

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MEETING OF MARCH 13-14, 2013
SOUTH LAKE TAHOE**

ITEM: 7

SUBJECT: STATEWIDE MERCURY PROGRAM UPDATE

**WORKSHOP
DESCRIPTION:**

Staff will present information on Lahontan Water Board's involvement with the Statewide Mercury Program, its components, and how the program is developing. Staff will also describe mercury impairment, how it affects waterbodies in our region, and current and past projects funded by the Surface Water Ambient Monitoring Program (SWAMP).

DISCUSSION:

Toxic levels of mercury in fish have been documented in more than 180 reservoirs, lakes, and rivers in California, making some of the fish unsafe for humans or wildlife to eat. Because mercury impairment is a pervasive issue throughout California, the State Water Board has begun developing a Statewide Mercury Program. This program is comprised of Regional and State Water Board staff focusing first on a Statewide Proposed Mercury Control Program for Reservoirs (Enclosure 1). For more information about this proposed program and related efforts, see http://www.waterboards.ca.gov/water_issues/programs/mercury/.

In the Lahontan Region, no reservoirs are currently on the 303(d) list for mercury, although three rivers are listed: Bodie Creek, Mammoth Creek (2 segments), and the Susan River (3 segments). Additional listings are likely to be added in the upcoming 303(d) listing cycle due to a SWAMP Bioaccumulation Oversight Group (BOG) study published in 2010, which screened California lakes and reservoirs for contaminants in sports fish. (For more information on the BOG survey, visit: http://www.waterboards.ca.gov/water_issues/programs/swamp/lakes_study.shtml). Two lakes in the Lahontan Region exceeded the California Office of Environmental Health Hazard Assessment's (OEHHA's) "no consumption" criteria for mercury, including Silverwood Lake and Little Rock Reservoir. Since this screening study, SWAMP has conducted additional monitoring at these two lakes to provide sufficient data to support the development of *Safe Eating Guidelines*.

In the Lahontan Region, a major source of mercury contamination may be from atmospheric deposition. The Statewide Mercury Control Program for Reservoirs (Enclosure 2) currently includes implementation tactics to manage fisheries and reservoirs to reduce methylation and bioaccumulation of mercury. Other plausible implementation techniques include controlling point sources from mines and additional non-point sources in the watershed.

RECOMMENDATION: This is an informational item. The Water Board will not be asked to take any action but may provide direction to staff.

Enclosure	Description	Bates Number
1	Proposed Mercury Policy fact sheet	7-5
2	Control Program for Mercury in California's Reservoirs fact sheet	7-9

ENCLOSURE 1

This page is intentionally left blank.



Proposed Mercury Policy

The State Water Resources Control Board and nine Regional Water Quality Control Boards are in the process of developing a statewide Policy to control mercury in California's waters. Key elements of the Policy will include a Control Program for mercury in the state's reservoirs, and new standards (objectives) for mercury in the tissues of certain species of fish.



Why do we need a Mercury Policy?

The U.S. Environmental Protection Agency has identified more than 180 water bodies in California as contaminated by unsafe levels of mercury, a toxic metal that is found in natural soils in our state and was mined and widely used and dispersed by gold mining activities. Many fish in these impaired waters have mercury concentrations in their flesh that pose a risk to humans and wildlife that eat the fish. The number of mercury-impaired waters is expected to increase substantially when new monitoring data are evaluated.

What about ongoing programs to control Mercury in California?

The nine Regional Boards have been working to clean up mercury-contaminated waters for years, and a number of action plans for those waters ("total maximum daily loads," or TMDLs) are in effect around the state. The reservoirs project will not affect waters with TMDLs in place.

Status of the Project – July 2012

CEQA Scoping Meetings are complete

In March 2012, as required by the California Environmental Quality Act (CEQA), staff hosted public meetings to discuss the scope of the reservoir mercury control program in Sacramento, Oakland, Redding, and Riverside. We received many comments and suggestions at these meetings, and written comments are posted on the Mercury Program website, at http://www.waterboards.ca.gov/water_issues/programs/mercury/cmmnts_ceqa.shtml. Staff will not respond to scoping comments in writing, but all of the submitted comments are being evaluated as we develop a draft Policy document and technical report to support it.

The Fish Tissue Objectives were reviewed at CEQA scoping meetings in 2007. Scoping comments are posted at http://www.waterboards.ca.gov/water_issues/programs/mercury/cmmnts_mehg.shtml.

Next steps in the process

Currently, Water Board staff is preparing a draft Policy for fish tissue objectives and the reservoir mercury control program, and will be presenting it to the public for review and informal comments in fall 2012.. The supporting technical staff report should be ready for scientific peer review by late 2012/early 2013. Project documents will also undergo scientific peer review. After staff address peer review comments, a proposed Policy and staff report will be made available for a formal public comment period and posted on the website for the public to download. Staff will hold a public workshop in Sacramento, where interested individuals may comment in person.



Proposed Mercury Policy

The Water Boards are coordinating with other agencies

Regional, state, and federal agencies are concerned about California’s mercury problem and are coordinating with the Water Boards in the development of a Mercury Policy. State agencies include the California Air Resources Board and the regional Air Districts; the Department of Toxic Substances Control; the Department of Fish and Game, the Department of Water Resources, and the Office of Environmental Health Hazards Assessment. Federal agencies include the Environmental Protection Agency, the Bureau of Land Management, the National Park Service, and the Forest Service. Local and regional agencies include those that operate reservoirs for municipal water supply or hydroelectric power, and their water and power customers. All of these agencies will be important partners for the Water Boards as we develop this policy, taking into account the importance of California’s water supply and water security.

We want to hear from the public!

The Statewide Mercury Program webpage

http://www.waterboards.ca.gov/water_issues/programs/mercury/ includes all of the information about the project and current public documents; staff update it on a regular basis. Please check often.

In addition, we maintain an electronic mailing list. Everyone who signs up will receive timely updates and important information by email. Please visit

http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml#quality, and scroll down to sign up for “Mercury – Objectives Policy,” and/or “Mercury – Statewide Control Program for Reservoirs.”

Timeline

	Policy development	Opportunities for public comment
2012	Staff prepares summary for discussion at scoping meetings	CEQA Scoping Meetings around the state
	Staff prepares draft Policy	Informal public review
	Staff prepares technical report to support the Policy	
2013	Scientific peer review	
	Staff revises Policy and Staff Report	
		Formal public comment period Workshop at State Water Board State Water Board meets to consider adopting Policy

ENCLOSURE 2

This page is intentionally left blank.



Control Program for Mercury in California's Reservoirs

The State Water Resources Control Board and nine Regional Water Quality Control Boards are in the process of developing a statewide control program for mercury in our waters.



Overview

Fish containing potentially harmful amounts of mercury are found in numerous reservoirs across the state. Mercury is a heavy metal that is poisonous in very small amounts. Infants, young children, and women of childbearing age are most at risk. It is known to cause brain damage as well as kidney and lung problems in humans and wildlife. To begin to address this widespread mercury contamination, the Water Boards are developing a program that will focus first on mercury in California's reservoirs.

How are humans exposed to mercury?

Most human exposure to harmful amounts of mercury is through eating contaminated fish. Toxic levels of mercury in fish are present in more than 180 reservoirs and rivers in California, making some of the fish unsafe for humans or wildlife to eat. Many of these water bodies have posted fish consumption warnings advising people to limit their consumption of certain species and sizes of locally caught fish. The methylmercury concentration in water is one of the primary factors determining methylmercury concentrations in fish.

What is "methylmercury"?

Mercury (also called inorganic mercury) is toxic in all of its forms, but methylmercury is one form that is most toxic and readily available for bioaccumulation in fish, birds, and people. Methylmercury is most often formed from inorganic mercury in open-water and wetland habitats where sediments are low in oxygen and bacteria are present.

What is "bioaccumulation"?

When methylmercury moves into water, it binds to organic matter, including phytoplankton at the base of the aquatic food web. Contaminated phytoplankton are consumed by zooplankton, which are then fed upon by small and large fish. The methylmercury accumulates in each species as it moves through the aquatic food web. The highest concentrations of methylmercury are usually found in large, old fish such as bass, which eat smaller fish.

How does mercury enter the reservoirs?

Inorganic mercury enters reservoirs and other water bodies through a variety of sources including:

- Atmospheric deposition
- Through tributary streams carrying runoff from mercury and gold mining sites
- From urban and industrial discharges
- From erosion of soils naturally enriched with mercury

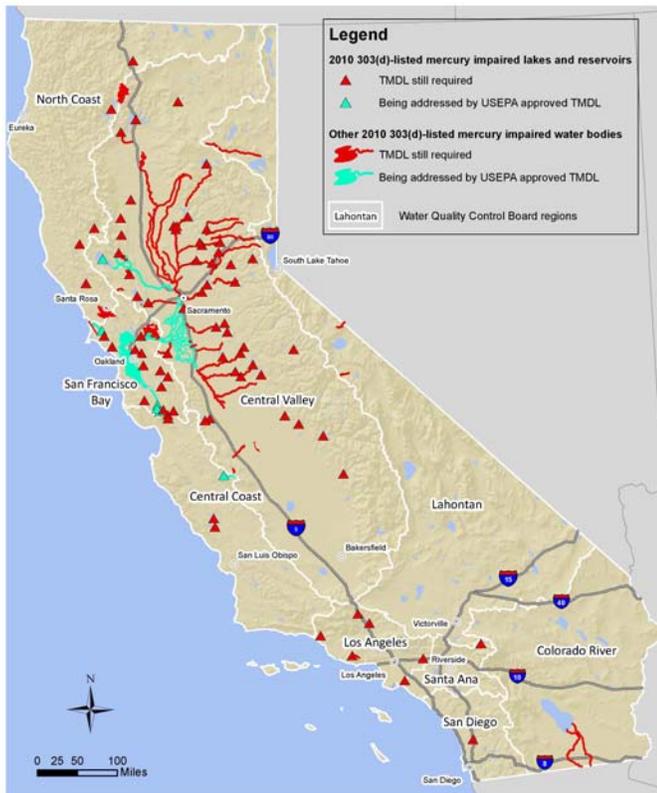
What are some potential controls for mercury?

The magnitude of mercury impairment in reservoirs is related to three factors that may be controllable:

- 1) Reductions in concentrations of inorganic mercury – Reducing concentrations of inorganic mercury in reservoir sediment are one way to limit methylmercury production and its subsequent bioaccumulation in fish. Potential source controls include remediation of historic gold and mercury mines upstream of reservoirs.
- 2) Changes in reservoir management – Depending on the local characteristics, reservoirs can create a habitat and an environment that can increase the exposure risk to fish consumers. Chemical properties such as oxygen and nutrient levels, and physical properties such as water level fluctuations, can affect methylmercury production. More information and studies are needed to determine if modifying these reservoir properties could reduce fish mercury levels.
- 3) Changes to management of fish species – Which fish species are present and how they are managed is an important factor in determining the severity of the problem in a given reservoir and changes to current practices could be an important tool in addressing mercury impairments. Stocking reservoirs with less predatory fish might limit methylmercury bioaccumulation.

Where are the mercury-impaired reservoirs in California?

Reservoirs containing potentially harmful amounts of mercury in fish are found in numerous reservoirs across the state, with the majority in central California. The map shows locations of the reservoirs that are part of this project.



For more information...

Water Board Statewide Mercury Program webpage

http://www.waterboards.ca.gov/water_issues/programs/mercury/
(Includes larger map and list of mercury-impaired reservoirs)

Office of Environmental Health Hazard Assessment Fish webpage

<http://www.oehha.org/fish.html>