

Report for 2002MI7B: Information Dissemination and Technology Transfer Training Programs

- Conference Proceedings:
 - Kline-Robach, Ruth and Scott G. Witter. 2002. MSU-WATER: A Campus-wide Approach to Water Resources Management. Presentation and paper for Integrated Trans-boundary Water Management. Conference co-sponsors include the Universities Council on Water Resources, Environmental & Water Resources Institute of ASCE, U.S. Army Corps of Engineers Institute for Water Resources and National Groundwater Association. July, 2002. Traverse City, MI.
- Other Publications:
 - Wolfson, Lois, Del Mokma, Ger Schultink and Eckhart Dersch. 2002. Development and Use of a Wetlands Information System for Assessing Wetland Functions. *Lakes & Reservoirs: Research and Management* 7:207-216.
 - 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.
 - 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.
 - Wandell, H. and L. Wolfson. 2000. A Citizens Guide for the Identification, Mapping, and Management of the Common Rooted Aquatic Plants of Michigan Lakes. WQ 55. Michigan State University Extension, East Lansing, MI. 90 pp.
 - Hart, S, M. Klepinger, H. Wandell, D. Garling, and L. Wolfson. 2000. Integrated Pest Management for Nuisance Exotics In Michigan Inland Lakes. WQ 56. Michigan State University Extension, East Lansing, MI. 28 pp.
 - Wolfson, L. and M. Higgins. 2000. Aquatic Ecosystems, Unit 8, in Module 1: Virtual Watershed Program in Watershed Management. (www.h2oshed1.vu.msu.edu) Michigan State University, East Lansing, MI.
 - 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.
- unclassified:
 - 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.

**INFORMATION DISSEMINATION AND TECHNOLOGY TRANSFER
TRAINING PROGRAMS - FINAL REPORT
FY 2002**

Michigan has a wealth of water resources, including 11,000 inland lakes greater than 5 acres in size, over 36,000 miles of river channel, and a vast groundwater supply. It is also surrounded by four of the five Great Lakes, which make up 95 percent of the surface freshwater in the United States. Many of these lakes and streams have excellent water quality and 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.

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 land use activities, 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.

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, helps to inform scientists, legislators, and citizens of the most recent information available, and provides a mechanism for people to take action based on the science-based research that was presented to them. 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.

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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 since continued to expand and improve in order to be more responsive to the informational needs of a wide variety of user groups. A variety of methods to disseminate information and provide innovative tools needed to help citizens solve or address water related issues have been utilized.

Conferences

In order to promote the maximum exchange of information, the combination conference/workshop format has been one mode of communication utilized 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 Great Lakes: Current Issues, Future Challenges was held during Agriculture and Natural Resources Week (ANR Week) in March 2002 to focus on critical issues within the Great Lakes ecosystem. Issues included ballast water issues, sea lamprey control, disruption of food webs, water use and diversion, slant drilling and fisheries. Overall 125 people attended the session.

The Institute also co-sponsored and coordinated the development and organization of a conference with two of the key outside professional water organizations in the state, Michigan Chapter, North American Lake Management Society and Michigan State Section, American Water Resources Association. The conference focused on several key issues concerning inland lakes and streams and was titled, "Aquatic Nuisance Species, Water Quality Standards and Emerging Technologies." Approximately 60 people attended the conference.

Web-based Programming

The IWR continued expanding its web-based, interactive watershed information system by adding new layers of information including digital orthoquad photographs for the majority of the state and expanding the system for use across the U.S. *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. The addition of the photographs has helped citizens in visualizing the area around their property and viewing potential problem areas. The Michigan site can be accessed at www.hydra.iwr.msu.edu/water. The US site is available at: www.iwr.msu.edu/dw. Additionally, a fact sheet/newsletter, *The*

Watershed Post, can be viewed on the web site. The Post provides articles in .pdf format on a variety of watershed issues, particularly in Michigan.

MSU-WATER

Institute staff members 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 presented several programs to other Universities on the lessons being learned from MSU-WATER and steps needed to get research and outreach specialists coordinating their efforts. MSU-WATER collaborators also worked with the Office of Chemical, Radiation and Biological Safety to write the watershed-based permit application for MSU. The permit was submitted to the Michigan Department of Environmental Quality (MDEQ) in March to comply with the Clean Water Act stormwater discharge requirements for Phase II communities. The permit activities and timeline were developed to parallel the work that is being done by other communities within the Red Cedar River Watershed. MSU-WATER coordinators have continued their involvement with the Greater Lansing Regional Committee on Phase II Nonpoint Source Pollution Prevention, whose members are working collaboratively to develop watershed management plans for their communities.

Two posters created by MSU undergraduate students were used as part of two displays set up at foot bridges across the river for three hours preceding the two largest football Saturday home games last October and November. The displays, partially run by Institute staff also included live macroinvertebrates and fish collected from the river. Hundreds of students, alumni, and other visitors to campus on these game days viewed the displays and voiced their amazement at the biological diversity in the river. In November, on the MSU/Minnesota game day, students had live displays of 16 different fish species they had collected from the river in two hours the previous day -- an incredible statement about the water quality in the river. This trial "Football Saturday" project appears to have been extremely effective and will likely be expanded next fall. An estimated 500 people viewed the displays.

In February, a group of MSU faculty and students, including Institute staff, presented a workshop session at the 7th Annual Institute on Service Learning, held on the campus of Central Michigan University. The workshop presentation about the Red Cedar River educational initiatives was entitled "Engaging Student Learning Through Campus Watershed Stewardship" and offered other educators a chance to learn about the activities that MSU is pursuing with respect to the river that runs across its campus.

Demonstrations and Exhibits

The Institute initiated a shoreline demonstration project at its Inland Lakes Research and Education Area. The overall goal of the project 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 members from the Institute and Department of Fisheries and Wildlife are contrasting good and poor techniques for erosion control and shoreline stabilization, using coconut logs, riprap, and a variety of native vegetation.

MSU convened Outdoor Expo in June 2002. The 3-day event 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 on the lake and taught how to test for various parameters, including light, dissolved oxygen, pH, temperature, and plankton and interpret the test results. Weather conditions were poor during the event and attendance was substantially lower than anticipated. Approximately 2800 people attended overall with about 200 taking part in the water testing.

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 FY02, the Institute developed a 4 square foot model that featured proper and improper land use practices, particularly in agricultural settings. Using recirculating water, the model also illustrated how runoff affects water quality in streams and lakes. Over the three-day period approximately 1100 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. In summer 2002, the Institute coordinated one of these regional meetings with the National Institutes of Water Resources meeting and brought 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.

Lectures, Workshops, and Training

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 typically ranges from approximately 25 to over 100 for each presentation.

In October, the 30th anniversary of the enactment of the Clean Water Act was celebrated. A number of local, state and national groups, including Institute staff, participated in National Water Monitoring Day by sampling the river water on campus with several classes. The students collected macroinvertebrates and conducted some water testing. USGS personnel also were present to demonstrate stream flow measurements and water sampling techniques.

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.

Institute staff took part in the Michigan Science Olympiad by serving as State Supervisor for Division C 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.

The IWR also participated in two Children's Water Festivals, one on the University campus and one near Detroit. Each event brought together from 1000-2000 elementary school children 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 held in the East Lansing area and eight were held in Detroit area. Each session had approximately 15-35 students.

Other activities involving training and/or presentations included:

- Planning and facilitating a two-day statewide workshop to discuss the refinement of the National Hydrography dataset with the Michigan Center for Geographic Information
- Coordinating strategic planning meeting for Tri-County Regional Planning Commission
- Presentation for Friends of the Red Cedar
- Training for Farm*A*Syst well management
- Multiple presentations for Spartan Writer's Camp
- Presentation for Environmental Science Teachers
- Workshop for the Extension Council Conference on water quality
- Presentation at the Rise Seminar Series
- Land Use Poster Forum
- Water well management presentation for the Ingham Conservation District

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, particularly Ms. Ruth Kline-Robach and Mr. Jeremiah Asher.