



MARINE MAMMAL COMMISSION

18 August 2011

Mr. P. Michael Payne, Chief
Permits, Conservation, and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the U.S. Air Force's application seeking to renew its authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take incidentally small numbers of marine mammals by harassment. The taking would occur during air-to-surface gunnery missions within the Eglin Air Force Base's Gulf of Mexico Test and Training Range. The Commission also has reviewed the National Marine Fisheries Service's 20 July 2011 *Federal Register* notice (76 Fed. Reg. 43267) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. The Commission previously has commented on numerous incidental harassment authorizations regarding the proposed activities, the last of which expired on 26 January 2011. The Air Force has not conducted air-to-surface gunnery missions at Eglin Air Force Base since its authorization expired and will not resume those activities until a new incidental harassment authorization is issued.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- withhold issuing the authorization until the Air Force has provided a clear, step-by-step description of how it estimated the zones of exposure and associated number of takes for the sound exposure level thresholds, accounting for the multiple types and quantities of rounds to be used for representative missions;
- require the Air Force to evaluate its mitigation and monitoring measures to assess their effectiveness in detecting marine mammals and minimizing takes; and
- work with the Air Force to design and conduct the necessary performance verification testing for electronic detection devices under the relevant sea state conditions.

RATIONALE

The Air Force plans to conduct its air-to-surface gunnery missions year-round offshore of the Florida Panhandle. A gunnery mission involves surface impacts of projectiles and small underwater detonations that range from 30 g to 2.1 kg of explosives for the 25-mm and 105-mm gunnery rounds, respectively. The missions normally occur during a 6-hour timeframe, with 30 to 90 minutes of firing rounds at the intended target (i.e., flares). The Air Force would conduct 70 missions per year at least 24 km from the coast, during day and night.

The Service preliminarily has determined that, at most, the proposed activities would modify temporarily the behavior of six cetacean species. It also anticipates that any impact on the affected species and stocks would be negligible. Although the Air Force's modeling predicted that two bottlenose dolphins and one Atlantic spotted dolphin could be taken by Level A harassment, neither the Air Force nor the Service anticipates any take of marine mammals by death or serious injury and the Service believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include—

- (1) using a specially developed 105-mm training round for nighttime missions that contains only 0.16 kg of explosives rather than the typical 2.1 kg of explosives;
- (2) conducting missions in shallower continental shelf waters rather than slope waters, where marine mammals are more abundant;
- (3) using visual observers to monitor a 9.3-km wide target area for marine mammals 60 minutes prior to each mission, which includes conducting at least two complete orbits of the gunship at a maximum altitude of 1,829 m followed by subsequent monitoring as the gunship ascends to 4,572–6,096 m;
- (4) avoiding target areas where marine mammals are present before the mission;
- (5) using visual observers to monitor the target area during each mission;
- (6) halting immediately and relocating or suspending activities for at least 60 minutes if a marine mammal is detected during any mission;
- (7) using radar, all-light television, infrared sensors, and night-vision equipment to supplement visual monitoring measures;
- (8) using ramp-up procedures (i.e., an abbreviated period of firing to calibrate and test gun function);
- (9) reinitiating marine mammal surveys (i.e., two complete orbits of the gunship at a maximum altitude of 1,829 m) if a mission is interrupted for more than 10 minutes;
- (10) using visual observers to monitor for marine mammals following each mission as the gunship descends from 4,572–6,096 m to 1,829 m;
- (11) coordinating the next-day flight activities to provide supplemental post-mission observations of the previous day's target area;
- (12) training observers in marine mammal survey and identification techniques prior to a mission;
- (13) reporting all injured or dead marine mammals observed prior to each mission to the National Marine Fisheries Service by the following business day;
- (14) reporting all unauthorized takes (i.e., injuries or mortalities) immediately to the Service and the local stranding network and suspending activities until the Service reviews the incident and amends the mitigation or monitoring measures; and
- (15) submitting a final report to the Service.

Those measures are evidence of a commendable commitment by the Air Force and National Marine Fisheries Service to avoid taking marine mammals during gunnery missions. Nevertheless, the Commission believes that efforts by the two agencies could be improved in the following ways.

Zones of Exposure and Associated Marine Mammal Takes

The Air Force estimated its zones of exposure for explosives based on impulse, peak pressure, and sound exposure level thresholds. Impulse and peak pressure thresholds are instantaneous and do not incorporate a time element. In contrast, thresholds for sound exposure levels are intended to account for the total energy expended in a specific area during an explicit period of time.

Exactly how the Air Force estimated its zones of exposure for various sound exposure level thresholds is not clear. One reading of the application suggests that it based its estimates on individual rounds rather than the accumulated energy of all the various types and quantities of rounds that would be fired in a given period of time (e.g., during a training exercise or mission). This approach would lead to inaccurate estimates of sound exposure levels because the individual rounds cannot be treated as independent of each other and are not simply additive. This reading also suggests that the Air Force then estimated the number of takes that would occur by multiplying the estimated number of rounds by the area of exposure per round and then by the density of marine mammals. Because the sound exposure level estimate based on one round is not an accurate basis for estimating total sound exposure level, the number of takes estimated by this method would not be correct.

A second reading suggests that the Air Force may have accounted for the various numbers of rounds to be fired and then used that information to produce a more accurate estimate of sound exposure level. But neither the Air Force's application nor the Service's *Federal Register* notice are clear on this point. Until the methods used to estimate sound exposure levels are clarified, the Commission cannot make an informed judgment about the soundness of the estimation method. With that shortcoming in mind, the Marine Mammal Commission recommends that the National Marine Fisheries Service withhold issuing the authorization until the Air Force has provided a clear, step-by-step description of how it estimated the zones of exposure and associated number of takes for sound exposure level thresholds, accounting for the multiple types and quantities of rounds to be used for representative missions. Other agencies have modeled accurately the total sound exposure level from multiple sound sources and the Air Force should be required to do so as well.

Mitigation and Monitoring Measures

The proposed mitigation and monitoring measures have not changed since issuance of a similar incidental harassment authorization in 2008. To the Commission's knowledge, the efficacy of those measures has not been evaluated. If that is the case, then it is not possible to describe reliably what impacts the Air Force's activities are having on marine mammals. For example, in this application the Air Force proposes to monitor a 9.3-km wide target area at an altitude of 1,829 m and as the gunship ascends to 4,572–6,096 m. The Commission questions whether the Air Force can monitor such an area during all the various conditions that may occur during a mission. If such monitoring is not effective, then the Air Force and the Service have no basis for assuming that takes will be prevented as suggested or for assuming that the actual number of takes will be determined accurately.

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The Commission believes the Air Force should assume responsibility for evaluating its mitigation and monitoring measures to characterize their effectiveness. Other Department of Defense applicants are doing so. For example, the Navy is implementing an Integrated Comprehensive Monitoring Plan that includes evaluation of mitigation and monitoring measures. More specifically, the Navy has initiated a research project with the University of St. Andrews to investigate the effectiveness of Navy lookouts. Because it believes that the Air Force bears a similar responsibility, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Air Force to evaluate its mitigation and monitoring measures to assess their effectiveness in detecting marine mammals and minimizing takes.

The following example, specific to the Air Force, illustrates the importance of evaluating the efficacy of mitigation and monitoring measures. The Air Force has requested that it be allowed to conduct its training missions in sea states up to Beaufort 4, as opposed to the current restriction of Beaufort 3. It justified this request by suggesting that electronic technology (i.e., radar, all-light television, infrared sensors, and night-vision equipment) allows it to conduct its missions safely in Beaufort 4 conditions. In commenting on previous incidental harassment applications for gunnery activities at Eglin Air Force Base, the Commission has recommended that the Service require the Air Force to provide the additional information needed to support its request to raise sea state restrictions. Such information should include the results of performance testing to verify that the various forms of technology increase detection capability to a degree sufficient to conclude that the Air Force can conduct its missions safely in Beaufort 4 conditions. The Air Force has yet to provide any such data and, until it does so, authorizing incidental taking under such conditions is premature. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service work with the Air Force to design and conduct the necessary performance verification testing for electronic detection devices under the relevant sea state conditions.

Proposed Regulations

The Commission understands that the Service would prefer to issue regulations to govern the incidental taking of marine mammals during a five-year period for all activities that occur at Eglin Air Force Base rather than issue a series of one-year incidental harassment authorizations for certain activities. However, at this time, the Air Force is requesting the issuance of regulations only for activities associated with Eglin's Naval Explosive Ordnance Disposal School. The Service has indicated that it intends to issue regulations in 2011 for those activities, which would be in effect until 2016. The Commission encourages the National Marine Fisheries Service to continue to work with the Air Force to consolidate all activities at Eglin that may take marine mammals, including gunnery exercises, into a single set of five-year regulations, rather than continue to issue annual incidental harassment authorizations for some activities.

Please contact me if you have questions regarding the Commission's comments and recommendations.

Sincerely,


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Timothy J. Ragen, Ph.D
Executive Director