

## Coping with the Urgent Shortfall Reality

### Snapshots of Water Concerns - Elaine Moore Hebard, Middle Rio Grande Water Assembly



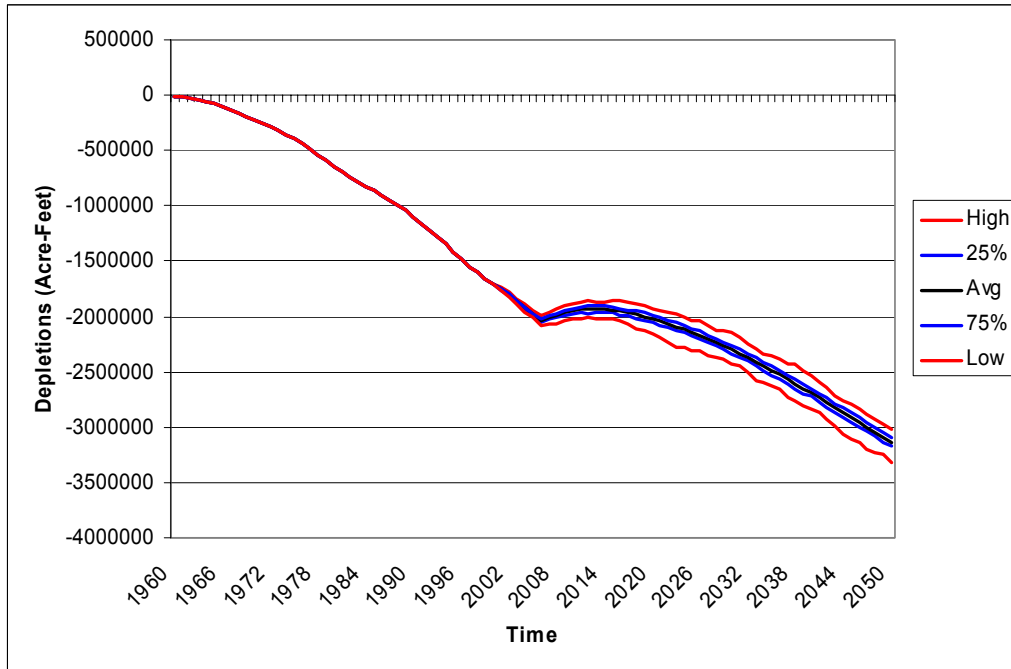
Yesterday we talked about the Urgent Shortfall Reality and its implications for meeting the compact. I thought the following slides would add some graphical context to Kevin's summary.

#### Describing The Urgent Shortfall Reality

##### The Sandia Model

Results from the Sandia Model show that if we do nothing, we will continue to deplete groundwater, and you can see we really get into trouble.

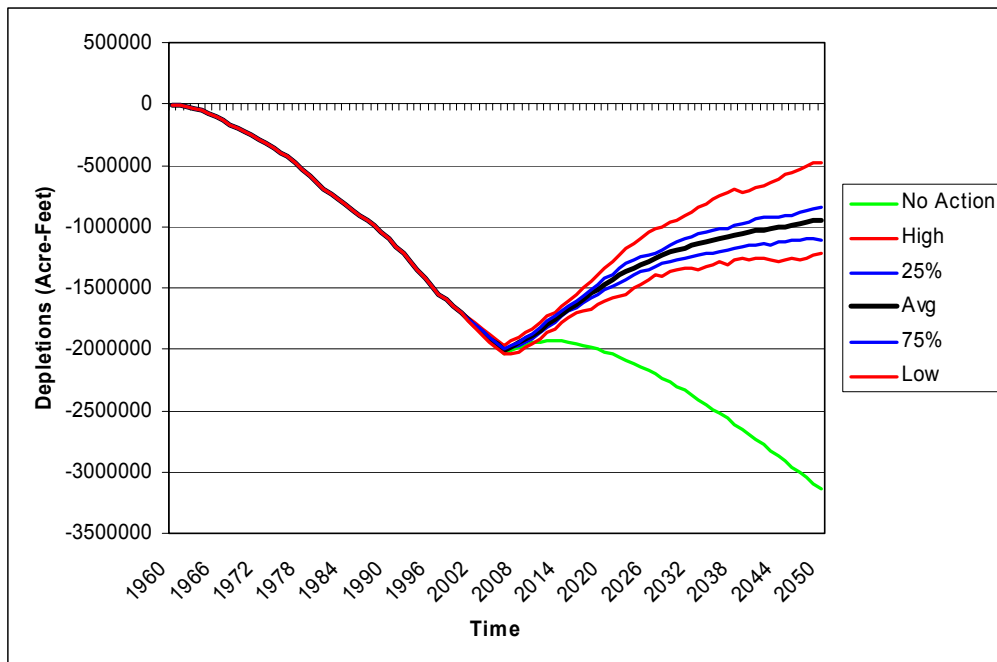
##### No Action Alternative: Groundwater



## Coping with the Urgent Shortfall Reality

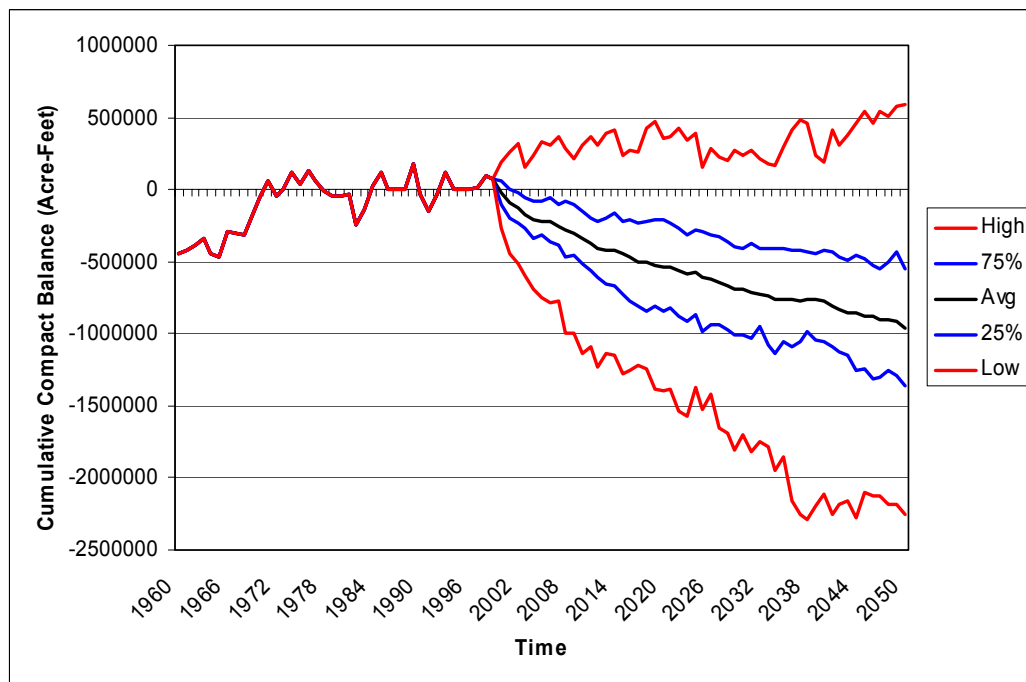
Even with the Preferred Scenario, we don't completely undo the depletion.

### Preferred Scenario: Groundwater



With no change, here is what compliance with the Rio Grande Compact looks like.

### No Action Alternative: RG Compact

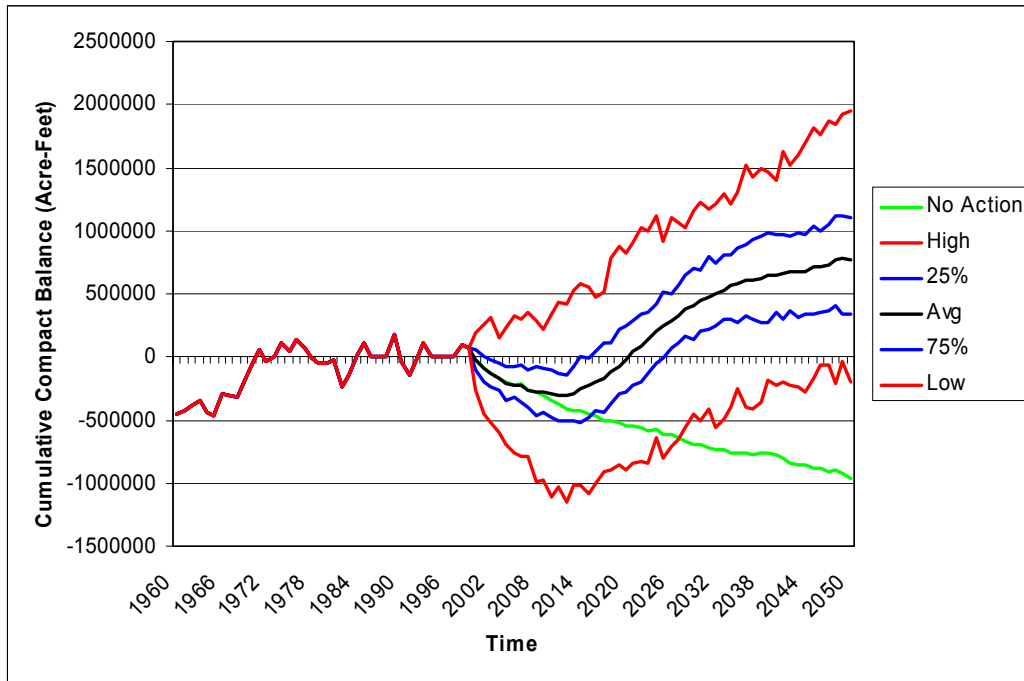


Even with all the great recommendations we have in Chapter Ten [of the water plan] we don't make compact compliance.

Meeting Rio Grande Compact Obligations in the Years to Come

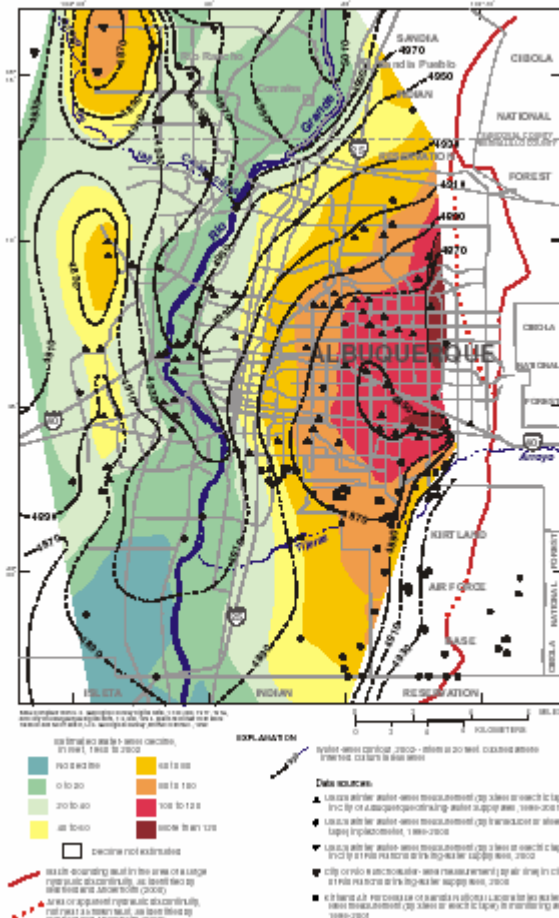
# Coping with the Urgent Shortfall Reality

## Preferred Scenario: RG Compact



### 2002 USGS Report of Groundwater Levels in the Albuquerque region

This map shows what pumping between 1960 and 2002 has done to the groundwater. The deep red along the mountain shows that we have drawn water levels down as much as 160 feet.

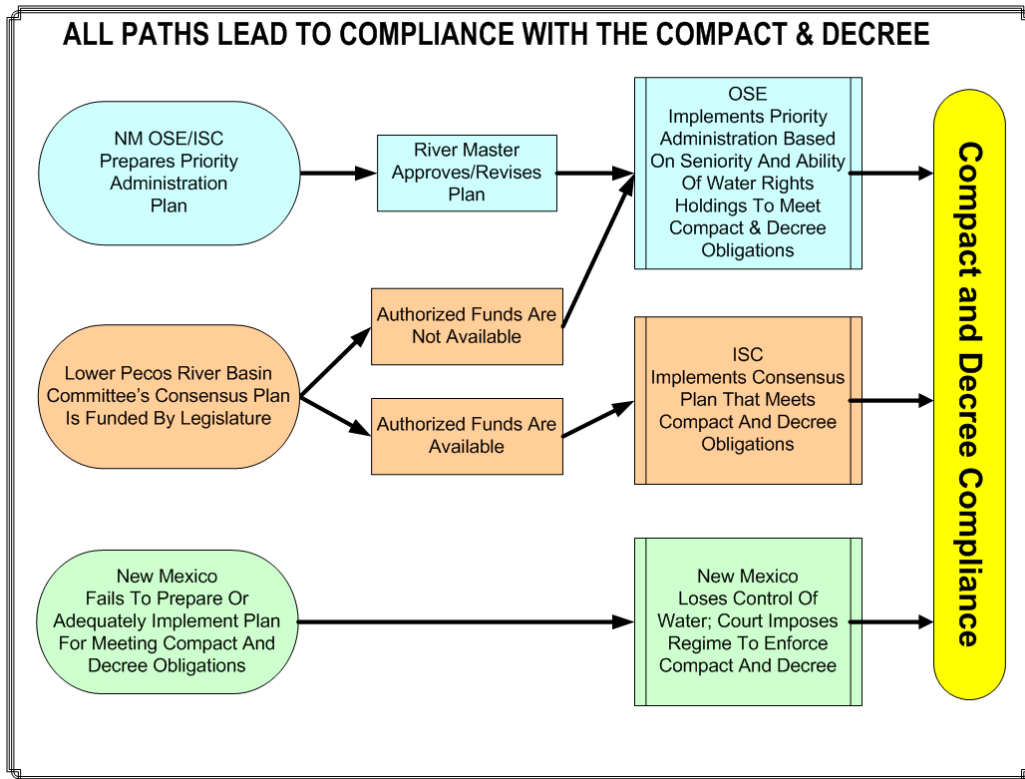


## Meeting Rio Grande Compact Obligations in the Years to Come



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Those are lessons the Pecos' residents have had to learn very painfully, and we have, too, because we are helping to pay the \$14 million fine, not to mention the \$68 million in water rights to meet the Pecos Compact in the future.

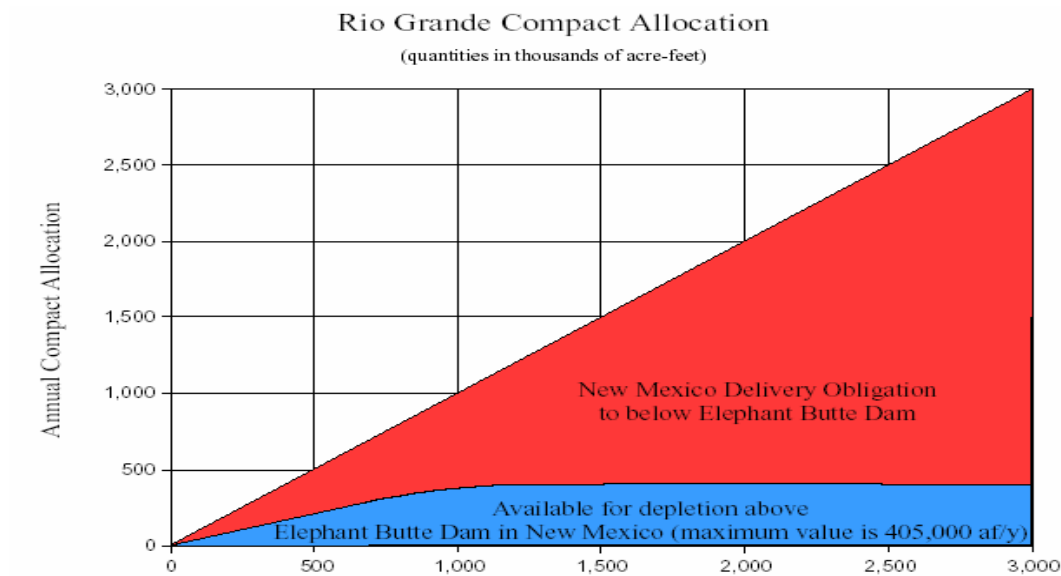


### Rio Grande Compact

No matter what is going down the river, we can only deplete up to 405,000 acre-feet of the native water flowing past Otowi Gage. That does not include San Juan-Chama water, it does not include tributaries within our region, and it doesn't include any rainfall that happens within the region.

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### Charts on percentage of river flow to be delivered downstream



Otowi Index Supply	Elephant Butte Scheduled Delivery	Otowi Index Supply	Elephant Butte Scheduled Delivery
100	57	1,600	1,195
200	114	1,700	1,295
300	171	1,800	1,395
400	228	1,900	1,495
500	286	2,000	1,595
600	345	2,100	1,695
700	406	2,200	1,795
800	471	2,300	1,895
900	542	2,400	1,995
1,000	621	2,500	2,095
1,100	707	2,600	2,195
1,200	800	2,700	2,295
1,300	897	2,800	2,395
1,400	996	2,900	2,495
1,500	1,095	3,000	2,595

### Chart of Popodoupolus Conclusions

Conclusions from the Middle Rio Grande Water Supply Study done by S.S. Popodoupolus show that:

- On average, the present water supply is barely adequate (including San Juan-Chama Project water and groundwater withdrawals) to meet the present demands in the Middle Rio Grande region.

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- **The water supply is highly variable, due to the high variability in Otowi inflow and the high variability in evaporation from the Elephant Butte Reservoir.**
- **Growing and increasingly diverse demands for water in the Middle Rio Grande region—including the State’s needs for water supply for about half its population and economy, and for wildlife and ecological uses—cannot all be met.**
- **Current water consumption exceeds the long-term average supply that is legally available for use in the Middle Rio Grande.**
- **Since the surface-water system is closely interconnected with groundwater, pumping more groundwater does not solve the problem.**

### **MRG Water Budget**

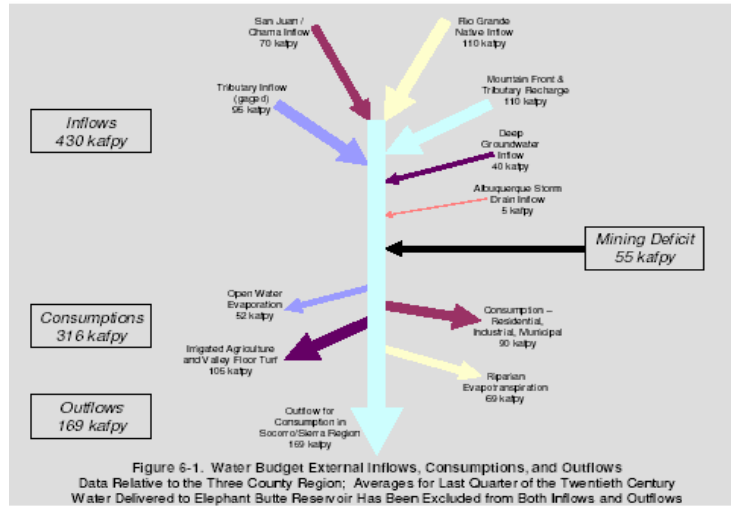
**The key fact about our water, according to the state’s Water Atlas, is that demand exceeds supply. The growing needs of the MRG cannot be met; current consumption exceeds the long-term average supply legally available to us; and pumping groundwater does not solve the problem because it impacts the river.**

### **The Key Fact About Our Water: Demand Exceeds Supply**

**New Mexico’s water supply is limited. Demand, needs, and rights to use water exceed the water supply available in most years. Many of New Mexico’s difficult water dilemmas arise from these facts. During drought conditions, the imbalance becomes acute. After decades of promoting water use, New Mexico lacks both the physical facilities and the administrative infrastructure to ensure available water is delivered on the basis of water rights priorities to senior water-rights holders. The other side of the coin is that in most places we lack the means to limit water uses by junior water rights holders whose demands cannot be met from the available supply. Nor have water users been adequately informed about the serious nature of problems sparked by unauthorized use.**

## Coping with the Urgent Shortfall Reality

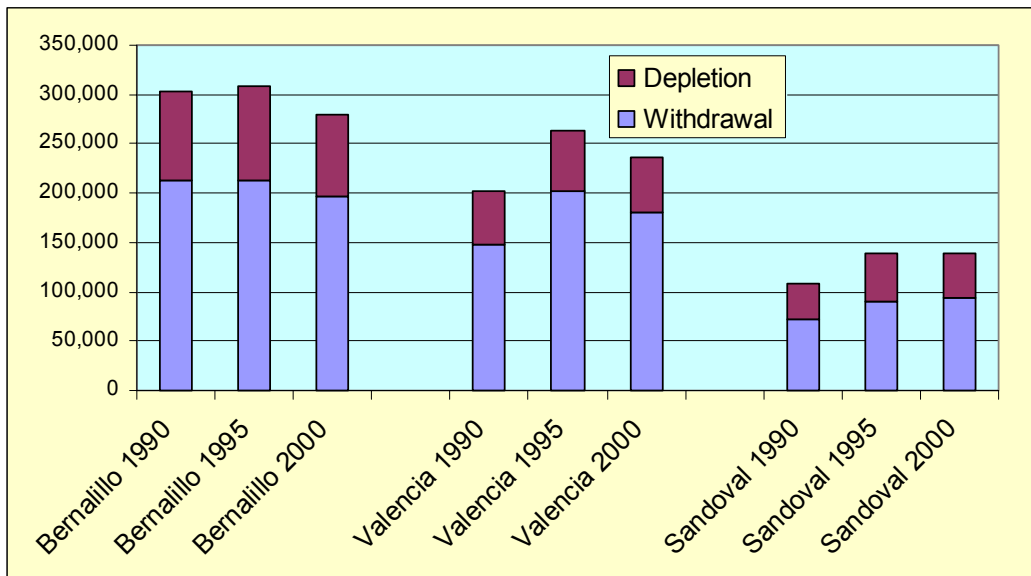
### Water Budget External Inflows, Consumptions, and Outflows (Source: The Middle Rio Grande Water Assembly)



### MRG Withdrawals and Depletion 1990, 1995, 2000

The state does a five-year summary of water use. It's interesting to look at what's been happening in the three different counties in our region as far as their water use.

#### MRG Withdrawal & Depletion, 1990, 1995 & 2000, in acre feet



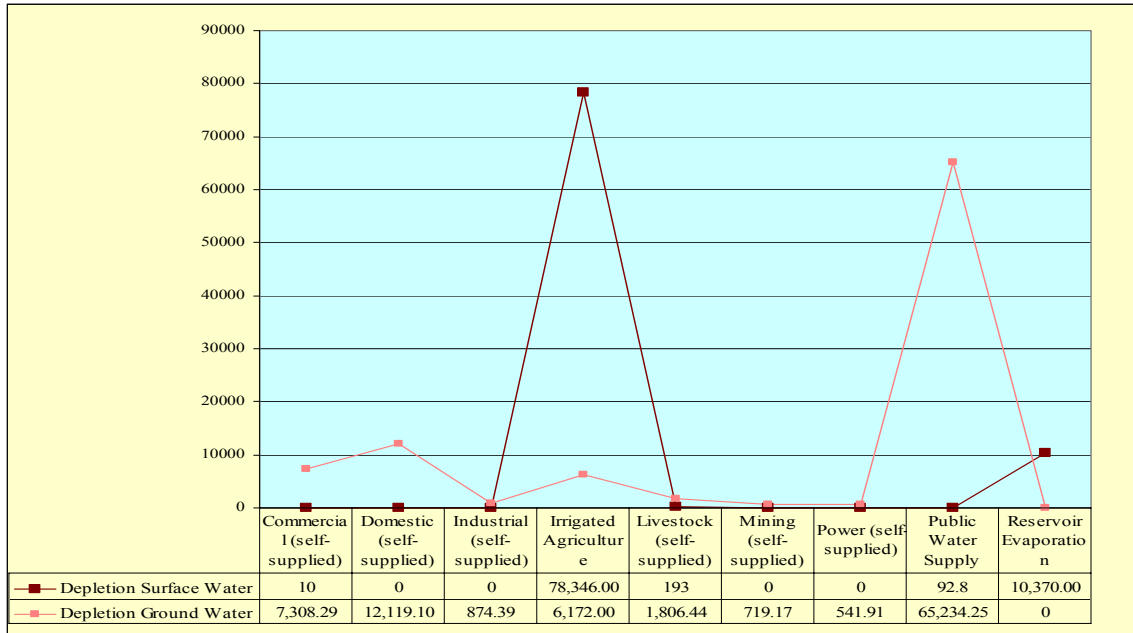
Source: Brian, C., Wilson, P.E., "Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage", Technical Reports, 1992, 1997 and 2003, New Mexico State Engineer Office, Santa Fe, NM.

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### Water depletions in 2000, in acre feet



Source: Brian, C., Wilson, P.E., "Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage", Technical Reports, 1992, 1997 and 2003, New Mexico State Engineer Office, Santa Fe, NM.

We talk about agriculture being the big water user, but look at what happens here. This is all urban use. Here, agriculture uses surface water, and that's why, in order to get more water downstream, we may have to take it from ag.

### Population projections

UNM's Deli Alcantara did a prediction of population growth in the region. By 2060, the MRG population is projected to be 1.27 million.

#### County Population in Middle Rio Grande Region

Projection Year	Total Region Population	Bernalillo	Sandoval	Valencia
2000	709,218	552,850	89,668	66,699
2005	770,758	587,327	106,928	76,503
2010	826,792	616,065	124,058	86,670
2015	880,977	642,073	141,662	97,242
2020	933,357	666,289	159,162	107,906
2025	983,119	688,603	176,177	118,339
2030	1,030,088	708,817	192,745	128,527
2035	1,074,139	726,752	208,797	138,590

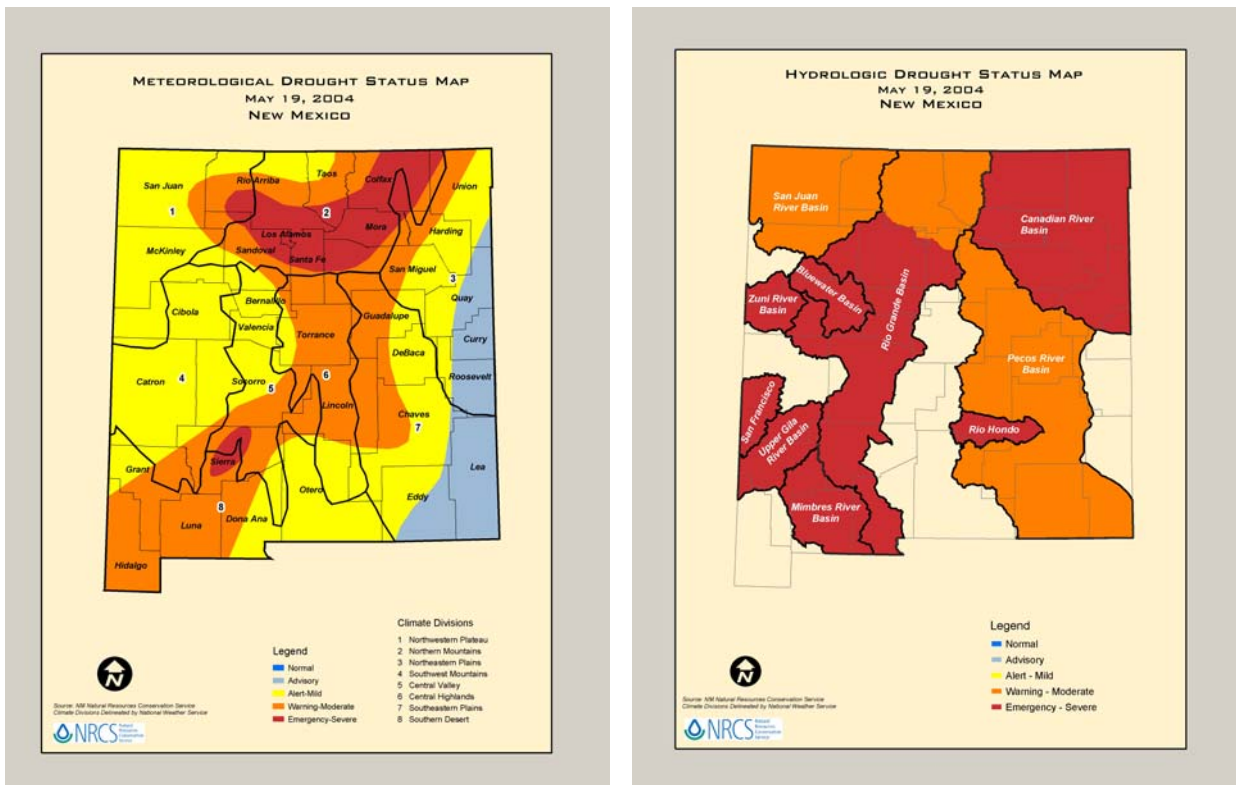
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2040	1,115,200	742,378	224,259	148,563
2045	1,154,293	756,662	239,172	158,459
2050	1,192,668	770,681	253,746	168,242
2055	1,231,098	784,962	268,196	177,940
2060	1,270,339	799,941	282,721	187,677

### Current Drought Status

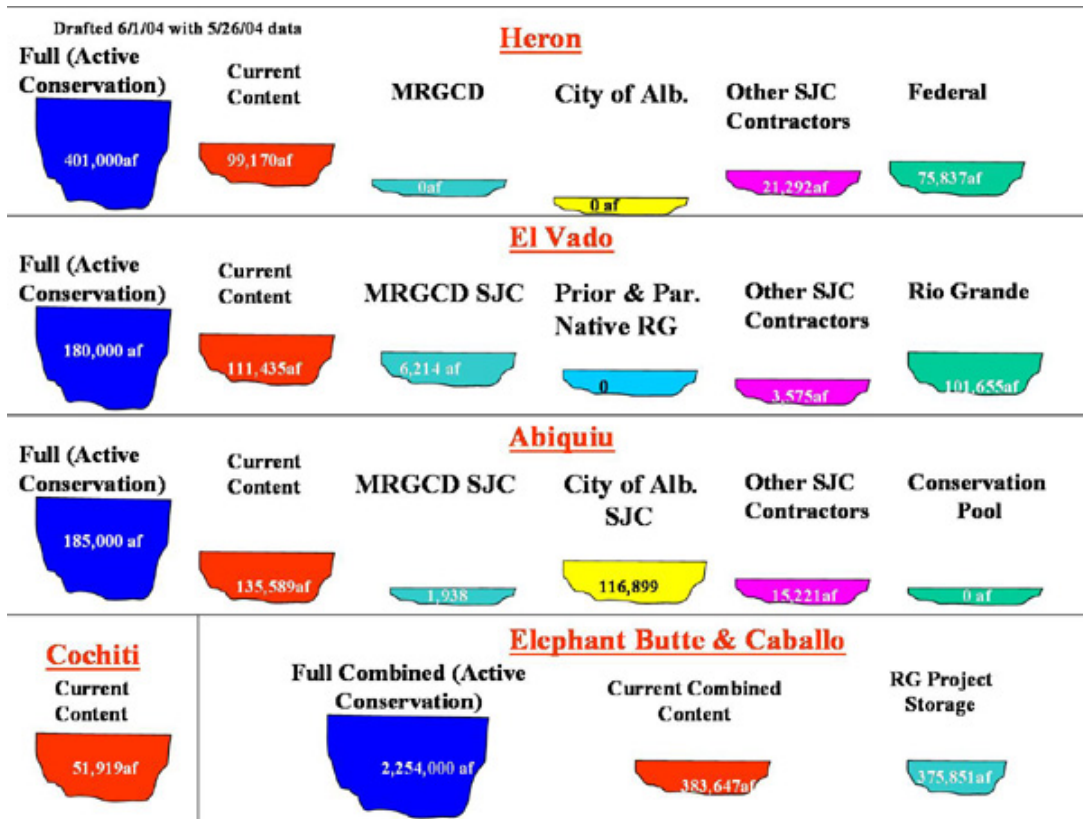
In May, our basin was in emergency-severe status.



### Current State of Reservoirs

Bureau of Reclamation has an easy way of looking at what's in the various reservoirs, using water 'buckets.' For example, Elephant Butte when it's full holds 2.2 million acre-feet; right now it has 383,000 acre-feet, all of it assigned to downstream uses. This graph shows that all of the reservoirs are really low.

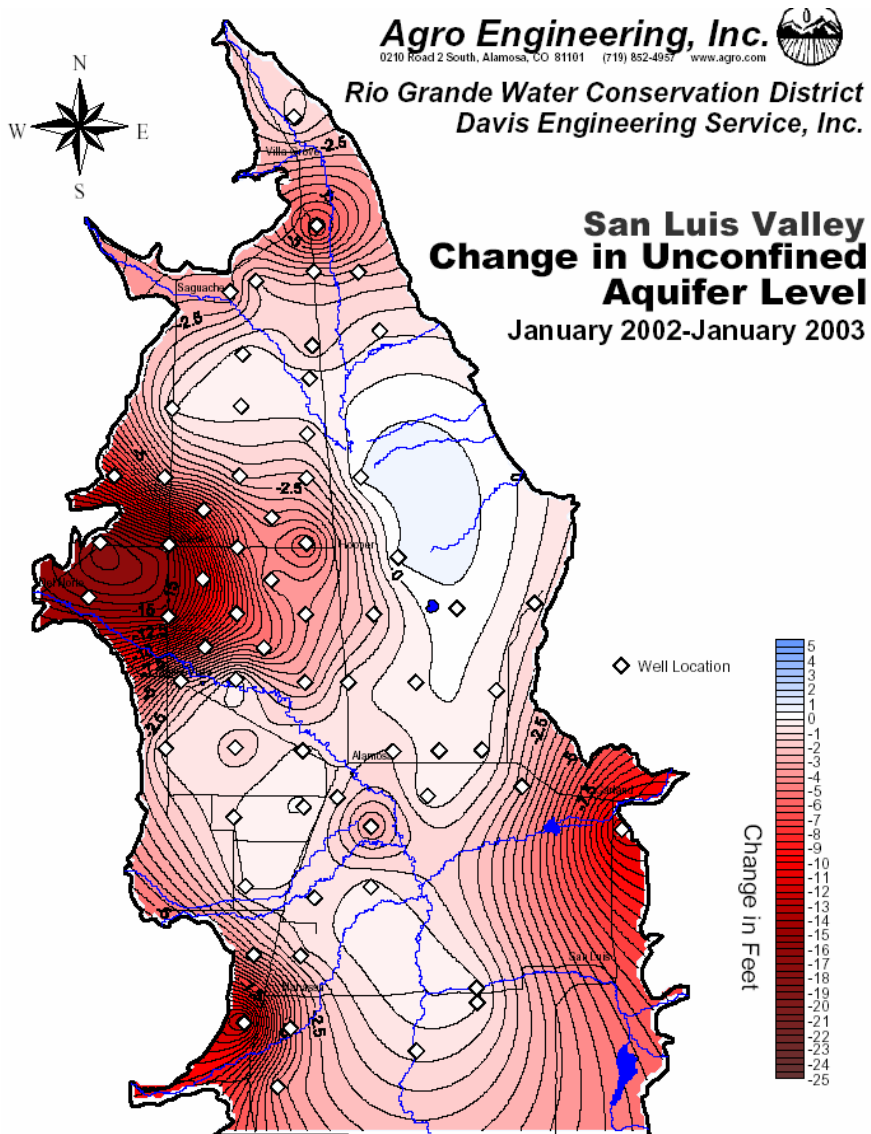
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### San Luis Valley map

The San Luis Valley at the top of our basin pumps groundwater so that Colorado can meet its compact obligations and you can see what's happening to water levels there.

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### Recent headlines and articles

These are from this week: rain, drought level severe, compact commission deals with drought, recreation areas shutting down

Monday, June 14, 2004

Where's the Rain? Dry Streak City's 6th Longest

<http://www.abqjournal.com/drought/185992science06-14-04.htm>

Monday, June 14, 2004

Researchers Seek To Forecast Odds of Precipitation

<http://www.abqjournal.com/drought/185991science06-14-04.htm>

Tuesday, June 15, 2004

Drought Levels Severe

<http://www.abqjournal.com/news/state/186119nm06-15-04.htm>

March 26, 2004

Rio Grande Compact Commission deals with drought

[http://www.alamosanews.com/main.php?story\\_id=913&page=32](http://www.alamosanews.com/main.php?story_id=913&page=32)

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**June 16, 2004**

**More New Mexico recreation areas shutting down**

**<http://www.santafenewmexican.com/news/803.html>**

**Associated Press**

**Thursday, June 17, 2004**

**Drought Major Topic for Govs.**

**<http://www.abqjournal.com/news/state/186847nm06-17-04.htm>**

**Friday, May 28, 2004**

**Forecasters Warn of Spreading Drought in West**

**The Associated Press**

**<http://www.abqjournal.com/water/180384nm05-28-04.htm>**

**Wednesday, June 9, 2004**

**Mattress Factory to Get Water Access**

**[http://www.abqjournal.com/west/183945west\\_news06-09-04.htm](http://www.abqjournal.com/west/183945west_news06-09-04.htm)**

**May 2, 2004**

**'Phenomenal growth' creating tough choices**

**World's most-dynamic region filled with challenges, promise**

**The Arizona Republic, May 2, 2004**

**Thursday, June 17, 2004**

**Farmers Say City Owes Them Water**

**[http://www.abqjournal.com/north/186960north\\_news06-17-](http://www.abqjournal.com/north/186960north_news06-17-04.htm?tease)**

**04.htm?tease**

**Lisa Robert wrote a piece called Hijacking the Rio Grande- Aquifer Mining in an Arid River Basin for Geotimes magazine (website is [www.Geotimes.org/current/feature\\_riogrande.html](http://www.Geotimes.org/current/feature_riogrande.html).)**

**On March 6, 2004, the Albuquerque Tribune had an article called Rio Grande:**



**a liquid thread binding three thirsty states.**

**What these all tell us is that everybody is getting hit. We're not alone, and none of us gets to use [the water] up.**

**[http://www.alamosanews.com/main.php?story\\_id=688&page=23](http://www.alamosanews.com/main.php?story_id=688&page=23)**

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