

cities in the unit is Albuquerque (384,736), Santa Fe (55,859), and Las Cruces (62,126), all in New Mexico, and Alamosa (7,579) in Colorado. The population of the Albuquerque metropolitan area is about 520,000 people. Freshwater use (1985), in million gallons per day (ground water shown first, surface water second), is as follows: public supply 164/5.1; rural 29.5/none; irrigation 593/2,191; and other 12.5/11.9.

Major reservoirs and lakes in the study area and their storage capacities include Elephant Butte Reservoir (2,065,000 acre-feet); Abiquiu Reservoir (1,201,000 acre-feet); Cochiti Lake (reservoir) (502,330 acre-feet); Heron Reservoir (401,300 acre-feet); Caballo Reservoir (331,500 acre-feet); El Vado Reservoir (186,250 acre-feet); Jemez Canyon Reservoir (172,800 acre-feet); and Galisteo Reservoir (88,990 acre-feet), all in New Mexico, and Sanchez Reservoir in Colorado (137,850 acre-feet). Nine other reservoirs have a storage capacity greater than 5,000 acre-feet.

Climate ranges from alpine tundra conditions in the northern mountains to subtropical desert in the southern part of the study unit. Annual precipitation ranges from less than 6 inches just south of Albuquerque to about 60 inches in the headwaters of the Rio Grande in Colorado. Annual runoff ranges from less than 0.1 inch near the southern boundary of the study unit to about 25 inches in the headwaters of the Rio Grande in Colorado. The average daily temperature ranges from less than 25 degrees Fahrenheit for January in the northern mountains to greater than 75 degrees Fahrenheit for July in the central part of the river valley.

Physiographic provinces include the Southern Rocky Mountains, the Colorado Plateaus, the Great Plains, and the Basin and Range. Land use/land cover is diverse, with cropland encompassing 6 percent of the total area; pasture and rangeland 71 percent; wetlands and water less than 1 percent; urban areas less than 1 percent; forested land 22 percent; and all other uses less than 1 percent.

Interstate flow of the Rio Grande between Colorado and New Mexico and between New Mexico and Texas is regulated by the Rio Grande Compact of 1938. Flow of the Rio Grande between the United States and Mexico is controlled by the 1944 Water Treaty between the United States and the Republic of Mexico. The existing surface-water supply in the study unit is completely appropriated by law. The study unit contains numerous Indian reservations, national forests, wilderness areas, Federal and State wildlife refuges, State parks, and wetlands. The study unit also contains four U.S. military reservations,

two national laboratories, two Wild and Scenic River reaches, three national monuments, and two long-term ecological research sites.

WATER-QUALITY ISSUES

The major water-quality issues to be addressed during the Rio Grande Valley study include:

- Nitrate and pesticide contamination of ground water from agricultural practices in the San Luis Valley and the Rio Grande Valley downstream from Elephant Butte Reservoir;
- Pesticide contamination in the Rio Grande upstream from Elephant Butte Reservoir;
- Trace-element contamination of several reaches of the Rio Grande and its tributaries as a result of resource extraction;
- Nitrate contamination and (or) low-oxygen concentrations in ground water near several populated areas in the Rio Grande Valley in New Mexico; and
- Large concentrations of suspended sediment in streams and high rates of sedimentation in several reservoirs.

COMMUNICATION AND COORDINATION

Communication and coordination between USGS personnel and other interested scientists and water-management organizations are critical components of the NAWQA program. Each of the study-unit investigations will have a local liaison committee that consists of representatives who have water-resources responsibilities from Federal, State, and local agencies, and universities and the private sector. Specific activities of each liaison committee will include the exchange of information about water-quality issues of regional and local interest; the identification of sources of data and information; assistance in the design and scope of project products; and the review of project planning documents and reports. The liaison committee for the Rio Grande Valley study will be formed in 1991.

Information about technical reports and hydrologic data related to the NAWQA program can be obtained from:

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