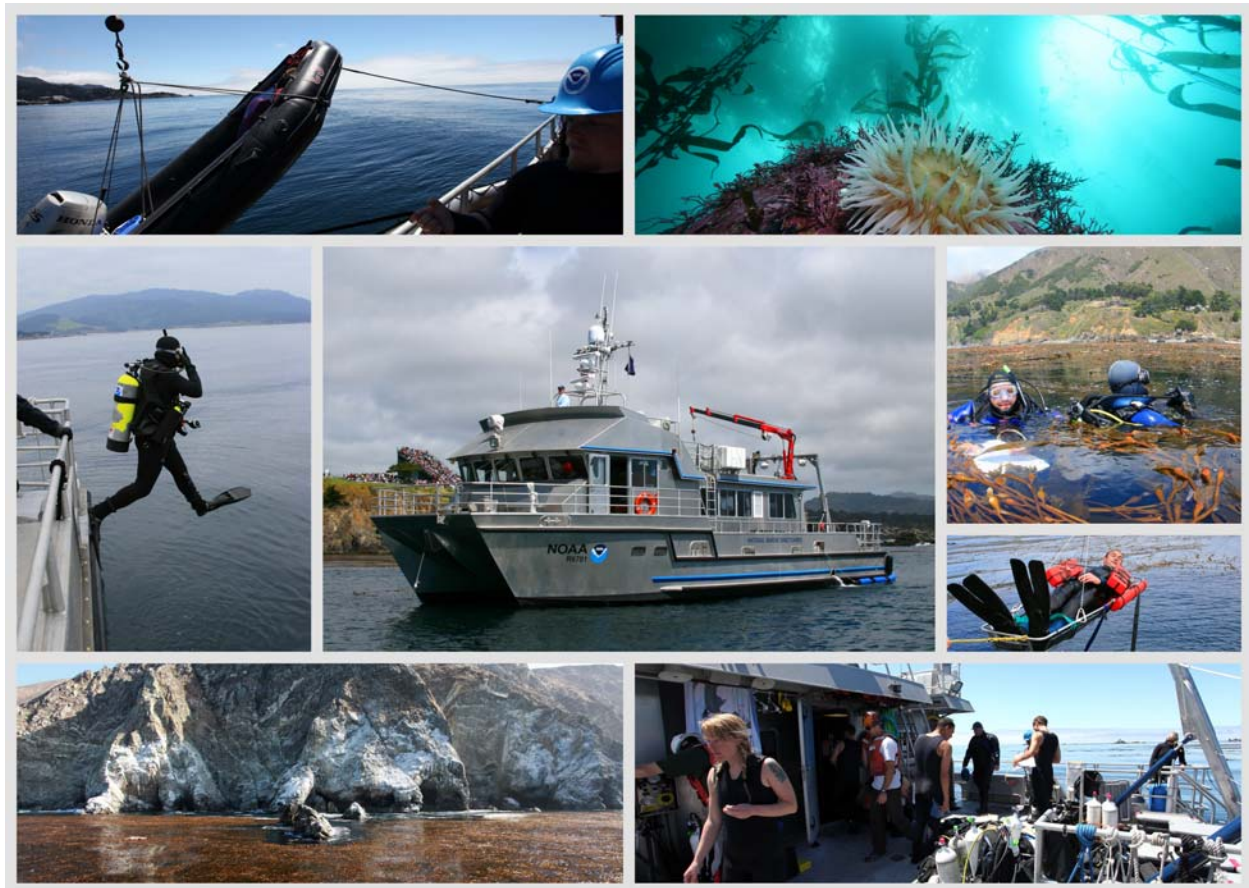
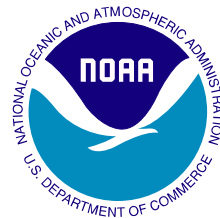


Summary of SCUBA Diving Operations Conducted From R/V *Fulmar* Fiscal Year 2010



Prepared by Chad King
Monterey Bay National Marine Sanctuary
November 10, 2010



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 2010:

- 496 dives conducted by 47 divers
- 371 hours of total bottom time
- Average Depth of 57 feet (+/- 20.4 std dev)
- Average Bottom Time of 45 minutes
- 77.6% of dives used Enriched Air NITROX
- 54 dive sites

Specific Projects or Operations Completed During the Fiscal Year

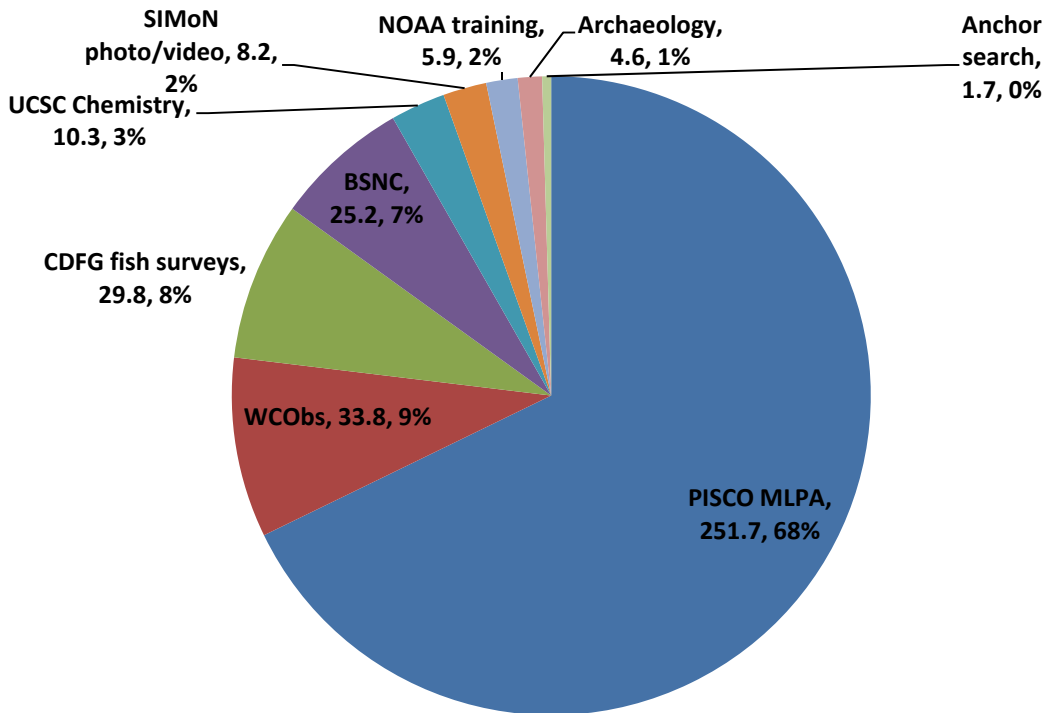


Figure 1. Total bottom time (in hours) recorded for diving projects conducted off of the R/V *Fulmar* in FY 2010.

The MBNMS supported, through dive master supervision and research diving participation, diving operations (12 survey days, 310 dives totaling 252 hours of bottom time) conducted from 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 (11 survey days, 72 dives totaling 34 hours of bottom time) conducted from the R/V *Fulmar* for the quarterly maintenance and acquisition of scientific data of West Coast Observatory moorings currently installed along the central California coast.

MBNMS and California Department of Fish and Game divers completed 6 survey days (38 dives totaling 30 hours of bottom time) off of the R/V *Fulmar* to characterize the diversity and abundance rockfish, as well as locate previously tagged fish.

For the Big Sur Nearshore Characterization project, MBNMS divers recorded presence and relative abundance of fishes, invertebrate, and algae and documented habitat at each site using underwater video and still photography (2 survey days, 24 dives totaling 25 hours of bottom time). Research staff from the UC Santa Cruz Chemistry department was also present during this expedition and conducted 16 dives of their own (10.3 hours of total bottom time).

An archaeological expedition (2 survey days total, 10 dives totaling 4.6 hours of bottom time) characterized various submerged cultural resources within the MBNMS.

On April 6, 2010, MBNMS and other local NOAA divers completed 13 training dives (5.9 hours of total bottom time) and practiced diving emergency procedures (diver extraction onto R/V *Fulmar* with crane and sling, tired diver tows, EMS procedural review, O2 administration review, etc.).

Geography of Dive Sites

Although 54 unique dive sites were recorded in FY 10, sites within one kilometer of each other were grouped; resulting in 32 generalized diving locations.

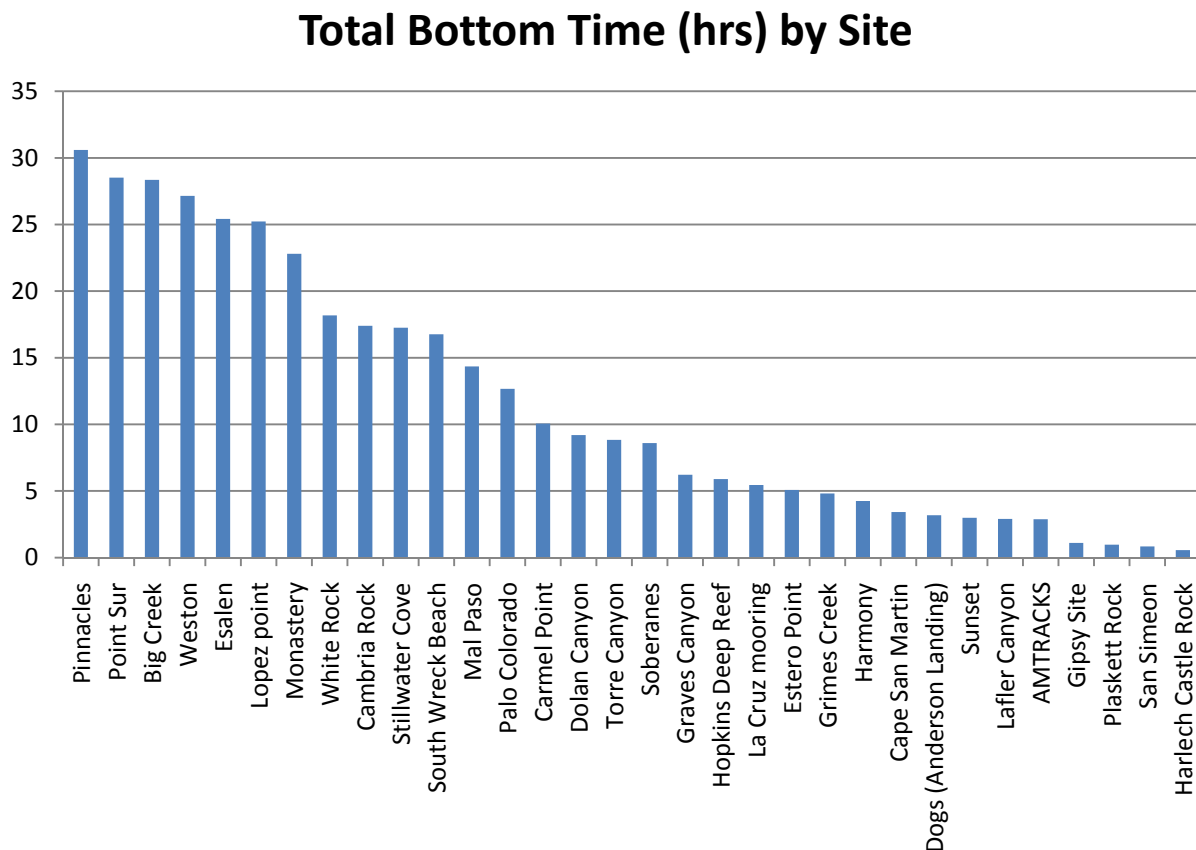


Figure 2. Total bottom time (hours) recorded at 32 dive sites (generalized from 54 unique coordinates).

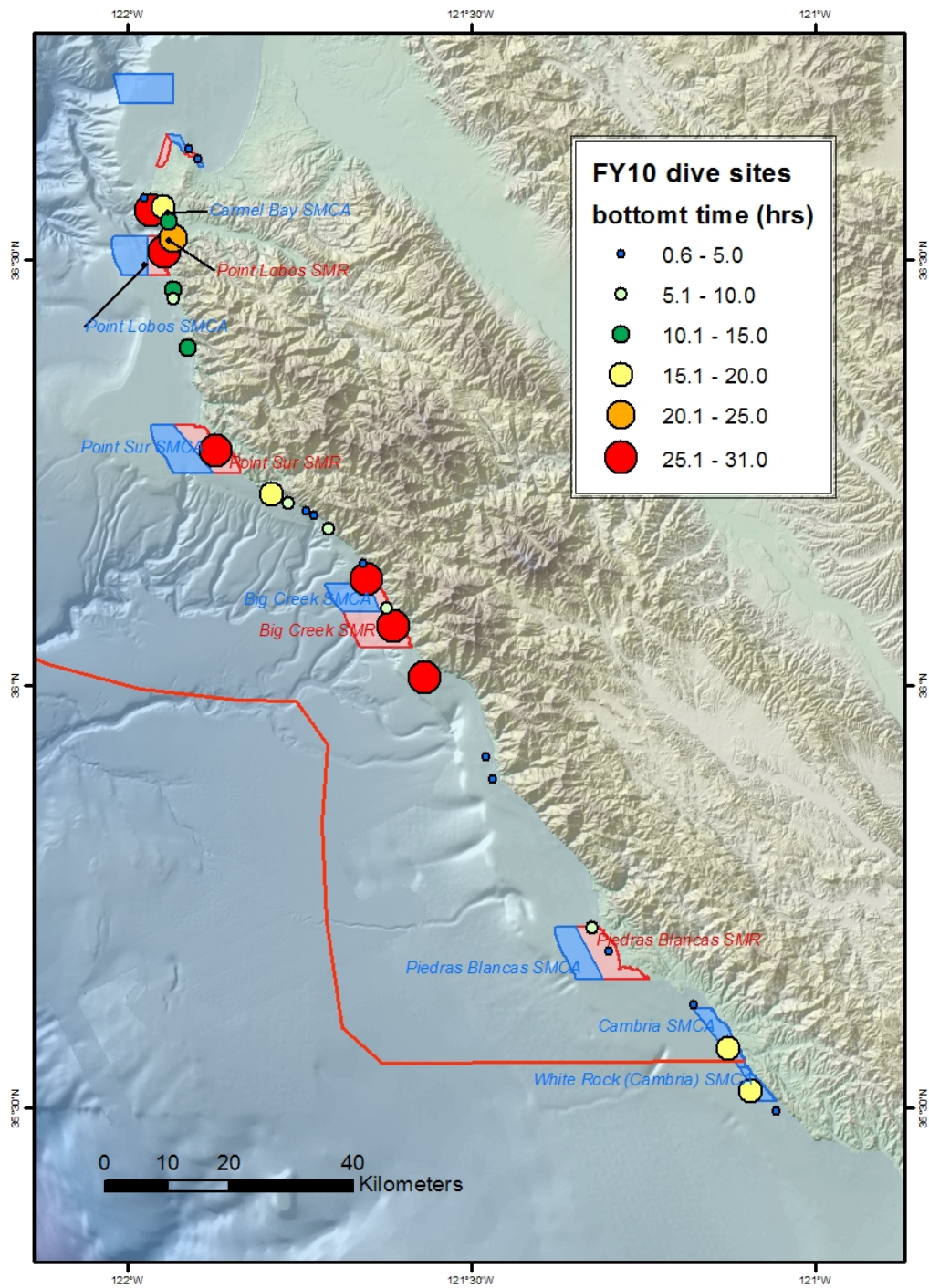


Figure 3. Map of 32 dive sites visited by the R/V Fulmar in FY 2010, symbolized by total bottom time (in hours).