



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RTID 0648-XA164

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to U.S. Marine Corps Training Exercises at Cherry Point Range Complex, North Carolina

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 regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that we have issued an incidental harassment authorization (IHA) to the U.S. Marine Corps (USMC) to incidentally harass marine mammals during 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 for Fiscal Year 2004 (NDAA).

DATES: The authorization is effective for a period of one year, from May 18, 2020, through May 17, 2021.

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

SUPPLEMENTARY INFORMATION:

Availability

Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at:

www.fisheries.noaa.gov/action/incidental-take-authorization-us-marine-corps-training-activities-cherry-point-range-complex. In case of problems accessing these documents, please call the contact listed above.

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth.

The NDAA (Pub. L. 108–136) removed the “small numbers” and “specified geographical region” limitations indicated above and amended the definition of “harassment” as it applies to a “military readiness activity.” The activity for which incidental take of marine mammals is being requested addressed here qualifies as a military readiness activity. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On September 28, 2019, NMFS received a request from the USMC for an IHA to take marine mammals incidental to training exercises conducted at MCAS Cherry Point Range Complex in North Carolina. Following NMFS’ review of the request, USMC submitted a revised application that was deemed adequate and complete on January 22, 2020. The USMC’s request is for take of bottlenose dolphin (*Tursiops truncatus*) by Level A and Level B harassment. Neither the USMC nor NMFS expect serious injury or mortality to result from this activity. Therefore, an IHA is appropriate. The IHA is effective for a period of one year from the date of issuance.

NMFS previously issued incidental take authorizations to the USMC for the same activities, including three IHAs associated with training activities from 2010-2014 (75 FR 72807, November 26, 2010; 77 FR 87, January 3, 2012; and 78 FR 42042, July 15, 2013) and incidental take regulations and a subsequent Letter of Authorization issued in association with training activities conducted from 2015-2020 (80 FR 13264, March 13, 2015). Monitoring reports submitted by the USMC are available online at: www.fisheries.noaa.gov/action/incidental-take-authorization-us-marine-corps-training-activities-pamlico-sound-north.

Description of Proposed Activity

The USMC conducts training to meet its statutory responsibility to organize, train, equip, and maintain combat-ready forces. The training activities include air-to-surface and surface-to-surface weapons delivery, weapons firing, and water-based training occurring at the Brant Island Bombing Target (BT-9) and Piney Island Bombing Range (BT-11) located within the MCAS Cherry Point Range Complex in Pamlico Sound, North Carolina. The USMC training activities are military readiness activities under the MMPA as defined by the NDAA (Public Law 108–136).

The training activities could occur at any time during the one year period of effectiveness of the IHA. Activities are typically conducted during daylight hours but may occur at night. The USMC's BT-9 and BT-11 bombing targets (See Figures 1-1 and 2-1 in the USMC application) are located in inshore waters of Pamlico Sound, North Carolina in the vicinity of the convergence of the Neuse River and Pamlico River, North Carolina. For additional detail regarding the specific geographic region, please see the notice of proposed IHA (85 FR 14886; March 16, 2020).

A detailed description of the specified activity was provided in the notice of proposed IHA (85 FR 14886; March 16, 2020). No changes have been made to the specified activity. Therefore, we provide only a brief summary here and refer the reader to the notice of proposed IHA for additional detail. The USMC training activities have the potential to affect marine mammals present within the BT-9 and BT-11 bombing targets. These activities fall into two categories based on the ordnance delivery method: (1) surface-to-surface gunnery exercises; and (2) air-to-surface bombing exercises. Note that deployment of live ordnance is only permitted at BT-9; all munitions fired at BT-11 are inert.

Gunnery exercises are the only category of surface-to-surface activity currently conducted within BT-9 or BT-11. BT-9 is the most common target used for gunnery exercises. Surface-to-surface gunnery firing exercises typically involve Special Boat Team personnel firing munitions from a machine gun and 40 mm grenade launchers at a water-based target or throwing concussion grenades into the water (*e.g.*, not at a specific target) from a small boat.

The direct-fire gunnery exercises (*i.e.*, all targets are within the line of sight of the military personnel) at BT-9, which are usually live-fire exercises, would typically use 7.62 millimeter (mm) or .50 caliber (cal) machine guns; 40 mm grenade machine guns; or G911 concussion hand grenades.

Air-to-surface training exercises involve fixed-, rotary-, or tilt-wing aircraft firing munitions at targets on the water's surface or on land (in the case of BT-11). There are four types of air-to-surface activities conducted within BT-9 and BT-11. They include: mine laying, bombing, gunnery, or rocket exercises.

Mine laying exercises are simulations using inert mine shapes only, meaning that mine detonations would not occur during training and no take of marine mammals is expected to occur incidental to these exercises. Pilots train to destroy or disable enemy ships or boats during bombing exercises. These exercises, conducted at BT-9 or BT-11, normally involve the use of two to four fixed-wing aircraft approaching the target area and delivering inert bombs. During air-to-surface gunnery exercises with cannons, pilots train to destroy or disable enemy ships, boats, or floating/near-surface mines from aircraft with mounted cannons equal to or larger than 20 mm and using inert munitions.

During air-to-surface gunnery exercises with machine guns, pilots train to destroy or disable enemy ships, boats, or floating/near-surface mines with aircraft using mounted machine

guns. The USMC typically uses rotary-wing aircraft to conduct gunnery exercises at BT-9 or BT-11. Each gunner would expend approximately 800 rounds of 7.62 mm ammunition or 200 rounds of .50 cal ammunition in each exercise. Rocket exercises are similar to the bombing exercises but may use live or inert munitions. Fixed- and rotary-wing aircraft crews launch rockets at surface maritime targets, day and night, to train for destroying or disabling enemy ships or boats.

There are several varieties of ordnance and net explosive weights (for live munition used at BT-9) can vary according to type. The estimated amount of ordnance to be annually expended at BT-9 and BT-11 under the activity is 1,238,614 and 1,254,684, respectively (Tables 1 and 2). All ordnance expended at BT-11 would be inert. There are five types of explosive sources used at BT-9: 2.75-in Rocket High Explosives (HE), 5-in Rocket HE, 30 mm HE, 40 mm HE, and G911 grenades. The estimated ordnance expenditure at BT-9 includes less than 2 percent high explosive rounds and less than 0.1 percent each of live rockets and grenades. The approximate quantities of ordnance listed in Tables 1 and 2 represent conservative figures, meaning that the volume of each type of inert and explosive ordnance is the largest number that personnel could expend but is not necessarily expected. Only 36 percent of expended ordnance at BT-11 is assumed to potentially strike water, as the remainder of the target is on land.

Table 1 -- Type of Ordnance, Net Explosive Weight, and Levels of Annual Expenditures at BT-9

Proposed Ordnance	Net Explosive Weight in Pounds (lbs)	Proposed Number of Rounds
Small arms excluding .50 cal (7.62 mm)	N/A, inert	525,610
.50 cal	N/A, inert	568,515
Large arms – live (30 mm)	0.1019	3,432
Large arms – live (40 mm)	0.1199	10,420
Large arms – inert	N/A	120,405
Rockets – live (2.75-inch)	4.8	220
Rockets – live (5-inch)	15.0	68
Rockets – inert	N/A	844
Grenades – live (G911)	0.5	144
Bombs – inert	N/A	4,460
Pyrotechnics – inert	N/A	2,500

Table 2 -- Type of Ordnance, Net Explosive Weight, and Levels of Annual Expenditures at BT-11

Proposed Ordnance	Net Explosive Weight in Pounds (lbs)	Proposed Number of Rounds
Small arms excluding .50 cal (7.62 mm)	N/A, inert	1,250,000
.50 cal	N/A, inert	425,000
Large arms – inert	N/A	240,334
Rockets – inert	N/A	6,250
Bombs and grenades – inert	N/A	22,114
Pyrotechnics – inert	N/A	8,912

Take of marine mammals is not anticipated to result from direct strike by inert ordnance or as a result of vessel strike during small boat maneuvers. The USMC has estimated that the probability of direct strike of a dolphin by inert ordnance during any given ordnance deployment is 2.61×10^{-7} or 9.4×10^{-8} at BT-9 and BT-11, respectively. These estimated probabilities result in estimated numbers of ordnance strikes of <0.5 at both target areas and, therefore, in context of the required mitigation requirements, the USMC’s conclusion is that no take is reasonably anticipated to occur as a result of direct strike from inert ordnance. Please see the USMC application for further detail on the analysis. The USMC has also determined that vessel strike is not a reasonably anticipated outcome of the specified activity, due to the limited number of small boat maneuvers and low concentrations of dolphins expected to be present. No incidents of direct strike from inert ordnance or of vessel strike have been recorded during prior years of activity monitoring. NMFS concurs with these determinations, and vessel maneuvers and inert ordnance are not discussed further in this document.

Required mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation** and **Monitoring and Reporting**).

Comments and Responses

A notice of proposed IHA was published in the **Federal Register** on March 16, 2020 (85 FR 14886). During the 30-day public comment period, NMFS received a letter from the Marine

Mammal Commission (Commission). Please see the Commission's letter for full details regarding their recommendations and rationale. The letter is available online at: www.fisheries.noaa.gov/action/incidental-take-authorization-us-marine-corps-training-activities-cherry-point-range-complex. A summary of the Commission's recommendations as well as NMFS' responses is below.

Comment – The Commission recommends that NMFS address, in its **Federal Register** notices for proposed authorizations and rulemakings regarding ongoing activities for which authorizations have lapsed or new activities for which authorizations have yet to be issued but the activities have begun, whether action proponents are conducting the proposed activities and what, if any, measures are being implemented to avoid unauthorized taking until the necessary authorizations and rulemakings are issued.

Response – NMFS does not concur with the Commission and does not adopt the recommendation. We reiterate our response to the Commission's informal inquiry regarding the same topic, i.e., that it is not within NMFS' authority to monitor the activities undertaken by the USMC or any other entity outside the framework of an issued incidental take authorization, nor is it NMFS' responsibility to report to the Commission regarding the actions of the USMC or any other entity outside the framework of an issued incidental take authorization. Although the Commission notes its disagreement with our initial response regarding this topic, it does not provide any rationale for its recommendation. Responsibility for compliance with the MMPA, e.g., avoiding unauthorized taking of marine mammals, rests with any entity conducting activities that may affect marine mammals. With regard to the USMC in particular, the MMPA vests the Commission with the role of recommending to Federal officials actions that it deems necessary or desirable for the protection and conservation of marine mammals. Concerns that the

Commission may have regarding USMC activities undertaken outside the framework of an issued incidental take authorization should be directed to the USMC.

Comment – The Commission recommends that NMFS include in all draft and final incidental harassment authorizations the explicit requirements to cease activities if a marine mammal is injured or killed during the specified activities until NMFS reviews the circumstances involving any injury or death that is likely attributable to the activities and determines what additional measures are necessary to minimize additional injuries or deaths.

Response – NMFS concurs with the Commission’s recommendation as it relates to this IHA and has added the referenced language to the Monitoring and Reporting section of this notice and the Reporting section of the issued IHA. We will continue to evaluate inclusion of this language in future IHAs and do not concur with the blanket recommendation that all IHAs include such a requirement.

Comment – The Commission recommends that NMFS refrain from issuing the authorization until it has provided the relevant mortality and Level A and B harassment zones, including those zones based on onset criteria, for consideration and public comment.

Response – NMFS has provided the modeled distances for relevant mortality and Level A and Level B harassment zones, including distances based on both onset and 50-percent criteria, where applicable. All impact distances are significantly smaller than the required 914-m safety zone. See Table 5. However, NMFS does not concur with the Commission’s recommendation to refrain from issuing the IHA until this information is provided for additional public review. This modeling was performed through use of the Navy Acoustic Effects Model (NAEMO), which has been extensively and appropriately evaluated, validated, and reviewed. NAEMO modeling has been used in numerous documents subject to public review. Modeling components of NAEMO

are all based on standard physics or mathematical models generally accepted in the field and based on peer-reviewed models, and numerous, rigorous robustness checks have been performed for the multiple modeling components. The Commission does not provide sufficient rationale for the recommendation to provide opportunity for additional public review, and we do not adopt it.

Comment – The Commission recommends that NMFS (1) explain why, if the constants and exponents for onset mortality and onset slight lung injury thresholds associated with U.S. Navy Phase III activities have been amended to account for lung compression with depth, they result in lower rather than higher absolute thresholds when animals occur at depths greater than 8 m, (2) specify what additional assumptions were made to explain this result, and (3) use onset mortality, onset slight lung injury, and onset gastrointestinal (GI) tract injury thresholds rather than the 50-percent thresholds to estimate both the numbers of marine mammal takes and the respective ranges to effect.

The Commission further recommends that, if NMFS does not implement the recommendation to use onset criteria as suggested by the Commission, NMFS (1) specify why it is basing its explosive thresholds for Level A harassment on onset PTS and Level B harassment on onset TTS and onset behavioral response, while the explosive thresholds for mortality and Level A harassment are based on the 50-percent criteria for mortality, slight lung injury, and GI tract injury, (2) provide scientific justification supporting that slight lung and GI tract injuries are less severe than PTS and thus the 50-percent rather than onset criteria are more appropriate for estimating Level A harassment for those types of injuries, and (3) justify why the number of estimated mortalities should be predicated on at least 50 percent rather than 1 percent of the animals dying.

Response – The first part of the Commission’s comment concerns what it asserts is a counterintuitive result when modeling effects to marine mammals occurring at depths exceeding 8 m. The maximum depth in the area where USMC training activities occur is 4 m. Therefore, the Commission’s comment is not relevant to this action, and it is unclear why it is presenting this concern in relation to this action. Derivation of the Navy’s explosive injury equations are discussed in detail in the Navy’s 2017 technical report titled *Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III)*, as is the rationale for updating the associated constants and exponents and other assumptions. All of this has been subject to public review in other, more relevant regulatory processes, as well as by subject matter experts.

NMFS does not concur with the recommendation to base take estimates on the onset (i.e., one percent risk) injury/mortality criteria rather than the 50-percent thresholds. Modeled range to one percent risk of mortality and injury is typically used to inform the development of mitigation zones for explosives. In all cases, the safety zone implemented by the USMC extends significantly beyond the range to one percent risk of non-auditory injury, even for a calf. Given the implementation and expected effectiveness of this mitigation, the application of the indicated threshold is appropriate for the purposes of estimating take. While the approaches for evaluating non-auditory injury and mortality are based on different types of data and analyses, and are not identical, NMFS disagrees with the Commission’s assertion that the approaches are inconsistent. Both approaches consider a combination of thresholds and mitigation (where applicable) to inform take estimates and the Commission provides little rationale for the recommendation to depart from established practice in assessing potential non-auditory injury or mortality. Therefore, NMFS rejects the Commission’s demands for extensive justification of established practice.

Comment – The Commission recommends that NMFS (1) encourage USMC to ensure that passive acoustic monitoring (PAM) devices are operational, (2) remind USMC that it is required to abide by and provide all of the information stipulated under section 6 of the authorization, and (3) add the requirement to report whether the animals were detected during the day or night and whether the sighting was made with the range cameras, PAM, vessel, or aircraft to the other information listed under condition 6(a)(iv) of the authorization.

Response – NMFS concurs with the Commission’s recommendations and will encourage and remind USMC as suggested. The USMC expects that PAM deployments will be fully operational before the end of 2020. The recommended reporting requirement has been added to the conditions of the IHA.

Comment – The Commission recommends that NMFS require USMC to conduct post-activity monitoring immediately after the activities cease for the day rather than the following morning.

Response – Post-activity monitoring is already occurring after each event. Range Officers in Charge (ROIC) are required to ensure the target area remains clear during live-fire operations delivered via aircraft or vessel. At the conclusion of live-fire operations, ROICs are required to conduct a final range sweep and inspection of the target area prior to the next scheduled event. During the course of the day, water targets are continuously monitored before, during, and after live-fire events by the operators and by range personnel. Any dead/injured dolphins would be found during these monitoring events and immediately reported to the appropriate personnel.

The morning range sweeps are conducted by a hired contractor in a small fixed-wing aircraft. Contracting of a post-activity sweep each day would be impractical due to variations in scheduling. Having that contractor on “stand-by” each day would be cost prohibitive. The

requirements for a post-activity sweep would include specialized equipment (night vision, thermal cameras, etc.), as most would be done after dark. Military assets are much more capable of conducting post-activity sweeps.

Comment – The Commission recommends that NMFS increase the Level A harassment takes of bottlenose dolphins from two to average group size in the project area.

Response – NMFS does not concur with the Commission’s recommendation and does not adopt it. We reiterate the explanation provided in response to the Commission’s informal inquiry, i.e., that while group size may be a useful, if coarse, proxy for minimum instantaneous exposure numbers in certain circumstances, the context in this circumstance is different and does not support an assumption that the average group size, which is larger than the estimated number of exposures, should be viewed as the minimum. In this case, groups of bottlenose dolphin would likely be easily identified during pre-exercise monitoring, thus triggering stand-down until clearance of the safety zone. Further, this assumption treats groups as immutable, when in reality groups split, reform, and individual members of groups maintain varying spacing throughout an activity, whether traveling, foraging, resting, etc. In addition, the thresholds for incurring PTS are not solely based on an instantaneous exposure to some level of sound (as the Level B harassment thresholds are), they are based on an accrual of energy that results from a combination of the animal’s proximity to the source and the time spent there. Therefore, if one animal enters a zone and also stays for a sufficient amount of time to be exposed above the Level A harassment threshold, there is no reason to assume that the entire group does so. Finally, for this activity, all impact zones are significantly smaller than the required safety zone. It is unlikely that any Level A harassment would be incurred, much less that an entire group of dolphins would experience auditory injury.

Comment – The Commission recommends that NMFS require USMC to (1) use either direct strike or dynamic Monte Carlo models to determine the probability of ordnance strike or (2) incorporate size of the various ordnance types relative to the number of ordnance to be expended, if it retains the existing calculations of direct strike.

Response – The Commission provides no justification as to why the occurrence of direct ordnance strike should be considered reasonably likely, in context of the pre-clearance mitigation requirements, such that an analysis of the type suggested would be warranted. Regardless of the analysis presented by USMC, there is no reason to expect that direct strike by ordnance would occur, and there is no evidence that such an event has ever occurred during the many years of training activities conducted by USMC at MCAS Cherry Point. Therefore, NMFS does not concur that the recommendation is warranted and does not adopt it.

Comment – The Commission recommends that NMFS refrain from issuing renewals for any authorization and instead use its abbreviated **Federal Register** notice process. The Commission further recommends that, if NMFS continues to propose to issue renewals, NMFS should (1) stipulate that a renewal is a one-time opportunity (a) in all **Federal Register** notices requesting comments on the possibility of a renewal, (b) on its webpage detailing the renewal process, and (c) in all draft and final authorizations that include a term and condition for a renewal and, (2) if NMFS refuses to stipulate a renewal being a one-time opportunity, explain why it will not do so.

Response – NMFS does not agree with the Commission and, therefore, does not adopt the Commission's recommendations. NMFS will provide a detailed explanation of its decision within 120 days, as required by section 202(d) of the MMPA.

Changes to the Proposed Authorization

As discussed in the preceding comment responses, NMFS has changed the proposed conditions of authorization by adding a requirement to cease activities if an injured or dead marine mammal is discovered and the injury or death is likely attributable to the specified activities until NMFS reviews the circumstances of the incident and determines what, if any, additional measures are necessary to ensure compliance with the IHA. In addition, NMFS has added requirements to report whether detected marine mammals were detected during the day or night and whether the detection was made with range cameras, acoustic monitoring, vessel, or aircraft.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected stocks of bottlenose dolphin. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS's website (www.fisheries.noaa.gov/find-species).

Table 3 lists all species with expected potential for occurrence in the project area and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality or serious injury is anticipated or authorized here, PBR and annual serious injury and mortality from

anthropogenic sources are included here as gross indicators of the status of the species and other threats. All managed stocks in this region are assessed in NMFS' U.S. Atlantic SARs (*e.g.*, Hayes *et al.*, 2018). All values presented in Table 3 are the most recent available at the time of publication and are available in the draft 2019 Atlantic SARs, which are available online at: www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports.

Table 3 -- Marine Mammal Species Potentially Present in the Project Area

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR ³	Annual M/SI ⁴
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose dolphin	<i>Tursiops truncatus truncatus</i>	Northern Migratory Coastal	-/D; Y	6,639 (0.41, 4,759, 2016)	48	6.1-13.2
		Southern Migratory Coastal	-/D; Y	3,751 (0.06, 2,353, 2016)	23	0-14.3
		Northern North Carolina Estuarine (NNCES)	-/-; Y	823 (0.06, 782, 2013)	7.8	0.8-18.2
		Southern North Carolina Estuarine (SNCES)	-/-; Y	Unknown	Unknown	0.4-0.6

¹ESA status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR (see footnote 3) or which is determined to be declining and likely to be listed under the ESA within the foreseeable future.

²CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. The most recent abundance survey that is reflected in the abundance estimate is presented; there may be more recent surveys that have not yet been incorporated into the estimate.

³Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP).

⁴These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a range.

Additional detailed information regarding the potentially affected stocks of bottlenose dolphin was provided in the notice of proposed IHA (85 FR 14886; March 16, 2020). No new information is available, and we do not reprint that discussion here. Please see the notice of proposed IHA for additional information.

Biologically Important Areas – LaBrecque *et al.* (2015) recognize multiple biologically important areas (BIA) for small and resident populations of bottlenose dolphins in the mid- and south Atlantic. Small and resident population BIAs are areas and times within which small and resident populations occupy a limited geographic extent, and are therefore necessarily important areas for those populations. Here, these include areas defined for the SNCES and NNCES populations and correspond with the stock boundaries described in the notice of proposed IHA.

Unusual Mortality Events (UME) – A UME is defined under the MMPA as “a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response.” Beginning in July 2013, elevated strandings of bottlenose dolphins were observed along the Atlantic coast from New York to Florida. The investigation was closed in 2015, with the UME ultimately being attributed to cetacean morbillivirus (though additional contributory factors are under investigation; www.fisheries.noaa.gov/national/marine-life-distress/2013-2015-bottlenose-dolphin-unusual-mortality-event-mid-atlantic; accessed February 24, 2020). Dolphin strandings during 2013-15 were greater than six times higher than the annual average from 2007-12, with the most strandings reported from Virginia, North Carolina, and Florida. A total of approximately 1,650 bottlenose dolphins stranded from June 2013 to March 2015. Only one offshore ecotype dolphin has been identified, meaning that over 99 percent of affected dolphins were of the coastal ecotype. Research, to include analyses of stranding samples and post-UME monitoring and modeling of surviving populations, will

continue in order to better understand the impacts of the UME on the affected stocks. Notably, an earlier major UME in 1987-88 was also caused by morbillivirus, and led to the current designation of all coastal stocks of Atlantic bottlenose dolphin as depleted under the MMPA. Over 740 stranded dolphins were recovered during that event.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans).

Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 4.

Table 4 -- Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (<i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall et al. 2007) and PW pinniped (approximation).	

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Bottlenose dolphins are categorized as mid-frequency cetaceans.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

Sections 6, 7, and 9 of the USMC's application includes a summary of the ways that components of the specified activity may impact marine mammals and their habitat, including specific discussion of potential effects to marine mammals from noise and other stressors produced through the use of munitions in training exercises, and a summary of the results of monitoring during previous years' training exercises. We have reviewed the USMC's discussion of potential effects for accuracy and completeness in its application and refer to that information rather than repeating it here. In addition, the notice of proposed IHA provided a brief technical background on sound, on the characteristics of certain sound types, and on metrics used in the notice, as well as a brief overview of the potential effects to marine mammals associated with use of explosive munitions and the associated criteria for evaluation of these potential effects. Please see that notice for additional information.

Alternatively, NMFS has included a lengthy discussion of the potential effects of similar activities on marine mammals, including specifically from training exercises using munitions, in other **Federal Register** notices, including prior notices for the same specified activity. For full detail, we refer the reader to these notices. For previous discussion provided in context of the same specified activity, please see 79 FR 41374 (July 15, 2014). This previous discussion of potential effects remains relevant. For more recent discussion of similar effects incorporating the most current literature, please see, *e.g.*, 85 FR 5782 (January 31, 2020); 83 FR 29872 (June 26, 2018); 82 FR 61372 (December 27, 2017), or view documents available online at www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.

The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by the specified activity. The **Negligible Impact Analysis and Determination** section includes an analysis of how these activities will impact marine mammals and considers the content of this section, the **Estimated Take** section, and the **Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and from that on the affected marine mammal populations.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through the IHA, which will inform NMFS' negligible impact determination.

Harassment is the only type of take expected to result from these activities. For this military readiness activity, 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 the behavioral patterns are abandoned or significantly altered (Level B harassment).

Authorized takes are primarily by Level B harassment, in the form of disruption of behavioral patterns and temporary threshold shift, for individual marine mammals resulting from exposure to acoustic stressors. A small amount of Level A harassment, in the form of permanent threshold shift, is anticipated and authorized. No Level A harassment is anticipated to occur in the form of GI tract or lung injury. No serious injury or mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take from exposure to sound by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. For this IHA, the U.S. Navy employed a sophisticated model known as the Navy Acoustic Effects Model (NAEMO) for assessing the impacts of underwater sound. The USMC then incorporated these results into their application.

Acoustic Thresholds

Using the best available science, NMFS applies acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment). Thresholds have also been developed to identify the

pressure levels above which animals may incur different types of tissue damage from exposure to pressure waves from explosive detonation. The thresholds and metrics used in estimating the numbers of takes that could occur, and which are authorized through the IHA, were described in detail in the notice of proposed IHA (85 FR 14886; March 16, 2020). Please see that notice for additional information.

Marine Mammal Occurrence

Additional information regarding marine mammal occurrence and available sources of data was provided in the notice of proposed IHA (85 FR 14886; March 16, 2020), and is not repeated here. A density of 0.183 dolphins per square kilometer was used year-round (Read *et al.*, 2003). In order to apportion any predicted exposures to the potentially affected stocks, USMC calculated monthly stock-specific proportions of each stock expected to be present in the vicinity of the training exercises, based on relative stock-specific abundance and available information about stock movements and seasonal occurrence in the area. Please see Table 3-2 in the USMC application.

Exposure Modeling

NAEMO is the standard model used by the Navy to estimate the potential acoustic effects of proposed Navy training and testing activities on marine mammals and was employed by the Navy in this case to evaluate the potential effects of the USMC training activities. In NAEMO, source characteristics are integrated with environmental data (bathymetry, sound speed, bottom characterization, and wind speed) to calculate the three-dimensional sound field for each source. Marine species density information is then processed to develop a series of distribution files for each species present in the study area. Each distribution file varies the abundance and placement of the animals based on uncertainty defined in the density and published group size. The scenario

details, three-dimensional sound field data, and marine species distributions are then combined in NAEMO to build virtual three-dimensional representations of each event and environment. This information is then processed by NAEMO to determine the number of marine species exposed in each scenario.

The NAEMO simulation process is run multiple times for each season to provide an average of potential effects on marine species. Each iteration reads in the species dive data and introduces variations to the marine species distributions in addition to the initial position and direction of each platform and ordnance within the designated area. Effects criteria and thresholds are then applied to quantify the predicted number of marine mammal effects. Results from each iteration are averaged to provide the number of marine species effects for a given period.

As noted previously, all ordnance expenditure at BT-11 is inert and, therefore, only ordnance use at BT-9 is considered in the effects analysis described here. The following types of ordnance were modeled for take estimation: 2.75-in Rocket HE, 5-in Rocket HE, G911 Grenades, 30 mm HE, and 40 mm HE. All explosives are modeled as detonating at a 0.1-meter depth. For further detail regarding the modeling, including details concerning environmental data sources, please the USMC application. It is important to note that the modeling results are based on assumed net explosive weights (NEW) associated with appropriate standardized impulsive “bins,” rather than on modeling performed using exact NEWs. For 30/40-mm rounds and 5-in rockets, this assumed NEW is greater than exact NEW (assumed and exact NEW are equal for 2.75-in rockets). Therefore, modeling results used in this analysis are conservative. Table 5 shows the modeled distances to various effects, including range to 1-percent and 50-percent criteria (where applicable), and Table 6 shows quantitative exposure modeling results.

Table 5 – Range to Effect Modeling Results (m)¹

Munition		Mortality		Slight lung injury		GI tract injury		PTS		TTS		Behavior
		1%	50%	1%	50%	1%	50%	SEL	Peak	SEL	Peak	
30/40-mm ²	Adult	1	1	3	3	19	12	40-174	32	194-401	51	268-644
	Calf	3	3	7	5							
2.75-in rocket	Adult	4	3	9	6	32	22	89	56	291	92	356
	Calf	8	6	15	12							
5-in rocket	Adult	9	7	15	12	53	34	160	95	377	165	549
	Calf	15	12	25	22							

¹Values given are as modeled for winter. In all cases, modeled summer values are less than or equal to winter values.

²A range is provided for SEL-based criteria, based on assumed clusters of ordnance delivery (min = 1; max = 25).

Table 6 -- Quantitative Exposure Modeling Results

Species	Level B Harassment		Level A Harassment			Mortality
	Behavioral	TTS	PTS	GI tract injury	Lung injury	
Bottlenose dolphin	72.09	29.99	1.81	0.13	0.01	<0.01

The exposure modeling results shown in Table 6 support bottlenose dolphin take authorization numbers of 102 incidents of Level B harassment and 2 incidents of Level A harassment (PTS only). No incidents of GI tract injury or lung injury are anticipated or authorized.

Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)). The NDAA for FY 2004 amended the MMPA as it relates to military

readiness activities and the incidental take authorization process such that “least practicable impact” shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat, as well as subsistence uses. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Mitigation for Marine Mammals and their Habitat

NMFS and the USMC have worked to identify potential practicable and effective mitigation measures. These measures include the following:

Visual Monitoring – Range operators conduct or direct visual surveys to monitor the target areas for protected species before and after each exercise. Range operation and control personnel monitor the target area through two tower-mounted safety and surveillance cameras. In

addition, when small boats are part of planned exercises and already on range, visual checks by boat crew will be performed.

The remotely operated range cameras are high-resolution cameras that allow viewers to see animals at the surface and breaking the surface (though not underwater). The camera system has night vision (IR) capabilities. Lenses on the camera system have a focal length of 40 mm to 2200 mm (56x), with view angles of 18 degrees 10' and 13 degrees 41' respectively. The field of view when zoomed in on the Rattan Bay targets will be 23 feet (ft) wide by 17 ft high, and on the mouth of Rattan Bay itself 87 ft wide by 66 ft high. Observers using the cameras are able to clearly identify ducks floating on waters near the target.

In the event that a marine mammal is sighted within 914 m (3,000 ft) of the BT-9 target area, personnel will declare the area as fouled and cease training exercises. Personnel will commence operations in BT-9 only after the animal has moved 914 m (3,000 ft) away from the target area.

For BT-11, in the event that a marine mammal is sighted anywhere within the confines of Rattan Bay, personnel will declare the water-based targets within Rattan Bay as fouled and cease training exercises. Personnel will commence operations in BT-11 only after the animal has moved out of Rattan Bay.

Range Sweeps – MCAS Cherry Point contracts range sweeps with commercial support aircraft each weekday morning prior to the commencement of the day's range operations. The pilot and aircrew are trained in spotting objects in the water. The primary goal of the pre-exercise sweep is to ensure that the target area is clear of unauthorized vessels or persons and protected species. Range sweeps will not occur on weekend mornings.

The sweeps are flown at at 100 to 300 ft (30-90 m) above the water surface, at airspeeds between 60 to 100 knots (69 to 115 mph). The crew communicates directly with range personnel and can provide immediate notification to range operators of a fouled target area due to the presence of protected species.

Aircraft Cold Pass – Standard operating procedures for waterborne targets require the pilot to perform a visual check prior to ordnance delivery to ensure the target area is clear of unauthorized civilian boats and personnel, and protected species. This is referred to as a “cold” or clearing pass. Pilots requesting entry onto the BT-9 and BT-11 airspace must perform a low-altitude, cold first pass (a pass without any release of ordnance) immediately prior to ordnance delivery at the bombing targets both day and night.

Pilots will conduct the cold pass with the aircraft (helicopter or fixed-winged) flying straight and level at altitudes of 61 to 914 m (200 to 3,000 ft) 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. If marine mammals are not present in the target area, the Range Controller may grant ordnance delivery as conditions warrant.

Delay of Exercises – The USMC will consider an active range as fouled and not available for use if a marine mammal is present within 914 m (3,000 ft) of the target area at BT-9 or anywhere within Rattan Bay (BT-11). Therefore, if USMC personnel observe a marine mammal within 914 m (3,000 ft) of the target at BT-9 or anywhere within Rattan Bay at BT-11 during the cold pass or from range camera detection, they will delay training until the marine mammal moves beyond and on a path away from 914 m (3,000 ft) from the BT-9 target or moved out of

Rattan Bay at BT-11. This mitigation applies to air-to-surface and surface-to-surface exercises day or night.

Approximately 15 percent of training activities take place during nighttime hours. During these training events, monitoring procedures mirror day time operations as range operators first visually search the target area with the high-resolution camera. Pilots will then conduct a low-altitude first cold pass and utilize night vision capabilities to visually check the target area for any surfacing mammals.

Vessel Operation – All vessels used during training operations will abide by NMFS' Southeast Regional Viewing Guidelines designed to prevent harassment to marine mammals.

Stranding Network Coordination – The USMC will coordinate with the local NMFS Stranding Coordinator to discuss 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.

Based on our evaluation of the required measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses.

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 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 in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

The USMC will conduct the following monitoring activities:

Protected Species Observer Training – Operators of small boats, and other personnel monitoring for marine mammals from watercraft shall be required to take the U.S. Navy’s Marine Species Awareness Training. Pilots conducting range sweeps shall be instructed on marine mammal observation techniques during routine Range Management Department briefings. This training would make personnel knowledgeable of marine mammals, protected species, and visual cues related to the presence of marine mammals and protected species.

Pre- and Post-Exercise Monitoring – The USMC will conduct pre-exercise monitoring the morning of an exercise and post-exercise monitoring 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. If the crew sights marine mammals during a range sweep, they would collect sighting data and immediately provide the information to range personnel who would take appropriate management action. Range staff would relay the sighting information to training Commanders scheduled on the range after the observation. Range personnel will enter the data into the USMC sighting database. Sighting data includes the following (collected to the best of the observer’s ability): (1) location (either an approximate location or latitude and longitude); (2) the platform that sighted the animal; (3) date and time and whether the sighting was during day or night; (4) how the animal was detected (e.g., range cameras, acoustic monitoring, vessel, aircraft); (5) species; (6) number of animals; (7) the animals’ direction of travel and/or behavior; and (8) weather.

Long-term Monitoring – MCAS Cherry Point has contracted Duke University to develop and test a real-time passive acoustic monitoring system that will allow automated detection of bottlenose dolphin whistles. The work has been performed in two phases. Phase I was the development of an automated signal detector (a software program) to recognize the whistles of

dolphins at BT-9 and BT-11. Phase II included the assembly and deployment of a real-time monitoring unit on one of the towers on the BT-9 range. The knowledge base gain from this effort helped direct current monitoring initiatives and activities within the MCAS Cherry Point Range Complex. The current system layout includes a pair of autonomous monitoring units at BT-9 and a single unit in Rattan Bay, BT-11. The system is not currently functional due to storm related damage and communication link issues. It may be on-line during the course of the IHA period. In that case, the Passive Acoustic Monitoring system will serve as an additional mitigation measure to reduce impacts.

Reporting – The USMC will submit a report to NMFS no later than 90 days following expiration of this IHA. This report must 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.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the training activities discover an injured or dead marine mammal, the USMC shall report the incident to the Office of Protected Resources (OPR), NMFS and to the regional stranding coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the USMC must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The USMC must not resume their activities until notified by NMFS.

The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact 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 (50 CFR 216.103). 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 of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected

in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

In order to evaluate the number of takes that might be expected to accrue to the different potentially affected stocks, the USMC estimated the proportion of dolphins present (based on density information from Read *et al.*, 2003) that would belong to each of the potentially affected stocks. Please see Table 3-2 of the USMC’s application. Based on these assumptions, we assume that the total authorized take of 102 incidents of Level B harassment and 2 incidents of Level A harassment would proportionally impact the various stocks as shown in Table 7.

Table 7 – Proportional Effects to Stocks

Stock	Level B harassment		Level A harassment (PTS)
	Behavioral	TTS	
Northern migratory	38.68	15.19	1.23
Southern migratory	25.86	10.39	0.45
NNCES	6.74	3.70	0.06
SNCES	0.82	0.70	0.06

NMFS expects short-term effects such as stress during underwater detonations. However, the time scale of individual explosions is very limited, and the USMC disperses its training exercises in space and time. Consequently, repeated exposure of individual bottlenose dolphins to sounds from underwater explosions is not likely and most acoustic effects are expected to be short-term and localized. NMFS does not expect long-term consequences for populations because the BT-9 and BT-11 areas continue to support bottlenose dolphins in spite of ongoing missions. The best available data do not suggest that there is a decline in the Pamlico Sound population due to these exercises.

The probability that detonation events will overlap in time and space with marine mammals is low, particularly given the densities of marine mammals in the vicinity of BT-9 and BT-11 and the implementation of monitoring and mitigation measures. Moreover, NMFS does not expect animals to experience repeat exposures to the same sound source, as bottlenose

dolphins would likely move away from the source after being exposed. In addition, NMFS expects that these isolated exposures, when received at distances associated with Level B harassment (behavioral), would cause brief startle reactions or short-term behavioral modification by the animals. These brief reactions and behavioral changes would likely cease when the exposures cease. The Level B harassment takes would likely result in dolphins being temporarily affected by bombing or gunnery exercises.

Individual bottlenose dolphins may sustain some level of temporary threshold shift (TTS) from underwater detonations. TTS can last from a few minutes to days, be of varying degree, and occur across various frequency bandwidths. Although the degree of TTS depends on the received noise levels and exposure time, studies show that TTS is reversible. NMFS expects the animals' sensitivity to recover fully in minutes to hours based on the fact that the proposed underwater detonations are small in scale and isolated. In summary, we do not expect that these levels of received impulse noise from detonations would affect annual rates of recruitment or survival. The potential for permanent hearing impairment and injury is low due to the incorporation of the required mitigation measures.

NMFS considers if the specified activities occur during and within habitat important to vital life functions to better inform the 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.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- Impacts will be limited to Level B harassment, primarily in the form of behavioral disturbance, and only two incidents of Level A harassment in the form of PTS;
- Of the number of total takes authorized, the expected proportions that may accrue to individual affected stocks are low relative to the estimated abundances of the affected stocks;
- There will be no loss or modification of habitat and minimal, temporary impacts on prey; and
- Mitigation requirements would minimize impacts.

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 monitoring and mitigation measures, NMFS finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by these actions. Therefore, we have determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, we must review our proposed action (*i.e.*, the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment. In 2015, NMFS developed an Environmental Assessment (EA)

evaluating the impacts of authorizing take of marine mammals incidental to the USMC's training activities at MCAS Cherry Point. Following review of this analysis, NMFS determined that the activity would not have a significant effect on the quality of the human environment and issued a Finding of No Significant Impact (FONSI).

Following review of public comments received, NMFS has determined that there are no substantive changes to the evaluated action or new environmental impacts; and, therefore, the previous NEPA analysis remains valid. The 2015 EA and FONSI are posted online at www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.

Endangered Species Act (ESA)

No marine mammal species listed under the ESA are expected to be affected by these activities. Therefore, we have determined that section 7 consultation under the ESA is not required.

Authorization

NMFS has issued an IHA to the USMC for conducting training activities in Pamlico Sound for a period of one year, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: May 19, 2020.

Donna S. Wieting,
Director, Office of Protected Resources,
National Marine Fisheries Service.