



Water Quality in Colorado

2000

Water Quality Control Division
Colorado Department of Health and Environment



Water Quality

When most of us think about the quality of a particular stream or lake, we wonder whether it's safe for swimming or good for fishing. When we turn on a tap, we generally assume the water is safe to drink. But a lot goes on, mostly behind the scenes, in managing water quality. The broad field of water-quality management is focused on:

- monitoring and assessing water bodies
- providing appropriate levels of protection or preservation where existing water quality is good
- controlling pollution and undertaking various watershed restoration projects where water quality is impacted
- assuring that drinking water is safe for consumption

The Rio Grande basin is roughly the same size as New Jersey.

There are 56 peaks over 14,000 feet and more acreage above this elevation than any other state.

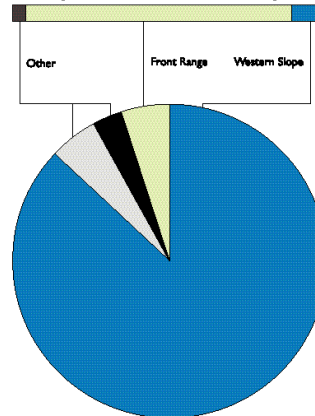
3/4 of the soil in

Waters of the State

The headwaters for several major interstate river basins rise in Colorado's Rocky Mountains along the Continental Divide. The Colorado River and its major tributaries flow toward the west and into the Pacific Ocean. The river's major Colorado tributaries are grouped within the upper and lower basins on the Western Slope. Eighty-seven percent of the water leaving the state (9,097,000 acre feet) flows through the Colorado River system in an area slightly greater than one-third of the state, where only 11 percent of the population lives.

In contrast, the Platte and Arkansas River basins contribute only 5 percent of the water leaving the state, while 85 percent of the state's population is located in these two major watersheds comprising just over half of Colorado's land area. Estimates suggest that the South Platte's waters are put to successive extractive beneficial uses seven times before leaving the state. The Platte and Arkansas rivers flow from the east side of the Continental Divide, emptying into the Mississippi River and eventually the Gulf of Mexico. Three percent of the water leaving the state flows through the Rio Grande River, which courses south into New Mexico, then east along the southern border of Texas into the gulf.

Total Population Distribution by Region



Total Water Distribution by Region



Lakes, reservoirs and freshwater wetlands are a significant part of the Colorado waterscape. More than 1,500 lakes and reservoirs comprise about 164,000 acres in the state. Unfortunately, little is known about the total acreage, functions and values of wetlands in Colorado.

Ground water is also an important resource, supplying 18 percent of the state's drinking water. Twenty-nine of Colorado's 63 counties rely solely on ground water for drinking purposes and agricultural uses. In 1998, 539 public water systems, serving more than 429,000 people, and 350,000 people on private wells, were wholly dependent on ground water. The aquifers supplying ground water underlie a surface area of 24,540 square miles or 24 percent of the state. They store about 2.6 billion acre feet of water.

Colorado has seven principal aquifers or aquifer systems, all differing in water quality.



the United States above the elevation of 10,000 feet is in Colorado.
There are commercial whitewater rafting outfitters operating on more than 20 rivers in Colorado.

Four aquifers consist of unconsolidated deposits. These are the alluvial aquifers along the South Platte and Arkansas rivers and their tributaries, the High Plains portion of the Ogallala aquifer in Eastern Colorado, and the San Luis Valley aquifer system in the Rio Grande basin.

The remaining three principal aquifers—the Denver basin aquifer system underlying parts of the South Platte and Arkansas River basins, the Piceance basin aquifer system northeast of Grand Junction in the Colorado River basin, and the Leadville Limestone aquifer near Glenwood Springs in the Colorado River basin—consist of consolidated rock. Aquifers in the Dakota, Morrison and Entrada Formation in the southwestern part of the state are not principal aquifers in Colorado but are significant in adjacent states. In many areas of the state, wells yield water from other localized aquifers. However, these minor aquifers provide only a small percentage of the total volume of water used in Colorado.



the Alamosa River

Human-caused impacts result from:

discharges of pollutants

polluted runoff from various land uses

stream channel modifications and development in floodplains.

Historically, industrial and municipal waste-water point-sources have been of greatest concern. More recently, nonpoint or diffuse sources of pollution from different types of land uses have emerged as major water-quality concerns. Significant impacts related to land use include urbanization, agriculture, road construction and maintenance, mining, and timber harvesting. Such land uses can introduce potentially toxic inorganic and organic chemical pollutants, as well as pathogenic bacterial and viral organisms, to the water body. They can also damage its physical structure, resulting in habitat loss.

Water-quality degradation may also be associated with water uses including: loss of aquatic habitat due to dewatering and increase in chemical pollutant concentrations; impacts related to water storage and release from impoundments; and contaminated return flows from agricultural uses.

Major Factors Affecting Water Quality

The quality of Colorado's waters is affected by many different features, including both natural and human-caused factors. Important natural conditions include:

geological formations that may dramatically influence water quality

topographic and climatological factors that control the hydrologic regime

the types and density of vegetation within watersheds

There are over 9,000 miles of trout streams in Colorado.
There are 107,403 stream miles in Colorado, with 168 miles
More than 1,533 lakes and reservoirs over 10 acres in size are in Colorado.

Status of Water Quality in Colorado

Arkansas River Basin

The Arkansas River basin is the largest in Colorado, comprising 27 percent of the surface area of the state and 20 percent of the population.

The Arkansas headwaters have been subjected to intensive mining activity that has severely impaired some of these waters (most of the drainages in the Leadville area, Lake Creek and Chalk Creek).

The quality of the main stem of the Arkansas and its tributaries is exceptionally good between Buena Vista and Pueblo Reservoir. The Arkansas is the most extensively used river in the state for recreational boating.

The Arkansas and its tributaries below Pueblo Reservoir are utilized for agricultural purposes and municipal water supplies. The return flow from these uses concentrates salts and other toxic pollutants (arsenic and selenium) that occur naturally in this region.

Rio Grande Basin

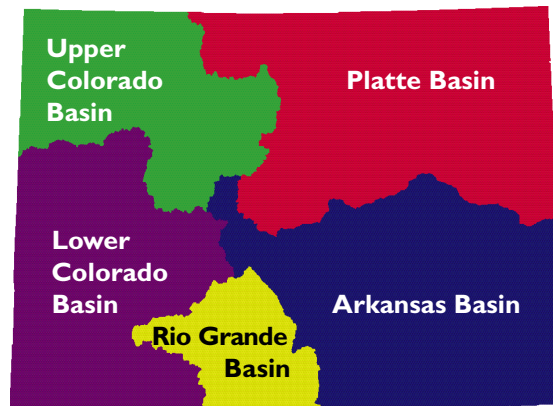
The Rio Grande River basin encompasses about 7.2 percent of the surface area of the state. Water quality throughout the basin is generally good, and as the Rio Grande exits Colorado, it is of very high quality.

The San Luis Valley, at the center of the basin, is the largest mountain valley on earth. It is also one of the most productive agricultural areas in the state.

The main stem of the Rio Grande, as well as ground water within the flat agricultural areas of the San Luis Valley, are used heavily for agriculture. Nutrients such as ammonia and nitrate increase in concentration in this area.

A portion of the Rio Grande main stem and several of its tributaries above Del Norte are high-quality, gold-medal fisheries.

Several tributaries in the headwaters of the Rio Grande basin have been impacted by mining activities, including Willow Creek near Creede, Kerber Creek above Bonanza, the Alamosa River below Summitville, and the Conejos River within the Platoro mining district.



Platte Basin

The Platte Basin comprises 29 percent of the state's surface area and is home to 68 percent of the population.

The water quality of the region varies tremendously, from high-quality mountain streams to streams impacted by urban development and agricultural activities.

The North Platte River and its tributaries are, generally, high-quality waters.

Many of the headwater tributaries of the South Platte have been impacted by extensive mining activities in, among others, Clear Creek, Boulder, Gilpin and Park counties.

Fifty-six percent of the state's population lives in the Denver metropolitan area. Not surprisingly, the South Platte River system in this area is impaired by pollutants including nitrate, ammonia and copper,

of most streams designated as gold medal fisheries. This state's portion of the Colorado basin is larger than the state of Indiana. There are 50 E. Hot Springs in Colorado.

Center pivot irrigation



generated by municipal and industrial discharges and storm-water runoff.

Downstream of the Front Range, the South Platte River and nearby alluvial aquifers support extensive irrigated agriculture. The river is heavily diverted and successively re-used, thereby acquiring relatively high levels of salinity and nutrients.

Upper Colorado Basin

Defined as including all the headwaters tributaries and the main stem downstream to the Grand Valley, including the Yampa, Green and White rivers.

The upper Colorado comprises the most mountainous area of the state and has only about 7 percent of the population.

Of the many mining districts in the headwaters of this basin, very few create water-quality problems. Notable exceptions include the Montezuma, Gilman and Breckenridge districts.

The development of mountain ski and golf resorts—associated with nutrient loading and sediment development—threaten existing high-quality waters in numerous headwaters areas.

Generally high-quality aquatic ecosystems, including many gold-medal fisheries, exist in the upper Colorado basin.

Federal lands (Forest Service and Bureau of Land Management) dominate the upper basin land-ownership pattern. These lands are used for a variety of purposes (grazing, timber harvest and motorized recreation) that may cause localized erosion and sedimentation to streams.

Lower Colorado Basin

Defined as the main stem in the Grand Valley to the Utah border, including the Gunnison River and tributaries flowing out of the state before emptying into the Colorado River, such as the Dolores and San Juan rivers.

The lower Colorado basin comprises about 18 percent of the state's surface area and has 4 percent of the population.

As in the upper basin, federal lands managed by the U.S. Forest Service and the Bureau of Land Management dominate the land-ownership pattern. In fact, 47 percent of the entire Colorado basin in the state is public land. These lands are used for a variety of recreational activities and resource-extraction and development purposes that may cause non-point source pollution to streams.

The headwaters of the Animas, Uncompahgre, San Miguel and Dolores rivers originate in a highly mineralized area of the San Juan Mountains. A century of mining has led to impaired segments in all of these river systems.

Intensive agriculture on areas of naturally occurring saline Mancos shales contributes to salinity and selenium loading in the Colorado River basin.

Over 40 locally-based watershed outreach groups operate in Colorado. 63 counties rely solely on groundwater for Colorado's aquifers underlie over 24% of the state's surface area.

Quality of Ground Water

In general, ground-water quality in Colorado ranges from excellent in fractured granitic aquifers in mountain areas where snow fall is heavy, to poor in alluvial aquifers of major rivers where surface and ground water are used and reused for multiple purposes. Shallow, unconfined aquifers are susceptible to contamination from surface activities. Many have become contaminated, especially with nitrate and salts resulting from agricultural activities and urban development. This is particularly true along the South Platte downstream of Denver. Deeper bedrock aquifers tend to show higher levels of natural mineral constituents, such as salts, but lower levels of contaminants related to surface activities, especially if they are confined under impermeable formations.

Quality of Drinking Water

Public health concerns pertaining to drinking water derived from surface water supplies include microbiological pathogens, such as bacteria, viruses, giardia and crypto sporidium.

Water-quality data from public systems supplied by ground water indicate the most common contaminants in the state are nitrate, fluoride, selenium, iron, manganese, alpha radiation and uranium. Mining has con-

taminated some areas of ground water with heavy metals and radionuclides. In mountainous areas underlain by fractured crystalline rock and in alluvial valleys, rapid development relying on individual sewage disposal systems has increased the threat of nitrates and pathogens in ground water used for public water systems.

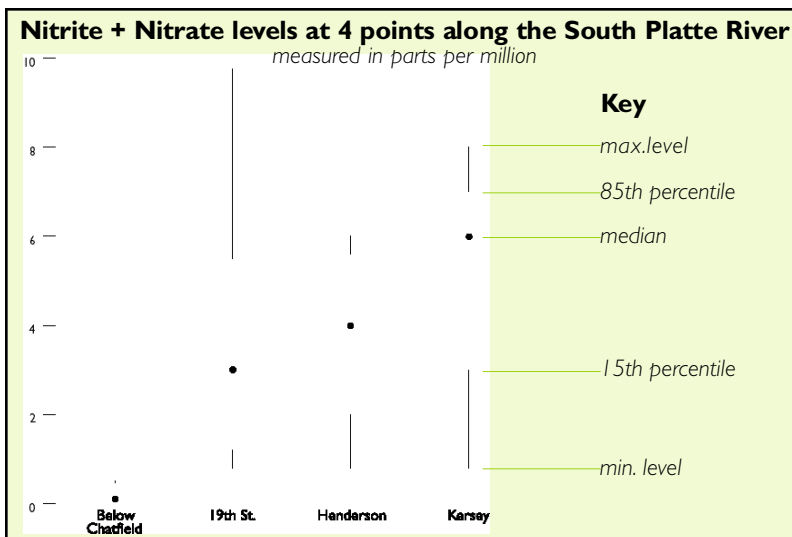
Water-Quality Management

Colorado's water-quality management system consists of two significant components:

- a policy-making component provided by the Colorado Water Quality Control Commission and the Colorado Board of Health, which establish policies and rules pertaining to water-quality management that are consistent with the broader policy embodied in state laws
- a program-implementation component provided by the Colorado Department of Health and Environment, Water Quality Control Division, which carries out water-quality programs on a day-to-day basis within the statutory and regulatory framework

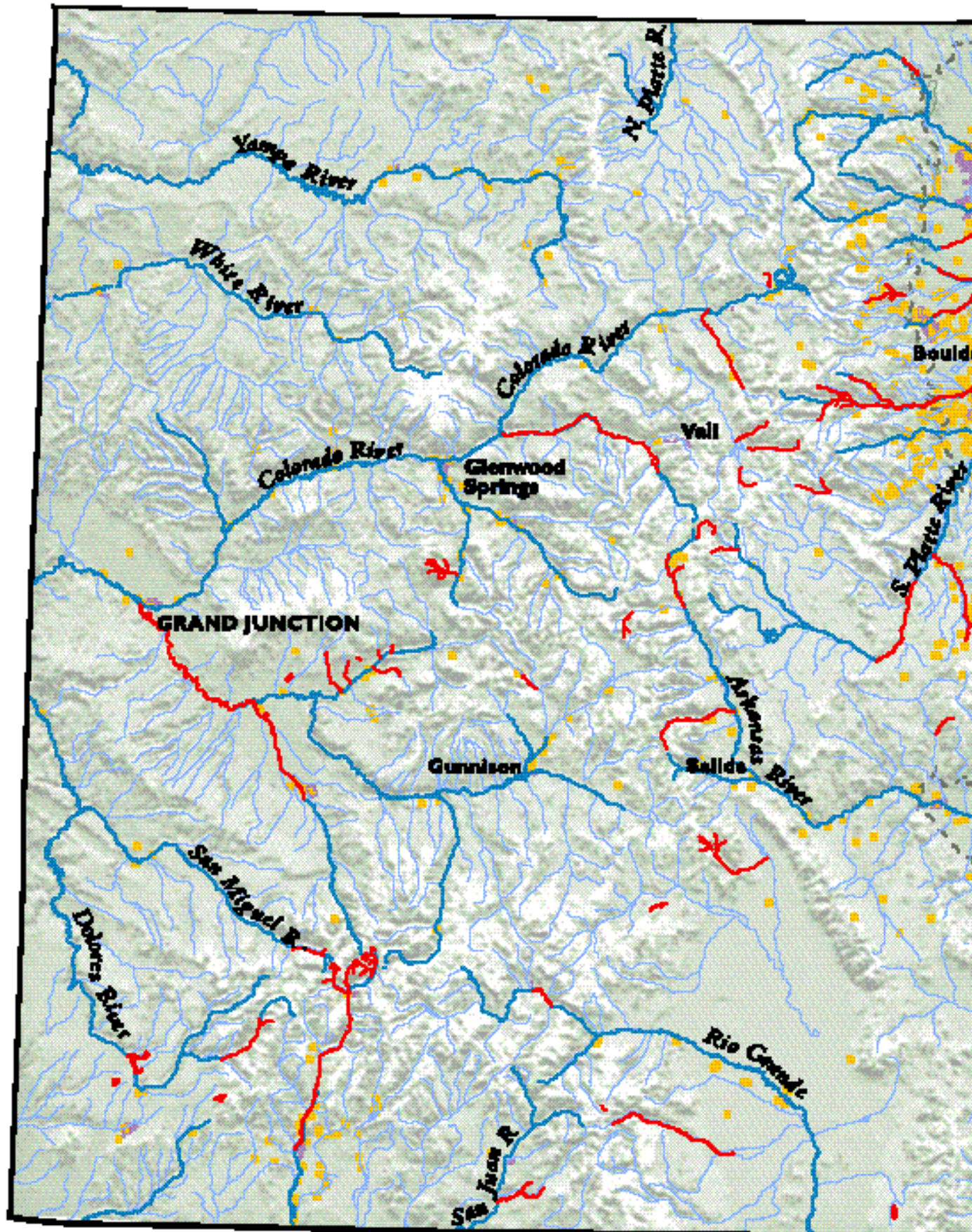
The commission and board each consist of nine

members with appropriate backgrounds to carry out their crucial policy-making roles. Commission and board members are appointed by the governor and confirmed by the Colorado Senate. A key function of the commission, among many others, is establishing water-quality standards for all the state's waters. The board promulgates Colorado's primary drinking water standards, regulations concerning public water systems and regulations pertaining to individual sewage-disposal systems.

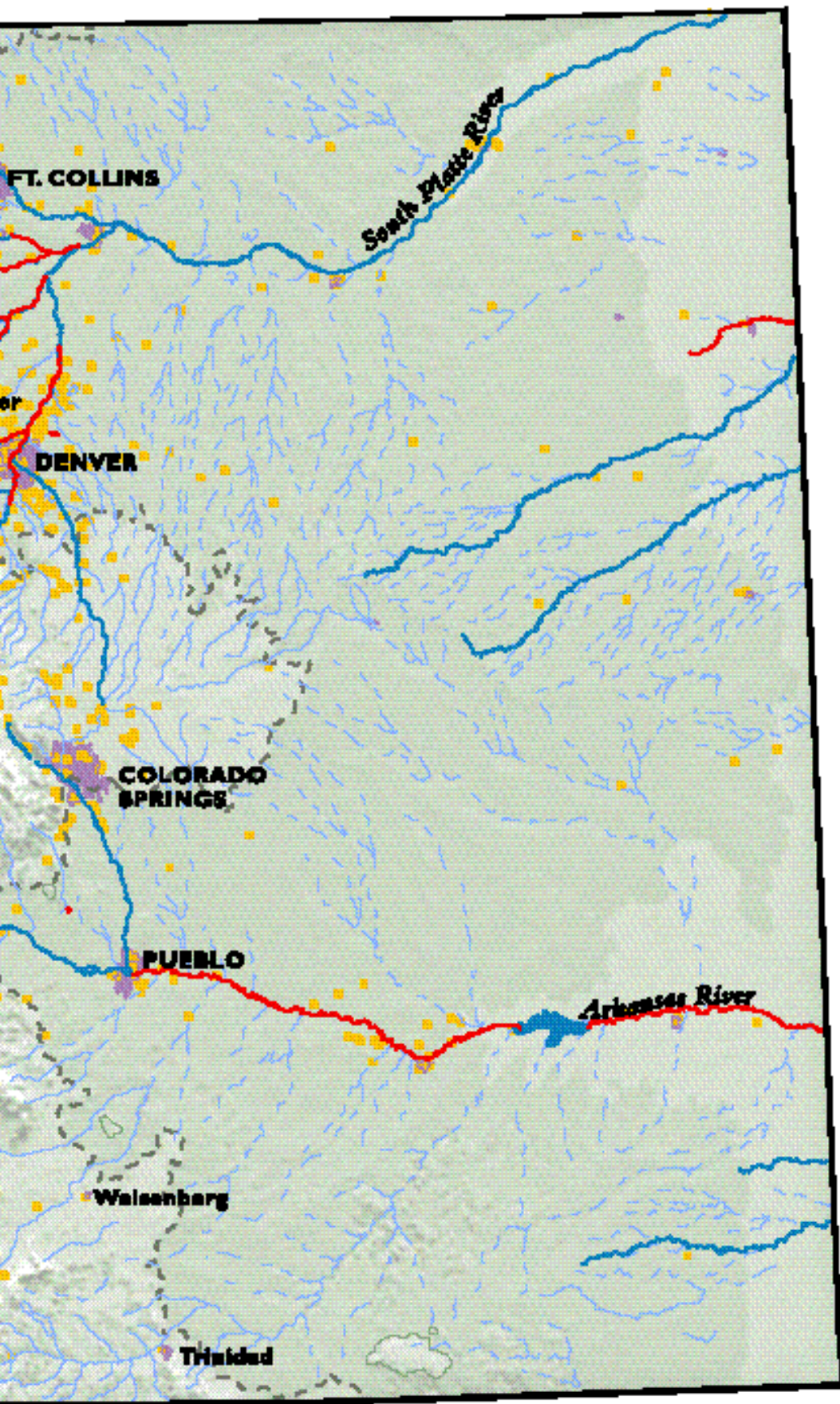


drinking and agricultural use, encompassing over 429,000 people.
87% percent of the water leaving Colorado flows through the Colorado River System (7,097,000 acre feet)

Waters of



Colorado



Legend

- Threatened or Impaired Waters
- Intermittent Streams
- Tributaries
- River main stem
- Urban/Developed Area
- Point Source Permit
- warm/cold Water Zones Boundary
(Water to the west of the warm/cold water zone line is cold.)



The Division, on the other hand, is a state agency staffed by about 100 employees. Located in the Colorado Department of Public Health and Environment, the Division is the state agency responsible for maintaining, restoring and improving the state's water quality. It must also assure that safe drinking water is provided from public systems. The Division's mission is to ensure that the state's waters are safe and clean for all beneficial uses.

Several integrated program elements form a complete water-quality management program. Ideally, these elements are efficiently integrated to address the protection of ambient water quality and drinking water quality. The figure on page 12 shows the key elements involved in a Clean Water Program based on the federal Clean Water Act as implemented under Colorado law.

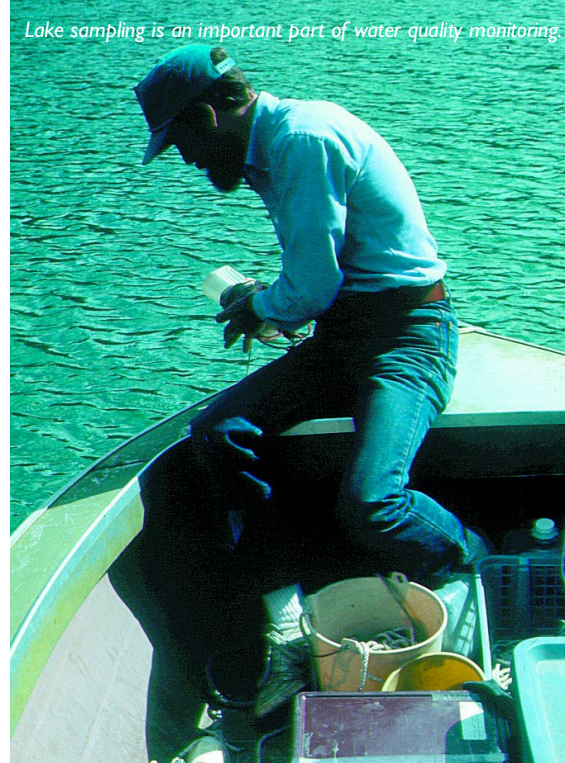
Monitoring

Water-quality monitoring provides the basic chemical, biological and habitat data needed to create a picture of the current status of water quality in the environment. Monitoring tells Coloradans about the current quality of their water and highlights important trends. Increasingly, day-to-day water-quality management decisions must be based on substantial monitoring data.

Colorado currently invests approximately \$1 million annually in monitoring. The Division's monitoring unit conducts very localized studies to evaluate specific projects. It also conducts watershed scale studies aimed at unraveling complex water-quality processes related to the impacts from point and nonpoint source pollution. Finally, monitoring is performed at carefully selected sites intended to indicate the overall physical, chemical and biological integrity of Colorado's waters.

Water Quality Assessment

Water-quality assessment is concerned with transforming monitoring data into information that supports key water-quality management decisions. Such information is needed for establishing water-quality standards. Standards development is the process of determining the level of quality we want for our



waters. Standards are based on in-stream monitoring information and toxicological research. The Division serves as staff for the commission in major standards rule-making hearings several times each year.

Another assessment function is determining the maximum allowable pollutant-loading capacity for water bodies. This is done by identifying "total maximum daily loads." Total maximum daily load development is the process of translating the standards goal framework into specific terms for protecting water bodies from the threats and impacts presented by point source discharges and nonpoint source pollution. Maximum daily loads provide a road map of how to get the level of quality Coloradans want for their waters.

Compliance Assurance

Compliance assurance program activities are targeted at facilities regulated under the National Pollutant Discharge Elimination System, state water-quality control regulations and drinking water regulations. Compliance assurance provides the public with independent confirmation that water quality protection requirements are being met. Compliance assurance includes the activities that go into assuring regulated drinking water and that pollution-control facilities know what requirements must be met and that they have the necessary facilities and operational capabilities to do so. Such activities, which are

Nearly every Front Range river is impacted or impaired by rapid urban growth.
More than \$2.5 million is allocated to water-quality management.
99% of all drinking water systems comply with all applicable standards.



focused at each key stage in the life of a waste-water or drinking water treatment facility, include: facility planning, siting approval, design approval, construction inspection, discharge permitting, compliance sampling and operation inspection, compliance assistance, and enforcement.

Outreach and Assistance

Watershed outreach is becoming increasingly important in water-quality management as states like Colorado look to locally based watershed groups for substantive assistance and involvement in monitoring efforts, developing standards, establishing total maximum daily loads and designing, constructing and maintaining nonpoint source pollution control projects.

At last count, more than 40 such groups were working in Colorado. The Division has created four watershed coordinator positions to serve as liaisons to local governments, watershed groups and internal work units. This coordination is proving helpful as the Division tackles new cross-cutting challenges related to drinking water protection and the restoration of impaired water bodies.

Financial assistance programs are available in the form of low-interest loans and grants to help finance the waste-water and drinking water treat-

ment infrastructure needed to attain and maintain water-quality standards. Currently, more than \$200 million is revolving in loans through the Pollution Control Revolving Load Fund.

Between \$1.5 million and \$3 million is appropriated annually by the Colorado Legislature for grants to small communities for waste-water infrastructure needs.

Financial assistance programs also provide grants and low-

interest loans to drinking water systems. The new drinking water revolving loan fund already has \$50 million in loan capacity, and between \$1.5 million and \$3 million has been appropriated for grants to small communities for infrastructure needs.

Wastewater Discharge Permits

Point source permits and other pollution control mechanisms issued under the National Pollutant Discharge Elimination System control individual point sources of pollution in a manner consistent with established standards and total maximum daily loads where they have been developed. The Division's permits unit has been responsible for the following:

- administering more than 400 individual permits for direct process waste water discharges and issuing 1,898 certifications under general permits for direct discharges

- issuing four individual storm-water permits for four large municipal separate storm-water systems and administering 2,655 certifications under general storm-water permits

- operating a pretreatment program to control 13 industries that discharge to municipal waste-water treatment systems

*In the state from general fund monies, permit fees and federal grants
Colorado currently invests over \$1 million per year in monitoring the status of water quality*

administering a biosolids program that has issued more than 1,276 notices of authorization for environmentally sound land application of municipal sewage sludge or biosolids

Nonpoint Source Management

Nonpoint source pollution is controlled through projects employing management practices aimed at attaining water-quality standards in accordance with total maximum daily loads where they have been developed. Colorado is heavily impacted by nonpoint source pollution, especially from agriculture, urban development and past mining activities. More than 156 restoration and environmental-education projects—at a cost of about \$12 million—have been conducted through the Division's nonpoint source program and have resulted in actual water quality improvements.

Management of Drinking Water Quality

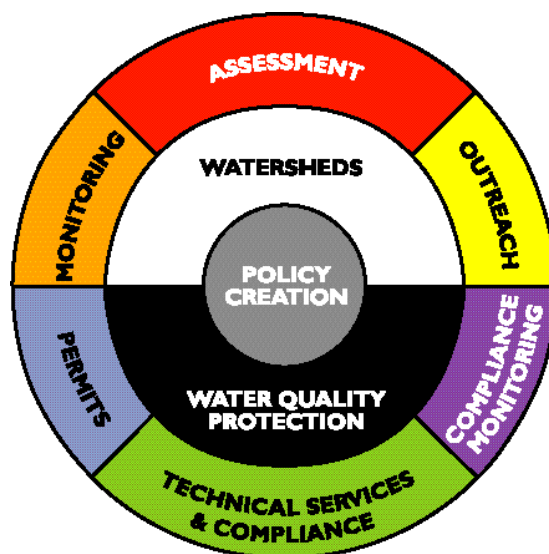
A number of these same integrated program elements are involved in assuring that public systems provide safe drinking water. The National Primary Drinking Water Standards established the goal framework for states in their drinking water programs. A strong compliance assurance program consists of self-monitoring reports by drinking water purveyors and independent compliance sampling and sanitary survey inspections by the Division. Of Colorado's drinking water systems that serve the public, 99 percent comply with all drinking water standards.

Drinking water program elements based on the 1996 amendments to the federal Safe Drinking Water Act include new drinking water protection programs and quality standards.

The Consumer Confidence Reporting Program requires full disclosure to consumers about contaminants in raw water supplies, treated water and any compliance problems at their public water system.

The Source Water Protection Program is aimed at preventing pollution and ensuring the safety of raw drink-

Water Quality Management



ing water supplies and thereby minimizing the costs for required treatment and compliance monitoring.

The Capacity Development Program is directed at assuring that community water systems and non-transient/non-community drinking water systems, such as those supplying hospitals and schools, have the technical, managerial and financial capability to meet applicable standards and program requirements.

New and upcoming standards will likely address arsenic; sulfate; radionuclides including uranium and radon; disinfection and disinfection byproducts in surface water; bacteriological monitoring and disinfection of ground water; revisions to the surface water treatment rule and the lead and copper rule; and monitoring of unregulated contaminants. Colorado is likely to be particularly hard hit by any new arsenic, sulfate and radon requirements, given the widespread, naturally elevated background concentrations of these constituents in the state's waters.

Funding for Water-Quality Management

Colorado's quality-management program is funded with

Standards represent water quality goals to protect beneficial uses.

Flow is measured by determining the cross sectional area of a stream channel and multiplying it by the velocity of the stream

One cubic

a mix of monies derived from the state's general fund, permit fees and federal grants. More than \$9 million is allocated to water-quality management in this state.

Major Challenges and Key Water-Quality Issues

Growth

Growth and development threaten to degrade many of Colorado's high-quality waters. In particular, rapid urbanization in mountain recreational areas brings new threats associated with storm-water runoff, soil erosion, encroachment upon riparian areas, increased nutrient concentrations and habitat degradation. It is important that development be well-planned, and that impacts resulting from changing land uses, increased population and increased municipal water usage be factored into government decisions at all levels to ensure that valuable water resources are protected and preserved. The Front Range area along Colorado's Eastern Slope is also experiencing pressures from rapid urban growth and development. Nearly every Front Range river is impacted or impaired.

Restoration of Impaired Water Bodies—Developing and Implementing Total Maximum Daily Loads

The Federal Clean Water Act requires states to identify waters not meeting water-quality standards designed to protect aquatic life, recreation, drinking water supply and agricultural uses. Once the state identifies these waters, it is required to analyze the causes of water-quality problems and allocate responsibility for controlling pollution. A total maximum daily load must be established to specify the allowable amount of any specific pollutant that a water body can receive without violating water-quality standards. The complexity of this effort varies in relation to the water body and the sources of pollutants under consideration. To encourage cooperation and voluntary actions, and because additional controls on point and nonpoint sources of pollution may be required, participation from all stakeholders interested in the water body is desir-



Population growth in Colorado has resulted in increased demands upon rivers, lakes and reservoirs.

able. Colorado currently lists 85 water bodies that require the development of 198 total maximum daily loads. This workload is expected to increase dramatically within the next year based on monitoring and assessment work now underway.

Drinking Water Quality—Source Water Protection Program

Changes to the Safe Drinking Water Act in 1996 require that all states perform a "source water assessment" for public drinking water supplies in an effort to protect source (raw untreated) water from contamination. The Source Water Assessment and Protection Program (SWAP) is intended to prevent water pollution and fits well with the watershed concept. The program requires four steps:

- delineation of the source water area for each public water system

- inventory of possible sources of contamination within the source water area

- an analysis of the susceptibility of the public water system to each of the contaminants or contaminant sources identified in the inventory

- publication of the results of the delineation, inventory and susceptibility analysis

foot contains 7.5 gallons of water and weighs about 62.4 pounds.
Water flowing at a rate of one cubic foot per second flows is an amount sufficient to supply two to three families for a year.

Public participation is a hallmark of the Source Water Assessment and Protection Program. The Division expects to work closely with local communities over the next few years in addressing each of these four steps.

Threatened and Endangered Species

Recent investigations by the Colorado Division of Wildlife and the U.S. Fish and Wildlife Service have revealed troubling evidence of declining native aquatic species in each of the state's major drainage basins. This indicates an impairment of the aquatic life use, which may necessitate development of total maximum daily loads and implementation of recovery plans for these species. Apart from the existing recovery programs for endangered fish in the Colorado River, very little focused research has been done on the specific vulnerabilities of Colorado's native aquatic species to water-quality impacts. The Colorado pike minnow, boneytail chub, humpback chub, Rio Grande sucker and razorback sucker have been studied extensively in terms of their life histories, habitat needs and vulnerabilities to a handful of pollutants. Also, there is a large body of chemical toxicity data for rainbow trout, much of which may be applicable to the greenback and Colorado River cutthroat trout.

Relatively little is known about the native warm-water species inhabiting the lower portions of the South Platte, Arkansas and Rio Grande basins. These organisms exist and survive in a milieu of chemical, biological and physical factors. Changes in land and water uses may create conditions in the aquatic environment that are quite foreign to the species that have lived there historically. However, a singular focus on the threats to individual species will probably not prove the most productive means of yielding solutions. For long-term solutions, it will be more effective to focus on overall habitat considerations, including riparian zones that sustain the structure of the community.



the Rio Grande sucker

For more Information

Please contact the Water Quality Control Division at 303-692-3500 or visit the web page at www.state.co.us.

Glossary

AQUIFER means a formation, group of formations, or part of a formation containing sufficient saturated permeable material that could yield a sufficient quantity of water that may be extracted and applied to a beneficial use.

BEST MANAGEMENT PRACTICE (BMP) means a practice or a combination of practices that is determined by a governmental agency after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with quality goals.

BIOSOLIDS means the accumulated residual product resulting from a domestic wastewater treatment works. Biosolids does not include grit or screenings from a wastewater treatment works, commercial or industrial sludges, sludge generated during treatment of drinking water, or domestic or industrial septage.

DISCHARGE means the discharge of pollutants to state waters and also includes land application of pollutants.

EFFLUENT LIMITATION means any restriction or prohibition on quantities, rates, and concentrations of chemical, physical, biological, and other constituents that are discharged from point sources into state waters, including schedules of compliance.

MUNICIPAL SEPARATE STORM SEWER means a conveyance or system of conveyances owned or operated by a State, city, town, county, district, association, or other public body designed or used for collecting or conveying stormwater:

POINT SOURCE means any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point Source does not include irrigation return flow.

POINT SOURCE PERMIT means a National Pollutant Discharge Elimination System (NPDES) permit or Colorado Discharge Elimination System permit for the discharge of pollutants to state waters permits.

POLLUTANT means dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, any industrial, municipal or agricultural waste.

POLLUTION means man-made or man-induced, or natural alteration of the physical, chemical, biological, and radiological integrity of water.

PROCESS WASTEWATER means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

PUBLIC WATER SYSTEM means a system for the provision of piped water, if such system has a minimum of 15 service connections or regularly serves an average of a minimum of 25 persons.

STANDARD means a narrative and/or numeric restriction established by the Commission applied to state surface waters to protect one or more beneficial uses of such waters.


STATE WATERS means any and all surface and subsurface waters which are contained in or flow in or through Colorado, except waters in sewage systems, water in treatment works or disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

STORMWATER means stormwater runoff, snowmelt runoff, and surface runoff and drainage.

WATER QUALITY IMPAIRMENT or IMPACTS means the effect of a discharge or disturbance upon state waters, including, but not limited to the exceedance of permit limitations and/or stream standards or ground water standards; the occurrence of fish or other aquatic organism kills; excessive growth of organisms that affects the taste and odor of a potable water supply source and/or aesthetic quality of a recreational area; and/or the occurrence of conditions which are detrimental to public health.



Blue Mesa Reservoir



Produced by
the Colorado Department of Health and Environment
Water Quality Control Division
Design: Notchcode Creative Services, LLC
Photography: Division Staff and Photodisc®