

2011

National Listing of Fish Advisories

EPA-820-F-13-058
December 2013

Since 1993, the U.S. Environmental Protection Agency (EPA) has made available to the public an annual compendium of information on locally issued fish advisories and safe eating guidelines. This information is provided to EPA by the states, U.S. territories, Native American tribes, and local governments that issue fish consumption advisories and safe eating guidelines to inform people about the recommended level of consumption for fish caught in local waters. Fish consumption advisories provide advice to limit or avoid eating certain fish due to contamination with chemical pollutants. Safe eating guidelines are designations of monitored waters where there are no restrictions on eating specific types of fish. The **2011 National Listing of Fish Advisories (NLFA)**¹ database shows that the number of fish advisories issued continues to rise as additional waters are sampled.



The 2011 NLFA is available online at:

<http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories>

Background

All 50 states, the District of Columbia, the U.S. territories of American Samoa and Guam (for simplicity, referred to here as “states”) and five Native American tribes have fish consumption advisories in place to protect consumers from the potential health risks of eating contaminated fish caught in local waters. The states and tribes have developed their own fish advisory programs over the years, and there is variability among states and tribes in the scope and extent of monitoring and in the specific advice that is provided when contaminated fish are found. Because of this variability, it is difficult to draw national conclusions or to establish national trends in fish advisories.

A fish consumption advisory is not a regulation, but rather a recommendation

issued to help protect public health. These advisories may include recommendations to limit or avoid eating certain fish and wildlife species caught from specific waterbodies or from waterbody types (e.g., all lakes) due to chemical contamination. An advisory may be issued for the general public, including recreational and subsistence fishers, or it may be issued specifically for sensitive populations, such as pregnant women, nursing mothers, and children.

A specific waterbody or waterbody type may be under advisory for more than one affected fish species or chemical contaminant. For this reason, the total number of advisories does not convey the geographic extent of the waters subject to state advice. Therefore, EPA also reports



¹ This fact sheet summarizes data submitted by the states and discusses changes in advisories for the 2011 data reporting cycle. Advisory data for the 2010 reporting cycle and previous years can be found on the EPA website at water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories.



the data as the percentage of lake acres and river miles for which advisories are currently in effect on a national level (Figure 1).

States issue statewide advisories to warn the public of the potential human health risks from chemical contamination of certain species of fish from all waterbodies within the state. States also issue safe eating guidelines to inform the public that fish from specific waterbodies have been tested for chemical contaminants and that, based on those results, certain species of fish from those waterbodies are safe to eat without consumption restrictions. As states and tribes increase their monitoring activities, the quantity of available information about fish contamination also increases, resulting in better public health protection.

National Fish Advisory Program Website

The National Fish Advisory Program website (<http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/>) provides information about fish advisories, fish consumption advice, risks and benefits of fish consumption, national technical guidance and reports,

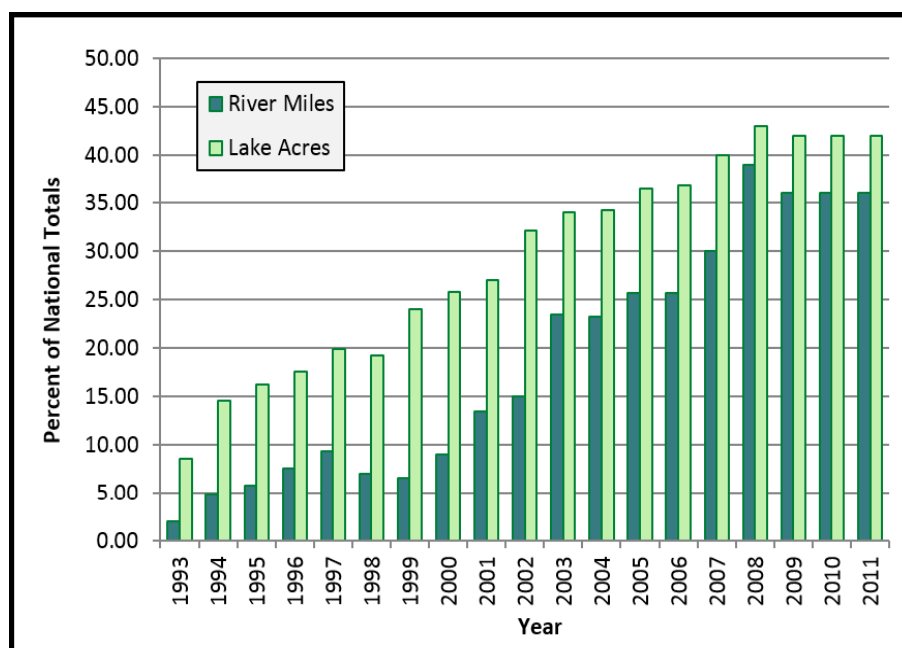


Figure 1. Percentage of total lake acres and river miles under advisory from 1993 to 2011.

the fish advisory newsletter, the NLFA database, and state fish advisory program contacts.

The NLFA database also contains data on waterbodies under advisory and the concentrations of contaminants in fish tissue for 49 states. By searching the NLFA application, users can generate national, regional, and state reports that summarize advisory and fish tissue information.

Synopsis of the 2011 National Listing of Fish Advisories

The EPA's *2011 National Listing of Fish Advisories* indicates that the number of waterbodies with active fish advisories had a net increase of 223, from 4,598 in 2010 to 4,821 in 2011.

Approximately 17.7 million lake acres and 1.36 million river miles were under advisory in 2011, representing 42.3 percent of the nation's total lake acreage and 36 percent of the nation's total river miles (Figure 1). While the number of advisories increased between 2010 and 2011, the percent of the nation's river miles under advisory remained unchanged because advisories issued were for small waterbodies. As shown in Figure 2, 37 states (including the District of Columbia) had statewide advisories in effect in 2011.

Waterbodies are often under advisory for multiple contaminants, species and/or species size classes. A change to the number of acres or miles in the national percentages reported above



Photo Credit: Rob Shaut

indicates that advisories have been issued at new waterbodies (not already under advisory for another contaminant and/or species) or that **all** active advisories have been rescinded at a particular waterbody. In 2011, five rescinded advisories were subtracted from the national total. Those advisories were in Arkansas (1), Colorado (2), and Nebraska (2).

Safe Eating Guidelines

The EPA encourages states to issue safe eating guidelines when providing advisory information to inform the public that certain species of fish from specific waterbodies have been tested and have been shown to contain very low levels of contaminants. Safe eating guidelines are recommendations for unlimited or unrestricted consumption of specific species of fish from a given waterbody. Safe eating guidelines issued

by states promote healthy eating. The states help promote recreational fishing by identifying monitored waters where designated fish are safe to eat.

Safe eating guidelines are currently in effect at 1,040 waterbodies. This represents an increase of 132 waterbodies between 2010 and 2011. In 2011, safe eating guidelines were in effect in 21 states covering approximately 53,252 river miles (2 percent of the national total as reported in 2011) and 2.9 million lake acres (10 percent of the national total as reported in 2011). The river-mile and lake-acre figures represent an increase of 7 rivers (22 miles) and 124 lakes (371,286 acres) since 2010.

Bioaccumulative Contaminants

Although there are advisories in the United States for 34 different chemical contaminants, 94 percent of all advisories in effect in 2011 involved the following five bioaccumulative

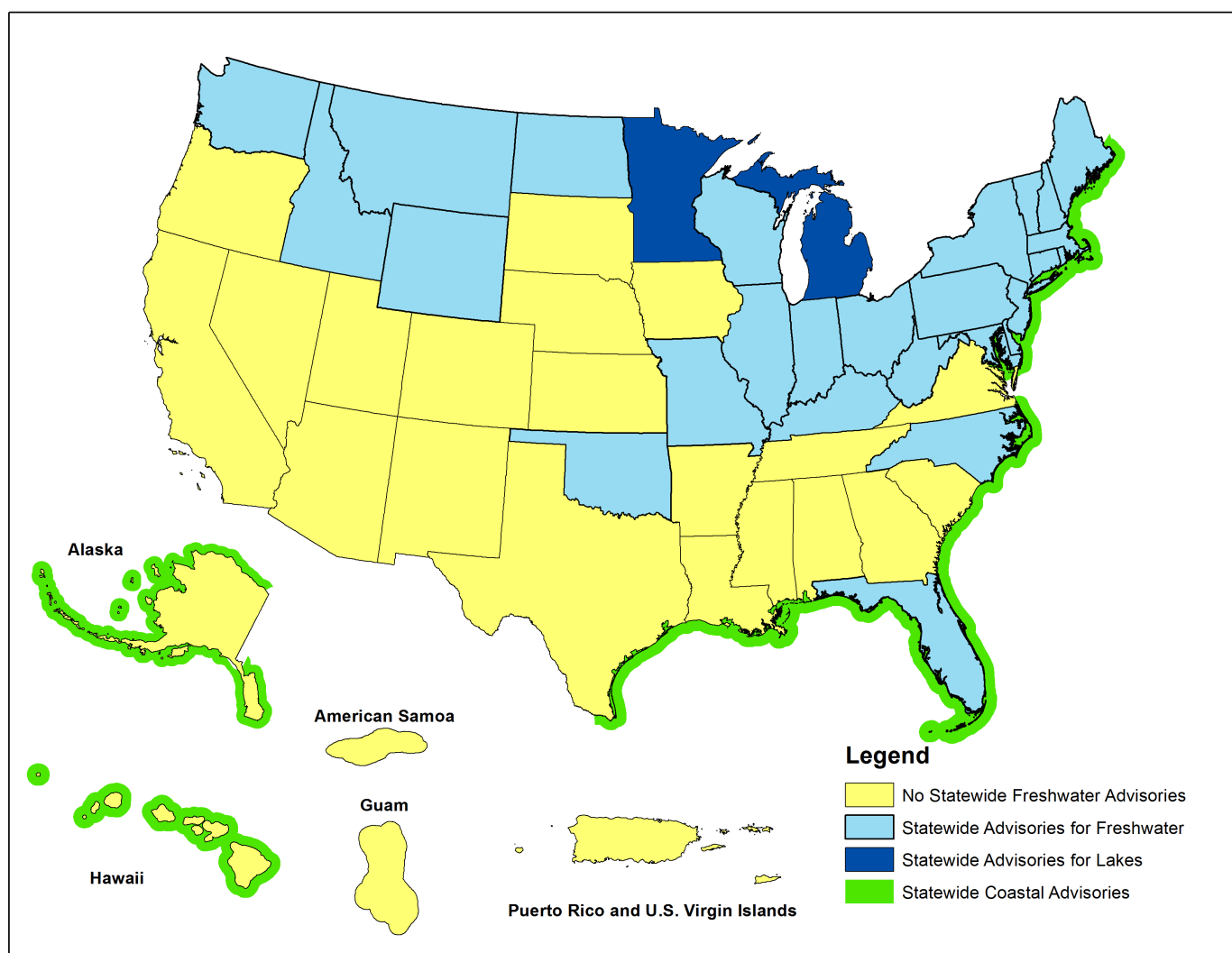


Figure 2. States with statewide advisories in effect in 2011.

2011 National Listing of Fish Advisories

chemical contaminants: mercury, polychlorinated biphenyls (PCBs), chlordane, dioxins, and dichlorodiphenyltrichloroethane (DDT) (Figures 3 and 4, Table 1). These chemical contaminants accumulate in the tissues of aquatic organisms at concentrations many times higher than concentrations in the water and can persist for many years in sediments, where bottom-dwelling organisms that are lower on the food chain can accumulate them and pass them to fish that are higher on the food chain. As a result, top predators in a food chain (e.g., largemouth bass, walleye) may have higher concentrations of bioaccumulative contaminants in their tissues than concentrations of contaminants found in the water.

Other bioaccumulative compounds that states monitor include perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and pentachloroanisole. PFOS and PFOA are known as contaminants of emerging concern, broadly defined as “a chemical or material that is a perceived, potential, or real threat to human health or the environment, or lacks published health standards. A contaminant may also be “emerging” because of the discovery of a new source or a new exposure pathway to humans, or a new detection method or treatment technology has been developed” (USEPA 2013)². While no fish advisories due to PFOA, PFOS, or pentachloroanisole were issued in 2011, several state programs are beginning to collect data for these compounds.

Mercury: As of 2011, 50 states, 1 U.S. territory, and 3 tribes had mercury advisories in effect. Eighty-one percent of all

² USEPA. (2013). *Emerging Contaminants: Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA); Emerging Contaminants Fact Sheet—PFOs and PFOA*. Retrieved October 29, 2013, from: http://www.epa.gov/fedfac/pdf/ec_technical_fs_pfos_pfoa_march_2013.pdf.

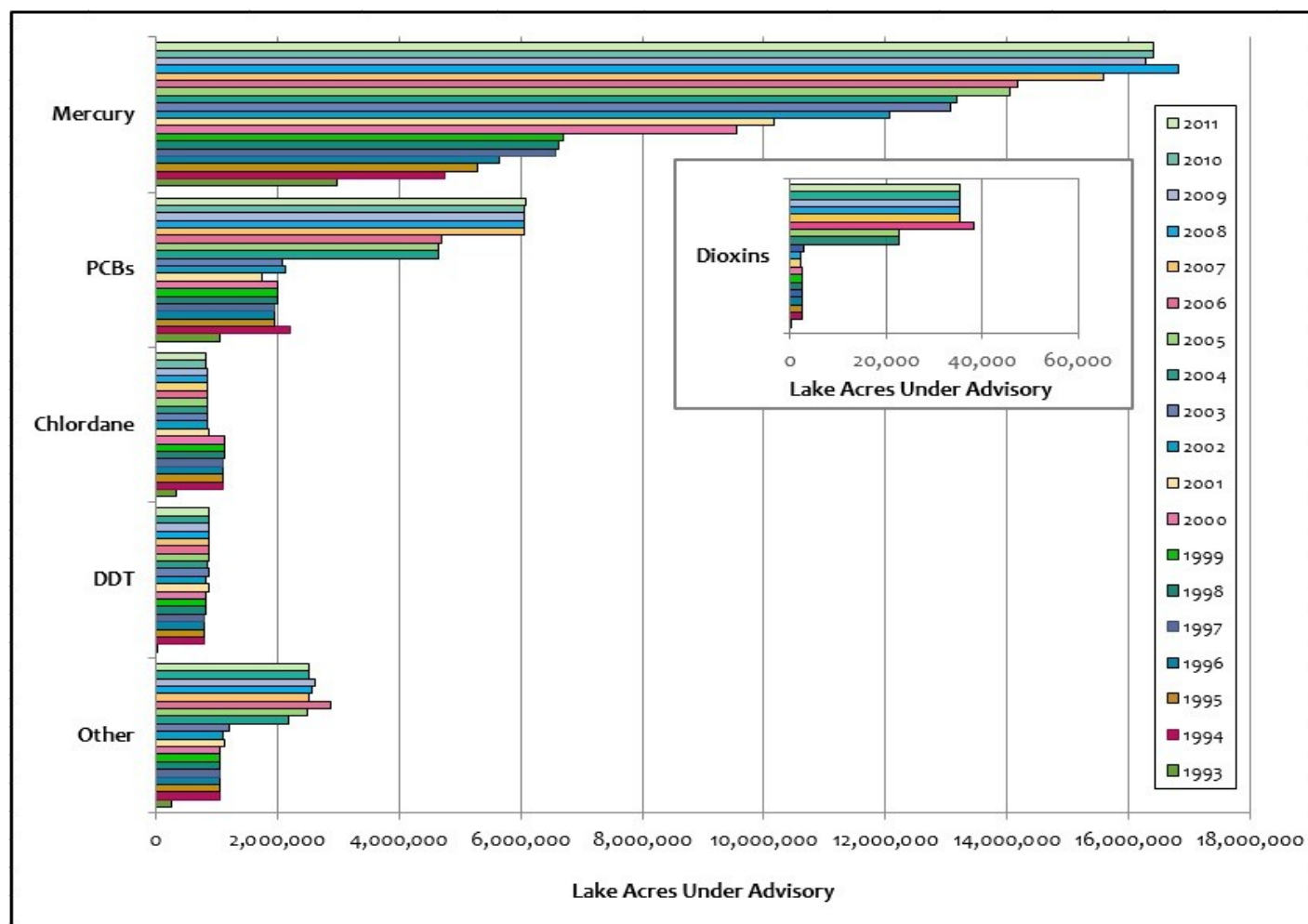


Figure 3. Total lake acres under advisory for mercury, PCBs, chlordane, dioxins, DDT, and other contaminants from 1993 to 2011.

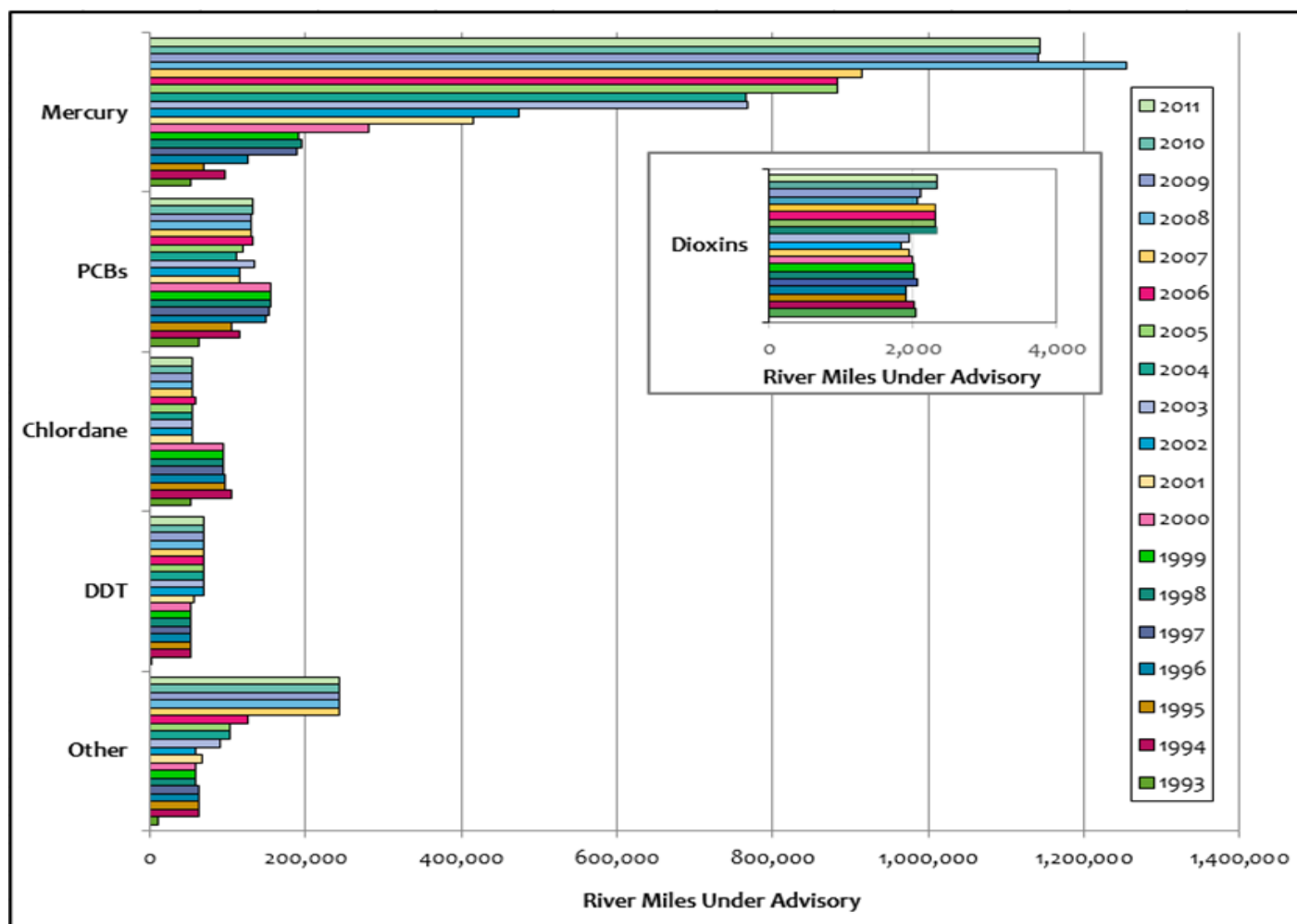


Figure 4. Total river miles under advisory for mercury, PCBs, chlordane, dioxins, DDT, and other contaminants from 1993 to 2011.

Table 1. Number of waterbodies under advisory and size of waters under advisory, by contaminant, for 2010 and 2011 — as documented in the NLFA database.

Contaminant	Number of Waterbodies Under Advisory		Lake Acres		River Miles	
	2010	2011	2010	2011	2010	2011
Mercury	3,710	3,921	16,396,422	16,404,769	1,143,327	1,144,045
PCBs	1,084	1,102	6,071,877	6,080,041	131,224	131,657
Chlordane	60	60	824,290	824,290	53,893	53,893
Dioxins	128	129	35,400	35,400	2,333	2,333
DDT	58	67	876,470	876,571	68,884	68,927

2011 National Listing of Fish Advisories

advisories in effect were issued, at least in part, because of mercury. In 2011, 211 new mercury advisories were issued (173 lakes; 37 rivers; 1 bayou). In total, approximately 16.4 million lake acres and 1.1 million river miles were under advisory for mercury in 2011, an increase of 8,347 acres and 718 miles from 2010.

PCBs: Twenty-three percent of all advisories in effect in 2011 were due to PCBs. Between 2010 and 2011, PCB advisories were issued for 8 lakes and 11 rivers. Approximately 6.1 million lake acres and 132,000 river miles were under advisory for PCBs in 2011, representing an increase of 8,154 lake acres and 433 river miles from 2010.

Chlordane: All registered uses of the pesticide chlordane were banned in the United States in 1988. Between 2010 and 2011, lake acres and river miles under advisory for chlordane remained the same. No new advisories were issued.

Dioxins: No new lake or river advisories were issued for dioxins in 2011. One new dioxin advisory was issued for an estuary in 2011. In 2011 there were 35,400 lake acres and 2,333 river miles under advisory for dioxin, the same numbers as in 2010.



Photo Credit: Rod Stuart

DDT: The use of DDT, a highly persistent organochlorine pesticide, was banned in the United States in 1975. Nine new DDT advisories were issued in 2011, increasing from 58 in 2010 to 67 in 2011. In 2011 there were 876,571 lake acres and 68,927 river miles under advisory for DDT, an increase of 101 acres and 43 miles.

Other Contaminants: In 2011, approximately six percent of all active advisories were issued for other contaminants, which include petroleum compounds, heavy metals, and organochlorine pesticides. These advisories cover approximately 2.5 million lake acres and 243,304 river miles. Aldrin is the only new contaminant for which an advisory was issued in 2011. The Texas Department of State Health Services issued an advisory for the insecticides aldrin and dieldrin after a laboratory test showed elevated levels of the contaminants along with PCBs in fish samples collected from Lake Worth, Texas.

National Advice Concerning Mercury in Fish

In 2004, the EPA and the U.S. Food and Drug Administration (FDA) issued advice for women who might become pregnant, pregnant women, nursing mothers, and children:

By adhering to the following three recommendations for selecting and eating fish or shellfish, women and young children will receive the health benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury:

- Do not eat shark, swordfish, king mackerel, or tilefish because they contain high levels of mercury.
- Eat up to 12 ounces (two average meals) each week of a variety of fish and shellfish that are lower in mercury.
 - Five of the most commonly consumed fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
 - Albacore (“white”) tuna is another commonly consumed fish that has more mercury than canned light tuna. Eat up to 6 ounces (one average meal) of albacore tuna per week.
- Check local advisories about the safety of fish caught by family and friends in local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish caught from local waters, but do not consume any other fish during that week.

Follow these same recommendations when including fish and shellfish in a young child’s diet, but serve smaller portions.

For more information about the ways to reduce mercury exposure, consult EPA’s brochure, *What You Need to Know*

About Mercury in Fish and Shellfish, available on EPA's NLFA website at http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm. On the website, this publication is available to download in several languages, including Cambodian, Chinese, Hmong, Korean, Portuguese, Vietnamese and Spanish.

EPA Fish Contamination Studies

Monitoring the concentrations of persistent, bioaccumulative, and toxic (PBT) chemicals in fish tissue is an important national activity for assessing the quality of U.S. waters, estimating human health risk from fish consumption, and tracking the effectiveness of pollution control programs. Since 1998, EPA has conducted fish tissue studies to support critical agency missions that include evaluating water quality of U.S. lakes and rivers based on chemical concentrations in fish, providing information to the general public on the range and levels of chemical contaminants found in fish commonly caught and consumed by recreational and subsistence fishers, and generating data to measure the effectiveness of air and water pollution control programs.

In 2009, EPA released the results of a national screening-level survey of 268 PBT chemicals in fish from U.S. lakes and reservoirs including mercury, arsenic, dioxins and furans, the full complement of PCB congeners, and a large number of pesticides and semivolatile organic compounds. Results from this statistically-designed study allowed EPA to estimate the percentage of lakes and reservoirs in the United States with chemical concentrations in fish tissue that are above levels of potential concern for humans who eat fish.

In addition to monitoring the legacy persistent organic contaminants and toxic metals that form the basis for most of the advisories described in this report, EPA has expanded the evaluation of contaminants in fish tissue to include contaminants of emerging concern. EPA's sampling and analysis activities include the collection and analysis of fish tissue samples to determine the occurrence of pharmaceuticals and personal care products (PPCPs), brominated flame retardants (i.e., polybrominated diphenyl ethers or PBDEs), and perfluorinated compounds (PFCs, e.g., PFOA or PFOS) as part of national studies of fish from lakes and rivers.



Photo Credit: Patrick Tidblad

Fish tissue samples collected from urban river segments as a part of the 2008-09 National Rivers and Streams Assessment (NRSA) were analyzed for the presence of PPCPs, PBDEs, and PFCs. In addition, a suite of persistent organic compounds were analyzed and mercury levels determined in all river samples (urban and non-urban) in this national study. In 2010, the EPA also collected fish tissue samples at 157 statistically representative nearshore locations in the five Great Lakes (about 30 sites per lake) as part of the National Coastal Condition Assessment. Samples from the Great Lakes are being analyzed for mercury, PCBs, PBDEs, PFCs, and fatty acids. EPA will collect fish tissue samples during the 2013-14 NRSA to allow the evaluation of temporal trends in fish tissue contamination (for mercury, PBDEs, and PFCs) by comparing results to the 2008-09 NRSA. For more information about these studies, contact Leanne Stahl (stahl.leanne@epa.gov).

Fish Contamination Program Activities

Fish Consumption Rate Analysis

In support of federal, state and tribal water quality and advisory programs, EPA is reviewing fish consumption rates based on data reported by the Centers for Disease Control and Prevention in the National Health and Nutrition Examination Survey (NHANES). Fish consumption data from five NHANES cycles (2003-2012) are being analyzed to determine trends in fish consumption as well as the extent to which fish consumption rates (FCRs) may have changed since the analysis of fish consumption data that was derived from the U.S. Department of Agriculture's Continuing Survey of Food Intake by Individuals (CSFII), in 2000. The CSFII data served as the basis for the current EPA default FCRs of 17.5 grams of fish/day for recreational fishers and 142.5 grams fish/day for

2011 National Listing of Fish Advisories

subsistence fishers. EPA expects to complete the FCR analysis in 2014.

National Guidance on Conducting Fish Consumption Surveys

EPA is in the process of updating its National Guidance on Conducting Fish and Wildlife Consumption Surveys, last published in 1998 (see <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/index.cfm>).

EPA expects that this new guidance will take approximately two years to develop and publish.

NHANES Analysis

In support of the EPA 2011-2015 Strategic Plan, EPA has analyzed the measurement of blood mercury levels in women of reproductive age as reported in NHANES. EPA has finalized and is preparing to release a report detailing the analysis of NHANES 1999-2010 survey data. The report presents EPA's investigation of trends over time in blood mercury concentrations and fish consumption in women 16-49 years of age. EPA expects to release the report in the fall of 2013 on the EPA Fish Advisory Program website at <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/>.

Additionally, EPA is analyzing the 1999-2000 and 2003-2010 NHANES data and developing a report on the distribution of PFOS concentrations in U.S. women of reproductive age (16 to 49 years) and the relationship with finfish and shellfish consumption. EPA plans to release a report in Spring 2014 on the Fish Advisory Program website.

Report on Assessing the Effectiveness of a Mississippi Delta Fish Advisory

In cooperation with the Mississippi Department of Environmental Quality (MDEQ) and the FDA, EPA conducted a survey to evaluate the effectiveness of the Regional Mississippi Delta fish advisory issued by MDEQ in 2001. MDEQ issued the advisory because certain species of fish harvested from Delta waters had high levels of DDT and toxaphene. EPA and MDEQ conducted the survey to understand the extent to which the Delta residents who catch and/or eat wild caught fish from the Delta were aware of the advisory, and for those aware, the changes they have made in the types of fish they catch and eat since hearing of the advisory. The final report can be accessed on the EPA Fish Advisory Program website at: <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/>.

Additional Information:

For more information about specific advisories within a state, contact the appropriate state agency listed on EPA's Fish Advisory Program website:

<http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/>.

For more information about the NLFA or EPA's Fish Advisory Program, contact:

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