MONITORING THE ENVIRONMENT

In general, monitoring programs and scientific studies cover an extremely wide range of parameters, often including emerging issues such as chemical pollutants. They are established to collect and analyze data, and to generate information. The data collected are used to assess the status of the ecosystem and the success (or failure) of corrective actions, determine the level of control of the treatment processes, and determine the compliance with the law. This information is needed to develop policy and legislation to address impacts. Specifically this information can be used to protect human health, determine ecosystem health, evaluate the impacts of discharges to the environment, and provide important insights into changes in the ecosystem.

Managing Monitoring Programs

Agency coordination of monitoring activities reduces duplication of effort and enables more efficient use of resources. This is challenging as monitoring programs and studies are created to support specific agency programs or legislation. The data are often collected during multi-year programs that have very specific protocols; thus, data are not always transferable from one program to another.

Standardized or harmonized sampling techniques and analyses are critical to obtain comparable data and interpretation of results. Current data collection programs establish quality assurance and quality control procedures to maintain accurate, relevant and useful databases. From time to time, procedures are upgraded and changed to reflect new information, equipment and technology.

Recognizing these concerns, Environment Canada, U.S. Environmental Protection Agency, Ontario Ministry of Environment and Michigan Department of Environmental Quality agreed in 1998 to establish a Monitoring Upper Great Lakes Connecting Channels (MUGLCC) committee to aid in coordinating monitoring efforts binationally. This committee was to identify and report biennially on the status of existing monitoring programs, identify gaps in monitoring activities to address management concerns, and facilitate collaboration and coordination of monitoring. In 2000, the MUGLCC committee released the *Monitoring Upper Great Lakes Connecting Channels Inventory of Activities* report. The report was updated in 2002.

In the fall of 2001, the Binational Executive Committee (BEC), formed under the *Great Lakes Water Quality Agreement*, directed the U.S. and Canadian federal, state and provincial governments with environmental manadates to develop an on-line monitoring inventory for the Great Lakes basin, including Lake St. Clair. This on-line monitoring inventory is now available at www.binational.net. BEC further directed that annual workshops be hosted to provide opportunities to enhance monitoring coordination, and that annual status reports be prepared that included gap analyses and recommendations for steps to improve monitoring coordination.

In 2002, Conservation Ontario released *Recommendations for Monitoring Ontario's Water Quality*. The recommendations will help conservation authorities consider improvements to their water quality networks in their planning activities, and will assist with the implementation of a holistic water quality monitoring system. The recommendations will also serve as a focal point for discussions with municipal, provincial, and federal agencies.

Additional information is being collected as part of the St. Clair River RAP monitoring of the St. Clair River Area of Concern. Efforts towards protecting species at risk are helping to synthesize the existing biophysical information for the Sydenham and Thames Rivers. New and evolving issues may require adjustments to the monitoring programs and additional studies to obtain information and develop policy.

Managing Monitoring and Scientific Information

Managing the information from monitoring programs and studies is critical to adaptive, results-based watershed management. To this end, a Lake St. Clair watershed monitoring program should include the entire St. Clair River, Lake St. Clair and Detroit River corridor.

Reporting is an end product of the information management process. Providing the public with current information is an important component. Many agencies involved in the monitoring programs are now taking advantage of modern technology to establish websites that provide public access to information. For example, Canada and Ontario have been actively involved in the development of a binational on-line monitoring inventory as directed by BEC. The ultimate goal of this is an on-line inventory system. As a first step towards realizing this, a St. Clair River-Detroit River corridor monitoring inventory, that includes information about where data and information are maintained and accessible, can be accessed through the web. Throughout this report a number of websites have been identified that provide information.

The conversion of scientific data and reports into a format for communication to the general public is one of the challenges facing the scientific community. Attention to standardized reporting helps the interpretation of monitoring data and analyses. In 2002, a *Conservation Authority Guide to Watershed Reporting* was produced to develop standards for reporting by Ontario's conservation authorities. The intent was to have practical and achievable standards to produce effective and comparable state of the watershed reports.

Current Data Collection Programs

Appendix 1 contains a summary of monitoring and science programs that have provided information to this report. It is intended to provide a brief reference for monitoring activities in the Lake St. Clair watershed. A more complete listing of monitoring programs in the Canadian waters of Lake St. Clair has been created by the Committee for Monitoring Upper Great Lakes Connecting Channels and can be found on the Binational Executive Committee website at www.binational.net.

Management Issues

- A program or policy approach to watershed research, monitoring, and reporting, is not as effective as a coordinated, ecosystem approach.