

The Pulse of the Estuary

Monitoring and Managing Water Quality in the San Francisco Estuary

2006

About This Report

The Pulse of the Estuary is the Annual Report of the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP). The RMP is an innovative program providing the scientific foundation needed for managing water quality in a treasured aquatic ecosystem. The purpose of *The Pulse* is to make the most important information generated each year on water quality in the Estuary accessible to water quality managers, decision-makers, scientists, and the public.

The Pulse documents the extensive efforts made each year to manage and monitor water quality in the Estuary. A notable improvement this year is the achievement of a one-year turnaround from collection of RMP samples to reporting in *The Pulse*. This was accomplished through a concerted team effort of RMP staff and contractors. Due to this improved turnaround and a shift in the publication schedule, this *Pulse* reports two years worth of new monitoring results (from 2004 and 2005).

This *Pulse* describes many positive developments in managing and monitoring water quality in the Estuary. Cleanup plans (TMDLs) for mercury, PCBs, and selenium are in various stages of development and completion (page 6). A draft TMDL for PCBs is scheduled for release this fall, and will provide a focal point for tackling one of the Estuary's most persistent water quality problems (page 40). The TMDL will focus on reducing urban runoff loads, particularly in storm drain systems. A recent investigation in west Oakland provides an excellent demonstration of how environmental detective work in an urban watershed can represent the initial steps in the challenging task of finding cost-effective methods to reduce PCB loads from urban runoff to the Estuary (page 53).

The Water Board is developing new water quality objectives for cyanide, copper, and nickel (page 6). RMP data have shown that concentrations of these pollutants are generally below thresholds for concern in the Estuary. For example, a wealth of data on copper from the RMP and other sources has provided confidence that the water quality objective is rarely being exceeded (pages 24-25). Reduced loading of copper is considered to be one of the possible explanations for a surprising recent trend towards increased abundance of phytoplankton (page 62). Similarly, RMP data suggest that cyanide concentrations are below the threshold for concern, even though the existing standard is probably inappropriately low for this ecosystem. These examples demonstrate how RMP data help managers determine which pollutants are not a problem in the Estuary so that attention can be focused on the ones that are.

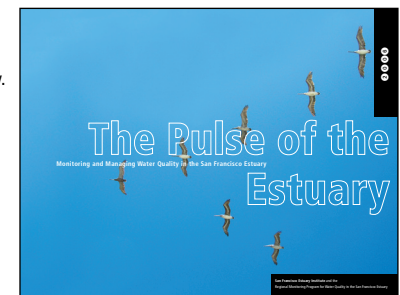
This issue of *The Pulse* also highlights some of the challenges currently being faced by water quality managers. Even though the activities that led to environmental contamination generally ceased long ago, mercury and PCBs are particularly formidable problems due to their widespread distribution in the watershed, persistence in the environment, and the way in which the Estuary traps contaminated sediment particles for many decades. For pollutants such as copper that are currently below thresholds of concern, continued management and monitoring is needed to ensure that concentrations remain low. Monitoring is also essential in identifying new pollutants of concern, several of which are highlighted in this issue. The use of pyrethroid insecticides has been increasing in recent years, and pyrethroid-induced toxicity in waters of the Bay-Delta has also been on the rise (page 71). Pyrethroids are highly toxic to fish, and are under consideration as one of the possible causes of the recent sharp decline in populations of several fish species (page 27). Other chemicals in current use, such as PBDEs (brominated flame retardants) and PFCs (fluorinated stain repellants and Teflon), are appearing in the water, sediment, and food web of the Estuary (pages 22 and 26).

The Pulse of the Estuary is one of three types of RMP reporting products. The second, the Annual Monitoring Results, is distributed via the SFEI web site (www.sfei.org) and includes comprehensive data tables and charts of the most recent monitoring results. The third product is the RMP Technical Reports series. RMP Technical Reports each address a particular RMP study or topic relating to contamination of the Estuary. A list of all RMP reports is available at www.sfei.org.

Comments or questions regarding *The Pulse* or the Regional Monitoring Program can be addressed to Dr. Jay Davis, RMP Manager, (510) 746-7368, jay@sfei.org.

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