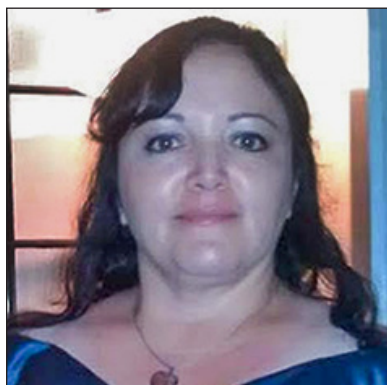


Water Use and Conservation



Julie Valdez, New Mexico Office of the State Engineer

Julie Valdez is a water resource manager with the New Mexico Office of the State Engineer's (OSE) Water Use and Conservation Bureau (WUCB). Julie received a BS in environmental engineering from the New Mexico Institute of Mining and Technology. She has 18 years of experience working with the OSE. Julie began her career with the OSE administering water right applications and providing technical support for hydrographic surveys. For the past 15 years, she has worked in the OSE's WUCB, where she manages the water conservation outreach program, reviews subdivision proposals, reviews and prepares technical memoranda for water development and water conservation plans, and prepares technical reports regarding irrigation water requirements. Julie was a principal author of the 2005, 2010, and 2015 New Mexico Water Use by Categories Reports, which quantify all water use in the state.

The Office of the State Engineer (OSE), generally speaking, has a mandate to manage the use of water rather than to strictly preserve water. However, the OSE and the Interstate Stream Commission (ISC) have several programs and processes that serve to preserve New Mexico water supplies through better management:

- Water conservation programs
- Water use program
- Drought monitoring and planning
- Water rights administration
- Water planning (ISC)
- AWE scorecard

Each of the programs listed provide opportunities and challenges for preserving New Mexico's water, as it is a precious resource, especially in New Mexico's arid climate.

Water conservation is vital to every community throughout the state. To help preserve water, the New Mexico OSE has outreach material that we provide to the public on a variety of topics that range from xeriscaping to finding leaks. The Water Use and Conservation Bureau develops and publishes hands-on innovative education outreach material that is aligned with New Mexico public education standards for the classroom. We either provide the curriculum to the teachers or we present the material ourselves. Typically, our presentations are interactive, and they consist of a brief discussion that leads into breakout sessions with hands-on learning with the students. We also develop a list of outdoor tools that help preserve water. We have the New Mexico plant list and the plant app that include references for hundreds of plants to choose from when designing low-water-use landscapes that thrive on little or no supplemental water. In addition, the New Mexico landscape irrigation calculator works like a smart water controller by providing a personalized irrigation calendar. You can visit our website for more information

and details about these tools (https://www.ose.nm.gov/WUC/wuc_conserve.php).

In 2013, our office prepared *New Mexico's Water Conservation Planning Guide for Public Water Suppliers* (https://www.ose.nm.gov/WUC/PDF/Planning%20Guide_Final_.pdf), also known as Technical Report 53. The purpose of creating Technical Report 53 was to provide a guidance document that all public water suppliers could use when preparing water conservation plans. Why should a public water supply system develop a conservation plan? First, to qualify for Water Trust Board funding, applicants who divert more than 500 acre-feet must have a water conservation plan written in accordance with our Technical Report 53. Second is to meet conditions of approval. Water right applications such as change of purpose and place of use, extension of times, or new appropriations typically require that a conservation plan be submitted. Lastly, it's essentially a good idea to write a conservation plan in order to be prepared and to manage a public water system effectively.

Water conservation plans are required to have the American Water Works Association audit and a gallons per capita per day (GPCD) calculator. The American Water audit provides a systematic method to organize water diversion status and track its path through the distribution system. The audit focuses on the supply side. The complete audit provides baseline data for a number of different system matrices. One of the primary benefits of the audit is that it allows a public water system to identify real losses. In 2009, the OSE developed a standard methodology for computing GPCD. The GPCD calculator methodology is used by the OSE to track municipal water use over time. It provides baseline data of historical and current water use. The calculator focuses on the demand side. It's a useful tool to help public water suppliers analyze the results of their water use and determine how to create appropriate

conservation measures and programs to specific end users based on their water conservation behaviors.

How are the OSE water use program and water preservation related? Drought is not the only circumstance in which water shortage occurs. Population growth or migration can also cause shortages by overburdening water supplies. Therefore, water preservation is an important consideration in water planning. Subdivision review and water development plans fall under the OSE's water use program. The Subdivision Act requires counties to develop rules for quantifying a subdivision's water needs, assessing the availability of water for those needs, and conserving water. The OSE conducts reviews of subdivision proposals at the request of the county to ensure compliance with the county code and the Subdivision Act. Reducing the water demand in subdivisions may add years of life to an aquifer. Indoor water use can be reduced by installing efficient plumbing fixtures and appliances. In any new construction, county regulations require that this happen. Outdoor water use can be kept to a minimum by installing low-water-use landscaping. Typically, hot tubs, swimming pools, and water gardens are not permitted in developments. Then in our review process, we ensure that subdivision proposals meet all the requirements of the codes and the Act. In some instances, we recommend that the developer consider more stringent outdoor water use requirements.

The OSE also has other rules related to land and water use. The Water Use and Conservation Bureau reviews water development plans, also known as 40-year water plans, which are written documents developed by public water suppliers to assess the amount of water needed to meet the current and future water demands in relation to the amount of water held by the permit. State statutes require that the water development plan be filed with an application to appropriate water or transfer water rights where the water right will be held or used or undeveloped. Our office requires at a minimum that a water development plan contain a summary of the current water rights, diversion for the past five years, a GPCD calculator, an audit, population projections, and water demand predictions. As part of the contribution component of the water development plan, we require that they provide a discussion of their conservation efforts, their goals, GPCD reduction, if any, and the staff they have devoted for the implementation of their conservation plans.

The Drought Task Force was established in 1988 and is chaired by the State Engineer, who oversees the implementation of drought preparedness activities in the state of New Mexico. Additionally, the Drought Task Force plays a major role in intergovernmental drought preparedness, response coordination, agency collaboration, and media information releases. The Drought Task Force is the singular official channel to the Governor for drought

planning activities in the state. The Governor calls upon the Drought Task Force to provide drought updates and recommendations, and as a final authority in declaring drought emergencies. The Governor typically issues emergency drought declarations in the form of executive orders. In the past 20 years, there have been five executive orders issued by governors. The Drought Task Force receives their updates from the Drought Monitoring Work Group, chaired by the state climatologist and composed of these participating agencies:

- National Weather Service
- Natural Resources Conservation Service
- NM Department of Agriculture
- NM Energy, Minerals & Natural Resources Department
- NM Office of the State Engineer
- NM State Climate Office
- U.S. Army Corps of Engineers
- U.S. Bureau of Reclamation
- U.S. Department of Agriculture Farm Service Agency
- U.S. Drought Monitor
- U.S. Geological Survey

The Drought Monitoring Work Group meets monthly, and looks at different types of data to assess the drought, which is either hydrologic or climatic. It also makes recommendations to the Drought Task Force on potential executive orders. Figure 1 is a list of some of the triggers from the update to the 2018 Drought Plan. We went from having seven to having two. It was a big change. We've been using some of these triggers when we had our first Drought Task Force meeting back in September.

As for the Water Resource Allocation Program, the Water Rights Division administers water rights through New Mexico under the New Mexico constitution. All groundwater and surface water belongs to the public and is subject to appropriation under the doctrine of prior appropriation, which provides that earlier appropriations have higher priority over later appropriations. Anyone who wants to use either surface water or groundwater has to obtain a permit from the State Engineer. But before we grant that permit, we try to ensure that the application is not going to impair any existing rights, will not be contrary to conservation, and is not detrimental to public welfare. Active Water Resource Management (AWRM) is the State Engineer's critical water management initiative to address continuing drought, increasing variability in New Mexico water supplies, and increasing demand for water. The State Engineer has AWRM tools that help do this, which are to actively manage real-time distribution of water to prevent waste and to ensure that water rights owners do not exceed their legal right, implement priority administration of water rights in times of shortage, and ensure New Mexico's continued compliance with interstate obligations.

DROUGHT STAGE	TRIGGER	DROUGHT TASK FORCE MEETING SCHEDULE	RESPONSES
WATCH		DTF convenes yearly	• DMWG meets monthly • Work groups meet as directed by the DTF to provide updates to SDC • SDC provides annual updates to the DTF, and as requested • DTF provides annual updates to the Governor, and as requested
EMERGENCY	50% or more of the state is at D2 levels or higher as documented by the USDM	DTF convenes twice a year and receives updates on previous water year	• DMWG continues to meet monthly • Work groups continue to meet as directed by the DTF to provide updates to SDC • SDC provides quarterly updates to the DTF, and as requested • DTF considers making recommendation to Governor to issue an Executive Order ◦ DMWG determines whether to make an Executive Order recommendation to DTF ◦ factors considered: percent of state in D3, D4; duration; impacts
EXCEPTIONAL	20% or more of the state is at D4 levels as documented by the USDM	DTF convenes at same interval as during Emergency Stage, with additional meetings as necessary	• DMWG continues to meet monthly • Work groups continue to meet as directed by the DTF to provide updates to SDC • SDC provides monthly updates to the DTF, and as requested • DTF strongly considers making recommendation to Governor to issue an Executive Order ◦ DMWG determines whether to make an Executive Order recommendation to DTF ◦ factors considered: percent of state in D3, D4; duration; impacts

Figure 1. Trigger-based drought responses.

These comprehensive tools allow the OSE to effectively manage water resources, protecting your water rights and the interstate delivery compacts.

Figure 2 shows what the real-time network looks like. It's essentially a network of streams, acequia ditches, and well monitoring sites that electronically transmit data values via radio and satellite telemetry and store the data in the database. You can obtain real-time data from our website (<http://meas.ose.state.nm.us/>).

There are seven priority AWRM basins (Figure 3).

At this time, we have specific rules for the Nambé-Pojoaque-Tesuque water master district, and there are some other options available through AWRM, which include shortage agreements, voluntary rotation, and water banking. Due to the time constraints, I'm not going to discuss those.

This year's Annual New Mexico Water Conference theme was meeting New Mexico's pressing water needs, challenges, successes, and opportunities, which I think goes hand in hand with water planning, which is essential to the wise management of New Mexico's limited water supplies. The regional and state water plans are vital tools intended to guide water management in the state, now and into the future. By state statute, the ISC has the authority to implement the state regional water plans. Between 1999 and 2008, the ISC accepted 16 regional water plans.

In 2016 through 2017, all 16 regional water plans were updated. The purpose of the update was to provide new information related to water planning and to evaluate future water planning and demand for each region using a common technical approach.

For the ISC to link the regional water plans to the state water plan, the ISC collaborated with the OSE to revise the method for calculating the region's future water supply and water demand gap in order to provide consistency among regions and across the state for the purpose of prioritizing investment in programs, policies, and projects addressing water infrastructure and management issues. The 2018 State Water Plan has three major components, which are a policy section, technical report section, and legal section. You can find all three sections on our website (<https://www.ose.nm.gov/Planning/swp.php>).

The Alliance for Water Efficiency is a nonprofit dedicated to the efficient and sustainable use of water across North America. AWE advocates for water efficient products and programs, and provides information and assistance on water conservation efforts. The water efficient and conservation state scorecard is an assessment of state laws. The assessment is based on survey results from all 50 states. Where are we compared to other states? In 2017, AWE surveyed all the states and identified efficiencies and conservation laws using a 20-prong

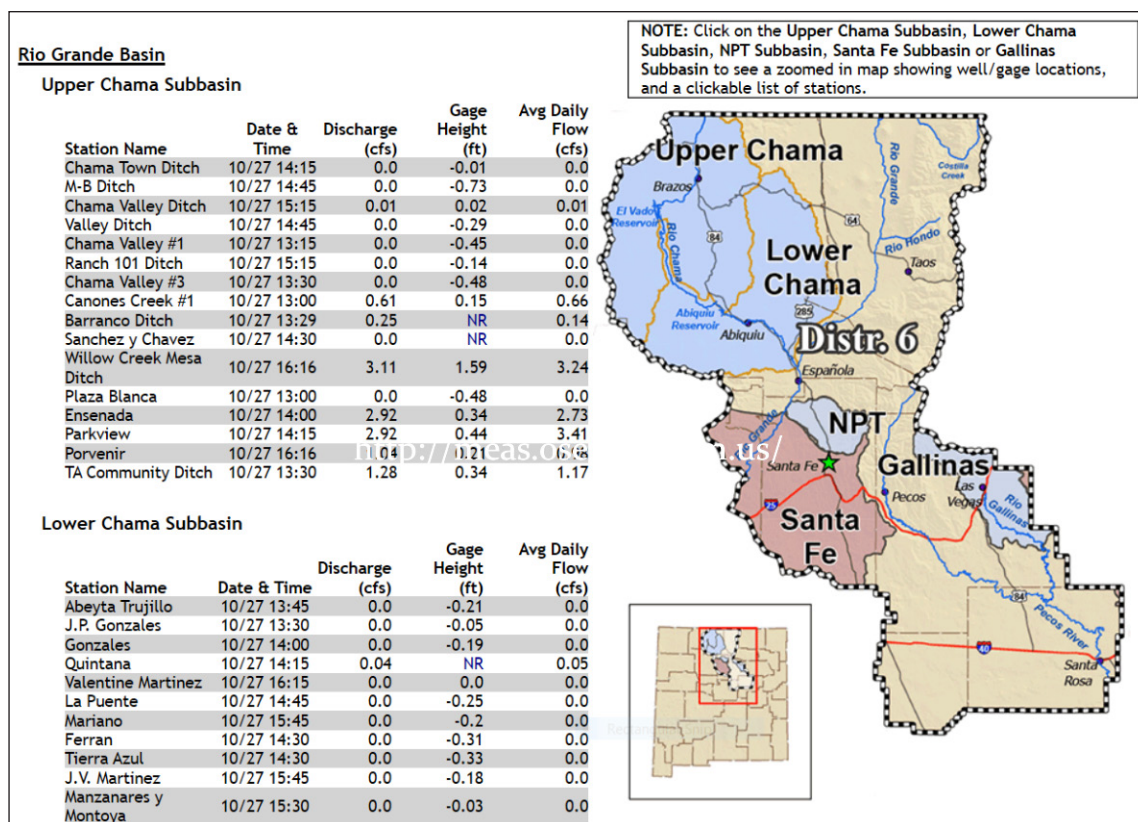


Figure 2. Real-time AWRM data for the Rio Grande Basin.

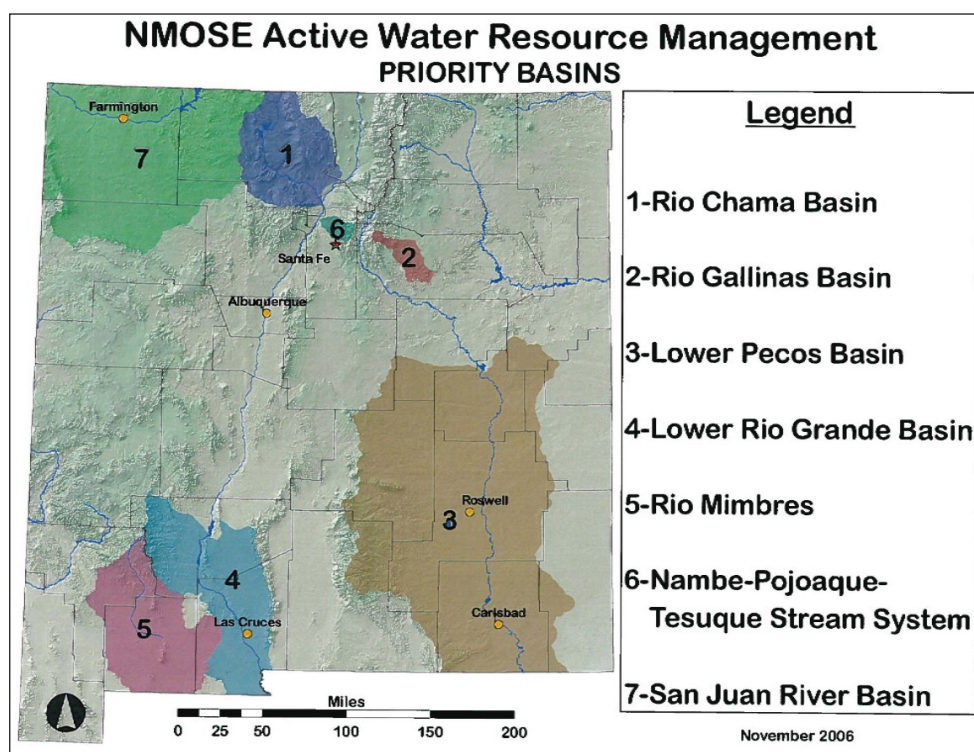


Figure 3. AWRM priority basins.

questionnaire, which broadly addressed the question, “What is the state’s required or offered fundamental conservation planning?” One of the survey questions, just to give you an idea was, Does the state have a water consumption regulation for toilets? New Mexico doesn’t have an official statute that states that we have to have that, but county regulations or public water utilities have that, so we didn’t get points for those types of questions. Each state received a grade for efficiency and conservation and a separate grade for climate. The methodology used to

score these states is described in their 2017 report. So, we received a grade of C, which means that we have room for improvement (Figure 4). However, there will have to be changes in legislation for our score to change.

In conclusion, New Mexico’s water use continues to decrease even as population increases. The water use decreases can be attributed not only to the programs and processes the OSE has in place to preserve water but also to what the state is doing as a whole to conserve water.

Comparison to other states

- 2017 Grades
 - Arizona B+
 - California A-
 - Colorado B
 - Nevada B
 - New Mexico C
 - Texas A-
 - Utah B-

New Mexico

New Mexico Water Efficiency Scorecard		Grade: C
Question	Points	
1. State agency in charge of drinking water conservation/efficiency?	2	
2. Water consumption law* for toilets?	0	
3. Water consumption law* for showerheads?	0	
4. Water consumption law* for urinals?	0	
5. Water consumption law* for clothes washers?	0	
6. Water consumption law* for pre-rinse spray valves?	0	
7. Building/plumbing codes require* water efficient products?	0	
8. Limitation on water loss in utility distribution systems?	0	
9. Water conservation is a condition of a water right permit?	3.5	
10. Water suppliers must develop a drought preparedness plan?	0	
11. Water suppliers must develop water conservation/efficiency plans?	3.5	
12. State offers financial assistance for urban water conservation**	5	
13. State offers technical assistance for urban water conservation?	2	
14. Water connections that are part of a public supply must be metered?	0	
15. Water suppliers must implement volumetric billing?	0	
16. Rate structures must encourage water conservation?	0	
Total	16	

* Requirement is more stringent than the federal standard
 ** Beyond Drinking Water State Revolving Funds

New Mexico Climate Resiliency Scorecard		Grade: C+
Question	Points	
1. Does a state climate adaptation/resiliency plan address water resources?	2.5	
If Yes, who implements it, what does it address, and how often is it updated?	6	
If No, do any state laws concern climate action or resiliency; if so, how?		
2. Does the state require water industries to take climate change-related actions?	0	
3. Does the state have benchmarks for tracking water resource resiliency?	0	
Total	8.5	



Figure 4. Alliance for Water Efficiency state scorecard, 2017.