

EPA Coastal Communications



U.S. Environmental Protection Agency EMAP Western Pilot - Coastal Ecosystems



Background

The U.S. EPA Environmental Monitoring and Assessment Program (EMAP) Western Pilot is a five-year effort led by EPA's Office of Research and Development to advance the science of ecosystem condition monitoring and to demonstrate the application of EMAP monitoring and assessment methods. It is intended to demonstrate the value of survey-based monitoring by applying these techniques to problems of Regional and State interest. The coastal portion of the EMAP Western Pilot will create an integrated, comprehensive coastal monitoring program along the West Coast to assess estuarine condition and develop the infrastructure in the EPA Regions and the states to implement this program. The coastal program is organized and managed by the National Health and Environmental Effects Research Laboratory's Gulf Ecology Division (Gulf Breeze, FL).



Coastal Indicators

Estuarine conditions are assessed using biological indicators such as plankton abundance, benthic community structure, fish community analysis, and the incidence of disease or other pathologies in fish. Stressors are evaluated by assessing water quality parameters, sediment contamination and toxicity, and the presence of contaminants in fish tissue. These stressor indicators are used to interpret the most likely cause of observed poor condition in biological indicators. These core EMAP coastal indicators are listed below.

Water Quality	Sediment Quality	Fish and Benthos
Dissolved oxygen Salinity, temperature, depth PH Nutrients Chlorophyll	Grain size Total organic carbon Sediment chemistry Benthic community structure Sediment toxicity	Community structure External pathology Tissue analyses

1999 Sampling



During the first year's effort (1999) EPA and state resource personnel conducted an assessment of the condition of the small estuarine systems (< 250 km²) in the States of California, Oregon and Washington. Over 200 sites were scheduled for sampling in these states' small bays, estuaries, tidal rivers, and tidal streams. All estuarine resources were included in the survey with the exception of the Puget Sound system, the Columbia River, and the San Francisco Bay system (see Future Activities below). Two types of the estuaries sampled are shown at right. The number of successful samples collected is listed below. The most common reason for unsuccessful sampling was the inaccessibility of a site. For small estuarine systems along the West Coast, 3.6% ± 1% of estuarine area cannot be sampled.



Dominguez Channel, CA
Estero Americana, CA



State (# Expected Sites)	# Sites - Water Quality (% of Expected)	# Sites - Sediment Quality (% of Expected)	# Sites - Fish/Benthos (% of Expected)
Washington (50)	44 (88%)	40 (80%)	43 (86%)
Oregon (80)	78 (98%)	76 (95%)	78 (98%)
California (80)	79 (99%)	73 (91%)	72 (90%)

Future Activities

Samples for sediment chemistry, toxicity, benthic community structure, and tissue contamination will be completed by April 2000. In summer of 2000, Coastal EMAP will complete its estuarine assessment with surveys of the large estuarine systems - Puget Sound, San Francisco Bay, and Columbia River. In 2001, the plan is to survey the estuaries and offshore coastal waters of Alaska and Hawaii. In 2002, Coastal EMAP will sample the offshore areas of the three primary Pacific Coast States (California, Oregon, and Washington). All of these surveys are designed to be used by ORD's National Coastal Survey.

Further Information

For further information, please contact Kevin Summers at (850) 934-9244 or summers.kevin@epa.gov. General information on the U.S. EPA EMAP is available at <http://www.epa.gov/emap>.