

## U.S. Navy Funded Marine Mammal Monitoring Efforts In California 2008–2010

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**Abstract** The U.S. Navy represented by the Pacific Fleet Environmental Directorate, Chief of Naval Operations Environmental Readiness and Energy, Office of Naval Research, and Naval Postgraduate School, fund significant marine mammal monitoring programs within California. The bulk of this effort occurs within the Southern California Bight. In an endeavor coordinated with the U.S. National Marine Fisheries Service (NMFS) to address specific questions, efforts are underway to deploy a variety of research tools as a collection of focused, collaborative studies. Monitoring methods include research elements designed to collect data in support of region–specific monitoring and also contribute to the overall body of marine mammal knowledge. Research elements include visual surveys from airplanes and vessels, passive acoustic monitoring from bottom–mounted systems, photoID, biopsies, and marine mammal tagging. The framework for monitoring and results from August 2008 to August 2010 will be presented. During this period over 35,570 nautical miles of ocean were visually surveyed representing 2,285 hours of effort. There were 2,714 sightings of an estimated 155,375 marine mammals. Over 29,700 hours of passive acoustic recordings were obtained and are undergoing continued analysis. In addition, 24,000 digital photographs were taken of marine mammals, and 18 hours of digital video taken of various marine mammal behaviors. There were also 139 individual tissue biopsies, and 31 satellite tracking tags attached to various species. Continuing efforts in 2011 will employ many of the same techniques used previously. The Navy’s annual monitoring reports for 2009 and 2010 are publically available and posted on NMFS’ Office of Protected Resources website.

## Large Whale Entanglement Risk Assessment, United States West Coast

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**Abstract** The National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) has identified large whale entanglement in fishing gear as a priority management issue, particularly for the endangered humpback whale. Although numerous whale entanglements along the United States west coast have been reported to NMFS, little information has been confirmed about the origin of the entangling gear. To help fill this information gap, NMFS is developing a suite of analytical tools to better understand whale entanglement risk along the west coast. One primary goal is to map fishing effort, with a focus on fishing gears that are known or suspected to entangle whales based upon documented sightings and strandings of entangled animals. These fisheries include both state and federally managed fisheries. The objective will be to understand and illustrate the location and relative density of various fishing effort throughout the calendar year. This information will be overlaid with species–specific whale distribution patterns, modeled from systematically–collected sighting data, to help identify spatial and temporal overlap between whales and fisheries. This overlay will identify potential “hot spots” of where and when large whales are more likely to encounter fishing gear, thus have an increased risk of becoming entangled. To improve knowledge of fishing gear, information is being compiled through research with State and Federal fishery experts and fishery representatives during port visits. The identification of spatial or temporal “hot spots”, combined with a better understanding of fishing gear, will improve the ability to minimize or mitigate the risk of large whale entanglements.



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