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Prepared by:

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In accordance with the Letters of Authorization
Under the MMPA and ITS authorization under
the ESA 30 July 2020

UNCLASSIFIED
2021
Mariana Islands Training & Testing (MITT)
Study Area Annual Exercise Report

31 July 2020 to 30 July 2021
Year 1

29 OCTOBER 2021

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MITT STUDY AREA ANNUAL EXERCISE REPORT

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MARIANA ISLANDS TRAINING AND TESTING STUDY AREA UNCLASSIFIED ANNUAL EXERCISE REPORT

INTRODUCTION

The U.S. Navy prepared this Annual Exercise Report covering the period from 31 July 2020 to 30 July 2021 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 |
| VS20 | 14 Sep – 25 Sep 2020 | 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) |
| VS20 | 14 Sep – 25 Sep 2020 | MITT | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 3,6,9 |

*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 20 14 Sep – 25 Sep 2020

| (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 20 | 14 Sep – 25 Sep 2020 | 12 | 9 | 0 | 0 |
| | Total | 12 | 9 | 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 19 September 2020.

Table 2-1. SINKEX information for event on 19 September 2020.

| |
|--|
| (A) Location |
| Mariana Islands Training and Testing Study Area |
| (B) Date and time exercise began and ended |
| 0600 local, 19 September 2020 through 1946 local, 19 September 2020 |
| (C) Total hours of observation by Lookouts before, during, and after exercise |
| 96 hours (all platforms) |
| (D) Total number and types of explosive bins detonated |
| E5: 33 detonations E6: 5 detonations E8: 1 detonation E9: 6 detonations E10: 6 detonations E12: 2 detonations |

| |
|--|
| (E) Number and types of passive acoustic sources used in exercise |
| * |
| (F) Total hours of passive acoustic search time |
| 48 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 |
| 3,4,6 |
| (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. 2x E-2 surveillance aircraft cleared the surface up to 60,000 feet in a 200 NM radius, and 2x P-8 maritime patrol aircraft cleared the surface in a 125 NM radius. Passive sonobuoys were deployed to monitor during the torpedo shot. |
| Timeline (all times local): 0604 Sunrise 0600 P-8 began mammal survey 1000-1500 E-2 mammal survey 1500-1700 P-8 deployed passive buoy field 1810 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 2020 to 30 July 2021, which constitutes Year 1 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 (31Jul20-30Jul21) | Actual Usage (31Jul20-30Jul21) | % 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 (31Jul20-30Jul21) | Actual Usage (31Jul20-30Jul21) | % Used of Authorized Amount |
|---|-------------------------|-------------------------------------|--------------------------------|-----------------------------|
| (ii) Explosive Sources Used During Annual Training and Testing | | | | |
| E1 | 0.1 lb to 0.25 lb NEW | 768 detonations | 768 | 100% |
| E2 | 0.26 lb to 0.5 lb NEW | 400 detonations | 184 | 46% |
| E3 | >0.5 lb to 2.5lb NEW | 683 detonations | 35 | 5% |
| E4 | >2.5 lb to 5 lb NEW | 44 detonations | 0 | 0% |
| E5 | >5 lb to 10 lb NEW | 1,221 detonations | 135 | 11% |
| E6 | >10 lb to 20 lb NEW | 29 detonations | 5 | 17% |
| E8 | >60 lb to 100 lb NEW | 134 detonations | 98 | 73% |
| E9 | >100 lb to 250 lb NEW | 110 detonations | 94 | 85% |
| E10 | >250 lb to 500 lb NEW | 78 detonations | 12 | 15% |
| E11 | >500 lb to 650 lb NEW | 5 detonations | 0 | 0% |
| E12 | >650 lb to 1,000 lb NEW | 48 detonations | 12 | 25% |

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) | 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 | 5,376 detonations | 768 | 14% |
| E2 | 184 | 2,800 detonations | 184 | 7% |
| E3 | 35 | 4,591 detonations | 35 | 1% |
| E4 | 0 | 308 detonations | 0 | 0% |
| E5 | 135 | 8,547 detonations | 135 | 2% |
| E6 | 5 | 203 detonations | 5 | 2% |
| E8 | 98 | 932 detonations | 98 | 11% |
| E9 | 94 | 770 detonations | 94 | 12% |
| E10 | 12 | 546 detonations | 12 | 2% |
| E11 | 0 | 17 detonations | 0 | 0% |
| E12 | 12 | 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 2020 to 30 July 2021.

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

| Sound Source Bin | FDM Ordnance Expenditures |
|------------------|---------------------------|
| E1 | 2,350 |
| E2 | 0 |
| E3 | 381 |
| E4 | 0 |
| E5 | 167 |
| E6 | 161 |
| E8 | 0 |
| E9 | 87 |
| E10 | 39 |
| E11 | 0 |
| E12 | 76 |

There were no observed ricochets or misses that landed in waters surrounding FDM, and the Navy did not observe any in-water effects to corals resulting from detonations of high-explosive ordnance during the reporting period.