



Water Quality Monitoring

Importance

Water is a major factor in determining the distribution of flora, fauna, and historic human habitation in almost any area. This is particularly true in semi-arid to arid environments, such as those found on the northern Colorado Plateau. Human activities and land use influence the abundance and quality of water, which are highly important to visitation and recreation in the national parks. Water bodies in national parks are often socially, as well as ecologically, significant. They are protected by the Clean Water Act and other policies designed to prevent unacceptable levels of pollution and establish acceptable values for other water quality measures. To comply with the Clean Water Act, park managers need information on status and trends in surface-water quality and quantity. Managers can also use those data to mitigate historic and future impacts to park water resources.

Purpose and Use

NCPN water quality monitoring is a coordinated effort between the network, individual park units, the U.S. Geological Survey, and the State of Utah. Water quality monitoring sites are selected based on historic impacts, perceived threat, current monitoring by others, or to determine baseline status as a starting point for long-term trend detection. As many as 30 water quality parameters are measured at each site visit. At every site, portable sensors are used to measure core parameters (specific conductance, flow, temperature, pH, and dissolved oxygen) as basic indicators of water quality. Field and laboratory measurements are then compared to state water quality standards to determine if acceptable concentrations are present and if, over time, conditions are changing beyond acceptable normal ranges.

Status and Trends

In 2014, the NCPN published its third [water quality report](#), focusing on water years 2010–2012. These reports compare the data collected to state water quality standards. In the most recent report, 26,051 (96.9%) of the 26,873 total designated beneficial-use evaluations completed met state water quality standards (see page 2). We also reported on [continued sampling of emerging contaminants](#), such as pesticides, pharmaceuticals, personal care products, and wastewater indicators in conjunction with the Environmental Protection Agency. In FY2014, the network continued sampling of water quality and emerging contaminants, and began a new project with the U.S. Geological Survey to further investigate the transport and fate of emerging contaminants in certain NCPN waters.



Collecting a water quality sample on Pleasant Creek, Capitol Reef NP.

Contact

Rebecca Weissinger, rebecca_weissinger@nps.gov

Network park units where the NCPN monitors water quality

Arches NP	Dinosaur NM
Black Canyon of the Gunnison NP	Golden Spike NHS
Bryce Canyon NP	Hovenweep NM
Canyonlands NP	Natural Bridges NM
Capitol Reef NP	Timpanogos Cave NM
Curecanti NRA	Zion NP

NHS = National Historic Site; NP = National Park; NM = National Monument;
NRA = National Recreation Area

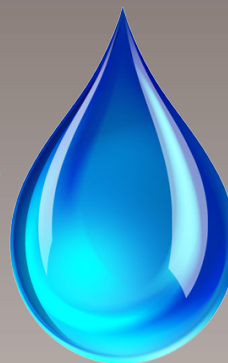


Water Quality *By the Numbers*

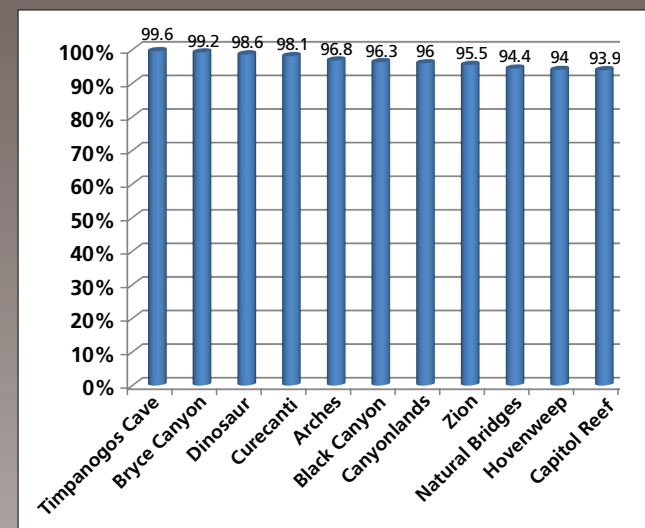
October 1, 2009–September 30, 2012

Meeting State Water Quality Standards

~1,380 site visits at
75 locations in and near
11 NPS units
26,873 total evaluations
822 total exceedances
96.9% of standards met



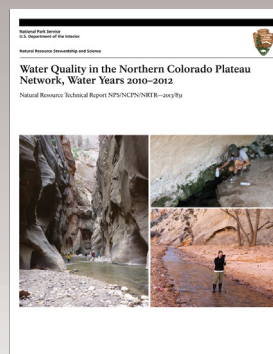
Standards Met by Park



Most Common Exceedances (or indications of impairment)

Elevated nutrients	1.28%
Elevated bacteria (<i>E. coli</i>).....	0.41%
Elevated trace metals	0.37%
Low dissolved oxygen	0.32%
Elevated temperature	0.29%
Elevated total dissolved solids.....	0.23%
Elevated pH	0.16%

Many exceedances were due to naturally occurring conditions characteristic of the geologic setting.



Get the full report:
<http://go.nps.gov/WQ12>

A Rising Concern

6 units had water-temperature exceedances: Arches, Canyonlands, Capitol Reef, and Zion NPs, Dinosaur NM, and Curecanti NRA.

Water temperatures are expected to increase as the climate changes due to predicted higher air temperatures and lower instream flows.

