

# American River Watershed Mercury TMDL Stakeholder Meeting

## Meeting Summary

**Meeting Date:** February 17, 2011 (10 am – 1 pm)

**Location:** El Dorado National Forest/RCD Building  
100 Forni Road  
Placerville, CA

**Attendees:** See below.

### Agenda Items:

- Welcome, Introductions, and Agenda Review
- Fish tissue data and fish consumption information
- Development of fish tissue targets and alternatives
- Potential alternatives for fisheries management
- TMDL approaches including source analysis and implementation ideas
- 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.

Patrick Morris (CVRWQCB) introduced a potential State-wide mercury TMDL project that is beginning to be developed by the State Water Resources Control Board (State Board) in conjunction with Regional Board staff. State and Regional Boards' management believe that the State-wide project will increase the efficiency of the TMDL process through collaboration of Regional Boards and providing consistency of the State's mercury control programs. Other states have developed State-wide and multi-State TMDLs. The State-wide mercury control program will likely include a technical section and an implementation plan, and the control program will be adopted as a State Board action. The scope of the project (i.e. reservoirs only, reservoirs and rivers, freshwater water bodies, etc.) has not been determined yet. The project is expected to be completed in a couple of years. Regional Board staff does not know how the current American River Watershed TMDL project will be incorporated in the State-wide project, however, the American River project is scheduled to be completed before the State-wide project. Currently, Regional Board staff is proceeding with the American River project as planned. Many stakeholders agreed that continuing the American River TMDL stakeholder meetings would be beneficial.

Regional Board Staff gave a slide presentation that provided:

- Development of mercury targets.
- Alternatives for fish tissue objectives.
- Potential options for fisheries management.
- Possible TMDL approach.

The PowerPoint presentation was shown in the meeting room. A telephone conference line was provided for remote attendees. The slide presentation is available on the web.

## Key Topics Discussed:

### Numeric Target Development

The target is the numeric endpoint for the TMDL. This TMDL will propose a numeric fish tissue target. Regional Board staff will provide alternatives for the TMDL target for Regional Board members to consider. The Regional Board will adopt a target as a water quality objective and place the objective into the Basin Plan through a Basin Plan Amendment.

The target or acceptable level of methylmercury in fish is calculated using: the safe daily intake of mercury (reference dose), body weight of the consumer, and the consumption rate of the consumer. Reference doses and body weights vary by consumer species and are derived from literature values for average consumers. Reference doses are expressed as a daily rate, however, they are calculated as an average daily rate over the course of a year. Consumption rates for individual wildlife species are derived from literature values, however, human consumption rates will be developed using literature values, local consumption and creel surveys, fish accessibility, etc. Fish consumption by humans vary greatly by individual, so a range of consumption rates will be used to develop alternative fish tissue targets. Species as well as quantity of fish consumed affects a person's methylmercury intake.

### Fish Tissue Objective Options

Fish tissue mercury concentrations are largely dependent on fish size (age) and species or trophic level (level of the food web). As a result, it is useful to categorize fish by size and trophic level when making comparisons in mercury concentrations. For instance, the Delta Methylmercury TMDL adopted separate fish tissue concentration targets for trophic level 3 (TL3) and trophic level 4 (TL4). Fish samples collected from the lower American River and Folsom Lake exhibit a clear distinction between TL3 and TL4 fish, however, fish samples collected from the upper American River do not. Reasons for the lack of distinction include variations in stocking practices and semi-piscivorous diets of lake and brown trout (between TL3 and TL4). As a result Regional Board staff explored the option to developing a single large fish target for the upper watershed water bodies upstream of Folsom Lake.

Safe fish tissue levels for wildlife range between 0.05 and 0.16 ppm depending on the bird or mammal consumer, fish size, and trophic level.

Regional Board staff presented four mercury target options corresponding to a range of human fish consumption rates which included: one meal every other week (17.5 g fish /day), one meal a week (32 g fish/day), two meals a week (64 g fish/day), and four to five meals a week (142.4 g fish/day). Safe fish tissue concentrations ranged between 0.02 to 0.14 ppm for TL3 fish, 0.07 to 0.44 ppm for TL4 fish, and 0.05 to 0.30 ppm for combined TL3 and TL4 fish depending on the consumption rate used. A stakeholder mentioned that a survey from the North Delta (close proximity to the lower American River) found that top consumption (95<sup>th</sup> percentile) in one population of anglers is twice the 142.4 g fish/day consumption rate, so staff will include an evaluation of an option for this high consumption rate. Fish concentrations that would allow humans to safely eat only one meal every other week would likely not be protective of the most sensitive wildlife.

Some stakeholders are concerned that human fish consumption rates used to develop fish tissue targets in previous TMDLs may not be protective of the most frequent consumers of fish.

In addition, it was suggested that load allocations should be based on the most conservative targets, and meeting allocations should have a clear line of responsibility. A stakeholder commented that feasibility should not be evaluated until after targets are developed to protect beneficial uses.

A stakeholder pointed out that Oregon State's Environmental Quality Commission has made the recommendation for Oregon's Department of Environmental Quality to revise its human health criteria for toxic pollutants based on the human consumption rate of 175 g fish/day. Criteria based on the 175 g/day rate are expected to protect at least 90 to 95 percent of fish consumers in Oregon. The recommended rate reflects consumption of salmon and marine fish as well as resident freshwater fish, such as trout. It is not known if the consumption rate of fish consumers in Oregon is applicable to fish consumers in the American River watershed.

PCWA has American River watershed specific angling pressure data, percentage of fish kept, and fish population dynamic data that can be used to develop consumption rates and fish targets.

### Fish Tissue Mercury Levels

Average mercury levels in large fish in American River watershed water bodies range from 0.03 ppm in Ice House Reservoir to 0.64 ppm in Folsom Lake. Reductions in fish mercury concentration necessary to meet the four numeric target options range from 0 to 91%, depending on the fish consumption rate used and the water body. To meet the 2 or 4 meal/week options, Middle Fork American River d/s Oxbow, North Fork of Middle Fork American River, Union Valley Reservoir, and French Meadows Reservoir would also need to reduce fish mercury concentrations. Of the 17 reservoirs and river reaches that have been sampled, only Ice House and Duncan Creek would allow humans to safely eat 4 meals/week.

Brown trout and lake trout are species of concern in the high altitude lakes because they become almost exclusively piscivorous during their adult life. Their higher trophic level can result in their ability to accumulate higher levels of mercury. In Hell Hole Reservoir, brown trout are more than 5 times and lake trout are almost 3 times the level of mercury of kokanee sampled there. The Department of Fish and Game (DFG) frequently stocks Brown trout and other species of fish in Hell Hole and other reservoirs. Brown trout likely reside in the deep waters during the summer months, and once the lakes turn over, reside near the surface. Mercury levels in similarly-sized brown trout in French Meadows Reservoir and the rivers are significantly less than those in Hell Hole Reservoir, possibly due to differences in fish growth rates, age, and catch-and-release productivity.

### Fisheries Management

The group discussed fisheries management and whether adjustment in fisheries practices could reduce levels of mercury in fish or reduce risks to consumer of fish from the American River water bodies. Possible fisheries management options included signage, stocking patterns, catch and release restrictions, and prohibitions. However, the Regional Board cannot specify the manner of compliance. A PCWA representative stated that they are required to stock their reservoirs.

Some asked why can't brown trout stocking be stopped. The type and frequency, of fish stocked by DFG are driven by fishery maintenance needs, as brown trout are thought as a trophy fish. Likewise, the CA Fish and Game Commission does not have the authority to adjust

bag limits and prohibitions, without State Legislature approval unless it is to protect wildlife resources or immediate health effects. There may be a couple of options to adjust fisheries management through political (State and local) routes, if no direct threat to wildlife resources or immediate health effects are of a concern.

### TMDL Approach

Regional Board staff presented one possible option for the TMDL strategy. Allocations could be assigned to watersheds that are 303(d) listed as impaired by mercury. Allocations could be in the form of a methylmercury concentration for non-point sources and either mass or concentration based effluent limits for point sources. The implementation program could have a water methylmercury concentration goal, mine and contaminated soil and sediment total mercury concentration goal, and watershed mercury to suspended sediment goal. Goals could be based on necessary percent reductions to meet fish tissue targets with considerations for background conditions. Achievement of goals will likely be through a combination of inorganic mercury and methylmercury controls.

The implementation program will likely employ an adaptive management approach. Early actions for some sources could include: cleanup of mines that discharge to surface waters or other priority contaminated areas, best management practices for erosion control, etc. Other actions could involve agencies and/or watershed groups developing management plans to: 1) identify sources, evaluate cleanup strategies, and provide schedules or 2) evaluate water, sediment, land use, or fisheries management practices to reduce mercury.

Stakeholders questioned how the Regional Board would implement a goal versus an allocation. The TMDL will likely assign allocations at a watershed level, in addition to mercury concentration and cleanup goals. Cleanup plans and waste discharge requirements could include the cleanup goals. As more specific information on sources and controls is uncovered during the initial phases of the implementation program, then the requirements for sources, sites, responsible parties, and cleanup goals could be modified.

The mercury control program will require a monitoring program to measure the effectiveness of the program. The monitoring program will likely consist of water, sediment and fish tissue mercury collection and analyses and other parameters that may show to have a relationship with fish tissue mercury levels. A stakeholder commented that the effectiveness of management practices may not be seen without a detailed understanding of the food web dynamics in the watershed.

### CABY Proposal

After the normal American River Watershed TMDL stakeholder meeting Stephen McCord (LWA) and Carrie Monohan (Sierra Fund) facilitated a discussion regarding Alternative Stakeholder Options. They were proposing using the Cosumnes, American, Bear, and Yuba Integrated Regional Water Management Plan organization (CABY) as a tool for engaging a broader range of stakeholders, developing a stakeholder driven TMDL process, and submitting grant proposals for funding this CABY-wide Stakeholder Group. CABY may have an important role in the development of the implementation plan. Since the meeting, Ms. Monohan has informed us that considering the limited time schedule and the pending State-wide TMDL development, it may be too difficult to develop an effective expanded stakeholder group. Their presentation is posted on the Water Boards website.

## **Next Steps:**

- The March 17 meeting topics will include source analyses and possible implementation actions.

## **American River Watershed Mercury TMDL Stakeholder Meeting February 17, 2011**

### **Attendees**

Stephen Louie, Central Valley Water Board  
Janis Cooke, Central Valley Water Board  
Gene Lee, USBR  
Carrie Monohan, The Sierra Fund  
Marie Davis, PCWA  
Carol Kennedy,\* Tahoe National Forest  
Stephen McCord, Larry Walker Associates  
Jane Rimer, BSK Laboratory & Engineering  
Michael Garabedian, Friends of the North Fork  
Steve Tyler, Self  
Rick Eddy, Self  
Ben Ransom, PCWA  
Debbie Webster,\* CVCWA  
Brad Gacke, SMUD  
Robert Columbro, Shingle Springs Band of Miwok Indians  
Melissa Marquez, Eldorado County & Georgetown Divide RCD  
Rod Miller,\* City of Folsom  
Patrick Morris, Central Valley Water Board  
Peter Graves, BLM  
Jay Rowan, DFG  
Darold Perry, SMUD  
Jeremy Laurin, PG&E  
Dan Corcoran, EID  
Tami Scowcroft, EDC Water Agency  
Sherri Norris, CIEA  
Drea Traeumer,\* EM Hydrology  
Andria Ventura,\* CWA  
Diane Fleck,\* U.S. Environmental Protection Agency  
Fraser Shilling,\* UC Davis  
Greg Reller,\* Burleson Consulting  
Bill Christner, ECORP

\* People who attended by Webinar/conference call.