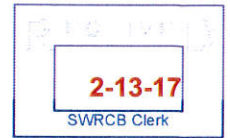




Central Sierra Environmental Resource Center
Box 396 • Twain Harte, CA 95383 • (209) 586-7440 • FAX (209) 586-4986
Visit our website at: www.cserc.org or contact us at: johnb@cserc.org



February 8, 2017

Attn: Jeanine Townsend
Clerk to the Board State Water Resources Control Board
P.O. Box 100,
Sacramento, CA 95812-2000

**Draft Staff Report and SED for Part 2 Water Quality Control Plan- Tribal and Subsistence
Fishing Beneficial Uses and Mercury Provisions**

This letter is submitted in response to the solicitation of input regarding the State Water Board's Draft Staff Report, including SED in developing a statewide water quality control program for mercury-related water quality objectives (WQOs), tribal and subsistence beneficial uses, and a program of implementation for mercury dischargers (collectively being called Mercury Provisions) for the protection of humans and wildlife that consume fish.

Our Center, the Central Sierra Environmental Resource Center (CSERC), is a non-profit environmental organization in Tuolumne County. Our staff has worked to protect water, fish and wildlife in Northern Yosemite Region within the Mokelumne, Stanislaus, Tuolumne, and Merced River watersheds for the last 25 years. CSERC acknowledges that human activities have historically and currently caused measurable increases in inorganic mercury in surface waters and in levels of bioaccumulated methylmercury in aquatic organisms. Not only are the existing statewide regulatory limits for mercury for water in the California Toxics Rule criteria (50 ng/L³ water and aquatic organisms and 51 ng/L³ aquatic organisms only) not reflective of the most recent U.S. EPA Clean Water Act 304(a) recommended human health criterion for mercury (0.3 mg/kg methylmercury in total fish, given a consumption rate of fish of 17.5 g/day), but there are currently no statewide objectives or criteria to protect wildlife.

Therefore, our Center is in agreement with the SWB's development of water quality objectives, beneficial uses, and other provisions (program of implementation for dischargers) for mercury to better protect human health and also for the protection of fish and wildlife. In our region there are several reservoirs (New Melones, Tulloch, Hetch Hetchy, Don Pedro, and Lake McClure) and river reaches (Stanislaus, Tuolumne, and Merced Rivers) that are listed in California's 2010 Integrated Report for mercury pollution. Our region also contains many historic, abandoned mines that contribute to increased mercury levels in downstream waterbodies. Our Center finds the adoption of mercury provisions that protect human and wildlife health to be invaluable to our region's freshwater ecosystems and people.

CSERC emphasizes that there should be: 1) numeric fish tissue, water column and narrative objectives for mercury concentrations 2), establishment of a fish consumption rate for the Sport Fish Water Quality Objective to best protects human health 3), adoption of a water quality objective that best protects sensitive endangered species (the RARE beneficial use), 4) adoption of a statewide wildlife water quality objective - especially for waters with trophic level ≤ 3 and protection of wildlife consuming trophic level ≤ 3 that will best protect wildlife, 5) requirement for dischargers (subject to California Code of Regulations, title 22, section 2251.0) or public and private landowners whose activities disturb soils containing mercury to implement erosion and sediment measures to control mercury or to prohibit these activities altogether, and 6) a strategy to identify and prioritize legacy/abandoned mine sites and mining waste for cleanup.

Our staff recommends that several changes be made in the final report. The following sections contain detailed comments regarding recommendations and comments from our staff.

Issue A- What type of water quality objectives should be adopted: numeric water column objectives, numeric fish tissue objectives, numeric sediment objectives, or narrative objectives?

In terms of which type of mercury water quality objective the SWB should adopt, CSERC agrees with the SWB in that a Numeric Fish Tissue Objective (Option 2) should be adopted for the protection of human health. Our staff understands that a Narrative Objective would provide language to protect human health in the absence of site-specific consumption information. **We recommend that SWB adopt Numeric Fish Tissue Objective Option 2 and put language within Option 2 that says a Narrative Objective (Option 5) will be used for SUB beneficial use if there is no site-specific consumption information then a Narrative Objective would be used under the SUB beneficial use.**

Furthermore, **CSERC urges the SWB to consider adopting a Numeric Water Column Objective (Option 3) in addition to a Numeric Fish Tissue Objective** to better regulate inorganic mercury levels in surface waterbodies. In the report it states, *"disadvantage of this option [Option 2] is that it does not utilize measurement of concentrations of pollutants in water, which is the most widely-used method to develop reasonable potential analyses and final effluent limitations for discharges, and monitoring and reporting requirements for both discharges and receiving water bodies"*. Our staff does understand that it would be more costly to implement the Numeric Water Column Objective, however, we see value in better understanding mercury levels in California's waterbodies not just within fish tissue for the protection of human health, and fish and wildlife. Option 4 (Numeric Sediment Objective) would also better estimate mercury contamination levels in waterbodies better than a fish tissue objective, however, our staff believes that a water column objective would best achieve this.

Issue B- What fish consumption rate should be used to calculate the Sport Fish Water Quality

Objective to protect human health?

CSERC agrees with the SWB recommendation to adopt a statewide fish consumption rate (based on mercury in fish tissue) to calculate the Sport Fish Water Quality Objective since there is not one clearly established statewide policy regarding consumption rates for recreational consumption of fish. **Our Center urges the SWB adopt Option 1, the objective that is equivalent to the EPA's 2001 human health criterion, a more conservative fish consumption rate of 0.3 mg/kg methylmercury in fish tissue at a fish consumption rate of one meal every two weeks. This would equate to 0.15 mg/kg at a rate of one meal per week, which is lower than the SWB's recommended objective of 0.2 mg/kg at a rate of one meal per week.**

In addition, Option 4, the Phased Approach, would in theory ultimately result in better protection of sub-populations of people who consume large quantities of fish (5 meals a week at 0.05 mg/kg methylmercury in fish tissue). Therefore, **our Center urges SWB to consider adopting Option 4 for fish consumption rates to calculate Sport Fish Water Quality Objective and starting out with Option 1 (0.3 mg/kg methylmercury in fish tissue at a rate of one meal every two weeks). Then after several decades, the SWB should try to establish concentrations that would achieve an ultimate consumption rate" that would better protect those that consume fish > once a week, but that the ultimate consumption rate be more conservative at 0.03 mg/kg at a rate of five meals per week as opposed to the suggested amount and rate in the Draft Report (0.05 mg/kg at a rate of five meals per week).**

Issue C- To which fish species should the Sport Fish Water Quality Objective apply?

CSERC agrees with the SWB proposed adoption of Option 1 for the Sport Fish Water Quality Objective to the top trophic level, usually trophic level 4 fish (e.g., largemouth bass, small mouth bass, spotted bass, white catfish, channel catfish, Sacramento pike minnow, crappie, black crappie). However, if there are no trophic level 4 fish present within a waterbody then **trophic level 3 fish (e.g., trout, bluegill, common carp, golden shiner, red ear sunfish, yellowfin goby, black bull head, brown bullhead) would be used to measure mercury bioaccumulation levels.** Our Center agrees that there should be wording to specify direction for waterbodies that do not have trophic level 4 fish species present, but where elevated levels of methylmercury in fish tissue still exists. In addition, even though realistically most people eat a mixture of trophic level 3 and trophic level 4 fish, however, the levels of methylmercury are much higher in trophic level 4 compared to trophic level 3 fish so if people are eating any proportion of trophic level 4 fish then the levels will most likely be substantially higher and risk to health much higher. Therefore Option 2 is not conservative enough, and our staff urges the SWB to not adopt Option 2. Our Center also disagrees strongly with Option 3 (apply objective to only native species) since a large proportion of top predatory trophic level 4 fish that people catch and consume are non-native, so unless there is a complete eradication and removal of non-native trophic level 3 or 4 fish, then there is a high chance that people will continue to consume non-native fish that have high levels of methylmercury.

Issue D- Should the beneficial uses for tribal traditional and cultural, tribal subsistence fishing, and subsistence fishing be established as beneficial uses?

CSERC agrees with the SWB recommendation to establish beneficial uses for tribal traditional and cultural, tribal subsistence fishing, and subsistence fishing.

Issue E- What water quality objective (s) should be adopted for subsistence fishing by tribes (T-SUB) and other subsistence fishers (SUB)?

CSERC urges the SWB to adopt numeric water quality objectives for both tribal subsistence fishing and subsistence fishing. For tribal subsistence fishing the fish mercury concentration of 0.04 mg/kg as a mixture of 70 percent trophic level 3 fish and 30 percent trophic level 4 fish (to protect consumption of four to five meals a week) should be reduced to 0.03 mg/kg at four to five meals a week, that is more conservative and in line with recommendations made for the Sport Fishing Objective. In addition, our staff urge the SWB to adopt a numeric water quality objective for subsistence fishing of 0.03 mg/kg in top trophic level fish at four to five meals a week (Option 3).

Issue F- What mercury water quality objective should be adopted to protect the Tribal Tradition and Culture (T-SUB) beneficial use?

Our Center understands that setting accurate objectives for any pollutant would require detailed study of the specific Tribe's use or uses of the waterbody wherever CUL may be designated. CSERC encourages the SWB to take into consideration suggestions and comments from various tribes throughout the state and go with the option that best reflects the requests of tribes. We agree with the SWB recommendation to apply the Sport Fish Water Quality Objective to the Tribal Tradition and Culture beneficial use.

Issue G- What water quality objective should be adopted to protect sensitive endangered species (the RARE beneficial use) and to what waters should the objective apply?

CSERC urges the SWB to adopt a mercury water quality objective that would protect sensitive or endangered species. Since there are currently no statewide objectives or criteria to protect wildlife from mercury in California, our Center urges the SWB to adopt Option 2 (0.03 mg/kg methylmercury in small prey fish) that would apply the California Least Tern Water Quality Objective statewide, not just in USFWS management areas for the species, but apply this objective statewide regardless of whether the area is within the Least Tern's species range. Other small birds sensitive to mercury could remain at risk if Option 3 (objective only to apply in USFWS management areas for the California Least Tern) were adopted. Option 2 is the only alternative that would protect all wildlife sensitive to mercury statewide.

Issue H- Should a water quality objective be adopted that is specifically for the protection of wildlife statewide?

CSERC urges the SWB to adopt the SWB recommended water quality objective specifically for the protection of wildlife statewide referred to as the Prey Fish Water Quality Objective. This is a critical objective needed, because even if the Sport Fish and Least Tern water quality objectives are adopted, these two objectives will not provide specific protection for all listed species, sensitive species, and other wildlife that are affected by bioaccumulation of mercury in surface waters; species including osprey, bald eagle, belted king fisher, grebe and merganser (SED p. 125). As mentioned in the report, many surface waters, like in our region (Sierra Nevada) do not support trophic level 4 fish, but are inhabited primarily by trout, and if 0.2 mg/kg objective is applied to trout, it is not clear if wildlife that eats lower trophic level fish, or prey fish, that they would be protected (SED p. 125). Therefore, **our Center agrees with the comments made in the report, that there should be a Prey Fish Water Quality Objective adopted that directly applies to waters that lack trophic level 4 fish, but instead have trophic level 3 fish, and smaller trophic level fish (e.g., California roach, riffle sculpin, juvenile trout) 50-150 mm in length at 0.05 mg/kg methylmercury in all waters.**

Issue I- How should legacy mine sites and mining wastes be addressed?

CSERC agrees with the SWB that dischargers subject to California Code of Regulations, title 22, section 225.10 **should have to implement erosion and sediment control measures to control mercury** when the discharge is from land where mercury was mined or mercury was used during ore processing (Option 2). However, our Center **also urges the SWB to also adopt Statewide Mine Prioritization Strategy (Option 3) to identify and prioritize legacy/abandoned mine sites and mining waste for cleanup, focusing on the worst sites first.** With 47,000 abandoned mines sites that the Department of Conservation is now developing a prioritization strategy to address hazards for, it is critical that the SWB implement a Statewide Mine Prioritization Strategy to address the mercury contamination that is mostly originating from these 47,000 abandoned mines verses current mining operations.

Issue J- How should dredging, wetlands, and nonpoint sources be addressed?

CSERC agrees that the SWB does have authority and should provide guidance and require action be taken in areas where nonpoint sources of mercury and methylmercury production occur and in areas where elevated mercury concentrations exist, what we'll call high mercury areas (e.g., naturally mercury-enriched soils at ≥ 1 ppm, a site with sediments or soils with mercury concentrations ≥ 1 ppm, or historical mercury or gold tailings or historic hydraulic gold mining pits in the Sierra Nevada Mountains). Our Center urges the SWB to adopt this Option 2, and emphasize, "under existing law the Water Boards have discretion to address nonpoint source discharges of mercury and methylmercury production in wetlands and the Water Boards should consider such implementation measures in areas with elevated mercury concentrations". **However, our Staff urges the SWB to use language that says dischargers in high mercury areas will be required to implement sediment and erosion control measures, that there will be downstream monitoring by the regulatory agency to determine if the dischargers are in compliance, and if control measures do not control increased re-suspension and methylation then the discharger must cease operations (referring to language in SED**

under Issue J, Option 2, paragraph 2, p. 133).

Issue K- What should be required of NPDES storm water dischargers?

Our Center understands that storm water dischargers cannot control background sources of mercury that are deposited from the atmosphere, but that dischargers are responsible for controllable sources of mercury from construction activities, road maintenance, and improperly disposed industrial products (e.g., batteries, florescent tubes, or switches containing mercury), which can increase erosion during storms and carry mercury enriched sediment to surface waters. Therefore, storm water dischargers have a responsibility to control mercury transported in storm water. **CSERC urges the SWB to require storm water dischargers to implement specific mercury pollution prevention and pollution control measures to reduce mercury or methylmercury discharges through the methods outlined on pages 138-139.**

CSERC also urges the SWB to reduce the target concentration for mercury, aka the Numeric Action Level, in the Industrial General Permit. Although, our Center asks that the SWB verify whether the recommended 300 ng/L total mercury for the Numeric Action Level is in fact the lowest level that current monitoring equipment can detect at.

Our Center also urges the SWB to require any permittee including recycling facilities, dismantling yards, scrap and waste material facilities, or metal mining facilities, in addition to Hazardous Waste Facilities, that handle mercury or mercury-containing materials as part of their industrial process, to be mandated to monitor mercury levels leaving their facilities.

In addition it appears that Option 4 is missing from the report or Option 5 was mistyped and should be Option 4.

Issue L- What procedure should be used to determine which municipal wastewater and industrial dischargers would need effluent limitations?

CSERC agrees that a process is needed to determine which wastewater and industrial discharges need effluent limitations established for mercury. CSERC also agrees with the SWB recommendations to use mercury concentration in the water column for the purposes of determining which municipal wastewater and industrial dischargers would need effluent limitations (Clean Water Act standard of performance reflecting a specified level of discharge reduction achievable by the best available technology for mercury).

Issue M- How should the effluent limitations be calculated for municipal wastewater and industrial discharges?

CSERC agrees with the SWB recommendations to calculate effluent limitations for municipal wastewater and industrial dischargers based on water body type and bioaccumulation factors. The SWB should provide incentives to upgrade wastewater treatment facilities to the tertiary level of treatment, which would likely meet water column thresholds

and have multiple benefits to the environment beyond just controlling for mercury (p. 151).

Issue N- Should the Provisions include a public exposure reduction program?

CSERC agrees that continued public education is needed to help people understand the risks of consuming fish that are contaminated with mercury. We support the SWB partnering with the California Department of Public Health and the Office of Environmental Health Hazard Assessment to continue to support these agencies with data, and recommend they continue this work.

Conclusion

In conclusion, CSERC recommends that the SWB adopt water quality objectives, beneficial uses, and a program of implementation for mercury dischargers to protect human and wildlife health. Mercury contamination from historical and current human activities can result in unsafe water quality conditions in certain waterbodies statewide and can create unsafe levels of bioaccumulated methylmercury in freshwater fish in our state's inland waters. Our Center reiterates that it is pertinent for the SWB to establish water quality objectives for mercury that will protect wildlife since there are currently no statewide objectives or criteria to protect wildlife from mercury in California.

Briefly we suggest that there be:

- 1) **A numeric fish tissue, a water column and a narrative objective for mercury.**
- 2) Adoption of a fish consumption rate for the Sport Fish Water Quality Objective to best protects human health at a level equivalent to the EPA's 2001 human health criterion of **0.3 mg/kg methylmercury in fish tissue at a fish consumption rate of one meal every two weeks (which would equate to 0.15 mg/kg at a rate of one meal per week)** which is lower than the SWB's recommended objective of 0.2 mg/kg at a rate of one meal per week.
- 3) That **trophic level 4 fish** should be applied to the Sport Fish WQO (e.g., largemouth bass, small mouth bass, spotted bass, white catfish, channel catfish, Sacramento pike minnow, crappie, black crappie), unless there are no trophic level 4 fish present within a waterbody then **trophic level 3 fish** (e.g., trout, bluegill, common carp, golden shiner, etc.) **should be used to measure mercury bioaccumulation levels.**
- 4) Adoption and establishment of beneficial uses for **tribal traditional and cultural, tribal subsistence fishing, and subsistence fishing.**
- 5) Adoption of a water quality objective that best protects sensitive endangered species (the RARE beneficial use) specifically Option 2- California Least Tern Water Quality Objective **statewide (0.03 mg/kg methylmercury in small prey fish)** to protect the

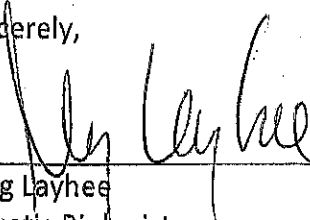
California least tern and all sensitive wildlife species. **Option 2 is the only alternative that would protect all wildlife sensitive to mercury statewide**

6) Adoption of a **Prey Fish Water Quality Objective that directly applies to waters that lack trophic level 4 fish, but instead have trophic level 3 fish, and smaller trophic level fish (e.g., California roach, riffle sculpin, juvenile trout) 50-150 mm in length at 0.05 mg/kg methylmercury in all waters.**

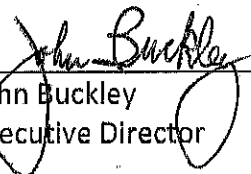
7) Requirement that dischargers (subject to California Code of Regulations, title 22, section 22510) or public and private landowners, or any member of the public whose activities disturb soils containing mercury to implement erosion and sediment measures to control mercury or to prohibit these activities all together (Option 2), and **adopt Statewide Mine Prioritization Strategy (Option 3) to identify and prioritize legacy/abandoned mine sites and mining waste for cleanup.**

8) Use of language under Issue J that says **dischargers in high mercury areas will be required to implement sediment and erosion control measures, that there will be downstream monitoring by the regulatory agency to determine if the dischargers are in compliance, and if control measures do not control increased re-suspension and methylation then the discharger must cease operations (this would include suction dredgers).**

Sincerely,



Meg Layhee
Aquatic Biologist



John Buckley
Executive Director