

Basin Report: Rio Grande

The Rio Grande Basin is located in the southwestern United States and provides water for irrigation, households, the environment and recreational uses in Colorado, New Mexico and Texas as well as Mexico. Reclamation has two major projects within the basin which irrigate approximately 250,000 acres. This vibrant agricultural economy grows cotton, alfalfa, vegetables, pecans and grain. Reclamation's facilities also provide critical water and power for industry and communities including Albuquerque and Las Cruces in New Mexico, El Paso, Texas and Ciudad Juarez in Mexico. The Rio Grande Basin supports critical habitat for the Rio Grande silvery minnow and the southwestern willow flycatcher – designated as endangered under the Endangered Species Act. To protect these critical resources, Reclamation must continually evaluate and report on the risks and impacts from a changing climate and to identify appropriate adaptation and mitigation strategies utilizing the best available science in conjunction with stakeholders.



Future Changes in Climate and Hydrology

Reclamation's 2011 SECURE Water Act Report identifies climate challenges the Rio Grande Basin could likely face:

- Climate projections suggest that temperatures throughout the Rio Grande are projected to increase by roughly 5–6 °F during the 21st century.
- The projections also suggest that annual precipitation in the Rio Grande Basin will remain quite variable over the next century with a decrease of from 2.3 to 2.5% by 2050.
- Mean annual runoff is projected to decrease by from 7.3 to 14.4% by 2050.
- Moisture falling as rain instead of snow at lower elevations will increase the wintertime runoff and decrease runoff during the summer.

Future Impacts for Water and Environmental Resources

These historical and projected climate changes have potential impacts for the basin:

- Spring and early summer runoff decreases may translate into water supply reductions for meeting irrigation demands, adversely impacting hydropower operations and increasing wintertime flood control challenges.
- Warmer conditions might result in increased stress on fish such as the silvery minnow, increased water demands for instream flows for ecosystems and increased invasive species infestations.
- The upper Rio Grande Basin is heavily reliant on ground water for municipal and rural uses. Warmer conditions might increase evaporation and decrease runoff, which will likely result in less natural groundwater recharge, resulting in even lower ground water levels.

Adequate and safe water supplies are fundamental to the health, economy and ecology of the United States and global climate change poses a significant challenge to the protection of these resources. Reclamation is taking a leading role in assessing risks to Western U.S. water resources and is dedicated to mitigate risks to ensure long-term water resource sustainability through its WaterSMART Program.

Where opportunities exist, Reclamation has begun adaptation actions in response to climate stresses as well as land use, population growth, invasive species and others. These activities include extending water supplies, water conservation, hydropower production, planning for future operations and supporting rural water development. Further, the Department of the Interior High Priority Goal for Climate includes activities of the Landscape Conservation Cooperatives and Climate Science Centers, assessing vulnerabilities to the natural and cultural resources management by the Department and activities to adapt to the stresses of climate change.

This fact sheet contains information from the SECURE Water Act Section 9503(c) - Reclamation Climate Change and Water 2011, Section 6 - Basin Report: Rio Grande. The full report may be read online at www.usbr.gov/climate.