

Pecos River Basin Study

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The Pecos River Basin in New Mexico is chronically water short and is facing ever increasing demands. The extraordinarily dry conditions in the basin pose extreme water management challenges to maximize surface water deliveries to the 25,055 irrigated acres of the Carlsbad Project, while still meeting the flow targets in the critical habitat reaches of the Pecos bluntnose shiner (shiner) as prescribed by the U.S. Fish and Wildlife Service's 2006 to 2016 Biological Opinion. Additionally, compliance with the water delivery requirements to Texas pursuant to the Pecos River Compact is essential.

As temperatures rise, drought conditions are likely to intensify. For example, in 2011, the vast majority of the Pecos River Basin recorded the hottest and driest year since records began in 1895. In 2011, the volume of water delivered to Santa Rosa Lake, the uppermost reservoir on the Pecos River, was 9,690 acre-feet or less than 12% of the long-term average of is 83,500 acre-feet per year. Conditions similar to 2011 may occur more frequently as climate change continues to affect the region.

The Basin Study focuses on the Fort Sumner Underground Water Basin (Fort Sumner Basin), within the Pecos River Basin, New Mexico. The Fort Sumner Basin boundaries follow geohydrologic features and administrative boundaries. This 4,924 square mile region includes all but the southwestern corner of De Baca County, a portion of the north end of Chaves County and extends into portions of Guadalupe, Quay, Roosevelt and Torrance Counties. The municipalities of Vaughn and Fort Sumner are within the boundaries, while the cities of Santa Rosa, Roswell, Carlsbad and Artesia are affected by management decisions made in the Fort Sumner Basin. Due primarily to climate variability, imbalances in water supply and demand will continue to exist in the region. The geographic scope of this study encompasses an area addressed by prior geology, hydrology, biology and soils studies.

The Pecos River Basin Study will accomplish the following goals:

- Achieve broad consensus on a set of climate change scenarios for the Fort Sumner Basin within the context of addressing water supply and demand risks and reliability and other resource issues;
- Develop a comprehensive groundwater model of the Fort Sumner Basin to enhance understanding of the complex relationship between surface water and ground water;
- Update the New Mexico Pecos River Basin surface water model to incorporate hydrologic information developed using the comprehensive groundwater model of the Fort Sumner Basin; and
- Use the new and improved modeling capacity to develop strategies for adapting to reduced water supplies resulting from climate change.

The New Mexico Interstate Stream Commission is the primary cost-share partner for this study; additional partners include the Carlsbad Irrigation District, the Pecos Valley Artesian Conservancy District and the Fort Sumner Irrigation District. Also, the following stakeholders have provided written support for the study: Chaves County, DeBaca County, Village of Fort Sumner, and the Pecos River Compact Commission. The cost of the study is \$240,000, with Reclamation providing \$110,000 and New Mexico providing \$130,000.

Fort Sumner Underground Water Basin
Pecos River Basin, New Mexico

