

Performance Work Statement (PWS)
National Oceanic and Atmospheric Administration (NOAA)
National Marine Fisheries Service (NMFS)
Center for Independent Experts (CIE) Program
External Independent Peer Review

National Marine Fisheries Service’s DRAFT Technical Guidance for Assessing the Effects of Underwater Anthropogenic Sound on Marine Mammal Behavioral Disturbance

Background

The National Marine Fisheries Service (NMFS) is mandated by the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, and Marine Mammal Protection Act to conserve, protect, and manage our nation’s marine living resources based upon the best scientific information available (BSIA). NMFS science products, including scientific advice, are often controversial and may require timely scientific peer reviews that are strictly independent of all outside influences. A formal external process for independent expert reviews of the agency’s scientific products and programs ensures their credibility. Therefore, external scientific peer reviews have been and continue to be essential to strengthening scientific quality assurance for fishery conservation and management actions.

Scientific peer review is defined as the organized review process where one or more qualified experts review scientific information to ensure quality and credibility. These expert(s) must conduct their peer review impartially, objectively, and without conflicts of interest. Each reviewer must also be independent from the development of the science, without influence from any position that the agency or constituent groups may have. Furthermore, the Office of Management and Budget (OMB), authorized by the Information Quality Act, requires all federal agencies to conduct peer reviews of highly influential and controversial science before dissemination. Specifically, science products that the agency can reasonably determine that will have, when disseminated, *“a clear and substantial impact on important public policies or private sector decisions.”* Additionally, peer reviewers must be deemed qualified based on the OMB Peer Review Bulletin standards[1].

[1] https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/memoranda/2005/m05-03.pdf

Scope

NMFS has authority for assessing and authorizing the impacts on marine mammals associated with exposure to anthropogenic sound sources, primarily through the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). NMFS has historically relied upon two generic single value thresholds (120 dB and 160 dB root-mean-square sound pressure level), based only on received level (RL), to evaluate behavioral disturbance for most anthropogenic sound sources. Since their development in the late 1990s, additional data have become available indicating that behavioral responses of marine mammals to acoustic disturbances depend on numerous factors that a single value threshold may not best represent. Here, NMFS proposes criteria where probability of behavioral disturbance varies with RL (i.e., exposure-response curve) and sound source proximity (i.e., distance decay function) is considered. Thus, this draft document provides NMFS's recommendations for updated behavioral disturbance criteria to reflect the current state of science.

The information and analysis contained in this document will include essential factual elements upon which the agency will update its behavioral disturbance criteria for assessing the effects of anthropogenic sound on marine mammals. Accordingly, it is critical that this document contain the best available information on this, and that NMFS's analysis and scientific findings be both reasonable and supported by valid information.

The CIE reviewers will conduct a peer review of the scientific information in this document based on the Terms of Reference (ToRs). The CIE reviewers will ensure an independent, scientific review of information for a management decision that is likely to be highly controversial. Given the public interest in marine mammals and anthropogenic sound, it will be important for NMFS to have a transparent and independent review.

The specified format and contents of the individual peer review reports are found in **Annex 1**. The Terms of Reference (ToRs) of the peer review are listed in **Annex 2**.

Requirements

NMFS requires five reviewers to conduct an impartial and independent peer review in accordance with the PWS, OMB Guidelines, and the ToRs below. The reviewers shall have working knowledge and recent experience in one or all of the following: 1) acoustic ecology, preferably associated with marine mammals; 2) marine mammal behavior; and/or 3) behavioral disturbance associated with exposure to anthropogenic sound. NMFS' draft behavioral disturbance criteria apply to all marine mammal species under our jurisdiction (<https://www.fisheries.noaa.gov/find-species>), but only to pinnipeds when underwater (i.e., not on land).

Requirements of the Peer Review:

1. The President's Office of Management and Budget (OMB) published a Peer Review Bulletin (December 2004) that requires online posting of this peer review, since NMFS's DRAFT *Technical*

Guidance for Assessing the Effects of Underwater Anthropogenic Sound on Marine Mammal Behavioral Disturbance has been determined to be a “highly influential scientific assessment.” To ensure that we have a transparent process for public disclosure, names and affiliations of each peer reviewer will be posted online, as well as their individual reports.

2. The information provided in this draft document is distributed solely for the purpose of pre-dissemination peer review under applicable Information Quality Guidelines. It has not been formally disseminated by NMFS. It does not represent and should not be construed to represent any agency determination or policy. All information associated with the review of this draft document is to remain strictly confidential until NMFS releases it to the public.

3. Reviewers are not to comment on any potential policy or legal implications of the application of the draft Updated Technical Guidance, or on the amount of uncertainty that is acceptable or the amount of precaution that should be embedded in any regulatory analysis of impacts. The focus of the peer review is on the scientific aspects of this document.

Tasks for Reviewers

1) Pre-review the Following Background Materials and Reports: At least two weeks before the peer review, the NMFS Project Contact will make all the necessary information and reports available electronically for the peer review. In the case where the documents need to be mailed, the NMFS Project Contact will consult with the CIE on where to send documents. The CIE reviewer shall read all documents in preparation for the peer review.

Pre-review Documents

Main Document:

National Marine Fisheries Service. 202X. Technical Guidance for Assessing the Effects of Underwater Anthropogenic Sound on Marine Mammal Behavioral Disturbance (Version 1.0). U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-xx, xxx p.

Supplemental:

Dunlop, R.A., M.J. Noad, R.D. McCauley, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2018. A behavioural dose-response model for migrating humpback whales and seismic air gun noise. *Marine Pollution Bulletin* 133: 506-516.

Gomez, C., J.W. Lawson, A.J. Wright, A.D. Buren, D. Tollit, and V. Lesage. 2016. A systematic review on the behavioural responses of wild marine mammals to noise: The disparity between science and policy. *Canadian Journal of Zoology* 94: 801-819.

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 recommendations. *Aquatic Mammals* 33: 411-521.

Southall, B.L., S.L. DeRuiter, A. Friedlaender, A.K. Stimpert, J.A. Goldbogen, E. Hazen, C. Casey, S. Fregosi, D.E. Cade, A.N. Allen, C.M. Harris, G. Schorr, D. Moretti, S. Guan, and J. Calambokidis. 2019a. Behavioral responses of individual blue whales (*Balaenoptera musculus*) to mid-frequency military sonar. *Journal of Experimental Biology* 222, jeb190637.

Southall, B.L., D.P. Nowacek, A.E. Bowles, V. Senigaglia, L. Bejder, and P.L. Tyack. 2021. Marine mammal noise exposure criteria: Assessing the severity of marine mammal behavioral responses to human noise. *Aquatic Mammals* 47: 421-464.

- 2) **Webinar**: Approximately two weeks after the CIE reviewers receive the pre-review documents, they will participate in a webinar with the NMFS Project Contact and appropriate staff to address any clarifications that the reviewers may need regarding the ToRs or the review process. The NMFS Project Contact will provide the information for the arrangements for this webinar.
- 3) **Desk Review**: Each CIE reviewer shall conduct the independent peer review in accordance with the PWS and ToRs, and shall not serve in any other role unless specified herein. Modifications to the PWS and ToRs cannot be made during the peer review, and any PWS or ToRs modifications prior to the peer review shall be approved by the Contracting Officer's Representative (COR) and the CIE contractor.
- 4) **Contract Deliverables - Independent CIE Peer Review Reports**: Each CIE reviewer shall complete an independent peer review report in accordance with the PWS. Each CIE reviewer shall complete the independent peer review according to required format and content as described in **Annex 1**. Each CIE reviewer shall complete the independent peer review addressing each TOR as described in **Annex 2**.
- 5) Deliver their reports to the Government according to the specified milestones dates.

Place of Performance

Each CIE reviewer shall conduct an independent peer review as a desk review; therefore, no travel is required.

Period of Performance

The period of performance shall be from the time of award through September 2024. The CIE reviewers' duties shall not exceed 10 days to complete all required tasks.

Schedule of Milestones and Deliverables

The contractor shall complete the tasks and deliverables in accordance with the following schedule.

Within two weeks of award	Contractor selects and confirms reviewers
No later than two weeks prior to the review	Contractor provides the pre-review documents to the reviewers
June 2024	Each reviewer conducts an independent peer review as a desk review
Within two weeks after review	Contractor receives draft reports
Within three weeks of receiving draft reports	Contractor submits independent Peer-Review reports to the Government

Applicable Performance Standards

The acceptance of the contract deliverables shall be based on three performance standards:

(1) The reports shall be completed in accordance with the required formatting and content; (2) The reports shall address each ToR as specified; and (3) The reports shall be delivered as specified in the schedule of milestones and deliverables.

Travel

Since this is a desk review travel is neither required nor authorized for this contract.

Project Contact(s):

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Annex 1: Peer Review Report Requirements

1. The report must be prefaced with an Executive Summary providing a concise summary of the findings and recommendations, and specify whether the science reviewed is the best scientific information available.

2. The main body of the reviewer report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Summary of Findings for each ToR in which the weaknesses and strengths are described, and Conclusions and Recommendations in accordance with the TORs.

3. The reviewer report shall include the following appendices:
 - a. Appendix 1: Bibliography of materials provided for review
 - b. Appendix 2: A copy of the CIE Performance Work Statement

Annex 2: Terms of Reference for the Peer Review

NMFS specifically asks each reviewer to provide comments on the scientific information and data contained within the draft report, specifically whether the document:

1. The scientific basis of the information and analysis contained is sufficient and there is a reasonable interpretation of the current studies/datasets.
2. Whether the datasets for marine mammal behavioral disturbance are accurately summarized and complete through December 2023. If not, then what is missing?
3. Whether extrapolations (i.e., applicability of criteria for species where direct data may not be available) are appropriate and reasonable based on available datasets and current understanding of marine mammal behavioral disturbance.
4. If the technical and/or scientific justification or conclusions are lacking or specific information was applied incorrectly in reaching conclusions, please be specific in your comments.
5. Whether all aspects of the methodology are scientifically supported, as well as transparent and reproducible. Please also consider if the methodology clearly supports a means to incorporate updates as the science advances and new datasets become available.
6. If there are any other factors that would significantly improve this draft document (i.e., organization, technical considerations, etc.).