

## A Trans-Boundary, Community-Based Response to Gulf of Mexico Water Quality Issues

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Global Water Watch (GWW) is a community-based water monitoring and watershed stewardship program based at Auburn University, and GWW, Inc. is an incorporated nonprofit organization with members in several countries, including Mexico. GWW was funded by the USEPA Gulf of Mexico Program Office, Gulf of Mexico Alliance (GOMA), to conduct a three-year (2009-2011) project that fosters awareness of Gulf water quality issues, and promotes water data collection by certified community volunteers. The project is focused in the Mobile River Basin of Alabama, USA, and the La Antigua River Basin of Veracruz, Mexico. Both of these basins extend hundreds of kilometers inland, and include mountains up to 5,000 m, upland forests, intensive agriculture, and major drainages to the Gulf of Mexico. Excess nutrients, periodic low oxygen and toxins have been identified as problems in the coastal zones of both of these basins.

Target audiences included fish and livestock producers, middle and high school students and teachers, community volunteer water monitoring groups, and the general public. Numerous workshops were conducted throughout the study area using GWW bilingual training manuals to certify interested people in monitoring water quality according to a USEPA approved quality assurance project plan. An aquatic science curriculum called, *Exploring Alabama's Living Streams* (EALS), previously developed by GWW and endorsed by the Alabama Math, Science and Technology Initiative, was translated into Spanish (*Explorando Nuestros Ríos Vivientes*, or ENRV). Several workshops were conducted for scores of educators to show how the EALS and ENRV curricula could be taught in a variety of ways to grades 4-12. An online Directory of Environmental Centers in the six Mexican and five USA States that border the Gulf is being compiled and will be linked to GWW and GOMA-related websites.

Thousands of water data records have been submitted by volunteer monitors via the Internet to the GWW customized relational database. All data are publically accessible and may be analyzed, graphed and shared in a variety of formats. Data have been used to remediate pollution problems and influence watershed management plans and water policy. Animal producers, from trout farmers in Veracruz to cattle farmers in Alabama, have participated in the project, become more aware of the potential negative impacts of their operations on Gulf water quality, and learned about sustainable alternatives. Students have benefited from place-based environmental education including outdoor classrooms and personal involvement in collecting valid water data.

Overall, project participants including policy makers, educators and the general public have learned about the importance of taking a watershed approach to solving problems of the Gulf of Mexico. The challenges of protecting and restoring the Gulf are impossible to solve solely through professional research and regulation. Community involvement through standardized water monitoring and mutual learning is effective in mobilizing thousands of people from numerous stakeholder groups, and should be a component of any coastal sea management strategy.

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