



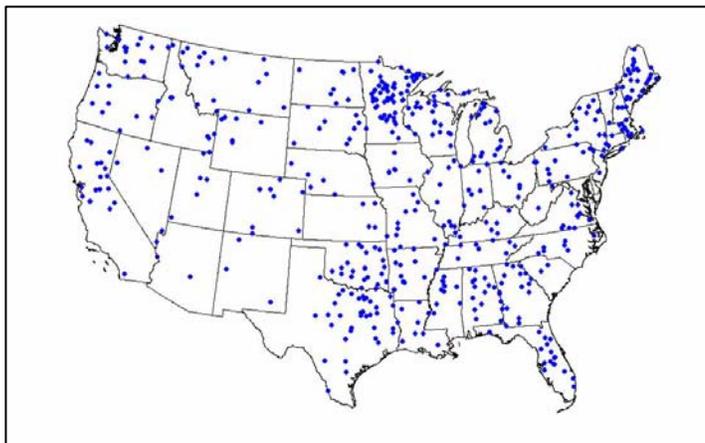
# EPA Releases Report on Fish Contamination in U.S. Lakes and Reservoirs

EPA is releasing the final report for the National Study of Chemical Residues in Lake Fish Tissue, a statistically-based national survey of contaminants in fish from lakes and reservoirs in the lower 48 states. For four years, EPA worked with 47 states, three tribes, and two other federal agencies to collect fish from 500 lakes and reservoirs selected randomly from the estimated 147,000 target population of lakes and reservoirs in the 48 states. Analysis of fish samples included 268 persistent, bioaccumulative, and toxic (PBT) chemicals, most notably mercury, polychlorinated biphenyls (PCBs), and dioxins and furans. Results show that mercury and PCBs were detected in every fish sample from all 500 lakes and reservoirs. Mercury concentrations in fish fillet samples exceeded EPA's recommended tissue-based water quality criterion of 0.3 ppm at 49% of the sampled population of 76,559 lakes.

## Background

EPA completed the largest national freshwater fish contamination survey conducted to date in the United States, the National Study of Chemical Residues in Lake Fish Tissue (or National Lake Fish Tissue Study). Two features make this study unique. It is the first national freshwater fish contamination survey to have sampling sites selected according to a statistical design, and it includes the largest set of chemicals ever studied in lake fish. The statistical survey design allowed EPA to estimate the percentage of lakes and reservoirs in the lower 48 states with fish tissue concentrations above levels of potential concern for human or ecosystem health. The study also provided the first nationally representative estimates of median concentrations of 268 PBT chemicals in lake fish and defined a national baseline for tracking reductions of these chemicals in freshwater fish as a result of pollution control activities.

EPA worked with 47 states, three tribes, the National Park Service, and Tennessee Valley Authority for four years (2000-2003) to collect fish from 500 lakes and reservoirs selected randomly from the estimated 147,000 target population of lakes and reservoirs in the lower 48 states. The lakes and reservoirs sampled for the study ranged in size from 2.5 to over 900,000 surface acres. Teams of biologists used consistent methods nationwide to collect samples of a predator fish species (e.g., bass or trout) and a bottom-dwelling species (e.g., catfish or carp) from each lake or reservoir. EPA analyzed fillets from the



National Lake Fish Tissue Study Sampling Locations (500 lakes)

predator samples and whole bodies for the bottom-dweller samples. Target chemicals for this study included mercury, 5 forms of inorganic and organic arsenic, all 209 PCB congeners (analysis of these individual PCB compounds produces 159 tissue concentration measurements), 17 dioxins and furans, 46 pesticides, and 40 other semivolatile organic chemicals.

## **Results**

Results from the National Lake Fish Tissue Study show that mercury and PCBs are widely distributed in U.S. lakes and reservoirs. Mercury and PCBs were detected in all of the fish samples collected from the 500 lakes and reservoirs selected for the study. Dioxins and furans were also frequently detected in the fish samples, but they were not as prevalent in lake fish as mercury or PCBs.

The statistical design of the study allowed EPA for the first time to estimate the percentage of lakes and reservoirs in the lower 48 states with fish tissue concentrations above human health screening values. These estimates relate to a sampled population of 76,559 lakes for fillet concentrations from predator (or game fish) samples collected and analyzed for the study. To develop these estimates, EPA used human health screening values of 0.3 ppm for mercury, 0.12 ppb for total PCBs, and 0.15 ppt (toxic equivalency or TEQ) for total dioxins and furans. Results for the three most commonly detected chemicals indicate that:

- 49% of the sampled population of lakes had mercury tissue concentrations that exceeded the 0.3 ppm screening value for mercury, which represents over 36,000 lakes.
- 17% of the sampled population of lakes had PCB tissue concentrations that exceeded the 0.12 ppb screening value for total PCBs, which represents about 13,000 lakes.
- 8% of the sampled population of lakes had dioxin and furan tissue concentrations that exceeded the 0.15 ppt screening value for total dioxins and furans, which represents about 6,000 lakes.

## **Data Requests**

Due to the size of the data files, EPA released data from the National Lake Fish Tissue Study on a set of CDs. These CDs contain quality-assured raw data for all four years of the study in Excel files, a data dictionary to aid in interpreting the data files, and the final analytical data quality assurance report. The data CDs are available at no charge. To order the CDs, contact Leanne Stahl online at [stahl.leanne@epa.gov](mailto:stahl.leanne@epa.gov) and provide your name, mailing address, and phone number.

## **For More Information**

For more information on the National Lake Fish Tissue Study, please contact Leanne Stahl, EPA's National Lake Fish Tissue Study Manager, by e-mail at [stahl.leanne@epa.gov](mailto:stahl.leanne@epa.gov) or by phone at 202-566-0404. Additional information about the fish study is available online at [www.epa.gov/waterscience/fishstudy/](http://www.epa.gov/waterscience/fishstudy/).