Student and Volunteer Monitoring of Arizona Rivers and Riparian Areas

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Two University of Arizona hydrologists along with colleagues at Phoenix College and Northern Arizona University are among the first to receive a three-year grant from Science Foundation Arizona's (SFAz) K-12 Student and Teacher Discovery Program. The project, "Student and Volunteer Monitoring of Arizona Rivers and Riparian Areas" (Arizona Rivers), hopes to re-energize the spirit of scientific discovery in Arizona classrooms by fostering partnerships among students, volunteers, and local water experts to monitor the health of Arizona's rivers and riparian ecosystems. This grant supports SFAz's goal to stimulate experiences in an informal (non-classroom) environment through hands-on collaborations between students and researchers that encourage design, implementation, and innovative use of science and math.

Arizona Rivers will involve students of all ages in addressing issues or questions that are developed locally and pertain to Arizona's streams, including water quality, stream restoration, riparian ecology, and habitat preservation. A primary goal is to foster effective partnerships among schools, watershed management groups, state, county, or municipal regulators, and other water professionals. Workshops to be held in Tucson, Phoenix, and Flagstaff are being developed to train teachers, students, water professionals, and other volunteer river monitors about standard protocols for environmental data collection, and to promote new collaborations and data exchange.

Two critical tasks that readers might be able to assist with include identifying classroom/student mentors and high-priority monitoring sites. Teachers and students need help defining testable research questions, understanding the context of local water issues, maintaining monitoring equipment, interpreting data, and sharing their observations with a wider community.

High-priority monitoring sites are those with significant issues related to water quality, channel stability, ecologic function, or potential for change that are both accessible by volunteers and of interest to a wider community, particularly state and county agencies.

An example partnership might be a high school science class working with a well-established watershed monitoring group (WMG). The WMG could mentor the students by providing: background information about a nearby riparian ecosystem; guidance about what type of data collection would be most useful for a specific site; and ideas for student-based research projects using student-collected monitoring data.

Another type of partnership could involve a state, county, or municipal agency working with a WMG. The agency could provide guidance about the location and type of data collection or river restoration activities that would be most useful from their perspective. The WMG, in turn, could recruit and mentor additional volunteers and groups such as K-12 classes, scout troops, or retired citizens.

School collaborations will be encouraged in several ways. Schools in Tucson, Phoenix, and Flagstaff will be able to borrow water quality monitoring equipment through two collaborating programs. Water in Arizona – Teacher Resources (WATER) kits are available from the SAHRA Center at the University of Arizona (*www.sahra.arizona.edu/water/*) and include supplies to facilitate classroom-wide participation in water education activities. Healthy Water-Healthy People water testing and macro-invertebrate kits are also available for use from Arizona Project WET (*ag.arizona.edu/azwater/wet/*).

Arizona Rivers will administer a small grants program (up to $250) for K-16 teachers to facilitate student-based research. This modest funding can be used for basic expenses to help classrooms engage in riparian monitoring, such as helping pay for equipment or field trips.

If you or your organization are interested in volunteering, learning more about this project, or applying to the small grants program, contact Martha Whitaker at mplw@hwr.arizona.edu or visit www.sahra.arizona.edu/azrivers/.