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National Marine Fisheries Service  
Office of Protected Resources

Prepared by:

Department of the Navy

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

12 May 2014

**UNCLASSIFIED**  
**Annual Exercise Report**

**26 December 2016 to 25 December 2017**  
**Year 4**

**For The U.S. Navy's**  
**Hawaii-Southern California Training and Testing (HSTT)**  
**Study Area**

**1 April 2018**

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# ANNUAL HAWAII-SOUTHERN CALIFORNIA TRAINING AND TESTING EXERCISE REPORT

## INTRODUCTION

The U.S. Navy prepared this unclassified Annual Exercise Report covering the period from 26 December 2016 to 25 December 2017. In compliance with the National Marine Fisheries Service (NMFS) Final Rule under the Marine Mammal Protection Act (MMPA) for the Hawaii-Southern California Training and Testing (HSTT) Study Area a classified version of this report is also submitted to NMFS.

In the HSTT Study Area Letter of Authorization<sup>1</sup> requirements for “Monitoring and Reporting”, the following report subsections were specified. However, only unclassified information is present within this report:

(1) Major Training Exercises (MTE)/SINKEX

- (i) Reporting requirements for Coordinated and Strike Group Exercises and SINKEX
- (ii) Exercise information for each MTE
- (iii) Exercise information for each SINKEX

(2) Summary of Sources Used

- (i) Total annual usage of each type of sound source

(3) Sonar Exercise Notification

(4) Geographic Information Presentation

(5) Special Reporting Requirements

- (i) Total hours (from 15 December through 15 April) of hull-mounted active sonar operation occurring in the dense humpback areas generally shown on the Mobley map plus a 5-km buffer, but not including the Pacific Missile Range Facility
- (ii) Total estimated annual hours of hull-mounted active sonar operation conducted in the Humpback Whale Cautionary Area between 15 December and 15 April

The information in this Annual Report represents the best practical data collection for this period. To provide accounting for the entire 5-year period of the authorization in the final Annual Report, Navy will submit a 5-year close-out table with final totals of authorized and actual usage.

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<sup>1</sup>HSTT: 7(d) of the Training Letter of Authorization, and 50 CFR §218.75(f)(1) through (f)(5)

**(1) HSTT – Major Training Exercises/SINKEX**

**(i) Reporting requirements for Coordinated and Strike Group Major Training Exercises and SINKEX**

The HSTT Study Area Letter of Authorization requires reporting for MTEs and Sinking Exercises (SINKEX) taking place during the reporting period. MTEs that occur in HSTT include *Sustainment Exercises* (SUSTEX), *Integrated ASW Courses* (IAC), *Composite Training Unit Exercises* (C2X), *Joint Task Force Exercises* (JTFEX), *Undersea Warfare Exercises* (USWEX), and *Rim of the Pacific Exercises* (RIMPAC)<sup>1</sup>.

**(ii) Exercise information for each Major Training Exercise**

Major training exercise sonar usage and participants are classified and were forwarded to NMFS in the classified version of this report.

**Table 1-ii-1. MTEs conducted in the HSTT Study Area.**

(A) Exercise designator	(B) Date	(C) Location	(D) Number of items or hours of each sound source bin used						(E) Number and types of US vessels and aircraft participating							
			MF1 (hours)	MF2 (hours)	MF3 (hours)	MF4 (hours)	MF5 (buoys)	ASW3 (hours)	CG	DDG	FFG	MH-60R/SH-60F dipping helo	SH-60B non-dipping helo	Submarines	MPRA	Non-ASW surface ship
USWEX	13 Jan – 17 Jan 2017	HRC	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C2X	28 Mar – 23 Apr 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IAC	9 Apr – 20 Apr 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C2X	1 May – 17 May 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*
USWEX	17 Jun – 20 Jun 2017	HRC	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C2X	1 Aug – 29 Aug 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*
IAC	5 Aug – 12 Aug 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SUSTEX	27 Oct – 13 Nov 2017	SOCAL	*	*	*	*	*	*	*	*	*	*	*	*	*	*

<sup>1</sup>RIMPAC is not listed as one of the Major Training Exercises requiring reporting in the HSTT Final Rule, or the HSTT MMPA Letter of Authorization for training, but is listed in the sonar exercise notification section.

\*Information is presented in the classified version of this report.

**(F) Individual marine mammal sighting information by exercise**

**Table 1-ii-2. HSTT MTE – Individual Marine Mammal Sighting Information: USWEX 13 Jan – 17 Jan 2017**

Date/time/location of sighting		HRC	Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present
15-Jan-17	1900Z													
15-Jan-17	1900Z	HRC	whale	1	VIS	DDG	3	2	10	N	>2000	None	na	Transiting
16-Jan-17	0802Z	HRC	dolphin	30	VIS	Non-ASW ship	3	4	10	na	>2000	None	na	Frolicking

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-3. HSTT MTE – Individual Marine Mammal Sighting Information: C2X 28 Mar – 23 Apr 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
28-Mar-17	2036Z	SOCAL	dolphin	7	VIS	DDG	1	2	10	N	200-500	None	na	Jumping
28-Mar-17	2113Z	SOCAL	dolphin	100	VIS	DDG	5	2	10	N	200-500	None	na	Jumping
28-Mar-17	2128Z	SOCAL	whale	2	VIS	DDG	2	2	10	N	>2000	None	na	Blowing
28-Mar-17	2138Z	SOCAL	whale	1	VIS	DDG	5	3	10	N	>2000	None	na	Breaching
29-Mar-17	0125Z	SOCAL	whale	2	VIS	DDG	8	3	10	N	200-500	Maneuvered away	na	Blowing
30-Mar-17	0123Z	SOCAL	dolphin	30	VIS	Non-ASW ship	5	2	10	na	200-500	None	na	Bow riding
30-Mar-17	0146Z	SOCAL	whale	2	VIS	Non-ASW ship	5	2	6	na	>2000	None	na	Swimming
30-Mar-17	1440Z	SOCAL	dolphin	3	VIS	DDG	3	1	7	N	501-1000	None	na	Closing to bow ride
30-Mar-17	1529Z	SOCAL	whale	2	VIS	CG	5	2	10	N	200-500	Maneuvered away	na	Blowing
30-Mar-17	1934Z	SOCAL	whale	5	VIS	DDG	6	4	10	N	1001-2000	None	na	Swimming in group
30-Mar-17	2038Z	SOCAL	dolphin	1	VIS	CG	5	2	10	N	nr	None	na	Paralleling ship
30-Mar-17	2050Z	SOCAL	dolphin	1	VIS	CG	5	2	10	N	nr	None	na	Paralleling ship
30-Mar-17	2341Z	SOCAL	whale	1	VIS	DDG	5	3	10	N	1001-2000	None	na	Breaching
31-Mar-17	0110Z	SOCAL	dolphin	7	VIS	DDG	64	1	10	N	<200	None	na	Surface swimming
31-Mar-17	1535Z	SOCAL	dolphin	4	VIS	DDG	1	5	7	N	<200	None	na	Transiting
1-Apr-17	1352Z	SOCAL	dolphin	5	VIS	DDG	1	2	10	N	<200	None	na	None
1-Apr-17	1405Z	SOCAL	dolphin	6	VIS	DDG	1	2	10	N	200-500	None	na	Bow riding

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1-Apr-17	1413Z	SOCAL	whale	1	VIS	DDG	6	3	10	N	200-500	Maneuvered away	na	Blowing
1-Apr-17	1450Z	SOCAL	whale	3	VIS	DDG	3	2	10	N	<200	Maneuvered away	na	Breaching
1-Apr-17	1500Z	SOCAL	dolphin	1	VIS	DDG	1	2	10	N	200-500	None	na	None
1-Apr-17	1513Z	SOCAL	whale	2	VIS	DDG	1	2	10	N	<200	None	na	None
1-Apr-17	1607Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	501-1000	None	na	None
1-Apr-17	1632Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	1001-2000	None	na	Breaching
1-Apr-17	1713Z	SOCAL	dolphin	25	VIS	DDG	3	1	10	N	1001-2000	None	na	Jumping
1-Apr-17	1750Z	SOCAL	dolphin	20	VIS	DDG	5	1	10	N	200-500	None	na	Swimming
1-Apr-17	1946Z	SOCAL	dolphin	5	VIS	DDG	10	1	4	N	200-500	None	na	Swimming
2-Apr-17	0053Z	SOCAL	dolphin	30	VIS	DDG	5	2	8	N	200-500	None	na	Swimming
2-Apr-17	1634Z	SOCAL	dolphin	4	VIS	CG	5	2	10	N	nr	None	na	Bow riding
2-Apr-17	1703Z	SOCAL	dolphin	3	VIS	CG	5	2	10	N	nr	None	na	Bow riding
2-Apr-17	1905Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	200-500	None	na	Breaching
2-Apr-17	2116Z	SOCAL	whale	2	VIS	Non-ASW ship	5	2	10	na	1001-2000	None	na	Spouting
3-Apr-17	0349Z	SOCAL	dolphin	2	ACO	DDG	56	2	nr	N	nr	None	na	Bow riding
3-Apr-17	0815Z	SOCAL	dolphin	3	VIS	DDG	10	1	10	N	501-1000	None	na	Surface swimming
3-Apr-17	1430Z	SOCAL	whale	3	VIS	DDG	2	1	10	N	1001-2000	None	na	Breaching
3-Apr-17	1511Z	SOCAL	whale	1	VIS	DDG	3	2	10	N	1001-2000	Maneuvered away	na	Swimming, 3 water spouts
3-Apr-17	1520Z	SOCAL	dolphin	8	VIS	DDG	3	2	10	N	1001-2000	None	na	Circling each other, appeared to be hunting fish
3-Apr-17	1538Z	SOCAL	dolphin	1	VIS	DDG	82	2	10	N	200-500	None	na	Bow riding
3-Apr-17	1633Z	SOCAL	whale	1	VIS	DDG	5	2	10	N	nr	None	na	Blowing
3-Apr-17	1728Z	SOCAL	whale	1	VIS	DDG	1	1	10	N	200-500	None	na	Breaching
3-Apr-17	1806Z	SOCAL	dolphin	10	VIS	DDG	1	1	10	N	501-1000	None	na	Swimming
3-Apr-17	1931Z	SOCAL	whale	1	VIS	DDG	2	2	10	N	>2000	Maneuvered away	na	None
3-Apr-17	2120Z	SOCAL	whale	2	VIS	DDG	3	2	10	N	>2000	None	na	Surfacing

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3-Apr-17	2122Z	SOCAL	dolphin	10	VIS	DDG	2	2	10	N	>2000	None	na	Swimming on surface
4-Apr-17	0307Z	SOCAL	dolphin	5	ACO	DDG	nr	2	4	N	nr	None	na	Bow riding
4-Apr-17	1350Z	SOCAL	whale	2	VIS	DDG	10	1	10	N	501-1000	None	na	Breaching
4-Apr-17	1938Z	SOCAL	whale	1	VIS	Non-ASW ship	1	1	10	na	501-1000	None	na	None
4-Apr-17	2000Z	SOCAL	dolphin	1	VIS	Non-ASW ship	1	1	10	na	200-500	None	na	Swimming
4-Apr-17	2103Z	SOCAL	dolphin	2	VIS	Non-ASW ship	1	1	10	na	200-500	None	na	Playing
4-Apr-17	2134Z	SOCAL	whale	1	VIS	DDG	5	1	10	N	501-1000	Maneuvered away	na	Swimming and slapping flippers
5-Apr-17	0102Z	SOCAL	whale	1	VIS	CG	1	1	5	N	>2000	None	na	Blow and dive
5-Apr-17	1226Z	SOCAL	Whale	4	VIS	DDG	2	1	10	N	200-500	None	na	Swimming
5-Apr-17	1340Z	SOCAL	pinniped	10	VIS	DDG	6	1	10	N	<200	None	na	Seals jumping
5-Apr-17	1359Z	SOCAL	dolphin	21	VIS	Non-ASW ship	2	1	10	na	200-500	None	na	Swimming
5-Apr-17	1425Z	SOCAL	dolphin	10	VIS	DDG	3	1	8	N	<200	None	na	Bow riding
5-Apr-17	1711Z	SOCAL	whale	1	VIS	DDG	7	1	10	N	501-1000	Maneuvered away	na	Jumping and slapping flippers
5-Apr-17	1905Z	SOCAL	whale	1	VIS	DDG	3	2	10	N	>2000	None	na	Blowing
5-Apr-17	2017Z	SOCAL	dolphin	5	VIS	Non-ASW ship	1	1	10	na	<200	None	na	Swimming
6-Apr-17	0052Z	SOCAL	whale	3	VIS	DDG	27	1	10	N	<200	None	na	Breaching
6-Apr-17	1006Z	SOCAL	dolphin	11	ACO	DDG	7	1	10	N	nr	None	na	Blowing
6-Apr-17	2030Z	SOCAL	dolphin	4	VIS	Non-ASW ship	1	1	8	na	<200	None	na	Swimming
7-Apr-17	0012Z	SOCAL	whale	1	VIS	DDG	1	1	10	Y	501-1000	None	Whale bearing 025R, opening ship	Fluking/blowing
7-Apr-17	0107Z	SOCAL	dolphin	10	VIS	Non-ASW ship	1	1	10	na	<200	None	na	Bow riding
7-Apr-17	0317Z	SOCAL	whale	1	VIS	DDG	2	1	10	Y	>2000	None	Whale bearing 293R, paralleling ship	Blowing, fin slapping
7-Apr-17	0345Z	SOCAL	whale	1	VIS	DDG	1	1	10	Y	>2000	None	Whale bearing 055R, paralleling ship	Blowing
7-Apr-17	0712Z	SOCAL	dolphin	2	ACO	DDG	nr	1	10	Y	nr	None	Dolphins bearing 066R, relative motion unknown	None
7-Apr-17	1032Z	SOCAL	dolphin	8	VIS	DDG	6	1	10	N	1001-2000	None	na	Swimming

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7-Apr-17	1401Z	SOCAL	dolphin	20	VIS	Non-ASW ship	5	1	10	na	200-500	None	na	Swimming
7-Apr-17	2030Z	SOCAL	whale	4	VIS	DDG	3	1	10	N	>2000	None	na	Breaching
7-Apr-17	2206Z	SOCAL	dolphin	4	VIS	Non-ASW ship	1	1	9	na	<200	None	na	Swimming
7-Apr-17	2243Z	SOCAL	dolphin	4	VIS	DDG	1	1	10	N	200-500	None	na	Swimming
8-Apr-17	0001Z	SOCAL	whale	1	VIS	DDG	1	1	10	Y	1001-2000	None	Whale bearing 340R, opening ship	Blowing
8-Apr-17	0005Z	SOCAL	dolphin	1	VIS	DDG	3	2	10	N	>2000	None	na	None
8-Apr-17	0118Z	SOCAL	whale	1	VIS	DDG	3	4	10	Y	<200	Maneuvered away	Whale bearing 005R, paralleling ship	Blowing
8-Apr-17	1016Z	SOCAL	whale	11	ACO	DDG	7	1	10	N	nr	None	na	None
8-Apr-17	1537Z	SOCAL	dolphin	1	VIS	DDG	4	1	1	Y	200-500	None	Dolphin bearing 005R, opening ship	Swimming on surface
8-Apr-17	1647Z	SOCAL	dolphin	1	VIS	DDG	3	1	10	Y	200-500	None	Dolphin bearing 070R, opening ship	Swimming on surface
21-Apr-17	2346Z	SOCAL	whale	3	VIS	CG	2	nr	nr	N	501-1000	None	na	None
22-Apr-17	0014Z	SOCAL	whale	1	VIS	DDG	10	3	10	N	>2000	None	na	Whale spouting on port quarter

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-4. HSTT MTE – Individual Marine Mammal Sighting Information: IAC 9 Apr – 20 Apr 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
9-Apr-17	0210Z	SOCAL	whale	1	VIS	DDG	3	4	10	Y	200-500	None	Whale bearing 357R, opening ship	Swimming on surface
9-Apr-17	0237Z	SOCAL	dolphin	15	VIS	DDG	10	4	10	Y	<200	None	Dolphins bearing 295R, paralleling ship	Swimming in wake
9-Apr-17	1240Z	SOCAL	dolphin	2	ACO	DDG	5	2	10	Y	nr	None	Dolphins bearing 120R, relative motion unknown	Chirping
9-Apr-17	1435Z	SOCAL	dolphin	5	VIS	CG	2	1	10	N	200-500	None	na	Bow riding
9-Apr-17	1510Z	SOCAL	dolphin	4	VIS	DDG	4	3	10	N	501-1000	None	na	Dolphins jumping in the ocean around close to the ship and swam beneath the ship
9-Apr-17	1520Z	SOCAL	whale	1	VIS	DDG	3	2	10	N	>2000	None	na	Spouting
9-Apr-17	1520Z	SOCAL	whale	1	VIS	CG	1	2	10	N	>2000	None	na	Blowing
9-Apr-17	2143Z	SOCAL	whale	1	VIS	DDG	10	3	10	N	>2000	Maneuvered away	na	Breaching
9-Apr-17	2258Z	SOCAL	dolphin	4	VIS	CG	2	2	10	N	<200	None	na	Bow riding
9-Apr-17	2319Z	SOCAL	whale	1	VIS	DDG	nr	1	10	N	>2000	Maneuvered away	na	Surface
9-Apr-17	2326Z	SOCAL	whale	1	VIS	CG	1	2	10	N	nr	None	na	Blowing
9-Apr-17	2330Z	SOCAL	whale	1	VIS	DDG	5	2	10	Y	>2000	Powered down sonar	Whale bearing 341R, paralleling ship	Blowing
10-Apr-17	1944Z	SOCAL	whale	1	VIS	CG	1	1	10	N	200-500	None	na	None
10-Apr-17	1946Z	SOCAL	dolphin	7	VIS	CG	2	1	10	N	200-500	None	na	None

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10-Apr-17	2303Z	SOCAL	whale	1	VIS	DDG	1	2	10	Y	501-1000	Powered down sonar	Whale bearing 320R, opening ship	Blowing
11-Apr-17	0021Z	SOCAL	whale	1	VIS	DDG	2	3	10	Y	200-500	Shut down sonar	Whale bearing 150R, opening ship	Swimming on surface
11-Apr-17	0913Z	SOCAL	dolphin	2	ACO	CG	2	nr	nr	Y	nr	Powered down sonar	Dolphins bearing nr, relative motion unknown	None
11-Apr-17	1111Z	SOCAL	dolphin	2	ACO	CG	36	nr	nr	Y	nr	Powered down sonar	Dolphins bearing nr, relative motion unknown	None
11-Apr-17	1328Z	SOCAL	whale	1	VIS	DDG	15	1	10	Y	200-500	Powered down sonar	Whale bearing 180R, opening ship	Swimming on surface
11-Apr-17	2014Z	SOCAL	whale	1	VIS	DDG	5	2	10	Y	501-1000	Powered down sonar	Whale bearing 140R, opening ship	Swimming on surface
11-Apr-17	2207Z	SOCAL	whale	1	VIS	CG	2	4	10	N	501-1000	Maneuvered away	na	None
11-Apr-17	2229Z	SOCAL	whale	1	VIS	DDG	1	1	10	Y	200-500	Powered down sonar	Whale bearing 180R, opening ship	Swimming on surface
11-Apr-17	1512Z	SOCAL	whale	2	VIS	Non-ASW ship	1	5	8	na	<200	Maneuvered away	na	Breaching/surfacing
12-Apr-17	0014Z	SOCAL	whale	2	VIS	DDG	5	2	10	N	>2000	None	na	Swimming on surface
12-Apr-17	1013Z	SOCAL	whale	1	VIS	DDG	37	1	10	N	>2000	None	na	Spouting
12-Apr-17	1452Z	SOCAL	dolphin	12	VIS	CG	3	1	10	N	200-500	Maneuvered away	na	Swimming
12-Apr-17	1453Z	SOCAL	whale	1	VIS	DDG	7	2	10	N	1001-2000	None	na	Swimming on surface
12-Apr-17	1457Z	SOCAL	whale	1	VIS	DDG	10	1	10	N	501-100	Maneuvered away	na	Swimming on surface
12-Apr-17	1715Z	SOCAL	dolphin	4	VIS	DDG	2	1	10	N	<200	None	na	Swimming on surface
12-Apr-17	2021Z	SOCAL	whale	1	VIS	DDG	1	nr	nr	N	nr	None	na	Whale sighting reported by Surface Warfare Coordinator
12-Apr-17	2122Z	SOCAL	whale	1	VIS	DDG	2	2	10	Y	200-500	Powered down sonar	Whale bearing 090R, closing ship	Swimming on surface
12-Apr-17	2220Z	SOCAL	whale	1	VIS	DDG	1	2	10	Y	200-500	Shut down sonar	Whale bearing 180R, closing ship	Swimming on surface
12-Apr-17	2245Z	SOCAL	whale	1	VIS	DDG	1	2	10	Y	501-1000	Shut down sonar	Whale bearing 336R, closing ship	Swimming on surface
12-Apr-17	2246Z	SOCAL	whale	1	VIS	CG	2	2	10	Y	<200	Shut down sonar	Whale bearing 280R, closing ship	Swimming
12-Apr-17	2317Z	SOCAL	whale	3	VIS	DDG	1	2	10	Y	1001-2000	Shut down sonar	Whales bearing 336R, closing ship	Swimming
12-Apr-17	2342Z	SOCAL	whale	1	VIS	DDG	7	1	10	Y	1001-2000	None	Whale bearing 090R, paralleling ship	Whale sighted on starboard side of ship

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13-Apr-17	0156Z	SOCAL	dolphin	16	VIS	DDG	4	1	nr	Y	nr	Shut down sonar	Dolphins bearing 076R, opening ship	Pods
13-Apr-17	0221Z	SOCAL	whale	1	VIS	DDG	7	1	nr	Y	nr	Shut down sonar	Whale bearing nr, opening ship	Floating
13-Apr-17	1523Z	SOCAL	dolphin	2	VIS	DDG	5	1	10	N	1001-2000	None	na	Blowing
13-Apr-17	1635Z	SOCAL	whale	1	VIS	DDG	5	1	10	N	>2000	None	na	Breaching
13-Apr-17	1823Z	SOCAL	whale	1	VIS	DDG	3	1	10	N	501-1000	None	na	Breaching
13-Apr-17	1833Z	SOCAL	dolphin	2	ACO	CG	5	2	10	Y	nr	Powered down sonar	Dolphins bearing nr, relative motion unknown	None
13-Apr-17	1906Z	SOCAL	whale	1	VIS	DDG	2	3	10	N	>2000	Manuevered away	na	Breaching
13-Apr-17	1917Z	SOCAL	dolphin	2	ACO	CG	15	2	10	Y	nr	Powered down sonar	Dolphins bearing nr, relative motion unknown	None
13-Apr-17	2039Z	SOCAL	dolphin	2	ACO	CG	5	2	10	Y	nr	Powered down sonar	Dolphins bearing nr, relative motion unknown	None
14-Apr-17	0332Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	501-1000	None	na	On surface
14-Apr-17	1429Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	>2000	None	na	Blowing
14-Apr-17	1521Z	SOCAL	whale	3	VIS	DDG	5	2	nr	N	1001-2000	Powered down sonar	na	Blowing
14-Apr-17	1704Z	SOCAL	dolphin	6	VIS	Non-ASW ship	1	1	10	na	<200	None	na	Jumping
14-Apr-17	1920Z	SOCAL	dolphin	100	VIS	Non-ASW ship	2	1	10	na	501-1000	None	na	Jumping
14-Apr-17	2227Z	SOCAL	whale	1	VIS	Non-ASW ship	1	2	10	na	200-500	None	na	Surfacing
14-Apr-17	2245Z	SOCAL	whale	1	VIS	DDG	1	1	10	N	501-1000	None	na	Surfacing/diving
15-Apr-17	0204Z	SOCAL	dolphin	5	VIS	CG	2	2	10	Y	200-500	Shut down sonar	Dolphins bearing 000R, opening ship	Swimming
15-Apr-17	0346Z	SOCAL	dolphin	2	ACO	DDG	nr	nr	nr	Y	nr	Shut down sonar	Dolphins bearing nr, relative motion unknown	None
15-Apr-17	1301Z	SOCAL	dolphin	9	VIS	DDG	3	2	10	N	<200	None	na	Swimming
15-Apr-17	2225Z	SOCAL	pinniped	3	VIS	DDG	5	1	10	N	<200	None	na	Sea lion on surface
16-Apr-17	2202Z	SOCAL	whale	1	VIS	DDG	10	1	10	N	1001-2000	None	na	Tail slapping
17-Apr-17	1216Z	SOCAL	dolphin	17	VIS	DDG	5	2	10	N	>2000	None	na	Jumping/playing
17-Apr-17	2323Z	SOCAL	dolphin	15	VIS	DDG	20	1	10	N	501-1000	None	na	Dolphins approached bow and began swimming in the ship's bow wave

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18-Apr-17	0017Z	SOCAL	whale	1	VIS	DDG	2	1	10	N	501-1000	Manuevered away	na	Surfacing/diving
18-Apr-17	0350Z	SOCAL	dolphin	25	VIS	DDG	10	1	10	N	>2000	None	na	Feeding
18-Apr-17	0818Z	SOCAL	whale	1	VIS	DDG	2	1	5	N	1001-2000	Manuevered away	na	Surfacing/diving
18-Apr-17	0827Z	SOCAL	dolphin	10	VIS	DDG	5	3	10	N	501-1000	None	na	Dolphins sighted on the surface
19-Apr-17	0450Z	SOCAL	whale	1	VIS	DDG	1	1	10	N	<200	Manuevered away	na	On surface
19-Apr-17	0600Z	SOCAL	dolphin	4	VIS	DDG	1	1	10	N	<200	None	na	On surface
20-Apr-17	0223Z	SOCAL	whale	1	VIS	DDG	3	1	10	N	501-1000	None	na	Surfacing/blowing
20-Apr-17	0843Z	SOCAL	whale	1	VIS	DDG	1	3	10	N	1001-2000	None	na	Surfacing/diving

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-5. HSTT MTE – Individual Marine Mammal Sighting Information: C2X 1 May – 17 May 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
1-May-17	1350Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	>2000	None	na	Blowing
1-May-17	1510Z	SOCAL	dolphin	8	VIS	DDG	2	2	10	N	200-500	None	na	Jumping
1-May-17	1525Z	SOCAL	whale	2	VIS	DDG	10	2	10	N	200-500	None	na	Blowing
1-May-17	2334Z	SOCAL	whale	1	VIS	Non-ASW ship	1	1	10	na	1001-2000	Maneuvered away	na	Blowing, tail slapping
2-May-17	0044Z	SOCAL	dolphin	16	VIS	Non-ASW ship	20	1	10	na	1001-2000	None	na	Closing to bow ride
2-May-17	1615Z	SOCAL	whale	1	VIS	Non-ASW ship	1	2	10	na	200-500	None	na	Blowing
2-May-17	1705Z	SOCAL	dolphin	10	VIS	Non-ASW ship	5	2	3	na	200-500	None	na	Swimming
2-May-17	1950Z	SOCAL	whale	1	VIS	DDG	1	2	8	N	1001-2000	None	na	Blowing
2-May-17	2315Z	SOCAL	dolphin	20	VIS	Non-ASW ship	5	1	10	na	200-500	None	na	Playful
2-May-17	2323Z	SOCAL	whale	1	VIS	Non-ASW ship	5	1	nr	na	501-1000	Maneuvered away	na	Breaching
1-May-17	0209Z	SOCAL	dolphin	60	VIS	Non-ASW ship	13	1	1	na	<200	None	na	Frolicking
1-May-17	1317Z	SOCAL	whale	1	VIS	Non-ASW ship	2	1	10	na	1001-2000	Maneuvered away	na	Blowing
1-May-17	1622Z	SOCAL	whale	1	VIS	Non-ASW ship	2	1	10	na	1001-2000	Maneuvered away	na	Blowing
1-May-17	1742Z	SOCAL	whale	2	VIS	DDG	1	2	10	N	200-500	Maneuvered away	na	Blowing
1-May-17	2114Z	SOCAL	dolphin	20	VIS	Non-ASW ship	3	2	10	na	200-500	None	na	Frolicking
4-May-17	2233Z	SOCAL	pinniped	1	VIS	Non-ASW ship	15	1	10	na	1001-2000	None	na	Seal floating
4-May-17	0129Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	200-500	None	na	Blowing

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4-May-17	1433Z	SOCAL	whale	2	VIS	DDG	5	1	10	N	200-500	None	na	Blowing
4-May-17	1533Z	SOCAL	whale	1	VIS	Non-ASW ship	1	1	7	na	1001-2000	Maneuvered away	na	Blowing
5-May-17	0128Z	SOCAL	whale	2	VIS	DDG	10	1	10	N	200-500	None	na	Blowing
6-May-17	1941Z	SOCAL	whale	1	VIS	DDG	1	6	10	N	1001-2000	Maneuvered away	na	Blowing
7-May-17	1515Z	SOCAL	whale	1	VIS	DDG	2	6	10	N	<200	None	na	Swimming
7-May-17	2213Z	SOCAL	whale	1	VIS	Non-ASW ship	5	3	10	na	>2000	Maneuvered away	na	Breaching
8-May-17	1320Z	SOCAL	whale	3	VIS	DDG	1	2	10	N	>2000	None	na	Blowing
8-May-17	1820Z	SOCAL	whale	2	VIS	DDG	5	1	10	N	501-1000	Maneuvered away	na	Blowing
8-May-17	2014Z	SOCAL	whale	1	VIS	Non-ASW ship	1	3	10	na	200-500	Maneuvered away	na	Blowing
9-May-17	0036Z	SOCAL	whale	1	VIS	Non-ASW ship	1	2	7	na	200-500	Maneuvered away	na	Breathing
9-May-17	0125Z	SOCAL	dolphin	250	VIS	Non-ASW ship	4	2	7	na	<200	None	na	Jumping
9-May-17	0129Z	SOCAL	whale	1	VIS	DDG	2	2	10	N	200-500	None	na	Blowing
9-May-17	1642Z	SOCAL	whale	3	VIS	DDG	3	1	10	N	200-500	Maneuvered away	na	Blowing
9-May-17	1817Z	SOCAL	whale	1	VIS	DDG	3	1	10	N	200-500	Maneuvered away	na	Blowing
10-May-17	0250Z	SOCAL	dolphin	10	VIS	Non-ASW ship	3	2	nr	na	>2000	Maneuvered away	na	Jumping
10-May-17	2152Z	SOCAL	whale	16	VIS	Non-ASW ship	7	1	10	na	200-500	Maneuvered away	na	Breaching
11-May-17	0158Z	SOCAL	dolphin	20	VIS	DDG	5	1	10	Y	1001-2000	Powered down sonar	Dolphins bearing 327R, opening ship	Blowing
11-May-17	1508Z	SOCAL	dolphin	3	VIS	Non-ASW ship	nr	1	10	na	>2000	None	na	Swimming, spout
11-May-17	1630Z	SOCAL	dolphin	3	VIS	Non-ASW ship	2	1	10	na	>2000	None	na	Swimming, spout
11-May-17	2050Z	SOCAL	whale	2	VIS	Non-ASW ship	5	1	10	na	501-1000	None	na	Spout
11-May-17	2147Z	SOCAL	whale	1	VIS	Non-ASW ship	5	1	10	na	>2000	None	na	Swimming, spout
12-May-17	1502Z	SOCAL	whale	1	VIS	Non-ASW ship	nr	2	10	na	<200	Maneuvered away	na	Swimming, spout
12-May-17	1700Z	SOCAL	whale	1	VIS	DDG	5	4	10	N	1001-2000	None	na	Blowing
12-May-17	1924Z	SOCAL	whale	3	VIS	DDG	3	1	10	N	1001-2000	None	na	Blowing
13-May-17	2042Z	SOCAL	dolphin	5	VIS	Non-ASW ship	5	1	10	na	<200	None	na	Calm

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14-May-17	0044Z	SOCAL	whale	1	VIS	Non-ASW ship	2	2	10	na	>2000	None	na	Blowing
14-May-17	2303Z	SOCAL	whale	1	VIS	Non-ASW ship	2	2	9	na	<200	None	na	Breathing
14-May-17	2310Z	SOCAL	dolphin	20	VIS	Non-ASW ship	3	2	9	na	1001-2000	None	na	Jumping
16-May-17	1740Z	SOCAL	dolphin	20	VIS	Non-ASW ship	5	1	10	na	200-500	None	na	Breathing
16-May-17	1740Z	SOCAL	dolphin	20	VIS	Non-ASW ship	5	1	10	na	200-500	None	na	Breathing

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-6. HSTT MTE – Individual Marine Mammal Sighting Information: USWEX 17 Jun – 20 Jun 2017**

Date/time/location of sighting			Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present
17-Jun-17	2333Z	HRC	dolphin	1	ACO	DDG	5	nr	nr	N	nr	None	na	Bow riding
18-Jun-17	0708Z	HRC	dolphin	20	ACO	DDG	nr	nr	nr	N	nr	None	na	Bow riding
18-Jun-17	1139Z	HRC	whale	1	VIS	CG	2	nr	nr	N	>2000	None	na	Whale moving forward to aft

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-7. HSTT MTE – Individual Marine Mammal Sighting Information: C2X 1 Aug – 29 Aug 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal's motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
1-Aug-17	2223Z	SOCAL	dolphin	15	VIS	DDG	1	2	4	N	200-500	None	na	Swimming
1-Aug-17	2225Z	SOCAL	dolphin	26	VIS	DDG	2	2	6	N	200-500	None	na	Swimming
2-Aug-17	0030Z	SOCAL	dolphin	20	VIS	Non-ASW ship	5	2	10	na	200-500	None	na	Tail slapping
2-Aug-17	0118Z	SOCAL	whale	1	VIS	Non-ASW ship	1	2	10	na	>2000	None	na	Blowing
2-Aug-17	1243Z	SOCAL	dolphin	20	VIS	DDG	1	2	5	N	<200	None	na	Swimming
2-Aug-17	1326Z	SOCAL	dolphin	10	VIS	Non-ASW ship	2	2	10	na	1001-2000	None	na	Jumping
2-Aug-17	1938Z	SOCAL	dolphin	2	VIS	DDG	1	2	10	N	<200	None	na	Swimming
2-Aug-17	1954Z	SOCAL	whale	1	VIS	DDG	1	3	10	N	<200	None	na	Jumping
2-Aug-17	2020Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	200-500	None	na	Blowing
2-Aug-17	2043Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	<200	Maneuvered away	na	Blowing
2-Aug-17	2125Z	SOCAL	whale	7	VIS	DDG	1	2	10	N	<200	Maneuvered away	na	Blowing
3-Aug-17	1939Z	SOCAL	whale	1	VIS	DDG	200	1	10	N	200-500	Maneuvered away	na	Blowing
13-Aug-17	0612Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
13-Aug-17	0708Z	SOCAL	dolphin	2	ACO	CG	15	2	10	N	nr	None	na	None
13-Aug-17	2010Z	SOCAL	whale	1	VIS	DDG	10	3	10	Y	501-1000	Shut down sonar	Whale bearing 340R, closing ship	Blowing
13-Aug-17	2351Z	SOCAL	whale	1	VIS	DDG	1	1	10	N	501-1000	Maneuvered away	na	Blowing

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14-Aug-17	0000Z	SOCAL	whale	2	VIS	DDG	5	2	10	Y	501-1000	None	Whales bearing 300R, paralleling ship	Blowing
14-Aug-17	2217Z	SOCAL	whale	3	VIS	DDG	3	1	10	Y	501-1000	None	Whales bearing 010R, opening ship	Blowing
15-Aug-17	2032Z	SOCAL	pinniped	1	VIS	DDG	2	1	10	N	200-500	None	na	Seal swimming
16-Aug-17	0000Z	SOCAL	whale	4	VIS	CG	2	1	10	na	501-1000	None	na	Blowing
16-Aug-17	0130Z	SOCAL	whale	1	VIS	DDG	1	4	10	N	>2000	None	na	Blowing
17-Aug-17	0000Z	SOCAL	whale	1	VIS	CG	nr	nr	10	na	501-1000	None	na	None
17-Aug-17	0000Z	SOCAL	whale	1	VIS	CG	nr	1	10	na	501-1000	None	na	None
17-Aug-17	1012Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
17-Aug-17	1024Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
17-Aug-17	1058Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
17-Aug-17	1200Z	SOCAL	whale	3	VIS	DDG	5	3	10	N	<200	Maneuvered away	na	Swimming
18-Aug-17	0440Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
18-Aug-17	1320Z	SOCAL	whale	1	VIS	DDG	5	2	10	N	501-1000	None	na	Blowing
18-Aug-17	1515Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
18-Aug-17	1525Z	SOCAL	whale	1	VIS	DDG	1	3	8	N	501-1000	None	na	Blowing
18-Aug-17	1541Z	SOCAL	whale	2	VIS	DDG	2	1	10	N	>2000	Maneuvered away	na	Blowing
18-Aug-17	1924Z	SOCAL	pinniped	3	VIS	DDG	3	1	10	N	>2000	None	na	Seal floating
19-Aug-17	0831Z	SOCAL	dolphin	3	VIS	DDG	5	3	10	N	501-1000	None	na	Playing
19-Aug-17	1038Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
19-Aug-17	1454Z	SOCAL	dolphin	3	VIS	DDG	2	2	10	N	<200	None	na	Bow riding
19-Aug-17	1906Z	SOCAL	dolphin	2	ACO	CG	122	2	10	N	nr	None	na	None
19-Aug-17	2030Z	SOCAL	pinniped	2	VIS	DDG	2	1	10	N	501-1000	None	na	Seal floating
19-Aug-17	2030Z	SOCAL	pinniped	1	VIS	DDG	2	1	10	N	1001-2000	None	na	Seal floating
20-Aug-17	1419Z	SOCAL	whale	1	VIS	CG	5	1	10	N	<200	None	na	Swimming along the surface
20-Aug-17	2116Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None

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20-Aug-17	2158Z	SOCAL	whale	1	VIS	CG	1	3	10	N	<200	None	na	Swimming along the surface
20-Aug-17	2253Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
21-Aug-17	1036Z	SOCAL	dolphin	20	VIS	CG	5	2	10	N	>2000	None	na	Swimming along the surface
21-Aug-17	1042Z	SOCAL	dolphin	2	ACO	CG	18	2	10	N	nr	None	na	None
21-Aug-17	1734Z	SOCAL	dolphin	3	VIS	DDG	5	1	10	N	501-1000	None	na	Blowing
21-Aug-17	2139Z	SOCAL	dolphin	2	ACO	CG	10	2	10	N	nr	None	na	None
22-Aug-17	0010Z	SOCAL	whale	1	VIS	Non-ASW ship	2	2	10	na	501-1000	None	na	Spout
22-Aug-17	0502Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
22-Aug-17	0728Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
22-Aug-17	0820Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
22-Aug-17	1505Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
22-Aug-17	1702Z	SOCAL	dolphin	10	VIS	DDG	20	1	10	N	200-500	None	na	Jumping
22-Aug-17	1922Z	SOCAL	dolphin	2	ACO	CG	11	2	10	N	nr	None	na	None
22-Aug-17	1954Z	SOCAL	dolphin	2	ACO	CG	14	2	10	N	nr	None	na	None
22-Aug-17	1959Z	SOCAL	dolphin	4	VIS	DDG	2	1	10	N	501-1000	None	na	Jumping
22-Aug-17	2058Z	SOCAL	dolphin	50	VIS	DDG	5	1	10	N	200-500	None	na	Jumping
22-Aug-17	2234Z	SOCAL	dolphin	2	ACO	CG	1	2	10	N	nr	None	na	None
23-Aug-17	0500Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
23-Aug-17	0611Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
23-Aug-17	0850Z	SOCAL	dolphin	2	ACO	CG	15	2	10	N	nr	None	na	None
23-Aug-17	2346Z	SOCAL	dolphin	200	VIS	DDG	10	2	10	N	>2000	None	na	Swimming and jumping
24-Aug-17	0834Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-8. HSTT MTE – Individual Marine Mammal Sighting Information: IAC 5 Aug – 12 Aug 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
5-Aug-17	1430Z	SOCAL	whale	1	VIS	CG	3	2	10	Y	1001-2000	None	Whale bearing 090R, paralleling ship	Swimming on surface
6-Aug-17	0142Z	SOCAL	dolphin	20	VIS	DDG	1	1	5	N	1001-2000	None	na	Swimming
6-Aug-17	0238Z	SOCAL	generic	2	ACO	DDG	nr	nr	nr	N	nr	None	na	Marine mammals on Underwater Telephone
6-Aug-17	1637Z	SOCAL	whale	1	VIS	DDG	1	2	10	Y	>2000	None	Whale bearing 276R, paralleling ship	Blowing
6-Aug-17	1657Z	SOCAL	whale	3	VIS	DDG	3	2	10	N	1001-2000	None	na	Swimming
6-Aug-17	1808Z	SOCAL	dolphin	20	VIS	Non-ASW ship	2	nr	10	na	200-500	Maneuvered away	na	Bow riding
6-Aug-17	1844Z	SOCAL	whale	1	VIS	Non-ASW ship	4	nr	10	na	501-1000	Maneuvered away	na	Blowing
6-Aug-17	1853Z	SOCAL	dolphin	20	VIS	Non-ASW ship	3	nr	10	na	>2000	None	na	None
6-Aug-17	1941Z	SOCAL	whale	1	VIS	Non-ASW ship	2	nr	10	na	501-1000	None	na	Blowing
6-Aug-17	2047Z	SOCAL	whale	2	VIS	DDG	1	2	10	N	200-500	Maneuvered away	na	Spouting
6-Aug-17	2214Z	SOCAL	dolphin	5	VIS	CG	1	1	10	N	>2000	None	na	Swimming along the surface
6-Aug-17	2223Z	SOCAL	whale	1	VIS	DDG	1	1	5	N	1001-2000	Maneuvered away	na	Blowing
6-Aug-17	2350Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	>2000	Maneuvered away	na	Blowing
7-Aug-17	0018Z	SOCAL	whale	2	VIS	DDG	2	2	7	N	1001-2000	None	na	Blowing
7-Aug-17	0220Z	SOCAL	whale	1	VIS	DDG	4	1	10	N	>2000	Maneuvered away	na	Blowing
7-Aug-17	0300Z	SOCAL	dolphin	8	VIS	DDG	5	1	10	N	1001-2000	None	na	Swimming

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7-Aug-17	1808Z	SOCAL	dolphin	20	VIS	Non-ASW ship	2	nr	10	na	501-1000	Maneuvered away	na	Bow riding
7-Aug-17	2030Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	200-500	None	Whale bearing 090R, opening ship	Blowing
7-Aug-17	2340Z	SOCAL	whale	1	VIS	DDG	1	2	10	Y	>2000	Maneuvered away	na	Blowing
8-Aug-17	0140Z	SOCAL	whale	1	VIS	CG	2	3	10	N	>2000	None	na	Swimming along the surface
8-Aug-17	0840Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	1001-2000	None	na	Blowing
8-Aug-17	1358Z	SOCAL	dolphin	20	VIS	DDG	3	3	10	N	200-500	None	na	Swimming
8-Aug-17	1640Z	SOCAL	dolphin	12	VIS	DDG	15	3	8	N	<200	None	na	Swimming
8-Aug-17	1840Z	SOCAL	whale	1	VIS	DDG	5	3	9	N	>2000	None	na	Swimming
8-Aug-17	1853Z	SOCAL	dolphin	10	VIS	DDG	2	3	9	N	200-500	None	na	Swimming
8-Aug-17	1944Z	SOCAL	whale	1	VIS	DDG	3	2	10	N	200-500	None	na	Blowing
9-Aug-17	0121Z	SOCAL	whale	2	VIS	Non-ASW ship	10	2	7	na	1001-2000	Maneuvered away	na	Blowing
9-Aug-17	0122Z	SOCAL	whale	1	VIS	Non-ASW ship	8	2	7	na	>2000	Maneuvered away	na	Blowing
9-Aug-17	0845Z	SOCAL	whale	1	VIS	DDG	1	2	10	N	1001-2000	None	na	Blowing
9-Aug-17	1447Z	SOCAL	whale	1	VIS	Non-ASW ship	1	3	7	na	>2000	None	na	Blowing
9-Aug-17	1629Z	SOCAL	whale	1	VIS	DDG	2	5	10	N	501-1000	None	na	Diving
9-Aug-17	2312Z	SOCAL	dolphin	2	ACO	CG	5	2	10	N	nr	None	na	None
10-Aug-17	1536Z	SOCAL	dolphin	2	ACO	CG	2	2	10	N	nr	None	na	None
11-Aug-17	1500Z	SOCAL	whale	1	VIS	DDG	5	2	10	N	200-500	Maneuvered away	na	Blowing
11-Aug-17	1942Z	SOCAL	whale	1	VIS	DDG	5	3	10	N	1001-2000	Maneuvered away	na	Blowing
11-Aug-17	2107Z	SOCAL	dolphin	2	ACO	CG	12	2	10	N	nr	None	na	None
11-Aug-17	2130Z	SOCAL	whale	1	VIS	DDG	45	5	10	N	>2000	Maneuvered away	na	Travelling

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

**Table 1-ii-9. HSTT MTE – Individual Marine Mammal Sighting Information: SUSTEX 27 Oct – 13 Nov 2017**

Date/time/location of sighting		Species	Number of individuals	Initial detection sensor	Indication of specific type of platform the observation was made from	Length of time observers maintained visual contact with marine mammal(s) (min)	Sea state (Beaufort scale)	Visibility (nm)	Sound source in use at time of sighting (Y/N)	Indication of whether animal is <200 yd, 200-500 yd, 500-1000 yd, 1000-2000 yd, or >2000yd from sound source	Mitigation implementation – whether operation of sonar sensor was delayed, or sonar was powered down or shutdown, and how long the delay was; or whether navigation was changed or delayed	If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal’s motion relative to ship	Observed behavior – Watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s), and if any calves are present	
27-Oct-17	2206Z	SOCAL	dolphin	50	VIS	Non-ASW ship	5	1	10	na	1001-2000	None	na	Breaching
28-Oct-17	0008Z	SOCAL	whale	1	VIS	Non-ASW ship	5	2	8	na	>2000	None	na	Blowing
30-Oct-17	2359Z	SOCAL	dolphin	60	VIS	DDG	1	1	10	N	200-500	None	na	Bow riding
1-Nov-17	1641Z	SOCAL	dolphin	6	VIS	DDG	2	2	10	N	<200	None	na	Closing to bow ride
1-Nov-17	1659Z	SOCAL	dolphin	6	VIS	DDG	2	2	10	N	<200	None	na	Closing to bow ride
2-Nov-17	1446Z	SOCAL	dolphin	10	VIS	DDG	10	2	10	N	<200	None	na	Closing to bow ride
2-Nov-17	1519Z	SOCAL	dolphin	8	VIS	DDG	2	2	10	N	200-500	None	na	Closing to bow ride
2-Nov-17	2225Z	SOCAL	dolphin	50	VIS	Non-ASW ship	5	2	10	na	>2000	None	na	Breaching
3-Nov-17	0457Z	SOCAL	dolphin	5	VIS	DDG	1	3	10	N	<200	Maneuvered away	na	Bow riding
3-Nov-17	0621Z	SOCAL	dolphin	4	VIS	DDG	4	3	10	N	<200	Maneuvered away	na	Bow riding
3-Nov-17	1449Z	SOCAL	dolphin	8	VIS	DDG	3	3	10	N	501-1000	Maneuvered away	na	Bow riding
3-Nov-17	1455Z	SOCAL	whale	4	VIS	DDG	5	3	10	N	200-500	Maneuvered away	na	Tail slapping
3-Nov-17	1902Z	SOCAL	dolphin	50	VIS	Non-ASW ship	30	1	10	na	>2000	None	na	Breaching
4-Nov-17	2359Z	SOCAL	whale	1	VIS	DDG	2	2	10	N	>2000	Maneuvered away	na	Floating on surface
4-Nov-17	1545Z	SOCAL	dolphin	6	VIS	DDG	5	2	10	N	501-1000	None	na	Jumping
5-Nov-17	1615Z	SOCAL	dolphin	50	VIS	Non-ASW ship	3	1	10	na	1001-2000	None	na	Breaching
6-Nov-17	2359Z	SOCAL	whale	1	VIS	DDG	5	2	10	N	>2000	None	na	Floating on surface

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6-Nov-17	2313Z	SOCAL	whale	1	VIS	Non-ASW ship	3	2	10	na	1001-2000	None	na	Breaching
7-Nov-17	1223Z	SOCAL	whale	3	VIS	DDG	5	1	8	N	1001-2000	None	na	Paralleling ship
7-Nov-17	1530Z	SOCAL	dolphin	100	VIS	DDG	20	2	10	N	200-500	None	na	Bow riding
7-Nov-17	1849Z	SOCAL	whale	3	VIS	DDG	6	2	10	N	>2000	None	na	Floating on surface
7-Nov-17	2215Z	SOCAL	dolphin	4	VIS	Non-ASW ship	3	1	10	na	1001-2000	None	na	Breaching
7-Nov-17	2245Z	SOCAL	whale	1	VIS	Non-ASW ship	2	1	10	na	>2000	None	na	Breaching
7-Nov-17	2345Z	SOCAL	dolphin	50	VIS	Non-ASW ship	3	1	10	na	>2000	None	na	Breaching
8-Nov-17	2322Z	SOCAL	dolphin	20	VIS	Non-ASW ship	3	1	10	na	1001-2000	None	na	Breaching
9-Nov-17	1919Z	SOCAL	dolphin	20	VIS	Non-ASW ship	20	2	5	na	200-500	None	na	Jumping, bow riding
9-Nov-17	2227Z	SOCAL	dolphin	40	VIS	DDG	2	3	10	N	<200	None	na	Bow riding
10-Nov-17	0024Z	SOCAL	whale	1	VIS	Non-ASW ship	3	2	10	na	501-1000	None	na	Breaching
11-Nov-17	1715Z	SOCAL	dolphin	2	VIS	Non-ASW ship	2	2	10	na	501-1000	None	na	Bow riding, transiting
11-Nov-17	2355Z	SOCAL	whale	1	VIS	Non-ASW ship	1	1	10	na	1001-2000	None	na	Transiting on surface

nr=not reported; VIS=visual; ACO=acoustic; Y=yes; N=no; na=not applicable

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

There were eight major training exercises conducted in the HSTT Study Area during this reporting period (see **Table 1-ii-10**). In support of these MTEs, the Navy conducted over 10,743 hours of Marine Species Awareness Training for 4,161 personnel prior to the beginning of these training exercises.

**Table 1-ii-10. HSTT Study Area Major Training Exercises**

MTE Type	Dates	# of Exercise Days	# of US Ships Involved (MFAS and non-MFAS)	# of Marine Mammal Sightings	# of Marine Mammals
USWEX	13 Jan – 17 Jan 2017	5	*	2	31
C2X	28 Mar – 23 Apr 2017	27	*	78	479
IAC	9 Apr – 20 Apr 2017	12	*	67	324
C2X	1 May – 17 May 2017	17	*	47	544
USWEX	17 Jun – 20 Jun 2017	4	*	3	22
C2X	1 Aug – 29 Aug 2017	29	*	63	477
IAC	5 Aug – 12 Aug 2017	8	*	37	172
SUSTEX	27 Oct – 13 Nov 2017	18	*	30	566
	<b>Total</b>	<b>120</b>	<b>*</b>	<b>327</b>	<b>2,615</b>

\* Information is presented in the classified version of this report.

### HSTT Study Area Major Training Exercise Marine Mammal Observations

There were 327 sightings of an estimated 2,615 marine mammals over the course of eight MTEs in the HSTT Study Area (see **Table 1-ii-10**). Breakdown of sightings by species type are shown in **Table 1-ii-11**.

**Table 1-ii-11. Total number of marine mammal sightings observed from Navy platforms during Major Training Exercises.**

Species Type	# of Sightings	% of Total Sightings	# of Marine Mammals	% of Total Number of Marine Mammals
Dolphins	153	47%	2,330	89%
Whales	166	51%	262	10%
Pinnipeds	7	2%	21	<1%
Turtles	0	0%	0	0%
Not recorded	1	<1%	2	<1%
<b>Totals:</b>	<b>327</b>		<b>2,615</b>	

Dolphin species in Southern California typically occur in larger pods than whales, hence the higher number of dolphins and larger percentage of total numbers seen in these counts. During this reporting period, dolphin sightings accounted for 47% of all sightings and 89% of all individuals sighted (**Table 1-ii-11**).

### HSTT Study Area Major Training Exercise Mitigations

Sonar mitigation – **Table 1-ii-12** shows the number of marine mammal sightings out of the 327 total sightings reported this period that occurred at ranges less than 1,000 yards and indicates how many sonar mitigations were applied (third column). Other sightings within these ranges were instances when sonar was not in use, therefore sonar mitigation was not conducted (fourth column).

There were also 64 instances of Navy ships maneuvering to avoid marine mammals, or to avoid crossing the path of marine mammals. Of these 64 maneuvers, 57 were to avoid whales (n= 95 whales) and 7 were to avoid dolphins (n= 79 dolphins).

**Table 1-ii-12. Number of marine mammal sightings at ranges less than 1,000 yards observed from Navy platforms during Major Training Exercises concurrent with sonar mitigation.**

Ranges	Marine Mammal Type	Sightings within a given range with mitigation (i.e., sonar was on prior to sighting and sonar mitigation was applied)	Sightings within a given range with no mitigation required (i.e., sonar not on so sonar mitigation was not needed)
<b>&lt; 200 yards</b>			
	Whales	1 sighting of 1 whale	15 sightings of 29 whales
	Dolphins	0 sightings	27 sightings of 514 dolphins
	Pinnipeds	0 sightings	2 sightings of 13 pinnipeds
	Turtles	0 sightings	0 sightings
	Generic	0 sightings	0 sightings
<b>200-500 yards</b>			
	Whales	5 sightings of 5 whales	28 sightings of 58 whales
	Dolphins	1 sighting of 5 dolphins	37 sightings of 731 dolphins
	Pinnipeds	0 sightings	1 sighting of 1 pinniped
	Turtles	0 sightings	0 sightings
	Generic	0 sightings	0 sightings
<b>501-1000 yards</b>			
	Whales	4 sightings of 4 whales	30 sightings of 41 whales
	Dolphins	0 sightings	14 sightings of 191 dolphins
	Pinnipeds	0 sightings	1 sighting of 2 pinnipeds
	Turtles	0 sightings	0 sightings
	Generic	0 sightings	0 sightings

**SUMMARY: Mitigation Effectiveness and Navy Mitigation Zone Adherence**

During this year’s MTEs in the HSTT Study Area, prescribed NMFS mitigation zones were effectively applied in cases of observation of marine mammals within the applicable zone. **Table 1-ii-13** depicts the maximum estimated receive levels by the marine mammal at the time the mitigation measure was applied. In each case, the Permanent Threshold Shift (PTS) threshold is higher than the estimated maximum exposure level prior to mitigation which means that the marine mammal was unlikely to experience injury. During this reporting period the proper implementation of mitigation measures for sighted marine mammals is estimated to be highly effective at preventing exposures that may result in injury (e.g. PTS).

The three categories of mitigation measures (Personnel Training, Lookout and Watchstander Responsibility, and Operating Procedures) outlined in the HSTT Final Environmental Impact Statement (EIS)/Overseas Environmental Impact Statement (OEIS) of August 2013 and approved by NMFS in the HSTT Study Area LOA were effective in appropriately mitigating exposure of marine mammals to sonar. 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 on-line training required for watch standing qualifications) with over 10,743 hours completed this year representing training to 4,161 personnel, adherence to required active sonar mitigation zones, and application of lessons learned in marine mammal sighting and reporting.

**Table 1-ii-13. Sightings where sonar was on during detection of marine mammals at ranges less than 1,000 yards, and the mitigation conducted.**

Location	MTE	Month	Species sighted	# of marine mammals sighted	Platform	Length of time observed (min)	Range at which marine mammals sighted	Mitigation (Sonar powerdown, sonar shutdown)	Estimate MAX exposure PRIOR to mitigation (dB re 1µPa) <sup>1</sup>	Number of minutes sonar mitigation applied	Estimate exposure AFTER mitigation (dB re 1µPa) <sup>1</sup>	DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	If source in use is hull-mounted sonar, relative bearing of animal from ship and estimation of animal's motion relative to ship	Observed behavior
SOCAL	IAC	Apr	whale	1	DDG	1	501-1000	Sonar powerdown	<175-181	5	<169-175	1,667	Whale bearing 320R, opening ship	Blowing
SOCAL	IAC	Apr	whale	1	DDG	2	200-500	Sonar shutdown	<181-189	12	None	4,000	Whale bearing 150R, opening ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	15	200-500	Sonar powerdown	<181-189	10	<171-179	3,333	Whale bearing 180R, opening ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	5	501-1000	Sonar powerdown	<175-181	10	<169-175	3,333	Whale bearing 140R, opening ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	1	200-500	Sonar powerdown	<181-189	12	<171-179	1,333	Whale bearing 180R, opening ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	2	200-500	Sonar powerdown	<181-189	28	<171-179	9,333	Whale bearing 090R, closing ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	1	200-500	Sonar shutdown	<181-189	20	None	6,667	Whale bearing 180R, closing ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	DDG	1	501-1000	Sonar shutdown	<175-181	9	None	3,000	Whale bearing 336R, closing ship	Swimming on surface
SOCAL	IAC	Apr	whale	1	CG	2	<200	Sonar shutdown	<189	30	None	10,000	Whale bearing 280R, closing ship	Swimming
SOCAL	IAC	Apr	dolphin	5	CG	2	200-500	Sonar shutdown	<181-189	30	None	10,000	Dolphins bearing 000R, opening ship	Swimming
SOCAL	C2X	Aug	whale	1	DDG	10	501-1000	Sonar shutdown	<175-181	1	None	333	Whale bearing 340R, closing ship	Blowing

Notes:

<sup>1</sup>Estimated exposure based on 20Log[R] spherical spreading propagation loss for ranges less than 1,000 yards and where nominal active sonar Source Level (SL) assumed to be 235 dB for CGs and DDGs. Actual operating parameters and oceanographic condition likely result in lower exposure. This calculation assumes exposure prior to mitigation. Once animal was spotted at the range indicated, applied mitigation would have resulted in much lower to no exposures.

**Exposure Assessment**

Estimated exposures within 2,000 yards can be determined based on standard formulas of how sound propagates in water. Spherical spreading is generally valid within 1,000 yards from the sound source, and can be expressed as spreading loss (in dB from a source) equals  $20\log R$  (with “R” being range from the source in yards). Spherical spreading loss in the first 1,000 yards equates to 60 dB of loss. At ranges between 1,000 and 2,000 yards, the sound waves become trapped by the sea surface and bottom and cannot expand vertically. The spreading wave then forms an expanding cylinder. Cylindrical spreading loss in dB between two points can be calculated by using the formula  $(10\log R_2/R_1)$ , with “R2” being the longer range, and “R1” being 1,000 yards. Cylindrical spreading loss between 1,000 and 2,000 yards equates to an additional 3 dB of loss. By the time the wave has propagated to 2,000 yards, the sonar signal strength has decreased by a total of 63 dB. Using the AN/SQS-53 sonar as an example, transmitting at 235 dB and subtracting the 63 dB of spreading loss equates to an estimated sonar Receive Level (RL) of 172 dB at 2,000 yards. The spreading loss formulas are used to make very conservative assumptions about potential exposure. The formula is an estimation of spreading losses only and does not take into account other factors that could increase the total propagation losses such as oceanographic conditions, attenuation losses, scattering losses, and Navy-unique MFAS operating parameters which would result in slightly lower sonar transmit levels. Use of this approach to estimate potential RL at any given animal assumes the horizontal range from a visual sighting accounts for an animal across all depths at which an animal travels to predict the maximum, worst case potential exposure. In other words, this estimated worst case exposure is presented independent of the animal’s actual depth level, since a) time and depth of current and previous dives cannot be deduced from a limited surface sighting, and b) oceanographic and tactical conditions influence actual sound propagation at different depths. Given the relative motion of ships and animals at sea, the time spent with any given exposure from surface ships is likely to be limited.

**(iii) Exercise Information for each SINKEX**

No SINKEX events were conducted in the HSTT Study Area during the reporting period.

## (2) HSTT – Summary of Sources Used

### (i) Total annual usage of each type of sound source

This section summarizes total annual usage of each type of sound source used for training within the HSTT Study Area.

**Table 2-i-1. Training sound source usage within the HSTT Study Area by source bin.**

Authorized sound sources 50 CFR §218.70 (c) and NMFS HSTT LOA		Authorized Amount (26Dec16- 25Dec17)	Actual Usage (26Dec16- 25Dec17)	% Used of Authorized Amount
<b>(A) Non-impulsive Sources Used During Training</b>				
MF1		11,588 hours	*	*
MF1K		88 hours	*	*
MF2		3,060 hours	*	*
MF2K		34 hours	*	*
MF3		2,336 hours	*	*
MF4		888 hours	*	*
MF5		13,718 items	*	*
MF11		1,120 hours	*	*
MF12		1,094 hours	*	*
HF1		1,754 hours	*	*
HF4		4,848 items	*	*
ASW1		224 hours	*	*
ASW2		1,800 items	*	*
ASW3		16,561 hours	*	*
ASW4		1,540 items	*	*
TORP1		170 items	*	*
TORP2		400 items	*	*
<b>(B) Annual Number of Impulsive Source Detonations During Training</b>				
E1	0.1 lb to 0.25 lb NEW	19,840 detonations	13,392	68%
E2	0.26 lb to 0.5 lb NEW	1,044 detonations	721	69%
E3	>0.5 lb to 2.5lb NEW	3,020 detonations	128	4%
E4	>2.5 lb to 5 lb NEW	668 detonations	189	28%
E5	>5 lb to 10 lb NEW	8,154 detonations	462	6%
E6	>10 lb to 20 lb NEW	538 detonations	60	11%
E7	>20 lb to 60 lb NEW	407 detonations	0	0%
E8	>60 lb to 100 lb NEW	64 detonations	14	22%
E9	>100 lb to 250 lb NEW	16 detonations	15	94%
E10	>250 lb to 500 lb NEW	19 detonations	13	68%
E11	>500 lb to 650 lb NEW	8 detonations	0	0%
E12 <sup>1</sup>	>650 lb to 1,000 lb NEW	224 detonations	66	29%
E13	>1,000 lb to 1,740 lb NEW	9 detonations	0	0%

\*Information is presented in the classified version of this report.

<sup>1</sup>Bomb detonations (all NEWs) were modeled as E12 and are totaled here.

**Table 2-i-2. 5-year cumulative source usage within the HSTT Study Area by source bin.**

Sound Source Bin	Year 1 Actual Usage (26Dec13-25Dec14)	Year 2 Actual Usage (26Dec14-25Dec15)	Year 3 Actual Usage (26Dec15-25Dec16)	Year 4 Actual Usage (26Dec16-25Dec17)	5-yr Authorized Amount (26Dec13-25Dec18)	5-yr Cumulative Actual Usage (26Dec13-25Dec18)	% Used of 5-yr Authorized Amount
<b>(A) Active Acoustic Sources Used During Annual Training</b>							
MF1	*	*	*	*	57,940 hours	*	*
MF1K	*	*	*	*	440 hours	*	*
MF2	*	*	*	*	15,300 hours	*	*
MF2K	*	*	*	*	170 hours	*	*
MF3	*	*	*	*	11,680 hours	*	*
MF4	*	*	*	*	4,440 hours	*	*
MF5	*	*	*	*	68,590 items	*	*
MF11	*	*	*	*	5,600 hours	*	*
MF12	*	*	*	*	5,470 hours	*	*
HF1	*	*	*	*	8,770 hours	*	*
HF4	*	*	*	*	24,240 hours	*	*
ASW1	*	*	*	*	1,120 hours	*	*
ASW2	*	*	*	*	9,000 items	*	*
ASW3	*	*	*	*	82,805 hours	*	*
ASW4	*	*	*	*	7,700 items	*	*
TORP1	*	*	*	*	850 items	*	*
TORP2	*	*	*	*	2,000 items	*	*
<b>(B) Explosive Sources Used During Annual Training</b>							
E1	6,850	0	2,662	13,392	99,200 detonations	22,904	23%
E2	268	0	1,185	721	5,220 detonations	2,174	42%
E3	651	178	305	128	15,100 detonations	1,262	8%
E4	62	5	16	189	3,340 detonations	272	8%
E5	1,311	1,414	3,136	462	40,770 detonations	6,323	16%
E6	45	93	97	60	2,690 detonations	295	11%
E7	0	0	0	0	2,035 detonations	0	0%
E8	1	4	26	14	320 detonations	45	14%
E9	5	11	25	15	80 detonations	56	70%
E10	13	10	10	13	95 detonations	46	48%
E11	0	0	0	0	40 detonations	0	0%
E12 <sup>1</sup>	185	0	60	66	1,120 detonations	311	28%
E13	5	0	0	0	45 detonations	5	11%

\*Information is presented in the classified version of this report.

<sup>1</sup>Bomb detonations (all NEWs) were modeled as E12 and are totaled here.

**(C) Total annual airgun use**

Airguns were not used within HSTT for training during this reporting period. Airgun use is not an authorized source for training in the HSTT Letter of Authorization or Final Rule, but reporting requirements for this source are specified in the reporting section for training in the HSTT Letter of Authorization.

**(D) Improved Extended Echo-Ranging System (IEER) sonobuoy summary**

IEER sonobuoys were not used within the HSTT. IEER buoys have been phased out of the training inventory, and are no longer planned for use during training in HSTT.

### **(3) HSTT – 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.

### **(4) HSTT – Geographic Information Presentation**

The precise locations and frequency of sonar use is classified. There is currently no method to declassify the sensitivity of this data in order to publish this type of information in an unclassified report. For this reason the only available method for this information to be disseminated for the foreseeable future is in the classified version of this report.

### **(5) HSTT – Special Reporting Requirements**

#### **(i) Total Sonar Hours (dense humpback areas)**

Hull-mounted mid-frequency active sonar use within the dense humpback areas between 15 December and 15 April of this reporting period has been included in the classified version of this report.

#### **(ii) Total Sonar Hours (Humpback Whale Cautionary Area)**

Hull-mounted mid-frequency active sonar was not used within or in the vicinity of the Humpback Whale Cautionary Area between 15 December and 15 April of this reporting period.