Solving the Mystery Spill in Monterey Bay

Project Description

In November 2007 a mysterious slimy substance appeared on the ocean surface in Monterey Bay. Shortly thereafter, large numbers of sick or dead seabirds began appearing on Monterey Bay beaches. In response, CeNCOOS organized a group of scientists from a variety of ocean observing disciplines to examine evidence and determine the source of the slime and the sick seabirds. The team ultimately solved the mystery in what turned out to be a new scientific discovery!

Approach

A team was pulled together to investigate the cause of the bird strandings and to examine ocean conditions and patterns in November. The team compiled represented the following organizations: UC Santa Cruz, CA Department of Fish and Game, Monterey Bay Aquarium Research Institute, Center for Integrative Marine Technologies, BeachCOMBERS, Coastal Oceans Current Monitoring Program, Santa Cruz County Environmental Health Department and the Naval Postgraduate School.

Data were examined from each of these researchers, including: algal species identification, wildlife beach stranding counts, satellite chlorophyll data, rainfall and nutrient input, wave heights, ocean surface currents. After consideration of a number of potential factors, the presence of a large, intense red tide in Monterey Bay became the likely explanation for the wildlife sickness.

It was determined that a `perfect storm' of ocean conditions led to the abnormally large algal bloom of the dinoflaggelate, *Akashiwo sanguinea*. The slimy substance found on the ocean surface and on dead seabird feathers was analyzed and found to be a protein from the dinoflaggelate. The algae formed a foam that coated bird feathers, removing natural oils that keep birds warm in the cold Pacific Ocean waters.