

2013 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 and pathogen indicators) and flow. Because of funding restrictions, not all sites sampled for conventional water quality can be sampled for other parameters. 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 the conventional parameters.

In the 2013 calendar year, the Central Coast Ambient Monitoring Program (CCAMP) focused its efforts in one of the Region’s five watershed rotation areas, which includes the Santa Maria River and Carrizo Plains Hydrologic Units, and at coastal confluence sites (coastal creek mouths) in Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. Monitoring in this calendar year included the following monitoring types:

- Monthly monitoring for conventional pollutants at 30 watershed rotation area sites and at 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 three watershed rotation sites, targeting upper watershed locations.
- Collection of water column toxicity samples in dry season flows from eight watershed rotation sites, targeting lower watershed sites. These samples were tested using invertebrate, fish, and algae test organisms, and were also analyzed for concentrations of a suite of organophosphate pesticides.
- Collection of sediment toxicity samples in spring from eight watershed rotation sites, targeting lower watershed sites. Each sample was also analyzed for concentrations of a suite of pyrethroid pesticides, total organic carbon, and grain size.
- Monitoring of diurnal dissolved oxygen, pH, water temperature, and conductivity at eight watershed sites for a one-week period in the summer of 2013. Measurements were taken every 30 minutes for five to seven days in a row.
- Deployment of continuous temperature probes at 27 stations in spring of 2013 – later retrieved in fall.
- Due to dry weather and low flow conditions, some work that was planned for 2013 has been postponed to the 2014 calendar year, including follow ups to high levels of contaminants found in fish tissue and sediment samples collected as part of the Streams Pollution Trends (SPoT) Monitoring Program and a Region 3 study using Proposition 50 funds. In 2014, additional tissue samples will be collected and analyzed for synthetic pesticides in the lower Santa Maria River.



Why is it important?

The 2013 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 metals, 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 Streams Pollution Trends (SPoT) Monitoring Program and from a Region 3 study using Proposition 50 funds.
- **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 water quality parameters are assessed for trends using a non-parametric Mann-Kendall test.

- All water quality parameters are assessed for change over time using a Bayesian Change Point Analysis.

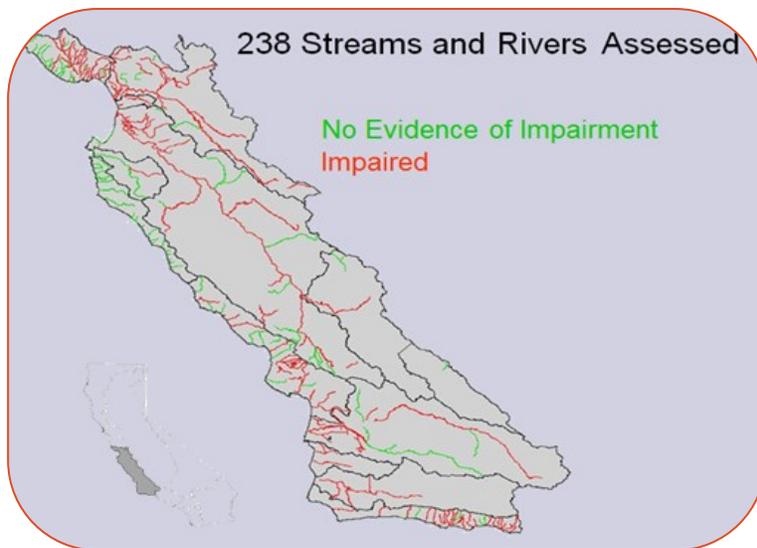


Figure 1. Map showing the locations of the Central Coast Region's stream and rivers and their assessments for the 2010 303(d) List assessment summary.

How will this information be used?

- Data are used to update the online CCAMP data browser and the Central Coast Healthy Watersheds Project, which contains maps, charts, and summary statistics for all data collected by the program. The [CCAMP website](#) will also use this data to inform [site specific report cards](#).
- The findings will be summarized in a SWAMP fact sheet to be produced in 2014.
- Data will be used in the development of Total Maximum Daily Loads.
- CCAMP data is one of the largest data sets supporting the currently approved Clean Water Act Section 303(d) List of Impaired Waters (Figure 1) and the 2014 assessment report currently under development.

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