SWAMP
Surface Water Ambient Monitoring Program

Fact Sheet | Lakes

California Lakes

New Monitoring Program Reveals Widespread Contamination of Fish in California Lakes

Overview

The State Water Resources Control Board has released a report, *Contaminants in Fish from California Lakes and Reservoirs*, that presents initial results from an extensive statewide survey. The monitoring indicates that concentrations of mercury in indicator species are above human health thresholds across much of the state. PCBs were second to mercury in exceeding thresholds, although far fewer lakes reached concentrations that pose potential health concerns to consumers of fish from California lakes. Concentrations of other pollutants were generally low and infrequently exceeded thresholds.

The report, a product of the Surface Water Ambient Monitoring Program, presents findings from the first year of a two-year study. This Lakes Survey marks the beginning of a new program that will track sport fish contamination in California lakes, rivers, streams, and coastal waters.

The Lakes Survey sampled more than 200 of the most popular fishing lakes in the state and also conducted a random sampling of 50 of California's other 9,000 lakes to provide a statistical statewide assessment. This Survey is a preliminary screening

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of contamination in sport fish from these lakes. The species selected for sampling are known to accumulate high concentrations and be good indicators of contamination problems. This study is not providing consumption advice – this would require more detailed monitoring (with a broader array of species and larger numbers of fish analyzed) and a much higher level of funding.

The report presents results from monitoring in 2007. In 2007, the study team collected over 6,000 fish from 150 lakes and reservoirs. The team sampled another 130 lakes in 2008. Results from this second round of sampling will be available in 2010. Fish tissue concentrations were evaluated using thresholds developed by the California Office of Environmental Health Hazard Assessment (OEHHA) for methylmercury, PCBs, dieldrin, DDTs, chlordanes, and selenium.

Findings

Lakes were considered "clean" if all average pollutant concentrations in all species were below all OEHHA thresholds. Only 15% of the lakes sampled in 2007 were in the clean category. Problems may have been missed in some of these clean lakes due to the limited scope of this screening study. Nevertheless, falling into the clean category in this survey is a positive outcome indicating that an indicator species in a lake has pollutant concentrations that are below thresholds for concern.

Methylmercury poses the most widespread potential health risk to persons who consume fish caught in California lakes. Twenty-six 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 the contaminated species for women

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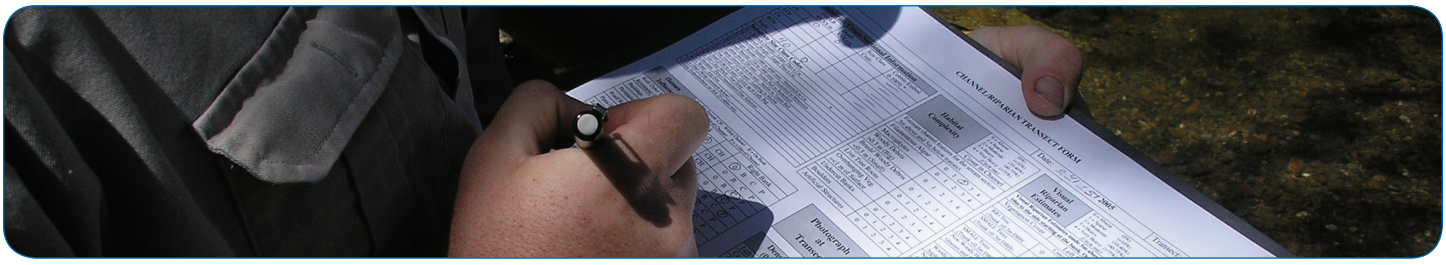
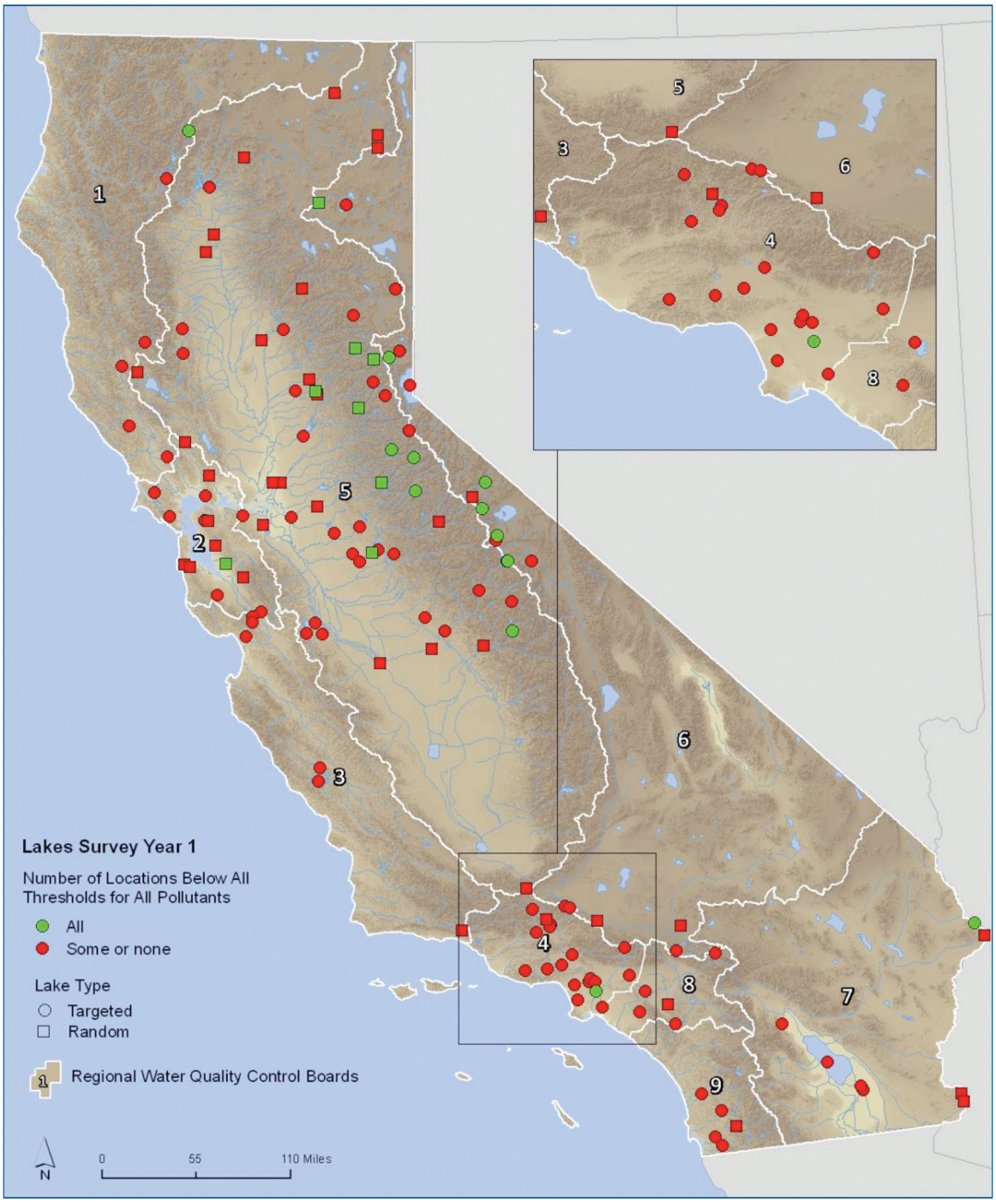




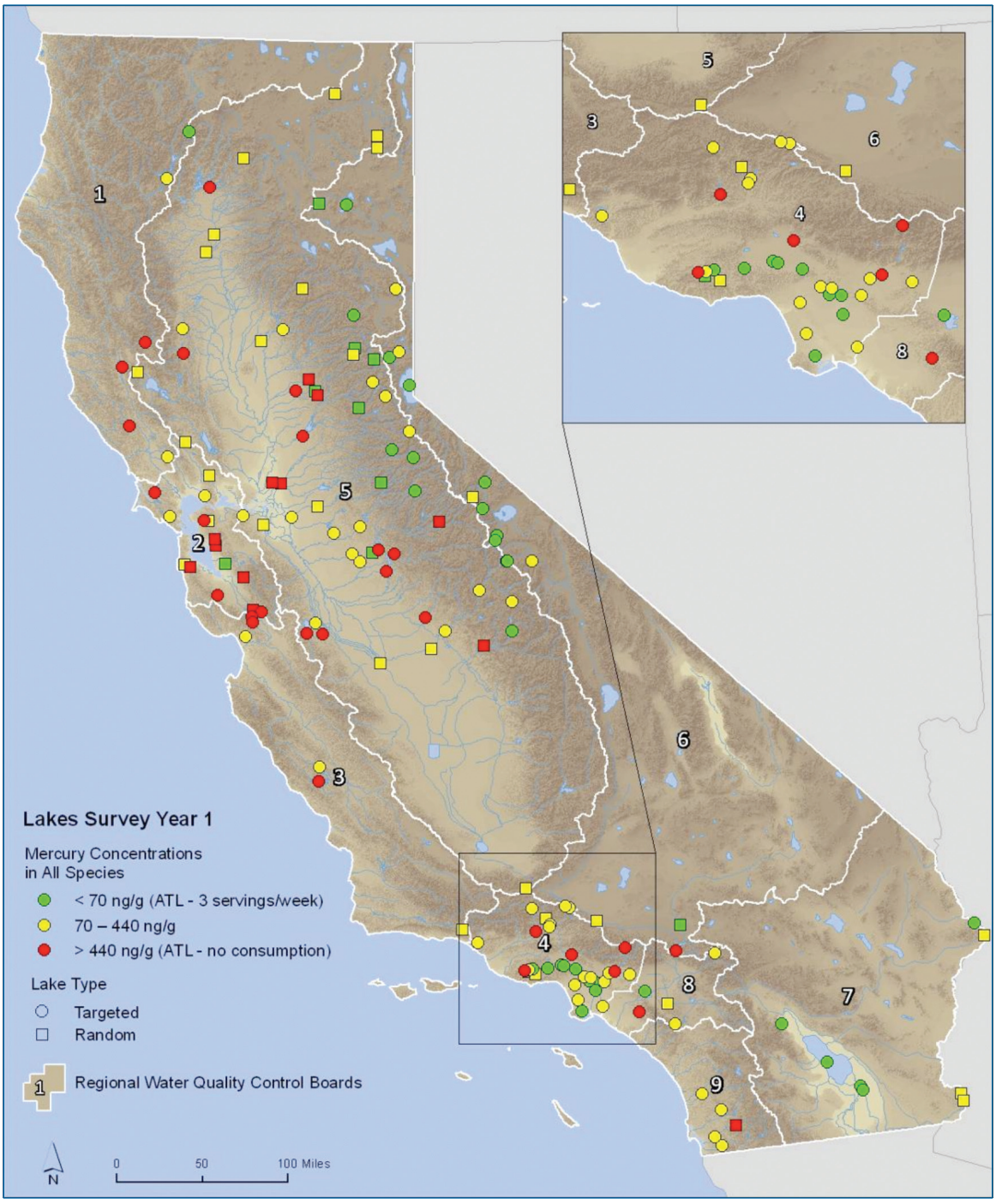
Lakes that were below thresholds. Thresholds used are OEHHA's Advisory Tissue Levels and Fish Contaminant Goals. Concentrations are based on location composites and individual fish, from both targeted (circles) and random (squares) lakes. Colors represent the number of locations at each lake with all contaminants below thresholds.

between 18 and 45 years of age and children from 1 to 17 years of age. In northern California, the study commonly found low concentrations in high-elevation (above two thousand feet) lakes in the Sierra Nevada and Trinity Alps. Trout were the most frequently caught species in these lakes, and tend to accumulate relatively low mercury concentrations. In contrast, methylmercury concentrations in bass from lower elevation (below two thousand feet) lakes in northern California were often higher than 0.44 ppm. Most of the indicator species in the fifty five lakes in southern California were also above thresholds, and fifteen percent had a species average above 0.44 ppm.

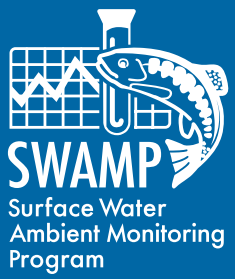
PCBs were second to methylmercury in reaching concentrations of potential health concern to consumers of fish caught from California lakes. Approximately 37% of the lakes had a fish species with an average PCB concentration above the lowest OEHHA threshold (3.6 ppb). In contrast to methylmercury, only 1% of the lakes sampled had a species with an average concentration high enough that OEHHA would consider recommending no consumption of the contaminated species (120 ppb).

Southern California had the highest PCB concentrations, with 60% of lakes above 3.6 ppb. In northern California, low concentrations were commonly observed in high-elevation lakes in the Sierra Nevada and Trinity Alps (only 7% of lakes were above 3.6 ppb), and concentrations were generally greater in lower elevation lakes (41% of lakes above 3.6 ppb).

Concentrations of other pollutants (dieldrin, DDT, chlordane, and selenium) were generally low, and infrequently exceeded OEHHA thresholds. The high elevation lakes of northern California in this study never exceeded any OEHHA threshold for these pollutants.



Highest species average mercury concentrations at lakes sampled in Year 1 of the Lakes Survey. Concentrations based on location composites and individual fish, from both targeted (circles) and random (squares) lakes. Colors represent mercury concentration categories. The threshold values are for women 18-45 and children 1-17 years. The thresholds are only one of the factors OEHHA considers when developing advisories and safe eating guidelines.



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