

Workgroup Activities – Fourth Quarter 2012

A. Contaminant Fate Workgroup

Purpose of Workgroup

The purpose of the workgroup is to evaluate the fate of contaminants in the Bay, to understand the contribution of Bay margins to the overall health of the Bay, and to assess the potential impacts of Bay management actions on Bay recovery.

Meetings:

The Contaminant Fate Workgroup (CFWG) will meet in the Fall/ Winter to review tactical plans developed in coordination with the nutrient monitoring and modeling efforts and to further refine modeling work for 2013.

Milestones:

- Completion of the Margins Conceptual Model. The document can be found at the following link: (<http://www.sfei.org/documents/margins-conceptual-model>). The margins of the Bay are teeming with important activities: industrial activities such as airports, refineries, ports, and landfills as well as biological activities such as wetlands, bird rookeries, and seal haul-out sites. It represents a complex environment where the watersheds meet the Bay. This report identifies key processes – physical, chemical and biological – and explores modeling efforts that can be used to help us better understand this complex environment.

Activities for the Fourth Quarter of 2012:

- Development of tactical plan. Drs. Jones, Yee, Senn, and Davis discussed an outline of a plan with a smaller group of RMP stakeholders and Water Board staff on May 1st and June 4th. There was support for integrating the modeling efforts as much as possible, but some differences in the spatial and temporal scales of interest and timelines for products needed for various management questions. Partnering efforts with other agencies already modeling in the Bay will be explored and developed.

For more information, see previous CFWG minutes and agendas at our website <http://www.sfei.org/rmp/cfwg> or contact the CFWG leader, Don Yee, at don@sfei.org.

B. Sources Pathways and Loading Workgroup (SPLWG)

Purpose of Workgroup

The purpose of the workgroup is to monitor storm water, small tributaries, and delta outflow to understand contaminant loads to the Bay, to identify high priority tributaries for management actions, to evaluate how loads are changing over time, and to assess possible options for improving water quality.

Meetings:

The SPLWG will meet on October 24th, 2012. The Small Tributary Strategy Loading team meets almost monthly to assure that RMP activities are coordinated with the Municipal Regional Permit requirements, Regional Board staff and BASMAA staff.

Milestones:

- Completion of the draft report: Pollutants of Concern Loads Monitoring Data Water Year 2011.
- Completion of the draft Technical Memorandum: Event Mean Concentration Development for the Regional Watershed Spreadsheet Model.
- Completion of the Copper Test Case Model for the Regional Watershed Spreadsheet Model.
- All three of these reports will be discussed at the upcoming SPLWG meeting.

Activities for the Fourth Quarter of 2012:

- RMP staff are prepared for the wet weather sampling at six sites: North Richmond (new this year to RMP), Pulgas pump station (new this year), San Leandro Creek, East Sunnyvale Channel, Lower Marsh, and Guadalupe. The sites that will be covered by the RMP are North Richmond and Sunnyvale.

These watersheds will be monitored for a variety of constituents including: PCBs, PAHs, PBDEs, pyrethroids, mercury, copper, selenium, suspended sediment, nitrate, and toxicity.

The next SPLWG meeting will be held on October 24th, 2012. For more information, see previous SPLWG minutes and agenda at our website <http://www.sfei.org/rmp/splwg> or contact the SPLWG lead, Lester McKee, at Lester@sfei.org.

C. Exposure and Effects Workgroup

Purpose of Workgroup

The Exposure and Effect workgroup seeks to answer the following questions: Are pollutants individually or in combination having adverse impacts on Bay biota?; Are there spatial and temporal trends?; Which pollutants are responsible for the impacts?; Are there cost-effective tools that can be used to easily monitor these impacts?; and What are the appropriate guidelines?

Meetings:

- The workgroup met with the Emerging Contaminants workgroup to discuss bioanalytical tools and EEWG projects for 2013. The workgroup reviewed the progress on the copper and olfactory nerve project and the PAH and juvenile flatfish. Preliminary copper experiments suggest that there is relatively little toxicity to the olfactory nerve at levels that are observed in the estuary. Confirmation studies will be conducted Summer/Fall

2012. Similarly relatively few adverse outcomes were observed for juvenile flatfish at levels observed in the estuary; however, histology work remains to be completed.

Milestones:

- Completion of the draft report on effects of PAH on juvenile flatfish. A draft report was made available at the meeting; however, additional work needs to be incorporated into the report including histology.

Activities for the Fourth Quarter of 2012:

- Completion of the EEPS Summary document.
- Planning for the Mesohaline Index Development for 2012 and the Causes of Moderate Toxicity workshop at the fall National SETAC meeting.

The next workgroup meeting will be held in Spring 2013. For more information, see previous EEWG minutes and agenda at our website <http://www.sfei.org/rmp/eewg> or contact the EEWG lead, Meg Sedlak, at meg@sfei.org.

D. Emerging Contaminants Workgroup

Purpose of Workgroup

The purpose of the emerging contaminant workgroup is to identify contaminants of emerging concern (CECs) that have the potential to adversely impact beneficial uses of the Bay.

Meetings:

The ECWG met on May 16th to discuss the recently completed synthesis document, a strategy for prioritizing chemicals of emerging concern in the RMP, siloxanes, and an update on the non-targeted screening of Bay Wildlife. The bioanalytical tools proposal for 2013 was discussed and will be brought forward with some caveats. Other proposals for 2013 include an update on PBDEs, a review of current use pesticides and a method for updating the CEC strategy.

Milestones:

- Preparation of an Emerging Contaminants Synthesis report.
- Manuscript on Alkylphenols and PPCPs in San Francisco Bay was accepted to the journal, Environment International.
- Completion of a draft PFC sources paper (sent to ECWG for comment).

Activities for the Fourth Quarter of 2012:

- Development of an Emerging Contaminants Strategy.
- Two manuscripts summarizing the National Mussel Watch sampling in California for chemicals of emerging concern. One paper will focus on personal care products, alkylphenols, current use pesticides and nanomaterials. The second paper will focus on

flame retardants and perfluorinated compounds. This work is being conducted by SCCWRP.

- Continuation of NIST broadscan work. Samples of harbor seals and mussels have been sent to NIST for method development and analysis.

Next ECWG meeting will be held Spring 2013.

For more information, see previous EC workgroup minutes and agenda at our website <http://www.sfei.org/rmp/ecwg> or contact the ECWG lead, Meg Sedlak meg@sfei.org.

E. Nutrients

Purpose of Workgroup

The purpose of this workgroup is to evaluate nutrients, methods for monitoring nutrients/indicators, and scenarios that may result in adverse impacts to the Bay.

Meetings

The Nutrient Conceptual Model Technical Team met on September 14th, 2012 to revise conceptual models for nitrogen, phytoplankton biomass, and phytoplankton community composition, and to discuss a problem statement (what would a nutrient problem look like in SF Bay if one were to occur?) and future scenarios (what future environmental or anthropogenic changes would have to occur in order to bring about this problem, and how could management changes mitigate this problem?)

Milestones

- A proposal was written and submitted to the Interagency Ecological Program (IEP) 2012 Call for Study Concepts. The 1-year project was proposed for \$181,000 and is a collaboration between SFEI, USGS and Resource Management Associates (RMA). The project would consist several tasks, including analyzing existing nutrient data to identify seasonal and temporal nutrient trends in the Delta, extending the DSM-2 biogeochemical model through 2011 using existing concentration and stable isotope data, applying the updated DSM-2 model to characterize nutrient transformations and losses through the Delta under a range of flow conditions and quantifying nutrient loads to Suisun Bay from the Delta. A decision on the status of the project is expected by November 2012.
- A draft version of the nutrient strategy was presented to the SAG on June 22nd 2012. A revised draft strategy that addresses the feedback has been sent out for internal review, and a final strategy will be distributed in February that is intended to be a living document that will be updated on an as needed basis. [This effort is funded by BACWA through a Region 2-BACWA agreement]
- The approach for developing the nutrient conceptual model was developed in February-April, through literature review and meetings with regional scientists and stakeholders. The conceptual model technical team met on September 14, 2012 to discuss draft chapters on nitrogen cycling, phytoplankton biomass and phytoplankton community composition. Conceptual models on phosphorous cycling, silica cycling, dissolved oxygen and hydrodynamics are in progress. The Conceptual Model Technical Team will

reconvene in early December to discuss the remaining two chapters: problem statement and future scenarios.

- Field work for nutrient stormwater measurements was carried out in January-April 2012. Final nutrient data arrived at SFEI in late May, and the RMP data management group completed QA/QC on June 12. Analysis of data, data interpretation, and preparation of a technical has been delayed due to on-going discussion with BASMAA about data usage.
- Field work for nutrient stormwater measurements for water year 2013 is underway. This year, sampling will occur for 4 storms at each of 6 watersheds for the following analytes: total kjedhal nitrogen (TKN), total phosphorous, PO₄, NH₄, NO₃ and NO₂ (as the budget allows).
- A website for the nutrient strategy was created, with information on nutrient strategy partners, projects, documents and upcoming events, as well as links to useful science and management pages and partners. (<http://bayareanutrients.aquaticscience.org/>) [This effort is funded by BACWA through a Region 2-BACWA agreement]
- A draft of the Suisun Synthesis report is underway. It includes chapters on phytoplankton nutrient uptake, primary production, zooplankton ecology in and a synthesis of existing water quality data in Suisun Bay. A finalized first draft of this report will be sent out for review by the end of October. [This effort is funded by BACWA through a Region 2-BACWA agreement]

Activities for the Fourth Quarter of 2012:

- The Suisun Synthesis Report will be distributed for review by the end of October and will be discussed at the November 19 SAG meeting.
- Work on the Nutrient Conceptual Model Report will continue through December 2012. Chapters on phosphorous cycling, silica cycling, dissolved oxygen and hydrodynamics will be developed prior to the next technical team meeting in early December, and the final chapters on the problem statement and future scenarios will be discussed at this meeting. The technical team will review the complete draft of the report before distribution for external review in December 2012.
- The Nutrient Stakeholder Advisory Group will reconvene on November 19, 2012 to discuss the progress of several deliverables: the revised Nutrient Strategy, the Suisun Synthesis report, an Assessment Framework work plan and the nutrient conceptual model. Additionally, the SAG will receive an update on funded projects for 2013. [This effort is funded by BACWA through a Region 2-BACWA agreement]
- Nutrients stormwater monitoring for water year 2013 will continue through Winter 2012-2013.
- Work will begin on exploring potential goals, structure and costs of a Nutrient Monitoring Plan for San Francisco Bay. Currently San Francisco Bay has no regionally-funded and regionally-coordinated nutrient monitoring program. Current efforts are managed by several different partners (with different analytical techniques), some of whose funding future is uncertain. With the guidance of a technical advisory team, key goals of a monitoring plan will be identified, possible programmatic structures and institutional agreements will be explored and costs estimates will be developed. The technical advisory team will meet in early 2013, and draft report of recommendations will be completed by November 2013, with a final draft in December 2013. [This work is funded by the State Water Resources Control Board]

- Work will continue on the nutrient loading study in Winter 2012-2013. Key goals include refining POTW loads to individual Bay segments based on actual historic data (2004-2011) that will become available through a request from the Regional Board, and through individual requests by SFEI staff to POTW managers. Nutrient data from past stormwater studies data collected in the region will be used, along with a “spreadsheet” hydrological model, to calculate approximate seasonal or monthly loads from stormwater to individual Bay compartments. Effort will also be directed toward improving the estimates of seasonally- and temporally-varying loads from the Delta to Suisun Bay.

For more information, please contact David Senn at davids@sfei.org.

F. Dioxin

The dioxin strategy team met on October 26th, 2011 to review the sediment, water, and biota samples that have been collected to date. The water samples were dominated by the octa and the hepta congeners. Sediment samples were collected in both wet and dry seasons and no significant differences were noted; similarly, concentrations remain the same as those observed in 2000. Spatial patterns suggest broad regional trends. Again sediments are dominated by octa and hepta congeners. In the sediment cores, there appears to be a peak after WWII followed by a decline. Dioxin concentrations in shiner surfperch and white croaker continue to exceed the RWQCB guidelines. It was proposed that upon completion of the dioxin studies, it would be appropriate to conduct a dioxin synthesis (2014). Some members thought mass balance and food web model products should be folded into the synthesis rather than as separate reports.

Activities for the Fourth Quarter of 2012:

- Develop a scope of work for dioxin analysis of sediment based on strategy team recommendation.

For more information, please contact Don Yee at don@sfei.org.

G. Status and Trends Sport Fish

Purpose of Workgroup

The purpose of the workgroup is to design RMP studies relating to sport fish contamination.

Meetings

The workgroup met on July 10th for a general update and to hold initial discussions of information gaps that could be addressed in the next round of sampling. RMP sport fish monitoring has been switched from a three-year cycle to a five-year cycle to maximize cost-effectiveness and to coordinate with state-wide monitoring efforts. The next round of sampling will occur in 2014.

Milestones

For more information, please contact Jennifer Hunt at jhunt@sfei.org.

H. Items of Interest

There are a number of interesting activities that are not RMP-related but nonetheless of interest to the RMP community.

Delta RMP

The Delta RMP has organized a Steering Committee consisting of POTWs, stormwater programs, agricultural water quality coalitions, the Interagency Ecological Program (IEP), the State and Federal Water Contracting Agencies (SFWCA), the Central Valley Regional Water Board, and the U.S. Environmental Protection Agency (USEPA). The Steering Committee will be deciding on a lead entity for the long-term implementation. A meeting summary and background materials are available at the Central Valley Regional Water Board's Delta RMP. http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/index.shtml.

- *Pulse of the Delta 2012: Linking Science & Management Through Regional Monitoring*
The Pulse of the Delta 2012 has been printed and distributed. This second edition includes a key note article on the benefits of regional monitoring and management updates on the Delta RMP, U.S. EPA's Bay-Delta Action Plan, and Nutrient Numeric Endpoints for the estuary. This year's feature articles shine a spotlight on new research that may help wetland managers in the Delta reduce the methylmercury problem and showcase the history and future of the IEP in the context of the historic and future ecosystem. And new this year is a status and trends section that highlights the latest monitoring results and tracks lead indicators for water quality and ecosystem health in the Delta. For more information, contact Thomas Jabusch (thomas@aquaticsciencecenter.org, 510-746-7340)

SWAMP Bioaccumulation

Jay Davis is assisting monitoring biota at the State level. Current activities include preparing a report on contaminants in fish in California rivers and streams (due May 2013), a study of mercury effects on wildlife in California lakes (sampling summer 2012), a workshop on biotoxin monitoring on November 28th (see below), a Statewide Bioaccumulation Oversight Group meeting on December 17th (see below), a forthcoming report documenting long-term trends in bioaccumulation in mussels, and development of a statewide strategy for bioaccumulation monitoring, assessment, and communication.

- SWAMP Workshop on Cyanotoxins in Freshwater Habitats on November 28
Cyanotoxins from harmful algal blooms have been causing problems in a number of water bodies in California, and have resulted in drinking water supply concerns, wildlife and domestic animal deaths, human health risks, and restrictions on shellfish harvesting. In spite of these well-documented problems, no monitoring efforts are in place to routinely screen for harmful algal blooms or associated cyanotoxins in water or organisms in California's freshwater habitats. To begin to address this need, the State Water Resources Control Board's Surface Water Ambient Monitoring Program is holding a workshop on November 28 at the San Francisco Regional Water Quality Control Board in Oakland, CA. A series of talks by managers and scientists at the forefront of this issue

will be presented. The workshop is intended to educate managers about the potential harmful effects of cyanotoxins and factors leading to cyanotoxin production. Space is limited and attendees must register in advance through the Water Board Training Academy (<http://www.trainingforce.com/6/lp/gowater.aspx?ot=9&otid=1735>). Although the workshop is set up as a training session for Water Board staff, others are also welcome to attend. For more information, please see the SFEI web site for the flyer or contact Jay Davis at the San Francisco Estuary Institute (jay@sfei.org).

- **Bioaccumulation Symposium**

The bioaccumulation symposium will be held at the Department of Public Health on December 17th in Richmond, CA. The agenda is still in draft form.

California Monitoring Council

The California Water Quality Monitoring Council invited a sizeable contingent from SFEI-ASC to provide updates on mapping and data management needs, as well as regional monitoring efforts in central and northern California. The Council operates under a Memorandum of Understanding between CalEPA and the Natural Resources Agency and is charged with developing specific recommendations to improve the coordination and cost-effectiveness of water quality and ecosystem monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information. While the Monitoring Council may recommend new monitoring or management initiatives, it will build on existing efforts to the greatest extent possible.

- Meg Sedlak presented to the Monitoring Council an overview of the origins of the San Francisco Bay Regional Monitoring Program, why it has been successful, how it has developed tools that have benefited coordination efforts in other regions, how data are being managed and made available, and what its measures of success are. It was notable that the RMP was a model program emulated by many other regional monitoring programs.
- The Council gave the Bioaccumulation Oversight Group (chaired by Jay Davis) the charge to develop a strategy for statewide monitoring of contaminants of emerging concern (CECs) in mussels and other biota.
- Jay Davis will be a featured speaker on the Monitoring Council's webinar series on November 17th. Jay will be discussing the RMP – A collaborative effort to provide water quality managers with the information they need. Further information is located here:
http://www.waterboards.ca.gov/mywaterquality/monitoring_council/collaboration_network/docs/agnd110812.pdf

Oakland Museum – Bay Exhibit “Above and Below”

SFEI Historical Ecology and RMP staff led by Robin Grossinger and Ruth Askevold are working with the Oakland Museum to develop a Bay Exhibit celebrating the opening of the Bay Bridge and the complex ecosystem of the Bay. The exhibit will open in the Fall of 2013.