

RIO GRANDE COMPACT



The Rio Grande Compact divides the surface waters of the Rio Grande Basin (Fig. 1) above Fort Quitman, Texas, among Colorado, New Mexico, and Texas. Approved in 1939, the Compact is administered by a commission consisting of one representative from each state and one non-voting federal representative.

Upper Rio Grande

In northern New Mexico (above Otowi Gage; Fig. 2), the Compact requires New Mexico to hold depletions (water that is completely used and does not return to the system through agricultural return flow ditches or other means) to about what they were in 1929.

Middle Rio Grande

In the Middle Rio Grande (between Otowi Gage and Elephant Butte Reservoir), the Compact requires delivery of specified amounts of water to Elephant Butte Reservoir based on the flow at Otowi Gage (Fig. 2). The portion of the flow at Otowi Gage that comes from the San Juan-Chama Project, which imports water from the San Juan Basin in Colorado, is excluded from the Compact accounting. This index accounting links downstream delivery requirements to upstream index flows and limits depletions even in years with very high flows; in above-average years, flows more than 405,000 acre-feet must be delivered to Elephant Butte Reservoir for downstream users. For example, for a flow of 1,000,000 acre-feet, 595,000 must be delivered, leaving only 405,000 acre-feet for depletion in the Middle Rio Grande. Typical depletions in the Middle Rio Grande, by sector, are shown in Figure 3.

New Mexico's delivery to Texas is calculated considering the change in storage in Elephant Butte Reservoir. Thus, evaporation from Elephant Butte Reservoir counts against New Mexico's allocation. The water that evaporates from Elephant Butte in a typical year (around 100,000 acre-feet) is greater than the annual use (withdrawals minus return flows) of the City of Albuquerque (about 50,000 acre-feet per year), though evaporation varies considerably.

The amount of water that can be delivered to Elephant Butte Reservoir is affected by losses in the Middle Rio Grande. Sedimentation that causes water to spread out above the reservoir contributes to losses. A pilot channel directly above the reservoir helps to deliver water efficiently.

The Compact provides for debits and credits to be carried over and accrued from year to year. When the stored water in Elephant Butte and Caballo Reservoirs drops below specified levels, the Compact restricts storage in reservoirs upstream of Elephant Butte constructed after 1929. This results in reduced storage of spring runoff at higher-elevation reservoirs that have lower evaporative losses because of cooler temperatures.



Figure 1. Rio Grande Basin.

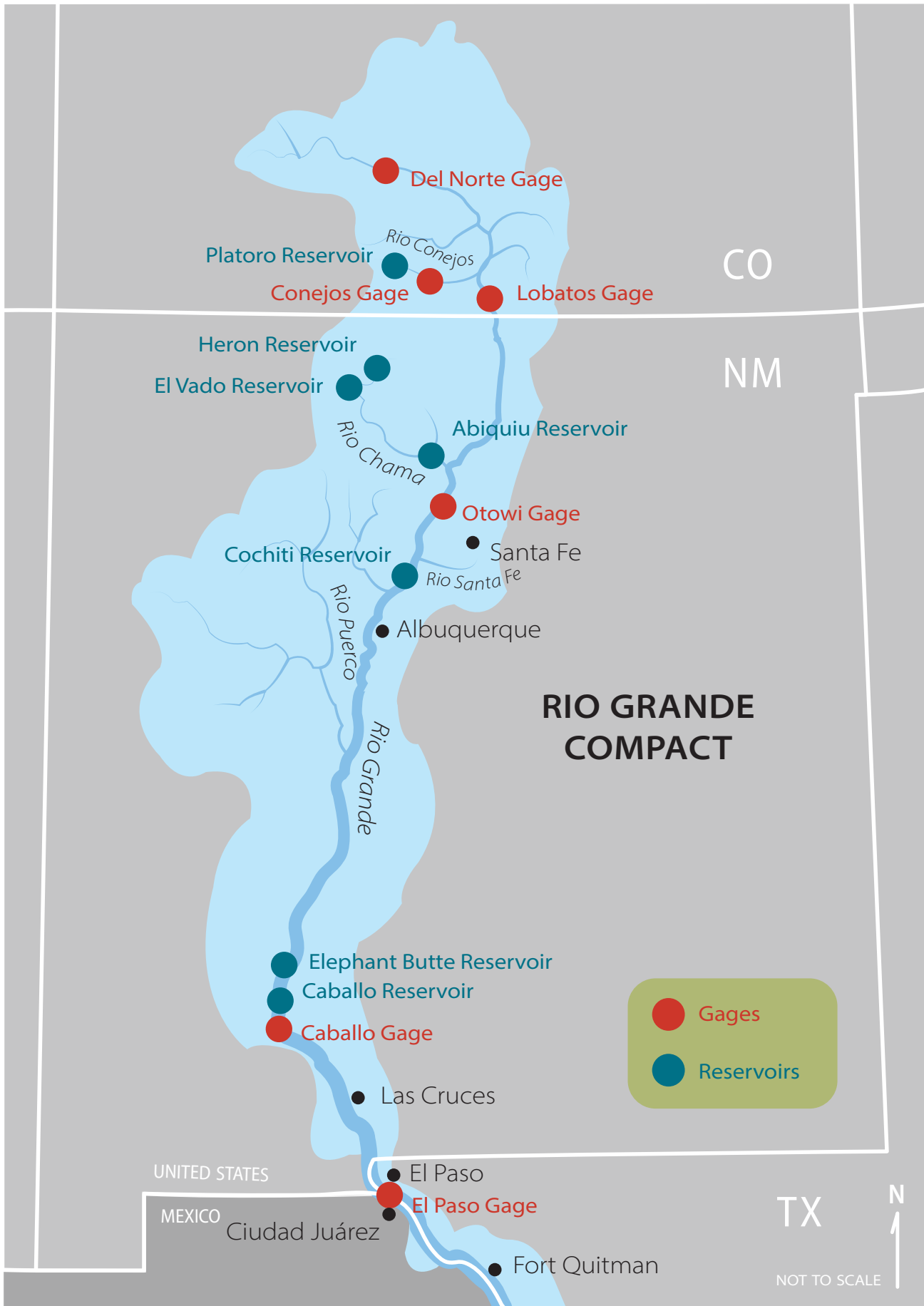


Figure 2. Rio Grande Compact gages and reservoirs.

MIDDLE RIO GRANDE DEPLETIONS BY SECTOR, 2000-2019 (TOTAL AVERAGE DEPLETIONS 493,000 ACRE-FEET PER YEAR)

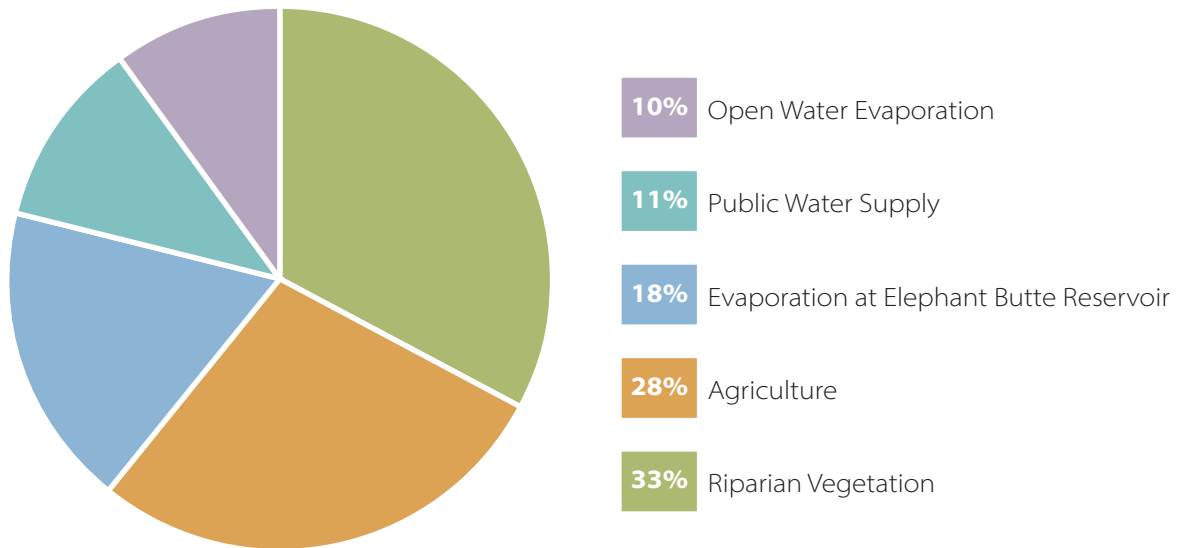


Figure 3. Average Middle Rio Grande depletions by sector, 2000–2019.

Lower Rio Grande

The Rio Grande Project, located downstream of Caballo Reservoir and operated by the Bureau of Reclamation, supplies water to 178,000 acres of Rio Grande Valley lands in southern New Mexico (57% of project lands) and Texas (43% of project lands).

In a recent Supreme Court Case (*Texas v. New Mexico and Colorado*), Texas alleged that New Mexico violated the Rio Grande Compact by intercepting water—via groundwater pumping and surface diversions between Elephant Butte Reservoir and the New Mexico-Texas state line—that Texas is entitled to. In 2019, the Court allowed the federal government to become a party to the lawsuit; their arguments agreed with Texas’s claims that New Mexico was using too much water below Elephant Butte.

In 2022, a proposed settlement laid out how the water would be distributed below Elephant Butte Reservoir, excluding Mexico’s portion. Key provisions of the settlement Consent Decree include:

- The Decree defines a new Index under which the annual release from Caballo Dam will be used to determine New Mexico’s obligation to deliver water to Texas at the El Paso Gage.
- The Index Obligation will be calculated annually based on current-year and previous-year releases from Caballo Dam using a formula that compares historical releases from Caballo with streamflow at the El Paso Gage. The Index Delivery will be based on the annual streamflow at the El Paso Gage, adjusted for deliveries to Mexico, Texas water use above the El Paso Gage, and other factors.
- New Mexico’s compliance with the Compact will be measured by comparing the Index Obligation with the Index Delivery; the difference between the two is the Annual Index Departure. The Consent Decree therefore allows New Mexico to accrue departures so long as specified Negative Departure limits are not exceeded. There are also specific triggers that, if met, require New Mexico to initiate additional water management actions.
- The Accrued Index Departures can also be positive if New Mexico over-delivers water to Texas, and certain trigger limits can initiate a transfer of water from Texas to New Mexico.
- During low water years, when Caballo releases are less than 200,000 acre-feet, the Index does not apply (there are no releases required). Likewise, when Caballo releases are greater than 790,000 acre-feet, the Index Obligation is calculated as if the release were 790,000 acre-feet.

The settlement decree is under review and is not yet finalized as of early 2024.

Rio Grande Management Issues

Ongoing issues regarding Rio Grande water management include:

- Recent climate change analyses indicate that rising temperatures will contribute to more prolonged drought and more extreme precipitation events.
- Because storing water upstream is not allowed when Elephant Butte storage is low (below 400,000 acre-feet), maximizing storage, when possible, in relation to needed releases is an important management issue.
- With increasing dry periods expected, maximizing delivery efficiencies and minimizing delivery losses is important for optimizing the limited water supply. Maintaining the river channel in the entire Middle Rio Grande, including the inflow channel to Elephant Butte (referred to as the Delta channel) by keeping it clear of sediment and vegetation, is important to reduce water losses. Improving efficiency without sacrificing habitat is a goal.
- Climate change may increase the potential for forest fire in the Rio Grande Basin. Coupled with increasing extreme precipitation events, projects to mitigate post-fire sediment influx into Rio Grande reservoirs are a key water management strategy.
- Meeting the senior water rights obligations to Pueblos and tribes is an important management issue.
- Optimizing state and federal partnerships and funding will help address all management issues.



Elephant Butte Reservoir

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