A Web-Based Resource for Watershed Management in Illinois

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Abstract
The Illinois Watershed Management Clearinghouse (IWMC) Web Site <http://www.watershed.uiuc.edu/> provides access to information on watersheds and their management. The IWMC includes educational materials on a wide range of issues, ranging from urban storm water and best management practices to GIS support and watershed maps. IWMC links watershed groups to allow for sharing of information, materials, and technical tools. The site effectively leverages the resources of Illinois agencies into one organized site to better serve the state. IWMC has a large amount of information pertaining to most aspects of watershed management.

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Introduction

Technology has significantly changed the type and amount of information that is available over the Internet (Lee, Wald, & Lund, 1999). Internet technology advances are changing the way in which local watershed groups are providing greater economic, social, and cultural value to the community. Community-based watershed management continues to grow, and local citizens are working with scientists, agency staff and others to develop long-term solutions to resource management (Wright & Shindler, 2001).

Watershed management is the practice of combining science, technology, and society to empower people to address environmental, social, and economic issues. Because water quality is frequently the most important issue in many communities, watershed management is becoming a dominant social issue (Lant, 1999). Natural resources issues, along with federal and state regulations, are encouraging watershed-based planning (Center for Watershed Protection, 2004). A well-written watershed plan identifies natural resources and assists the community in making better local land use decisions (Minn. Dept of Natural Resources, 2004).

Unplanned community development stresses natural resources, reduces green space, and

potentially harms water quality. Effective watershed management can increase property values, expand the marketability of a community, and improve the health of the environment. Regulations such as total maximum daily loads (TMDLs) are driving the need for watershed planning versus individual practices to protect water quality.

Local watershed management involves assessment of natural resources, planning, implementation, and evaluation. Accurate demographic, economic, and resource information specific to a watershed is crucial in the development of a successful watershed management plan. Computer technology and geographic information systems allow individual users the ability to manage natural resources that before was only available to the private sector or government agencies (Schmidt, Ransom, Kluitenberg, Schrock, Harrington, Taylor, & Havlin, 2001).

The Illinois Watershed Management Clearinghouse (IWMC) Web site at http://www.watershed.uiuc.edu/ offers resources and technical assistance to local watershed planners from forming a committee to developing/implementing watershed plans. IWMC provides access to resources from state, federal, and non-governmental organizations. The site is designed for communities and professionals to supply links to management tools, case studies, examples of watershed plans, and relevant research.

Web Site Development

The original IWMC Web site and the map tools were developed in 1998, under the direction of Dr. Richard Farnsworth. Initial funding for the project was provided by the Illinois Council on Food and Agricultural Research (C-FAR). In 2003, the Web site was re-designed and expanded as part of a collaborative project by Illinois Environmental Protection Agency (IEPA), Illinois Department of Natural Resources (IDNR), and University of Illinois Extension. The project goals were to develop a user-friendly Web site for watershed planning and an interactive Web-based map tool with geospatial natural resource data for Illinois.

The "Getting Involved in Watershed Management" section provides information on forming a committee, locating resource data, and finding your watershed. The "Find your watershed group" tool allows for searching for watershed contacts. Soil and Water Conservation Districts in Illinois were asked to identify contacts for watershed groups in their county. Using this information and IEPA watershed records, a comprehensive list of 176 watershed groups was generated. A letter was sent to the watershed groups verifying the contact name and information along with informing them that the information would be posted on the IWMC Web site.

The "Help for Existing Watershed Groups" section provide information on funding sources, grant writing, and planning assistance, and offers the ability to create and edit maps. Completed watershed plans are posted to provide new watershed groups a framework for developing a successful watershed plan.

The Resource Management Mapping Service (RMMS) map tool provides demographic data, resource data, and features such as buffering, tabulating acreage, viewing aerial photographs, and printing and/or saving maps. The map tool allows users to quickly locate, create, and print maps of large or small areas within Illinois. Different map layers (resource, demographic, economic) can be turned on or off to show specific details for a given location.

Lee (1999) suggested that geographic information systems are the most rapidly developing computer technologies used by the natural sciences. The mapping engine introduces users to GIS and to database information from Natural Resource Conservation Service, IDNR, Illinois State Geological Survey, Illinois Natural History Survey, Illinois Department of Agriculture, University of Illinois, U.S. Census Bureau, IEPA, and others. RMMS users can search by county, town, and zip code, or they can zoom in to an area to view. Once zoomed in, users can select from a variety of base layers including cropland data, Digital Ortho Photos, landcover, or topographical data.

Other features include the "Calendar" section, which allows groups to post activities that are occurring in their area. The calendar features allow for the sharing of ideas and activities throughout the state. The site also has links to additional watershed related references and resources and an "Ask the Expert" feature.

University of Illinois Extension planned and hosted several Internet RMMS mapping workshops designed to help Extension educators, state agency staff, watershed managers, landowners, and other interested parties gain a better understanding of the watershed support information available. The objectives of the RMMS workshops were to familiarize participants with the data support available to watershed groups. Using the RMMS map tools, participants learned how to map resource data, insert buffers, tabulate acreage for given areas, view aerial photographs, and print and/or save maps.

Results and Discussion

Since revamping the IWMC Web site, traffic has increased by 1,031%. Increases have been attributed to advertising, workshops, new releases, and surveys.

Educators hosted RMMS Workshops throughout the state targeted at agency staff and watershed

groups to assist with mapping their watershed using information available over the Internet. 100% of workshop participants rated the workshops good or excellent in a post-workshop survey regarding the quality and information provided. Participants were given a take-home exercise to reinforce skills learned during the workshop. The take-home exercise provided detailed step-by-step instructions.

Conclusion

Future plans are development of decision tools, information exchanges, and interactive on-line watershed planning. Watershed management is done at the local level, and this Web site provides watershed groups a common place to go for information. The site combines the resources of four Illinois agencies to provide information pertaining to every aspect of watershed management.

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