CAN WE EAT THE FISH?
Offshore Water Quality

The Issue: Chemical pollution, resulting in fish consumption advisories, is found in the offshore waters of the Great Lakes.

- Contaminants found suspended in the Great Lakes water column include PCBs, dioxin, PAHs, and various heavy metals.
- These persistent contaminants can be ingested or absorbed through the skin of Great Lakes fish species. The lipid (fat)-loving contaminants will accumulate in the tissue and trigger fish consumption advisories once they reach a concentration considered unsafe for human consumption.
- The integrity of offshore waters can affect the entire food web and determine whether or not Great Lakes fish are safe to eat.

The Indicator - SOGL 2003

This indicator compares contaminant levels in offshore waters to standards that are known to be protective of aquatic and human health. Through this process, contaminants are identified that exceed protective concentrations.

Particular contaminants found at elevated levels in the water column can be ingested by fish and stored in their fatty 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 amount of contaminants.

The Assessment

Many toxic chemicals still exist in the Great Lakes, however, only a small number are identified as "critical pollutants." Critical pollutants are those that exceed concentrations established to protect humans and aquatic organisms.

Organochlorines (OCs) are a major chemical class identified as pollutants in the Great Lakes that occasionally exceed protective concentrations. OCs are persistent bioaccumulative contaminants used previously to produce plastics, paints, dyes, wood preservers, cleaning solvents, and pesticides. Their presence in the basin is declining over time, however, some OCs still pose human and ecological health risks.

For example, dieldrin, an OC pesticide banned in the 1970s, decreased more than 50 percent between 1986 and 2000. However, concentrations still exceed the state of New York's water quality criterion for fish consumption and the protection of human health by a factor of 50 to 300 times (Figure 1).

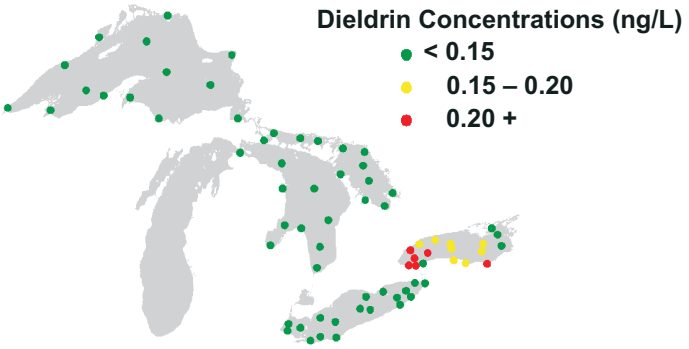

Figure 1. Spatial pattern of Great Lakes surface water dieldrin concentrations for the period of 1997 to 2000.

The Outlook

Although many contaminants are decreasing in concentration, others may emerge over time with the development of new technology and industrial processes. Targeting contaminant sources and reducing contaminant transfer to the Lakes reduces environmental and human health risks.

The Great Lakes Binational Toxics Strategy focuses precisely on this objective:

The elimination of persistent toxic substances, especially those which bioaccumulate, from the Great Lakes basin.

This program and others not only seek to reverse chemical contamination, but also to prevent future contamination from occurring.

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.