

**HSTT Phase II monitoring starting in 2014 \***

**HAWAII**

<i>Intermediate Scientific Objectives<sup>1</sup></i>	<i>Hawaii Range Complex Project Description</i>	<i>Status</i>
<p>Determine what species and populations of marine mammals and sea turtles are present in Navy range complexes</p> <p>Continue development of passive acoustic monitoring techniques and tools for detecting, classifying, and localizing marine mammals</p> <p>Determine what populations of marine mammals are exposed to Navy training and testing activities</p> <p>Establish the baseline vocalization behavior of marine mammals where Navy training and testing activities occur</p> <p>Develop analytic methods to evaluate behavioral responses based on passive acoustic monitoring techniques</p> <p>Evaluate behavioral responses by marine mammals exposed to Navy training and testing activities</p>	<p>Title: Analysis of existing passive acoustic data</p> <p>Location: Niihau and Kaula Islands</p> <p>Objectives: Further our understanding of the following monitoring questions –</p> <p>What species of beaked whales (Ziphius/Mesoplodon) are heard in and around the Niihau area of the HRC?</p> <p>What is the seasonal occurrence of baleen whales (minke, fin, possibly sei) heard in the HRC around the Niihau area?</p> <p>What is the occurrence of sperm whales heard in the HRC around the Niihau area?</p> <p>What species of delphinids occur in the HRC around the Niihau area?</p> <p>Do beaked whale (Ziphius/Mesoplodon), baleen whale (minke, fin, possibly sei), sperm whale, and delphinid detection rates vary before, during, and after MFAS detections?</p> <p>Methods: PAM analysis</p> <p>Performing organization: HDR, Inc.</p> <p>Timeline<sup>1</sup>: 2013–2015</p> <p>Funding: \$230k</p>	<p>Continuation from FY12. Analysis expected to continue through 2015.</p>

\* Funding of all projects is subject to availability of federal funds and specialized field equipment. Completion of all projects is subject to performance of field equipment, acts of nature and other unforeseen occurrences that are beyond the control of the Navy and its contractors.

<sup>1</sup> Project timelines for HSTT are defined as estimated life span of the projects in relation to the December 2013 to January 2014 start of Phase 2 monitoring as established in NMFS' Proposed Rule (78 FR 7049) and Final Rule for HSTT.

<i>Intermediate Scientific Objectives<sup>1</sup></i>	<i>Hawaii Range Complex Project Description</i>	<i>Status</i>
<p>Determine which species and populations of marine mammals and sea turtles are present in Navy range complexes</p> <p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p> <p>Establish the baseline habitat uses and movement patterns of marine mammals where Navy training and testing activities occur</p>	<p>Title: Marine species monitoring prior to Navy training events</p> <p>Location: Kauai, Niihau, Kaula Islands</p> <p>Objectives: Further our understanding of the monitoring question –</p> <p>What are spatial movement patterns and habitat use (e.g., island-associated or open ocean, restricted ranges v. large ranges) of species that are exposed to MFAS and how do these patterns influence exposure and potentially response?</p> <p>Methods: Visual survey, satellite tagging, PAM</p> <p>Performing Organization: U.S. Navy and HDR, Inc.</p> <p>Timeline: 2013-2014 (with option to extend)</p> <p>Funding: estimated \$400k/year</p>	<p>Continuation from FY12 – Field work occurred in 2013 and will commence following another HRC Navy training event in 2014.</p>
<p>Continue development of passive acoustic monitoring techniques and tools for detecting, classifying, and localizing marine mammals.</p> <p>Determine what populations of marine mammals are exposed to Navy training and testing activities</p> <p>Develop analytic methods to evaluate behavioral responses based on passive acoustic monitoring techniques</p> <p>Evaluate behavioral responses by marine mammals exposed to Navy training and testing activities</p>	<p>Title: Marine species monitoring at PMRF during Navy training events</p> <p>Location: Kauai</p> <p>Objectives: Further our understanding of the following monitoring question –</p> <p>What are the estimated received levels of MFAS which marine mammals are exposed to during anti-submarine warfare training, and what, if any, behavioral effects result at various levels?</p> <p>Methods: PAM, visual survey, satellite tagging</p> <p>Performing organization: U.S. Navy and HDR, Inc.</p> <p>Timeline: 2013-2014 (with option to extend)</p> <p>Funding: estimated \$500k/year</p>	<p>Continuation from FY07 – Field work occurred in 2013 and will commence following another HRC Navy training event in 2014.</p>

<i>Intermediate Scientific Objectives<sup>1</sup></i>	<i>Hawaii Range Complex Project Description</i>	<i>Status</i>
<p>Evaluate behavioral responses by marine mammals exposed to Navy training and testing activities</p>	<p>Title: Marine species monitoring following Navy training events  Location: Islands near training event  Objectives: Further our understanding of the monitoring question –  Do marine mammals strand along shorelines of the Main Hawaiian Islands within one week following a Navy training event?  Methods: Visual survey  Performing Organization: U.S. Navy and HDR, Inc.  Timeline: 2013-2014 (with option to extend)  Funding: estimated \$75k/year</p>	<p>Continuation from FY10 – Field work occurred in 2013 and will commence following another HRC Navy training event in 2014.</p>
<p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p> <p>Determine the effectiveness of Navy watch-standers/lookouts</p>	<p>Title: Marine Species Observers embarked on Navy assets during anti-submarine warfare training and underwater detonation training and testing  Location: Hawaii Range Complex  Objectives: Further our understanding of the monitoring questions –  What is the effectiveness of Navy lookouts when implementing protective measures?  Which marine mammals are observed in the vicinity of ASW and UNDET training that could be exposed to Navy sound sources?  Methods: Visual survey  Performing Organization: U.S. Navy and HDR, Inc.  Timeline: 2014-2018  Funding: estimated \$50k/year</p>	<p>Continuation from FY10.</p>

<i>Intermediate Scientific Objectives<sup>1</sup></i>	<i>Hawaii Range Complex Project Description</i>	<i>Status</i>
Assess existing data sets which could be utilized to address the above objectives	<p>Title: Meta-analysis of HRC monitoring and other existing data sets – possible inclusion of other existing data in on-going analysis</p> <p>Location: HRC</p> <p>Objectives: Further our understanding of the monitoring questions –</p> <p>How well is baseline occurrence (distribution, density and habitat use) known/defined (short to medium term) across species groups?</p> <p>How does our ability to address question of exposure (integrating propagation models and animal occurrence) vary with species/species groups?</p> <p>Methods: Meta-analysis of multiple data sets</p> <p>Performing Organization: HDR, Inc.</p> <p>Timeline: 2013-2014</p> <p>Funding: TBD</p>	Continuation from FY12.

<sup>1</sup> Intermediate Scientific Objectives are established in coordination with NMFS through the Strategic Planning Process to help prioritize monitoring investments

**SOUTHERN CALIFORNIA**

<i>Intermediate Scientific Objectives</i>	<i>Southern California Range Complex Project Description</i>	<i>Status</i>
<p>Develop analytic methods to evaluate behavioral responses based on passive acoustic monitoring techniques</p>	<p>Title: Underwater Detonation Propagation Monitoring            Location: Silver Strand Training Complex            Objectives: Conduct near and far-field measurement of underwater detonation sound propagation from Explosive Ordnance Disposal training events within the nearshore ocean waters of the Silver Strand Training Complex. Data will be used to inform future modifications to Navy’s acoustic impact analysis model.            Methods: PAM analysis            Performing organization: University of Washington, Applied Physics Laboratory            Timeline: 2013-2014            Funding: \$252K</p>	<p>Continuation from FY13 – Field work and analysis continuing through 2014.</p>
<p>Determine which species and populations of marine mammals and sea turtles are present in Navy range complexes</p> <p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p>	<p>Title: San Diego Bay and Nearshore Coastal Marine Mammal Surveys            Location: Northern San Diego Bay and near shore ocean waters of Silver Strand Training Complex            Objectives: Perform monthly small boat surveys in the ocean water areas in and near the Silver Strand Training Complex and northern San Diego Bay. A total of 12 surveys will be performed. Goal is to obtain nearshore marine mammal sighting data for density. If insufficient sightings are obtained, information will be used qualitatively to contribute to Navy’s future marine mammal occurrence discussions.            Methods: small boat visual survey            Performing organization: U.S. Navy, Space and Naval Systems Command Pacific            Timeline: 2013-2014            Funding: \$105K</p>	<p>Continuation from FY13 – Analysis continuing through 2014.</p>

<i>Intermediate Scientific Objectives</i>	<i>Southern California Range Complex Project Description</i>	<i>Status</i>
<p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p>	<p>Title: Marine Mammal Observers on DDGs and at Silver Strand Training Complex Underwater Detonation Events (UNDET)</p> <p>Location: offshore waters of Southern California Range Complex (DDG) and nearshore waters of Silver Strand Training Complex (UNDET)</p> <p>Objectives: Primary goal is assessing lookout effectiveness for mitigation (DDG) and assessing which species are present during training events; UNDETs will be monitored using MMOs on small boats at select nearshore UNDETs</p> <p>Methods: visual survey (embarked on DDG and small boats)</p> <p>Performing Organization: U.S. Navy and HDR, Inc.</p> <p>Timeline: 2014-2018</p> <p>Funding: estimated \$50k/year</p>	<p>Continuation from FY09 – Field work and analysis continuing through 2018.</p>
<p>Determine which species and populations of marine mammals and sea turtles are present in Navy range complexes</p> <p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p>	<p>Title: Fin Whale Satellite Tagging</p> <p>Location: Southern California</p> <p>Objectives: Satellite tag tracking of fin whales along the US West Coast including Navy training areas in SOCAL and Pacific Northwest as well as other areas of the Pacific. Goal is to compare long-term (up to a year) individual movement patterns and determine metrics of residence time in particular subareas.</p> <p>Methods: tagging</p> <p>Performing organization: Oregon State University</p> <p>Timeline: 2014-2015 (with option to extend)</p> <p>Funding: estimated \$570K</p>	<p>New start FY13 – Field work and analysis continuing through 2015 with option to extend.</p>

<i>Intermediate Scientific Objectives</i>	<i>Southern California Range Complex Project Description</i>	<i>Status</i>
<p>Determine which species and populations of marine mammals and sea turtles are present in Navy range complexes</p> <p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p>	<p>Title: Blue Whale Satellite Tagging</p> <p>Location: Southern California</p> <p>Objectives: Satellite tag tracking of blue whales along the US West Coast including Navy training areas in SOCAL and Pacific Northwest as well as other areas of the Pacific. Goal is to compare long-term (up to a year) individual movement patterns and determine metrics of residence time in particular subareas.</p> <p>Methods: tagging</p> <p>Performing organization: Oregon State University</p> <p>Timeline: 2014-2017</p> <p>Funding: estimated \$350K/year (2014-2016); \$30K (2017)</p>	<p>New start FY14 – Field work start spring-summer 2014 and additional annual tagging through 2016 with final analysis in 2017.</p>
<p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p> <p>Continue development of passive acoustic monitoring techniques and tools for detecting, classifying, and tracing marine mammals</p>	<p>Title: Blue Whale, Fin Whale, Humpback Whale, And Cuvier’s Beaked Whale Vocalization/Echolocation And Impact Assessment From Anthropogenic Sounds</p> <p>Location: Southern California</p> <p>Objectives: comparison of two (and possibly three) long-term bottom mounted passive acoustic monitoring devices over a year using new nearshore PAM off La Jolla, and established offshore PAM. Specific goal would to analyzed vocalization or echolocation rates for key species in terms of changes or lack of change in presence of anthropogenic sounds. Secondary goal would be to document occurrence of these species over each year.</p> <p>Methods: Passive acoustic monitoring</p> <p>Performing organization: University of San Diego, Scripps Institution of Oceanography</p> <p>Timeline: 2014-2015</p> <p>Funding: estimated \$300K/year</p>	<p>Continuation from FY09 – Field work 2014-2015 with annual analysis and reporting.</p>

<i>Intermediate Scientific Objectives</i>	<i>Southern California Range Complex Project Description</i>	<i>Status</i>
<p>Determine which species and populations of marine mammals are exposed to Navy training and testing activities</p> <p>Continue development of passive acoustic monitoring techniques and tools for detecting, classifying, and tracing marine mammals</p>	<p>Title: Fin Whale And Cuvier's Beaked Whale Vocalization/Echolocation And Impact Assessment From Anthropogenic Sounds at Navy's Southern California Offshore Antisubmarine Warfare Range (SOAR)</p> <p>Location: SOAR (instrumented range in San Nicholas Basin west of San Clemente Island)</p> <p>Objectives: Continued development of Navy's Marine Mammal Monitoring on Ranges (M3) system that utilizes an array of existing bottom mounted hydrophones in San Nicolas Basin. Goal would be improvements and validation of M3R for Cuvier's beaked whale and fin whale detection and localization. Information from concurrent Navy training on SOAR can be used to assess impact, if any, events may or may not have on species presence or vocalizations.</p> <p>Methods: Passive acoustic monitoring (M3R); tagging; small boat visual surveys; aerial surveys</p> <p>Performing organization: U.S. Navy, Naval Undersea Warfare Center and Cascadia Research Collective</p> <p>Timeline: 2014-2018</p> <p>Funding: estimated \$800K/year (leveraged from two Navy funding programs)</p>	<p>Continuation from FY08 – Annual field work 2014-2018 with annual analysis and reporting.</p>