551. Neither estimate supports the Navy's abundance estimate of 9,250 blue whales in the West Philippine Sea.

⁹ Or some other statistic.

¹⁰ Level B harassment.

¹¹ Based on the Feller (1968) function and parameters gleaned from data obtained during the Low Frequency Sound Scientific Research Program (LFS SRP) in 1997 and 1998. LFS SRP yielded few data to inform such functions, likely due to the methods used nearly 20 years ago.

transmissions that an animal may receive in a 24-hour period. However, SPE is neither an energy-based metric nor is it based on any sort of physical quantity¹². It is a quasi-metric that the Navy has used to apply its behavior risk function¹³ since the first SURTASS LFA sonar EIS was drafted in 1999 and finalized in 2001. The Navy has defined SPE¹⁴ as the sum of the squares of the root-mean-square sound pressures (SP_{rms}) of individual pulses, with units similar to that of root-mean-square sound pressure level (SPL_{rms})¹⁵; whereas, sound exposure level (SEL) is an energy-based metric related to the summed products of the root-mean-square intensities squared and the signal duration of individual pulses¹⁶, with units dB re $1 \mu Pa^2$ -sec.

For a single pulse, or for a set of pulses dominated by a single large pulse, the SPE effectively reduces to the SPL_{rms} of the dominant pulse. For multiple pulses, SPE only has a physical interpretation if one assumes that the intensity of a sonar pulse can be negative (in terms of linear SPL_{rms} values or SP_{rms}). Since intensities cannot be negative, SPE has no valid derivation from physical principles. NMFS indicated in the preamble to the proposed rule¹⁷ that SPE is a conservative estimate because it is a cumulative metric that accounts for both the level and duration of exposure. However, the Commission notes that SPE is in fact less conservative than an SEL-based threshold, which is a true cumulative metric, particularly when multiple pulses of similar intensity are involved. The difference between SPE and SEL increases as the number of pulses received increases, and SPE thus becomes less “conservative” with an increasing number of pulses.

It also is unclear how received levels (in units of SPL) from the LFS SRP¹⁸ that apparently were used to inform the shape of the risk function reconcile with the x-axis of that function, which is based on SPE. Since the received levels were not measured in SPE, the Commission is unsure if the LFS SRP data were converted to SPEs, but suspects that they were not. Using SPL-based parameters as the basis for an SPE-based function¹⁹ is unfounded.

However, the Commission’s greatest concern regarding the Navy’s use of SPE for SURTASS LFA sonar is that the Navy does not use that metric for estimating behavior takes for any other low-frequency (LF) sonar source. Rather, since 2007 the Navy has used the Feller (1968) function based on SPL-based parameters for most species, with the exception of using an unweighted 140 dB re $1 \mu Pa$ for beaked whales and 120 dB re $1 \mu Pa$ for harbor porpoises in recent years (Finneran and Jenkins 2012), for other low-frequency sonar sources. This is an inconsistency that neither NMFS nor the Navy has addressed for the last 10 years. The Commission notes that those behavior thresholds very likely have been updated again with the Navy’s Phase III activities that are expected to publish in the next few months. And, even if the Navy was successful in making the case that the SPE-based risk function is more conservative than a comparable SPL-based risk

¹² It also is not a metric recognized by the American National Standards Institute.

¹³ Which is in units of SPE as well.

¹⁴ See the 2012 final SEIS for the equation.

¹⁵ dB re $1 \mu Pa$.

¹⁶ More simplistically, SPE is merely proportional to intensity and SEL is the intensity summed over time.

¹⁷ And in the preamble to the 2012 final rule.

¹⁸ Which appear to have been inferred based on the locations of the whales and vessel rather than obtained via direct measurements from acoustic recording tags on the whales.

¹⁹ The LOA application also noted that the basement value (B) of the risk function is 120 dB and the 50 percent risk value (K) is 45 dB, but the 2012 final SEIS indicated that B is 119 dB and K is 46 dB. Much of the information regarding SPE and the risk function was contained in previous versions of the various documents, thus errors such as these are not unexpected.

function, that assumption may not be true for all cases, including when comparing the SPE-based risk function and the step-function SPL thresholds for beaked whales and harbor porpoises. This is of concern because, although beaked whales and harbor porpoises are less likely to be affected by SURTASS LFA sonar than mysticetes, the Navy has estimated takes for beaked whales in 25 of its 26 mission areas and for harbor porpoises in 5 of its 26 mission areas—one of which had 601 harbor porpoise takes²⁰ estimated from a 24-hour SURTASS LFA sonar transmission.

If the Navy's intent is to include a measure of energy in its assessment of behavioral risk from exposure to SURTASS LFA sonar, it would have been more logical to use SEL-based thresholds rather than SPE. A review of the history of the use of SPE suggests that it is a metric that continues to be used mainly out of convenience rather than because it is considered the best available science for providing truly conservative estimates of cumulative impacts of sonar transmissions on behavior. For all of these reasons, the Commission recommends that NMFS require the Navy to use either (1) a metric (i.e., SPL or SEL) and associated thresholds that are based on physics rather than SPE or (2) the behavioral response metrics and thresholds that the Navy currently uses for all other LF sonar sources based on Finneran and Jenkins (2012) or the updated thresholds to be used for the Navy's Phase III activities. In any case, the Navy should investigate the effects of SURTASS LFA sonar using updated methods, including controlled exposure experiments, if feasible, given that the LFS SRP data are nearly 20 years old and methodology and technology have changed in that time.

Level A and B harassment takes

In the LOA application, the Navy provided the percentages of the marine mammal stocks associated with Level A and B harassment²¹ rather than the estimated numbers of takes (see Table 6-2). The Commission, in its comments on the 2011 and 2016 DSEISs, identified this as a shortcoming. However, takes by Level A and B harassment are still being estimated based on the percentage of the stocks potentially affected by 24 hours of exposure to SURTASS LFA sonar transmissions estimated for a single season²² in 26 mission areas. To estimate the number of marine mammals taken during a single day in a specific mission area, one must multiply the percentage of the stock affected by the relevant density estimate. That process becomes quite unwieldy when one considers that there are more than 25 species or genera of marine mammals within 26 different mission areas. Determining the model-estimated numbers of takes in a given year²³ is simply impractical.

Given that the Navy's, and thus NMFS's, presentation of estimated takes is neither transparent nor manageable, the onus for evaluating the numbers of likely takes ultimately falls on the public. Such an approach runs counter to NMFS's MMPA implementing regulations. Section 216.104 of the regulations requires that each application include the number of marine mammals (by species) that may be taken by each type of taking (i.e., Level A and/or B harassment, mortality). The

²⁰ Based on 0.1602 percent of the 375,358 harbor porpoises potentially being taken in a 24-hour period in the Eastern North Atlantic (mission area 14).

²¹ Based on permanent threshold shift (PTS) and temporary threshold shift (TTS) and behavior, respectively.

²² Generally, the season with the sound speed profile resulting in the longest acoustic propagation range.

²³ Although the Navy indicated it would limit operation of SURTASS LFA sonar to ensure that no more than 12 percent of any marine mammal stock would be taken by Level B harassment annually from transmissions of all SURTASS LFA sonar sources, ascertaining the numbers of takes that could occur is nearly impossible.

Navy's LOA application does not meet this regulatory requirement, and it is unclear why NMFS has not held the Navy accountable for this requirement. Perhaps NMFS believes that this requirement is linked only to determining whether "small numbers" of marine mammals will be taken, a statutory requirement that no longer applies to military readiness activities (see Public Law 108-136). Even if this is the case, the Commission believes that requiring applicants to estimate the potential numbers of takes, by species/stock and identify the type of taking expected, is useful for making negligible impact determinations. In any case, the Navy and NMFS have not satisfied their regulatory obligations and the Commission again recommends that NMFS specify the numbers of marine mammals that could be taken by Level A and B harassment incidental to operating SURTASS LFA sonar rather than providing only the percentages associated with such takes in its preamble to the final rule. At a minimum, NMFS should provide a rationale if it believes this requirement no longer applies to military readiness activities and take steps to amend its regulations at 50 C.F.R. § 216.104 accordingly.

The Commission also noticed possible errors in Table 6-2 of the LOA application. In various instances, the table indicated that the percentage of the stock affected by TTS was greater than that affected by behavioral harassment for multiple species of mysticetes in at least 12 of the 26 mission areas. Thus, once calculated out to actual takes, the TTS takes would be greater than behavior takes, which does not seem probable given the metrics and thresholds the Navy used for LF cetaceans. Further, NMFS indicated in the preamble to the proposed rule that some small subset of the animals exposed above the Level B harassment threshold also may experience TTS but that TTS would likely be at a low level and of short duration because it did not expect animals to be exposed for long durations close to the source. Yet, the Navy estimated 139 TTS takes²⁴ and only 12 behavior takes for fin whales from a 24-hour SURTASS LFA sonar transmission. Neither the observed trend nor NMFS's supposition that TTS would be unlikely to occur comport with NMFS's presumption. Therefore, the Commission recommends that NMFS ensure that (1) Table 6-2 in the LOA application does not contain any errors for the various species of mysticetes or, if it is indeed accurate, explain why TTS takes are greater than behavior takes for some species of mysticetes in some portion of the mission areas and (2) the explanation regarding the possibility of marine mammals incurring TTS takes is accurate in the preamble to the final rule.

In addition, NMFS indicated in the preamble that, quantitatively, modeling yields zero estimated takes by Level A harassment for all marine mammal stocks in all representative mission areas based on the proposed mitigation being applied²⁵. It is unclear whether mitigation was considered within the animal modeling scenarios or whether all model-estimated Level A harassment takes were simply reduced to zero based on presumed mitigation effectiveness. Details were not provided in either the LOA application or Appendix B of the DSEIS²⁶. Appendix B did not mention inclusion of mitigation within the modeling scenarios or reduction of any of the model-estimated numbers of Level A harassment takes based on mitigation measure implementation—the latter being an approach that the Navy has taken for other DSEISs.

²⁴ Based on 1.5374 and 0.1355 percent of the 9,019 fin whales potentially being taken by TTS and behavior, respectively, in a 24-hour period in the Eastern North Atlantic (mission area 14).

²⁵ The LOA application also noted that the comprehensive modeling and analysis resulted in no (0 percent) estimated risk of Level A harassment for any marine mammal species or stock, if the full suite of proposed mitigation measures were employed.

²⁶ Which discussed the marine mammal impact analysis.

NMFS did indicate that the criteria and thresholds for assessing Level A harassment have been revised since the last rule, resulting in the potential for Level A harassment being substantially reduced. The preamble specified that the Navy did not request, and NMFS does not propose to authorize, Level A harassment takes due to the small Level A harassment zones and the mitigation measures that would ensure marine mammals would not receive sound levels associated with Level A harassment. NMFS further postulated that Level A harassment was unlikely to occur based on the mitigation measures' proven effectiveness at detecting marine mammals well outside of the Level A harassment range and that no takes by Level A harassment²⁷ have been reported since SURTASS LFA sonar use began in 2002.

The Commission commends the Navy for using a suite of mitigation measures that include visual, passive acoustic, and active acoustic monitoring and notes that this suite of measures should be used for other Navy activities beyond SURTASS LFA sonar. However, the Commission is unaware of a study that has been conducted to assess the effectiveness of this suite of mitigation measures²⁸. Until such time that those measures can be determined to be fully effective, neither NMFS nor the Navy should be reducing the estimated numbers of Level A harassment takes to zero. In keeping with the need for transparency, the Commission recommends that NMFS (1) specify the numbers of model-estimated Level A harassment takes of marine mammals in the absence of the proposed mitigation measures and specify any and all assumptions (including within the animat modeling scenarios) that were made to reduce those takes to zero and (2) if a significant number of takes are estimated, authorize the model-estimated Level A harassment takes rather than reducing them to zero.

Offshore Biologically Important Areas (OBIA)s

Through the implementation of the proposed mitigation measures, the Navy would ensure that SURTASS LFA sonar received levels would be less than 180 dB re 1 μ Pa within (1) 22 kilometers of any land or (2) the boundary of a designated OBIA²⁹ during biologically important seasons. Designation of OBIA)s was based on the area being inhabited at least seasonally by marine mammal species whose best hearing sensitivity is in the LF range and on the area's biological importance as indicated by (1) its high marine mammal density, (2) its known/defined breeding/calving grounds, foraging grounds, or migration routes, (3) being inhabited by small, distinct populations with limited distribution, or (4) being designated as critical habitat. The Navy currently has recognized 22 OBIA)s.

After the Navy reviewed more than 100 marine areas for potential designation as stipulated in the DSEIS, NMFS and the Navy agreed to the proposed expansion of five OBIA)s and the proposed addition of six OBIA)s (see Table 31 in the *Federal Register* notice). The Commission agrees with the expansion and addition of those OBIA)s but, since no details on the other areas were provided, is unable to evaluate why more than 95 other areas considered for designation were

²⁷ It is unclear if this includes shutting down the source when a marine mammal has entered or is observed within the Level A harassment zone, which if this has occurred historically should have been deemed Level A harassment takes.

²⁸ Which would include investigating the detection range with distance for the active acoustic source as compared to experienced protected species observers for visual monitoring and determining detection range with depth (e.g., full or partial water column depth) for both passive and active acoustic monitoring.

²⁹ Which must be beyond 22 km from land. NMFS would require an additional 1-km buffer zone around the OBIA perimeter.

excluded. It can only be assumed that the other areas did not meet the OBIA selection criteria and/or were rejected based on the Navy's operational practicability review. Details on the Navy's rationale should have been included in either the DSEIS or LOA application. The only marine area that was discussed in any detail in the DSEIS, LOA application, or preamble to the proposed rule was Tanner and Cortes Bank, which NMFS and the Navy indicated would be placed on the OBIA watchlist to be reviewed as more information becomes available. However, two other marine areas³⁰ (Challenger Bank and Southeast Shoal; see Table C-1 in the DSEIS) also appear to have been placed on the OBIA watchlist without any further discussion in any of the documents. In addition, the Commission questions why the Navy did not propose to add Gray's Reef National Marine Sanctuary³¹ (NMS) and the portions of the NMS of American Samoa that lie beyond the 22-km stand-off zone. The Navy stated in the DSEIS that marine mammals (including endangered North Atlantic right whales) occur at least seasonally in waters of Gray's Reef NMS but did not explain why that NMS was not considered an OBIA or placed on the OBIA watchlist. For the NMS of American Samoa, the Navy indicated that, although marine mammals have not been well studied there, at least 12 species (including humpback and sperm whales) have been observed.

The Commission notes that absence or insufficiency of data is not an adequate basis for the Navy to refrain from proposing precautionary measures, especially when reliable data do not exist for most of the world's oceans. This is a point that the Commission made in its [2011 letter](#) on the previous DSEIS and that the U.S. Court of Appeals for the Ninth Circuit (the Court) echoed when it recently remanded the SURTASS LFA sonar case (see *National Resources Defense Council, Inc., (NRDC) et al. v. Penny Pritzker et al.*). Specifically, the Court ruled that the Navy and NMFS should have considered whether a precautionary approach would give more protection to marine mammals and whether that protection would impede military training to a degree making that mitigation impracticable. NMFS did indicate in the preamble to the proposed rule that, in the screening criteria for identifying possible OBIA, high-density areas should be defined (if appropriate) for locations/regions and species and stocks for which density information is limited or not available, using some combination of available data, regional expertise, and/or habitat suitability models utilizing static and/or predictable dynamic oceanographic features and other factors that have been shown to be associated with high marine mammal densities. However, it is unclear if such data or models were used, given that no further information was provided regarding the OBIA process in either the DSEIS or LOA application from August and September 2016, respectively.

The Commission had anticipated that both NMFS and the Navy would supplement the OBIA process to ensure that the various marine areas that did not meet the existing OBIA selection criteria, and/or were not placed on the OBIA watchlist in the 2012 final SEIS, were re-evaluated in accordance with the Court's guidance. However, that does not appear to have occurred. As such, the Commission recommends that NMFS (1) specify why the excluded marine areas did not meet the existing OBIA selection criteria and/or were not placed on the OBIA watchlist in the 2012 final SEIS and (2) if justification is lacking, re-evaluate those areas' status as OBIA. The Commission also recommends that NMFS provide clear justification for why (1) more than 95 marine areas in Table C-1 of the DSEIS, NMS of America Samoa, and Gray's Reef NMS did not meet any of the

³⁰ Hellenic Trench also was on the watchlist, but NMFS indicated in the preamble to the proposed rule that the core usage area for sperm whales was within the 22-km stand-off zone. Thus, it did not need to be designated as an OBIA based on the geographical criteria.

³¹ Which lies entirely beyond the 22-km stand-off zone.

OBIA selection criteria and/or were not placed on the current OBIA watchlist and (2) Challenger Bank and Southeast Shoal were placed on the current OBIA watchlist.

General mitigation and monitoring measures

The proposed rule indicated that the Navy would be required to conduct visual³², passive acoustic, and active acoustic monitoring for 30 minutes prior to, during, and for 15 minutes after³³ transmission of SURTASS LFA sonar. The proposed rule also stipulated that when SURTASS LFA sonar transmissions have been delayed or suspended because a marine mammal has been detected within the proposed LFA exclusion or buffer zone, active LFA sonar transmissions could resume 15 minutes after the last detection of the animal in those zones by visual observation, passive acoustics, or the active sonar system, if the marine mammal has not been observed to have left the zone. The Commission commented on these issues in its previous letter regarding the 2012 proposed rule and continues to believe that both the clearance and post-activity monitoring timeframes should be at least 30 rather than 15 minutes.

NMFS has required and continues to require the Navy to use a clearance time of 30 minutes when it conducts its other testing and training activities that employ LF and other sources (e.g., 78 Fed. Reg. 78106)—a similar clearance-time requirement is used for medium-sized and large cetaceans (e.g., mysticetes, killer whales, beaked whales, etc.) by all other action proponents. The Commission believes that a clearance time of 15 minutes is insufficient based on the dive times of many marine mammals species, especially when a vessel is transiting at only 3 knots.

NMFS also requires all other action proponents to conduct post-activity monitoring for 30 minutes, rather than the 15 minutes proposed in this instance, primarily to ensure there were no unintended effects (i.e., unusual behaviors, signs of injured or dead animals) from the various activities. In response to the Commission's previous recommendation that a 30-minute post-activity monitoring period be required for SURTASS LFA sonar activities, NMFS indicated that prescription of the Navy's mitigation measures reflected a careful balancing of the likely benefit of any particular measure for marine mammals with the likely effect of that measure on personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity (77 Fed. Reg. 50307). Given that the measures would not affect personnel safety and are practicable—the Navy implements them for LF sonar activities other than SURTASS LFA sonar and other activities in general, as do all other action proponents—the impact must be on the effectiveness of military readiness activities. NMFS stated that an extra 15 minutes would delay the ship's ability to depart the area at the normal transiting speed of 10 knots. The Commission is not convinced that an additional 15 minutes of post-activity monitoring would appreciably impact the Navy's ability to conduct military readiness activities. In general, 5 to 31 total missions have been conducted in any given year for all four ships combined (DoN 2007, 2011). The addition of 1 to 8 hours of post-activity monitoring over the course of a year should not appreciably impact the Navy's ability to conduct its activities or the effectiveness of those activities. Therefore, the Commission recommends that NMFS require the Navy to (1) use a 30-minute clearance time when a marine mammal has not been observed to have left the mitigation zone, consistent with other Navy

³² If during daylight hours, i.e., from 30 minutes prior to sunrise until 30 minutes after sunset.

³³ Or, if marine mammals are exhibiting unusual changes in behavior patterns, for a period of time until behavior patterns return to normal or conditions prevent continued observations.

activities and (2) conduct post-activity monitoring including visual³⁴, passive acoustic, and active acoustic monitoring for 30 rather than 15 minutes.

As noted herein and in past letters, it is unclear whether the Navy has conducted a study to investigate the effectiveness of the suite of mitigation measures currently being employed or proposed for SURTASS LFA sonar activities. Such a study would be prudent. NMFS did state in the preamble to the 2012 final rule that the active sonar system's detection probability approaches 100 percent based on multiple pings and that combined with visual (estimated to be a 9 percent detection probability) and passive acoustic (estimated to be a 25 percent detection probability), all three systems would have an effective detection probability of at least 99 percent at 1 km from the vessel (77 Fed. Reg. 50307). However, when reviewing previous comprehensive monitoring reports (DoN 2007, 2011), the Commission notes that effectiveness has been based solely on what has been 'observed' via the three monitoring methods and some theoretical assumptions. True 'effectiveness' studies evaluate not only the animals that are detected, but also those that are missed. The Navy is conducting a lookout effectiveness study to assess the effectiveness of visual monitoring. A similar approach, including the assessment of both passive and active acoustic monitoring³⁵, would be more appropriate than the Navy's current approach for assessing effectiveness of the suite of monitoring measures.

Least practicable adverse impact standard

As discussed in the preamble to the proposed rule, and as noted by the Ninth Circuit Court of Appeals in *NRDC v. Pritzker*, NMFS has yet to issue a "formal interpretation" of the least practicable adverse impact standard. While the case before the Court concerned the authorization for SURTASS LFA sonar, the Commission is concerned that NMFS would choose this particular rulemaking to provide what appears intended to be generally applicable guidance on this standard. This type of general guidance normally would be expected to be provided in an agency policy statement or in the broader regulations implementing section 101(a)(5) of the MMPA, rather than in regulations specific to a particular authorization. The Commission therefore recommends that NMFS provide additional explanation concerning whether the discussion in the preamble is intended to provide the "formal interpretation" of the standard noted by the Ninth Circuit and, if not, whether it intends to provide such an interpretation in some other context.

If the discussion in this proposed rule is intended to be NMFS's formal interpretation of the least practicable adverse impact standard, the Commission has some concerns with that guidance. NMFS summarized its approach to applying the standard, at least in this instance, by stating that it would "carefully balance the likelihood and degree to which a measure will reduce adverse impacts on species or stocks with the measure's practicability in determining appropriate mitigation measures." In using the word "practicable" rather than "practical," Congress has already done this balancing—if there will be adverse impacts on marine mammal species or stocks or their habitat, and it is practicable to adopt measures to reduce those impacts, then those measures must be taken. The Commission therefore recommends that NMFS take a two-step approach in applying the least

³⁴ If during daylight hours, i.e., from 30 minutes prior to sunrise until 30 minutes after sunset.

³⁵ Which would include investigating the detection range with distance for the active acoustic source as compared to experienced protected species observers for visual monitoring and determining detection range with depth (e.g., full or partial water column depth) for both passive and active acoustic monitoring.

practicable adverse impact standard. First, it should identify the criteria it will use to determine whether adverse impacts on marine mammal species or stocks or their habitat are expected. If adverse impacts are identified, the second step should be to determine whether measures designed to reduce those impacts are available and practicable. NMFS has already identified several of the factors that should be considered when determining whether a mitigation measure is practicable— (1) can it be done, (2) can it be done without undermining or frustrating the activity being conducted by the applicant, (3) is it prohibitively costly, and (4) is it safe? NMFS's policy should set forth these factors clearly and separately from the factors used to determine whether the impacts of the proposed action are adverse.

Applying the analyses set out in the proposed rule, NMFS has preliminarily determined that the least practicable adverse impact standard is met for the proposed operation of SURTASS LFA sonar by the Navy. However, the rationale for this conclusion is not clear and it is not always apparent what adverse impacts have been identified for possible mitigation. The Commission recommends that NMFS follow the analytical approach recommended above by (1) identifying the potential adverse impacts of the proposed operation of SURTASS LFA sonar on marine mammals and their habitat and (2) discussing, more explicitly and in greater detail than it has done in the proposed rule, whether actions can be taken to reduce those impacts and whether those actions are practicable.

Beaked whale and harbor porpoise research action plan

In the 2012 final rule³⁶, NMFS included requirements that the Navy investigate how to augment its understanding of the potential effects of low-frequency active sonar transmissions on beaked whales and harbor porpoises. The Navy convened an independent Scientific Advisory Group (SAG) to investigate and assess different types of research and monitoring methods that could increase understanding of the potential effects on beaked whales and harbor porpoises from exposure to SURTASS LFA sonar transmissions. The SAG submitted its report in August 2013 to the Navy, NMFS, and the Executive Oversight Group (EOG) for SURTASS LFA sonar. The EOG then met twice in 2014 to discuss the SAG's research recommendations and feasibility and budgetary constraints. The Navy was to prepare a research action plan for submittal to NMFS outlining the way forward. However, it appears that plan has yet to be submitted to NMFS. Given that nearly four years have passed since the SAG submitted its recommendations, the Commission recommends that NMFS (1) require the Navy to submit the research action plan for beaked whales and harbor porpoises before issuing the final rule and (2) specify in the preamble to the final rule the various research projects that the Navy plans to conduct to investigate the potential effects of SURTASS LFA sonar on beaked whales and harbor porpoises.

³⁶ Similar requirement were made in the LOAs.

The Commission appreciates the opportunity to provide comments on the proposed rule. Please contact me if you have questions concerning the Commission's recommendations or rationale.

Sincerely,



Rebecca J. Lent, Ph.D.
Executive Director

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