Summary of 2008 Southern California Bight Regional Monitoring Program (Bight '08)

Rocky Reef Component

Significance

Southern California rocky reefs are among the most diverse and productive marine ecosystems in the world. Rocky reefs support giant kelp forests, providing food, shelter, and nursery grounds for many marine species. Several rocky reef monitoring programs are ongoing, but could benefit from standardization in regional approaches and data integration to track changes in reef health and their relationships with human influences. This is particularly true as the California Department of Fish and Game establishes Marine Protected Areas (MPAs) with regulations limiting harvesting.

Goals

This component sought to characterize (1) the distribution of rocky bottom habitats in the Bight (2) the range of natural biological conditions in these reef assemblages and (3) differences in condition based on anthropogenic (human) factors.

Approach

Multiple data sources including side-scan sonar, aerial overflights, satellite imagery, and subtidal visual surveys were combined to estimate habitat extent. Biodiversity surveys, conducted by SCUBA divers, were conducted at more than 60 rocky reefs throughout southern California. Sampled reefs were grouped into six major categories based on substrate type, and stratified based on co-location with Areas of Special Biological Significance (ASBS).

Findings

In total, there were approximately 120 natural rocky reefs at less than 30 meters depth in the Bight, which comprise 48,221 hectares and extend across 46% of the region's coastline. Reefs were much more prevalent near the offshore islands (75%) than along the mainland (25%). High relief rocky reefs were more common at the offshore islands. Lower relief reefs, which were more predominant along the mainland, tended to be at greater risk from burial and sedimentation.

Giant kelp was present at nearly all monitored sites, and urchin barrens (where kelp has been destructively grazed) were found at 38% of sites. Seventy-eight fish species were identified, and fish biomass at some sites was on par with protected ecosystems in other parts of the world. There was evidence of fishing pressure on kelp bass and California sheephead in Santa Monica Bay. Indications of anthropogenic water quality impacts were also observed, even in ASBS. Assessing the extent of water quality and/or fishing impacts was limited by the unavailability of assessment tools, such as a rocky reef condition index. The Bight '08 survey serves as one of the best pre-MPA baseline monitoring datasets statewide.

Tube worms living on a rocky reef covered with sediment

Final Report

Volume V. Rocky Reefs. SCCWRP Technical Report 685.