Lower American River and Lake Natoma Mercury TMDL
Stakeholder Meeting

Meeting Summary

Meeting Dates: November 16 & 17, 2010 (10 am – 12 pm)

Locations:

November 16
Placerville
El Dorado National Forest/RCD Building
100 Forni Road

November 17
Auburn
Placer County Water Agency
144 Ferguson Road

Attendees: See below.

Agenda Items:

- Project Background
- Basin Plan Amendment (BPA) and Total Maximum Daily Loads (TMDL)
- Schedule and Next Steps

Regional Board Staff welcomed everyone, reviewed the purpose of the meeting and meeting logistics, and led a round of introductions of meeting participants.

Regional Board Staff gave a slide presentation that provided:

- The scope of the project.
- Problem with mercury.
- Mercury concentrations in fish collected from the American River watershed.
- Possible sources and fate of inorganic and methyl- mercury.
- Possible implementation actions.
- Federal and State Regulatory Requirements.
- Total Maximum Daily Load and Basin Plan Amendment processes.
- Schedule and next steps.

The PowerPoint presentation was shown in the meeting room and via web conference in Auburn. Internet access was not available in Placerville, however, offsite stakeholders were able to join the meeting through the phone. The slide presentation is available on the web.

Key Topics Discussed:

Mercury Impairment in the American River Watershed

Mercury is a toxicant that impairs the nervous, reproductive, and immune systems in humans and wildlife. Mercury can have lethal and sub-lethal effects, and embryonic offspring can be 5-10 times more sensitive than adults. The organic form, methylmercury, poses the greatest risk to human and wildlife, and the primary exposure to methylmercury is through the consumption of fish. This is because methylmercury is the primary form that bioaccumulates up the food

chain. Methylmercury concentrations in fish tissue can be millions of times higher than that of the water in which they reside.

The lower American River was added to the Clean Water Act Section 303(d) list of impaired water bodies (in 1990) due to elevated levels of mercury in fish tissue that pose risks to human and wildlife health. Addressing the mercury impairment in the lower American River is a high priority for the Central Valley Water Board because: 1) high risks to human fish consumers due to the close proximity of the water body to a highly urbanized area, and 2) the American River is the first major upstream tributary to the Delta. Seven additional water bodies or segments currently listed on the 303(d) list due to mercury impairment are: Lake Natoma; Folsom Lake; North Fork American River (North Fork Dam to Folsom Lake); South Fork American River (Slab Creek Reservoir to Folsom Lake); Slab Creek Reservoir; Oxbow Reservoir; and Hell Hole Reservoir. A few other water bodies have sufficient data available that display possible impairments due to mercury, and these water bodies will likely be added to the next revision of the 303(d) list.

Fish tissue mercury concentration data was displayed for 24 water bodies in the American River watershed. Over 50% of the water bodies had at least one fish sample with mercury concentrations that exceeded the USEPA criterion for the protection of human health (0.3 ug/g or ppm). Based on a daily intake, a 0.3 ppm fish concentration would allow an average adult to consume one 8-ounce fish meal every other week. (Children could safely eat one meal/every other week as well, assuming a smaller meal size in proportion to body size).

Mercury Sources and Cycling

The groups discussed the possible sources of inorganic and methyl mercury to the American River watershed. Possible sources of inorganic mercury listed included: gold mines, mine tailings, atmospheric deposition, stormwater runoff, and contaminated river, stream and lake bottoms. Possible sources of methylmercury listed included: methylation in lake river beds, and wetlands, urban runoff, NPDES facilities, atmospheric deposition, and other land uses (agriculture, pasture, non-urban runoff, etc.).

Mercury cycling and transport discussions were aided with a diagram of a conceptual model of mercury fate and transport. Inorganic mercury eventually settles in river and lake bottoms, where it can be methylated by sulphur-reducing bacteria in to methylmercury. Inorganic mercury can also be methylated in the water column, especially when anoxic conditions occur. The amount of methylmercury is largely a function of the amount of total inorganic mercury, however, recent studies have shown that the type of inorganic mercury could be an important factor in the rate of methylation. Ionic forms of inorganic mercury like Hg^{2+} may be more readily available to bacteria for methylation.

Methylmercury production within lakes and rivers may be a major source of methylmercury in fish tissue. Conditions that have been found to enhance methylation include anoxic layers in stratified lakes or off channel pools, sediment that has been allowed to dry and then rewet, etc.

Implementation Actions

Actions that could be performed to comply with the control program include, but are not limited to:

- Reducing inorganic mercury from upstream sources (mines, tributaries, etc.).
- Reducing inorganic mercury in sediment, where methylation occurs.

- Conduct studies to determine methylmercury sources or management practices to control methylmercury levels.
- Modify water management practices to reduce mercury discharges.
- Mitigate mercury increases from new land developments or changes in land uses.

Entities that could be responsible to implement actions as a result of this mercury control program include, but are not limited to:

- NPDES Discharges
- Reservoir operators and water managers
- Mine owners
- Land developers
- Fish management agencies
- Irrigated agriculture
- Public and private land managers and owners

Regulatory Requirements and Control Program Development Process

The slide presentation gave an overview on the federal and state regulatory requirements for the development the mercury control program for the American River watershed. In addition, the presentation provided information on the basic components of TMDL and BPA and the process the Central Valley Water Board will take in developing the TMDL and BPA. Additional information regarding the TMDL programs and the Central Valley Water Board can be found on the Central Valley Water Board website.

Other Stakeholder Concerns

A group of suction dredge operators attended one of the meetings for concerns of how the TMDL would affect their ability to continue their dredge operations. The Central Valley Water Board does not regulate the permits for suction dredging. The CA Department of Fish and Game issues these permits, and the CA DFG is developing a subsequent environmental impact report for the Suction Dredge Permitting Program. The dredgers stated that suction dredges remove approximately 98% of the mercury from the sediment ("Humphrey's Test"), and that these could be effective tools to remove mercury from the river. The report which estimates the mercury removal efficiency can be located on the State Water Resources Control Board website:
http://www.swrcb.ca.gov/water_issues/programs/cwa401/docs/suctiondredge/2007merc_drdg_rpt.pdf

There was a concern by stakeholders on how this TMDL would coordinate with the Irrigated Lands Regulatory Program (ILRP). Possible actions required by irrigated agriculture will likely be implemented through the current ILRP or possible future Long-Term ILRP.

Currently no fish consumption surveys specific to the American River watershed have been completed. Some Native American groups are currently gathering fish consumption information. The Sierra Fund has conducted a consumption survey in the Yuba River watershed. The Sierra Fund may have resources to conduct consumption surveys in the American River watershed next fishing season.

The mercury impairment is primarily a public health issue due to the high risks to human consumption of fish. Stakeholders suggested other methods, other than mercury reduction, that could reduce the risk to humans until fish tissue levels have been reduced:

- Educational or advisory signs can be posted to advise people of the risk of eating mercury contaminated fish and locations, sizes, and species of fish that are safe to eat.
- CA Department of Fish and Game could impose a temporary catch and release restriction in areas that have fish with elevated levels of mercury.

Some stakeholders are concerned that data are insufficient to develop a TMDL. Stakeholders are interested in reviewing existing data and Regional Board staff's plans to collect more data. Reasonably-sized data sets for mercury in fish, water, and some sediment exist for Lake Natoma and the lower American River.[1] The Regional Board has a limited budget for sample collection and analysis in the upper watershed. In November, staff began collecting water and sediment samples for mercury and/or methylmercury analyses from river segments and reservoirs upstream of Folsom Lake. Sampling events in spring and summer 2011 are anticipated. Some stakeholders showed interest in coordinating with others to develop monitoring programs or studies in the upper American River watershed.

Stakeholders questioned how allocations would be divided. Currently, Board staff have not developed the allocation strategy. Allocation strategies will likely vary among different reaches of the watershed.

Staff aims to release a draft water quality control plan for mercury in the American River watershed in Summer 2011 and to bring the plan before the Central Valley Water Board in Spring 2012. Some stakeholders characterized the proposed schedule as too short. Some agencies and other entities need time to acquire or allocate funding to gather data and fully participate in the process. Stakeholders were also concerned that the Regional Board would not take sufficient time to gather data and produce a credible TMDL. Staff stated that they have limited flexibility to change the schedule.

This mercury control program will likely employ an adaptive management approach, however, some stakeholders question whether the Central Valley Water Board will actually reevaluate water quality standards, allocations, targets, etc. in the future. If an adaptive management approach is adopted, then the Central Valley Water Board is committed to reevaluate the control program in the future.

Next Steps:

- Staff will prepare a summary of existing data and data gaps for discussion at the next stakeholder meeting.
- Staff to develop a straw proposal for containing a preliminary discussion of TMDL and implementation plan alternatives.

[1] See the draft Straw Proposal, http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/american_river_hg/16sep10_lar_straw_proposal.pdf

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Attendees

November 16,2010
Patrick Morris, Central Valley Water Board
Stephen Louie, Central Valley Water Board
Bonnie Van Pelt, U.S. Bureau of Reclamation
Janis Cooke, Central Valley Water Board
Tracey Eden-Bishop, El Dorado County Water Agency
Brad Gacke,* SMUD
Steve Tyler
Rick Eddy
Emily Lyman, El Dorado County Environmental Health
Juli Jensen, El Dorado County Ag Commissioner
Fred G. Nelson
Clint Meyer, RMC Water & Environment
Randy Pesses, City of Placerville
Peter Graves, BLM
Doug Leiss, EQGG
Robert Columbro, Shingle Springs Band of Miwok Indians
Martin Schumann
Fred Sanford, Environmental Management El Dorado County
Melissa Marquez, Eldorado County & Georgetown Divide RCD
Dave Eggerton, El Dorado Irrigation District
Kim Morales, USFS
Brian Deason,* EID
Elizabeth Sheppard,*
Charlie Alpers,* USGS

November 17, 2010
Stephen Louie, Central Valley Water Board
Janis Cooke, Central Valley Water Board
Don Gould, Placer County F&G Commission
Beth Gould, Placer Sportsmen
Rex Bell, PG&E
Keith Schmidt, Place County Environmental Engineering
Gene Lee, USBR
Pat Malberg, Placer County BOS
Carrie Monohan, The Sierra Fund
Michael Stephens, CA State Parks
Marie Davis, PCWA
Mark Fowler, Placer County F&G Commission
Gary Flanagan
Carol Kennedy, Tahoe National Forest
Jill Pahl, Placer County Environmental Health
Lavina Suehead, Colfax Todds Valley Consolidated Tribe
Justin,* Friends of Deer Creek
Drea Traeumer,* EM Hydrology

* People who attended by Webinar/conference call.