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Integrating Social and Water Quality Data toward more Effective Urban Watershed Management in Southwestern Illinois

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Abstract:

As community planners and managers accommodate residents with safe and clean water resources, many are faced with the challenges associated with increased growth and development. Urban sprawl has been correlated with increased flooding and pollutants within streams. Sustaining a healthy community depends on both a shared awareness of problems and a capacity to collectively respond to those problems. An interdisciplinary research approach was used to examine the occurrence of water quality impairments in two urban watersheds in the Lower Kaskaskia River of southern Illinois. Qualitative data were gathered using in-depth interviews and focus groups to analyze perceptions of watershed health. Quantitative data were collected from January 2008 to January 2009 in two watersheds that intersect the study communities municipal boundaries. These data were analyzed to address the following research questions: (1) What are diverse stakeholders' perceptions of their watershed's health?; (2) What are potential water quality threats in the watersheds?; and (3) What conservation strategies will be most effective in addressing both stakeholder perceptions and existing water quality threats? In-depth interviews and focus groups were conducted with 39 stakeholders including community planners and managers, local business people, environmental advocates, watershed planners and managers, and concerned citizens. Perceptions of watershed health varied. Water quality data indicate elevated levels of fecal coliform, E. coli, orthophosphate, nitrate, and ammonium. Outreach strategies tailored towards specific citizen concerns and target socially desirable conservation practices can be used to address water quality threats. Informing residents and eliciting citizen involvement can enhance community awareness, increase community participation, and encourage support for conservation strategies.

Impact Statement:

Outputs of the project include community outreach strategies for incorporating sustainable watershed conservation practices. The outreach strategies will be tailored according to each community's capacity to implement conservation practices from an integration of social data (interviews, focus groups, and residential surveys) and water quality data (coliform and E. coli population counts; nutrient and sediment levels). Additionally, recommendations for watershed management will be integrated into a plan for the study's watersheds.

Partnerships can potentially be developed between groups that have demonstrated an interest in the health of the community and its surrounding water resources. The development of partnerships will be enhanced by the community research teams that are assisting with the data collection for this project. The identification of resources for watershed conservation can assist in informing the public of available opportunities, tools, and strategies for addressing the identified water quality threats. These resources will be presented in the outreach components of this project.

Perceptions of watershed health vary greatly among stakeholders, while perceptions of community health are often shared among stakeholders. Additionally, many stakeholders underestimate the impairment of their watersheds when compared to actual water quality data.

Category: Watershed Assessment and Restoration
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