

## Assessing and Protecting Surface Water Quality

### **SURFACE WATER MONITORING AND STANDARDS**

ADEQ's Monitoring and Standards group develops appropriate water quality standards for surface waters around the state and then conducts monitoring to determine whether those standards are being achieved. Water quality standards vary throughout the state depending on the designated beneficial "uses" assigned to each waterbody. These uses include support of aquatic life, fish consumption and recreation.



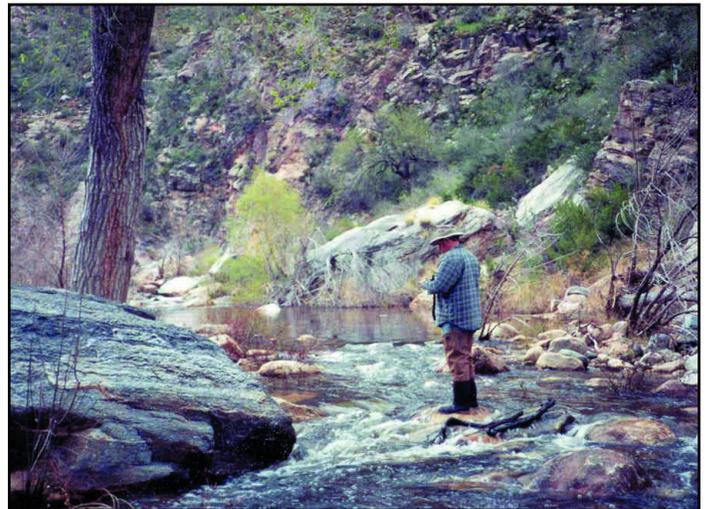
*The Verde River, near Camp Verde, Arizona*

### **ASSESSMENTS**

Every two years, the Assessments group compiles all surface water data collected around the state and assesses whether standards are being met. ADEQ must assess both internal data collected by the Department, as well as data collected by external monitoring entities. This includes other agencies, such as the US Geological Survey, academic institutions conducting water quality studies, and permitted facilities collecting compliance data.

The assessments of each standard are combined to make an assessment of each designated use assigned to a waterbody. If any use is not supported, it is listed as "impaired." The assessments are submitted to EPA and made available to the public in the Integrated

305(b) Assessment and 303(d) Listing Report, named after the two sections of the Clean Water Act that established these requirements. The 303(d) list identifies those waters that are impaired and lists the pollutant causing the impairment.



*Sabino Canyon Creek, near Tucson, Arizona*

### **THE TOTAL MAXIMUM DAILY LOAD PROGRAM**

Once a surface water is identified on the 303(d) list, a Total Maximum Daily Load (TMDL) must be developed. A TMDL is a written analysis that determines the maximum amount of a pollutant that a waterbody can assimilate (the "load"), and still attain water quality standards during all conditions. Pollutant loading can originate from two types of sources: point and nonpoint. Point sources are discrete conveyances of pollutants discharged directly to a surface water, such as wastewater treatment plant outfalls. Nonpoint sources are non-discrete discharges, including runoff generated by activities such as grazing, agriculture, mining and forestry.

Waste load reductions from point sources can be managed through permitting programs such as Arizona's Pollutant Discharge Elimination System. However, there are no regulatory programs for nonpoint pollution, so load reductions from these sources are strictly voluntary. In Arizona, most surface water impairment is a result of nonpoint source pollution.

Nonpoint source pollution may include excessive

sediment caused by the denudation of grasslands, the location of roads, construction, bacteria from wildlife and/or recreation, metals from historic mining practices and road cuts through ore bodies, and pesticides from historic agricultural practices.



*High suspended sediment levels in the Little Colorado River near Woodruff, Arizona.*

## **THE NONPOINT SOURCE PROGRAM**

Once a TMDL has been developed, the surface water is removed from the 303(d) list and is classified as "not attaining." This means that the TMDL study is complete, but the waterbody is not yet attaining uses.

Now that load allocations are established in the TMDL, corrective actions or changes in practices must be implemented in the watershed so that these allocations will be met in the future. It is ADEQ's job to develop TMDL Implementation Plans that provide a strategy for attaining the allocations in the TMDL, and the time frame in which compliance with applicable surface water quality standards is expected to be achieved.

Because most impairment in Arizona originates from nonpoint sources, ADEQ works with federal, state, and local agencies, tribes, nonprofit organizations, the environmental community and local citizens to develop nonpoint source watershed management strategies to reduce nonpoint source pollution. These management strategies rely on the cooperation of stakeholders that live within the watershed or have management responsibilities for the lands and the surface and ground water resources within. Arizona's Nonpoint Source Program relies on this type of cooperation, education and partnership as the primary method to reduce nonpoint source pollution and improve the state's water quality.

ADEQ also distributes federal grant funds under Section 319(h) of the federal Clean Water Act to both public and private entities within Arizona. These grants provide money to implement on-the-ground water quality improvement projects that address nonpoint sources of pollution. Projects designed to reduce loadings of pollutants causing impairment are given highest priority.

Once water quality improvements are underway, ADEQ then conducts follow-up monitoring to track the status of the projects and determine when standards are being attained.

## **ADDITIONAL PROGRAM INFORMATION**

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