

MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814

24 July 2007

Mr. P. Michael Payne
Chief, Permits Division
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Dear Mr. Payne:

We normally begin our letters to you with the statement that the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the matter under consideration. In this case, the limited 15-day comment period has not been sufficient for the Commission to conduct a full review or to allow it to consult with its Committee of Scientific Advisors on Marine Mammals, as required under section 203(c) of the Marine Mammal Protection Act (§ 203 (c)) and as explained in our letter of 11 July to Dr. William Hogarth, Assistant Administrator for Fisheries. For that reason, the following, somewhat hastily developed comments reflect the views of the Commission staff only. They should not be construed as reflecting the views of the Commission or the Committee of Scientific Advisors.

The proposed rule under consideration pertains to the taking of marine mammals incidental to U.S. Navy operation of Surveillance Towed Array Sensor System Low Frequency Active Sonar (SURTASS LFA). The Navy is requesting authorization to take marine mammals incidental to its operation of a maximum of four SURTASS LFA sonar systems in the Pacific, Atlantic, and Indian Oceans and in the Mediterranean Sea for the purpose of providing long-range detection of quieter, harder-to-find submarines. In its proposed rule, the National Marine Fisheries Service specifies the terms and conditions under which Letters of Authorization may be issued for the incidental taking of marine mammals by Level A and Level B harassment during SURTASS LFA sonar operations.

The Service preliminarily adopts the estimates of risk set forth in the SURTASS LFA Final Supplemental Environmental Impact Statement (SEIS) and proposes that the same visual, passive acoustic, and active acoustic monitoring be employed as is required under the current rule established in 2002 and Letters of Authorization issued under that rule. Additional actions to mitigate environmental risk in the proposed rule include (1) delay or suspension of sonar transmissions for a minimum of 15 minutes if a marine mammal is detected within or near the mitigation zone until the mitigation zone is determined to be clear of marine mammals, (2) ramp-up for the high-frequency marine mammal monitoring (HF/M3) sonar, (3) exclusion of sonar operations from nearshore areas (a 180-dB isopleth would be established more than 12 nautical miles [22 km] from shore), and (4) exclusion of operations in Offshore Biologically Important Areas (OBIA) that extend beyond the 12-nautical mile exclusion zone. The Service has proposed adding an OBIA to the list contained in the SURTASS LFA SEIS (The Gully, with latitudinal and longitudinal boundaries as specified in the *Federal Register* notice of rulemaking, p. 37417). We concur with this proposal. The Service also indicates in section 216.191 of the proposed rule the procedure

by which other OBIA's may be nominated for addition to the existing list. Requirements for reporting by the holder of a Letter of Authorization under this rule are similar to reporting requirements under the current 2002 rule and Letters of Authorization. The Commission anticipates that additional sites may be advanced for candidacy as an OBIA in the future (such as Georges Bank) and looks forward to reviewing such nominations as they arise.

STAFF RECOMMENDATIONS

Although the Commission staff concurs with the much of the reasoning behind and the conditions set forth in the Service's proposed rule, we believe that the evidence for the effectiveness of monitoring measures is insufficient and suggest that the Service require the applicant to conduct such studies as are needed to verify and quantify the effectiveness of this monitoring approach.

The Commission staff does not disagree with the contention in both the SEIS and the proposed rule that the current monitoring protocol is the most effective and practicable approach available, given the state of current technical means. However, we do not believe that the available data adequately demonstrate the effectiveness of the combined visual, passive acoustic, and active acoustic monitoring, but we do believe that such a demonstration is possible, given current practices in similar marine mammal survey and mitigation protocols.

Specifically, the detection of only three marine mammals using visual observations, no detection of marine mammals using passive acoustics, and 71 detections using active acoustics during 471 hours of monitoring raise serious questions about the effectiveness of visual and passive acoustic monitoring, as well as the possibility that some possibly significant portion of the 71 active acoustic alerts (none of which were confirmed by either visual or passive acoustic monitoring) were actually false alarms. Without better confirmation of monitoring performance, any of the following conclusions are possible:

- (1) Fewer marine mammals occurred in the operating areas than predicted, in which case estimates of potential Level A and Level B takes are overestimated;
- (2) Visual and passive acoustic monitoring are so ineffective as to be considered unreliable; and
- (3) Active acoustic monitoring delivers a potentially high number of false alarms, leading to a considerable amount of unwarranted lost sonar exercise opportunities.

It also should be noted that the idea that active acoustics may be compromised by Type I errors (i.e., the conclusion that an animal is present when that is not the case) does not eliminate the possibility of Type II errors as well (i.e., the conclusion that no animals are present when in fact one or more animals are within the exclusion zone).

Any of the above considerations is sufficient justification to mount an independent verification and validation effort to develop statistically defensible performance metrics for these monitoring methods. Extrapolation from very dissimilar visual survey protocols clearly does not adequately capture the actual effectiveness of the SURTASS LFA visual survey protocol. In a region where there are reasonable numbers of loud, low-frequency whales (blue, fin, humpback, and sperm

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whales) it seems almost impossible that even a band-limited, low-frequency system capable of detections only below 500 Hz, but with multi-element array gain, was unable to detect even one marine mammal in 471 hours of operation. And although the theoretical predicted performance of the active system, derived from good marine mammal acoustic target strength data and well-understood sonar equations, may well be within the 90–95 percent detection rate claimed for HF/M3, it is troubling to not see more consideration given to possible errors, including the well-known problem of high false alarm rates for sonars generally, and the lack any confirming data for any of the 71 HF/M3 “marine mammal detections.”

Although continuous independent vessel or aircraft-based surveys were rejected as impractical, unsafe, and too costly, a short one- to two-week period of intensive independent survey effort would seem to be more practical, less costly and would provide much-needed verification and validation of performance for a monitoring process that is possibly seriously under-performing in some respects (visual and passive acoustic) and over-performing in others (active acoustic), or both.

Although the described monitoring effort is likely the best that is currently available, we understand that rapid improvements are being made in this technical field. Consistent, quantitative assessments of monitoring performance are needed to compare options and separate those that are effective from those that are not. We believe it is in the best interest of both the Navy and the Service to be able to select mitigating actions that provide substantive benefits to the environment and are not merely imposed because of a perceived but unsubstantiated benefit. It is clear that the best estimates of monitoring performance provided by the Navy are not consistent with actual monitoring results, as reported in the SURTASS LFA Final Comprehensive Report. We and other reviewers cannot weigh alternatives unless actual performance is quantified and verified.

The research effort reported in the Final Comprehensive Report and the SEIS for both SURTASS LFA-specific research and general research on the effects of manmade sound seems well focused and relevant. It is likely that these efforts and those of other research programs will yield improvements to existing monitoring technologies and lead to development of new technologies that can overcome some of the current shortcomings. We suggest that the Service closely monitor the development of such technologies as they emerge and encourage the Navy to devote time and resources to the verification and validation of the performance of new sensors to support an informed judgment of their utility for avoiding unintentional adverse effects on marine mammals.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director