

San Francisco Estuary Institute



**RMP Technical Review Committee Meeting
March 13th, 2012
San Francisco Estuary Institute**

Draft Meeting Summary

Attendees:

Bridgette DeShields, Refineries (Arcadis/ WSPA)
Eric Dunlavey, City of San Jose
Tom Hall, South Bay Dischargers (EOA)
Diane Griffin, Industry (GenOn Energy)
Mike Kellogg, City and County of San Francisco
Chris Sommers, Stormwater (BASMAA/ EOA)
Karen Taberski, SFBRWQCB

Others Present:

Julian Damashek, Stanford University, Dr. Francis' research group
Naomi Feger, SFBRWQCB
Greg Schellenbarger, USGS CA Water Science Center
Rachel Allen, SFEI
Jay Davis, SFEI
Lester McKee, SFEI
Meg Sedlak, SFEI
David Senn, SFEI
Don Yee, SFEI

Via Telephone:

Rob Lawrence, US Army Corps of Engineers
Luisa Valiela, USEPA

1) Introductions and Approval of Agenda and Minutes

Karen Taberski asked for a slight modification to item 7 from the summary of the December 2011 TRC meeting (*completed*). Meg Sedlak reviewed the TRC and SC action items. She asked Chris Sommers if he had been able to meet with Dave Schoellhamer to discuss the placement of dissolved oxygen probes in the South Bay, noting that if not, he could discuss this with Greg

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Schellenbarger, from the same team, during or after the meeting. Tom Hall asked that the final locations and current status of the probes be distributed to the TRC (*completed*). He asked if any of the moorings included probes at multiple depths (*Dave Schoellhamer confirmed location of the probes and the fact that none are multi-depth probes*).

Meg Sedlak indicated that she is in touch with Andy Cohen regarding the invasive oysters eradication project. Over the past four years, he has received funding from various sources, and has been very successful in causing and showing diminishing populations. However, it is currently difficult to estimate whether the populations will rebound, or if they will die out, and more work, and funding, would be required to complete the effort.

MOTION. Mike Kellogg made a motion to approve the December 2011 TRC meeting summary, pending Karen Taberski's requested modification. **SECOND.** Karen Taberski seconded. **APPROVAL.** All approved.

Action Items:

- Distribute the final location and current status of the dissolved oxygen probes deployed by Dave Schoellhamer's group to the TRC (*completed*).

2) Steering Committee Meeting Update

Meg Sedlak updated the group on personnel changes. Kirsten Struve has accepted a position with the City of Palo Alto and will resign as co-chair of the SC. Brian Hubinger has been promoted; Peter Carroll of Tessoro will represent the refineries. Ms. Sedlak indicated that she was in negotiations with USGS CA Water Science Center to retain the R/V *Turning Tide* for the wet weather sampling; this is progressing albeit slowly. Ms. Sedlak also indicated that the Copper Development Association (CDA) will give funding for 2013 work on the effects of salinity on the olfactory nerve as a gift to the RMP. Lastly, Ms. Sedlak thanked the group for working with their counterparts to obtain fee increases for 2013, 2014, and 2015.

3) Planning Update

Jay Davis reviewed recent changes in the Multi-Year Plan with the TRC. The Steering Committee approved the 2012 version of this plan in January. The last set of changes requested by the SC will be finalized by the end of March, but the document will continue to evolve each year and over the course of each year. Notable changes included a fee increase of 1.5% for 2013 and 2% in 2014 and 2015, and setting the broad priorities for the use of funding in 2013. Jay Davis noted that more funding was available in 2013 due to the reduction in the Status and Trends program. Jay Davis discussed plans and funding for each of the focus areas for RMP special studies. The Small Tributaries Loading Strategy and nutrients work will remain priorities for the program, as indicated in the Multi-Year Plan. This commitment helped the stormwater agencies agree to the fee increases. The nutrients work is increasing in 2012 and beyond, and the need for modeling to support nutrients studies will likely drive the direction of modeling work in the short term. The current thoughts are to apply the \$100,000 allocated for modeling in 2012 and 2013, combined with some of the funding set aside for nutrients in 2013, to developing a box model focused on biogeochemistry in the South Bay and Suisun Bay and beginning development

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of a dynamic model, although this needs to be vetted with the Contaminant Fate Workgroup (CFWG). Naomi Feger indicated that the larger nutrients stakeholder group also needs to weigh in on these ideas.

Jay Davis noted that an USACE contractor, Dynamic Solutions, met with SFEI and Water Board staff to discuss the current modeling efforts in the Delta and the Sacramento River. Chris Sommers asked that the RMP make a concerted effort to make sure that these opportunities for further discussion and information are available to the whole TRC, so that the interested parties can participate in the discussion from the beginning of the process, rather than needing to catch up along the way. Meg Sedlak indicated that the RMP would continue to attempt to communicate information on the development of nutrient plans as much as possible. Naomi Feger indicated that the Numeric Nutrients Endpoint (NNE) Science Advisory Group (SAG) is meeting at the end of March. Information about this meeting will be distributed to the TRC (*completed*).

Jay Davis noted that two modeling reports are nearing completion: the Margins Conceptual Model report will be sent out for changes and review, and the Bioaccumulation Conceptual Model report needs to be restructured before it can be distributed for review. Chris Sommers asked if the dynamic models will separate out the “Bath tub ring” (ie. the Bay margins) based on the conclusions from the Margins Conceptual Model report. Jay Davis indicated that the dynamic model will be built in modules, starting with the open bay, and adding on pieces of interest, such as the margins or wetlands. This modular approach is a “no regrets” fashion to proceed on this topic.

Meg Sedlak noted that the Emerging Contaminants workgroup meeting will be held in May as a joint meeting with the Exposure and Effects workgroup meeting (May 15th and 16th). It is timely to hold a joint meeting with these workgroups, because much of the next steps in emerging contaminants research will be in effects studies. Ms. Sedlak also indicated that the contaminants of emerging concern (CEC) state panel meeting will be held at SFEI on March 22nd and 23rd. The second day of the meeting will be open to the public.

Tom Hall asked about the status of the moderate toxicity strategy. Jay Davis noted that a workshop, either a nationwide Pellston or a smaller, locally focused workshop, needs to be scoped out by the EEWG. The proposal to develop a new reference site for dredging also needs to be scoped out. After the mercury synthesis article is published (it is currently undergoing peer review), it may be advantageous to hold a mercury meeting to discuss the next stage of mercury work. There are a number of open questions regarding mercury cycling in the Bay, but where the RMP wants to focus its efforts is unclear. Jay Davis noted that the synthesis report concluded that all of the mercury in the Bay is potentially available for biouptake. A meeting bringing together managers and scientists would facilitate discussions of where we can intervene in the current cycle to produce the most benefit for reasonable effort. A longer report, based on the journal article, is planned to flesh out the details. However, if managers are interested in a more digested, palatable version, this could be included. Chris Sommers suggested that the mercury strategy team reconvene to discuss the next steps in the mercury process – should work continue on the synthesis following peer review? Who should have input on deciding the next steps and questions to address?

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Jay Davis noted that the PCB synthesis is on a similar track, but at an earlier stage. After writing the conceptual model document, the PCB strategy team will be reconvened. This meeting may be held joint with the Hg strategy meeting if it is reasonable for the team members.

Jay Davis asked that the TRC review the last pages of the Multi-Year Plan, which state how the RMP meets various permit requirements. Comments on this section, and other sections of the document, are due by the end of March.

Action Items:

- Convene the mercury strategy team to discuss the next steps in the process of developing plans for mercury work.
- TRC members to review the section of the Multi-Year Plan that indicates how the RMP is meeting permit requirements, and provide feedback by the end of March.

4) Pulse and Annual Meeting Update

Jay Davis indicated that the January SC meeting included a discussion of the Pulse and RMP communications in general. As a followup to that meeting, he will survey the RMP stakeholders to determine how they are using the information produced by the RMP, and what sort of information is most valuable to them. For example, do people read the Pulse, and what parts? SFEI web traffic information shows that some of the previous Pulses have been downloaded thousands of times.

For 2012, the SC decided to pilot the “Pulse Lite”, which will focus on the Status and Trends update and the trends at a glance, and will require less information processing for writing articles. A small group of the SC members will develop the content.

The RMP Annual Meeting will still be held in early fall, and will focus on updates from the workgroups, rather than a specific topic of interest. Chris Sommers indicated that it will be useful to the stakeholders to learn about RMP activities at the workgroup level. Jay Davis indicated that he is soliciting ideas for speakers and keynote speakers. The 2013 Pulse and Annual Meeting will focus on Contaminants of Emerging Concern, and the Annual Meeting will be held jointly with the State of the Estuary Conference.

The 2012 RMP Annual Meeting will be held on October 9th at the David Brower Center.

Action Items:

- RMP staff will do a survey of stakeholders regarding information needs for the Pulse
- TRC members will provide suggestions for Annual Meeting speakers to Jay Davis.

5) CTAG-TRC Meeting Update

The joint Southern California Coastal Water Research Project (SCCWRP) Commission's Technical Advisory Group (CTAG) and RMP TRC meeting will be held on Wednesday, March 28th, at SFEI. The CTAG is interested in regional monitoring, and is developing the agenda for

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the morning discussion. The afternoon session will focus on nutrients, per the request of the TRC.

Chris Sommers suggested that the afternoon discussion be focused on at most on three specific questions, to maximize the likelihood of having a productive conversation. Karen Taberski noted that three future areas of collaboration on the topic of nutrients are being considered:

- Upcoming workshops
 - o SWAMP/ BOG harmful algal bloom (HAB) workshop
 - o Water contractors workshop on nutrient ratios and stoichiometry
 - o Stream Numeric Nutrients Endpoint workshop
- Watershed and receiving waters modeling and mechanistic studies to support modeling
- Reference studies

Chris Sommers suggested that of these areas, modeling would be of the most interest to the groups. What lessons are being learned during the modeling of receiving waters in the Bight? Karen Taberski indicated that the meeting does not need to focus on the workshops, but that it should still include a brief note, to make all attendees aware of them and the potential for input. Naomi Feger indicated that the reference studies may also be of interest to the group. Chris Sommers suggested that the questions for discussion be phrased something like:

- What are the lessons learned from existing or previous modeling efforts in Southern California and San Francisco Bay?
- Are there opportunities in the near future for collaboration across modeling efforts?
- Are there opportunities for exchanging SFEI and/or SCCWRP expertise in modeling to assist with SF Bay or Southern CA efforts?

Action Items:

- Meg Sedlak will revise the CTAG-TRC meeting agenda and send it back to the CTAG (*completed*).
- Karen Taberski and other TRC members will work on refining the questions for the group discussion on nutrients.

6) Nitrification Studies

Julian Damashek gave an overview of past and current nitrification and denitrification studies at the Francis lab at Stanford University. He focused on nitrification processes, noting that much of the ammonia oxidation in the world oceans is performed by ammonia-oxidizing archaea (AOA) and ammonia-oxidizing bacteria (AOB), however the balance of ammonia-oxidization between AOA and AOB in estuarine systems is largely unknown. Annika Mosier, a previous student with Dr. Francis, discovered a spatial gradient between AOA and AOB abundance from north to south in San Francisco Bay based in part on work that she conducted on the RMP cruises. Current studies are focusing on spatial and temporal variations in this balance, and future work will determine relative rates of nitrification in sediment throughout the Bay. For this work, Julian will join the RMP sediment cruise in April to collect sediments over a wide spatial distribution throughout the Bay. David Senn added that characterization of nitrification rates

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will be a key piece of information in understanding the biogeochemistry of nitrogen cycling in the Bay.

7) Sediment Flux in the South Bay

Greg Schellenbarger updated the TRC on on-going studies investigating the flux of sediment in the South Bay. The USGS group is comparing loading from the South Bay tributaries with import and export of sediment past the Dumbarton Bridge, in the context of sediment supply needed for wetland restoration efforts in the South Bay. Data from these sources exist for water years 2009, 2010, and 2011, which were dry, average, and wet years, respectively. Overall, flux past the Dumbarton Bridge is about 10-fold larger than loading from the tributaries. To date, flux past the Dumbarton correlates very well with outflow from the delta, indicating that dry years may tend to be more depositional in the South Bay, while wet years are strongly erosional. Greg Schellenbarger indicated that this result is not unexpected (the theory that “high delta outflow leads to high flushing in the South Bay” is not new), but that these data are quantifying the existing theory. Thus, data to date suggest that the Dumbarton flux decoupled from tributary flux, Dumbarton flux dominates sediment budget, and the annual Dumbarton flux is controlled by Delta flow. Given this information, it would take roughly 1600 years to fill the restoration accommodation space with the loading from the tributaries, and it is uncertain if sediment from the Bay would ever fill it.

Chris Sommers suggested that the next steps would be to look at the correlation between Delta outflow and flux across the Dumbarton Bridge on a monthly timescale. Greg Schellenbarger noted that the group is currently working on a journal publication on this sediment budget, which will be due at the end of March. Jay Davis asked if the third year of data would cause the draft factsheet, which was based only on the 2009 and 2010 data, to be out of date. Greg Schellenbarger indicated that the conclusions in that document were stated generally enough to not be invalidated by the new data. Lester McKee suggested that the factsheet add a sentence to speculate about the flux in other climatic conditions, thus qualifying the existing data and leading into the release of the most recent round of information, when appropriate. Chris Sommers asked that the funders, such as the Santa Clara Valley Water District, be included in the acknowledgements.

Meg Sedlak indicated that the TRC can send comments to Greg Schellenbarger after the next version of the factsheet is distributed for review.

Action Items:

- Revise the factsheet and distribute it for review by the TRC.

8) Sport Fish - Highlights from Year 2 of the SWAMP Coast Survey

Jay Davis presented the results from the second year of sportfish sampling along the California Coast. He noted that mercury concentrations in sportfish across much of the coastline are high, frequently above the no consumption threshold, in large part due to the shark and rockfish species caught at the locations. These families generally have higher mercury concentrations. The PCB spatial pattern is more consistent with urban areas, with high concentrations near San

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Francisco Bay and the Southern California Bight, and generally lower concentrations along the North Coast.

Jay Davis noted that the SC has generally agreed to moving the RMP to a 5-year sportfish sampling cycle, with the next event scheduled for 2014. The Department of Public Health wants to see more species in the next round of Bay sampling, so a fish committee meeting will be scheduled soon to discuss additional species to include.

Action Items:

- Hold a sport fish committee meeting to discuss the move to a 5-year sampling cycle and which species to target in the next sampling.

9) Flame Retardants in Baby Products: Best Paper of the Year ES&T

Susan Klosterhaus was coauthor on a manuscript on flame retardants in baby products, which was awarded Best Paper of the Year in Environmental Science and Technology. Saskia van Bergen, formerly of EBMUD, was also a coauthor, along with collaborators at Duke University and other academic institutions. The study found chlorinated and brominated flame retardants in 80% of the samples collected, and determined that the relatively inexpensive X-Ray Fluorescence Analyzer can reliably detect brominated flame retardants in foam, compared to gas chromatography and mass-spectroscopy, but is not able to determine chlorinated flame retardants. Some of the chlorinated products detected in this study were previously unreported flame retardant additives. Following the release of this article, three different baby products have been exempted from the California ruling requiring flame retardants in foam.

10) Program Update and Laboratory Data Status

Meg Sedlak noted that Steve Bay and Chris Vulpe are continuing to develop molecular methods for toxicity identification, and are requesting a partnership with the RMP. They will not be contributing funding, but they will build on work that the RMP is performing regardless (the sediment cruise) to use San Francisco Bay samples to develop micro arrays and gene assays. The TRC agreed that this partnership seems mutually advantageous, and Meg Sedlak indicated that she would write a letter of support in this collaboration.

David Senn updated the group about the on-going development of the nutrients strategy. He noted that the San Francisco Bay NNE science advisory group (SAG) will be holding a meeting on March 29th that is open to all. Jay Davis suggested that the workgroup for nutrients in the Bay, when it is developed, serve also as the RMP nutrients workgroup, to avoid redundancy and clarify structure. This workgroup would have RMP representatives on it, among representatives from other partners, and would report back to the TRC. Chris Sommers expressed concern that this format might lead to the RMP being asked to fund large pieces of the nutrients projects, and that a separate RMP nutrients workgroup meeting would enable the RMP to coordinate as a unit going in to the larger workgroup. Jay Davis noted that until an RMP workgroup is formed to address the issues with nutrients, it is the responsibility of the TRC. In the meantime, Meg Sedlak will schedule a conference call for RMP members prior to the March 29th nutrients meeting.

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David Senn discussed some of the projects funded for 2012 and 2013, and indicated that SFEI is considering bringing in a PhD level staff person to start developing biogeochemical models for nutrients in the South Bay and Suisun. By pooling funding from the nutrients and modeling tasks, with some additional resources, this task could be performed well in a 2-3 year time span, which is what it would likely require. This would also enable SFEI to start developing modeling expertise within the organization; however this idea is still under consideration.

Tom Hall indicated that the “glue” holding the various stakeholder groups is still missing, and suggested that an organizing group would need to take on the role of fitting these member organizations together.

Action Items:

- Hold a conference call for TRC members prior to the March 29th nutrients meeting.
- Discuss creating an RMP nutrients workgroup.

11) Set Agenda and Date for Next Meeting, Plus/Delta

The next TRC meeting is set for Friday, June 29th.