



## Fact Sheet: 2005 Update

### ***The National Study of Chemical Residues in Lake Fish Tissue***

#### **Summary**

*The U.S. Environmental Protection Agency is conducting a national freshwater fish contamination survey to estimate the national distribution of selected persistent, bioaccumulative and toxic chemicals in fish tissue from lakes and reservoirs of the contiguous United States (lower 48 states). This study will provide the first national estimates of mean concentrations of 268 chemicals in lake fish, define a national baseline to track progress of pollution control activities, and identify areas where contaminant levels are high enough to warrant further investigation.*

#### **Background**

Monitoring fish for chemical contamination in lakes and reservoirs is a critical activity for protecting human health because these areas are important for sport fishing and other recreational activities. The 2004 update to EPA's National Listing of Fish and Wildlife Advisories reports that 35% of the Nation's lake acres are under fish consumption advisories.

Lakes and reservoirs occur in a variety of landscapes and can receive contaminants from several sources, including direct discharges into the water, air deposition, and agricultural or urban runoff. Lakes are the focus of this study because they are environments where contamination accumulates and is more readily detectable.

EPA initiated the National Study of Chemical Residues in Lake Fish Tissue (or National Lake Fish Tissue Study) in 1998 as a priority activity under the Agency's Persistent, Bioaccumulative and Toxic (PBT) Chemical Program. It supports the PBT Program by providing data for a large set of chemicals in fish that could affect the health of people and wildlife that eat fish from these environments.

#### **Why is this study important?**

The National Lake Fish Tissue Study is important because it:

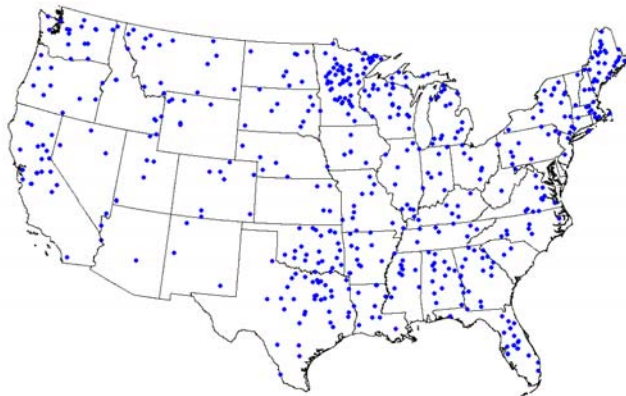
- ◆ Allows EPA for the first time to develop national estimates of the mean levels of persistent, bioaccumulative and toxic chemicals in lake fish.
- ◆ Provides a national baseline for tracking reductions of persistent, bioaccumulative and toxic chemicals in freshwater fish as a result of pollution control activities.

#### **What are the basic elements of the study design?**

EPA worked with partner agencies over a four-year period (2000-2003) to collect fish from 500 lakes and reservoirs selected randomly from the estimated 147,000 target lakes and reservoirs in the lower 48 states. The lakes are divided into 6 size categories, ranging from 2.5 to over 900,000 surface acres, with a similar number of lakes in each category. Before sampling, field teams verified that each lake is a permanent body of water with a depth of at least one meter.

Sampling teams applied consistent methods nationwide to collect composites of one predator species and one bottom-dwelling species at each lake. Composites consisted of 5 adult fish of similar size that were large enough to provide 560 grams (20 ounces) of tissue for analysis of fillets for predators and whole bodies for bottom dwellers. EPA analyzed each composite for 268 chemicals (including PCB congeners) and added PBDE analysis for fourth year fish samples only.

### 500 Sampling Locations



### What chemicals did EPA select for the study?

EPA analyzed the fish tissue for:

- ◇ 2 metals (mercury and 5 forms of arsenic)
- ◇ 17 dioxins and furans
- ◇ 159 PCB congener measurements
- ◇ 46 pesticides
- ◇ 40 other organics (e.g., phenols)
- ◇ 46 PBDE congeners (1 year only)

### Who is participating in the study?

EPA formed a national network of partners to evaluate lakes and collect fish for the study, including:

- ◇ 47 States
- ◇ 3 Tribes
- ◇ National Park Service and Tennessee Valley Authority

### What are the key study accomplishments and milestones?

The study consists of four phases:

#### *Planning (1998-1999)*

- ✓ study design development
- ✓ statistical lake selection
- ✓ target chemical selection

#### *Mobilization (1999-2000)*

- ✓ orientation workshops
- ✓ production of quality assurance plans and field sampling plan
- ✓ lake reconnaissance

#### *Sampling and Tissue Analysis (2000-2005)*

- ✓ sampling of 500 lakes through 2003
- ✓ chemical analysis of 1003 fish samples through 2005
- ✓ chemical analysis of 352 fish samples for PBDEs in 2005

#### *Data Analysis and Reporting (2005-2006)*

- statistical analysis of fish tissue data
- production of final report
- data upload into EPA's STORET

### What results are currently available?

Quality-assured results from all 500 lakes sampled during 2000 through 2003 are now available. To obtain these results on CDs, see contact information below.

### Who do I contact for more information?

Leanne Stahl  
OW/OST (4305T)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
(202) 566-0404  
stahl.leanne@epa.gov

**Visit the Fish Study website at:**  
[www.epa.gov/waterscience/fishstudy/](http://www.epa.gov/waterscience/fishstudy/)