

# **2020 ANNUAL REPORT ON EGLIN GULF TEST AND TRAINING RANGE (EGTTR) MISSION ACTIVITIES:**

## **PROTECTED SPECIES MONITORING AND MITIGATION RESULTS**



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## **ACRONYMS AND ABBREVIATIONS**

86 FWS	86 <sup>th</sup> Fighter Weapons Squadron
413 FLTS	413 <sup>th</sup> Flight Test Squadron
780 TS	780 <sup>th</sup> Test Squadron
AF	Air Force
AFB	Air Force Base
AFSOC	Air Force Special Operations Command
BA	Biological Assessment
BO	Biological Opinion
CCF	Central Control Facility
EGTTR	Eglin Gulf Test and Training Range
FLSTSSN	Florida Sea Turtle Stranding and Salvage Network
ft	feet
GPS	Global Positioning System
GRATV	Gulf Range Armament Test Vessel
HSMST	High Speed Maneuverable Surface Target
IHA	Incidental Harassment Authorization
ITS	Incidental Take Statement
JAGM	Joint Air-to-Ground Missile
JASSM	Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
km	kilometers
lb	pound
m	meter
NMFS	National Marine Fisheries Service
NOTMAR	Notice to Mariners
NPV	Non-participating Vessel
NRO	Natural Resources Office
PAM	Passive Acoustic Monitoring
PBO	Programmatic Biological Opinion
PTS	Permanent Threshold Shift
SDB	Small Diameter Bomb
SRI	Santa Rosa Island
TTS	Temporary Threshold Shift
UAS	Unmanned Aerial System
WSEP	Weapon Systems Evaluation Program
ZOI	Zone of Influence

## Executive Summary

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Eglin Natural Resources Office (NRO) has prepared this report in accordance with the Eglin Gulf Test and Training Range (EGTTR) Letter of Authorization (LOA) under the Marine Mammal Protection Act and the Programmatic Biological Opinion/Incidental Take Statement (PBO/ITS) under the Endangered Species Act. The LOA and BO/ITS include mitigation and monitoring procedures to reduce the potential for adverse impacts to marine mammals and federally listed species. This report describes the implementation of the mitigation and monitoring procedures, the results of pre- and post-mission surveys, a summary of each mission event, describes any potential take that may or may not have occurred, and analyzes the overall effectiveness of these measures.

A total of ten mission days were completed by two user groups that involved live weapon releases in the EGTTR during calendar year 2020. One additional live day was planned and attempted, but due to technical issues, no weapon releases occurred. Eglin NRO coordinated with each proponent prior to the missions to communicate survey requirements and established survey areas for each mission day, based on the mitigation measures developed and outlined in the LOA and PBO. For AFSOC gunnery missions, pre- and post-mission surveys were conducted by trained aircrew using techniques and procedures that have been used according to previous LOAs. For 780 TS, pre- and post-mission surveys were conducted by between one and four survey vessels, depending on the size of the survey area for each mission. For the two 780 TS missions, an Eglin NRO representative observed live video feed from cameras on the instrumentation barge and other support boats during the missions from the monitoring facility at Test Site A-5 and from Eglin's Central Control Facility (CCF). During the March Quicksink mission, the Eglin NRO representative was unable to view the live weapon releases due to the classified nature of those releases. However, the NRO representative briefed the mission director on protected species indicators before vacating the CCF, and CCF staff were able to monitor the live video feed for protected marine species and reported that none were observed. Eglin NRO anticipates the ability to continue monitoring missions from CCF in future years.

The primary species observed during surveys were bottlenose dolphins. Two sea turtles were also observed. All sightings occurred during pre-mission surveys, except for one sea turtle that was observed during the mission at the guard duty location (safety perimeter). Individuals were observed to leave ZOI. No protected species were observed during post-mission surveys. For all live missions in the EGTTR, the safety box boundaries (the survey areas) extended well-beyond the ZOIs for mortality, serious injury, permanent/temporary injury, impairment, and some behavioral thresholds for marine mammals and sea turtles. Therefore, Eglin NRO believes no marine mammal or sea turtle takes occurred as a result of 2020 EGTTR missions.

Eglin NRO believes all mitigation and monitoring measures were successfully implemented and were effective in protecting marine mammals and sea turtles from negative impacts associated with live detonations during 2020. Furthermore, based on an analysis of marine mammal and sea turtle stranding data for 2020, Eglin NRO believes that additional impacts from mission activities were not apparent beyond what was observed and reported during post-mission surveys.

## 1. Introduction

This report has been prepared in compliance with the Letter of Authorization (LOA) and Programmatic Biological Opinion (BO)/Incidental Take Statement (ITS) issued by the National Marine Fisheries Service (NMFS) for mission activities in the Eglin Gulf Test and Training Range (EGTTR). The EGTTR LOA is valid from February 13, 2018 through February 12, 2023 (Federal Register 83(27): 5545-5571, February 8, 2018). The EGTTR Programmatic PBO/ITS was issued on January 13, 2017 (Consultation No. FPR-2016-9151) by the NMFS Office of Protected Resources, ESA Interagency Cooperation Division. Refer to *Table 1-16 in the EGTTR LOA Request*, *Table 1 in the LOA*, and *Table 14 in the EGTTR PBO* for a list of all live weapon allotments authorized in the EGTTR.

The EGTTR LOA addressed the potential for impacts to two species of marine mammals: bottlenose dolphins and Atlantic spotted dolphins. Eglin was authorized Level A Harassment takes in the form of slight lung injury and Permanent Threshold Shift (PTS). Eglin was also authorized Level B Harassment takes in the form of Temporary Threshold Shift (TTS) and Behavioral impacts. The annual numbers of marine mammal takes authorized in the LOA are shown in Table 1-1 below.

**Table 1-1. Annual Marine Mammal Takes Authorized in the EGTTR LOA**

Species	Level A Harassment		Level B Harassment	
	Slight Lung Injury	PTS (SEL)	TTS (SEL)	Behavioral
Bottlenose dolphin	2	7	220	315
Atlantic spotted dolphin	0	2	85	120
<b>TOTAL</b>	<b>2</b>	<b>9</b>	<b>305</b>	<b>435</b>

PTS = permanent threshold shift; TTS = temporary threshold shift; SEL = sound exposure level

The EGTTR PBO addressed the potential for impacts to four sea turtle species and included an ITS for lethal and non-lethal takes of loggerhead, Kemp's ridley, leatherback, and green sea turtles. The annual numbers of sea turtle takes authorized in the ITS are shown in Table 1-2 below. In 2020 Eglin NRO received concurrence from NMFS regarding NRO's "may effect, but not likely to adversely affect" determination for the two recently listed species, oceanic whitetip shark and giant manta ray; no takes were therefore authorized for those species.

**Table 1-2. Sea Turtle Take Authorizations Included in the ITS of the EGTTR PBO**

Species	Mortality & Serious Injury	Impairment	Disturbance	Behavioral Response
Green sea turtle – North Atlantic DPS	28	39	1,056	11,139
Kemp's ridley sea turtle	29	40	1,079	10,905
Loggerhead sea turtle – Northwest Atlantic DPS	57	79	2,148	22,610
Leatherback sea turtle	10	17	436	5,257

DPS = distinct population segment

## 1.1 Human Safety Procedures

Prior to missions that require a closure of any portion of the Gulf of Mexico, Eglin AFB issues a Notice to Mariners (NOTMAR) describing to all local vessels the upcoming activities which includes a map showing the boundaries of the human safety zone. All boat captains leaving the East Pass near Destin, FL are provided with maps and GPS points of the safety zone before they enter the Gulf. Up to 25 Air Force (AF) vessels may conduct range clearing activities for at least two hours before the mission starts to inform and when necessary, escort civilian vessels outside the safety box. Depending on the weapons being deployed, the size and shape of the safety box varies, therefore the number of boats needed to secure the perimeter also varies. The human safety zone restriction also applies to vessels conducting pre-mission surveys for protected marine species (Refer to Section 1.2 below). Safety and survey boat captains maintain radio contact with each other and the Eglin Tower on Test Site A-13B on Santa Rosa Island (SRI Tower) to provide, receive, and relay information needed to clear the range. Once survey boats have completed pre-mission surveys for protected species, they must immediately exit the safety box and typically assist the guard boats with enforcing the safety box. Missions cannot begin until it is confirmed that the entire safety box is clear of humans. During the missions, the safety and survey boats remain at specific guard locations along the perimeter of the human safety box to restrict boat access into the range, until the mission is completed.

Gunnery missions conducted by the Air Force Special Operations Command (AFSOC) and the 413<sup>th</sup> Flight Test Squadron (413 FLTS) typically do not require vessel support to clear the Gulf of humans. The main aircraft platforms these groups use are gunships that are equipped with ultra long-range multi-sensor, multi-spectral imaging and targeting systems with 24/7 high-sensitivity color imaging that provide the capabilities to sufficiently survey the mission areas for the presence of non-participating vessels and protected species. Moreover, these aircraft are capable of loitering on site for the amount of time necessary to identify and move clear of areas with either humans or protected species.

## 1.2 General Mitigation and Monitoring Requirements

Eglin NRO and NMFS developed mission-specific mitigation and monitoring requirements during the consultation processes to minimize the potential for adverse impacts to protected species. Eglin proposed to visually survey mission areas to ensure they are clear of protected species before live missions begin. The size of the survey area depends on the type of weapons being dropped and the detonation scenario (i.e., surface or subsurface detonation). *The discussion of each mission activity in the following sections includes how Eglin NRO determined what survey areas were needed.*

All personnel conducting visual surveys for protected species are required to complete a training course in identifying marine species, annually. The training includes a summary of applicable environmental laws, consequences of non-compliance, description of an observer's roles, pictures and descriptions of protected species and protected species indicators, example survey techniques, recommended equipment, and reporting procedures. The training must be given by Eglin NRO biologists. In some cases, training slides are sent directly to the training manager for select user groups, with the requirement that computer-generated certificates of completion for each



prospective observer must be sent to Eglin NRO. During the 2020 calendar year, 106 observers completed their annual training and sent their completed certificates to Eglin NRO.

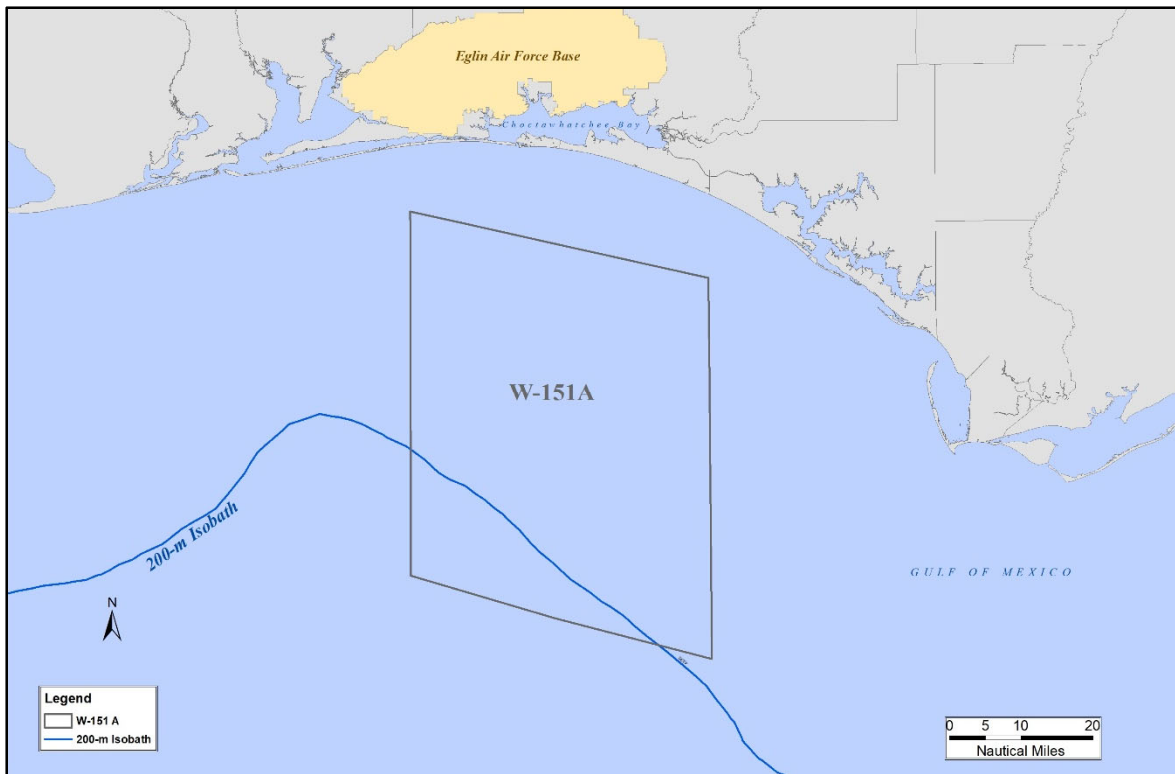
For vessel-based surveys, all boat captains and observers participated in previous Maritime Strike and Maritime WSEP missions conducted annually from 2013 through 2017. As a result, completion of this training requirement in 2020 served as a refresher course. The vessels and associated crew designated specifically for protected species monitoring for all live EGTTR missions in 2020 were *Ground Control*, *Sturgeon* (aka “*Sturgeon 1*”), *Sea Eagle*, *El Jefe*, and *Miss Daisy*.

For aerial surveys conducted by mission personnel on gunships, the training slides are provided to aircrew as part of the standard annual unit training requirements. Digitally-signed training certificates for designated observers are provided to Eglin NRO certifying that the training has been completed and personnel are aware of their observer roles and responsibilities, including reporting procedures. Eglin NRO maintains a list of personnel with updated training certificates.

The following sections summarize activities of each user group that released live weapons in the EGTTR, describe the implementation of the mitigation and monitoring requirements, identify the levels of take that occurred, and assess the effectiveness of Eglin’s mitigation and monitoring procedures.

## **2. AFSOC – Air-to-Surface (A-S) Gunnery Training**

AFSOC conducts air-to-surface gunnery training activities with multiple types of munitions primarily in Warning Area-151A (W-151A) in the EGTTR (Figure 2-1). Gunnery rounds include 25-millimeter (mm) high explosive incendiary (HEI), 30-mm HEI, 40-mm HEI, and 105-mm HEI rounds. Net explosive weight (NEW) ranges from about 0.07 to 4.7 pounds. The Air Force developed a 105-mm training round (TR) that contains less than 10 percent of the amount of explosive material contained in the 105-mm full-up (FU) round.



**Figure 2-1. Location of W-151A in the EGTTT**

## 2.1 Mission Set-Up

As stated in Section 1.1, the gunships contain sensor systems that can be used to reliably clear areas of the Gulf for non-participating vessels and protected species. In addition, these training units typically do not require the use of target boats, but instead deploy MK-25 marking flares as targets. Therefore, minimal equipment and assets are needed to support these missions.

## 2.2 Mitigation and Monitoring Requirements

AFSOC has been conducting air-to-surface gunnery training operations in the EGTTT under various MMPA Authorizations since 2006. Accordingly, they have successfully implemented mitigation and monitoring requirements for the protection of marine mammals and sea turtles, which includes conducting aerial surveys immediately prior to commencement of firing gunnery rounds and ramp-up procedures when using multiple-sized munitions. Table 2-1 lists the Mission Category Days for the AFSOC gunnery missions as described in the EGTTT LOA application.

**Table 2-1. AFSOC Gunnery Training Mission Category Days**

Mission Category Day	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
<b>D</b>	105 mm HE (FU)	4.7	Surface	30	25	750
	40 mm HE	0.87	Surface	64		1,600
	30 mm HE	0.1	Surface	500		12,500
	25 mm HE	0.067	Surface	560		14,000
<b>E</b>	105 mm HE (TR)	0.35	Surface	30	45	1,350
	40 mm HE	0.87	Surface	64		2,880

Mission Category Day	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
	30 mm HE	0.1	Surface	500		22,500
	25 mm HE	0.067	Surface	560		25,200
<b>Total</b>					<b>70</b>	<b>80,780</b>

FU = Full Up; HE = High Explosive; lbs = pounds; mm = millimeter; NEW= net explosive weight; TR = Training Round

**Table 2-2. Monitoring Area Radii for Gunnery Missions**

Aircraft	Gunnery Round	Monitoring Area Radius	Monitoring Altitude	Operational Altitude
AC-130 gunship	25 mm, 30 mm, 40 mm, 105 mm (FU and TR)	5 NM (9,260 m)	6,000 ft	15,000 – 20,000 ft
CV-22 Osprey	.50 cal, 7.62 mm	3 NM (5,556 m)	1,000 ft	1,000 ft

cal = caliber; ft = feet; FU = full up; m = meters; mm = millimeter; NM = nautical miles; TR = Training Round

Table 2-2 shows the ranges from targets for monitoring of gunnery missions. As Eglin NRO described in the LOA, missions that consist solely of gunnery testing and training operations will survey larger areas than would be necessary based solely on acoustic impact zones at a Level A Harassment/PTS threshold. This is because of the Air Force's ability to conduct aerial surveys of larger areas from mission aircraft during these activities. Monitoring procedures are described in *Section 11.2.2* of the LOA (Table 2-2, Table 2-3, and Table 2-4). This conservative approach easily covers marine mammals through behavioral response and covers sea turtles through impairment and disturbance under Eglin NRO's mitigation requirements for AFSOC gunnery missions.

**Table 2-3. Distance in meters to NMFS Harassment Thresholds for Marine Mammals**

Mission Category Day	Mortality <sup>1</sup>		Level A Harassment				Level B Harassment	
			Slight Lung Injury <sup>2</sup>		GI Tract Injury <sup>3</sup>	PTS <sup>4, 5</sup> (SEL)	TTS <sup>4, 6</sup> (SEL)	Behavioral <sup>7</sup> (SEL)
	BND	ASD	BND	ASD				
D	24	30	55	67	59	254	982	1,413
E	10	13	24	30	34	232	878	1,252

<sup>1</sup> Positive impulse metric from the Goertner mortality model equation that uses the mass of a newborn calf of affected species

<sup>2</sup> Positive impulse metric from the Goertner injury model equation that uses the mass of a newborn calf of affected species

<sup>3</sup> Peak pressure metric of 237 dB re 1  $\mu$ Pa (unweighted SPL)

<sup>4</sup> These thresholds use dual criteria, one based on cumulative weighted SEL and one based on peak unweighted SPL. SEL metric was used because the distance was larger than SPL.

<sup>5</sup> Weighted SEL metric of 185 dB re 1  $\mu$ Pa<sup>2</sup>·s

<sup>6</sup> Weighted SEL metric of 170 dB re 1  $\mu$ Pa<sup>2</sup>·s

<sup>7</sup> Weighted SEL metric of 165 dB re 1  $\mu$ Pa<sup>2</sup>·s

ASD = Atlantic spotted dolphin; BND = bottlenose dolphin; dB re 1  $\mu$ Pa = decibels referenced to 1 micropascal; dB re 1  $\mu$ Pa<sup>2</sup>·s = decibels referenced to 1 micropascal-squared second; GI = gastrointestinal; NMFS = National Marine Fisheries Service; PTS = permanent threshold shift; SEL = sound exposure level; SPL = sound pressure level; TTS = temporary threshold shift

**Table 2-4. Distance in meters to NMFS Acoustic Thresholds for Sea Turtles**

Munition	NEW (lbs)	Detonation Scenario	Mortality and Serious Injury	Impairment	Disturbance	Behavioral Response
105 mm FU	4.7	Surface	130	218	426	33,844
40 mm burst	0.87	Surface	74	124	243	19,331
105 mm TR	0.35	Surface	55	91	179	14,225
30 mm burst	0.1	Surface	36	60	118	9,389

25 mm burst	0.067	Surface	32	53	103	8,200
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FU=Full Up; lbs=pounds; mm=millimeter; NEW=Net Explosive Weight; TP=Target Practice

Prior to beginning firing activities, the gunships conduct low-altitude orbits around the prospective firing location to ensure the ZOI is clear of protected species. At least two orbits must be completed before climbing to operational altitudes. The aircraft's sensors are turned on for the duration of the pre-mission survey, the mission, and the post-mission survey. Gunship aircrews have consistently completed and maintained their Marine Species Observer Training certifications, allowing them to serve as designated observers during their own missions. Eglin NRO receives completed and signed certificates once trainings are completed. The aircrew also submit mission report forms after each mission is completed with results of pre- and post-mission surveys.

### 2.3 Description of AFSOC A-S Gunnery Training Activities

Six A-S gunnery missions were conducted during the 2020 calendar year. Copies of all Protected Species Observer Report Forms are included in Appendix A of this report. Table 2-5 summarizes the results of the report forms.

**Table 2-5. Summary of Air-To-Surface Gunnery Missions for 2020**

Date of Mission	Pre-Mission Surveys <sup>a</sup>		Mission Times		Post-Mission Surveys <sup>a</sup>		Rounds Used	# of Rounds Expended	Protected Species Observed?
	Start	End	Start	End	Start	End			
5/28/2020	1345	1400	1400	1430	1430	1445	30 mm HE	120	No
							105 mm TR	30	
6/18/2020	1600	1610	1530	1830	1830	1835	30 mm HE	300	No
							105 FU	30	
07/20/2020	1815	1830	1830	2000	2015	2030	30 mm HE	300	No
							105 mm TR	30	
8/17/2020	1740	1750	1740	1850	1850	1900	30 mm HE	300	No
							105 mm TR	30	

9/9/2020	1330	1340	1330	1500	1450	1500	30 mm HE	240	No
							105 mm TR	30	
							MK-25 Marker Flare <sup>b</sup>	6	
11/24/2020	1330	1350	1350	1445	1445	1500	30 mm HE	30	No
							105 mm TR	9	
							MK-25 Marking Flare <sup>b</sup>	1	

FU = Full-Up; HE = High Explosive; TR = Training Round; mm = millimeter

NOTE: Cells highlighted in blue are for missions conducted 30 minutes prior to sunset or later.

<sup>a</sup> All pre-and post-mission surveys occurred 15 minutes prior to and after live fire was complete

<sup>b</sup> MK-25 Marking Flare is the target type

## 2.4 AFSOC Mission Summary

Table 2-6 summarizes A-S gunnery expenditures during the 2020 calendar year and compares it with the annual allocations covered under the existing LOA and BO. The number of A-S gunnery activities conducted in the EGTTR for the reporting period were well below the total amounts authorized per year. Since no protected species were observed before, during, or following the missions, Eglin NRO concludes that no takes occurred.

Appendix A presents the Observation Report Forms completed by AFSOC. Eglin NRO notes that in four of the Protected Species Observer Report Forms, there are minor time and observation discrepancies. Eglin NRO reached out to the observers and received a response regarding three of the four discrepancies (omitted arrival time, sea state, and if protected species were observed en route on 7/20/20 mission report; omitted sea state and arrival time on 8/17/20 mission report; and omitted latitude/longitude on 9/9/20 mission report) which are included in Appendix A. Eglin NRO did not receive a response from the observer for the fourth discrepancy (omitted latitude/longitude, arrival time, sea state, and if protected species were observed while en route). The pre- and post-mission surveys generally occurred 15 minutes prior to live fire and 15 minutes after live fire was complete.

**Table 2-6. Comparison of Permitted vs. Actual Level of A-S Gunnery Mission Activities**

	# Daytime Missions	# Nighttime Missions	25 mm HE	30 mm HE	40 mm HE	105 mm FU	105 mm TR
Total Annual Allotments	25	45	39,200	35,000	4,480	750	1,350
Actual Usage	5	1	0	1,290	0	30	129

<b>Unused Allotments</b>	<b>20</b>	<b>44</b>	<b>39,200</b>	<b>33,710</b>	<b>4,480</b>	<b>720</b>	<b>1,221</b>
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FU = Full-Up; HE = High Explosive; TR = Training Round; mm = millimeter

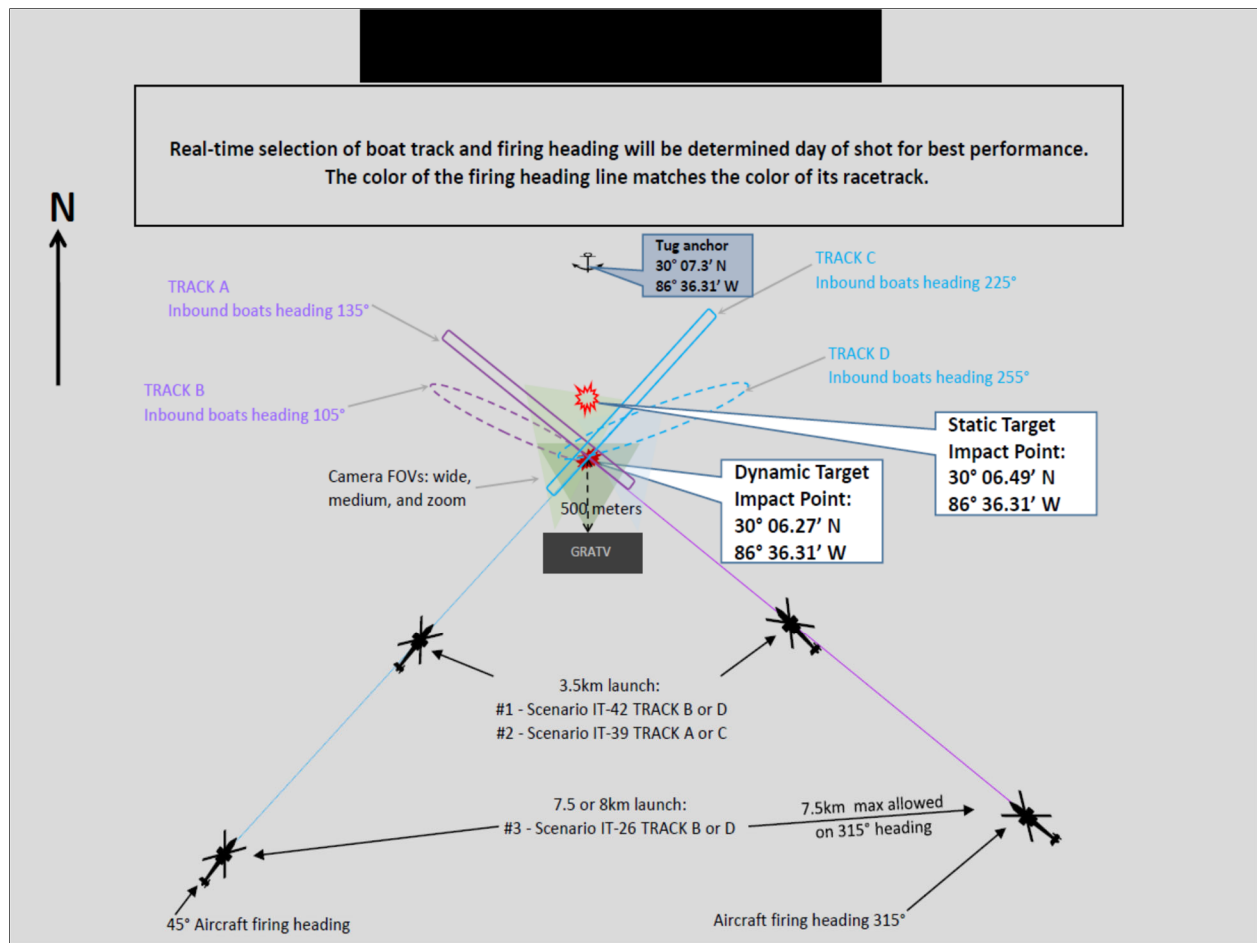
### **3. 780<sup>th</sup> Test Squadron (780 TS)**

The 780<sup>th</sup> Test Squadron (780 TS) conducts testing activities on a variety of weapons, including the AGM-158 (Joint Air-to-Surface Standoff Missile [JASSM]), GBU-39 (Small Diameter Bomb I [SDB-I]), AGM-114L (Longbow missile), GBU-53 (SDB-II), Joint Air-to-Ground Missile (JAGM), and others. Test missions for the 780 TS typically involve a one-time event using multiple weapon systems, with a small number of weather back-up days. Eglin NRO coordinates with the 780 TS prior to each test mission to develop a plan for pre-mission surveys and other monitoring requirements, depending on the weapons being dropped and other mission assets that may be available. Two mission sets conducted by 780 TS in 2020 included Hellfire (AGM-114) testing and JDAM (GBU-31, a.k.a. “Quicksink”) testing.

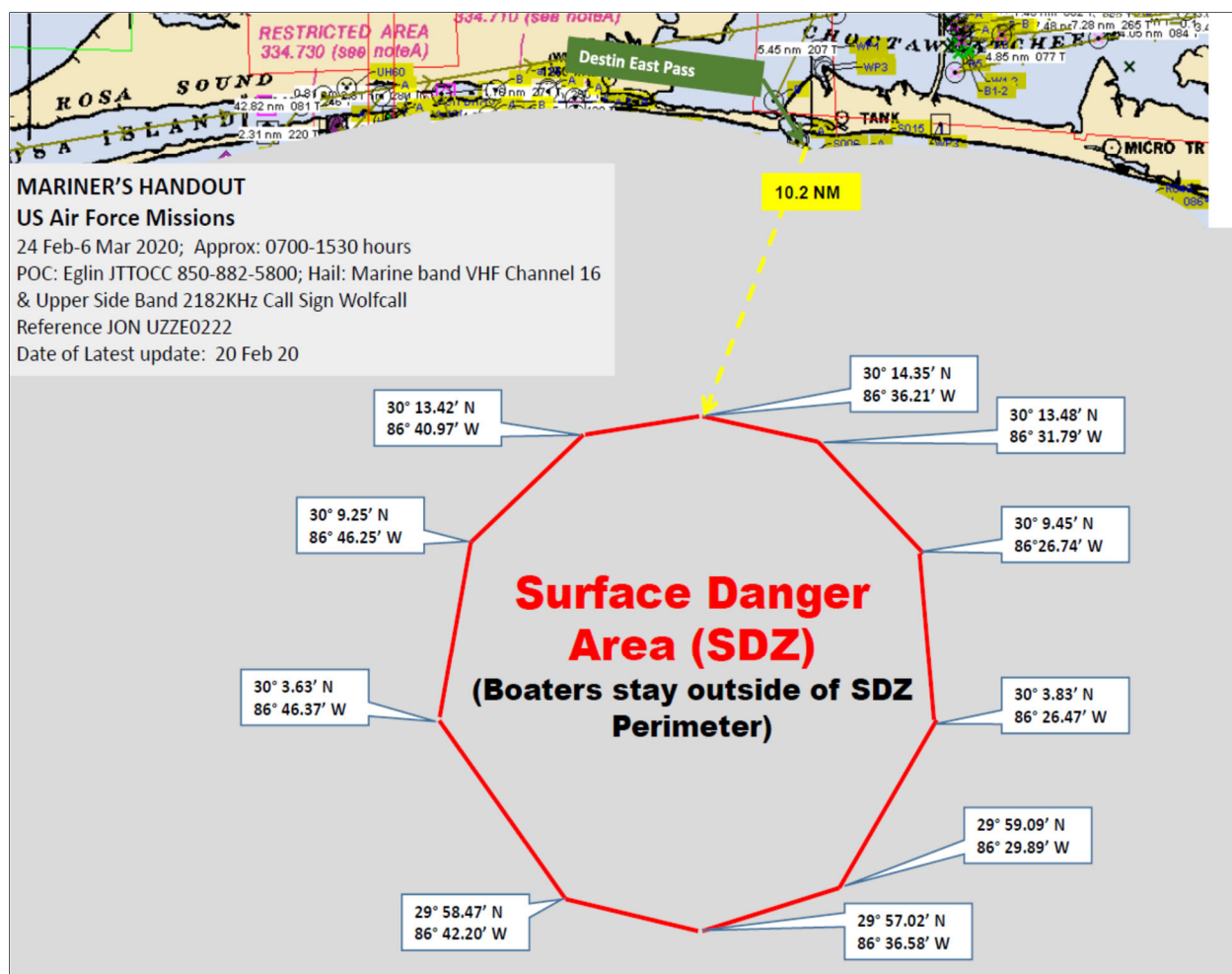
#### **3.1 Mission Set-Up**

##### **3.1.1 Hellfire Mission**

Hellfire test missions for the 780 TS were scheduled in W-151A of the EGTTR. The test site is approximately 17 NM (31 km) offshore from Santa Rosa Island (SRI). Figure 3-1 shows the location and basic set-up for these test missions conducted in February and March 2020. Water depth of the mission site was approximately 160 ft (49 m). The proposed target area was located approximately 1,640 ft (500 m) north of the Gulf Range Armament Test Vessel (GRATV) instrumentation barge. The human safety zone extended 7.58 NM (14 km) from impact site (Figure 3-2). Human safety procedures similar to those described in Section 1.1 were followed. Given the types of weapons released by the 780 TS and the size of the human safety box, 10 AF vessels were used to enforce the safety box.



**Figure 3-1. 780 TS Hellfire Mission Set-Up**



**Figure 3-2. Human Safety Zone for Hellfire Mission**

### 3.1.2 JDAM/Quicksink Mission

The Quicksink mission for the 780 TS was scheduled in W-151A of the EGTR. The test site is approximately 17 NM (31 km) offshore from SRI. Figure 3-3 shows the location and basic set-up for this test mission conducted in March 2020.

Water depth of the mission site was approximately 160 ft (49 m). The human safety zone extended 7.86 NM (14.6 km) from impact site. In addition, inert shots were approximately 0.25 NM (0.5 km) north of live shots. Human safety procedures similar to those described in Section 1.1 were followed. Given the types of weapons released by the 780 TS and the size of the human safety box, 15 AF vessels were used to enforce the safety box (Figure 3-4).



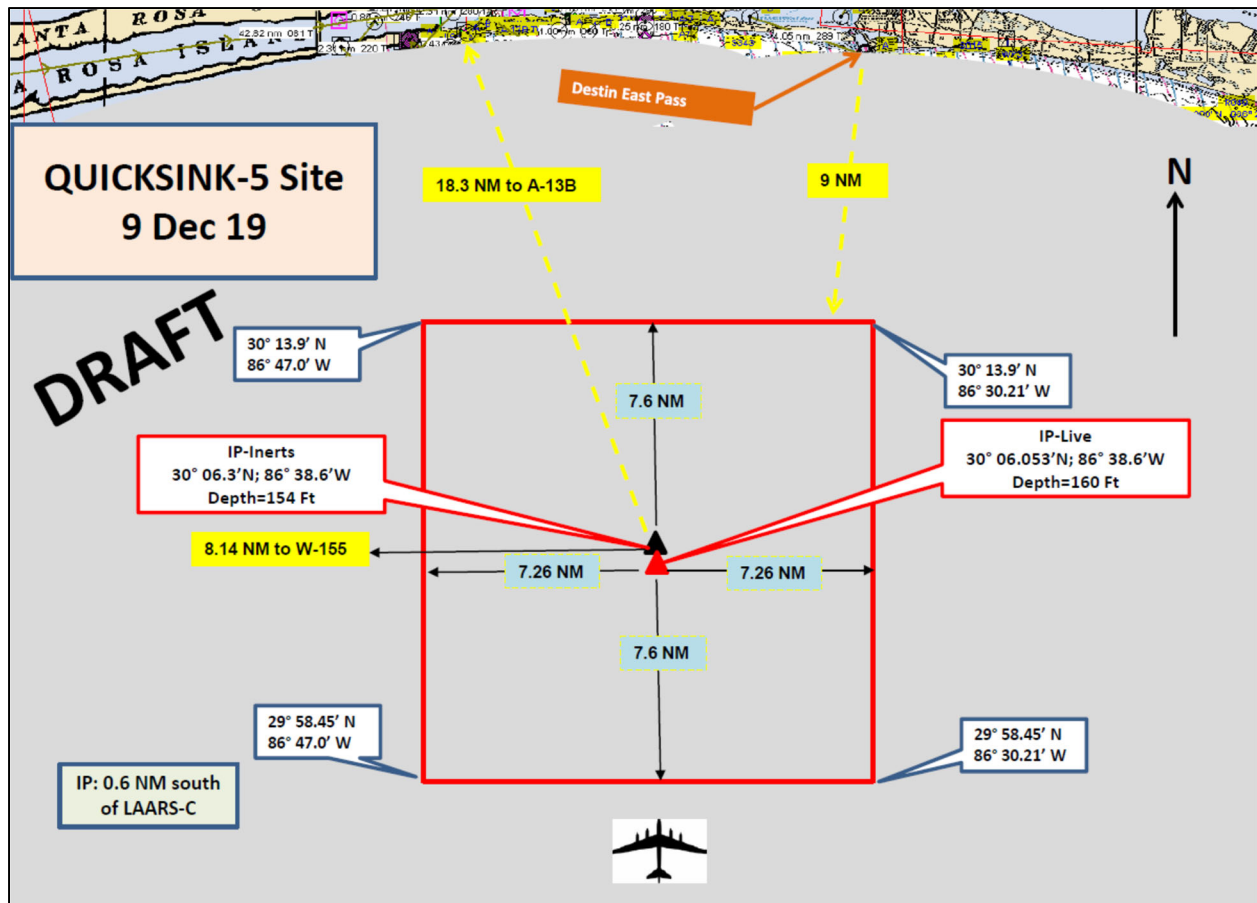


Figure 3-3. 780 TS Quicksink Mission Set-Up

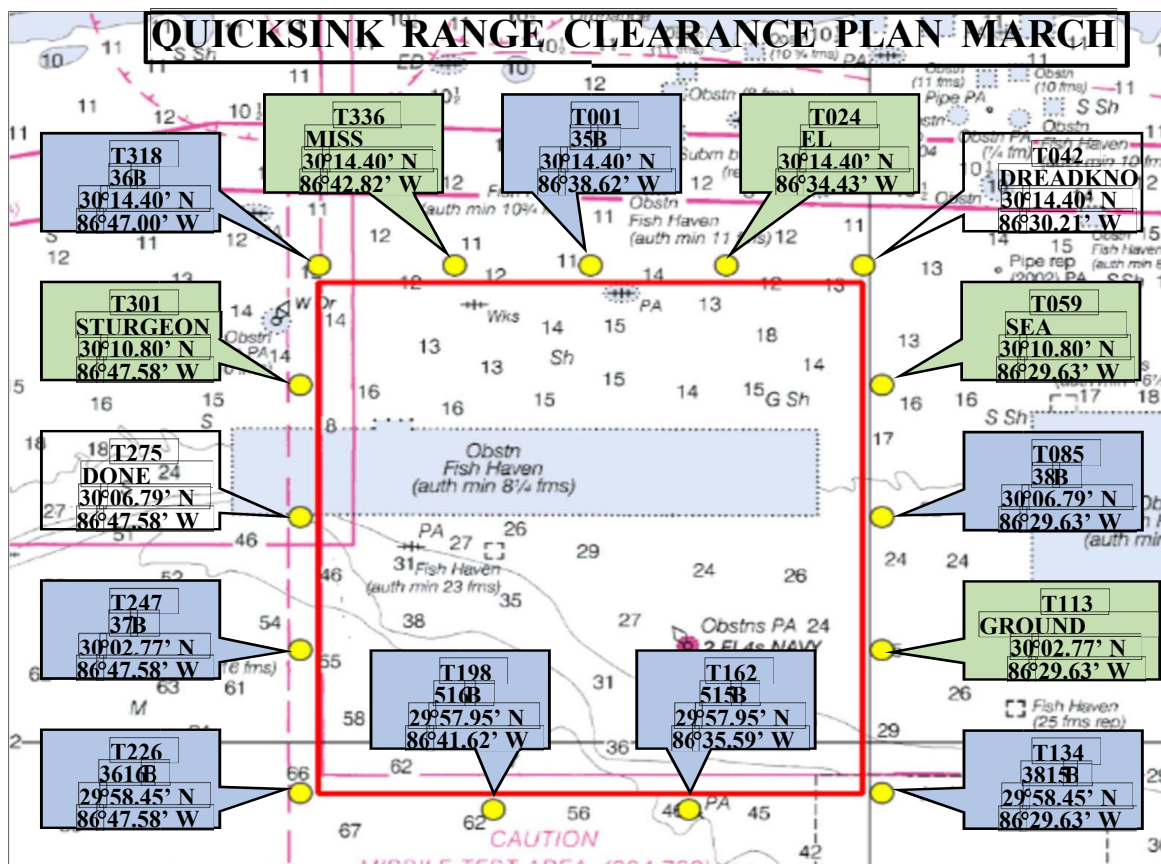


Figure 3-4. Human Safety Zone for Quicksink Mission

### 3.2 Mitigation and Monitoring Requirements

Table 3-1 lists the Mission Category Days for the weapons proposed to be released by the 780 TS in the EGTTT LOA application. The Table also includes Mission Category Day “A” in the LOA used to account for the two GBU-31s released by the 780<sup>th</sup> TS for the Quicksink mission and Mission Category Day “S” for the 96 OG Future Missions group to account for the Hellfire allocation used by the 780<sup>th</sup> TS.

Table 3-1. 780 TS Weapons Testing Mission Category Days

Mission Category Day	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
A <sup>d</sup>	GBU-10/-24/-31	945	Subsurface <sup>c</sup>	1	2	2
	GBU-49	300	Surface	2		4
	AGM-158 (JASSM)	240	Surface	2		4
	GBU-12/-54 (LJDAM)/-38/-32 (JDAM)	192	Subsurface <sup>c</sup>	5		10
M	AGM-158 (JASSM)	240	Surface	2	1	2
N	GBU-39 (SDB I)	37	Surface	2	1	2
	GBU-39 (SDB I) Double Shot <sup>a</sup>	74	Surface	2		2
O	GBU-53 (SDB II)	22.84	Surface	2	1	2
P	JAGM	27.41	Surface	1	1	1

Q	Inert LSDB & SDB II GTV (fuse only)	0.4	Surface	2	4	8
S <sup>b</sup>	AGM-114 (Hellfire)	29	Subsurface <sup>c</sup>	10	2	20

AGM = Air-To-Ground Missile; GBU = Guided Bomb Unit; GTV = Guided Test Vehicle; JAGM = Joint Air-to-Ground Missile; JASSM = Joint Air-To-Surface Standoff Missile; lbs = pounds; LSDB = Laser Small Diameter Bomb; SDB = Small Diameter Bomb

<sup>a</sup>NEW is doubled for each simultaneous launch

<sup>b</sup> Mission Category Day “S” used for Hellfire release, transferred from 96 OG Future Missions

<sup>c</sup>Subsurface detonations occur at 10 feet water depth

<sup>d</sup> Mission Category Day “A” used for GBU-31 releases, transferred from 86 FWS user group

Table 3-2 shows the ranges to effects for the various thresholds under each of the above scenarios, also mentioned in the LOA. These distances were used to determine the radius of the area to be monitored during pre- and post-mission surveys.

**Table 3-2. Distance in kilometers to NMFS Harassment Thresholds for Marine Mammals**

Table 3-2. Distance in Nautical Miles to NMFS Harassment Thresholds for Marine Mammals								
Mission Category Day	Mortality	Level A Harassment				Level B Harassment		
	Modified Goertner Model 1	Slight Lung Injury	GI Tract Injury	PTS		TTS		Behavioral
		Modified Goertner Model 2	237 dB SPL	185 dB SEL	230 dB Peak SPL	170 dB SEL	224 dB Peak SPL	165 dB SEL
Bottlenose Dolphin								
A	0.427	0.768	0.348	1.039	0.705	5.001	1.302	8.155
M	0.12	0.249	0.22	0.211	0.447	0.761	0.825	1.123
N	0.076	0.168	0.149	0.202	0.302	0.671	0.557	0.982
O	0.047	0.107	0.101	0.136	0.204	0.432	0.376	0.64
Q	0.007	0.016	0.026	0.073	0.053	0.149	0.098	0.207
S	0.142	0.286	0.156	0.692	0.317	3.941	0.585	5.132
Atlantic Spotted Dolphin								
A	0.504	0.886	0.348	1.039	0.705	5.001	1.302	8.155
M	0.15	0.29	0.22	0.211	0.447	0.761	0.825	1.123
N	0.096	0.201	0.149	0.202	0.302	0.671	0.557	0.982
O	0.06	0.131	0.101	0.136	0.204	0.432	0.376	0.64
Q	0.009	0.02	0.026	0.073	0.053	0.149	0.098	0.207
S	0.172	0.336	0.156	0.692	0.317	3.941	0.585	5.132

<sup>1</sup> Positive impulse metric from the Goertner mortality model equation that uses the mass of a newborn calf of affected species

<sup>2</sup> Positive impulse metric from the Goertner injury model equation that uses the mass of a newborn calf of affected species

<sup>3</sup> Peak pressure metric of 237 dB re 1  $\mu$ Pa (unweighted SPL)

<sup>4</sup> These thresholds use dual criteria, one based on cumulative weighted SEL and one based on peak unweighted SPL. SEL metric was used because the distance was larger than SPL.

<sup>5</sup> Weighted SEL metric of 185 dB re 1  $\mu$ Pa<sup>2</sup>·s

<sup>6</sup> Weighted SEL metric of 170 dB re 1  $\mu$ Pa<sup>2</sup>·s

<sup>7</sup> Weighted SEL metric of 165 dB re 1  $\mu$ Pa<sup>2</sup>·s

ASD = Atlantic spotted dolphin; BND = bottlenose dolphin; dB re 1  $\mu$ Pa = decibels referenced to 1 micropascal; dB re 1  $\mu$ Pa<sup>2</sup>·s = decibels referenced to 1 micropascal-squared second; GI = gastrointestinal; NMFS = National Marine Fisheries Service; PTS = permanent threshold shift; SEL = sound exposure level; SPL = sound pressure level; TTS = temporary threshold shift.

Table 3-3 presents the ranges to effect from GBU-31 and Hellfire detonations for the various NMFS acoustic thresholds for sea turtles. It is an excerpt from Table 20 of the PBO.

**Table 3-3. Distance in Meters to NMFS Acoustic Thresholds for Sea Turtles**

Munition	NEW (lbs)	Detonation Scenario	Mortality and Serious Injury	Impairment	Disturbance	Behavioral Response
GBU-10/-24/-31	945	Surface	770	1,280	2,509	199,323
		Subsurface	771	1,281	2,509	199,323
AGM-114 (Hellfire)	29	Surface	211	352	692	54,942
		Subsurface	213	354	694	55,145

AGM = air-to-ground missile; GBU = guided bomb unit; lbs = pounds; NEW = net explosive weight

For any mission involving live munitions other than gunnery rounds, an area extending out to the Atlantic spotted dolphin Level A/PTS Harassment range for the corresponding mission-day scenario will be completely cleared of marine mammals prior to release of the first live ordnance. The rationale for using Level A/PTS threshold distances to effect for establishing the survey area is provided in the LOA request.

For the Hellfire mission, Mission Category Day “S” was used to determine the radius of the area to be surveyed since the 780 TS proposed to release five AGM-114 Hellfire missiles. This Mission Category Day accounts for up to 10 Hellfire missiles per day with a NEW of 29.0 lbs. To simplify planning and implementation of requirements, the Atlantic spotted dolphin Level A Harassment threshold (0.692 km) was selected. Eglin NRO biologists doubled the Level A/PTS (0.692 x 2) = 1.384 km radius (0.75 NM) to account for animals that could swim into the ZOI after surveys were completed. Given the relatively small size of the survey area, only one boat was used for the surveys, *Ground Control*.

Based on the proposed munitions to be expended for the Quicksink mission, Mission Category Day “A” was used to determine the radius of the area to be surveyed. The 780 TS proposed to release four inert (not analyzed here since they do not detonate) and two live GBU-31s with NEW of 945 lbs. each (a total NEW for both munitions = 1,890 lbs). The total available NEW within Mission Category Day “A” is 2,985 lbs. Eglin NRO was able to informally consult with NMFS and re-interpret Mission Category Day “A” in the LOA to count two GBU-31s, with one of the two substituting for its equivalent NEW among the 2,040 lbs NEW “available” from other remaining non-GBU-31 munitions listed under Category A. To simplify planning and implementation requirements, the Atlantic spotted dolphin Level A/PTS radius distance for Scenario “A” was selected. This resulted in a radius of 1.039 km (0.56 NM). Additionally, Eglin NRO biologists included a buffer around the survey area that extended out to the Atlantic spotted dolphin Level B/TTS Harassment range to account for any delay in missions due to survey platforms evacuating the human safety zone after pre-mission surveys were completed. This



#### *3.3.1.1.2 Mission Results*

No weapons were released due to technical difficulties with aircraft and equipment and 780 TS ran out of range time. Live video feed from the camera boat was monitored by observer at A-5. No protected marine species were observed. Range time ended at 2:40 PM.

#### *3.3.1.1.3 Post-Mission Survey Results*

Since no weapons were released, a post-mission survey was not required.

#### *3.3.1.1.4 Take Analysis*

No takes occurred during this mission day because no weapons were released.

### **3.3.1.2 Friday 28 February 2020**

The mission setup for this day's mission was identical to the mission day on February 25, 2020.

#### *3.3.1.2.1 Pre-Mission Survey Results*

*Ground Control* left the dock at 5:00 AM and transited to the survey start point location. Weather and sea-state conditions were good with 2 ft seas and no white caps. Visibility was around 400 m. Pre-mission survey began at 6:30 AM and was completed at 7:20 AM. Refer to Figure 3-5 for the trackline of the survey area. The area was covered thoroughly with a marine observer at the top of the boat tower. No protected marine species were sighted during the pre-mission survey.

#### *3.3.1.2.2 Mission Results*

Two weapons were released on this mission day. The first (a surface shot), was released at 9:10:59 AM and detonated at 9:11:39 AM. The second (a surface shot), was released at 12:01:24 PM and detonated at 12:01:39 PM. No other weapons were released on this day. Mission was complete at 12:05 PM.

#### *3.3.1.2.3 Post-Mission Survey Results*

The post-mission survey began at 12:45 PM and ended at 1:25 PM. Visibility was good. No protected marine species were observed.

#### *3.3.1.2.4 Take Analysis*

No protected species were observed during the pre-mission survey, mission, or post-mission survey. Therefore, Eglin NRO concludes that no takes occurred during this mission day.

### **3.3.1.3 Saturday 29 February 2020**

The mission setup for this day's mission was identical to the previous day.

#### *3.3.1.3.1 Pre-Mission Survey Results*

*Ground Control* left the dock at 5:00 AM and transited to the survey location. Weather and sea-state conditions were fair with 2-4 ft seas and marginal visibility at around 250 m. Pre-mission survey began at 6:20 AM and ended at 7:35 AM. Refer to Figure 3-5 for the trackline of the survey

area. The area was covered thoroughly with a marine observer at the top of the boat tower. No protected marine species were observed.

#### 3.3.1.3.2 Mission Results

Two weapons were released on this mission day. The first (a surface shot), was released at 11:46:00 AM and detonated at 11:46:59 AM. The second (a surface shot), was released around 2:00 PM, however telemetry of the weapon was lost and mission engineers could not track it as it approached the ZOI. Live video was streaming from two camera boats and one camera on the GRATV barge. An impact or detonation was not captured by any of the cameras or observed by mission engineers or the Eglin NRO representative who was monitoring. Mission personnel concluded that second weapon failed to detonate and no other weapons were released on this day. The mission ended at 2:20 PM.

#### 3.3.1.3.3 Post-Mission Survey Results

The post-mission survey began at 3:40 PM and ended at 4:15 PM, at the earliest possible moment following the second release once mission and safety personnel determined it unlikely a detonation to have occurred or would occur, and the weapon irretrievable. No protected marine species were observed.

#### 3.3.1.3.4 Take Analysis

No protected species were observed during the pre-mission or post-mission surveys; however, one sea turtle was observed by survey boat *Ground Control* before the first release while on guard duty at the safety perimeter. Considering the safety perimeter is well away from the active mission area and ZOIs, Eglin NRO does not consider this observation as take. Table 3-4 presents the observation information below.

**Table 3-4. During Mission Observation Results**

#	Time	Vessel	Sighting	Location	Resolution
1	10:50 AM	<i>Ground Control</i>	(1) Sea Turtle	30° 12.76' N -86° 42.65' W	Vessel made note of the sea turtle observation; no action was taken since turtle was at the safety perimeter and well outside of the ZOI.

#### 3.3.1.4 Sunday 1 March 2020

The mission setup for this day's mission was identical to the previous day.

##### 3.3.1.4.1 Pre-Mission Survey Results

*Ground Control* left the dock at 6:00 AM and transited to the survey location. Weather and sea-state conditions were excellent with 1-2 ft seas and visibility at around 400+ meters. Pre-mission

survey began at 7:30 AM and ended at 8:30 AM. Refer to Figure 3-5 for the trackline of the survey area. The area was covered thoroughly with a marine observer at the top of the boat tower. No protected marine species were observed.

#### *3.3.1.4.2 Mission Results*

One weapon was released on this mission day. An Eglin NRO observer was unable to monitor live video feed at building A-5 on this day due to a schedule conflict, however two other Eglin NRO observers were able to conduct the pre-mission survey in the field. Since an observer was unable to be present to monitor live video feed, Eglin NRO coordinated with the mission engineer, to have other mission staff monitor the live video feed from building A-5. Mission engineers and staff were briefed on protected marine species and indicators to monitor the live video feed for the presence of species. The weapon (a surface shot) was released and detonated at 10:00 AM. The mission was complete at 10:10 AM. No protected marine species were observed.

#### *3.3.1.4.3 Post-Mission Survey Results*

The two Eglin NRO observers who performed the pre-mission survey and guard duty at the safety perimeter were unable to conduct the post-mission survey due to dangerously low boat fuel levels from the previous mission day (Saturday). The observers were unable to fuel up the boat the previous day due to returning back late from the mission (after post-mission survey was complete) and the marina fueling stations being closed. Eglin NRO was able to coordinate with S Marine Operations (mission support staff) who conducts post-mission surveys with the Eglin Explosive Ordnance Disposal (EOD) team to monitor the survey area for protected marine species. Marine Operations and EOD were briefed on what to look for and conducted the post-mission survey. The post-mission survey began at 10:30 AM and ended at 11:30 AM. Once they arrived at the target area, they extinguished a fire on one of the target boats and then surveyed the area for protected marine species. No protected marine species were observed.

#### *3.3.1.4.4 Take Analysis*

No protected species were observed during the pre-mission survey, mission, or post-mission survey. Eglin NRO concludes that no takes occurred during this mission day.

### **3.3.2 JDAM/Quicksink Mission**

This 780 TS test mission deployed four inert and two live GBU-31 JDAMs at static targets (boats). Four inert JDAMs and two live JDAMs were proposed for release on the same day. All were surface detonations. The GRATV instrumentation barge was not used during this mission. All live video feed was streamed from stationed camera boats on-site.

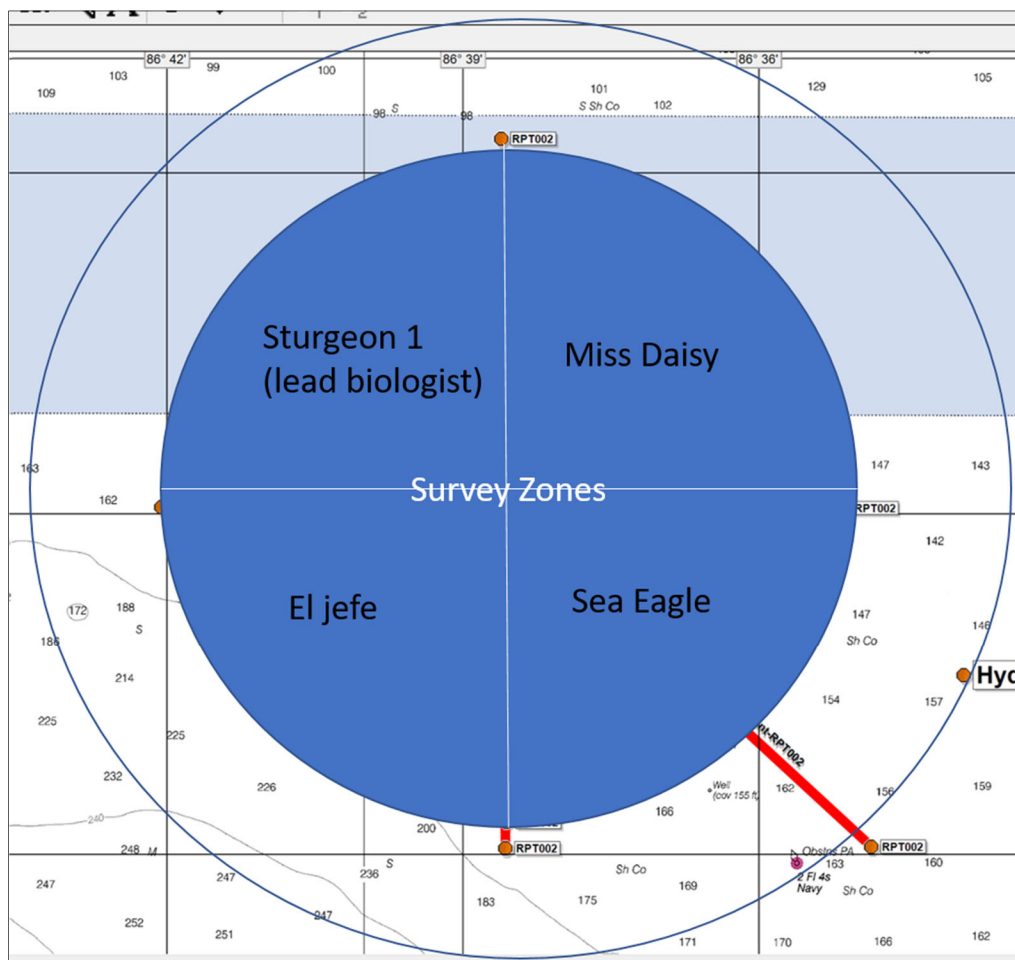
#### **3.3.2.1 Monday 16 March 2020**

##### *3.3.2.1.1 Pre-Mission Survey Results*

Survey boats *Sturgeon* (aka “*Sturgeon 1*”), *El Jefe*, *Sea Eagle* and *Miss Daisy* left the Destin Pass at 6:30 AM and arrived at the survey location at 7:15 AM. Weather and sea-state conditions were excellent with 1 ft seas and visibility of 400+ m. The four survey boats conducted pre-mission surveys in their corresponding quadrants starting at 7:15 AM. Figure 3-6 shows the quadrants



assigned to each survey boat. Two sightings were reported during the survey, which are listed in Table 3-5.



**Figure 3-6. Survey Quadrants for Quicksink Mission**

**Table 3-5. Pre-Mission Survey Results from Quicksink Mission**

#	Time	Vessel	Sighting	Location	Resolution
1	7:15 AM	<i>Sturgeon 1</i>	(4) Bottlenose Dolphins	30° 07.112 N -86° 37.471 W	Dolphins were observed heading west at 10-15 knots away from the ZOI. Biologists monitored the pod for an additional 5 minutes until they cleared the ZOI.
2	7:30 AM	<i>El Hefe</i>	(1) Sea Turtle	30° 07.5 N -86° 37.471 W	Sea turtle dove down once sighted.

					Biologists monitored area for an additional 10 minutes before resuming survey. Sea turtle was not observed again.
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### 3.3.2.1.2 Mission Results

The Eglin NRO representative arrived at the CCF at 8:45 AM to begin monitoring the live camera feed for protected marine species. Video feed for the four inert shots was considered “unclassified” and the Eglin NRO representative was able to monitor for protected marine species; however due to the sensitive nature of the video feed for the two live weapon releases, the Eglin NRO representative had to leave the room. The first inert weapon was released at 10:58:50 AM and intercepted the surface of the water at 10:59:30 AM. The second inert weapon was released at 11:11:00 AM and intercepted the surface of the water at 11:12:58 AM. The third inert weapon was released at 11:20:47 AM and intercepted the surface of the water at 11:21:29 AM. The fourth and final inert weapon was released at 11:29:11 AM and intercepted the surface of the water at 11:29:50 AM. The next two live weapons deliveries and the video feed were considered too sensitive to be attended by NRO observer. Mission engineers at CCF were able to monitor for protected marine species in the place of the Eglin NRO representative and take note of the time that the two live weapons detonated. The first live weapon detonated at 11:34 AM. The second and final live weapon detonated at 11:46 AM. The mission was completed at 11:48 AM.

### 3.3.2.1.3 Post-Mission Survey Results

The post-mission survey began at 12:15 PM and ended at 1:30 PM. Eight other Air Force Marine Operations boats were also scouring the area. No protected marine species were observed.

### 3.3.2.1.4 Take Analysis

Protected marine species were observed near the mission area, as evidenced by the sightings recorded during the pre-mission survey. However, biologists conducting the surveys ensured the animals were outside the ZOI swimming away from the mission area prior to concluding the survey and determining the range was clear. No additional protected species were observed during the mission or the post-mission surveys. Therefore, Eglin NRO concludes that no takes occurred during this mission day.

## 3.4 780 TS Mission Summary

Table 3-6 summarizes 780 TS expenditures during the 2020 calendar year and compares it with the annual allocations covered under the existing LOA and BO.. .

**Table 3-6. Comparison of Permitted vs. Actual Level of 780 TS Mission Activities**

Weapons <sup>a</sup>	Mission Category Day	Total Munitions per Year	Actual Munitions	Unused Munitions in 2020
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			Released in 2020	
<b>JDAM (GBU-31)<sup>b</sup></b>	A	20	2	18
<b>Hellfire (AGM-114)<sup>c</sup></b>	S	20	5	15

<sup>a</sup> This table is representative of live detonations only; inert detonations are not included

<sup>b</sup> This table displays the summation of the total available munitions per year from Mission Category Day A

<sup>c</sup> Total annual allotments for Hellfire (AGM-114) from the 96 OG Future Missions Group – 780<sup>th</sup> TS used 5 allotments

780 TS missions and weapon releases did not exceed the total of expenditures authorized in the LOA. Furthermore, no protected species were observed during post-mission surveys after each of the tests. Therefore, Eglin NRO believes no takes of marine mammals or sea turtles occurred as a result from 780 TS mission activities in 2020.

#### 4. 86<sup>th</sup> Fighter Weapons Squadron (86 FWS) – Maritime Weapons Systems Evaluation Program (WSEP)

The 86 FWS did not conduct any live missions over the EGTTT in the calendar year 2020 due to Covid-19-related restrictions. However, please see Eglin’s application of Mission Category Day “A” (from 86 FWS) to previously mentioned 780 TS JDAM mission.

#### 5. 413<sup>th</sup> Flight Test Squadron (413 FLTS)

The 413 FLTS did not conduct any live missions over the EGTTT in calendar year 2020.

#### 6. Summary of all EGTTT Mission Activities

Table 6-1 below summarizes results from protected species surveys and live weapon releases in the EGTTT during calendar year 2020.

**Table 6-1. Summary of Survey Results and Live Weapon Releases in the EGTTT**

Mission Group	Mission Date	Pre-Mission Survey Results		During Mission Survey Results		Live Weapons Releases			Post-Mission Survey Results	
		# MM	# ST	# MM	# ST	Type	NEW	#	# MM	# ST
AFSOC	5/28/20	0	0	0	0	Gunnery	0.1 lbs	120	0	0
						Gunnery	0.35 lbs	30		
	6/18/20	0	0	0	0	Gunnery	0.1 lbs	300	0	0
						Gunnery	4.7 lbs	30		
	7/20/20	0	0	0	0	Gunnery	0.1 lbs	300	0	0
						Gunnery	0.35 lbs	30		
	8/17/20	0	0	0	0	Gunnery	0.1 lbs	300	0	0
						Gunnery	0.35 lbs	30		
	9/9/20	0	0	0	0	Gunnery	0.1 lbs	240	0	0
						Gunnery	0.35 lbs	30		
						Target	0 lbs	6		

	11/24/20	0	0	0	0	Gunnery	0.1 lbs	30	0	0
						Gunnery	0.35 lbs	9		
						Target	0 lbs	1		
780 TS	2/25/20	0	0	0	0	No live weapons were released			N/A	N/A
	2/28/20	0	0	0	0	Missile	29 lbs	2	0	0
	2/29/20	0	0	0	1	Missile	29 lbs	2	0	0
	3/1/20	0	0	0	0	Missile	29 lbs	1	0	0
	3/16/20	4	1	0	0	Missile	945 lbs	2	0	0
<b>Total # species observed</b>		<b>4</b>	<b>1</b>	<b>0</b>	<b>1</b>				<b>0</b>	<b>0</b>

# = number; AFSOC = Air Force Special Operations Command; AGM = air-to-ground missile; FWS = Fighter Weapons Squadron; JAGM = Joint Air-to-Ground Missile; lbs = pounds; MM = marine mammals; N/A = not applicable; NEW = net explosive weight; ST = sea turtles; TS = Test Squadron; Unk. = unknown

## 7. Effectiveness of Mitigation and Monitoring Requirements

The mitigation and monitoring methods authorized by NMFS were successfully implemented in support of EGTTR mission activities. In cases where protected species were observed, Eglin NRO believes all reasonable measures were taken to ensure sighted animals would not be exposed to acoustic levels resulting in mortality or physical injury thresholds during live weapon releases. Continuing to use the same marine species observers for vessel-based surveys has likely increased the reliability of sightings data as boat captains and observers are expected to have improved their surveying techniques over the last five years.

Eglin NRO notes the exceptional results of the 29 February mission during which impact or detonation for one Hellfire was not detected. At that time, otherwise-conservative pre- and post-mission vessel-based monitoring, as well as wide field-of-view video monitoring during-mission, could not accommodate such an unpredictable result. Eglin NRO believes this scenario is impossible to prepare for and consult on. However, mission personnel and Eglin NRO implemented what mitigation actions they could in realtime, and used the best available information before, during, and after the release to infer what we could about protected species take as confidently as possible.

Video monitoring in CCF and in buildings A-5 was accomplished for four live mission days, all of which were 780 TS tests. Eglin NRO plans to incorporate video monitoring for all future EGTTR live missions when operationally feasible. Eglin NRO will reach out to AFSOC and the 413 FLTS to ensure the aircrews are using the most updated version of the mission reporting forms for future mission activities. Implementing these improvements in the monitoring requirements will further increase Eglin's effectiveness in protecting marine mammals and sea turtles during live weapon missions in the EGTTR.

## 8. Protected Species Stranding Reports

As part of Eglin NRO's marine mitigation program, protected marine species strandings are reviewed and analyzed for potential correlation to missions. This section will focus on the marine mammal and sea turtle strandings that occurred on Eglin AFB property during calendar year 2020.

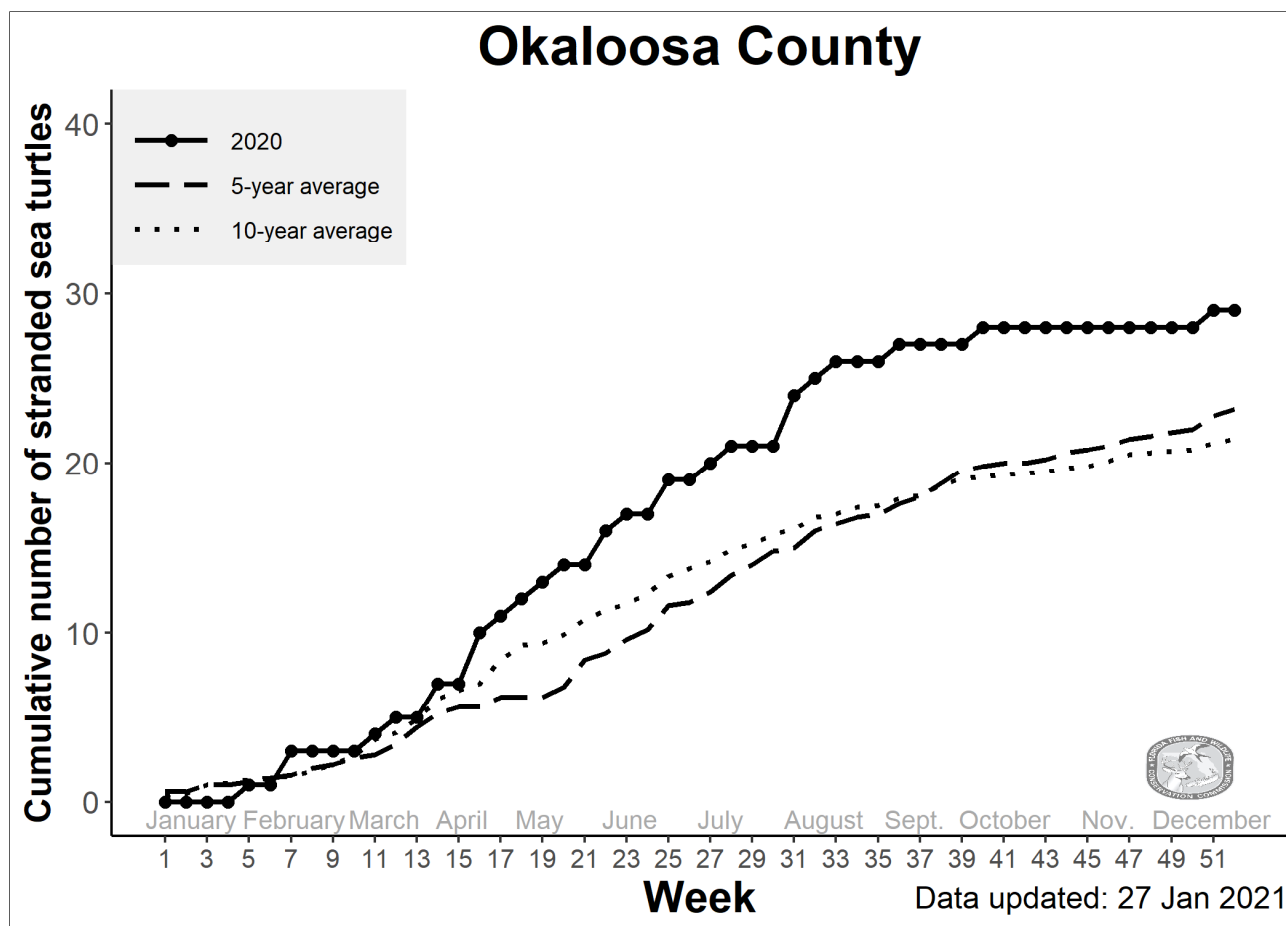
**Table 8-1. 2020 Marine Mammal Stranding Records**

<b>Date</b>	<b># of Animals</b>	<b>Species</b>	<b>Location Found</b>	<b>Condition of the Animal(s)</b>
6/15/20	1	West Indian Manatee	Sound side of Santa Rosa Island near Building A-12	Carcass was found in a mildly decomposed state; no injuries or abnormalities observed.
8/14/20	1	Atlantic Spotted Dolphin	Gulf side of Santa Rosa Island near Test Site A-13	Carcass was found in a moderate to severely decomposed state. Emerald Coast Wildlife Refuge (ECWR) performed a necropsy of the carcass. A pre-mortem break of the lower right mandible was noted as well as post-mortem shark predation

Two marine mammal strandings occurred on Eglin AFB property during the calendar year 2020. Information on each of these strandings is presented in Table 8-1. This manatee stranded on the sound side of Santa Rosa Island on Eglin AFB property 17 days after a live AFSOC mission. No other missions were being conducted in the EGTTTR at that time. Considering the mildly decomposed state of the carcass, it is highly unlikely that this stranding was related to EGTTTR live mission activities. Furthermore, manatees generally occupy nearshore habitats, so the chance that one would be far enough offshore to be impacted by live mission activities would be negligible (see off-shore target location coordinates for 28 May mission, Appendix A). Therefore, Eglin NRO concludes that this stranding was not related to EGTTTR live mission activities. The Atlantic spotted dolphin stranding that occurred in August was 25 days after a live AFSOC mission (July 20, 2020). No other live missions were being conducted in the EGTTTR at that time. Considering the elapsed time between the last mission and the date the animal stranded, it is highly unlikely it was related to EGTTTR live mission activities. Therefore, Eglin NRO concludes that this stranding was not related to EGTTTR live mission activities. (Eglin NRO reached out to the stranding coordinator at Emerald Coast Wildlife Refuge regarding the rate of decomposition of these animals. The coordinator indicated that the condition of both animals along with the warmer summer temperatures would lead them to likely conclude that both of these animals had been dead for a week or less.)

According to the Florida Sea Turtle Stranding and Salvage Network (FLSTSSN) data shown in Figure 8-1, 29 sea turtle strandings (4 from Eglin AFB) were reported in Okaloosa County in 2020,

including 13 loggerheads, 11 green, 1 leatherback, and 4 Kemp’s ridley turtles (FLSTSSN, 2021). Data for 2020 show that strandings were above the 5- and 10-year averages.



**Figure 8-1. Cumulative Numbers of Stranded Sea Turtles in Okaloosa County during 2020 (Ongoing) and the Previous 5-year and 10-year Averages**  
Source: (FLSTSSN, 2021)

Specifically for Eglin AFB property in 2020, four turtles were found stranded on Eglin’s property on SRI (Okaloosa County) and no turtles were found stranded on Eglin’s property in Cape San Blas off St. Joseph Bay (Gulf County). These four individuals are included as part of the total strandings for Okaloosa County in 2020. Information on each of these strandings is presented in Table 8-2.

**Table 8-2. 2020 Sea Turtle Stranding Records for Eglin AFB**

Date	# of Animals	Species	Location Found	Condition of the Animal(s)
3/2/2020	2	Unknown	Restricted access portion of Eglin AFB on Santa Rosa Island	Severely decomposed carcass with a small amount of connective tissue holding together a partial section of the skeleton. Carcass was wrapped up in several pieces of monofilament and braided fishing line.

Date	# of Animals	Species	Location Found	Condition of the Animal(s)
		Loggerhead		Severely decomposed carcass with a small amount of connective tissue holding together a partial section of the skeleton.
6/20/2020	1	Green	Approximately 1 mile east of Beasley Park on Eglin AFB public beach	Severely decomposed carcass with some soft tissue still intact. No external injuries or abnormalities observed.
7/3/2020	1	Green	In front of Eglin AFB Test Site A-6 on restricted beach	Mildly decomposed carcass with soft tissue still intact. Carcass was missing head. No other external injuries or abnormalities observed.

The loggerhead and unknown sea turtle species strandings that occurred on March 2, 2020 were three days after the 780TSHellfire mission (February 28 – March 1) where live weapons were released. However, due to the severe decomposition of both carcasses and the short amount of time between the mission and strandings (3 days), Eglin NRO believes the strandings are not related to EGTTTR live mission activities. The green turtle stranding that occurred on June 2, 2020 was two days after an AFSOC live mission that occurred on June 18, 2020. Judging from the severely decomposed state of the green turtle carcass along with the fact that no external injuries or abnormalities were found, Eglin NRO believes this stranding was also not related to EGTTTR live mission activities. Finally, the green turtle stranding that occurred at the beginning of July was well after the AFSOC mission that occurred on June 18, 2020. Considering the green turtle carcass was only mildly decomposed with soft tissue still intact and found 15 days after the AFSOC live gunnery mission, Eglin NRO concludes that this stranding was also not related to EGTTTR live mission activities.

## 9. Conclusion

No additional impacts to protected species have been reported since the missions were completed on November 24, 2020. Eglin NRO believes this document fulfills the reporting requirements outlined in the LOA and PBO, the findings of which indicate Eglin successfully implemented mitigation and monitoring requirements. Please direct questions to Rodney Felix, Endangered Species Biologist, Eglin Natural Resources Office, (850) 883-1153 or (850) 951-3713, [rodney.felix.1@us.af.mil](mailto:rodney.felix.1@us.af.mil).

## 10. References

FLSTSSN. (2020). *Current Information on Stranded Sea Turtles in Florida*. Retrieved February 16, 2021, from Florida Sea Turtle Stranding and Salvage Network: <http://ocean.floridamarine.org/seaturtle/flstssn/cOkaloosa.html>



## 11. Signatures

### 2020 Annual Report on EGTTR Mission Activities

#### Final Report

#### Eglin Air Force Base, Florida

Prepared by:

\_\_\_\_\_  
Brail Stephens  
Marine Scientist  
Eglin Natural Resources/Jacobs Engineering

\_\_\_\_\_  
Date

Reviewed by:

\_\_\_\_\_  
Rodney Felix  
Endangered Species Biologist  
Eglin Natural Resources Office

\_\_\_\_\_  
Date

\_\_\_\_\_  
Justin Johnson  
Supervisory Biologist  
Eglin Natural Resources Office

\_\_\_\_\_  
Date

\_\_\_\_\_  
Bruce Hagedorn  
Chief  
Eglin Natural Resources Office

\_\_\_\_\_  
Date

## **Appendix A**

### **Protected Species Observer Report Forms**

Geist 91 Protected Species Observer Report - 28 May 2020

LEWIS, DUSTIN S Capt USAF AFSOC 4 SOS/DOFG <dustin.lewis.5@us.af.mil>

Fri 5/29/2020 9:57 AM

To: STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA <brail.stephens.1.ctr@us.af.mil>

Good morning,

Due to server issues in the squadron I am unable to access the Protected Species Form, but below is the relevant information from GE91's sortie yesterday.

Date: 28 May 2020

Observer Name: Dustin Lewis

Organization: 19 SOS

Mission Description: AC-130J Live Fire training on W-151

Mission Location: N29-47.66/W086-39.04

# of rounds uses: 120 x 30mm and 30 x 105mm Training Rounds

Were any protected species or indicators observed while enroute?: No

Arrival Time at Site: 1345L

Sea State: 1

Pre-Mission Survey: Start time 1345 End time 1400

Were any protected species observed?: No

Mission Times: Start 1400 End 1430

Were any protected species observed?: No

Post-Mission Survey: Start 1430 End 1445

Were any protected species observed?: No

I certify that: 1) I have successfully completed the Marine Species Observer Training course within the last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Capt Dustin Lewis

29 May 2020

<https://webmail.apps.mil/mail/inbox/id/AAQkAGViNmMzM2JLTJINTtNDIkNS04ZjIwL...> 6/3/2020

\*NOTE: OBSERVER WAS UNABLE TO ACCESS PROTECTED MARINE SPECIES FORM TO FILL IN SURVEY INFORMATION, SO HE SENT EGLIN NRO THE REQUIRED INFORMATION VIA EMAIL. SEE ABOVE RESPONSE.

### PROTECTED SPECIES OBSERVER REPORT FORM

**\*Use a separate form for each mission day\***

**\*\*Complete this section regardless of whether or not protected species are sighted\*\***

Date: 6/18/202	Observer Name: Maj Boone	Organization: 4 SOS
Mission Description: LF W151 A2 & A4		
Mission Location: Latitude: Longitude:		
# of rounds used (enter for all that apply): 25 mm 40 mm 30 105 mm Full Up 105 mm Training Round 300 30 mm Other (please specify):		
Were any protected species or indicators observed while en route*? Y N		
Arrival Time (Local) at Site: Sea State(see chart below):		
Pre-Mission Survey: Start time (Local): 1600 End time (Local): 1610		
Were any protected species or indicators observed*? No		
Mission Times: Start time (Local): 1530 End time (Local): 1830		
Were any protected species or indicators observed*? No		
Post-Mission Survey: Start time (Local): 1830 End time (Local): 1835		
Were any protected species or indicators observed*? No		
If the mission was cancelled due to environmental concerns, please state the reason(s):		

\*If "Yes", complete the following section for each sighting that was observed.

To report a dead or injured protected animal:

Daytime Missions POC: Rodney Felix: 883-1153 or Brail Stephens: 882-8433

Nighttime Missions POC: Justin Johnson: 978-3251 or Bruce Hagedorn: 902-6004

#### Sea State Scale for Marine Mammal and Sea Turtle Observation

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

Sign and submit this completed form and sighting information to Eglin Natural Resources within 48 hours after completion of the mission.

POC: Brail Stephens: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil); 882-8433

By electronically signing this form, I certify that: 1) I have successfully completed the Marine Species Observer Training course within that last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Signature: BOONE.NATHAN.1105760074

Digitally signed by BOONE.NATHAN.1105760074  
Date: 2020.06.18 23:33:53 -0500

Date: 6/18/202

**\*NOTE:** OBSERVER OMITTED THE FOLLOWING FROM REPORT: LATITUDE/LONGITUDE, SEA STATE, ARRIVAL TIME, AND IF PROTECTED SPECIES WERE OBSERVED WHILE ENROUTE. EGLIN NRO ATTEMPTED TO REACH OUT TO OBSERVER ON 6/19/20 FOR ADDITIONAL INFORMATION, BUT DID NOT RECEIVE A RESPONSE.

**PROTECTED SPECIES OBSERVER REPORT FORM**

**\*Use a separate form for each mission day\***

**\*\*Complete this section regardless of whether or not protected species are sighted\*\***

Date: 202007	Observer Name: Maj Riester	Organization: 4 SOS
Mission Description: W151 Towed Target		
Mission Location: Latitude: N30 Longitude: 86.86W		
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 30 105 mm Training Round 300 30 mm Other (please specify):		
Were any protected species or indicators observed while en route*? <input checked="" type="checkbox"/> N		
Arrival Time (Local) at Site: Sea State(see chart below):		
Pre-Mission Survey: Start time (Local): 1815 End time (Local): 1830		
Were any protected species or indicators observed*? No		
Mission Times: Start time (Local): 1830 End time (Local): 2000		
Were any protected species or indicators observed*? No		
Post-Mission Survey: Start time (Local): 2015 End time (Local): 2030		
Were any protected species or indicators observed*? No		
If the mission was cancelled due to environmental concerns, please state the reason(s):		

\*If "Yes", complete the following section for each sighting that was observed.

To report a dead or injured protected animal:

**Daytime Missions POC: Rodney Felix: 883-1153 or Brail Stephens: 882-8433**

**Nighttime Missions POC: Justin Johnson: 978-3251 or Bruce Hagedorn: 902-6004**

**Sea State Scale for Marine Mammal and Sea Turtle Observation**

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

Sign and submit this completed form and sighting information to Eglin Natural Resources  
within 48 hours after completion of the mission.

POC: Brail Stephens: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil); 882-8433

By electronically signing this form, I certify that: 1) I have successfully completed the Marine Species Observer Training course within that last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Signature: RIESTER,ROBBIN.WILLIAM.1240765981 Digitally signed by RIESTER,ROBBIN.WILLIAM.1240765981  
Date: 2020.07.21 01:02:21 -0500

Date: 202007

**\*NOTE:** OBSERVER OMITTED THE FOLLOWING FROM REPORT: LATITUDE/LONGITUDE, SEA STATE, AND IF PROTECTED SPECIES WERE OBSERVED WHILE ENROUTE. EGLIN NRO EMAILED OBSERVER FOR ADDITIONAL INFORMATION. SEE RESPONSE FROM OBSERVER BELOW.

RE: Spooky 42 LF W151

RIESTER, ROBBIN W Maj USAF AFSOC 4 SOS/ADO <[robbin.riester@us.af.mil](mailto:robbin.riester@us.af.mil)>

Wed 7/22/2020 3:20 PM

To: STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA <[brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)>

Sir,

I apologize for the missing info. The form wasn't cooperating with our version of Adobe. No protected species were observed while en route. Arrival time is the same as pre-mission survey start. Sea state was a 1.

V/R,

Maj Riester

---

From: STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA <[brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)>

Sent: Tuesday, July 21, 2020 11:46 AM

To: RIESTER, ROBBIN W Maj USAF AFSOC 4 SOS/ADO <[robbin.riester@us.af.mil](mailto:robbin.riester@us.af.mil)>

Subject: RE: Spooky 42 LF W151

Sir,

Thank you for submitting your Protected Species Observer Report form. Can you tell me if you observed any protected species while en route to your location? Can you also provide an approximate arrival time (this may be the same time as your pre-mission survey start time), and the sea state (see chart below).

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

.

V/R,

Ms. Brail Stephens

Biologist

Jacobs Engineering Group | Eglin AFB Natural Resources

Office: 850.882.8433 | Mobile: 850.520.0063

Email: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)

---

From: RIESTER, ROBBIN W Maj USAF AFSOC 4 SOS/ADO <[robbin.riester@us.af.mil](mailto:robbin.riester@us.af.mil)>

Sent: Tuesday, July 21, 2020 1:05 AM

To: STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA <[brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)>

<https://webmail.apps.mil/mail/deeplink?version=2020062103.08&popoutv2=1>

7/23/2020



### PROTECTED SPECIES OBSERVER REPORT FORM

**\*Use a separate form for each mission day\***

**\*\*Complete this section regardless of whether or not protected species are sighted\*\***

Date: 17 Aug 20	Observer Name: Zaiser	Organization: 4 SOS
Mission Description: LF with towed targets at W151		
Mission Location: Latitude: W 151 A1/A3 Longitude: W 151 A1/A3		
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 30 105 mm Training Round 300 30 mm Other (please specify):		
Were any protected species or indicators observed while en route*? Y N		
Arrival Time (Local) at Site:		Sea State(see chart below):
Pre-Mission Survey: Start time (Local): 1740 End time (Local): 1750		
Were any protected species or indicators observed*? No		
Mission Times: Start time (Local): 1740 End time (Local): 1850		
Were any protected species or indicators observed*? No		
Post-Mission Survey: Start time (Local): 1850 End time (Local): 1900		
Were any protected species or indicators observed*? No		
If the mission was cancelled due to environmental concerns, please state the reason(s):		

**\*If "Yes", complete the following section for each sighting that was observed.**

**To report a dead or injured protected animal:**

**Daytime Missions POC: Rodney Felix: 883-1153 or Brail Stephens: 882-8433**

**Nighttime Missions POC: Justin Johnson: 978-3251 or Bruce Hagedorn: 902-6004**

#### Sea State Scale for Marine Mammal and Sea Turtle Observation

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

Sign and submit this completed form and sighting information to Eglin Natural Resources within 48 hours after completion of the mission.

POC: Brail Stephens: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil); 882-8433

By electronically signing this form, I certify that: 1) I have successfully completed the Marine Species Observer Training course within that last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Signature: ZAISER.JAMES.AARON.1298787357 Digitally signed by ZAISER.JAMES.AARON.1298787357  
Date: 2020.08.18 00:04:20 -05'00'

Date: 17 Aug 20

**\*NOTE:** OBSERVER OMITTED THE FOLLOWING FROM REPORT: ARRIVAL TIME AND SEA STATE. EGLIN NRO EMAILED OBSERVER FOR ADDITIONAL INFORMATION. SEE RESPONSE FROM OBSERVER BELOW.

**From:** [ZAISER, JAMES A Capt USAF AFSOC 4 SOS/DOXT](#)  
**To:** [STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA](#)  
**Subject:** RE: Report for Spooky42 17 AUG20  
**Date:** Tuesday, August 18, 2020 10:32:23 AM

---

Sorry about that Sir, I was having trouble entering data into those blocks. We arrived at 1740L and departed at 1900L. Sea state was 1.

V/r

Captain Zaiser

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**From:** STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA <brail.stephens.1.ctr@us.af.mil>  
**Sent:** Tuesday, August 18, 2020 9:54 AM  
**To:** ZAISER, JAMES A Capt USAF AFSOC 4 SOS/DOXT <james.zaiser.1@us.af.mil>  
**Subject:** Re: Report for Spooky42 17 AUG20

Sir,

Thank you for sending this report in. I noticed the arrival time and the sea state (the chart is on the form) were not filled in. Can you tell me what those were?

V/R

Brail Stephens  
Biologist  
Jacobs | Eglin Natural Resources  
Office: 850.882.8433 | Mobile: 850.520.0063  
Email: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)

---

**From:** ZAISER, JAMES A Capt USAF AFSOC 4 SOS/DOXT  
**Sent:** Tuesday, August 18, 2020 12:08 AM  
**To:** STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA  
**Cc:** 4 SOS/ADO ADO; 4 SOS/DOO Current Operations  
**Subject:** Report for Spooky42 17 AUG20

See attached.

V/r

Captain Zaiser



### PROTECTED SPECIES OBSERVER REPORT FORM

**\*Use a separate form for each mission day\***

**\*\*Complete this section regardless of whether or not protected species are sighted\*\***

Date: 9/9/20	Observer Name: Capt Bell	Organization: 73 SOS
Mission Description: Live fire W-151A1/A3		
Mission Location: Latitude: Longitude:		
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 30 105 mm Training Round 240 30 mm Other (please specify): 6xMK-25 marker flare		
Were any protected species or indicators observed while en route*? <b>N</b>		
Arrival Time (Local) at Site: 1330 Sea State(see chart below): 2		
Pre-Mission Survey: Start time (Local): 1330 End time (Local): 1340		
Were any protected species or indicators observed*? No		
Mission Times: Start time (Local): 1330 End time (Local): 1500		
Were any protected species or indicators observed*? No		
Post-Mission Survey: Start time (Local): 1450 End time (Local): 1500		
Were any protected species or indicators observed*? No		
If the mission was cancelled due to environmental concerns, please state the reason(s): N/A		

**\*If "Yes", complete the following section for each sighting that was observed.**

**To report a dead or injured protected animal:**

**Daytime Missions POC: Rodney Felix: 883-1153 or Brail Stephens: 882-8433**

**Nighttime Missions POC: Justin Johnson: 978-3251 or Bruce Hagedorn: 902-6004**

#### Sea State Scale for Marine Mammal and Sea Turtle Observation

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

Sign and submit this completed form and sighting information to Eglin Natural Resources within 48 hours after completion of the mission.

POC: Brail Stephens: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil); 882-8433

By electronically signing this form, I certify that: 1) I have successfully completed the Marine Species Observer Training course within that last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Signature: ARTURET.KRISTIAN.DARIUS.1536673551 Digitally signed by ARTURET.KRISTIAN.DARIUS.1536673551  
Date: 2020.09.09 16:26:45 -05'00'

Date: 9/9/20

1

Last updated 6/18/2019

**\*NOTE:** OBSERVER OMITTED THE FOLLOWING FROM REPORT: ARRIVAL TIME AND SEA STATE. EGLIN NRO EMAILED OBSERVER FOR ADDITIONAL INFORMATION. SEE RESPONSE FROM OBSERVER BELOW.

**From:** [BELL, ZACHARY F Capt USAF AFSOC 73 SOS/DOT](#)  
**To:** [STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIA](#)  
**Subject:** RE: Protected Species Observation Report  
**Date:** Thursday, September 10, 2020 5:33:16 PM

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Ms. Stevens,

We were shooting in the vicinity of 30. 03'31N, 86. 39'16W.

If you need anything else from me, please let me know!

V/R  
Capt Zack Bell  
73 SOS/DOT

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**From:** STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIA <[brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)>  
**Sent:** Thursday, September 10, 2020 9:31 AM  
**To:** ARTURET, KRISTIAN D SrA USAF AFSOC 73 SOS/MCC <[kristian.arturet@us.af.mil](mailto:kristian.arturet@us.af.mil)>  
**Cc:** BELL, ZACHARY F Capt USAF AFSOC 73 SOS/DOT <[zachary.bell.3@us.af.mil](mailto:zachary.bell.3@us.af.mil)>  
**Subject:** RE: Protected Species Observation Report

Good Morning,

Thank you for submitting your Protected Species Observer Report Form from your mission. The only item I see that is missing is the mission location latitude/longitude. If you could provide this information, I will add it to your report.

V/R

Ms. Brail Stephens  
Biologist  
Jacobs Engineering Group | Eglin AFB Natural Resources  
Office: 850.882.8433 | Mobile: 850.520.0063  
Email: [brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)

---

**From:** ARTURET, KRISTIAN D SrA USAF AFSOC 73 SOS/MCC <[kristian.arturet@us.af.mil](mailto:kristian.arturet@us.af.mil)>  
**Sent:** Wednesday, September 9, 2020 4:29 PM  
**To:** STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIA <[brail.stephens.1.ctr@us.af.mil](mailto:brail.stephens.1.ctr@us.af.mil)>  
**Cc:** BELL, ZACHARY F Capt USAF AFSOC 73 SOS/DOT <[zachary.bell.3@us.af.mil](mailto:zachary.bell.3@us.af.mil)>  
**Subject:** Protected Species Observation Report

**PROTECTED SPECIES OBSERVER REPORT FORM**

**\*Use a separate form for each mission day\***

**\*\*Complete this section regardless of whether or not protected species are sighted\*\***

<b>Date:</b> 11/24/20	<b>Observer Name:</b> Bryant	<b>Organization:</b> 1 SOW
<b>Mission Description:</b> Live Fire W-151 A2 and A4 blocks at 6000 feet		
<b>Mission Location:</b> Latitude: 29 54.86N Longitude: 86 07.80W		
<b># of rounds used (enter for all that apply):</b> 25 mm 40 mm 105 mm Full Up 9 105 mm Training Round 30 30 mm Other (please specify): MK 25 Marking Flare		
<b>Were any protected species or indicators observed while en route*?</b> No		
<b>Arrival Time (Local) at Site:</b> 1300 <b>Sea State(see chart below):</b> 3		
<b>Pre-Mission Survey:</b> Start time (Local): 1330 End time (Local): 1350		
<b>Were any protected species or indicators observed*?</b> No		
<b>Mission Times:</b> Start time (Local): 1350 End time (Local): 1445		
<b>Were any protected species or indicators observed*?</b> No		
<b>Post-Mission Survey:</b> Start time (Local): 1445 End time (Local): 1500		
<b>Were any protected species or indicators observed*?</b> No		
<b>If the mission was cancelled due to environmental concerns, please state the reason(s):</b>		

**\*If "Yes", complete the following section for each sighting that was observed.**

**To report a dead or injured protected animal:**

**Daytime Missions POC: Rodney Felix: 883-1153 or Amanda Robydek: 882-8395**

**Nighttime Missions POC: Justin Johnson: 978-3251 or Bruce Hagedorn: 902-6004**

**Sea State Scale for Marine Mammal and Sea Turtle Observation**

Scale Number	Sea Conditions
0	Flat calm, no waves or ripples
1	Small wavelets, few if any whitecaps
2	Whitecaps on 0-33% of surface; 0.3 to 0.6 m (1 to 2 feet) waves
3	Whitecaps on 33-50% of surface; 0.6 to 0.9 m (2 to 3 feet) waves
4	Whitecaps on greater than 50% of surface; greater than 0.9 m (3 feet) waves

Sign and submit this completed form and sighting information to Eglin Natural Resources within 48 hours after completion of the mission.

POC: Amanda Robydek: [amanda.robbydek.ctr@us.af.mil](mailto:amanda.robbydek.ctr@us.af.mil); 882-8395

By electronically signing this form, I certify that: 1) I have successfully completed the Marine Species Observer Training course within that last year. 2) I served as the Protected Species Observer for the mission described above. 3) I abided by all the mitigation requirements and monitoring procedures outlined in Eglin's Letter of Authorization for Air-to-Surface Gunnery Missions in the Eglin Gulf Test and Training Range. 4) All the information on this form is true and accurate to the best of my knowledge. 5) I agree to follow up with Eglin Natural Resources on any questions or requests for additional information.

Signature: BRYANT.CLAYTON.ANDREW.1291054451 Digitally signed by BRYANT.CLAYTON.ANDREW.1291054451  
Date: 2020.11.24 18:30:09 -0600

Date: 11/24/20

1

Last updated 7/1/2015