SWAMP
Surface Water Ambient Monitoring Program

Fact Sheet **Contaminants in Fish**

Contaminants in Sport Fish

Largest-Ever Survey Documents Extent of Contamination in Sport Fish in California Lakes

The State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) has released a report on a recently completed two-year survey of contaminants in sport fish from lakes and reservoirs. The report, *Contaminants in Fish from California Lakes and Reservoirs, 2007-2008*, is the largest study on contaminants in fish ever conducted in California, and presents new data on 122 lakes sampled in 2008. This adds to the 2007 dataset covering 150 lakes reported last year. The monitoring indicates that concentrations of mercury and other contaminants in indicator species are above human health thresholds in some areas of the state. The study has provided information that will be valuable in prioritizing lakes in need of further study to support development of consumption guidelines and cleanup plans, and that the public can use to be better informed about the degree of contamination of their favorite fishing spots.

Information for individual lakes included in the Lakes Survey can be obtained by clicking the link *Is It Safe to Eat Fish and Shellfish from Our Waters?* at the California Water Quality Monitoring Council's "My Water Quality" web portal at: www.CAWaterQuality.net

CALIFORNIA Water Boards

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About the Survey

The Lakes Survey was a preliminary screening of contamination in sport fish. Sport fish were evaluated because they provide information on human exposure and also represent the aquatic food chain. The species selected for sampling (primarily rainbow trout, largemouth bass, and common carp) are known to accumulate high concentrations and be good indicators of contamination problems. This screening study did not provide enough information for consumption guidelines—this would require monitoring a broader array of species with larger numbers of fish, and a much higher level of funding.

Fish tissue concentrations were compared to thresholds from two state agencies: the California Office of Environmental Health Hazard Assessment (OEHHA) and the State Water Resources Control Board (SWRCB). Measured concentrations of methylmercury, PCBs, dieldrin, DDTs, chlordanes, and selenium were compared to thresholds developed by OEHHA. Concentrations of methylmercury were also compared to the National Recommended Water Quality Criterion of 0.30 ppm published by the U.S. Environmental Protection Agency, the threshold used by SWRCB to identify impaired water bodies.

Methylmercury poses the most widespread potential health risk to persons who consume fish caught in California lakes

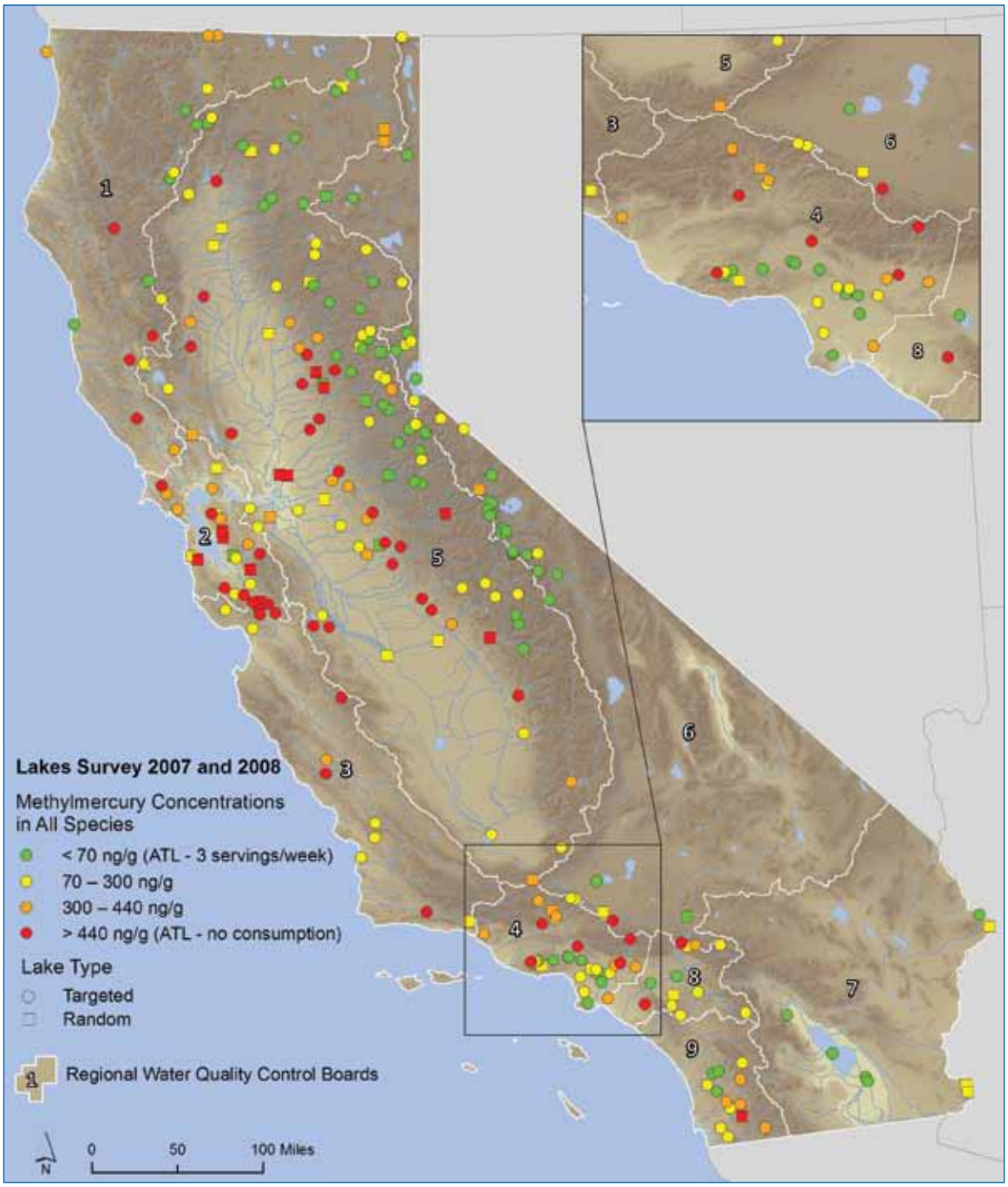
Findings

In 2007 and 2008 the study team collected 4,905 fish representing 23 different species from 272 lakes and reservoirs. The survey identified problems in certain areas of the state, with methylmercury and polychlorinated biphenyls (PCBs) being the contaminants of greatest concern.

Methylmercury poses the most widespread potential health risk to persons who consume fish caught in California lakes. Twenty-one percent of the lakes surveyed had at least one fish species with an average methylmercury level high enough (> 0.44 ppm) that OEHHA would consider recommending no consumption of contaminated species for the most sensitive population–women between 18 and 45 years of age and children between 1 and 17 years of age.

In northern California, the study commonly found low concentrations in high-elevation lakes (above two thousand feet) in the Sierra Nevada and Trinity Alps. Trout were the most frequently caught species in these lakes, and tend to accumulate relatively low methylmercury concentrations. In contrast, methylmercury concentrations in bass were higher than OEHHA's 0.44 ppm threshold in 48% of the lower elevation lakes (below two thousand feet) surveyed in northern California. Southern California had moderate methylmercury contamination, with 15% of the sampled lakes above 0.44 ppm.

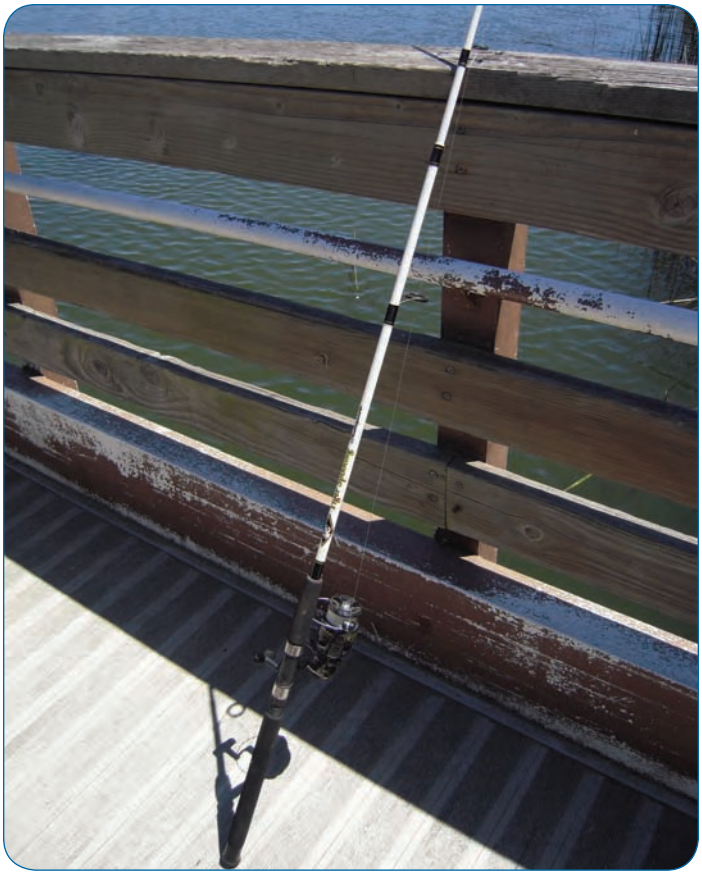
Mercury contamination of California water bodies is largely a legacy of historic mercury and gold mining, but can also reach lakes from local and global emissions to the atmosphere. In spite of the extensive mining activity in California, however, the degree of mercury contamination in the state's lakes is not that unusual and is comparable to the average condition observed across the U.S. in a recent national lakes survey.



Methylmercury concentrations in sport fish at lakes sampled in 2007 and 2008. Each point represents the highest average methylmercury concentration among the species sampled in each lake. In northern California, high-elevation trout lakes in the Sierra Nevada and Trinity Alps (above two thousand feet), commonly had low concentrations. In contrast, methylmercury concentrations were higher than OEHHA's 0.44 ppm threshold in 48% of the lower elevation lakes (below two thousand feet) surveyed in northern California. Southern California had moderate methylmercury contamination, with 15% of the sampled lakes above 0.44 ppm.

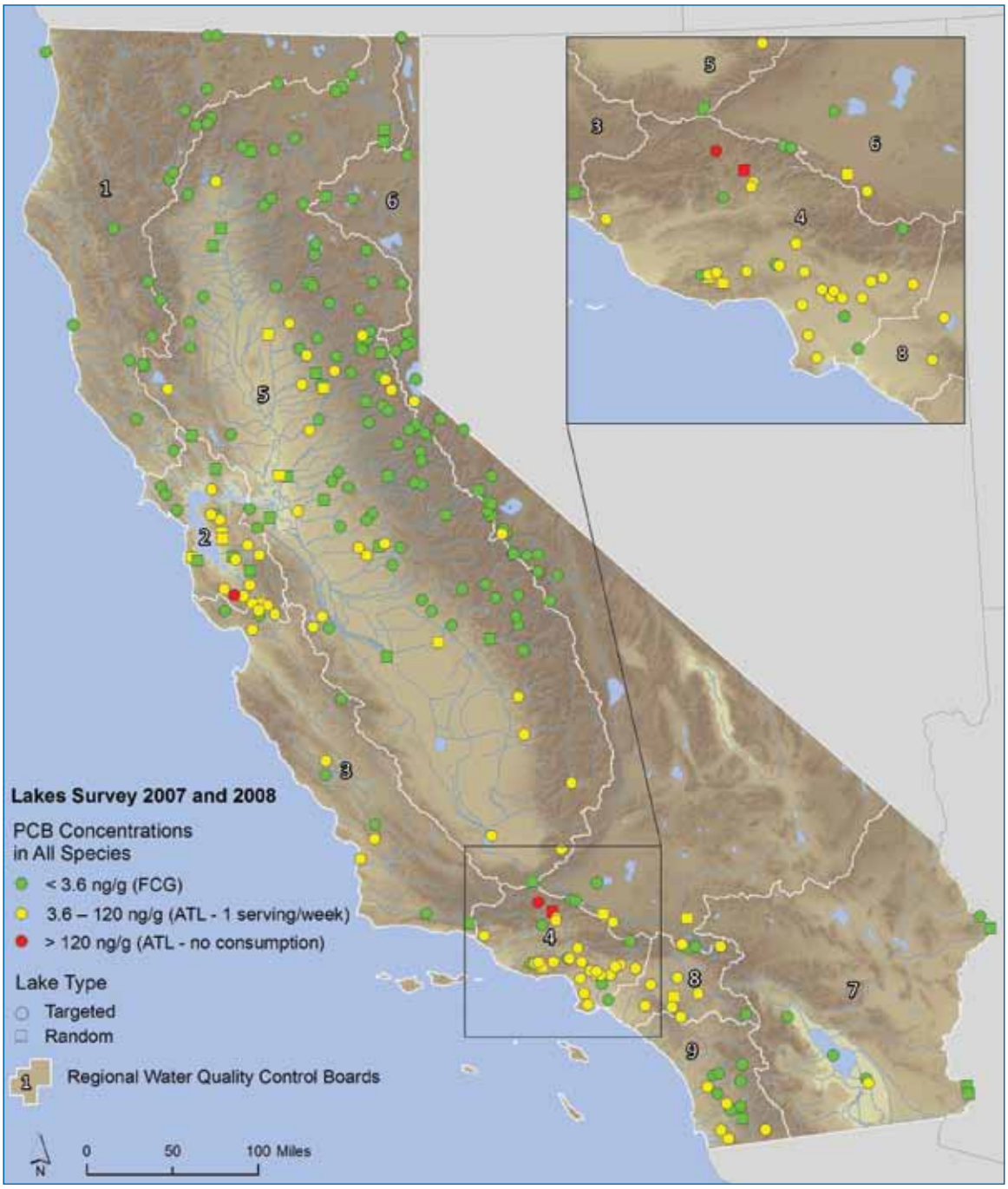
PCBs were second to methylmercury as a potential health concern to consumers of fish caught from California lakes. However, only 1% of the lakes sampled had a species with an average PCB concentration that exceeded 120 ppb, OEHHA's threshold for consideration of a no consumption recommendation. PCBs are persistent chemicals that are now banned, but were commonly used in electrical, industrial and other applications. Concentrations of other pollutants (dieldrin, DDT, chlordane, and selenium) were generally low, and infrequently exceeded OEHHA thresholds.

Results from the first year of a two-year survey of contaminants in sport fish from California coastal waters will be available in May 2011



This initial screening study was the first step in an effort to identify and quantify contaminants in California's lakes to evaluate exposure and risk in humans and wildlife. The Lakes Survey was funded by the United States Environmental Protection Agency (USEPA) and monitoring fees collected by the State Water Board for wastewater discharge permits.

The Lakes Survey was the first component of a new program that is tracking sport fish contamination in California lakes, coastal waters, and rivers and streams. Results from the first year of a two-year survey of contaminants in sport fish from California coastal waters will be available in May 2011.



PCB concentrations in sport fish at lakes sampled in 2007 and 2008. Each point represents highest average PCB concentration among the species sampled in each lake. PCBs were second to methylmercury as a potential health concern for consumers of fish caught in California lakes. However, only 1% of the lakes sampled had a species with an average PCB concentration that exceeded 120 ppb, OEHHA's threshold for considering a no consumption recommendation.

Lake Berryessa, Napa County.

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