

# 1. REPORT OF ACTIVITIES

## 1.1 INTRODUCTION

The United States Marine Corps (USMC) has prepared this Annual Marine Mammal Compliance Report in accordance with the 5-Year Letter of Authorization (LOA) issued by the National Marine Fisheries Service (NMFS) on 13 June 2015. This report summarizes the type and amount of training activities that took place within two in-water bombing targets (BTs) located in Pamlico Sound, North Carolina (NC), known as the Brant Island Target (BT-9) and the Rattan Bay bombing targets of the Piney Island Bombing Range (BT-11) (Figure 1). These bombing targets are under the control and management of Marine Corps Air Station (MCAS), Cherry Point.

The United States Marine Corps (USMC) supported and conducted operations at the MCAS Cherry Point Range Complex (Figure 1) during the reporting period. The focus of this document includes only those training missions occurring on the water ranges or with impact areas over the water due to their potential to affect marine mammals. These missions include:

- **Munitions Firing** – Units conduct air-to-ground, surface-to-surface, and air-to-surface munitions delivery at targets that are located on land or in water. Air-to-ground firing does not impact the water; therefore, it is not analyzed or discussed further in this document.
- **Small Boat Maneuvers** – Units operate small watercraft that use inboard or outboard engines with either propeller or water jet propulsion.

In-water bombing targets at Brant Island (BT-9) and Rattan Bay (part of BT-11) are used to train military personnel to deliver ordnance on target. Ordnance is primarily delivered from fixed-wing and rotary wing aircraft, but is also occasionally delivered from small, military watercraft. Table 1-1 provides a general description of the training activities and munitions used on BT-9 and BT-11.

**Table 1-1. Description of Bombing Targets**

Range Asset	Training Operation	Type of Munitions Used
Brant Island Target (BT-9)	Water-based target range for air-to-surface and surface-to-surface warfare training, including bombing, strafing, special (laser systems) weapons, and surface fires, using non-explosive and explosive ordnance; also provides a mining exercise area.	<ul style="list-style-type: none"> <li>• Small arms</li> <li>• Large arms (live and inert)</li> <li>• Bombs (live and inert)</li> <li>• Pyrotechnics</li> </ul>
Piney Island Bombing Range (BT-11)	Complex of land- and water-based targets designed to provide training in the delivery of conventional (non-explosive) and special (laser systems) weapons; secondary use for surface-to-surface training by small military watercraft.	<ul style="list-style-type: none"> <li>• Small arms</li> <li>• Large arms (inert)</li> <li>• Bombs (inert)</li> <li>• Pyrotechnics</li> </ul>

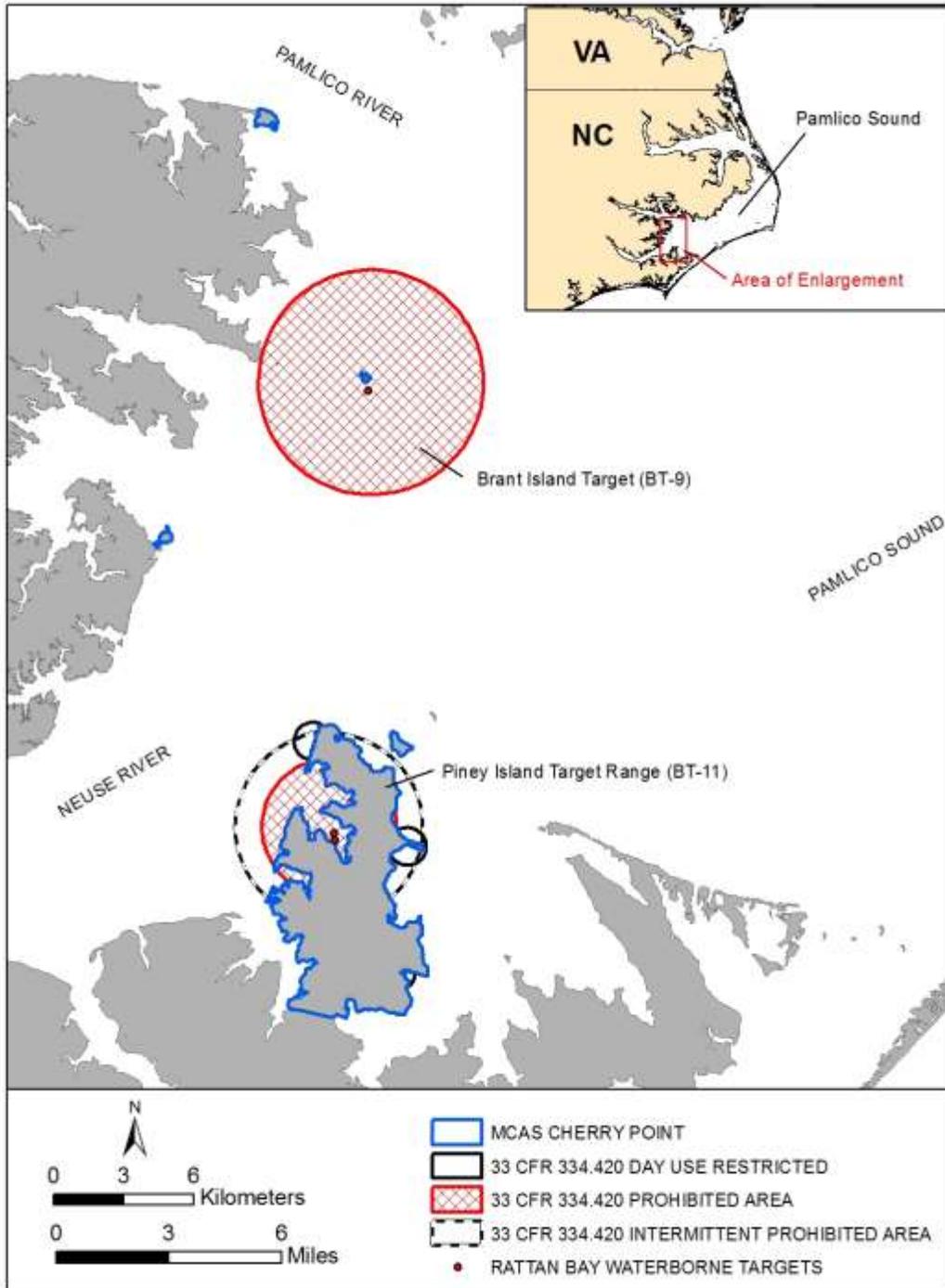


Figure 1. MCAS Cherry Point bombing targets Brant Island Bombing Target (BT-9) and Piney Island Bombing Range (BT-11) (33 CFR 334.420).

The following subsections provide detailed information about the three MCAS Cherry Point mission categories included in this report.

## **1.2 MUNITIONS FIRING**

Munitions firing training conducted on the water ranges includes surface-to-surface firing (from ship or boat to surface targets) and air-to-surface firing (from aircraft to surface water targets). This activity occurs year round with no seasonal restrictions. There are many types of ordnance used at BT-9 and BT-11, including practice bombs, rockets, flares, chaff, gun ammunition, and grenades (Table 1-2). Note that deployment of live ordnance is only permitted at BT-9; all munitions fired at BT-11 are inert.

MCAS Cherry Point's standard operating procedures set the maximum limit at 100 pounds (lbs) trinitrotoluene (TNT) equivalent for explosive ordnance at BT-9. Net explosive weights (NEW) currently authorized for use at BT-9 range from 0.1019 to 100 lbs. Practice bombs used at both targets are inert, but they do contain a small amount of explosive marking charge in a signal cartridge that allows the target hit to be detected by range scorekeepers and the pilot. Explosives in the signal cartridge are less than 1 lb TNT equivalent. Note that all ordnance fired on BT-11 is inert with the exception of a signal charge in practice bombs.

### **1.2.1 Surface-to-Surface**

Gunnery exercise is the only category of surface-to-surface activity currently conducted at BT-9 and BT-11.

- **Gunnery Exercise:** A small boat, typically operated by Special Boat Team personnel, uses a machine gun to attack and disable, or destroy, a surface target that simulates another ship, boat, swimmer, floating mine or near-shore land targets. Boats conducting surface-to-surface firing activities will typically use 7.62 millimeter (mm) or .50 caliber (cal) machine guns; 40 mm grenade machine guns; or G911 concussion hand grenades. This exercise is usually a live-fire exercise, but blanks may be used so that the boat crews can practice their ship handling skills. BT-9 is the most common target used for gunnery exercises. A target is not used for the gunnery exercises employing the G911 Concussion grenade, as the goal of this specific training is to learn how to throw the grenade into the water.

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Table 1-2. Munitions authorized for use at the MCAS Cherry Point Range Complex.<sup>1</sup> Inert ordnance is displayed in plain text; live ordnance is displayed in bold text.

Small Arms	Large Arms	Missiles <sup>2</sup>	Rockets	Bombs	Pyrotechnics
.22 cal	20mm	Hellfire	2.75-in Rocket	Practice Hand Grenade	Chaff
.40 cal	<b>20mm</b>	Tube-launched, optically tracked, wire- guided (TOW)	2.75-in Rocket Illumination	Non-Lethal Stun Grenade	LUU-2
.45 cal	25mm		2.75-in Rocket White Phosphorous	Smoke Grenade	LUU-19
.50 cal	30mm		2.75-in Rocket Red Phosphorous	<b>G911 Grenade</b>	MI27 A1-Parachute Flare
5.56mm	<b>30mm</b>		<b>2.75-in Rocket</b>	BA21 0.052 lb	Self Protection Flare
7.62mm	40mm		5-in Rocket	BDU-48 10 lbs	Signal Illuminations
9mm	<b>40mm</b>		5-in Rocket White Phosphorous	BDU-33 25 lbs	Simulated Booby Traps
12 Gauge	40mm Illumination		5-in Rocket Red Phosphorous	E976 25 lbs	Smokey Sams
	60mm Illuminations		<b>5-in Rocket</b>	MK-76 25 lbs	Artillery Simulator Ground Burst
	60mm Smoke White Phosphorous			LGTR 90 lbs	
	81mm			<b>MK-81 250 lbs</b>	
	81mm Illumination			BDU-45 500 lbs	
	81mm Smoke White Phosphorous			BDU-50 500 lbs	
	105mm Target Practice			GBU-12 500 lbs	
	<b>105mm 40lbs</b>			MK-82 500 lbs	
				BDU-38 750 lbs	
				GBU-16 1,000 lbs	
				MK-83 1,000 lbs	
				MK-63 1,061 lbs	

Notes: 1. Variants of the listed munitions and newly developed munitions that fall into these categories may be approved for use at the Range Complex as they become available.  
 2. Two types on missiles, Hellfire and TOW, were previously approved for use at BT-9 per Air Station Order P3570.2R; however, use of these missiles at MCAS Cherry Point has been cancelled since Fiscal Year (FY) 2005 due to operational limitations imposed by an insufficient weapon danger zone safety footprint at the water range.

### 1.2.2 Air-to-Surface

There are four categories of air-to-surface activities conducted at the MCAS Cherry Point bombing targets—mine laying, bombing, gunnery, and rocket exercises.

- **Mine Laying:** These activities involve a fixed-wing aircraft deploying inert mine shapes in an offensive or defensive pattern. Mine laying operations are conducted in the waters around BT-9.
- **Bombing Exercise:** During these exercises, fixed-wing aircraft deliver bombs against surface maritime targets with the goal of destroying or disabling enemy ships or boats. These exercises occur during day and night. Air-to-surface bombing exercises employ either unguided or precision-guided munitions. Unguided munitions include MK-76 and BDU-45 inert training bombs, as well as the MK-80 series of inert bombs (no cluster munitions are authorized). Precision-guided munitions consist of laser-guided bombs (inert) and laser-guided training rounds (inert).
- **Gunnery Exercise:** Rotary-wing gunnery exercises involve either CH-53, UH-1, CH-46, MV-22, or H-60 rotary-wing aircraft with mounted 7.62 mm or .50 cal machine guns. Each gunner expends approximately 800 rounds of 7.62 mm or 200 rounds of .50 cal ammunition per exercise. Fixed-wing gunnery exercises involve two aircraft that begin descent to the target from an altitude of approximately 914 meters (m) (3,000 feet [ft]) while still several miles away. Within a distance of 1,219 m (4,000 ft) from the target, each aircraft fires a burst of approximately 30 rounds before descending to a minimum altitude of 305 m (1,000 ft) and then breaks off and repositions for another strafing run. This continues until each aircraft expends its exercise ordnance allowance of approximately 250 rounds. Typically fixed-wing gunnery exercises involve F/A-18 with Vulcan M61A1/A2, 20 mm cannon, and AV-8 with GAU-12, 25 mm cannon.
- **Rocket Exercise:** Fixed- and rotary-wing aircraft crews launch rockets at surface maritime targets during rocket exercises with the goal of destroying or disabling enemy ships or boats. Rocket exercises may occur day or night. These operations employ 2.75-inch (in) and 5-in rockets.

Table 1-3 provides the total number of sorties (events) by mission type for each bombing target. Attachment 1 of this report contains a listing all individual training events by date for each respective target.

**Table 1-3. Aircraft and Boat Sorties by Mission Type**

Mission Type	BT-9	BT-11	Total
Air-to-Surface	957	2,563	3,520
Surface-to-Surface (Boats)	56	257	313

1.2.3 Quantity and Accuracy of Ordnance Used

The total amount of ordnance expended at BT-9 and BT-11 under the term of this LOA are 748,636 and 1,575,362 respectively (Table 1-4 and Table 1-5). The amounts of ordnance expended at the bombing targets account for all use of the targets. During the period of this LOA, minimum numbers of high explosive (live) munitions were fired at BT-9. High explosive (live) munitions are never permitted at BT-11.

**Table 1-4. Ordnance Usage at BT-9**

Munition Expenditures	Total No. of Rounds	No. of Explosive (HE) Rounds Having an Impact on the Water	Net Explosive Weight (lb)
Small Arms Rounds Excluding .50 cal	278175	N/A	N/A
.50 cal	413360	N/A	N/A
Large Arms Rounds - Live	1334	30mm HE: 40mm HE: 1334	0.1199
Large Arms Rounds - Inert	53095	N/A	N/A
Rockets - Live	0	2.75" Rocket: 5" Rocket:	
Rockets - Inert	1365	N/A	N/A
Bombs and Grenades - Live	0	G911 Grenade:	
Bombs and Grenades - Inert	1286	N/A	N/A
Pyrotechnics	361	N/A	N/A
Total	748636		N/A

**Table 1-5. Ordnance Usage at BT-11**

Munitions Expenditures	Total No. of Rounds
Small Arms Rounds Excluding .50 cal	1198460
.50 cal	240292
Large Arms Rounds-Inert	122050
Rockets-Inert	7785
Bombs and Grenades-Inert	3001
Pyrotechnics	3774
Total	1575362

## **2.0 MARINE MAMMAL OBSERVATIONS**

The USMC Cherry Point Range Complex Marine Mammal and Protected Species Monitoring Plan provided the basis for marine mammal observations during the reporting period. Beginning on 25 September 2015, and as agreed to by NMFS, MCAS Cherry Point changed the manner in which pre- and post-exercises range sweeps are conducted. Due to changes in force structure within the Marine Corps, a transition to fixed-wing aircraft for range sweeps was necessary. 33 CFR 334.420 defined restricted areas are included on Figure (2) for reference.

The following documents marine mammal observations made during the reporting period. On ten occasions, dolphins were observed by fixed-wing aircraft along a pre-defined flight path (Figure 2). None of the observations placed marine mammals within zone of influences for explosive munitions at BT-9. Four of the observations were within Rattan Bay at BT-11. On the dates of dolphin observations within Rattan Bay, pre- and post-mission operational procedures for clearing the bay prior to ordnance delivery were followed. No marine mammals were observed during air-to-surface training activities (rotary-wing or fixed-wing aircraft), by maintenance vessels, and no marine mammal observations were associated with BT-9.

## **3.0 EFFECTIVENESS OF MONITORING**

The Marine Mammal and Protected Species Monitoring Plan for the USMC Cherry Point Range Complex was developed based upon an existing Biological Opinion with the NMFS for the protection of threatened and endangered species and as coordinated with the NMFS during the 5-Year Regulation and Letter of Authorization application process. The procedures in place to detect marine mammals on the ranges prior to and during surface-to-surface and air-to-surface training are effective and meet the mitigation and monitoring requirements set forth by the LOA.

## **4.0 SENSOR BASED MONITORING**

MCAS Cherry Point continued to make progress on developing sensor based approaches to monitoring marine mammals (dolphin specific) at the bombing targets. A non-directional passive acoustic monitor (PAM) had been in place on the East Tower of BT-9 the period from May 2014-May 2015. This unit experienced technical problems associated with power configurations and communications. No reliable data was recovered from the unit. A new location within Rattan Bay for the single non-directional unit has been tested for operability (playbacks and distance metrics) and Cherry Point will be moving the PAM unit during the summer of 2017. The new location better conforms to the monitoring business practices in that a confirmed animal observation (or PAM detection) within the extent of Rattan Bay would trigger a training pause until the animals have cleared the immediate location. A protocol is in development to capture this modified business process.

At BT-9, Cherry Point has commissioned the installation of a pair of direction capable, autonomous passive acoustic monitoring units. Fiscal constraints and military operational tempo on the range has delayed installation until the summer of 2017. Locations for the new units have been tested for efficacy (playbacks and distance metrics) and suitable sites have been identified that will not conflict with military training. Once installed, these units will be tested over a

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period 12 months to determine the effectiveness of this sensor based approach in detecting marine mammals.

**5.0 MARINE MAMMAL STRANDING NETWORK COORDINATION**

During the reporting period, one marine mammal stranding was reporting and coordinated through the Marine Mammal Stranding Network (National Database Number: SE-2017-1195163).

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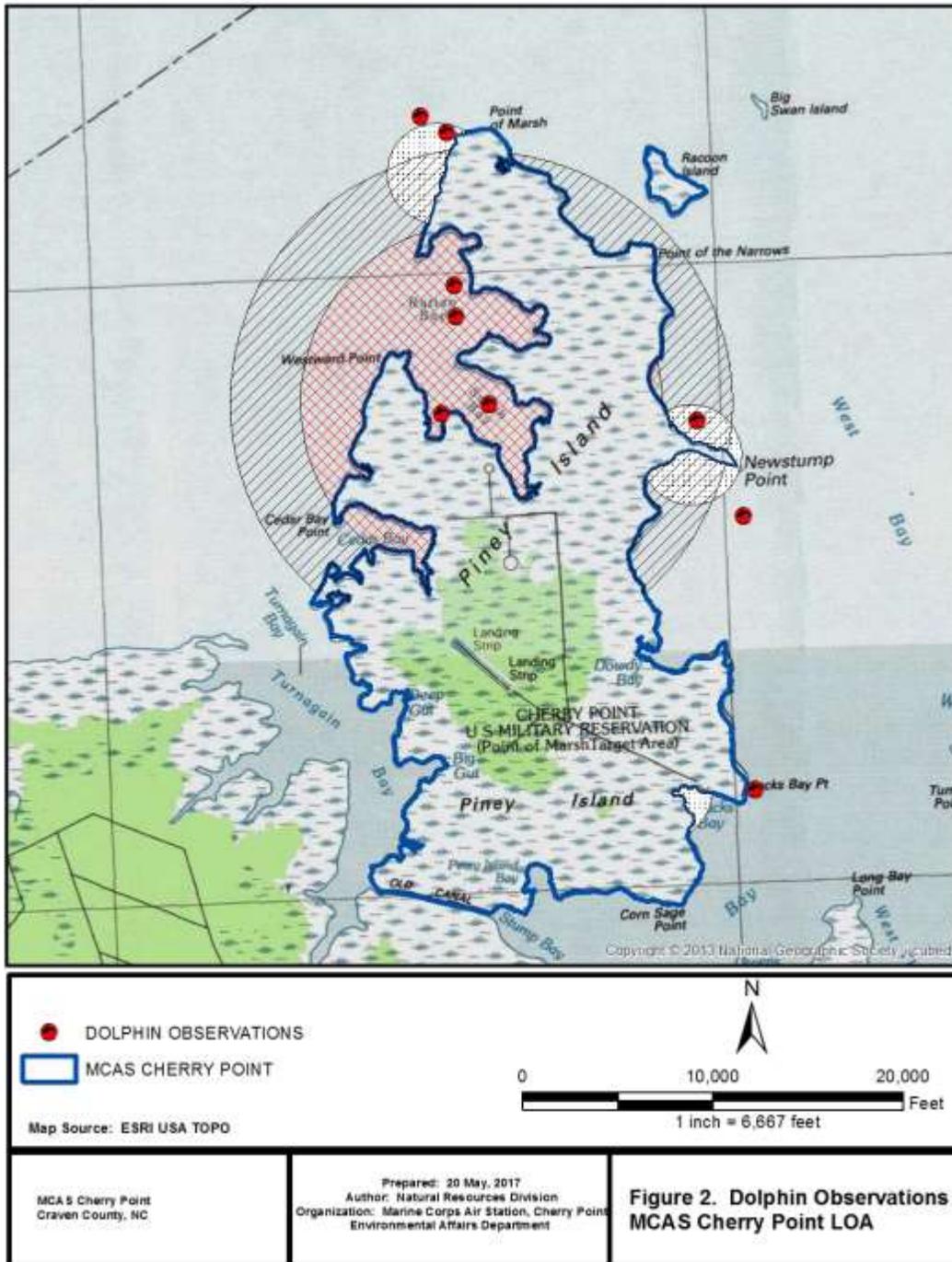


Figure 2. Dolphin observations at MCAS Cherry Point bombing targets, Piney Island Bombing Range (BT-11), 1June 2016-30 May 2017.