

2022 ANNUAL REPORT ON
**EGLIN GULF TEST AND TRAINING RANGE
(EGTTR) MISSION ACTIVITIES:**

**PROTECTED MARINE SPECIES MONITORING
AND MITIGATION RESULTS**



PREPARED FOR:
National Marine Fisheries Service
Office of Protected Resources
&
Southeast Regional Office
Protected Resources Division

PREPARED BY:
Department of the Air Force
96 CEG/CEIEA
Eglin Natural Resources Office
501 DeLeon Street, Suite 101
Eglin AFB, FL 32542-5133

APRIL 2023
FINAL REPORT

This page is intentionally left blank



PRINTED ON RECYCLED PAPER

TABLE OF CONTENTS

	<u>Page</u>
Executive Summary	2
1. Introduction	3
1.1 Human Safety Procedures	4
1.2 General Mitigation and Monitoring Requirements	4
2. AFSOC – Air-to-Surface (A-S) Gunnery Training	5
2.1 Mission Setup	6
2.2 Mitigation and Monitoring Requirements	6
2.3 Description of AFSOC A-S Gunnery Training Activities	8
2.4 AFSOC Mission Summary	8
3. 780 th Test Squadron (780 TS)	9
3.1 Mission Setup	9
3.1.1 April Large Bomb Mission	9
3.1.2 May Small Missile Mission	11
3.1.3 July Small Missile Mission	13
3.2 Mitigation and Monitoring Requirements	14
3.3 Description of 780 TS Missions	17
3.3.1 April Large Bomb Mission	17
3.3.2 May Large Missile Mission	19
3.3.3 July Small Missile Mission	22
3.4 780 TS Mission Summary	24
4. 96 Operations Group (96 OG)	24
5. 86 th Fighter Weapons Squadron (86 FWS) – A-S Missions	24
5.1 Mission Setup	25
5.2 Targets	25
5.3 Site Plan and Cameras	26
5.4 Human Safety Zone	26
5.5 Mitigation and Monitoring Requirements	27
5.6 Description of 86 FWS A-S Missions	30
5.6.1 Monday 4 April 2022	30
5.6.2 Tuesday 5 April 2022	32
5.6.3 Wednesday 6 April 2022	32
5.6.4 Thursday 7 April 2022	33
5.7 86 FWS A-S Mission Summary	33
6. 413 th Flight Test Squadron (413 FLTS)	34
6.1 Mission Setup	35
6.2 Mitigation and Monitoring Requirements	35
6.3 Description of 413 FLTS Missions	36

6.4	413 FLTS Mission Summary	37
7.	Summary of all EGTTR Mission Activities	37
8.	Effectiveness of Mitigation and Monitoring Requirements	38
9.	Protected Marine Species Stranding Reports	38
10.	Conclusion	42
11.	References	43
12.	Signatures	44
	Appendix A.....	1

LIST OF TABLES

Table 1-1.	Annual Marine Mammal Takes Authorized in the EGTTR LOA.....	3
Table 1-2.	Sea Turtle Take Authorizations Included in the ITS of the EGTTR PBO	3
Table 2-1.	AFSOC Gunnery Training Mission Day Categories.....	6
Table 2-2.	Monitoring Area Radii for Gunnery Missions	7
Table 2-3.	Distance in Meters to NMFS Harassment Thresholds for Marine Mammals	7
Table 2-4.	Summary of AFSOC A-S Gunnery Missions for 2022.....	8
Table 2-5.	Comparison of Permitted vs. Actual Level of AFSOC A-S Gunnery Mission Activities	8
Table 3-1.	780 TS Weapons Testing Mission-Day Categories.....	14
Table 3-2.	Distance in kilometers to NMFS Harassment Thresholds for Marine Mammals	15
Table 3-3.	Incidental Sighting from April Large Bomb Mission	18
Table 3-4.	Comparison of Permitted vs. Actual Level of 780 TS Mission Activities.....	24
Table 5-1.	Mission Day Scenarios for 86 FWS A-S Missions	27
Table 5-2.	Distance in meters to NMFS Harassment Thresholds for Marine Mammals	28
Table 5-3.	Distance in meters to NMFS Acoustic Thresholds for Sea Turtles.....	29
Table 5-4.	Incidental Sightings from 86 FWS A-S Mission.....	31
Table 5-5.	Comparison of Permitted vs. Actual Level of 780 TS Mission Activities.....	34
Table 6-1.	413 FLTS Gunnery Testing Mission-Day Categories.....	35
Table 6-2.	Distance in Meters to NMFS Harassment Thresholds for Marine Mammals	35
Table 6-3.	Summary of 413 FLTS Medium Caliber Machine Gun Missions for 2022.....	36
Table 6-4.	Comparison of Permitted vs. Actual Level of 413 FLTS Gunnery Mission Activities	37
Table 7-1.	Summary of Survey Results and Live Weapon Releases in the EGTTR.....	37
Table 9-1.	2022 Marine Mammal Stranding Records	38
Table 9-2.	2022 Sea Turtle Stranding Records for Eglin AFB.....	40

LIST OF FIGURES

Figure 2-1.	Location of W-151A in the EGTTR	6
-------------	---------------------------------------	---

Figure 3-1. April Large Bomb Mission Location	10
Figure 3-2. Human Safety Zone for April Large Bomb Mission	11
Figure 3-3. May Large Missile Mission Location	12
Figure 3-4. Human Safety Zone for May Large Missile Mission.....	12
Figure 3-5. July Small Missile Mission Location	13
Figure 3-6. Human Safety Zone for July Small Missile Mission	14
Figure 3-7. Survey Routes for April Large Bomb Mission	17
Figure 3-8. Survey Routes for May Large Missile Mission	20
Figure 5-1. April 86 FWS A-S Mission Location	25
Figure 5-2. Human Safety Zone for April 86 FWS A-S Mission.....	27
Figure 5-3. Survey Zones for 86 FWS A-S Protected Species Surveys	29
Figure 5-4. Survey Routes for 86 FWS A-S Mission	31
Figure 6-1. Location of W-151A in the EGTTR	34
Figure 9-1. Cumulative Numbers of Stranded Sea Turtles in Okaloosa County during 2022 and the Previous 5-year and 10-year Averages	40
Figure 9-2. Cumulative Numbers of Stranded Sea Turtles in Santa Rosa County during 2022 and the Previous 5-year and 10-year Averages	40

ACRONYMS AND ABBREVIATIONS

86 FWS	86 th Fighter Weapons Squadron
413 FLTS	413 th Flight Test Squadron
780 TS	780 th Test Squadron
96 OG	96 th Operations Group
AF	Air Force
AFB	Air Force Base
AFSOC	Air Force Special Operations Command
A-S	Air-to-Surface
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
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
SDZ	Surface Danger Zone
SRI	Santa Rosa Island
TTS	Temporary Threshold Shift
UAS	Unmanned Aerial System
USSOCOM	United States Special Operations Command
ZOI	Zone of Influence

Executive Summary

Eglin Natural Resources Office (NRO) 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 PBO/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 occurred, and analyzes the overall effectiveness of these measures.

A total of thirteen mission days for missiles/bombs were attempted by two user groups, 780th Test Squadron (780 TS) and the 86th Fighter Weapons Squadron, in the EGTTR during calendar year 2022. Weapon releases occurred on four live mission days; nine additional live days were planned, but due to both weather, unfavorable marine conditions, time constraints, and/or 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 one Air Force Special Operations Command (AFSOC) and three 413 Flight Test Squadron (FLTS) 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 and 86th FWS missions, pre- and post-mission surveys were conducted by between one and five survey vessels, depending on the size of the survey area for each mission. For these missions, an Eglin NRO representative observed live video feed from cameras on the instrumentation barge, support boats, and unmanned aerial vehicles (UAS) during the missions from the monitoring facility at Test Site A-5 or from Eglin's Central Control Facility (CCF). Eglin NRO anticipates the ability to continue monitoring missions from CCF in future years.

Only dolphins and a sea turtle were observed and reported. All sightings were incidental (i.e., occurred prior to pre-mission survey or during mission at safety perimeter). The pod of Atlantic spotted dolphins observed the morning of the 28 April mission was outside of the ZOI heading further out of the survey zone prior to start of the pre-mission survey. No protected marine species were observed during pre- or 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 takes occurred as a result of 2022 EGTTR missions with live munitions.

Eglin NRO believes the mitigation and monitoring measures authorized by NMFS were successfully implemented in support of EGTTR mission activities in all but one live weapon release during 2022. Based on an analysis of marine mammal and sea turtle stranding data for 2022, Eglin NRO assumes that Level A mortality take occurred for two sea turtles in April 2022, incidental to 4 and 7 April missions. 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 (PBO)/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
TOTAL	2	9	305	435

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 marine 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 AFSOC and 413 FLTS typically do not require vessel support to clear the Gulf of humans. The aircraft platforms these groups use are gunships that are equipped with ultra-long-range multi-sensor, multi-spectral imaging and targeting systems with high-sensitivity color imaging that provide the capabilities to sufficiently survey the mission areas for non-participating vessels and protected marine 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 marine 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 marine species. Eglin committed to visually survey mission areas to ensure they are clear of protected marine 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 marine 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 marine species and protected marine 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 2022 calendar year, 60 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 MWSEP missions conducted annually from 2013 through 2017. As a result, completion of this training requirement in 2022 served as a refresher course. The vessels and associated crew designated specifically for protected marine species monitoring for all live EGTTR missions in 2022 were *Ground Control*, *Sturgeon*, *El Jefe*, *Sea Eagle*, and *Salia*.

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 (A-S) 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 under a tenth of a pound to less than seven pounds. The Air Force developed for use in the EGTTR a 105-mm training round (TR) that contains significantly less than the amount of explosive material contained in the 105-mm full-up (FU) round.

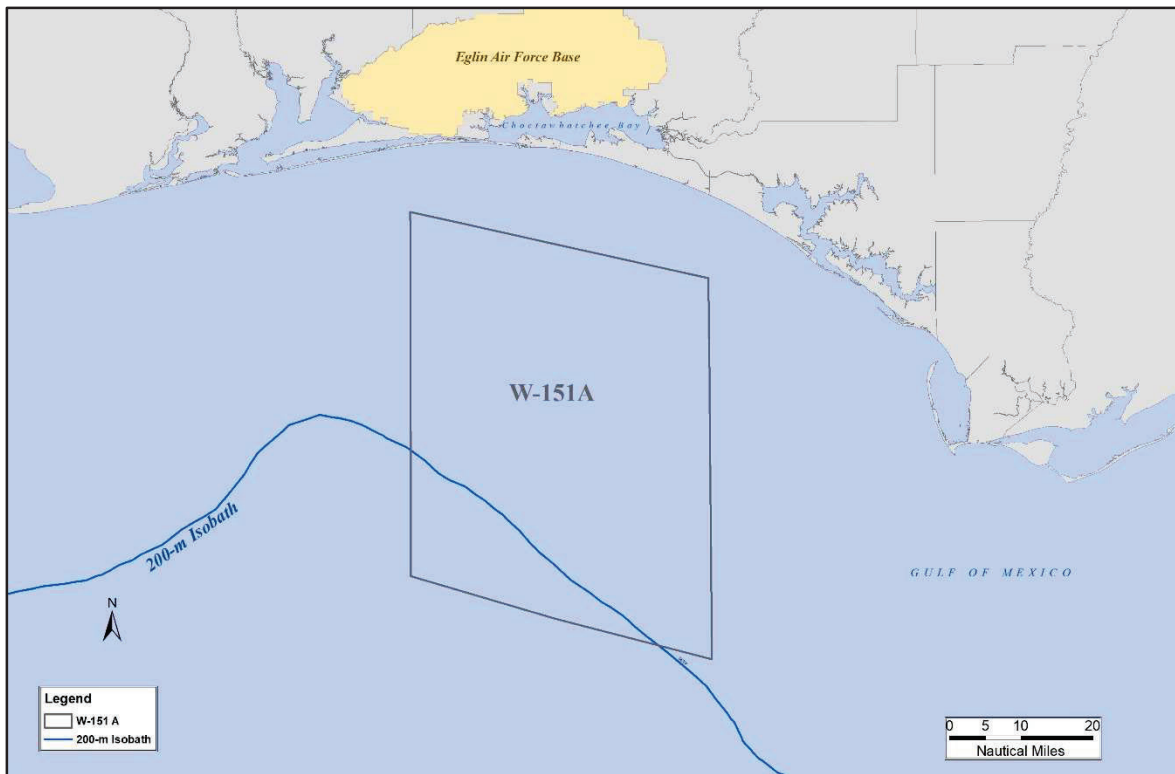


Figure 2-1. Location of W-151A in the EGTR

2.1 Mission Setup

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 marine 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 A-S gunnery training operations in the EGTR 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 and ramp-up procedures when using multiple-sized munitions. Table 2-1 lists the Mission Day Categories for the AFSOC gunnery missions as described in the EGTR LOA application.

Table 2-1. AFSOC Gunnery Training Mission Day Categories

Mission-Day Category	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
D	105 mm HE (FU)	< 7	Surface	30	25	750
	40 mm HE	< 1	Surface	64		1,600
	30 mm HE	<0.1	Surface	500		12,500
	25 mm HE	<0.1	Surface	560		14,000
E	105 mm HE (TR)	< 1	Surface	30	45	1,350
	40 mm HE	<1	Surface	64		2,880

Mission-Day Category	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	<0.1	Surface	560		25,200
Total					70	80,780

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 and Table 2-3 shows the ranges to effects for the various thresholds under each Mission Day Category. As Eglin NRO described in the LOA request, missions that consist solely of gunnery testing and training operations will survey larger areas than those based solely on acoustic impact zones at a Level A Harassment/PTS threshold. This is because the Air Force can conduct aerial surveys of larger areas from mission aircraft during these activities. Monitoring procedures are described in *Section 11.2.2* of the LOA Application. This conservative approach 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-Day Category	Mortality ¹		Level A Harassment				Level B Harassment	
			Slight Lung Injury ²		GI Tract Injury ³	PTS ^{4, 5} (SEL)	TTS ^{4, 6} (SEL)	Behavioral ⁷ (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

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

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

³ Peak pressure metric of 237 dB re 1 μ Pa (unweighted SPL)

⁴ 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.

⁵ Weighted SEL metric of 185 dB re 1 μ Pa²·s

⁶ Weighted SEL metric of 170 dB re 1 μ Pa²·s

⁷ Weighted SEL metric of 165 dB re 1 μ Pa²·s

ASD = Atlantic spotted dolphin; BND = bottlenose dolphin; dB re 1 μ Pa = decibels referenced to 1 micropascal; dB re 1 μ Pa²·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

Prior to beginning firing activities, the gunships conduct low-altitude orbits around the prospective firing location to ensure the ZOI is clear of protected marine 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 aircrews 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

One A-S gunnery mission was conducted during the 2022 calendar year. A copy of the Protected Marine Species Observer Report Form is included in Appendix A of this report. Table 2-4 summarizes the results of the report form.

Appendix A presents the Observation Report Forms completed by AFSOC. The pre- and post-mission surveys generally occurred 15 minutes prior to live fire and 15 minutes after live fire was complete.

Table 2-4. Summary of AFSOC A-S Gunnery Missions for 2022

Date of Mission	Pre-Mission Surveys		Mission Times		Post-Mission Surveys		Rounds Used	# of Rounds Expended	Protected Marine Species Observed?
	Start	End	Start	End	Start	End			
7/19/2022	1315	1350	1350	1420	1420	1450	30 mm TR	117	No

TR = Training Round; mm = millimeter

2.4 AFSOC Mission Summary

Table 2-5 summarizes A-S gunnery expenditures during the 2022 calendar year and compares it with the annual allocations covered under the existing LOA and PBO. 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 marine species were observed before, during, or following the missions, Eglin NRO concludes that no takes occurred.

Table 2-5. Comparison of Permitted vs. Actual Level of AFSOC A-S Gunnery Mission Activities

	# Daytime Missions	# Nighttime Missions	25 mm HE	30 mm HE	40 mm HE	105 mm FU	105 mm TR	30 mm TR
Total Annual Allotments	25	45	39,200	35,000	4,480	750	1,350	N/A
Actual Usage	1	0	0	0	0	0	0	117
Unused Allotments	24	45	39,200	35,000	4,480	750	1,350	N/A

FU = Full-Up; HE = High Explosive; TR = Training Round; mm = millimeter; N/A = not applicable

3. 780th Test Squadron (780 TS)

The 780th Test Squadron (780 TS) conducts testing activities on a variety of air-to-surface weapons, including missiles and bombs. Test missions for 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 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. Three mission sets conducted by 780 TS in 2022 included testing one bomb type and two missile types.

3.1 Mission Setup

3.1.1 April Large Bomb Mission

Large bomb testing for the 780 TS was scheduled in W-151A of the EGTTR. The test site was approximately 16 NM offshore from Santa Rosa Island (SRI). Figure 3-1 shows the location for this mission conducted in April 2022. Water depth of the mission site was approximately 136 ft (41 m). The Surface Danger Zone (SDZ) surrounding the impact area is shown in 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, 19 AF vessels were used to enforce the safety box.

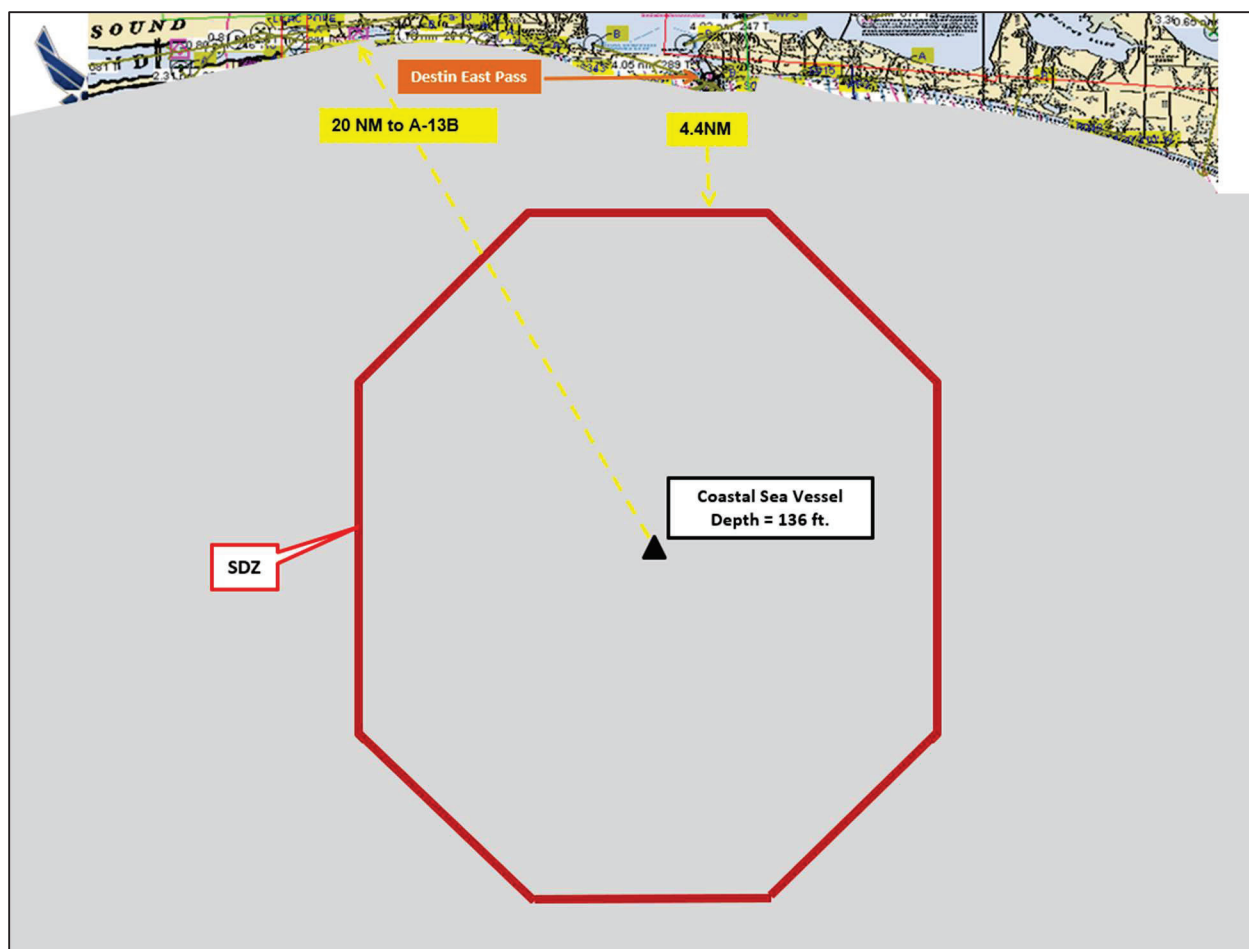


Figure 3-1. April Large Bomb Mission Location

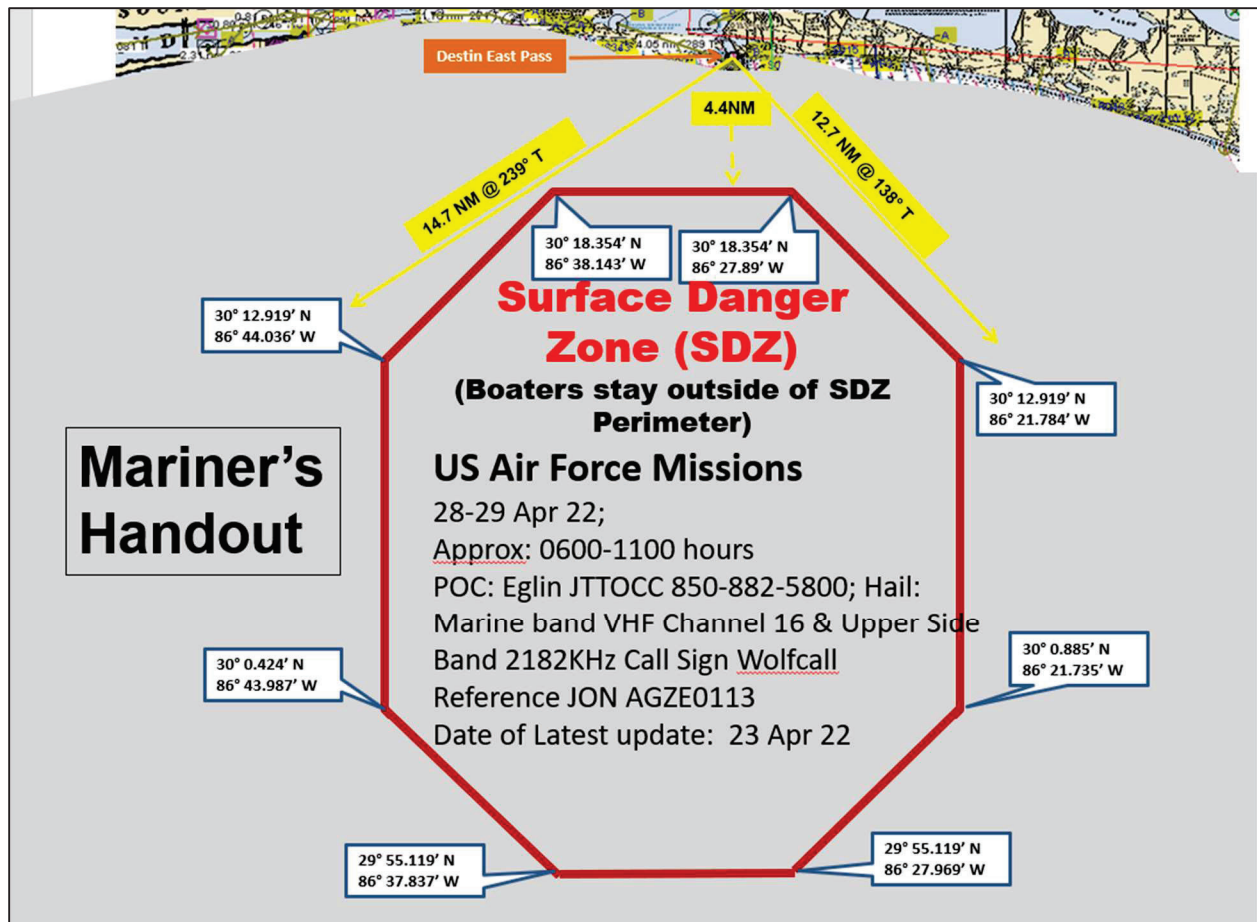


Figure 3-2. Human Safety Zone for April Large Bomb Mission

3.1.2 May Small Missile Mission

The May large missile mission for the 780 TS was scheduled in W-151A of the EGTTT. The test impact area was approximately 17.1 NM (35.4 km) offshore from the Destin East Pass. Figure 3-3 shows the location for this test mission conducted in May 2022. Water depth of the mission site was approximately 142 ft (43 m). The SDZ surrounding the impact area is shown in Figure 3-4. Human safety procedures similar to those described in Section 1.1 were followed. Given the type of weapon released by the 780 TS and the size of the human safety box, 20 AF vessels were used to enforce the safety box.

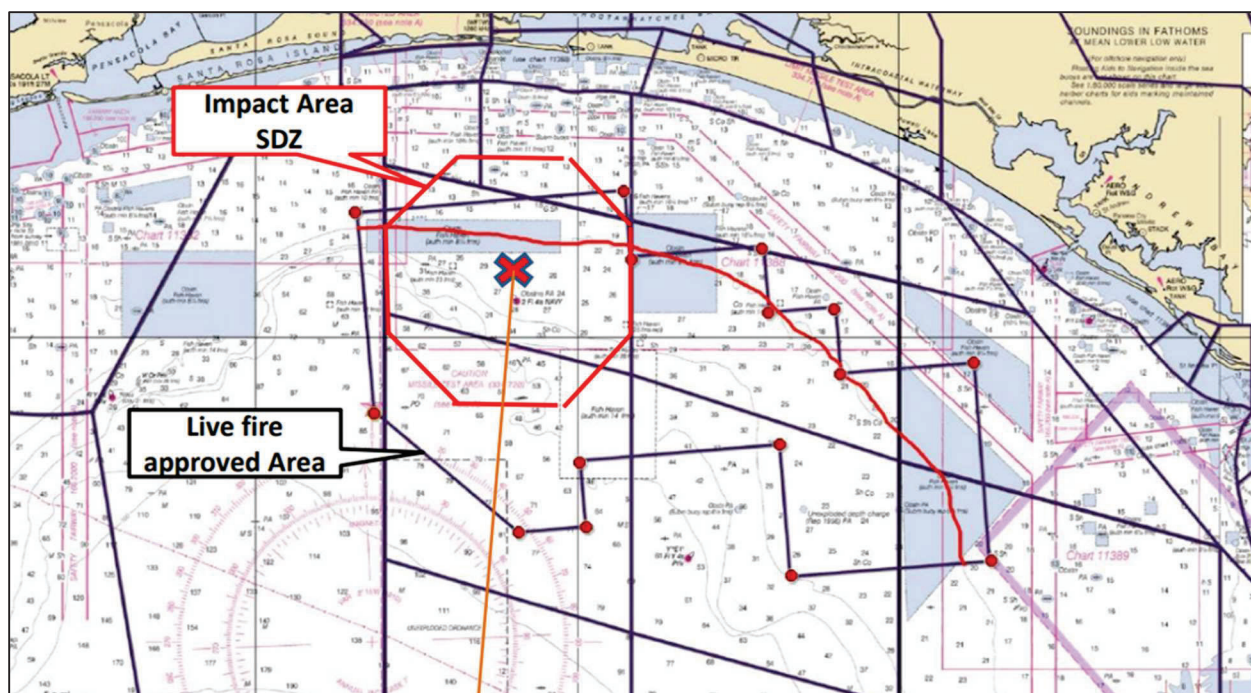


Figure 3-3. May Large Missile Mission Location

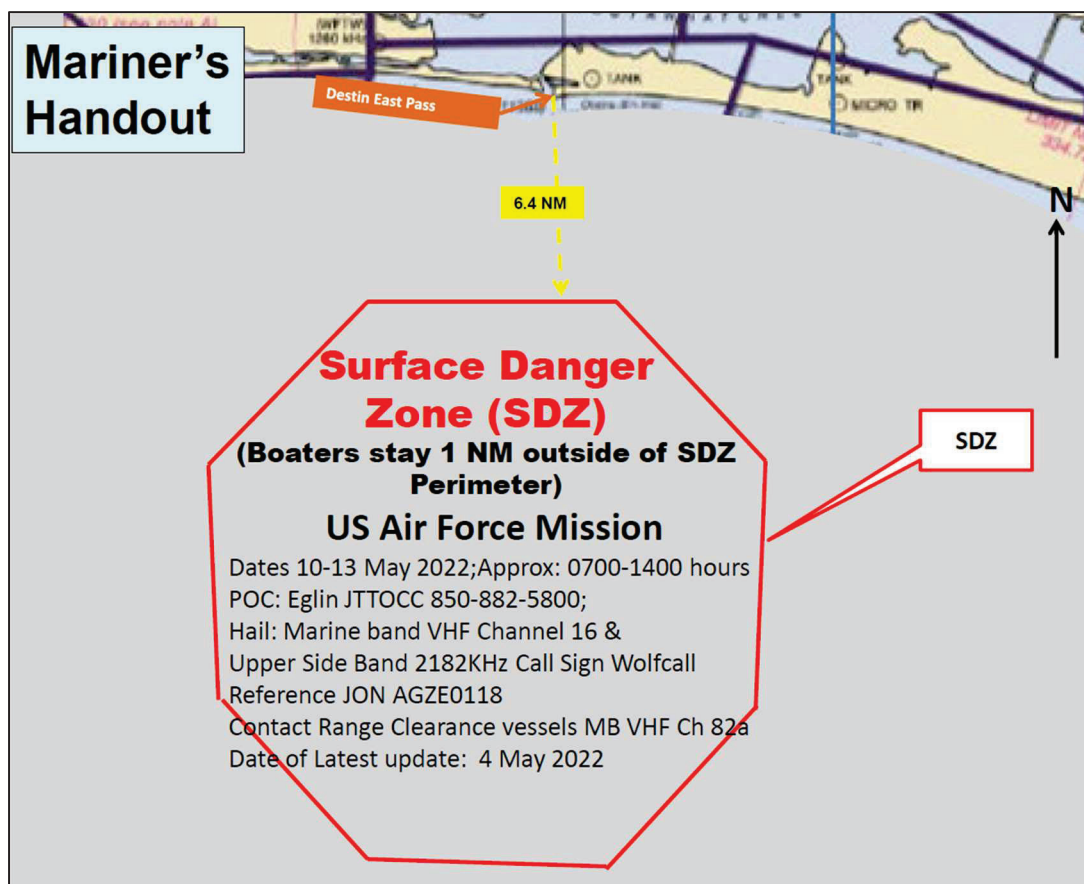


Figure 3-4. Human Safety Zone for May Large Missile Mission

3.1.3 July Small Missile Mission

The July small missile mission for the 780 TS was scheduled in W-151A of the EGTTTR. The test impact area was approximately 18.2 NM (33.7 km) offshore from the Destin East Pass. Figure 3-5 shows the location for this test mission conducted in July 2022. Water depth of the mission site was approximately 166 ft (50.6 m). The SDZ surrounding the impact area is shown in Figure 3-6. Human safety procedures similar to those described in Section 1.1 were followed. Given the type of weapon released by the 780 TS and the size of the human safety box, 20 AF vessels were used to enforce the safety box.

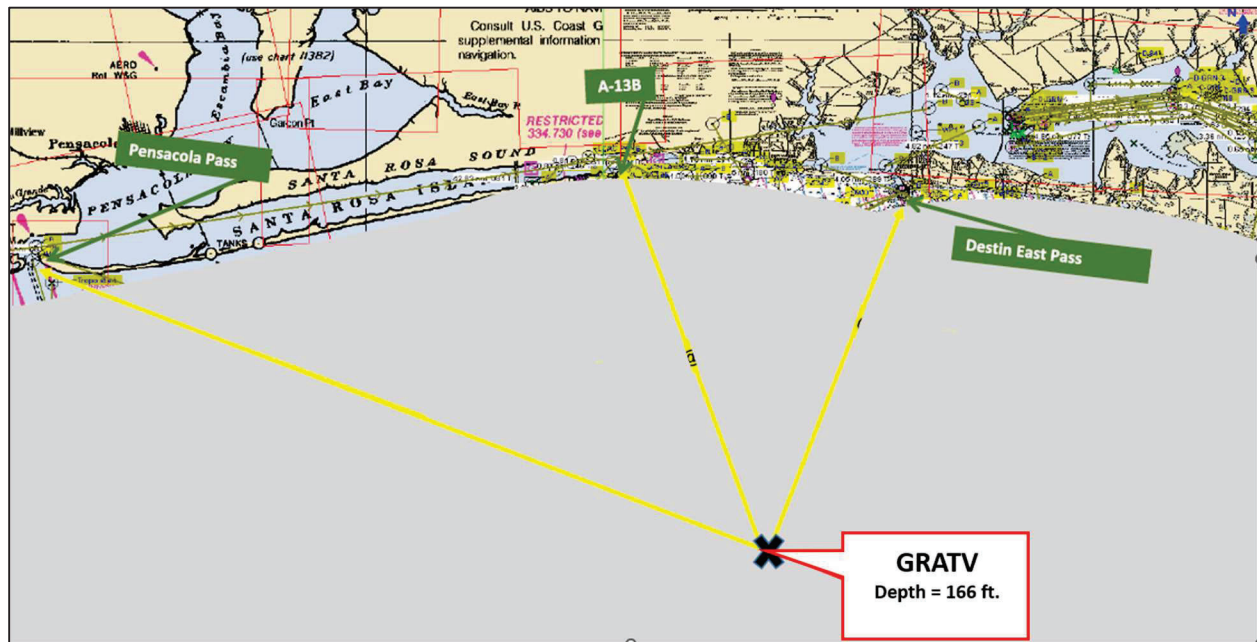


Figure 3-5. July Small Missile Mission Location

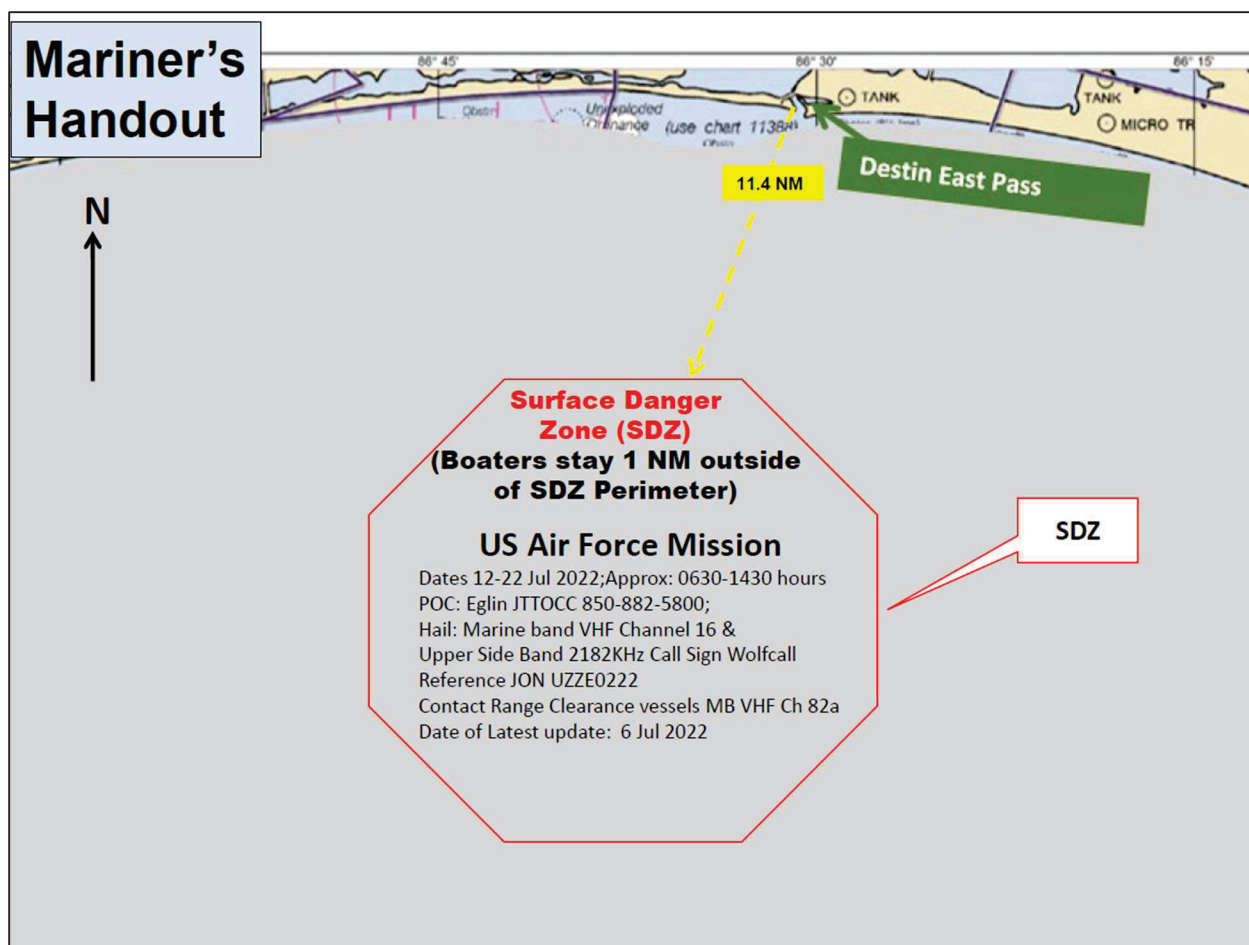


Figure 3-6. Human Safety Zone for July Small Missile Mission

3.2 Mitigation and Monitoring Requirements

Table 3-1 lists the Mission Day Categories found in the LOA for the weapons proposed to be released by the 780 TS. The Table also includes Mission Day Category “R” from “96 OG Future Missions” in the LOA used to account for the two large bombs released by 780 TS for the Large Bomb Mission in April.

Table 3-1. 780 TS Weapons Testing Mission-Day Categories

Mission-Day Category	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
M	Missile	<250	Surface	2	1	2
N	Bomb	<50	Surface	2	1	2
	Bomb Double Shot ^a	<100	Surface	2		2
O	Bomb	<30	Surface	2	1	2
P	Missile	<30	Surface	1	1	1
Q	Inert Bomb & Bomb GTV (fuse only)	<1	Surface	2	4	8
R	Bomb	<100 0	Subsurface ^b	1	1	1

GTV = Guided Test Vehicle; lbs = pounds

^aNEW is doubled for each simultaneous launch

^b Subsurface detonations occur at 10 feet water depth

Table 3-2 shows the ranges to effects for the various thresholds under each of the above 780 TS scenarios including Mission Day Category “R,” 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

Mission-Day Category	Mortality ¹	Level A Harassment				Level B Harassment		
	Modified Goertner Model 1	Slight Lung Injury ²	GI Tract Injury ³	PTS ^{4, 5}		TTS ^{4, 6}		Behavioral ⁷
		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								
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
P	0.051	0.115	0.107	0.116	0.217	0.271	0.4	0.527
Q	0.007	0.016	0.026	0.073	0.053	0.149	0.098	0.207
R	0.427	0.768	0.348	0.811	0.705	4.316	1.302	6.883
Atlantic Spotted Dolphin								
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
P	0.065	0.141	0.107	0.116	0.217	0.271	0.4	0.527
Q	0.009	0.02	0.026	0.073	0.053	0.149	0.098	0.207
R	0.504	0.886	0.348	0.811	0.705	4.316	1.302	6.883

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

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

³ Peak pressure metric of 237 dB re 1 μ Pa (unweighted SPL)

⁴ 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.

⁵ Weighted SEL metric of 185 dB re 1 μ Pa²·s

⁶ Weighted SEL metric of 170 dB re 1 μ Pa²·s

⁷ Weighted SEL metric of 165 dB re 1 μ Pa²·s

dB re 1 μ Pa = decibels referenced to 1 micropascal; dB re 1 μ Pa²·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.

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 protected marine species 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. Observers conducting the protected marine species

surveys monitor for species while in transit to the safety zone periphery and continue monitoring while stationed outside of the safety zone (incidental). Air Force support vessels also monitor for protected marine species, as feasible, throughout test preparation within the impact area. Additionally, a trained Eglin Natural Resources Office (NRO) observer is stationed at the CCF or secure facility monitoring live streaming video feed from the GRATV to identify any protected marine species that may enter the target area before live weapon releases. Employing this additional mitigation measure typically resolves any lapse between the time survey vessels or aircraft leave the safety zone after completing pre-mission surveys and before the mission begins.

For the April large bomb mission, Eglin planned to fully detonate only one munition, however aircraft carried as many as 3 back-up munitions. The first munition was released and detonated at the target on a low order; the second munition was released and detonated at a high order (or 100%). Eglin NRO assigned Mission Day Category “R” from the “96 OG Future Missions” group which allows for a total NEW of 1,377 lbs. for one mission day per year. The radius of the area that was surveyed for protected marine species was based on Mission Day Category “A” and was highly conservative considering the weapons that were actually released and detonated. For planning and implementation of requirements, the Atlantic spotted dolphin Level A Harassment threshold for Mission-Day Category “A” (1.039 km) was selected. Eglin NRO biologists doubled the Level A/PTS (1.039×2) = 2.08 km radius (1.1 NM) to account for and mitigate animals that could swim into the ZOI after surveys were completed and covers effects to sea turtles through impairment and disturbance. Given the relatively large size of the survey area, four boats were used for the surveys, *Ground Control*, *Saila*, *El Jefe*, and *Sea Eagle*.

For the May large missile mission, Mission Day Category “M” was used to determine the radius of the area to be surveyed for protected marine species. This Mission Day Category accounts for up to two large missile munitions per day with a NEW of <300 lbs. each, and only one mission day per year. To simplify planning and implementation of requirements, the Atlantic spotted dolphin Level A Harassment threshold (0.211 km) was selected. Eglin NRO biologists doubled the Level A/PTS (0.211×2) = 0.422 km radius (0.23 NM) to account for and mitigate animals that could swim into the ZOI after surveys were completed and covers effects to sea turtles through impairment and disturbance. Given the relatively small size of survey area, only two boats were used for the surveys, *Ground Control* and *Sturgeon*.

For the July small missile mission, the 780 TS proposed to release two live small missiles, each with a NEW of <30 lbs. Mission Day Category “N” was selected to determine the radius of the area to be surveyed for protected marine species since the small bomb munition for “N” had a similar NEW (<40 lbs.) to that of the proposed small missile munitions (<30 lbs.) and allowed for two munitions per mission day, one mission day per year, and a total NEW sum of 222 lbs. To simplify planning and implementation of requirements, the Atlantic spotted dolphin Level A Harassment threshold (0.202 km) was selected. Eglin NRO biologists doubled the Level A/PTS (0.202×2) = 0.404 km radius (0.22 NM) to account for and mitigate animals that could swim into the ZOI after surveys were completed and covers effects to sea turtles through impairment and disturbance. Given the relatively small size of survey area, only two boats were used for the surveys, *Ground Control* and *Sturgeon*.

3.3 Description of 780 TS Missions

3.3.1 April Large Bomb Mission

This 780 TS mission involved releasing inert and one live large bomb to sink a 189 ft retired flush-deck steel general cargo vessel named the “Coastal Sea”. No live weapons were released on the first mission day due to rough seas and the anchored vessel drifting due to strong currents. One inert and two live weapons were released on the second scheduled mission day; one weapon was a low order detonation.

3.3.1.1 Wednesday 20 April 2022

3.3.1.1.1 Pre-Mission Survey Results

Survey boats arrived at the survey location at 6:00 AM. Protected marine species surveys and the mission were delayed due to rough seas. Weather and sea-state conditions were poor with 4-5 ft seas and marginal visibility. Prior to the start of surveys, *El Jefe* survey boat observed a pod of 8-10 Atlantic spotted dolphins around 6:45 AM. The pod was outside of the ZOI and moving to the northwest, further outside of the survey zone. Pre-mission survey began at 7:30 AM and was completed at 8:00 AM. Figure 3-7 shows the survey routes. No protected marine species were observed during the pre-mission survey. Table 3-3 shows the incidental sighting reported by survey boat *El Jefe* prior to the start of the pre-mission survey.

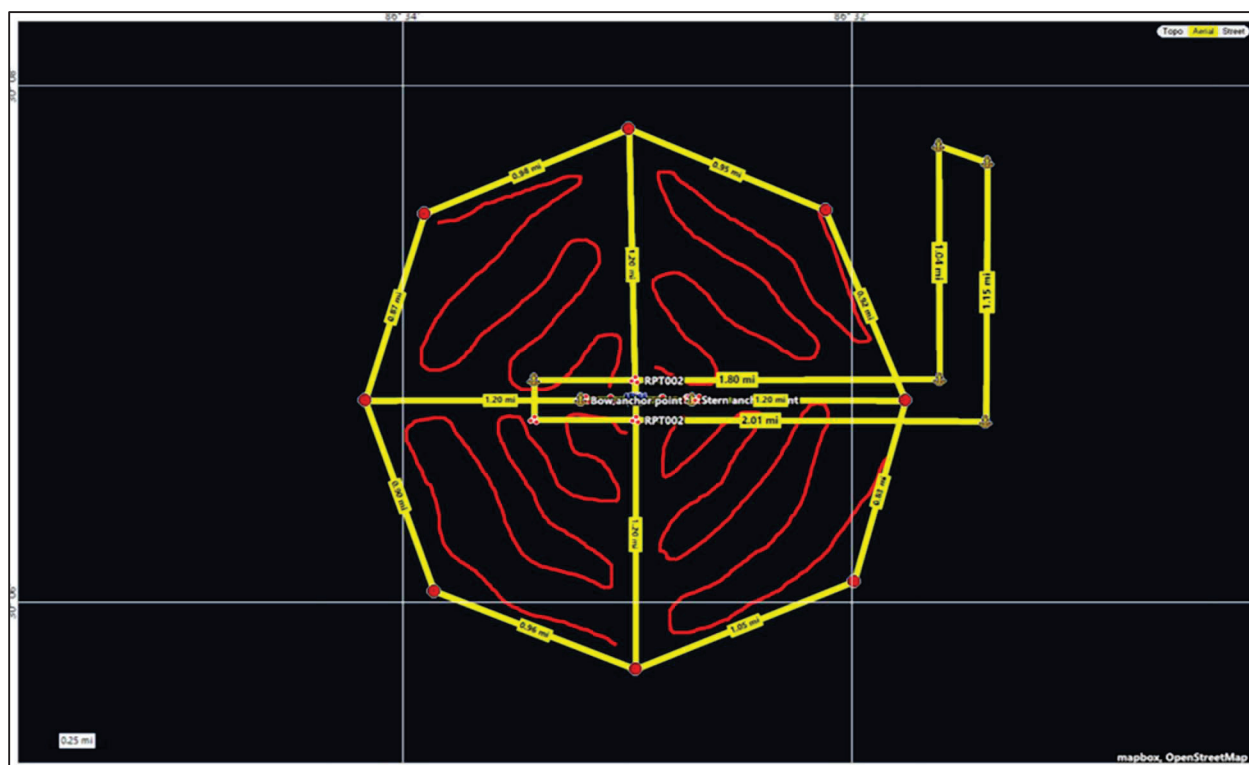


Figure 3-7. Survey Routes for April Large Bomb Mission

Table 3-3. Incidental Sighting from April Large Bomb Mission

#	Time	Vessel	Sighting	Location	Resolution
1	7:00 AM	<i>El Jefe</i>	8-10 Atlantic spotted dolphins	30° 07.193 N -86° 33.060 W	Dolphins were observed outside of the survey area transiting toward the northwest at a rapid pace. The pod continued transiting northwest far from the survey area.

3.3.1.1.2 Mission Results

The Eglin NRO representative arrived at the CCF at 7:40 AM and began monitoring the TigerShark Unmanned Aerial System (UAS) live video feed for protected marine species at 7:45 AM. One inert JDAM was released at 9:24 AM and made contact with the water surface beside the target vessel at 9:25 AM. No protected marine species were observed. Marine conditions became increasingly unfavorable shortly after weapon release, and the remainder of the mission day was cancelled. No other weapons were released on this day. The mission ended at 9:40 AM.

3.3.1.1.3 Post-Mission Survey Results

Since no live 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 live weapons were released.

3.3.1.2 Thursday 28 April 2022

The mission setup for this day's mission was identical to the mission day on April 20, 2022.

3.3.1.2.1 Pre-Mission Survey Results

Survey boats arrived at the survey location at 6:00 AM. Weather and sea-state conditions were good with 2 ft. seas and excellent visibility. Pre-mission survey began at 6:30 AM and was completed at 7:00 AM using same routes from day before (**Figure 3-7**). There were no protected marine species observed during the pre-mission survey.

3.3.1.2.2 Mission Results

The Eglin NRO representative arrived at the CCF at 7:20 AM and began monitoring the TigerShark UAS live video feed for protected marine species at 7:25 AM. One inert large bomb and two live large bombs were released on this mission day. The inert weapon was released at 8:26 AM and impacted the target vessel at 8:27 AM. The first live weapon was released at 8:37 AM and impacted target vessel at 8:38 AM as a “low-order detonation” (didn’t completely detonate). The second live weapon was released at 8:43 AM and successfully impacted the target vessel at 8:43 AM. The target vessel was confirmed to be sinking beneath the surface at 8:44 AM. No protected marine species were observed. No other weapons were released on this day. The mission was complete at 8:50 AM.

3.3.1.2.3 Post-Mission Survey Results

The post-mission survey began at 9:20 AM and ended at 10:20 AM. Visibility was good. No protected marine species were observed.

3.3.1.2.4 Take Analysis

No protected marine 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.

3.3.2 May Large Missile Mission

This 780 TS test mission was to deploy a live large missile against a static boat target. 780 TS was unable to execute this mission due to aircraft and weapon systems issues; no live weapons were released.

3.3.2.1 Tuesday 10 May 2022

3.3.2.1.1 Pre-Mission Survey Results

Survey boats *Ground Control* and *Sturgeon* arrived at the survey location around 7:45 AM. Weather and sea-state conditions were good with cloudy skies and 1-2 ft seas. Pre-mission survey began at 8:00 AM and was completed at 9:30 AM. Figure 3-8 shows the survey routes. Survey boats continued transiting around the target location monitoring for protected marine until the TigerShark UAS arrived to stream live video feed to the CCF observer. The TigerShark UAS arrived on location at 10:16 AM. There were no protected marine species observed during the pre-mission survey; however, observers noted floating broken sargassum in the general area.



Figure 3-8. Survey Routes for May Large Missile Mission

3.3.2.1.2 Mission Results

The Eglin NRO representative arrived at the CCF at 8:30 AM. Survey boats had already begun the pre-mission survey and were waiting on the TigerShark UAS to arrive on location to stream live video feed to the CCF observer. The TigerShark UAS arrived at the target location area at 10:16 AM and the CCF observer began monitoring the live video feed for protected marine species at that time. Survey boats transited to guard duty locations. The live video stream from the TigerShark UAS was disrupted by cloud cover causing temporary loss of live video stream from 10:32 – 10:36 AM. No live weapons were released on this mission day. No protected marine species were observed. The mission was cancelled due to aircraft issues. Mission was cancelled at 11:50 AM.

3.3.2.1.3 Post-Mission Survey Results

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

3.3.2.1.4 Take Analysis

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

3.3.2.2 Wednesday 11 May 2022

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

3.3.2.2.1 Pre-Mission Survey Results

Survey boats arrived at the survey location around 8:00 AM. Weather and sea-state conditions were good with 1-2 ft seas. Pre-mission survey began at 8:30 AM and was completed at 9:30 AM. Survey boats continued transiting around the target location monitoring for protected marine species until the TigerShark UAS arrived to stream live video feed to the CCF observer. The TigerShark UAS arrived on location at 9:42 AM. There were no protected marine species observed during the pre-mission survey.

3.3.2.2.2 Mission Results

The Eglin NRO representative arrived at the CCF at 8:35 AM. Survey boats had already begun the pre-mission survey and were waiting on the TigerShark UAS to arrive on location to stream live video feed to the CCF observer. The TigerShark UAS arrived at the target location area at 9:42 AM and the CCF observer began monitoring the live video feed for protected marine species at that time. No live weapons were released on this mission day. No protected marine species were observed and no floating broken sargassum as was observed the previous day. The mission was cancelled due to a weapon issue. Mission was cancelled at 9:48 AM.

3.3.2.2.3 Post-Mission Survey Results

A post-mission survey was not required since the mission was cancelled.

3.3.2.2.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

3.3.2.3 Thursday 12 May 2022

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

3.3.2.3.1 Pre-Mission Survey Results

A pre-mission survey was not conducted since the mission was cancelled due to an unresolved weapon issue.

3.3.2.3.2 Mission Results

The Eglin NRO representative did not go to the CCF on this scheduled mission day. The mission was cancelled early in the morning due to an unresolved weapon systems issue.

3.3.2.3.3 Post-Mission Survey Results

A post-mission survey was not required since the mission was cancelled.

3.3.2.3.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

3.3.2.4 Friday 13 May 2022

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

3.3.2.4.1 Pre-Mission Survey Results

Survey boats arrived at the survey location around 7:30 AM. Weather and sea-state conditions were good with 1-2 ft seas. Pre-mission survey began at 7:45 AM and was completed at 8:50 AM. Survey boat *Ground Control* began transiting to guard duty location at 8:56 AM. Survey boat *Sturgeon* continued to transit around the target location monitoring for protected marine species until the TigerShark UAS arrived to stream live video feed to the CCF observer. The TigerShark UAS arrived on location at 10:07 AM and the *Sturgeon* survey boat transited to guard duty location. There were no protected marine species observed during the pre-mission survey.

3.3.2.4.2 Mission Results

The Eglin NRO representative arrived at the CCF at 8:25 AM. Survey boats had already begun the pre-mission survey and were waiting on the TigerShark UAS to arrive on location to stream live video feed to the CCF observer. The TigerShark UAS arrived at the target location area at 10:07 AM and the CCF observer began monitoring the live video feed for protected marine species at that time. No live weapons were released on this mission day. No protected marine species were observed. The mission was cancelled due to an unresolved weapon issue. Mission was cancelled at 11:02 AM.

3.3.2.4.3 Post-Mission Survey Results

A post-mission survey was not required since the mission was cancelled.

3.3.2.4.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

3.3.3 July Small Missile Mission

This 780 TS mission involved deploying two live small missiles against two moving boat targets. No live weapons were released on the first and second mission days due to inclement weather and range time constraints. The two live weapons were successfully released on the third scheduled mission day.

3.3.3.1 Tuesday 12 July 2022

3.3.3.1.1 Pre-Mission Survey Results

Survey boat *Sturgeon* arrived at the survey location at 6:45 AM. Weather was poor with cloudy skies and rain, while sea-state conditions were marginal to good with 2-3 ft seas. Pre-mission survey began at 6:48 AM and was completed at 7:46 AM. There were no protected marine species observed during the pre-mission survey.

3.3.3.1.2 Mission Results

The Eglin NRO representative arrived at A-5 at 7:00 AM and began monitoring the GRATV live video feed for protected marine species at 7:05 AM. No live weapons were released on this mission day. No protected marine species were observed. The mission was cancelled due to inclement weather. Mission was cancelled at 11:18 AM.

3.3.3.1.3 Post-Mission Survey Results

A post-mission survey was not required since the mission was cancelled.

3.3.3.1.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

3.3.3.2 Tuesday 19 July 2022

The mission setup for this day's mission was identical to the mission day on July 12, 2022.

3.3.3.2.1 Pre-Mission Survey Results

Survey boats arrived at the survey location around 6:15 AM. Weather was poor with cloudy skies and rain, while sea-state conditions were marginal to good with 2-3 ft seas. Pre-mission survey began at 6:30 AM and was completed at 7:30 AM. There were no protected marine species observed during the pre-mission survey.

3.3.3.2.2 Mission Results

The Eglin NRO representative arrived at A-5 at 7:30 AM and began monitoring the GRATV live video feed for protected marine species at 7:37 AM. No live weapons were released on this mission day. No protected marine species were observed. The mission was cancelled due to weather delays and range time constraints. Mission was cancelled at 10:53 AM.

3.3.3.2.3 Post-Mission Survey Results

A post-mission survey was not required since the mission was cancelled.

3.3.3.2.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

3.3.3.3 Wednesday 20 July 2022

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

3.3.3.3.1 Pre-Mission Survey Results

Survey boats arrived at the survey location around 7:50 AM. Weather was fair with partly cloudy skies, while sea-state conditions were marginal to good with 2-3 ft seas. Pre-mission survey began at 8:05 AM and was completed at 8:35 AM. There were no protected marine species observed during the pre-mission survey.

3.3.3.3.2 Mission Results

The Eglin NRO representative arrived at A-5 at 7:45 AM and began monitoring the GRATV live video feed for protected marine species at 7:50 AM. Two live small missiles were released on this mission day. The first live weapon was released at 1:18 PM and successfully impacted the moving target vessel at 1:18 PM. The second live weapon was released at 1:41 PM and successfully impacted the moving target vessel at 1:42 PM. The Eglin NRO representative was observing the GRATV live video feed during the five-and-a-half hour gap between pre-mission survey and time

of mission execution. No protected marine species were observed. No other weapons were released on this day. The mission was complete at 1:50 PM.

3.3.3.3.3 *Post-Mission Survey Results*

The post-mission survey began at 2:10 PM and ended at 3:00 PM. Additional Air Force boats were cleaning up debris and monitoring down current of the target vessels. Visibility was good and seas were 2 ft. No protected marine species were observed.

3.3.3.3.4 *Take Analysis*

No protected marine 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.

3.4 780 TS Mission Summary

Table 3-4 summarizes 780 TS expenditures during the 2022 calendar year and compares it with the annual allocations covered under the existing LOA and BO.

Table 3-4. Comparison of Permitted vs. Actual Level of 780 TS Mission Activities

Weapons^a	Mission-Day Category	Total Munitions per Year	Actual Munitions Released in 2022	Unused Munitions in 2022
Large Bomb	R ^b	1	2 ^c	0
Small Missile ^d	N	2	2	0

^a This table is representative of live detonations only; inert detonations are not included.

^b This table includes Mission-Day Category “R” that was assigned to the 780 TS April large bomb mission.

^c Munitions released included one that was considered a “low-order detonation” and thus didn’t fully detonate. See explanation in Section 3.2 above.

^d Eglin NRO used small missile (NEW = <30 lbs.) in place of small bomb (NEW = <40 lbs.) under Mission-Day Category “N”. See explanation in Section 3.2 above.

780 TS missions and weapon releases did not exceed the total of expenditures authorized in the LOA. Furthermore, no protected marine 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 2022.

4. 96 Operations Group (96 OG)

No missions were conducted, or allocations used from the 96 Operations Group (96 OG) during calendar year 2022.

5. 86th Fighter Weapons Squadron (86 FWS) – A-S Missions

The 86 FWS evaluates multiple types of live and inert weapons systems to develop tactics, techniques, and procedures for U.S. Air Force (USAF) strike aircraft to counter small, fast, and agile surface vessels. Mission activities in the EGTTTR consist of various types of aircraft releasing

multiple live and inert weapons in a given mission day. Each mission cycle includes four consecutive mission days scheduled with an additional day reserved for a weather back-up, if range time is available. During calendar year 2022, missions were planned to occur 4 – 7 April 2022.

5.1 Mission Setup

86 FWS A-S missions are conducted in W-151A of the EGTTT. The GRATV was anchored approximately 17 NM (31 km) offshore from SRI. Figure 5-1 shows the location and basic site plan used for all 86 FWS A-S mission days. Water depth of the mission site from the GRATV anchor point to the southern portion of the Primary Track ranges between 120 ft (37 m) and 150 ft (46 m).

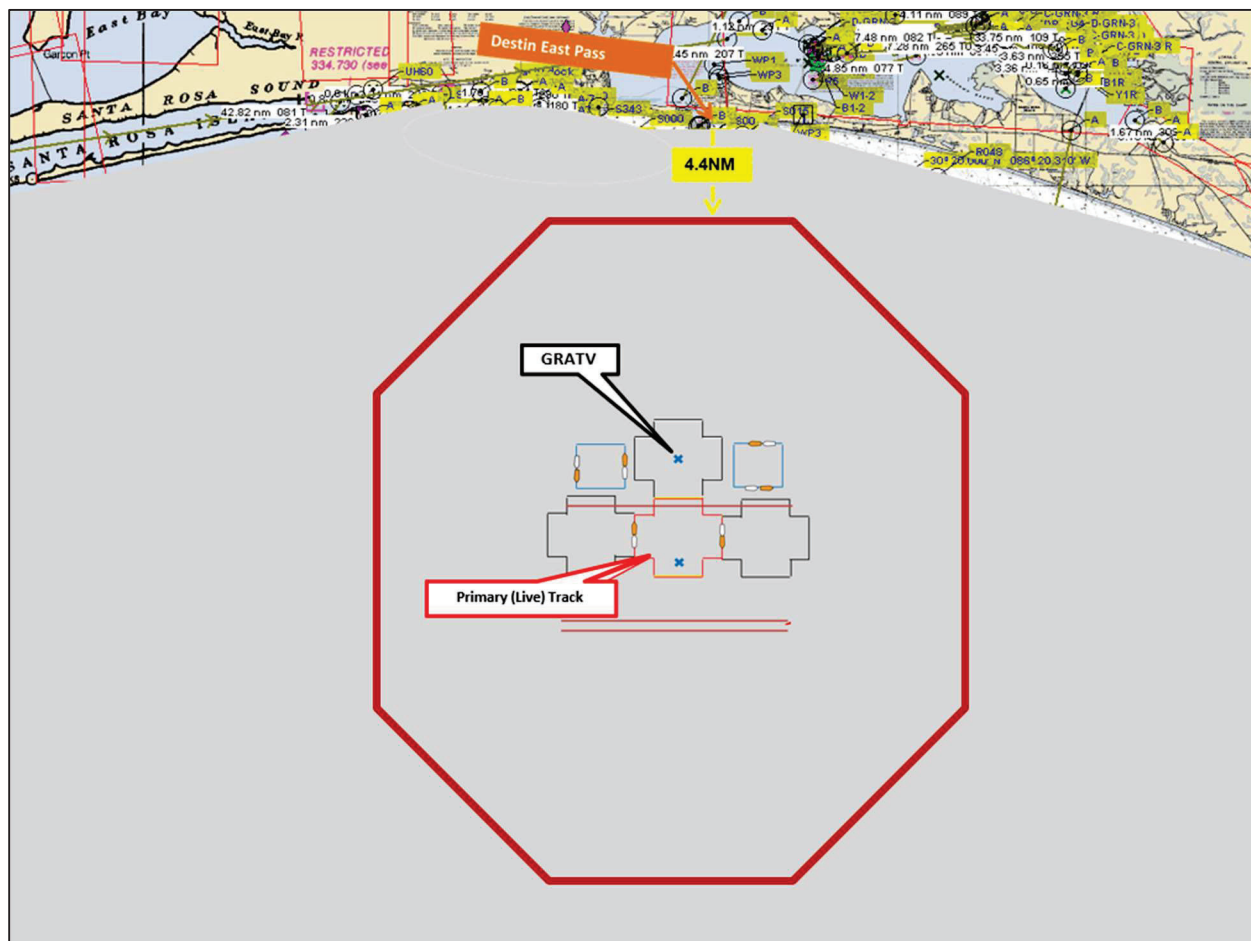


Figure 5-1. April 86 FWS A-S Mission Location

5.2 Targets

Remotely controlled boats called high speed maneuverable surface targets (HSMSTs) towed the actual target boats at distances between 300 ft and 500 ft behind them. The proponent set up multiple tracks for the HSMSTs to travel on, including the Primary Track and the Medium Bomb/Small Missile Track, where all weapon drops were planned. Additionally, static boat targets

were set up to deploy weapons against in the North Track location situated north of the GRATV barge.

5.3 Site Plan and Cameras

The entire mission site was continuously monitored from a variety of platforms before and during the mission. Four video cameras were set up on the GRATV. The cameras were remotely controlled to follow a given target and can zoom in to capture direct weapon impact or zoom out to determine whether the target was missed. While the main purpose of all video footage is to document weapons performance, they also monitored the area for unauthorized civilian boats and protected marine species before the weapons were released. In addition, HSMSTs towing target boats on the Primary Track had cameras facing the target boats to document impacts and verify detonation. Video feed from all cameras was transmitted to Eglin's CCF and monitored by the proponents, Eglin Test Safety, and Eglin NRO personnel. In addition, Eglin utilized the radar from the 300-ft tower at Test Site A-13B on SRI to assist with clearing the human safety zone from civilian vessels.

5.4 Human Safety Zone

Figure 5-1 shows the human safety box established around the mission site and Figure 5-2 shows the map issued to non-participating boats that exited the East Pass as part of the NOTMAR. The size and shape of the safety box takes into account the safety profiles for the weapons and the multiple weapon impact locations along any of the weapon release tracks and the static targets. Given the size of the human safety box, thirty-one AF vessels were on guard duty along the safety perimeter.

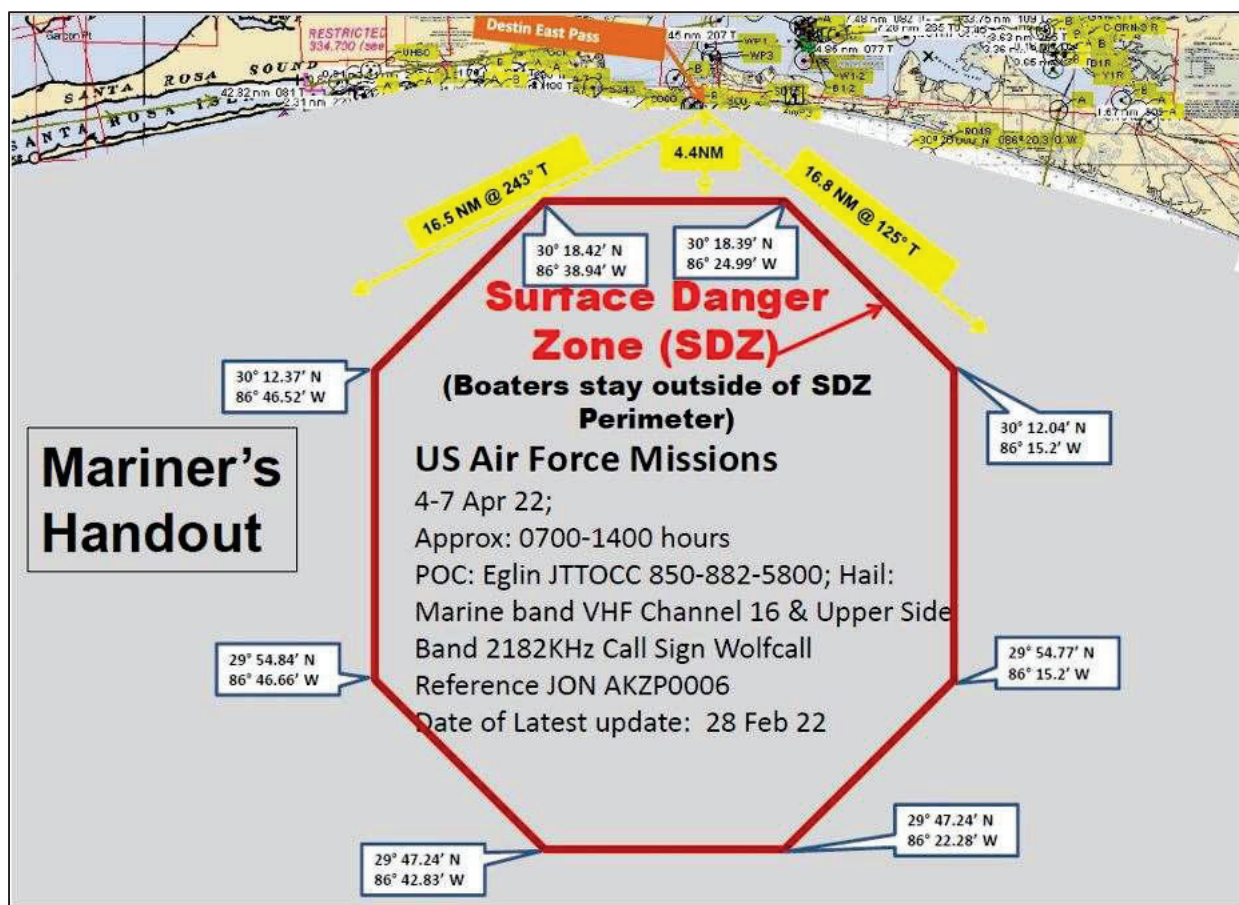


Figure 5-2. Human Safety Zone for April 86 FWS A-S Mission

Human safety procedures similar to those described in Section 1.1 were followed for all 86 FWS A-S missions.

5.5 Mitigation and Monitoring Requirements

Three months before the missions, multiple planning meetings were held with the 86 FWS and other participating offices. Among the items discussed were the list of proposed live weapons and schedule for the week. Eglin NRO and a representative from the 96 Range Group discussed the proposed list of weapons and schedule prior to the missions. Eglin NRO used this information to select the most appropriate mission day scenario and associated radius or range to effects for NMFS harassment thresholds for the survey area. 86 FWS A-S missions comprise 3 possible scenarios, based on the number and types of weapons, NEW, and detonation scenarios planned per day. These mission-day categories from the LOA are shown in Table 5-1.

Table 5-1. Mission Day Scenarios for 86 FWS A-S Missions

Mission-Day Category	Munition	NEW (lbs)	Detonation Type	Munitions per day	Mission days/year	Total Munitions/Year
A	Large Bomb	<1000	Subsurface	1	2	2

	Medium Bomb	<325	Surface	2		4
	Large Missile	< 300	Surface	2		4
	Medium Bomb	<200	Subsurface	5		10
B	Medium Missile	<100	Surface	2	4	8
	Small Bomb	<40	Surface	1		4
	Small Missile	<25	Subsurface	5		20
C	Small Missile	<20	Surface	5	2	10
	Small Rockets	<15	Surface	20		100
	Small Missile	<10	Surface	1		2
	Explosive Gunnery round 30mm HEI	<1	Surface	500		1,000

HEI = High Explosive Incendiary; lbs = pounds; mm = millimeters; NEW = Net Explosive Weight

Table 5-2 shows the ranges to effects for the various thresholds under each of the above scenarios, also taken from the LOA. These distances were used to determine the radius of the area to be monitored during pre- and post-mission surveys.

Table 5-2. Distance in meters to NMFS Harassment Thresholds for Marine Mammals

Mission Day Scenario	Mortality		Level A Harassment				Level B Harassment	
			Slight Lung Injury ²		GI Tract Injury ³	PTS ^{4, 5} (SEL)	TTS ^{4, 6} (SEL)	Behavioral ⁷ (SEL)
	BND	ASD	BND	ASD				
A	427	504	768	886	348	1,039	5,001	8,155
B	107	133	225	266	156	430	2,245	3,959
C	37	47	85	104	83	320	1,128	1,863

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

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

³ Peak pressure metric of 237 dB re 1 μ Pa (unweighted SPL)

⁴ 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.

⁵ Weighted SEL metric of 185 dB re 1 μ Pa²s

⁶ Weighted SEL metric of 170 dB re 1 μ Pa²s

⁷ Weighted SEL metric of 165 dB re 1 μ Pa²s

ASD = Atlantic spotted dolphin; BND = Bottlenose dolphin; dB re 1 μ Pa = decibels referenced to 1 micropascal; dB re 1 μ Pa²s = 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

Based on discussions with the 96 Range Group representative regarding the proposed list of various live weapons (small, medium, and large missiles), Eglin NRO decided to base 2022 86 FWS A-S missions on a daily sum of NEW (to equate to Mission-Day Category) for maximum mission flexibility, and to best support execution of the mission while ensuring monitoring and mitigation measures to protect marine species were met. Eglin NRO understood what daily total NEWs (and individual weapon totals) would not be exceeded, and we ensured protected species surveys covered those associated maximum threshold distances each day. It was likely that some, if not all, of these mission days would result in smaller total NEW and fewer individual weapons being used. Eglin NRO assigned Mission-Day Category A (total available NEW = 2,985 lbs) and the associated ranges to effects for NMFS harassment thresholds to develop the monitoring area and routes for the protected species surveys. The radius distance for Level A Harassment by PTS

for Mission-Day Category A is 1,039 m (Table 5-2). Table 5-3 presents the ranges to effect from large, medium, and small detonations for the various NMFS acoustic thresholds for sea turtles. It is an excerpt from Table 4-5 of the BA and Table 20 of the BO.

Table 5-3. Distance in meters to NMFS Acoustic Thresholds for Sea Turtles

Munition	NEW (lbs)	Detonation Scenario	Mortality and Serious Injury	Impairment	Disturbance	Behavioral Response
Large Missile	<300	Surface	524	873	1,712	136,001
Medium Missile	<100	Surface	345	575	1,127	89,521
Small Missile	<25	Surface	211	352	692	54,942
		Subsurface	213	354	694	55,145

AGM = Air-to-Ground Missile; JASSM = Joint Air-to-Surface Standoff Missile; lbs = pounds; NEW = Net Explosive Weight

Eglin NRO biologists doubled the distance for Mission-Day Category A to account for animals that may swim into the ZOI after surveys were completed. This resulted in a radius equal to 2,078 m (1.12 NM). As stated in Section 5.1.1, live weapons could detonate anywhere along the Primary Track, the Medium Bomb/Small Missile Track, and/or the North Track location. As a result, the survey radius extended from the endpoints of all tracks with an even larger buffer area. Given the large size of the survey area, five boats were used to complete the pre- and post-mission surveys: *Ground Control*, *Sturgeon*, *El Jefe*, *Saila*, and *Sea Eagle*. The approximate survey zones are depicted in Table 5-3.

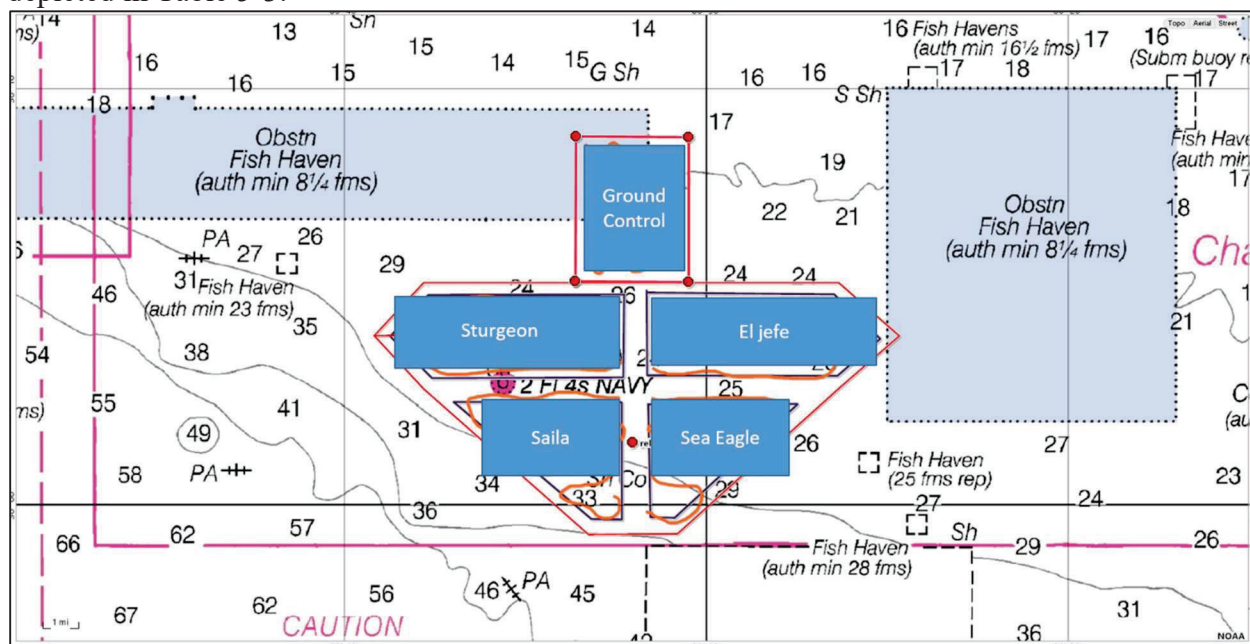


Figure 5-3. Survey Zones for 86 FWS A-S Protected Species Surveys

For the duration of 86 FWS A-S missions, the *Sturgeon* vessel captain was designated as the Lead Biologist, to whom all sightings were reported and documented. It was the Lead Biologist's responsibility to document each sighting reported to him by the other survey vessel captains and provide recommendations to Eglin Tower on whether a mission needed to be delayed or canceled

based on either sea state or protected species activity around the detonation sites. After all missions were completed, the Lead Biologist provided results from the pre- and post-mission surveys to Eglin NRO.

5.6 Description of 86 FWS A-S Missions

Due to inclement weather/high sea states, technical difficulties with both live video and aircraft, non-participating vessels entering the safety profile, and range time constraints, only two days of April 86 FWS A-S missions included live weapon releases. Two live releases were not fully mitigated. One live large missile was released and detonated without a qualified observer present on the first day of the 86 FWS A-S missions. The next two days of missions were cancelled due to weather/marine conditions and video technical issues.

On the final day of 86 FWS A-S missions, one live large missile was released, but there was no indication of detonation as conveyed by weapon experts. These experts relayed that one of the systems on the weapon failed and contributed to its likely lack of detonation; however, their weapon video feed also malfunctioned. A post-mission survey was conducted by trained mission personnel via aircraft and no protected marine species were observed. No live small missiles were released.

5.6.1 Monday 4 April 2022

5.6.1.1 Pre-Mission Survey Results

Survey boats arrived at the survey area at 6:00 AM. Weather and sea-state conditions were fair with partly cloudy skies, winds at 4-5 knots, and 2-4 ft. rolling waves. Visibility was good. Pre-mission survey began at 6:15 AM and was completed at 7:30 AM. Figure 5-4 shows the survey routes. No protected marine species or indicators were observed during the pre-mission survey. Survey boats transited back to guard duty locations after survey was completed. Survey boat *Ground Control* reported two separate incidental sightings while at guard duty location at the safety perimeter, listed in Table 5-4.

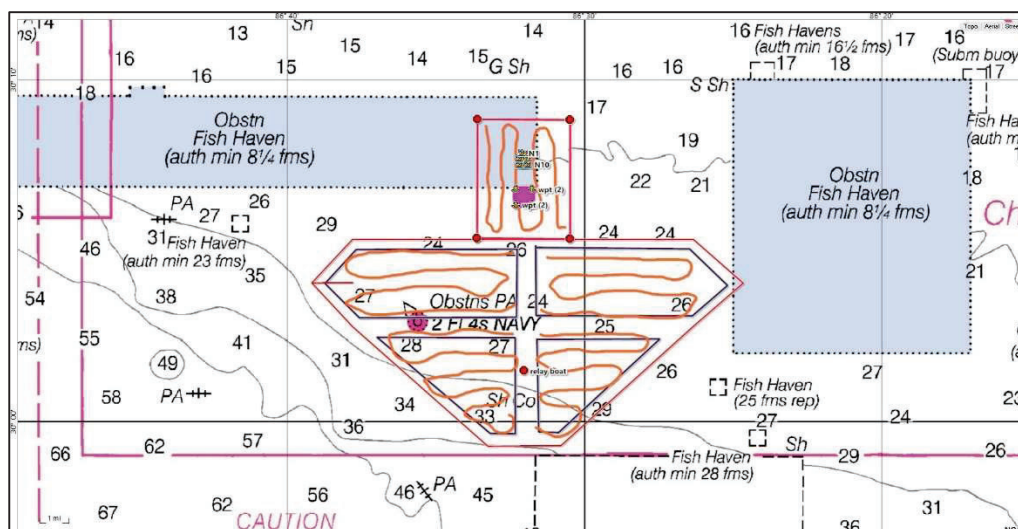


Figure 5-4. Survey Routes for 86 FWS A-S Mission

Table 5-4. Incidental Sightings from 86 FWS A-S Mission

#	Time	Vessel	Sighting	Location	Comments
1	8:00 AM	Ground Control	(4) Bottlenose Dolphins (2 adults, 2 juveniles)	30° 13.77', 86° 16.94'	Dolphins were heading northeast from Ground Control guard duty location.
2	10:00 AM	Ground Control	(1) Sea Turtle	30° 13.77', 86° 16.94'	Sea turtle was observed surfacing at guard duty location.

5.6.1.2 Mission Results

The Eglin NRO observer arrived at CCF at 7:30 AM and began monitoring the GRATV live camera video feed for protected marine species at 7:35 AM. The live medium missiles were released on this mission day. The first weapon was released at 10:40 AM and detonated at 10:41 AM, successfully impacting a moving boat target. The second weapon was released at 11:09 AM and detonated at 11:10 AM, successfully impacting a moving boat target. The third weapon was released at 11:13 AM and detonated at 11:14 AM, successfully impacting a moving boat target. No protected marine species were observed during any of the live weapon releases. The Eglin NRO observer was told by mission proponents that no more live weapon releases were planned for the day, so the observer left the CCF. The Eglin NRO observer learned the next day that one live large missile was released after leaving the CCF. The Eglin NRO observer asked the CCF staff to print out the weapons flow list from 4 April. Upon double-checking the list, no live large missiles were planned for release that previous day. The mission proponents were able to provide the Eglin NRO observer with a time of release and impact as well as approximate impact coordinates. The live large missile was released at 12:23 PM and detonated at 12:51 PM. No

monitoring for protected marine species occurred during this live weapon release, however post-mission survey was conducted (see below). No other live weapons were released on this mission day.

5.6.1.3 Post-Mission Survey Results

The post-mission survey began at 2:00 PM and ended at 3:00 PM. Visibility was good. No protected marine species were observed.

5.6.1.4 Take Analysis

While Eglin NRO believes pre- and post-mission surveys provide evidence there was likely no take of protected marine species, this analysis is incomplete as there was no live feed monitored during weapon detonation.

5.6.2 Tuesday 5 April 2022

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

5.6.2.1 Pre-Mission Survey Results

A pre-mission survey was not conducted since the mission was cancelled due to inclement weather and unfavorable sea state conditions.

5.6.2.2 Mission Results

Mission was cancelled for the day.

5.6.2.3 Post-Mission Survey Results

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

5.6.2.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

5.6.3 Wednesday 6 April 2022

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

5.6.3.1 Pre-Mission Survey Results

Survey boats arrived at the survey area at 7:00 AM. Weather and sea-state conditions were poor with dense fog and 4-foot seas with rolling waves. The mission was delayed due to the dense fog causing issues with connectivity to GRATV live video feed. Survey boats transited around the target site waiting to do the official protected marine species survey. Pre-mission survey began at 11:55 AM and was completed at 12:30 PM. No protected marine species or indicators were observed during the entire time survey boats were transiting around the target location or on the pre-mission survey.

5.6.3.2 Mission Results

The mission was cancelled for the day due to technical issues with the GRATV live video feed caused by the dense fog.

5.6.3.3 Post-Mission Survey Results

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

5.6.3.4 Take Analysis

No takes occurred since the mission was cancelled and no weapons were released.

5.6.4 Thursday 7 April 2022

The mission setup for this day's mission was initially identical to the previous day; however, a decision was made to move the large missile target location due to a non-participating vessel in the safety profile.

5.6.4.1 Pre-Mission Survey Results

The pre-mission survey was completed by aircraft on this day due to the rough sea state/marine conditions and the call made by the mission proponents to proceed with a live release. Pilots who had received the Protected Marine Species Observer Training performed the pre-mission survey aboard the aircraft using aircraft sensor capabilities at an altitude around 6,000 feet. There was an additional trained observer in the CCF viewing the classified video feed. The pre-mission survey began at 11:41 AM and ended at 11:58 AM. Sea state was considered a "4" or whitecaps greater than 50% of surface and waves greater than 3 feet. No protected marine species or indicators were observed during the pre-mission aerial survey.

5.6.4.2 Mission Results

One live large missile was released at 11:59 AM. Weapon experts at the CCF said that there was no indication that the weapon detonated. They relayed that one of the systems on the weapon failed and contributed to its likely lack of detonation; however, their weapon video feed also malfunctioned. The Eglin NRO observer was able to monitor live video feed of the GRATV area during the mission until proponents shifted the large missile target location. There were no other live weapons released on this mission day.

5.6.4.3 Post-Mission Survey Results

The post-mission survey was completed by aircraft on this day due to the rough sea state/marine conditions. Aircraft personnel who had received the Protected Marine Species Observer Training performed the post-mission survey. The post-mission survey began at 12:10 PM and ended at 12:46 PM. No protected marine species or indicators were observed during the post-mission aerial survey.

5.7 86 FWS A-S Mission Summary

Table 5-5 summarizes 86 FWS expenditures during the 2022 calendar year and compares it with annual allocations covered under the existing LOA and BO.

Table 5-5. Comparison of Permitted vs. Actual Level of 780 TS Mission Activities

Weapons^a	Mission-Day Category	Total Munitions per Year	Actual Munitions Released in 2022	Unused Munitions in 2022
Large Missile	A	4	2	2
Medium Missile	B	8	3	5

^a This table is representative of live detonations only; inert detonations are not included.

6. 413th Flight Test Squadron (413 FLTS)

The 413 FLTS conducts A-S gunnery, guided munitions testing activities primarily in W-151A of the EGTTTR (Figure 6-1). The purpose of this testing is to demonstrate the feasibility and capability of the gunnery and guided munitions system on the AC-130 aircraft. Gunnery rounds include 30-mm High Explosive (HE), 105-mm Full Up (FU), and 105-mm TR that contains less than 10 percent of the amount of explosive material contained in the 105-mm FU round. Guided munitions proposed for use in testing include small missiles and small bombs. No AC-130 gunnery nor guided munitions missions occurred in 2022. 413 FLTS has also been assigned developmental and operational testing for rotary-wing aircraft to replace the UH-1 helicopter series. In 2022, all 413 FLTS tested only this rotary-wing aircraft and its medium caliber machine gun system that fires inert 7.62 mm rounds.

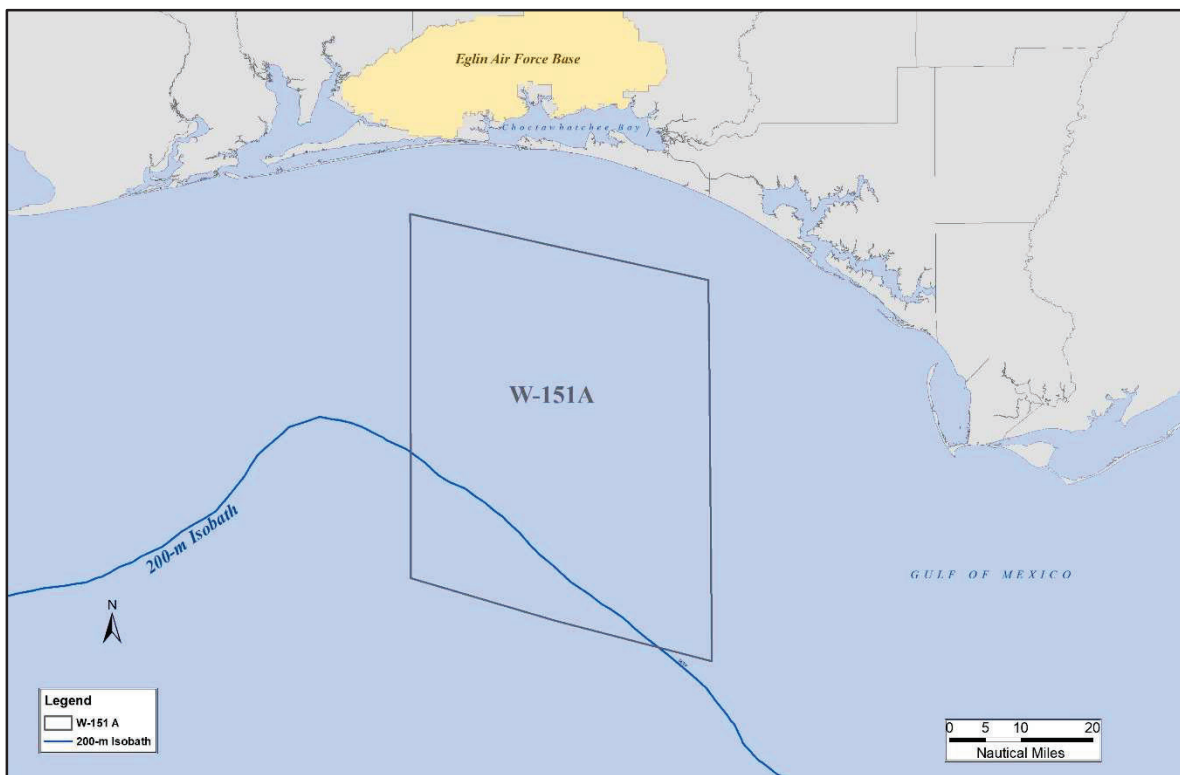


Figure 6-1. Location of W-151A in the EGTTTR

6.1 Mission Setup

The gunships used for 413 FLTS gunnery missions contain sensor systems that can be used to reliably clear areas of the Gulf for non-participating vessels and protected marine 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. The rotary-wing aircraft tested were required to execute according to gunnery setup conditions established by the terms and conditions for the AC-130 and CV-22 aircraft, and described immediately below.

6.2 Mitigation and Monitoring Requirements

The 413 FLTS mitigates and monitors impacts to marine mammals and sea turtles, via surveying ZOI aerially immediately prior firing and ramping-up multiple-sized munitions. Table 6-1 and Table 6-2 list the Mission-Day Categories for the 413 FLTS gunnery missions as described in the EGTTT LOA application.

Table 6-1. 413 FLTS Gunnery Testing Mission-Day Categories

Mission-Day Category	Munition	NEW (lbs)	Detonation Type	Munitions per Day	Mission Days/Year	Total Munitions/Year
F	30 mm HE	<0.1	Surface	33	3	99
G	105 mm FU	<7	Surface	15	4	60
H	105 mm TR	<1	Surface	15	4	60

FU = Full Up; HE = High Explosive; lbs = pounds; mm = millimeter; NEW = Net Explosive Weight; TR = Training Round

Refer to Table 2-2 for AFSOC gunnery missions that shows the monitoring area radii for AC-130 gunships. As Eglin NRO described in the LOA request, missions that consist solely of gunnery testing and training operations will survey larger areas than those based solely on acoustic impact zones at a Level A Harassment/PTS threshold. This is because the Air Force can conduct aerial surveys of larger areas from mission aircraft during these activities. Monitoring procedures are described in *Section 11.2.2* of the LOA Application. Table 6-2 shows the ranges to effects for the various thresholds under each of the above scenarios, also taken from the LOA. This conservative gunship approach 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 6-2. Distance in Meters to NMFS Harassment Thresholds for Marine Mammals

Mission-Day Category	Mortality ¹		Level A Harassment			Level B Harassment		
			Slight Lung Injury ²		GI Tract Injury ³	PTS ^{4,5} (SEL)	TTS ^{4,6} (SEL)	Behavioral ⁷ (SEL)
	BND	ASD	BND	ASD				
F	3	4	7	9	19	96	218	373
G	24	30	55	67	59	167	552	809

H	6	8	15	18	25	97	229	432
----------	---	---	----	----	----	----	-----	-----

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

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

³ Peak pressure metric of 237 dB re 1 μ Pa (unweighted SPL)

⁴ 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 the SPL

⁵ Weighted SEL metric of 185 dB re 1 μ Pa²·s

⁶ Weighted SEL metric of 170 dB re 1 μ Pa²·s

⁷ Weighted SEL metric of 165 dB re 1 μ Pa²·s

ASD = Atlantic spotted dolphin; BND = bottlenose dolphin; dB re 1 μ Pa = decibels referenced to 1 micropascal; dB re 1 μ Pa²·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

For A-S gunnery missions, prior to beginning firing activities, the gunships conduct low-altitude orbits around the prospective firing location to ensure the ZOI is clear of protected marine 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 Protected 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.

6.3 Description of 413 FLTS Missions

Three rotary-wing A-S medium caliber machine gun missions were conducted during the 2022 calendar year. Copies of all Protected Marine Species Observer Report Forms are included in Appendix A of this report. Table 6-3 summarizes the results of the report forms.

Eglin NRO notes a discrepancy in time associated with the mission times listed in one of the Protected Marine Species Observer Report Forms on November 17, 2022. Eglin NRO reached-out to the observer and received a response confirming that they listed the “mission times” as the overall mission time from departure to return, reflecting the entire time over the water range rather than the time during which firing occurred. Additionally, the observer reported several protected marine species and other marine animals in shallow water within 100 yards of shore when they transited across the nearshore beach. Protected marine species sightings listed in the observer report form included schooling dolphins, sea turtles, and two manatees, as well as numerous sharks and rays. The observer noted that no protected marine species or indicators were observed in the ZOI at any time during the mission, and that the aircrew conducted two additional clearing passes during the mission to ensure no protected marine species or indicators were present. Copies of the emails with responses can be found in Appendix A of this report. The pre- and post-mission surveys generally occurred 15 minutes prior to live fire and 15 minutes after live fire was complete.

Table 6-3. Summary of 413 FLTS Medium Caliber Machine Gun Missions for 2022

Date of Mission	Pre-Mission Survey		Mission Times		Post-Mission Surveys		Rounds used	# of Rounds Expended	Protected Marine Species Observed?
	Start	End	Start	End	Start	End			
9/23/2022	1021	1027	1028	1155	1155	1200	7.62 mm	1117	No

9/30/2022	1055	1100	1100	1208	1208	1215	7.62 mm	2000	No
11/17/2022	1105	1109	1100 ^a	1600 ^a	1420	1425	7.62 mm	1600	No ^b

mm = millimeter

^a The “mission times” listed reflect the overall mission time from departure to return.

^b No protected marine species were observed while en route to mission area or during mission, but observer noted multiple marine species observed while flying along the beach nearshore.

6.4 413 FLTS Mission Summary

Table 6-4 summarizes gunnery expenditures during the 2022 calendar year and compares it with the annual allocations covered under the existing LOA and PBO. The number of A-S medium caliber machine gun activities conducted in the EGTR for the reporting period were well below the total amounts authorized per year and used munitions (7.62 mm medium machine-gun inert rounds) below any munitions threshold under which Eglin and NMFS consulted. Since no protected marine species were observed before, during, or following the mission, Eglin NRO concludes that no takes occurred and does not report these rounds in Summary Table 7-1.

Table 6-4. Comparison of Permitted vs. Actual Level of 413 FLTS Gunnery Mission Activities

Gunnery	Mission-Day Category	Total Annual Allotments	Actual Usage	Unused Allotments
30 mm HE	F	99	0	99
105 mm FU	G	60	0	60
105 mm TR	H	60	0	60
7.62 mm inert	N/A	N/A	4,717	N/A

FU = Full-Up; HE = High Explosive; TR = Training Round; mm = millimeter; N/A = not applicable

7. Summary of all EGTR Mission Activities

Table 7-1 below summarizes results from protected marine species surveys and live weapon releases in the EGTR during calendar year 2022.

Table 7-1. Summary of Survey Results and Live Weapon Releases in the EGTR

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	7/19/2022	0	0	0	0	Gunnery	N/A	117	0	0
780 TS	4/20/2022	10 ^a	0	N/A	N/A	No live weapons were released			N/A	N/A
	4/28/2022	0	0	0	0	Large Bomb	<1000 lbs.	1	0	0
	7/20/2022	0	0	0	0	Small Missile	<30 lbs.	2	0	0
86 FWS	4/4/2022	0	0	4 ^b	1 ^b	Medium Missile	<100 lbs.	3	0	0
						Large Missile	<250 lbs.	1		
	4/7/2022	0 ^c	0 ^c	0 ^c	0 ^c	Large Missile	<250 lbs.	1	0	0

Total # species observed	10^a	0	4^b	1^b		0	0
---------------------------------	-----------------------	----------	----------------------	----------------------	--	----------	----------

= number; AFSOC = Air Force Special Operations Command; lbs = pounds; MM = marine mammals; N/A = not applicable; NEW = net explosive weight; ST = sea turtles; TS = Test Squadron

^a This observation occurred before the pre-mission survey began and was outside of the survey area. Survey boat observed animals continuing to head out of the mission area.

^b Incidental sightings at guard duty perimeter location by survey boat *Ground Control* during mission.

^c Pre-mission survey and during mission observations were completed via aerial platform because marine conditions precluded vessel-based surveys from occurring. See Section 5.6 for explanation.

8. Effectiveness of Mitigation and Monitoring Requirements

The mitigation and monitoring methods authorized by NMFS were successfully implemented in support of EGTTTR mission activities in all but two live weapons releases. In cases where protected marine 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 years.

Video monitoring in CCF and in building A-5 was initiated for ten mission days: three live mission days (one of which lost video feed of impact site due to impact site shifting, the same mission then lost weapon video feed), one mission day that included an inert and live munition, one mission day that included only an inert munitions, and five other mission days that were canceled. Eglin NRO plans to incorporate video monitoring for all future EGTTTR non-gunnery live missions when operationally feasible, which proved in 2022 to be feasible for all of them, but not immune from technical issues for one of them. Eglin NRO has distributed updated protected marine species observer trainings, mission report forms, and copies of current permits to AFSOC, the 413 FLTS, and the 417 FLTS for future mission activities. To prevent another impromptu live munition release from going unobserved, the NRO observer will remain at CCF until the day's live munitions are declared over by both the Test Engineer and the CCF director. 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 EGTTTR.

9. Protected Marine Species Stranding Reports

As part of Eglin NRO's marine mitigation program, protected marine species strandings are reviewed and analyzed for correlation to missions. This section will focus on the marine mammal and sea turtle strandings that occurred on Eglin AFB property during calendar year 2022.

Table 9-1. 2022 Marine Mammal Stranding Records

Date	# of Animals	Species	Location Found	Condition of the Animal(s)
2/14/22	1	Unknown dolphin species	Public access portion of Eglin AFB on Santa Rosa Island	Carcass was freshly dead and observed floating in shallow water. Carcass had significant damage from

				scavengers, but examiner was able to determine the animal was a female dolphin pup (species unknown). Cause of death could not be determined.
--	--	--	--	---

One marine mammal stranding occurred on Eglin AFB property during the calendar year 2022. Information on this stranding is presented in Table 9-1. A female dolphin pup (unknown species) stranded on the Gulf side of Santa Rosa Island on Eglin AFB property on the 14th of February 2022. There were no live missions during this time of the year that coincided with the stranding event, therefore, Eglin NRO believes this stranding was not related to live EGTTTR mission activities.

According to the Florida Sea Turtle Stranding and Salvage Network (FLSTSSN) data shown in Figure 9-1 and Figure 9-2, 34 sea turtle strandings (4 from Eglin AFB) were reported in Okaloosa County and 60 sea turtle strandings (2 from Eglin AFB) were reported in Santa Rosa County in 2022 (FLSTSSN, 2022). Data for 2022 show that strandings were mostly below the 5- and 10-year averages in Okaloosa County and above the 5- and 10-year averages in Santa Rosa County (FLSTSSN, 2022).

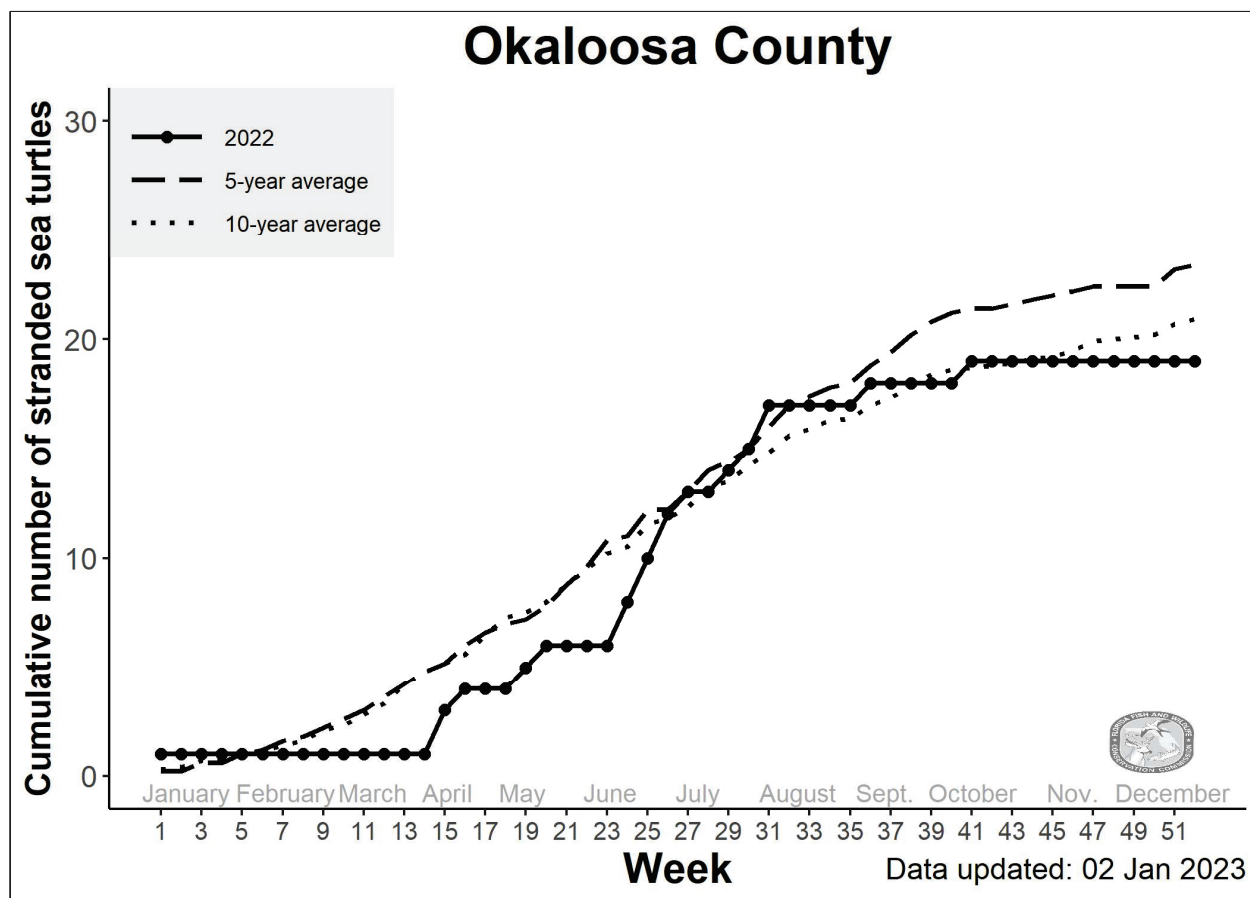


Figure 9-1. Cumulative Numbers of Stranded Sea Turtles in Okaloosa County during 2022 and the Previous 5-year and 10-year Averages
Source: (FLSTSSN, 2022)

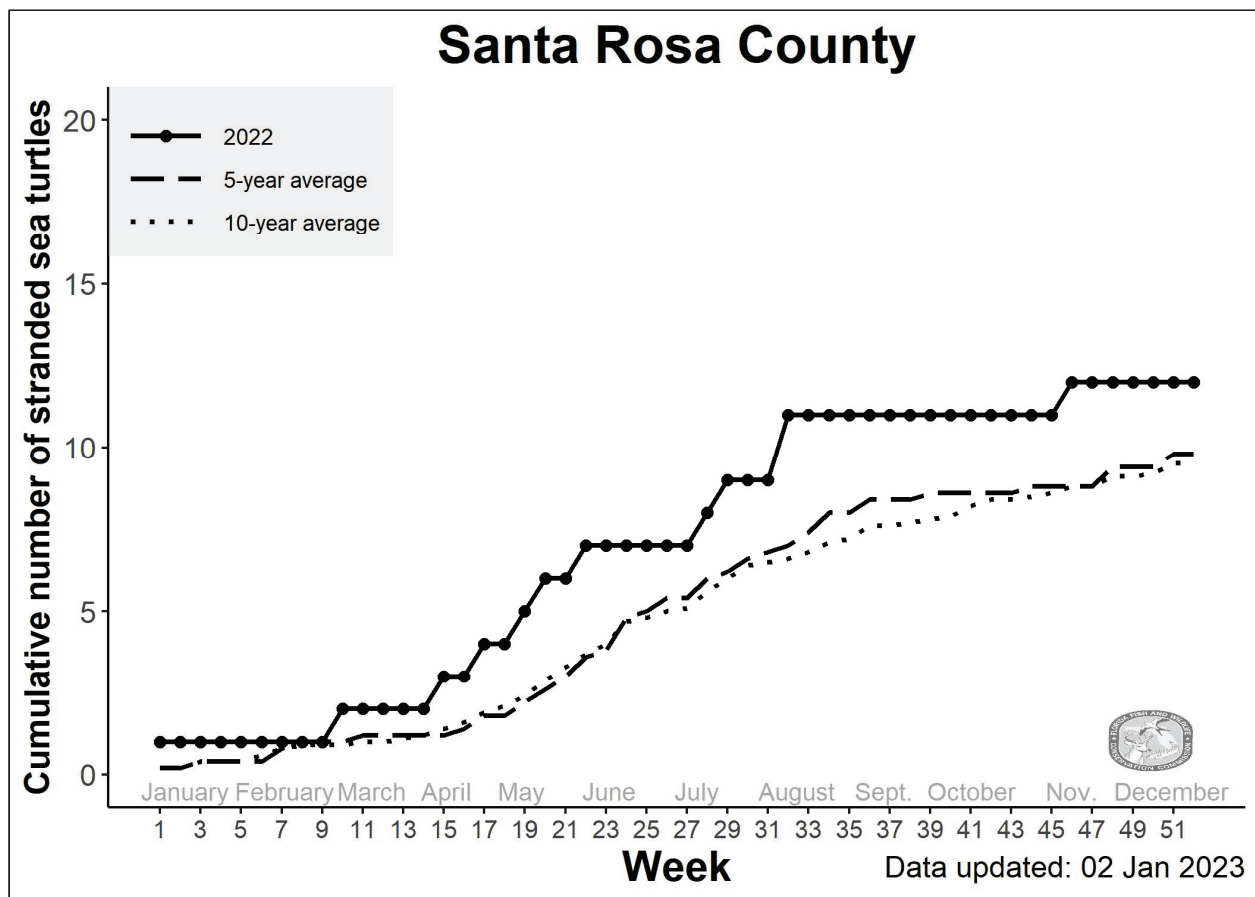


Figure 9-2. Cumulative Numbers of Stranded Sea Turtles in Santa Rosa County during 2022 and the Previous 5-year and 10-year Averages
Source: (FLSTSSN, 2022)

Specifically, for Eglin AFB property in 2022, 6 turtles were found stranded on Eglin’s property on SRI (4 turtles in Okaloosa County, and 2 turtles in Santa Rosa County) and no turtles were found stranded on Eglin’s property in Cape San Blas off St. Joseph Bay (Gulf County). Information on each of these strandings is presented in Table 9-2.

Table 9-2. 2022 Sea Turtle Stranding Records for Eglin AFB

Date	# of Animals	Species	Location Found	County	Condition of the Animal(s)
4/13/2022	1	Loggerhead	Restricted access portion of Eglin AFB on Santa Rosa Island	Okaloosa County	Mildly decomposed carcass. No external injuries or abnormalities observed.

Date	# of Animals	Species	Location Found	County	Condition of the Animal(s)
4/14/2022	1	Kemp's ridley	Restricted access portion of Eglin AFB on Santa Rosa Island	Santa Rosa County	Moderately decomposed carcass. Missing left front flipper and tail. No other external injuries or abnormalities observed.
4/14/2022	1	Loggerhead	Public access portion of Eglin AFB on Santa Rosa Island	Okaloosa County	Dried carcass. No external injuries or abnormalities observed.
6/20/2022	1	Kemp's ridley	Public access portion of Eglin AFB on Santa Rosa Island	Okaloosa County	Moderately decomposed carcass. Definitive vessel-strike injuries evident on the carapace.
7/02/2022	1	Loggerhead	Restricted access portion of Eglin AFB on Santa Rosa Island	Okaloosa County	Mildly decomposed carcass; possible vessel-strike injuries to head, neck, front, and rear flippers.
11/17/2022	1	Loggerhead	Restricted access portion of Eglin AFB on Santa Rosa Island	Santa Rosa County	Mildly decomposed carcass; Missing majority of front and rear flippers on right side. No other external injuries or abnormalities were observed.

The two loggerhead and one Kemp's ridley turtle strandings that occurred on 13th and 14th of April 2022 were 6 – 10 days after the April 86 FWS A-S mission where live weapons were released on the 4th and 7th of April 2022. The carcass of the loggerhead turtle that stranded on April 14th was dried with skeletal remains visible throughout. Based on the advanced stage of decomposition at the time the carcass was observed, Eglin NRO believes this stranding most likely occurred prior to the April 86 FWS A-S mission and was not related to EGTTTR live mission activities. The loggerhead that stranded on April 13th and the Kemp's ridley that stranded on April 14th were observed to be mildly and moderately decomposed, respectively, with no external injuries or abnormalities noted. The loggerhead carcass stranded on the shore between roughly 19 – 34 NM north/northwest of the 86 FWS A-S target locations, and the Kemp's ridley carcass stranded on the shore between roughly 23 – 38 NM northwest of the 86 FWS A-S target locations. Limited research on carcass decomposition has been conducted on sea turtles (Santos et al., 2018); estimating how long a sea turtle has been deceased is difficult. Various factors influence carcass decomposition including air and water temperature, oceanic conditions (i.e., local currents and winds), and distance from the shore (Santos et al., 2018; Cook et al., 2021). Average water temperatures in the local area during the April 86 FWS A-S mission ranged between 71.2 °F – 72 °F (21.7° C – 22.2° C) (NOAA, 2022). However, because ascertaining wind and current velocities and better estimating sea turtle time of death is beyond our ability, Eglin NRO cannot determine that the strandings of the loggerhead on the 14th of April and Kemp's ridley on the 13th of April were not related to EGTTTR live mission activities. Therefore, Eglin NRO assumes that Level A mortality take occurred for two sea turtles (one loggerhead and one Kemp's ridley) in April 2022, incidental to 86 FWS A-S missions. The loggerhead that stranded on the 17th of November 2022

was observed on the same day that a 413 FLTS medium caliber machine gun mission occurred. The loggerhead carcass stranded on the shore roughly 82 NM north of the location of the 413 FLTS mission and was observed to be mildly decomposed and missing limbs, suggesting this animal had been deceased prior to live mission activities that same day. Eglin NRO concludes this stranding was not related to EGTTR live mission activities. All other sea turtle strandings listed in Table 9-2 above occurred at times that did not coincide with EGTTR live mission activities.

10. Conclusion

No additional impacts to protected marine species have been reported since the missions were completed on November 17, 2022. Eglin NRO believes this document fulfills the reporting requirements outlined in the LOA and PBO. 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.

11. References

Cook, Melissa; Reneker, Jaymie L.; Nero, Redwood W.; Stacy, Brian A; Hanisko, David S.; and Wang, Zhankun, Use of drift studies to understand season variability in sea turtle stranding patterns in Mississippi (2021). *Frontiers in Marine Science*, 8, 1 – 17.

FLSTSSN. (2022). *Current Information on Stranded Sea Turtles in Florida*. Retrieved December X, 2022, from Florida Sea Turtle Stranding and Salvage Network: <http://ocean.floridamarine.org/seaturtle/flstssn/cOkaloosa.html>.

NOAA. (2022). *Coastal Water Temperature Guide*. Retrieved December 8, 2022, from National Centers for Environmental Information, National Oceanic and Atmospheric Administration (NOAA): ncei.noaa.gov/access/coastal-water-temperature-guide/all-table.html.

Santos, Bianca; Kaplan, David M.; Friedrichs, Marjorie A.M.; Barco, Susan G.; Mansfield, Katherine L.; Manning, James P. Consequences of drift and carcass decomposition for estimating sea turtle mortality hotspots (2018). *Ecological Indicators*, 84, 319 – 336.

12. Signatures

2022 Annual Report on EGTR Mission Activities

Final Report

Eglin Air Force Base, Florida

Compiled by: STEPHENS.BRAIL.S.1456786002
Digitally signed by
STEPHENS.BRAIL.S.1456786002
Date: 2023.04.19 14:58:05 -05'00'
Brail Stephens
Marine Scientist
Eglin Natural Resources/Jacobs Engineering

Reviewed by: FELIX.RODNEY.KIRK.JR.1169720890
Digitally signed by
FELIX.RODNEY.KIRK.JR.1169720890
Date: 2023.04.20 06:58:51 -05'00'
Rodney Felix
Endangered Species Biologist
Eglin Natural Resources Office

JOHNSON.JUSTIN.T.1106687109
Digitally signed by
JOHNSON.JUSTIN.T.1106687109
Date: 2023.04.20 14:34:13 -05'00'
Justin Johnson
Supervisory Biologist
Eglin Natural Resources Office

JOHNSON.JUSTIN.T.1106687109
Digitally signed by
JOHNSON.JUSTIN.T.1106687109
Date: 2023.04.20 14:34:41 -05'00'
For Bruce Hagedorn
Chief
Eglin Natural Resources Office

Appendix A

Protected Marine Species Observer Report Forms

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: 7/19/22	Observer Name: Pesta	Organization: 19 SOS
Mission Description: Gunship training live fire		
Mission Location: Latitude: N2958.85 Longitude: W08609.35		
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 105 mm Training Round 30 mm 117 Other (please specify): 30 mm TP (Training Projectile)		
Were any protected species or indicators observed while en route*? No		
Arrival Time (Local) at Site: 1315 Sea State(see chart below): 1		
Pre-Mission Survey: Start time (Local): 1315 End time (Local): 1350		
Were any protected species or indicators observed*? No		
Mission Times: Start time (Local): 1350 End time (Local): 1420		
Were any protected species or indicators observed*? No		
Post-Mission Survey: Start time (Local): 1420 End time (Local): 1450		
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: 850-978-3251 or Bruce Hagedorn: 850-902-6004

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; 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: PESTA.BRIAN.LINDBERG.1272103824 Digitally signed by PESTA.BRIAN.LINDBERG.1272103824
Date: 2022.07.20 11:01:33 -05'00'

Date: 7/19/22

1

Last updated 6/11/2019

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: 09/23/2022	Observer Name: Astin, Melissa G	Organization: 413FLTS
Mission Description: Safe Sep Gun Testing - Flight		
Mission Location: Latitude: 30deg N Longitude: 86 36 W		
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 105 mm Training Round 30 mm Other (please specify): 762mm Total: 1117 rounds used		
Were any protected species or indicators observed while en route*? Y N		
Arrival Time (Local) at Site: 1521Z Sea State(see chart below): 1		
Pre-Mission Survey: Start time (Local): 1521Z End time (Local): 1527Z Were any protected species or indicators observed*? No <input type="checkbox"/>		
Mission Times: Start time (Local): 1528Z End time (Local): 1655Z Were any protected species or indicators observed*? No <input type="checkbox"/>		
Post-Mission Survey: Start time (Local): 1655Z End time (Local): 1700Z Were any protected species or indicators observed*? No <input type="checkbox"/>		
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; 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: ASTIN.MELISSA.GODINA.1514334656 Digitally signed by ASTIN.MELISSA.GODINA.1514334656
Date: 2022.09.23 15:29:17 -0500

Date: 09/23/2022

Use a separate form for each mission day

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

Date: 30Sep2022		Mission Name: Asman, Jared		Organization: 413 FLTS	
Mission Description: MH-139A M240 Pintle Stability II					
Mission Location:					
Latitude: 30deg 7min N			Longitude: 86deg 36min W		
# of rounds used (enter for all that apply):					
_____ 25 mm		_____ 40 mm		_____ 105 mm Full Up _____ 105 mm Training Round	
_____ 30 mm		_____ Other (please specify): ~2000 rds 7.62mm			
Were any protected species or indicators observed while en route*? Y N No					
Arrival Time (Local) at Site: 1052			Sea State(see chart below): 1		
Pre-Mission Survey:					
Start time (Local): 1055			End time (Local): 1100		
Were any protected species or indicators observed*? No					
Mission Times:					
Start time (Local): 1100			End time (Local): 1208		
Were any protected species or indicators observed*? No					
Post-Mission Survey:					
Start time (Local): 1208			End time (Local): 1215		
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.**

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


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

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; 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:  Digitally signed by ASGHAR JARED THOMAS, DN: o=US, o=U.S. Government, ou=DoD, cn=FBI, cn=CONTRACTOR, cn=ASGHAR JARED THOMAS, 1.2.840.11353.2.1.1=109471720 Date: 2022.10.07 07:59:41 -0500

Date: 30Sep2022

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: 11/17/2022 Observer Name: Stanley Loughmiller Organization: 413 FLTS	
Mission Description: MH-139 M240 Airworthiness Test	
Mission Location: Latitude: 29 N 02.79' Longitude: 86 W 29.87'	
# of rounds used (enter for all that apply): 25 mm 40 mm 105 mm Full Up 105 mm Training Round 30 mm 1600 Other (please specify): 7.62x51mm	
Were any protected species or indicators observed while en route*? Y N No	
Arrival Time (Local) at Site: 1105 Sea State(see chart below): 1 to 2	
Pre-Mission Survey: Start time (Local): 1105 End time (Local): 1109	
Were any protected species or indicators observed*? No	
Mission Times: Start time (Local): 1100 End time (Local): 1600	
Were any protected species or indicators observed*? No	
Post-Mission Survey: Start time (Local): 1420 End time (Local): 1425	
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; 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: LOUGHMILLER.STANLEY.B.1298118617 Digitally signed by LOUGHMILLER.STANLEY.B.1298118617
Date: 2022.11.17 18:16:37 -0600

Date: 11/17/2022

Sighting #1	
Time: approximately 1450-1500	Sea State (see scale on page 1): 1 to 2
Protected Species Indicator Sighted: <input type="checkbox"/> Large school(s) of fish <input type="checkbox"/> Large flock(s) of feeding birds <input type="checkbox"/> <i>Sargassum</i> mat(s) <input type="checkbox"/> Large jellyfish aggregation(s) Other (describe): _____	
Species class sighted: <input type="checkbox"/> Large whale <input checked="" type="checkbox"/> Schooling dolphin <input type="checkbox"/> Undetermined marine mammal <input checked="" type="checkbox"/> Sea turtle <input checked="" type="checkbox"/> Manatee	
Species name (if known): _____ If unknown, provide description: _____	
Estimated number of animals: Adult: Numerous Young: Numerous	
Location of animal(s) sighted: Latitude: Many Longitude: Many Compass Heading: East	
Mission status at time of observation (check one): <input checked="" type="checkbox"/> En route <input type="checkbox"/> Pre-mission survey <input type="checkbox"/> During mission <input type="checkbox"/> Post-mission survey	
Was animal(s) observed in the ZOI at any time? Y N No	
Resolution of the sighting: <input type="checkbox"/> Animal left the ZOI before the mission began <input type="checkbox"/> Mission was delayed or location changed due to presence of protected species <input type="checkbox"/> Mission was delayed or location changed due to other factors (weather, etc.) <input checked="" type="checkbox"/> Animal observed during the mission, but outside the ZOI <input type="checkbox"/> Animal was observed in the ZOI during the mission	
Post-mission survey results: If animal(s) was observed during a post-mission survey, describe behavior/condition: <input type="checkbox"/> Normal <input type="checkbox"/> Erratic Swimming <input type="checkbox"/> Remained at Surface <input type="checkbox"/> Injured <input type="checkbox"/> Dead <input type="checkbox"/> Other: _____	

Eglin environmental personnel contact information: Page 1

Additional notes:

While flying along the beach from Navarre to Destin, several sharks, dolphins, turtles, rays and two manatees were observed in the shallow water within 100 yards of shore.
 No animals, fish, or flocks of feeding birds were observed in the ZOI at any time. Two additional clearing passes were conducted at intervals during the mission.

From: [LOUGHMILLER, STANLEY B CIV USAF AFMC 413 FLTS/SOTM](#)
To: [STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA](#)
Cc: [MILLER, GARY R JR CTR USAF AFMC 413 FLTS/SOTM](#); [FELIX, RODNEY K JR CIV USAF AFMC 96 CEG/CEIEA](#)
Subject: RE: Protected Species Observer Report Form
Date: Friday, November 18, 2022 9:46:20 AM

Brail,

Not a problem. To answer your questions:

1) No, we didn't see any on the way outbound. We transited across the beach instead of along it. At the time, crew was heads out looking for aircraft or heads down with instrumentation setup/checkouts.

2) Mission times listed were the official range times. Times listed for initial and final scans were actual times. No testing was conducted outside of those times.

V/R,

Stan Loughmiller
413th Flight Test Squadron
MH-139 Mission Systems Lead
Office: 850-885-6805
Mobile: 760-608-7592
stanley.loughmiller@us.af.mil

-----Original Message-----

From: STEPHENS, BRAIL S CTR USAF AFMC 96 CEG/CEIEA
<brail.stephens.1.ctr@us.af.mil>
Sent: Friday, November 18, 2022 9:40 AM
To: LOUGHMILLER, STANLEY B CIV USAF AFMC 413 FLTS/SOTM
<stanley.loughmiller@us.af.mil>
Cc: MILLER, GARY R JR CTR USAF AFMC 413 FLTS/SOTM
<gary.miller.33.ctr@us.af.mil>; FELIX, RODNEY K JR CIV USAF AFMC 96 CEG/CEIEA <rodney.felix.1@us.af.mil>
Subject: RE: Protected Species Observer Report Form

Sir,

Confirming receipt of the observer report form you sent in for the MH-139 test conducted yesterday. I want to thank you very much for providing detailed notes on sightings of protected marine species that you observed on your way back to base (post-mission). We don't often get detailed sighting information and this is very helpful to know that you are able to observe protected marine species in such detail with good sea state conditions. I do want to clarify that you didn't observe any protected marine species en route to your mission location, correct? I see in your notes that you also said your crew conducted two additional clearing passes at intervals during the mission. This is very much appreciated as we can relay this in our annual report to the National Marine Fisheries Service (NMFS) to show that we go above and beyond what is required of us to make sure we are effectively monitoring for protected marine species. We really appreciate the effort put forth during your missions to remain in compliance with our permits and for the detailed reporting!



MARINE SPECIES OBSERVER TRAINING CERTIFICATE OF COMPLETION

NAME: Nicholas Fernandez

ORGANIZATION: 3 SOS

DATE: 04/07/22

By signing this certificate, I am certifying that I have read/reviewed and understand all the information contained in the Marine Species Observer Training. I agree to accept the roles and responsibilities of a Protected Species Observer and will follow all procedures and requirements detailed in the training and provided to me by Eglin Natural Resources.

Signature: FERNANDEZ.NICHOLAS.LEON.1464681562

Digitally signed by
FERNANDEZ.NICHOLAS.LEON.1464681562
Date: 2022.04.13 14:48:24 -06'00'

Email a signed copy of this certificate (scanned copy of printed version or pdf file with electronic signature)
to Brail Stephens: brail.stephens.1.ctr@us.af.mil



MARINE SPECIES OBSERVER TRAINING CERTIFICATE OF COMPLETION

NAME: Marcus Allen Teadt

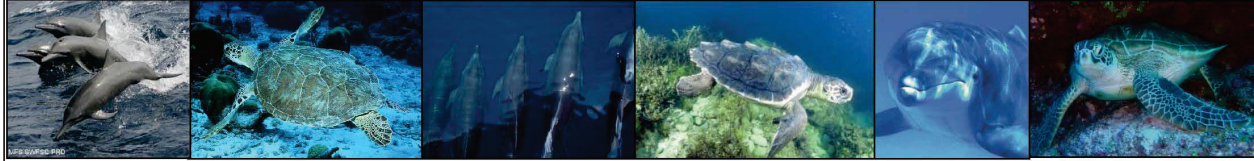
ORGANIZATION: 86 FWS

DATE: 04/07/22

By signing this certificate, I am certifying that I have read/reviewed and understand all the information contained in the Marine Species Observer Training. I agree to accept the roles and responsibilities of a Protected Species Observer and will follow all procedures and requirements detailed in the training and provided to me by Eglin Natural Resources.

Signature: TEADT.MARCUS.ALLEN.139438 Digitally signed by
TEADT.MARCUS.ALLEN.1394387637
Date: 2022.04.12 10:38:48 -06'00'

Email a signed copy of this certificate (scanned copy of printed version or pdf file with electronic signature)
to Brail Stephens: brail.stephens.1.ctr@us.af.mil



MARINE SPECIES OBSERVER TRAINING CERTIFICATE OF COMPLETION

NAME: Anthony Nejman

ORGANIZATION: 86 FWS

DATE: 04/07/22

By signing this certificate, I am certifying that I have read/reviewed and understand all the information contained in the Marine Species Observer Training. I agree to accept the roles and responsibilities of a Protected Species Observer and will follow all procedures and requirements detailed in the training and provided to me by Eglin Natural Resources.

Signature: NEJMAN,ANTHONY.J.1388066276
Digitally signed by NEJMAN,ANTHONY.J.1388066276
Date: 2022.04.12 10:41:40 -08'00'

Email a signed copy of this certificate (scanned copy of printed version or pdf file with electronic signature) to Brail Stephens: brail.stephens.1.ctr@us.af.mil

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: <u>7 APR 22</u>	Observer Name: <u>FERNANDEZ</u>	Organization: <u>3 SOS</u>
Mission Description: <u>WSEP - EAST</u>		
Mission Location: Latitude: <u>N 29 51</u> Longitude: <u>W 086 20</u>		
# of rounds used (enter for all that apply): 25 mm <input type="checkbox"/> 40 mm <input type="checkbox"/> 105 mm Full Up <input type="checkbox"/> 105 mm Training Round <input type="checkbox"/> 30 mm <input checked="" type="checkbox"/> Other (please specify): <u>1x JASSM</u>		
Were any protected species or indicators observed while en route*? Select one <u>NO</u>		
Arrival Time (Local) at Site: <u>1140</u>	Sea State(see chart below): Select one <u>(4)</u>	
Pre-Mission Survey: Start time (Local): <u>1141</u> End time (Local): <u>1158</u>		
Were any protected species or indicators observed*? Select one <u>NO</u>		
Mission Times: Start time (Local): <u>1158</u> End time (Local): <u>1159</u>		
Were any protected species or indicators observed*? Select one <u>NO</u>		
Post-Mission Survey: Start time (Local): <u>1210</u> End time (Local): <u>1246</u>		
Were any protected species or indicators observed*? Select one <u>NO</u>		
If the mission was cancelled due to environmental concerns, please state the reason(s): <u>N/A</u>		

**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: 850-978-3251 or Bruce Hagedorn: 850-902-6004

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; 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: _____

Date: 7 APR 22

1

Last updated 6/11/2019