



DEPARTMENT OF THE NAVY

COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090

Ser N01CE1/1218

04 Nov 09

Mr. Jim Lecky, Director
Office of Protected Resources
National Marine Fisheries Service (NMFS)
National Oceanic and Atmosphere Administration
B-SSMC3 Room 13821
1315 East West Highway
Silver Springs, MS 20910-3282

Dear Mr. Lecky:

On behalf Commander, U.S. Pacific Fleet, enclosed is the printed copy of the final revised Hawaii Range Complex (HRC) Letter of Authorization 2010 Renewal Application.

This report is submitted in accordance with the requirements of the HRC 12 January 2009 LOA authorization. The revised application reflects recommendations coming from the joint NMFS and Navy Adaptive Management Meeting held on 08 October 2008 in Washington, DC. An electronic copy of this document has been submitted to your staff.

Please extend my thanks to your staff for their continued support of the U.S. Navy's compliance process. We are available to meet with you or your staff should you have comments on the enclosed application or recommendations for future ones. My point of contact for this matter is Ms. Julie Rivers, 808-474-6391 or email: julie.rivers@navy.mil

Sincerely,

A handwritten signature in cursive script that reads "L. M. Foster".

L. M. FOSTER
Director, Fleet Environmental
By direction

1 **Request for Letter of Authorization Under**
2 **the Marine Mammal Protection Act**
3 **for Incidental Harassment Of Marine Mammals Resulting From**
4 **U.S. Navy Training and Research Activities In The**
5 **Hawaii Range Complex**

6
7 **Submitted By**
8 **Department of the Navy**
9 **Commander, United States Pacific Fleet**
10 **250 Makalapa Drive**
11 **Pearl Harbor, Hawaii 96860-3131**

12
13 **Submitted To**
14 **National Marine Fisheries Service**
15 **Office of Protected Resources**
16 **1315 East-West Highway**
17 **Silver Springs, Maryland 20910-3226**

18
19
20 **1 October 2009**

21
22 **FINAL**
23

24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

TABLE OF CONTENTS

TABLE OF CONTENTS.....i
LIST OF TABLES ii
LIST OF FIGURES ii
1. INTRODUCTION AND DESCRIPTION OF ACTIVITIES..... 1
2. DURATION AND LOCATION OF ACTIVITIES..... 6
3. MARINE MAMMAL SPECIES AND NUMBERS 7
4. AFFECTED SPECIES STATUS AND DISTRIBUTION 8
5. HARASSMENT AUTHORIZATION REQUESTED 9
6. NUMBERS AND SPECIES TAKEN..... 10
7. IMPACTS TO MARINE MAMMAL SPECIES OR STOCKS 15
8. IMPACTS ON SUBSISTENCE USE.....16
9. IMPACTS TO THE MARINE MAMMAL HABITAT AND THE LIKELIHOOD OF
RESTORATION..... 17
10. IMPACTS TO MARINE MAMMALS FROM LOSS OR MODIFICATION OF HABITAT 18
11. MEANS OF EFFECTING THE LEAST PRACTICABLE ADVERSE IMPACTS – MITIGATION
MEASURES 19
12. MINIMIZATION OF ADVERSE EFFECTS ON SUBSISTENCE USE..... 21
13. MONITORING AND REPORTING MEASURES..... 22
14. RESEARCH..... 30
15. LIST OF PREPARERS..... 31
16. REFERENCES..... 32

46 **LIST OF TABLES**

47 Table 1. Timeline of key Hawaii Range Complex MMPA documents 1

48 Table 2. Revision to Table 2 "Estimated Annual use of each sonar source" from NMFS' 12 January 2009

49 HRC Final Rule..... 4

50 Table 3. Revision to Table 3 "Summary of Exercise Types with sonar or explosive use anticipated to

51 produce takes of marine mammals" from NMFS' 12 January Hawaii Range Complex Final Rule..... 5

52 Table 4. Exposures reported for 960 IEER/AEER Buoys in the Navy's Update #2 to the LOA (Table 6-5;

53 DoN, 2008b) 10

54 Table 5. Accurate Explosive Exposure Estimates for 960 IEER/AEER Buoys 11

55 Table 6. LOA Renewal Re-calculation of Estimated Explosive Exposures from all Sources in the Hawaii

56 Range Complex Resulting from Updated IEER/AEER Modeling 12

57 Table 7. Explosive Exposure Estimates from the Transition from IEER to AEER Buoys..... 13

58 Table 8. LOA Renewal Re-calculation of Estimated Explosive Exposures from all Sources in the Hawaii

59 Range Complex due to IEER to AEER Transition 14

60 Table 9. U.S. Navy funded marine mammal monitoring accomplishments within the Hawaii Range

61 Complex from August 2008 to August 2009 24

62 Table 10. Adaptive management review showing edits to FY10 monitoring proposed in HRC monitoring

63 plan..... **Error! Bookmark not defined.**

64 Table 11. Summary of 2010 Adaptive Management goals red-lined in Table 10.....26

65 **LIST OF FIGURES**

66 Figure 1. Subjective assessment of techniques for adaptive management review for 2009 SOCAL Range

67 Complex monitoring23

68 **ACRONYMS AND ABBREVIATIONS**

69

70	AEER	Advanced Extended Echo Ranging
71	AFAST	Atlantic Fleet Active Sonar Training
72	ASW	Anti-Submarine Warfare
73	BOMBEX	Bombing Exercise
74	CNO	Chief of Naval Operations
75	DoN	Department of the Navy
76	EER	Extended Echo Ranging
77	FEIS	Final Environmental Impact Statement
78	GUNEX	Gunnery Exercise
79	HARPS	High Frequency Acoustic Recording Packages
80	HIMB	Hawaii Institute of Marine Biology
81	HRC	Hawaii Range Complex
82	IEER	Improved Extended Echo Ranging
83	LOA	Letter of Authorization
84	MDSU	Mobile Diving and Salvage Unit
85	MFAS	Mid-frequency Active Sonar
86	MISSILEX	Missile Exercise
87	MMO	Marine Mammal Observer
88	MMPA	Marine Mammal Protection Act
89	MTE	Major Training Exercise
90	NAVAIR	Naval Air Systems Command
91	NMFS	National Marine Fisheries Service
92	OPAREA	Operating Area
93	PAM	Passive Acoustic Monitoring
94	PIFSC	Pacific Islands Fisheries Science Center
95	PIRO	Pacific Island Regional Office
96	PMRF	Pacific Missile Range Facility
97	SINKEX	Sinking Exercise
98	SOCAL	Southern California Range Complex
99	SOEST	School of Ocean and Earth Science and Technology
100	SCC	Submarine Commanders Course
101	ULT	Unit Level Training

102 **1. INTRODUCTION AND DESCRIPTION OF ACTIVITIES**

103 Under the provisions of the Marine Mammal Protection Act of 1972 (MMPA), this document is the
 104 annual renewal Application to the National Marine Fisheries Service (NMFS) for a Letter of
 105 Authorization (LOA) ¹ for incidental harassment of marine mammals from U.S. Navy (Navy) training
 106 and research ² activities in the Hawaii Range Complex (HRC).

107 This LOA renewal is being sought to cover the period from January 2010 to January 2011 to cover the
 108 taking of marine mammals, as described by the MMPA, incidental to training and research² within the
 109 Hawaii Range Complex. The LOA will not address activities designated for armed conflict or direct
 110 combat support operations, nor during periods of heightened national threat conditions, as determined by
 111 the President and Secretary of Defense or their duly designated alternatives or successors, as assisted by
 112 the Chairman of the Joint Chiefs of Staff.

113 The U.S. Navy has been training as well as conducting research ² in the area now defined as the Hawaii
 114 Range Complex for over 100 years. The table below shows the MMPA permit documentation applicable
 115 to the Hawaii Range Complex and NMFS’ authorization (**Table 1**). Information contained in these
 116 references provide a complete description of the background for the Navy’s request, overview of the
 117 Hawaii Range Complex, and description of the specified activities, description of marine mammals in the
 118 area, discussion of potential effects or lack of effects of specified activities on marine mammal, mitigation,
 119 marine mammal monitoring, and associated reporting. The descriptions contained in these references have
 120 not changed, except as where noted in this application renewal.

121 **Table 1. Timeline of key Hawaii Range Complex MMPA documents**

Timeline Date	From	Event	Reference
25 Jun 07	Navy	Letter Of Authorization Application (request for Incidental Harassment For Hawaii Range Complex) submitted to NMFS Office of Protected Resources	DoN 2007
25 Feb 08	Navy	Letter of Authorization Application Update submitted to NMFS Office of Protected Resources	DoN 2008a
2 May 08	Navy	Letter of Authorization Update #2 submitted electronically to NMFS Office of Protected Resources	DoN 2008b
09 May 08	Navy	Hawaii Range Complex Environmental Impact Statement\Overseas Environmental Impact Statement- Final May 2008 published	DoN 2008c
23 Jun 08	NMFS	Taking and Importing Marine Mammals; U.S. Navy Training In Hawaii Range Complex; Proposed Rule published in Federal Register (73 FR 35510)	NMFS 2008
08 Jan 09	NMFS	Letter of Authorization take marine mammals incidental to Navy exercises conducted in Hawaii Range Complex issued	NMFS 2009a
12 Jan 09	NMFS	Taking and Importing Marine Mammals; U.S. Navy Training In Hawaii Range Complex; Final Rule published in Federal Register (74 FR 1456)	NMFS 2009b

¹ under Section 101 (a)(5)(A) of the MMPA

² Research is an informal designation for “research, development, testing, and evaluation (RDT&E)” as described by the Navy and NMFS in the references cited above

122 The below sections discuss items that reflect changes from the Navy’s April 2008 LOA application, and
123 NMFS’ Final Rule of 12 January 2009 for the Hawaii Range Complex:

124 **A. Change from original LOA application (and subsequent updates) and Final Rule: Nomenclature**
125 **corrections**

126 In order for the Hawaii Range Complex LOA to be consistent with other U.S. Navy Range Complex
127 MMPA Final Rules, the usage of the following like or similar sound sources (i.e. similar frequency or
128 source levels as a sound source specifically authorized in the HRC MMPA Final Rule) is requested.
129 Stated differently, although a particular sound source may have a different name than what is used in the
130 Final Rule, its environmental affects are similar to or have less effect than the source named in the Final
131 Rule. Specifically, the following sonar systems and explosives are considered as like sources for purposes
132 of reporting sonar and explosive usage in this report and should be inserted into Table 2 and Table 3 of
133 the Final Rule:

- 134 1. AQS-22 is representative of all helicopter dipping sonar, AQS-22 source level is higher than the AQS-
135 13F.*
- 136 2. MK-48 is used as a surrogate for MK-46/MK-54. MK-48 sonar source level and net explosive
137 weight is higher than the MK-46/MK-54 and thus have a lesser environmental affect than the Mk-48.*
- 138 3. The BQQ-10 is used as a surrogate for the BQQ-5. **
- 139 4. The SSQ-125 AEER will replace the SSQ-110A IEER system, so a total of 960 buoys (IEER or AEER)
140 will be deployed.

141 * Included in the Southern California Range Complex Final Rule.

142 ** Included in the Atlantic Fleet Active Sonar Training (AFAST) Final Rule.

143
144 **B. Change from original LOA application (and subsequent updates) and Final Rule: Reporting**
145 **Error of IEER Exposures resulting in Level B harassment**

146 During the initial reporting and subsequent documentation of explosive ordnance modeling, the Navy
147 submitted an error in calculating the number of exposures resulting from the use of 960 IEER buoys. The
148 exposure numbers for IEER contained within the Navy’s Update #2 to the Request for Letter of
149 Authorization for the Incidental Harassment of Marine Mammals (DoN, 2008b) were actually the results
150 of modeling with an increased number (3600) of buoys, which were reflective of the number of buoys
151 which could have been deployed if Alternative 1 or 2 were selected. The number of exposures from
152 utilizing 3600 IEER buoys are 35 TTS exposures, and 3 PTS exposures. These figures were reported for
153 the deployment of 960 IEER buoys, in the Navy’s Update #2 to the LOA, and NMFS’s Final Rule. The
154 appropriate modeling of 960 IEER buoys indicates that only 9 TTS exposures would result. A complete
155 representation of the modeling and resulting decrease in requested takes for IEER use are presented in
156 Chapter 6.

157

158 **C. Change from Previous: IEER Transition to AEER system**

159 Navy is developing the Advanced Extended Echo Ranging (AEER) system as a replacement to the IEER
160 system. The proposed AEER system is operationally similar to the existing IEER system. AEER will still
161 use the passive ADAR (AN/SSQ-101) sonobuoy as the systems acoustic receiver and will be deployed by
162 Maritime Patrol Aircraft. However, instead of using an explosive AN/SSQ-110A as an impulsive source
163 for the active acoustic wave, the AEER will use a battery powered tonal source, the new active AN/SSQ-
164 125 sonobuoy. The AEER sonobuoy is intended to replace the IEER’s use of explosives and is scheduled
165 to enter the Fleet in FY10. As AEER is introduced for Fleet use, IEER will be removed. The same total

166 number of buoys will be deployed as were presented in the Final Rule, but a subset of them will be AEER
167 instead of IEER.

168 For the purposes of analysis, replacement of the IEER system by the AEER system will be assumed to
169 occur at 25% per year as follows: 2010 – up to ~ 25% replacement; 2011- up to ~ 50% replacement; 2012
170 – up to ~ 75% replacement; and from 2013 to 2015 – up to ~ 100% replacement, with no further use of
171 the IEER system after 2015. The acoustic impact analysis for the AN/SSQ-125 in this document assumes
172 a similar per-buoy effect as that modeled for the AN/SSQ-110A. This is based on a conversion factor
173 derived from transitioning the IEER system to the AEER system in the AFAST study area. The resulting
174 re-modeling of twenty five percent (25%) of the IEER buoys (and their associated exposures) to AEER
175 buoys does not ultimately result in any quantifiable change in marine mammals takes. A complete
176 presentation of this analysis is covered in Chapter 6. Since there is no difference to the requested marine
177 mammal takes as a result of the Navy’s transition to AEER, and the two buoy systems are operationally
178 consistent, this small change does not ultimately affect NMFS’ analysis of and conclusions regarding the
179 proposed action.

180 **Table 2. Revision to Table 2 "Estimated Annual use of each sonar source" from NMFS' 12 January 2009 HRC Final Rule**
 181 Changes indicated in red underline.

Sonar Type	Description of Sonar	Source Depth	Center Freq (kHz)	Source Level (dB)	Spacing (m)*	Vertical Directivity	Horizontal Directivity	Units per Hour	Total Amount per Year
MK-48*	Torpedo	27	>10	classified	144	Omni	Omni	one torpedo run	313
AN/SQS-53	Surface Ship	7	3.5	235	154	Omni	240° Forward	120 pings	1284
AN/SQS-56	Surface Ship	7	7.5	225	154	Omni	30° Forward	120 pings	383
AN/SSQ-62	Sonobuoy	27	8	201	450	Omni	Omni	8 sonobuoys	2423
AN/AQS-22**	Helo Dipping	27	4.1	217	15	Omni	Omni	2 dips	1010
AN/BQQ-10***	Submarine	91	classified	classified	n/a	Omni	Omni	2 pings	200

Table 2. Parameters used for modeling the six sonar sources and the estimated annual operation. Many of the actual parameters and capabilities of these sonars are classified. Parameters used for modeling were derived to be as representative as possible. When, however, there were a wide range of potential modeling values, a nominal parameter likely to result in the most impact was used so that the model would err towards overestimation.

*Spacing means distance between pings at the nominal speed.

*MK-48 used as a surrogate for MK-46/MK-54 in modeling; MK-48 source level is higher than the MK-46/MK-54 and thus they have a lesser environmental affect.

**AN/AQS-22 is representative of all helicopter dipping sonar; AN/AQS-22 source level is higher than AN/AQS-13E.

*** AN/BQQ-10 is used as a surrogate for the AN/BQQ-5; system parameters are similar

182 **Table 3. Revision to Table 3 "Summary of Exercise Types with sonar or explosive use anticipated to produce takes of marine mammals" from**
 183 **NIMFS" 12 January Hawaii Range Complex Final Rule. Changes indicated in red underline.**
 184

Training Operation	Explosive Sources	Location Where Exercises May be Conducted	Time of Year Conducted	Number Of Training Events per/year	Average Length of Exercise (hrs)	Number of Rounds per/year
Mine Neutralization	1 to 20-lb Demolition charge	Puuloa Underwater Range, Lima Landing, Naval Inactive Ship Maintenance Facility, MCBH, MCTAB, Barbers Point Range, Ewa Training Minefield	Anytime	68	6	68
A-S MISSILEX	Penguin Maverick	Pacific Missile Range Facility (W-188)	Anytime	50	5.5	50
S-S MISSILEX	Harpoon	Pacific Missile Range Facility (W-188)	Anytime	12	5	75
BOMBEX	Mk82, Mk83, Mk84,	Hawaii OpArea	Anytime	38	6	38
SINKEX	Multiple sources as described in narrative	Hawaii OpArea	Anytime	6	14.5	6
S-S GUNNEX	5 inch round, 76-mm round	Warning Areas W-191, 192, 193, 194, 196 and Mela	Anytime	91	3.5	3822
Naval Surface Fire Support	5 inch round, 76-mm round	Warning Area W-188	Anytime	28	8.1	644
IEER/AEER*	SSQ-110A/SSQ-125 Sonobuoy	Hawaii OpArea	Anytime	4	4 to 8	960

185 Table 3. Summary of the location, duration, time of year, and nature of the exercises involving underwater demolitions.

186 *SSQ-125 AEER tonal sonobuoy is replacing the SSQ-110A IEER explosive source sonobuoy: a total of 960 buoys (combination IEER or AEER)
 187 will be deployed.

188 **2. DURATION AND LOCATION OF ACTIVITIES**

189 There are no changes to Chapter 2 as described under the Navy’s original July 2007 Request for Letter of
190 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
191 Rule (NMFS 2009b), except as noted below.

192 Training using SSQ-110A IEER and SSQ-125 AEER sonobuoys would occur at locations within the
193 Hawaii Range Complex where other sonobuoys would typically be used, predominantly within the
194 Hawaii Operating Area. These locations are the same anti-submarine warfare training areas described in
195 the Navy’s July 2007 Request, and subsequent NMFS June 2008 Proposed Rule, and January 2009 Final
196 Rule (DoN 2007, NMFS 2008, NMFS 2009b).

197 **3. MARINE MAMMAL SPECIES AND NUMBERS**

198 There are no changes to Chapter 3 as described under the Navy’s original July 2007 Request for Letter of
199 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
200 Rule (NMFS 2009b).

201 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

202 **4. AFFECTED SPECIES STATUS AND DISTRIBUTION**

203 There are no changes to Chapter 4 as described under the Navy’s original July 2007 Request for Letter of
204 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
205 Rule (NMFS 2009b).

206 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

207 **5. HARASSMENT AUTHORIZATION REQUESTED**

208 There are no changes to Chapter 5 as described under the Navy’s original July 2007 Request for Letter of
209 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
210 Rule (NMFS 2009b).

211 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

212

213

214 **6. NUMBERS AND SPECIES TAKEN**

215 There are no changes to Chapter 6 as described under the Navy’s original July 2007 Request for Letter of
 216 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
 217 Rule (NMFS 2009b), except as where noted below.

218 **A. Corrected Exposure Estimates for the Deployment of 960 IEER Buoys**

219 During the initial reporting and subsequent documentation of explosive ordnance modeling, the Navy
 220 submitted an error in calculating the number of exposures resulting from the use of 960 IEER buoys. The
 221 exposure estimates reported for the usage of 960 IEER buoys in Table 6-5 of the Navy’s Update #2 to the
 222 LOA (DoN, 2008b) and a subset of the exposures reported in Table 6 of NMFS’ Final Rule (NMFS,
 223 2009b) were actually the modeling results of utilizing 3600 IEER buoys. Table 4, depicts the exposure
 224 estimates which were initially reported. Table 5 is the accurate exposure estimates resulting from
 225 modeling 960 IEER buoys. As such, the Navy’s authorization request due to IEER usage will decrease
 226 from 38 exposures (35 TTS, 3 PTS) to 9 exposures (all TTS).

227 **Table 4. Exposures reported for 960 IEER Buoys in the Navy's Update #2 to the LOA (Table 6-5; DoN,**
 228 **2008b)**

Species	Total Estimated Exposures to Indicated MMPA Harassment Levels from Explosive Detonations		
	Level B Harassment	Level A Harassment	Mortality
Byrde’s whale	0	0	0
Fin whale	0	0	0
Sei whale	0	0	0
Minke whale	0	0	0
Humpback whale	5	1	0
Sperm whale	1	0	0
Dwarf sperm whale	5	0	0
Pygmy sperm whale	2	0	0
Cuvier’s beaked whale	1	0	0
Longman’s beaked whale	0	0	0
Blainville’s beaked whale	1	0	0
Unidentified beaked whale	0	0	0
Bottlenose dolphin	1	0	0
False killer whale	0	0	0
Killer whale	0	0	0
Pygmy killer whale	0	0	0
Short-finned pilot whale	2	0	0
Risso’s dolphin	1	0	0
Melon-headed whale	1	0	0
Rough-toothed dolphin	2	0	0
Fraser’s dolphin	3	0	0
Pantropical spotted dolphin	3	1	0
Spinner dolphin	1	0	0
Striped dolphin	4	1	0
Monk seal	2	0	0
Total	35	3	0

229 **Table 5. Accurate Explosive Exposure Estimates for 960 IEER Buoys. Changes shown in red underline**

Species	Total Estimated Exposures to Indicated MMPA Harassment Levels from Explosive Detonations		
	Level B Harassment	Level A Harassment	Mortality
Byrde’s whale	0	0	0
Fin whale	0	0	0
Sei whale	0	0	0
Minke whale	0	0	0
Humpback whale	<u>1</u>	<u>0</u>	0
Sperm whale	<u>0</u>	0	0
Dwarf sperm whale	<u>1</u>	0	0
Pygmy sperm whale	<u>1</u>	0	0
Cuvier’s beaked whale	<u>0</u>	0	0
Longman’s beaked whale	0	0	0
Blainville’s beaked whale	<u>0</u>	0	0
Unidentified beaked whale	0	0	0
Bottlenose dolphin	<u>0</u>	0	0
False killer whale	0	0	0
Killer whale	0	0	0
Pygmy killer whale	0	0	0
Short-finned pilot whale	<u>1</u>	0	0
Risso’s dolphin	<u>0</u>	0	0
Melon-headed whale	<u>0</u>	0	0
Rough-toothed dolphin	<u>1</u>	0	0
Fraser’s dolphin	<u>1</u>	0	0
Pantropical spotted dolphin	<u>1</u>	<u>0</u>	0
Spinner dolphin	<u>0</u>	0	0
Striped dolphin	<u>1</u>	<u>0</u>	0
Monk seal	<u>1</u>	0	0
Total	<u>9</u>	<u>0</u>	0

230

231 **Table 6. LOA Renewal Re-calculation of Estimated Explosive Exposures from all Sources in the Hawaii**
 232 **Range Complex Resulting from Updated IEER Modeling**

Species	From NMFS Final Rule 12 January 2009				Proposed Changed Exposures Per This Renewal Application			
	Level B sub-TTS	Level B TTS	Level A	Mortality	Level B sub-TTS	Level B TTS	Level A	Mortality
Bryde’s whale	0	0	0	0	0	0	0	0
Fin whale	0	0	0	0	0	0	0	0
Sei whale	0	0	0	0	0	0	0	0
Minke whale	0	0	0	0	0	0	0	0
Humpback whale	5	12	1	0	5	<u>8</u>	<u>0</u>	0
Sperm whale	9	5	0	0	9	<u>4</u>	0	0
Dwarf sperm whale	13	13	0	0	13	<u>9</u>	0	0
Pygmy sperm whale	4	5	0	0	4	<u>4</u>	0	0
Cuvier’s beaked whale	16	8	0	0	16	<u>7</u>	0	0
Longman’s beaked whale	0	0	0	0	0	0	0	0
Blainville’s beaked whale	2	2	0	0	2	<u>1</u>	0	0
Unidentified beaked whale	0	0	0	0	0	0	0	0
Bottlenose dolphin	0	1	0	0	0	<u>0</u>	0	0
False killer whale	0	0	0	0	0	0	0	0
Killer whale	0	0	0	0	0	0	0	0
Pygmy killer whale	0	0	0	0	0	0	0	0
Short-finned pilot whale	2	5	0	0	2	<u>4</u>	0	0
<u>Risso’s dolphin</u>	0	1	0	0	0	<u>0</u>	0	0
Melon-headed whale	0	1	0	0	0	<u>0</u>	0	0
Rough-toothed dolphin	2	4	0	0	2	<u>3</u>	0	0
<u>Fraser’s dolphin</u>	6	6	0	0	6	<u>4</u>	0	0
Pantropical spotted dolphin	0	5	1	0	0	<u>3</u>	<u>0</u>	0
Spinner dolphin	2	2	0	0	2	<u>1</u>	0	0
Striped dolphin	2	7	1	0	2	<u>4</u>	<u>0</u>	0
Monk seal	0	3	0	0	0	<u>2</u>	0	0
Total	62	80	3	0	62	<u>54</u>	<u>0</u>	0

233 *Changes due to appropriate modeling of 960 IEER buoys shown in red underline.
 234

235 **B. Exposures From IEER\AEER Transition**

236 As SSQ-125 (AEER) sonobuoys are being introduced for Fleet use, the use of SSQ-110A (IEER)
 237 sonobuoys will be decreased. The same total number of buoys (960) per year will be deployed as
 238 presented in the proposed rule, but a subset of them will be AEER instead of IEER. In order to assess the
 239 effect of transitioning 25% (or 240 buoys) of the IEER to AEER in FY10, the Navy utilized modeling
 240 results from the AFAST study area. Modeling indicated that a conversion factor of approximately 1.024
 241 was necessary to convert the total number of exposures from IEER to AEER as a result of their
 242 differential active systems; the IEER utilizes an impulsive AN/SSQ-110A buoy while the AEER utilizes a
 243 tonal AN/SSQ-125 buoy.³ Use of SSQ-125 (AEER) sonobuoys instead of SSQ-110A sonobuoys within
 244 the Hawaii Range Complex ultimately does not result in a quantifiable change to the Navy’s exposure
 245 estimates for IEER usage, as outlined in Table 7. As discussed in the prior section, Table 5 is meant to

³ The AFAST FEIS modeling indicated a complete transition of all buoys from IEER to AEER would result in an increase from 827 exposures to 847 exposures, indicating a conversion factor of approximately 1.024.

246 replace those exposure estimates (38 total; 35 TTS and 3 PTS) requested in the Navy’s original LOA
 247 application and those outlined in the NMFS’ Final Rule (NMFS 2009b) for IEER use.
 248

249 **Table 7. Explosive Exposure Estimates from the Transition from IEER to AEER Buoys in FY10**

Species	Total Estimated Exposures to Indicated MMPA Harassment Levels from Explosive Detonations		
	Level B Harassment	Level A Harassment	Mortality
Byrde’s whale	0	0	0
Fin whale	0	0	0
Sei whale	0	0	0
Minke whale	0	0	0
Humpback whale	1	0	0
Sperm whale	0	0	0
Dwarf sperm whale	1	0	0
Pygmy sperm whale	1	0	0
Cuvier’s beaked whale	0	0	0
Longman’s beaked whale	0	0	0
Blainville’s beaked whale	0	0	0
Unidentified beaked whale	0	0	0
Bottlenose dolphin	0	0	0
False killer whale	0	0	0
Killer whale	0	0	0
Pygmy killer whale	0	0	0
Short-finned pilot whale	1	0	0
Risso’s dolphin	0	0	0
Melon-headed whale	0	0	0
Rough-toothed dolphin	1	0	0
Fraser’s dolphin	1	0	0
Pantropical spotted dolphin	1	0	0
Spinner dolphin	0	0	0
Striped dolphin	1	0	0
Monk seal	1	0	0
Total	9	0	0

250
 251
 252
 253
 254
 255
 256
 257
 258
 259

260 **Table 8. LOA Renewal Re-calculation of Estimated Explosive Exposures from all Sources in the Hawaii**
 261 **Range Complex due to IEER to AEER Transition**

Species	From NMFS Final Rule 12 January 2009				Proposed Changed Exposures Per This Renewal Application			
	Level B sub-TTS	Level B TTS	Level A	Mortality	Level B sub-TTS	Level B TTS	Level A	Mortality
Bryde’s whale	0	0	0	0	0	0	0	0
Fin whale	0	0	0	0	0	0	0	0
Sei whale	0	0	0	0	0	0	0	0
Minke whale	0	0	0	0	0	0	0	0
Humpback whale	5	12	1	0	5	<u>8</u>	<u>0</u>	0
Sperm whale	9	5	0	0	9	<u>4</u>	0	0
Dwarf sperm whale	13	13	0	0	13	<u>9</u>	0	0
Pygmy sperm whale	4	5	0	0	4	<u>4</u>	0	0
Cuvier’s beaked whale	16	8	0	0	16	<u>7</u>	0	0
Longman’s beaked whale	0	0	0	0	0	0	0	0
Blainville’s beaked whale	2	2	0	0	2	<u>1</u>	0	0
Unidentified beaked whale	0	0	0	0	0	0	0	0
Bottlenose dolphin	0	1	0	0	0	<u>0</u>	0	0
False killer whale	0	0	0	0	0	0	0	0
Killer whale	0	0	0	0	0	0	0	0
Pygmy killer whale	0	0	0	0	0	0	0	0
Short-finned pilot whale	2	5	0	0	2	<u>4</u>	0	0
<u>Risso’s dolphin</u>	0	1	0	0	0	<u>0</u>	0	0
Melon-headed whale	0	1	0	0	0	<u>0</u>	0	0
Rough-toothed dolphin	2	4	0	0	2	<u>3</u>	0	0
<u>Fraser’s dolphin</u>	6	6	0	0	6	<u>4</u>	0	0
Pantropical spotted dolphin	0	5	1	0	0	<u>3</u>	<u>0</u>	0
Spinner dolphin	2	2	0	0	2	<u>1</u>	0	0
Striped dolphin	2	7	1	0	2	<u>4</u>	<u>0</u>	0
Monk seal	0	3	0	0	0	<u>2</u>	0	0
Total	62	80	3	0	62	<u>54</u>	<u>0</u>	0

262 *Changes in explosive exposures due to the transition of 25% of IEER buoys to AEER shown in red
 263 underline.
 264

265 **7. IMPACTS TO MARINE MAMMAL SPECIES OR STOCKS**

266 There are no changes to Chapter 7 as described under the Navy’s original July 2007 Request for Letter of
267 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
268 Rule (NMFS 2009b), except as where noted below.

269 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

270

271

272

273 **8. IMPACT ON SUBSISTENCE USE**

274 There are no changes to Chapter 8 as described under the Navy’s original July 2007 Request for Letter of
275 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
276 Rule (NMFS 2009b).

277 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

278 **9. IMPACTS TO THE MARINE MAMMAL HABITAT AND THE LIKELIHOOD OF**
279 **RESTORATION**

280 There are no changes to Chapter 9 as described under the Navy’s original July 2007 Request for Letter of
281 Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
282 Rule (NMFS 2009b).

283 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

284 **10. IMPACTS TO MARINE MAMMALS FROM LOSS OR MODIFICATION OF**
285 **HABITAT**

286 There are no changes to Chapter 10 as described under the Navy’s original July 2007 Request for Letter
287 of Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
288 Rule (NMFS 2009b).

289 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

290 **11. MEANS OF EFFECTING THE LEAST PRACTICABLE ADVERSE IMPACTS –**
291 **MITIGATION MEASURES**

292 There are no changes to Chapter 11 as described under the Navy’s original July 2007 Request for Letter
293 of Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
294 Rule (NMFS 2009b).

295 **A. IEER\AEER Mitigation**

296 There are no changes proposed to IEER\AEER mitigation.

297 Marine mammal mitigation measures for use of IEER during Navy training events in HRC are described
298 in NMFS’ June 2008 Proposed Rule⁴ (NMFS 2008), NMFS’ January 2009 Final Rule⁵ (NMFS 2009b),
299 and repeated below.

300 **Mitigation Measures Previously Promulgated in NMFS Final Rule (NMFS 2009b)**

301 A discussion of mitigation in terms of the IEER sonobuoy is presented to recap the Navy’s current
302 mitigation for these training and testing events. Below is the current HRC Range Complex IEER and
303 AEER mitigation from the NMFS’ 12 January Final Rule⁶ (NMFS 2009b):

304 *Extended Echo Ranging/Improved Extended Echo Ranging (IEER/AEER):*

305 (i) Crews shall conduct visual reconnaissance of the drop area prior to laying their intended sonobuoy
306 pattern. This search shall be conducted at an altitude below 457 m (500 yd) at a slow speed, if
307 operationally feasible and weather conditions permit. In dual aircraft operations, crews are allowed to
308 conduct coordinated area clearances.

309 (ii) Crews shall conduct a minimum of 30 minutes of visual and acoustic monitoring of the search area
310 prior to commanding the first post detonation. This 30-minute observation period may include pattern
311 deployment time.

312 (iii) For any part of the briefed pattern where a post (source/receiver sonobuoy pair) will be deployed
313 within 914 m (1,000 yd) of observed marine mammal activity, the Navy shall deploy the receiver ONLY
314 and monitor while conducting a visual search. When marine mammals are no longer detected within
315 1,000 yards (914 m) of the intended post position, the Navy shall co-locate the explosive source sonobuoy
316 (AN/SSQ–110A) (source) with the receiver.

317 (iv) When able, Navy crews will conduct continuous visual and aural monitoring of marine mammal
318 activity. This is to include monitoring of own-aircraft sensors from first sensor placement to checking off
319 station and out of RF range of these sensors.

320 (v) Aural Detection: If the presence of marine mammals is detected aurally, then that shall cue the Navy
321 aircrew to increase the diligence of their visual surveillance. Subsequently, if no marine mammals are
322 visually detected, then the crew may continue multi-static active search.

323 (vi) Visual Detection:

324 A. If marine mammals are visually detected within 1,000 yards (914 m) of the explosive source sonobuoy
325 (AN/SSQ–110A) intended for use, then that payload shall not be detonated. Aircrews may utilize this post
326 once the marine mammals have not been re-sighted for 30 minutes, or are observed to have moved
327 outside the 1,000 yard (914 m) safety buffer.

⁴ See §216.174 in 73 FR 33510, page 35573 (NMFS 2008)

⁵ See §216.174 in 74 FR 1456, page 1488 (NMFS 2009b)

⁶ See §216.174 in 74 FR 1456, page 1488 (NMFS 2009b)

328 B. Aircrews may shift their multi-static active search to another post, where marine mammals are outside
329 the 1,000 yard (914 m) safety buffer.

330 (vii) Aircrews shall make every attempt to manually detonate the unexploded charges at each post in the
331 pattern prior to departing the operations area by using the “Payload 1 Release” command followed by
332 the “Payload 2 Release” command. Aircrews shall refrain from using the “Scuttle” command when two
333 payloads remain at a given post. Aircrews will ensure that a 1,000 yard (914 m) safety buffer, visually
334 clear of marine mammals, is maintained around each post as is done during active search operations.

335 (viii) Aircrews shall only leave posts with unexploded charges in the event of a sonobuoy malfunction, an
336 aircraft system malfunction, or when an aircraft must immediately depart the area due to issues such as
337 fuel constraints, inclement weather, and in-flight emergencies. In these cases, the sonobuoy will self-
338 scuttle using the secondary or tertiary method.

339 (ix) The Navy shall ensure all payloads are accounted for. Explosive source sonobuoys (AN/SSQ-110A)
340 that can not be scuttled shall be reported as unexploded ordnance via voice communications while
341 airborne, then upon landing via naval message.

342 (x) Marine mammal monitoring shall continue until out of own-aircraft sensor range.

343 **12. MINIMIZATION OF ADVERSE EFFECTS ON SUBSISTENCE USE**

344 There are no changes to Chapter 12 as described under the Navy’s original July 2007 Request for Letter
345 of Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
346 Rule (NMFS 2009b).

347 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

348 **13. MONITORING AND REPORTING MEASURES**

349 There are no changes to Chapter 13 as described under the Navy’s original July 2007 Request for Letter
350 of Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
351 Rule (NMFS 2009b), except as where noted below.

352 **A. FY09 (August 1, 2008 to August 1, 2009) Marine Mammal Monitoring Accomplishments.**

353 In the HRC monitoring plan, the Navy proposed to implement a diversity of field methods to gather field
354 data from marine mammals and sea turtles in conjunction with training events. Studies were specifically
355 designed to meet the questions outlined in the Introduction section of this document. Metrics (e.g. hours
356 or events) were agreed to by Navy and NMFS and used as a goal for implementation.

357 During the study year (August to August), U.S. Pacific Fleet implemented aerial and vessel surveys,
358 deployed marine mammal observers on Navy platforms and purchased passive acoustic recording devices.
359 Much of this work was a continuation of U.S. Pacific Fleet -funded field work that has occurred in the
360 Hawaiian Islands since the Rim of the Pacific (RIMPAC) exercise in 2006.

361 All metrics outlined in the HRC monitoring plan were met or exceeded – a significant achievement for
362 the first year. Additional successes included design and implementation of aerial surveys conducting
363 elliptical transects in close proximity (~200-2,500 yds) to Navy surface vessels as well as three types of
364 surveys conducted in close proximity to underwater detonations (DoN 2008d).

365 There were also additional monitoring efforts within HRC that were funded by the Environmental
366 Readiness Division of the Chief of Naval Operations (CNO N45) and the Office of Naval Research
367 (ONR). Detailed results and major milestones from the Navy’s Compliance Monitoring (U.S. Pacific
368 Fleet), and Research and Development (R&D) monitoring (ONR/CNO N45) are presented in the Navy’s
369 HRC monitoring report (DoN 2009b).

370 A summary of Aug 2008 to Aug 2009 HRC monitoring major accomplishments are presented below and
371 in **Table 9**.

- 372 • Aerial Visual Survey
 - 373 ○ During two Submarine Commanders Course (SCC) training events, and one unit level
374 event, aerial surveys were conducted by non-Navy aircraft in close-proximity (e.g.
375 between 200 and 2,500 yards) to Navy surface vessels. For SCC, logistical challenges
376 were overcome by close coordination with PMRF range and P-3 pilots to allow for
377 survey aircraft to share airspace with P-3 and helicopters involved in several training
378 scenarios. This success proves that during certain training events specific to the HRC,
379 contracted aircraft can be used to conduct behavioral monitoring of submerged and at-
380 surface marine mammals during ASW and explosive training events.
 - 381 ○ Extended focal follows by airplane were performed for humpback whales, spinner
382 dolphins, and a whale shark. Focal groups are further explained in aerial survey
383 discussion.
 - 384 ○ A group of three humpback whales were tracked for a focal follow session near a Navy
385 vessel. As the ship approached, the whales appeared to change their surfacing behavior,
386 increase their dive times, and reduce the number of blows per surfacing.
- 387 • Vessel Visual Survey
 - 388 ○ Collaborated with NMFS, Pacific Islands Fisheries Science Center (PIFSC) on analysis
389 of visual and acoustic data from a line-transect survey conducted in conjunction with an
390 ASW training event. The survey duration was three weeks, with the training event
391 occurring midway through.

- 392 ○ NMFS, PIFSC conducted the first small vessel survey conducted in conjunction with
393 Navy underwater detonation events in the Puuloa Training Area. PIFSC obtained a focal
394 follow of spinner dolphins that traveled through the underwater detonation area between
395 events. They also recorded, via hydrophone, the underwater detonation.
- 396 • Passive Acoustic Monitoring
- 397 ○ Four HARPs were purchased that will be deployed in FY10.
- 398 • Marine mammal observers
- 399 ○ MMOs were successfully deployed on two destroyers involved in anti-submarine
400 warfare training events off the PMRF range. The MMOs embarked simultaneously with
401 aerial survey teams. MMOs coordinated aerial surveys during SCC, gathered visual
402 sighting data and data on lookout implementation of mitigation measures.
- 403 ○ MMOs embarked on small Navy surface vessels with Explosive Ordnance Disposal
404 teams from Mobile Dive and Salvage Unit One (MSDU). The MMOs observed marine
405 species in an underwater detonation area as well as implementation of mitigation
406 measures.
- 407 • Hosted the first Hawaii Marine Mammal Pelagic Research Workgroup.
- 408 ○ Provided thirty-eight Navy-funded researchers with the opportunity to present their
409 projects and work towards more collaborative monitoring and research efforts. The
410 research areas included passive acoustics, behavioral monitoring, tagging and sensor
411 development.

412 **Table 9. U.S. Navy funded marine mammal monitoring accomplishments within the Hawaii Range**
 413 **Complex from August 2008 to August 2009**

Study Type	U.S. Navy EIS/LOA monitoring	Associated event type	U.S. Navy R&D funded monitoring	Associated event type	MMPA/ESA requirement	Total accomplished
Aerial surveys (studies 1,2,3,4,5)	1) <u>27.5</u> hours from 18-22 Aug 2008 2) <u>28.5</u> hours from 15-19 Feb 2009 3) <u>48</u> hours from 17-25 June 2009 4) <u>3</u> events on 19 June 2009	SCC (ASW) SCC (ASW) Ultra-C (ASW) 20 lb UNDET	n/a	n/a	ASW = from 80 to 120 hours and 3 explosives events	ASW = 104 hours and 3 explosives events
Marine Mammal Observers (studies 1,3,4,5)	1) <u>40</u> hours from 15-19 Aug 2008 2) <u>40</u> hours from 15-19 Feb 2009 3) <u>25</u> hours from 18-19 June 2009 4) <u>15</u> hours from 9-10 June 2009	SCC (ASW) SCC (ASW) 20 lb UNDET 20 lb UNDET	n/a	n/a	ASW = up to 80 hours and 40 hours explosive events	ASW = 80 hours and 40 hours explosive events
Vessel surveys (studies 3,4)	1) <u>40+</u> hours from 15-19 Feb 2009 2) <u>2</u> events from 17-19 June 2009	SCC Ops (ASW) 20 lb UNDET	n/a	n/a	ASW = 40 hours and 2 explosive events	ASW = 40+ hours and 2 explosive events
Tagging (studies 1,3,4)	Navy entered into discussions with NMFS/PIRO office regarding tagging monk seals in FY10. PIRO has already ordered eight tags for collaborative monk seal tagging next year	n/a	Partial funding, via NMFS/SWFSC, to Cascadia Research Collective	n/a	Order tags and secure permit	NMFS/PIRO has ordered tags for monk seal tagging in FY10.
Passive Acoustic Monitoring (study 2)	n/a	n/a	1) ONR-funded PAM (BioWaves) on PMRF range; 2) ONR-funded PAM (HIMB) around Kauai and Oahu; 3) N45-funded HARP deployed off Hawaii Island (PIFSC/SIO/Cascadia); 4) ONR-funded hearing testing of odontocetes (HIMB); 5) U.S. Pacific Fleet-funded passive data collection and analysis at PMRF (SPAWAR); 6) Tracking with widely-spaced bottom-mounted hydrophones (SOEST); 7) NAVAIR-funded development of trigger and alert sonobuoy system (Guide-Star Engineering); 8) ONR-funded DECAF (density estimation of cetaceans using acoustic fixed sensors) project	n/a	Purchase up to four devices	Purchased four high frequency recording packages (HARPs) to be deployed in 2010 as well as all listed in R&D section

414
 415 **B. Adaptive Management Recommendations for 2010 Monitoring In Hawaii Range Complex**

416 Adaptive management is an iterative process of optimal decision making in the face of uncertainty, with
 417 an aim to reducing uncertainty over time via system monitoring. Within the natural resource management
 418 community, adaptive management involves ongoing, real-time learning and knowledge creation, both in a

419 substantive sense and in terms of the adaptive process itself. Adaptive management focuses on learning
420 and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how
421 to create and maintain sustainable ecosystems. Adaptive management helps science managers maintain
422 flexibility in their decisions, knowing that uncertainties exist and provides managers the latitude to
423 change direction will improve understanding of ecological systems to achieve management objectives;
424 and is about taking action to improve progress towards desired outcomes.

425 In March 2009, CNO N45 convened government and academic researchers to review the Navy’s range
426 complex monitoring plans. This diverse group of experts reviewed the methods that currently exist for
427 monitoring, methods expected to be available in five years and the Navy’s current plans. The team
428 reinforced that the current methods being used by the Navy for monitoring were robust and strongly
429 recommended that Navy continue to use a diversity of methods simultaneously. For the HRC range
430 complex monitoring, as well as monitoring conducted in other range complexes, the Navy was successful
431 in using a diversity of field methods to gather visual and acoustic data towards answering the questions
432 posed by Navy and NMFS.

433 The Navy’s adaptive management of the Hawaii Range Complex Monitoring Plan will involve close
434 coordination with NMFS to align marine mammal monitoring with the Plan’s overall objectives as stated
435 within earlier sections of the Plan and in the Introduction of this report.

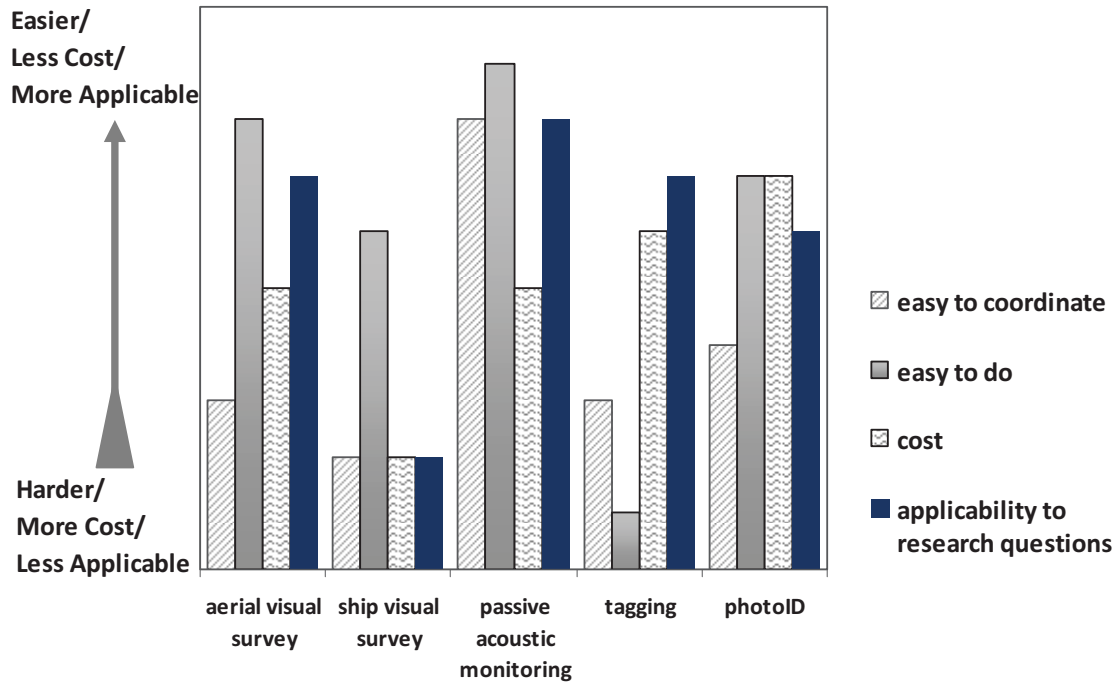
436 Significant progress was made during range complex compliance monitoring within the Hawaii Range
437 Complex this year. This year’s focus was expansion beyond monitoring techniques that are proven in the
438 HRC, while targeting required metrics. Scheduling monitoring that involves civilian aircraft and ships
439 operating concurrently with multiple Navy aircraft and ships in the same area required extensive pre-
440 survey coordination between multiple Navy commands. The U.S. Pacific Fleet operational community
441 (N7, N3 and MDSU) provided critical interface and coordination which was instrumental in using novel
442 field methods to allow for researchers to conduct monitoring in close-proximity to Navy assets. The U.S.
443 Pacific Fleet operational community also provided berthing and vessels (MDSU) for MMOs on four types
444 of surface vessels.

445 Cancellations or major date shifts in Navy training events based on logistics, fiscal, or operational needs
446 were challenging to overcome. These kind of changes are difficult to predict and more importantly, more
447 difficult to reschedule from a monitoring perspective when contracts have been awarded, survey
448 equipment has been purchased, rented or relocated; personnel availability and transport arranged; and
449 fixed date contracts put into place. Several planned Navy training events scheduled for monitoring had to
450 be re-scheduled to cover the change in monitoring design.

451 **Figure 1** shows a highly subject preliminary assessment of various monitoring techniques from the
452 Compliance and R&D programs in terms of how effective they may be in the SOCAL Range Complex
453 (NOTE: data were not compared for HRC, but are thought to be similar) . By “subjective”, the Navy
454 refers to a review across a number of factors made by U.S. Pacific Fleet environmental planning staff
455 based on lessons learned, data obtained, and associated coordination issues that arose during the
456 monitoring described in the HRC-SOCAL Monitoring Report (DoN 2009c). This is an early preliminary
457 assessment in that data analysis, especially of collected passive acoustic monitoring data is still ongoing.
458 The kind of feedback obtained by this form of internal self-assessment, however, is useful in allowing the
459 Navy to plan future range complex monitoring, as part of the Adaptive Management Process.

460 In view of lessons learned during implementation of the 2009 HRC Monitoring Plan, and as part of the
461 Navy’s adaptive management review for the Hawaii Range Complex, a proposed modification of the
462 2009 Plan to reflect the science needed for a revised 2010 HRC Monitoring Plan is shown in **Table 13**

Figure 1. Subjective assessment of techniques for adaptive management review for 2009 SOCAL Range Complex monitoring (NOTE: data were not compiled for HRC but are thought to be similar)



Definition of Subjective Categories

“**Easy to coordinate**” = ease of being able to gain SOCAL Range Complex access especially in associate with MTEs

“**Easy to do**” = ease of performing once on range; also includes standardization of technique to SOCAL Range Complex

“**Cost**”= costs associated with a particular technique; includes costs associated pre-event preparation/purchasing, field work, and post-field effort data analysis

“**Applicability to research questions**”= Will technique provide the enough scientific information to address the Navy-NMFS monitoring objectives over time; to some degree also reflective of value of a given technique given the three categories above

463 **C. Proposed 2010 Monitoring Commitments**

464 In view of lessons learned during implementation of the 2009 HRC Monitoring Plan (DoN 2009a), and as
465 part of the Navy’s adaptive management review for the Hawaii Range Complex, a modification of the
466 2009 Plan is recommended and shown in Tables 10 and 11.

467 The main rationale for restructuring the monitoring shown in Table 13 is to:

- 468 • simplify the presentation of goals,
- 469 • provide more flexibility in types of events monitored given the often rapid change in Navy
470 training schedules,
- 471 • align the technique with the best promise of more accurately addressing the Monitoring Plan
472 objectives, and
- 473 • demonstrate the value of leverage data collection efforts from the HRC specific on-going ONR
474 R&D program which is already concurrently addressing some portions of the information needed
475 in support of the monitoring goals.

476 Original projection of 2010 monitoring needs discussed with NMFS in summer of 2008 and finalized in
477 the 2009 HRC Monitoring Plan is laid out in Table 10. Given the lessons learned and data presented from
478 2009 monitoring (DoN 2009c), and leveraging from parallel N45 and ONR R&D program, modification
479 of the 2010 U.S. Pacific Fleet funded portion of the Navy’s overall monitoring in the Hawaii Range
480 Complex is sought to align monitoring with the best science technique available. Therefore, Table 10
481 also presents using “red-lines” for the revisions that Navy seeks to incorporate in FY10.

482 Specific revisions for elements of the proposed 2010 monitoring include:

483 Visual: Recommended 2010 monitoring reflected in Tables 10 and 11 shows a shift towards
484 combining all visual survey hours (aerial and vessel) into one overall category of “total visual
485 survey hours” to allow for better flexibility when scheduling visual monitoring throughout the
486 study year. While aerial surveys were more productive in terms of value and proximity to pre-,
487 during, and post-training events, flexibility to select from future aerial or vessel survey is desired
488 so that as future training events are identified, the best technique can be applied. The total number
489 of hours remains essentially the same, however,

490 The commitment to conduct aerial surveys during nearshore explosive events was removed from
491 FY10 commitments based upon experience in FY09. Specifically, most of the near-shore
492 explosive events occur at Puuloa Range, which is located adjacent to the Honolulu International
493 Airport. Flight path restrictions not only compromised monitoring survey design, but became
494 potentially dangerous as well.

495 Additionally, operational data that became available after the HRC monitoring plan was
496 completed shows that there are *no* near-shore explosive events with sufficient “high ground” to
497 conduct shore-based monitoring. Therefore, this commitment has been removed.

498 Marine Mammal Observers (MMOs): The only change to this commitment is to change from a
499 metric of *hours* to a metric of *events*. This is to account for the variable time duration of ASW
500 and explosive events as experienced in FY09. MMOs will continue to be used for gathering
501 species and behavioral data as well as implementation of the Lookout Effectiveness study
502 currently under development by Navy, University of St. Andrews and NMFS Science Centers.

503 Marine Mammal Tagging: Tagging commitments did not change except to add that the 15
504 individuals tagged is a goal instead of a firm number.

505 PAM: Four HARPs will be deployed within the HRC Range Complex in FY10. CPF will also
 506 continue to fund SPAWAR to gather data two days per month using the bottom-mounted
 507 hydrophones at the Pacific Missile Range Facility. Additionally, CPF will coordinate with
 508 autonomous devices deployed under the ONR/N45 R&D program which has additional devices
 509 deployed within the Hawaii Range Complex. The HRC monitoring plan recommendation was to
 510 deploy 10 new devices, however, this was prior to receiving information on the numerous Navy-
 511 funded devices that are already deployed in the HRC.

512 **Table 10. Adaptive management review showing edits to FY10 monitoring proposed in HRC**
 513 **monitoring plan** (strike through are deletions and red font are additions).
 514

STUDY 1,3, 4 (exposures and behavioral responses)		
Aerial Surveys	- 40 hours of active sonar during During portions of ASW training events including major exercises, intermediate level exercises, or Unit Level Training (ULT). (120-160 combined hours with vessel) - During three nearshore explosive events plus 1-2 SINKEX	Adaptive Management Review for FY10 (AMR)
Marine Mammal Observers (MMO)	- 80 hours during major exercises, intermediate level, ULT or explosive training events	
Vessel surveys (study 3, 4 only)	- 40 hours During portions of ASW training events including major exercises, intermediate level exercises, or Unit Level Training (ULT) - During two nearshore explosive events	
Marine Mammal Tagging (study 1, 3)	Tag a goal of 15 individuals in conjunction with ASW event	
Shore-based	Nearshore explosive events as they occur with "high ground" for monitoring	
STUDY 2 (geographic redistribution)		
Aerial Surveys Before And After Training Events	- 40 hours During portions of ASW training events including major exercises, intermediate level exercises, or Unit Level Training (ULT).	AMR
Passive Acoustic Monitoring (PAM)	Install and gather data from up to 10 autonomous devices	
STUDY 5 (mitigation effectiveness)		
MMO/ Lookout Comparison	- During 3 ASW training events including major exercises, intermediate level exercises, or Unit Level Training (ULT) - 40 hours d During 6 nearshore explosive events	AMR
Aerial Surveys	- 40 hours During portions of ASW training events including major exercises, intermediate level exercises, or Unit Level Training (ULT) - 40 hours during explosive events	

515

516 **Table 11. Summary of 2010 Adaptive Management goals red-lined in Table 10**

Monitoring Technique	Implementation	
Visual Surveys (aerial or vessel) STUDIES 1,2,3,4, 5	120-160 hours before, during and after ASW training events including major training exercises (MTE), SCC, Unit Level Training (ULT) and/or explosive events. "During" will be targeted by aerial surveys when feasible.	
Marine Mammal Observers (MMO) STUDIES 1,2,3, 4, 5	80 hours aboard Navy vessels during MTE, ULT, and/or explosive events	
Tagging STUDIES 1,2, 3	Tag a goal of 15 individual marine mammals	
Passive Acoustics Monitoring (PAM) STUDIES 1,2, 3	Install four HARPs; collaborate with data collection from other N45/ONR R&D funded autonomous PAM devices (goal of 10 devices total). Analyze PIFSC acoustic data collected in 2009.	
Mitigation Effectiveness STUDY 5	Lookout effectiveness study by MMOs on Navy surface vessels during 3 ASW events and 6 explosive events	

Adaptive Management Review (AMR) for FY11

517

Study 1= Are marine mammals and sea turtles exposed to mid-frequency active sonar (MFAS), especially at levels associated with adverse effects (i.e., based on NMFS' criteria for behavioral harassment, TTS, or PTS)? If so, at what levels are they exposed?

Study 2= If marine mammals and sea turtles are exposed to sonar, do they redistribute geographically as a result of continued exposure? If so, how long does the redistribution last?

Study 3= If marine mammals and sea turtles are exposed to MFAS, what are their behavioral responses to various levels?

Study 4= What are the behavioral responses of marine mammals and sea turtles that are exposed to explosives at specific levels?

Study 5= Is Navy's suite of mitigation measures for sonar and explosives, and major exercise measures agreed to by Navy through permitting effective at avoiding TTS, injury, and mortality of marine mammals and sea turtles

518

519 **14. RESEARCH**

520 There are no changes to Chapter 14 as described under the Navy’s original July 2007 Request for Letter
521 of Authorization, and subsequent NMFS’ June 2008 Proposed Rule (NMFS 2008) and January 2009 Final
522 Rule (NMFS 2009b).

523 This section, therefore, remains as described in the Final Rule (NMFS 2009b).

524 **15. LIST OF PREPARERS**

525 Julie Rivers, Natural and Marine Resources Program Manager, U.S. Pacific Fleet Environmental

526 Danielle Buonantony, Biologist, Naval Facilities Engineering Command, Atlantic

527 Roy Sokolowski, Acoustics/Physical Scientist, U.S. Pacific Fleet Environmental

528 **16. REFERENCES**

- 529 References are additions to those presented in the original LOA application.
- 530 DoN. 2007. Request for Letter of Authorization (LOA) for the Incidental Harassment of Marine
531 Mammals Resulting from Navy Training Operations Conducted within the Hawaii Range Complex. July
532 2007.
- 533 DoN. 2008a. Update to the Request for Letter of Authorization (LOA) for the Incidental Harassment of
534 Marine Mammals Resulting from Navy Training Operations Conducted within the Hawaii Range
535 Complex. February 2008.
- 536 DoN. 2008b. Update #2 to the Request for Letter of Authorization (LOA) for the Incidental Harassment
537 of Marine Mammals Resulting from Navy Training Operations Conducted within the Hawaii Range
538 Complex. April 2008.
- 539 DoN. 2008c. Hawaii Range Complex: Final Environmental Impact Statement\Overseas Environmental
540 Impact Statement-May 9, 2008. Department of the Navy.
- 541 DoN. 2008d. Hawaii Range Complex Monitoring Plan-Final December 2008. Department of the Navy.
- 542 DoN. 2009a. Annual Range Complex Exercise Report January to 01 August 2009 For The U.S. Navy's
543 Hawaii Range Complex And Southern California Range Complex. 01 October 2008. Department of the
544 Navy, U.S. Pacific Fleet.
- 545 DoN. 2009b. Marine Mammal Monitoring For The U.S. Navy's Hawaiian Range Complex (HRC) And
546 Southern California (SOCAL) Range Complex- Annual Report 2009. Authors: Chip Johnson and Julie
547 Rivers. Department of the Navy, U.S. Pacific Fleet.
- 548 NMFS. 2008. Taking and Importing Marine Mammals; U.S. Navy Training in the Hawaii Range
549 Complex; Proposed Rule. June 23, 2008. 73 FR 35510.
- 550 NMFS. 2009a. Letter of Authorization to Take Marine Mammals Incidental to Navy Exercises Conducted
551 in the Hawaii Range Complex. January 8, 2009.
- 552 NMFS. 2009b. Taking and Importing Marine Mammals; U.S. Navy Training in the Hawaii Range
553 Complex; Final Rule. January 12, 2009. 74 FR 1456.