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UNCLASSIFIED

2022

**Mariana Islands Training & Testing (MITT)
Study Area Annual Training Report**

**31 July 2021 to 30 July 2022
Year 2**

30 OCTOBER 2022

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MARIANA ISLANDS TRAINING AND TESTING STUDY AREA UNCLASSIFIED ANNUAL TRAINING REPORT

INTRODUCTION

The U.S. Navy prepared this Annual Training Report covering the period from 31 July 2021 to 30 July 2022 in compliance with the National Marine Fisheries Service (NMFS) Final Rule, Letter of Authorization (LOA), and Incidental Take Statements under the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) authorizations for the U.S. Navy's Mariana Islands Training and Testing (MITT) Study Area.

In the MITT Final Rule and Letter of Authorization,¹ the following report subsections were specified and are present within this report:

- (1) Major Training Exercises (MTEs)
 - (i) Exercise information for each MTE
 - (ii) Individual marine mammal sighting information for each sighting in each exercise where mitigation was implemented
 - (iii) Evaluation (based on data gathered during all MTEs) of the effectiveness of mitigation measures designed to minimize the received level to which marine mammals may be exposed
- (2) Sinking Exercises (SINKEXs)
 - (i) Exercise information gathered for each SINKEX
 - (ii) Individual marine mammal observation (by Navy Lookouts) information for each sighting where mitigation was implemented
- (3) Summary of Sources Used
 - (i) Total annual hours or quantity of each bin of sonar or other transducers
 - (ii) Total annual expended/detonated ordnance (missiles, bombs, sonobuoys, etc.) for each explosive bin
- (4) Marpi Reef and Chalan Kanoa Reef Geographic Mitigation Areas
- (5) Geographic Information Presentation
- (6) Sonar Exercise Notification

The information in this report represents the best practical data collection for this period.

The Biological Opinion² "Terms and Conditions" subsection states the Navy will monitor and report annual numbers of ordnance by type expended at Farallon de Medinilla (FDM). This information is present in this report in section (7).

¹MITT: 7(e) of the Letter of Authorization, and 50 CFR §218.95(e)(1) through (e)(6)

²MITT: 12.4(2)(b) of the Biological Opinion for the MITT Study Area (10 July 2020)

(1) MITT – Major Training Exercises (MTEs)

This section summarizes authorized sonar use and marine mammal observations from MTEs conducted within the MITT Study Area during the reporting period. The MITT MTEs include Large Integrated Anti-Submarine Warfare, which consists of *Joint Multi-Strike Group Exercise* (Valiant Shield), and Medium Integrated Anti-Submarine Warfare, which consists of *Joint Expeditionary Exercise*.

(i) Exercise information for each MTE

Table 1-1. MTEs conducted in the MITT Study Area

(A) Exercise designator	(B) Date began and ended	(C) Location	(D) Number and types of active sonar sources used					(E) Number and types of passive acoustic sources used				(F) Number and types of vessels, aircraft, and other platforms participating					
			Surface hull-mounted sonar	Submarine hull-mounted sonar	Helicopter dipping sonar	Aircraft sonobuoy	Towed countermeasure	Surface hull-mounted sonar	Submarine hull-mounted sonar	Aircraft sonobuoy	Towed array	CG	DDG	MH-60R dipping helo	MPRA	Submarines	Non-ASW surface ship
VS22	06 Jun – 17 Jun 2022	MITT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Table 1-1 (continued). MTEs conducted in the MITT Study Area

(A) Exercise designator	(B) Date began and ended	(C) Location	(G) Total hours of all active sonar source operation	(H) Total hours of each active source bin																				(I) Wave height (high, low, average)							
				LF4 (hours)	LF5 (hours)	MF1 (hours)	MF1K (hours)	MF3 (hours)	MF4 (hours)	MF5 (count)	MF6 (count)	MF9 (count)	MF11 (hours)	MF12 (hours)	HF1 (hours)	HF3 (hours)	HF4 (hours)	HF8 (hours)	ASW1 (hours)	ASW2 (count)	ASW3 (hours)	ASW4 (count)	ASW5 (hours)		TORP1 (count)	TORP2 (count)	TORP3 (count)	FLS2 (hours)	M3 (hours)	SAS2 (hours)	SAS4 (hours)
VS22	06 Jun – 17 Jun 2022	MITT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	3,1,2

*Information is presented in the classified version of this report

(ii) Individual marine mammal sighting information for each sighting in each exercise where mitigation was implemented

Table 1-2. MITT MTE – Individual Marine Mammal and Sea Turtle Mitigation Sighting Information: Valiant Shield 22 06 Jun – 17 Jun 2022

(A) Date/time/location of sighting	(B) Species	(C) Number of individuals	(D) Initial detection sensor	(E) Indication of specific type of platform observation was made from	(F) Length of time observers maintained visual contact with marine mammal (min)	(G) Sea state (Beaufort scale)	(H) Visibility (nm)	(I) Sound source in use at time of sighting (Y/N)	(J) Indication of whether animal was <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000 yd from sonar source	(K) Whether operation of sonar sensor was delayed, or sonar was powered or shut down, and how long the delay	(L) If source in use was hull-mounted, true bearing of animal from the vessel, true direction of vessel's travel, and estimation of animal's motion relative to vessel	(M) Lookouts must report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) and if any calves were present
No marine mammal mitigations reported during this exercise.												

(iii) Evaluation (based on data gathered during all exercises) of effectiveness

There was one major training exercise conducted in the MITT Study Area during this reporting period (see **Table 1-3**).

Table 1-3. MITT Study Area Major Training Exercises.

MTE Type	Dates	# of Exercise Days	# of US Ships Involved (MFAS and non-MFAS)	# of Marine Mammal Mitigation Sightings	# of Marine Mammals
Valiant Shield 22	06 Jun – 17 Jun 2022	12	22	0	0
	Total	12	22	0	0

MITT Study Area Major Training Exercise Marine Mammal Observations

There were no reported marine mammal observations during the single MTE in the MITT Study Area during the reporting period.

MITT Study Area Major Training Exercise Mitigations

There were no active sonar mitigation actions taken during the single MTE in the MITT Study Area during the reporting period.

SUMMARY: Mitigation Effectiveness and Navy Mitigation Zone Adherence

The Lookout and mitigation zone measures approved by NMFS and outlined in the MITT Study Area LOA were effective in appropriately mitigating exposure of marine mammals to sonar. Although no active sonar mitigations took place in the MITT Study Area during the reporting period, the Protective Measures Assessment Protocol (PMAP) is directed to be used prior to each activity requiring potential mitigation to ensure proper requirements and mitigation zones are utilized. Fleet commanders, aircrews, and ship watch teams continue to improve individual awareness and enhance reporting practices. This improvement can be attributed to the various pre-exercise conferences, mandatory Marine Species Awareness Training (including online training required for watch standing qualifications), adherence to required active sonar mitigation zones, and application of lessons learned in marine mammal sighting and reporting.

(2) MITT – Sinking Exercises (SINKEXs)

One SINKEX event was conducted in the MITT Study Area during the reporting period, on 15 June 2022.

Table 2-1. SINKEX information for event on 15 June 2022.

(A) Location
Mariana Islands Training and Testing Study Area
(B) Date and time exercise began and ended
0100 local, 15 June 2022 through 1845 local, 15 June 2022
(C) Total hours of observation by Lookouts before, during, and after exercise
76 hours (all platforms)
(D) Total number and types of explosive bins detonated
E8: 7 detonations E9: 4 detonations

(E) Number and types of passive acoustic sources used in exercise
*
(F) Total hours of passive acoustic search time
52 hours (all platforms)
(G) Number and types of vessels, aircraft, and other platforms participating in exercise
*
(H) Wave height in feet (high, low, average) during exercise
3,2,2
(I) Narrative description of sensors and platforms utilized for marine mammal detection and timeline illustrating how marine mammal detection was conducted
In addition to surface ship Lookouts, aircraft surveys were conducted throughout the day. P-8 aircraft cleared the surface up to 1,500 feet in a 1,200 square NM area.
Timeline (all times local): 0100 P-8 began mammal survey and range clearance 0548 Sunrise 0924 Vessel sunk 1200 P-8 mammal survey and range clearance complete 1845 Sunset

*Information is presented in the classified version of this report

(3) MITT – Summary of Sources Used

This section summarizes total annual usage of each type of sound source used for training and testing within MITT from 31 July 2021 to 30 July 2022, which constitutes Year 2 of the 7-year authorization.

(i) Total annual hours or quantity of each bin of sonar or other transducers

Table 3-1. Annual Acoustic Source Usage within the MITT Study Area by Source Bin

Authorized sound sources from MITT Final Rule		Authorized Amount (31Jul21-30Jul22)	Actual Usage (31Jul21-30Jul22)	% Used of Authorized Amount
(i) Acoustic Sources Used During Annual Training and Testing				
LF4	Low-frequency sources from 180 dB up to 200 dB	1 hour	*	*
LF5	Low-frequency sources from 160 dB up to 180 dB	10 hours	*	*
MF1	Hull-mounted sonars (e.g. AN/SQS-53)	1,818 hours	*	*
MF1K	Kingfisher mode associated with MF1 sonars	3 hours	*	*
MF3	Hull-mounted submarine sonar (e.g. AN/BQQ-10)	227 hours	*	*
MF4	Helicopter dipping sonar (e.g. AN/AQS-22)	185 hours	*	*
MF5	Acoustic sonobuoys (e.g. AN/SSQ-62)	2,094 count	*	*
MF6	Active underwater sound signal devices (e.g. MK-84 SUS)	74 count	*	*
MF9	Other MF sources from 180 dB up to 200 dB	29 hours	*	*
MF11	High duty cycle hull-mounted sonars (e.g. AN/SQS-53 HDC)	304 hours	*	*
MF12	High duty cycle variable depth sonars	616 hours	*	*
HF1	Hull-mounted submarine sonar (e.g. AN/BQQ-10)	73 hours	*	*
HF3	Other hull-mounted submarine sonars	4 hours	*	*
HF4	Mine detection, classification, and neutralization sonars (e.g. AN/AQS-20, AN/SQQ-32)	1,472 hours	*	*
HF6	Other active sources from 180 dB up to 200 dB (e.g. UUV sensors)	309 hours	*	*
ASW1	Mid-frequency active systems (e.g. DWADS)	192 hours	*	*

ASW2	Mid-frequency Multi-static Active Coherent sonobuoy (e.g AN/SSQ-125)	554 count	*	*
ASW3	Mid-frequency towed acoustic countermeasure (e.g. AN/SLQ-25)	3,124 hours	*	*
ASW4	Mid-frequency expendable acoustic device countermeasure (e.g. ADC/NAE)	332 count	*	*
ASW5	MF sonobuoys with high duty cycles	50 hours	*	*
TORP1	Lightweight torpedo (e.g. MK-46/54)	71 count	*	*
TORP2	Heavyweight torpedo (e.g. MK-48)	62 count	*	*
TORP3	Heavyweight torpedo test (e.g. MK-48)	6 count	*	*
FLS2	HF sources with short pulse lengths, narrow beam widths, and focused beam patterns	4 hours	*	*
M3	Mid-frequency acoustic modems	31 hours	*	*
SAS2	HF SAS systems	449 hours	*	*
SAS4	MF to HF broadband mine countermeasure sonar	6 hours	*	*

*Information is presented in the classified version of this report

(ii) Total annual expended/detonated ordnance for each explosive bin

Table 3-2. Annual Explosive Source Usage within the MITT Study Area by Source Bin

Authorized sound sources from MITT Final Rule		Authorized Amount (31Jul21-30Jul22)	Actual Usage (31Jul21-30Jul22)	% Used of Authorized Amount
(ii) Explosive Sources Used During Annual Training and Testing				
E1	0.1 lb to 0.25 lb NEW	768 detonations	383	50%
E2	0.26 lb to 0.5 lb NEW	400 detonations	0	0%
E3	>0.5 lb to 2.5lb NEW	683 detonations	51	8%
E4	>2.5 lb to 5 lb NEW	44 detonations	0	0%
E5	>5 lb to 10 lb NEW	1,221 detonations	45	4%
E6	>10 lb to 20 lb NEW	29 detonations	12	41%
E8	>60 lb to 100 lb NEW	134 detonations	31	23%
E9	>100 lb to 250 lb NEW	110 detonations	72	65%
E10	>250 lb to 500 lb NEW	78 detonations	52	67%
E11	>500 lb to 650 lb NEW	5 detonations	0	0%
E12	>650 lb to 1,000 lb NEW	48 detonations	0	0%

Table 3-3. 7-year Cumulative Sound Source Usage within the MITT Study Area by Source Bin.

Sound Source Bin	Year 1 Actual Usage (31Jul20-30Jul21)	Year 2 Actual Usage (31Jul21-30Jul22)	7-yr Authorized Amount (31Jul20-30Jul27)	7-yr Cumulative Usage (31Jul20-30Jul27)	% Used of 7-yr Authorized Amount
(i) Acoustic Sources Used During Annual Training and Testing					
LF4	*	*	7 hours	*	*
LF5	*	*	65 hours	*	*
MF1	*	*	12,725 hours	*	*
MF1K	*	*	21 hours	*	*
MF3	*	*	1,586 hours	*	*
MF4	*	*	1,289 hours	*	*
MF5	*	*	14,623 items	*	*
MF6	*	*	458 count	*	*
MF9	*	*	202 hours	*	*
MF11	*	*	2,128 hours	*	*
MF12	*	*	4,320 hours	*	*

HF1	*	*	497 hours	*	*
HF3	*	*	28 hours	*	*
HF4	*	*	10,304 hours	*	*
HF6	*	*	2,128 hours	*	*
ASW1	*	*	1,360 hours	*	*
ASW2	*	*	3,878 count	*	*
ASW3	*	*	21,863 hours	*	*
ASW4	*	*	2,324 count	*	*
ASW5	*	*	350 hours	*	*
TORP1	*	*	485 count	*	*
TORP2	*	*	398 count	*	*
TORP3	*	*	42 count	*	*
FLS2	*	*	28 hours	*	*
M3	*	*	216 hours	*	*
SAS2	*	*	3,140 hours	*	*
SAS4	*	*	42 hours	*	*
(ii) Explosive Sources Used During Annual Training and Testing					
E1	768	383	5,376 detonations	1,151	21%
E2	184	0	2,800 detonations	184	7%
E3	35	51	4,591 detonations	86	2%
E4	0	0	308 detonations	0	0%
E5	135	45	8,547 detonations	180	2%
E6	5	12	203 detonations	17	8%
E8	98	31	932 detonations	129	14%
E9	94	72	770 detonations	166	22%
E10	12	52	546 detonations	64	12%
E11	0	0	17 detonations	0	0%
E12	12	0	336 detonations	12	4%

*Information is presented in the classified version of this report

(4) MITT – Marpi Reef and Chalan Kanoa Reef Geographic Mitigation Areas

The amount of active sonar used in this area from December 1 to April 30 has been forwarded to NMFS in accordance with the MITT Letter of Authorization in the classified version of this report.

(5) MITT – Geographic Information Presentation

The geographic extent of U.S. Navy use of sound sources within the MITT Study Area during the reporting period is classified and is presented in the classified version of this report.

(6) MITT – Sonar Exercise Notification

The Navy submitted all required information to NMFS for all MTEs during the reporting period, including location of the exercise, beginning and end dates of the exercise, and type of exercise.

(7) MITT – Farallon de Medinilla (FDM) Ordnance Expenditures

In accordance with section 12.4 of the Biological Opinion, this section includes numbers of ordnance by type expended at FDM from 31 July 2021 to 30 July 2022.

Table 7-1. FDM Ordnance Expenditures by Sound Source Bin.

Sound Source Bin	FDM Ordnance Expenditures
E1	0
E2	0
E3	0
E4	0
E5	47
E6	0
E7	3
E8	2
E9	41
E10	25
E11	0
E12	2

There were 14 observed ricochets or misses that landed in waters surrounding FDM. The Navy did not observe any in-water effects to corals resulting from detonations of high-explosive ordnance during the reporting period.