STATE of the STRAIT

State Of The Strait
Monitoring For Sound Management






A Binational Conference on the Detroit River Ecosystem

Convened December 2004 by Great Lakes Institute for Environmental Research, University of Windsor, The Greater Detroit American Heritage River Initiative of Metropolitan Affairs Coalition, The Detroit River Canadian Cleanup, The Detroit River International Wildlife Refuge, The Detroit Water and Sewerage Department, and other organizations.

Cover photos: photos left and center (upper and lower): Recreational fishing in the Huron-Erie Corridor (lower center photo by Kurt Byers, Michigan Sea Grant Extension, courtesy of United States Environmental Protection Agency, Great Lakes National Program Office; other photos courtesy of OMNR); upper right: Scientist sampling water, benthic invertebrates and sediment in Lake Erie (photo courtesy of Environment Canada and University of Windsor); lower right: Longear sunfish (*Lepomis megalotis*) (photo courtesy of Nicolas Lapointe)

STATE OF THE STRAIT

MONITORING FOR SOUND MANAGEMENT

2004 Conference Proceedings

Edited by:

Rachael Eedy, University of Windsor
John Hartig, U.S. Fish and Wildlife Service
Charlie Bristol, Bristol Technical Services, Inc.
Melanie Coulter, Detroit River Canadian Cleanup
Tracy Mabee, University of Windsor
Jan Ciborowski, University of Windsor

Based on a binational conference convened by
The Great Lakes Institute for Environmental Research, University of Windsor, Greater Detroit American Heritage River Initiative of Metropolitan Affairs Coalition Detroit River Canadian Cleanup, Detroit River International Wildlife Refuge, Detroit Water and Sewerage Department, and other organizations.

Suggested citation: Eedy, R., J. Hartig, C. Bristol, M. Coulter, T. Mabee and J. Ciborowski eds. (2005). *State of the Strait: Monitoring for Sound Management*. Great Lakes Institute for Environmental Research, Occasional Publication No. 4, University of Windsor, Windsor, Ontario.

5. Key Findings And Concluding Remarks

Monitoring gives decision-makers the necessary understanding of environmental conditions and processes needed for management. Monitoring data are absolutely essential for implementing the scientifically defensible management being called for by all agencies and stakeholder groups. The success of the Great Lakes phosphorus control program in the 1970s and 1980s was in part due to a comprehensive, binational, monitoring program.

Government, businesses, and citizen groups are calling for monitoring data to inform their decision-making.

Routine reporting of the data from monitoring and research programs results in better management. Experience has shown that monitoring and research can help:

- Focus management efforts
- Set priorities
- Catalyze management actions
- Save money

Government, businesses, and citizen groups are calling for relevant, accurate, and timely monitoring data to inform their decision-making. State of the Strait Conference participants noted that today monitoring is given a much lower priority than in the 1970s and 1980s. Monitoring must be given a higher priority if we wish to effectively manage the Detroit River and western Lake Erie. Indeed, the U.S. Government Accountability Office (2004) reported that current monitoring does not provide the comprehensive information needed to assess overall conditions in the Great Lakes Basin because the required coordinated joint U.S.-Canadian monitoring program has not been fully developed.

Increasingly, stakeholders are asking for current information on indicators of ecosystem health, performance, and function. They are asking about the ecological significance of remedial and preventive management actions. Stakeholders are asking:

- We have protected "so many" acres of coastal wetlands, but what does that mean?
- We have reduced mercury loadings, but how much further do we have to go to eliminate health advisories on fish and ensure safe human consumption of fish?

More and more stakeholders are asking whether ecosystem health, performance, and function are improving. For example, key questions being asked include:

- Has fish or wildlife community health improved?
- Have we identified measurable targets for achievement of adequate ecosystem health, performance, and function? How much further do we have to go?

To be able to measure progress, future monitoring programs must evaluate ecological conditions against quantitative ecosystem targets. Evaluating progress toward restoring impaired beneficial uses should be a priority.

Greater emphasis must be placed on ensuring that volunteer monitoring data have sufficient quality controls, that management agencies sanction these efforts and agree to use the data for management purposes, and that the data are actually used and broadly disseminated.

Management actions taken on the Detroit River and western Lake Erie should be treated like experiments in which:

- Monitoring documents describe conditions prior to intervention
- Predictions and hypotheses are made
- Outcomes and effectiveness of the actions are measured

Volunteer monitoring programs offer a wealth of valuable data and information that can supplement traditional monitoring activities. Good examples of "citizen science" discussed at the conference included:

- Christmas bird count programs (e.g., those in Point Pelee National Park of Canada; Ojibway Nature Centre; Rockwood, Michigan; Monroe, Michigan; Upper Detroit River, Michigan; and others listed at www.audubon.org/bird/cbc/index.htm)
- Hawk watch programs like the Holiday Beach Festival of Hawks (www.hbmo.org) and the HawkFest at Lake Erie Metro Park (www.smrr.org)
- Frog and toad surveys like those undertaken by Friends of the Rouge (www.therouge.org) and the Stream Team

High school students representing volunteer programs at the 2004 SOS conference (Photo courtesy of A.J. Kirkpatrick)

Volunteer monitoring programs are under-appreciated and under-utilized. Greater emphasis must be placed on ensuring that volunteer monitoring data have sufficient quality controls, that management agencies sanction these efforts and agree to use the data for management purposes, and that the data are actually used and broadly disseminated. The partnership announced at the conference between the Stream Team and Wayne County Department of Environment is a good example of effective use of volunteer monitoring data. We congratulate the Stream Team and Wayne County Department of Environment for their leadership and example.

Conference recommendations

- A single central directory of past and present monitoring data and programs is needed to permit managers, researchers, and the public to find the key information necessary to understand the historical and current state of the Detroit River and western Lake Erie.
- All agencies and organizations must coordinate their monitoring efforts. There is a need to better coordinate monitoring for the corridor and sustain a central repository for databases supportive of ecosystem modeling, research, and management. Good examples include: Data Retrieval, Exchange, Archival, and

Management System (DREAMS), Monitoring Upper Great Lakes Connecting Channels Committee (MUGLCCC), and the Rouge River National Wet Weather Demonstration Project. The virtual map project that began at the SOS conference can become a valuable tool to direct stakeholders to data sets that can give answers to important research and management questions. Indeed, the U.S. Government Accountability Office (2004), has recommended that adequate controls for an inventory of monitoring be developed to ensure that monitoring data are accurate, current, and complete to facilitate "user" efforts to coordinate monitoring activities. The Hamilton Harbour Remedial Action Plan Office (2004) has developed a useful "Monitoring Catalogue" to identify existing monitoring activities and gaps for key decision-makers.

Monitoring data must be made more accessible. The data must be summarized and objectively interpreted in ways that are meaningful to non-experts and informative to decision-makers.

- A higher priority must be given to strengthening the science-management linkage. More effort must be expended on integrating recent scientific knowledge with management for the Detroit River and western Lake Erie. Frequently, there appears to be little connection between rehabilitation/conservation techniques and management objectives and the scientific method. This linkage can be strengthened by:
  - Identifying quantitative objectives and targets to help managers evaluate and select the most appropriate rehabilitation and conservation techniques
  - Increasing cooperative monitoring and research efforts to quantify problems, establish cause-and-effect relationships, and determine effectiveness relative to ecosystem health, performance, and function
  - Committing resources to follow-up assessment of the effectiveness of remediation/restoration projects
- Greater emphasis must be placed on ensuring timely reporting of data in a clear and understandable fashion. Monitoring data must be made more accessible. The data must be summarized and objectively interpreted in ways that are meaningful to non-experts and informative to decision-makers. These findings must be broadly communicated. Perhaps an electronic, binational indicator report should be prepared and routinely updated to improve accessibility, translation, and communication. This could be the focus of the next State of the Strait Conference.

The State of the Strait Conference continues to be an effective tool for synthesizing and communicating such knowledge, and transferring lessons learned and practical experiences from data collectors to information users.

References

Detroit River International Wildlife Refuge. (2004). *Soft Engineering Demonstration Projects along the Detroit River,* <http://midwest.fws.gov/detroitriver/ahr/softeng.htm>.

Environmental Integrity Project. (2004). *Flying Blind: Water Quality Monitoring and Assessment in the Great Lakes States,* <www.environmentalintegrity.org/pubs/Report_-__Flying_Blind.pdf>.

Hamilton Harbour Remedial Action Plan Office. (2004). *Monitoring Catalogue,* Canada Centre for Inland Waters, Burlington, Ontario.

International Joint Commission. (2004). *Twelfth Biennial Report on Great Lakes Water Quality,* International Joint Commission, Windsor, Ontario.

Leach, J.H. (1993). "Impacts of Zebra Mussel (*Dreissena*) on Water Quality and Fish Spawning Reefs in Western Lake Erie." *Zebra Mussels: Biology, Impact, and Control*, T.F. Nelepa and D.W. Schloesser, eds., Lewis Publishers, Ann Arbor, Michigan, 381-397.

Panek, J., D.M. Dolan and J.H. Hartig. (2003). "Detroit's Role in Reversing Cultural Eutrophication of Lake Erie." *Honoring Our Detroit River: Caring for Our Home*, J.H, Hartig, ed., Cranbrook Institute for Science, Bloomfield Hills, Michigan, 79-90.

Read, J., D. Haffner, and P. Murray. (2003). "Mercury and PCB Contamination of the Detroit River." *Honoring Our Detroit River: Caring for Our Home*, J.H. Hartig, ed., Cranbrook Institute for Science, Bloomfield Hills, Michigan, 51-106.

Steinman, A. D. and M. Ogdahl. (2004). "An Innovative Funding Mechanism for the Muskegan Lake AOC." *Journal of Great Lakes Research*, 30(2), 341-343.

U.S. Geological Survey–Great Lakes Science Center. (2004). "Restoration of Lake Sturgeon in the Detroit River," <http://www.glsc.usgs.gov/_files/research/SturgeonDetroitRiverRestorationPoster.pdf>.

U.S. Government Accounting Office. (2004). *Organizational Leadership and Restoration Goals Need to Be Better Defined for Monitoring Restoration Process.* GAO-04-1024, Washington, D.C.

Weseloh, D.V.C. (2003). "Spatial and Temporal Trends of PCBs in Herring Gull Eggs from Western Lake Erie-Detroit River-Southern Lake Huron Corridor, 1974-2001." *Evaluating Ecosystem Results of PCB Control Measures within the Detroit River-western Lake Erie Basin*, T.M. Heidtke, J. Hartig and B. Yu, eds., Environmental Protection Agency (EPA-905-R-03-001), Chicago, Illinois, 99-103.