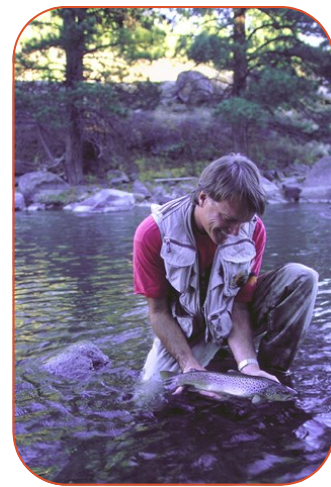


SWAMP Survey of Contaminants in Sport Fish in California Rivers and Streams

What is it?

In 2013 SWAMP released findings from the first statewide survey of contaminants in sport fish from California rivers and streams. The report, *Contaminants in Sport Fish from California Rivers and Streams, 2011*, presents the results from the collection of 568 fish representing 16 species from 63 locations.

Sport fish were evaluated because they provide information on human exposure and also the condition of the aquatic food web. If possible, multiple species were collected at each location. Many high elevation locations were dominated by a single species and therefore only one species was collected at these locations. The array of species selected for sampling included those known to accumulate high concentrations of contaminants and therefore serve as informative indicators of potential contamination problems.



Why is it important?

Contaminants that accumulate in the food web (or “bioaccumulate”) exceed levels of concern in water bodies throughout California, posing threats to the health of humans and wildlife that consume contaminated aquatic biota. Bioaccumulation of methylmercury, PCBs, and other contaminants has led to fish consumption advisories, 303(d) listings, and total maximum daily loads in many locations across the state. Existing information on spatial patterns and temporal trends suggests that other locations that have either not been monitored or monitored less thoroughly may also have similar problems.

Recreational fishing is an important element of the California economy. Data gathered for 2006

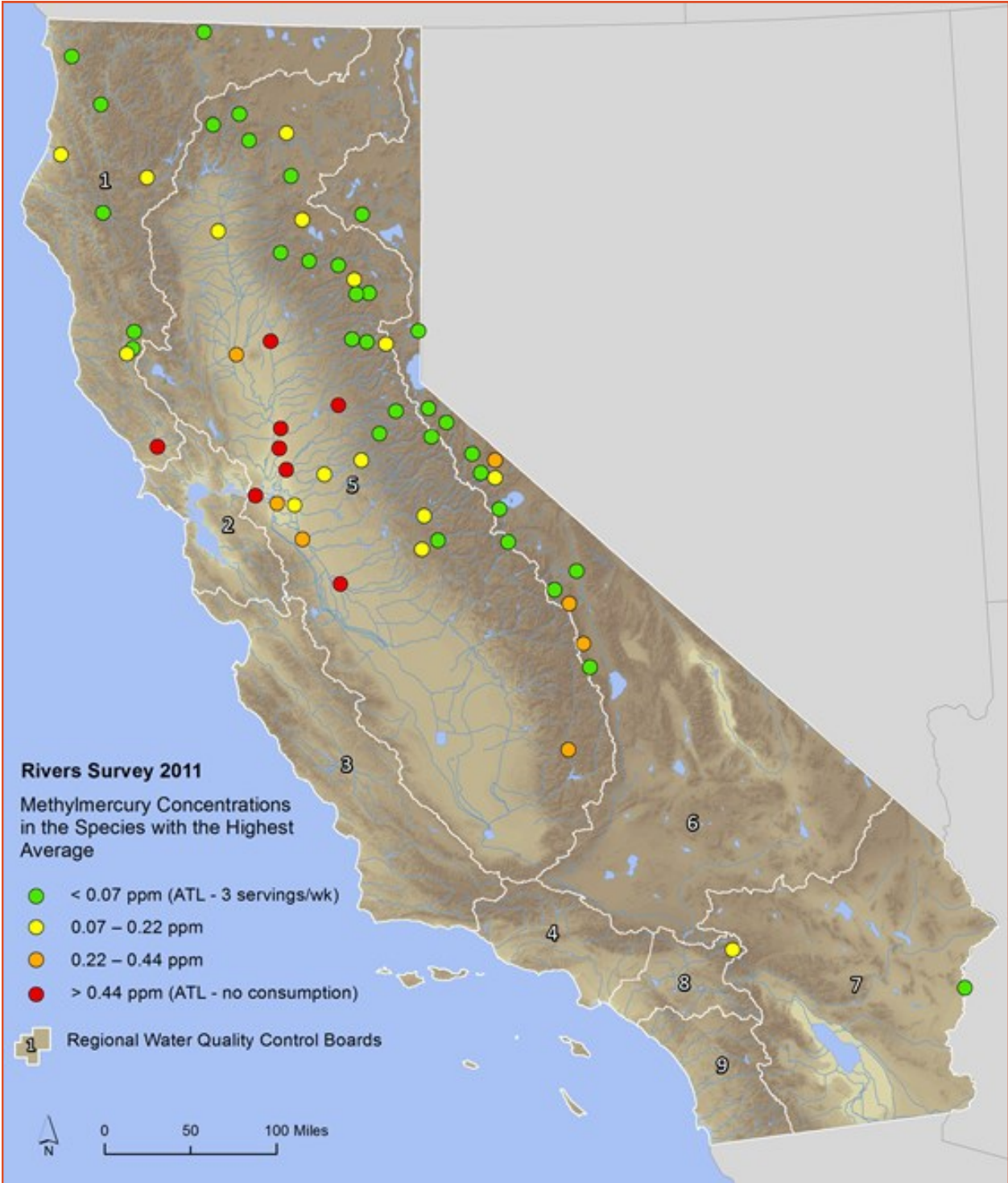
indicate that there are over 1.2 million freshwater anglers in California that spend over 12.3 million days fishing per year (Allen and Southwick 2008). Another 760,000 anglers fish in saltwater habitats. Combined, these freshwater and saltwater anglers spent over \$2.7 billion in 2006 in retail sales related to fishing, the fourth highest value among the 50 states. The overall impact on the California economy is estimated at \$4.8 billion per year.

In spite of the importance of fisheries in rivers and streams to the economy and as a source of food for Californians, no systematic statewide monitoring of contaminants in fish from these habitats has yet been performed. This report summarizes results from a one-year statewide screening survey of contaminants in sport fish from California rivers and streams. The report represents a significant advance in understanding the extent of chemical contamination in sport fish across the state, and completes a five-year effort to survey sport fish in different water body types.

Contaminant concentrations were found to be low at the majority of locations sampled. However, the results indicate that methylmercury accumulation is of high concern in the Sacramento-San Joaquin Delta region. Methylmercury is generally a low concern in high elevation locations where trout species predominate. Concentrations of the other contaminants measured rarely exceeded Office of Environmental Health Hazard Assessment (OEHHA) thresholds that would indicate a potential need for reduced consumption.

Methylmercury is the contaminant that poses the greatest concern for consumers of fish caught in California rivers and streams. Most of the 63 locations sampled (51%) had low concentrations of methylmercury (<0.07 ppm). Eight of the locations (13%) were in the high contamination category, with average methylmercury concentrations in the most contaminated species exceeding 0.44 ppm. Fifteen locations (24%) had a species above 0.22 ppm. Overall, 87% of the locations had average methylmercury concentrations below 0.44 ppm in the most contaminated species.

Most of the locations in the high contamination category for methylmercury were in the Delta and in nearby Delta tributaries. The only other location with a concentration in the high category was the Laguna de Santa Rosa in Sonoma County. Concentrations of the other contaminants measured (PCBs; selenium; and the legacy pesticides, dieldrin, DDTs, and chlordanes) rarely exceeded OEHHA thresholds that would indicate a potential need for reduced consumption.



Other less-contaminated species were frequently present alongside the species with high concentrations at the contaminated locations, suggesting that safe fish consumption at a frequency of more than one serving per week is possible at the vast majority of locations if the cleaner species are selected.

How will this information be used?

Results from the Survey will be used by the State and Regional Water Boards to prioritize rivers and streams in need of cleanup plans or further monitoring. 303(d) listings and consumption advisories are already in place for many of the areas sampled in this Survey. This study has provided information that the public can access through the [My Water Quality](#) web portal to be better informed about the degree of contamination of popular fishing spots.

For more information:

- The My Water Quality Web Portal, "[Safe to Eat](#)" webpage
- [Media coverage](#) of the report (SFEI website)
- [Bioaccumulation Oversight Group](#) webpage
- Contact: Dr. Jay Davis (jay@sfei.org)