22 August 2022

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

Re: Permit Application No. 26329
(Brandon Southall, Ph.D.,
Southall Environmental Associates, Inc.)

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit application with regard to the goals, policies, and requirements of the Marine Mammal Protection Act (the MMPA). Dr. Southall is requesting authorization to conduct research on cetaceans during a five-year period—permit 19116 authorized similar activities.

Dr. Southall proposed to conduct research year-round on 17 species of cetaceans off the coast of California. Researchers would harass, observe, photograph/videotape, conduct prey mapping and playback studies on, collect sloughed skin from, and instrument with suction-cup tags numerous cetacean species of either sex and various age classes (see the take table for specifics). The purpose of the research is to investigate (1) baseline behavioral parameters of marine mammals and (2) how those species respond to various natural and anthropogenic sounds. Dr. Southall would implement various measures to minimize impacts on marine mammals and also would be required to abide by the National Marine Fisheries Service's (NMFS) standard permit conditions. His research protocols have been approved by his Institutional Animal Care and Use Committee.

Level B harassment thresholds

The Commission has been concerned for quite some time that NMFS has been authorizing Level B harassment takes inconsistently for directed and incidental taking for the same types of sound sources. Similar to previous permits, Dr. Southall proposed to conduct two types of acoustic studies on cetaceans. Researchers would coordinate with the Navy to deploy its operational sources (e.g., hull-mounted sonar) at specific locations, and they would deploy their own sound sources (e.g., simulated sonar)[1]. Level B harassment behavioral takes associated with the Navy-deployed assets are accounted for under the Navy's final rule (83

[1] Sources would emit low- and mid-frequency (LF and MF, respectively) sonar signals.

Fed. Reg. 66846 and 85 Fed. Reg. 41780 as revised) and are based on the Navy's Bayesian biphasic dose response functions (Bayesian BRFs; Department of the Navy 2017). However, Level B harassment behavioral takes associated with simulated sonar are based on NMFS's generic Level B harassment threshold of 160 dB re 1 µPa root-mean-square (rms). The Commission has commented at length regarding the inappropriateness of using the 160-dB re 1 μPa_{rms} threshold for simulated LF and MF sonar (see, for example, the Commission's 15 January 2020 and 5 August 2019 letters). Those comments are still applicable but will not be repeated herein.

NMFS has disagreed with the Commission's recommendation to use the Navy's Level B harassment behavioral thresholds for research permits and has indicated in response to the Commission's recommendation for other scientific research permit applications that it is taking a conservative approach by requiring the applicant to count takes and shut down playback trials based on the functional hearing groups of cetaceans that may be exposed. That approach is not conservative but rather standard practice. Permittees enumerate take based on Level B harassment thresholds and mitigate Level A harassment take by shutting down when marine mammals enter or approach the isopleth of the relevant functional hearing group. NMFS also indicated that it is not appropriate to apply Navy thresholds to estimate take for active acoustic sources used in a research study. That is nonsensical, as NMFS has used and continues to use the Navy's Level A harassment thresholds[2] to inform the shut-down zones for active sources in research studies that are authorized under scientific research permits, a tenet of NMFS's conservative approach.

Beyond the circuitous reasoning and inconsistencies in NMFS's use of Level B harassment behavioral thresholds for the same sound sources, this ongoing issue highlights how outdated NMFS's generic Level B harassment thresholds are. Those thresholds originated in the late 1990s (Scholik-Schlomer 2015) and have been superseded by various iterations of the Navy's Level B harassment behavioral thresholds for LF and MF sonar that have been used for more than two decades (Guan and Brookens 2021). Similar to previous responses regarding this matter, NMFS indicated that it was working towards developing updated guidance regarding the effects of sound on marine mammal behavior. That was more than three years ago. The Commission is unaware of any proposed Level B harassment thresholds being shared within NMFS or being available for peer review[3] in the near term. NMFS first indicated that it was revising its generic Level B harassment thresholds in 2006 when Dr. Southall was still on staff (70 Fed. Reg. 1871). It could be two decades or more before those revisions are complete.

If NMFS does not have the requisite expertise or time necessary to update the Level B harassment behavioral thresholds, it should outsource that task. The Navy has derived the current thresholds for TTS and PTS (and soon to be updated) for all sound sources[4], mortality and injury (slight lung and gastrointestinal tract) for explosive sources, and behavioral disturbance for explosive sources and LF sonar[5]. Researchers at the University of St. Andrews developed the method for

[2] That underpin NMFS's "Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Thresholds Shifts" (PTS and TTS, respectively; NMFS 2016 and 2018).
[3] Peer review occurs before any interagency or public review of proposed criteria and thresholds.
[4] For both underwater and in-air sources.
[5] Specifically, Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) sonar. The Navy's Bayesian BRFs are used for other LF sonar sources.

deriving the current thresholds for behavioral disturbance for all other sonar sources. NMFS has adopted all of those thresholds and considers them best available science. For these reasons, the Commission recommends that NMFS use consistent Level B harassment thresholds for estimating behavioral harassment from tactical and simulated sonar sources for taking authorized under both 101(a)(5) *and* 104(c) of the MMPA, as it does for all other sound sources. The Commission further recommends that NMFS fund another entity, such as the University of St. Andrews, to derive updated Level B harassment behavioral thresholds[4] for all other sound sources based on best available science and to allow for peer, interagency, and public review in a timely manner. At a minimum, NMFS must prioritize revising its Level B harassment behavioral thresholds in the near term.

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

Sincerely,

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

References

Guan, S., and T. Brookens. 2021. The use of psychoacoustics in marine mammal conservation in the United States: From science to management and policy. Journal of Marine Science and Engineering 9:507. https://doi.org/10.3390/jmse9050507.

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Scholik-Schlomer, A.R. 2015. Where the decibels hit the water: Perspectives on the application of science to real-world underwater noise and marine protected species issues. Acoustics Today 11:36–44.