

Synthesis Report on Contaminants of Emerging Concern in San Francisco Bay

Estimated Cost: \$45,000
Oversight Group: Emerging Contaminant Work Group
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Background

Since 2006 the RMP has been collecting data on contaminants of emerging concern (CECs) to proactively identify unregulated chemicals that have the greatest potential to adversely affect the health of San Francisco Bay wildlife and humans that are linked to the Bay food chain. With guidance from the Emerging Contaminants Work Group (ECWG), RMP pilot and special studies have focused on preliminary monitoring of pharmaceuticals, perfluorinated chemicals (PFCs), and flame retardants in Bay samples. Pro bono analyses of a variety of CECs by other laboratories have substantially augmented this work. In 2011, other information generated by the RMP, the State Water Board, and the NOAA Mussel Watch Program will be available that is expected to influence the management of CECs in San Francisco Bay and the entire state. A summary document that synthesizes these data and other information in the context of CECs management in San Francisco Bay is needed to guide future monitoring efforts by the RMP.

Study Objective and Applicable RMP Management Question

The objective of this study is to prepare a summary report that (1) synthesizes the CEC occurrence data available for San Francisco Bay, (2) relates these data to recommendations provided by the expert advisory panel for prioritization and monitoring of CECs in discharges to coastal waters, and (3) recommends next steps for monitoring CECs in San Francisco Bay. This study would address the following RMP management question (MQ):

MQ1. Are chemical concentrations in the Estuary at levels of potential concern and are associated impacts likely?

- A: Which chemicals have the potential to impact humans and aquatic life and should be monitored?
- B: What potential for impacts on humans and aquatic life exists due to contaminants in the Estuary ecosystem?

Approach

The report will include occurrence data, including a comparison of Bay data to other locations, and conclusions/recommendations from the projects and information sources listed below.

RMP Preliminary Monitoring Studies

- South Bay surface water pharmaceutical study (2006)
- PFCs in mussels (2010), small fish (2009), sportfish (2009), harbor seals (2006-2008) and bird eggs (2006-2009)
- Non-PBDE, current-use flame retardants in sediments and wildlife (2008-2009)
- Triclosan in sediments (2008)

- Chlorinated paraffins in wildlife (2008)
- Nonylphenol in small fish (2009)
- PFCs in tributary waters, ambient surface water, sediment, and wastewater effluent
- PPCPs, alkylphenols, and PFCs in mussels, water, sediment (2010)
- Single walled carbon nanotubes in sediment (2010)
- Screening of biological tissues for CECs (2010-2011)

Other Peer-Reviewed Studies of CECs in San Francisco Bay

In addition to those conducted by the RMP, other research groups have conducted studies on CECs in the Bay. Studies on PFCs, the antifoulant Irgarol, and others are available in the peer-reviewed literature and will be summarized in this report.

NOAA Mussel Watch California CEC Pilot Study

A pilot study is being conducted in 2010 by state and federal agencies to determine which CECs should be added to the list of target analytes for the national NOAA Mussel Watch Program. Pharmaceuticals and personal care products (PPCPs), polybrominated diphenyl ethers (PBDEs), polybrominated biphenyls (PBBs), alternative flame retardants, PFCs, alkylphenols, and pesticides (pyrethroids, organochlorines, organophosphates, other current use pesticides) will be analyzed in resident mussels throughout the State. In San Francisco Bay, resident mussels were collected from the four core Mussel Watch sites (Yerba Buena Island, Dumbarton Bridge, San Mateo Bridge, and Emeryville). Resident mussels, caged mussels and/or passive samplers will also be deployed near three wastewater treatment plant outfalls and three agriculturally influenced sites in the Bay and analyzed for CECs. These data are expected by the end of 2010 with a report available in 2011.

Advisory Panels on Recycled Water and CECs Discharges to Coastal Waters

Expert advisory panels have been convened by the Water Board to provide recommendations on the incorporation of current knowledge of CECs into regulatory activities related to the Recycled Water Policy and the discharge of CECs to ambient coastal waters. These recommendations will include strategies for inclusion of CECs in monitoring programs and processes for determining thresholds of concern. The final recycled water report will be available in the summer of 2010 and the coastal water policy is expected in 2011. Findings from these reports will be included in the synthesis document and data gaps will be identified.

Recommendations for Next Steps

In the context of the synthesis of available data and the advisory panels' recommendations, recommendations will be made for next steps for the RMP to address CECs.

Budget

Synthesis reporting	
-- RMP and other peer-reviewed study summaries	\$14,000
-- NOAA Mussel Watch data analysis, reporting	\$16,000
-- Comparison to advisory panel summaries	\$5,000
-- Synthesis and recommendations for next steps	\$10,000
Total	\$45,000