



MARINE MAMMAL COMMISSION

30 March 2020

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

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by the U.S. Marine Corps (USMC) seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA) to take common bottlenose dolphins incidental to conducting various training exercises at the Marine Corps Air Station Cherry Point Range Complex in North Carolina during a one-year period. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 16 March 2020 notice (85 Fed. Reg. 14886) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. Taking of bottlenose dolphins during USMC's previous training exercises was authorized under a five-year rulemaking that expired on 12 March 2020.

Background

The Marine Corps is planning year-round air-to-surface and surface-to-surface training exercises using bombing targets BT-9 and BT-11 at the Cherry Point Range Complex within southern Pamlico Sound, North Carolina. The training exercises consist of inert and live ordnance (up to 15 lbs net explosive weight) including bombing, rocket, gunnery, and mine-laying exercises. Live firing would occur at the BT-9 site only. Training exercises could occur during daylight or night-time hours.

NMFS preliminarily has determined that, at most, the proposed activities could cause Level A and B harassment of bottlenose dolphins. 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—

- conducting range sweeps and cold passes prior to the proposed activities and using delay procedures, when necessary;
- using remotely operated, high-resolution cameras equipped with night-vision capabilities to monitor the target areas during day and night;

- abiding by NMFS's Southeast Region Marine Mammal & Sea Turtle Viewing Guidelines;
- conducting post-exercise monitoring the morning after an exercise or the Monday after an exercise that occurs on a Friday;
- reporting injured and dead marine mammals, including any marine mammals struck by a vessel, to NMFS's Office of Protected Resources and Regional Stranding Coordinator as soon as feasible; and
- submitting a draft and final report.

Unauthorized taking

Although USMC's previous training exercises were covered under a five-year rulemaking, USMC requested a one-year incidental harassment authorization rather than another five-year rulemaking. It is unclear why USMC did not request authorization for taking again under 101(a)(5)(A) of the MMPA since its activities are ongoing. NMFS also indicated in the *Federal Register* notice that USMC submitted its application on 29 September 2019 (85 Fed. Reg. 14887). It is unclear why USMC did not submit its application in a more timely manner, sufficiently before the previous rulemaking expired on 12 March 2020, to ensure that there was no lapse in taking authorization. The Commission informally inquired whether USMC is conducting training exercises while the proposed authorization is processed and until it is issued. NMFS indicated that the question was not relevant to the proposed authorization and is a question for USMC. The Commission disagrees and notes that, in a recent proposed authorization for Power Systems & Supplies of Alaska (PSSA), NMFS specifically addressed the fact that PSSA did not have taking authorization but was implementing the necessary mitigation measures to avoid unauthorized taking while conducting its activities until the authorization was issued (85 Fed. Reg. 12524). NMFS failed to address this issue in the context of USMC's activities. The Commission recommends that NMFS address, in its *Federal Register* notices for proposed authorizations and rulemakings regarding ongoing activities for which authorizations have lapsed or new activities for which authorizations have yet to be issued but the activities have begun¹, whether action proponents are conducting the proposed activities and what, if any, measures are being implemented to avoid unauthorized taking until the necessary authorizations and rulemakings are issued.

As noted for other recent authorizations², NMFS has relaxed and effectively diminished the reporting measures when unauthorized taking (i.e., an injury or death attributed to USMC's activities³) occurs. USMC was required under its previous letter of authorization (LOA) to report any such taking immediately to NMFS and work with NMFS to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure compliance under the MMPA (see condition 7(d)(2) of the LOA⁴). USMC's authorization would require that it only report the unauthorized taking. When unauthorized taking occurs, action proponents should cease the associated activities until NMFS determines what additional measures are necessary to minimize additional injuries or deaths. To that end, the authorizations must include clear, concise, explicit measures to minimize any ambiguity of what action proponents should do in those circumstances.

¹ Or will begin before the authorization or rulemaking is able to be issued.

² See the Commission's [10 February 2020 letter](#) for a more extensive rationale regarding this matter.

³ Involving both direct strike from the various live or inert ordnance and from the vessels involved in the training exercises.

⁴ <https://www.fisheries.noaa.gov/webdam/download/64581685>.

The Commission recommends that NMFS include in all draft and final incidental harassment authorizations the explicit requirements to cease activities if a marine mammal is injured or killed during the specified activities *until* NMFS reviews the circumstances involving any injury or death that is likely attributable to the activities *and* determines what additional measures are necessary to minimize additional injuries or deaths.

Mortality and harassment zones

Neither NMFS in its *Federal Register* notice nor USMC in its application provided any of the mortality⁵ or Level A⁶ and B⁷ harassment zones. This is inconsistent with all other incidental harassment authorizations and rulemakings, including USMC's previous rulemaking (see Table 9 in the proposed rule and final rule; 79 Fed. Reg. 41396 and 80 Fed. Reg. 13280, respectively). The U.S. Navy (the Navy) conducted modeling for USMC but apparently has yet to provide a detailed modeling report to USMC. It is unclear why NMFS would process any application that lacked basic information on the extents of the mortality and harassment zones. Absent those zones, the Commission and the public cannot comment on the sufficiency of the mitigation measures, including the proposed 914-m safety zone⁸, and numbers of proposed takes. In addition for all Navy-related rulemakings, NMFS has been using onset⁹ criteria to determine the range to effects¹⁰, while it has been using the 50-percent mortality and 50-percent slight lung injury criteria to estimate the numbers of marine mammal takes. Neither NMFS in its *Federal Register* notice nor USMC in its application mentioned onset criteria and their relation to mitigation zones. Accordingly, the Commission recommends that NMFS refrain from issuing the authorization until it has provided the relevant mortality and Level A and B harassment zones, including those zones based on onset criteria⁹, for consideration and public comment.

The Commission has commented extensively on NMFS's criteria and thresholds for explosive sources based on Navy Phase III activities (Department of the Navy 2017). The Commission's [12 March 2020 letter](#) regarding the Navy's testing and training activities in the Mariana Islands addresses many of the same issues that also apply to USMC's authorization. Rather than reiterate the same points, NMFS should review the Commission's rationale and justification provided in the Commission's letter as it considers and responds to the Commission's recommendations that NMFS (1) explain why, if the constants and exponents for onset mortality and onset slight lung injury thresholds¹¹ for Phase III have been amended to account for lung compression with depth, they result in lower rather than higher absolute thresholds when animals occur at depths greater than 8 m, (2) specify what additional assumptions were made to explain this counterintuitive result, and (3) use onset mortality, onset slight lung injury, and onset GI tract injury thresholds rather than the 50-percent thresholds to estimate both the numbers of marine mammal takes *and* the respective ranges to effect. If NMFS does not implement the Commission's

⁵ Based on extensive lung injury.

⁶ Including slight lung injury, gastrointestinal (GI) tract injury, and permanent threshold shift (PTS).

⁷ Including temporary threshold shift (TTS) and behavior.

⁸ Although the safety zone remains unchanged from previous USMC authorizations, the acoustic criteria and thresholds have been revised since the previous rulemaking and LOA was issued. As such, it is unclear whether the safety zone is still sufficient and it should not be assumed to be sufficient merely because that was the size of the zone used previously.

⁹ Defined as the 1-percent risk for extensive lung injury, slight lung injury, and GI tract injury.

¹⁰ To inform the mitigation zones.

¹¹ Equations 11 and 12 in Department of the Navy (2017).

recommendation to use onset criteria, the Commission further recommends that NMFS (1) specify why it is inconsistently basing its explosive thresholds for Level A harassment on onset PTS and Level B harassment on onset TTS and onset behavioral response, while the explosive thresholds for mortality and Level A harassment are based on the 50-percent criteria for mortality, slight lung injury, and GI tract injury, (2) provide scientific justification supporting that slight lung and GI tract injuries are less severe than PTS and thus the 50-percent rather than onset criteria are more appropriate for estimating Level A harassment for those types of injuries, and (3) justify why the number of estimated mortalities should be predicated on at least 50 percent rather than 1 percent of the animals dying.

Mitigation, monitoring, and reporting measures

Under USMC's previous rulemaking and LOA, it was required to continue the passive acoustic monitoring (PAM) program to provide insight on how dolphins use areas around BT-9 and BT-11 and to refine the real-time monitoring at BT-9. USMC also was required to provide a detailed assessment of the effectiveness of its sensor-based monitoring in detecting marine mammals, as well as specific sightings data. Due to financial constraints from 2015–2017, ongoing communication link issues at BT-11 since 2017, presence of ospreys at BT-11 in 2017, and ongoing electronic and communication system issues at BT-9 due to Hurricane Florence in 2018¹², the PAM devices at BT-9 and BT-11 are still not operational. USMC expects that the PAM devices will be fully operational by the end of 2020. USMC was not able to provide a detailed assessment of the effectiveness of the sensor-based monitoring in detecting the animals in the area, because the PAM devices were not fully operational and presumably because relevant information was not provided regarding whether the animals that were sighted were made by the range cameras or personnel conducting pre-activity monitoring or the exercises themselves. Similarly, USMC did not provide the most basic information required under the rulemaking and LOA for each sighting (see condition 7(a)(3)(ii) in the LOA)¹³. None of the monitoring reports provided information on the number of animals sighted¹⁴, accurate information on where the animals were sighted¹⁵, whether activities were delayed, and the number of animals that may have been harassed or taken. Some of the exercise-specific information was omitted from the reports as well. In addition to the basic information that was lacking to better assess sensor-based effectiveness, USMC should report whether the animals were detected during the day or night and whether the sighting was made with the range cameras, PAM, vessel, or aircraft. For all of these reasons, the Commission recommends that NMFS (1) encourage USMC to fix the PAM devices so that they can start collecting data as was intended and required more than five years

¹² See the four most recent monitoring reports from 2015–2019 available on NMFS's website, <https://www.fisheries.noaa.gov/action/incidental-take-authorization-us-marine-corps-training-activities-pamlico-sound-north>.

¹³ The shortcomings were neither recognized by NMFS nor brought to USMC's attention. The NMFS analyst handling the rulemaking left NMFS four years ago before the first monitoring report was received, and the rulemaking was not reassigned to another analyst.

¹⁴ Only the number of sightings was provided in the monitoring reports. USMC confirmed that the number of sightings provided in the monitoring reports was not accurate for the reports from June 2016–May 2019. Although the *Federal Register* notice indicated that marine mammals were observed on 50 occasions (85 Fed. Reg. 14890), USMC clarified that marine mammals were actually sighted on 89 occasions from June 2015–May 2019 and on 34 occasions from June–December 2019.

¹⁵ The safety zones and distance scales do not comport in the figures in the monitoring reports. In addition, the information provided in the figures shows that animals would have been present within the safety zone, even though the text states otherwise. USMC indicated that the text was incorrect.

ago, (2) remind USMC that it is required to abide by and provide all of the information stipulated under section 6 of the authorization, and (3) add the requirement to report whether the animals were detected during the day or night and whether the sighting was made with the range cameras, PAM, vessel, or aircraft to the other information listed under condition 6(a)(iv) of the authorization.

NMFS would require USMC to conduct post-activity monitoring the following morning¹⁶, rather than immediately after the exercises cease for the day. USMC indicated that, at the conclusion of live-fire exercises, personnel are required to conduct a final range sweep and inspection of the target area prior to the next scheduled event and continuously throughout the day between events. However, it did not stipulate that a final range sweep would occur at the end of the day after all exercises are complete. Based on the unproven effectiveness of the USMC's proposed mitigation measures, the Commission believes it would be prudent to require post-activity monitoring immediately after the activities by the participating aircraft and vessels. The Commission recommends that NMFS require USMC to conduct post-activity monitoring immediately after the activities cease for the day¹⁷ rather than the following morning. The Commission made a similar recommendation for the same types of Navy activities. The Navy agreed to implement post-activity monitoring consistent with the Commission's recommendation, and NMFS included the requirements in the relevant proposed rules (e.g., 50 C.F.R. § 218.94) and final rules for Phase III activities (e.g., 83 Fed. Reg. 57119 and 50 C.F.R. § 218.84). Conducting immediate post-activity monitoring should be less prohibitive than conducting range sweeps the following morning, since the platforms would still be on site after the exercises. As such, immediate post-activity monitoring would be considered practicable.

Level A harassment takes

The Commission informally noted that NMFS did not increase the estimated Level A harassment takes from two to average group size, even though NMFS specified group size as ranging from 2 to 70 animals in the project area (85 Fed. Reg. 14892). In response to the Commission's informal comment, NMFS indicated that it does not believe that increasing the takes to group size is generally appropriate for estimating potential Level A harassment, because group size is an approximate representation of occurrence that does not necessarily hold true on finer spatial and temporal scales as expected for the potential occurrence of Level A harassment. That statement is puzzling, because the group size estimate that NMFS provided was based on the fine spatial and temporal scales in the immediate project area. Furthermore, NMFS's statement differs from how it has historically authorized, and routinely continues to authorize, Level A harassment takes of cetaceans—takes are based on average group size if the estimated number of takes is less than group size and Level A harassment takes are proposed to be authorized (e.g., some recent authorizations include 84 Fed. Reg. 22467, 84 Fed. Reg. 27258, 84 Fed. Reg. 31007, 84 Fed. Reg. 34155, 84 Fed. Reg. 35090, 84 Fed. Reg. 72176, 85 Fed. Reg. 4285 and 4279, 85 Fed. Reg. 16070, 85 Fed. Reg. 65367). If a group of bottlenose dolphins were to occur within the Level A harassment zone, it is imperative that a sufficient number of takes be authorized to ensure USMC is not in violation of its authorization. As such, the Commission recommends that NMFS increase the Level A harassment takes of bottlenose dolphins from two to average group size in the project area to

¹⁶ Or on the following Monday if the exercises occurred on a Friday.

¹⁷ Including night-time exercises.

ensure the authorized takes are sufficient should the animals occur within the Level A harassment zone during a training exercise.

Direct strike

As in its previous applications, USMC has again indicated that it estimated the ‘probability’ of ordnance striking a marine mammal based on the surface area and density of dolphins and the amount of ordnance expected to be expended within a year. The method is in fact not an estimate of a probability in any sense¹⁸ and does not appear to even be an estimate of the number of direct strikes¹⁹. If the method provides an actual estimate of direct strikes, the estimated 0.39 direct strikes per year would have been underestimated because the method doesn’t account for the surface area of the various types of ordnance relative to the numbers of ordnance to be expended. If that information were incorporated, results might in fact suggest that some level of injuries or mortalities should have been proposed to be authorized rather than there being a minimal risk of direct strike.

To obtain a more reliable estimate of takes from ordnance, USMC should have used direct strike or dynamic Monte Carlo models that account for the locations and trajectories of the expended ordnance and the movement patterns of the bottlenose dolphins in the area, much like the various acoustic models that incorporate animal dosimeters. Such dosimeters could be used in this situation to collect close-approach distance data rather than received sound levels, which would result in more realistic strike probabilities. The models can be adjusted to account for variable ordnance types, quantities, speeds, and tracks, as well as the density and movements of dolphins—many of which are not incorporated in the simple calculations used by USMC. Therefore, the Commission recommends that NMFS require USMC to (1) use either direct strike or dynamic Monte Carlo models to determine the probability of ordnance strike or (2) incorporate size of the various ordnance types relative to the number of ordnance to be expended, if it retains the simplistic, unrealistic calculations of direct strike.

Proposed one-year authorization renewals

The Commission has ongoing concerns regarding NMFS’s renewal process, which can be reviewed in its 10 February 2020 letter. Based on those concerns, the Commission again recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated *Federal Register* notice process, which is similarly expeditious and fulfills NMFS’s intent to maximize efficiencies. If NMFS continues to propose to issue renewals, the Commission recommends that it (1) stipulate that a renewal is a *one-time opportunity* (a) in all *Federal Register* notices

¹⁸ The surface area of a dolphin and the density of dolphins yields merely a number of dolphins, not a probability that they would be struck. A probability accounts for the possible outcomes of a given event occurring based on the outcomes’ relative likelihoods and distributions.

¹⁹ USMC did not account for the size of the various ordnance types relative to their proposed use, so the ‘strike’ portion of the equation only represents number of ordnance. Furthermore, the Commission informally noted that some of the inert ordnance levels exceeded those authorized annually under the previous LOA. Specifically, the authorized number of large arms was exceeded by three times based on the 2017–2018 monitoring report and the number of rockets was exceeded based on the 2016–2017 monitoring report at BT-9. The authorized number of rockets was similarly exceeded in the 2016–2017, 2017–2018, and 2018–2019 monitoring reports at BT-11. USMC acknowledged that overages could increase the risk of direct strike but would fall within the types of takes requested. That may not be the case should the surface area of the various ordnance types be considered along with numbers to be expended.

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requesting comments on the possibility of a renewal, (b) on its webpage detailing the renewal process, and (c) in all draft and final authorizations that include a term and condition for a renewal and, (2) if NMFS refuses to stipulate a renewal being a one-time opportunity, explain why it will not do so in its *Federal Register* notices, on its webpage, and in all draft and final authorizations. NMFS has yet to respond directly to this recommendation that has been included in numerous Commission letters for multiple months. If NMFS does not follow any of the Commission's recommendations, NMFS must provide separate, detailed explanations for not following or adopting the recommendation, as required by section 202(d) of the MMPA.

The Commission hopes you find its letter useful. Please contact me if you have questions regarding the Commission's recommendations.

Sincerely,



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

Reference

Department of the Navy. 2017. Technical report: Criteria and thresholds for U.S. Navy acoustic and explosive effects analysis (Phase III). SSC Pacific, San Diego, California. 194 pages.