THE DELTA REGIONAL MONITORING PROGRAM: CONNECTING WATER QUALITY MANAGEMENT AND SCIENCE IN THE DELTA

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Mission

To inform decisions on how to protect, and. where necessary, restore beneficial uses of water in the Delta, by producing objective and cost-effective scientific information critical to understanding regional water quality conditions and trends

Goals and Objectives

The primary goal of the Delta RMP is to provide coordinated Deltawide monitoring, reporting, and assessment of water quality, while pursuing the following objectives:

1. Improve the efficiency of water quality data collection and management in the Delta;
2. Generate products that inform and educate the public, agencies, and decision makers;
3. Raise awareness of Delta water quality conditions and how they impact beneficial uses;
4. Foster independent science, objective peer review, and a transparent review process;
5. Focus on the Delta;
6. Focus on the highest priority water quality information needs; and
7. Contribute to a holistic understanding of the Bay-Delta

Milestones

Management Questions

Order of Priority		
YEAR 1 PRIORITY #1: STATUS & TRENDS	Status and Trends	**Is there a problem or are there signs of a problem?** • Is water quality currently, or trending towards, adversely affecting beneficial uses of the Delta? • Which constituents may be impairing beneficial uses in subregions of the Delta? • Are trends similar or different across different subregions of the Delta?
2	Sources, Pathways, Loadings, and Processes	**Which sources and processes are most important to understand and quantify?** • Which sources, pathways, loadings, and processes (e.g., transformations,bioaccumulation) contribute most to identified problems? • What is the magnitude of each source and/or pathway (e.g., municipal wastewater, atmospheric deposition)? • What are the magnitudes of internal sources and/or pathways (e.g. benthic flux) and sinks in the Delta?
3	Forecasting Water Quality Under Different Management Scenarios	• How do ambient water quality conditions respond to different management scenarios • What constituent loads can the Delta assimilate without Impairment of beneficial uses? • What is the likelihood that the Delta will be water quality-impaired in the future?
4	Effectiveness Tracking	• Are water quality conditions improving as a result of management actions such that beneficial uses will be met? • Are loadings changing as a result of management actions?

Proposed Year 1 Monitoring Designs

Current Use Pesticides

- The proposed Year 1 monitoring design would involve monthly water sampling at 5 focus sites and events-based sampling only at 3-4 additional sites.
- The proposed approach combines chemical analyses and toxicity testing at all sites.

Mercury

Methylmercury monitoring would focus on the development of a long-term data record to address Status and Trends questions about changes of concentrations in fish tissue and water. Water sampling would be more often (1x/month) than fish sampling (1x/year) but at less sites.

Pathogens

Are current pathogen levels (Cryptosporidium and Giardia lamblia) supportive of the municipal drinking water quality beneficial use as described in the Basin Plan?

The proposed RMP study would be an add-on to existing monitoring by the Municipal Water Quality Investigations (MWQI) program (DWR), by supporting additional analyses.

Nutrients

No nutrient monitoring is proposed for year 1. Instead, the RMP will synthesize and analyze existing information and data, and then design a monitoring plan based on findings by December 2015. The nutrient data analysis and monitoring plan development will be closely coordinated with the development of the Delta Nutrient Research Plan (led by the Central Valley Water Board) and ongoing funded studies that will at least partially address RMP assessment questions.

NPDES permit amendment allows for participation in the Delta RMP

On October 9, the Central Valley Regional Water Board adopted a NPDES (National Pollutant Discharge Elimination System) permit language amendment that allows Delta-area Publicly-Owned Treatment Works (POTWs) to participate in the Delta RMP in lieu of individual receiving water monitoring.

Current Use Pesticides

WATER

Focus sites: Monthly sampling that would also capture targeted events. Targeted events (n = 5/year): Wet Weather: (1) First flush, (2) Significant winter storm; Dry weather: (1) Late summer/fall irrigation season, (2) Spring runoff, (3) 2nd irrigation event (late spring/early summer). Chemical analyses and toxicity testing on all samples. Proposed test species (endpoints): (1) *Selenastrum capricornutum* (growth) (2) *Ceriodaphnia dubia* (survival and reproduction), (3) *Hyalella azteca* (survival), and (4) *Pimephales promelas* (larval survival and growth) and/or *Oncorhynchus mykiss* (larval survival). Chemistry: Pesticide scan (USGS) and dissolved copper. Pesticide-focused Toxicity Identification Evaluations (TIEs) for a subset of samples with > 50% of the measured endpoint; to be decided real-time by a TIE subcommittee.

Additional sites: targeted for event-based sampling.

SEDIMENT

No additional monitoring in year 1. The Delta RMP will include data from the Surface Water Ambient Monitoring Program (SWAMP) Stream Pollution Trends (SPoT) monitoring (State Water Resources Control Board) in the Year 1 assessment. SPoT collects samples in the Delta region annually in late summer. SpoT toxicity test species (endpoints): (1) *Hyalella azteca* (survival), (2) *Chironomus dilutus/tentans* (survival). Chemistry: pyrethroids.

Mercury

SPORTFISH

Annual sampling. Indicator of primary interest is methylmercury in muscle fillet of 350 mm largemouth bass (or similar predator species).

WATER

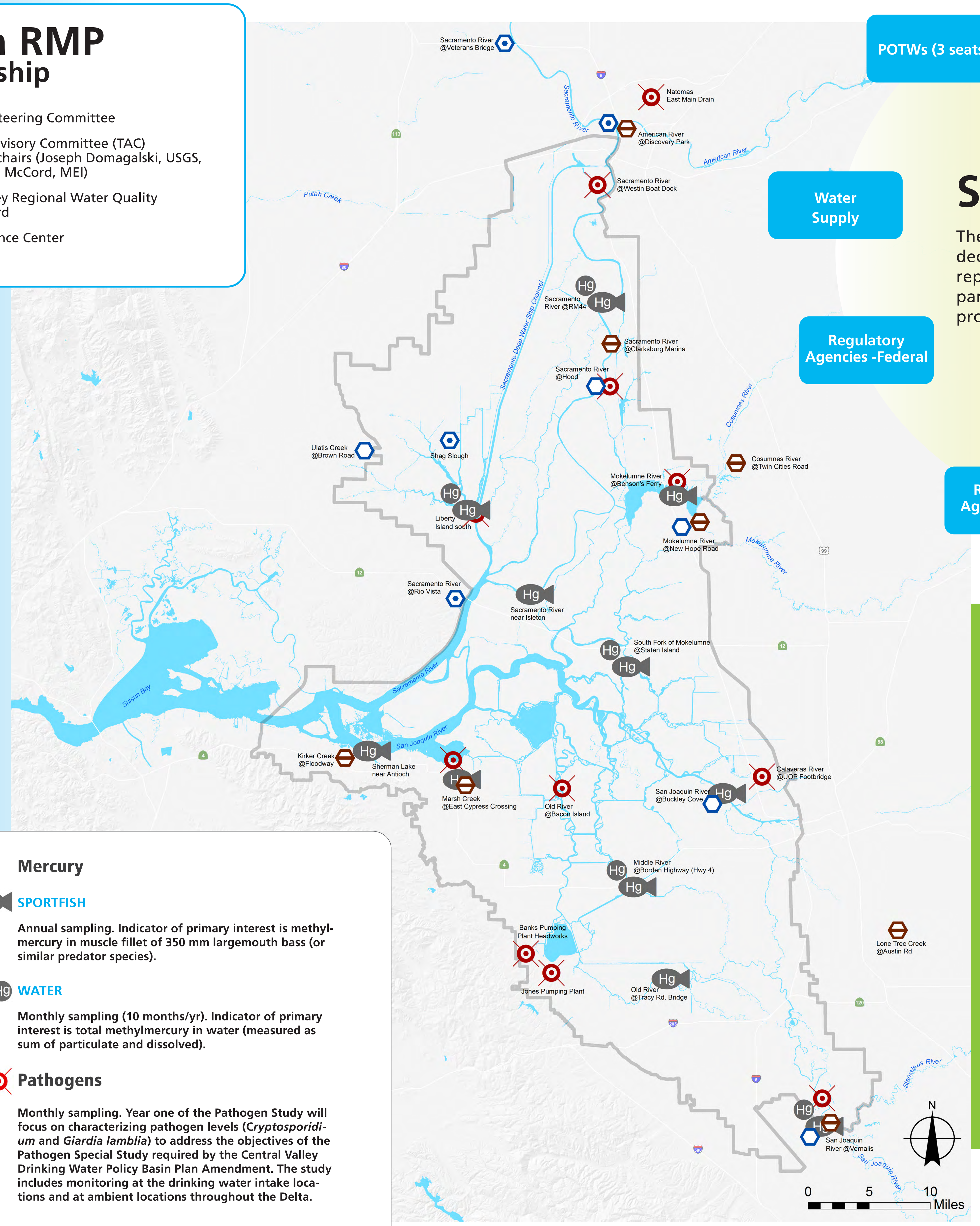
Monthly sampling (10 months/yr). Indicator of primary interest is total methylmercury in water (measured as sum of particulate and dissolved).

Pathogens

Monthly sampling. Year one of the Pathogen Study will focus on characterizing pathogen levels (*Cryptosporidium* and *Giardia lamblia*) to address the objectives of the Pathogen Special Study required by the Central Valley Drinking Water Policy Basin Plan Amendment. The study includes monitoring at the drinking water intake locations and at ambient locations throughout the Delta.

Delta RMP Leadership

- Delta RMP Steering Committee
- Technical Advisory Committee (TAC) and TAC co-chairs (Joseph Domagalski, USGS, and Stephen McCord, MEI)
- Central Valley Regional Water Quality Control Board
- Aquatic Science Center



Steering committee

The Delta RMP Steering Committee is the key decision-making authority of the Delta RMP and represents the stakeholder groups that are currently participating in the program. The stakeholder process is open to all interested parties.

- Stormwater, Phase I Communities
- Stormwater, Phase II Communities
- POTWs (3 seats)
- Water Supply
- Agriculture
- Regulatory Agencies -Federal
- Coordinated Monitoring
- Regulatory Agencies State
- Resource Agencies (vacant)

The Scoop

- The Central Valley Regional Board has passed a resolution that allows for participation in the Delta RMP by NPDES dischargers in lieu of individual receiving water compliance monitoring.
- Participants are committed to having a monitoring program in place by 2015.
- The Technical Advisory Committee (TAC) and its four subcommittees have developed the Year 1 monitoring design for the initial priorities of the program:
  - Current use pesticides
  - Methylmercury
  - Nutrients
  - Pathogens (*Cryptosporidium and Giardia lamblia*)
- ASC-SFEI is producing the full monitoring program plan by Spring 2015.
- The Steering Committee is working towards a decision on how to allocate program costs among program participants.

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