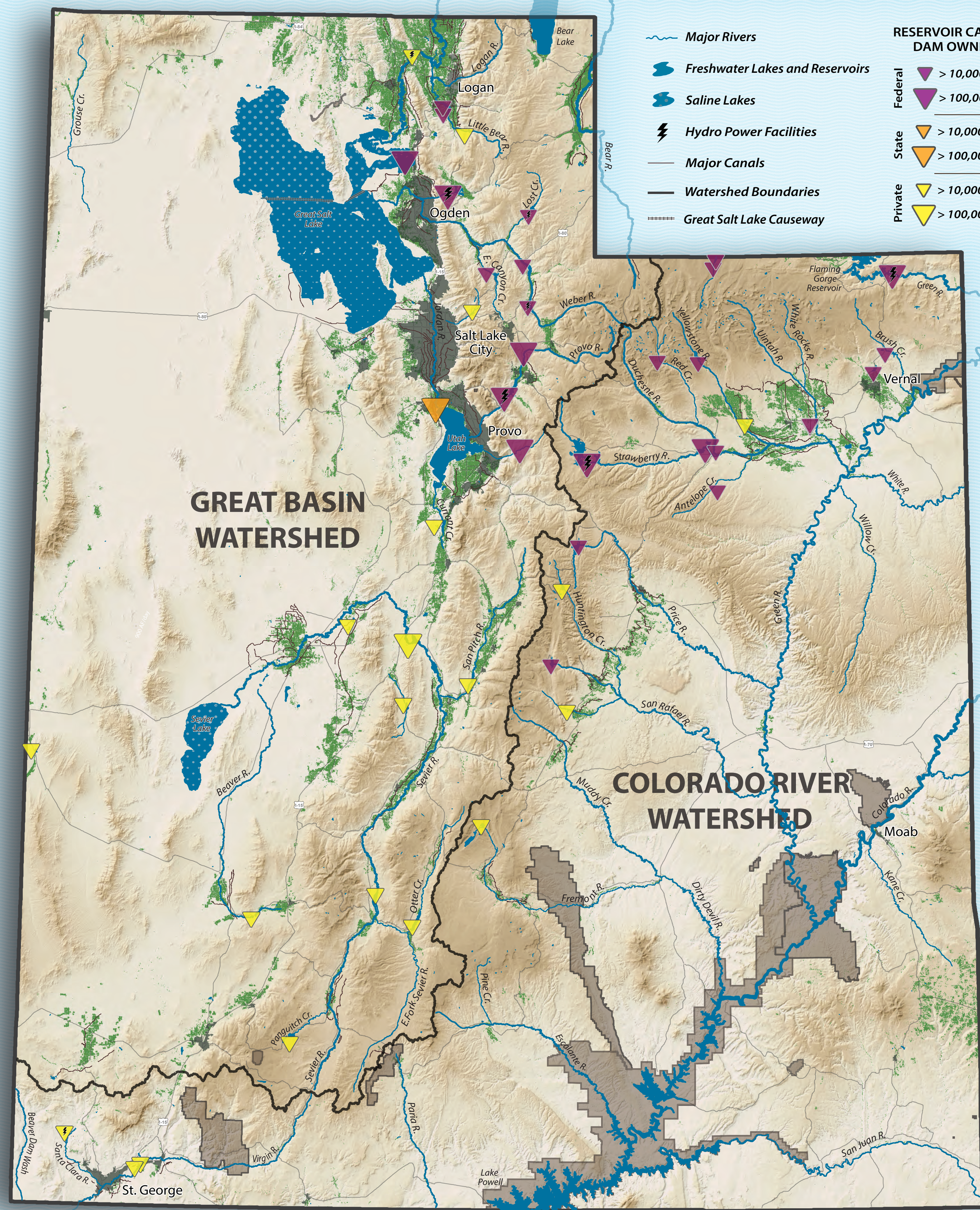


Exploring UTAH'S WATER



Utah is the 2nd driest state in the nation, receiving an average of about 13 inches of precipitation per year, with the 3rd fastest growing population. Precipitation is uneven geographically, with portions of southern Utah receiving only 5 inches per year, while mountain regions in northern Utah receive up to 60 inches per year. Over 80% of Utah's population lives in metropolitan areas along the Wasatch Front mountain region, including major cities of Salt Lake City, Ogden, Provo, and Logan. Precipitation is also seasonally variable - winter snow is the primary source of water for spring runoff, reservoir storage, and reservoir releases.

Water Use

Approximately 87% of Utah's surface runoff evaporates or is used by plants before it reaches rivers. This leaves an average of about 7.3 million acre-feet per year for all other water uses. Developed water supplies to urban and agricultural regions use approximately 5 million acre feet per year, less than 20% of which is used for cities and industrial uses and more than 80% for agriculture. Major federal water projects in Utah include the Central Utah Project, Weber River Project, and Provo River Project. Some water remains in streams and rivers for environmental benefits such as fish habitat and streamflow to the Great Salt Lake. However, water supply in Utah is highly variable from year to year. For example, a series of particularly wet years occurred in the 1980s. Water was pumped from the Great Salt Lake to the West Desert and reservoirs stored excess water to protect urban areas from flooding. This was followed by a period of dry years with drought conditions that triggered water conservation throughout the state.



The Colorado River

The southeastern half of Utah is part of the Colorado River Basin. The Colorado River is nearly 1,500 miles long and drains a large watershed that encompasses parts of 7 U.S. states and Mexico. Utah is an upper basin state (with Wyoming, Colorado, and New Mexico). According to the Colorado River Compact of 1922, the upper basin states must maintain 7.5 million acre-feet per year flowing to the lower basin states (California, Nevada, and Arizona). Utah's annual share of the Colorado River is 1.37 million acre-feet per year (assuming the upper basin states receive a total of 6.0 million acre-feet per year). Utah currently uses about 940,000 acre-feet of its allocation. Colorado River water used in Utah is diverted from tributaries before it reaches the mainstem Colorado River and is used mostly for agriculture. Major dams on the Colorado River include Flaming Gorge, Glen Canyon, and Hoover Dams, which are used for water supply, hydro-power, flood protection, and increasingly environmental instream flows.



The Great Basin

The northwestern half of Utah is part of the Great Basin - a region stretching from the eastern Sierra Nevada in California to the western Wasatch Mountains in Utah where rivers flow to landlocked saline lakes rather than to oceans. Utah's portion of the eastern Great Basin has a semi-arid climate, with most precipitation falling as winter snowfall. Utah's Bear River is the largest river in the Great Basin and contributes an estimated natural flow of approximately 1.2 million acre-feet per year to the Great Salt Lake.



The Great Salt Lake

The Great Salt Lake is the largest water body in Utah and the largest saline lake in the western hemisphere. It is a remnant of ancient Lake Bonneville, a lake that covered most of Utah in the last ice age. Like all salt lakes, the only outflow of water is through evaporation, causing a gradual accumulation of salts and minerals. Since 1959, the Great Salt Lake has been bisected by a railroad causeway. All major streams (the Bear, Weber, and Jordan-Provo Rivers) flow into the southern portion of the lake. The causeway has limited the exchange of freshwater with the northern portion of the lake, causing it to be far saltier than the southern portion. The northern portion nears saturation levels, averaging 317 g/L, while the southern portion is less salty, averaging 142 g/L since the 1960's. The Great Salt Lake has a simple but highly productive ecosystem, with native brine shrimp, brine flies, and algae, which with the surrounding wetlands, support millions of migratory birds.

DATA SOURCES

Utah Mapping Portal
National Atlas
National Land Cover Database
National Hydrology Dataset

National Hydrology Dataset
Natural Resources Conservation Services
National Parks System Boundary Dataset



Tim Beach, Curtis Gray & Dr. Sarah Null, Utah State University. 2011.