



morro bay
volunteer monitoring

Morro Bay Volunteer Monitoring Program

Phytoplankton Monitoring Update

Winter 2004

Background

The Morro Bay Volunteer Monitoring Program (VMP) conducts phytoplankton pulls to assist the California Department of Health Services (DHS) Biotoxin Marine Lab track toxic blooms. These blooms are naturally occurring phenomenon in which the right combination of conditions exist to create the rapid growth of types of phytoplankton which are toxic to marine mammals and humans. These toxins bioaccumulate in filter feeders such as shellfish. Humans or marine mammals who eat the shellfish can become ill or even die from the biotoxins.

DHS began monitoring phytoplankton as an 'early warning' for shellfish biotoxicity. It can take up to several days for shellfish to become toxic after a phytoplankton bloom begins. This monitoring is simpler and less expensive than shellfish monitoring, which requires a bioassay

of the shellfish tissue. Volunteers up and down the coast of California use fine mesh nets to collect phytoplankton samples. Using a microscope, volunteers conduct counts down to the genus level. A datasheet and a preserved sample are sent to DHS for their review.

Volunteers conduct counts twice a month. Samples are collected once a month from the pier in Morro Bay and once a month from the Cayucos Pier.

The VMP began this monitoring with DHS in May of 2002.

Of the pulls conducted since our effort began, 44 have contained species potentially containing domoic acid and eight pulls contained species potentially containing paralytic shellfish poisoning.

Monitoring Update

The VMP was lucky enough to be able to meet up with Gregg Langlois, who runs the Biotoxin Monitoring program for DHS. He was in our area in late October and was able to stop by to chat with volunteers and program staff. He showed us field domoic acid kits, which are being developed to indicate the presence of domoic acid in shellfish growing waters. A filtered phytoplankton sample is added to a vial, various reagents are added and then the sample is applied to a tester strip. A bar shows up to indicate the presence of domoic acid. This is a presence-absence type of test. Although it does not indicate the amount of domoic acid present, it could prove to be more effective than observations of phytoplankton. Only some species of *Pseudo-nitzschia* contain domoic

acid, the toxin that can cause illness or even death in marine mammals and humans. Basic plankton observations do not allow us to tell whether or not we're seeing the toxic type of *Pseudo-nitzschia*.

Our volunteer pulls captured a number of *Alexandrium*, a type of phytoplankton that produces paralytic shellfish poisoning (PSP). Based on this tip-off, our program collected mussel samples that were sent to the DHS lab to be bioassayed. The alert level of PSP is 80 ug. Our shellfish sample from Cayucos Pier had a level of 248 ug. This data, along with results from other samples from throughout the county, lead DHS to issue a press release on December 17 instructing consumers to avoid sport-harvested shellfish as well as the viscera of other bivalves.

A special thanks to our phytoplankton volunteers!

Many thanks to the dedicated phytoplankton team. Volunteers who participated during 2004 are: Dave Hoover, Garry Johnson, Norm and Arlene Mayer, Marilyn Brandmeyer, Jesse Rountree, Alex, Chris, Hannah and Peter Butler, Amber Greening and Sam Vigil. As part of a state-wide network of phytoplankton monitors, your efforts helped a strapped state agency continue to ensure that our state's waters are safe for shellfish harvesting. Great work!