

# Like it or not: Mercury threat exists in Gold Country fish

*Fully referenced response to the In EDC 6/11/2013 article "Water Board study is good news for the Sierras level of mercury in rivers"*

*By Elizabeth Martin, CEO, The Sierra Fund*

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A recent article written by *The Western Mining Alliance*, published in the Placerville online newspaper *In El Dorado County*, deceptively stated, "fish are safe to eat throughout the Sierras." In truth, 26 million pounds of mercury were brought to this region during the Gold Rush, and at least ten million pounds of which was left behind in the environment, a legacy that still affects our environment today. People are exposed to that mercury when eating certain species of locally caught fish. The Gold Country region in California deserves a comprehensive regional study to provide the public with accurate information on how to eat fish safely.

Here in the Sierra Nevada Gold Country, many of our waterways are listed as impaired due to high mercury including the Feather, American and the Yuba River watersheds. The Yuba River watershed saw the greatest impacts from historic gold mining and mercury use in the state<sup>1</sup> and nearly every water body that has been tested here is listed as impaired due to mercury. The State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) has published multiple reports which document that mercury exists at elevated levels in the environment, including rivers and reservoirs in the Sierra Nevada.<sup>2</sup>

Numerous studies by universities, physicians, and government agencies have established the dangers posed by mercury that accumulates in the food chain, and how the consumption of too much high mercury fish poses a health threat.<sup>3</sup> Dr. Jane Hightower, a diagnostic physician in San Francisco, recorded numerous instances of methylmercury poisoning in California patients who consumed high mercury fish in the last decade.<sup>4</sup> The Office of Environmental Health Hazard Assessment (OEHHA) has issued several studies on the health threat posed by mercury in California fish, and issues fish consumption warnings (available through an interactive map) for different fish species throughout California, all of which are available on their website.<sup>5</sup> The State Water Resources Control Board (SWRCB) also lists mercury-impaired water bodies and related studies on their website.<sup>6</sup> Additional mercury related resources are available on The Sierra Fund's website at [www.reclaimingthesierra.org](http://www.reclaimingthesierra.org).

It is important to note that some fish species have higher mercury content than others, and some reservoirs are of more concern than others. We encourage people to go to the OEHHA and SWRCB websites and look for your local fishing spots to view fish consumption advisories posted online, or whether that water body is listed as impaired due to mercury. Not all water bodies have been sampled for mercury and therefore, may not have any warnings. When there is no local advisory present, the EPA recommends limiting sport fish consumption to one meal per week<sup>7</sup> and general fish consumption guidelines exist on OEHHA's website to help you exercise precaution for those local fishing holes that have not been sampled or studied. These guidelines suggest eating

smaller fish because mercury in the form of methylmercury bioaccumulates in the food web and in older, larger fish.

There are multiple questions you should be asking before consuming any type of fish. What type of fish am I eating? How big is this fish? Where did I catch this fish? Is there a fish consumption advisory published online at the Office of Environmental Health Hazard Assessment? How many servings can I eat in one week? How big is a serving size? Perhaps most importantly, who is eating the fish? If you are a pregnant woman, it is important to choose fish that are lower in mercury, such as wild caught salmon. Eating too much mercury-contaminated fish can result in neurological impairments in a developing fetus. This can cause permanent developmental disabilities. OEHHA recommends women and children eat smaller and fewer servings per week compared to men.

The Sierra Fund (TSF) is committed to providing scientifically sound information about the risk of eating high mercury fish, particularly locally caught or “sport fish” found here in the Sierra Nevada. TSF is reaching out to different Sierra communities with a focus on educating high risk individuals, such as tribal people who may be subsistence fishing, as well as medical professionals who counsel women who are or may become pregnant.

To get fish consumption advisories near you, go to the SWRCB’s website at:

[http://www.mywaterquality.ca.gov/safe\\_to\\_eat/consumption\\_advisories/](http://www.mywaterquality.ca.gov/safe_to_eat/consumption_advisories/) and click on your local water body to view the advisory.

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## REFERENCES

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<sup>1</sup> California Department of Conservation, 2003, *Abandoned Mine Lands Assessment of the North Yuba Watershed*, available at [http://www.conservation.ca.gov/omr/abandoned\\_mine\\_lands/Documents/North%20Yuba.pdf](http://www.conservation.ca.gov/omr/abandoned_mine_lands/Documents/North%20Yuba.pdf)

<sup>2</sup> SWAMP Studies:

Contaminants in Fish from California Rivers and Streams, 2011

Davis, J.A., J.R.M. Ross, S.N. Bezalel, J.A. Hunt, G. Ichikawa, A. Bonnema, W.A. Heim, D. Crane, S. Swenson, and C. Lamerdin. 2013. Contaminants in Fish from California Rivers and Streams, 2011. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, CA.

[http://www.waterboards.ca.gov/water\\_issues/programs/swamp/rivers\\_study.shtml](http://www.waterboards.ca.gov/water_issues/programs/swamp/rivers_study.shtml)

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Contaminants in Fish from California Lakes and Reservoirs, 2007-2008

Davis, J.A., A.R. Melwani, S.N. Bezalel, J.A. Hunt, G. Ichikawa, A. Bonnema, W.A. Heim, D. Crane, S. Swenson, C. Lamerdin, and M. Stephenson. 2010. Contaminants in Fish from California Lakes and Reservoirs, 2007-2008: Summary Report on a Two-Year Screening Survey. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, CA.

<sup>3</sup> Some studies that indicate the danger of mercury in fish:

K. He, P. Xun, K. Liu, S. Morris, J. Reis, E. Guallar. 2013. Mercury Exposure in Young Adulthood and Incidence of Diabetes Later in Life: The CARDIA trace element study. *Diabetes Care* 36(6): 1584-9.

Dalgard C., P. Grandjean, P. J. Jorgensen, P. Weihe. 1994. Mercury in the Umbilical Cord: Implications for Risk Assessment for Minamata Disease. *Environ Health Perspect* 102:548-550.

Debes F., E. Budtz-Jorgensen, P. Weihe, R.F. White, P. Grandjean. Impact of Prenatal Methylmercury exposure on Neurobehavioral Function at Age 14 Years. 2006. *Neurotoxicology and Teratology* 28: 363-375.

J.L. Domingo, Omega-3 Fatty Acids and the Benefits of Fish Consumption: Is All that Glitters Gold? 2007. *Environment International* 33: 993-998.

L.R. Goldman, M.W. Shannon. Technical Report: Mercury in the Environment: Implications for Pediatricians. 2001. *Pediatrics* 108(1): 197-205.

M. Harada, T. Fujino, T. Oorui, S. Nakachi, T. Nou, T. Kizaki, Y. Hitomi, N. Nakano, H. Ohno. Followup Study of Mercury Pollution in Indigenous Tribe Reservations in the Province of Ontario, Canada, 1975-2002. 2005. *Bull Environ Contam Toxicol* 74:689-697.

J.M. Hightower, D. Moore. Mercury Levels in High-End Consumers of Fish. 2003. *Environ Health Perspect* 111(4): 604-608.

C. Monohan. 2011. Gold Country Angler Survey: A Pilot Study to Assess Mercury Exposure from Sport Fish Consumption in the Sierra Nevada.

E. Oken, J.S. Radesky, R.O. Wright, D.C. Bellinger, C.J. Amarasiriwardena, K.P. Kleinman, H. Hu, M.W. Gillman. Maternal Fish Intake during Pregnancy, Blood Mercury Levels, and Child Cognition at Age 3 Years in a US Cohort. 2008. *Am J Epidemiol* 15: 1171-81.

F. Shilling et al. 2010. Contaminated Fish Consumption in California's Central Valley Delta. *Environmental Research*. 110(2010)334-344

<sup>4</sup> Hightower, Jane M. *Diagnosis: Mercury: Money, Politics, and Poison*. Washington, D.C.: Island Press, 2009.

<sup>5</sup> California Office of Environmental Health Hazard Assessment (OEHHA) Fish Consumption Guidelines are available online here: [http://oehha.ca.gov/fish/so\\_cal/](http://oehha.ca.gov/fish/so_cal/)

OEHHA studies on mercury in California fish, and other reports at [http://www.oehha.ca.gov/fish/special\\_reports/index.html](http://www.oehha.ca.gov/fish/special_reports/index.html), include:

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OEHHA, 2008, [Development of Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in Sport Fish](#): Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene [06/28/08]

OEHHA, 2006, [General Protocol for Sport Fish Sampling and Analysis](#) - This report was modified on 12/14/2006 to correct a typographical error on page 4 that created potential confusion regarding the size of fish in composite samples and the "75 percent rule." [04/24/06]

OEHHA, 2006, Draft document: [Development of Guidance Tissue Levels and Screening Values for Common Contaminants in California Sport Fish](#): Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene [03/03/06]

<sup>6</sup> A list of California Lakes and Reservoirs impaired by mercury is available on the State Water Resources Control Board website here: [http://www.waterboards.ca.gov/water\\_issues/programs/mercury/reservoirs/](http://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs/)

Additionally, an interactive map where you can look up impaired water bodies is available here: [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)

Information on the State Water Resources Control Board's ongoing efforts to address mercury in California's water bodies is available here: [http://www.waterboards.ca.gov/water\\_issues/programs/mercury/](http://www.waterboards.ca.gov/water_issues/programs/mercury/)

<sup>7</sup> The US [EPA's Fish Consumption Advisories Web site](#) - This site provides general information on fish advisories, public information materials, technical guidance documents, and related links. The Joint Federal Advisory on mercury and fish is available here: [http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice\\_index.cfm](http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm)