



# MARINE MAMMAL COMMISSION

13 December 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 20910-3226

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by the U.S. Marine Corps seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take small numbers of Atlantic bottlenose dolphins by Level B harassment. The taking would be incidental to various training exercises at the Marine Corps Air Station, Cherry Point Range Complex, North Carolina. The Commission also has reviewed the National Marine Fisheries Service's 18 November 2011 *Federal Register* notice (76 Fed. Reg. 71535) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

## RECOMMENDATIONS

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

- require the Marine Corps to describe in detail the environmental and operational parameters and methods used to determine the zones of exposure and to estimate the associated number of takes;
- ensure that the Marine Corps has determined the zones of exposure and associated number of takes for all types of ordnance (including practice bombs and 25-mm live rounds) prior to issuing the incidental harassment authorization;
- require the Marine Corps to specify in detail its mitigation, monitoring, and reporting measures before the Service considers the application to be complete;
- withhold the authorization until the Marine Corps develops and is prepared to implement a plan to evaluate the effectiveness of its mitigation and monitoring measures before initiating or, at the very latest, in conjunction with the exercises covered by the proposed incidental harassment authorization; and
- require the Marine Corps to use either direct strike or dynamic Monte Carlo models to determine probability of ordnance strike for future authorizations.

## RATIONALE

The Marine Corps is planning year-round air-to-surface and surface-to-surface training exercises using bombing targets BT-9 and BT-11 at the Cherry Point Range Complex within southern Pamlico Sound, North Carolina. The training exercises would occur in water depths of

0.3–6.1 m and consist of inert and live ordnance (up to 100 lbs trinitrotoluene equivalent). The Marine Corps would conduct 1,539 aircraft-based and 165 vessel-based sorties per year at the BT-9 site and 6,727 aircraft and 51 vessel-based sorties per year at the BT-11 site. Aircraft-based sorties would be conducted using fixed-wing, rotary-wing, and maritime patrol aircraft. Training would involve bombing, rocket, gunnery, strafing, special weapons (laser systems), and mine-laying exercises. Types of ordnance would include small arms, large arms, bombs, grenades, rockets, missiles, and pyrotechnics. Live firing would occur at the BT-9 site only. Training exercises could occur at any time, day or night.

The Service preliminarily has determined that, at most, the proposed activities temporarily would modify the behavior of small numbers of bottlenose dolphins. It also anticipates that any impact on the affected species and stocks would be negligible. The Service does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of its proposed mitigation and monitoring measures. The measures include—

- conducting range sweeps at 100–300 m in altitude the morning of each training exercise to ensure the target area is clear of vessels, other personnel, and protected species;
- conducting a “cold-pass” (i.e., no ordnance delivered) at 61–914 m in altitude immediately prior to air-to-surface ordnance delivery during day and night to ensure the target area is clear of vessels, other personnel, and protected species;
- using delay procedures for all training exercises if a marine mammal is present within 914 m of the target area at BT-9 or anywhere within Rattan Bay at BT-11;
- using remotely operated, high-resolution cameras equipped with night-vision capabilities to monitor the target areas during day and night;
- abiding by the Service’s Southeast Regional Viewing guidelines, when feasible;
- using Marine Corps personnel to serve as protected species observers and requiring those personnel to complete Marine Species Awareness Training;
- conducting weekly and post-exercise monitoring;
- funding Duke University to continue long-term vessel-based and acoustic monitoring of marine mammals in Pamlico Sound;
- reporting injured and dead marine mammals to the Service and local stranding network using the Service’s phased approach and suspending activities, if appropriate; and
- submitting a final report.

The Commission understands that the Service plans to issue regulations governing the take of marine mammals incidental to the proposed activities in the upcoming year. However, the Commission continues to be concerned about certain aspects of this and similar authorizations for Marine Corps activities at Cherry Point. These concerns have been raised in past Commission letters (e.g., see the enclosed letter from 30 June 2010). Therefore, the Marine Mammal Commission encourages the Service to consult with the Commission regarding its concerns prior to issuing a proposed rule.

### **Modeling methods and take estimations**

The Marine Corps's application and the Service's *Federal Register* notice do not describe in detail the environmental parameters and methods used to determine the zones of exposure and estimate the number of takes. Propagation of sound is dependent upon various location-specific environmental and operational parameters including sound speed profiles, surface ducts, bathymetry, water depth, wind speed, detonation depth, detonation type, and detonation weight. Absent such information, interested parties are not able to evaluate the method by which zones of exposure were determined and takes were estimated. To address this shortcoming, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Marine Corps to describe in detail the environmental and operational parameters and methods used to determine the zones of exposure and to estimate the associated number of takes. In addition, the information in Table 9 of the *Federal Register* notice indicates that the Corps did not model the impacts of practice bombs up to 0.17 lbs or 25-mm live rounds up to 0.27 lbs. To address that potential shortcoming, the Marine Mammal Commission recommends that the National Marine Fisheries Service ensure that the Marine Corps has determined the zones of exposure and associated number of takes for all types of ordnance (including practice bombs and 25-mm live rounds) prior to issuing the incidental harassment authorization.

### **Mitigation, monitoring, and reporting measures**

The application, which has not been updated since 2009, does not adequately specify the proposed mitigation, monitoring, and reporting requirements identified in the Service's *Federal Register* notice. The lack of information is problematic because the central issue to be addressed in such applications is the risk posed to marine mammals. It is not possible to assess that risk with confidence without knowing what mitigation and monitoring measures would be used. Reporting also is essential to determine if the actual risk is consistent with the risk estimated during the application process. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Marine Corps to specify in detail its mitigation, monitoring, and reporting measures before the Service considers the application to be complete.

The effectiveness of mitigation and monitoring measures also is an important consideration in the assessment of risk. In its present form, the application does not provide an adequate basis for assessing the effectiveness of these measures. For example, the Service indicated that the Corps would use night vision technology to enhance its mitigation and monitoring efforts when it conducts exercises at night. The effectiveness of that technology is not clear, so it is not possible to judge whether that technology is sufficient to ensure protection of marine mammals (i.e., bottlenose dolphins) in the target areas. To correct this shortcoming, the Marine Mammal Commission recommends that the National Marine Fisheries Service withhold the authorization until the Marine Corps develops and is prepared to implement a plan to evaluate the effectiveness of its mitigation and monitoring measures before initiating or, at the very latest, in conjunction with the exercises covered by the proposed incidental harassment authorization.

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### **Probability of direct strike**

The Marine Corps estimated the probability of ordnance striking a marine mammal based on simple calculations using the surface area and density of dolphins and the amount of ordnance expected to be expended within a year. However, the risk associated with ordnance strikes should have been determined through the use of direct strike or dynamic Monte Carlo models that account for ordnance and marine mammal movement. These models can be used to account for variable ordnance types, speeds, tracks, and density and dolphin movements, dive behavior, and densities that are not incorporated in the simple calculations used by the Corps. The probability of an ordnance strike may be negligible, but that assumption should be confirmed using the best possible (i.e., most realistic) models of the proposed exercises, environmental conditions, and animals involved. The Marine Mammal Commission recommends that the National Marine Fisheries Service require the Marine Corps to use either direct strike or dynamic Monte Carlo models to determine the probability of an ordnance strike.

Please contact me if you have questions about our recommendations or rationale.

Sincerely,

A handwritten signature in blue ink that reads "Timothy J. Ragen". The signature is written in a cursive style with a long horizontal stroke at the beginning.

Timothy J. Ragen, Ph.D.  
Executive Director

Enclosure