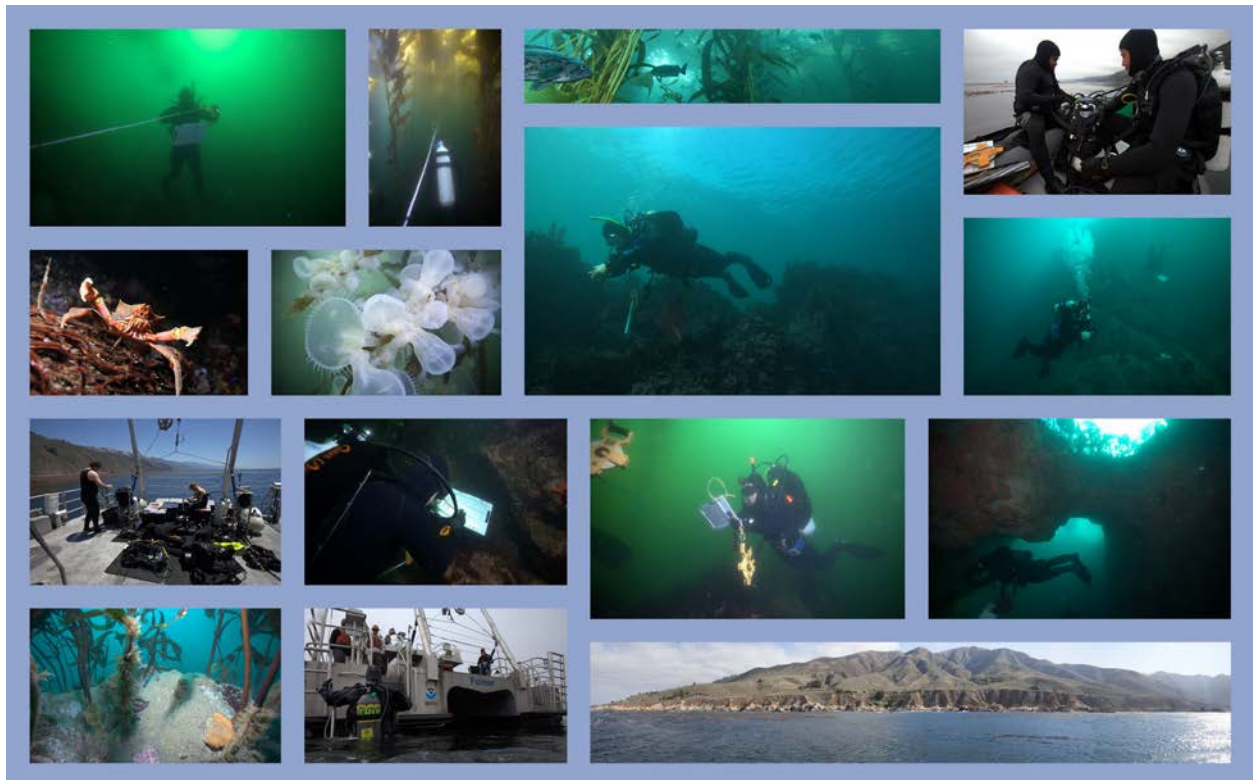


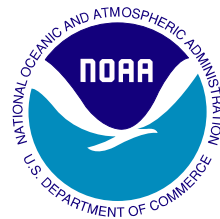
# Summary of SCUBA Diving Operations Conducted From R/V *Fulmar* Fiscal Year 2011



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## **Unit or Line Office Primary Diving Mission/Task:**

The diving team at the Monterey Bay National Marine Sanctuary (MBNMS) primarily conducts or participates in, diving operations that characterize the nearshore habitats (primarily kelp forest ecosystems) from the Monterey Peninsula, south to Cambria. The MBNMS is also tasked with the supervision and oversight of the maintenance of a network of oceanographic moorings stationed in the nearshore up and down the central California coast and equipped for search and recovery tasks, with the consideration of the certification limits of each diver. Additionally, the MBNMS diving team is equipped with underwater digital SLR and point and shoot cameras and a high-definition underwater video camera for habitat and resource characterization and outreach purposes.

## **Summary of Diving Statistics from Projects Conducted From R/V *Fulmar* during FY 2011:**

- 178 dives conducted by 26 divers
- 141 hours of total bottom time
- Average Depth of 53 feet (+/- 19.9 std dev)
- Average Bottom Time of 43 minutes
- 84.3% of dives used Enriched Air NITROX
- 29 unique dive sites

## Specific Projects or Operations Completed During the Fiscal Year

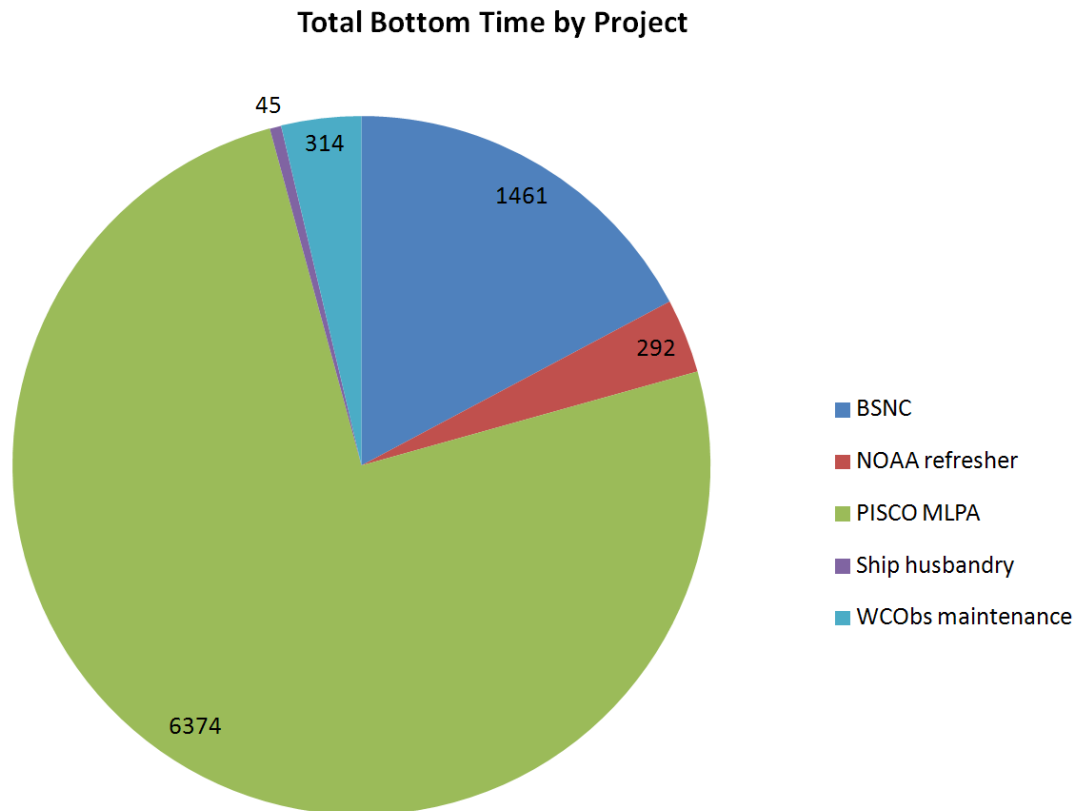


Figure 1. Total bottom time (in minutes) recorded for diving projects conducted off of the R/V *Fulmar* in FY 2011.

The MBNMS supported, through dive master supervision and research diving participation, diving operations (11 survey days, 123 dives totaling 106 hours of bottom time) conducted off of the R/V *Fulmar* by the Partnership for Disciplinary Studies of Coastal Oceans (PISCO). Research included quantitative characterization of algae, invertebrates, fishes, and habitats.

The MBNMS supported, through dive master supervision and research diving participation, diving operations (2 survey days, 12 dives totaling 5.2 hours of bottom time) conducted off of the R/V *Fulmar* for maintenance and acquisition of scientific data of West Coast Observatory moorings currently installed along the central California coast.

The MBNMS conducted two research expeditions (3 survey days total, 14 dives totaling 10.7 hours of bottom time) to conduct qualitative subtidal fish, invertebrate, and algae surveys and document nearshore subtidal habitat near Gorda, California, where a significant landslide and

subsequent debris deposition by CalTrans occurred during 2011. Underwater video and still photography were also used.

The MBNMS acquired a digital SLR camera, housing, and lights in 2005 and continues to use this asset to photograph marine resources. An additional digital SLR and point and shoot camera were acquired in 2009 to incorporate wide-angle photography. These images are indexed, classified, and select photographs are posted on the Sanctuary Integrated Monitoring Network website ([www.sanctuarymonitoring.org/photos](http://www.sanctuarymonitoring.org/photos)).

In 2007, the MBNMS acquired a high definition video camera, housing, and lights. The MBNMS recorded approximately 12 hours of underwater footage in FY11.

The MBNMS saw decreased diving operations in FY11 (from FY10) and relied heavily upon the R/V *Fulmar* and its NUVAIR NITROX compressor. All diving was completed without incident. An electronic dive log (MS Excel) was created in August 2007, and can be accessed from the scientific PC aboard the R/V *Fulmar* for immediate entry by the divemaster on duty. It is approximately 90% complete for all diving operations (currently over 1,740 dives have been logged).

On October 27, 2010 and April 18, 2011, MBNMS and other local NOAA divers completed training dives and practiced diving emergency procedures (diver extraction onto the R/V *Fulmar* with crane and sling, tired diver tows, EMS procedural review, O2 administration review, etc.).

## Geography of Dive Sites

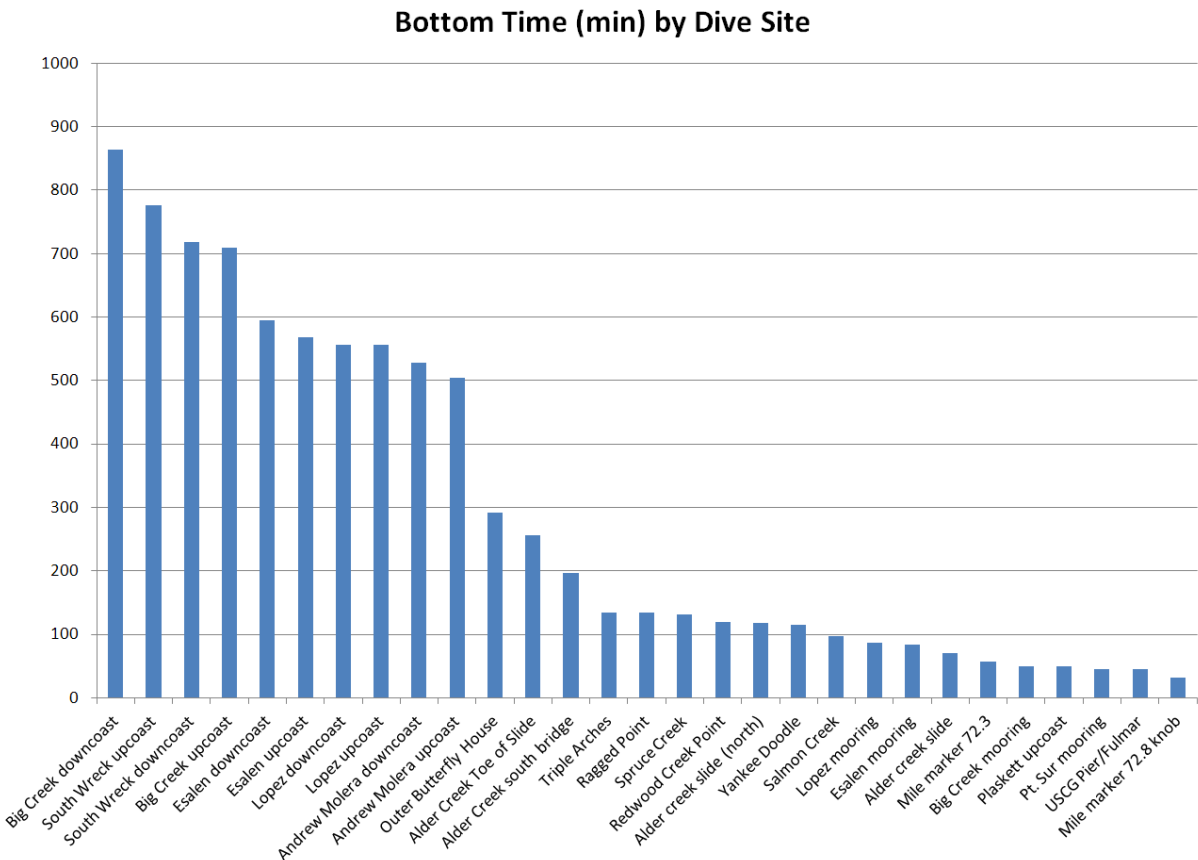


Figure 2. Total bottom time (minutes) recorded at 29 dive sites.