24 February 2015

Nicole LeBoeuf, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Ms. LeBoeuf:

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) request for assistance in nominating experts to peer review the U.S. Navy's (the Navy) technical report regarding auditory weighting functions and associated permanent and temporary threshold shift (PTS and TTS, respectively) thresholds. NMFS is considering incorporation of that report into its draft acoustic guidance for assessing the effects of anthropogenic sound on marine mammals. The Commission offers its list of recommended reviewers with relevant scientific expertise—the current list has some of the same potential reviewers as the list provided to NMFS in 2013[1] with respect to expertise in threshold shifts and hearing loss. However, additional reviewers with expertise in hearing capabilities and biochemical pathways, auditory electrophysiology, sound-induced hearing loss, and inner ear cell death were added to the list.

The Commission re-convened the same steering committee that was approved by NMFS in 2013 to review and select potential reviewers to participate in the peer review of the Navy's technical report. The steering committee was comprised of the Chairman of the Commission, Dr. Daryl Boness, and two members of the Commission's Committee of Scientific Advisors on Marine Mammals, Drs. Douglas Wartzok and Sue Moore. The steering committee identified 12 individuals with relevant scientific expertise for the review panel. Per NMFS's request, the steering committee eliminated multiple individuals with potentially relevant expertise because they were (1) current government employees, (2) involved in the development of the Navy's technical report[2], or (3) involved in revising the Southall et al. (2007) criteria and thresholds.

The Commission recommends that NMFS choose from the list of experts identified in Table 1 to conduct a peer review of the Navy's technical report and allow those experts at least 30 days to review the report. The Commission recognizes that not all of the recommended experts will be available to serve on the review panel. However, NMFS should strive to ensure that all of the identified areas of expertise are represented. The Commission does note that, due to the complexity and importance of the technical report and its potential incorporation into NMFS's draft acoustic

[1] Some of the potential reviewers from the Commission's original list from 2013 and its entire alternate list (except Roger Hamernick) were not considered for this review due to either their lack of expertise with marine mammal hearing, TTS/PTS, or hearing loss or their recusal status as delineated herein.
[2] Including individuals affiliated with the Navy and National Marine Mammal Foundation.

guidance, NMFS may have to consider compensating reviewers based on the technical expertise necessary and time needed to review such a document.

Please contact me if you have questions regarding the Commission's recommendation or require additional information.

Sincerely,

Rebecca J. Lent

Rebecca J. Lent, Ph.D.
Executive Director

Reference

Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. Marine mammal noise exposure criteria: Initial scientific recommendation. Aquatic Mammals 33:411–521.

Table 1. Recommended list of experts to conduct a peer review of the Navy's technical report—the list includes each individual's affiliation and relevant area(s) of expertise.

Name	**Affiliation**	**Relevant area(s) of expertise**
Whitlow Au	University of Hawaii at Manoa	Auditory electrophysiology, sound production, and echolocation in marine mammals
Robert Burkard	University of Buffalo	Auditory electrophysiology, including animal studies of steady-state response and effects of high stimulus rates on auditory brainstem response
Ted Cranford	San Diego State University	Hearing and sound reception mechanisms in low- and mid-frequency cetaceans, including finite element modeling to elucidate audiograms for low-frequency cetaceans
Christine Erbe	Curtin University	Modeling the effects of sound on marine mammals, including impulsive sound; effects of sound on marine mammals, including masked hearing experiments and regulations
Donald Henderson	University of Buffalo	Effects of impulsive sound on humans and domestic animals, including threshold shifts and general hearing loss
Roger Hamernick	State University of New York at Plattsburgh	Effects of impulsive sound on humans and domestic animals, including threshold shifts and general hearing loss
Ron Kastelein	SEAMARCO[3]	Effects of sound on high-frequency odontocetes and pinnipeds, including TTS, equal latency contours, and weighting functions
Colleen Le Prell	University of Florida	Effects of sound on humans, including sound-induced hearing loss and inner ear cell death
Klaus Lucke	Curtin University	Effects of impulsive sound on high-frequency odontocetes, including TTS
David Mann	University of South Florida	Hearing capabilities of mid-frequency cetaceans
Aran Mooney	Woods Hole Oceanographic Institution	Hearing capabilities and pathways of high- and mid-frequency cetaceans
John (Jack) Terhune	University of New Brunswick	Effects of sound on pinnipeds, including threshold shifts

[3] Sea Mammal Research Company.