



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 five SCPN parks. Core parameters, including temperature, pH, conductivity, dissolved oxygen, turbidity, and discharge, will be collected at all monitoring sites. Additionally, samples will be collected to determine the status and trends of water quality constituents, including bacteria, nutrients, major ions and trace metals. Aquatic macroinvertebrate samples are also collected at several sites. Pilot studies were initiated in 2007 and water quality monitoring was implemented in 2010.

Management applications

Water quality in streams is influenced by physical conditions, including geology and vegetation, and it may be altered by natural disturbance events, such as catastrophic fire or flooding, drought, or 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 water quality data collection will document current conditions in SCPN streams. Over the

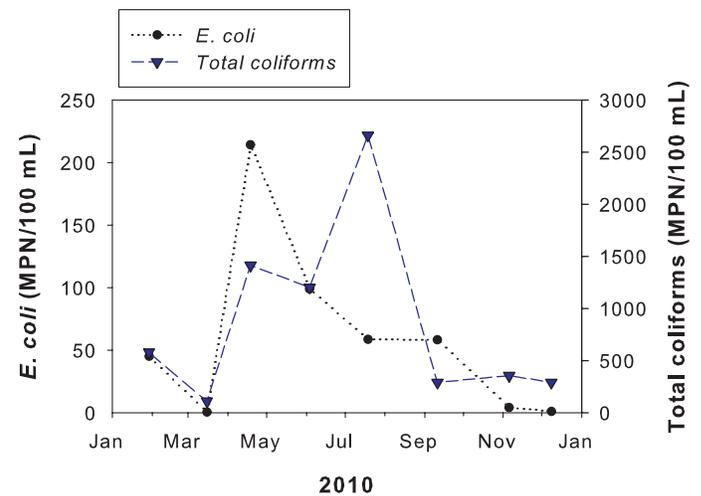


Collecting water quality data at Tsaille Creek in Canyon De Chelly National Monument. Photo courtesy of SCPN.

long term, this 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 streams in SCPN parks.

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SCPN collects water samples for bacterial analysis. This figure presents monthly data for *E. coli* and total coliforms from the Mancos River in Mesa Verde NP, 2010.

SCPN Park units where water quality will be monitored

Bandelier NM	Capulin Creek, Rito de los Frijoles
Canyon de Chelly NM	Tsaille Creek, Chinle Wash
Glen Canyon NRA	Escalante River, Coyote Gulch
Grand Canyon NP	Garden Creek, Bright Angel Creek
Mesa Verde NP	Mancos River