



# Water Quality Monitoring

## Importance

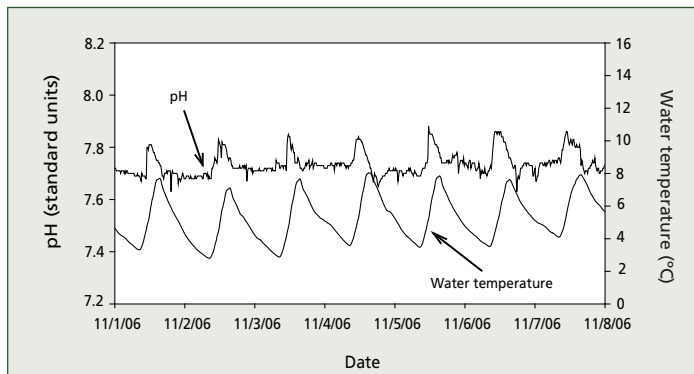
Water quality data are used to characterize waters, detect trends over time, and identify emerging problems. In Southern Colorado Plateau Network (SCPN) parks, water quality is monitored to satisfy state and federal regulations and as an indicator of watershed condition and ecosystem health. Perennial streams are rare on the Colorado Plateau, and most streams in the region are intermittent or ephemeral. For this reason, and because of remoteness, water quality data on SCPN streams are sparse. Park managers need information on status and trends in order to develop plans and take actions to maintain or restore surface water quality, and to work cooperatively with other agencies to protect park waters. SCPN monitoring efforts will also add park data to ongoing state water quality monitoring programs, thus contributing to a broader regional understanding of aquatic conditions.

## Long-term Monitoring

Water quality will be monitored quarterly at selected streams in eight SCPN parks. Core parameters, including temperature, pH, conductivity, dissolved oxygen, and discharge, will be collected at all monitoring sites (see graph). Additionally, samples will be collected describing physical (turbidity, suspended and dissolved solids), biological (bacteria, macroinvertebrates), and chemical (nutrients, organic and inorganic compounds) characteristics of water. Pilot studies were initiated in 2007; monitoring will be implemented in 2008.

## Management Applications

Water quality in streams is influenced by physical conditions, including geology and vegetation, and may be altered by natural disturbance events, such as catastrophic fire or flooding; by



Water quality measurements made at 15-minute intervals, Rito de los Frijoles gaging station, Bandelier National Monument.

Measuring streamflow at the Rito de los Frijoles, Bandelier National Monument.



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climatic drought; or degraded by a variety of anthropogenic activities. Significant contamination of surface waters can be harmful to aquatic biota and may pose health risks to recreational visitors.

The first few years of data will be used to document current conditions in SCPN streams. Over the long term, water quality data will be used to meet objectives that include (1) protecting water bodies under provisions of the Clean Water Act, (2) documenting water quality parameters that are vulnerable to alteration from various sources of contamination or land-use practices, and (3) establishing which water quality parameters may be most useful for indicating ecosystem integrity of ephemeral, intermittent, and perennial streams.

## Contact

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## Network park units where water quality will be monitored

Aztec Ruins NM	Animas River
Bandelier NM	Capulin Creek, Rito de los Frijoles
Canyon de Chelly NM	Upper and Lower Tsaile Creek, Chinle Wash
Glen Canyon NRA	Paria River, Wahweap Creek, Escalante River, Coyote Gulch
Grand Canyon NP	Cottonwood Creek, Hermit Creek, Kanab Creek
Mesa Verde NP	Mancos River
Petrified Forest NP	Puerco River
Petroglyph NM	North Boca Negra Arroyo

NP = National Park; NM = National Monument;  
NRA = National Recreation Area