



## Fact Sheet

# Update: National Listing of Fish and Wildlife Advisories

## Summary

The 2002 **National Listing of Fish and Wildlife Advisories (NLFWA)** is now available from the U.S. Environmental Protection Agency (EPA). States, tribes, and territories report that 348 new advisories were issued in 2002 and that the number of lake acres and river miles under advisory continued to increase as they have since 1993. The total number of advisories increased from 2,618 in 2001 to 2,800 in 2002. The size of waters under advisory (in the continental United States) increased substantially from 2001 to 2002. The number of lake acres under advisory increased from 28% in 2001 to almost 32.9% in 2002 (13,413,763 acres, a total of 94,715 individual lakes), and the number of river miles under advisory increased from 13.7% in 2001 to 15.3% in 2002 (a total of 544,036 river miles). The 5.2% increase in lake acres and 1.7% increase in river miles under advisory primarily resulted from issuance of statewide mercury advisories for all lakes and rivers by three states (Florida, Illinois, and Rhode Island) in 2002. In addition, 100% of the Great Lakes and their connecting waters and 71% of all coastal waters of the contiguous 48 states were under advisory in 2002. For the first time, EPA reports on the number of safe eating guidelines nationwide, which increased by almost 93% in 2002.

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

## Background

The states, territories, and Native American tribes (hereafter referred to as states) have primary responsibility for protecting residents from the health risks of eating contaminated fish and wildlife. If high concentrations of chemicals, such as mercury or dioxin, are found in local fish and wildlife, then a state may issue a consumption advisory for the general population, including recreational and subsistence fishers, as well as for sensitive subpopulations (such as pregnant women, nursing mothers, and children). A consumption advisory may include recommendations to limit or avoid eating certain fish and wildlife species caught from specific waterbodies or, in some cases, from specific waterbody types (e.g., all lakes). Similarly, in Canada, the provinces and territories have primary responsibility for issuing fish consumption advisories for their residents.

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, shellfish, and/or wildlife species 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 fish species or of species from certain 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 or wildlife species 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.

## 2002 National Listing of Fish and Wildlife Advisories Web Site

The 2002 NLFWA web site lists 2,800 advisories in 48 states, the District of Columbia, and the U.S. Territory of American Samoa. The web site includes

- Information on species and size of fish or 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
- Fish tissue residue data for 45 states
- State and tribal contact information.

The web site can generate national, regional, and state maps that summarize advisory information. Also included on the web site are the names of each state and tribal contact, a phone number, fax number, and e-mail address.

### Advisory Trends

In past years, EPA has reported fish advisories based on the number of advisories in effect; however, this does not provide any indication of the geographic extent of the contamination. For example, a waterbody-specific advisory may be issued to cover a single waterbody (e.g., a 20-acre lake), while a single statewide lake advisory can represent 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 chemical contaminants that may be contained under a single advisory, the number of advisories is not as accurate a measure of the degree of contamination as is the geographic extent. Thus, EPA is providing information on the total lake acres and total river miles where advisories are currently in effect.

The number of advisories has increased overall by 125% since 1993 and by 7% between 2001 and 2002 (Figure 1).

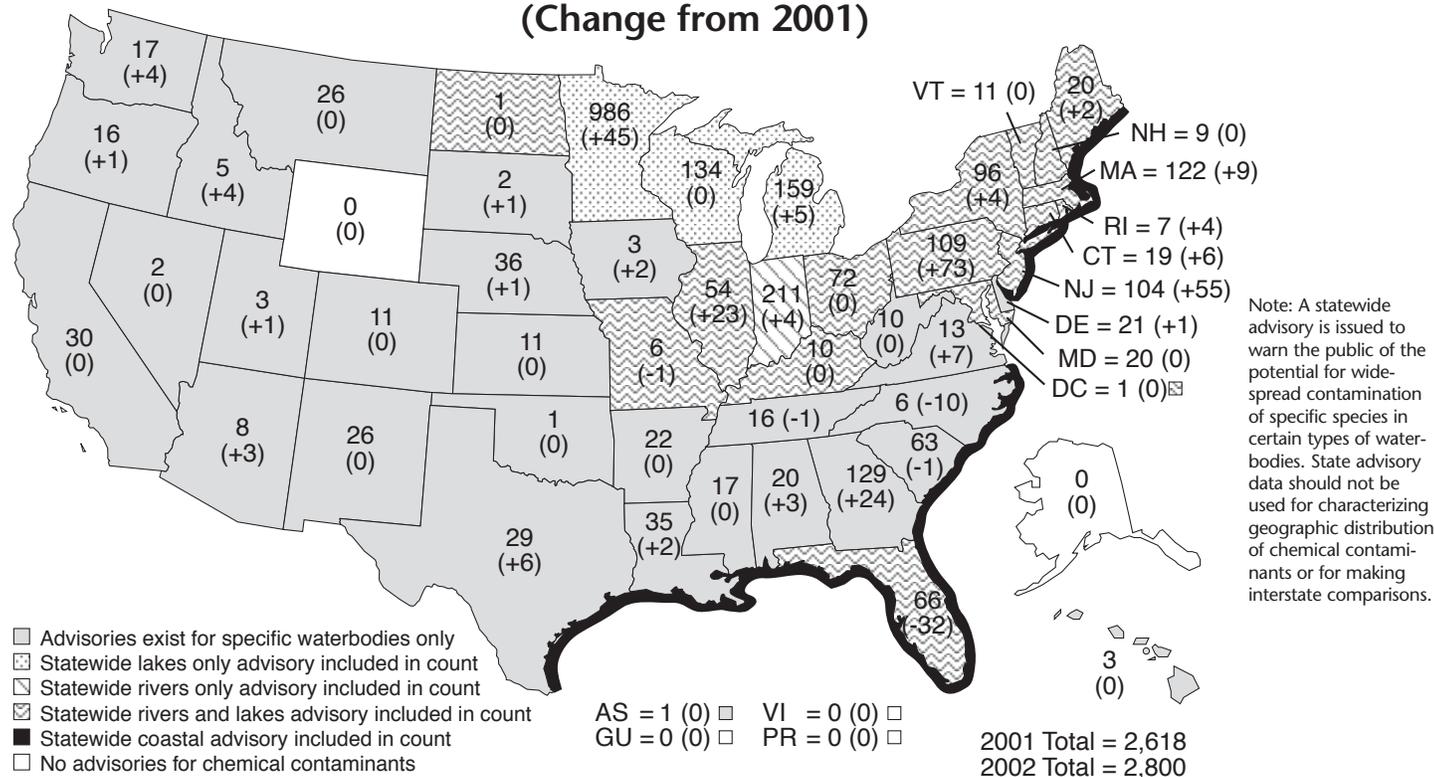
Over the same period between 2001 and 2002, the percentage of the nation's lake acres and river miles under advisory increased (Figure 2). The percentage of total lake acres and river miles under advisory also increased from 1993 to 2002 by 25% and 13% respectively. Currently, the 2,800 advisories in the national listing represent almost 32.9% of the nation's total lake acreage and 15.3% of the nation's total river miles. Approximately 94,715 lakes (13,413,763 lake acres) and 544,036 river miles were under advisory in 2002, compared with 14,962 lakes and 74,505 river miles under advisory in 1993. The percentages of lake acres and river miles under advisory in 2002 in each state are shown in Figure 3. In addition, 100% of the Great Lakes and their connecting waters are also under advisory (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.

The increase in the total size of waters under advisory is due in part to an increase in the number of assessments of chemical contaminants in fish and wildlife tissues and the states' increasing use of statewide advisories.

A statewide advisory is issued to warn the public of the potential for widespread contamination of specific species of fish or wildlife (e.g., moose or waterfowl) in certain types of waterbodies (e.g., lakes, rivers, or coastal waters). Twenty-eight states currently have statewide advisories (see Table 2). Three states issued statewide advisories in 2002: Florida, Illinois, and Rhode Island each added statewide mercury advice for all

Figure 1

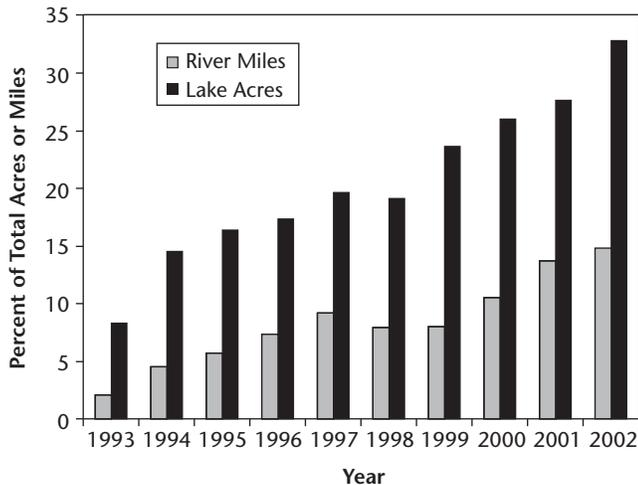
## Total Number of Fish Consumption Advisories – 2002 (Change from 2001)



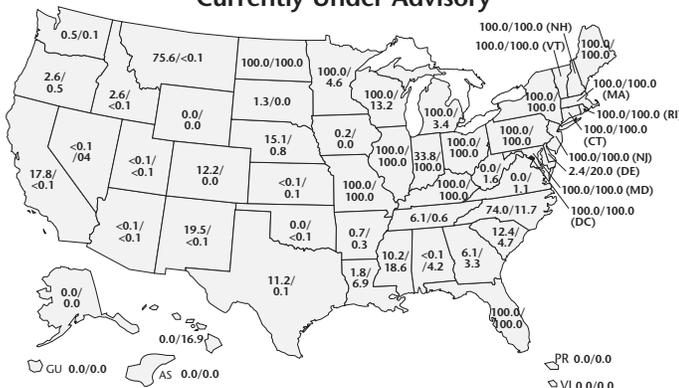
lakes and rivers. In addition, a Native American group, the Micmac tribe of Maine, also issued two statewide mercury advisories to its tribal members.

In addition to the Great Lakes, many other Great Waters of the United States are currently under fish advisories for a

**Figure 2**  
**Percentage of River Miles and Lake Acres Under Advisory 1993-2002**



**Figure 3**  
**Percentage of Lake Acres/River Miles Currently Under Advisory**



Twenty states have 100% of their lake acres under fish advisories (including those with statewide advisories); 10% to 75% of lake acres in 10 states are under advisories; 15 states have <10% of their lake acres under advisories; and 10 states have no lake acres under advisories.

Eighteen states have 100% of their river miles under fish advisories (states with statewide advisories); 5 states have 10% to 75% of their miles under advisories; 23 states have <10% of their river miles under advisories; and 9 states have no river miles under advisories.

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

variety of pollutants. The Great Waters include not only the Great Lakes, but also Lake Champlain (PCBs and mercury), the Chesapeake Bay, 21 National Estuary Program (NEP) sites, and 14 National Estuarine Research Reserve System (NERRS) sites (see Table 3). Although the Chesapeake Bay is not under any advisories, the Potomac, James, Back, and Anacostia Rivers, which connect to it, are all under advisories. All of these rivers, with the exception of the James River (which is under advisory for kepone) are under PCB advisories. Baltimore Harbor, which also connects to the Chesapeake Bay, is under advisory for chlordane and PCB contamination in fish and blue crabs.

Many of the major estuaries listed in the NEP or designated as NERRS sites are under fish and/or shellfish advisories for multiple chemical contaminants (see Table 3). Sixty-seven percent of the total number of NEP, NERRS, and combined sites are under fish consumption advisories. Currently, there are 16 sites that have no fish consumption advisories.

**Table 2. Summary of Statewide Advisories by Waterbody Type**

State	Lake	River	Coastal Waters
Alabama			Mercury
Connecticut	Mercury	Mercury	PCBs
Dist. of Columbia	PCBs	PCBs	
Florida	Mercury	Mercury	Mercury
Georgia			Mercury
Illinois	Mercury	Mercury	
Indiana		Mercury PCBs	
Kentucky	Mercury	Mercury	
Louisiana			Mercury
Maine	Mercury	Mercury	Dioxins Mercury PCBs
Maryland	Mercury	Mercury	
Massachusetts	Mercury	Mercury	PCBs Mercury
Michigan	Mercury		
Minnesota	Mercury		
Mississippi			Mercury
Missouri	Mercury	Mercury	
New Hampshire	Mercury	Mercury	PCBs
New Jersey	Mercury	Mercury	PCBs Cadmium Dioxins
New York	PCBs Chlordane Mirex DDT	PCBs Chlordane Mirex DDT	Cadmium Dioxins
North Carolina			Mercury
North Dakota	Mercury	Mercury	
Ohio	Mercury	Mercury	
Pennsylvania	Mercury	Mercury	
Rhode Island	Mercury	Mercury	PCBs Mercury
South Carolina			Mercury
Texas			Mercury
Vermont	Mercury	Mercury	
Wisconsin	Mercury		

Several states have issued fish advisories for all of their coastal waters. Using coastal mileages calculated by the National Oceanic and Atmospheric Administration, an estimated 71% of the coastline of the contiguous 48 states currently is under advisory. This includes 92% of the Atlantic coast and 100% of the Gulf Coast. 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. 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.

### 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 specific 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 waters or species for the public that are safe to consume and promote enjoyment of recreational fishing.

In 1993, the first year that the NLFWA collected data on safe eating guidelines, there were only 20 such guidelines in effect. This number increased very slowly until 2002 when 164 new safe eating guidelines were issued. This 2002 increase represented almost half of all safe eating guidelines issued since 1993. Table 4 shows the trend in the issuance of safe eating guidelines since 1993. Currently, 13 states have issued guidelines. The largest numbers of such waterbody-specific guidelines have been issued by Georgia (143), South Carolina (69), and Texas (38). 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 all lakes statewide for bluegill and other sunfish, and yellow perch, white and black crappie, and bullheads, while Minnesota issued a similar guideline for all lakes statewide for panfish. However, there are a few waterbody-specific exceptions to the safe eating guidelines, so consumers are advised to review waterbody-specific information.

Currently, 3,084 miles of rivers (<0.01%) and 4,342,920 lake acres (10%) (a total of 28,294 lakes) nationally have safe eating guidelines for at least one fish species in the continental United States. The number of these guidelines is likely to grow as additional states identify safe fishing waters or species (sunfish and other panfish) that do not tend to accumulate

**Table 3. Fish Consumption Advisories Active for NEP and NERRS Sites – 2002**

Waterbody	PCBs	Dioxins	Mercury	Cadmium	Chlordane	Others
Casco Bay, ME *	●	●	●			
Wells, ME #	●	●	●			
Great Bay, NH #	●					
Great Bay, Little Bay, and Hampton Harbor, NH *	●					
Massachusetts Bay, MA *	●		●			● <sup>1</sup>
Buzzards Bay, MA *	●		●			
Waquoit Bay, MA #	●		●			
Narragansett, RI * #	●		●			
Long Island Sound, NY/CT *	●	●		●		
Peconic Bay, NY *		●		●		
Hudson River, NY #	●	●		●	● <sup>2</sup>	● <sup>3,4</sup>
New York/New Jersey Harbor *	●	●		●	●	
Barneget Bay, NJ *	●	●		●		
Jacques Cousteau-Great Bay and Mullica River, NJ #	●	●		●		
Delaware Estuary, DE/NJ/PA * #	●	●	●	●		● <sup>5</sup>
Albemarle-Pamlico Sounds, NC *		●				
North Carolina sites #			●			
Ashepoo-Combahee-Edisto Basin, SC #			●			
North Inlet/Winjah Bay, SC #			●			
Sapelo Island, GA #			●			
Indian River Lagoon, FL *			●			
Charlotte Harbor, FL *			●			
Rookery Bay, FL #			●			
Sarasota Bay, FL *			●			
Tampa Bay, FL *			●			
Apalachicola Bay, FL #			●			
Mobile Bay, AL *			●			
Weeks Bay, AL #			●			
Barataria-Terrebonne Estuary, LA *			●			
Galveston Bay, TX *		●	●			
Puget Sound, WA *	●	●	●			● <sup>6</sup>
Columbia River, OR/WA *	●					● <sup>4</sup>
San Francisco Bay, CA *	●		●			● <sup>7</sup>

<sup>1</sup> Multiple contaminants.

<sup>2</sup> For waterfowl.

<sup>3</sup> Mirex.

<sup>4</sup> DDT.

<sup>5</sup> Dieldrin, arsenic, DDT, and chlorinated pesticides.

<sup>6</sup> Specific embayments of Puget Sound are listed for the following pollutants: creosote, pentachlorophenol, volatile organic compounds (VOCs), tetra-chloroethylene, arsenic, metals

(unspecified), vinyl chloride, polycyclic aromatic hydrocarbons (PAHs), pesticides (unspecified), and multiple pollutants (unspecified).

<sup>7</sup> DDT and dieldrin.

\*NEP site.

#NERRS site.

Source: EPA 2002 NLFWA Database (Advisories current through December 2002).

**Table 4. 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

chemical contaminants in their tissues to the same extent as long-lived predatory species (largemouth bass, walleye, northern pike, and catfish). These guidelines will help direct the public toward making more informed decisions about the waterbodies in which they fish and healthier choices about the species that they choose to eat.

### Bioaccumulative Pollutants

Although there are advisories in the United States for a total of 39 chemical contaminants, most advisories have involved five primary contaminants: mercury, PCBs, chlordane, dioxins, and DDT. And while almost 75% of all advisories have been issued at least in part because of mercury contamination, other chemical contaminants are also likely to be present at many of these same advisory locations. These chemical contaminants accumulate in the tissues of aquatic organisms at concentrations many times higher than concentrations in the water. These chemical contaminants also persist for relatively long periods in sediments where bottom-dwelling animals can accumulate them and pass them up the food chain to fish.

Concentrations of these 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 these chemicals in their tissues that may be a million times higher than the concentrations in the water. Mercury, PCBs, chlordane, dioxins,

and DDT (and its degradation products, DDE and DDD) were at least partly responsible for 96% of all fish consumption advisories in effect in 2002.

### Mercury

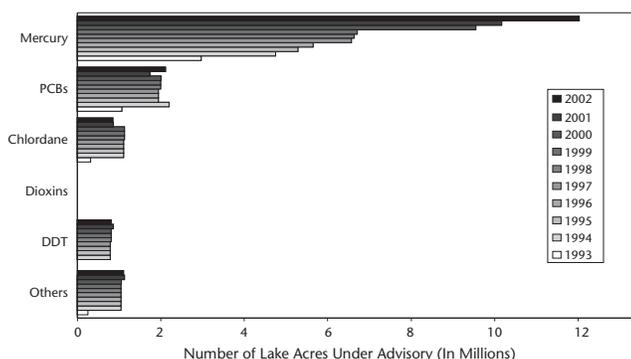
Advisories for mercury increased 11% from 2001 to 2002 (1,933 to 2,140) and increased 138% from 1993 to 2002 (899 to 2,140). The number of states that have issued mercury advisories has risen steadily from 27 in 1993 to 45 in 2002. The increase in the number of mercury advisories in 2002 can largely be attributed to the issuance of 309 new mercury advisories by 23 states. Mercury advisories issued by 5 states accounted for 82% of all new mercury advisories. Pennsylvania issued 73 new mercury advisories in 2002; New Jersey, 57; Florida, 54; Minnesota, 47; and Georgia, 22. The large number of mercury advisories rescinded by Florida includes waterbodies that are now covered by the new statewide mercury advisory for all freshwater lakes and rivers. In 2002, the geographic extent of the contamination in number of lake acres (12,069,319) and river miles (473,186) under mercury advisories increased by almost 18% and 14%, respectively, over 2001 (Figures 4 and 5). The rapid increase in number of lake acres and river miles under advisory has resulted from the issuance of statewide mercury advisories by Florida, Illinois, and Rhode Island.

Currently, 19 states (Connecticut, Florida, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, North Dakota, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin) have issued statewide advisories for mercury in freshwater lakes and/or rivers. Eleven states (Alabama, Florida, Georgia, Louisiana, Maine, Massachusetts, Mississippi, North Carolina, Rhode Island, South Carolina, and Texas) have statewide advisories for mercury in their coastal waters. For the first time, two tribal statewide advisories have been issued for mercury in freshwater and marine fish (including lobster) by the Micmac tribe of Maine.

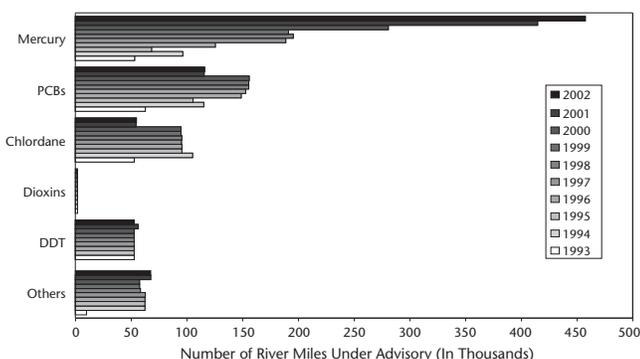
### PCBs

Advisories for PCBs increased 6% from 2001 to 2002 (from 764 to 813) and increased 155% from 1993 to 2002 (319 to 813). The number of states that have issued PCB advisories remained at 38 states (including American Samoa) in 2002, up from 31 states in 1993 and 36 states in 1998. Eleven states added a total of 49 new advisories for PCBs in 2002; however, the increase in advisories for PCBs is primarily due to new advisories issued by three states, Illinois (25), Indiana (5), and Michigan (5), which account for 71% of all new PCB advisories. The total number of lake acres (2,121,255) and river miles (114,547) under PCB advisories increased by 22% and remained the same, respectively, from 2001 to 2002 (Figures 4 and 5). Three states (District of Columbia, Indiana, and New York) have issued statewide freshwater advisories (river and/or lake) advisories for PCBs. Six other states (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, and Rhode Island) have issued PCB advisories for all of their coastal marine waters.

**Trends in Number of Lake Acres Under Advisory for Various Pollutants**



**Trends in Number of River Miles Under Advisory for Various Pollutants**



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## 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. The number of chlordane advisories decreased nationwide from 99 advisories in 2001 to 97 advisories in 2002. The number of lake acres (850,195) declined by <0.1%, while the number of river miles under advisory for chlordane (54,663) increased by <0.1% from 2001. These changes are primarily due to the issuance of two new chlordane advisories in Texas and the rescinding of chlordane advisories in four states (Alabama, Illinois, Wisconsin, and Missouri).

## Dioxins

The total number of advisories for dioxins decreased from 76 in 2001 to 74 in 2002. While no states added new dioxin advisories, Wisconsin rescinded two advisories. The total lake acres (2,326) remained unchanged, while the total river miles (1,839) under advisory declined by 6% in 2002. The number of lake acres and river miles under advisory for dioxins have remained below 2,604 acres and 2,064 miles, respectively, since 1993. Although dioxins are one of the five major contaminants that have resulted in the issuance of health advisories, the geographic extent of the contamination (only 0.4% of all waters under advisory) 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 chemical analysis and in part because dioxin contamination has been associated primarily with pulp and paper plants using a bleach kraft process and other specific types of chemical manufacturing facilities or incineration facilities.

## DDT

Although the use of DDT, an organochlorine pesticide, has been banned since 1975, the total number of advisories currently in effect for DDT (and its degradation products, DDE and DDD) increased from 46 advisories in 2001 to 48 advisories in 2002. There are currently 817,251 lake acres and 68,616 river miles under advisory for DDT (Figures 4 and 5). California had the greatest number of DDT advisories active in 2002 (14), followed by Texas (6) and New York (4). During 2002, Texas issued two new advisories for DDT, and Alabama rescinded an advisory. New York has a statewide advisory for multiple contaminants, including DDT.

## Other Pollutants

Although the five major pollutants account for 96% of the total number of advisories, the remaining 4% of all fish advisories are caused by a variety of other groups of chemicals. These include heavy metals (arsenic, cadmium, chromium, copper, lead, selenium, and zinc), organochlorine pesticides (aldrin, dieldrin, heptachlor epoxide, kepone, lindane, mirex, and toxaphene), as well as a myriad of other chemical compounds, including creosote, polyaromatic hydrocarbons (PAHs), hexachlorobenzene, pentachlorophenol, and vinyl chloride, to name just a few. While these other chemical contaminants represent only 4% of the total number of advisories,

the extent of the contamination they cause slightly exceeds the lake acres and river miles under advisory for DDT. In 2002, 1,112,364 lake acres and 57,862 river miles were under advisories. There were only four new advisories issued for other pollutants. New advisories for the other pollutants were issued by Florida (pesticides), Idaho (selenium), Utah (arsenic), and Washington (multiple pollutants). The majority of lake acres and river miles under advisory for other chemical contaminants is a result of a statewide advisory in New York for multiple contaminants including mirex and a regional advisory in Mississippi for toxaphene.

## Wildlife Advisories

In addition to advisories for fish and shellfish, the NLFWA web site also contains several wildlife advisories. Four states have issued consumption advisories for turtles: Arizona (3), Massachusetts (1), Minnesota (8), and New York (statewide advisory). One state (Massachusetts) has an advisory for frogs. New York has a statewide advisory for waterfowl (including mergansers). Arkansas has an advisory for wood ducks. Utah has an advisory for American coot and ducks. Maine issued a statewide advisory for cadmium in moose liver and kidneys. In 2002, there were no new wildlife advisories issued.

## For More Information

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

The data available on the national listing web site may also be used to assist the public in making informed decisions about the waterbodies where they choose to fish or harvest wildlife, and the species and size of fish they choose to eat. The NLFWA web site includes advisory information for all states through December 2002. For some states, the web site also includes data on advisories issued in 2003.

For more information on how to properly clean fish to reduce exposure, consult EPA's brochure "Should I Eat the Fish I Catch," available in several languages on EPA's fish advisory web site: [www.epa.gov/waterscience/fish](http://www.epa.gov/waterscience/fish).

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

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