

Prepared for  
National Marine Fisheries Service  
Office of Protected Resources

Prepared by  
Department of the Navy  
U.S. Pacific Fleet

# **Southern California Range Complex Year 3 Monitoring Plan 02 August 2010 to 01 August 2011**

**01 October 2010**

This Monitoring Plan is submitted to NMFS in support of the:

Taking and Importing Marine Mammals; U.S. Navy Training in the Southern California Range Complex; Letter of Authorization  
Renewal

AND

Biological Opinion on the U.S. Navy's Training in the Southern California Range Complex

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## Introduction

This is the Navy's revised Year 3 Monitoring Plan (2010-2011) for the Southern California Range Complex. This Monitoring Plan replaces previous plans and is applicable for the time period from 02 August 2010 to 01 August 2011.

Justification for the Year 3 Monitoring Plan is contained in the adaptive management and meeting summaries described below.

Monitoring objectives and metrics, however, are for the most part similar in Year 3 as to what was planned and accomplished in Year 2.

### **Adaptive Management For Monitoring In The SOCAL Range Complex**

Adaptive management is an iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. Within the natural resource management community, adaptive management involves ongoing, real-time learning and knowledge creation, both in a substantive sense and in terms of the adaptive process itself. Adaptive management, especially in terms of marine ecosystems and spatial management, focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable ecosystems (Gregory 2006, Leslie and McLeod 2007, Williams et al. 2007, deYoung et al. 2008, Ruckelshaus et al. 2008, Levin et al. 2009, Curtin and Prellezo 2010, Foley et al 2010, Gibbs et al. 2010, Johnson 2010). Adaptive management helps science managers maintain FLEXIBILITY in their decisions, knowing that uncertainties exist and provides managers the latitude to change direction; will improve UNDERSTANDING of ecological systems to achieve management objectives; and is about taking ACTION to improve progress towards desired outcomes (Williams et al. 2007). Further discussion of adaptive management in the natural resource community is available from the U.S. Department of Interior's Adaptive Management Guidelines:

<http://www.doi.gov/initiatives/AdaptiveManagement/index.html>

The NMFS has acknowledged that the SOCAL monitoring will enhance the understanding of how sonar or underwater detonations (as well as other environmental conditions) may, or may not, be associated with marine mammal injury or behavioral disturbance. Additionally, NMFS also pointed out that information gained from the investigations associated with the Navy's monitoring may be used in the adaptive management of mitigation or monitoring measures in subsequent NMFS authorizations, if appropriate. Therefore, the Navy's adaptive management of SOCAL monitoring under its Marine Mammal Protection Act responsibilities involves close coordination with NMFS to align marine mammal monitoring with the overall objectives stated within the Introduction to this report. To date, 2010 monitoring within the SOCAL Range Complex only represents Year 2 of a planned five year effort. As such, it would be premature to draw detailed conclusions or initiate comprehensive monitoring changes without further consultation and public review. This formal review is currently slated to occur in the spring of 2011. Using an adaptive management framework, and in consideration of the two meetings described below, the Navy is hereby revising its Year 3 Monitoring Plan.

### **Southern California Marine Mammal Workshop January 2010**

A Southern California marine mammal workshop was conducted in January of 2010 with recognized marine mammal scientists, regional NMFS representatives, and interested organizations. The workshop proceedings and recommendations are summarized in Kerosky et al. 2010. There were several prevalent themes throughout the workshop. One of the more important consensus workshop agreements was the need for expanded information on baseline marine mammal distribution, biology, and behavior. Another agreement was the need to expand the collaboration and sharing of information between various marine mammal science disciplines.

### **U.S. Ocean Policy**

On 19 July 2010, the President signed a new Executive Order on Stewardship of the Ocean, Our Coasts, and the Great Lakes which adopted the final recommendation of the Interagency Ocean Policy Task Force. Key recommendations include “Use the best available science and knowledge to inform decisions affecting the ocean...” and “Increase scientific understanding of ocean...” (EO 2010, CEQ 2010). Another integral part of these policy directions was to instill a collaborative spirit within the Federal Government in the planning, management, and program execution of ocean science projects. Both of these tenants, improved and using best available science along with increased collaboration, are similar to preceding recommendations of the Joint Subcommittee on Ocean Science and Technology (JSOST) on “Addressing the Effects of Human-Generated Sound on Marine Life: An Integrated Research Plan for U.S. federal agencies “(Southall et al. 2009).

### Year 3 Monitoring

For Year 3 monitoring from 02 August 2010 to 01 August 2011, the Navy proposes to keep the same level of monitoring effort in the Southern California Range Complex as was committed and accomplished in 2010. **Table 1** highlights these Year 3 goals.

In addition, an alternative location for some monitoring to occur is also proposed in addition to those areas monitored previously in Year 1 (2008-2009) and Year 2 (2009-2010). This new focus area would include the ocean areas from shoreline to approximately 10 nm immediately offshore of San Diego in the vicinity of Coronado, Silver Strand, and Imperial Beach (**Figure 1**).

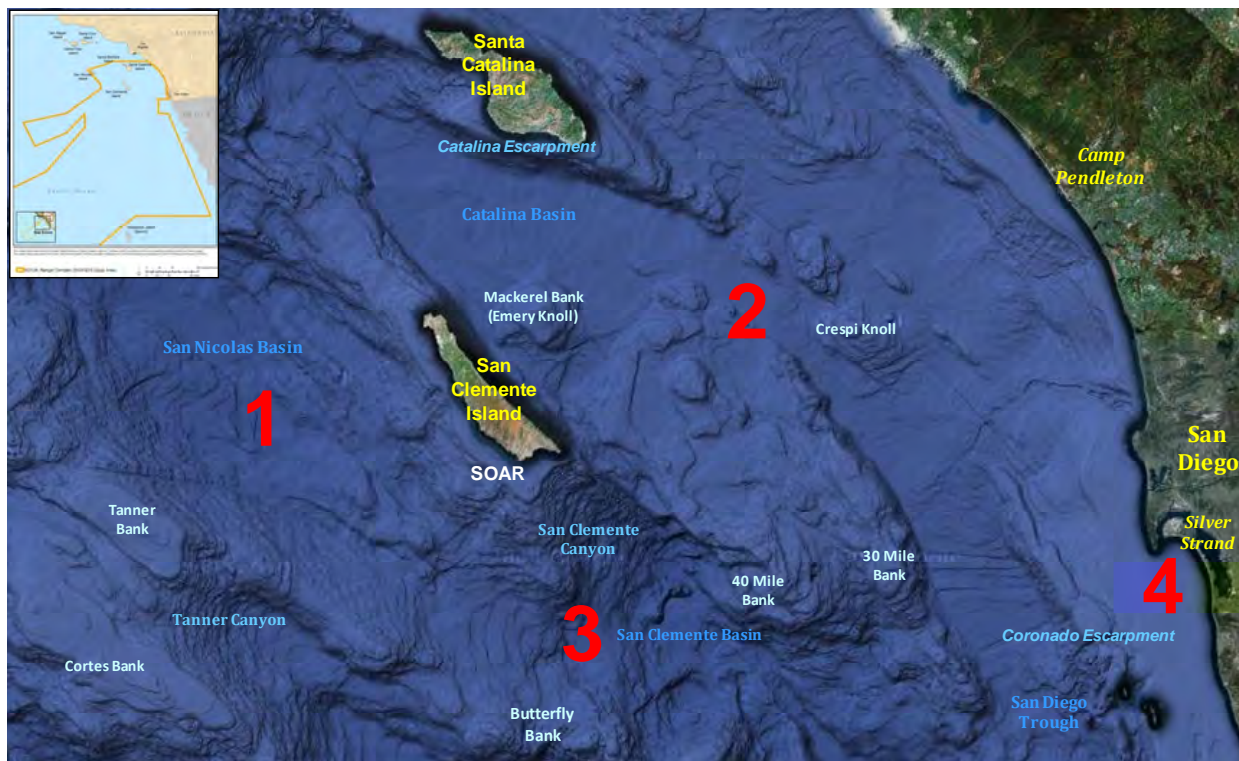
In support of the JSOST recommendations, Southern California workshop recommendations, and Ocean Policy direction, the Navy is committed to structuring the Southern California Range Complex Range Complex monitoring to address both NMFS regulatory required monitoring under the Southern California Range Complex Letter of Authorization while at the same time making significant contributions to the greater body of marine mammal science.

As can be seen by the Year 1 and Year 2 monitoring results (DoN 2009, 2010), the Southern California Range Complex aerial visual surveys are adding a significant amount of new information on at-sea marine mammal behavior in Southern California. This effort is unprecedented in the scope to document in text, photos, and digital video marine mammal behavioral activities and distributional patterns at relatively small spatial scales. Navy funded passive acoustic monitoring and satellite tagging in Southern California is contributing to new information on presence, or absence, and movement patterns of particular species over both short and long time scales. In terms of collaboration, in addition to annual monitoring reports to NMFS which are publically available from the NMFS website, the Navy this year has funded efforts to make public the marine mammal field data collected under the SOCAL Range Complex monitoring. The initial effort funded by U.S. Pacific Fleet this year will upload aerial sighting data from Southern California to a publically accessible server for scientific collaboration. Study data from 2008 through 2010 should be available by late spring of 2011, with periodic updates as the Southern California Range Complex monitoring continues.

Keeping the same level of effort from 2010 through 2011 is supported by the continued accomplishments of the Southern California Range Complex monitoring, and directly compliments many of the impact and baseline data needs discussed at the July 2010 Marine Mammal and Sound workshop. In addition, two follow-on monitoring reassessments are planned. The Navy in consultation with leading marine mammal biologists will convene a working level review of the Navy's Integrated Comprehensive Management Plan and associated range complex monitoring plans in October 2010. The NMFS and Navy will also jointly convene another public workshop on range complex monitoring in the spring of 2011 to continue the review and dialog on effective marine mammal monitoring.

**Table 1. Navy’s Year 3 (02 August 2010 to 01 August 2011) monitoring plan goals for the Southern California Range Complex.**

Monitoring Technique	Implementation	
<b>Visual Surveys (aerial or vessel)</b> STUDIES 1,2,3,4, 5	Portions of major training events, or unit level training events using sonar; or offshore or inshore detonation events (100-150 combined hours)	Adaptive Management Review (AMR) for 2012
<b>Marine Mammal Observers (MMO)</b> STUDIES 1, 3, 4, 5	Opportunistic; major training events, unit level training events, or offshore or inshore detonation events as available (50-100 total hours)	
<b>Passive Acoustics Monitoring (PAM)</b> STUDIES 1,2, 3	Continue data collection and analysis from a minimum of two U.S. Pacific Fleet funded passive acoustic recording devices; Present results from ongoing, other Navy funded (CNO N45) marine mammal research in Southern California	
<b>Exercise Summary From Navy Lookout Reports</b> STUDY 5	Continue to collect/analyze marine mammal sightings from Navy lookouts during major training events and present results	
<b>Other Navy funded research Summary</b> STUDIES 1,2, 3	Present results from ongoing, other Navy funded (CNO N45) marine mammal research in Southern California	
<p><b>NO metric changes are envisioned in 2011 from the level of effort and funding performed in 2010</b></p> <p><b>TOTAL Navy 2011 Goal:</b></p> <ul style="list-style-type: none"> <li>• <b>100 to 150 hours visual survey funded by US Pacific Fleet as well as presentation of N45 R&amp;D visual survey efforts</b></li> <li>• <b>50-100 hours Marine Mammal Observers</b></li> <li>• <b>Deploy (2) Passive acoustic monitoring devices: continue data collection/analysis from a minimum of two (2) US Pacific Fleet-funded passive acoustic recording devices</b></li> <li>• <b>present results as available from other Navy funded research projects such as visual surveys, passive acoustic monitoring, tagging, and photoID</b></li> </ul>		
<p>NMFS-NAVY 2008 AGREED UPON RESEARCH QUESTIONS</p> <p>Study 1= Are marine mammals and sea turtles exposed to mid-frequency active sonar, especially at levels associated with adverse effects (i.e., based on NMFS’ criteria for behavioral harassment, temporary threshold shift, or permanent threshold shift)? If so, at what levels are they exposed?</p> <p>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?</p> <p>Study 3= If marine mammals and sea turtles are exposed to mid-frequency active sonar, what are their behavioral responses to various levels?</p> <p>Study 4= What are the behavioral responses of marine mammals and sea turtles that are exposed to explosives at specific levels?</p> <p>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 temporary threshold shift, injury, and mortality of marine mammals and sea turtles?</p>		



**Figure 1. Navy's 2010-2011 monitoring focus areas within Southern California.**  
(map from Google Maps)



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