



Delta RMP Technical Advisory Committee Meeting

Tuesday, June 13, 2017; 10:00 am – 4:00 pm

LOCATION:

Sunset Maple Room, Regional San, 10060 Goethe Road, Sacramento, CA

REMOTE ACCESS:

Phone number: (415) 594-5500 *Access Code:* 943-326-397#

Screen Sharing Website: <https://join.me/sfei-conf-cw1>

Agenda

1	<p>Introductions and Agenda Review and agree on agenda and desired outcomes</p>		10:00 Stephen McCord
2	<p>Decision: Approve TAC Meeting Summary for March 14, 2017 meeting and confirm/set future TAC meeting dates</p> <p><u>Upcoming Scheduled Meetings</u></p> <ul style="list-style-type: none"> ● Delta RMP External Review Panel Final Meeting: Tues, June 27, 2017, Delta Science Program, 980 9th Street, Sacramento. ● SC: July 28, 2017 Regional Board offices ● TAC: Sept 21, 2017 Regional San ● Joint TAC/SC meeting: Oct 24, 2017, Park Tower Building, 2nd Floor Conference Room, 980 Ninth St., Sacramento, CA 95814 ● TAC December meeting date? Please bring your calendar! <p><u>Desired outcome:</u></p> <ul style="list-style-type: none"> ● Approve TAC meeting summary ● Confirm future TAC/SC meeting dates 	Draft TAC meeting summary from March 14, 2017	10:05 Stephen McCord
3	<p>Information: Steering Committee Update TAC co-Chair will summarize the outcomes of the May 3, 2017 SC meeting including the decisions</p>	Draft SC Meeting Summary from May 3, 2017	10:10–10:20 Joe Domagalski Matthew Heberger

	<p>and action items. At the meeting, SC members expressed concerns regarding the use of new methods and sampling locations proposed for monitoring of pesticides and toxicity in the upcoming fiscal year. The SC approved the FY17/18 budget, excluding proposed studies of pesticides and toxicity. A committee of the SC has made arrangements for the final phase of the External Review, which will draw the review to a close.</p> <p><u>Desired Outcome:</u></p> <ul style="list-style-type: none"> ● Inform TAC regarding SC decisions and activities ● Explain the rationale and context for agenda items below 		
4	<p>Technical Subcommittee Updates</p> <p>A short update on monitoring activities will be presented. In addition, ASC has revised the short technical report summarizing Year 1-2 of Current Use Pesticides (CUP) monitoring based on comments from the TAC and Pesticides Subcommittee.</p> <p><u>Desired outcome:</u></p> <ul style="list-style-type: none"> ● Review running table of past and upcoming sampling events ● Inform TAC of subcommittee activity and recommendations ● Recommendation to the SC for approval of report 	<p>Table: samples collected and schedules</p> <p>Draft Report: Current Use Pesticides Year 1-2 Data Report (77 p. separate attachment)</p>	<p>10:20 – 10:45</p> <p>Mercury: Stephen McCord</p> <p>Pesticides: Jim Orlando, Marie Stillway</p> <p>Nutrients: Janis Cooke</p>
5	<p>Planning the Current Use Pesticides Year 1-2 Interpretive Report</p> <p><u>Desired Outcome:</u></p> <ul style="list-style-type: none"> ● Direction on the scope of the report 	<p>Memo: Current Use Pesticides (CUP) Interpretive Report Revised Scope of Work</p>	<p>10:45 – 11:15</p>
6	<p>Decision: Final Recommendation on CUP monitoring for FY17/18</p> <p><u>Desired Outcome:</u></p> <ul style="list-style-type: none"> ● Recommendation to the Steering Committee regarding pesticides monitoring. 	<ul style="list-style-type: none"> ● Memo: Path forward for Current Use Pesticides Monitoring ● Revised monitoring design cover sheets ● Pros/cons table 	<p>11:15 – 12:00</p>

	Lunch		12:00 – 1:00
7	Recommendation on CUP monitoring for FY17/18 (continued)		1:00 – 1:30
8	<p>External Review Preparation We would like to use this time to do a “dry run” of the presentations that Delta RMP representatives will give to the External Review Panel during our final in-person meeting with them on June 27, 2017.</p> <p><u>Desired outcome:</u></p> <ul style="list-style-type: none"> ● TAC provide feedback on presentations 		<p>1:30 – 3:00</p> <p>Nutrients: Phil Trowbridge (SFEI-ASC)</p> <p>Mercury: Jay Davis (SFEI-ASC), by phone</p> <p>Pesticides: Phil Trowbridge</p>
	Break		3:00 - 3:15
9	<p>Information: QAPP Update For FY17/18, we propose to split the Delta RMP QAPP into 3 smaller documents, covering each of the 3 focus areas (nutrients, pesticides, mercury).</p> <p><u>Desired outcomes:</u></p> <ul style="list-style-type: none"> ● Agreement that this is an appropriate approach ● Volunteers for writing and reviewing 		3:15 - 3:45
10	<p>Information: Status of Deliverables and Action Items</p> <p><u>Desired outcomes:</u></p> <ul style="list-style-type: none"> ● Inform TAC about the status of RMP deliverables. ● Review action items from today’s meeting. 	Delta RMP Stoplight Reports	3:45–3:55
11	<p>Updates and wrap-up</p> <ul style="list-style-type: none"> ● Plan agenda items for future meetings ● Address “parking lot” items, as time permits: <ul style="list-style-type: none"> ○ “Delta Renewed” presentation ○ Bay Delta Live portal demo ○ CD3/Data access demo ○ Other suggestions? 		<p>3:55</p> <p>Stephen McCord Joe Domagalski</p>
	Adjourn		4:00

Items 2 & 3 (pages 4-22) for distribution to TAC members only.

Meeting Materials for Item 4

Summary of Delta RMP Monitoring Events - updated June 2, 2017

Past Monitoring Events			
Date	Monitoring Element	Frequency	Comments
Aug 22-23, 2016	Mercury (water) - quarterly	Quarterly	
Aug 22-23, 2016	Mercury (fish) - annual	Annually	
Sept 13, 2016	Mercury (fish) - annual	Annually	
Nov 14-15, 2016	Mercury (water) - quarterly	Quarterly	
Feb 28, 2017	Mercury (water) - quarterly	Quarterly	
April 25, 2017	Mercury (water) - quarterly	Quarterly	
FY17/18 sampling dates will be set by the Mercury subcommittee at a future meeting.			
Oct 18, 2016	Pesticides	Monthly	Default sampling date
Nov 14, 2016	Pesticides	Monthly	Default sampling date
Dec 16, 2016	Pesticides	Monthly	Deviated from default sampling date to capture major runoff event
Jan 9, 2017	Pesticides	Monthly	Deviated from default sampling date to capture major runoff event
Feb 28, 2017	Pesticides	Monthly	Deviated from default sampling date because some of the sites were inaccessible
Mar 14, 2017	Pesticides	Monthly	Default sampling date
Apr 25, 2017	Pesticides	Monthly	Default sampling date
May 16, 2017	Pesticides	Monthly	Default sampling date
April 6-8, 2015	Pathogens	Monthly	Default sampling date
May 4-6, 2015	Pathogens	Monthly	Default sampling date
June 1-3, 2015	Pathogens	Monthly	Default sampling date
July 6-7, 2015	Pathogens	Monthly	Default sampling date
Aug 3-5, 2015	Pathogens	Monthly	Default sampling date
Sept 7-9, 2015	Pathogens	Monthly	Default sampling date
Oct 5-7, 2015	Pathogens	Monthly	Default sampling date
Nov 2-4, 2015	Pathogens	Monthly	Default sampling date
Dec 7-9, 2015	Pathogens	Monthly	Default sampling date
Jan 4-6, 2016	Pathogens	Monthly	Default sampling date
Feb 7-9, 2016	Pathogens	Monthly	Default sampling date
March 7-10, 2016	Pathogens	Monthly	Default sampling date
April 4-7, 2016	Pathogens	Monthly	Default sampling date
May 2-5, 2016	Pathogens	Monthly	Default sampling date
June 6-8, 2016	Pathogens	Monthly	Default sampling date
July 5-7, 2016	Pathogens	Monthly	Default sampling date
Aug 1-3, 2016	Pathogens	Monthly	Default sampling date
Sept 6-8, 2016	Pathogens	Monthly	Default sampling date
Oct 3-5, 2016	Pathogens	Monthly	Default sampling date
Nov 7-9, 2016	Pathogens	Monthly	Default sampling date
Dec 5-7, 2016	Pathogens	Monthly	Default sampling date
Jan 9-11, 2017	Pathogens	Monthly	Default sampling date
Feb 6-8, 2017	Pathogens	Monthly	Default sampling date
March 6-8, 2017	Pathogens	Monthly	Default sampling date
No further pathogens monitoring planned by the Delta RMP.			
Planned Monitoring Events			
Date	Monitoring Element	Frequency	Comments
Jun 13, 2017	Pesticides	Monthly	Default sampling date

Meeting Materials for Item 5



DATE: June 2, 2017

TO: Delta RMP Technical Advisory Committee

FROM: Matthew Heberger, Program Manager, Delta RMP

RE: Current Use Pesticides (CUP) Interpretive Report Revised Scope of Work

This memo is intended to provide some background to the TAC to facilitate a discussion of how to revise the scope for the planned pesticides interpretive report.

The Delta RMP [Communication Plan](#) calls for a technical report summarizing the first two years of current use pesticides monitoring. The FY17/18 Work Plan contains a task for developing the outline for this report in collaboration with the Pesticides Subcommittee, and an allocation of \$60,000 for ASC staff and two outside experts to research and write this report.

On May 3, 2017, the Steering Committee decided to expand the scope of the report to include a broader array of pesticide data that has been collected in the Delta over time by others, and not limit ourselves to the 2 years of data collected by the Delta RMP.

TAC input is requested to develop the expanded scope for this report, including what methods will be used to analyze and synthesize the data. Among the questions that need to be answered are:

- What data should be included in this analysis?
 - All pesticide data in public repositories such as CEDEN?
 - Irrigated Lands Regulatory Program (ILRP) datasets?
 - USGS data from NWIS¹?
 - Data from stormwater monitoring programs?
 - Other datasets?
- What type of data should be included? (Sediment, water, effluent data?)
- Geographic window? (Legal Delta only, or include upstream tributaries?)
- Time period? (e.g. go back to 2010, 2000, or further?)
- What type of expertise should be provided by external co-authors?

¹ National Water Information System (NWIS) Water-Quality Web Service, <https://www.waterqualitydata.us/portal/>

- What types of analyses should be performed with the data?

After receiving input from the TAC, ASC will update the scope and budget for the task. If the new budget exceeds the \$60,000 allocation, additional funding will be requested from the Steering Committee.

Meeting Materials for Item 6



DATE: June 5, 2017

TO: Delta RMP Steering Committee

THROUGH: Delta RMP Technical Advisory Committee

FROM: Matthew Heberger, Program Manager, Aquatic Science Center

RE: Path forward for Current Use Pesticides Monitoring by the Delta RMP in Fiscal Year 2017–18

The purpose of this memorandum is to provide additional information regarding the Pesticides Monitoring Workplan proposed for the Delta RMP in FY17/18.

As the Delta RMP moves into its third fiscal year of monitoring, we are in some cases drastically revamping monitoring designs in response to the Fall 2016 External Review. At its May 3, 2017 meeting, Delta RMP Steering Committee members expressed concerns regarding the use of new methods and sampling locations proposed for monitoring pesticides. After a lengthy discussion, the SC voted to approve the FY17/18 Workplan and Budget *without* pesticides monitoring, requesting more information and more time for deliberation.

Background

In January 2017, the Steering Committee set a planning budget of \$250,000 for each of the three focus areas (mercury, nutrients, and pesticides). In February-March, each of the technical subcommittees developed monitoring proposals. In March, the Technical Advisory Committee (TAC) recommended a set of options for FY17/18 based on the subcommittee's recommended monitoring designs. Their criteria for selecting studies for funding included technical merit and linkage to management questions, as well as opportunities to address multiple program priorities (leveraging external funds, coordinating efforts of different groups, making better use of existing monitoring and data); and providing continuity for ongoing studies.

Proposed pesticides monitoring activities totaled \$319,260, which exceeded the planning budget of \$250,000. However, this set of two studies also leverages \$205,600 in external funding via the SWAMP program, which can only be spent on pesticides and toxicity work to be performed by the Aquatic Health Program Laboratory at UC Davis.

During the March 14, 2017 meeting, the TAC discussed proposed pesticides monitoring at length, particularly the first component, “Aquatic Toxicity at Integrator Sites.” This monitoring component features *ex-situ* toxicity testing, using rainbow trout (not fathead minnow) and *Hyalella*. The scientists proposed rainbow trout because it is a cold-water salmonid species that is a) representative of the cold-water 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). *Ceriodaphnia* and *Selenastrum* would be tested for toxicity at the UCD lab. The original proposal was scaled back from two sites to one site only (Sacramento River at Hood). Other sites would be much more costly, as testing space would need to be constructed. Generally, participants agreed that this monitoring component would address some of the specific concerns raised by the expert panel review of the Delta RMP monitoring design (document the toxicity problem and postpone pesticide analyses at more sites / when expected; allow for inferences about unmonitored areas). However, they also wanted clarification about the proposed methods, a better understanding of what methods are well established and any that are in development.

New and Expanded Information on Pesticides Proposals

The attachments to this memo include new information for the Steering Committee as it reconsiders the pesticides monitoring.

1. “How will the data be used?”

We have added a new section to the cover page for each of the two components of FY17/18 monitoring: 1) Aquatic Toxicity at Integrator Sites, 2) Regional Assessment of Delta Tributaries. These sections describe how data collected by the Delta RMP will be managed and disseminated, and how the data are intended to be used to address the program’s management questions.

2. Table of pros and cons for the different study designs

The attached table highlights how the two study components complement one another. The first component monitors the combined impacts on water quality of multiple discharges into the Delta (particularly on salmonids), while the second monitors for trends in pesticide concentrations over time at representative Delta inflow sites.

3. Summary of March TAC meeting

The summary is provided here in order to share more information with the Steering Committee on the deliberations of the TAC with respect to pesticides monitoring, including dissenting views expressed by some TAC participants.

Summary of Draft Pesticide Proposals for FY17/18 Workplan

The Pesticides Subcommittee and TAC recommend a dual-study approach, consisting of intensive aquatic toxicity monitoring at a key indicator site, combined with trends monitoring at representative targeted sites. The two study components complement each other in their approach to addressing management and assessment questions. Study component 1 provides a thorough characterization of pesticide inputs to the Delta from the majority of the upstream watershed to the Delta. The approach of Study Component 1 consists of integrated measurements of toxicity and pesticides using ex-situ exposure chambers and passive samples, thus greatly expanding the time period covered by the sampling. Study Component 2 initiates monitoring for trends in TMDL pesticides and associated toxicity within the Delta. This Study Component is designed to characterize conditions (are pesticide concentrations greater than water quality benchmarks?) and trend (“is the needle moving due to regulatory and related management actions?”) at two targeted representative sites. This study component will also employ the same passive sampling methodology as study one to gain information on the occurrence of a larger list of pesticides at the targeted Delta sites. The sampling periods for both study components are coordinated.

The estimated combined cost for all proposed study components is **\$318,000**.

Study Component 1 - Aquatic Toxicity at an Integrator Site

This study component evaluates pesticide-related toxicity at the Sacramento River at Hood, a key indicator site that represents the integration of a large watershed prior to entering the Delta. Water pumped from the river would run through on-site tanks (called ex-situ exposure) with the salmonid Rainbow Trout and the invertebrate *Hyaella azteca*, for critical time periods. After the determined exposure time, the exposed test organisms will be assessed for lethal and sub-lethal endpoints (survival, growth, behavioral). In the laboratory, chronic *Ceriodaphnia dubia* and *Selenastrum capricornutum* toxicity tests will be conducted and timed to be concurrent with each ex-situ exposure event. Chemical analyses will be included to help identify chemicals causing observed toxicity.

The estimated cost for the proposed study component is **\$178,527**.

Management Drivers Addressed

This study component addresses the overall management question: Are water bodies meeting the “no toxics in toxic amounts” water quality objective¹?

Core Management Questions Addressed

Is there a problem or are there signs of a problem?

- a. Is water quality currently, or trending towards, adversely affecting beneficial uses of the Delta?

Assessment Questions Addressed

- S&T 1 - “To what extent do current use pesticides contribute to observed toxicity in the Delta?”

¹ Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, III-8.01 - Toxicity.

- S&T 1.1A - “If samples are toxic, do detected pesticides explain the toxicity?”
- S&T 1.2 - “What are the spatial and temporal extents of lethal and sublethal aquatic toxicity observed in the Delta?”
- S&T 1.2A - “Do aquatic toxicity tests at targeted sites indicate a toxic response?”

The proposed study component will partly address questions S&T1, S&T1.1A, S&T1.2A for the majority of the upstream watershed influences on the Delta. *Next Steps:* Future monitoring could increase the spatial coverage of inputs by adding monitoring at additional integrator/watershed terminus sites (e.g. San Joaquin River at Vernalis). Evaluation of the results from this study in relationship to pesticide use patterns will also help inform a potential future monitoring design for the interior Delta.

Review Comments Addressed

This study component may address the comment that the sample design should allow for sample data to draw inferences about unmonitored time periods. Integrated measurements of toxicity and pesticides using ex-situ exposure chambers and passive samples greatly expand the time period covered by the sampling. While spatial inferences will not be possible, monitoring at a major “integrator” site provides information for Delta locations where potential pesticide inputs from multiple upstream sources are combined.

Data Quality Objectives/Null Hypothesis

The Data Quality Objectives (DQOs) for this study have not yet been developed. For the first year of data collection, established Measurement Quality Objectives (MQOs) will be used to ensure the quality of the data. Once some baseline data have been collected, numeric DQOs for each of the monitoring questions will be established.

How Data from this Study Will Be Used

Rainbow trout are a close surrogate for salmonids, whose populations are struggling, threatened or endangered in the Central Valley, and there is currently very little toxicity data for salmonids. The ex-situ toxicity data from this study would address monitoring goals in the Central Valley Basin Plan related to determining if pesticides or combinations of pesticides are causing toxicity (see chlorpyrifos and diazinon TMDLs). This data would also address several concerns brought up in the pyrethroids TMDL and basin plan amendment regarding additive and synergistic effects of pesticides and other stressors and particularly effects on fisheries in the Delta, since toxicity testing is an integrative tool. If toxicity was linked to particular pesticides or classes of pesticides that would lead to the Board working with DPR, EPA, and dischargers to mitigate the effects, ideally before a TMDL would be needed (as is happening now with fipronil). Sublethal effects, such as impaired swimming behavior, would merit the same response from the Regional Board because our toxicity objective speaks to adverse physiological effects on aquatic organisms, which includes sublethal effects, not just mortality.

The ex-situ toxicity data would also be uploaded to CEDEN and therefore would be used for the update to the 303(d)/305(b) [California Integrated Report](#), which is an important management action that leads to the Board prioritizing the development of regulations or other actions that will lead to meeting standards in impaired waters.

Having concurrent chemistry data can provide a link to the cause of toxicity, but may not be definitive. It is possible that this study could trigger further study, but it would provide important information to

target future studies based on the chemistry data. Overall, this type of data helps answer the question of whether and how pesticides may be causing adverse effects on fish.

Study Component 2 - Pesticides Regional Assessment, Delta Tributaries

This study component describes monitoring to characterize conditions (are pesticide concentrations greater than water quality benchmarks?) and trend (“is the needle moving due to management actions?”) at 2 targeted representative sites. The approach will be to use four lines of evidence for evaluating if prioritized pesticides are potentially at levels of concern: a) toxicity testing, b) chemical analysis of water grab samples for TMDL pesticides (pyrethroids, chlorpyrifos, and diazinon) and comparison of concentrations of detected pesticides with thresholds of concern, c) deployment of passive sampling devices for chemical analysis for a longer list of pesticides, and d) toxicity identification evaluations (TIEs).

The estimated cost for the proposed study is **\$124,473**.

Management Drivers Addressed

TMDLs and other control efforts to reduce loads and effects of pyrethroids, chlorpyrifos and diazinon, and other pesticides.

Core Management Questions Addressed

Status and Trends

Is there a problem or are there signs of a problem?

- a. Is water quality currently, or trending towards, adversely affecting beneficial uses of the Delta?

Effectiveness Tracking

Are water quality conditions improving as a result of management actions such that beneficial uses will be met?

Assessment Questions Addressed

(these are new proposed assessment questions – to be confirmed by TAC/SC)

S&Tx.a Are pesticide concentrations in the Delta potentially at levels of concern and are associated impacts likely?

S&Tx.b Are pesticide concentrations and observed toxicity decreasing or increasing?

The proposed project component will address questions S&Tx.A (condition) for two indicator sites that will be selected to represent small waterbodies downstream of high-use areas (based on reported use of pyrethroids, the pesticide group of most immediate concern), where use reduction is happening.

The project component will also initiate trend monitoring to address question S&Tx.B. *Next steps:* Data from this study will help characterizing variance in concentrations across important seasons at representative sites, which will help to refine DQOs and develop a monitoring design for detecting long-term trends. Future planning will evaluate options for improving sensitivity of trend detection and increasing spatial coverage.

Review Comments Addressed

The study component aligns the Delta RMP assessment questions more directly with TMDL-related management decisions and aims to generate baseline data to inform the Central Valley Pyrethroid TMDL and other control efforts.

Data Quality Objectives/Null Hypothesis

The initial and preliminary quality objective (DQO) is the ability to detect a trend in concentrations of pyrethroids and other priority pesticides on the order of 2.5 ng/L/year over a 10-15 year period. This trend is roughly equivalent to the decline of current concentrations at the most impacted sites to below detection over this period. This DQO can be refined when Fy17/18 data are available.

How Data from this Study Will Be Used

Following thorough quality assurance, the data on current use pesticides and their degradates will be uploaded to CEDEN where it will be available to regulators, researchers, and other interested parties. In the near-term, concentrations of pesticides and related compounds will be compared with benchmarks (such as aquatic life benchmarks published by the USEPA and California Department of Pesticides Regulation) to determine if they are present at levels that cause concern. After several years of data collection, concentration data will be plotted on time series charts and analyzed for trends using statistical methods.

If a trend in a pesticide is detected that is linked to toxicity, it would lead to the Central Valley Board working with DPR, EPA, and dischargers to mitigate the effects, ideally before a TMDL would be needed (as is happening now with fipronil).

Data on pesticides concentrations and toxicity will also be used by the Water Board for the update to the 303(d)/305(b) [California Integrated Report](#). This is an important management action that leads to the Board prioritizing the development of regulations or other actions that will lead to meeting standards in impaired waters.

3 – Planning Budget

Both Proposal 1 and Proposal 2 will need additional planning and DQO discussions before the first samples are collected in November 2017. Therefore, the Pesticide Subcommittee has requested additional meeting time during the first quarter of the FY17/18. These additional pesticide subcommittee meetings are required to finalize data quality, site selection, and other details of the monitoring design. The proposed budget will allow preparing and facilitating 3 pesticide subcommittee meetings between July 1 and September 30 to finalize details of the monitoring designs.

Cost: \$15,000.

Summary Table of Draft Proposal for FY17/18 Workplan

<i>Study Component</i>	Cost	For detailed proposal see pages
1 – Aquatic Toxicity at Indicator Sites	\$178,527	7-23
2 – Pesticides Regional Assessment, Delta Tributaries Representative Targeted Sites: Prioritizing power to detect interannual trends	\$124,473	24-40
3 – Planning Budget	\$15,000	
All Study Components	\$318,000	

Delta RMP Assessment Questions for Pesticides. Highlighted questions are addressed by proposed study elements.

Type	Core Management Questions	Assessment Questions	Addressed by
Status & Trends	<p>Is there a problem or are there signs of a problem?</p> <p>a. Is water quality currently, or trending towards, adversely affecting beneficial uses of the Delta?</p> <p>b. Which constituents may be impairing beneficial uses in subregions of the Delta?</p> <p>c. Are trends similar or different across different subregions of the Delta?</p>	<p>1. To what extent do pesticides contribute to observed toxicity in the Delta?</p> <p>1.1. Which pesticides or degradates have the highest potential to be causing toxicity in the Delta and therefore should be the priority for monitoring and management?</p> <p>A. If samples are toxic, do detected pesticides explain the toxicity?</p> <p>B. If samples are not toxic, do detected pesticide concentrations exceed other thresholds of concern (e.g., water quality objectives or Office of Pesticide Programs aquatic toxicity benchmarks)?</p> <p>1.2. What are the spatial and temporal extents of lethal and sublethal aquatic and sediment toxicity observed in the Delta?</p> <p>A. Do aquatic or sediment toxicity tests at targeted sites indicate a toxic response?</p> <p>B. If answer to A is yes, which other toxicity indicator(s) should guide monitoring and management of pesticides in Years 2+?</p> <p>2. What are the spatial/temporal distributions of concentrations of currently used pesticides identified as likely causes of observed toxicity?</p> <p>2.1. Which pesticides have the highest risk potential (based on DPR’s risk prioritization model²) and should be included in chemical analyses?</p> <p>A. Is the list of pesticides included in USGS pesticide scan sufficient for Delta RMP monitoring design?</p>	<p>Study Component 1</p> <p>Study Component 1</p> <p>Study Component 1</p> <p>Study Component 1</p>

² http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/prioritization_report_2.pdf

Type	Core Management Questions	Assessment Questions	Addressed by
		<p>B. Are methods available to monitor pesticides with high-risk potential not included in USGS pesticide scan?</p> <p>2.2. How do concentrations of the pesticides with the highest risk potential vary seasonally and spatially?</p> <p><i>New proposed:</i></p> <p>x.A. Are pesticide concentrations in the Delta potentially at levels of concern and are associated impacts likely?</p> <p>x.B. Are pesticide concentrations and observed toxicity decreasing or increasing?</p>	<p>Study Component 2</p> <p>Study Component 2</p>
<p>Sources, Pathways, Loadings & Processes</p>	<p>Which sources and processes are most important to understand and quantify?</p> <p>a. Which sources, pathways, loadings, and processes (e.g., transformations, bioaccumulation) contribute most to identified problems?</p> <p>b. What is the magnitude of each source and/or pathway (e.g., municipal wastewater, atmospheric deposition)?</p> <p>c. What are the magnitudes of internal sources and/or pathways (e.g. benthic flux) and sinks in the Delta?</p>	<p>1. What are the principal sources and pathways responsible for aquatic and sediment toxicity observed in the Delta?</p> <p>2. What are the fates of prioritized pesticides and degradates in the environment?</p> <p>2.1. Do physical/chemical properties of priority pesticides, application rates and processes, and ambient conditions influence the degree of toxicity observed?</p> <p>3. What are the spatial/temporal use patterns of priority pesticides?</p>	<p>1.</p>
<p>Forecasting Scenarios</p>	<p>a. How do ambient water quality conditions respond to different management scenarios</p> <p>b. What constituent loads can the Delta assimilate without impairment of beneficial uses?</p> <p>c. What is the likelihood that the Delta will be water quality-impaired in the future?</p>	<p>1. How do pesticide concentrations respond to different management scenarios?</p> <p>2. What pesticide loads can the Delta assimilate without exceeding water quality criteria established to protect beneficial uses?</p> <p>3. How will climate change affect concentrations and/or loadings of pesticides and impacts to aquatic species?</p>	
<p>Effectiveness Tracking</p>	<p>a. Are water quality conditions improving as a result of management actions such that beneficial uses will be met?</p> <p>b. Are loadings changing as a result of management actions?</p>	<p>1. Are pesticide-related toxicity impacts decreasing over time?</p>	<p>Study Component 2</p>

Summary of Pros and Cons for Pesticide Monitoring Components

Component Summary	Pros	Cons
<p>Aquatic Toxicity at Integrator Site</p> <ul style="list-style-type: none"> ● Key indicator site: Sac R @Hood ● Assess test organisms for standard lethal and sub-lethal endpoints ● Ex-situ exposure events (rainbow trout, <i>H. azteca</i>) concurrent with chronic toxicity tests in lab (<i>C. dubia</i>, <i>S. capricornutum</i>) ● Include chemical analyses (using both grab samples and integrative passive samplers) to help identify chemicals causing observed toxicity ● Total cost: \$178,527 	<ul style="list-style-type: none"> ● Addresses issues with grab sample studies by integrating exposures over longer periods of time. ● Maximize use of SWAMP \$\$s ● Meets the RMP charter goal: “stations are established generally as “integrator sites” to evaluate the combined impacts on water quality of multiple discharges into the Delta.” ● Uses tools to go beyond regulatory toxicity testing to evaluate organism effects. ● Modular approach allows future biomarker or tissue work, or CEC evaluation. 	<ul style="list-style-type: none"> ● <i>Ex situ</i> methods are not standard, are not widely applicable to other sites without the infrastructure, and <i>ex situ</i> data (14-day rainbow trout and <i>H. azteca</i> toxicity) are not comparable with standard toxicity testing at other Delta locations to evaluate status and trends over time.
<p>Pesticides Regional Assessment, Delta Tributaries</p> <ul style="list-style-type: none"> ● Study area: creeks and sloughs that are tributaries to the Delta ● Several options (see 3A-D below) ● Characterize conditions and trends in water column at representative sites ● Use four lines of evidence for evaluating if prioritized pesticides are potentially at levels of concern: <ul style="list-style-type: none"> ○ Toxicity testing (<i>H. azteca</i>, <i>C. dubia</i>, <i>S.</i> 	<ul style="list-style-type: none"> ● Responds to need for tying monitoring to Pyrethroid TMDL management driver. ● Establishes baseline/ambient condition for trend evaluation over time and at multiple Delta locations. ● Uses standard toxicity test methods. 	<ul style="list-style-type: none"> ● Grab samples represent a snapshot in time. ● Use of SWAMP \$\$s limited to toxicity work; limited funding options.

<p><i>capricornutum</i>),</p> <ul style="list-style-type: none"> ○ Chemical analysis of water grab samples for TMDL pesticides (pyrethroids, chlorpyrifos, and diazinon) and comparison of concentrations of detected pesticides with thresholds of concern ○ Deployment of passive sampling devices for chemical analysis for a longer list of pesticides based on output from DPR's Surface Water Monitoring Prioritization model, and ○ Toxicity identification evaluations (TIEs). ● Monitoring of the water column ● Cost: \$124,473 (18 samples + 12 passive sampler deployments) 		
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Overall:

- Neither component completely addresses data quality objectives. Extensive USGS dataset available for power analysis.
- Both connect with current SPoT sites.
- Both are scalable (could be increased in sites or frequency with more \$)
- Both employ passive samplers (SWAMP could fund \$5K-\$10K additional sampling equipment).
- No change in current SPoT sample sites this year, but could change for 2018
- Toxicity test species and endpoints have some similarities (combined chemistry and toxicity; throughout year/multiple periods; both sets of water samples analyzed by USGS; both sets of lab toxicity tests by UCD)
- DRMP can influence SPoT monitoring site selection next year, which may lead to improved consistency in sites.

Information related to MS4 permittees and pyrethroids control program:

- The regional MS4 permit, which currently applies to the Phase I programs in Sacramento, Stockton, and Port of Stockton, requires

participation in the RMP. Monitoring designs (sites, frequencies, constituents, etc.) are not specified in the permit.

- The pyrethroids TMDL will require dischargers (at least ag and MS4) to monitor pyrethroids (as grab samples) in their discharges and immediate (i.e., discharge dominated) receiving waters. Thus, regional assessment sites characterizing mixed land uses would be unique and of interest, and passive samplers would monitor a much broader suite of chemicals.
- The SPoT monitoring design will not change sites for water year 17-18, but could be aligned to RMP sites in the future.

Meeting Materials for Item 10

Delta RMP Action Items Stoplight Report

Key to Status Colors:

Green indicates greater than 90 days until the deliverable is due.

Yellow indicates a deliverable is due within 90 days.

Red indicates a deliverable that is overdue.

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
1	SC Action Items 5/3/2017	05/03/17	Finalize the 1/26/2017 SC Meeting Summary and post to the program website	Matthew Heberger	05/11/17	Complete	
2	SC Action Items 5/3/2017	05/03/17	Determine the date and location for the Fall 2017 Steering Committee meeting and send invitation to the SC	Matthew Heberger	05/25/17	Complete	Set for Oct 24
3	SC Action Items 5/3/2017	05/03/17	Update the Financial Memo with minor edits	Matthew Heberger	05/11/17	Complete	
4	SC Action Items 5/3/2017	05/03/17	Send out revised draft Fact Sheet to the SC to review with deadline for comments	Matthew Heberger	05/11/17	Complete	
5	SC Action Items 5/3/2017	05/03/17	Finalize minor portions of the FY17/18 Workplan that require changes in response to input received at the meeting and the decision of the Steering Committee	Matthew Heberger	05/15/17	Complete	Pesticides question still outstanding.
6	SC Action Items 5/3/2017	05/03/17	Present the SC with information from the TAC related to the pesticides proposals: TAC meeting summary, pros/cons of the two approaches, slides showing how data from the proposed approaches would be interpreted to answer management questions, and how the costs of the Delta RMP might change with external funding for certain aspects of the projects	Matthew Heberger	07/21/17		
7	SC Action Items 5/3/2017	05/03/17	Prepare a revised scope and budget for the CUP/Toxicity Year 1-2 Interpretative Report that includes synthesis of readily available information in the Delta, not just Delta RMP data	Matthew Heberger	07/21/17		
8	SC Action Items 5/3/2017	05/03/17	Regarding the Chlorophyll-a Intercalibration Study for FY17/18, provide Gregg Gearheart with the specifics about how partner agencies can participate	Thomas Jabusch	05/31/17	Complete	
9	TAC Action Items from 3/14/2017	03/14/17	Reserve meeting room for 9/21 TAC meeting; send email invitation	Matthew Heberger	05/31/17	Complete	
10	TAC Action Items from 3/14/2017	03/14/17	Follow up with SFWCA and SWAMP regarding contribution matching funds to support the chlorophyll sensor intercalibration effort	Thomas Jabusch	03/24/17	Complete	
11	TAC Action Items from 3/14/2017	03/14/17	Look into whether a Delta RMP HABS monitoring project would be eligible for Water Board grant funding	Thomas Jabusch	03/31/17	Complete	Talked to R. Breuer: Answer: Probably not at this point. Very limited funding allocated to another project for Delta satellite surveillance and response. Another complication is the closing of WPCL. There is currently no lab to do the analyses.
12	TAC Action Items from 3/14/2017	03/14/17	Revise Pesticides proposal 1 to include only one site, Sacramento River at Hood	Debra Denton	03/31/17	Complete	
13	TAC Action Items from 3/14/2017	03/14/17	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 between July 1 and September 30	Thomas Jabusch	03/31/17	Complete	

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
14	TAC Action Items from 3/14/2017	03/14/17	In 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	03/31/17	Complete	
15	TAC Action Items from 3/14/2017	03/14/17	Prepare high-level summary of TAC-recommended proposals for nutrients, Hg, and pesticides. To include the following topics: 1) Management Drivers Addressed, 2) Assessment Questions Answered, 3) External Review Comments Addressed, 4) Data Quality Objectives/Null Hypothesis	Thomas Jabusch	04/15/17	Complete	Add abstracts to each proposal with this information.
16	TAC Action Items from 3/14/2017	03/14/17	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	04/01/17	Complete	
17	TAC Action Items from 3/14/2017	03/14/17	Schedule a pesticide 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	03/25/17	Complete	
18	TAC Action Items from 3/14/2017	03/14/17	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).	Matthew Heberger	03/31/17	Complete	
19	TAC Action Items from 3/14/2017	03/14/17	Send draft CUP report to TAC as a Word document	Thomas Jabusch	03/17/17	Complete	
20	TAC Action Items from 3/14/2017	03/14/17	Schedule a webinar to present and discuss the Current Use Pesticides draft report	Thomas Jabusch	03/24/17	Complete	
21	TAC Action Items from 3/14/2017	03/14/17	Schedule a webinar to present CD3 visualization, data download and metadata	Matthew Heberger	04/15/17		We have decided to move this to July so that it can be included in the FY17/18 budget. (This was requested by participants, but not included in prior budgets.)
22	SC Action Items 1/26/2017	01/26/17	Finalize the 10/18/16 Meeting Summary and post to the website	Matthew Heberger	02/03/17	Complete	
23	SC Action Items 1/26/2017	01/26/17	Determine the location for the 7/28/17 meeting and send an invitation to the SC	Matthew Heberger	02/03/17	Complete	
24	SC Action Items 1/26/2017	01/26/17	Confirm whether Delta RMP measurement methods for mercury and ancillary parameters are compatible with other programs, to ensure that the data we collect can be readily combined with data collected by others.	Thomas Jabusch	02/28/17	Complete	Thomas has talked to USGS and MLML and confirmed that the data collection and analysis methods are the same, and there is no concern with comparing and combining mercury data.
25	SC Action Items 1/26/2017	01/26/17	Add an agenda for the next SC Meeting on the Communications Plan and access to preliminary/provisional data. Use the technical powerpoints presented as a case study.	Philip Trowbridge	04/30/17	Complete	Topic added to list of items for next SC meeting.
26	SC Action Items 1/26/2017	01/26/17	ASC to discuss with State Board (Greg Gearheart and Janis Cooke) on developing options for HABS monitoring. Questions include: where does the Delta RMP fit in, how might we complement other programs, what kind of options are there for projects in the FY17/18 budget or SEP funds? ASC to work with Greg Gearheart (State Board) on this.	Thomas Jabusch	02/28/17	Complete	
27	SC Action Items 1/26/2017	01/26/17	Nutrients subcommittee to discuss HABS at a future meeting, and to come up with options to present to the SC	Thomas Jabusch	02/28/17	Complete	

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
28	SC Action Items 1/26/2017	01/26/17	Organize a debrief meeting with State Board staff, USGS, and ASC to develop lessons learned which might make the CEDEN upload easier next time.	Matthew Heberger	02/28/17	Complete	Meeting is scheduled for 3/6/17.
29	SC Action Items 1/26/2017	01/26/17	ASC will look into hiring administrative staff to perform certain roles, such as invoicing, taking meeting notes.	Matthew Heberger	02/28/17	Complete	We have contacted Ms. Daphne Orzalli, who has confirmed her interest and given us a quote for professional services at \$40/hour. The finance committee will discuss the pros and cons at their next meeting.
30	SC Action Items 1/26/2017	01/26/17	Beginning July 2017, all financials will be reported for current fiscal year only. Remaining funds from prior years will be rolled over to the current year.	Matthew Heberger	07/31/17	Complete	We have looked into this issue and discussed it with our accountant and financial manager and concluded we can make a seamless transition without any issues. Framework presented to Finance Subcommittee on 4/25/2017, and approved.
31	SC Action Items 1/26/2017	01/26/17	Prepare a memo for the next SC meeting with options for setting fees with pros and cons	Philip Trowbridge	04/30/17	Complete	Slides discussing the options and preferred alternative were prepared for the May 3 meeting but the discussion was tabled and will be presented on July 28.
32	SC Action Items 1/26/2017	01/26/17	Create a 1- to 2-page factsheet about Delta RMP to help with fundraising. Describe the purpose, accomplishments, and benefits.	Matthew Heberger	03/31/17	Complete	Draft factsheet to be presented at the May 3 Steering Committee meeting.
33	SC Action Items 1/26/2017	01/26/17	Convene a meeting of the Revenue Subcommittee.	Val Connor	04/30/17	Complete	The Revenue Committee has met and is planning future meetings.
34	SC Action Items 1/26/2017	01/26/17	Send a PDF of the nutrients presentations and links to the	Matthew Heberger	02/01/17	Complete	
35	SC Action Items 1/26/2017	01/26/17	Revise the response to the External Review Committee. Committee members to submit proposed language to ASC. Following revisions, ASC will re-send the response to the SC showing the edits in track changes. SC members will have one week to respond. If no comments are received, the letter will be finalized and sent to the reviewers.	Matthew Heberger	02/03/17	Complete	
36	SC Action Items 1/26/2017	01/26/17	Schedule a meeting between Planning Committee and the Independent Reviewers for March.	Yumiko Henneberry	02/10/17	Complete	
37	SC Action Items 1/26/2017	01/26/17	Develop new text for Attachment 3 (the flowchart) to be discussed at the fall SC-TAC meeting.	Matthew Heberger	09/30/17		At the Jan 26, 2017 meeting, it was discussed that the flowchart had served a useful purpose at the beginning of the program, allowing dischargers and regulators to come to a common understanding of how data collected by the program would (and would not) be used. However, it no longer reflects current policy or procedures. Patrick thought it should be replaced with a couple paragraphs.
38	SC Action Items 1/26/2017	01/26/17	Accept approved edits and post new Charter to website.	Matthew Heberger	02/28/17	Complete	
39	SC Action Items 1/26/2017	01/26/17	Put on the agenda for a future SC meeting: How we will be interacting with the Delta Science Program, especially as it regards the findings of the recent report State of Bay-Delta Science, 2016, which concerns us directly.	Philip Trowbridge	02/01/17	Complete	Item added to agenda item parking lot.

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
40	SC Action Items 1/26/2017	01/26/17	Put on the agenda for a future SC meeting: CEC workshop and State Board CEC Guidance.	Philip Trowbridge	02/01/17	Complete	Item added to agenda item parking lot.
41	TAC Action Items from 12/13/2016	12/13/16	Revise 9/20/16 meeting summary	Thomas Jabusch	01/18/17	Complete	
42	TAC Action Items from 12/13/2016	12/13/16	On the matrix of management drivers and assessment questions, use underline or text color to indicate the questions currently being addressed by the Delta RMP	Philip Trowbridge	01/18/17	Complete	
43	TAC Action Items from 12/13/2016	12/13/16	Schedule and prepare materials/maps for a discussion about changes in SPoT sampling stations and coordination of Delta RMP with SPoT, STORMS, and MS4 monitoring for the 1/25 Pesticide Subcommittee meeting	Thomas Jabusch	01/18/17	Complete	
44	TAC Action Items from 12/13/2016	12/13/16	Add "Technical Subcommittee Updates" as a standing item on the TAC agenda and prepare a running table showing the samples that have been collected and those that are scheduled	Thomas Jabusch	03/06/17	Complete	
45	TAC Action Items from 12/13/2016	12/13/16	Provide reference for Test of Statistical Significance and edits on response to TIE question	Debra Denton	12/16/16	Complete	
46	TAC Action Items from 12/13/2016	12/13/16	Add an introductory paragraph and reformat the pathogen responses	Brian Lauerson	12/22/16	Complete	
47	TAC Action Items from 12/13/2016	12/13/16	Draft a cover letter that a) will summarize the main themes and concepts of the responses, b) expresses a commitment to making changes and addressing the issues that have been identified, and c) explains what type of input is being sought for improving the program	Philip Trowbridge	12/23/16	Complete	
48	TAC Action Items from 12/13/2016	12/13/16	Send the revised draft response letter to the Planning Subcommittee and cc the TAC	Philip Trowbridge	12/23/16	Complete	
49	TAC Action Items from 12/13/2016	12/13/16	Prepare a table for the Finance Subcommittee showing the different roles and responsibilities of ASC and the TAC co-Chairs	Philip Trowbridge	01/04/17	Complete	
50	SC Action Items 10/18/2016	10/18/16	Schedule call to discuss flowchart	Selina Cole	01/26/17	Complete	This group would include Regional Board staff (Adam Laputz), State Board staff (Greg Gearheart, Rich Breuer), USEPA (Debra Denton), and representatives of POTWs (Debbie Webster), stormwater (Karen Ashby), and agriculture (Bruce Houdesheldt as placeholder pending follow-up discussion within the group).
51	SC Action Items 10/18/2016	10/18/16	Work with the Coordinating Committee to establish when terms will start and end for SC members, TAC members, and TAC co-chairs.	Philip Trowbridge	01/26/17	Complete	Process memo prepared and presented to TAC on 12/13/16.
52	SC Action Items 10/18/2016	10/18/16	Schedule a SC agenda item to discuss whether the TAC should continue to have two appointed co-chairs	Philip Trowbridge	01/26/17	Complete	
53	SC Action Items 10/18/2016	10/18/16	Distribute Word version of the SC-approved Charter document to the TAC	Thomas Jabusch	10/21/16	Complete	
54	SC Action Items 10/18/2016	10/18/16	Send additional specific changes and edits to the charter to Phil Trowbridge	TAC members	11/18/16	Complete	Comments were received from CVCWA.
55	SC Action Items 10/18/2016	10/18/16	Bring Charter with additional edits to the SC for approval	Philip Trowbridge	01/26/17	Complete	
56	SC Action Items 10/18/2016	10/18/16	Develop a matrix that shows the intersect between the 3 major drivers (NRP, Pyrethroids TMDL, MeHg TMDL) and the Delta RMP assessment questions	Philip Trowbridge	01/26/17	Complete	
57	SC Action Items 10/18/2016	10/18/16	Look into "pooling" multiple settlements into one larger Supplemental Environmental Project	Patrick Morris	01/26/17	Complete	Will be discussed at SC meeting.

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
58	SC Action Items 10/18/2016	10/18/16	Send comments on USGS report to Joe Domagalski	Steering Committee	11/01/16	Complete	Comment period expired without any comments received.
59	TAC Action Items from 9/20/2016	09/20/16	Send Nutrient Sensor Synthesis Report including reconciled comments to TAC and SC	Joe Domagalski	10/11/16	Complete	
60	TAC Action Items from 9/20/2016	09/20/16	Modify the slides for the proposed process for pesticide prioritization before including them in the Oct 18 SC/TAC meeting agenda package or sending them to the Pesticides Subcommittee	Stephen McCord	10/04/16	Complete	
61	TAC Action Items from 9/20/2016	09/20/16	Send Doodle poll for first Pesticides Subcommittee Meeting	Thomas Jabusch	09/22/16	Complete	
62	TAC Action Items from 9/20/2016	09/20/16	Add a cover page to the toxicity report that explains how it fits into the overall reporting plan	Thomas Jabusch	12/06/16	Complete	This update has been noted and will be completed when the FY15/16 CUP Report is formatted.
63	TAC Action Items from 9/20/2016	09/20/16	Send comments on management drivers table and Section 7B (TAC) of the approved Delta RMP Charter to Phil Trowbridge	TAC members	10/04/16	Complete	
64	TAC Action Items from 9/20/2016	09/20/16	Prepare slides about the TAC roles and responsibilities in the Charter and share them with the TAC for review before the October 18 meeting	Stephen McCord	10/17/16	Complete	
65	SC Action Items 07/20/2016	07/20/16	Send an invite to SC for January 26, 2017 meeting	Meg Sedlak	09/01/16	Complete	
66	SC Action Items 07/20/2016	07/20/16	Include page numbers in the agenda indicating location of agenda items, add blank pages between items in the agenda package.	Meg Sedlak	10/03/16	Complete	
67	SC Action Items 07/20/2016	07/20/16	Accept Charter track changes sent to SC and incorporate language modifications requested. Place final version in google drive under foundational documents.	Philip Trowbridge	08/17/16	Complete	
68	SC Action Items 07/20/2016	07/20/16	Send TAC the final version of the Charter before the 10/18/16 meeting.	Meg Sedlak	09/30/16	Complete	
69	SC Action Items 07/20/2016	07/20/16	ASC and Finance Subcommittee will meet to determine a way to provide the level of information requested. ASC will provide a cost estimate for any extra work associated with the increased reporting.	Meg Sedlak	10/03/16	Complete	This meeting took place immediately following the SC meeting. For future financial reports, ASC will use the same format as was developed for the Q2 report but also add the hours billed by each staff member for each task from the invoices.
70	SC Action Items 07/20/2016	07/20/16	Send out Management Driver table to SC and TAC	Meg Sedlak	09/30/16	Complete	
71	SC Action Items 07/20/2016	07/20/16	Add an agenda item to the October 18th Joint meeting agenda to discuss TAC comments on the Charter.	Meg Sedlak	09/30/16	Complete	
72	SC Action Items 07/20/2016	07/20/16	Table for TAC roster needs to be updated to reflect the composition indicated in the charter (e.g. resource agencies). Greg Gearheart and Jeff Stuart requested that they be added to the TAC mailing list as they seek to find TAC representatives.	Thomas Jabusch	09/30/16	Complete	
73	SC Action Items 07/20/2016	07/20/16	Develop a list of SEP projects that can be discussed at the MYP meeting.	Adam Laputz	09/30/16	Complete	
74	TAC Action Items from 6/14/2015	06/14/16	TAC needs to provide comments on QAPP by June 30th, 2016	TAC members	06/30/16	Complete	
75	TAC Action Items from 6/14/2016	06/14/16	ASC to confirm chlorophyll measurements conducted as part of FY16/17 Hg project are conducted using standardized procedures (e.g., SWAMP methods). TAC would like results to be comparable among other agencies.	Thomas Jabusch	07/01/16	Complete	

	Primary	Meeting Date	Deliverable	Assigned To	Due Date	Status	Comments
76	TAC Action Items from 6/14/2016	06/14/16	ASC to schedule meeting for the nutrient planning meeting (Day 1)	Thomas Jabusch	06/22/16	Complete	Doodle poll sent and possible dates identified.
77	TAC Action Items from 6/14/2016	06/14/16	Revise workshop description; send to nutrient subcommittee; send to TAC by July 1; and include in agenda package for SC meeting.	Thomas Jabusch	06/21/16	Complete	
78	TAC Action Items from 6/14/2016	06/14/16	For the FY16/17 nutrient synthesis task, Janis Cook requested that a clear explanation of EOF be included.	Thomas Jabusch	02/28/17	Complete	No presentation of EOFs planned for the FY16/17 synthesis report.
79	TAC Action Items from 6/14/2016	06/14/16	TAC requested that minutes be more concise if possible	Thomas Jabusch	09/13/16	Complete	
80	TAC Action Items from 6/14/2016	06/14/16	Send out list of representatives on TAC and subcommittees	Thomas Jabusch	06/28/16	Complete	
81	TAC Action Items from 6/14/2016	06/14/16	Prepare a table of changes to the QAPP and send out the revised QAPP to TAC for approval by the end of the month. Indicate revision number (Rev 2).	Thomas Jabusch	06/21/16	Complete	
82	TAC Action Items from 6/14/2016	06/14/16	Co-chair report to SC should be prepared by 6/30/2016 and sent to TAC for comment. TAC comments need to be received by July 6th so the report can appear in SC agenda package.	Stephen McCord	06/22/16	Complete	
83	TAC Action Items from 6/14/2016	06/14/16	Post pdfs of presentations from June 14 meeting on TAC google drive	Thomas Jabusch	06/20/16	Complete	

Delta RMP Deliverables Stoplight Report

Delta RMP Deliverables Scorecard Report

Key to Status Colors:

Green indicates greater than 90 days until the deliverable is due.

Yellow indicates a deliverable due within 90 days.

Red indicates a deliverable that is overdue.

Project	Primary	Deliverable	Assigned To	Due Date	Status	Comments
1 Delta RMP (FY15/16)	Pathogens Study - Year 1	Data Management of Year 1 Pathogens Data	Amy Franz	07/31/16	Complete	Data from BioVir and Eurofins has been uploaded to SFEI's RDC database; it takes approximately 2 weeks for it to be loaded into CEDEN.
2 Delta RMP (FY15/16)	Pathogens Study - Year 1	Quality Assurance Report on Year 1 Pathogens Data	Don Yee	09/30/16	Complete	QAO report. The report is on the agenda for the 9/20/16 TAC meeting.
3 Delta RMP (FY15/16)	CUP Monitoring	Field Sampling Report for FY15/16 CUP Monitoring	Ila Shimabuku	09/30/16	Complete	On agenda for 9/20/16 TAC meeting
4 Delta RMP (FY15/16)	Nutrients Synthesis	Nutrient Synthesis - Convene 2-day workshop with expert panel in October 2016.	Thomas Jabusch	10/31/16	Complete	Workshop convened on 9/30/16.
5 Delta RMP (FY15/16)	CUP Monitoring	Data Management of FY15/16 CUP Data	Amy Franz	12/31/16	Complete	Pesticide, toxicity, copper, carbon, SSC. Labs: USGS and UCD and a second pesticide lab to be named later. Data need to be uploaded to CEDEN by 2/1/17.
6 Delta RMP (FY15/16)	CUP Monitoring	Quality Assurance Report for FY15/16 CUP Monitoring	Don Yee	12/31/16	Complete	Delay due to late delivery of the data. The data have now been received and we are on schedule to upload by 2/1/17 as planned.
7 Delta RMP (FY15/16)	Nutrients Synthesis	Nutrient Synthesis - Based on workshop, prepare draft report summarizing recommendations for on-going monitoring plan development. Draft 12/31/2016. Final 3/31/2017	Thomas Jabusch	12/31/16	Complete	
8 Delta RMP (FY15/16)	CUP Monitoring	Annual Monitoring Report for FY15/16 CUP Monitoring	Thomas Jabusch	02/28/17	Complete	Data need to be uploaded to CEDEN by 2/1/17.
9 Delta RMP (FY15/16)	Pathogens Study - Year 2	Sample Collection and Data Management of Year 2 Pathogens Data	Amy Franz	07/31/17		Data from BioVir and Eurofins. Formatting, transcribing field collection information, performing QA/QC review, and uploading field and analytical results to SFEI's RDC database and replicating to CEDEN. Expected to be complete by June 15, 2017.
10 Delta RMP (FY15/16)	Pathogens Study - Year 2	Quality Assurance Report on Year 2 Pathogens Data	Don Yee	07/31/17		QAO report. Funded from Data Management budget.
11 Delta RMP (FY16/17)	Governance	Steering Committee Meeting #1 and Summary	Meg Sedlak	07/20/16	Complete	SC draft minutes sent to group for comments.
12 Delta RMP (FY16/17)	Program Management	Completion of the MOA	Philip Trowbridge	09/01/16	Complete	MOA was completed and used as a bilateral agreement between ASC and Regional San.
13 Delta RMP (FY16/17)	Program Management	Proposal for Prop 1 Funding	Meg Sedlak	09/21/16	Complete	Prop 1 Hg proposal submitted.
14 Delta RMP (FY16/17)	Governance	TAC Meeting #1 and Summary	Philip Trowbridge	09/21/16	Complete	
15 Delta RMP (FY16/17)	Governance	Financial Subcommittee report and conference call	Philip Trowbridge	09/29/16	Complete	Report delivered on 9/26. Conference call held on 9/29.

	Project	Primary	Deliverable	Assigned To	Due Date	Status	Comments
16	Delta RMP (FY16/17)	Governance	Steering Committee Meeting #2 and Summary	Philip Trowbridge	10/18/16	Complete	
17	Delta RMP (FY16/17)	Nutrients Synthesis	7A1.2 Synthesis Report - compile additional data and information	Thomas Jabusch	10/31/16	Complete	Compiled all of the following: IEP-EMP data report (ASC) - done; DSP report (ASC) - done; Delta RMP Sensor Synthesis (USGS); WRTDS/GAMA results (USEPA/ASC)
18	Delta RMP (FY16/17)	Nutrients Synthesis	7B2.1 Modeling and Synthesis of Modeling Results - Convene nutrient subcommittee in-person meeting or conference call	Thomas Jabusch	11/16/16	Complete	Call completed on 11/08/16
19	Delta RMP (FY16/17)	Nutrients Synthesis	7B2.2 Modeling and Synthesis of Modeling Results - Select appropriate model and design experiments	Thomas Jabusch	11/30/16	Complete	By 11/30/16: Final design of analyses to be performed
20	Delta RMP (FY16/17)	Governance	TAC Meeting #2 and Summary	Thomas Jabusch	12/19/16	Complete	
21	Delta RMP (FY16/17)	Program Management	Updated Multi-Year Plan	Philip Trowbridge	12/30/16	Complete	Multi-Year Plan presented at 10/18/16 meeting. Updates to the plan being made by the subcommittees.
22	Delta RMP (FY16/17)	Governance	Financial Subcommittee report and conference call	Philip Trowbridge	01/05/17	Complete	
23	Delta RMP (FY16/17)	Governance	Steering Committee Meeting #3 and Summary	Philip Trowbridge	01/26/17	Complete	
24	Delta RMP (FY16/17)	Nutrients Synthesis	7A1.1 Synthesis Report - Additional data analyses	Thomas Jabusch	01/31/17		Downloaded most recent IEP-EMP data through FY15. Contacted EMP to inquire about availability of FY16 data. By 1/31/16: All analyses should be complete
25	Delta RMP (FY16/17)	Program Management	FY17/18 Annual Workplan and Budget	Philip Trowbridge	02/10/17	Complete	Draft for Finance Subcommittee sent 4/19/17. Final by 6/30/16.
26	Delta RMP (FY16/17)	Program Management	Updated Monitoring Design	Philip Trowbridge	02/15/17	Complete	Deliverable not relevant for this fiscal year. Following the External Review, the Monitoring Design is expected to need a major revision, which is more than was planned for FY16/17. Minor revisions, such as updating the target analyte lists, would be a waste of effort at this point. The update to the Monitoring Design will have its own budget line for FY17/18.
27	Delta RMP (FY16/17)	Nutrients Synthesis	7A1.3 Synthesis Report - Prepare synthesis report	Thomas Jabusch	02/28/17		By 2/28/16: Draft outline with example write-ups/graphs/maps to Nutrient Subcommittee/TAC; By 3/31/16: Comments due; By 5/31/17: Draft report to Nutrient Subcommittee/TAC; By 6/30/17: Comments due; By 7/31/17: Final technical report to SC.
28	Delta RMP (FY16/17)	Governance	TAC Meeting #3 and Summary	Thomas Jabusch	03/15/17	Complete	
29	Delta RMP (FY16/17)	Nutrients Synthesis	7B2.3 Modeling and Synthesis of Modeling Results - Run simulations	Marianne Guerin	04/30/17	Complete	By 4/30/16: Final model simulation results and output
30	Delta RMP (FY16/17)	Nutrients Synthesis	7B2.4 Nutrients - Analyze and synthesize model output data	Thomas Jabusch	05/04/17		By 5/4/16: Draft outline to Nutrient Subcommittee/TAC. By 7/31/17: Incorporate into data synthesis report.
31	Delta RMP (FY16/17)	Governance	Steering Committee Meeting #4 and Summary	Matthew Heberger	05/05/17	Complete	

Project	Primary	Deliverable	Assigned To	Due Date	Status	Comments
32 Delta RMP (FY16/17)	Nutrients Synthesis	7C3.1 Nutrients- Statistical Modeling	Thomas Jabusch	05/31/17		Held Nutrient subcommittee meeting/call (same meeting/call as in Task 2) on 11/8.16. The group decided to postpone this task. All subsequent deadlines are shown as "TBD". By TBD: All additional statistical modeling complete; By TBD: Draft outline to Nutrient Subcommittee/TAC; By TBD: Comments due; By 5/31/17: Draft report to Nutrient Subcommittee/TAC; By 6/30/17: Comments due; By 7/31/17: Final technical report to SC.
33 Delta RMP (FY16/17)	Governance	TAC Meeting #4 and Summary	Matthew Heberger	06/14/17		
34 Delta RMP (FY16/17)	Quality Assurance	QAPP Update	Thomas Jabusch	06/14/17		
35 Delta RMP (FY16/17)	Communications	Technical Workshop / summary memorandum of findings	Philip Trowbridge	06/30/17		Purpose of workshop TBD
36 Delta RMP (FY16/17)	CUP Monitoring	6. Field Sampling Report for FY16/17 CUP Monitoring	Philip Trowbridge	09/29/17		
37 Delta RMP (FY16/17)	CUP Monitoring	6. Data Management of FY16/17 CUP Data	Amy Franz	12/31/17		
38 Delta RMP (FY16/17)	CUP Monitoring	6. Quality Assurance Report for FY16/17 CUP Monitoring	Don Yee	12/31/17		
39 Delta RMP (FY16/17)	CUP Monitoring	6. Permit Compliance Data for ILRP	Amy Franz	02/01/18		
40 Delta RMP (FY16/17)	CUP Monitoring	6. Annual Monitoring Report for FY16/17 CUP Monitoring	Thomas Jabusch	02/28/18		
41 Delta RMP (FY16/17)	Mercury	8. Mercury YR1 report summarizing fish and water analyses	Thomas Jabusch	12/03/18		