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In accordance with Letter of Authorizations
12 January 2009 (HRC Final Rule)
21 January 2009 (SOCAL FINAL Rule)

Annual Range Complex Exercise Report

January to 01 August 2009

For The U.S. Navy's
Hawaii Range Complex
And
Southern California Range Complex

01 October 2009

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The U.S. Navy prepared this Annual Range Complex Exercise Report covering the period from January to 01 August 2009 in compliance with the National Marine Fisheries Service Final Rules and Letters of Authorization under the Marine Mammal Protection Act for the Hawaii Range Complex and Southern California Range Complex.

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INTRODUCTION

The U.S. Navy prepared this Annual Range Complex Exercise Report covering the period from January to 01 August 2009 in compliance with the National Marine Fisheries Service (NMFS) Final Rules and Letters of Authorization (LOA) under the Marine Mammal Protection Act (MMPA) for the Hawaii Range Complex (HRC) and Southern California (SOCAL) Range Complex (NMFS 2009a, 2009b).

In the Range Complex Final Rules[1] and Letters of Authorization "Requirements for monitoring and reporting", the following report subsections were specified and are presented within this report:

(1) Mid-Frequency Active Sonar (MFAS)/High-Frequency Active Sonar (HFAS) Major Training Exercise (MTE)

(2) Anti-submarine Warfare (ASW) Summary

(3) Sinking Exercise (SINKEX) Summary

(4) Improved Extended Echo Ranging (IEER) Summary

(5) Explosives Summary

Navy training events are variable within any given year based on the availability of strike groups undergoing training certification, logistics and fiscal considerations as they impact scheduling, and real-world commitments to other regional locations (Western Pacific deployments, counter-piracy operations, disaster relief, etc.). Therefore, the data on range complex specific annual use as presented in this report will also be variable on an annual basis as compared to the total authorization from the NMFS.

The information contained in this report represents the best practical data collection through 01 August 2009. Given that many of the reporting metrics had not been previously collected in the format specified by NMFS, the Navy's Range Complex data gathering process continues to be refined to improve the accuracy of reporting.

Finally, on review of accumulated reporting metrics, the Navy has determined that certain portions become sensitive and classified by their summary. Information designated classified in this report will be submitted to NMFS in a separate classified appendix.

[1] SOCAL:§216.275(f)(1) through (5) of the Final Rule and 7(f) of the Letter of Application
HRC: §216.175(f)(1) through (5) of the Final Rule and 7(f) of the Letter of Application

SECTION I HAWAII RANGE COMPLEX

(1) HRC- MFAS/HFAS Major Training Exercise Summary

This section summarizes authorized sonar use and marine mammal observations from MTEs conducted within the HRC between January to 01 August 2009. For the HRC, MTEs include Rim of the Pacific exercises (RIMPAC), Undersea Warfare Exercises (USWEX), and Multi Strike Group.

Between January to 01 August 2009, there was one MTE within the HRC.

MTE Type	Dates	# Of Days
USWEX	15-19 January 2009	5

Exercise specific details as described in the HRC Final Rule (DoN 2009a) §216.175(f)(1)i to iii and LOA include:

(i) Exercise Information (for each MTE)

(ii) Individual Marine Mammal Sighting Information (for each MTE)

(iii) Evaluation (based on data gathered during all MTEs) of the effectiveness of mitigation measures designed to avoid exposing marine mammals to MFAS. This evaluation shall identify the specific observations that support any conclusions the Navy reaches about the effectiveness of the mitigation.

Navy lookout monitoring during 76-mm gunnery exercise (GUNEX) from a HRC homeported U.S. Navy frigate (U.S. Navy photo)

(i) and (ii) Individual MTE and marine mammal sighting information

HRC MTE USWEX Jan 2009

(i) Exercise designator	USWEX
(ii) Date that exercise began and ended	15-19 January 2009
(iii) Location	HRC
(iv) Number and types of active sources used	(*) SQS-53, (*) BQQ-10, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQR-19, (*) BQQ-10, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) DDG, (*) SSN, (*) SH-60B non-dipping helicopter, (*) P-3C MPA Non-ASW (not MFAS equipped): 2 additional surface ships
(vii) Total hours of observation by watchstanders	918 hours
(viii) Total hours of all active sonar source operation	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (*) hrs BQQ-10, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 17 ft, LOW: 1 ft, AVE: 6 ft

* CLASSIFIED

HRC MTE- Individual Marine Mammal Sighting Information USWEX Jan 2009
(24 sightings of 135 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? (y/n)	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use (y/n/na)	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
HRC	whale	1	n	VIS	unk	nr	nr	nr	n	1000-2000	none	na	none reported
HRC	whale	2	n	VIS	Non-ASW ship	nr	5	10	na	nr	Ship reduced speed		none reported
HRC	unk	unk	n	ACO	nr	4	6	8	n	nr	na	na	none reported
HRC	whale	4	n	VIS	DDG	10	3	10	n	< 200	na	na	none reported
HRC	whale	4	n	VIS	DDG	10	3	10	n	1000-2000	na	na	none reported
HRC	whale	4	n	VIS	DDG	10	3	10	n	< 200	Ship maneuvered	na	whales continue on original course
HRC	whale	30	n	VIS	DDG	90	3	10	n	<200	Ship maneuvered	na	Whales closed from initial sighting range of 2000 yards to surround ship
HRC	whale	1	n	VIS	Non-ASW ship	nr	6	10	na	200-500	na	na	none reported
HRC	whale	1	n	VIS	Non-ASW ship	nr	2	10	na	<200	na	na	none reported
HRC	whale	15	n	VIS	Non-ASW ship	nr	6	10	na	500-1000	na	na	none reported
HRC	Hump-back whale	1	n	VIS	Non-ASW ship	nr	nr	nr	na	<200	na	na	humpback whale swimming parallel to ship
HRC	whale	2	y	VIS	nr	1	6	10	n	1000-2000	na	na	none reported
HRC	whale	30	y	VIS	nr	15	6	10	n	500-1000	na	na	none reported
HRC	whale	4	n	VIS	Non-ASW ship	nr	nr	10	na	nr	Ship maneuvered	na	none reported
HRC	whale	3	n	VIS	Non-	nr	3	10	na	nr	na	na	none

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? (y/n)	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use (y/n/na)	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
					ASW ship								reported
HRC	whale	7	n	VIS	nr	nr	nr	nr	n	1000-2000	na	na	none reported
HRC	whale	6	n	VIS	Non-ASW ship	nr	4	10	na	nr	na	na	none reported
HRC	whale	12	n	VIS	nr	nr	6	10	n	200-500	na	na	none reported
HRC	whale	1	n	VIS	nr	5	4	10	n	500-1000	na	na	none reported
HRC	whale	2	n	VIS	nr	5	4	10	n	200-500	na	na	none reported
HRC	unk	unk	n	ACO	DDG	105	nr	nr	n	unk	na	na	none reported
HRC	whale	1	n	VIS	DDG	3	8	10	Y	>2000	powered down sonar	305 from ship, ship moving 035, whale moving parallel to ship	none reported
HRC	whale	2	n	VIS	DDG	2	8	10	Y	500-1000	powered down sonar (-6 dB), ship also maneuvered	330 from ship, ship moving 340, whales opening range from ship	none reported
HRC	whale	2	n	VIS	nr	nr	1	10	n	500-1000	na	na	none reported

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

For this report, the summary of effectiveness for HRC is combined with the SOCAL summary

(2) HRC- ASW Summary

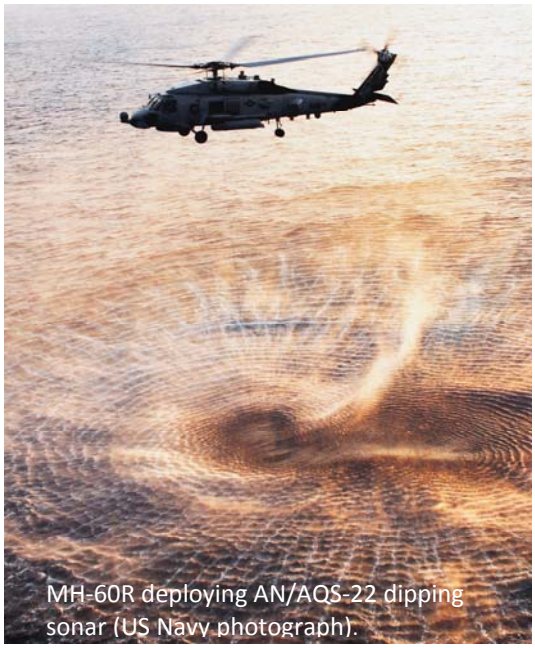
This section summarizes information from MTEs and non-major training exercises such as unit-level training.

(i) Total annual hours of each type of sonar source

Total annual hours of each type of sonar source used within the HRC between January to 01 August 2009 are presented in the classified appendix to this report. All reporting metrics within the HRC were below the NMFS authorization amount. For the remainder of the authorization through 12 January 2010, the Navy does not have significant MTEs planned within the HRC ($n \leq 2$).

Authorized MFAS sources §216.170 (c)(1)	NMFS Amt. Annually Authorized [1]
(i) AN/SQS-53 surface ship hull-mounted active sonar	1,284 hrs
(ii) AN/SQS-56 surface ship hull-mounted active sonar	383 hrs
(iii) ANAQS-22 or 13 helicopter active dipping sonar	1,010 dips
(iv) AN/SSQ-62 DICASS acoustic sonobuoy	2,423 buoys
(v) Mk-48 heavyweight torpedoes	313 torpedoes
(vi) AN/BQQ-10 submarine active sonar	200 hrs

[1] as specified in NMFS 2009a (HRC Final Rule) and LOA



MH-60R deploying AN/AQS-22 dipping sonar (US Navy photograph).

(ii) Cumulative Impact Report

FROM NMFS Final Rule: "*To the extent practical, the Navy shall develop and implement a method of annually reporting non-major training exercises utilizing hull-mounted sonar. This section shall present an annual (and seasonal, where practicable), depiction of non-major training exercises geographically across the range complex*." Specific to the HRC only, seasonality refers to reporting of total hull-mounted use within Hawaii's "dense humpback areas" and humpback cautionary area between 15 December to 15 April.

The annual quantity in hours and breakdown by system of hull-mounted sonar use in the HRC during non-major training events between January to 01 August 2009 is presented in the classified appendix. The majority of this MFAS occurred during short-duration unit-level training (ULT). ULT is typically a single ship event that normally only lasts for several hours at a time.

(3) HRC- SINKEX Summary

Based on the reporting requirements in the HRC Final Rule (NMFS 2009a) the below information on Sinking Exercises is submitted for events between January to 01 August 2009. Specific reporting requirements include:

(i) Exercise information (for each SINKEX)

(ii) Individual marine mammal observation

There were no SINKEXs conducted in the HRC between 12 Jan to 01 Aug 2009. No SINKEXs are planned from 02 Aug 2009 to 11 Jan 2010.

(4) HRC- IEER Summary

The annual summary of use within the HRC for Improved Extended Echo-Ranging System (IEER) sonobuoys is deemed classified. Date requested from the Navy is contained in the classified appendix to this report. Reporting elements will include (i) Total number of IEER events; (ii) Total expended/detonated rounds (buoys); and (iii) Total number of self-scuttled IEER rounds (buoys).

Sonobuoy canister and pressurized launch tube on P-3C maritime patrol aircraft (U.S. Navy photo)

(5) HRC- Explosives Summary

The Navy is in the process of improving the methods used to track explosive use within each range complex. Therefore, NMFS requested that the Navy report to the "extent practicable" as defined in the HRC Final Rule (NMFS 2009a) and LOA. The summary for explosive use within the HRC is presented below.

(i) Total annual number of each type of explosive exercises

(of those identified as part of the "specified activity" under NMFS 2009a)

Authorized Exercises §216.170 (c)(2)(ii)	Total Annual	Amt. Annually Authorized [1]	% Total Used To Total Authorized
(A) Mine Neutralization	12	68	18%
(B) Air-to-surface Missile Exercise (A-S MISSILEX)	0	50	0%
(C) Surface-to-surface Missile Exercise (S-S-MISSILEX)	0	12	0%
(D) Bombing Exercise (BOMBEX)	0	38	0%
(E) Sinking Exercise (SINKEX)	0	6	0%
(F) Surface-to-surface Gunnery Exercise (S-S- GUNNEX)	0	91	0%
(G) Naval Surface Fire Support	0	28	0%

(ii) Total annual expended/detonated rounds for each explosive type

(missile, bomb, etc.)

Underwater Explosives §216.170 (c)(2)(ii)	Number
(A) 5" naval gunfire rounds	242
(B) 76 mm naval gunfire rounds	18
(C) Maverick missiles	0
(D) Harpoon missiles	0
(E) Mk-82 aerial bombs	0
(F) Mk-83 aerial bombs	0
(G) Mk-84 aerial bombs	0
(H) Mk-48 torpedoes (detonation)	0
(I) Demolition charges [1]	12
(J) EER/IEER explosive sonobuoys	46

[1] Demolition charges used were all 20-lb charge weight

SECTION II SOUTHERN CALIFORNIA RANGE COMPLEX

(1) SOCAL- Major Training Exercise Summary

This section summarizes authorized sonar use and marine mammal observations from MTEs conducted within the SOCAL Range Complex between January to 01 August 2009.

For SOCAL, MTEs include Ship Anti-Submarine Warfare Readiness and Evaluation Measuring (SHAREM), Sustainment Exercises (SUSTEX), Integrated ASW Course Phase II (IAC2), Composite Training Unit Exercises (COMPTUEX), and Joint Task Forces Exercises (JTFEX).

There were a total of six MTEs within the SOCAL Range Complex between January to 01 August 2009. There were no SHAREM MTEs within SOCAL this reporting period.

MTE Type	Dates (2009)	# Of Days
SUSTEX	27 January - 01 February	6
IAC2	10-12 March	3
SUSTEX	13-19 March [1]	7
COMPTUEX	11-28 May	18
JTFEX	29 May- 05 June	7
COMPTUEX	20 July- 03 Aug [2]	15

[1] exercise ran 13-26 March, but no anti-submarine warfare (ASW) conducted from 20-26 March

[2] no ASW planned, and no sonar used within the MTE

Exercise specific details as described in the SOCAL Final Rule (DoN 2009b) §216.275(f)(1)i-iii and LOA include:

(i) Exercise Information (for each MTE)

(ii) Individual Marine Mammal Sighting Information (for each MTE)

(iii) Evaluation (based on data gathered during all MTEs) of effectiveness of mitigation measures designed to avoid exposing marine mammals to MFAS. This evaluation shall identify the specific observations that support any conclusion the Navy reaches about the effectiveness of the mitigation.

(i) and (ii) Individual MTE and marine mammal sighting information

SOCAL MTE SUSTEX January 2009

(i) Exercise designator	SUSTEX
(ii) Date that exercise began and ended	27 January- 04 February 2009
(iii) Location	SOCAL
(iv) Number and types of active sources used	(*) SQS-53, (*) SQS-56, (*) BQQ-10, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQS-56, (*) SQR-19, (*) BQQ-10, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) CG, (*) DDG, (*) FFG, (*) SSN, (*) SH-60B non-dipping helicopter Non-ASW (not MFAS equipped): 1 additional surface ship
(vii) Total hours of observation by watchstanders	9,740 hours
(viii) Total hours of all active sonar sources operations	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (* hrs) SQS-56, 0 hrs BQQ-10, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 10 ft, LOW: 1 ft, AVE: 5 ft

* CLASSIFIED

SOCAL MTE- Individual Marine Mammal Sighting Information SUSTEX January 2009 (58 sightings of 297 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable; crs= course

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	20	n	VIS	FFG	2	5	10	n	<200	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	nr	6	nr	n	1000-2000	none	na	none reported
SOCAL	whale	2	n	VIS	FFG	2	4	10	n	500-1000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	2	3	10	Y	500-1000	powered down sonar - 6dB; ship maneuvered	whale 090 from ship, ship crs 020, whale direction nr	none reported
SOCAL	whale	2	n	VIS	DDG	2	1	10	Y	1000-2000	powered down sonar	whale 110 from ship, ship crs 020, whale direction nr	none reported
SOCAL	whale	4	n	VIS	non-ASW ship	16	3	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	2	4	10	n	>2000	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	5	4	10	n	>2000	none	na	none reported
SOCAL	dolphin	15	n	VIS	DDG	5	4	10	n	nr	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	4	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	4	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	4	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	nr	3	10	n	200-500	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	6	1	10	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	2	10	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	2	10	n	200-500	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	10	3	10	n	1000-2000	none	na	none reported
SOCAL	whale	2	n	VIS	FFG	5	1	10	n	>2000	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	2	5	10	n	1000-2000	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	2	5	10	n	>2000	none	na	none reported
SOCAL	whale	3	n	VIS	FFG	8	1	10	n	1000-2000	none	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	5	n	VIS	non-ASW ship	10	5	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	1	1	10	n	1000-2000	none	na	none reported
SOCAL	dolphin	50	n	VIS	DDG	5	2	10	n	500-1000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	<200	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	2	10	n	500-1000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	4	1	10	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	Y	1000-2000	powered down sonar	whale 000 from ship, ship crs 090, whale direction nr	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	Y	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	5	1	10	Y	200-500	powered down sonar - 10dB	whale 030 from ship, ship crs 247, whale direction nr	none reported
SOCAL	dolphin	40	n	VIS	DDG	5	2	10	n	>2000	none	na	none reported
SOCAL	whale	2	n	VIS	non-ASW ship	20	5	8	n	1000-2000	none	na	none reported
SOCAL	dolphin	50	n	VIS	DDG	5	5	1	Y	1000-2000	secured sonar	dolphins 015 from ship, ship crs 350, dolphins closing with ship	dolphins closed to bow ride
SOCAL	dolphin	10	n	VIS	DDG	1	1	1	Y	<200	none	na	dolphins bowriding
SOCAL	unknown	4	n	VIS	DDG	3	4	8	Y	>2000	ship maneuvered to open distance from sighting	na	none reported
SOCAL	whale	1	n	VIS	FFG	10	1	10	n	1000-2000	none	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	1	n	VIS	CG	nr	5	10	n	200-500	ship maneuvered to open distance from sighting	na	none reported
SOCAL	dolphin	15	n	VIS	DDG	3	3	7	n	<200	none	na	none reported
SOCAL	dolphin	8	n	VIS	DDG	5	1	10	n	>2000	none	na	none reported
SOCAL	dolphin	5	n	VIS	DDG	5	1	10	n	200-500	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	500-1000	none	na	none reported
SOCAL	whale	4	n	VIS	DDG	10	4	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	500-1000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	1000-2000	ship attempted maneuver but struck whale	whale seen 330 from ship, ship crs 326, whale closing	none reported prior to ship strike; whale died as result of injuries from strike
SOCAL	whale	2	n	VIS	non-ASW ship	5	5	10	n	>2000	none	na	none reported
SOCAL	whale	3	n	VIS	non-ASW ship	2	5	10	n	1000-2000	none	na	none reported
SOCAL	whale	2	n	VIS	non-ASW ship	1	2	10	n	1000-2000	none	na	none reported
SOCAL	unknown	3	n	VIS	DDG	2	1	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	1	1	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	3	1	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	1	1	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	2	1	10	n	500-1000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	1	1	10	n	200-500	none	na	none reported
SOCAL	pinniped	-	n	VIS	non-ASW ship	nr	1	10	n	1000-2000	none	na	SINGLE CARCASS sighted
SOCAL	dolphin	6	n	VIS	DDG	3	2	10	n	500-1000	none	na	none reported
SOCAL	whale	4	n	VIS	CG	nr	2	10	n	>2000	none	na	none reported

SOCAL MTE IAC2 March 2009

(i) Exercise designator	IAC2
(ii) Date that exercise began and ended	10-12 March 2009
(iii) Location	SOCAL
(iv) Number and types of active sources used	(*) SQS-53, (*) SQS-56, (*) BQQ-10, (2) AQS-13F, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQS-56, (*) SQR-19, (*) BQQ-10, (2) AQS-13F, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) CG, (*) DDG, (*) FFG, (*) SSN, (*) SH-60B non-dipping helicopter, (*) SH-60F dipping helicopter, (*) P-3C MPA Non-ASW (not MFAS equipped): 0 additional surface ships
(vii) Total hours of observation by watchstanders	686 hours
(viii) Total hours of all active sonar sources operations	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (* hrs) SQS-56, (* hrs) BQQ-10, (* hrs) AQS-13F, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 6 ft, LOW: 1 ft, AVE: 4 ft

* CLASSIFIED

SOCAL MTE- Individual Marine Mammal Sighting Information IAC2 March 2009
(60 sightings of 490 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable; crs= course

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	2	n	VIS	CG	3	3	10	n	>2000	none	na	surface blows
SOCAL	dolphin	10	n	VIS	CG	15	3	10	n	<200	none	na	dolphins closed with ship then dove
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	nr	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	5	5	10	n	200-500	none	na	whale opening range from ship
SOCAL	whale	2	n	VIS	DDG	10	5	10	n	500-1000	none	na	sighted off port bow then dove
SOCAL	whale	1	n	VIS	FFG	1	4	10	n	>2000	none	na	breeching on surface
SOCAL	whale	2	n	VIS	DDG	10	5	10	n	1000-2000	none	na	whale opening range from ship
SOCAL	whale	2	n	VIS	FFG	1	2	10	n	200-500	none	na	none reported
SOCAL	whale	12	n	VIS	DDG	15	5	10	Y	200-500	powered down - 10dB, then secured sonar	whales 286 from ship, ship crs 296, whales closing	whales closing on ship
SOCAL	whale	1	n	VIS	FFG	1	2	10	n	500-1000	none	na	whale swimming parallel to ship
SOCAL	whale	2	n	VIS	FFG	4	4	10	n	<200	none	na	whale opening range from ship
SOCAL	whale	1	n	VIS	DDG	10	1	10	Y	>2000	none	whales 010 from ship, ship crs 270, whale parallel to ship	whale swimming parallel to ship
SOCAL	whale	1	n	VIS	DDG	10	1	10	Y	>2000	none	whale 170 from ship, ship crs 130, whales opening	whale at 2000 yards and opening, beyond mitigation zone
SOCAL	whale	1	n	VIS	DDG	5	5	10	Y	>2000	none	whale 330 from ship, ship crs 225, whales opening	whale opened range to ship
SOCAL	whale	1	n	ACO	CG	nr	1	10	n	na	none	na	none reported
SOCAL	dolphin	12	n	VIS, ACO	CG	2	1	10	n	1000-2000	none	na	dolphins closed with ship then dove under
SOCAL	whale	1	n	ACO	CG	90	1	10	n	na	none	na	none reported
SOCAL	dolphin	4	n	VIS	DDG	nr	2	10	n	<200	none	na	dolphins bowriding
SOCAL	dolphin	30	n	VIS	DDG	10	nr	10	n	<200	none	na	none reported
SOCAL	dolphin	50	n	VIS	FFG	2	3	10	n	200-500	none	na	dolphins closed with ship to bowride

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	2	n	VIS	CG	10	1	10	n	1000-2000	none	na	whales opening range from ship after crossing ship's bow
SOCAL	dolphin	8	n	VIS	CG	1	1	10	n	<200	none	na	dolphins opening range from ship
SOCAL	dolphin	12	n	VIS	CG	72	1	10	n	1000-2000	none	na	dolphins closed with ship
SOCAL	whale	1	n	VIS	CG	2	1	10	n	500-1000	none	na	brief sighting
SOCAL	dolphin	12	n	VIS	DDG	nr	2	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	5	1	10	n	nr	none	na	whale opening range from ship
SOCAL	dolphin	10	n	VIS	DDG	10	nr	10	n	<200	none	na	none reported
SOCAL	dolphin	30	n	VIS	DDG	nr	2	10	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	nr	2	10	n	>2000	none	na	none reported
SOCAL	dolphin	20	n	VIS	DDG	nr	2	10	n	>2000	none	na	none reported
SOCAL	dolphin	5	n	VIS	DDG	1	nr	10	n	<200	none	na	dolphins closed with ship to bowride
SOCAL	dolphin	3	n	VIS	DDG	10	1	10	n	nr	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	1	1	10	n	nr	none	na	whale opening range from ship, surface breeching observed
SOCAL	whale	3	n	VIS	DDG	5	5	10	n	nr	none	na	none reported
SOCAL	whale	3	n	VIS	DDG	nr	1	10	n	500-1000	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	3	5	10	n	nr	none	na	passed along port side of ship then dove under ship
SOCAL	whale	2	n	VIS	DDG	nr	1	10	n	200-500	none	na	none reported
SOCAL	dolphin	1	n	VIS	DDG	5	1	10	n	500-1000	none	na	dolphin opening range from ship
SOCAL	dolphin	30	n	VIS	DDG	5	nr	10	n	<200	none	na	dolphins closed with ship to bowride
SOCAL	dolphin	6	n	VIS	DDG	nr	1	10	n	>2000	none	na	none reported
SOCAL	dolphin	9	n	VIS	DDG	8	5	10	n	nr	none	na	dolphins swimming parallel to ship
SOCAL	whale	1	n	ACO	CG	7	1	10	n	na	none	na	none reported
SOCAL	dolphin	6	n	VIS	DDG	nr	1	10	n	500-1000	none	na	dolphins swimming port to starboard
SOCAL	dolphin	10	n	VIS	DDG	10	1	10	n	nr	none	na	none reported
SOCAL	whale	2	n	VIS	FFG	5	2	10	n	nr	none	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	18	n	VIS	DDG	10	5	10	Y	<200	secured sonar	dolphins 320 from ship, ship crs 294, dolphins opening	dolphins opening range from ship
SOCAL	dolphin	15	n	VIS	DDG	10	1	10	n	nr	ship maneuvered to open range from dolphins	na	none reported
SOCAL	whale	1	n	VIS	DDG	15	3	10	Y	500-1000	powered down sonar -6 dB	whale 330 from ship, ship crs 020, opening	whale opening range from ship from right to left
SOCAL	dolphin	100	n	VIS	DDG	5	5	10	n	nr	none	na	dolphins opening range from ship
SOCAL	whale	1	n	VIS	DDG	1	5	10	n	nr	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	nr	1	10	n	200-500	none	na	whale swimming parallel to ship
SOCAL	whale	1	n	VIS	FFG	5	2	10	n	nr	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	15	1	10	Y	>2000	none	whales 335 from ship, ship crs 318, whales opening	whales opening range from ship
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	nr	none	na	none reported
SOCAL	whale	2	n	VIS	DDG	nr	nr	10	Y	500-1000	none	whales 180 from ship, ship crs 280, whales opening	whales opening range from ship
SOCAL	dolphin	5	n	VIS	DDG	1	5	10	n	nr	none	na	dolphins opening range from ship
SOCAL	dolphin	12	n	VIS	DDG	30	5	10	Y	<200	secured sonar	dolphins 280 from ship, ship crs 294, opening	none reported
SOCAL	whale	3	n	VIS	CG	5	1	10	n	500-1000	powered down sonar -6dB	whales 310 from ship, ship crs 300, opening	none reported
SOCAL	dolphin	8	n	VIS	DDG	7	5	10	n	500-1000	powered down sonar -6dB	dolphins 280 from ship, ship crs 294, opening	none reported
SOCAL	whale	1	n	VIS	FFG	1	3	10	n	1000-2000	none	na	blowing at surface

SOCAL MTE SUSTEX Mar 2009

(i) Exercise designator	SUSTEX
(ii) Date that exercise began and ended	13-19 March 2009
(iii) Location	SOCAL
(iv) Number and types of active sources used	(*) SQS-53, (*) SQS-56, (*) BQQ-10, (*) AQS-13F, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQS-56, (2) SQR-19, (*) BQQ-10, (*) AQS-13F, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) CG, (*) DDG, (*) FFG, (*) SSN, (*) SH-60B non-dipping helicopter, (*) SH-60F dipping helicopter, (*) P-3C MPA Non-ASW (not MFAS equipped): 1 additional surface ship
(vii) Total hours of observation by watchstanders	3,985 hours
(viii) Total hours of all active sonar sources operations	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (* hrs) SQS-56, (* hrs) BQQ-10, (* hrs) AQS-13F, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 12 ft, LOW: 1 ft, AVE: 4 ft

* CLASSIFIED

SOCAL MTE- Individual Marine Mammal Sighting Information SUSEX Mar 2009
(52 sightings of 823 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable; crs= course

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	52	n	VIS	non-ASW ship	3	3	8	na	200-500	none	na	dolphins opening range from ship
SOCAL	whale	3	n	VIS	non-ASW ship	2	3	10	na	1000-2000	none	na	whales opening range from ship
SOCAL	whale	2	n	VIS	non-ASW ship	1	2	10	na	1000-2000	none	na	whales opening range from ship
SOCAL	dolphin	60	n	VIS	non-ASW ship	1	2	10	na	200-500	none	na	dolphins swimming parallel to ship
SOCAL	whale	1	n	VIS	non-ASW ship	1	2	10	na	200-500	none	na	whale swimming parallel to ship
SOCAL	dolphin	30	n	VIS	DDG	1	2	8	n	200-500	none	na	dolphins swimming parallel to ship
SOCAL	dolphin	30	n	VIS	DDG	30	2	8	n	<200	none	na	dolphins bowriding
SOCAL	dolphin	100	n	VIS	non-ASW ship	4	1	10	na	200-500	none	na	dolphins opening range from ship
SOCAL	dolphin	15	n	VIS	DDG	5	2	10	n	<200	none	na	dolphins closing with ship to bowride
SOCAL	whale	1	n	VIS	DDG	3	2	10	n	>2000	none	na	whale swimming parallel to ship
SOCAL	dolphin	15	n	VIS	DDG	3	2	10	n	<200	none	na	dolphins opening range from ship
SOCAL	dolphin	18	n	VIS	DDG	75	2	10	n	1000-2000	none	na	dolphins closing with ship
SOCAL	whale	1	n	VIS	DDG	7	2	10	n	>2000	none	na	whale closing with ship; surface blows observed
SOCAL	pinniped	-	n	VIS	HELO	20	1	10	n	nr	none	na	SINGLE CARCASS-advanced decay
SOCAL	dolphin	20	n	VIS	DDG	15	2	6	n	200-500	none	na	dolphins opening range from ship
SOCAL	dolphin	15	n	VIS	CG	5	1	10	n	200-500	none	na	dolphins swimming parallel to ship
SOCAL	whale	2	n	VIS	DDG	31	2	10	n	200-500	none	na	whales opening range from ship
SOCAL	dolphin	30	n	VIS	CG	20	1	10	n	200-500	none	na	dolphins closing to bowride
SOCAL	dolphin	6	n	VIS	CG	9	2	10	n	200-500	none	na	dolphins closing to bowride
SOCAL	dolphin	6	n	VIS	DDG	10	2	10	n	>2000	none	na	none reported
SOCAL	whale	4	n	VIS	DDG	17	2	10	n	1000-2000	ship maneuvered	na	whales opening range from ship
SOCAL	dolphin	50	n	VIS	DDG	15	2	10	n	500-1000	none	na	dolphins opening range from ship
SOCAL	dolphin	12	n	VIS	DDG	5	3	10	n	>2000	none	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	4	n	VIS	FFG	1	1	10	n	500-1000	none	na	dolphins closing to bowride
SOCAL	dolphin	50	n	VIS	CG	20	1	10	n	200-500	none	na	dolphins closing to bowride
SOCAL	whale	1	n	VIS	CG	10	2	10	n	1000-2000	none	na	whale opening range from ship
SOCAL	whale	2	n	VIS	DDG	5	5	8	n	1000-2000	none	na	whale swimming parallel to ship
SOCAL	whale	1	n	VIS	DDG	3	3	10	Y	200-500	secured sonar	whale 080 from ship, ship crs 150, whale opening	whale opening range from ship on reciprocal crs; breeched then dove
SOCAL	whale	1	n	VIS	DDG	2	3	10	n	200-500	none	na	whale opening range from ship
SOCAL	dolphin	50	n	VIS	DDG	15	5	10	Y	>2000	secured sonar	na	none reported
SOCAL	whale	1	n	VIS	CG	2	2	10	n	1000-2000	none	na	whale swimming parallel to ship
SOCAL	pinniped	-	n	VIS	FFG	30	4	10	n	nr	none	na	CARCASS- advanced decay
SOCAL	dolphin	-	n	VIS	FFG	4	2	10	n	<200	none	na	CARCASS- advanced decay
SOCAL	dolphin	4	n	VIS	DDG	1	3	10	Y	>2000	none	na	none reported
SOCAL	dolphin	10	n	VIS	CG	5	2	10	Y	>2000	none	na	dolphins opening range from ship
SOCAL	pinniped	1	n	VIS	DDG	10	2	10	Y	200-500	powered down sonar - 10dB	pinniped 180 from ship, ship crs 270, pinniped opening	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	Y	200-500	secured sonar	whale 050 from ship, ship crs nr, whale opening	whale breeching
SOCAL	whale	1	n	VIS	DDG	1	3	10	Y	>2000	none	whale 240 from ship, ship crs 020, opening	whale fluked up
SOCAL	whale	1	n	VIS	DDG	4	2	10	n	200-500	none	na	whale closing with ship
SOCAL	whale	1	n	VIS	CG	5	4	7	n	500-1000	none	na	whale opening range from ship
SOCAL	whale	1	n	VIS	non-ASW ship	1	3	7	na	<200	none	na	whale opening range from ship
SOCAL	whale	1	n	VIS	non-ASW ship	5	3	10	na	1000-2000	none	na	whale swimming parallel to ship
SOCAL	whale	2	n	VIS	non-ASW ship	10	3	10	n	1000-2000	none	na	none reported
SOCAL	pinniped	2	n	VIS	CG	4	3	5	n	500-1000	none	na	pinniped stationary in water off ship's bow
SOCAL	dolphin	40	n	VIS	CG	9	2	10	n	200-500	none	na	dolphins opening

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves observe? y/n	(v) Initial detection sensor	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave height (ft)	(ix) Visibility (nm)	(x) Sonar source in use y/n	(xi) Range <200yrd; 200-500yrd, 500-1000yrd; 1000-2000yrd; >2000yrd	(xiii) Mitigation implemented and time (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
													range from ship
SOCAL	whale	1	n	VIS	DDG	2	2	10	n	1000-2000	none	na	whale swimming parallel to ship
SOCAL	dolphin	5	n	VIS	CG	6	2	5	n	200-500	ship maneuvered to avoid	na	dolphins closing with the ship to bowride
SOCAL	dolphin	5	n	VIS	HELO	18	2	10	n	500-1000	none	na	none reported
SOCAL	whale	2	n	VIS	non-ASW ship	5	3	2	na	>2000	none	na	none reported
SOCAL	whale	2	n	VIS	non-ASW ship	20	3	10	n	>2000	none	na	whales slowly closing with ship
SOCAL	dolphin	150	n	VIS	CG	10	2	10	n	<200	none	na	dolphins opening range from ship
SOCAL	whale	10	n	VIS	CG	10	2	10	n	1000-2000	none	na	whales closing with ship

SOCAL MTE COMPTUEX May 2009

(i) Exercise designator	COMPTUEX
(ii) Date that exercise began and ended	11-28 May 2009
(iii) Location	SOCAL
(iv) Number and types of active sources used	(*) SQS-53, (*) SQS-56, (*) BQQ-10, (*) AQS-13F, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQS-56, (*) SQR-19, (*) BQQ-10, (*) AQS-13F, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) CG, (*) DDG, (*) FFG, (*) SSN, (*) SH-60B non-dipping helicopters, (*) SH-60F dipping helicopter, (*) P-3C MPA Non-ASW (not MFAS equipped): 1 additional surface ship
(vii) Total hours of observation by watchstanders	9,897 hours
(viii) Total hours of all active sonar sources operations	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (* hrs) SQS-56, (* hrs) BQQ-10, (* hrs) AQS-13F, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 6 ft, LOW: 1 ft, AVE: 3 ft

* CLASSIFIED

SOCAL MTE- Individual Marine Mammal Sighting Information COMPTUEX May 2009
(95 sightings of 700 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
SOCAL	dolphin	20	y	VIS	DDG	40	1	10	n	200-500	none	na	none reported
SOCAL	dolphin	30	y	VIS	DDG	15	1	10	n	<200	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	2	10	n	200-500	none	na	blowing
SOCAL	dolphin	21	y	VIS	DDG	10	1	8	n	200-500	none	na	none reported
SOCAL	dolphin	21	y	VIS	DDG	10	1	8	n	200-500	none	na	none reported
SOCAL	dolphin	50	n	VIS	DDG	2	2	10	n	500-1000	none	na	Large POD of dolphins appeared off bow
SOCAL	dolphin	36	n	VIS	CG	2	4	5	n	>2000	none	na	none reported
SOCAL	dolphin	15	n	VIS	CG	2	4	5	n	<200	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	3	4	10	y	<200	powered down -sonar - 10dB for 15 min	whale 200 from ship, ship crs 350, whale moving away from ship (opening)	blowing
SOCAL	whale	1	n	VIS	DDG	5	3	10	y	>2000	none	na	Lone grey whale spotted blowing
SOCAL	whale	1	n	VIS	DDG	2	4	10	y	500-1000	powered down sonar- 30 min	whale 225 from ship, ship crs 093, whale opening	blowing
SOCAL	whale	1	n	VIS	DDG	3	4	10	y	500-1000	powered down sonar - 6db for 3 min	whale 225 from ship, ship crs 025, whale opening	blowing
SOCAL	whale	1	n	VIS	DDG	13	4	10	y	500-1000	powered down sonar - 6dB for 13 min	whale 160 from ship, ship crs195, opening	blowing
SOCAL	whale	1	n	VIS	DDG	10	5	10	y	>2000	none	na	grey whale spotted off STBD beam
SOCAL	whale	1	n	VIS	DDG	28	4	10	y	500-1000	powered down sonar - 6dB for 60	whale 140 from ship, ship crs 215, whale	blowing

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
											min	opening	
SOCAL	whale	2	n	VIS	FFG	10	2	10	y	500-1000	powered down sonar - 6dB for 20 min	whales 200 from ship, ship 211, whales moving parallel to ship	breaching
SOCAL	dolphin	50	n	VIS	DDG	10	4	8	n	200-500	none	na	Large pod off dolphins off bow
SOCAL	dolphin	20	n	VIS	DDG	5	3	8	n	500-1000	none	na	POD of dolphins appeared off port beam and closed ship
SOCAL	dolphin	5	n	VIS	DDG	4	1	6	n	1000-2000	none	na	none reported
SOCAL	dolphin	6	n	VIS	DDG	2	1	10	n	200-500	none	na	POD appeared off port beam and closed the ship
SOCAL	dolphin	5	n	VIS	DDG	7	4	10	n	500-1000	none	na	none reported
SOCAL	dolphin	12	n	VIS	DDG	10	5	9	n	<200	none	na	none reported
SOCAL	dolphin	unk	n	ACO	DDG	nr	nr	nr	n	nr	none	na	none reported
SOCAL	dolphin	1	n	VIS	DDG	2	1	5	y	<200	secured sonar- 139 min	na	single CARCASS sighted by lookout
SOCAL	pinniped	1	n	VIS	FFG	1	2	10	y	<200	secured sonar- 18 min	seal 170 from ship, ship crs 101	none reported
SOCAL	whale	1	n	VIS	DDG	2	6	3	y	200-500	powered down sonar- 8 min	whale 220 from ship, ship crs 300, whale opening	blowing
SOCAL	whale	1	n	VIS	DDG	3	3	5	y	200-500	secured sonar- 45 min	whale 310 from ship, ship crs 005	none reported
SOCAL	pinniped	1	n	VIS	DDG	5	4	4	n	1000-2000	none	na	harbor seal spotted off bow
SOCAL	dolphin	8	n	VIS	DDG	15	6	6	y	<200	secured sonar- 15 min	dolphins 331 from ship, ship crs 331	none reported
SOCAL	whale	1	n	VIS	DDG	10	6	6	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	FFG	3	1	7	n	200-500	none	na	none reported
SOCAL	pinniped	1	n	VIS	DDG	1	6	4	y	<200	secured sonar- 60 min	pinniped 060 from ship, ship crs 150, pinniped opening	momentarily observed off port bow

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
SOCAL	whale	1	n	VIS	DDG	2	4	2	n	<200	none	na	blowing
SOCAL	whale	2	n	VIS	FFG	10	1	6	n	200-500	none	na	none reported
SOCAL	dolphin	1	n	VIS	FFG	3	1	8	y	500-1000	secured sonar- 6 min	dolphin 205 from ship, ship crs 220	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	3	n	1000-2000	none	na	blowing
SOCAL	pinniped	12	n	VIS	CG	7	1	7	y	200-500	secured sonar- 10 min	pinnipeds 030 from ship, ship crs 050,	none reported
SOCAL	dolphin	50	n	VIS	CG	7	1	7	y	500-1000	secured sonar- 15 min	dolphins 040 from ship, ship crs 020	none reported
SOCAL	whale	1	n	VIS	FFG	1	2	10	y	200-500	powered down sonar - 10dB for 20 min	whale 025 from ship, ship crs 045, whale breaching parallel to ship	breaching
SOCAL	whale	1	n	VIS	DDG	1	4	10	n	200-500	none	na	blowing
SOCAL	whale	2	n	VIS	CG	3	1	7	n	1000-2000	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	5	1	7	n	1000-2000	none	na	blowing
SOCAL	dolphin	20	n	VIS	CG	5	1	9	y	500-1000	secured sonar- 35 min	dolphins 045 from ship, ship crs 291	none reported
SOCAL	dolphin	25	n	VIS	CG	2	1	7	n	500-1000	none	na	none reported
SOCAL	dolphin	8	n	VIS	DDG	5	1	10	n	200-500	none	na	none reported
SOCAL	dolphin	1	n	VIS	FFG	nr	1	8	y	200-500	secured sonar- 3 min	dolphin 205 from ship, ship crs 053	none reported
SOCAL	whale	1	n	VIS	DDG	2	4	9	y	<200	secured sonar- 30 min; maneuvered ship	whale 345 from ship, ship crs 345	grey whale surface off STBD bow
SOCAL	whale	1	n	VIS	DDG	1	4	9	n	200-500	none	na	whale surfaced off bow and opened ship
SOCAL	whale	1	n	VIS	DDG	2	4	9	y	200-500	powered down sonar - 10dB for 30 min	whale 240 from ship, ship crs 181, whale moving parallel to ship	whale surfaced off bow and paralleled ship
SOC	whale	1	n	VIS	FFG	3	1	10	y	<200	secured	whale 300 from	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
AL											sonar- 7 min	ship, ship crs 282	
SOC AL	whale	1	n	VIS	DDG	2	0	10	y	200-500	powered down sonar - 10dB for 34 min	whale 044 from ship, ship crs 134; whale opening	whale surfaced off beam
SOC AL	whale	1	n	VIS	DDG	1	4	10	n	500-1000	none	na	blowing
SOC AL	dolphin	8	n	VIS	DDG	15	4	10	n	>2000	none	na	none reported
SOC AL	whale	1	n	VIS	DDG	18	5	10	n	<200	none	na	none reported
SOC AL	pinniped	100	n	VIS	DDG	5	4	10	n	1000-2000	none	na	none reported
SOC AL	pinniped	1	n	VIS	DDG	35	1	9	y	200-500	secured sonar- 60 min	seen parallel to ship	CARCASS sighted by lookout
SOC AL	whale	1	n	VIS	DDG	1	3	10	y	500-1000	none	na	blowing
SOC AL	whale	1	n	VIS	DDG	3	2	10	y	1000-2000	none	na	sighted off port beam
SOC AL	whale	1	n	VIS	DDG	1	2	7	n	>2000	none	na	blowing
SOC AL	whale	1	n	VIS	DDG	2	3	7	n	>2000	none	na	blowing
SOC AL	dolphin	3	n	VIS	DDG	3	1	10	n	<200	none	na	none reported
SOC AL	dolphin	6	n	VIS	DDG	5	3	10	n	>2000	none	na	none reported
SOC AL	whale	1	n	VIS	DDG	1	3	10	n	200-500	none	na	none reported
SOC AL	dolphin	12	n	VIS	DDG	5	5	10	n	200-500	none	na	none reported
SOC AL	dolphin	20	n	VIS	DDG	10	5	10	n	500-1000	none	na	none reported
SOC AL	whale	3	y	VIS	DDG	10	3	10	n	200-500	none	na	none reported
SOC AL	dolphin	16	n	VIS	DDG	10	3	10	n	500-1000	none	na	none reported
SOC AL	whale	8	n	VIS	DDG	5	3	10	n	200-500	none	na	none reported
SOC AL	dolphin	10	n	VIS	FFG	5	1	10	n	500-1000	none	na	dolphins bowriding
SOC AL	whale	4	y	VIS	DDG	1	2	10	n	1000-2000	none	na	none reported
SOC AL	whale	3	n	VIS	DDG	3	5	10	y	500-1000	powered down sonar -	whales 180 from ship, ship crs 270, whale	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
											6dB	moving toward ship (closing)	
SOC AL	whale	5	n	VIS	DDG	77	4	10	y	500-1000	powered down sonar - 6dB	whales bearing not reported, ship crs 268	none reported
SOC AL	whale	1	n	VIS	DDG	3	3	10	y	200-500	secured sonar- 16 min	whale 350 from ship, ship crs 000, whale opening	blowing
SOC AL	whale	2	n	VIS	DDG	5	6	10	y	200-500	powered down sonar - 10dB for 30 min	whales 150 from ship, ship crs 120, whales opening	blowing
SOC AL	whale	1	n	VIS	FFG	30	1	8	n	nr	none	na	breached then dove
SOC AL	whale	1	n	VIS	DDG	3	3	10	y	200-500	secured sonar- 10 min	whale 250 from ship, ship crs 000, whale opening	blowing
SOC AL	whale	1	n	VIS	FFG	30	2	7	y	1000-2000	powered down sonar- 1 min	whale 210 from ship, ship crs 155, whale moving parallel to ship	breaching
SOC AL	whale	1	n	VIS	FFG	30	2	7	y	1000-2000	powered down sonar- 1 min	whale 250 from ship, ship crs 252, whale crossing in front of ship	breaching
SOC AL	whale	1	n	VIS	FFG	15	2	6	n	1000-2000	none	na	breaching then dove
SOC AL	whale	1	n	VIS	DDG	3	2	5	y	200-500	secured sonar- 30 min	whale 070 from ship, ship crs 056, whale opening	blowing, passed the stern
SOC AL	whale	1	n	VIS	CG	1	2	10	y	500-1000	powered down sonar - 6dB for 30 min	whale 270 from ship, ship crs 120	none reported
SOC AL	whale	1	n	VIS	DDG	2	2	10	y	200-500	secured sonar- 5 min	whale 120 from ship, ship crs 056, whale opening	blowing
SOC AL	whale	10	n	VIS	DDG	1	2	10	y	200-500	secured sonar- 10 min	whales 010 from ship, ship crs 270, whales opening	blowing
SOC AL	whale	1	n	VIS	FFG	1	1	8	n	200-500	none	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v) Initial Detection	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (ft)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	(xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed MM behavior
SOCAL	dolphin	2	n	VIS	FFG	1	1	8	n	500-1000	none	na	Bowriding
SOCAL	whale	1	n	VIS	CG	1	2	10	y	1000-2000	none	na	none reported
SOCAL	unknown	0	n	AOO	CG	18	2	10	y	nr	none	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	8	3	7	na	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	3	3	7	na	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	5	3	10	na	1000-2000	none	na	none reported
SOCAL	whale	4	n	VIS	non-ASW ship	10	3	7	na	>2000	none	na	none reported
SOCAL	whale	6	n	VIS	non-ASW ship	10	3	7	na	>2000	none	na	none reported
SOCAL	dolphin	6	n	VIS	DDG	3	1	8	n	>2000	none	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	3	3	7	na	200-500	none	na	none reported
SOCAL	whale	1	n	VIS	DDG	2	1	10	n	500-1000	none	na	none reported

SOCAL MTE JTFEX Jun 2009

(i) Exercise designator	JTFEX
(ii) Date that exercise began and ended	29 May- 04 June 2009
(iii) Location	SOCAL
(iv) Number and types of active sources used	(*) SQS-53, (*) SQS-56, (*) BQQ-10, (*) AQS-13F, (*) DICASS sonobuoys
(v) Number and types of passive sources used	(*) SQS-53, (*) SQS-56, (*) SQR-19, (*) BQQ-10, (3) AQS-13F, (*) DIFAR passive sonobuoys
(vi) Number and types of vessels and aircraft participating	ASW: (*) CG, (*) DDG, (*) FFG, (*) SSN, (*) SH-60B non-dipping helicopters, (*) SH-60F dipping helicopter, (*) P-3C MPA Non-ASW (not MFAS equipped): 1 additional surface ship
(vii) Total hours of observation by watchstanders	4,399 hours
(viii) Total hours of all active sonar sources operations	* hours
(ix) Total hours of each active source	(* hrs) SQS-53, (* hrs) SQS-56, (* hrs) BQQ-10, (* hrs) AQS-13F, (* hrs) DISCASS sonobuoy
(x) Wave height (high, low, and average during exercise)	HIGH: 6 ft, LOW: 1 ft, AVE: 2 ft

* CLASSIFIED

SOCAL MTE- Individual Marine Mammal Sighting Information JTFEX Jun 09
(93 sightings of 372 marine mammals)

nr =not reported; VIS= visual; ACO= acoustic; y= yes; n= no: na= not applicable

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	1	n	VIS	non-ASW ship	4	1	7	na	500-1000	None	na	none reported
SOCAL	whale	2	n	VIS	non-ASW ship	5	1	7	na	500-1000	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	30	2	10	n	200-500	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	18	2	7	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	3	3	10	n	>2000	None	na	breaching then dove
SOCAL	dolphin	4	n	VIS	FFG	90	1	10	n	200-500	None	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	>2000	None	na	blowing
SOCAL	pinniped	6	y	VIS	DDG	1	3	10	n	500-1000	None	na	none reported
SOCAL	whale	1	n	VIS	CG	3	1	10	n	200-500	None	na	feeding
SOCAL	whale	1	n	VIS	DDG	1	6	10	n	500-1000	None	na	blowing, then submerged
SOCAL	whale	1	n	VIS	DDG	1	6	10	n	500-1000	None	na	blowing, then submerged
SOCAL	pinniped	1	n	VIS	FFG	5	1	10	n	500-1000	None	na	SINGLE CARCASS sighted
SOCAL	whale	1	n	VIS	DDG	2	3	10	n	200-500	None	na	blowing and passed STBD beam from bow to stern
SOCAL	dolphin	5	n	VIS	DDG	1	1	10	y	200-500	None-dolphins observed bowriding	na	Bowriding
SOCAL	dolphin	20	n	VIS	FFG	NR	2	7	y	200-500	powered down sonar -10dB for 2 min	dolphin 250 from ship, ship crs 249	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	6	1	7	n	500-1000	None	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	1	n	VIS	CG	4	1	10	y	200-500	powered down sonar -10dB for 15 min	whale 105 from ship, ship crs 345, whale swimming parallel to ship	none reported
SOCAL	whale	2	n	VIS	FFG	10	2	10	y	500-1000	powered down sonar -6dB for 10 min	whale 240 from ship, ship crs 250, whale swimming across ship's bow	swimming on surface
SOCAL	GEN	NR	n	AC O	CG	12	1	10	y	nr	None	na	none reported
SOCAL	dolphin	27	n	VIS	CG	3	1	10	y	<200	turned off (secured) sonar-15 min	dolphins 115 from ship, ship crs 205, swimming parallel to ship	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	n	1000-2000	None	na	swimming away from ship
SOCAL	whale	1	n	VIS	DDG	2	3	10	n	1000-2000	None	na	blowing
SOCAL	whale	1	n	VIS	FFG	3	1	10	n	>2000	None	na	none reported
SOCAL	dolphin	25	n	VIS	DDG	1	1	10	y	<200	secured sonar-10 min	dolphins 350 from ship, ship crs 333, dolphins swimming away (opening) from ship	none reported
SOCAL	whale	1	y	VIS	FFG	18	1	10	n	200-500	None	na	blowing
SOCAL	dolphin	1	n	VIS	FFG	2	2	10	n	<200	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	18	1	10	n	200-500	None	na	blowing
SOCAL	unknown	-	n	AC O	CG	60	1	10	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	5	3	7	n	500-1000	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	2	2	10	n	200-500	None	na	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	y	1000-2000	None	whale 344 from ship, ship crs 074	swimming, blowing, passed from north to south

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	2	n	VIS	DDG	1	3	10	y	500-1000	powered down sonar - 6dB for 12 min	dolphins 220 from ship, ship crs 024, dolphins opening from ship's port bow	none reported
SOCAL	whale	1	n	VIS	DDG	1	3	10	y	1000-2000	powered down sonar- 7 min	whale 155 from ship, ship crs 090, whale opening from ship	blowing
SOCAL	whale	1	n	VIS	DDG	1	3	10	y	200-500	powered down sonar - 10dB for 12 min	whale 157 from ship, ship crs 247	blowing, surfaced on beam, then dove
SOCAL	whale	1	n	VIS	DDG	1	3	10	y	<200	secured sonar- 12 min	whale 204 from ship, ship crs 199	blowing surfaced off bow then dove
SOCAL	whale	1	n	VIS	DDG	3	2	10	y	200-500	powered down sonar - 10dB for 10 min; maneuvered ship to avoid	whale 310 from ship, ship crs 310	whale surfaced off bow
SOCAL	whale	1	n	VIS	FFG	30	3	10	n	200-500	None	na	blowing
SOCAL	dolphin	10	n	VIS	non-ASW ship	4	2	7	na	500-1000	None	na	none reported
SOCAL	dolphin	5	n	VIS	non-ASW ship	4	2	7	na	500-1000	None	na	none reported
SOCAL	dolphin	5	n	VIS	non-ASW ship	4	2	7	na	500-1000	None	na	none reported
SOCAL	dolphin	8	y	VIS	non-ASW ship	5	1	7	na	1000-2000	None	na	none reported
SOCAL	killer whale	3	y	VIS	DDG	10	1	8	n	>2000	None	na	killer whales spotted off bow
SOCAL	whale	2	n	VIS	non-ASW ship	4	3	6	na	500-1000	None	na	none reported

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	dolphin	9	n	VIS	DDG	10	1	10	n	<200	None	na	pod of dolphins spotted off bow then closed ship
SOCAL	whale	3	n	VIS	DDG	1	1	10	n	nr	None	na	blowing
SOCAL	whale	1	n	VIS	DDG	5	1	10	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	5	2	10	n	1000-2000	None	na	breaching
SOCAL	whale	1	n	VIS	non-ASW ship	2	3	7	n	200-500	None	na	none reported
SOCAL	whale	1	n	VIS	DDG	5	NR	10	y	nr	secured sonar-30 min	whale 250 from ship, ship crs 267	blowing
SOCAL	whale	1	n	VIS	DDG	5	5	10	n	nr	None	na	blowing
SOCAL	dolphin	6	n	VIS	DDG	30	1	10	n	nr	None	na	none reported
SOCAL	dolphin	3	n	VIS	DDG	2	1	10	n	nr	None	na	none reported
SOCAL	dolphin	6	y	VIS	DDG	2	1	10	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	1	2	10	n	1000-2000	None	na	breaching
SOCAL	whale	4	n	VIS	DDG	5	2	10	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	DDG	3	2	10	n	nr	None	na	blowing
SOCAL	whale	1	n	VIS	DDG	1	1	10	n	200-500	None	na	whale broached, then vented, and submerged
SOCAL	whale	1	n	VIS	DDG	10	1	10	y	<200	secured sonar-15 min	whale 355 from ship, ship crs 330, whale moving parallel then opening from ship	grey whale surfaced, vented, and opened ship
SOCAL	dolphin	2	n	VIS	DDG	NR	NR	NR	y	200-500	powered down sonar -10dB for 26 min	dolphins 250 from ship, ship crs 359	none reported
SOCAL	dolphin	20	n	VIS	CG	6	2	10	y	200-500	powered down -10dB, then secured sonar-20 min	dolphins 040 from ship, ship crs 095, dolphins approached (closed) then opened from ship	none reported
SOCAL	whale	1	n	VIS	DDG	2	5	10	n	nr	None	na	blowing

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	20	n	VIS	FFG	5	2	10	y	200-500	powered down sonar - 10dB for 20 min	whales 300 from ship, ship crs 320	none reported
SOCAL	dolphin	4	n	VIS	DDG	2	5	10	n	nr	None	na	none reported
SOCAL	whale	1	n	VIS	FFG	7	2	10	y	200-500	powered down sonar - 10dB for 20 min	whale 160 from ship, ship crs 192	blowing
SOCAL	whale	1	n	VIS	FFG	2	1	10	n	500-1000	None	na	none reported
SOCAL	dolphin	20	n	VIS	DDG	10	2	10	n	<200	None	na	bowriding
SOCAL	whale	3	n	VIS	DDG	13	1	10	y	500-1000	powered down sonar - 6dB for 11 min	whales 110 from ship, ship crs 140, whales milling then opening from ship	milling about on the surface and continued outbound from ship
SOCAL	whale	1	n	VIS	FFG	2	1	10	n	500-1000	None	na	broaching
SOCAL	dolphin	2	n	VIS	DDG	nr	NR	NR	y	500-1000	powered down sonar - 6dB for 18 min	dolphins 155 from ship, ship crs 3000	none reported
SOCAL	whale	2	n	VIS	DDG	8	1	10	y	nr	powered down sonar - 6dB - 30 min	whales 159 from ship, ship crs 149, whales opening from ship	blowing
SOCAL	whale	1	n	VIS	DDG	6	1	10	y	500-1000	powered down sonar - 6dB for 30 min	whales 100 from ship, ship crs 080, whales opening from ship	blowing
SOCAL	dolphin	10	n	VIS	DDG	3	3	10	y	<200	secured sonar- 15 min	dolphins 140 from ship, ship crs 145, dolphins opening from ship	surfaced pod of dolphins
SOCAL	whale	5	n	VIS	DDG	10	1	10	y	>2000	powered down sonar- 30 min	whales 190 from ship, ship crs 297, whales opening from	blowing

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
												ship	
SOCAL	whale	3	n	VIS	FFG	4	4	10	y	>2000	powered down sonar-7 min	whales 270, ship crs 025, whales closing toward ship	blowing
SOCAL	whale	1	n	VIS	DDG	3	1	7	n	200-500	maneuvered to avoid	swimming parallel to ship	blowing, diving
SOCAL	whale	1	n	VIS	FFG	7	2	10	y	200-500	powered down sonar - 10dB	whale 030 from ship, ship crs 330	none reported
SOCAL	whale	2	n	VIS	FFG	7	2	10	y	>2000	None	whales 080 from ship, ship crs 050	none reported
SOCAL	dolphin	15	n	VIS	DDG	5	1	7	n	200-500	None	na	bowriding, jumping
SOCAL	dolphin	50	n	VIS	DDG	2	1	10	y	<200	secured sonar-3 min	dolphins 170 from ship, ship crs 170, dolphins swimming and bowriding	bowriding
SOCAL	whale	1	n	VIS	non-ASW ship	3	3	7	na	200-500	None	na	none reported
SOCAL	dolphin	2	n	VIS	CG	5	3	10	n	<200	None	na	bowriding
SOCAL	whale	1	n	VIS	DDG	2	1	10	y	>2000	None	na	none reported
SOCAL	whale	1	n	VIS	non-ASW ship	2	2	7	na	500-1000	None	na	none reported
SOCAL	whale	1	n	VIS	CG	1	3	10	n	1000-2000	None	na	blowing
SOCAL	whale	1	n	VIS	DDG	3	1	7	n	500-1000	None	na	blowing
SOCAL	whale	2	n	VIS	CG	4	1	10	y	200-500	secured sonar-20 min	whales 000 from ship, ship crs 268	none reported
SOCAL	whale	1	n	VIS	CG	1	3	10	n	500-1000	None	na	blowing
SOCAL	whale	1	n	VIS	CG	5	3	10	n	500-1000	None	na	blowing
SOCAL	whale	1	n	VIS	CG	3	3	10	n	>2000	None	na	blowing
SOCAL	whale	1	n	VIS	CG	1	3	10	n	1000-2000	None	na	blowing

(i) Location	(ii) Species	(iii) # of individuals	(iv) Calves Observed? y/n	(v0 Initial Detection (visual, acoustic)	(vi) Platform detection from	(vii) Length of time observed (min)	(viii) Wave Height (feet)	(ix) Visibility (nm)	(x) Sonar Source in Use (y/n/na)	xi) Range <200 yrd; 200-500 yrd; 500-1000 yrd; 1000-2000 yrd; >2000 yrd	(xii) Mitigation implementation and time, if reported (min)	(xiv) IF source in use hull-mounted, true bearing, animal travel	(xv) Observed behavior
SOCAL	whale	1	n	VIS	CG	2	3	10	n	200-500	None	na	blowing
SOCAL	whale	1	n	VIS	CG	1	3	10	n	1000-2000	None	na	blowing
SOCAL	whale	1	n	VIS	CG	1	3	10	n	500-1000	None	na	blowing

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

Range Complex Evaluation

Between January to 01 August 2009, there were a total of 2,818 marine mammals from 382 sightings during MTEs in the HRC and SOCAL (**Table II-iii-1**). The majority of these sightings (94%) came from SOCAL which had five MTEs with MFAS use during this period as compared to only one MTE in the HRC. There was one SOCAL MTE with no MFAS use not listed in **Table II-iii-1**.

Of note, out the approximately 181 days between January to 01 August, MTE(s) in the HRC took up only 5 days (approximately 3%). For SOCAL, only 41 days out of 181 days were used for MTEs (approximately 23%).

Table II-iii-1. HRC and SOCAL MTEs and associated marine mammal sightings.

MTE Type	Month (2009)	# Of Exercise Days	# Of Ships Involved (MFAS and non-MFAS)	# Of Marine Mammal Sightings	# Of Marine Mammals
USWEX	Jan	5	5	24	135
SUSTEX	Jan	6	5	58	297
IAC2	Mar	3	6	60	490
SUSTEX	Mar	7	6	52	823
COMPTUEX	May	18	18	95	700
JTFEX	Jun	7	11	93	373
HRC + SOCAL totals:		46	51	382	2,818
SOCAL only totals:		(41)	(46)	(358)	(2,683)

Mitigation Effectiveness Discussion

The three categories of mitigation measures (Personnel Training, Lookout and Watchstander Responsibilities, and Operating Procedures) outlined in the SOCAL/HRC EIS/OEIS and approved by NMFS (DoN 2008, NMFS 2009a, 2009b) were effective in detecting and appropriately mitigating exposures of marine mammals to mid-frequency sonar. Fleet commanders 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, and making adjustments based upon the lessons learned. The safety zones were adhered to, and vessels and aircraft applied mitigation measures when marine mammals were visually observed within the requisite zone.

Of the 382 HRC and SOCAL marine mammal sightings during MTEs with sonar, only 65 of the sightings were made while MFAS was in use at ranges less than 1,000 yards (**Table II-iii-2**). As a result, power down or shutdown mitigation measures were properly implemented. There was only one sighting of two whales during MFAS use at ranges less than 1,000 yards within the HRC. There were 64 sightings of 394 marine mammals during MFAS use at ranges less than 1,000 yards in SOCAL. This total does not include two sightings of three whales where the range between the ship and whales was not reported, but a mitigation event occurred (one power down mitigation, and one secure mitigation).

Of the 65 sightings at ranges less than 1,000 yards during MFAS in MTEs, there were 18 sightings of 283 dolphins, 43 sightings of 96 whales, and 4 sightings of 15 pinnipeds.

Table II-iii-2. Breakdown of marine mammals sighted in the HRC and SOCAL during MTEs at ranges less than 1,000 yards while MFAS was in use.

Range of marine mammal sighting		
< 200 yards	**200-500 yards**	**500-1000 yards**
160 dolphins	48 dolphins	75 dolphins
5 whales	63 whales	28 whales
2 pinnipeds	13 pinnipeds	0 pinnipeds
167 total marine mammals	124 total marine mammals	103 total marine mammals

For HRC and SOCAL MTEs, there were 35 mitigation events where sonar power was lowered (power down), 28 mitigation events where sonar was turned off (secured), two events where dolphins were bowriding and mitigation not applicable, and two events where mitigation was not applied due to the animal moving beyond the outermost edge of the mitigation zone.

Figure II-iii-1 shows the ranges from an individual ship of all marine mammal sightings (with and without MFAS) from each of the MTEs within the HRC and SOCAL. The number of sightings is variable by strike group, exercise type, and sea state at the time of the MTE. Although not shown in the figure, HRC typically has lower overall marine mammal densities, in general, as compared to SOCAL, as well as higher wind and wave conditions in some of the offshore waters where the MTE in HRC took place.

Table II-iii-3 contains a list of all mitigation events for HRC (n=1) and SOCAL (n=66). It should be noted that with or without mitigation, given relative motion of ships maneuvering at-sea and independent marine mammal movement, the time any given animal would be exposed to MFAS from surface ships is likely to be limited. For instance, Column 13 in **Table II-iii-3** shows the distance traveled by a ship over the time that a particular sonar system was mitigated. Deep diving animals not observed, if exposed, may not be exposed to significant levels for long periods based on the moving nature of ship MFAS use, and even less frequent pings from lower power aviation deployed MFAS systems (dipping sonar, sonobuoys). For instance, during a one hour dive by a beaked whale or sperm whale, a MFAS ship moving at a nominal 10 knot speed could cover about 10 nm from its original location, well beyond ranges predicted to have significant exposures (**Table II-iii-3**).

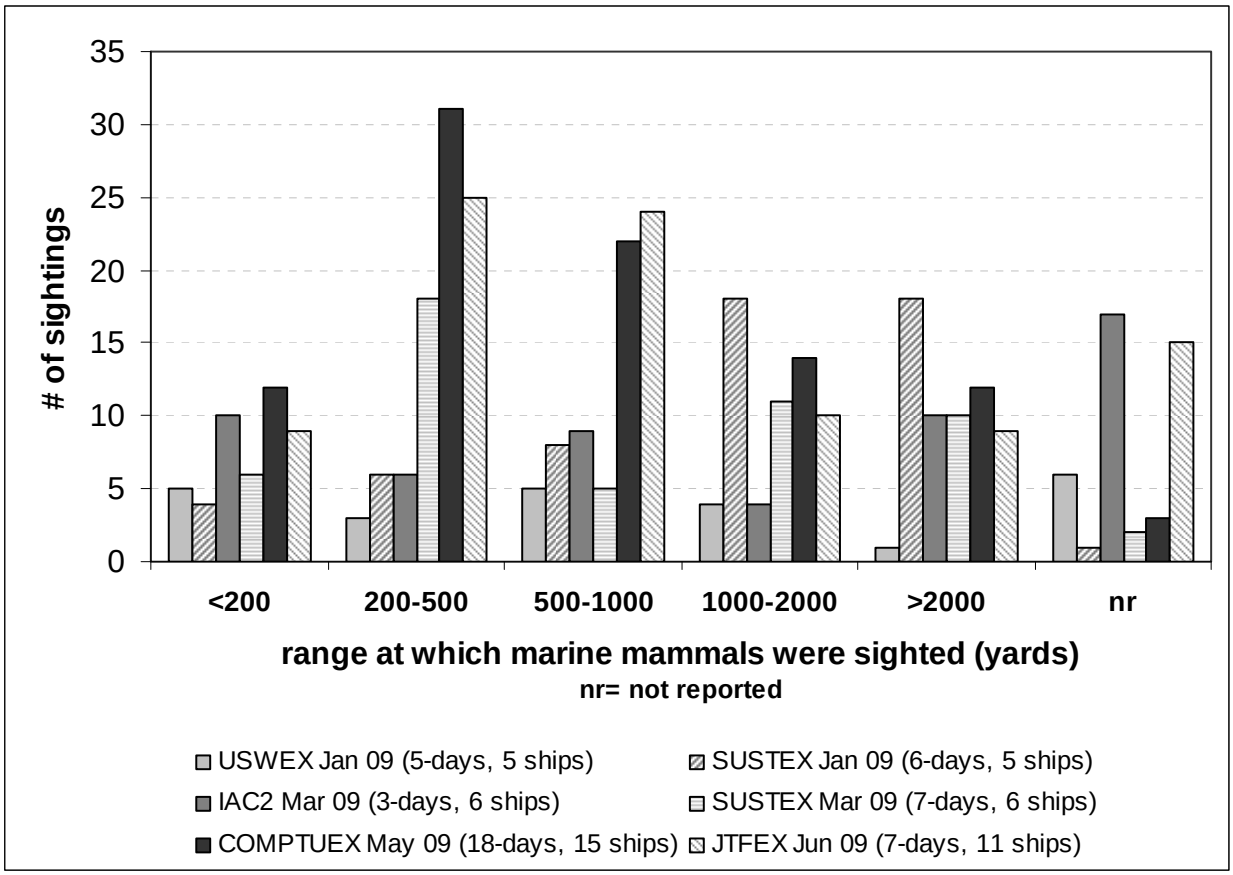


Figure II-iii-1. Marine mammal sighting by range and MTE in the HRC and SOCAL.

Passive sonar is an acoustic device used for listening to underwater sound and does not involve transmitting active sound into the water column. Passive sonar use is driven by the tactical nature of a training event, and is employed whenever possible. Given the nature of passive sonar technology and underwater sound propagation, determining range and absolute position of a marine mammal is exceedingly difficult and generally not possible with any single ship-based passive sonar. Skilled operators or unique circumstances may sometimes allow real-time or near-real time determinations of marine mammal range at the expense of interrupting the ship's training at the time. Active sonar, on the other hand, is critical in providing range and bearing to potential underwater submarines and mines. In addition, passive sonar can only detect marine mammals that are vocalizing (i.e., making underwater sound as part of communication and echolocation). Marine mammal vocalization is based on individual needs at a particular moment, species-level foraging, mating strategies, and other oceanographic or biological factors. For instance, for some species, only males typically vocalize (ex., humpback whales, minke whales). Depending on oceanographic conditions and animal source levels, when marine mammals do vocalize, sounds can easily travel one to several tens of kilometers (km) (0.5 nautical mile (nm) to tens of nm) for some mid-to-low frequency animals, and tens to hundreds of km for very low frequency baleen whales (i.e., blue and fin whales). These ranges demonstrate that even if the marine mammal vocalization can be detected, it does not mean the mammal is necessarily close to the passive sonar sensor. Determining when or if a marine mammal is within a mitigation zone by passive acoustic detection is not always technically feasible.

There is no information from which to assess how many, if any, animals not observed by Navy lookouts may or may not have been exposed to MFAS received levels equal to or greater than the exposure criteria set forth by NMFS (DoN 2008, NMFS 2009a, 2009b). However, many of the ESA-listed species in

SOCAL, with the exception perhaps of the sperm whale, are easier to spot on the surface due to shorter dive times and larger animal size (blue whale, fin whale, sei whale). Dolphins, the most common cetacean seen in SOCAL, often occur in large, visible pods. Beaked whales are acknowledged to be difficult to observe at-sea due to deep dive profiles and short surface intervals. For all marine mammal sightings made from Navy platforms during HRC and SOCAL MTEs (**Tables II-iii-1, II-iii-2, II-iii-3** and **Figure II-iii-1**), there was no obvious indication or report that any animal behaved in a manner not associated with normal movement, or foraging (**Table II-iii-3**).

U.S. Navy Marine Species Awareness Training DVD viewed by ship bridge personnel and lookouts prior to major exercises

Lookouts on board U.S. Navy vessel (U.S. Navy photo)

Table iii-3. HRC and SOCAL MTEs where sonar was on during detection of marine mammals at ranges less than 1,000 yards, and associated mitigation conducted.

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
H	USWEX	Jan	whale	2	DDG	2	500-1000	PD, MAN	<182-176 dB	nr	<176-170 dB	-	330 from ship, ship moving 340, whales opening range from ship	none reported
S	SUSTEX	Jan	whale	1	DDG	2	500-1000	PD, MAN	<182-176 dB	nr	<176-170 dB	-	whale 090 from ship, ship crs 020, whale direction nr	none reported
S	SUSTEX	Jan	whale	1	DDG	5	200-500	PD	<190-182 dB	nr	<184-176 dB	-	whale 030 from ship, ship crs 247, whale direction nr	none reported
S	SUSTEX	Jan	dolphin	10	DDG	1	<200	na [1]	<190 dB	nr	-	-	n/a	dolphins bowriding
S	IAC2	Mar	whale	12	DDG	15	200-500	PD, SD	<190-182 dB	nr	<184-176 dB	-	whales 286 from ship, ship crs 296, whales closing	whales closing on ship
S	IAC2	Mar	dolphin	18	DDG	10	<200	SD	<190 dB	nr	none	-	dolphins 320 from ship, ship crs 294, dolphins opening	dolphins opening range from ship
S	IAC2	Mar	whale	1	DDG	15	500-1000	PD	<182-176 dB	nr	<176-170 dB	-	whale 330 from ship, ship crs 020, opening	whale opening range from ship from right to left
S	IAC2	Mar	whale	2	DDG	nr	500-1000	none	<182-176 dB	nr	<176-170 dB	-	whales 180 from ship, ship crs 280, whales opening	whales opening range from ship
S	IAC2	Mar	dolphin	12	DDG	30	<200	SD	<190 dB	nr	none	-	dolphins 280 from ship, ship crs 294, opening	none reported
S	SUSTEX	Mar	whale	1	DDG	3	200-500	SD	<190-182 dB	nr	none	-	whale 080 from ship, ship crs 150, whale opening	whale opening range from ship on reciprocal crs; breeched then dove
S	SUSTEX	Mar	pinniped	1	DDG	10	200-500	PD	<190-182 dB	nr	<184-176 dB	-	pinniped 180 from ship, ship crs 270, pinniped	none reported

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
													opening	
S	SUSTEX	Mar	whale	1	DDG	1	200-500	SD	<190-182 dB	nr	none	-	whale 050 from ship, ship crs nr, whale opening	whale breeching
S	C2X	May	whale	1	DDG	3	<200	PD	<190 dB	15	for 15 min	5070	whale 200 from ship, ship crs 350, whale moving away from ship (opening)	blowing
S	C2X	May	whale	1	DDG	2	500-1000	PD	<182-176 dB	30	<176-170 dB for 30 min	10140	whale 225 from ship, ship crs 093, whale opening	blowing
S	C2X	May	whale	1	DDG	3	500-1000	PD	<182-176 dB	3	<176-170 dB for 3 min	1014	whale 225 from ship, ship crs 025, whale opening	blowing
S	C2X	May	whale	1	DDG	13	500-1000	PD	<182-176 dB	13	<176-170 dB for 13 min	4394	whale 160 from ship, ship crs195, opening	blowing
S	C2X	May	whale	1	DDG	28	500-1000	PD	<182-176 dB	60	<176-170 dB for 60 min	20280	whale 140 from ship, ship crs 215, whale opening	blowing
S	C2X	May	whale	2	FFG	10	500-1000	PD	<172-166 dB	20	< 166-160 dB for 20 min	6760	whales 200 from ship, ship 211, whales moving parallel to ship	breaching
S	C2X	May	pinniped	1	FFG	1	<200	SD	<180 dB	18	none for 18 min	6084	seal 170 from ship, ship crs 101	none reported
S	C2X	May	whale	1	DDG	2	200-500	PD	<190-182 dB	8	<184-176 dB for 8 min	2704	whale 220 from ship, ship crs 300, whale opening	blowing
S	C2X	May	whale	1	DDG	3	200-500	SD	<190-182 dB	45	none for 45 min	15210	whale 310 from ship, ship crs 005	none reported
S	C2X	May	dolphin	8	DDG	15	<200	SD	<190 dB	15	none for 15 min	5070	dolphins 331 from ship, ship crs 331	none reported
S	C2X	May	pinniped	1	DDG	1	<200	SD	<190 dB	60	none for 60 min	20280	pinniped 060 from ship, ship crs 150, pinniped opening	momentarily observed off port bow
S	C2X	May	dolphin	1	FFG	3	500-1000	SD	<172-166 dB	6	none for 6 min	2028	dolphin 205 from ship, ship crs 220	none reported

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
S	C2X	May	pinnipe d	12	CG	7	200-500	SD	<190-182 dB	10	none for 10 min	3380	pinnipeds 030 from ship, ship crs 050,	none reported
S	C2X	May	dolphin	50	CG	7	500-1000	SD	<182-176 dB	15	none for 15 min	5070	dolphins 040 from ship, ship crs 020	none reported
S	C2X	May	whale	1	FFG	1	200-500	PD	<180-172 dB	20	<174-166 dB for 20 min	6760	whale 025 from ship, ship crs 045, whale breaching parallel to ship	breaching
S	C2X	May	dolphin	20	CG	5	500-1000	SD	<182-176 dB	35	none for 35 min	11830	dolphins 045 from ship, ship crs 291	none reported
S	C2X	May	dolphin	1	FFG	nr	200-500	SD	<180-172 dB	3	none for 3 min	1014	dolphin 205 from ship, ship crs 053	none reported
S	C2X	May	whale	1	DDG	2	<200	SD, MAN	<190 dB	30	none for 30 min	10140	whale 345 from ship, ship crs 345	grey whale surface off starboard bow
S	C2X	May	whale	1	DDG	2	200-500	PD	<190-182 dB	30	<184-176 dB for 30 min	10140	whale 240 from ship, ship crs 181, whale moving parallel to ship	whale surfaced off bow and paralleled ship
S	C2X	May	whale	1	FFG	3	<200	SD	<180 dB	7	none for 7 min	2366	whale 300 from ship, ship crs 282	none reported
S	C2X	May	whale	1	DDG	2	200-500	PD	<190-182 dB	34	<184-176 dB for 34 min	11492	whale 044 from ship, ship crs 134; whale opening	whale surfaced off beam
S	C2X	May	whale	1	DDG	1	500-1000	none	<182-176 dB	nr	<176-170 dB	-	na	blowing
S	C2X	May	whale	3	DDG	3	500-1000	PD	<182-176 dB	nr	<176-170 dB	-	whales 180 from ship, ship crs 270, whale moving toward ship (closing)	none reported
S	C2X	May	whale	5	DDG	77	500-1000	PD	<182-176 dB	nr	<176-170 dB	-	whales bearing not reported, ship crs 268	none reported
S	C2X	May	whale	1	DDG	3	200-500	SD	<190-182 dB	16	none for 16 min	5408	whale 350 from ship, ship crs 000, whale opening	blowing
S	C2X	May	whale	2	DDG	5	200-500	PD	<190-182 dB	30	<176-170 dB	10140	whales 150 from ship, ship crs	blowing

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
											for 30 min		120, whales opening	
S	C2X	May	whale	1	DDG	3	200-500	SD	<190-182 dB	10	none for 10 min	3380	whale 250 from ship, ship crs 000, whale opening	blowing
S	C2X	May	whale	1	DDG	3	200-500	SD	<190-182 dB	30	none for 30 min	10140	whale 070 from ship, ship crs 056, whale opening	blowing, passed the stern
S	C2X	May	whale	1	CG	1	500-1000	PD	<182-176 dB	30	<184-176 dB	10140	whale 270 from ship, ship crs 120	none reported
S	C2X	May	whale	1	DDG	2	200-500	SD	<190-182 dB	5	none for 5 min	1690	whale 120 from ship, ship crs 056, whale opening	blowing
S	C2X	May	whale	10	DDG	1	200-500	SD	<190-182 dB	10	none for 10 min	3380	whales 010 from ship, ship crs 270, whales opening	blowing
S	JTFEX	Jun	dolphin	5	DDG	1	200-500	na [1]	<190-182 dB	nr	<184-176 dB	-	nr	Bowriding
S	JTFEX	Jun	dolphin	20	FFG	nr	200-500	PD	<180-172 dB	2	<174-166 dB for 15 min	676	dolphin 250 from ship, ship crs 249	none reported
S	JTFEX	Jun	whale	1	CG	4	200-500	PD	<190-182 dB	15	<184-176 dB for 15 min	5070	whale 105 from ship, ship crs 345, whale swimming parallel to ship	none reported
S	JTFEX	Jun	whale	2	FFG	10	500-1000	PD	<172-166 dB	10	<166-160 dB for 10 min	3380	whale 240 from ship, ship crs 250, whale swimming across ship's bow	swimming on surface
S	JTFEX	Jun	dolphin	27	CG	3	<200	SD	<190 dB	15	none for 15 min	5070	dolphins 115 from ship, ship crs 205, swimming parallel to ship	none reported
S	JTFEX	Jun	dolphin	25	DDG	1	<200	SD	<190 dB	10	none for 10 min	3380	dolphins 350 from ship, ship crs 333, dolphins swimming away (opening) from ship	none reported
S	JTFEX	Jun	dolphin	2	DDG	1	500-1000	PD	<182-176 dB	12	<176-170 dB fro 12	4056	dolphins 220 from ship, ship crs 024, dolphins	none reported

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
											min		opening from ship's port bow	
S	JTFEX	Jun	whale	1	DDG	1	200-500	PD	<190-182 dB	12	<184-176 dB for 12 min	4056	whale 157 from ship, ship crs 247	blowing, surfaced on beam, then dove
S	JTFEX	Jun	whale	1	DDG	1	<200	SD	<190	12	none for 12 min	4056	whale 204 from ship, ship crs 199	blowing surfaced off bow then dove
S	JTFEX	Jun	whale	1	DDG	3	200-500	PD	<190-182 dB	10	<184-176 dB for 10 min	3380	whale 310 from ship, ship crs 310	whale surfaced off bow
S	JTFEX	Jun	whale	1	DDG	5	nr	SD	nr	30	none for 30 min	10140	whale 250 from ship, ship crs 267	blowing
S	JTFEX	Jun	whale	1	DDG	10	<200	SD	<190 dB	15	none for 15 min	5070	whale 355 from ship, ship crs 330, whale moving parallel then opening from ship	grey whale surfaced, vented, and opened ship
S	JTFEX	Jun	dolphin	2	DDG	nr	200-500	PD	<190-182 dB	26	<184-176 dB for 26 min	8788	dolphins 250 from ship, ship crs 359	none reported
S	JTFEX	Jun	dolphin	20	CG	6	200-500	PD	<190-182 dB	20	<184-176 dB for 20 min	6760	dolphins 040 from ship, ship crs 095, dolphins approached (closed) then opened from ship	none reported
S	JTFEX	Jun	whale	20	FFG	5	200-500	PD	<180-172 dB	20	<174-166 dB for 20 min	6760	whales 300 from ship, ship crs 320	none reported
S	JTFEX	Jun	whale	1	FFG	7	200-500	PD	<180-172 dB	20	<174-166 dB for 20 min	6760	whale 160 from ship, ship crs 192	blowing
S	JTFEX	Jun	whale	3	DDG	13	500-1000	PD	<182-176 dB	11	<184-176 dB for 11 min	3718	whales 110 from ship, ship crs 140, whales milling then opening from ship	milling about on the surface and continued outbound

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
														from ship
S	JTFEX	Jun	dolphin	2	DDG	nr	500-1000	PD	<182-176 dB	18	<176-170 dB for 18 min	6084	dolphins 155 from ship, ship crs 3000	none reported
S	JTFEX	Jun	whale	2	DDG	8	nr	PD	unk	30	unk	10140	whales 159 from ship, ship crs 149, whales opening from ship	blowing
S	JTFEX	Jun	whale	1	DDG	6	500-1000	PD	<182-176 dB	30	<176-170 dB for 30 min	10140	whales 100 from ship, ship crs 080, whales opening from ship	blowing
S	JTFEX	Jun	dolphin	10	DDG	3	<200	SD	<190 dB	15	none for 15 min	5070	dolphins 140 from ship, ship crs 145, dolphins opening from ship	surfaced pod of dolphins
S	JTFEX	Jun	whale	1	FFG	7	200-500	PD	<180-172 dB	nr	<174-166 dB	-	whale 030 from ship, ship crs 330	none reported
S	JTFEX	Jun	dolphin	50	DDG	2	<200	SD	<190 dB	3	none for 3 min	1014	dolphins 170 from ship, ship crs 170, dolphins swimming and bowriding	bowriding
S	JTFEX	Jun	whale	2	CG	4	200-500	SD	<190-182 dB	20	none for 20 min	6760	whales 000 from ship, ship crs 268	none reported

notes:

[1] na= not applicable; mitigation not applicable if dolphins are determined to be bowriding

[2] Estimated exposure based on 20Log[R] spherical spreading propagation loss for ranges less than 1000 yards and where nominal MFAS source level (SL) assumed to be 235 dB for DDG and 225 for FFG (Urick 1982). Actual operating parameters and oceanographic conditions likely result is lower exposures. This calculations assumes exposure prior to mitigation. Once animal was spotted at the range indicated, applied mitigation would have resulted in much lower to no exposures.

[2] Exposure assessment

Estimated exposures within 2000 yards can be determined based on standard formulas of how sound propagates in water. Spherical spreading is generally valid within 1000 yards from the sound source, and can be expressed as spreading loss (in dB from a source) equals 20logR [with "R" being range from the source in yards (Urick 1982)]. Spherical spreading loss in the first 1000 yards equates to 60 dB of loss. At ranges between 1000 and 2000 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 $10\text{Log}R_2/R_1$. Cylindrical spreading loss between 1000 and 2000 yards equates to an additional 3 dB of loss. By the time the sound wave has propagated to 2000 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 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 is slightly lower sonar transmit levels. Use of this approach to estimate potential Receive Levels (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

1) Range [HRC (H); SOCAL (S)]	2) MTE	3) Month (2009)	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 [secure (SD); power down (PD); maneuver ship (MAN) [1]]	10) Estimate MAX. exposure PRIOR to mitigation (dB re 1uPa) [2]	11) Number of minutes sonar mitigation applied (min)	12) Estimate exposure AFTER mitigation (dB re 1uPa) [2]	13) DISTANCE ship would have moved given length of mitigation and nominal 10-knot ship speed (yds)	14) IF source in use hull-mounted, true bearing, animal travel	15) Observed behavior
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 relative motion of ships and animals at sea, the time spent with any given exposure from surface ships is likely to be limited.														

SUMMARY

The Navy's mitigation measures within the SOCAL Range Complex are assessed to have been effective during this reporting period. No animals were adversely affected by the use of mid-frequency active sonar. Visual detection by Navy lookouts remains the most realistically achievable at-sea mitigation currently available.

Real-time passive sonar systems used by the Navy, and to some degree by most of the marine mammal science community, lack the ability to automatically classify detected species and provide range in real time. Most current passive data sets rely on extensive post-collection analysis by skilled subject matter experts to conclusively establish species identification. In addition to species classification difficulties, range detection using moving passive acoustic systems on Navy ships is limited in real time. Also, non-vocalizing marine mammals cannot currently be detected using passive systems. For instance, in minke whales, it is often only the male of the species that frequently vocalizes. For blue whales in SOCAL, there is distinctive differences in call types and periodicity between males and females (Oleson et al. 2007a, 2007b).

The Navy continues conducting robust and realistic exercises, while at the same time developing long-term range complex marine mammal monitoring plans. The goal of these plans is to integrate multiple tools in an effort to generate better assessments of marine mammal occurrence and possible MFAS effects (or lack thereof). Data collection needs to address unresolved questions regarding likely area-specific species composition and the potential for alternative detection technologies. This may be incorporated into future exercises as the Navy's exercises and marine mammal monitoring programs evolve.

Dolphins bowriding in front of a Navy ship off SOCAL in March 2009 (U.S. Navy photograph)

(2) SOCAL- ASW Summary

This section summarizes information from MTEs and non-major training exercises such as unit-level training.

(i) Total annual hours of each type of sonar source

Total annual hours of each type of sonar source used within the SOCAL Range Complex between January to 01 August 2009 are presented in the classified appendix to this report. For the remainder of the NMFS' LOA through 21 January 2010, the Navy does not have significant MTEs planned within the SOCAL Range Complex ($n \leq 2$). In general, system use for the period Jan to 01 Aug 09 was less than and sometimes significantly less than the amount originally authorized. Forecast use for the period from 02 Aug 09 to 20 Jan 2010 will still result in all sonar systems using less than the amount actually authorized, with the exception of the AN/SLQ-25A NIXIE discussed below.

Authorized MFAS sources §216.270 (c)(1)	NMFS Amt. Annually Authorized
(i) AN/SQS-53 surface ship hull-mounted active sonar	1,977 hrs
(ii) AN/SQS-56 surface ship hull-mounted active sonar	494 hrs
(iii) AN/BQQ-10 submarine active sonar	815 hrs
(iv) AN/BQS-15 submarine navigation sonar	122 hrs
(v) AN/AQS-22 or 13 helicopter active dipping sonar	2,719 dips
(vi) AN/SSQ-62 DICASS acoustic sonobuoy	4,255 buoys
(vii) AN/SSQ-125 AEER acoustic sonobuoy	54 buoys
(viii) Mk-48 heavyweight torpedoes	87 torpedoes
(ix) Mk-46 lightweight torpedoes	84 torpedoes
(x) AN/SLQ-25A NIXIE	227 hrs

Recoverable, Mk-46 exercise torpedoes being launched from a U.S. Navy destroyer (DDG) (top left), dropped from a SH-60B helicopter (bottom left), and small boat recovery (below) (U.S. Navy photographs)

NIXIE torpedo counter measure increased training

The Torpedo Countermeasures Transmitting Set, called the AN/SLQ-25A NIXIE, is a passive, electro-acoustic decoy system used to provide deceptive countermeasures against acoustic homing torpedoes. The AN/SLQ-25A employs an underwater acoustic projector housed in a streamlined body which is towed astern on a combination tow/signal-transfer coaxial cable (**Figure 2**). An onboard generated signal is used by the towed body to produce an acoustic signal to decoy the hostile torpedo away from the ship. Electronic or electromechanical means are used to produce the required signals. The system provides an alternate target diversion for an enemy acoustic homing torpedo by stringing on cable a "noise maker", aft of the ship, which has the capability of producing a greater noise than the ship; thereby diverting the incoming torpedo from the ship to the "fish". The towed device receives the torpedoes ping frequency, amplifies it and sends it back to lure the torpedo away from the ship. It should be noted that the NIXIE is not a continuous noise source and is only activated on detecting an approaching active or passive torpedo, or for training purposes a torpedo training device such as the MK39 Expendable Mobile Anti-submarine warfare Training Target (EMATT).

NIXIE torpedo countermeasure source (tow body) being deployed from the back of a U.S. Navy ship.

In January 2009, NMFS authorized 277 hours per year for AN/SLQ-25 NIXIE in the SOCAL Range Complex based on the preliminary estimate available at the time of original Navy submission. As of 1 August 2009, U.S. Pacific Fleet discovered that the number of NIXIE hours actually used exceeded the number of hours authorized. The quantity of hours used is contained in classified appendix to this report.

A discussion of the additional marine mammal exposures this increased training may have contributed in 2009 is contained in the Navy's 2010 SOCAL Range Complex LOA renewal application. Given new information on the planned Fleet utilization of NIXIE that was not previously available, the Navy will also request a revised authorization for 2010 to 2013 for the AN/SLQ-25 NIXIE as described in the SOCAL Range Complex 2010 LOA renewal application.

(ii) Cumulative Impact Report

FROM NMFS Final Rule: "*To the extent practical, the Navy shall develop and implement a method of annually reporting non-major training exercises utilizing hull-mounted sonar. This section shall report an annual (and seasonal, where practicable), depiction of non-major training exercises geographically across the range complex*."


Surface ship sonar station (US Navy photograph).

The annual quantity in hours and breakdown by system of hull-mounted sonar use in the SOCAL Range Complex during non-major training events is presented in the classified appendix. The majority of this MFAS occurred during short-duration unit-level training (ULT). ULT is typically a single ship event that normally only lasts for several hours at a time.

(3) SOCAL- SINKEX Summary

Based on the reporting requirements in the SOCAL Range Complex Final Rule (NMFS 2009b) the below information on Sinking Exercises is submitted for events between January to 01 August 2009. Specific reporting requirements include:

(i) Exercise information (for each SINKEX)

(ii) Individual marine mammal observation

There were <u>no</u> SINKEXs conducted in the SOCAL Range Complex between Jan to 01 Aug 2009. No SINKEXs are planned from 02 Aug 2009 through 20 Jan 2010.

(4) SOCAL- IEER Summary

The annual summary of use within the SOCAL Range Complex for Improved Extended Echo-Ranging System (IEER) sonobuoys is deemed classified. Date requested from the Navy is contained in the classified appendix to this report.

Reporting elements will include (i) Total number of IEER events; (ii) Total expended/detonated rounds (buoys); and (iii) Total number of self-scuttled IEER rounds (buoys).

Within the SOCAL Range Complex in 2009, the Navy experienced an increase use of IEER sonobuoys. In January 2009, NMFS authorized 108 combined use of IEER and/or Advanced Extended Echo Ranging (AEER) sonobuoys per year for the SOCAL Range Complex based on the preliminary estimate available at the time of original Navy submission. As of 1 August 2009, U.S. Pacific Fleet discovered that the number of IEER sonobuoys expended this authorization. The quantity of IEER sonobuoys used through 01 Aug 09 is contained in classified appendix to this report. There was no training deployment of IEER in the SOCAL Range Complex through 01 August 2009 and all IEER use was from lot acceptance testing described below.

The IEER uses a paired active and passive sonobuoy arrangement. During training events, IEERs sonobuoys are typically deployed from fixed-wing maritime patrol aircraft (turboprop P-3 Orion and future 737-airframe P-8 Poseidon) to conduct large area searches for submarines as part of anti-submarine warfare training. There are two sonobuoys deployed in pairs as part of an overall larger pattern of active

and passive sonobuoys. Of the active\passive pair comprising the IEER system, one sonobuoy (AN/SSQ-110A) uses a small (<5-lb) explosive source to generate a sound equivalent to a "ping". The IEER has two explosive line charges (The other sonobuoy in the IEER pair is passive only, and receives any return echoes from a potential underwater target). Both active and passive sonobuoys are expendable and sink when done. The AN/SSQ-110A is command activated, meaning the aircraft issues a radio-frequency command for the explosive payload to deploy from the bottom of the surface floating sonobuoy to a designated operating depth < 75 feet. A second manual command is necessary in order for the deployed charge to detonate.

Lot acceptance quality assurance testing- In the original application for the SOCAL Range Complex LOA to NMFS, the Navy underestimated the amount of effort needed for sonobuoy lot acceptance quality assurance testing for the IEER. The IEER is no longer in production and the Navy is conducting re-engineering and modification to the existing inventory of IEERs to improve reliability.

The SOCAL Range Complex represents only location for the entire Navy's quality assurance testing of IEER sonobuoys. Lot acceptance testing ensures that batches of refurbished sonobuoys actually function as designed and meet required performance specifications.The Navy randomly selects 32 to 36 sonobuoys for testing from each lot of sonobuoys (lot size varies from 500 to 2,400 buoys). By providing critical data on sonobuoy performance under a variety of ocean conditions, acceptance testing allows detection of defects and assures reliability of refurbished sonobuoys before sending particular lots to the Fleet.

Lot acceptance testing is a short-term, infrequent event within the SOCAL Range Complex. For instance, from January to August 2009, there were only 8 cumulative days of sonobuoy lot acceptance tests (3 consecutive days in March 2009, 3 consecutive days in April, and 2 consecutive days in May).

Unlike training which can be conducted anywhere within the offshore waters of the SOCAL Range Complex, lot acceptance testing occurs over a relatively small time (2-3 hours per test event) within a limited geographic area 20 nm south of San Clemente Island. The actual area used for sonobuoy test drops is typically less than a quarter mile long. Water depth at this location is over 4,600 feet. Sonobuoys can be deployed (i.e., dropped) from either a boat, helicopter, or fixed-wing aircraft during lot acceptance testing. The deployment platform used is variable depending on availability. While the deployment platform drops the sonobuoys within the lot acceptance test area, a surface vessel other than the deployment platform is used to visually monitor for marine mammal mitigation, and passively to act as a receiver for active sonobuoy test signals. A set of four sonobuoys are deployed approximately 225 feet apart in a line parallel to the monitoring surface vessel. All four buoys are sequentially tested before another set of buoys is deployed. Sonobuoys that work correctly sink after testing, while malfunctioning sonobuoys are retrieved (once explosive ordnance has been released) for failure analysis.

In contrast with the IEER, AEER sonobuoys were not used in the SOCAL Range Complex during this reporting period and none are anticipated for the remainder of 2009.

A discussion of the additional marine mammal exposures this many have contributed in 2009 is contained in the SOCAL Range Complex 2010 LOA renewal application. In addition, based on new information from the classified appendix of this report, the Navy will request a revised annual authorization to cover increased IEER training and lot acceptance testing as described in the SOCAL Range Complex 2010 LOA renewal application.

(5) SOCAL- Explosives Summary

The Navy is in the process of improving the methods used to track explosive use within each range complex. Therefore, NMFS requested that the Navy report to the maximum extent practicable as defined in the SOCAL Range Complex Final Rule (NMFS 2009b). The summary for *maritime explosive* use within the SOCAL Range Complex is presented below.

(i) Total annual number of each type of explosive exercises

(of those identified as part of the "specified activity" under **§216.270** NMFS 2009b):

Authorized Exercise §216.270 (c)(2)(ii)	Total Annual	Amt. Annually Authorized [1]	% Total Used To Total Authorized
(A) Surface-to-surface Gunnery Exercise (S-S- GUNNEX)	4	402	1%
(B) Air-to-surface Missile Exercise (A-S MISSILEX)	1	50	2%
(C) Bombing Exercise (BOMBEX)	1	40	3%
(D) Sinking Exercise (SINKEX)	0	2	0%
(E) EER/IEER/AEER Exercises	3	3	100%

[1] as specified in NMFS 2009b (SOCAL Final Rule)

(ii) Total annual expended/detonated rounds for each explosive type

(missile, bomb, etc.):

Underwater Explosives §216.270 (c)(2)(i)	Number
(A) 5" naval gunfire rounds	25
(B) 76 mm naval gunfire rounds	51
(C) Maverick missiles	1
(D) Harpoon missiles	0
(E) Mk-82 aerial bombs	1
(F) Mk-83 aerial bombs	0
(G) Mk-84 aerial bombs	0
(H) Mk-48 torpedoes (detonations)	0
(I) Demolition charges [1]	84
(J) EER/IEER explosive sonobuoys	356

[1] all 25-lb demo charges

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