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

24 May 2006

Mr. P. Michael Payne
Chief, Permits Division
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910-3226

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed (1) the application submitted by the U.S. Navy under section 101(a)(5)(D) of the Marine Mammal Protection Act seeking authorization to take small numbers of marine mammals by harassment incidental to conducting Rim of the Pacific (RIMPAC) antisubmarine warfare training exercises in waters around the Hawaiian Islands, and (2) the National Marine Fisheries Service's 24 April 2006 *Federal Register* notice announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. Based on that review, the Commission offers the following recommendations and comments.

Recommendations

The Marine Mammal Commission recommends that

- The Service clarify that it cannot use section 101(a)(5) of the Marine Mammal Protection Act to authorize the taking of marine mammals by non-U.S. citizens or vessels, some of which are expected to participate in the proposed military exercises;
- The Service consult with the U.S. Navy to overcome this shortcoming by modifying the proposed activities or seeking an alternative authorization for such taking;
- In light of the uncertainties concerning the potential adverse effects of mid-frequency sonar on beaked whales and other deep-diving species and the potential for serious injury or mortality of these species, the Service reconsider its decision to authorize the proposed activity by means of an incidental harassment authorization and instead promulgate regulations to govern the incidental taking under section 101(a)(5)(A) of the Marine Mammal Protection Act;
- If, despite these problems, the Service chooses to proceed with issuance of the requested incidental harassment authorization, it require that the applicant take the following steps:
    - The monitoring period for determining whether a marine mammal is within or about to enter the prescribed safety zones be increased to at least 45 minutes to account for deep-diving species that can remain submerged for longer than 30 minutes;
    - As a precautionary measure, sonar sources be "powered down" by 6 dB at night and during all other times of low-visibility conditions and during all choke-point exercises. We note that the Service estimates that, given the water depths within the

proposed RIMPAC areas, a 6-dB reduction in ping levels would reduce the range of potential acoustic effects to about half of its original radius;

- Operations be suspended immediately if a dead or seriously injured marine mammal is found in the vicinity of the operations that possibly could be attributed to the Navy's activities, pending authorization to proceed or issuance of regulations authorizing such takes under section 101(a)(5)(A) of the Act; and

- The Service revise its interpretation of temporary threshold shift (TTS) to indicate that it has the potential to injure marine mammals and therefore constitutes Level A harassment due to foreseeable secondary effects of temporary hearing loss.

Rationale

The proposed activities are scheduled to take place over 21 days between 26 June 2006 and about 28 July 2006 and will involve antisubmarine warfare training exercises in the Navy's Hawaiian Operating Area. Submarines, surface ships, and aircraft from the United States and multiple foreign nations will participate in these exercises, which will use mid-frequency sonar (1 to 10 kHz) to detect submarines under various scenarios. The activities covered by the application include the deployment and use of sonars on vessels of foreign navies as well as those of the U.S. Navy. Twenty-five cetacean species, two pinniped species, and five sea turtle species inhabit the operating area, including endangered humpback, North Pacific right, sei, fin, blue, and sperm whales, and Hawaiian monk seals.

Based on the proposed area of operation, it appears that foreign vessels are expected to engage in activities in waters subject to U.S. jurisdiction (i.e., the U.S. Exclusive Economic Zone) and that those activities are likely or have the potential to result in the incidental taking of marine mammals. The Commission notes that section 101(a)(5) of the Marine Mammal Protection Act applies only to the taking of marine mammals by citizens of the United States. Thus, to the extent that foreign vessels and their crews are expected to engage in activities that result in the taking of marine mammals within the U.S. Exclusive Economic Zone, those activities cannot be covered under the requested incidental harassment authorization and will constitute a violation of the Marine Mammal Protection Act. This being the case, the Marine Mammal Commission recommends that the National Marine Fisheries Service clarify with the U.S. Navy that the Service cannot use section 101(a)(5) of the Marine Mammal Protection Act to authorize the taking of marine mammals by non-U.S. citizens or vessels, some of which are expected to participate in the proposed military exercises.

At the same time, however, the Commission recognizes the importance of military readiness for the United States. For that reason, the Marine Mammal Commission recommends that the Service consult with the Navy to consider possible solutions to this problem (e.g., by limiting participation of foreign fleets to waters outside the U.S. 200-mile limit where no taking authorization is needed by non-U.S. citizens and foreign vessels, by obtaining an authorization for such taking

under section 101(a)(3)(A) of the Act [which is available only for non-depleted species and stocks], etc.). The Commission would be pleased to participate in this consultation if that would be helpful.

Based on its interpretation of the limited available data, the Service notes that some marine mammals may react to the sounds produced by mid-frequency sonar at received levels lower than those thought to cause direct physical harm. Such behavioral reactions may, in some circumstances, lead to physiological harm, stranding, or even death. However, the Service has preliminarily determined that, with the incorporation of the proposed monitoring, mitigation, and reporting requirements, the proposed activities are expected to (1) result only in the harassment of marine mammals, (2) have no more than a negligible impact on the affected marine mammal stocks, and (3) have no unmitigable adverse impact on the availability of marine mammal species or stocks for subsistence uses.

The Marine Mammal Commission questions the assumption that all incidental taking during the proposed activities will be by harassment only and recommends that the Navy consider seeking, and the National Marine Fisheries Service consider requiring the Navy to obtain, a taking authorization under section 101(a)(5)(A) to cover other types of taking. Absent such authorization, the applicant should provide, and the Service confirm, a basis for the belief that the proposed monitoring and mitigation measures will guarantee that no marine mammal will be exposed to received levels capable of causing serious injury or death.

Preventing unanticipated harassment of marine mammals during acoustic operations depends in large part on the ability to detect the presence of animals within specified distances from vessels that are using mid-frequency sonars. The efficacy of visual monitoring is determined by many factors (e.g., the numbers and types of species in the area, visibility and sea state conditions, observer position), and it is likely that many marine mammals go undetected when monitoring is based on visual observations alone. This is of particular concern with respect to beaked whales, one of the most difficult species to detect and one of the most susceptible to potential impacts of mid-frequency sonar. Passive acoustic monitoring has significant drawbacks as well, in that it is unable to detect non-vocalizing marine mammals and has limited capability to provide information on the distances of marine mammals from the sound sources. The Navy estimates the efficiency of its visual and passive acoustic monitoring at 5 percent each (66 Fed. Reg. 15380, 19 March 2001). Also, the extent to which the Navy plans to use passive acoustic monitoring to detect marine mammals during the proposed activities is not clear. The application states that "passive detection capabilities are used *to the maximum extent practicable consistent with the mission requirements*...[emphasis added]." The applicant should explain what it considers practicable use, given the mission requirements.

In light of the limitations of visual and passive acoustic monitoring, the Commission supports the Service's proposal to require additional mitigation and monitoring measures to avoid the possibility of serious injury or mortality of marine mammals. The Commission generally supports these additional measures but, as discussed below, is concerned that they may not be sufficient for that purpose. We note that

- The Service is proposing to require that the Navy operate sonar at the lowest practicable level, not to exceed 235 dB, except for occasional short periods of time to meet tactical training objectives. The Service does not, but should, define what is meant by "short periods of time to meet tactical training objectives" and indicate what maximum source levels will be allowed and for what durations.

- The Service states that active transmission levels must be reduced by at least 6 dB below the equipment's normal operating level for "sector search mode" or shut down when a marine mammal is detected within certain distances of the sonar dome (the bow of the vessel) until the animal has been documented as leaving the area, has not been seen for 30 minutes, or the vessel has transited more than 2,000 m from the location of the sighting. Because several species of cetaceans commonly stay submerged for more than 30 minutes, the Marine Mammal Commission recommends that the monitoring period be increased to at least 45 minutes to better ensure that animals sighted within the safety zone have left the area.

- Whenever the entirety of a prescribed safety zone cannot be monitored effectively due to low-visibility conditions (e.g., darkness, high sea state, fog), the Service is proposing to require (1) the use of additional detection measures, such as infrared night vision goggles or enhanced passive acoustic detection, and (2) that if detection of animals is not possible using these additional measures, the sonar be powered down as if marine mammals were present in the zone. The Commission notes that, to meet its military readiness requirements, the Navy considers it imperative that it be able to conduct exercises at night, in periods of low visibility, and in high sea states. However, given the limitations of night-vision devices (based on the Service's assessment in its previous *Federal Register* notices) and passive acoustic monitoring, the Marine Mammal Commission recommends that the National Marine Fisheries Service require a 6-dB power-down of the sonar at night and during all other low-visibility conditions.

- In particular, the Marine Mammal Commission recommends that the National Marine Fisheries Service require a 6-dB power-down of the sonar during the conduct of three proposed choke-point exercises in the Kaulakahi and Alenuihaha Channels. We note that the Service is requiring a focused monitoring effort (pre-exercise monitoring [2 hours], monitoring during the exercise, and post-exercise monitoring [1-2 days]) for these exercises, including the requirement for at least one dedicated aircraft or one dedicated vessel for real-time monitoring from the pre- through post-monitoring time period except at night. Considering the additional risk factors involved in these choke-point exercises (i.e., canyon-like areas, operation of sonar within 25 km from the 200-m isobath, and the potential presence of beaked whales in the area) and the limitations of monitoring at night, the Commission believes that caution is warranted.

The Service's notice states that the joint report by National Marine Fisheries Service and the Navy concerning the multi-species stranding in the Bahamas in 2000 concluded that mid-frequency sonars used by U.S. Navy ships during that exercise were the most plausible source of the acoustic or impulse trauma incurred by the stranded animals. The report noted that the sound source was active in a complex environment that included the presence of a surface duct, unusual and steep bathymetry, a constricted channel with limited egress, intensive use of multiple, active sonar units over an extended period of time, and the presence of beaked whales, which appear to be particularly sensitive to the frequencies produced by these sonars. The investigation team recommended that the Navy avoid operating mid-frequency sonar in situations in which these five factors would be likely to occur. However, the investigation team did not conclude that all five of these factors must be present for a stranding to occur or that beaked whales are the only species that could potentially be affected by the confluence of these and other factors. The Service believes that, because some of the five factors will be present during the proposed exercises (i.e., the presence of surface ducts, steep bathymetry and/or constricted channels, and the presence of beaked whales), there is an increased likelihood of producing a sound field with the potential to cause cetaceans to strand, be injured, or die. Given the uncertainty regarding the mechanisms for the strandings, the Service is proposing to treat all predicted behavioral disturbance of beaked whales as potential non-lethal injury (i.e., Level A harassment). Based on the association of mid-frequency sonars with past beaked whale strandings, however, the Commission questions why the Service discounts completely the possibility that the predicted behavioral disturbance could result in lethal injuries.

The Commission supports the Service's efforts to focus attention on the potential adverse effects of the proposed activities on beaked whales. However, elevating the assumed level of harassment for beaked whales from Level B to Level A does not address the question of whether the proposed additional mitigation measures will be sufficient to protect beaked whales from "direct physical harm, with behaviors that may, in some circumstances, lead to physiological harm, stranding, or, potentially, death," the goal stated by the Service in its *Federal Register* notice. In light of these possibilities, if the Service decides to proceed with issuance of the incidental harassment authorization, the Marine Mammal Commission recommends that the Service require that operations be suspended immediately if a dead or seriously injured marine mammal is found in the vicinity of the operations that is potentially attributable to those activities, pending authorization to proceed or issuance of regulations authorizing such takes under section 101(a)(5)(A) of the Act.

In addition to concerns about the adequacy of the proposed mitigation and monitoring program, the Commission continues to question the Service's definitions of TTS in terms of Level B harassment. The Service's *Federal Register* notice states that, as a result of incurring TTS, an animal may not respond to sounds that would normally produce a behavioral reaction (such as a predator or the social calls of conspecifics), and that play important roles in mother-calf relations, reproduction, foraging, and warning of danger." The Service has determined that this lack of response constitutes only a temporary disruption of normal behavioral patterns (i.e., the animal is impeded from responding in a normal manner to an acoustic stimulus). In previous letters to the Service, the Commission has repeatedly expressed the view that an across-the-board definition of TTS as

constituting no more than Level B harassment inappropriately dismisses possible injury and biologically significant behavioral effects to the affected animals that may occur if their hearing is compromised, even temporarily. TTS may last from minutes to days, depending on the degree of the threshold shift. Clearly, an animal's survival depends on its ability to detect and protect itself from threats. If, because of temporarily compromised hearing, it is unable to display a normal behavioral reaction to events in its environment (e.g., to detect predators or respond to warnings of danger from conspecifics), it is at significantly greater risk of being seriously injured or killed. The Marine Mammal Commission recommends that the National Marine Fisheries Service revise its definition of TTS to include the potential for Level A harassment due to secondary effects of temporary hearing loss.

Lastly, we note that the Service's notice states that the proposed activities would not have an unmitigable adverse impact on the availability of species or stocks for subsistence uses. Although there is some overlap between the marine mammal stocks that occur in the waters surrounding Hawaii and those that occur in Alaska (e.g., North Pacific humpback whales), those stocks generally are not used by Alaska Natives for subsistence purposes. The notice also should clarify that only subsistence hunting of marine mammals by Alaska Natives is considered in the findings under either section 101(a)(5)(A) or 101(a)(5)(D).

Please contact me if you or your staff has questions about these comments and recommendations.

Sincerely,

Timothy J. Ragen

Timothy J. Ragen, Ph.D.
Acting Executive Director