

US EPA ARCHIVE DOCUMENT



Fact Sheet

2004 National Listing of Fish Advisories

Summary

Since 1993, EPA has made available to the public its compendium of information on locally issued fish advisories and safe eating guidelines. This information is provided to EPA annually by states, U.S. territories, tribes, and local governments, and EPA makes this information easily accessible to the public every summer on its Web site (<http://www.epa.gov/waterscience/fish/>). States, U.S. territories, tribes, and local governments issue fish consumption advisories and safe eating guidelines to inform people about the recommended level of consumption for fish caught in local waters. Fish advisories are advice to limit or avoid eating certain fish. Safe eating guidelines are designations of monitored waters where there is no restriction on eating fish. The **2004 National Listing of Fish Advisories** database shows that the number of safe eating guidelines issued continues to rise rapidly. Although states, U.S. territories, tribes, and local governments also continue to issue new fish advisories, most new fish advisories involve mercury and are a result of increased monitoring and assessment rather than increased U.S. releases of mercury. In fact, U.S. mercury emissions have declined by more than 45% since 1990. On March 15, 2005, EPA issued the Clean Air Mercury Rule to permanently cap and reduce mercury emissions from coal-fired power plants.

The national listing is available on the Internet at <http://www.epa.gov/waterscience/fish/>.

Background

The states, District of Columbia, U.S. territories, tribes, and local governments (for simplicity, hereafter referred to as states) have primary responsibility for protecting their residents from the health risks of eating contaminated fish caught in local waters. Forty-eight states, the District of Columbia, the U.S. Territory of American Samoa, and three tribes have fish consumption advisories in place. The states have developed their own fish advisory programs over the years, and as a result there is variability among states in the scope and extent of monitoring, in how frequently previously tested waters are sampled again, in how decisions are made to place waters under advisory, and in the specific advice that is provided when contamination is found in fish. Because of this variability, it is difficult to draw national conclusions or to establish national trends in fish advisories; however, through this Technical Fact Sheet, EPA provides an annual summary of fish advisory information submitted by states.

A consumption advisory may include recommendations to limit or avoid eating certain fish and water-dependent wildlife species caught from specific waterbodies or, in some cases, from specific waterbody types (e.g., all lakes) due to contamination by one or more particular contaminants. An advisory may be issued for the general population (i.e., general public), including recreational and subsistence fishers, or it may be issued specifically for sensitive subpopulations, such as pregnant women, nursing mothers, and children. A consumption advisory is not a regulation, but rather a voluntary recommendation issued to help protect public health.

States typically issue five major types of advisories and bans to protect both the general population and specific subpopulations.

- **No-consumption advisory for the general population** – Issued when levels of chemical contamination in fish or wildlife pose a health risk to the general public. The general population is advised to avoid eating certain types of locally caught fish or wildlife.

- **No-consumption advisory for sensitive subpopulations** – Issued when contaminant levels in fish or wildlife pose a health risk to sensitive subpopulations (such as children and pregnant women). Sensitive subpopulations are advised to avoid eating certain types of locally caught fish or wildlife.
- **Restricted-consumption advisory for the general population** – Issued when contaminant levels in fish or wildlife may pose a health risk if too much fish or wildlife is consumed. The general population is advised to limit eating certain types of locally caught fish or wildlife.
- **Restricted-consumption advisory for sensitive subpopulations** – Issued when contaminant levels in fish or wildlife may pose a health risk if too much fish or wildlife is consumed. Sensitive subpopulations are advised to limit eating certain types of locally caught fish or wildlife.
- **Commercial fishing ban** – Issued when high levels of contamination are found in fish caught for commercial purposes. These bans prohibit the commercial harvest and sale of fish and shellfish from a designated waterbody.

In addition to the five major types of advisories, states are increasingly issuing notices of statewide advisories and safe eating guidelines. A statewide advisory is issued to warn the public of the potential human health risks from widespread chemical contamination of certain species of fish from particular types of waterbodies (e.g., lakes, rivers, and/or coastal waters) within the state. An advisory for each waterbody name or type of waterbody may be listed as one advisory, regardless of the number of fish affected or the number of chemical contaminants detected. In contrast, a safe eating guideline is issued to inform the public that fish from specific waterbodies have been tested for chemical contaminants, and the results have shown that specific species of fish from these waters are safe to eat without consumption restrictions. As states increase their monitoring activities, the quantity of available information increases, resulting in better public health protection.

2004 National Listing of Fish Advisories Web Site

The National Listing of Fish Advisories Web site provides information on fish advisories issued by the federal government, all 50 states, the District of Columbia, four U.S. territories, and three tribes. The 2004 National Listing of Fish Advisories Web site lists 3,221 advisories in 48 states, the District of Columbia, 1 territory, and 3 tribes. The Web site includes

- Information on species and size of fish or water-dependent wildlife under advisory
- Chemical contaminants identified in the advisory
- Geographic location of the waterbody
- Lake acreage or river miles under advisory
- Population for whom the advisory was issued
- Meal size and meal frequency (number of meals per week or month) by advisory
- Data on the concentrations of contaminants in fish tissue for 48 states and the District of Columbia
- State and tribal contact information.

The Web site can generate national, regional, and state maps that summarize advisory information. The Web site also includes the names of each state contact, a phone number, a fax number, and an e-mail address.

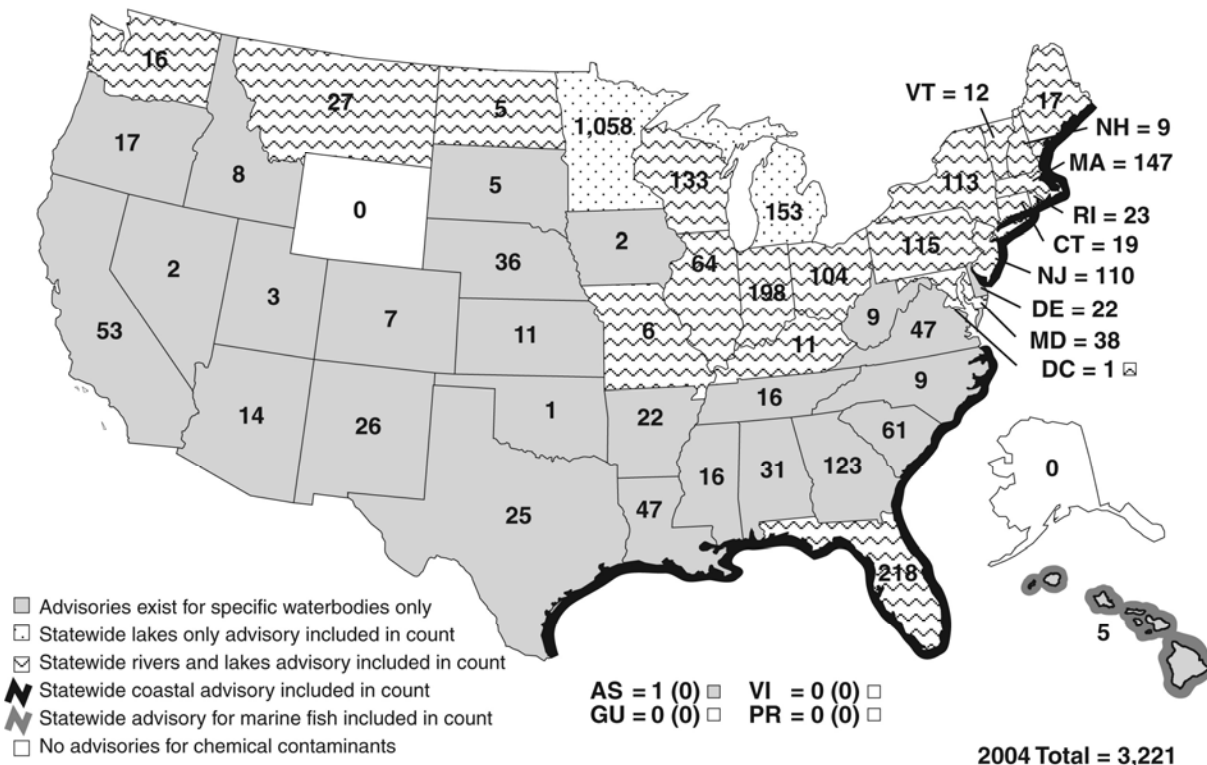
Synopsis of 2004 National Listing of Fish Advisories

In past years, EPA has reported fish advisories based on the number of advisories in effect; however, this does not provide an indication of the geographic extent of the advisory. For example, a waterbody-specific advisory may be issued to cover a single waterbody (e.g., a 20-acre lake), whereas a single statewide lake advisory can cover all lake acres within the state's jurisdiction (up to 12,787,200 acres in one state). Because of the dramatic range in the geographic size of lake acres and river miles affected by a single advisory, the number of advisories does not tell the full story of the geographic extent of waters subject to state advice to limit fish consumption. Thus, EPA is providing information on the total lake acres and total river miles where advisories are currently in effect.

The EPA 2004 National Listing of Fish Advisories indicates that states reported that 395 new fish advisories were issued in 2004 and 65 previous advisories were reactivated, bringing the total number of advisories in effect to 3,221 in 2004 (Figure 1). Currently, the 3,221 advisories in the national listing represent 35% of the nation's total lake acreage and 24% of the nation's total river miles. Approximately 14,285,062 lake acres and 839,441 river miles were under advisory in 2004. This represents less than a 1% increase in the number of lake acres and river miles that were under advisory in 2003, and the lowest percentage increase since the National Listing of Fish Advisories was created in 1993. The percentages of lake acres

Figure 1

Total Number of Fish Consumption Advisories – 2004

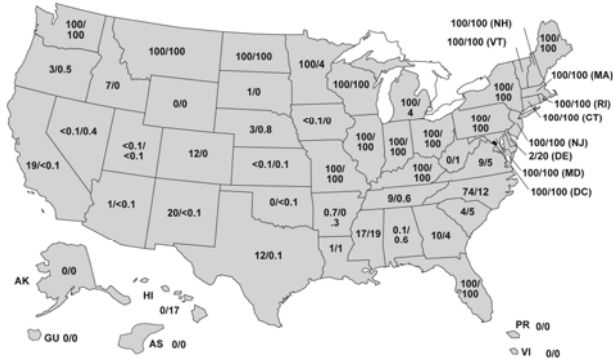


Please note that states may have a different counting method for fish advisories than the national method, so advisory counts in Figure 1 may be slightly different than those reported by individual states.

and river miles under advisory in each state in 2004 are shown in Figure 2. All (100%) of the Great Lakes and their connecting waters were under advisory in 2004 (Table 1). The Great Lakes and their connecting waters are considered separately from other waters and are not included in the above calculations of total lake acres or river miles.

Figure 2

Percentage of Lake Acres/River Miles Currently Under Advisory



In 2004, approximately 35% of the nation's lake acres and 24% of the nation's river miles were under fish consumption advisories.

Table 1. Fish Advisories Issued for the Great Lakes

Great Lakes	PCBs	Dioxins	Mercury	Chlordane	Mirex	DDT
Lake Superior	●	●	●	●		
Lake Michigan	●	●	●	●		●
Lake Huron	●	●	●	●		
Lake Erie	●	●	●			
Lake Ontario	●	●			●	

The number of lake acres and river miles under advisory is related to the number of assessments of chemical contaminants in fish and water-dependent wildlife tissues, as well as the states' use of statewide advisories.

A statewide advisory is issued to warn the public of the potential for contamination of specific species of fish or water-dependent wildlife (e.g., turtles or waterfowl) in certain types of waterbodies (e.g., lakes, rivers, or coastal waters) across the state. Thirty-one states had statewide advisories in effect in 2004, the same number as in 2003 (Table 2). Indiana reported a new statewide advisory for lakes in 2004.

In addition to the Great Lakes, other large lakes and estuaries are currently under advisory for a variety of contaminants. For example, the main stem of the Chesapeake Bay is under advisory for the first time. The Potomac, James, Back, Anacostia, Piankatank, and Patapsco rivers that connect to the Chesapeake Bay continue to be under advisory. Baltimore Harbor, which also connects to the Chesapeake Bay, is under advisory for chlordane and PCB contamination in fish and blue crabs.

Fifteen states have issued fish advisories for all of their coastal waters (Table 2). Almost 65% of the coastline of the United States (excluding Alaska, which has no advisories) currently is under advisory. Based on coastal size estimates from the National Oceanic and Atmospheric Administration, 92% of the Atlantic coast and 100% of the Gulf coast were under advisory in 2004 as was the case in 2003. The Atlantic coast advisories have been issued for a wide variety of chemical contaminants, including mercury, PCBs, dioxins, and cadmium. All of the Gulf coast advisories have been issued for mercury. No Pacific coast state has issued a statewide advisory for any of its coastal waters, although several local areas along the Pacific coast are under advisory. Hawaii has a statewide advisory in affect for mercury in several marine fish species.

Table 2. Summary of Statewide Advisories by Waterbody Type and Year Issued

State	Lake	Issued	River	Issued	Coastal Waters	Issued
Alabama					Mercury	1996
Connecticut	Mercury	1996	Mercury	1996	PCBs	1993
Dist. of Columbia	PCBs	1993	PCBs	1993		
Florida	Mercury	2002	Mercury	2002	Mercury	1993
Georgia					Mercury	2000
Hawaii					Mercury*	2003
Illinois	Mercury	2002	Mercury	2002		
Indiana	Mercury	2004	Mercury PCBs	1996		
Kentucky	Mercury	2000	Mercury	2000		
Louisiana					Mercury	1997
Maine	Mercury	1994	Mercury	1994	Dioxins Mercury PCBs	1994
Maryland	Mercury	2001	Mercury	2004		
Massachusetts	Mercury	1996	Mercury	1996	PCBs Mercury	1994
Michigan	Mercury	1993				
Minnesota	Mercury PCBs	1999				
Mississippi					Mercury	1998
Missouri	Mercury	2001	Mercury	2001		
Montana	Mercury	2003	Mercury	2003		
New Hampshire	Mercury	1995	Mercury	1995	PCBs Mercury Dioxin	1994
New Jersey	Mercury	1995	Mercury	1995	PCBs Dioxins	1993
New York	PCBs Chlordane Mirex DDT	1994	PCBs Chlordane Mirex DDT	1994	Cadmium Dioxins PCBs	1995
North Carolina					Mercury	2000
North Dakota	Mercury	2001	Mercury	2001		
Ohio	Mercury	1997	Mercury	1997		
Pennsylvania	Mercury	2001	Mercury	2001		
Rhode Island	Mercury	2002	Mercury	2002	PCBs Mercury	1993
South Carolina					Mercury	2001
Texas					Mercury	1997
Vermont	Mercury	1995	Mercury	1995		
Washington	Mercury	2003	Mercury	2003		
Wisconsin	Mercury	2000	Mercury	2000		

* Hawaii has a statewide advisory for mercury in marine fish.

Safe Eating Guidelines

EPA has been encouraging states to issue safe eating guidelines when providing advisory information. In addition to issuing statewide advisories warning the public about chemical contaminants in fish tissue, states are increasingly issuing safe eating guidelines to inform the public that fish from specific waterbodies or certain species of fish have been tested for chemical contaminants and have been shown to contain very low levels of contaminants. By issuing safe eating guidelines, the states are identifying monitored waters or species for the public where no restrictions on eating fish apply, as well as promoting enjoyment of recreational fishing.

In 1993, the first year that the National Listing of Fish Advisories collected data on safe eating guidelines, there were only 20 such guidelines in effect. This number increased very slowly until 2004, when Arkansas, Georgia, and Minnesota reported 827 new safe eating guidelines, increasing the total number of safe eating guidelines to 1,213 in 2004. This 2004 increase represented almost half of all safe eating guidelines issued since 1993. Table 3 shows the trend in the issuance of safe eating guidelines since 1993. As of December 31, 2004, 17 states have issued safe eating guidelines. No tribes have issued safe eating guidelines. The largest numbers of such guidelines have been issued by Minnesota (835), Georgia (159), South Carolina (75), and Texas (45). Three states have issued statewide guidelines. In 2001, Alaska issued a statewide guideline to inform the public that all of Alaska's fish are safe to eat without restrictions. In 2002, Wisconsin issued a safe eating guideline for bluegill and other sunfish, yellow perch, white and black crappie, and bullheads in all lakes statewide. Minnesota issued a similar guideline for panfish in all lakes statewide. There are a few waterbody-specific exceptions to the safe eating guidelines, so consumers are advised to review waterbody-specific information on state Web sites.

Table 3. Total Safe Eating Guidelines Issued Since 1993

Year Issued	New Advisories	Cumulative Advisories
1993	20	20
1994	12	32
1995	35	67
1996	10	77
1997	2	79
1998	25	104
1999	44	148
2000	7	155
2001	20	175
2002	164	339
2003	47	386
2004	827	1,213

In 2004, 2.4% of river miles and 18% of lake acres in the continental United States had safe eating guidelines for at least one fish species. Approximately 76,069 river miles and 5,047,921 lake acres had safe eating guidelines in 2004. Between 2003 and 2004 the area for which there were safe eating guidelines increased by 9,530 river miles and 3,808,605 lake acres. In addition, the number of these guidelines is likely to grow as more states identify safe fishing waters or species (e.g., sunfish and other panfish) that do not tend to accumulate chemical contaminants in their tissues to the same extent as long-lived predatory species (e.g., largemouth bass, walleye, northern pike, catfish). These guidelines will help direct the

public toward making more informed decisions about the waterbodies in which they fish, as well as healthier choices about the species that they choose to eat.

Bioaccumulative Contaminants

Bioaccumulative chemical contaminants accumulate in the tissues of aquatic organisms at concentrations many times higher than concentrations in the water. Bioaccumulative chemical contaminants can persist for relatively long periods in sediments, where bottom-dwelling organisms that are low in the food chain can accumulate them and pass them up the food chain to fish. Concentrations of bioaccumulative contaminants in the tissues of aquatic organisms may increase at each level of the food chain. As a result, top predators in a food chain, such as largemouth bass or walleye, may have concentrations of bioaccumulative contaminants in their tissues a million times higher than the concentrations found in the waterbodies.

Although there are advisories in the United States for 36 chemical contaminants, almost 98% of advisories in effect in 2004 involved five bioaccumulative chemical contaminants: mercury, PCBs, chlordane, dioxins, and DDT. In this regard, considerable progress has been made towards reducing the occurrence of these contaminants in the environment. US human-caused emissions of mercury to the air have declined more than 45% since 1990 and EPA has issued regulations that will result in further reduction of mercury emissions. For example, on March 15, 2005, EPA issued the Clean Air Mercury Rule (CAMR) to permanently cap and reduce mercury emissions from coal-fired power plants. CAMR supplements EPA's Clean Air Interstate Rule (CAIR) to significantly reduce emissions from coal-fired power plants. When fully implemented, these rules are estimated to reduce utility emissions of mercury nearly 70 percent. In addition, production of PCBs for use ceased in 1977; chlordane was banned in 1988; DDT was banned in 1972; and known and quantifiable industrial emissions of dioxin in the United States are estimated to have been reduced by approximately 90% from 1987 levels.

Mercury

The total number of advisories for mercury increased from 2,362 in 2003 to 2,436 in 2004, with 44 states, 1 territory, and 2 tribes issuing mercury advisories. Seventy-six percent of all advisories have been issued, at least in part, because of mercury. The increase in the number of mercury advisories in 2004 can be attributed to the issuance of new mercury advisories by 20 states and 1 tribe. Most of these new advisories were issued by Florida and Minnesota. To date, 44 states, 2 tribes and 1 territory have issued mercury advisories. Alaska, District of Columbia, Iowa, Kansas, Oklahoma, Utah, and Wyoming did not issue advisories in either 2003 or 2004. In 2004, the Cheyenne River Sioux Tribe was the only state or tribe to issue a mercury advisory for the first time.

A total of 13,183,748 lake acres and 765,399 river miles were under advisory for mercury in 2004. This represents a decrease of 1,467 river miles under advisory between 2003 and 2004. The decrease is a result of changes in waterbody-specific mercury advisories in several states. The total number of river miles under advisory decreased in Minnesota, Michigan, Louisiana, Nebraska, and Georgia, as well as other states. The number of lake acres under advisory in 2004 represents an increase of 114,758 lake acres between 2003 and 2004. The increase is a result of changes to waterbody-specific advisories in several states as well as the addition of Indiana's statewide advisory for lakes.

Currently, 21 states (Connecticut, Florida, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, North Dakota, Ohio, Pennsylvania, Rhode Island, Vermont, Washington, and Wisconsin) have issued statewide advisories for mercury in freshwater lakes and/or rivers. Twelve states (Alabama, Florida, Georgia, Louisiana, Maine, Massachusetts, Mississippi, New Hampshire, North Carolina, Rhode Island, South Carolina, and Texas) have statewide advisories for mercury in their coastal waters. Hawaii has a statewide advisory for mercury in marine fish. The Micmac tribe of Maine has two tribal statewide advisories in effect for mercury in freshwater and marine fish (including lobster). In addition, the Cheyenne River Sioux Tribe has one tribal statewide for mercury in rivers, lakes, and stock ponds.

PCBs

In 2004, there were 873 advisories in place for PCBs, with 39 states, American Samoa, and the St. Regis Mohawk Tribe reporting PCB advisories in 2004. This represents a decrease in the number of PCB advisories since 2003 when there were 884 PCB advisories. Although 17 states added new advisories for PCBs in 2004, 55 advisories were rescinded. There were 4,652,401 lake acres and 110,522 river miles under PCB advisory in 2004. Four states (District of Columbia, Indiana, Minnesota, and New York) issued statewide freshwater (river and/or lake) advisories for PCBs, and seven other states (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, and Rhode Island) issued PCB advisories for all of their coastal marine waters in 2004.

Chlordane

Many advisories for the pesticide chlordane have been rescinded in recent years, primarily because all uses of chlordane were banned in the United States in 1988 and the compound continues to degrade in the environment. In 2003, there were 89 chlordane advisories. In 2004, that number decreased to 79 chlordane advisories. Chlordane advisories covered 847,242 lake acres and 54,132 river miles in 2004.

Dioxins

In 2003 there were 90 existing dioxin advisories. In 2004, Massachusetts issued 5 new dioxin advisories; Hawaii issued 1 new dioxin advisory; Maine added dioxin to 7 existing advisories for other contaminants; and Michigan, New Hampshire, New Jersey, Oregon, and Texas also added dioxin to existing advisories, bringing the total number of dioxin advisories to 106.

A total of 22,757 lake acres and 2,335 river miles were under a dioxin advisory in 2004. Although dioxins are one of the five major contaminants that have resulted in the issuance of health advisories, the geographic extent of dioxin advisories is extremely limited compared to that for the other four major contaminants. This is due in part to the limited monitoring of dioxins resulting from the high cost of contaminant analysis. Also, dioxins have been associated primarily with specific locations near some pulp and paper plants that use a bleach kraft process, as well as with other types of chemical manufacturing facilities or incineration facilities.

DDT

Although the use of DDT, an organochlorine pesticide, has been banned since 1975, there were 67 advisories in effect for DDT (and its degradation products, DDE and DDD) in 2004. In 2003 there were 52 advisories in effect. There are currently 843,762 lake acres and 69,010 river miles under advisory for DDT. California had the greatest number of DDT advisories in

effect in 2004 (14), followed by Maine (13) and Massachusetts (10). During 2004, Massachusetts issued 10 new advisories for DDT, and New York had an existing statewide advisory for multiple contaminants, including DDT.

Other Contaminants

Although the five bioaccumulative contaminants account for almost 98% of the total number of advisories, the remaining 2% of all fish advisories are caused by other contaminants. These include heavy metals (e.g., arsenic, cadmium, chromium, copper, lead, selenium, and zinc) and organochlorine pesticides (e.g., dieldrin, heptachlor epoxide, kepone, mirex, and toxaphene), as well as a myriad of other chemical compounds, including creosote, polycyclic aromatic hydrocarbons (PAHs), hexachlorobenzene, pentachlorophenol, and diethylphthalate.

In 2004, eight states issued new advisories for these contaminants: Delaware (not specified), Georgia (toxaphene), Indiana (not specified), Massachusetts (pesticides), Maryland (chlorinated pesticides), New York (mirex), Ohio (mirex), and Utah (arsenic). Washington also added diethylphthalate to an existing advisory. In contrast, other states rescinded advisories for aldrin, dichloroethane, gasoline, lindane, trichloroethane, and vinyl chloride.

Although these other chemical contaminants represent only 2% of the total number of advisories, the extent of the area under advisory for these contaminants slightly exceeds the lake acres and river miles under advisory for DDT. In 2004, 2,176,525 lake acres and 102,938 river miles were under advisories for these contaminants. The majority of lake acres and river miles under advisory for other chemical contaminants are the result of a statewide advisory in New York for multiple contaminants, including mirex, a regional advisory in Mississippi for toxaphene, and a statewide advisory in Maine for cadmium.

Wildlife Advisories

In addition to advisories for fish and shellfish, the National Listing of Fish Advisories Web site also contains several water-dependent wildlife advisories. In 2004, no new advisories were issued for water-dependent wildlife. States have issued advisories in previous years that are still in effect. Four states have issued consumption advisories for turtles: Massachusetts (1), Minnesota (6), New York (statewide advisory), and Rhode Island (1). In addition, Massachusetts has an advisory for frogs; New York has a statewide advisory for waterfowl; Utah has an advisory for American coot and ducks; and Maine issued a statewide advisory for cadmium in moose liver and kidneys.

National Advice Concerning Mercury in Fish

In 2004, EPA and the U.S. Food and Drug Administration (FDA) issued advice for women who might become pregnant, women who are pregnant, nursing mothers, and young children. The national advice is not included in the statistics presented in this fact sheet. The following advice is still in effect:

Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high-quality protein and other essential nutrients, are low in saturated fat, and contain omega-3 fatty acids. A well-balanced diet that includes a variety of fish and shellfish can contribute to heart health and children's proper growth and development; therefore, women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.

Nearly all fish and shellfish, however, contain traces of mercury. For most people, the risk from mercury from eating fish and shellfish is not a health concern. Yet some fish and shellfish

contain higher levels of mercury that may harm an unborn baby or young child's developing nervous system. The risks from mercury in fish and shellfish depend on the amount of fish and shellfish eaten and the levels of mercury in the fish and shellfish. Therefore, the FDA and EPA are advising women who may become pregnant, pregnant women, nursing mothers, and young children to avoid some types of fish and to only eat fish and shellfish that are lower in mercury.

By following the three recommendations listed below for selecting and eating fish or shellfish, women and young children will receive the 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 (2 average meals) a 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.
 - Another commonly eaten fish, albacore ("white") tuna 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. More information on the joint federal advisory is available at www.epa.gov/waterscience/fish.

For More Information

For more information on specific advisories within a state, contact the appropriate state agency listed on the National Listing of Fish Advisories Web site at www.epa.gov/waterscience/fish. This is particularly important for advisories that recommend that consumers restrict their consumption of fish from certain waterbodies. For restricted consumption advisories, state health departments provide specific information on the meal size and meal frequency (number of meals per week or month) that is considered safe to eat.

For more information on how to reduce exposure, consult EPA's brochure *What You Need to Know About Mercury in Fish and Shellfish*, available in several languages on EPA's fish advisory Web site: www.epa.gov/waterscience/fish.

For more information on the National Fish and Wildlife Contamination Program, contact:

Jeff Bigler
U.S. Environmental Protection Agency
Office of Science and Technology (4305T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone 202-566-0389
E-mail bigler.jeff@epa.gov