

an infrastructure that collects data pertinent to the public, academic, private, and governmental institutions. In the design of future ocean observatories, therefore, a balance must be maintained between scientific objectives and the information needs associated with coastal issues of operational importance to regional institutions, governments, and commercial enterprises.

The purpose and locations (illustrated in Figure 3.2) of some successful moored and drifting projects are described below (organized by types of oceanographic regimes).

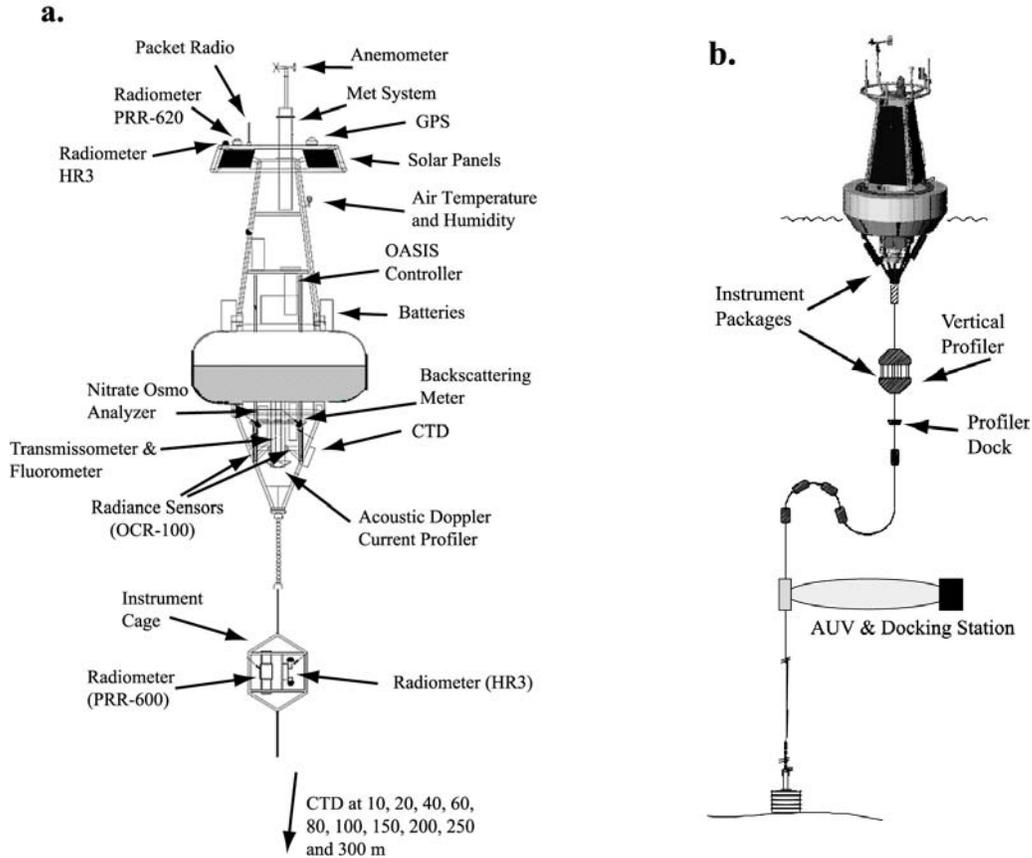


Figure 3.3: (a) Conceptual drawing of the MOOS moorings that are currently deployed. Each mooring is fitted with an assortment of biogeochemical and optical instruments. (b) Conceptual drawing of the new MOOS mooring platform by MBARI. Each buoy houses an assortment of bio-optical instruments in the tower, bridle, and along the harness cable to specific depths. Future moorings will also utilize a custom built vertical profiler and provide AUV docking stations.

Coastal and Continental Shelf Oceanographic Features and Processes

MOOS: The Monterey Bay Aquarium Research Institute (MBARI) has employed advanced mooring platforms in coastal waters for over a decade as part of an ongoing comprehensive Monterey Bay Ocean Observing System (MOOS; Figure 3.3). The main reasons for deploying moorings in coastal settings are to observe the time-series relationship between physical and biological dynamics in upwelling settings, study harmful algal blooms, advance our understanding of the three dimensional carbon cycling process, determine the impact of iron limitation on coastal primary productivity, and serve as a test and development site for new sensors and mooring technology. MOOS utilizes two moorings, located at 36.755°N, 122.025°W (M1) and 36.692°N, 122.390°W (M2), that work together as an array. The MOOS program also includes bi-monthly shipboard oceanographic surveys and routine monitoring of the study region using remote sensing observations. Recently, MBARI has modified the MOOS mooring concept to include satellite based bi-directional communications, event detection and response, as well as