

Middle Rio Grande Water Use and Compliance with the Rio Grande Compact: A Lower Rio Grande Perspective

Albuquerque

Presented to the
Water and Natural Resources Committee

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Consultant to

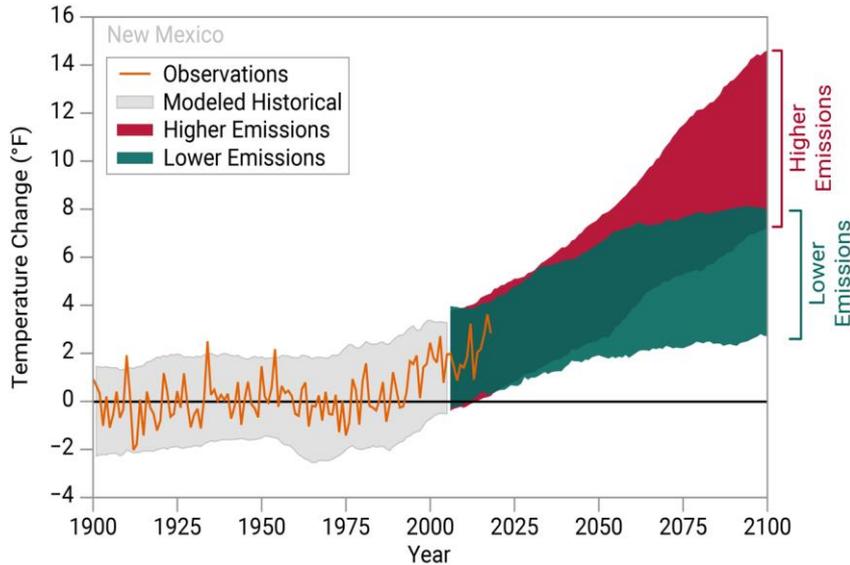
Elephant Butte Irrigation District

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Las Cruces

Climate Change effects on New Mexico

Observed and Projected Temperature Change



- The ISC's Leap Ahead analysis painted a bleak picture on New Mexico's future water supply
- Effects of climate change will propagate disproportionately downstream
- Dramatic changes in water infrastructure and management will be necessary to adapt to rapidly degrading conditions

5-Year Average of Annual Rio Grande at Otowi by Emission Scenario

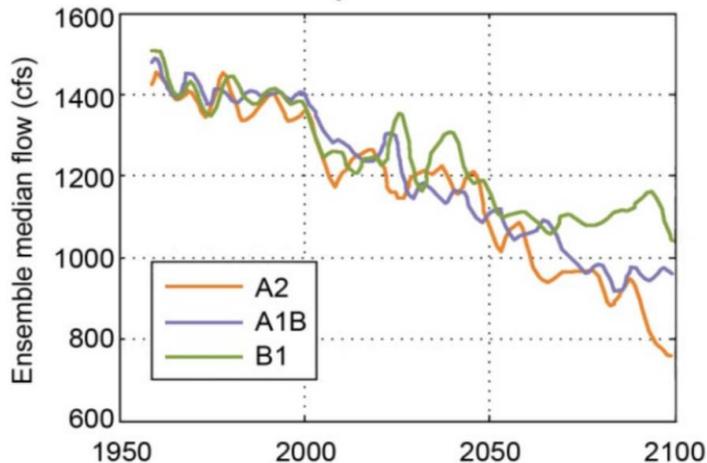
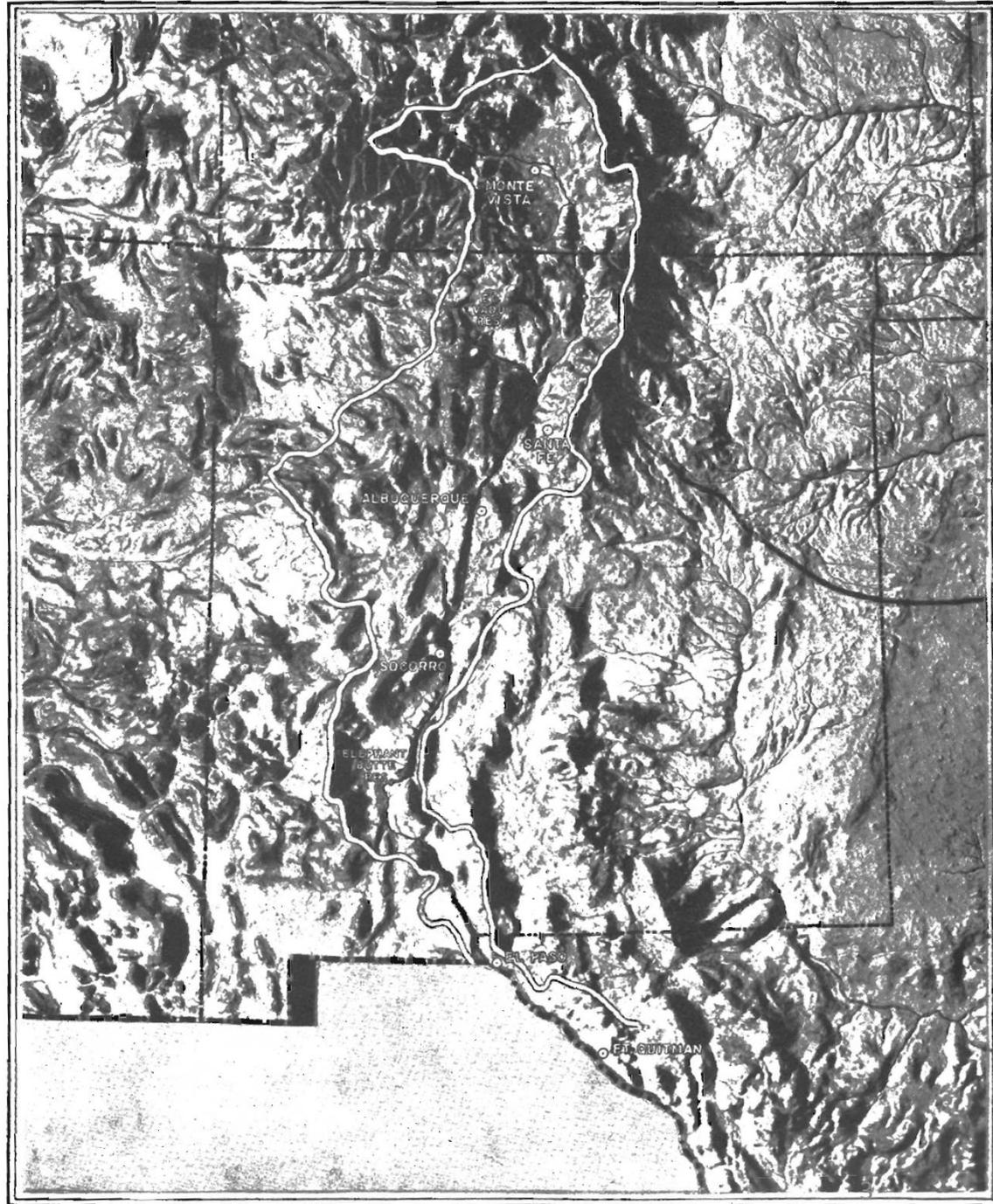


Figure 3.3. Modeled discharge of the Rio Grande at the Otowi gauge, in cubic feet per second, from 1950 to 2100 (Llewellyn and Vaddy, 2013).

Rio Grande Compact

- Compliance (above or below Elephant Butte Dam) will require improved water resources infrastructure and management:
 - Infrastructure – Flood control facilities, monitoring and telemetry, conveyance improvements
 - Management – depletion reduction, dynamic following, priority administration
 - Conservation for Municipalities
- Investments in these areas help all New Mexicans and should not be done on the backs of farmers.





NM Compact Deliveries to Elephant Butte Dam

- Required by the Rio Grande Compact
- EBID serves 90,640 water-righted acres in New Mexico south of Elephant Butte Dam using water delivered pursuant to the Compact
- NM currently has a negative cumulative balance of 127,100 AF. Exceeding a negative balance of 200,000 AF is a Compact violation
- Ensuring Compact compliance will require improved water resources infrastructure and management:
 - Infrastructure – Channel maintenance, monitoring and telemetry, conveyance improvements
 - Management – depletion reduction, dynamic following, effective limitation of water use
 - Conservation by Municipalities

Infrastructure in the LRG



- Aging flood control dams can be repurposed for capture and regulation or infiltration of flood water
 - Immediate need: Geotechnical and Hydrologic assessment
- Monitoring and telemetry for improved operations, accounting, flood water management
 - Immediate need: Sensors, groundwater well meters and telemetry units
- Conveyance improvements such piping of lateral canals, automation of control structures, and river heading improvements
 - Immediate need: Materials and specialized equipment and contractors

Water Management in New Mexico

- Depletion reduction is a necessity due to long-term aridification and downstream delivery obligations
- Fallowing – both permanent and rotational will be necessary with limitations to maintain viability of New Mexico's agricultural economy and industries
- Limitations on expansion of non-agricultural water use
- Administration in response to cyclical and long-term changes in surface water supply and groundwater conditions must be developed





What you can do:

- Immediate need: Legislative funding for
 - Infrastructure improvements
 - Depletion reduction programs
- Investment in infrastructure, management, and conservation will help all New Mexicans:
 - Upstream of Elephant Butte, to stay in compliance with the Compact
 - At Elephant Butte Reservoir, to maintain a viable recreational economy
 - Downstream of Elephant Butte, to maintain a viable agricultural economy and meet Compact obligations