

Marine Mammal Commission
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The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the supplement to the Draft Environmental Impact Statement/ Overseas Environmental Impact Statement (hereafter referred to as the SEIS) provided by the Department of the Navy to evaluate its planned Navy Pacific Fleet training and defense-related research on the Hawaii Range Complex (HRC). The SEIS specifically addresses three amendments to the original draft environmental impact statement (DEIS). These are (1) modification of the response function and procedure for estimating takes by Level B harassment, (2) a change in the amount and allocation of sonar use over the course of a typical year of training and exercises, and (3) introduction of a new preferred alternative, Alternative 3, which includes the increased level of activity of DEIS Alternative 2 except for sonar use, which would stay at the current level (the Navy's "No Action" alternative). All other aspects of the HRC environmental impact statement remain as written in the original DEIS, published in July 2007. The Marine Mammal Commission offers the following comments and recommendations.

RECOMMENDATIONS

The Marine Mammal Commission has identified three elements of the SEIS in need of further consideration and revision: estimation of risk, mitigation of risk, and—perhaps most important—evaluation of action alternatives. To address these concerns, the Marine Mammal Commission recommends that the Navy—

- rename its "No Action" alternative corresponding to the current level of action and incorporate a true "No Action" alternative in which active sonar would not be used;
- explain how the original analysis led to such a large error in estimated sonar use and provide some means of verifying and validating the numbers derived from the SPORTS database; and
- more fully explain the analytical procedures used with the new risk function and correct existing errors or sources of confusion to enable the reader to readily follow the process of risk estimation to its conclusion.

RATIONALE

Recommended revisions to the SEIS are as follows.

The No-Action Alternative: Environmental impact statements are required to include a "No-Action" alternative. The term "No-Action" has been used to designate the alternative in which the proposed action is not taken. As such, the no-action alternative provides a baseline for

comparing the potential environmental effects of different alternatives. The Navy's continued use of the term "No-Action" to indicate an alternative of continued action at the current level may, therefore, lead to confusion and misunderstanding in two ways. First, as used by Navy, the no-action alternative may be the alternative of greatest environmental consequence, which is counterintuitive and may lead to confusion among decision-makers. Second, and perhaps more important, the use of the term "No-Action" to mean the current level of effort may effectively shift the baseline for comparison among alternatives. The key consideration here is that consequences of any course of action be fully explained. Even if the Navy persists in using the no-action alternative to mean continued action at the current level, it must ensure that the full environmental effects of all alternatives are described, not just those incremental effects arising from changes to the current action. To avoid these sources of confusion, the Marine Mammal Commission recommends that the Navy rename its "No Action" alternative corresponding to the current level of action and incorporate a true "No Action" alternative in which active sonar would not be used. The Commission concurs with the Navy that a true no-action alternative is not likely to be preferred, but the requirement for such an alternative cannot simply be dismissed, particularly when it forms a baseline for informed decision-making.

Selection of the Preferred Alternative: In changing its preference from Alternative 2 in the DEIS to a new Alternative 3 in the SEIS, the Navy has introduced new considerations without sufficient explanation. In the DEIS, the Navy went to great lengths to explain the requirements for realistic readiness training and to justify why none of that level of effort could be sacrificed without tangible, and unacceptable, losses to war-fighting capability and the associated risk to ships and sailors. In Alternative 3, the Navy proposes that it can field the additional vessels and associated aircraft, sailors, weapons, and sensor systems described in Alternative 2 of the original DEIS without a corresponding increase in sonar training. The discrepancy suggests that either the existing level of sonar training is more than necessary to protect existing assets or that the new assets will not require the same level of sonar-based protection. To resolve this apparent inconsistency, the Marine Mammal Commission recommends that the Navy more completely explain how it will achieve the desired level of anti-submarine warfare readiness without increasing the level of sonar use above current levels and, if so, why these same economies of sonar use cannot be applied to the other alternatives.

The Navy also introduces significantly modified estimates of sonar use in the SEIS (e.g., see page ES-3, Table ES-1). The overall result is a reduction of some 63 percent, or about one-third of the original estimate (from 3,495 hours of 53C equivalent usage to 1,284 hours in the case of the alternative for continuing at current levels). The magnitude of this change raises concerns about how such an error could have been made in the original DEIS and whether the newly introduced data from the Sonar Positional Reporting System (SPORTS) database, which has been in use for less than two years, accurately reflect "typical" use. The Marine Mammal Commission recommends that the Navy explain how its original analysis led to such a large error in estimated sonar use and provide some means of verifying and validating the numbers derived from the SPORTS database, either in an appropriately classified independent review or in a redacted, unclassified format that would allow some form of verification of either past or future SPORTS accuracy as a way of confirming the estimated level of risk described in the SEIS.

New Risk Function: In the DEIS, the Navy translated a sinusoidal dose-response curve into a deterministic step-function threshold for ease of analysis (see Table J-3 and associated text). No similar translation of the new risk function is contained in the SEIS (also a sinusoidal curve but with a different slope and bounding parameters), leaving the reader uncertain as to whether the Navy used a different process for calculating risk from exposure surfaces or treated the new risk function curve in the same way, with the 3- or 4-sigma deviation from the 50 percent crossing point being used as a step threshold to conservatively interpret an otherwise continuous function. The uncertainty associated with this new risk function, the novel changes to the amount and distribution of sonar use, the introduction of a 24-hour “refresh” rate for accumulating supra-threshold events, the elimination of land areas from the risk estimation surfaces, the elimination of overlapping footprints when multiple sonars are in use (pages 1–2), and other minor problems noted below all undermine confidence in the derived risk estimates and the protocol used to generate them. The Marine Mammal Commission recommends that the analytical procedures used with the new risk function be more fully explained and that errors or sources of confusion be corrected to enable the reader to readily follow the process of risk estimation to its conclusion.

Detailed Comments

The following detailed comments either reinforce our previously made points with reference to specific parts of the HRC SEIS or note additional areas of strength or weakness within the SEIS that merit consideration by the Navy.

- The estimated risks of exposure to sound above the level expected to result in a permanent threshold shift (PTS; see Executive Summary, Table ES-4) are provided to the nearest tenth, whereas the corresponding risk estimates by species in Chapter 3 (Table 3.3.1.-1 on page 3-16 and Table 3.3.6-1) are all rounded to the nearest whole number, which is always zero. It is therefore impossible to reconcile the original values with the derived values used in the comparison of alternatives where a cumulative risk to humpback whales above 0.5 is rounded to 1 Level A take (pages ES-4–5).
- The SEIS is not clear as to whether the Level B “takes by sensory impairment” (page 3-5, lines 14–17) are added to the risk function estimate of Level B takes or whether they are treated separately for purposes of estimating overall Level B harassment.
- Table J-51 on page J-29 of the DEIS states that the transmission loss models used 5.5 kHz as the center frequency for the 53C sonars. If this is correct, then the SEIS should explain why this value was used instead of the typical nominal center frequency of 3.5 kHz.
- Efforts to scale certain factors and variables create several problems. First, the size of the grid cells for accumulating energy from multiple pings (e.g., on page J-28) is not clear, nor is it clear how these are reconciled to the R_{max} calculation described on pages J-30–31. On pages J-32–33, the calculation of impact volume is based on a mismatch between the boundaries of the bins used to calculate the various depths of the animals in a population based on dive data and the boundaries used to calculate received sound level (RL) with depth. In such cases, the SEIS seems to indicate that the portion of the population in a given depth bin, say 14 percent at 100–200 meters, is not distributed in some way over the

multiple RL depth bins within the 100–200 meter bin (as many as 50 RL bins if 2-meter resolution is used), but rather the entire 14 percent is assigned to each RL depth bin. If our interpretation is correct, this approach could assume the equivalent of more than 100 percent of the estimated animal density for the entire water column within a single dive-depth bin and significantly overestimate the risk value for that grid cell (see section J.1.5.3, page J-46). The cumulative impact of this error would be considerable if in fact it represents a calculation error rather than a misunderstanding of the explanation of the risk estimation process.

- Page J-41, line 39, contains what appears to be a typographical error in which the depth distribution of Bryde's whale distribution is split into depth bins of 0–50 meters, 50–225 meters and <225 meters (which would seem to include the previous two bins).

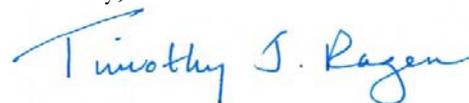
Finally, to improve subsequent drafts of this EIS, we note that—

- secondary references are used when original references should be cited (p.3-1, lines 23–24); and
- the species accounts beginning on pages 3-18 all state that there will be ### individuals of the named species exposed, when the more correct probabilistic expression is then used in the remainder of the paragraph, namely that there will be ### exposures, but it is impossible to determine how many individuals within the population will experience one or more exposures, although we know that the exposures will not be evenly distributed throughout the members of the population.

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We hope that the Commission's comments on this SEIS, along with previously provided comments on the DEIS, are useful to the Navy as it develops the final EIS and associated request for a letter of authorization under the Marine Mammal Protection Act. Please contact me if you have any questions or wish to discuss our recommendations and comments.

Sincerely,



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Executive Director

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