



CAN WE EAT THE FISH?

Fish Tissue

The Issue: Fish consumption advisories resulting from chemical pollution are still issued annually by the eight Great Lakes states and the Province of Ontario.

- There are health risks associated with consumption of Great Lakes fish species carrying elevated concentrations of contaminants in their tissue.
- Human exposure to pollutants that accumulate in fish tissue has been linked to reduced birth weight, developmental problems, neurological problems, immune system impairments, and cancer.
- Fish consumption advisories, warning people to limit their intake of particular fish species, are currently present in all five Great Lakes.

The Indicator - SOGL 2003

This indicator assesses the extent to which contaminants accumulate in fish tissue and impact the edibility of Great Lakes fish.

Contaminants are ingested by fish.

While some are excreted, lipid (fat)-loving contaminants are stored in fish tissue. As these fish are ingested by other fish, the contaminants accumulate at increasingly higher concentrations. Large fish, the type most often desired for human consumption, are often those carrying the largest amounts of contaminants.

The indicator examines contaminant concentrations in coho salmon in relation to the

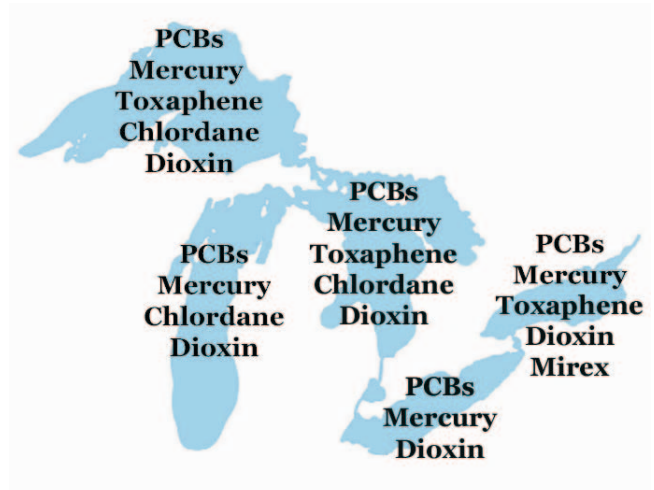


Figure 1. Contaminants that cause fish consumption advisories in each of the five Great Lakes.

need for fish consumption advisories. Currently, contaminant concentrations in coho salmon are examined in relation to a standardized fish advisory, the "Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory." Edible fish are considered those with contaminant concentrations at levels below this standardized advisory.

A standardized advisory is used since consumption advisories vary by Lake and state. State and provincial agencies establish these advisories in response to data indicating elevated tissue concentrations of PCBs, mercury, and other contaminants (Figure 1).

The Assessment

Many organochlorine contaminants such as PCBs, chlordane, and toxaphene were banned a decade to several decades ago. These are persistent chemicals---able to bioaccumulate in the fatty portion of fish tissue---that we still detect in our annual fish tissue surveys.

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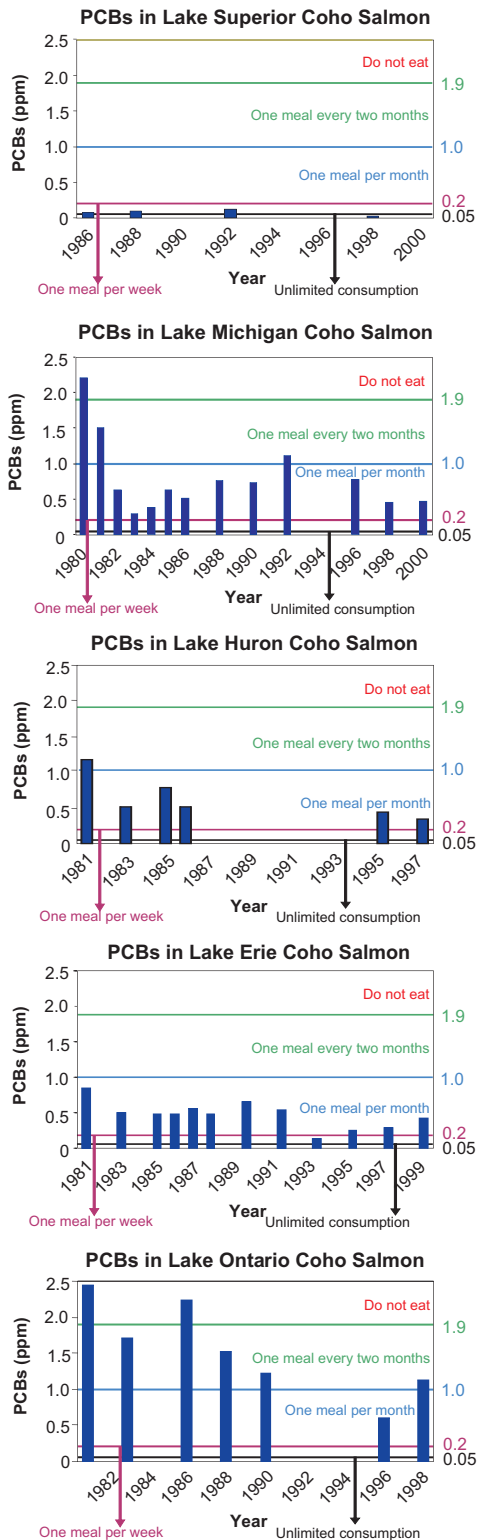


Figure 2. Results of a uniform fish advisory protocol applied to historical data (PCBs, coho salmon).

Overall, concentrations of the banned chemicals are decreasing over time, but they are still present at levels that could affect humans or other members of the food chain. As shown in Figure 2, current PCB concentrations still exceed health protection limits set by the Great Lakes Protocol for PCBs in most of the Lakes.

Over time, the hope is that PCBs and other toxic chemicals will be undetectable in fish species, thereby removing the need for the present-day advisories.

As banned organochlorine contaminants continue to decline, mercury will become a more important contaminant of concern regarding the edibility of fish. Also, unregulated contaminants, such as brominated flame retardants, are now being measured in fish tissue at elevated levels. Agencies are starting to study and monitor these and other chemicals in the Great Lakes.

The Outlook

Increased regional screening efforts will help to quickly identify new chemicals of concern. A coordinated regional approach for data evaluation and advisory decisions may also assist to more efficiently and effectively identify the risks associated with Great Lakes fish consumption.

For More Information...

Visit the web site, www.binational.net, to access the *State of the Great Lakes 2003* and other references reporting on the state of the Great Lakes.

