

Thomas C. Turney's New Mexican roots go back to Jornado del Muerto northeast of Las Cruces, where his grandfather settled in the 1880s. As a New Mexico professional engineer for over 20 years, Tom is licensed in a multitude of fields, including civil, electrical and sanitary engineering. He received his bachelor's and master's degrees from New Mexico State University. As state engineer, Tom assumes a position where he has general supervision of the water of the State as well as the measurement, apportionment, and distribution of those waters. Tom comes to the post of state engineer at a time when the role of state government in the protection of the state's water resources is critical. His goal is to develop a water resource strategy that protects existing water right holders, while at the same time addressing the numerous internal and external pressures on the state's limited water supply.



DROUGHT IMPACTS ON WATER SUPPLIES AND DELIVERY IN NEW MEXICO

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The current drought has taught us one thing this summer. It fully demonstrates the importance of managing our state's finite water supply. Daily I am inundated with phone calls from people running low on water and wanting me to solve their supply problems.

One thing I believe a lot of people have forgotten is a basic principle of New Mexico water law. Our constitution says this state is a "prior appropriation" state. A priority in time gives a better right. We administer water by priorities. In times of a drought or diminished water supply, this results in junior appropriators being curtailed first. This is the system our founding fathers set up.

I think a lot of people have forgotten that we have this priority system. They think they can simply go out and get well permits, pump forever – never even envisioning that a "priority administration" system exists. Maybe somebody in the future will come up

with a different way to administer water, but right now our constitution says that we are to administer water by priorities of time. As we move into a drought, our constitution dictates that this is the way administration is to occur. There simply won't be enough water for everyone to have all the water they want. Someone is going to get their water use curtailed.

Figure 1 is a graph that we have plotted showing precipitation for New Mexico over the past 100 years. If you look at the early part of the century—1905, 1910, and 1915—you can see a series of droughts. If you move on along to the 1920s and 30s, you can see other droughts occur. Then, it got wet. Then again, in the 1950s, there was another major drought period. After the 1950s, we moved into a period of generally wet years, though you can see that there have been some isolated years that certainly can be called drought years. These drought periods, though, were never continuous, occurring year after year after year like we

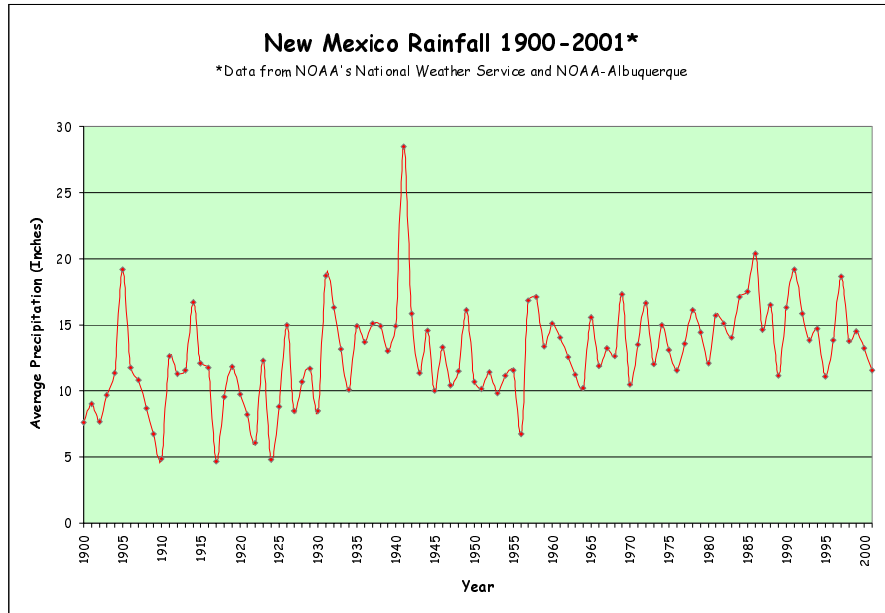


Figure 1. New Mexico Rainfall for years 1900-2001, Office of the State Engineer, April 2002.

saw in the early part of the century. In fact, you can say for the last 20 years we have had abnormally high amounts of precipitation in the state. Again though, there have been some isolated periods of drought.

Now I want to talk about managing the waters of New Mexico. As an example, let's consider Costilla Creek. Costilla Creek is in the northern part of New Mexico—above Taos. It begins in New Mexico, flows into the state of Colorado, and then turns and flows back down into the state of New Mexico. We administer this creek by priorities. It has not been a piece of cake by any means—but we do it.

The first thing we did was prepare a draft manual for administration of the creek. We received a lot of comments on the draft manual—that it was not fair, that we should change this, we should change that. And yes, we did make some changes that people suggested. We adopted this manual two summers ago. This past summer, the drought brought on the driest summer I have ever seen up there. Interestingly though, even with the drought I didn't receive any complaints at all concerning administration of the river. Prior to adopting the manual, every summer I received numerous complaints—many being brought to the level of the Governor's office.

One thing we did to assist in administration was to provide everyone with a measuring device at their point of diversion. That just by itself was controversial. But it also made people aware of the importance of water management. Many times in the

past, neighbors had commented to me that sometimes they felt their fellow neighbors might be taking a bit too much water. The measuring devices controlled how much water everyone received. Next, using permits and a court decree, we set up priorities and rates of diversion for all the different points of diversion. On top of all that, because the creek swings into Colorado, we have had to deal with an interstate compact with Colorado. Working with Colorado, we hired a full time water master and assistant. Water administration now not only occurs among New Mexico users, it also complies with our compact. Prior to the adoption of the manual, we were often at odds with our sister state. But this summer, I personally have not received any complaints from Colorado. I hope that continues.

So how bad is the drought? I can tell you that the Rio Grande is looking right now like it's at the lowest level on record. The San Juan River is running about 6 to 8 percent of normal and I'd say even though the year is not yet over, it looks like the year is pushing close to record lows.

Figure 2 shows spring runoff at the Rio Grande Embudo Station for March through July. This graph goes back a hundred years with just a few years of missing data. Looking at 2002, it sure looks like the Rio Grande at Embudo has had the lowest runoff in a hundred years!

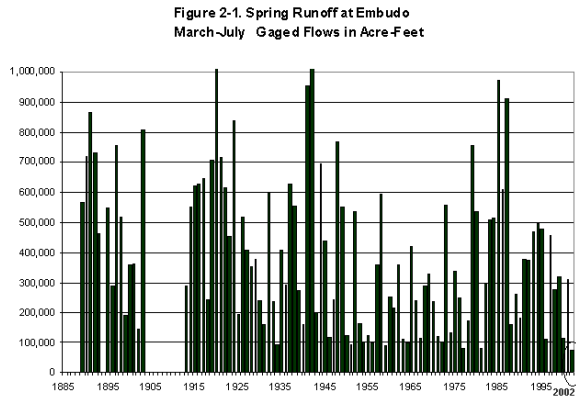


Figure 2. Spring runoff at Embudo March-July; gaged flows in acre-feet.

Figure 3 illustrates reservoir storage at different reservoirs around the state. On the Canadian, we are running at 20 percent of normal. On the Pecos, 15 percent of normal, the Rio Grande—again, these are reservoir storage levels—running about 50 percent of normal, and on the San Juan at 75 percent of normal.

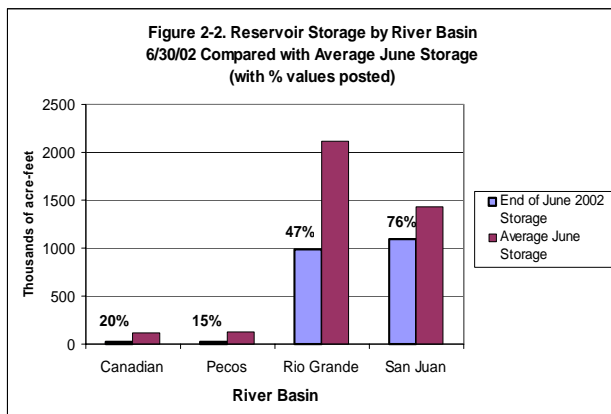


Figure 3. Reservoir storage by river basin on June 30, 2002 compared with average June storage.

Elephant Butte Reservoir is depicted in Figure 4. The photo was taken about two weeks ago. The water level at Elephant Butte Reservoir is dropping. We flew down the river channel this past week and in this area called the Narrows, we could see the water has significantly receded.



Figure 4. Elephant Butte Reservoir in late September 2002.

Something interesting happens when Elephant Butte Reservoir begins to drop—and that has to do with the Rio Grande Compact. The Rio Grande Compact is a compact signed by three states: Colorado, New Mexico, and Texas. Certain provisions kick in based on the water storage level of Elephant Butte Reservoir referred to as “useable water supply.” We look at Elephant Butte Reservoir and Caballo Reservoir, and then at New Mexico credits and Colorado credits. The arithmetic is not terribly important, but what is important is that when Elephant Butte starts dropping, we must abide by Compact provisions.

The Rio Grande Compact says that New Mexico should not increase the amount of storage in reservoirs constructed after 1929 whenever there is less than 400,000 acre-feet of usable storage.

What does this provision mean? We have not seen Elephant Butte Reservoir drop to its current level for a long, long time. Reservoirs constructed after 1929 in New Mexico include El Vado Reservoir, constructed in the late 1930s; and the Santa Fe Canyon reservoirs, also constructed after 1929.

Let’s suppose we have a wonderful winter this year with lots of snow in the Colorado mountains and runoff begins coming down the Chama River next March or April. Normally this flow is captured in the El Vado Reservoir. Figure 5 shows El Vado when it is full. I can tell you that today, though, for all practical purposes, it’s dry. Next year El Vado can’t increase its storage or hold any water. They must let the water flow through to fill up Elephant Butte Reservoir. That’s the way the Compact works.



Figure 5. El Vado Reservoir.

This has major impacts on anyone wanting to use storage from El Vado Reservoir. Water isn't needed during April or May. Instead, it is needed for the hot summer months of July and August. And that is when we have a problem due to Compact delivery obligations because there won't be any water in storage to release when it's needed by the farmers along the middle Rio Grande.

The City of Santa Fe is in a unique position. If it does snow in the Santa Fe mountains this winter, Santa Fe will be able to store water in McClure Reservoir provided an equal amount of water is released out of Heron Reservoir or wherever their San Juan/Chama water was being stored. That will keep the Rio Grande whole. I hope we can continue to do that, but I am worried that if we take the water out of Heron and release it for the silvery minnow, we won't be able to do this kind of exchange accounting next year or in subsequent years.

The next reservoir I want to talk about is Navajo Dam located in the northwest part of New Mexico. Ordinarily, Navajo Dam holds 1.7 million acre-feet. As I recall, it is down about 40 percent and sits at about 1 million acre-feet today. As the water level in Navajo Dam drops, there is pipe that comes out of the side of the reservoir that will begin to be exposed. This happens at about the 700,000 acre-foot level. The pipe supplies water to the Navajo Indian Irrigation Project (NIIP). The pipe sits up high from the reservoir bottom in order to provide water to NIIP by gravity flow. Thus, because of authorizing legislation, there could be a problem between the Navajo supply and the water we are releasing out of Navajo Dam today.

The inflow into Navajo Reservoir is about 50 cfs with a dam release of about 500 cfs. We are taking water out at a much higher rate than is coming in.

There are a couple of reasons this is happening. We are trying to keep the flows in the San Juan River high in the Four-Corners's area because it is a critical habitat for the Colorado pike minnow there—and they need the high flows. The second is for the fly-fishermen. They enjoy fishing just below the dam and want the 500-plus cfs flow; it has given them a highly rated trout fishery just below the dam.

About two weeks ago we received a letter from the Navajo Nation. It was a copy of a letter they had sent to the Secretary of Interior in which implementing shortage sharing was discussed. They are very serious about shortage sharing because of that pipe I mentioned earlier that comes out of the side of Navajo Dam. There are other contract users—people who take water out of this reservoir—and everybody is going to have to share equally. That includes the San Juan/Chama diversion project.

Last week, I received a letter from the Bureau of Reclamation requesting that New Mexico assume responsibility for administration of the San Juan River. This would require us to go into priority administration. I previously mentioned the 500 cfs coming out in Navajo dam. There are irrigation ditches below the dam that have senior rights on the river—in the neighborhood of 150-160 cfs. They like to take 250 cfs. But when we move into priority administration and you only have 50 cfs of direct flow—that is all the senior water right holder is entitled to receive. So when we talk about going into administration next summer on the river, it is going to be an interesting situation.

On the Pecos River, Ft. Sumner and Santa Rosa reservoirs are essentially dry. There may be a couple thousand acre-feet, but for all practical purposes, they are dry today. This means that there is a possibility of under-delivery on our obligations to the state of Texas. Last year I made some predictions concerning under-delivery and this year I'm not even going to venture a guess. I was not too far off last year, but sometimes these things come back to haunt you. But I will say there is always a possibility of under-deliveries.

This year the state legislature authorized \$30 million from the Tax Stabilization Fund for certain water projects. The Tax Stabilization Fund was to be spent for water improvements that were necessary around the state, with a specific amount of money to go to the Pecos River for water issues. But there is a problem. Even though we have need for the money now, there is a little caveat that came with the law that

discussed “state reserves” and how “state reserves” must be above five percent before any money can be accessed. Unfortunately, the last reserve projection came in at slightly below five percent so we cannot access the \$30 million. However, I think there is a strong desire among both the executive and the legislative branches to free up at least a portion of this money. The chairman of the Legislative Finance Committee, Representative Varela, suggested a method for doing so to the Department of Finance and Administration. We met with the Governor’s Chief of Staff yesterday and I think they are trying to find a way to release some of the money.

In addition to the Pecos River, we have other important water conveyance projects that are desperately needed. You will recall the picture showing the low level of water in Elephant Butte Reservoir. We need to get water into that reservoir. Right now, at the head waters of Elephant Butte, there is a big delta that has formed and the river just spreads itself when it enters the delta. Flying over the delta you can see the thin sheet of water glistening for miles. Walking through the area, you can see thousands of new shoots of willow trees as well as salt cedars begin to take root. I’m sure substantial evaporation is taking place here. To bring the water back up into Elephant Butte Reservoir, we need to cut a pilot channel through the delta so that the river connects directly into the reservoir. Not only will it provide water for the farmers in the Las Cruces area, it will also help to relieve the Rio Grande Compact pressures. About \$3 million for this pilot channel project has been earmarked and I am hoping this special money will get released soon as we need to get the channel dug this winter.

The legislature also set up a bond issue; I think it will be “Bond Issue Number E” on the ballot this year. The total of the bond is around \$13 million, \$10 million of which is for addressing Pecos River issues. The rest is to address issues on the San Juan River, endangered species issues, and some small dams around the state. These small dams were constructed nearly 50 years ago by the Soil Conservation Service and are beginning to deteriorate and need renovation. A portion of the bond issue will help pay for partial renovation of these dams; there are literally dozens of them around the state. We also have Ute Reservoir on the Canadian River that needs some work done on the spillway.

Now let’s move onto the Pecos River. We have been working diligently toward the development of priority administration rules. We are also developing water banking rules and regulations. These two sets of rules are intertwined. You will probably hear more about this today. I would hope that if we must go into priority administration, water banking may be a method to relieve the pressures created by the priority administration.

Next summer, we will have many dilemmas facing us. We can learn valuable lessons from Costilla Creek: it’s expensive, it’s tough, there are a lot of tempers—but it is possible to administer by priority.

I think there has been complacency slowly developing in this state since the droughts of the 1950s—especially in the last 20 years. People continually come in and expect me to be able to give them unlimited permits for wells or for diversions off rivers. They are not happy that I won’t approve their requests. I wish I could, but it is simply not possible to do so. The state’s rivers are fully appropriated. We have a finite amount of water here and it is my job, as charged by statute, to measure and distribute the state’s water.

A decade ago, conjunctive management—where management occurs for interconnected rivers and groundwater wells—was not envisioned. But it is now squarely before us. It presents complex challenges to this state, but I know it can be done. It simply must be done. I also believe that if we fail, the courts will make these decisions for us and this will result in hurting individual users significantly.

I am going to ask everybody in this room who is a water manager to work constructively with our office with moving toward actively managing our water resources. I do not believe it is in our best interests for the federal government to assert control over our rivers. On the Pecos River, we have under-delivered in the past and I believe that if we don’t manage our waters by ourselves, there is every chance in the world the United States Supreme Court will become the water master on this river. I think it would be much easier for a New Mexican to deal with me, see me face-to-face, than to deal with some anonymous person back in Washington.

On the Pecos River, if I can get the money released, we will work toward acquiring farmland. I believe there are 18,000 acres of irrigated lands which are needed to be acquired along the Pecos River—6,000 below Carlsbad Irrigation District’s Avalon Dam and 12,000 above. I understand that in the last week,

thousands of acres of salt cedars have been sprayed with an herbicide. The spraying has been done through the Department of Agriculture in cooperation with the soil conservation districts. Again, on the Pecos River, if we fail to make our compact deliveries, we need to emphasize that priority administration is a part of the state's tool box. And we will do so if necessary.

Concerning Pecos River priority administration, we have circulated preliminary drafts of our rules and regulations to people who sit on what we call the Pecos River ad hoc committee. I am sure the Interstate Stream Commission also will review the drafts and they then will finally be promulgated as per the formal rule making process.

On to the San Juan River—this winter we will put together a very aggressive program. We will start installing measuring devices on dozens of ditches. This must be done because our preliminary measurements indicate that some ditches may be taking two, three, or four times as much water as perhaps they are entitled. If the drought continues, the San Juan Basin available water supply will only become tighter and tighter.

We have budgeted for a San Juan River water master to administer direct flow users. This means irrigators, and some cities as well, will be cut back to an appropriate amount. I include fly-fishermen here, although they are more of a reservoir user. They have filed suit against us because they like the high flows out of the river. They most certainly would not like to see these high flow releases restricted in any way. Cutting back releases from Navajo Dam could impact their fly fishing experience—especially if the flows going out of Navajo Dam were restricted or tied to inflow into the dam.

The reservoir users—and this includes the Navajo Indian Irrigation Project, the San Juan/Chama Project, some contract holders, and the Public Service Company of New Mexico—will all be going into shortage sharing. This is the first time we have gone to shortage sharing and there is a distinct possibility that it will have a major impact on users of the San Juan River.

We do not have a complete general stream adjudication in this area; we have one only on non-Indian uses. We can not use this partial adjudication to administer the waters of the Navajo Nation, as they were not a party to the decree. We need to define the rights of the Navajos.

In the coming months, we intend to invite many San Juan stakeholders to the table. I do not want to

make this a big group—I want problem solvers. We will invite people from industries in the area, from the region's municipalities, and from the agricultural sector as well as the Navajos. We will discuss what we are going to do next summer and how we are going to administer the river. I met with representatives of the Navajo Nation people last Thursday and they are willing to participate. What is going to happen on the San Juan River will not be popular, but again, we must deal with the Basin's limited water supply .

Concerning the Rio Grande, I want to touch briefly on supplemental wells. My staff and I have extensively reviewed the current policy on supplemental wells. It is a very, very complex issue and certainly something that must be addressed. I did issue a supplemental well permit two weeks ago; an emergency permit to Dixon Apple Farms near Costilla, so we do occasionally issue supplemental well permits.

We have wells supplemental to primary wells—but we also have supplemental groundwater wells which are supplemental to surface water. Supplemental groundwater to surface water is an issue that we must carefully examine. I would like to see if we could approve these types of wells, but first we need to determine how to supervise the combined diversion of the surface and groundwater. We must do this if we are going to have the ability to replace any over-diversions or any excess depletions in subsequent years. We also want to make this an equitable system everywhere so that no particular party either gets hurt or benefits exclusively.

As you know, the silvery minnow decision is out. One thing I think holds a lot of hope on the silvery minnow is something called the “Middle Rio Grande Collaborative Program.” This program brings together different groups—from federal and state agencies to environmental groups—all come to the table to discuss ways to recover the silvery minnow.

Next summer we must work with the Indian Pueblos and their primary and paramount rights. These “P and P” rights mean the Indians are the senior water rights holders on the river. We have El Vado Reservoir where Indians will be able to store their “P and P” water, as has been done historically during dry years. The water will be stored for the Indians and released to the Indians. This means that non-Indians cannot use that water. This is going to be of great controversy up and down the Rio Chama. If the water is in the river, the Rio Chama acequias will probably want to use this water.

We already ran into this problem this past summer on the Rio Chama. Someone used a backhoe and dug up a measuring device. They then threw the device out into a nearby field. We tried to work with the offender but finally had to take the case to court. The court ruled that the offender had to pay back his over-diversion. The court also said that if he took more water than he was supposed to, the OSE was to chain off the head gate. Next summer, we are going to take this over-diversion very, very seriously. If past history is any indicator, I predict there will be another legislative hearing on the banks of the Rio Chama when users see water running down the river and they start asking why the State Engineer refuses to let them take the water. It is not that I'm being a bad guy. The law says we must administer by priority. And the Rio Chama is not the senior water rights holder on the river, at least not in comparison to the Pueblos, nor do the acequias have any storage rights in El Vado. Of course, if acequias use water released from storage which they have leased or temporarily acquired, this is another story.

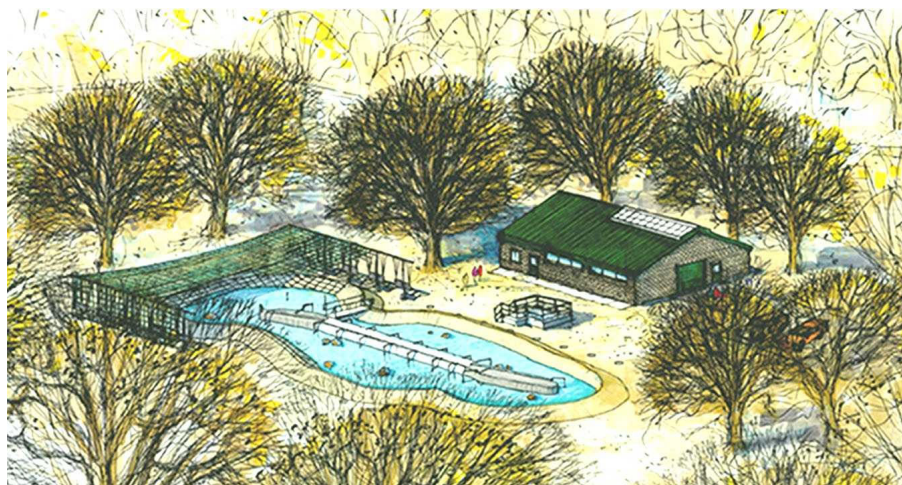
I want to talk a bit about the administration of Middle Rio Grande Conservancy District diversions—it is an issue that must be addressed in the coming months. It was very clear in Judge Parker's decision that this issue must be confronted. First, I'd like to compliment the MRGCD. In the last few months,

perhaps with my encouragement, they have gone to ditch rotation. That means the ditches have not been kept full all the time and it has allowed them to stretch their water supply further. Ditch rotation is practiced by most if not all large irrigation districts. This is a practice that must continue even after our current drought passes. We are now working with the conservancy district on an efficiency study. The preliminary draft has been distributed to them and we are hopeful we will soon be receiving comments back. We hope to have the final study completed by the end of the year. It will be available on our web site when it is finalized.

Figure 6 takes us back to the collaborative program I mentioned earlier. It is a fish rearing and breeding facility under construction in the city of Albuquerque's Botanical Gardens. The state has provided \$1 million to \$1.5 million for the project with the intention of raising about 50,000 silvery minnows a year—putting 25,000 of those minnows back into the river. In yesterday's Albuquerque Journal, an article appeared about similar facilities and ponds being constructed on the San Juan River for the razor-back sucker. Six ponds are being constructed there. It is not the total answer to the recovery of the species—it is simply a part of many actions that must be taken in the future to recover an endangered species.

Thank you.

**INTERSTATE STREAM COMMISSION
State of New Mexico**



Rio Grande Silvery Minnow Rearing and Breeding Facility

Figure 6. Rio Grande silvery minnow rearing and breeding facility. Albuquerque.