



Success

Central and Northern California Ocean Observing System

CeNCOOS

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Red Tide Response: Ocean Observations Benefit Local Abalone Industry

Management Issue

The Monterey Abalone Company recently lost about \$60,000 worth of abalone to a September 10th, 2007 red tide event caused by the dinoflagellate *Cochlodinium*, one of several dinoflagellates that can discolor the waters – often called a “red tide.” They are attempting to get Federal Crop Insurance to cover the loss, based on the criteria that it was an unusual weather event. The Monterey Abalone Company contacted the Center for Integrated Marine Technologies (CIMT) on the recommendation of Gregg Langlois (California Department of Public Health (CDPH)) to determine if we could help them, or if we knew anything about the red tides happening in the bay.

Approach

CIMT provided general information on weather conditions and red tides through their shipboard, mooring, pier-based conductivity temperature and depth sensor (CTD) and water sampling, remote sensing data, harmful algal blooms (HABs) and expert advise.

Particularly useful applications to the Monterey Abalone Company included:

- ◆ real-time winds page, www.cimt.ucsc.edu/rtd_winds.htm
- ◆ CIMT M0 mooring (especially the surface winds and temperature data)
- ◆ interpreted satellite imagery

This also represented a successful collaboration between multiple CeNCOOS partners resulting in an assessment of the oceanographic “weather” leading to a severe commercial abalone mortality event in Monterey Harbor. In addition to CIMT’s and the California Program for Enhanced Monitoring of Phycotoxins’ (Cal-PReEMPT) data from Raphe Kudela and Peter Miller, we relied on data and analysis from Erika McPhee Shaw, G. Jason Smith and Michael Graham (Moss Landing Marine Labs), Dan Hoover (Partnership of Interdisciplinary Studies of Coastal Oceans), Steve Lonhart (Monterey Bay National Marine Sanctuary), and the CDPH (Gregg Langlois) to work with the Monterey Bay Abalone Company by using observing data to explain the context of oceanographic events surrounding the bloom event.

Value

The direct application of the ocean observing system data are being used to file a claim to the USDA Non-Insured Crop Disaster insurance program, valued at \$60,000. On October 9, the Monterey Bay Abalone Company identified a second patch of *Cochlodinium*, and took preventative action (lowering the abalone to the bottom, removing them from the impacted surface waters), thus averting a second crop loss.

This event provided demonstration of coordinated activities to help an end-user, and we have established an ongoing communication with this company.

Future development

Two important issues were raised by this event. First, although there was a coordinated effort between various members of CeNCOOS, there was duplication of effort and data analysis by several groups. To mitigate this, we are currently planning the development of a “water quality” web page that will synthesize available data in near real time.

Second, an ongoing problem with standard remote sensing imagery was identified: the dense red tides are tripping a “chlorophyll failure” flag in the standard (automatically generated) products, making the Monterey Bay region appear to be cloudy, when there are in fact data available. CIMT is currently developing a new “red tide” product to identify this pattern in automatically-generated imagery. This will provide an early warning for high biomass event.

Resources

<http://www.cencoos.org>

<http://cimt.ucsc.edu>

<http://calpreempt.ucsc.edu>