

Reporting of Results from the NOAA Mussel Watch Contaminants of Emerging Concern (CECs) Early Warning Network: California Pilot Project

Estimated Cost: \$25,000
Proposed by: Susan Klosterhaus, SFEI

Background

Beginning in 2009, the RMP teamed up with NOAA, SCCWRP, the State Water Board, and the USGS, to conduct the NOAA Mussel Watch CECs Early Warning Network: California Pilot Project. Motivated by a desire to increase its focus on CECs, but lacking information on which CECs to monitor, the NOAA Mussel Watch Program (NMWP) suspended its traditional nationwide effort for 2010 and dedicated the entire analytical budget to the California Pilot Project. The outcome of the project will be a priority list of CECs to consider in future NMWP efforts nationwide, based on which CECs are detected in mussels throughout California.

In 2010, mussels from approximately 80 sites throughout the state were collected and sent to laboratories for analysis of a wide variety of CECs, including over 100 pharmaceuticals and personal care products, polybrominated diphenyl ethers and their replacements, perfluorinated compounds, alkylphenols, and single-walled carbon nanotubes. Sites were selected to provide information on the relative influence of different land uses, sources, and loading pathways on chemical contamination in coastal waters. The land uses examined include municipal wastewater, agricultural, urban, non-urban, stormwater discharges, and marine protected areas. At sites where resident mussels were not found, caged mussels and passive samplers were deployed.

As part of the statewide project, a combination of resident mussels, deployed mussels, and passive samplers collected from San Francisco Bay were analyzed. Resident mussels were collected from the four core Mussel Watch sites in the Bay (Yerba Buena Island, Dumbarton Bridge, San Mateo Bridge, and Emeryville). Samples from wastewater and agriculturally influenced sites in the Bay were also needed to meet the goal of including 10 sites for each of the land use strata statewide. Collecting resident mussels is preferred because they have been exposed to chemical contaminants for a minimum of several months and the field work for collections is less labor intensive than deployments. However, resident mussels were not available at these sites in the Bay and thus deployed mussels and passive samplers were used. In San Francisco Bay, passive samplers were deployed at five sites (Yerba Buena Island, Mallard Island, Petaluma River, Napa River, and Coyote Creek) and deployed mussels were collected from four RMP sites (Yerba Buena Island, Red Rock, Coyote Creek, and San Pablo Bay).

Compilation and quality assurance review of the CEC data are expected to be completed by late summer 2011. Data from the San Francisco Bay samples will be summarized as part of the RMP CEC Synthesis report, which is scheduled for completion in the summer of 2012. Results from the entire statewide project will be reported as a series of manuscripts in a peer-reviewed journal and as presentations at regional and national meetings. SCCWRP staff and the participating

analytical laboratories have already committed to participating in the development of manuscripts for the project. Along with SCCWRP and Water Board staff, SFEI staff have been involved with project design and implementation and are now being asked to assist with the reporting of project results. However, funding is needed because NOAA is unable to provide funding to the project partners.

The data generated from this study are expected to influence the management of CECs in the entire state and will be valuable in the consideration of future CEC monitoring efforts by the RMP. Taking a lead role in reporting and presentation of study results will further support the reputation of the RMP as a leader in CEC monitoring nationwide.

Study Objective and Approach

The objective of this study is to assist in the preparation of manuscripts for publication in a peer-reviewed journal and presentations at regional and national meetings. Project partners will draft approximately 8-10 manuscripts for publication in a special issue dedicated to the project in Marine Pollution Bulletin. SFEI staff are being asked to serve as lead author on the flame retardant manuscript, and as co-authors on two other project summary articles. The deadline for completing the manuscripts is currently estimated to be December 2011.

Presentation of project results is expected to occur at regional and national meetings (e.g. Special Session at the 2012 Society of Environmental Toxicology and Chemistry conference, Long Beach, CA).

Estimated Budget

Coordination and consultation on data review (Susan Klosterhaus)	\$4,000
Preparation of flame retardant manuscript (Susan Klosterhaus, lead)	\$15,000
Review of two co-authored manuscripts (Susan Klosterhaus)	\$2,000
Preparation of presentations at SETAC Long Beach in 2012 (Susan Klosterhaus)	\$4,000
Total	\$32,000