



Delta Methlymercury TMDL Nonpoint Sources Workgroup
for Managed Wetlands and Irrigated Agriculture

**Delta Mercury NPS Workgroup
Kickoff Meeting v2**

~ Meeting Summary ~
Thursday, February 16, 2012

1:00 – 4:00 pm

The Nature Conservancy: 555 Capitol Mall, Suite 1290,
Sacramento, CA 95814

Facilitator: Stephen McCord, MEI

Attendees (In-person and Teleconference)

First	Last	Affiliation
Josh	Ackerman	US Geological Survey (USGS)
Janis	Cooke	CV-RWQCB
Brian	Currier	Office of Water Programs, CSUS
Carol	DiGiorgio	CA Dept. Water Resources (DWR)
Matt	Freis	USFWS - Stone Lakes
Matt	Gause	Westervelt Ecological Services
Wes	Heim	CDFG – Moss Landing Marine Labs
Petra	Lee	DWR
G. Fred	Lee	GFLee & Assoc.
Sally	Liu	The Nature Conservancy (TNC)
Tom	Maurer	US Fish and Wildlife Service (USFWS)
Stephen	McCord	McCord Environmental (MEI)
Bart	McDermott	USFWS - Stone Lakes
Harry	McQuillen	BLM
Josh	Nelson	BB&K
Kirk	Nelson	US Bureau of Reclamation
Michael	Perrone	DWR
Kevin	Petrik	Ducks Unlimited (DU)
Erik	Ringelberg	BSK Inc.; RD999; Yolo Co
Dean	Ruiz	South Delta Water Agency
Tim	Stevens	CDFG
Mike	Wackman	San Joaquin Co. & Delta Water Quality Coalition
Chris	Wilkinson	DWR
Aaron	Will	DU
Lisa	Windham-Myers	USGS
Greg	Yarris	CA Waterfowl Association

I. Welcome and Introductions

NPS Workgroup Participants

The Steering Committee is currently comprised of:

- Mary Lee Knecht (SRWP)
- Stephen McCord (MEI)
- Sally Liu (The Nature Conservancy)
- Mark Stephenson, Wes Heim (MLML)
- Carol Atkins (CA Dept. Fish & Game)
- Josh Ackerman, Lisamarie Windham-Myers (USGS)
- Kevin Petrik, Aaron Will (DU)
- Kari Fisher (CA Farm Bureau Federation)

We decided to add new DWR Mercury Monitoring and Evaluation staff Carol DiGiorgio and Petra Lee to the Steering Committee.

The NPS workgroup is comprised of three distinct groups:

- Wetlands & Irrigated Agriculture Land Owners, Managers, and Representatives
- Mercury Researchers
- Regulatory Agencies

Agencies or organizations listed in the 319(h) grant application agreed to participate by participating in meeting, reviewing documents, and contributing to Control Study implementation. Other sources (e.g., open water, dredging, flood management) identified in the TMDL and other interested parties also are encouraged to participate.

II. Scope of Work (Stephen McCord, MEI)

The overall goal for the Nonpoint Sources (NPS) Workgroup is to determine realistic and practical management practices to control MeHg production and/or release from these types of wetlands and irrigated agriculture in the Delta. This NPS Workgroup will be planning collaboratively to:

- Vet recommended Management Practices proposed by the mercury research team;
- Prioritize control study source types;
- Prioritize study elements, given costs, replicability, etc.; and
- Volunteer control study sites.

Project outcomes address initial BPA requirements:

- Organization Report on Collaborative Control Studies, and
- Control Studies Workplans.

The Workplan will be a generic template (not site-specific) providing study protocols, unit costs, sampling protocols, etc. that can then be used to develop site-specific workplans.

The 319(h) planning project includes six tasks. Steering Committee entities leading each task are identified:

1. Manage and Administer Project (SRWP)
2. Develop Knowledge Base (USGS, DU, DFG)
3. Plan for Nonpoint Sources Control Studies (MEI, TNC, USGS, DU, DFG)
4. Determine Budget for Control Studies (USGS, DFG)
5. Communicate with Stakeholders (MEI)
6. Prepare Final Project Report (MEI)

Schedule

Stephen reviewed the two-year Project schedule. The BPA requires the Collaborative Control Study organization report 6 months after the Effective Date (April 2012) and the Collaborative Control Study Workplan 18 months after the Effective Date (April 2013).

Means of Communication

The facilitator will maintain the listserv for the Delta MeHg TMDL NPS Workgroup through the SRWP's listserv system. Emails to the entire NPS Workgroup can be requested through Stephen.

The website is now on-line at <http://delta-mercury-nps.org/>. Content includes:

- Meeting presentations and minutes
- Contacts, listing Steering Committee members and cooperating entities
- Links to related web sites and reports

We will try to schedule meetings on the 3rd Tuesday of the month, pending major conflicts. Meetings will run ~3 hours, depending on content. On-line and teleconferencing will typically be available.

III. Spatial Analysis and Land Use Survey (Kevin Petrik, DU)

Land Use and the Delta Methylmercury TMDL

DU divided the Delta into the TMDL's 8 subareas for consistent analysis. Land uses are organized within 9 main categories and 88 crop types. Field crops (predominantly corn) and pasture are the largest areas, followed by "truck and berry" (predominantly tomatoes) crops; however, the distribution varies among subareas and is changing over time. Particular increases between 1990 and 2007 have been seen in vineyard, pasture, sudan grass, and rice acreage. Notable decreases were seen in field crops (tomato, sugar beets, safflower and asparagus). Next steps in this analysis are to verify crop trends over the past 15 years and to characterize irrigation types for major crops.

Managed wetlands were also mapped for the first time by DU, finding that the vast majority (~85%) are in the Yolo Bypass. Unmanaged wetland sites have been mapped by the U.S. Fish

and Wildlife Service's National Wetland Inventory. These acreages are currently tallied in the MeHg TMDL document.

Next steps in this analysis are to:

- Separate the seasonal from permanent managed wetlands
- Use mapping resources to target survey participants
- Add a soil type layer, focusing on soil organic content
- Examine county-level crop reports to confirm agricultural trends
- Identify sites of recent levee breaches that lead to actively or passively restored tidal wetlands (this effort is technically out of the purview of the NPS Workgroup, but so few sites fall into this category that it would not be hard to identify those sites).
- Provide a summary of additional mapped data at the next workgroup meeting (May 15) and provide summary maps on the NPS Workgroup website.

Water Use Survey for Managed Wetlands and Irrigated Agriculture

DU has drafted an online survey of landowners at https://www.surveymonkey.com/s/Water_Use_Survey_for_Methylmercury

The survey consists of five sections:

- Background (Why, Urgency, Goal, Definitions)
- TMDL Subregion (which one is your land in)
- Water Source and Quality
- Managed Wetlands (Winter and Growing Season)
- Agriculture (Growing Season and Winter)

Recognizing landowner concerns with privacy, all data will be used in aggregate form (not pointing out individuals) and participants have the option to give their TMDL region and zip code. DU will add a message up front that a cookie is used to track completeness of the survey only.

NPS Workgroup participants are asked to review and comment on the survey this month. DU will refine the survey by Feb 28. The survey will be “live” Mar 1 – April 15. DU will also interview key landowners to check or complete the survey and meet with representatives such as the ag commissioner to obtain useful data. DU will work directly with the water coalition agencies so that (1) the water agencies identify the appropriate and representative ag landowners that should complete the survey and (2) the water agencies will send out the survey to such landowners to ensure privacy and sensitivity concerns are addressed.

The survey data will be analyzed and summarized for the May NPS Workgroup meeting.

Knowledge Base (Lisamarie Windham-Myers, USGS)

Full title: “A Synthesis of Mercury Science to Support TMDL Implementation (Phase 1 Control Studies) for San Francisco Bay - Delta Wetlands and Irrigated Agriculture”

Of the 10 million pounds of mercury lost in the Sierras during the gold mining era, only a small fraction has made its way to the Delta so far. Methylmercury (MeHg) control studies of wetlands and irrigated ag lands in the Delta are needed to address the rate of MeHg production, export, and bioaccumulation. The focus of this synthesis is to identify processes that drive MeHg production and the opportunities/constraints on management practices to address those processes. The outcome will lead to an applied research plan (the Control Study Workplan).

The synthesis is founded on the 2008 Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) conceptual model, and adding findings from recent peer-reviewed literature and 14 Delta-specific studies. Biotic update and effects are not substantially reviewed. Discussion ensued about the relative importance of optimizing wetland habitat versus minimizing MeHg discharges. For example, one way to minimize on-site and discharged MeHg concentrations is to pass more water through the wetland, which could increase the MeHg load discharged beyond the TMDL allocation.

The Delta is a net sink for MeHg, with ~30% of tributary inputs unaccounted for in discharges to water supply intakes and San Francisco Bay discharges. Even though open water is considered a source in the TMDL, it is actually a sink when accounting for photodemethylation and particle settling.

Worldwide, wetlands and dissolved organic carbon concentrations have been found to be important factors to MeHg production. Seasonal wetlands tend to provide the right combination of compounds for bacteria to methylate Hg: something to eat (DOC), something to breathe (iron oxide and sulfate), and Hg available for methylation (reactive inorganic mercury). Seasonal wetlands in particular provide “hot spots” and “hot moments” at floodup. Atmospheric deposition of reactive mercury is likely more important than previously assumed.

Local sediment and surface water MeHg concentrations tend to broadly track each other in space and time, and fish MeHg concentrations tend to spike when and where seasonal wetlands flood (after being dry). MeHg concentrations in water change daily owing to solar radiation (photodemethylation) and seasonally owing to changing hydrology and chemistry. Although MeHg cannot be analyzed continuously, its correlation with FDOM may provide a way to estimate continuous concentrations.

An important sidebar discussion ensued regarding the beneficial uses of the land types themselves (e.g., use of wetlands for wildlife) and the need to consider the impact of these beneficial uses vs. the beneficial reduction of methylmercury to Delta open waters. The

NPS Workgroup participants are asked to review the draft synthesis by March 15. Due to limited time, Lisa was not able to review all the information in her presentation. Lisa will continue the presentation, address comments and share major improvements in our May 15 meeting.

IV. Sign On Process

Process for meeting April 20 reporting deadline

Stephen will provide a template organizational report letter for NPS Workgroup participants. Dischargers (or their representatives who received letters from the Regional Board) are required to report individually.

Who May Be Missing?

The NPS Workgroup was queried to identify any important stakeholders missing. None were identified.

V. Meeting Wrap-Up

Action Items

- Stephen (now): Add new DWR Mercury Monitoring and Evaluation staff Carol DiGiorgio and Petra Lee to Steering Committee
- Stephen (by Feb.22): Distribute template NPS Workgroup Organization Report on Collaborative Control Studies and Control Studies Workplans
- ALL (on March 6): Attend Technical Advisory Committee meeting at the Regional Water Board's office in Rancho Cordova (all day)
- Stephen (by Feb.28): Work with Steering Committee to submit questions to TAC
- ALL (by April 15): Respond to the final land use survey and distribute the survey link to other landowners.
- ALL (by March 15): Review draft synthesis report and provide comments to Lisa
- Stephen: Schedule March 20 NPS Workgroup conference call.

Next Meeting Time

The layout for meetings is currently as follows:

Mtg #	Main Topic	Dates
	TAC meeting	March 6
2	Conference call – TAC recap, sign-on status, review status	March 20
	DTMC meeting	March 28
3	Final Synthesis & Land Use; Man. Practices	May 15
4	Study Design	July 17
5-6	Workplan, budget & financing	Sept-Nov
7-8	Final Workplan, next steps	Jan-Mar 2013

The next in-person meeting (#3 in the above table) will be held at Ducks Unlimited offices in Rancho Cordova.