



Rio Grande Silvery Minnow Passage at Diversion Dams

Products	A publication documenting considerations for Rio Grande Silvery Minnow (RGSM) passage alternatives at three large diversion structures on the Middle Rio Grande.
Benefits	The research provides screening-level information regarding the engineering, economic and operational feasibility of fish passage alternatives on the Middle Rio Grande. The study addresses the biological effectiveness of each fish passage alternative examined, and identifies the additional data necessary to make informed decisions on alternative selection. While directly addressing recovery efforts for the RGSM, information presented in the report is applicable to other native fishes in arid-region river systems.
Issue	Rio Grande silvery minnow (silvery minnow), <i>Hybognathus amarus</i> , now endangered, was historically one of the most abundant and widespread fishes in the Rio Grande Basin. The silvery minnow's decline has been attributed to several factors, but decreased and interrupted stream flows caused by impoundments and water diversion for agriculture is considered the primary causal mechanism. Three large diversion structures, Angostora, Isleta, and San Acacia, provide complete barriers to the RGSM, and the implementation of passage provisions has been stipulated in the 2003 Biological Opinion for the Middle Rio Grande prepared by the U.S. Fish and Wildlife Service.
Description	An interdisciplinary study team conducted several data collection efforts, including detailed topographic surveys, measurements of stream velocities, sediment sampling, and measurements of key facility components at Isleta and San Acacia, and site assessments at Angostora and Cochiti. The team observed gate operations with a full irrigation head at Isleta to assess downstream sediment movement and channel velocities. With the aid of the U.S. Fish and Wildlife Service and the Isleta Pueblo, the team conducted backpack shocking and seine sampling of Rio Grande Silvery Minnow (RGSM). The team developed a range of alternatives considered potentially feasible, then conducted several studies to determine advantages and disadvantages of each with respect to biological, geomorphic, hydrologic, and cultural objectives. A study report was prepared detailing the findings of the investigation, and a separate technical note prepared summarizing those findings.



Surveying Rio Grande silvery minnows below diversion dam on Middle Rio Grande near Albuquerque, NM

Sponsor	Urban Flood Damage Reduction and Channel Restoration Development and Demonstration Program for Arid and Semi-Arid Regions (UFDP); the Bureau of Reclamation under the Middle Rio Grande Endangered Species Collaborative Program.
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Partners	USACE, Albuquerque District; U.S. Fish and Wildlife Service; City of Albuquerque; Pueblo of Isleta; Bureau of Reclamation; Middle Rio Grande Conservancy District.