



A Science-Based, Community-Based Approach to Monitoring and Controlling Pathogens in Alabama Waters

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Bacterial contamination occurs in surface waters throughout Alabama, resulting in a public health risk. On the 2010 Impaired Streams List (303(d) List) of the Alabama Department of Environmental Management (ADEM), 35 waterbody segments were listed as impaired by pathogens. Many other streams have been found to be contaminated by other organizations but are not on the 303(d) list.

Monitoring of Alabama waterbodies for pathogens by governmental agencies is infrequent and geographically limited, and budget cuts will probably reduce these assessment programs. Gaps in pathogen monitoring, tracking and reporting hamper the remediation of contamination problems in Alabama waters and increase the probability of human illness. Community volunteer bacteriological monitoring offers a cost-effective and credible way to evaluate streams for pathogens. A partnership among government agencies and citizen volunteer monitors could greatly increase the ability to locate and remedy contamination problems.

Alabama Water Watch (AWW) is a citizen volunteer water monitoring program that has certified more than 2,000 people in bacteriological testing (for *E. coli* and other coliform bacteria) since 1994. AWW was one of the first programs in the U.S. to receive EPA approval on a quality assurance plan for bacteriological monitoring that includes protocols for training, sampling and interpretation of results relative to safety for whole-body contact with water. The AWW online database stores all data for public viewing and has tools for custom analyses and retrieval of information in various formats including graphs, tables and maps.

Citizen volunteers have used AWW methods to identify many cases of bacterial contamination of surface waters, and they have worked with local landowners and governmental authorities to solve contamination problems and document stream restoration. Such broad-based and inexpensive methods can serve as a screening tool for follow-up at problem sites using more sophisticated methods.

As part of a comprehensive solution to pathogen contamination, AWW could strengthen citizen volunteer bacteriological monitoring statewide, and provide training opportunities for state agency field staff to learn rapid assessment methods for bacterial contamination of surface waters that are far less expensive than agency methods currently employed.

There is a need for much greater collaboration among the Alabama Department of Health (ADPH), ADEM, AWW and other organizations in identifying and remediating pathogen contamination of surface waters statewide. AWW has monitored for *E. coli* bacteria since 1994, and ADEM has recently adopted *E. coli* as the standard for fecal contamination of water. Adoption of similar standards by the ADPH would promote communication and more efficient problem solving through collaboration among the three organizations.

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