Applying knowledge to improve water quality

National Water Program

A Partnership of USDA CSREES & Land Grant Colleges and Universities

Winter 2007

Building the Capacity of E.coli Monitoring by Volunteer Networks:

A Multi-State Effort

GREAT LAKES REGION

National Themes:

Pollution Assessment and Prevention, Drinking Water and Human Health, Watershed Management

Project Description

Analyses of water resources can be expensive, yet such monitoring is important to ensure safe recreational opportunities and to produce effective watershed management plans. This project focuses on the ability and preferences of volunteers using "home test kits" to evaluate their local streams and rivers using *E. coli* as an indicator of stream health. In 2004, volunteer monitoring programs in six upper Midwestern states were awarded a $275,000 grant from USDA-CSREES to evaluate five test methods for monitoring *E. coli* bacteria suitable for home use. The project is currently evaluating and synthesizing three seasons of data in order to make recommendations about the methods. An overarching objective of this study is that the volunteer training materials and recommendations will be transferable to other regions.

Project Goals

- Build the capacity of volunteer monitoring programs to understand and use the most appropriate *E. coli* testing protocols (test kits) and watershed-based sampling strategies with their volunteers
- Develop a comprehensive training program for volunteers on *E. coli* bacteria testing in targeted watersheds in a six state area
- Develop and disseminate educational materials about *E. coli* and associated health risks, monitoring and sources
- Increase awareness and acceptance of the use of volunteer collected water quality data in various watershed programs, including watershed assessments and TMDL development. Share results of our work with other states across the country, primarily via the National Monitoring Facilitation Project efforts
- Demonstrate how to set up an appropriate watershed-based *E. coli* sampling strategy utilizing volunteer networks and begin collecting usable data

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Project Partners

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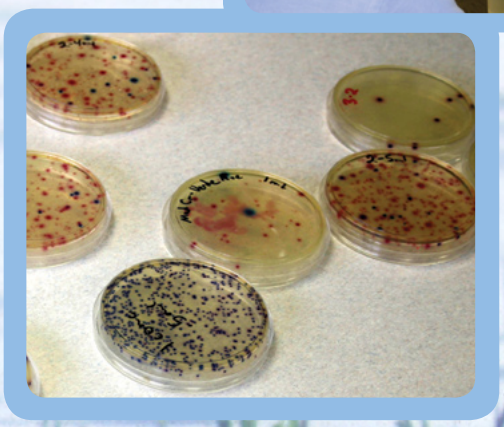
Actions

Educational programming was incorporated into each of the 29 volunteer training workshops held in 2005 and 2006. Pre- and post-tests used at these trainings contained questions concerning associated health risks, monitoring protocol and possible sources of *E. coli*. Each state has been working with their respective Extension and state water quality agencies to make them aware of this six-state project. Over 1,100 samples comparing test kits with certified lab analyses were made. While test kit analysis is ongoing, reliability results from this three-year investigation will provide crucial information for state agencies considering using volunteer monitoring data in watershed planning and perhaps TMDL development. Several states have implemented credible data legislation, which will place added importance upon volunteer data as state budget and agency resources continue to diminish.

Outcomes/Impacts

Researchers have collected and organized the volunteer and lab data throughout the project. Volunteers have been surveyed concerning their attitudes and perceptions of test kit usability. This adds a human dimension to the *E. coli* reliability research. All but two of the test kits analyzed showed favorable results when compared to laboratory analyses. The project staff has developed an on-line database for all six states' data. Outreach efforts to date have included conducting 29 training workshops reaching 129 volunteers. In addition, over twenty presentations have been made at regional and national conferences.

A website (www.usawaterquality.org/volunteer/Ecoli/) has been set up that contains contact information for each state, as well as links to the CSREES national volunteer monitoring project. It also provides a project overview and information for other state volunteer monitoring programs and individuals interested in monitoring *E. coli*.



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www.uwex.edu/ces/regionalwaterquality

***More information about E. coli monitoring on the web at:* www.usawaterquality.org/volunteer/Ecoli**

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