Report for 2001MI2961B: Information Dissemination and Technology Transfer

- Other Publications:
  - Wolfson, LW, D. Mokma, G. Schultink, and E. Dersch. In Press. Development of a Wetland Information System for Assessing Wetland Functions. Lakes and Reservoirs: Research and Management.
  - Witter, Scott G., Ruth Kline-Robach, D.L. Long, Jon Bartholic and Fred Poston. 2001. MSU-WATER: A New Way of Addressing Water Quality Challenges. Water Resource Update, The Universities Council on Water Resources.
  - Mokma, D., G. Schultink, E. Dersch, and L. Wolfson. 2000. Methods and Guidelines for Local Wetland Protection and Related Land Use Planning. Special SAPMINAR Report, Michigan Agricultural Experiment Station, Michigan State University, East Lansing, MI. 16pp.
  - Brown, E., A. Peterson, R. Kline-Robach, K. Smith, and L. Wolfson. 2000. Developing a Watershed Management Plan for Water Quality: An Introductory Guide. Institute of Water Research, Michigan State University, East Lansing, MI. 52 pp.
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  - Wolfson, L. 2000. Prioritizing Pollutants, Sources, and Causes, Unit 6 in Module 2: Building and Implementing Watershed Management Plans. (www.h2oshed2.vu.msu.edu). Michigan State University, East Lansing, MI.
  - Schultink, Ger, R. Moore, L. Wolfson, J. Dischinger-Smedes. 2000. Guidelines for Wetland Identification and Evaluation: Needs and Opportunities for Local Protection. Agricultural Experiment Station, Research Report No. 572. Michigan State University, East Lansing, MI.
  - DItri, F.M. 1999. Environmental Contamination and the Information Highway. In: Integrated Environmental Management: Development Information and Education in the Asian Pacific Region, Ann Arbor Press, Chelsea, MI, pp. 211-222.
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INFORMATION DISSEMINATION AND TECHNOLOGY TRANSFER TRAINING PROGRAMS - FY 2001

Michigan is surrounded by four of the five Great Lakes, has 11,000 inland lakes greater than 5 acres in size, over 32,000 miles of river channel, and a vast groundwater supply. These waters provide a wealth of resources for the diverse agricultural, industrial, and recreational opportunities of the state. However, as these activities continue to increase, both the quantity and quality of the state's water resources are at risk. It is paramount to keep the citizens of the state informed about water quality and quantity issues and how their actions can have major impacts on Michigan's water resources.

As land use impacts on water quality become more widespread, the need for action at the watershed level becomes more apparent. The movement of pollutants across a watershed is not constrained by political boundaries, and activities in one political jurisdiction may lead to water degradation in another. The difficulty in assessing impacts from erosion, nonpoint source pollution or shoreline development lies not only in the magnitude of the data collection efforts, but in the proper analysis and interpretation of the data needed for assessing the problem.

In order to determine if efforts being made to reduce pollutants are proving effective and to keep the citizens of the state up to date on water related issues, an education, training, and dissemination program is appropriate. An effective information dissemination and training program facilitates the transfer of information needed to protect the water resources in the state, and helps to inform scientists, legislators, and citizens of the most recent information available. For further effectiveness, agency personnel, riparians, educators, and others interested in protecting their water resources or in teaching others about it must understand the importance of collecting and/or analyzing information at the watershed level to ensure that reliable and appropriate information is being used to make sound decisions for water quality protection.

Title: **Information Dissemination and Technology Transfer Training Programs**
Project Number: **22**
Start Date: **03/01/2001**
End Date: **02/28/2002**
Funding Source: **US Geological Survey**
Congressional District: **Eighth**
Lead Institute: **Michigan Institute of Water Research**
Descriptors: Water Quality; Watershed Management; Web based GIS; Monitoring
Primary PI: **Lois G. Wolfson, Institute of Water Research, Michigan State University**

Description of Projects
The Institute of Water Research Technology Transfer and Information Dissemination Program began in the early 1970s, and has been expanded and improved to be more responsive to the informational needs of a wide variety of user groups. A variety of mechanisms were utilized in FY 2001 to present the most current information on water related issues to citizens and targeted groups throughout the state.

Conferences
In order to promote the maximum exchange of information, the combination conference/ workshop format has often been selected as a vehicle for disseminating current research and information. These conferences are open to public participation and present new and current information, often providing recommendations for future research and outreach. A conference on Monitoring Michigan's Watersheds: Past, Present, and Future was held during Agriculture and Natural Resources Week (ANR Week) in March 2001 to focus on various aspects of monitoring. The conference included presentations on environmental indicators; meeting state water quality standards, estimating total maximum daily loads in a TMDL watershed, assessing trends in Michigan's fish populations and aquatic resources; monitoring exotic species; and designing a watershed information web site. Overall 148 people attended the session. Following the conference, the IWR hosted a reception and demonstration to give participants the chance to comment and evaluate IWR's prototype for a statewide watershed web site as well as some other web based programs developed by various state agencies.

The Institute also co-sponsored and coordinated the development and organization of a statewide Wellhead Protection Conference, *From Vision to Reality, Planning and Implementing Successful Wellhead Protection Programs,* in February 2002. This conference, held in cooperation with the Michigan Department of Environmental Quality, was attended by over 125 people and featured talks on successful wellhead protection programs throughout the state.

Virtual Watershed Module
The IWR completed its fourth module in its internet-based Virtual watershed course. This module focused on legal, financial and institutional frameworks for watershed management. It includes key legal and financial information for watershed management, such as an in-depth study of Clean Water Act programs. Participants who complete all four courses receive a Masters level Professional Certificate in Watershed Management. An additional online training course on Soils Management was also developed. This virtual university class was designed to address the issue of sedimentation and pollutants in water and was specifically designed for professional planning and engineering individuals, agency personnel, and those interested in practical applications of construction site erosion prevention and sediment control.

Web based Programming
A web-based, interactive watershed information system was developed to help watershed planners obtain comprehensive data for any watershed and assist in the development of watershed management plans. The system, *Understanding Your Watershed: An Interactive Mapping Program to Explore Michigan Watersheds*, uses web-based GIS to provide easy access to watersheds in the state corresponding to a 12-digit hydrologic unit, data layers that can be viewed in map format, digital panchromatic imagery, and models. This system is aimed at assisting and facilitating decision making concerning the identification and prioritization of areas where current land uses and activities on the land may negatively affect water quality. The system is intended to enhance the understanding of land use inter-relationships that contribute to pollution of water resources. It can be accessed at www.hydra.iwr.msu.edu/water. This interactive geographic information system (GIS) can be used as a complement to the booklet, *Developing a Watershed Management Plan for Water Quality*, a publication completed last year by the MSU Institute of Water Research and Department of Environmental Quality. The guide

details the process to develop a watershed plan in a clear, concise way. The new interactive GIS can be used as an important tool to take many of the steps described in the guide.

MSU Water
Institute staff are actively involved with MSU Water (Watershed Action Through Education and Research). One staff member has major responsibility in coordinating the research and outreach efforts of the program. During this fiscal year, Institute staff developed a brochure for the program, a poster that was presented at the MSU Land Use Forum, and gave several talks to various groups as well as present the information at national conferences.

Demonstrations and Exhibits
The Institute began development of a shoreline demonstration project. The overall goal is to illustrate how suburban lawns can be transformed into natural shoreline assemblages in order to control shoreline erosion, impede nutrient input, and improve wildlife habitat. Staff from the Institute and Department of Fisheries and Wildlife have recently installed coconut logs and rip-rap at the lake site to illustrate shore stabilization techniques with other erosion control techniques being planned.

Institute staff took part in the Michigan Science Olympiad by serving as State Supervisor for Water Quality in the state finals. This annual event attracts nearly 100 junior high and high schools across the state who competed in a variety of science related events. Winners of the event continued to the national finals.

MSU has implemented an annual event called Outdoor Expo which invites people throughout the state to learn about a variety of subjects that take place outdoors. The Institute teamed with the Department of Fisheries and Wildlife to demonstrate proper lake sampling techniques. Utilizing the University's pontoon, participants were taken out into the middle of the lake and taught how to test for various parameters and interpret the test results.

In late July, MSU's Ag Expo, an agricultural oriented exposition is held. Approximately 35,000 people attend this annual event. Each year the Institute features an educational exhibit. In FY01, the Institute focused on reducing shoreline erosion and enhancing water quality. Two small "lakes" were constructed and proper and improper techniques for maintaining water quality and reducing erosion were illustrated. Over the three day period approximately 1500 people viewed the demonstration and discussed management options with staff.

Regional Coordination of Activities
Institute personnel received outside funding to take part in coordinating Extension activities across six Great Lakes states. As part of this program, the Institute was successful in bringing together Institute directors from these states with the Water Quality Extension coordinators. The interaction has led to some potential training workshops and sharing of web based computer modeling for reducing leaching risks and more interaction with EPA.

Lectures, Workshops, and Training
A paper on wetlands functions was presented at the Shiga-Michigan Joint Symposium 2001 at the University of Shiga Prefecture in Hikone, Japan. The paper, based on the development and

use of a Wetlands Information System presented research findings on assessing wetland functions in relation to wetland size and type.

The Institute staff gave numerous presentations and several training sessions throughout the year on issues such as watershed management and developing watershed management plans, wetland functions and values, wellhead protection, indicator species for water quality testing, and nonpoint source pollution. Audience participation ranged from approximately 25 to over 100 for each presentation.

The Institute staff co-developed a comprehensive Powerpoint presentation on Farming Practices and Water Quality for the Michigan Agriculture Environmental Assurance Program (MAEAP) training. This presentation was presented throughout the state to those involved with MAEAP. The IWR also participated in the Children's Water Festival, an event that brings together nearly 1000 elementary school children from across the tri-county area to be introduced to a variety of natural resources and science-related topics. The IWR featured aquatic macroinvertebrates and their role as water quality indicators. Five sessions were given for various classes. Each session had approximately 30 to 40 attendees.

Personnel and Facilities

The Institute of Water Research maintains such facilities and equipment as the latest software packages for desktop publishing, GIS, video editing and photographic equipment to support its Information Dissemination Program. It also has microcomputers, three Sun Sparc-20 work station, scanner, color printer, and digital camera to enhance its educational programs. For field demonstrations and research related opportunities the Institute also has a Data Sonde mini-probe for measuring chemical parameters in lakes.

The Institute's technology transfer program is under the direction of Principal Investigator Dr. Lois G. Wolfson, with several Institute personnel contributing to the project, including Dr. Frank D'Itri, Ruth Kline-Robach, and Jeremiah Asher.

The following publications and programs were partially supported with information transfer funding or personnel:

Wolfson, LW, D. Mokma, G. Schultink, and E. Dersch. In Press. Development of a Wetland Information System for Assessing Wetland Functions. Lakes and Reservoirs: Research and Management.

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