



Applying knowledge to improve water quality

Great Lakes

Regional Water Program

A Partnership of USDA CSREES
& Land Grant Colleges and Universities

Winter 2009

The Midwest Spatial Decision Support System (MSDSS) Partnership

**GREAT LAKES
REGION**



National Themes:
Watershed Management
Pollution Assessment and Prevention

Project Description

Local watershed management is an important process for economic development and environmental improvement. One group that is working to advance and support watershed management in the region is the Midwest Spatial Decision Support System (MSDSS) Partnership. The Partnership formed following a region-wide meeting hosted by USEPA Region 5, Michigan State University and Purdue University to share experiences and lessons learned using various decision support and GIS systems. The Regional Water Program helped support the effort.

The Partnership is composed of professionals from universities, public agencies, and private organizations with an interest in improving the management of watersheds through development, promotion and use of web-based, user-friendly, geo-spatial watershed management data and decision support systems. A decision support system consists of a host of computer programs that integrate databases, simulation models, decision models, and user interfaces. These systems then can assist a user in evaluating the economic and environmental impacts of watershed management alternatives. By adding a Geographic Information System (GIS), a decision support system can assess and present information geographically and spatially. The MSDSS Partnership was created to develop, promote, and use web based user friendly geo-spatial watershed management data and decision support tools and help set the standard for other watershed management programs.

Outcomes

Two of the decision support systems now online are Digital Watershed (<http://www.iwr.msu.edu/dw/>) and Long-Term Hydrologic Impact Assessment Model (L-THIA). Digital Watershed is a centralized information system and online computing site for use in watershed analyses throughout the United States. Using a GIS interface, users can access a database that contains watershed boundaries, aerial photography, regulated facilities and pollutant loadings, natural resource inventories,

Project Goals

- ◆ identify clients and prioritize their needs;
- ◆ develop and maintain a publicly available decision support system that integrates natural resource and environmental planning into comprehensive planning;
- ◆ develop and maintain a publicly available regional decision support system; and
- ◆ target education, outreach, and training on decision support components and systems to appropriate clients, and facilitate social learning among stakeholders.

PROJECT CONTACTS

Dr. Jon Bartholic

Institute of Water Research
Michigan State University
101 Manly Miles Bldg.
East Lansing, MI 48823
Phone: (517) 353-9785
Email: bartholi@msu.edu

Dr. Bernie Engel

Agricultural Engineering, ABE Bldg.
Purdue University
West Lafayette, Indiana 47907
Phone: (765) 494-1162
Email: engelb@purdue.edu

PROJECT PARTNERS

Indiana Department of Environmental Management

International City/County Management Association

Michigan State University, Institute of Water Research

Purdue University - Agricultural and Biological Engineering, Forestry and Natural Resources

State University of New York at Buffalo

University of Wisconsin Extension

U.S. Environmental Protection Agency, Region 5 - Office of Public Affairs, Water Division and the Office of Information Services

Wisconsin Department of Natural Resources

For more information about the Great Lakes Regional Water Program, please contact:

Rebecca Power

University of Wisconsin

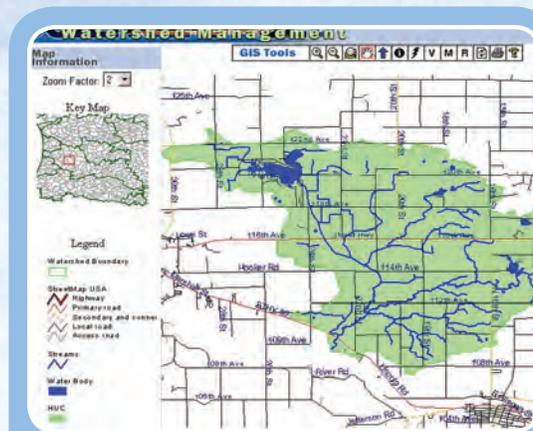
Regional Water Liaison

Phone: (608) 263-3425

rebecca.power@uwex.edu

transportation infrastructure, soils, and numerous other data. Digital Watershed also contains linkages that seamlessly transfer users to other decision support tools and interfaces such as L-THIA and Google Earth. L-THIA (<http://cobweb.ecn.purdue.edu/~sprawl/LTHIA7/>) is a web-based, GIS tool that assists decision makers in understanding before and after water quantity and water quality impacts of proposed land use changes. The Partnership has eleven other web-based systems throughout the region. These can be accessed through the MSDSS web site (<http://www.epa.gov/waterspace/index.html>).

The Partnership's commitment to user-friendly, web-accessible tools and online training continually gains credibility. Through a series of workshops, user preferences for various tool characteristics were determined. These included scalability, which allows users to look at the appropriate level of data and detail; consistent data and methodology for easy access to a variety of data; and the ability to customize the data. Recently, the Wisconsin Department of Natural Resources collaborated with the University of Wisconsin-Extension's Environmental Resource Center to assess the effectiveness of web-based training sessions in assisting clients in the use of online decision tools and understanding of model results, and consequences related to local decision making. Participants from four online training sessions reported that they gained a good or very good understanding of the tools (78%) and were confident in their ability to independently use the tools on their own (96%). A follow-up survey sent several months later found that 71% had used one or more of the tools once in their work since the web-conference training sessions. Additionally, 44% of the participants preferred web-based conference training over traditional methods of workshops and one-on-one training.



GIS tools, base data layers and other maps and imagery are often utilized in the decision support systems.



<http://www.epa.gov/waterspace/index.html>