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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

26 December 2013

**UNCLASSIFIED**  
**Annual Exercise Report**  
**26 December 2014 to 25 December 2015**  
**Year 2**

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

**05 APRIL 2016**

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### ANNUAL HSTT UNCLASSIFIED EXERCISE REPORT

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# **ANNUAL HAWAII-SOUTHERN CALIFORNIA TRAINING AND TESTING EXERCISE REPORT**

## **INTRODUCTION**

The U.S. Navy prepared this Annual Unclassified Exercise Report covering the period from 26 December 2014 to 25 December 2015 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. This report includes only training information that is unclassified, all classified reporting requirements have been forwarded to NMFS in the classified version of this report.

In the HSTT Study Area Letter of Authorization<sup>1</sup> "Requirements for monitoring and reporting" the following report subsections were specified and are present within this report:

- (1) Major Training Exercises (MTE)/SINKEX
  - (i) Exercise Information (for each exercise)
  - (ii) Individual Marine Mammal Sighting Information (for each sighting in 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 Representation
- (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. The amount of all sonar and explosive sources were below the amount authorized annually. To provide accounting for the entire five-year period of the authorization, Navy will also submit a five-year close-out exercise report with final totals of authorized 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

This section summarizes authorized sonar use and marine mammal observations from MTEs conducted within the HSTT Study Area during the reporting period. The HSTT MTEs include *Sustainment Exercises* (SUSTEX), *Integrated ASW Course* (IAC), *Composite Training Unit Exercises* (C2X), *Joint Task Force Exercises* (JTFEX), *Undersea Warfare Exercises* (USWEX), and *Rim of the Pacific Exercises* (RIMPAC)\*.

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

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

| (A) Exercise designator | (B) Date             | (C) Locations | (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 |
| IAC                     | 9 Feb – 19 Feb 2015  | HRC           | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| C2X (ARG/MEU)**         | 16 Mar - 1 Apr 2015  | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| IAC                     | 25 Apr - 28 Apr 2015 | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| C2X                     | 27 Jul - 20 Aug 2015 | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| IAC                     | 14 Aug - 18 Aug 2015 | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| JTFEX                   | 21 Aug - 27 Aug 2015 | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| C2X (ARG/MEU)**         | 19 Oct - 5 Nov 2015  | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |
| SUSTEX                  | 5 Nov - 16 Nov 2015  | SOCAL         | **                                                         | **          | **          | **          | **          | **           | **                                                            | **  | **  | **                         | **                      | **         | **   |                      |

\*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. RIMPAC occurs every other year, and did not occur during this reporting period.

\*\* Amphibious Ready Group/Marine Expeditionary Unit event (typically very low use of sonar).

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

**Table 1-ii-2. HSTT MTE – Individual Marine Mammal Sighting Information: IAC 9 Feb - 19 Feb 2015.**

| 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 >2000 yd 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 |
|--------------------------------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                      |
| 14 Feb 15                      | HRC     | 0228Z                 | generic                  | 1                                                                     | VIS                                                                            | MPRA                       | nr              | nr                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |
| 17 Feb 15                      | HRC     | 2042Z                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | nr              | 3                                             | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |
| 17 Feb 15                      | HRC     | 2218Z                 | whale                    | 1                                                                     | VIS                                                                            | Helio                      | 8               | 1                                             | <200                                                                                                          | Shut down sonar                                                                                                                                                                            | Whale bearing 090, relative motion nr                                                                                             | nr                                                                                                                                                                                   |
| 17 Feb 15                      | HRC     | 2351Z                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | nr              | 0                                             | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |
| 17 Feb 15                      | HRC     | 0214Z                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | nr              | 1                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |
| 18 Feb 15                      | HRC     | 0127Z                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | 2               | 1                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |

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 (ARG/MEU) 16 Mar - 1 Apr 2015.

| 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 >2000 yd 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 |    |          |
|--------------------------------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                      |    |          |
| 16 Mar 15                      | 2157Z   | SOCAL                 | pinniped                 | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 2               | 0                                             | 10                                                                                                            | na                                                                                                                                                                                         | 1001-2000                                                                                                                         | none                                                                                                                                                                                 | na | Sea lion |
| 16 Mar 15                      | 2210Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 15              | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 501-1000                                                                                                                          | none                                                                                                                                                                                 | na | nr       |
| 16 Mar 15                      | 2306Z   | SOCAL                 | pinniped                 | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 5               | 0                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | Sea lion |
| 16 Mar 15                      | 2329Z   | SOCAL                 | dolphin                  | 100                                                                   | VIS                                                                            | Non-ASW Ship               | 10              | 0                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |
| 17 Mar 15                      | 0210Z   | SOCAL                 | dolphin                  | 30                                                                    | VIS                                                                            | Non-ASW Ship               | 1               | 0                                             | 10                                                                                                            | na                                                                                                                                                                                         | 501-1000                                                                                                                          | none                                                                                                                                                                                 | na | nr       |
| 17 Mar 15                      | 1615Z   | SOCAL                 | dolphin                  | 15                                                                    | VIS                                                                            | Non-ASW Ship               | 4               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |
| 17 Mar 15                      | 1641Z   | SOCAL                 | dolphin                  | 15                                                                    | VIS                                                                            | Non-ASW Ship               | 4               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |
| 17 Mar 15                      | 2101Z   | SOCAL                 | whale                    | 2                                                                     | VIS                                                                            | CG                         | 2               | 2                                             | 10                                                                                                            | N                                                                                                                                                                                          | >2000                                                                                                                             | none                                                                                                                                                                                 | na | Blowing  |
| 18 Mar 15                      | 1357Z   | SOCAL                 | dolphin                  | 20                                                                    | VIS                                                                            | Non-ASW Ship               | 5               | 3                                             | 10                                                                                                            | na                                                                                                                                                                                         | <200                                                                                                                              | none                                                                                                                                                                                 | na | nr       |
| 18 Mar 15                      | 1854Z   | SOCAL                 | dolphin                  | 20                                                                    | VIS                                                                            | Non-ASW Ship               | 5               | 1                                             | 10                                                                                                            | na                                                                                                                                                                                         | <200                                                                                                                              | none                                                                                                                                                                                 | na | nr       |
| 18 Mar 15                      | 2032Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 5               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 1001-2000                                                                                                                         | none                                                                                                                                                                                 | na | nr       |
| 18 Mar 15                      | 2338Z   | SOCAL                 | dolphin                  | 10                                                                    | VIS                                                                            | Non-ASW Ship               | 3               | 1                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |
| 18 Mar 15                      | 2359Z   | SOCAL                 | dolphin                  | 4                                                                     | VIS                                                                            | Non-ASW Ship               | 3               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |
| 19 Mar 15                      | 0054Z   | SOCAL                 | dolphin                  | 3                                                                     | VIS                                                                            | Non-ASW Ship               | 3               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | <200                                                                                                                              | none                                                                                                                                                                                 | na | nr       |
| 19 Mar 15                      | 1332Z   | SOCAL                 | dolphin                  | 5                                                                     | VIS                                                                            | Non-ASW Ship               | 5               | 1                                             | 10                                                                                                            | na                                                                                                                                                                                         | <200                                                                                                                              | none                                                                                                                                                                                 | na | nr       |
| 19 Mar 15                      | 1718Z   | SOCAL                 | pinniped                 | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 5               | 1                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | Sea lion |
| 19 Mar 15                      | 1940Z   | SOCAL                 | pinniped                 | 1                                                                     | VIS                                                                            | Non-ASW Ship               | 5               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | Sea lion |
| 19 Mar 15                      | 2000Z   | SOCAL                 | dolphin                  | 3                                                                     | VIS                                                                            | Non-ASW Ship               | 3               | 2                                             | 10                                                                                                            | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                                                 | na | nr       |



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|           |       |       |          |     |     |              |    |   |    |    |           |                 |    |            |
|-----------|-------|-------|----------|-----|-----|--------------|----|---|----|----|-----------|-----------------|----|------------|
| 19 Mar 15 | 2129Z | SOCAL | whale    | 1   | VIS | Non-ASW Ship | 3  | 2 | 10 | na | 200-500   | none            | na | nr         |
| 19 Mar 15 | 2130Z | SOCAL | whale    | 1   | VIS | Non-ASW Ship | 10 | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 20 Mar 15 | 0003Z | SOCAL | dolphin  | 20  | VIS | Non-ASW Ship | 10 | 2 | 10 | na | 1001-2000 | none            | na | nr         |
| 20 Mar 15 | 1703Z | SOCAL | dolphin  | 20  | VIS | Non-ASW Ship | 10 | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 20 Mar 15 | 1912Z | SOCAL | dolphin  | 30  | VIS | Non-ASW Ship | 6  | 1 | 10 | na | >2000     | none            | na | nr         |
| 20 Mar 15 | 1956Z | SOCAL | dolphin  | 35  | VIS | Non-ASW Ship | 6  | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 21 Mar 15 | 1935Z | SOCAL | whale    | 1   | VIS | Non-ASW Ship | 3  | 1 | 10 | na | >2000     | none            | na | nr         |
| 21 Mar 15 | 1943Z | SOCAL | whale    | 1   | VIS | Non-ASW Ship | 3  | 2 | 10 | na | >2000     | none            | na | nr         |
| 22 Mar 15 | 0103Z | SOCAL | whale    | 3   | VIS | Non-ASW Ship | 18 | 3 | 10 | na | 1001-2000 | none            | na | Blowing    |
| 22 Mar 15 | 1640Z | SOCAL | whale    | 1   | VIS | DDG          | 6  | 2 | 10 | N  | 501-1000  | none            | na | Blowing    |
| 22 Mar 15 | 1837Z | SOCAL | whale    | 1   | VIS | CG           | 3  | 2 | 10 | N  | 200-500   | none            | na | Blowing    |
| 23 Mar 15 | 0056Z | SOCAL | dolphin  | 25  | VIS | DDG          | 8  | 2 | 10 | N  | 200-500   | none            | na | Bow riding |
| 23 Mar 15 | 1932Z | SOCAL | dolphin  | 5   | VIS | DDG          | 5  | 1 | 10 | N  | 200-500   | none            | na | Bow riding |
| 24 Mar 15 | 1628Z | SOCAL | dolphin  | 10  | VIS | Non-ASW Ship | 7  | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 24 Mar 15 | 1628Z | SOCAL | dolphin  | 10  | VIS | Non-ASW Ship | 5  | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 24 Mar 15 | 1733Z | SOCAL | dolphin  | 6   | VIS | Non-ASW Ship | 2  | 1 | 10 | na | <200      | none            | na | nr         |
| 24 Mar 15 | 2022Z | SOCAL | whale    | 1   | VIS | Non-ASW Ship | 1  | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 24 Mar 15 | 2211Z | SOCAL | dolphin  | 10  | VIS | Non-ASW Ship | 1  | 1 | 10 | na | 200-500   | none            | na | nr         |
| 25 Mar 15 | 1200Z | SOCAL | dolphin  | 15  | VIS | Non-ASW Ship | 14 | 2 | 10 | na | 1001-2000 | none            | na | nr         |
| 25 Mar 15 | 1356Z | SOCAL | dolphin  | 37  | VIS | Non-ASW Ship | 14 | 1 | 10 | na | 1001-2000 | none            | na | nr         |
| 26 Mar 15 | 0013Z | SOCAL | whale    | 1   | VIS | CG           | 1  | 3 | 10 | N  | 501-1000  | Maneuvered away | na | Blowing    |
| 26 Mar 15 | 1630Z | SOCAL | dolphin  | 300 | VIS | Non-ASW Ship | 5  | 2 | 10 | na | <200      | none            | na | nr         |
| 26 Mar 15 | 1716Z | SOCAL | whale    | 1   | VIS | CG           | 1  | 2 | 10 | N  | >2000     | Maneuvered away | na | Blowing    |
| 26 Mar 15 | 1927Z | SOCAL | dolphin  | 1   | VIS | Non-ASW Ship | 5  | 2 | 10 | na | 1001-2000 | none            | na | nr         |
| 26 Mar 15 | 2330Z | SOCAL | pinniped | 1   | VIS | Non-ASW Ship | 5  | 1 | 10 | na | 1001-2000 | none            | na | Seal       |
| 27 Mar 15 | 1347Z | SOCAL | dolphin  | 20  | VIS | Non-ASW Ship | 2  | 1 | 10 | na | <200      | none            | na | nr         |
| 27 Mar 15 | 1720Z | SOCAL | dolphin  | 20  | VIS | Non-ASW Ship | 10 | 1 | 10 | na | 1001-2000 | none            | na | nr         |

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|           |       |       |          |    |     |              |    |   |    |    |          |      |    |                          |
|-----------|-------|-------|----------|----|-----|--------------|----|---|----|----|----------|------|----|--------------------------|
| 27 Mar 15 | 1818Z | SOCAL | dolphin  | 10 | VIS | Non-ASW Ship | 5  | 2 | 10 | na | <200     | none | na | nr                       |
| 27 Mar 15 | 2025Z | SOCAL | pinniped | 1  | VIS | Non-ASW Ship | 6  | 1 | 10 | na | <200     | none | na | Sea lion                 |
| 28 Mar 15 | 0252Z | SOCAL | dolphin  | 7  | VIS | Non-ASW Ship | 2  | 1 | 10 | na | <200     | none | na | nr                       |
| 28 Mar 15 | 1508Z | SOCAL | dolphin  | 10 | VIS | Non-ASW Ship | 4  | 1 | 10 | na | <200     | none | na | nr                       |
| 28 Mar 15 | 1610Z | SOCAL | dolphin  | 10 | VIS | Non-ASW Ship | 10 | 2 | 10 | na | <200     | none | na | nr                       |
| 30 Mar 15 | 1413Z | SOCAL | dolphin  | 5  | VIS | Non-ASW Ship | 5  | 3 | 10 | na | >2000    | none | na | nr                       |
| 30 Mar 15 | 1859Z | SOCAL | dolphin  | 5  | VIS | Non-ASW Ship | 5  | 1 | 10 | na | >2000    | none | na | nr                       |
| 30 Mar 15 | 1915Z | SOCAL | pinniped | 2  | VIS | Non-ASW Ship | 5  | 2 | 10 | na | 200-500  | none | na | Seal floating on surface |
| 30 Mar 15 | 1933Z | SOCAL | whale    | 2  | VIS | Non-ASW Ship | 12 | 1 | 10 | na | 200-500  | none | na | nr                       |
| 30 Mar 15 | 2011Z | SOCAL | pinniped | 1  | VIS | Non-ASW Ship | 4  | 1 | 10 | na | <200     | none | na | Sea lion                 |
| 30 Mar 15 | 2058Z | SOCAL | whale    | 1  | VIS | Non-ASW Ship | 1  | 1 | 10 | na | <200     | none | na | nr                       |
| 30 Mar 15 | 2131Z | SOCAL | dolphin  | 3  | VIS | Non-ASW Ship | 3  | 1 | 10 | na | 200-500  | none | na | nr                       |
| 30 Mar 15 | 2225Z | SOCAL | dolphin  | 10 | VIS | Non-ASW Ship | 2  | 1 | 10 | na | <200     | none | na | nr                       |
| 31 Mar 15 | 1321Z | SOCAL | whale    | 1  | VIS | Non-ASW Ship | 1  | 1 | 10 | na | <200     | none | na | nr                       |
| 31 Mar 15 | 1641Z | SOCAL | dolphin  | 20 | VIS | Non-ASW Ship | 2  | 0 | 10 | na | <200     | none | na | nr                       |
| 31 Mar 15 | 1748Z | SOCAL | whale    | 1  | VIS | Non-ASW Ship | 1  | 3 | 10 | na | 501-1000 | none | na | nr                       |
| 31 Mar 15 | 2305Z | SOCAL | dolphin  | 15 | VIS | Non-ASW Ship | 2  | 1 | 10 | na | 200-500  | none | na | nr                       |

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 25 Apr - 28 Apr 2015.

| 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 >2000 yd 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 |
|--------------------------------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                      |
| 25 Apr 15                      | dolphin | 2                     | VIS                      | CG                                                                    | 30                                                                             | 2                          | 8               | N                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | Swimming                                                                                                                                                                             |
| 25 Apr 15                      | whale   | 1                     | VIS                      | Non-ASW Ship                                                          | 7                                                                              | 4                          | 8               | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 25 Apr 15                      | dolphin | 23                    | VIS                      | DDG                                                                   | 8                                                                              | 3                          | 10              | Y                                             | 200-500                                                                                                       | Maneuvered away                                                                                                                                                                            | Dolphins bearing 355, closing ship                                                                                                | Bow riding                                                                                                                                                                           |
| 25 Apr 15                      | dolphin | 5                     | VIS                      | Non-ASW Ship                                                          | 10                                                                             | 3                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 26 Apr 15                      | whale   | 2                     | VIS                      | Non-ASW Ship                                                          | 1                                                                              | 4                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 26 Apr 15                      | whale   | 2                     | VIS                      | Non-ASW Ship                                                          | 1                                                                              | 4                          | 10              | na                                            | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 26 Apr 15                      | dolphin | 2                     | VIS                      | Non-ASW Ship                                                          | 2                                                                              | 2                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 26 Apr 15                      | whale   | 1                     | VIS                      | Non-ASW Ship                                                          | 1                                                                              | 2                          | 10              | na                                            | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 26 Apr 15                      | whale   | 3                     | VIS                      | Non-ASW Ship                                                          | 3                                                                              | 3                          | 10              | na                                            | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 26 Apr 15                      | whale   | 2                     | VIS                      | Non-ASW Ship                                                          | 3                                                                              | 3                          | 10              | na                                            | 200-500                                                                                                       | Maneuvered away                                                                                                                                                                            | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 27 Apr 15                      | whale   | 1                     | VIS                      | DDG                                                                   | 5                                                                              | 2                          | 10              | Y                                             | 501-1000                                                                                                      | Shut down sonar                                                                                                                                                                            | Whale bearing 357, closing ship                                                                                                   | Visual of whale off port beam. Reduced speed and shut down sonar. Whale passed down port side and increased range                                                                    |
| 27 Apr 15                      | whale   | 1                     | VIS                      | DDG                                                                   | 15                                                                             | 2                          | 10              | N                                             | 1001-2000                                                                                                     | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 27 Apr 15                      | whale   | 1                     | VIS                      | DDG                                                                   | 3                                                                              | 2                          | 10              | Y                                             | 1001-2000                                                                                                     | Shut down sonar                                                                                                                                                                            | Whale bearing 226, paralleling ship                                                                                               | Blowing                                                                                                                                                                              |
| 27 Apr 15                      | dolphin | 20                    | VIS                      | Non-ASW Ship                                                          | 5                                                                              | 3                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 27 Apr 15                      | dolphin | 20                    | VIS                      | Non-ASW Ship                                                          | 5                                                                              | 3                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 27 Apr 15                      | whale   | 2                     | VIS                      | DDG                                                                   | 5                                                                              | 2                          | 10              | N                                             | >2000                                                                                                         | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |

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|-----------|-------|-------|---------|-----|-----|--------------|----|---|----|----|-----------|-----------------|----------------------------------|------------|
| 27 Apr 15 | 1620Z | SOCAL | whale   | 4   | VIS | Non-ASW Ship | 6  | 3 | 10 | na | <200      | none            | na                               | Breaching  |
| 27 Apr 15 | 1845Z | SOCAL | dolphin | 30  | VIS | DDG          | 26 | 1 | 10 | N  | 200-500   | none            | na                               | nr         |
| 27 Apr 15 | 2000Z | SOCAL | dolphin | 5   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | <200      | none            | na                               | Frolicking |
| 27 Apr 15 | 2247Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 200-500   | none            | na                               | Blowing    |
| 28 Apr 15 | 0015Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 1  | 4 | 10 | na | >2000     | none            | na                               | Blowing    |
| 28 Apr 15 | 0130Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 10 | 3 | 10 | na | 1001-2000 | none            | na                               | Breaching  |
| 28 Apr 15 | 0130Z | SOCAL | whale   | 3   | VIS | Non-ASW Ship | 10 | 3 | 10 | na | >2000     | none            | na                               | Breaching  |
| 28 Apr 15 | 0150Z | SOCAL | dolphin | 10  | VIS | Non-ASW Ship | 2  | 3 | 10 | na | 200-500   | none            | na                               | Breaching  |
| 28 Apr 15 | 1527Z | SOCAL | dolphin | 5   | VIS | DDG          | 3  | 2 | 7  | N  | <200      | none            | na                               | Bow riding |
| 28 Apr 15 | 1552Z | SOCAL | dolphin | 22  | VIS | DDG          | 9  | 2 | 10 | N  | >2000     | none            | na                               | Blowing    |
| 28 Apr 15 | 1813Z | SOCAL | dolphin | 43  | VIS | DDG          | 15 | 2 | 10 | N  | >2000     | none            | na                               | Blowing    |
| 29 Apr 15 | 1231Z | SOCAL | dolphin | 4   | VIS | Non-ASW Ship | 2  | 3 | 8  | na | <200      | none            | na                               | Swimming   |
| 29 Apr 15 | 1231Z | SOCAL | dolphin | 4   | VIS | Non-ASW Ship | 2  | 3 | 8  | na | <200      | none            | na                               | Swimming   |
| 29 Apr 15 | 1602Z | SOCAL | whale   | 1   | VIS | DDG          | 10 | 3 | 6  | N  | >2000     | Maneuvered away | na                               | Blowing    |
| 29 Apr 15 | 2045Z | SOCAL | dolphin | 1   | VIS | DDG          | 5  | 2 | 6  | N  | 200-500   | none            | na                               | nr         |
| 29 Apr 15 | 2220Z | SOCAL | whale   | 1   | VIS | DDG          | 2  | 1 | 10 | Y  | 1001-2000 | Maneuvered away | Whales bearing 220, opening ship | Blowing    |
| 30 Apr 15 | 0145Z | SOCAL | dolphin | 100 | VIS | Non-ASW Ship | 10 | 3 | 10 | na | 200-500   | none            | na                               | Swimming   |
| 30 Apr 15 | 0145Z | SOCAL | dolphin | 100 | VIS | Non-ASW Ship | 10 | 3 | 10 | na | 200-500   | none            | na                               | Swimming   |
| 30 Apr 15 | 1007Z | SOCAL | dolphin | 20  | VIS | DDG          | 25 | 2 | 8  | N  | 200-500   | none            | na                               | nr         |
| 01 May 15 | 0211Z | SOCAL | whale   | 3   | VIS | Non-ASW Ship | 3  | 2 | 10 | na | 1001-2000 | Maneuvered away | na                               | Blowing    |
| 01 May 15 | 0240Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 1001-2000 | none            | na                               | Blowing    |
| 01 May 15 | 1328Z | SOCAL | whale   | 1   | VIS | DDG          | 1  | 2 | 10 | N  | >2000     | none            | na                               | Blowing    |
| 01 May 15 | 1954Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 501-1000  | none            | na                               | Blowing    |
| 01 May 15 | 2008Z | SOCAL | whale   | 2   | VIS | Non-ASW Ship | 3  | 2 | 10 | na | >2000     | none            | na                               | Blowing    |
| 01 May 15 | 2119Z | SOCAL | whale   | 2   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | >2000     | none            | na                               | Blowing    |
| 01 May 15 | 2123Z | SOCAL | whale   | 20  | VIS | DDG          | 1  | 3 | 10 | N  | >2000     | none            | na                               | nr         |
| 01 May 15 | 2132Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 1001-2000 | none            | na                               | Blowing    |

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|-----------|-------|-------|---------|----|-----|--------------|----|---|----|----|-----------|-----------------|----|----------|
| 02 May 15 | 1621Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 2  | 2 | 10 | na | 200-500   | none            | na | Blowing  |
| 02 May 15 | 1627Z | SOCAL | whale   | 1  | VIS | DDG          | 3  | 2 | 6  | N  | 1001-2000 | none            | na | Blowing  |
| 03 May 15 | 1231Z | SOCAL | dolphin | 1  | VIS | Non-ASW Ship | 2  | 2 | 10 | na | <200      | none            | na | Swimming |
| 03 May 15 | 1241Z | SOCAL | dolphin | 3  | VIS | Non-ASW Ship | 2  | 2 | 10 | na | <200      | none            | na | Swimming |
| 03 May 15 | 1531Z | SOCAL | dolphin | 3  | VIS | Non-ASW Ship | 2  | 2 | 10 | na | <200      | none            | na | Swimming |
| 03 May 15 | 1609Z | SOCAL | dolphin | 2  | VIS | Non-ASW Ship | 2  | 2 | 10 | na | <200      | none            | na | Swimming |
| 03 May 15 | 1621Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 2  | 1 | 10 | na | >2000     | none            | na | Blowing  |
| 03 May 15 | 1939Z | SOCAL | dolphin | 15 | VIS | DDG          | 20 | 2 | 8  | N  | <200      | none            | na | nr       |
| 04 May 15 | 1536Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 2  | 1 | 10 | na | >2000     | none            | na | Blowing  |
| 04 May 15 | 1639Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 3  | 1 | 10 | na | >2000     | Maneuvered away | na | Blowing  |
| 04 May 15 | 1648Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 1  | 1 | 10 | na | <200      | Maneuvered away | na | Blowing  |
| 04 May 15 | 1707Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 1  | 1 | 10 | na | 501-1000  | Maneuvered away | na | Blowing  |

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 27 Jul - 20 Aug 2015.

| 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 >2000 yd 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 Jul 15                      | 1534Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 4                                                                              | 1                          | 9               | N                                             | >2000                                                                                                         | none                                                                                                                                                                                       | na                                                                                                                                | Diving                                                                                                                                                                               |
| 28 Jul 15                      | 1800Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 10                                                                             | 1                          | 10              | N                                             | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 28 Jul 15                      | 1813Z | SOCAL | whale    | 2                     | VIS                      | Non-ASW Ship                                                          | 2                                                                              | 2                          | 10              | na                                            | 1001-2000                                                                                                     | none                                                                                                                                                                                       | na                                                                                                                                | Breaching                                                                                                                                                                            |
| 28 Jul 15                      | 1900Z | SOCAL | dolphin  | 20                    | VIS                      | CG                                                                    | 5                                                                              | 2                          | 10              | N                                             | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Swimming                                                                                                                                                                             |
| 28 Jul 15                      | 2037Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 5                                                                              | 1                          | 10              | N                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | Tail slapping                                                                                                                                                                        |
| 29 Jul 15                      | 0041Z | SOCAL | dolphin  | 10                    | VIS                      | DDG                                                                   | 3                                                                              | 1                          | 10              | N                                             | 1001-2000                                                                                                     | none                                                                                                                                                                                       | na                                                                                                                                | Diving                                                                                                                                                                               |
| 29 Jul 15                      | 1145Z | SOCAL | dolphin  | 40                    | VIS                      | CG                                                                    | 2                                                                              | 1                          | 10              | N                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | Swimming                                                                                                                                                                             |
| 29 Jul 15                      | 1330Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 2                                                                              | 1                          | 10              | N                                             | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 29 Jul 15                      | 2241Z | SOCAL | whale    | 5                     | VIS                      | CG                                                                    | 10                                                                             | 2                          | 10              | N                                             | >2000                                                                                                         | none                                                                                                                                                                                       | na                                                                                                                                | Paralleling                                                                                                                                                                          |
| 31 Jul 15                      | 0931Z | SOCAL | whale    | 1                     | VIS                      | Non-ASW Ship                                                          | 2                                                                              | 2                          | 10              | na                                            | >2000                                                                                                         | none                                                                                                                                                                                       | na                                                                                                                                | Blowing                                                                                                                                                                              |
| 31 Jul 15                      | 2130Z | SOCAL | pinniped | 1                     | VIS                      | DDG                                                                   | nr                                                                             | 1                          | 10              | N                                             | nr                                                                                                            | none                                                                                                                                                                                       | na                                                                                                                                | Dead seal carcass                                                                                                                                                                    |
| 1 Aug 15                       | 0900A | SOCAL | whale    | 1                     | VIS                      | CG                                                                    | 2                                                                              | 1                          | 10              | N                                             | 501-1000                                                                                                      | Maneuvered away                                                                                                                                                                            | na                                                                                                                                | Spouting                                                                                                                                                                             |
| 5 Aug 15                       | 1554Z | SOCAL | pinniped | 1                     | VIS                      | DDG                                                                   | 15                                                                             | 1                          | nr              | N                                             | 200-500                                                                                                       | Maneuvered away                                                                                                                                                                            | na                                                                                                                                | Sea lion was hidden in a seaweed bed                                                                                                                                                 |
| 7 Aug 15                       | 1218z | SOCAL | dolphin  | 10                    | VIS                      | Non-ASW Ship                                                          | 1                                                                              | 2                          | 10              | na                                            | <200                                                                                                          | none                                                                                                                                                                                       | na                                                                                                                                | Paralleling                                                                                                                                                                          |
| 7 Aug 15                       | 1350Z | SOCAL | dolphin  | 15                    | VIS                      | DDG                                                                   | 4                                                                              | 1                          | 8               | N                                             | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Bow riding                                                                                                                                                                           |
| 7 Aug 15                       | 1518Z | SOCAL | turtle   | 1                     | VIS                      | DDG                                                                   | 2                                                                              | 2                          | 10              | N                                             | 200-500                                                                                                       | none                                                                                                                                                                                       | na                                                                                                                                | nr                                                                                                                                                                                   |
| 7 Aug 15                       | 1529Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 3                                                                              | 2                          | 8               | N                                             | 1001-2000                                                                                                     | none                                                                                                                                                                                       | na                                                                                                                                | Diving                                                                                                                                                                               |
| 8 Aug 15                       | 0316Z | SOCAL | whale    | 1                     | VIS                      | DDG                                                                   | 4                                                                              | 2                          | 10              | N                                             | 501-1000                                                                                                      | none                                                                                                                                                                                       | na                                                                                                                                | Diving                                                                                                                                                                               |



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|-----------|-------|-------|---------|----|-----|--------------|----|---|----|----|-----------|--------------------|----------------------------------------|--------------------------------------------------------------------------------|
| 8 Aug 15  | 1507Z | SOCAL | whale   | 1  | VIS | DDG          | 3  | 1 | 10 | N  | 200-500   | none               | na                                     | Diving                                                                         |
| 8 Aug 15  | 1635Z | SOCAL | dolphin | 10 | VIS | DDG          | 5  | 1 | 5  | N  | 501-1000  | none               | na                                     | Bow riding                                                                     |
| 8 Aug 15  | 1948Z | SOCAL | whale   | 2  | VIS | DDG          | 4  | 1 | 10 | N  | >2000     | none               | na                                     | Diving                                                                         |
| 8 Aug 15  | 2032Z | SOCAL | whale   | 1  | VIS | CG           | 1  | 2 | 10 | N  | 501-1000  | Maneuvered away    | na                                     | Surfacing                                                                      |
| 9 Aug 15  | 1316Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 3  | 2 | 10 | na | >2000     | none               | na                                     | Blowing                                                                        |
| 10 Aug 15 | 0004Z | SOCAL | whale   | 2  | VIS | DDG          | 3  | 1 | 10 | N  | >2000     | none               | na                                     | Observed spout in water, whale dove after approximately 3 min                  |
| 10 Aug 15 | 0020Z | SOCAL | whale   | 1  | VIS | DDG          | 5  | 1 | 10 | N  | >2000     | none               | na                                     | Whale spotted off port bow with left bearing drift                             |
| 10 Aug 15 | 0034Z | SOCAL | whale   | 1  | VIS | DDG          | 5  | 1 | 10 | N  | >2000     | none               | na                                     | Whale spotted off port bow with left bearing drift                             |
| 10 Aug 15 | 0046Z | SOCAL | whale   | 2  | VIS | DDG          | 3  | 1 | 10 | N  | >2000     | none               | na                                     | Observed spout in water, whale dove after approximately 3 min                  |
| 10 Aug 15 | 0056Z | SOCAL | whale   | 1  | VIS | DDG          | 3  | 1 | 10 | N  | >2000     | none               | na                                     | Observed spout and top of whale in water before whale dove                     |
| 10 Aug 15 | 0310Z | SOCAL | whale   | 3  | VIS | DDG          | 1  | 2 | 8  | N  | 200-500   | Maneuvered away    | na                                     | Paralleling                                                                    |
| 10 Aug 15 | 1132Z | SOCAL | dolphin | 30 | VIS | DDG          | 5  | 2 | 10 | N  | 1001-2000 | Maneuvered away    | na                                     | Large group of dolphins jumping out of water                                   |
| 10 Aug 15 | 1345Z | SOCAL | dolphin | 15 | VIS | DDG          | 5  | 1 | 7  | N  | >2000     | none               | na                                     | Swimming                                                                       |
| 10 Aug 15 | 1350Z | SOCAL | dolphin | 4  | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 1001-2000 | none               | na                                     | Paralleling                                                                    |
| 10 Aug 15 | 2006Z | SOCAL | dolphin | 10 | VIS | DDG          | 2  | 1 | 10 | N  | >2000     | none               | na                                     | Spotted dolphins off port bow jumping out of water. Tracked left bearing drift |
| 10 Aug 15 | 2040Z | SOCAL | whale   | 1  | VIS | HELO         | 2  | 1 | 10 | N  | >2000     | none               | na                                     | Dead carcass                                                                   |
| 11 Aug 15 | 0220Z | SOCAL | whale   | 1  | VIS | CG           | 5  | 2 | 10 | N  | 200-500   | none               | na                                     | Dead carcass                                                                   |
| 11 Aug 15 | 1132Z | SOCAL | whale   | 1  | VIS | Non-ASW Ship | 1  | 2 | 10 | na | 200-500   | none               | na                                     | Blowing                                                                        |
| 11 Aug 15 | 1138Z | SOCAL | whale   | 2  | VIS | DDG          | 2  | 1 | 10 | N  | 1001-2000 | none               | na                                     | Two whales off starboard bow with right bearing drift                          |
| 11 Aug 15 | 1742Z | SOCAL | dolphin | 20 | VIS | DDG          | 4  | 2 | 10 | N  | >2000     | none               | na                                     | Swimming                                                                       |
| 11 Aug 15 | 1825Z | SOCAL | dolphin | 20 | VIS | DDG          | 4  | 2 | 10 | N  | >2000     | none               | na                                     | Swimming                                                                       |
| 12 Aug 15 | 0134Z | SOCAL | whale   | 1  | VIS | DDG          | 1  | 2 | 10 | N  | 1001-2000 | Maneuvered away    | na                                     | Observed spout in water 1,500 yds directly ahead                               |
| 12 Aug 15 | 0234Z | SOCAL | whale   | 1  | VIS | DDG          | 2  | 2 | 10 | N  | 501-1000  | Maneuvered away    | na                                     | Observed spout in water 1,000 yds directly ahead                               |
| 19 Aug 15 | 0318Z | SOCAL | dolphin | 5  | VIS | CG           | 30 | 1 | 10 | Y  | >2000     | Powered down sonar | Dolphins bearing 000, closing ship     | nr                                                                             |
| 19 Aug 15 | 0318Z | SOCAL | dolphin | 5  | VIS | CG           | 30 | 2 | 10 | Y  | >2000     | none               | Dolphins bearing 040, paralleling ship | Paralleling, blowing                                                           |

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|-----------|-------|-------|-------|---|-----|-----|----|---|---|---|-----------|------|----|--------------|
| 19 Aug 15 | 1625Z | SOCAL | whale | 1 | VIS | DDG | nr | 1 | 7 | N | 1001-2000 | none | na | Dead carcass |
|-----------|-------|-------|-------|---|-----|-----|----|---|---|---|-----------|------|----|--------------|

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: IAC 14 Aug - 18 Aug 2015.

| 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 >2000 yd 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 | Blowing                         | 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 |    |
|--------------------------------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   | Whale bearing 263, opening ship |                                                                                                                                                                                      |    |
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   | nr                              |                                                                                                                                                                                      |    |
|                                |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   | nr                              |                                                                                                                                                                                      |    |
| 14 Aug 15                      | SOCAL   | 2116Z                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | 15              | 2                                             | 10                                                                                                            | Y                                                                                                                                                                                          | 1001-2000                                                                                                                         | none                            |                                                                                                                                                                                      |    |
| 17 Aug 15                      | SOCAL   | 1739Z                 | whale                    | 2                                                                     | VIS                                                                            | Non-ASW Ship               | 2               | 1                                             | 8                                                                                                             | na                                                                                                                                                                                         | >2000                                                                                                                             | none                            | na                                                                                                                                                                                   | nr |
| 18 Aug 15                      | SOCAL   | 1818Z                 | turtle                   | 1                                                                     | VIS                                                                            | CG                         | 5               | 1                                             | 8                                                                                                             | N                                                                                                                                                                                          | <200                                                                                                                              | none                            | na                                                                                                                                                                                   | nr |

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: JTFEX 21 Aug - 27 Aug 2015.

| 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 >2000 yd 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 |                                 |                                                                                                                      |
| 21 Aug 15                      | 1533Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | CG                         | 4               | 3                                             | 8                                                                                                             | Y                                                                                                                                                                                          | 501-1000                                                                                                                          | Shut down sonar                                                                                                                                                  | Whale bearing 270, opening ship | Right bearing drift                                                                                                  |
| 22 Aug 15                      | 0019Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | CG                         | 1               | 1                                             | 10                                                                                                            | N                                                                                                                                                                                          | >2000                                                                                                                             | none                                                                                                                                                             | na                              | nr                                                                                                                   |
| 22 Aug 15                      | 1720Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | 1               | 2                                             | 7                                                                                                             | N                                                                                                                                                                                          | 1001-2000                                                                                                                         | Maneuvered away                                                                                                                                                  | na                              | Whale spout sighted 30 degrees off port bow. Slowed to 5 kts to open up range                                        |
| 22 Aug 15                      | 1800Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | DDG                        | 5               | 2                                             | 7                                                                                                             | N                                                                                                                                                                                          | >2000                                                                                                                             | Maneuvered away                                                                                                                                                  | na                              | Whale spout spotted 4,000 yds ahead of ship crossing bow with left bearing drift. Ship slowed to 5 kts to open range |
| 23 Aug 15                      | 1445Z   | SOCAL                 | dolphin                  | 5                                                                     | VIS                                                                            | DDG                        | 1               | 2                                             | 10                                                                                                            | N                                                                                                                                                                                          | 501-1000                                                                                                                          | none                                                                                                                                                             | na                              | Observed five dolphins off starboard bow with right bearing drift                                                    |
| 23 Aug 15                      | 1520Z   | SOCAL                 | dolphin                  | 50                                                                    | VIS                                                                            | DDG                        | 10              | 2                                             | 10                                                                                                            | N                                                                                                                                                                                          | 501-1000                                                                                                                          | none                                                                                                                                                             | na                              | Bow riding                                                                                                           |
| 23 Aug 15                      | 1650Z   | SOCAL                 | turtle                   | 1                                                                     | VIS                                                                            | DDG                        | 1               | 2                                             | 9                                                                                                             | N                                                                                                                                                                                          | <200                                                                                                                              | none                                                                                                                                                             | na                              | nr                                                                                                                   |
| 25 Aug 15                      | 1658Z   | SOCAL                 | whale                    | 10                                                                    | VIS                                                                            | Non-ASW Ship               | 2               | 1                                             | 7                                                                                                             | na                                                                                                                                                                                         | 200-500                                                                                                                           | none                                                                                                                                                             | na                              | Blowing                                                                                                              |
| 26 Aug 15                      | 1711Z   | SOCAL                 | whale                    | 1                                                                     | VIS                                                                            | CG                         | 2               | 2                                             | 10                                                                                                            | N                                                                                                                                                                                          | >2000                                                                                                                             | none                                                                                                                                                             | na                              | nr                                                                                                                   |

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: C2X (ARG/MEU) 19 Oct - 5 Nov 2015.

| 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 >2000 yd 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 |
|--------------------------------------------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No sightings reported during this exercise |         |                       |                          |                                                                       |                                                                                |                            |                 |                                               |                                                                                                               |                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                      |

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 5 Nov - 16 Nov 2015.

| 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 >2000 yd 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 |                        |
|--------------------------------|-------|---------|-----------------------|--------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 4 Nov 15                       | 1815Z | SOCAL   | pinniped              | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 3               | 10                                            | na                                                                                                            | <200                                                                                                                                                                                       | none                                                                                                                              | na                                                                                                                                                                                   | Sea lion               |
| 5 Nov 15                       | 2326Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | 501-1000                                                                                                                                                                                   | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 6 Nov 15                       | 0030Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | 1001-2000                                                                                                                                                                                  | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 6 Nov 15                       | 1533Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 6 Nov 15                       | 1556Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 2                          | 2               | 10                                            | na                                                                                                            | 501-1000                                                                                                                                                                                   | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 6 Nov 15                       | 1710Z | SOCAL   | whale                 | 2                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | 200-500                                                                                                                                                                                    | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 7 Nov 15                       | 0201Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 4                          | 2               | 10                                            | na                                                                                                            | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 7 Nov 15                       | 0815Z | SOCAL   | whale                 | 3                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | 1001-2000                                                                                                                                                                                  | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 7 Nov 15                       | 1436Z | SOCAL   | dolphin               | 30                       | VIS                                                                   | DDG                                                                            | 10                         | 1               | 10                                            | N                                                                                                             | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | Transiting             |
| 7 Nov 15                       | 1615Z | SOCAL   | pinniped              | 2                        | VIS                                                                   | DDG                                                                            | 2                          | 1               | 10                                            | N                                                                                                             | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | Seal in transit        |
| 7 Nov 15                       | 2327Z | SOCAL   | whale                 | 1                        | VIS                                                                   | Non-ASW Ship                                                                   | 1                          | 2               | 10                                            | na                                                                                                            | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | nr                     |
| 8 Nov 15                       | 1420Z | SOCAL   | dolphin               | 4                        | VIS                                                                   | DDG                                                                            | 4                          | 1               | 10                                            | N                                                                                                             | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | Transiting             |
| 8 Nov 15                       | 1751Z | SOCAL   | dolphin               | 80                       | VIS                                                                   | DDG                                                                            | 40                         | 1               | 10                                            | N                                                                                                             | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | Transiting             |
| 8 Nov 15                       | 2127Z | SOCAL   | whale                 | 2                        | VIS                                                                   | DDG                                                                            | 3                          | 1               | 10                                            | N                                                                                                             | 501-1000                                                                                                                                                                                   | none                                                                                                                              | na                                                                                                                                                                                   | Transiting             |
| 9 Nov 15                       | 1813Z | SOCAL   | whale                 | 1                        | VIS                                                                   | DDG                                                                            | 1                          | 1               | 10                                            | N                                                                                                             | 200-500                                                                                                                                                                                    | none                                                                                                                              | na                                                                                                                                                                                   | One blow               |
| 9 Nov 15                       | 2149Z | SOCAL   | whale                 | 2                        | VIS                                                                   | DDG                                                                            | 10                         | 2               | 10                                            | N                                                                                                             | >2000                                                                                                                                                                                      | none                                                                                                                              | na                                                                                                                                                                                   | Blowing, tail slapping |
| 10 Nov 15                      | 1628Z | SOCAL   | whale                 | 2                        | VIS                                                                   | DDG                                                                            | 1                          | 6               | 10                                            | N                                                                                                             | 1001-2000                                                                                                                                                                                  | Maneuvered away                                                                                                                   | na                                                                                                                                                                                   | Blowing                |
| 11 Nov 15                      | 1650Z | SOCAL   | whale                 | 1                        | VIS                                                                   | DDG                                                                            | 1                          | 2               | 10                                            | N                                                                                                             | 1001-2000                                                                                                                                                                                  | none                                                                                                                              | na                                                                                                                                                                                   | Blowing                |

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|           |       |       |         |     |     |              |    |   |    |    |           |      |                                        |                                     |
|-----------|-------|-------|---------|-----|-----|--------------|----|---|----|----|-----------|------|----------------------------------------|-------------------------------------|
| 11 Nov 15 | 2017Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 3  | 4 | 10 | na | 200-500   | none | na                                     | nr                                  |
| 12 Nov 15 | 2100Z | SOCAL | dolphin | 100 | VIS | DDG          | 20 | 2 | 10 | N  | >2000     | none | na                                     | Crossed bow, then traveled parallel |
| 13 Nov 15 | 0935Z | SOCAL | dolphin | 10  | VIS | DDG          | 5  | 1 | 10 | Y  | >2000     | none | Dolphins bearing 088, paralleling ship | Jumping                             |
| 13 Nov 15 | 1014Z | SOCAL | dolphin | 5   | VIS | DDG          | 1  | 1 | 10 | Y  | >2000     | none | Dolphins bearing 298, paralleling ship | Jumping                             |
| 13 Nov 15 | 1020Z | SOCAL | dolphin | 5   | VIS | DDG          | 2  | 1 | 10 | Y  | >2000     | none | Dolphins bearing 215, paralleling ship | Jumping                             |
| 13 Nov 15 | 1723Z | SOCAL | whale   | 1   | VIS | Non-ASW Ship | 2  | 1 | 10 | na | 1001-2000 | none | na                                     | nr                                  |
| 13 Nov 15 | 1825Z | SOCAL | whale   | 2   | VIS | Non-ASW Ship | 2  | 2 | 10 | na | >2000     | none | na                                     | nr                                  |
| 13 Nov 15 | 1900Z | SOCAL | dolphin | 50  | VIS | CG           | 10 | 1 | 10 | N  | >2000     | none | na                                     | nr                                  |
| 13 Nov 15 | 2030Z | SOCAL | dolphin | 25  | VIS | CG           | 5  | 1 | 10 | N  | >2000     | none | na                                     | nr                                  |
| 13 Nov 15 | 2100Z | SOCAL | dolphin | 5   | VIS | CG           | 5  | 2 | 10 | N  | 1001-2000 | none | na                                     | Bowriding                           |
| 13 Nov 15 | 2313Z | SOCAL | whale   | 1   | VIS | CG           | 1  | 1 | 10 | N  | >2000     | none | na                                     | Blowing                             |

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 this reporting period (see **Table 1-ii-10**). In support of these MTEs, the Navy conducted over 5,560 hours of Marine Species Awareness Training for 3,740 Navy personnel prior to the beginning of these training exercises. Composite Unit Training Exercises (C2X) are separated into Carrier Strike Group (CSG) C2X, and Amphibious Ready Group / Marine Expeditionary Unit (ARG/MEU) in this report because these exercises have very different purposes and the ARG/MEU C2X typically involves very little to zero sonar use and are primarily focused on integrating the Marines in the Expeditionary Unit into the Amphibious Ready Group.

**Table 1-ii-10. HSTT Study Area major training exercises.**

| MTE Type      | Dates                | Exercise Days | # of US Ships Involved (MFAS and non-MFAS) | # of Marine Mammal Sightings | # of Marine Mammals |
|---------------|----------------------|---------------|--------------------------------------------|------------------------------|---------------------|
| IAC           | 9 - 19 Feb 2015      | 11            | **                                         | 6                            | 6                   |
| C2X (ARG/MEU) | 16 Mar - 1 Apr 2015  | 17            | **                                         | 62                           | 914                 |
| IAC           | 25 - 28 Apr 2015     | 4             | **                                         | 55                           | 506                 |
| C2X           | 27 Jul - 20 Aug 2015 | 25            | **                                         | 44                           | 255                 |
| IAC           | 14 - 18 Aug 2015     | 5             | **                                         | 3                            | 4                   |
| JTFEX         | 21 - 27 Aug 2015     | 7             | **                                         | 9                            | 71                  |
| C2X (ARG/MEU) | 19 Oct - 5 Nov 2015  | 18            | **                                         | 0                            | 0                   |
| SUSTEX        | 5 - 16 Nov 2015      | 12            | **                                         | 29                           | 341                 |
| <b>Total</b>  |                      | <b>99</b>     | <b>**</b>                                  | <b>208</b>                   | <b>2,097</b>        |

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

There were 208 sightings of an estimated 2,097 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       | 86             | 41%                  | 1,907               | 91%                                 |
| Whales         | 106            | 51%                  | 172                 | 8%                                  |
| Pinnipeds      | 12             | 6%                   | 14                  | <1%                                 |
| Turtles        | 3              | 1%                   | 3                   | <1%                                 |
| Not recorded   | 1              | <1%                  | 1                   | <1%                                 |
| <b>Totals:</b> | <b>208</b>     |                      | <b>2,097</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 41% of all sightings and 91% 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 total 208 sightings reported this period (**Table 1-ii-11**) that occurred at ranges less than 1,000 yards and indicates how many sonar



mitigations were applied (third column in **Table 1-ii-12**). Other sightings within these ranges were instances when sonar was not in use; therefore sonar mitigation was not conducted (fourth column in **Table 1-ii-12**).

There were also 20 instances of Navy ships maneuvering to avoid marine mammals or avoid crossing the path of marine mammals. Of these 20 maneuvers, 17 were to avoid whales (n= 23 whales), 2 were to avoid dolphins (n= 53 dolphins), and 1 was to avoid a pinniped (n=1 pinniped).

**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 shutdown mitigation**

| Ranges                | Marine Mammal Type | Sightings within a given range with mitigation<br>(i.e., sonar was on prior to sighting and sonar mitigation was applied) | Sightings within a given range with no mitigation required<br>(i.e., sonar not on so sonar mitigation was not needed) |
|-----------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>&lt; 200 yards</b> |                    |                                                                                                                           |                                                                                                                       |
|                       | Whales             | 1 sighting of 1 whale                                                                                                     | 8 sightings of 12 whales                                                                                              |
|                       | Dolphins           | 0 sightings                                                                                                               | 27 sightings of 540 dolphins                                                                                          |
|                       | Pinnipeds          | 0 sightings                                                                                                               | 3 sightings of 3 pinnipeds                                                                                            |
|                       | Turtles            | 0 sightings                                                                                                               | 2 sightings of 2 turtles                                                                                              |
|                       | Generic            | 0 sightings                                                                                                               | 1 sighting of 1 animal                                                                                                |
| <b>200-500 yards</b>  |                    |                                                                                                                           |                                                                                                                       |
|                       | Whales             | 0 sightings                                                                                                               | 18 sightings of 32 whales                                                                                             |
|                       | Dolphins           | 0 sightings                                                                                                               | 20 sightings of 531 dolphins                                                                                          |
|                       | Pinnipeds          | 0 sightings                                                                                                               | 5 sightings of 6 pinnipeds                                                                                            |
|                       | Turtles            | 0 sightings                                                                                                               | 1 sighting of 1 turtle                                                                                                |
|                       | Generic            | 0 sightings                                                                                                               | 0 sightings                                                                                                           |
| <b>501-1000 yards</b> |                    |                                                                                                                           |                                                                                                                       |
|                       | Whales             | 2 sightings of 2 whales                                                                                                   | 17 sightings of 21 whales                                                                                             |
|                       | Dolphins           | 0 sightings                                                                                                               | 6 sightings of 130 dolphins                                                                                           |
|                       | Pinnipeds          | 0 sightings                                                                                                               | 0 sightings                                                                                                           |
|                       | Turtles            | 0 sightings                                                                                                               | 0 sightings                                                                                                           |
|                       | Generic            | 0 sightings                                                                                                               | 0 sightings                                                                                                           |

### **SUMMARY: Mitigation Effectiveness and Navy Safety 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 at the marine mammal at the time the mitigation measure was applied. During this reporting period the proper implementation of mitigation measures for sighted marine mammals are 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 Training 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 5,560 hours completed this year representing training to 3,740

Navy 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.

| 1) Location | 2) MTE | 3) Month | 4) Species sighted | 5) # of marine mammals sighted | 6) Platform | 7) Length of time observed (min) | 8) Range at which marine mammal sighted | 9) Mitigation (Sonar shutdown, Sonar shutdown) | 10) Estimate MAX exposure PRIOR to mitigation (dB re 1µPa) <sup>1</sup> | 11) Number of minutes sonar mitigation applied | 12) Estimate exposure AFTER mitigation (dB re 1µPa) <sup>1</sup> | 13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds) | 14) If source in use is hull-mounted sonar, relative bearing of animal from ship and estimation of animal's motion relative to ship | 15) Observed behavior                                                                                             |
|-------------|--------|----------|--------------------|--------------------------------|-------------|----------------------------------|-----------------------------------------|------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| HRC         | IAC    | Feb      | whale              | 1                              | Helo        | 8                                | <200                                    | Sonar shutdown                                 | <189                                                                    | 3                                              | None                                                             | na                                                                                                 | na                                                                                                                                  | nr                                                                                                                |
| SOCAL       | IAC    | Apr      | whale              | 1                              | DDG         | 5                                | 501-1000                                | Sonar shutdown                                 | <175-181                                                                | 1.5                                            | None                                                             | 5,000                                                                                              | Whale bearing 357, closing ship                                                                                                     | Visual of whale off port beam. Reduced speed and shut down sonar. Whale passed down port side and increased range |
| SOCAL       | JTFEX  | Aug      | whale              | 1                              | CG          | 4                                | 501-1000                                | Sonar shutdown                                 | <175-181                                                                | 2                                              | None                                                             | 667                                                                                                | Whale bearing 270, opening ship                                                                                                     | Right bearing drift                                                                                               |

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 DDGs. Actual operating parameters of systems other than hull mounted mid-frequency sonar would be considerably lower than calculations in this table. Additionally actual oceanographic conditions may result in significantly lower exposure levels. 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 2000 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

The total annual and cumulative amounts of sonar use are classified and were forwarded to the National Marine Fisheries Service in the classified version of this report. All authorized sound sources were within the limits authorized by the NMFS.

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

| Authorized sound sources<br>50 CFR §218.70 (c) and NMFS HSTT LOA |                                                               | Authorized Amount<br>(26Dec14-<br>25Dec15) | Actual Usage<br>(26Dec14-<br>25Dec15) | % Used of<br>Authorized<br>Amount |
|------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------|
| (A) Non-impulsive Sources Used During Training                   |                                                               |                                            |                                       |                                   |
| MF1                                                              | Hull-mounted sonars (e.g. AN/SQS-53)                          | 11,588 hours                               | **                                    | **                                |
| MF1K                                                             | Hull-mounted sonar Kingfisher mode                            | 88 hours                                   | **                                    | **                                |
| MF2                                                              | Hull-mounted sonars (e.g. AN/SQS-56)                          | 3,060 hours                                | **                                    | **                                |
| MF2K                                                             | Hull-mounted sonar Kingfisher mode                            | 34 hours                                   | **                                    | **                                |
| MF3                                                              | Hull-mounted submarine sonar (e.g. AN/BQQ-10)                 | 2,336 hours                                | **                                    | **                                |
| MF4                                                              | Helicopter dipping sonar (e.g. AN/AQS-22)                     | 888 hours                                  | **                                    | **                                |
| MF5                                                              | Acoustic sonobuoys (e.g. AN/SSQ-62)                           | 13,718 items                               | **                                    | **                                |
| MF11                                                             | High duty cycle hull-mounted sonars<br>(e.g. AN/SQS-53 HDC)   | 1,120 hours                                | **                                    | **                                |
| MF12                                                             | High duty cycle towed array sonars<br>(e.g. HDC-VDS)          | 1,094 hours                                | **                                    | **                                |
| HF1                                                              | Hull-mounted submarine sonar (e.g. AN/BQQ-10)                 | 1,754 hours                                | **                                    | **                                |
| HF4                                                              | Mine detection / classification sonars                        | 4,848 hours                                | **                                    | **                                |
| ASW1                                                             | Mid-frequency Deep Water Active Distributed<br>System (DWADS) | 224 hours                                  | **                                    | **                                |

| Authorized sound sources<br>50 CFR §218.70 (c) and NMFS HSTT LOA  |                                                                        | Authorized Amount<br>(26Dec14-25Dec15) | Actual Usage<br>(26Dec14-25Dec15) | % Used of<br>Authorized<br>Amount |
|-------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------|-----------------------------------|-----------------------------------|
| ASW2                                                              | Mid-frequency Multi-static Active Coherent sonobuoy (e.g. AN/SSQ-125)  | 1,800 items                            | **                                | **                                |
| ASW3                                                              | Mid-frequency towed acoustic countermeasure (e.g. AN/SLQ-25)           | 16,561 hours                           | **                                | **                                |
| ASW4                                                              | Mid-frequency expendable acoustic device countermeasure (e.g. ADC/NAE) | 1,540 items                            | **                                | **                                |
| TORP1                                                             | Lightweight torpedo (e.g. MK 54/MK 46)                                 | 170 items                              | **                                | **                                |
| TORP2                                                             | Heavyweight torpedo (e.g. MK 48)                                       | 400 items                              | **                                | **                                |
| (B) Annual Number of Impulsive Source Detonations During Training |                                                                        |                                        |                                   |                                   |
| E1                                                                | 0.1 lb to 0.25 lb NEW                                                  | 19,840 detonations                     | 0                                 | 0%                                |
| E2                                                                | 0.26 lb to 0.5 lb NEW                                                  | 1,044 detonations                      | 0                                 | 0%                                |
| E3                                                                | >0.5 lb to 2.5 lb NEW                                                  | 3,020 detonations                      | 178                               | 6%                                |
| E4                                                                | >2.5 lb to 5 lb NEW                                                    | 668 detonations                        | 5                                 | <1%                               |
| E5                                                                | >5 lb to 10 lb NEW                                                     | 8,154 detonations                      | 1,414                             | 17%                               |
| E6                                                                | >10 lb to 20 lb NEW                                                    | 538 detonations                        | 93                                | 17%                               |
| E7                                                                | >20 lb to 60 lb NEW                                                    | 407 detonations                        | 0                                 | 0%                                |
| E8                                                                | >60 lb to 100 lb NEW                                                   | 64 detonations                         | 4                                 | 6%                                |
| E9                                                                | >100 lb to 250 lb NEW                                                  | 16 detonations                         | 11                                | 69%                               |
| E10                                                               | >250 lb to 500 lb NEW                                                  | 19 detonations                         | 10                                | 53%                               |
| E11                                                               | >500 lb to 650 lb NEW                                                  | 8 detonations                          | 0                                 | 0%                                |
| E12                                                               | >650 lb to 1,000 lb NEW                                                | 224 detonations                        | 0                                 | 0%                                |
| E13                                                               | >1,000 lb to 1,740 lb NEW                                              | 9 detonations                          | 0                                 | 0%                                |

**(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 inventory for training, and are no longer planned or anticipated to be used during training within the 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 Representation**

The geographic extent U.S. Navy use of sonar sound sources within the HSTT Study Area from 26 December 2014 to 25 December 2015 is classified and has been forwarded to the National Marine Fisheries Service in accordance with the HSTT Training Letter of Authorization in the classified version of this report.

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

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

Hull-mounted active sonar use was used within the dense humpback areas between 15 December and 15 April of this reporting period. Brief use of hull-mount mid-frequency sonar was reported in one of the dense humpback areas. Details of this sonar use have been forwarded to NMFS (location, duration) in the classified version of this report.

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

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