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

Rolf Schmidt-Petersen

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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

- 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)
The Presentation

- 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
The Rio Grande Compact

- 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

Otowi Index Supply

Flow (af x 1000)

Year

New Mexico’s MRG Compact Delivery Obligation

In above-average year, flow in excess of 405,000 acre-feet must be delivered to Elephant Butte Reservoir.

Available for Depletion above Elephant Butte Dam in New Mexico:

New Mexico Delivery Obligation to Elephant Butte Reservoir.
Middle Rio Grande River System Depletions

Total Mean River Depletions: approximately 613,000 acre-feet per year

- 37% Crops
- 37% Riparian
- 21% Reservoir Evaporation
- 5% Urban (groundwater depletion with wastewater offset)

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

Source: SSPA, July 2000 Water Supply Study of the Middle Rio Grande
Essential Rio Grande Basin Facts

- 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)

Looking downstream from south boundary of Bosque del Apache

Photo courtesy: U.S. Bureau of Reclamation
State Efforts to Control Natural Depletions

Removal of sediment plug

Tiffany sediment plug removal
State Efforts to Control Natural Depletions

Pilot channel construction

Aerial view of pilot channel

Ponded area from top of the narrows
Efforts to Better Manage the River System

- 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

Rio Grande Compact Compliance
1940 - 2006

Time (Calendar Years)

Status in Thousands of AF

January 1, 2007 Credit = 180,100 AF

Texas Lawsuit

Texas Lawsuit Dismissed
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

Construction of off-channel refugia

In-channel habitat restoration

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

- **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

Source: SSPA, July 2000 Water Supply Study of the Middle Rio Grande
Managing for the Increased Water Demand

- 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
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.

Source: Jemez y Sangre Regional Water Plan, March 2003
MRG Water Status In Summary

- 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?