



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)

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2004 Conference Proceedings

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2. THE STATE OF THE DETROIT RIVER AND WESTERN LAKE ERIE

The conference began with a brief overview of the state of the Detroit River and western Lake Erie. In general, municipal phosphorus loadings and the loadings of many other chemicals declined dramatically during the 1970s and 1980s. Western Lake Erie, in turn, exhibited a reversal in cultural eutrophication through the 1980s and early 1990s. However, there has been little change since then, and accurate loading estimates of nutrients cannot be calculated because of cuts in monitoring (Panek et al. 2003). Wastewater treatment in the Detroit River-western Lake Erie basin has improved dramatically during the last 30 years, but most recently, the priority has been to address combined sewer overflows and urban stormwater runoff to meet water quality standards that permit body contact recreation.

Zebra mussels (*Dreissena polymorpha*) were introduced into the Detroit River and Lake Erie in the late 1980s (Leach 1993) and quickly spread throughout the systems. Today, we still don't fully understand their effect on the food web, especially the interactions amongst nutrient loadings, zebra mussels, and blue green algal blooms (i.e., *Microcystis*).

Mercury loadings declined substantially following elimination of mercury cell technology to produce chlorine and caustic soda in the basin. Between the "mercury crisis" of 1970 and the mid-1980s, there was a 70% decline in mercury in fish (Read et al. 2003). However, since the mid-1980s, mercury concentrations in fish have remained fairly constant. The concentration of PCB found in herring gull eggs declined by approximately 90% between the late 1970s and mid-1990s. However, there has been no significant change since then (Weseloh 2003).

The Detroit River has lost 96–97% of its coastal wetland habitats to development. The watershed continues to experience incremental habitat loss. However, some progress is being made in preserving critical habitats (e.g., Humbug Marsh, Peche Island, Mud Island, Calf Island, Stoney Island). In addition, 20 soft engineering projects have been implemented to rehabilitate habitat (Detroit River International Wildlife Refuge 2004).



Pollution control efforts have led to signs of improvement in biological communities.

As a result of 30 years of pollution control efforts, there are several promising signs of improvement within the biological community. For example, lake sturgeon reproduction has recently been documented in the Detroit River, and sturgeon spawning habitat has been constructed at three Detroit River locations (U.S. Geological Survey Great Lakes Science Center 2004). Previously, sturgeon reproduction had not been observed in the Detroit River for several decades. In addition, bald eagles are now successfully reproducing at four locations along the shores of the Detroit River. For many years, bald eagles had not successfully reproduced in this region because of organochlorine contamination.

Both research and monitoring have documented substantial improvements in the Detroit River and western Lake Erie over the past 30 years. However, our collective ability to track changes in trends and understand how this ecosystem functions has decreased.

Cuts in monitoring and research programs have increased the uncertainty associated with management actions and slowed progress. In response to the reductions in monitoring and research, the State of the Strait Conference Steering Committee chose “Monitoring for Sound Management” as the theme for the 2004 conference.