The Lowdown on PCBs

You probably know that fish should be an important part of your diet. You may have also heard that eating fish can be risky. So, what is the real story? In fact, fish are a low-fat source of protein and a source of healthy fats, however some fish may contain harmful levels of contaminants. If you are pregnant or plan on being pregnant, or are nursing or have young children then you should be informed.

This publication discusses contaminants known as PCBs and the possible health effects associated with eating PCB-contaminated fish.

What are PCBs?

PCBs or polychlorinated biphenyls are organochlorines, which is a group of 209 chemical compounds. Since the 1930s, PCBs were produced on an industrial scale, with large volumes made between the 1950s to the 1970s. Their advantages for industrial use include chemical stability and non-flammability. Products that have been made with PCBs include: insulating and cooling agents for electrical transformers; hydraulic fluids for underground mining; lubricants; printing inks; and adhesives and plasticizers for plastics, coatings, and resins.

PCBs are no longer manufactured or marketed in the U.S, but about 130 types of PCBs have been detected in the environment. They are found globally, in the lower atmosphere, the oceans, sediments, fish, and wildlife.

Because of their widespread presence in the environment and because they have been linked to reproductive problems and cancer in laboratory animals, PCBs continue to be the subject of public and scientific concern. The chemical stability that gave them useful industrial properties has become a major disadvantage: PCBs are toxic, long-lasting, and not easily excreted, so they build up in the body over time. They are also prone to long-range transport in the air and water.

Where we find PCBs today

Small amounts of PCBs are found in the environment all over the world. PCBs move up the food chain by getting into the body fat of animals and staying there for a long time. Traces of PCBs can be found in our food and in our own bodies.

Larger concentrations of PCBs are found in certain types of electrical equipment, and at storage sites across the country. These storage sites contain PCBs that have been collected for disposal. An uncontrolled fire at one of the storage sites may release large amounts of PCBs into the environment.

How are children exposed to PCBs?

There are three main routes that children are exposed to PCBs: eating food that is contaminated with PCBs; breathing PCBs in the air; and absorbing PCBs directly through the skin. The primary source of exposure is through eating contaminated foods, particularly fish, meat, and dairy products. The Food and Drug Administration regulates the amounts of PCBs allowed in commercial food products; in fish, the level is set at two parts per million (ppm).

A baby may be exposed to PCBs during pregnancy if the mother has eaten food contaminated with PCBs. PCBs can cross the placenta, thus exposing the baby. PCBs may also concentrate in the mother's breast milk if the mother has eaten contaminated food. Breast milk is the main dietary source for PCBs in infants, but the health risk is small and should not discourage mothers from breastfeeding their infants, unless specifically recommended by the physician.

How do PCBs affect the health of children?

Babies exposed to high levels of PCBs during pregnancy may have low birth weights, decreased intelligence, irritated eyes, darkening of the skin, behavioral problems, developmental delay, and slowed growth.

Low level exposure to PCBs during the prenatal period has been shown to have an effect on school performance including decreased intelligence, memory, and attention span. These effects appear permanent and irreversible. Similar effects have been demonstrated from exposure to PCBs during infancy and childhood. However the baby's developing brain in the womb is particularly sensitive to PCB exposure.

Reduce your exposure and protect your family

You or your children may be exposed to PCBs when eating certain types of fish caught from contaminated waters. Looking at a fish, or tasting or smelling a fish will not tell you if it is contaminated.

Most states issue fish consumption advisories to warn people about eating contaminated fish. Fish consumption advisories specify which bodies of water have restrictions. The advisory will indicate the types and sizes of fish that are of concern. The advisory may recommend not eating certain types of fish and/or suggest you limit your meals of various types and sizes. Fish advisories are primarily directed at protecting pregnant women, women who may become pregnant, nursing women and young children. Girls should be especially careful to avoid eating PCB-contaminated fish because these chemicals can build up in their bodies, and then one day they can pass the chemicals to their future children. Even if you do not belong to the high risk group, it's a good idea to follow the suggested advisories.

To obtain more information on the fish advisory in your state, contact your state environmental agency or state health department.

PCB Hotspots in Illinois' Lake Michigan & Surrounding Waters in the Chicago Metro Area

Location	Species	Fish Size	Meal Frequency				
			1 meal/week	1 meal/month	6 meals/month	6 meals/year	DO NOT EAT
Lake Michigan (all waters for Lake and Cook Counties)	Chinook Salmon	< 32"		✓			
		> 32"				✓	
	Coho Salmon	All Sizes		✓			
	Rainbow Trout	< 22"	✓				
		> 22"		✓			
	Brown Trout	< 22"		✓			
		> 22"				✓	
	Channel Catfish	All Sizes					✓
	Lake Trout	< 23"		✓			
		23" - 27"				✓	
		>27"					✓
	Yellow Perch	All Sizes	✓				
	Carp	All Sizes					✓
	Lake Whitefish	All Sizes		✓			
	Smelt	All Sizes	✓				
Lake Calumet	Largemouth Bass	< 14"	✓				
		>14"		✓			
	Carp	All Sizes		✓			
Calumet River System (Calumet River, Cal Sag Channel, Little Calumet River (from Cal Sag Channel to the Calumet River)	Yellow Bass	< 8"		✓			
		> 8"				✓	
	Carp	<12"		✓			
		>12"					✓
	Black Bass	All Sizes		✓			
	Sunfish	All Sizes	✓				
Midlothian Reservoir	[a]Carp	>15"		✓			
Saganashkee Slough	[b]Channel Catfish	>18"	✓				
Schiller Pond	Carp	All Sizes	✓				
Fox Chain-O-Lakes	[c]Channel Catfish	>18"	✓				
	Carp	All Sizes		✓			

Continued on next page

a, b, and c refers to unlimited consumption for the specified fish under the recommended size.

More Tips to Reduce Exposure

- Avoid eating older, larger fish that have had time to build up contaminant levels in their tissue.
- Opt for younger and smaller fish.
- Consume leaner species such as walleye and panfish instead of fatty species such as carp and catfish.
- Always check your state's fish advisory before taking a fresh caught fish home with you for dinner; follow the recommended guidelines.
- If you are given fresh caught fish, ask where it was caught and the name of the fish; check the advisory to see if the fish is listed and follow the guidelines.

What species of fish can you eat from Illinois' Lake Michigan and surrounding waters in the Chicago metro area?

Fishing Illinois' abundant waters is a popular sport. Anglers catch a wide variety of delicious fish and many anglers eat the fish they catch. However, some species in certain waters contain chemicals that may be harmful to human health, even when the fish look healthy and the water looks clean.

The table on these pages provides information pertaining to the state-issued PCB advisories for the waters of Lake Michigan and the surrounding water bodies in the Chicago metro area. The advisories are issued to protect the most sensitive populations from adverse health effects. The advisories may be overprotective for women beyond childbearing age and for adult men.

For more information concerning locations and posted advisories, visit:
www.idph.state.il.us/envhealth/fishadv/fishadvisory05.htm.

PCB Hotspots Continued

Location	Species	Fish Size	Meal Frequency				
			1 meal/week	1 meal/month	6 meals/month	6 meals/year	DO NOT EAT
Fox River	Channel Catfish	All Sizes	✓				
	Carp	All Sizes		✓			
Busse Lake	Channel Catfish	All Sizes	✓				
	Black Bullhead	All Sizes	✓				
	Carp	All Sizes		✓			
DuPage River (headwaters to Rte. 6)	Carp	All Sizes	✓				
DuPage River (Rte. 6 to the Des Plaines River)	Channel Catfish	All Sizes		✓			
	Smallmouth Bass	All Sizes		✓			
	Carp	All Sizes		✓			
Des Plaines River (Rte. 120 to Hoffman Dam)	Channel Catfish	All Sizes	✓				
	Carp	>19"		✓			
Des Plaines River (Hoffman Dam to Lockport)	Channel Catfish	All Sizes		✓			
	Carp	<22"		✓			
		>22"				✓	
Des Plaines River (Lockport to Kankakee River)	Channel Catfish	All Sizes		✓			
	Carp	<18"				✓	
		>18"					✓
	Freshwater Drum	All Sizes		✓			
Chicago River System (North/South Branches of the Chicago River, North Shore Channel, Chicago Sanitary & Ship Canal)	Largemouth Bass	All Sizes		✓			
	Sunfish	All Sizes	✓				
	Carp	<12"				✓	
		>12"					✓
Salt Creek	Carp	All Sizes		✓			
Wolf Lake	Carp	All Sizes		✓			

Where can you get more information?

Environmental Protection Agency - http://www.epa.gov/ost/fish/

Food and Drug Administration - http://vm.cfsan.fda.gov/~dms/admehg.html

Illinois Department of Natural Resources - http://dnr.state.il.us/fish/index.htm

Illinois Department of Public Health - http://www.idph.state.il.us//envhealth/factsheets/fishadv.htm

Illinois Environmental Protection Agency – http://www.epa.state.il.us

Illinois-Indiana Sea Grant College Program – http://iisgcp.org

Illinois Department of Public Health at (866) 369-9710

Information can also be found in the Department of Natural Resources *Illinois Fishing Information* booklet (available where fishing licenses are sold).

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