



BILLING CODE: 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XA872

Taking of Marine Mammals Incidental to Specified Activities; U.S. Marine Corps Training Exercises at Air Station Cherry Point

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of incidental harassment authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) regulations, notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to the U.S. Marine Corps (USMC) to take marine mammals, by Level B harassment only, incidental to military training exercises at Marine Corps Air Station (MCAS) Cherry Point Range Complex, North Carolina. The USMC's activities are considered military readiness activities pursuant to the MMPA, as amended by the National Defense Authorization Act (NDAA) for Fiscal Year 2004.

DATES: Effective January 1, 2012 through December 31, 2012.

ADDRESSES: A copy of the IHA and the application are available by writing to 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, telephoning the contact listed below (see FOR FURTHER INFORMATION CONTACT), or visiting the internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>. The following associated documents are also available at the same internet address: Environmental Assessment

MCAS Cherry Point Range Operations (USMC 2009) and the associated Finding of No Significant Impact (FONSI). Documents cited in this notice may also be viewed, by

appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Ben Laws, Office of Protected Resources, NMFS, (301) 427-8401.

#### SUPPLEMENTARY INFORMATION:

##### Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) if certain findings are made and regulations are issued or, if the taking is limited to harassment, notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings may be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for certain subsistence uses, and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such taking are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as: "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review

of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

The NDAA (Pub. L. 108–136) removed the “small numbers” and “specified geographical region” limitations and amended the definition of “harassment” as it applies to a “military readiness activity” to read as follows (Section 3(18)(B) of the MMPA):

(i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

#### Summary of Request

On September 22, 2011, NMFS received an application from the USMC requesting an IHA for the harassment of Atlantic bottlenose dolphins (Tursiops truncatus) incidental to air-to-surface and surface-to-surface training exercises conducted around two bombing targets (BTs) within southern Pamlico Sound, North Carolina, at MCAS Cherry Point. NMFS first issued an IHA to the USMC for the same activities that was valid for a period of one year, beginning December 1, 2011 (75 FR 72807; November 26, 2010).

Weapon delivery training will occur at two BTs: Brant Island Target (BT-9) and Piney Island Bombing Range (BT-11). Training at BT-9 will involve air-to-surface (from aircraft to in-water targets) and surface-to-surface (from vessels to in-water targets) warfare training, including bombing, strafing, special (laser systems) weapons; surface fires using non-explosive and explosive ordnance; and mine laying exercises (inert). Training at BT-11 will involve air-to-surface exercises to provide training in the delivery of conventional (non-explosive) and special (laser systems) weapons. Surface-to-surface training by small (i.e., 24-85 ft) military watercraft

will also be executed here. The types of ordnances proposed for use at BT-9 and BT-11 include small arms, large arms, bombs, rockets, missiles, and pyrotechnics. All munitions used at BT-11 are inert practice rounds. No live firing occurs at BT-11. Training for any activity may occur year-round, day or night. Active sonar is not a component of these specified training exercises; therefore, no harassment from active sonar is covered by the IHA.

#### Description of the Specified Activity

All inert and live-fire exercises at MCAS Cherry Point are conducted so that all ammunition and other ordnances strike and/or fall on the land or water based target or within the existing danger zones or water restricted areas. The BTs are located at the convergence of the Neuse River and Pamlico Sound, North Carolina. Military training activities at the BTs include gunnery; mine laying; bombing; or rocket exercises and are classified into two categories here based on delivery method: (1) surface-to-surface gunnery and (2) air-to-surface bombing. Exercises may occur year round, day or night (less than 15 percent of training occurs at night).

Surface-to-surface fires are fires from boats at sea to targets at sea. These can be direct (targets are within sight) or indirect (targets are not within sight). Gunnery exercise employing direct fire is the only category of surface-to-surface activity currently conducted within MCAS Cherry Point. There are four types of air-to-surface activities conducted within the MCAS Cherry Point BTs: inert mine laying; bombing; gunnery; and rocket exercises which are carried out via fixed wing or rotary wing aircraft. High explosive ordnance is used only at BT-9. The USMC estimates that it may conduct approximately 1,539 aircraft-based and 165 vessel-based sorties, annually, at BT-9 and approximately 6,727 aircraft-based and 51 vessel-based sorties, annually, at BT-11. The standard sortie consists of two aircraft per bombing run or an average of two and maximum of six vessels. A complete description of these military readiness activities,

including the type and amount of ammunition used during training, is available in the proposed Federal Register notice for this action (76 FR 71535; November 18, 2011).

#### Description of Marine Mammals in the Area of the Specified Activity

Only one marine mammal species, the bottlenose dolphin, occurs within Pamlico Sound around the BTs. The endangered West Indian manatee (Trichechus manatus) has been sighted rarely (Lefebvre et al., 2001; DoN, 2003) within Pamlico Sound; however, the U.S. Fish and Wildlife Service oversees management of this species. Therefore, authorization to harass West Indian manatees is not included in any NMFS' authorization and will not be discussed further.

Four out of seven designated coastal stocks of the Atlantic bottlenose dolphin may occur in North Carolina waters at some part of the year: the Northern Migratory stock (NM; winter); the Southern Migratory stock (SM; winter); the Northern North Carolina Estuarine stock (NNCE; resident, year round); and the more recently identified Southern North Carolina stock (SNC; resident, year round). Dolphins encountered at the BTs likely belong to the NNCE and SNC stock; however, this may not always be the case. NMFS' 2008 stock assessment report provides further detail on stock delineation. All stocks discussed here are considered Depleted under the MMPA (Waring et al., 2010).

In Pamlico Sound, bottlenose dolphins concentrate in shallow water habitats along shorelines, and few, if any, individuals are present in the central portions of the sounds (Gannon, 2003; Read et al., 2003a, 2003b). Fine-scale dolphin abundance and density studies have been conducted in Pamlico Sound via aerial and boat based surveys (Read et al., 2003; Mayer, 2003; Goodman et al., 2007). Read et al. (2007) also conducted passive acoustic monitoring to determine dolphin presence around the BTs. The survey resulted in varying abundance and density estimates; however, in general, abundance was higher in summer than winter, density

estimates ranged from 0.09 to 0.18 dolphins/km<sup>2</sup>, and abundance around BT-11 was greater than BT-9. A complete description of bottlenose dolphin biology and ecology within Pamlico Sound can be found in the proposed IHA Federal Register notice prepared for this action (76 FR 71535; November 18, 2011).

#### Effects on Marine Mammals

As mentioned previously, with respect to military readiness activities, Section 3(18)(B) of the MMPA defines “harassment” as:

(i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

The USMC and NMFS have determined that harassment to marine mammals (specifically, bottlenose dolphins) may occur incidental to noise and detonations related to munitions firing on the BTs. These military readiness activities will result in increased noise levels, explosions, and munition debris within bottlenose dolphin habitat. In the absence of planned mitigation and monitoring measures, it is possible that injury or mortality of bottlenose dolphins could occur; however, due to the implementation of the planned measures, NMFS does not anticipate that harassment would rise to the level of injury (Level A harassment), serious injury, or mortality. Therefore, the IHA solely authorizes Level B (behavioral) harassment incidental to the USMC’s training activities. NMFS anticipates that bottlenose dolphins may undergo temporary threshold shift, masking, stress response, and altered behavioral patterns (e.g., traveling, resting, opportunistic foraging). A complete description of these impacts is available in the proposed IHA Federal Register notice prepared for this action (76 FR 71535; November 18, 2011).

## Effects on Marine Mammal Habitat

Detonations of live ordnance will result in temporary modification to physical water properties. Munitions are designed to hit the targets and not explode in-water; however, because the targets are on the water (e.g., ship hull on shoals); in-water explosions may occur. Such explosions will result in the release of gaseous by-products and creation of oscillating bubbles. Should a high-explosive miss the target and explode in-water, a small water plume may erupt. However, these impacts will be temporary and not expected to last more than a few seconds. Any direct hit on the targets are not expected to cause the aforementioned effects as the target would absorb the impact.

Similarly, no long term impacts with regard to hazardous constituents are expected to occur. MCAS Cherry Point has an active Range Environmental Vulnerability Assessment (REVA) program in place to monitor impacts to habitat from its activities. One goal of REVA is to determine the horizontal and vertical concentration profiles of heavy metals, explosives constituents, perchlorate nutrients, and dissolved salts in the sediment and seawater surrounding BT-9 and BT-11. Results of recent sampling indicate that explosive constituents (e.g., trinitrotoluene (TNT), cyclotrimethylenetrinitramine (RDX), and hexahydro-trinitro-triazine (HMX) were not detected in any sediment or water sample surrounding the BTs. Metals were not present above toxicity screening values. Perchlorate was detected in a few sediment samples above the detection limit (0.21 ppm), but below the reporting limit (0.6 ppm). The ongoing REVA would continue to evaluate potential migration of munitions constituents from operational range areas to off-range areas and MCAS Cherry Point would continue to implement mitigation measures as necessary.

In summary, in the absence of planned mitigation and monitoring measures, the potential exists for negative effects on marine mammal habitat. However, because dolphins are not expected to be in the immediate area during live firing, due to monitoring and mitigation measure implementation (discussed later in this document), they will not be subject to any short term habitat alterations caused by in-water and near-water explosions. REVA has found no significant impact on habitat from the USMC's training activities and the ongoing REVA will continue to evaluate potential migration of munitions constituents from operational range areas to off-range areas and MCAS Cherry Point would continue to implement mitigation measures as necessary. Therefore, the impacts to marine mammal habitat will be minimal.

#### Comments and Responses

On November 18, 2011, NMFS published in the Federal Register a notice of a proposed IHA for the taking of marine mammals incidental to the USMC's training exercises at MCAS Cherry Point and requested comments regarding this request (76 FR 71535). NMFS also sent the proposed IHA notice to the Marine Mammal Commission (Commission). During the 30-day public comment period, NMFS received comments from the Commission on the application and proposed IHA, and has evaluated and considered those comments in the course of making the necessary findings under the MMPA Section 101(a)(5)(D). No additional public comment was received.

Comment 1: The Commission recommends that, before issuing the IHA, NMFS require the USMC to (1) 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; and (2) ensure that the USMC has determined the zones of exposure and associated number of takes for all types of ordnance (including practice bombs and 25-mm live rounds).



Response: NMFS disagrees with the Commission's statements that the methods used by the USMC to derive safety zones, take, and estimate strike probability were lacking or inadequate. The USMC's application describes how safety zones were derived (based on NMFS explosive harassment criteria) and concluded that Level A harassment could occur at distances around 200 m (656 ft) from the target, based on a threshold of 13 psi-msec. However, the USMC will establish a "no fire" zone for a 1000 m (3281 ft) radius around BT-9, or anywhere within Raritan Bay at BT-11, providing a conservative approach to bottlenose dolphin safety.

The Commission notes that net explosive weights are presented in Table 2 of the proposed IHA Federal Register notice for several munitions types that do not have corresponding modeling information presented in Table 9 of the same document. Information for 25-mm live rounds was presented in error; high explosive rounds planned for use by USMC include only 30- and 40-mm rounds. Practice bombs contain no explosive filler, only a small signal cartridge which emits smoke used for visual observation of weapon target impact. Potential impact to marine mammals from use of these charges is discountable.

Comment 2: The Commission also requested that detailed mitigation, monitoring, and reporting requirements be specified in the application and that NMFS should withhold the authorization until the USMC develops and is prepared to implement a plan to evaluate the effectiveness of monitoring and mitigation measures before beginning or, at the very least, in conjunction with, conducting exercises covered by the proposed IHA.

Response: NMFS worked closely with the USMC during the application process to develop proper mitigation, monitoring, and reporting requirements designed to minimize and detect impacts from the specified activities. In order to ensure that NMFS can make the findings necessary for issuance of an IHA, NMFS worked with the USMC to develop more

comprehensive and acceptable mitigation, monitoring, and reporting requirements. As a result, the USMC prepared a Marine Mammal and Protected Species Monitoring Plan (Plan) and additional monitoring and mitigation measures are contained within the IHA and this notice. NMFS has determined that the Plan and additional monitoring and mitigation measures are adequate to satisfy the requirements of the MMPA.

Comment 3: The Commission recommends the NMFS require the USMC to use either direct strike or dynamic Monte Carlo models to determine the probability of ordnance strike.

Response: The Commission recommended “direct strike or dynamic Monte Carlo methods” while noting that the result of using a new risk probability model would likely provide negligible changes from the model described in the application. The Commission did not provide further guidance on how to calculate risk from a Monte Carlo method and, because any change would be negligible, NMFS does not agree that this alternative method of modeling is necessary for purposes of issuing an MMPA incidental take authorization.

#### Mitigation

In order to issue an incidental take authorization (ITA) under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the “permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.” The NDAA of 2004 amended the MMPA as it relates to military-readiness activities and the ITA process such that “least practicable adverse impact” shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. The training activities described in the USMC’s application are considered military readiness activities.

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. NMFS has determined that the mitigation measures described below provide the means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance while also considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The USMC, in collaboration with NMFS, has worked to identify potential practicable and effective mitigation measures, which include a careful balancing of the likely benefit of any particular measure to marine mammals with the likely effect of that measure on personnel safety, practicality of implementation, and impact on the "military-readiness activity". These proposed mitigation measures are listed below. Mitigation monitoring is also described in the Marine Mammal and Protected Species Monitoring Plan, the specifications of which are included as conditions in the IHA. While the primary focus of monitoring for both mitigation and reporting shall be on bottlenose dolphins, personnel will also attempt to identify any other marine mammals that might be present within the exclusion zone. In the unlikely event that a marine

mammal other than bottlenose dolphin is sighted within the exclusion zone or determined to have been stranded, injured or killed by target operations, then the same mitigation measure for delay of exercises (described later in this document) prescribed for bottlenose dolphins, or immediate suspension of activities, shall apply, and relevant information will be included in weekly reports and post-IHA monitoring reports.

(1) Range Sweeps: The VMR-1 squadron, stationed at MCAS Cherry Point, includes three specially equipped HH-46D helicopters. The primary mission of these aircraft, known by the military acronym PEDRO, is to provide search and rescue for downed 2<sup>d</sup> Marine Air Wing aircrews. On-board are a pilot, co-pilot, crew chief, search and rescue swimmer, and a medical corpsman. Each crew member has received extensive training in search and rescue techniques, and is therefore particularly capable at spotting objects in the water.

PEDRO crew will conduct a range sweep the morning of each exercise day prior to the commencement of range operations. The primary goal of the pre-exercise sweep is to ensure that the target area is clear of fishermen, other personnel, and protected species. The sweep is flown at 100-300 m (328-984 ft) above the water surface, at airspeeds between 60-100 knots. The path of the sweep runs down the western side of BT-11, circles around BT-9 and then continues down the eastern side of BT-9 before leaving. The sweep typically takes 20-30 minutes to complete. The Pedro crew is able to communicate directly with range personnel and can provide immediate notification to range operators. The PEDRO aircraft will remain in the area of a sighting until clear if possible or as mission requirements dictate.

If a marine mammal is sighted during a range sweep, sighting data will be collected and entered into the US Marine Corps sighting database, web-interface, or report generator and this information will be relayed to the training Commander. Sighting data includes the following

(collected to the extent possible): (1) species identification; (2) group size; (3) the behavior of marine mammals (e.g., milling, travel, social, foraging); (4) location and relative distance from the BT; (5) date, time and visual conditions (e.g., sea state (as indicated by Beaufort Wind Force Scale), weather) associated with each observation; (6) direction of travel relative to the BT; and (7) duration of the observation.

(2) Cold Passes: All aircraft participating in an air-to-surface exercise will be required to perform a “cold pass” immediately prior to ordnance delivery at the BTs both day and night. That is, prior to granting a “First Pass Hot” (use of ordnance), pilots will be directed to perform a low, cold (no ordnance delivered) first pass which serves as a visual sweep of the targets prior to ordnance delivery to determine if unauthorized civilian vessels or personnel, or protected species, are present. The cold pass is conducted with the aircraft (helicopter or fixed-winged) flying straight and level at altitudes of 200-3000 ft (61-914 m) over the target area. The viewing angle is approximately 15 degrees. A blind spot exists to the immediate rear of the aircraft. Based upon prevailing visibility, a pilot can see more than one mile forward upon approach. The aircrew and range personnel make every attempt to ensure clearance of the area via visual inspection and remotely operated camera operations (see Proposed Monitoring and Reporting section in this document). The Range Controller may deny or approve the First Pass Hot clearance as conditions warrant.

(3) Delay of Exercises: An active range will be considered “fouled” and not available for use if a marine mammal is present within 1000 yards (914 m) of the target area at BT-9 or anywhere within Rattan Bay (BT-11). Therefore, if a marine mammal is sighted within 1000 yards of the target at BT-9 or anywhere within Rattan Bay at BT-11 during the initial range sweep, the pre-ordnance delivery cold pass, or from range camera detection (see 4, later in this

document), training will be delayed until the marine mammal moves beyond the 1000 yard radius from the BT-9 target, and is on a heading away from the safety zone, or out of Rattan Bay at BT-11. This mitigation applies to both air-to-surface and surface-to-surface exercises.

(4) Range Camera Use: To increase the safety of persons, property, or protected resources near the targets, Range Operation and Control personnel monitor the target area through tower mounted safety and surveillance cameras. The remotely operated range cameras are high resolution and, according to range personnel, allow a clear visual of even small objects floating near the target. A new, enhanced camera system will be installed on BT-11 towers 3 and 7, and on both towers present at BT-9. The new camera system has night vision capabilities with resolution levels near those during daytime. Lenses on the camera system have focal lengths of 40 mm to 2200 mm (56x), with view angles of 18° 10' and 13° 41', respectively. The field of view when zoomed in on the Rattan Bay targets will be 23 ft (7 m) wide by 17 ft (5 m) high. When focused on the mouth of Rattan Bay, the field of view will be 87 x 66 ft (27 x 20 m).

Again, in the event that a marine mammal is sighted within 1000 yards (914 m) of the BT-9 target, or anywhere within Rattan Bay, the target is declared fouled. Operations may commence in the fouled area after the animal(s) have moved 1000 yards from the BT-9 target and/or out of Rattan Bay.

(5) Vessel Operation: All vessels used during training operations will abide by the NMFS' Southeast Regional Viewing Guidelines designed to prevent harassment to marine mammals (<http://www.nmfs.noaa.gov/pr/education/southeast/>).

(6) Stranding Network Coordination: The USMC shall coordinate with the local NMFS Stranding Coordinator regarding any unusual marine mammal behavior and any stranding,

beached live/dead, or floating marine mammals that may occur at any time during training activities or within 24 hours after completion of training.

(7) Delay of Operations: If there is evidence that a marine mammal has been stranded, injured or killed as a direct result of target operations, the USMC would immediately suspend those activities within the specific target area and re-evaluate the presence of bottlenose dolphins, or other marine mammals if necessary, around the specific target. The incident will be reported immediately to the Range Management Office and NMFS' Stranding Network and Office of Protected Resources.

NMFS specifically investigated the efficacy of these mitigation measures during nighttime operations. The USMC identified that nighttime operations occur infrequently (less than 15 percent). In 2007, 2008, and 2009, nighttime training involving high explosives occurred on 2, 10, and 0 nights, respectively. For the same years, training using inert bombs occurred on 20, 16, and 33 nights, respectively. These exercises last, on average, 2.5 hours but may last as long as 6 hours. Post-exercise training monitoring has never revealed evidence of a dolphin injury or fatality.

Regardless of the infrequency of night exercises or lack of recorded marine mammal injuries or fatalities, NMFS evaluated the efficacy of marine mammal detection during low-light and no-light conditions as training will occur during these conditions. As described above, the new camera systems installed at BT-9 and BT-11 have night-vision capabilities with resolution levels near those during daytime. In addition, pilots are outfitted with night-vision goggles which are able to detect a marine mammal breaking the water's surface. Pilots will observe the waters in line with the flight path upon approach to the target. In addition, the pre-training range sweeps and other methods designed to ensure vessels and the public are not around the BTs

would be carried out and would contain a marine mammal detection component. Should a marine mammal be observed by the range camera operators, pilots or other USMC personnel within the designated “no fire” zones, the training would be delayed.

### Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth “requirements pertaining to the monitoring and reporting of such taking”. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for incidental take authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals: (a) an increase in our understanding of how many marine mammals are likely to be exposed to munition noise and explosions that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS; (b) an increase in our understanding of how individual marine mammals respond (behaviorally or physiologically) to gunnery and bombing exercises (at specific received levels) expected to result in take; (c) an increase in our understanding of how anticipated takes of individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival); (d) an increased knowledge of the affected species; (e) an increase in our understanding of the effectiveness of certain mitigation and monitoring measures; (f) a better understanding and record of the manner in which the authorized entity complies with the incidental take authorization; and (g) an increase in the probability of detecting marine



mammals, both within the safety zone (thus allowing for more effective implementation of the mitigation) and in general.

The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals expected to be present within the action area are as follows:

(1) Protected Species Observer Training: Operators of small boats and other personnel monitoring for marine mammals from watercraft shall be required to take the Marine Species Awareness Training (Version 2), maintained and promoted by the Department of the Navy. Pilots conducting Range Sweeps shall be instructed on marine mammal observation techniques during routine Range Management Department briefings. This training will make personnel knowledgeable about marine mammals and other protected species, and visual cues related to the presence of marine mammals and protected species.

(2) Weekly and Post-Exercise Monitoring: Post-exercise monitoring shall be conducted the morning following an exercise, unless an exercise occurs on a Friday, in which case the post-exercise sweep would take place the following Monday. Weekly monitoring events will include a maximum of five pre-exercise and four post-exercise sweeps. The maximum number of days that will elapse between pre- and post-exercise monitoring events will be approximately three days, which would occur only on weekends. If marine mammals are observed during this monitoring, sighting data identical to those collected by PEDRO crew will be recorded and logged. Monitoring is described in greater detail in the Marine Mammal and Protected Species Monitoring Plan.

(3) Long-term Monitoring: The USMC has awarded the Duke University Marine Lab (DUMML) duties to obtain abundance, group dynamics (e.g., group size, age census), behavior,

habitat use, and acoustic data on the bottlenose dolphins that inhabit Pamlico Sound, specifically those around BT-9 and BT-11. DUMML began conducting boat-based surveys and passive acoustic monitoring of bottlenose dolphins in Pamlico Sound in 2000 (Read et al., 2003) and specifically at BT-9 and BT-11 in 2003 (Mayer, 2003). To date, boat-based surveys indicate that bottlenose dolphins may be resident to Pamlico Sound and use BT restricted areas on a frequent basis. Passive acoustic monitoring (PAM) is providing more detailed insight into how dolphins use the two ranges by monitoring for their vocalizations year-round, regardless of weather conditions or darkness. In addition to these surveys, DUMML scientists are testing a real-time PAM system at BT-9 that will allow automated detection of bottlenose dolphin whistles, providing another method of detecting dolphins prior to training operations. Although it is unlikely this PAM system will be active for purposes of implementing mitigation measures before an exercise prior to expiration of the proposed IHA, it will be operational for future MMPA incidental take authorizations.

(4) Reporting: The USMC will submit a report to NMFS within 90 days after expiration of the IHA or, if a subsequent incidental take authorization is requested, within 120 days prior to expiration of the IHA. The report will summarize the type and amount of training exercises conducted, all marine mammal observations made during monitoring, and if mitigation measures were implemented. The report will also address the effectiveness of the monitoring plan in detecting marine mammals.

#### Estimated Take by Incidental Harassment

The following provides the USMC's model for take of dolphins from explosives (without consideration of mitigation and with the conservative assumption that all explosives will land in

the water and not on the targets or land) and potential for direct hits and NMFS' analysis of potential harassment from small vessel and aircraft operations.

The method to estimate the number of marine mammals potentially taken by the specified activities is based on dolphin density, the amount and type of ordnance proposed, and distances to NMFS' harassment threshold criteria. The acoustic criteria for underwater detonations are comprehensively explained in NMFS' proposed IHA Federal Register notice for this action (75 FR 32398, June 8, 2010) and consider hearing and physiological damage and behavioral harassment for single and multiple explosions (Table 1).

Table 1. Effects, Criteria, and Thresholds for Impulsive Sounds

Effect	Criteria	Metric	Threshold	Effect
Mortality	Onset of Extensive Lung Injury	Goertner modified positive impulse	indexed to 30.5 psi-msec (assumes 100 percent small animal at 26.9 lbs)	Mortality
Injurious Physiological	50percent Tympanic Membrane Rupture	Energy flux density	1.17 in-lb/in <sup>2</sup> (about 205 dB re: 1 microPa <sup>2</sup> -sec)	Level A
Injurious Physiological	Onset Slight Lung Injury	Goertner modified positive impulse	indexed to 13 psi-msec (assumes 100 percent small animal at 26.9 lbs)	Level A
Non-injurious Physiological	TTS	Greatest energy flux density level in any 1/3-octave band (> 100 Hz for toothed whales and > 10 Hz for baleen whales) - for total energy over all exposures	182 dB re 1 microPa <sup>2</sup> -sec	Level B
Non-injurious Physiological	TTS	Peak pressure over all exposures	23 psi	Level B
Non-injurious Behavioral	Multiple Explosions Without TTS	Greatest energy flux density level in any 1/3-octave (> 100 Hz for toothed whales and > 10 Hz for baleen whales) - for total energy over all exposures (multiple explosions only)	177 dB re 1 microPa <sup>2</sup> -sec	Level B

To calculate take, the distances to which animals may be harassed were considered along with dolphin density. The density estimate from Read et al. (2003) was used to calculate take from munitions firing (0.183/km<sup>2</sup>). Take calculations for munitions firing are based on 100 percent water detonation (though the goal of training is to hit the targets), and do not consider pre-exercise monitoring or mitigation. Therefore, take estimates can be considered conservative.

Based on dolphin density and amount of munitions expended, there is very low potential for Level A harassment, serious injury, or mortality and monitoring and mitigation measures are anticipated to further negate this potential. Accordingly, NMFS is not authorizing these levels of take. In total, from firing of explosive ordnances, the USMC is requesting, and NMFS is proposing to issue, the incidental take of 25 bottlenose dolphins from Level B harassment (Table 2). This take estimation is described in greater detail in the Federal Register proposed IHA notice (76 FR 71535; November 18, 2011).

Table 2. Number of dolphins potentially taken from exposure to explosives based on threshold criteria.

Ordnance Type	Level B - Behavioral (177dB re 1microPa <sup>2</sup> -s)	Level B - TTS (23 psi)	Level A - Injurious (205 dB re 1microPa <sup>2</sup> -s or 13 psi)	Mortality (30.5 psi)
2.75" Rocket HE	N/A	4.97	0.17	0.06
5" Rocket HE	N/A	3.39	0.09	0.03
30mm HE	2.55	N/A	0.05	0.00
40mm HE	12.60	N/A	0.16	0.01
G911 Grenade	N/A	0.87	0.03	0.01
Total	15.15	9.23	0.5	0.11

As described in the proposed IHA Federal Register notice for this action, the USMC and NMFS have determined that the chance of take from direct hit and vessel operation is discountable. The probability of hitting a bottlenose dolphin at the BTs can be derived as follows: Probability = dolphin's dorsal surface area \* density of dolphins. The estimated dorsal surface area of a bottlenose dolphin is 1.425 m<sup>2</sup> (or the average length of 2.85 m times the

average body width of 0.5 m). Thus, using Read et al. (2003)'s density estimate of 0.183 dolphins/km<sup>2</sup>, without consideration of mitigation and monitoring implementation, the probability of a dolphin being hit in the waters of BT-9 is  $2.61 \times 10^{-7}$  and of BT-11 is  $9.4 \times 10^{-8}$ . Using the proposed levels of ordnance expenditures at each in-water BT (Tables 4 and 5) and taking into account that only 36 percent of the ordnance deployed at BT-11 is over water, as described in the application, the estimated potential number of ordnance strikes on a marine mammal per year is 0.263 at BT-9 and 0.034 at BT-11. It will take approximately three years of ordnance deployment at the BTs before it will be likely or probable that one bottlenose dolphin will be struck by deployed inert ordnance. Again, these estimates are without consideration to proposed monitoring and mitigation measures. The USMC is proposing three methods of exercise monitoring (i.e., PEDRO, cold pass, and range cameras). When considering the implementation of the mitigation and monitoring measures described above, the chance of a marine mammal being taken by direct hit is discountable.

Interactions with vessels are not a new experience for bottlenose dolphins in Pamlico Sound. Pamlico Sound is heavily used by recreational, commercial (e.g., fishing, daily ferry service, tugs), and military (including the Navy, Air Force, and Coast Guard) vessels year-round. The NMFS' Southeast Regional Office has developed marine mammal viewing guidelines to educate the public on how to responsibly view marine mammals in the wild and avoid causing a take (<http://www.nmfs.noaa.gov/pr/education/southeast>). The guidelines recommend that vessels should remain a minimum of 50 yards (46 m) from a dolphin, operate vessels in a predictable manner, avoid excessive speed or sudden changes in speed or direction in the vicinity of animals, and not to pursue, chase, or separate a group of animals. The USMC will abide by these guidelines to the fullest extent practicable. The USMC will not engage in high speed

exercises should a marine mammal be detected within the immediate area prior to training commencement and will not chase or pursue dolphins.

Based on the description of the action, the other activities regularly occurring in the area, the species that may be exposed to the activity and their observed behaviors in the presence of vessel traffic, and the implementation of measures to avoid vessel strikes, NMFS believes it is unlikely that the operation of vessels during surface-to-surface maneuvers will result in the take of any marine mammals, whether in the form of behavioral harassment, injury, serious injury, or mortality.

Aircraft will move swiftly through the area and will typically fly approximately 914 m (2999 ft) from the water's surface before dropping unguided munitions and above 4572 m (15,000 ft) for precision-guided munitions bombing. While the aircraft may approach as low as 152 m (500 ft) to drop a bomb, this is not the norm and will not be done around marine mammals. Regional whale watching guidelines advise aircraft to maintain a minimum altitude of 300 m (1000 ft) above all marine mammals, including small odontocetes, and to not circle or hover over the animals to avoid harassment. NMFS' approach regulations limit aircraft from flying below 300 m (1000 ft) over a humpback whale (Megaptera novaeangliae) in Hawaii, a known calving ground, and limit aircraft from flying over North Atlantic right whales (Eubalaena glacialis) closer than 460 m (1509 ft). Given that USMC aircraft will not fly below 300 m on the approach, will not engage in hovering or circling the animals, and will not drop to the minimal altitude of 152 m if a marine mammal is in the area, NMFS believes it is unlikely that the operation of aircraft, as described above, will result in take of bottlenose dolphins in Pamlico Sound.

Negligible Impact and Small Numbers Analysis and Determination

Pursuant to NMFS' regulations implementing the MMPA, an applicant is required to estimate the number of animals that will be "taken" by the specified activities (i.e., takes by harassment only, or takes by harassment, injury, serious injury, and/or death). This estimate informs the analysis that NMFS must perform to determine whether the activity will have a "negligible impact" on the species or stock. NMFS has defined "negligible impact" in 50 CFR 216.103 as: "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number and manner of takes, alone, is not enough information on which to base a negligible impact determination. NMFS must also consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), or any of the other variables mentioned in the first paragraph (if known), as well as the number and nature of estimated Level A takes, the number of estimated mortalities, and effects on habitat.

The USMC has been conducting gunnery and bombing training exercises at BT-9 and BT-11 for years and, to date, no dolphin injury or mortality has been attributed these military training exercises. The USMC has a history of notifying the NMFS stranding network when any injured or stranded animal comes ashore or is spotted by personnel on the water. Therefore, stranded animals have been examined by stranding responders, further confirming that it is unlikely training contributes to marine mammal injuries or deaths. Due to the implementation of the aforementioned mitigation measures, no take by Level A harassment or serious injury or

mortality is anticipated nor is any authorized in the IHA. NMFS is authorizing 25 Level B harassment takes associated with training exercises.

The USMC has proposed a 1000 yard (914 m) safety zone around BT-9, a conservative measure considering that the distance to NMFS explosive Level B harassment threshold is 228 yards (209 m). They also will consider an area fouled if any dolphins are spotted within 1000 yards (914 m) of the target area at BT-9, or anywhere within Raritan Bay (where BT-11 is located). The Level B harassment takes allowed for in the IHA will likely result in dolphins being temporarily behaviorally affected by bombing or gunnery exercises. In addition, takes may be attributed to animals not using the area when exercises are occurring; however, this is difficult to calculate. Instead, NMFS looks at whether the specified activities occur during times or within habitat important to vital life functions to better inform its negligible impact determination.

Read et al. (2003) concluded that dolphins rarely occur in open waters in the middle of North Carolina sounds and large estuaries, but instead are concentrated in shallow water habitats along shorelines. However, no specific areas have been identified as vital reproduction or foraging habitat. Scientific boat-based surveys conducted throughout Pamlico Sound conclude that dolphins use the areas around the BTs more frequently than other portions of Pamlico Sound (Maher, 2003) despite the USMC actively training in a manner identical to the specified activities described here for years.

As described in the Affected Species section of this notice, bottlenose dolphin stock segregation is complex with stocks overlapping throughout the coastal and estuarine waters of North Carolina. It is not possible for the USMC to determine to which stock any individual dolphin taken during training activities belong as this can only be accomplished through genetic



testing. However, it is likely that many of the dolphins encountered will belong to the NNCE or SNC stock. These stocks have population estimates of 919 and 4818, respectively. NMFS is proposing to authorize 25 takes of bottlenose dolphins in total; therefore, this number represents 2.72 and 0.005 percent, respectively, of those populations.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS finds that the specified MCAS Cherry Point BT-9 and BT-11 training activities will result in the incidental take of marine mammals, by Level B harassment only, and that the total taking will have a negligible impact on the affected species or stocks. Further, NMFS does not anticipate any impact on annual rates of recruitment or survival for any potentially affected stock.

#### Subsistence Harvest of Marine Mammals

Marine mammals are not taken for subsistence use within Pamlico Sound; therefore, issuance of an IHA to the USMC for MCAS Cherry Point training exercises will not have an unmitigable adverse impact on the availability of the affected species or stocks for subsistence use.

#### Endangered Species Act (ESA)

No ESA-listed marine mammals are known to occur within the action area; therefore, there is no requirement for NMFS to consult under Section 7 of the ESA on the issuance of an IHA under section 101(a)(5)(D) of the MMPA.

#### National Environmental Policy Act (NEPA)

On February 11, 2009, the USMC issued a Finding of No Significant Impact for its Environmental Assessment (EA) on MCAS Cherry Point Range Operations. Based on the

analysis of the EA, the USMC determined that the proposed action will not have a significant impact on the human environment. NMFS adopted USMC's EA and signed a FONSI on August 31, 2010. NMFS has reviewed the proposed application and public comments and determined that there are no substantial changes to the proposed action or new environmental impacts or concerns. Therefore, NMFS has determined that a new or supplemental EA or Environmental Impact Statement is unnecessary. The EA referenced above is available for review at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm>.

Dated: December 27, 2011.

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P. Michael Payne,  
Chief,  
Permits and Conservation Division,  
Office of Protected Resources,  
National Marine Fisheries Service.

[FR Doc. 2011-33689 Filed 12/30/2011 at 8:45 am; Publication Date:  
01/03/2012]