Research and Monitoring Issues for Sources of Urban Pollutants in the Lake Erie Watershed.

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Since the mid-1970's, point sources of phosphorus in the Lake Erie watershed have been tracked by governments charged with meeting target loadings set forth in the Great Lakes Water Quality Agreement. The result has been not only significant improvements in Lake Erie water quality, but a database that can be utilized to answer a variety of management questions. As wastewater treatment came on line, the importance of non point reductions, detergent phosphorus bans and tighter effluent limits could all be evaluated. Efforts to evaluate the significance of point source loadings of other pollutants within the watershed, especially trace metals and organic compounds, have not met with as much success. Monitoring for chemicals such as mercury and PCBs is much more expensive than for phosphorus and requires more quality assurance to yield results that can be used for load estimation. Resultant data are frequently censored, i.e. some or all of the values are below detection limits. Special load computation methods such as maximum likelihood estimation (MLE) are often required. Several relatively insignificant sources of phosphorus pollution have the potential to be important sources of other pollutants. Rapid, reliable monitoring of groundwater-surface water exchange near landfills is needed. Urban air deposition, especially due to precipitation, is significantly elevated with respect to samples collected at the IADN sites. A method to account for these differences in atmospheric load estimates is needed. Combined sewer overflows present special challenges for obtaining representative estimates of quantity and quality to evaluate the significance of inputs from these sources.