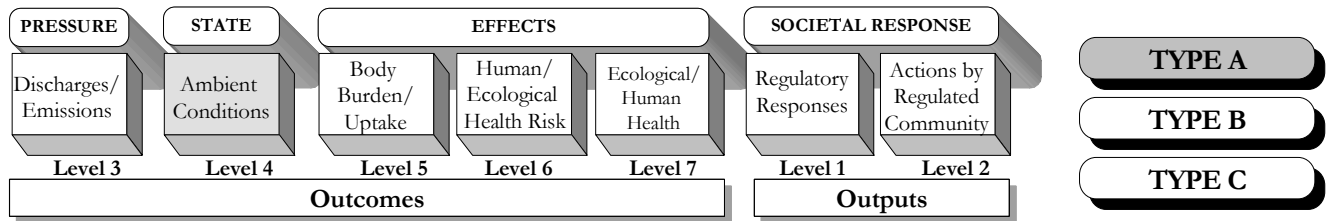


ECOLOGICAL HEALTH

MAJOR ECOSYSTEM FUNCTIONING



Indicator: PAH Concentrations in Offshore Waters of the Great Lakes

The Great Lakes compose an important and unique ecosystem. They represent the largest system of fresh water in the world and provide many economic and ecological benefits to the surrounding areas. The Great Lakes basin, which includes the lakes and over 290,000 square miles of land that drains into them, supports concentrated industry and agriculture for the U.S. and Canada. These activities have taken their environmental toll on the Great Lakes as sewage, fertilizer and pesticide run-off, and industrial wastes have deteriorated water quality. In response to this, there have been many pollution prevention and clean-up efforts sponsored by local governments, the EPA and the Canadian government. Long-term monitoring is necessary to track the progress of these initiatives and to prevent any further degradation of the Great Lakes ecosystem.

Polycyclic aromatic hydrocarbons (PAHs) are a group of over one hundred different chemicals that are formed during the incomplete burning of coal, oil, gas, garbage, or other organic substances like tobacco and charbroiled meat. PAHs enter water through discharges from industrial and wastewater treatment plants. Once in water, they do not dissolve easily, but stick to solid particles and settle to the bottom of lakes and rivers. It is important to monitor the levels of PAHs in the environment because animal tests show that PAHs affect reproduction by causing higher rates of birth defects and lower birth rates. They can also cause harmful effects on the skin, body fluids, and the ability to fight diseases after both short- and long-term exposure. The Department of Health and Human Services has determined that some PAHs are expected carcinogens.

This indicator tracks the concentrations of PAHs in offshore waters of the Great Lakes.

Notes: Data not provided by date of publication.

Source: "State of the Lakes Ecosystem Conference 2000 Implementing Indicators: Draft for Discussion at SOLEC 2000," October 2000. SOLEC Web Site: <http://www.on.ec.gc.ca/solec/implementing2000-e.html>

Scale: The Great Lakes and their watersheds

Data Characteristics and Limitations: N/A

References

Bertram, Paul, and Stadler-Salt, Nancy, "Selection of Indicators for Great Lakes Basin Ecosystem Health: Version 4," State of the Lakes Ecosystem Conference, March, 2000.

Environment Canada SOLEC Web Site. 31 January 2003. Available online at: <http://www.on.ec.gc.ca/solec/intro.html>

U.S. EPA SOLEC Web Site. 31 January 2003. Available online at: <http://www.epa.gov/grtlakes/solec>