



National Park Service - Department of the Interior
Fort Collins - Denver - Washington

Fact Sheet

U.S. Department of the Interior National Park Service Natural Resource Information Division



Degradation of Water Quality throughout the National Park System

November 1996

The 1994 report by the General Accounting Office identified impairment of water quality as the largest single category of threats to resources in national parks. The sources of impairment are inside parks and outside of parks. The issues are pervasive and cannot be ignored. In fact, recent reports by the National Parks and Conservation Association and by the Concessionaire Environmental Task Force of the National Park Service emphasized the need for substantial intensification of water-quality monitoring in national parks.

Sources of Water-Quality Impairment Inside National Parks

Sources of water-quality impairment inside parks are visitors, concession operations, active and abandoned mines, park maintenance, landfills, and underground storage tanks. For example, leaking underground storage tanks are inside the boundaries of Yosemite National Park in California and historic copper and gold mines that leach toxins into waters are inside the boundaries of Wrangell-St. Elias National Park and Preserve in Alaska.

Use of waters in parks by recreationists can impair water quality. For example, marinas, houseboats, and motorboats discharge waste water in the Glen Canyon National Recreation Area in Arizona; rafters in Grand Canyon National Park, Arizona, bathe in tributaries; and recreation by visitors causes excessive erosion and

sedimentation along the Merced River stream banks in Yosemite National Park. Location, maintenance, and operation of park facilities also can impair water quality. For example, waste water treatment plants cause downstream nutrient enrichment in Sequoia and Kings Canyon national parks in California; untreated runoff from parking lots contributes hydrocarbons to subterranean streams in Mammoth Cave National Park, Kentucky; and road construction in acidic geological strata produce acid drainage in Great Smoky Mountains National Park in Tennessee.

Sources of Water-Quality Impairment Outside National Parks

Point and Non-point Sources

External sources of water-quality impairment in national parks vary widely and include non-point runoff from upstream agricultural lands and urban areas; industrial and municipal waste discharges; and leachate from landfills, underground storage tanks, and active and abandoned mines. Examples are nutrient runoff from agricultural lands in Everglades National Park in Florida; sediment and pesticide runoff into cave waters in Mammoth Cave National Park in Kentucky; industrial and municipal wastes and toxins in Wilson's Creek National Battlefield in Missouri and in Indiana Dunes National Lakeshore in Indiana; toxins, bacteria, and municipal and industrial wastes in the Cuyahoga Valley National Recreation area in Ohio; and ammonia leachate from the South Dade County Landfill in Biscayne National Park in

Florida. A mining superfund site is upstream from the Grant-Kohrs Ranch National Historic Site in Montana, and the groundwater and surface water of Valley Forge National Historical Park, Pennsylvania, are contaminated by five industrial superfund sites. Recently contaminated tissue and evidence of endocrine disruption were found in fishes from a bay in the Lake Mead National Recreation Area that receives urban runoff and wastewater from the city of Las Vegas.

Accidental Spills

Accidental spills created lasting effects or threaten to harm resources in parks, especially in coastal and river parks. For example, in Texas, oil spills contaminated groundwater and wetlands on the Padre Island National Seashore, and the Exxon Valdez Oil Spill damaged resources along shorelines in Katmai National Park and Preserve. In California, the National Park Service is conducting an inventory of resources that were threatened by accidental spills at the Point Reyes National Seashore.

Grazing and Timber Harvest

Water quality in national parks is also adversely affected by contaminated runoff and sediment from grazed and timbered watersheds. For example, grazing of livestock impairs water quality in Fossil Butte National Monument in Wyoming and in Channel Islands National Park and on Point Reyes National Seashore in California. Timber harvest has had undesirable effects on water quality in Redwood National Park, California.

Dams and Operation of Dams

Dams and the operation of dams can impair the water quality of reservoirs and downstream river reaches. For example, the Glen Canyon Dam altered downstream water temperatures and sediment regimes in the Glen Canyon National Recreation Area and Grand Canyon National Park. In Olympic National Park, the altered sediment regimes from dams not only impairs water quality but creates obstructions that prevent the migration of fishes and destroys spawning habitat of salmon.

Threats from Proposed Development

Several proposed developments threaten the water quality in national parks. Proposed mining of lead and zinc deposits would leach toxic metals into the sensitive karstic waterway of the Ozark National Scenic River, and a proposed lignite mine could similarly harm the surface waters of Natchez Trace Parkway. Discharges of septic leachate and sediment-laden water from a proposed subdivision in New Mexico will impair the water quality and waterway in Bandelier National Monument.

Mitigation of Adverse Effects on Water Quality in National Parks

Water quality in national parks is protected by the rigorous application of the administrative and regulatory tools of the Clean Water Act (33 U.S.C. 1251-1376 [1988], 30 June 1948, ch. 758, 62 Stat. 1155). By working with state and local governments, *Outstanding National Resources Waters* designations are sought to protect and preserve water quality in national parks (*Outstanding National Resources Waters* designations are provisions under the Clean Water Act for the protection of a state's highest-quality waters that are not otherwise sufficiently protected). When possible, the National Park Service seeks to condition permits for the discharge of pollutants into water that would threaten the water quality in parks. In addition, close cooperative relations with external land managers and local governments help parks to develop strategies and negotiate agreements to terminate polluting activities. Equally important are assessments of water-quality management and the development of remedial actions inside and outside park boundaries. However, none of these actions can be carried out without adequate, trained staff and sufficient funds.

Inventory and Monitoring of Water Quality in National Parks

The protection and improvement of water quality and the restoration of aquatic resources require adequate water-quality data to identify potential and actual threats, the accurate assessment of impairments, and the resolution of problems. Inadequate funds and concomitant staff shortages have, however, precluded an expansion of inventory and monitoring by the National Park Service and the management of aquatic resources in national parks.

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Shoreline of Santa Rosa Island in Channel Islands National Park, California. Photograph by Bill Jackson.