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## A Basin-wide Approach to Water Management in the Middle Rio Grande Valley

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*Office of the State Engineer, Interstate Stream Commission*

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# *A Basin-wide Approach to Water Management in the Middle Rio Grande Valley*

Rolf Schmidt-Petersen  
NMISC Rio Grande Basin Manager



# *The New Mexico Interstate Stream Commission*

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- Investigate, Protect, Conserve, and Develop the State's Waters and Stream Systems
  - Negotiate and Administer Interstate Compacts
  - Oversee Development of Regional Water Plans & State Water Plan
  - Federal Issues Management (Endangered Species Act water issues)
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# *The Presentation*

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- A brief overview of the Rio Grande Compact and what it means for people living in the middle valley
  - Examples of work the NMISC conducts and supports to maintain Compact compliance
  - Examples of recent successes
  - What the three MRG Basin Regional plans tell us about the future
    - One possible future scenario
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# *The Rio Grande Compact*

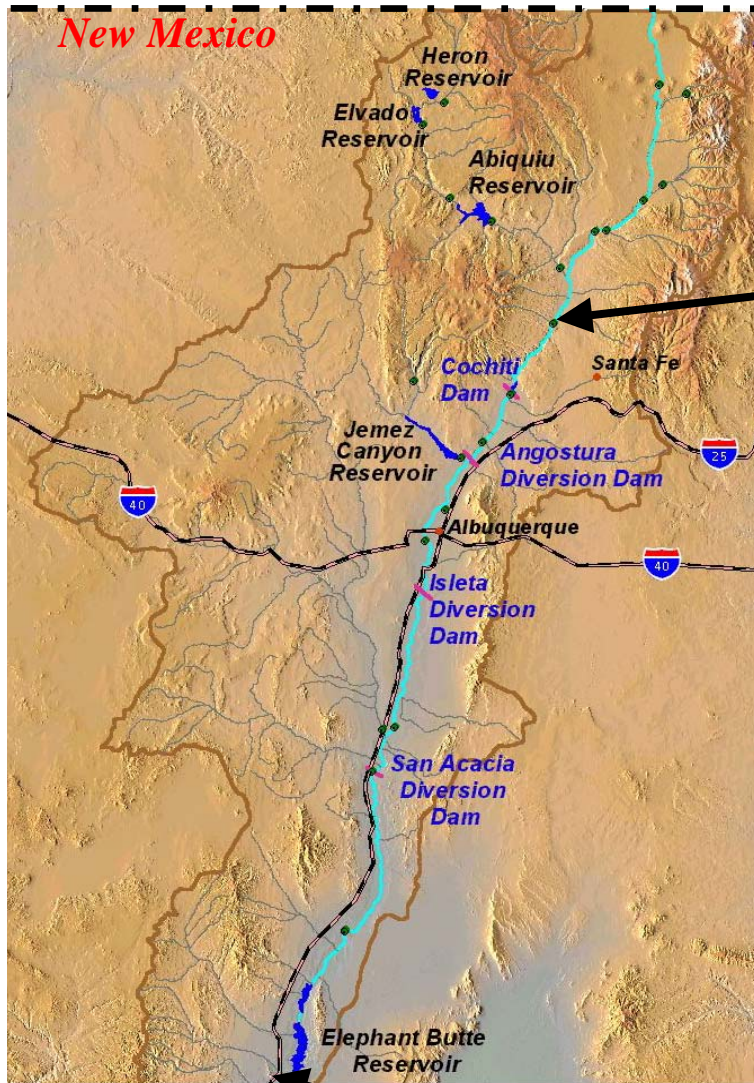
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- A negotiated agreement between CO, NM, and TX about how they divide the surface waters of the Rio Grande amongst themselves
  - Signed in 1938 in Santa Fe following four decades of controversy to:
    - Effect an equitable apportionment of Rio Grande surface water above Ft. Quitman, Texas
    - Remove all causes of present and future controversy regarding surface water
    - Promote interstate comity
-

# The Rio Grande Compact – New Mexico

Colorado

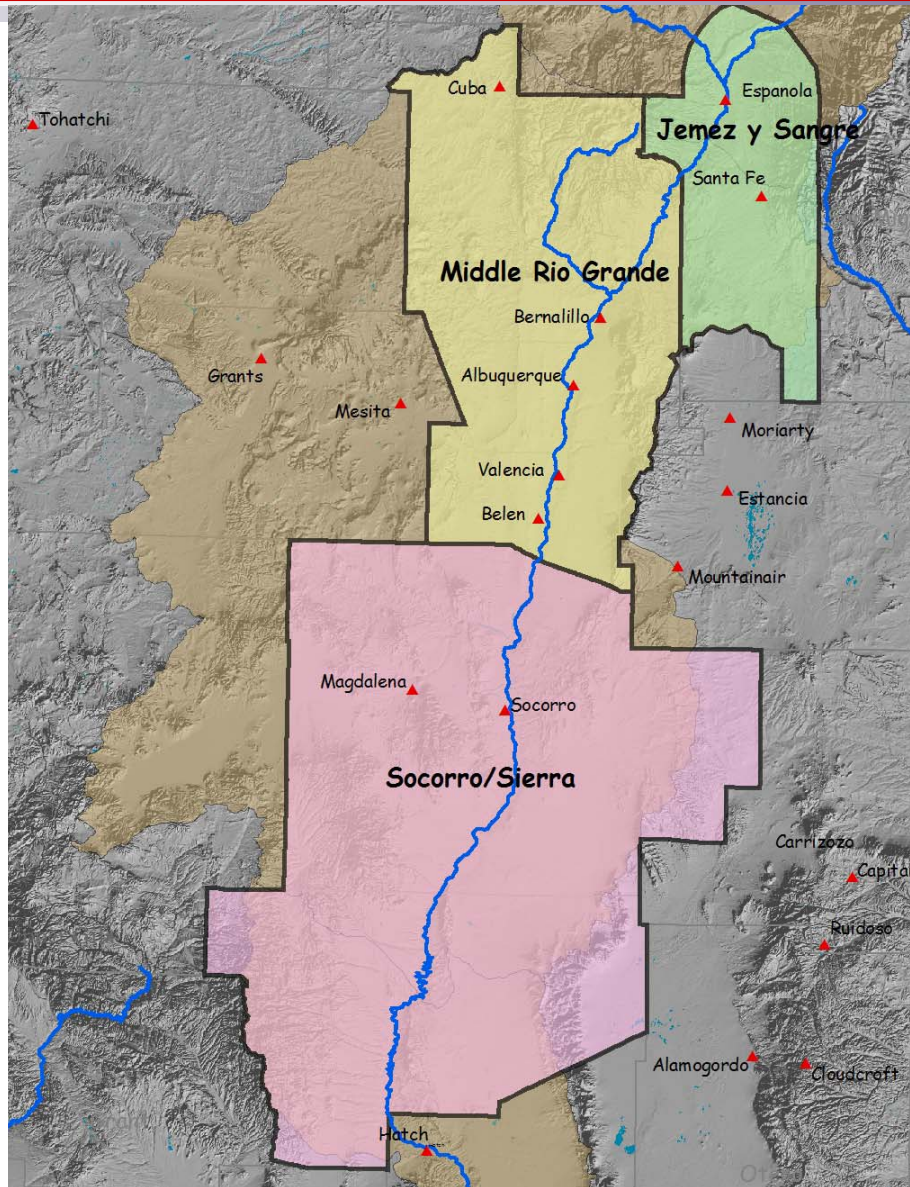
New Mexico



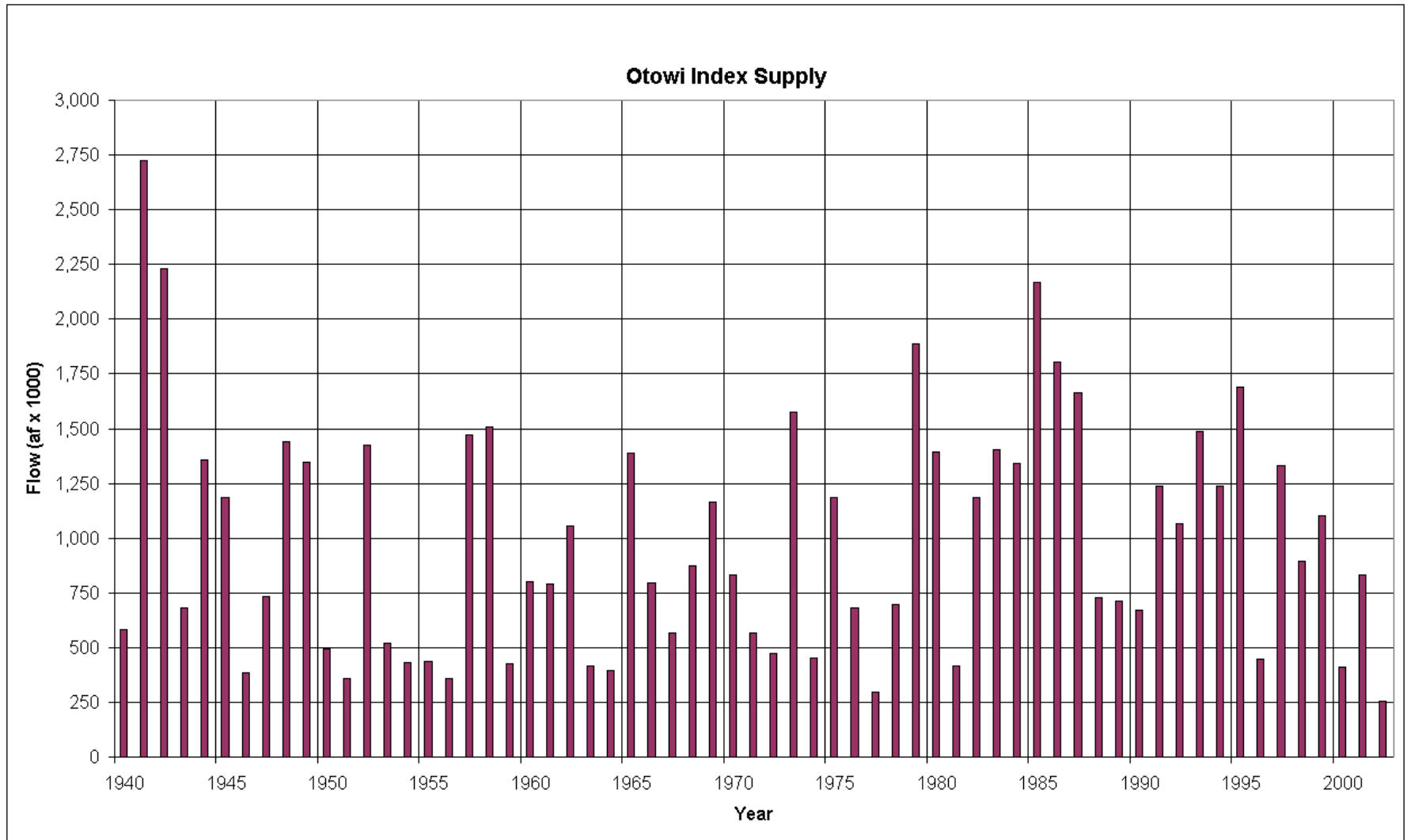
Otowi Gage

Elephant Butte Dam

# *The Three Middle Rio Grande Planning Regions*

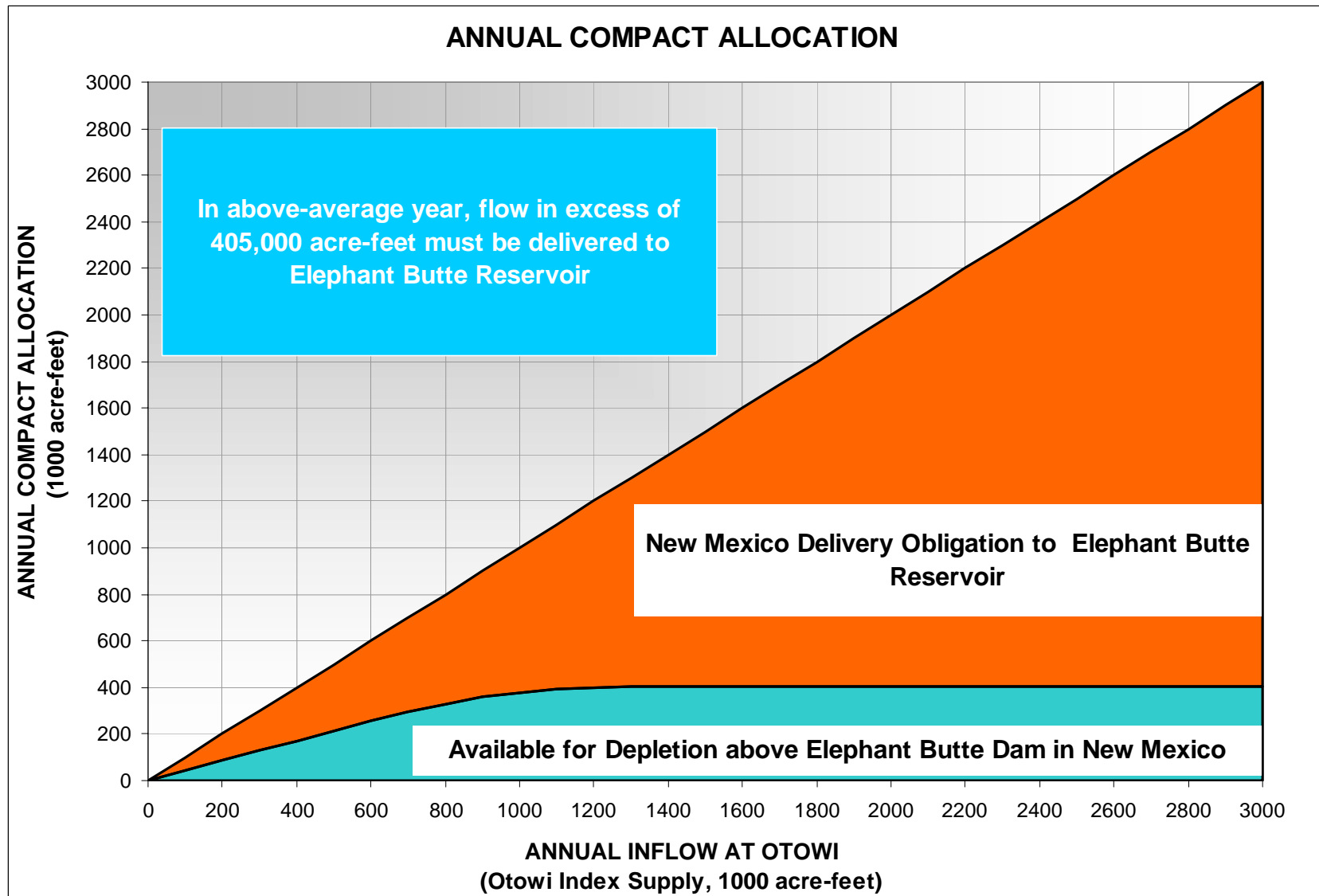


# Variable and Limited Surface Water Supply

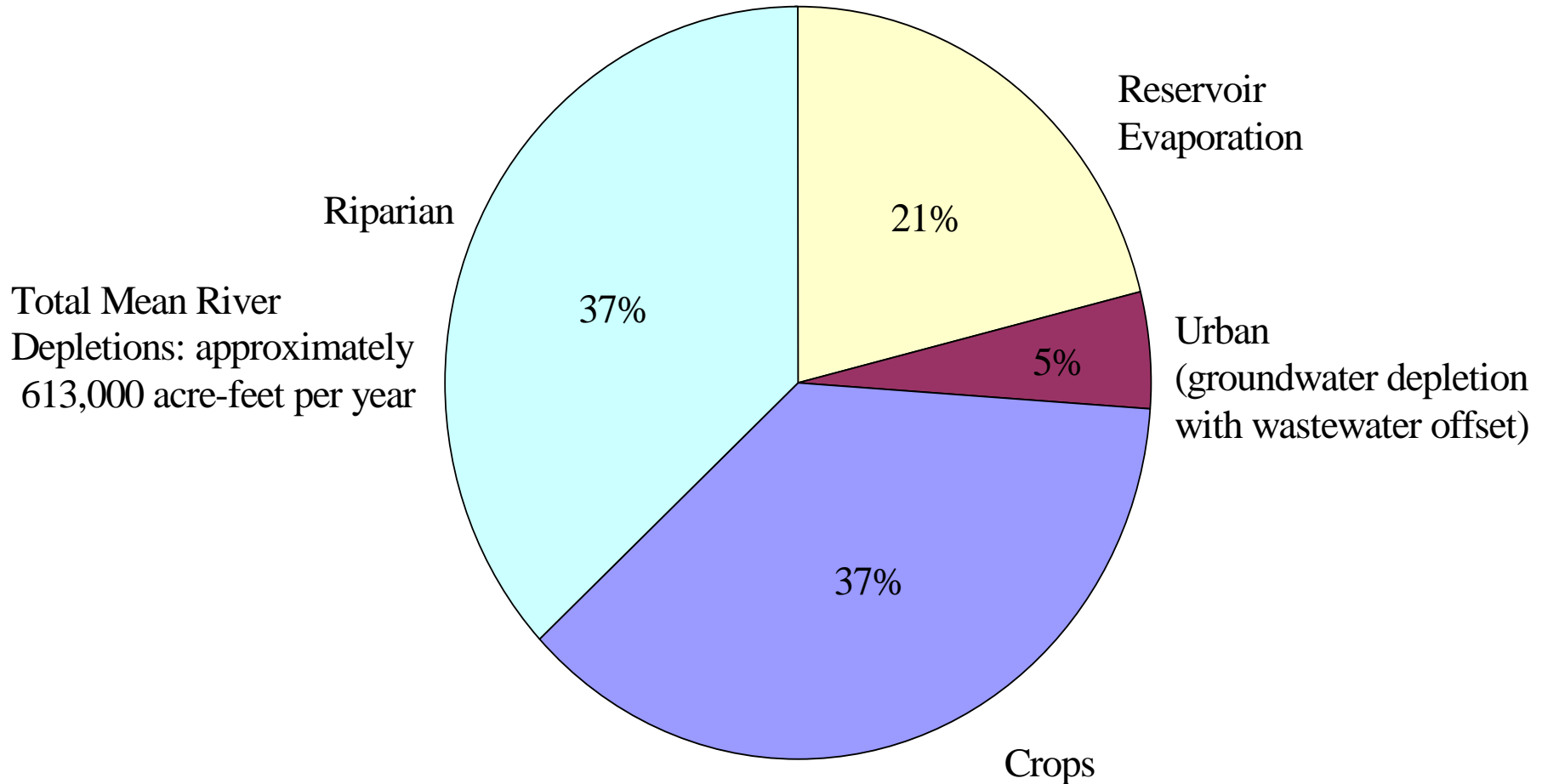




# New Mexico's MRG Compact Delivery Obligation



# Middle Rio Grande River System Depletions



Note: These percentages are based on seasonal long-term averages and can vary.

# Essential Rio Grande Basin Facts

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- The Basin is fully appropriated
- Surface water and groundwater are connected
- Under conditions of increased water use in any sector, a reduction or transfer of use from one sector to another is required if the water use/water supply balance is to be maintained



# *Rio Grande Floodway (1952)*

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Looking downstream from south boundary of Bosque del Apache

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# *State Efforts to Control Natural Depletions*

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*Removal of sediment plug*



*Tiffany levee*

Tiffany sediment plug removal

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# *State Efforts to Control Natural Depletions*

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*Pilot channel construction*



*Aerial view of pilot channel*



*Ponded area from top of the narrows*



Pilot channel construction

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# *Efforts to Better Manage the River System*

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## ➤ Partnerships

- Meter installations and measurement, Automated control structures, Telemetry
- The irrigation decision support

## ➤ Cooperative Programs with USGS

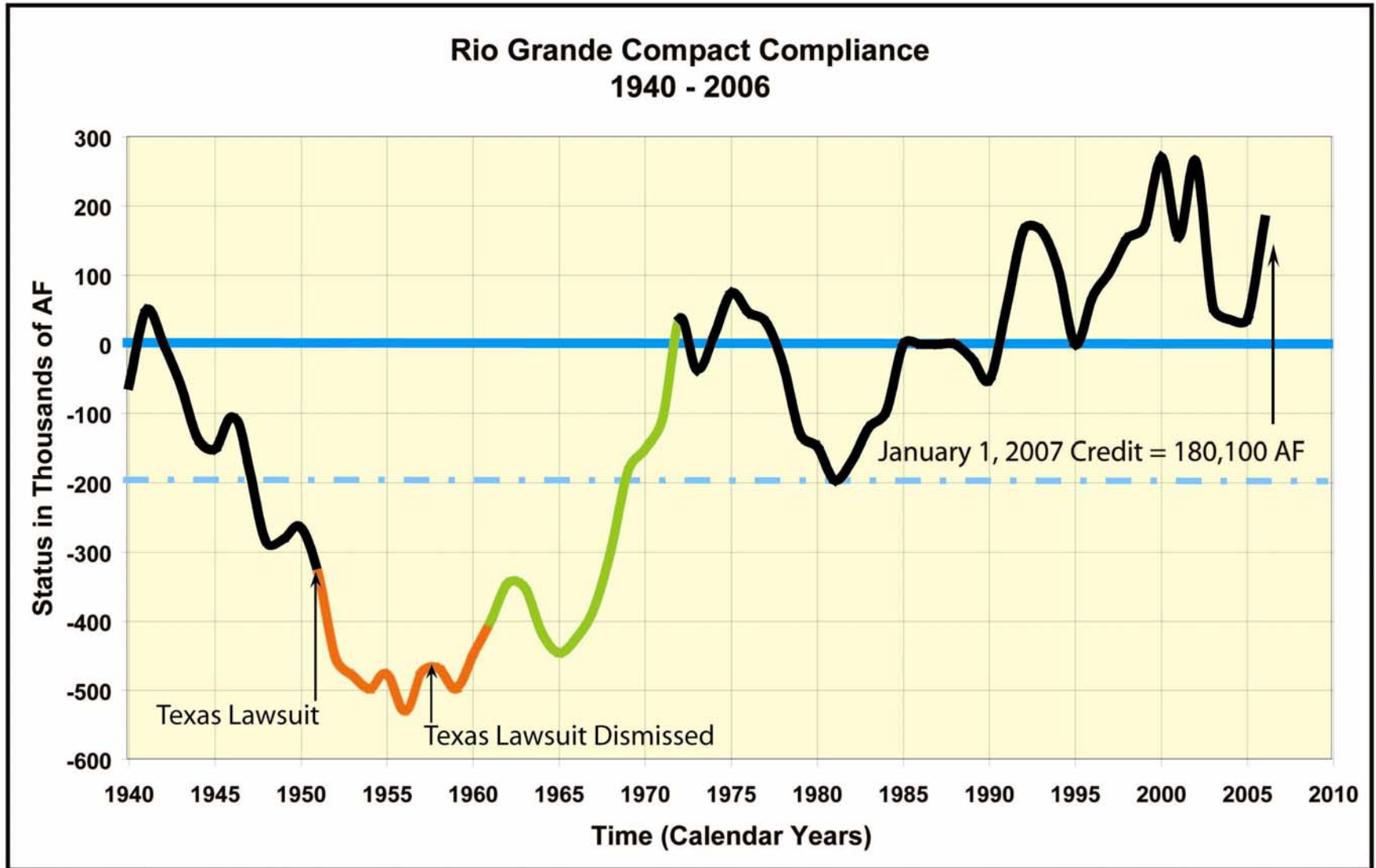
- Real-time measurement of river flow at multiple locations

## ➤ River System Management

- River System modeling – URGWOM, linked SW/GW modeling, etc
- The River Eyes program



# Rio Grande Compact Compliance





# *MRG Endangered Species Act Issues*

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- Two Federally endangered species on the Rio Grande: (1) Rio Grande silvery minnow, and (2) Southwestern willow flycatcher
  - Ongoing Lawsuits
  - Middle Rio Grande ESA Collaborative Program
    - 75% fed/25% non-fed cost share
    - Secure and Use Surface Water (Supplemental Water Program)
    - Fish Propagation and River Augmentation
    - Manage Take
    - Habitat Restoration
-

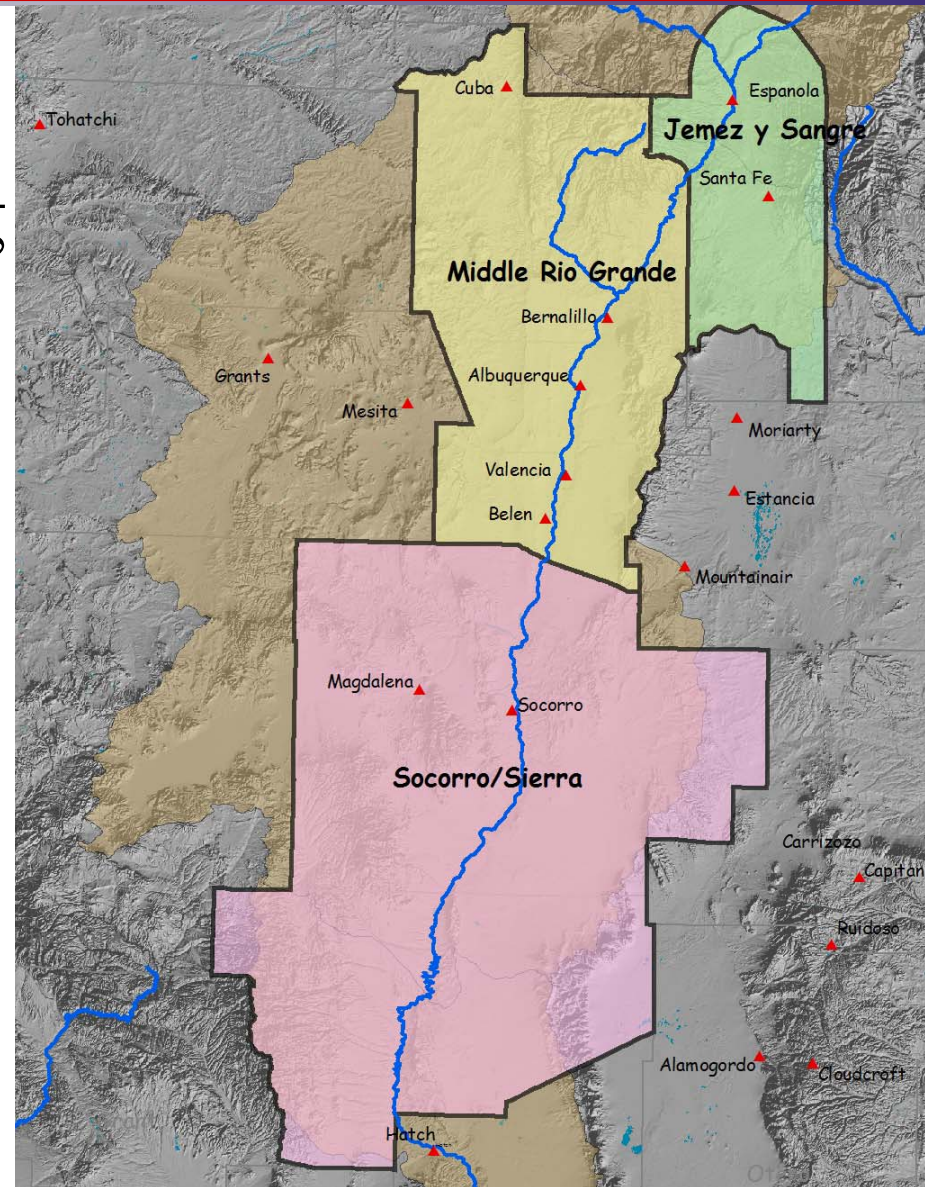
# Some NMISC Funded Projects



Fish propagation and habitat restoration

# Three Planning Regions

- Sangre y Jemez Planning Region (JySPR)
- Middle Rio Grande Planning Region (MRGPR)
- Socorro and Sierra County Planning Region (SSPR)



# *Increases in Population = Increased Water Use*

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- JySPR: Projected population increase from 160,000 to 360,000 by 2060, with additional water demand of 31,500 afy
- MRGPR: Projected population increase of 1.5% per year, resulting in additional demands by 2050 of 95,000 afy;
- SSPR: 70% growth in 40 years, reaching 60,000 persons in 2040

# *Managing for the Increased Water Demand*

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- Implement riparian and watershed management plans
  - Reservoir management; reduction of open water evaporation
  - Stormwater management
  - Increase supply, i.e. cloudseeding
  - Conservation: Santa Fe and Albuquerque examples
  - Desalinization: the Sandoval County experiment
  - Inter-basin transfers: the San Juan Chama Project
  - Transfer of pre-1907 water rights
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# *One Possible Future Scenario*

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- The plans estimate an additional MRG water demand in 40-50 years in the M&I sector of about 120,000 afy
- If Acquired Only Thru Transfer of Senior Water Rights
  - Would require about 57,000 acres of such rights to be transferred...
- Estimates of total amount of land currently irrigated within the MRGCD are between 50,000 and 65,000 acres

# *MRG Water Status In Summary*

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- Current compact status is good
  - The MRG has a variable and limited water supply
  - NMISC actions have been focused on control on natural depletions
  - More recent focus includes addressing Federal natural resources issues and Regional Planning
  - People have successfully responded to the current drought
  - The Regional plans indicate the demand for water will continue to grow,
  - Is AWRM in the MRG's future or are other management alternatives more feasible/acceptable?
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