The Surface Water Ambient Monitoring Program's Report on Contaminants in Fish from Lakes and Reservoirs in California *(Lilian Busse)*

The Surface Water Ambient Monitoring Program (SWAMP) has released findings from California's largest survey of contaminants in sport fish from lakes and reservoirs ("Lake Survey"). This report summarizes the data from the two-year study. The survey was funded by the United States Environmental Protection Agency (USEPA) and by waste discharge permits fees to the State Water Board. The San Francisco Estuary Institute led the survey on behalf of the State Water Board.

The survey is a preliminary screening of contamination in sport fish of 222 of the most popular fishing lakes and 50 randomly selected lakes in California. The survey focuses on sport fish (primarily rainbow trout, largemouth bass, and common carp) because they provide information on human exposure and also represent the top of the aquatic food chain. Several thresholds by the Office of Environmental Health Hazard Assessment (OEHHA) were applied to the dataset: (1) *Fish Contaminant Goals (FCG)*: estimates of contaminant levels in fish that pose no significant health risk to humans consuming sport fish at a standard consumption rate of one serving per week, (2) *Advisory Tissue Levels (ATL)*: thresholds that still confer no significant health risk to individuals consuming sport fish in the quantities shown over a lifetime, but take into account the unique health benefits associated with fish consumption and expand the advisory process beyond a simple risk paradigm in order to best promote the overall health of the fish consumer. ATLs are used by OEHHA in developing fish consumption advisories. ATLs have been established for a range of different consumption rates. For example, "no consumption ATLs" are set at levels at which OEHHA would recommend no fish consumption for woman of child bearing age and children.

The survey found methylmercury and polychlorinated biphenyls (PCBs) are the contaminants of greatest concern. Other pollutants including dieldrin, DDT, chlordanes, and selenium were also found but generally at low levels. Mercury contamination is largely a legacy of California mining, but can also reach lakes via atmospheric deposition. PCBs are persistent chemicals that were used primarily in electrical and industrial applications, and tend to be concentrated in urban centers with high amounts of industrial activity.

The following thirteen lakes and reservoirs were sampled in the San Diego region: Lake Henshaw, Lake Wohlford, Dixon Lake, Lake Sutherland, Lake Hodges, Lake Poway, San Vincent Reservoir, El Capitan Lake, Lake Jennings, Loveland Reservoir, Sweetwater Reservoir, Morena Reservoir, and Lower Otay Reservoir. Loveland Reservoir is the only lake where fish samples exceeded the OEHHA no consumption ATL for methlylmercury. Ten of the lakes exceeded the ATL level of OEHHA for methylmercury for three servings per week. For PCB concentrations, none of the lake or reservoirs exceeded the OEHHA no

consumption levels, but five of the lakes in the San Diego region exceeded the fish contaminant goal for PCBs. Lower Otay Reservoir exceeded the ATL of OEHHA for 2 servings per week.

This survey was the first component of the program tracing sport fish contamination in all water bodies in California. Currently California coastal waters are being surveyed (2009 and 2010). Sport fish from rivers and streams will be sampled in 2011. The public can access results from this survey through the California Water Quality Monitoring Councils "My Water Quality" web portal at: http://www.waterboards.ca.gov/mywaterquality/.
The lake report can be downloaded here:
http://waterboards.ca.gov/water_issues/programs/swamp/lakes_study.shtml