

# **Analysis of Salinity Impacts on Agricultural and Urban Water Users**

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## **Abstract**

The Rio Grande Compact Commission, in collaboration with local water management entities, water users and universities established a three state Rio Grande Salinity Management Program. The objectives of the Rio Grande Project Salinity Management Program are to reduce salinity concentrations, loading, and salinity impacts in the Rio Grandebasin for the 270 mile river reach from San Acacia, New Mexico to Fort Quitman, Texasto increase usable water supplies for agricultural, urban, and environmental purposes. The focus of this first phaseof the program is the development of baseline salinity and hydrologic information and a preliminary assessment of the economic impacts of salinity. An assessment of the economic impacts of salinity in this region was conducted by scientists at Texas A&M University’s AgriLife Research Center at El Paso and New Mexico State University. Economic damages attributable to high salinity of Rio Grandewater were estimated for residential, agricultural, municipal, and industrial uses. The major impact issues addressed were: who is being affected the types of economic impactsthe magnitude of economic damages overall and by user category and identification of threshold-effect levels for different types of water use. Salinity concentrations in this 270 mile reach of the river typically range from 480 ppm to 1,200 ppm, but can exceed 3,000 ppm in the lower section of this reach. Economic impacts include reductions in agricultural yields, reduced water appliance life, equipment replacement costs, and increased water supply costs. This preliminary economic assessment indicates annual damages of \$10.5 million from increased water salinity. Under current water uses, municipal and industrial uses account for 75% of the total estimated impacts. However, agricultural impacts are based on current crop pattern yield reductions and, salinity leaching requirements and do not account for the impacts of reduced revenue from having to grow salinity tolerant, lower value crops. Actual damages are anticipated to be significantly higher with the inclusion of these additional agricultural impacts plus the future impacts from the growing population in the region. A more comprehensive economic analysis is planned for the second phase of this program. Results of the economic analysis are being used to determine the feasiblity of salinity control alternatives and what salinity reduction control measures will be pursued.

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