

# Meeting Summary

## Delta Regional Monitoring Program (RMP)

### Technical Advisory Committee (TAC)

## March 14, 2017

10:00 – 4:00 PM

Central Valley Regional Board, 11020 Sun Center Drive #200, Rancho Cordova, CA

### Attendees

In Attendance	Name	Role	Representing	Affiliation
by phone	Amy Phillips	Primary	Stormwater, Phase II 2	El Dorado County
Yes	Brian Laurenson	Primary	Stormwater, Phase I	Larry Walker Associates
	Danny McClure	Alternate	Regulatory - State	Central Valley Regional Water Board
	Dawit Tadesse	Alternate	Regulatory - State	State Water Board
Yes	Debra Denton	Primary	Regulatory - Federal	U.S. EPA Region 9 Water Division
Yes	Erwin Van Nieuwenhuyse	Primary	Coordinated Monitoring	US Bureau of Reclamation
	Gerardo Dominguez	Alternate	Stormwater, Phase II 1	San Joaquin County Stormwater Program
Yes	Hope McCaslin Taylor	Alternate	Stormwater, Phase I	Larry Walker Associates
Yes	Janis Cooke	Alternate	Regulatory - State	Central Valley Regional Water Board
	Jeff Stuart	Primary	Resource Agency	NOAA-NMFS
Yes	Joe Domagalski	Co-chair	Co-chair	USGS
Yes	Karen Ashby	Primary	Stormwater, Phase II 1	Larry Walker Associates
	Lisa Thompson	Alternate	POTW (3 reps)	Regional San
Yes	Melissa Turner	Primary	Agriculture 2	MLJ-LLC
by phone (afternoon only)	Michael Johnson	Primary	Agriculture 1	MLJ-LLC
Yes	Rich Breuer	Primary	Regulatory - State	State Water Board

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<b>In Attendance</b>	<b>Name</b>	<b>Role</b>	<b>Representing</b>	<b>Affiliation</b>
	Shaun Philippart	Alternate	Coordinated Monitoring	CA Department of Water Resources
	Stephanie Fong	Primary	Water Supply	SFCWA
Yes	Stephen McCord	Co-chair	Co-chair	MEI
Yes	Tessa Fojut	Primary	Regulatory - State	Central Valley Regional Water Board
Yes	Tim Mussen	Primary	POTW (3 reps)	Regional San
Yes	Tony Pirondini	Primary	POTW (3 reps)	City of Vacaville
Yes	Vyomini Upadhyay	Primary	POTW (3 reps)	Regional San
<b>Others</b>				
Yes	Michelle Hladik			USGS
Yes	Cam Irvine			CH2M
(attended morning)	Linda Dorn		Steering Committee Co-chair	Regional San
(attended afternoon)	Adam Laputz		Steering Committee Co-chair	Central Valley Regional Water Quality Control Board
by phone	Val Connor			GEI consultants
Yes	Patrick Morris			Central Valley Regional Water Quality Control Board
Yes	Selina Cole			Central Valley Regional Water Quality Control Board
Yes	Phil Trowbridge			SFEI-ASC
Yes	Thomas Jabusch			SFEI-ASC
Yes	Matthew Heberger			SFEI-ASC
by phone	Armand Ruby			Armand Ruby Consulting
by phone	Marie Stillway			UC Davis Aquatic Health Program Laboratory
by phone	Jay Davis			SFEI-ASC
by phone	Brian Bergamaschi			USGS

## Meeting Summary

### 1. Introductions and Agenda

TAC members reviewed and agreed on the agenda and desired outcomes.

### 2. Decision: Approve TAC Meeting Summary for December 13, 2016 and confirm/set future TAC meeting dates

The December 13 TAC meeting summary was approved by unanimous consent. Scheduled upcoming TAC meetings are June 13 (Regional San) and September 21 (location TBD). Scheduled SC meetings are 5/3 (Regional San) and 7/28 (Regional Board).

#### Action Items:

- ASC to reserve 9/21 meeting room and email meeting invitation (Matthew Heberger, by May 31).

### 3. Information: Steering Committee Update

There was some discussion of how the HAB proposals (Item 4) fit into the Delta RMPs overall program. In the absence of a HAB subcommittee, the SC has requested that HAB proposals be reviewed by the Nutrient Subcommittee. No funding is currently allocated for HABs. A more robust discussion by the SC is required about how to proceed.

### 4. Discussion: Review monitoring proposals for FY 2017-18

#### Nutrients:

Three separate proposals were provided, which combine to meet the planning budget of \$250K.

**Proposal 1:** Cross-delta synoptic monitoring using high-frequency tools. The goals of this project are to a) identify nutrient transformation hotspots b) fill in spatial blanks between the existing sampling stations, and c) better understand the relationship between forms of nutrients to phytoplankton abundance and structure across a large area. The scope consists of a total of 9 cruises (3 cruise tracks times three different flow conditions). The cruises could be delayed in time to split the budget with next fiscal year.

**Proposal 2:** ASC to continue nutrient data analysis and biennial reporting. Carry-over funds from the current fiscal year will also be applied. Delays currently relate to (1) delayed production of the 2011–2016 data synthesis and particle tracking modeling, and (2) a separate nutrients synthesis by USEPA.

**Proposal 3:** Chlorophyll sensor intercalibration. There was some discussion about the scope and range of issues that will need to be addressed, including sensor maintenance details in standard operating procedures. TAC members recommended that the proposal should also indicate that more funding will be needed for FY18/19 and beyond, recognizing that FY17/18 work would be the beginning of a larger effort in collaboration with other programs. Representatives of SFCWA, USGS, SF Bay RMP, and SWAMP indicated that this topic is also a priority for their organizations, and that they could potentially contribute matching funds. These partnerships and potential leveraging opportunities should be added to the proposals.

**Mercury:**

TAC members discussed the importance of picking a monitoring design and sticking with it for at least a decade in order to detect long-term trends with confidence. The proposed work plan meets the \$250K planning budget and calls for monitoring fish (largemouth bass only; annually), sediment (quarterly) and water (8x/year) at the same six fixed stations for all matrices.

**Pesticides:**

There was thorough and thoughtful discussion about the pros and cons of each of the 3 pesticides proposals: 1) Aquatic Toxicity at Integrator Sites, 2) Regional Assessment of Delta Tributaries, and 3) Extending the current monitoring at Ulati Creek and Vernalis by three months. Given the available budget of \$250,000 per year, it was felt that none of the proposals could thoroughly address the RMP's management questions or drivers. A table indicating pros and cons of each proposal was developed to support the discussion.

**Proposal 1:** Aquatic Toxicity at Integrator Sites (Hood and Vernalis). This project features *ex-situ* toxicity, using rainbow trout as a proposed test organism (not fathead minnow) and *Hyalella*, *Ceriodaphnia* and *Selenastrum* would be tested for toxicity at the UCD lab. Other entities (SFCWA, UCD) could support additional work such as testing for biomarkers; although, the TAC should review and understand any additional studies adding-on to Delta RMP efforts before they are performed. An alternative is testing only at Hood. Other sites would be much more costly, as testing space would need to be constructed. The scientists proposed rainbow trout because it is a cold-water salmonid species that is a) representative of the coldwater

habitat beneficial use, b) generally sensitive to contaminants, and c) an appropriate indicator for impairments of salmonid critical habitat (the Central Valley basin is designated as critical habitat for salmonids). Trout would not be tested at Vernalis or Hood sites when ambient water is too warm for trout. Generally, participants agreed that the proposed study would address some of the specific concerns raised by the expert panel review of the Delta RMP monitoring design. However, they also wanted clarification about the proposed methods, a better understanding of what methods are well established and any that are in development, literature on previous similar efforts in the Delta, and requested additional planning, if funded.

**Proposal 2:** The proposed program would monitor tributary sites surrounding the Delta for pyrethroids and toxicity. Various options were provided for targeted vs. random sites, and focused vs. broad suites of analytes and test organisms. The specific study design chosen will depend on whether we are more interested in understanding temporal trends or spatial patterns. Some of the sites would be outside of the legal Delta boundary, but are within jurisdictions of Delta RMP participants and represent sources to the Delta. TMDL-required monitoring may not be required until at least FY18/19, but this study element could be designed to meet the expected TMDL surface water monitoring requirements.

**Proposal 3:** Monitor July–September to complete Water Year 16/17 with the current monitoring design. No strong technical rationale for continuing monitoring was identified; rather, the monitoring may help fulfill regulatory requirements for irrigated agriculture coalitions and provide data for the remainder of the water year.

**HAB options:**

The SC asked the Nutrients Subcommittee to review proposals for HABs, but a planning budget was not allocated. The proposals discussed were:

<b>Foundational Activity</b>	\$25–50K
Convening a technical workgroup to develop a Delta HAB monitoring, data sharing, and evaluation plan	
<b>Potential Monitoring Activities for the Delta RMP</b>	
1. Field surveillance program	\$40K/yr
2. Targeted monitoring of HABs and associated physical and biological conditions	\$100–200K/yr

3. Relationship of nutrients and algal toxins	\$100–200K
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All of the proposals were considered valid and will be presented to the Steering Committee.

The TAC recognized that HAB activities are being led by others and monitoring designs/procedures are being developed in other forums. For example, the existing CCHAB network has created SOPs and communicated science, but has not sampled or provided recommendations for controls. In addition, the State Water Board’s *Biostimulatory Substances Objective and Program to Implement Biological Integrity* is proposing to adopt a statewide water quality objective for biostimulatory substances (i.e., nutrients). However, there is sufficient data for the Central Valley. This program may be an important management driver for HAB efforts. The State Board has some funding available for “discretionary” grant funding which may help to support a special HABs monitoring project by the RMP.

**Action Items:**

- ASC to follow up with SFWCA and SWAMP regarding contribution matching funds to support the chlorophyll sensor intercalibration effort (Thomas Jabusch, by March 24).
- ASC to look into whether a Delta RMP HABs monitoring project would be eligible for Water Board grant funding (Thomas Jabusch by March 31).
- Revise pesticides proposal 1 to include only one site, Sacramento River at Hood (Debra Denton and Rich Breuer, by March 31) and time for ASC to coordinate with (and get TAC review of) any add-on efforts (as well as an understanding of the review/approval process for investigations adding-on to Delta RMP efforts).
- Revise pesticide proposal 2A with the trends option for a longer list of pesticides from the DPR model (remove other options) and add draft site selection criteria. Make sure the planning budget is sufficient for 3 meetings of the Pesticides Subcommittee between July 1 and September 30 (Thomas Jabusch by March 31).
- In the nutrients proposal package, increase the funding listed for FY18/19 for the chlorophyll intercalibration study to indicate that we are embarking on a multi-year effort and list other likely collaborators: USGS, SWAMP, DWR, NMS, Bay RMP, SFCWA (Thomas Jabusch, by 3/31).

## **5. Decision: Criteria and process for ranking monitoring proposals for FY17/18 for the Steering Committee**

The TAC reviewed and generally agreed with the draft *TAC Review Questions for Recommending Monitoring Proposals* as presented. Val Connor suggested that the availability of matching funds or in-kind contributions should also be a criterion. There was general agreement that a more robust, quantitative evaluation process (e.g., defined criteria and a scoring matrix developed or approved by the Steering Committee) could be useful in the future depending on the complexity of proposals to be considered. Sources/limitations on funding that are applicable to proposals would also be helpful so the TAC can fully consider options. The TAC could then better refine technical details to match RMP needs in balance with available funding.

Participants agreed to a conflict of interest procedure similar to the one used by IEP and the Bay RMP. The Delta RMP charter states that participants have a duty to declare any potential conflict of interest, i.e. situations in which they stand to benefit financially from a proposal, and recuse themselves from the decision. The TAC may discuss content of proposals in open session to inform decisions. The TAC will deliberate and make final recommendations in “closed session” without those having a potential conflict of interest being in the room. Such individuals included ASC staff (ASC originated a number of the proposals, and if implemented, the funding will go directly to ASC) and USGS (including co-Chair Joe Domagalski who works with the pesticides lab). People on the phone with conflicts were asked to hang up during the closed session.

## **6. Decision: Recommendations for monitoring proposals for FY17/18**

### **OPEN SESSION**

This item started with some additional discussion on each of the proposals. Some key comments and points made include:

*Mercury:* The SC should commit to a long-term monitoring effort, recognizing that trend detection will require annual sport fish monitoring for at least 10 years. Nonetheless, the monitoring design (particularly the numbers of fish and frequency of monitoring) could be adjusted over time. All proposed reporting deliverables need to be consistent with the communications plan.

*Nutrients:* The proposed projects for nutrients and HABs were confirmed to be relevant to data needs identified through the Delta Nutrient Research Plan process. There was general support

for all three proposals. After discussion, it was confirmed that high-frequency sensor data would not be uploaded to CEDEN.

*Pesticides:* Participants expressed support for both Proposal 1 (Aquatic Toxicity) and Proposal 2 (Pesticides Regional Assessment, Delta tributaries). For proposal 2, monitoring of targeted representative sites was recommended as the preferred option. Targeted sites can be selected based on existing knowledge and are the best approach for monitoring trends. Proposal 1 achieves a number of objectives and addresses some of the question about ambient conditions in relationship to pesticides at the most important integrator location (Hood). Participants recognized that each of the studies can add some of the missing pieces pointed out in the expert panel review.

Generally, Proposal 1 better addresses biological effects and links to stresses. Participants also acknowledged a number of remaining questions about each of the two proposals that could not be immediately resolved. Follow-up planning would be required to work out the details for implementing each of the options.

Several participants noted that funding for Proposal 1 for add-on of biomarkers/more chemical analysis could potentially come from ongoing or proposed studies covering e.g. contaminants of emerging concern (CECs). One participant commented that there is benefit to collaborating with other agencies, and that there is benefit for RMP to review their monitoring plans.

Proposal 3 (Completion of Water Year 16/17 with Current Monitoring Design) was also briefly discussed. From the ILRP ag coalitions' perspective, continuing the existing pesticide and toxicity monitoring at Ulatis Creek and San Joaquin River through September 2017 would fulfill requirements in their discharge permits. If the RMP discontinues this monitoring, the ag coalitions may need to quickly make alternate arrangements, i.e. hire a consultant to do the required sampling and lab work. If this happens, they will either want to renegotiate their permit conditions or the amount that they contribute to the RMP, as the fees were set with the understanding that their participation in the RMP would offset their regulatory burden of conducting their own sampling. The Regional Board will work with the ag coalitions to figure out adjustments if Delta RMP monitoring is not continued at Ulatis Creek and San Joaquin River.

## **CLOSED SESSION**

No notes were taken during the closed session. The outcomes of the closed session are listed below.

## **Recommendations:**

### ***Overall***

- Clearly communicate to the SC the pros and cons of all options (see attached table), management questions addressed by each, and data quality objectives. Include a narrative of study hypotheses, key design elements, and data interpretation.
- Have the Finance Committee (and the TAC, as warranted) review and confirm that data management responsibilities are not redundant (e.g., SWAMP staff can upload toxicity testing data directly to CEDEN) and final scopes of work have clear purposes and appropriate budgets.

### ***Specific recommendations for individual proposals***

- Mercury: Recommend funding work plan as written, including fish (bass only; annually), sediment (quarterly) and water (8x/year) at six fixed stations. If SEP funding is available, consider adding smaller “biosentinel” fish (e.g., TL3) as the first choice.
- Nutrients: Recommend funding all three proposals with the following edits.
  - Proposal 1: Add information about data management.
  - Proposal 2: Add a section on data intercomparability, if combining and analyzing different datasets.
  - Proposal 3: Add basic budget estimate for Year 2. Clarify that the Delta RMP will not be front and center in the continuing efforts and that others will be involved.
- Pesticides: Recommend funding one station (Hood) from Proposal 1 and a knowledge based site selection for Proposal 2, with the following edits. [A dissenting opinion from the ag discharger representative was that funding should be fully allocated to Proposal 2A and a MS4 representative stated that the Steering Committee will likely want more background and technical detail on the benefits of Proposal 1 and that MS4 membership will be interested to know how any of the efforts will address Central Valley Pesticide TMDL monitoring requirements.]
  - Proposal 1: Clarify the anticipated data interpretation. Add more context to help the SC understand how the study will address Delta RMP assessment questions.
  - Proposal 2: Develop site selection criteria to be used. Develop a target analyte list using the DPR Prioritization Model. Include additional information on the

power analysis done to estimate the number of samples required. Review the study area relative to Pyrethroid TMDL water bodies to help determine how the monitoring design could be conducted to coincide or complement expected Pyrethroid TMDL monitoring requirements (Basin Plan amendment has not been approved at this time).

- Proposal 3: Due to the need to refine Proposal 1 and Proposal 2 to better understand the cost estimates (especially Proposal 2), Proposal 3 was not discussed at length and therefore not recommended for funding at this time. Proposal 3 could still be implemented with Proposal 2 depending on the funds needed for the various options within Proposal 2.

**Action Items:**

- Clarify if/how UCD APL's existing SWAMP contract funds can pay for pesticide work (beyond toxicity testing, e.g., field work for pesticides proposals 1 and 2). (Thomas Jabusch, by March 31).
- Prepare high-level summary of TAC-recommended proposals for nutrients, mercury, and pesticides (Thomas Jabusch, April 15). To include the following topics:
  - Management Drivers Addressed
  - Assessment Questions Answered
  - External Review Comments Addressed,
  - Data Quality Objectives/Null Hypothesis
  - TAC Discussion Points
- Prepare memo on power analysis for Pesticide Proposal 2 to share with interested TAC members, including caveats related to using *a priori* estimates of variance (Matthew Heberger, by April 15).
- Schedule a Pesticides Subcommittee meeting for the 2nd week of April to discuss: data evaluation process and QAPP for Proposal 1, site selection criteria for Proposal 2, target analytes for Proposal 2, bullets on pros/cons of TAC recommendation to SC (Thomas Jabusch, but March 25).
- Ask Regional Board staff to figure out if dropping Pesticide Proposal 3 will reduce the total revenue for FY17/18 (because Ag coalitions may reduce their contribution). (Matt Heberger by March 31)

## **7. Information: Current Use Pesticides (CUP) data report review**

This item was tabled.

### **Action Items:**

- Send draft report as Word document (Thomas Jabusch, by March 17)
- Provide comments to Thomas Jabusch (TAC/Pesticides Subcommittee, by April 7)
- Schedule a webinar to present and discuss the Current Use Pesticides draft report (Thomas Jabusch, by March 24).

## **8. Information: Review access to password-protected RMP data website**

This item was tabled; however, it was agreed to conduct a demo/training session via webinar.

### **Action Items:**

- Schedule a webinar to present CD3 visualization, data download and metadata, and CEDEN (Matt Heberger, by April 15)

## **9. Information: Technical Subcommittee monitoring updates (Mercury, Pesticides, Nutrients)**

This item was tabled.

## **10. Information: Status of Deliverables and Action Items**

This item was tabled.

## **11. Updates and wrap-ups**

June agenda items:

- Summary of pathogens report (Brian Laurenson)
- Confirm final budget estimates in work plan

### **Parking Lot**

- Identify opportunities for Delta field experience by TAC members