



# MARINE MAMMAL COMMISSION

30 June 2010

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 8 June 2010 *Federal Register* notice (75 Fed. Reg. 32398) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. The Marine Mammal Commission recognizes the importance of military readiness for the United States, but, where possible, impacts to marine mammals should be minimized.

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 (1–20 ft) and consist of inert and live ordnance (up to 45.4 kg [100 lbs] trinitrotoluene [TNT] equivalent). The Marine Corps annually would conduct 1,539 aircraft-based and 165 vessel-based sorties at the BT-9 site and 6,727 aircraft and 51 vessel-based sorties at the BT-11 site. Training would involve bombing, strafing, special weapons (laser systems), gunnery, and mine-laying exercises. Types of ordnance would include small arms, large arms, bombs, rockets, missiles, and pyrotechnics. Live firing only would occur at the BT-9 site.

## RECOMMENDATION

The Marine Mammal Commission recommends that, before issuing the incidental harassment authorization, the National Marine Fisheries Service—

- include in any authorization issued the time frame for which authorization is requested;
- require the Marine Corps to describe in detail the environmental parameters and methods used to estimate the number of exposures and determine the safety zones;
- advise the Marine Corps that detailed mitigation, monitoring, and reporting requirements must be specified in applications for the incidental harassment of marine mammals before the application can be considered complete;
- withhold the authorization until the Marine Corps develops and is prepared to implement a plan to evaluate the effectiveness of monitoring and mitigation measures before beginning

- or, at the very latest, in conjunction with conducting exercises covered by the proposed incidental harassment authorization;
- require the Marine Corps to either justify its use of the older bottlenose dolphin estimated density (i.e., 0.183 dolphins/km<sup>2</sup>) for BT-11 from Read et al. (2003) or recalculate its estimated exposures based on the more recent data for both sites from Maher (2003);
- condition the authorization, if issued, to require suspension of the exercises if a marine mammal is seriously injured or killed and the injury or death could be associated with those exercises; and
- require the Marine Corps to use either direct strike or dynamic Monte Carlo models to determine probability of ordnance strike.

## **RATIONALE**

The National Marine Fisheries Service has preliminarily determined that the proposed training exercises would result, at most, in a temporary modification in the hearing and behavior of small numbers of bottlenose dolphins and that any impact to the affected species is expected to be negligible. The Service also has preliminarily determined that no take of marine mammals by death or serious injury is anticipated and that the potential for death and serious injury will be avoided through the incorporation of the proposed mitigation and monitoring measures.

### **Time Frame of Authorization**

The application and the Service's *Federal Register* notice do not describe the time frame for which authorization is requested. Presumably, the Service intends to issue a one-year authorization beginning at the time of issuance, but the authorization also might be issued for some later period. To avoid confusion on this point, the Marine Mammal Commission recommends that the National Marine Fisheries Service include in any authorization issued the time frame for which authorization is requested.

### **Modeling Methods**

The application and the Service's *Federal Register* notice do not describe in detail the environmental parameters and methods used for determining the estimated number of exposures (i.e., takes) and associated safety zones. Propagation of sound is dependent upon various location-specific environmental parameters including sound speed profiles, surface ducts, wind speed, bathymetry, water depth, detonation depth, detonation type, and detonation weight. Absent such information, interested parties are not able to evaluate the accuracy of estimated exposures or the suitability of the associated safety zones. 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 parameters and procedures used to estimate the number of exposures and determine the safety zones.

## **Mitigation, Monitoring, and Reporting Measures**

The application does not adequately specify the proposed mitigation, monitoring, and reporting requirements identified in the Service's *Federal Register* notice. The lack of information creates a problem, 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 will 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 advise the Marine Corps that detailed mitigation, monitoring, and reporting requirements must be specified in applications for the incidental harassment of marine mammals before the application can be considered complete.

The effectiveness of monitoring and mitigation 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. 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 monitoring and mitigation measures before beginning or, at the very latest, in conjunction with conducting exercises covered by the proposed incidental harassment authorization.

## **Marine Mammal Density Estimation**

The Marine Corps thoroughly reviewed the existing literature regarding bottlenose dolphin densities within North Carolina. The Corps then used a density estimate of 0.183 dolphins/km<sup>2</sup> based on data collected at the BT-11 site in 2000 (Read et al. 2003) to estimate the number of exposures. For reasons not explained, the Corp chose not to use more recent (2002–2003) data collected at the BT-9 and BT-11 sites (i.e., 0.11 and 1.23 dolphins/km<sup>2</sup>, respectively; Maher 2003). Because the Maher (2003) data are more recent and pertain to both proposed target sites, they appear to provide a better basis for generating estimates of the number of bottlenose dolphins exposed or taken during the proposed exercises. To ensure the best possible estimates, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Marine Corps to either justify its use of the older bottlenose dolphin estimated density (i.e., 0.183 dolphins/km<sup>2</sup>) for BT-11 from Read et al. (2003) or recalculate its estimated exposures based on the more recent data for both sites from Maher (2003).

## **Level A Harassment and Mortality**

The Marine Corps is not seeking authorization to take any bottlenose dolphins by serious injury or mortality. The Marine Mammal Commission recommends that the National Marine Fisheries Service condition the authorization, if issued, to require suspension of the exercises if a marine mammal is seriously injured or killed and the injury or death could be associated with those exercises. The injury or death should be investigated to determine the cause, assess the full impact of the exercise (e.g., the total number of animals involved), and determine whether and how exercises

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can be modified to avoid additional injuries or deaths. Full investigation of such incidents is essential to provide information regarding potential effects to marine mammals from air-to-surface or surface-to-surface training exercises. If additional measures are unlikely to reduce the risk of additional serious injuries or deaths of marine mammals to a very low level, the Service should require the Marine Corps to obtain the necessary authorization for such takings under section 101(a)(5)(A) of the Marine Mammal Protection Act, before continuing the training exercises.

### **Miscellaneous Issues**

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 utilize variable types, speeds, trajectories, and density of ordnance and variable movements, dive behavior, and density of dolphins that are not used by a simple calculation. The probability of ordnance strike may be negligible, but more accurate assessments of the risk associated with direct strike from ordnance should be utilized. The Marine Mammal Commission recommends that, in the future, the National Marine Fisheries Service require the Marine Corps to use either direct strike or dynamic Monte Carlo models to determine probability of ordnance strike.

The application and the Service's *Federal Register* notice indicate that the greatest zone in which Level B harassment might occur is delineated by a radius of 209 m (686 ft). However, Table 4-3 in the application and Table 8 in the *Federal Register* notice indicate that this radius should be 255 m (837 ft). Although the Service is proposing to use a safety zone with a radius of 1,000 yards (914 m), the Marine Mammal Commission suggests that the National Marine Fisheries Service and Marine Corps revise the application and the *Federal Register* notice to be consistent with the information provided in Tables 4-3 and 8 in the respective documents.

Please contact me if you have questions about the Commission's recommendations or rationale.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director

### Literature Cited

- Maher, J. 2003. Characterization of bottlenose dolphin (*Tursiops truncatus*) use of restricted areas in Pamlico Sound, NC. Master's thesis, Duke University, 31pp.
- Read, A.J., K.W. Urian, B. Wilson, and D.M. Waples. 2003. Abundance of bottlenose dolphins in the bays, sounds and estuaries of North Carolina. *Marine Mammal Science* 19(1):59-73.