SWAMP
Surface Water Ambient Monitoring Program

2012 CENTRAL COAST AMBIENT MONITORING PROGRAM ACTIVITIES

What is it?

The Central Coast Region is divided into five watershed rotation areas, with one area assessed each year, so that all watershed areas are monitored over a 5-year cycle. Watershed rotation area sites are selected to include an "accumulator site" or coastal confluence site at the bottom end of the watershed, and a number of sites along the main stem and at major tributary inputs.

This tributary-based design is intended to aid in efficient identification of the general source areas of pollutant problems. In each watershed area, monthly samples are analyzed for conventional parameters (e.g., nutrients, pH, pathogen indicators) and flow. Because of funding restrictions, only those sites that can best characterize watershed sub-areas, such as the confluence of two major tributaries forming the main stem, are selected for additional sampling beyond these parameters.

In 2012, the Central Coast Ambient Monitoring Program (CCAMP) focused its efforts in one of the Region's five watershed rotation areas (including the Salinas River and Estrella River Hydrologic Units) and at coastal confluence sites in Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties within the Central Coast Region. Monitoring in this calendar year included the following:

- Monthly monitoring for conventional pollutants at 32 watershed rotation area sites and 33 coastal creek mouths throughout the region. Monthly monitoring focuses on nutrients, salts, metals, dissolved and suspended solids, bacteria indicators, and onsite measurements, including flow, pH, dissolved oxygen, salinity, and turbidity.

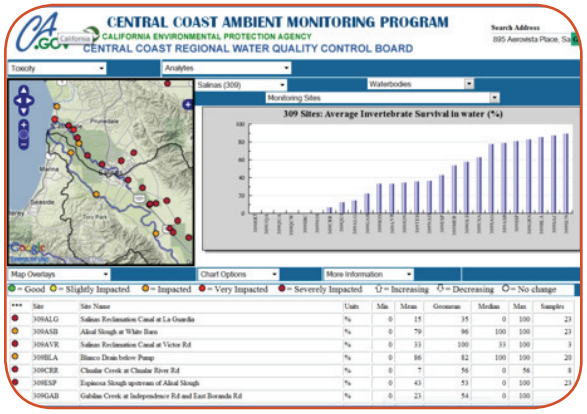
- Bioassessment for benthic macro-invertebrates, diatoms, and soft-bodied algae at 8 watershed rotation sites, targeting upper watershed locations.
- Collection of water column toxicity samples, targeting lower watershed sites, in both wet and dry season flows. These samples were tested using invertebrate, fish, and algae test organisms at 12 watershed rotation sites. Each sample was analyzed for concentrations of a suite of organophosphate pesticides.
- Collection of sediment toxicity samples, targeting lower watershed sites, from 15 watershed rotation sites during the spring. Each sample was analyzed for concentrations of a suite of pyrethroid pesticides and total organic carbon and grain size.
- Collection of additional tissue samples in follow up to the SWAMP Statewide Lakes Study, which found high levels of contaminants in fish tissue samples. Additional samples were collected and analyzed for mercury at two lakes in this watershed area.

Why is it important?

The 2012 calendar year study design will answer questions related to beneficial use support. These questions and relevant monitoring parameters include the following:

- Is it safe to swim?
  - Water Contact Recreation Beneficial Use is assessed using monthly data for fecal coliform and E. coli.
- Is it safe to drink the water?
  - Municipal and Domestic Water Supply Beneficial Use is assessed using monthly data for fecal coliform, E. coli, nutrients, and minerals.
- Is it safe to eat fish and other aquatic resources?
  - Shellfish Harvesting and Commercial and Sport Fishing Beneficial Uses are assessed using chemistry data from fish tissue collection at sites identified as high risk in the Statewide Bioaccumulation Study and Coastal Fish Contamination Program.
- Are aquatic populations, communities, and habitats protected?
  - Cold Freshwater Habitat, Warm Freshwater Habitat, and Spawning are assessed using conventional water quality data (e.g., dissolved oxygen, water temperature, ammonia), sediment and water column toxicity, sediment chemistry (e.g., pesticides and metals), and benthic invertebrate assemblages.

  - Rare, Threatened, or Endangered Species Beneficial Uses are assessed using data from monthly sampling for dissolved oxygen, nutrients, turbidity, and temperature; and from continuous probe monitoring for dissolved oxygen.
- Is water safe for agricultural use?
  - Agricultural Supply Beneficial Use is assessed using monthly sampling for nutrients, salts, and total dissolved solids.
- Are aesthetic conditions of the water protected?
  - Non-Contact Water Recreation Beneficial Use is assessed using monthly qualitative assessment of percent algal cover, presence of scum, trash, odor, etc.
- What are trends in various analytes of concern?
  - All conventional analytes are analyzed for long-term trend using both parametric and non-parametric approaches (Mann-Kendall trend analysis, change point analysis).



How will this information be used?

Monitoring data is used to update the CCAMP data browser, which contains maps, charts, and summary statistics for all data collected by the program. The CCAMP website is publically available and used by multiple programs at the Water Board. The findings will be summarized in a SWAMP fact sheet to be produced in 2014. CCAMP data supports a wide range of decision making by Regional Board staff and other users of the data. In addition, it is the primary source of data and information supporting the currently approved Clean Water Act Section 303(d) List of Impaired Waters. The above figure, taken from the CCAMP website, is an example of the data output for one of the toxicity tests (percent survival of invertebrates in water) in the lower Salinas River watershed area. Water toxicity has been primarily associated with chlorpyrifos and diazinon in past assessments.

For more information, email Mary Hamilton at mhamilton@waterboards.ca.gov or call her at (805) 542-4768. CCAMP data can be viewed at the CCAMP website.