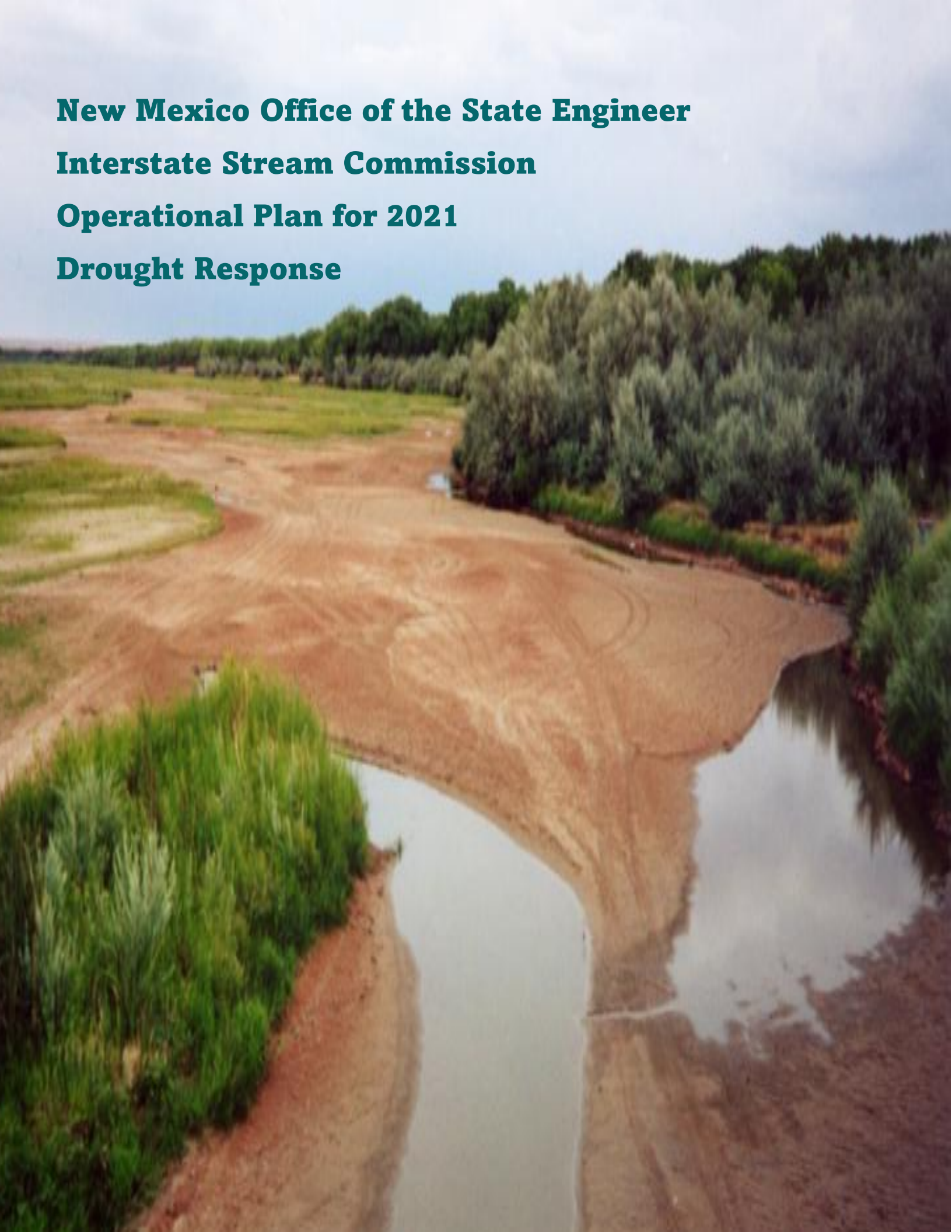
New Mexico Office of the State Engineer
Interstate Stream Commission
Operational Plan for 2021
Drought Response



State of New Mexico
Office of the State Engineer

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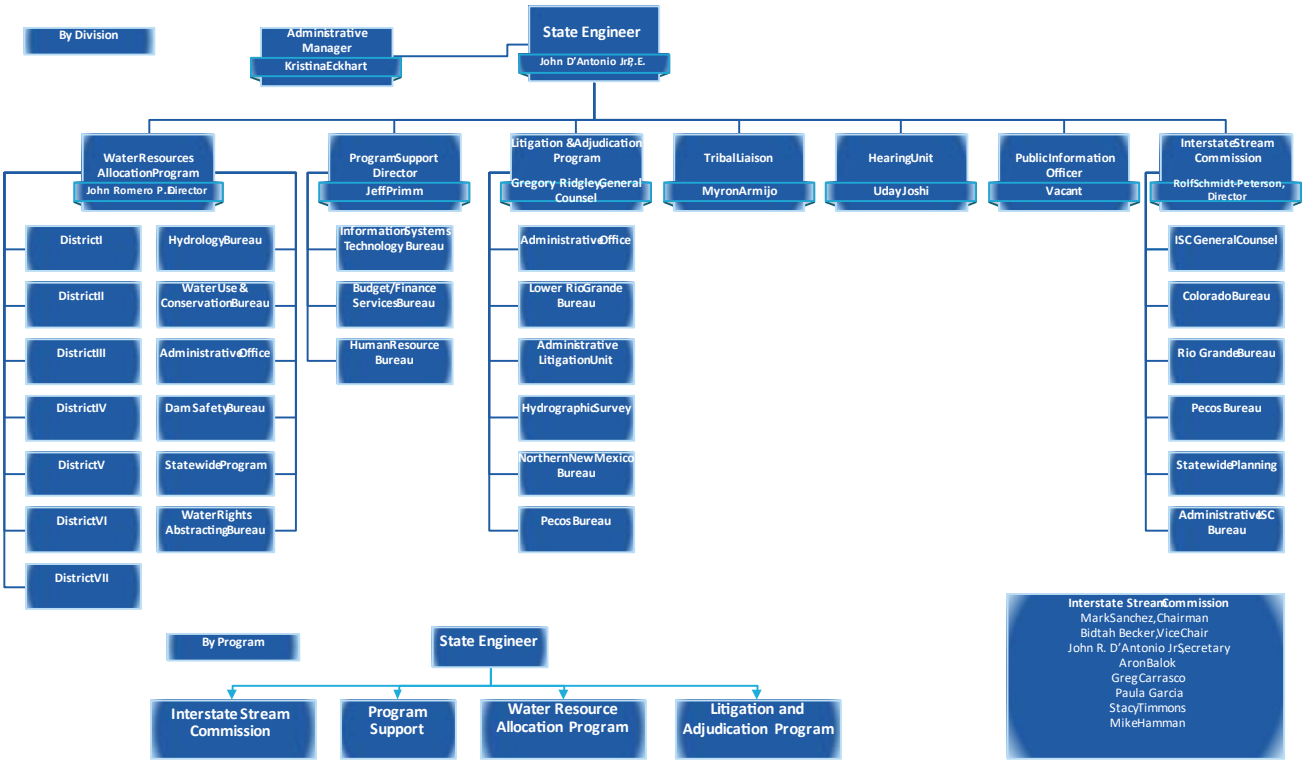
State of New Mexico
Office of the State Engineer

A. Mission of the OSE/ISC

To actively protect and manage the water resources of New Mexico for beneficial uses by its people, in accordance with law:

- to investigate, measure, and distribute water in the most efficient manner in accordance with state laws, court adjudications, and State Engineer rules and regulations;
- to administer the appropriation of the State's waters and changes to existing water rights through State Engineer permits and licenses;
- to meet the needs of New Mexico's growing population;
- to maximize use of New Mexico's renewable interstate stream apportionments;
- to promote the sustainability of New Mexico's water supplies; and
- to plan for the future water needs of New Mexico's people and environment.

B. OSE/ISC Organizational Chart



C. Agency Overview

- **Scarce Water Supplies**
  - The challenges of managing New Mexico's scarce water supplies are being exacerbated by a changing climate. Climate change will impact New Mexico's water supplies through more frequent and longer droughts, altered patterns of precipitation and snowpack runoff, increased evaporation, and more frequent and more damaging wildfires. These impacts will threaten the communities, irrigators, and businesses that depend on New Mexico's water, and will increase stresses on the state's diverse ecosystems.

- **Active Water Resource Management (AWRM)**
  - The Office of the State Engineer (OSE) is currently working with water managers and other stakeholders in key basins across the state to implement Active Water Resource Management (AWRM) to administer water rights to mitigate the effects of extreme drought and climate change. The OSE and Interstate Stream Commission (ISC) are also actively assisting water users to cope with emergency water needs by helping secure access to additional water, collecting additional data, developing models of surface water supply, and running model scenarios to aid in development of AWRM alternatives.

- **Prior Appropriation Principles Codified in the New Mexico Constitution**
  - Water management in New Mexico is guided by several prior appropriation principles codified in the New Mexico Constitution:
    - all water belongs to the public but is subject to appropriation for beneficial use by an individual or entity;
    - beneficial use is required to establish a water right and defines the nature and extent of the right and with certain provisions, continuous beneficial use is required to maintain the right; and
    - in times of shortage, older water rights have priority over junior water rights.

  - Since 1907, a permit from the State Engineer has been required to appropriate surface water or make a change to a surface water right. State Engineer permits are also required to appropriate groundwater or make a change to groundwater rights throughout the state. Since September 2005, all underground water basins within the State of New Mexico have been declared by the State Engineer.

- **Water Rights Administration**
  - The State Engineer is statutorily charged with the general supervision of the state's waters and of the measurement, appropriation, and distribution thereof. The State Engineer is appointed by the Governor and confirmed by the state Senate. The State Engineer's responsibilities were expanded in 1931 to include all groundwater within declared underground water basins – which now comprise 100 percent of the state.

  - Water masters appointed by the State Engineer oversee the distribution of water in water master districts throughout the state. A permit issued by the State Engineer is required to make a new appropriation of water, or to change a point of diversion or place or purpose of use of an existing water right. The State Engineer evaluates applications for new appropriations to determine if there is unappropriated water available to satisfy the proposed appropriation. Applications for a change to an existing water right require the State Engineer to determine the nature and extent of the existing water right, and whether the granting of the application will cause detriment to existing surface water

rights or impairment to existing groundwater rights, be contrary to the conservation of water within the state, or be detrimental to the public welfare of the state.

- In FY 2021, the Office of the State Engineer processed approximately 88,432 water rights transactions. The majority of these included change of ownership forms, well plugging records, meter readings and over 2,561 domestic well applications. During FY 2021, 719 applications were filed for permits to change existing water rights. Approximately one-third of applications submitted to the OSE each year are protested or aggrieved. These protested or aggrieved applications are addressed in a formal State Engineer administrative hearing process.

• Water Rights Adjudications

- **Another key activity of the OSE** is to obtain the judicial determination of existing water rights through water rights adjudication suits. This court process is required by statute. Typically, the first or technical phase, of the adjudication process is the production of a hydrographic survey to determine the elements of all water rights, including the location, quantity and priority date within a stream system. The second, or legal phase, starts with the filing of a lawsuit on behalf of the State of New Mexico that names as defendants all water right owners identified by the hydrographic survey within the geographic scope of the suit and ends with a court judgment and decree that describes the elements of each water right. The adjudication process provides water right owners with opportunities to challenge the determination of their own water right, and in the *inter se* stage, every other water right in the adjudication. The State is currently conducting eleven active water rights adjudication suits throughout New Mexico.

• Tribal Negotiations

- The OSE, with support from the ISC for negotiations that involve streams with interstate stream compacts, is currently negotiating settlements addressing the water right claims of nine Tribes, Pueblos, and Nations (Jemez, Zia, Ohkay Owingeh, Santa Clara, Laguna, Acoma, and Zuni Pueblos, the Navajo Nation, and the Ute Mountain Utes). OSE/ISC is evaluating and prioritizing these negotiations in the order of those closest to reaching agreement and obtaining federal authorizing legislation in the shortest time possible, given current resources.

- The ISC provides and/or accounts for the state cost share that allows the OSE/ISC leverage over $2B in federal funding for regional rural water supply projects in the implementation of three federally authorized Indian water rights settlements involving five Pueblos (Taos, Nambe, Pojoaque, Tesuque, San Ildefonso) and the Navajo Nation.

- Water management in New Mexico is complicated by the state's long history of water use, the scarcity and variability of its water supply, its obligations under eight interstate stream compacts and the existence of threatened and endangered species, all in the face of greater water supply variability resulting from climate change. In addition, uncertainty regarding the water rights of New Mexico's 23 Tribes, Pueblos and Nations further complicates the management process. New Mexico is under pressure to meet its water delivery obligations to other states. Interstate litigation is resource intensive, but also important to ensure New Mexico's water future. In 2020, New Mexico celebrated a U.S. Supreme Court victory in a dispute with Texas on the Pecos River.

- **Interstate Compacts**
  - New Mexico has been involved since 2012 in high stakes interstate litigation with the State of Texas and the United States in the U.S. Supreme Court on disputes under the Rio Grande Compact. The State Engineer is supporting and coordinating with the New Mexico Attorney General's office in the litigation effort as well as working to implement solutions towards a possible negotiated settlement.

- **Water Planning**
  - Optimal management of New Mexico's water depends upon good information and planning. The ISC is responsible for overseeing regional planning across the state and developing and updating the State Water Plan. Planning is more important than ever due to increasing variability in water supplies and increasing demands from a growing population. OSE and ISC staff are developing increasingly sophisticated tools for measuring, monitoring, and modeling water resources into the future. The ISC completed the first comprehensive statewide water plan in 2003 and most recently updated that plan in December 2018. All 16 Regional Water Plans were updated in 2016 and 2017.

  - Under the direction of Governor Lujan Grisham, the ISC is currently in phase 3 of the development of a 50-Year Water Plan. This plan includes looking forward 50 years to how water resources are likely to change in the face of continued climate change, significant stakeholder engagement on water user/use resilience, and recommendations for how New Mexico can adapt to the projected changes. . The 50-Year Water Plan will incorporate the "Leap Ahead" analysis prepared by a panel of New Mexico's leading climate and water resource scientists. Work completed by other State natural resource agencies on the current state of New Mexico's natural resources will be included as well. This work, in combination with work provided by the Indian Affairs Department and the U.S. Army Corps of Engineers through a Planning Assistance to the States grant, will evaluate what the anticipated changes to our climate will mean for the state's water resources. More significantly it will assess proposed recommendations for how the state, water users, and stakeholders can adapt to the changes and remain resilient over the next 50 years.

D. Office of the State Engineer Programs

• Water Resource Allocation Program (WRAP) (P551)

- **Purpose:** The Water Resource Allocation Program is to provide for administration, distribution, protection, conservation and development of the state's surface water and groundwater resources including the implementation of Active Water Resource Management (AWRM).

- The Water Resource Allocation Program includes: the Water Rights Division, the Statewide Projects group, the Water Rights Abstract Bureau, the Hydrology Bureau; the Water Use and Conservation Bureau; and the Dam Safety Bureau.

- Under New Mexico water law, all groundwater and surface waters are public waters of the state and subject to appropriation under the Doctrine of Prior Appropriation. The Doctrine of Prior Appropriation is a constitutional provision that states that earlier appropriations have priority over later appropriations. The Water Resource Allocation Program (WRAP) is primarily responsible for processing water rights applications, conducting the scientific research for making water rights

decisions, maintaining water rights records and enforcing any conditions or restrictions on water use. Also, the program has taken the lead on the Agency initiative referred to as Active Water Resource Management (AWRM). AWRM refers to a broad range of activities that enhances the State Engineer's ability to manage and administer the actual use of water in the field and allows for "Alternative Administration" that is agreed upon by the stakeholders in a particular basin. These activities include the placement of measurement and metering devices, creation of water districts, appointment of water masters (in the field) development of water master manuals, abstracting paper files into the agency's computer of water master manuals, abstracting paper files into the agency's computer database and implementation of district-specific rules and regulations. Water masters in the program measure stream flow, allocate the water within a stream system based on state law and regulate and control diversions.

- WRAP staff inventories water resources, monitors water use and cooperates with the U.S. Geological Survey in monitoring groundwater levels throughout the state. Additional program duties include licensing all well drillers, maintaining and updating the rules and regulations of the State Engineer, providing a dam safety program, evaluating subdivision water supply plans submitted by counties and promoting water conservation. The Water Rights Abstract Bureau populates the Water Administration Technical Engineering Resource System (WATERS) database with all the individual water rights files within the state and making the information available to the public through an internet-based database. The Hydrology Bureau collects and analyzes data to support policy development and planning, evaluates the availability of water, provides expert testimony and performs other technical tasks. The Water Use and Conservation Program inventories water use in the state, calculates irrigation water right requirements and also coordinates water conservation activities in the state. The Dam Safety Bureau regulates dams that are over a certain height and storage to ensure that dam owners operate their facilities within the law and as safely as possible.

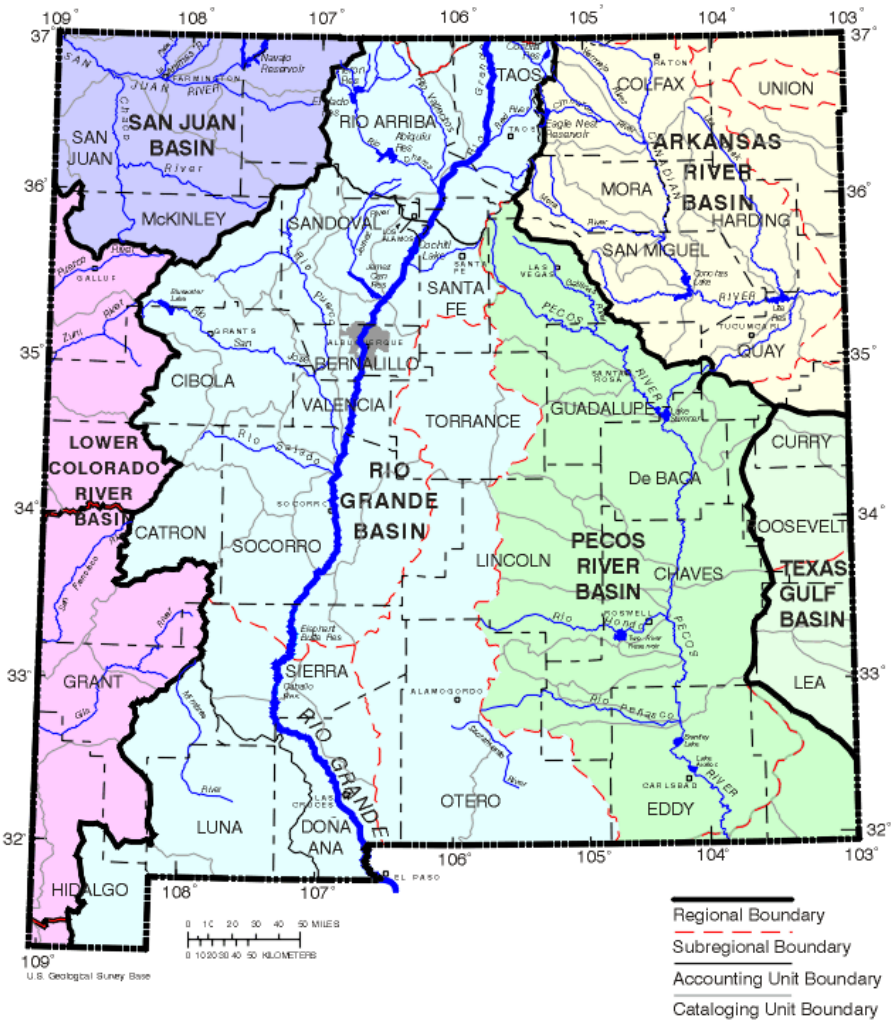
- **Benefits to New Mexicans**
  - Accountability over agency fiscal activities and operations
  - Process improvements and efficiencies for a Sustainable Water Supply
  - Safe Drinking Water
  - Safe Dams
  - Accessible and Accurate Water Right Data
  - "21" Century Water Right Administration of Water Resources
  - Water Conservation research and best practice education for the public
  - Well driller regulation and licensing, well compliance
  - Decision making based on hydrological data, modeling, real-time water use data
  - Fairness of water rights administration through promulgation of District Specific Regulations
  - Water Use Information

• Interstate Compact Compliance and Water Development Program (Interstate Stream Commission P552)

- **Purpose:** Interstate Stream Compact Compliance and Water Development Program is to ensure New Mexico's continued compliance with its interstate stream compacts; to resolve federal and interstate water issues; to develop water resources and stream systems in an environmentally sound manner; and to plan for the future use of water so that the people of New Mexico can have maximum sustained beneficial use of available water resources. ***Figure 1*** shows the major river basins in New Mexico. The ISC conducts activities, with direction from a nine-member

Commission appointed by the governor, throughout the state with a focus on the basins subject to interstate stream compacts and/or decrees. The State Engineer serves as Secretary to the Commission.

FIGURE 1



Hydrologic units in New Mexico.

- **On a broad level, the ISC and its 45 staff do the following:**
  - Represent New Mexico in negotiations with other states to settle interstate stream controversies and supports the State in litigation over its interstate stream compacts. Staff support each of New Mexico's Interstate Stream Commissioners in performing their duties.
  - Conduct numerous projects and activities to support New Mexico's continued compliance with its eight interstate stream compacts and court decrees to both meet Compact requirements and protect existing water rights in New Mexico, including but not limited to;
    - Conducting daily administration of Costilla Creek and Costilla Reservoir under the Costilla Creek Compact.
    - Conducting required Decree accounting and reporting on Gila and San Francisco rivers.
    - Implementing the 2003 Pecos River Settlement.

    - Designing, permitting, implementing, and supporting numerous river system maintenance projects on the middle Rio Grande.
    - Participate and conduct contingency planning efforts to protect New Mexico's share of interstate waters under changing conditions. Most recently, this includes negotiating Colorado River Basin agreements and implementing them within New Mexico, including the Drought Contingency Plans now in effect.

- Operate Eagle Nest Dam and own and operate Ute Reservoir.
- Provide cost share to the United States Geological Survey for river gaging on streams across New Mexico.
- Negotiate and provide assistance to the OSE in Indian water rights settlements on streams subject to interstate stream compacts.
- Administer the Indian Water Rights Settlement fund to provide the state's cost share and aiding to implement authorized Indian water rights settlements.
- Provide assistance to acequias and community ditches to improve their irrigation systems including through the new Acequia and Community Ditch Infrastructure Fund.
- Provide support to communities and the OSE in support of active management of the water resources in New Mexico which both protect senior water rights and meet local community needs and goals.
- Represent the state in several Endangered Species Act issues that could result in conflicts with New Mexico water users on interstate rivers and provide compliance for the state and its water users in selected areas. This includes maintaining and implementing the New Mexico Strategic Water Reserve.
- Oversee regional water planning for the state and conduct state water planning, including planning for climate change in the 50-Year Water Plan for New Mexico.
- Sustainably protect, develop and utilize the waters apportioned to New Mexico under interstate compacts and decrees.
- Select and implement new Non-New Mexico Unit projects in southwestern New Mexico under the Arizona Water Settlements Act in collaboration with the New Mexico Water Trust Board.

- The ISC is responsible for programming, budgeting, and directing expenditures from several sources: the ISC's operating budget; the Ute Dam Construction Fund (the ISC owns and operates Ute Dam and Reservoir); the Pecos Land Management Fund, created in 2005 to allow revenues generated from ISC-owned land to be used for land management and for maintenance and operation of augmentation wellfields; the Indian Water Rights Settlement Fund, legislative appropriations for implementing approved Indian water rights settlements; special appropriations; and two state land trust funds: the Improvement of the Rio Grande Income Fund and the Irrigation Works Construction Fund. Both trust funds were created by the Ferguson Act of 1898, which set aside grants of trust land in what was then the Territory of New Mexico to generate income for specified beneficiaries.

• Litigation and Adjudication Program (P553)

- **Purpose: Litigation and Adjudication Program (LAP) are:**
    - to obtain a judicial determination and definition of water rights in stream system adjudications to support effective water rights administration and promote the State's ability to meet its interstate stream obligations;

- to resolve disputes arising out of applications filed with the State Engineer concerning the diversion and use of the State's water;
- to represent the Water Rights Division in administrative hearings relating to State Engineer permit applications;
- to prosecute enforcement proceedings to ensure compliance with the water code, adjudication court orders, and State Engineer regulations, orders, permits, and licenses; and
- to represent the State Engineer in all matters in the state and federal courts and to represent the State of New Mexico in all pending water rights adjudications.

- LAP is divided into six bureaus. Attorneys in the Administrative Litigation Unit represent the Water Rights Division of the Water Resource Allocation Program in all administrative hearings before the State Engineer and represent the State Engineer in appeals of State Engineer decisions to the courts, in enforcement proceedings to prevent illegal uses of water, and other litigation where the State Engineer is a party.

- Four bureaus (Hydrographic Survey and Mapping Bureau, Northern New Mexico Adjudication Bureau, Pecos River Adjudication Bureau, and Lower Rio Grande Adjudication Bureau) are dedicated to conducting water rights adjudications on behalf of the State of New Mexico in state and federal courts. Technical staffing these bureaus have training and expertise in GIS, surveying, and engineering. They perform hydrographic surveys to provide the factual basis for all adjudication suits and work closely with legal staff to provide technical support for ongoing adjudications and other water rights related matters.

- The newly-formed Indian Water Rights Bureau negotiates with Indian Tribes, Pueblos, and Nations to reach settlements which not only define tribal water rights but also future administrative procedures and, in some cases, the construction, operation, and maintenance of new water projects. This bureau's work also includes securing judicial approvals and legislative funding for Indian water right settlements.

- The main LAP office is located in Santa Fe. LAP also maintains a Lower Rio Grande adjudication survey office in Las Cruces, which is staffed with experienced hydrographic survey technical personnel to support the Lower Rio Grande adjudication and serves as a local point of contact for water rights owners involved in that adjudication.

• Program Support (P554)

- **Purpose: Program Support is to provide necessary administrative support to the Office of the State Engineer to support the Agency personnel in achieving the goals and objectives of the OSE.**

- Program Support provides administrative and management support services to the Office of the State Engineer to allow for the smooth functioning of all other programs. The program has four bureaus: Finance, Budget Services, Information Technology Systems, and Human Resources. Together they oversee the agency's payroll, operating budgeting, capital project budgeting, contracts, fixed assets, accounting, procurement, property management, personnel management, workforce development and information technology (IT). Additionally, the Hearing Unit, which falls within Program Support, conducts administrative hearings on protested and aggrieved water rights applications.

E. Staffing Challenges:

81 Recruitments/hires completed in past 14 months = 25.8% of our current workforce!

OSE/ISC sought recruitment of a historically high 79 out of 314 positions in the last 14 months

- **25 External hires (net increase in filled FTE)**
- **54 Internal hires/advancements (no net increase in filled FTE)**
- **23 Recruitments currently in Process**

30 Employees lost in the past 14 months, 15 were retirements (approximately 14 anticipated in the next 6 months), and 15 terminations or transfers to other agencies.

More high-level staff retiring than usual, many with more than 20 years of agency experience.

Despite high recruitment actions completed in the last year - no increase in staff to handle regular workload much less drought and special initiatives

- **Recruitment process is competitive, time-consuming and labor-intensive**
- **A large portion of agency positions require 4+ years of college and licensure**
- **OSE competes for employees in legal, engineering, science and IT fields—often against employers like the oil & gas industry**

For perspective, OSE/ISC currently has 245 filled FTE vs. 312 in Jan. 2008

Vacancy Summary by Program

OSE Organization Listing - November, 2021

Pcode	Program Name	Authorized	Vacant Authorized	Percent Vacant
P551	Water Resource Allocation Program	171	33	19.30%
P552	Interstate Stream Commission	43	5	11.63%
P553	Litigation & Adjudication Program	59	18	30.51%
P554	Program Support	41	10	24.39%
Agency Total:		314	66	21.02%

F. OSE/ISC Budget & Staffing Alignment with Governor's Climate Change & Water Management Priorities

Initiatives by Topic:		*Recurring Expansions:*					*Staff:*	*NR Funding:*	
		WRAP	ISC	LAP	PS	Total		NR Special	NR Capital
Extreme Drought and Climate Change Water Administration Initiatives									
Staff/Funding	**Purpose**								
6 FTE (WRAP) $580,000	Reduce existing water rights backlog in District Offices, water master support and NPT settlement implementation support	$ 580.0					6		
4 FTE (WRAP) $400,000	Cannabis production--water rights application processing	$ 400.0					4		
2 FTE (LAP) $240,000	Support development of District Specific Regulations			$ 240.0			2		
1 FTE (WRAP) $100,000	Support SB12 posting requirements	$ 100.0					1		
1 FTE (PS) $100,000	IT position for SB12 online posting requirements				$ 100.0		1		
3 FTE (ISC) $350,000/yr.	Hydrologic modeling of basins to inform compact compliance administration		$ 350.0				3		
(WRAP) $140,000/yr.	Annual O & M for measuring and metering stations	$ 140.0							
		$ 1,220.0	$ 350.0	$ 240.0	$ 100.0	**$ 1,910.0**	17	$ -	$ -
Indian Water Rights Settlement Implementation and Negotiation Initiatives									
Staff/Funding	**Purpose**								
3 FTE (WRAP) $300,000	Technical positions to support the negotiation process and oversee settlement implementation	$ 300.0					3		
2 FTE (ISC) $250,000	ISC Attorneys for dedicated IWR Settlement & Negotiation Unit		$ 250.0				2		
3 FTE (LAP) $350,000	LAP Attorneys and 1 legal support for dedicated IWR Settlement & Negotiation Unit			$ 350.0			3		
$300,000/yr.	Technical support for IWR negotiations and settlements		$ 150.0	$ 150.0					
		$ 300.0	$ 400.0	$ 500.0	$ -	**$ 1,200.0**	8	$ -	$ -
Interstate Litigation and Settlement Negotiations (Litigation Avoidance) Initiatives									
Staff/Funding	**Purpose**								
2 FTE (ISC) $200,000	Lower Rio Grande water techs to support of litigation/settlement		$ 200.0				2		
2 FTE (ISC) $220,000	Colorado River water techs to support litigation avoidance		$ 220.0				2		
$5M thru FY23 (ISC)	Ongoing technical & legal support for LRG Litigation (NR special)							$ 5,000.0	
$750k/yr. (ISC)	Ongoing settlement negotiation support for Colorado River and Rio Grande (NR special)							$ 750.0	
$500,000/yr. for 5 years	Jicarilla Apache Nation water lease for San Juan River Strategic Water Reserve compact compliance and ESA issues (NR special)							$ 500.0	
$8M/yr.	Capital Outlay Request: Levee cost share, RG channel maintenance and Strategic Water Reserve (NR capital)								$ 8,000.0
		$ -	$ 420.0	$ -	$ -	**$ 420.0**	4	**$ 6,250.0**	**$ 8,000.0**
Implementation of 50-Year Water Plan to Address Climate Change									
Staff/Funding	**Purpose**								
4 FTE (ISC) $400,000	Staff to support implementation of 50-yr Water Plan, climate change impacts, and supply/demand gap initiatives		$ 400.0				4		
1 FTE (PS) $125,000	GIS Application Developer to assist in water use models				$ 125.0		1		
$350k/yr. (ISC)	External technical support for implementation of 50-yr Water Plan, climate change impacts, and supply/demand gap initiatives (NR)							$ 350.0	
		$ -	$ 400.0	$ -	$ 125.0	**$ 525.0**	5	**$ 350.0**	$ -
Infrastructure Innovation and Dam Safety Initiatives									
Staff/Funding	**Purpose**								
2 FTE (WRAP) $240,000	Establish dedicated Dam Rehabilitation Project Management Unit	$ 240.0					2		
1 FTE (ISC) $100,000	Capital project management and technical support for acequia and Gila non-diversion projects		$ 100.0				1		
1 FTE (PS) $100,000	Financial and administrative support for agency infrastructure initiatives and growth in capital project processing and reporting				$ 100.0		1		
$200k/yr.	External Dam Safety Bureau capital project management support	$ 200.0							
$300k	Dam safety risk-based screening analysis and advancement of risk-informed spillway design work (NR special)							$ 300.0	
		$ 440.0	$ 100.0	$ -	$ 100.0	**$ 640.0**	4	**$ 300.0**	$ -
Long Term Budget Sustainability and Trust Fund Solvency									
Staff/Funding	**Purpose**								
$10M recurring	Unwinds $10M of unsustainable, recurring operational reliance on trust funds to refocus funds on acequia community needs and Rio Grande corridor improvements	$ 2,000.0	$ 4,500.0	$ 3,000.0	$ 500.0	**$ 10,000.0**			
$5-7M	Annual NR infusion to rebuild depleted trust fund (IWCF)							$ 7,000.0	
$2-3M	Annual NR infusion to rebuild depleted trust fund (IRGIF)							$ 3,000.0	
		$ 2,000.0	$ 4,500.0	$ 3,000.0	$ 500.0	**$ 10,000.0**		**$ 10,000.0**	$ -
		$ 3,960.0	**$ 6,170.0**	**$ 3,740.0**	**$ 825.0**	**$ 14,695.0**	**38**	**$ 16,900.0**	**$ 8,000.0**

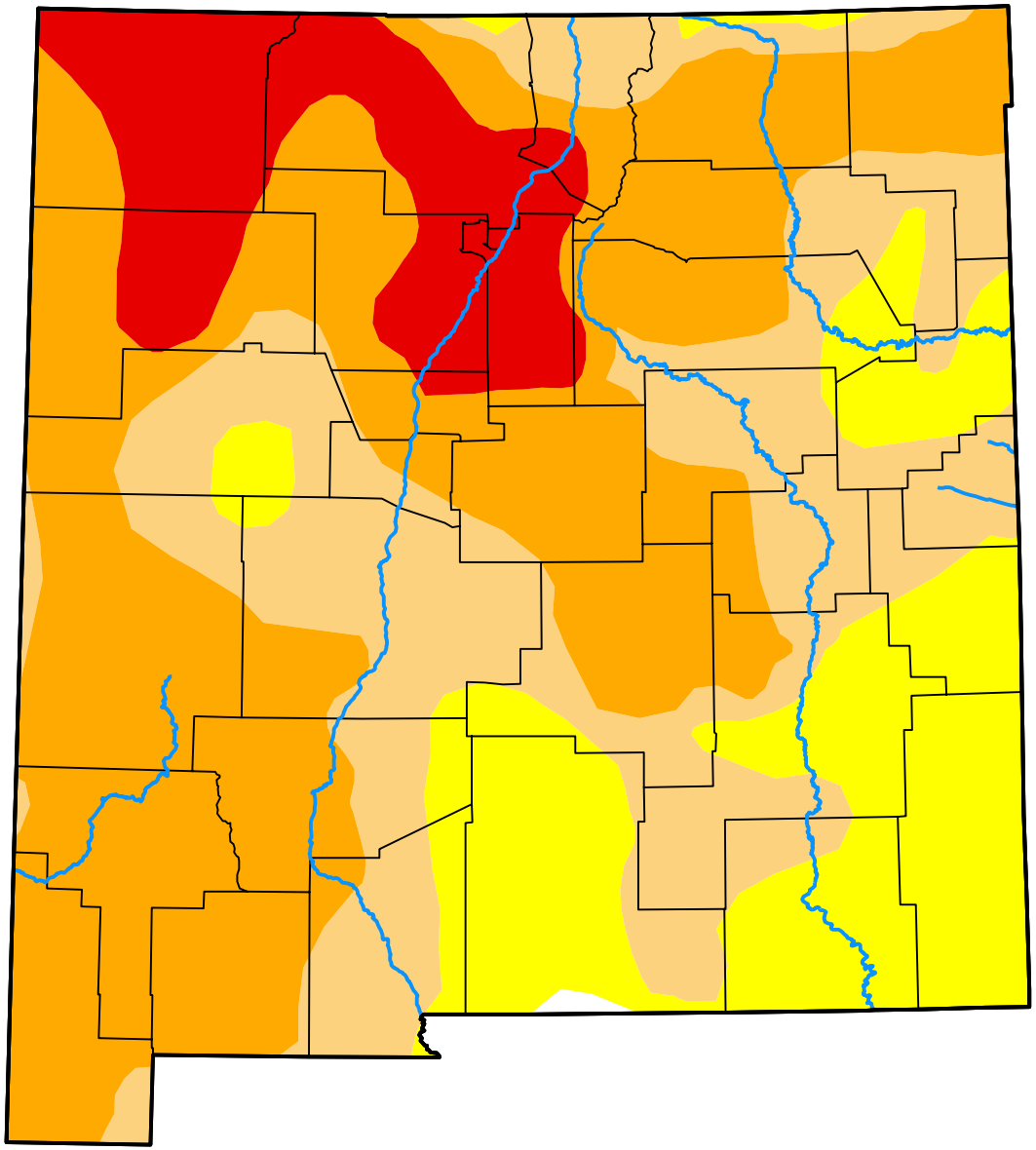
U.S. Drought Monitor

New Mexico

November 9, 2021

(Released Thursday, Nov. 11, 2021)

Valid 7 a.m. EST



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

Curtis Riganti
National Drought Mitigation Center

droughtmonitor.unl.edu

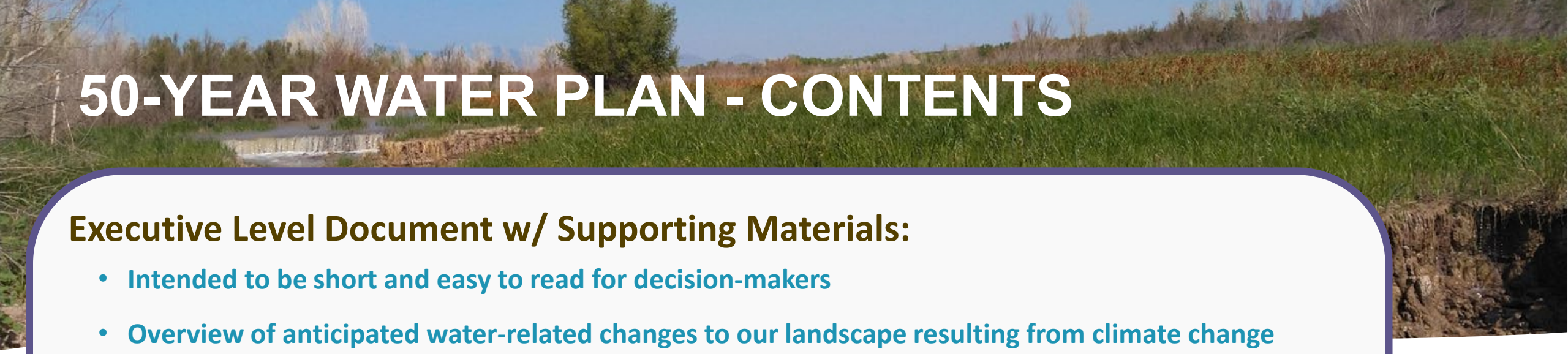
50-Year Water Plan Purpose

- **Governor Lujan Grisham's Water Resilience Vision**
  - Stewardship/Smart Water Management
  - Sustainability
  - Equity

- **Proactively Engage in Water-Related Climate Work:** Leap Ahead 50 Years
  - Experiencing impacts now

- **Prepare for Climate Change**
  - Support increased resilience for all New Mexico communities

https://www.ose.state.nm.us/Planning/index.php



50-YEAR WATER PLAN - CONTENTS

Executive Level Document w/ Supporting Materials:

- Intended to be short and easy to read for decision-makers
- Overview of anticipated water-related changes to our landscape resulting from climate change
  - Summary of "Leap Ahead" Report from NM Bureau of Geology and Mineral Resources
- Resilience Assessment – *Including Public Input*
  - By water use sector / climatic region
  - Where are we resilient?
  - Where are we not? And what's needed?
- Recommendations to Increase Resilience – *Including Public Input*
  - Research and Data Needs, Projects, Policies, Others?

Tribal input will be critical to the success of the plan.

Supporting Materials

- "Leap Ahead" Report from NMBGMR
- Tribal Water Work Group?
- Resilience Assessment in more detail?
- Summary of Public Input?
- WRRI – New Mexico water budget incorporating the "Leap Ahead"?

NEW MEXICO'S WATER FUTURE = *DRIER / MORE VARIABLE*

- Anticipated continued changes in climate will mean *less water is available* while demands continue to increase.
- Given this new reality, we must plan ahead to ensure continuing economic development and the needs of all New Mexicans are met.

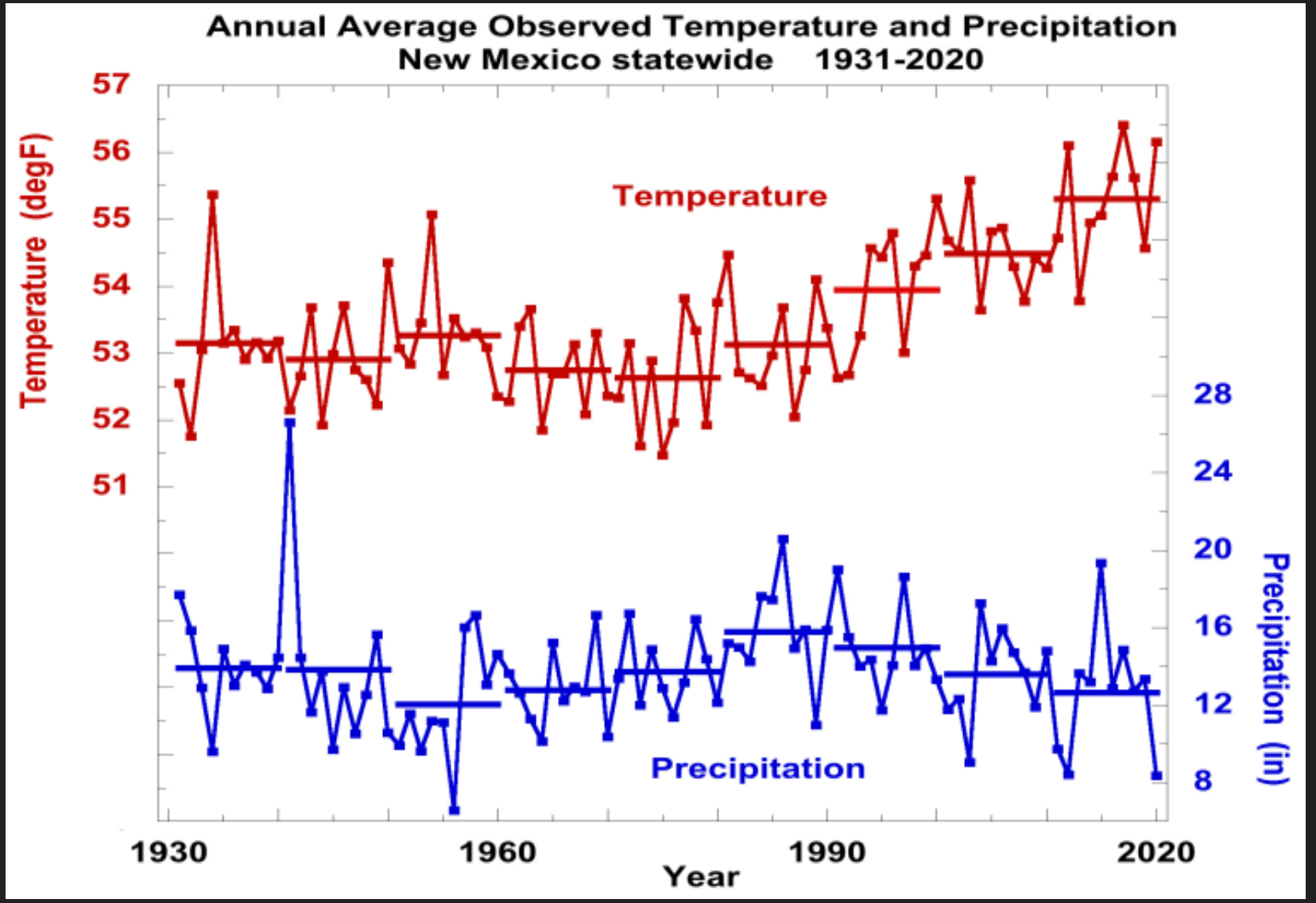


Image from *Climate Change in New Mexico over the Next 50 Years: Impacts on Water Resources*

Temperature Change in New Mexico

- Temperature increase will occur throughout the entire state.
- Especially high in the Northwest part of the state.

Annual average temperature simulated by 20 CMIP5 climate simulations by different models, spatially averaged over the state of New Mexico. Temperature change is defined as the difference between two thirty-year averages: (2040-2069) minus (1971-2000); the central years of these averaging periods are 70 years apart, so this plot represents 70-year temperature changes across the state.

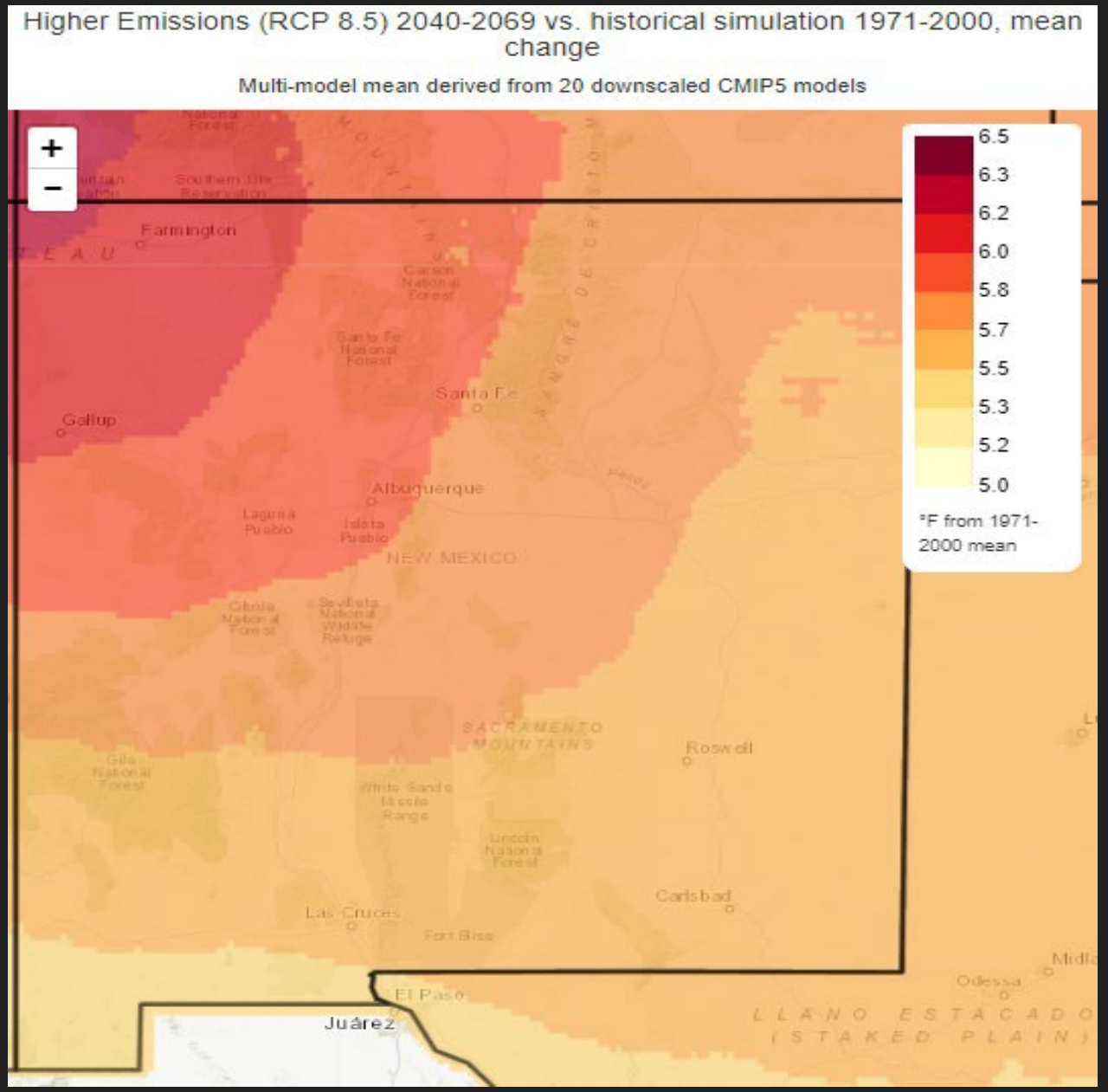


Image from *Climate Change in New Mexico over the Next 50 Years: Impacts on Water Resources*

National Water Stress Index

While the eastern half of the country can expect more water, the west can expect more water stress, and NM is no exception

Projected change in water stress by mid-century (2040-2061) compared to historical average (1900-2668 1970). Lindsey, 2013.

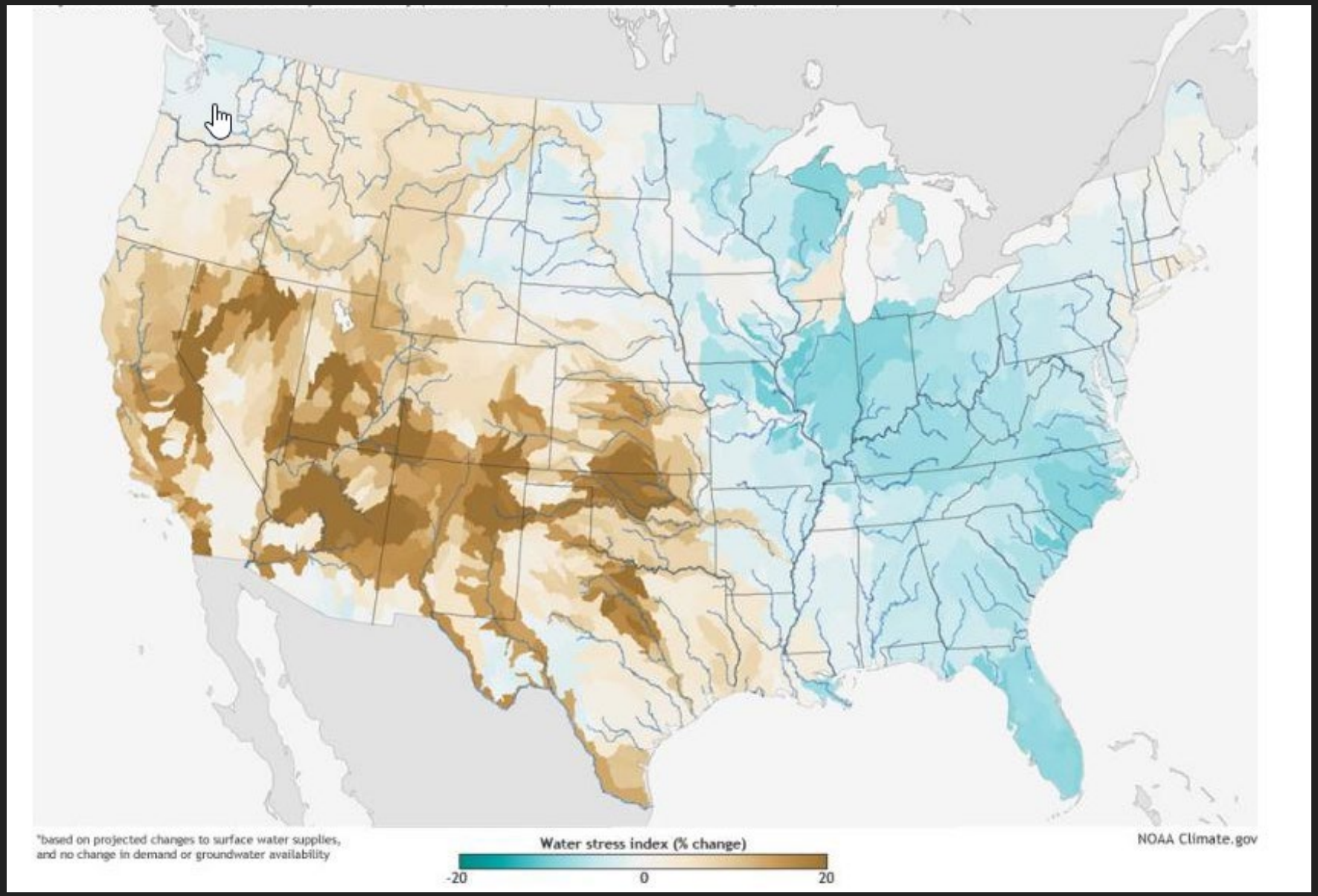


Image from *Climate Change in New Mexico over the Next 50 Years: Impacts on Water Resources*

We Need to Plan for Resilience Together

We NEED your input on how to do so!

Definition: The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.

- **Major impacts and vulnerabilities are coming to New Mexico based on climatic shocks that vary depending on climatic region and water use sector**
- **Vulnerabilities affect resilience**
- **How do we/you become resilient? What's needed to prepare?**

50-Year Water Plan TIMELINE

Goal is to help New Mexico prepare for the impacts of climate change

February – August 2021: Science Foundation > NMBGMR's "Leap Ahead" Assessment by the state's leading scientists

September – November 2021: Resilience Assessment > Partnering with New Mexico "Boots-On-The-Ground" Decision Makers including both state and Tribal expertise

WE ARE HERE

October – December 2021: Adaptation Strategy(s) Development > Partnering with New Mexico "Boots-On-The-Ground" Decision Makers, the climate experts, and including both state and Tribal expertise

November – March 2022: Plan and Recommendations > Convening stakeholder expertise to formulate recommendations, including action steps for implementation

EVENTS
December 2021
to
January 2022

Please participate and attend these outreach events!

Please visit our webpage for updates and events

https://www.ose.state.nm.us/Planning/50YWP/index.php

Tribal Water Work Group
DECEMBER 8 at 1:30pm

UPCOMING EVENTS

DECEMBER 1 + 3
NMISC WEB DISCUSSIONS ON PLAN RECOMMENDATIONS

JANUARY 12-13, 2022
NEW MEXICO WATER DIALOGUE's 28th ANNUAL CONFERENCE
An Unprecedented Water Crisis: A Time to Act

Go to
https://nmwaterdialogue.org/events
To Register

Trial Input Encouraged and Welcomed!

Resilience Assessment Surveys

- **Agriculture and Livestock Watering**
- **Public Water Systems and Domestic Wells**
- **Watersheds and Habitat**
- **Industrial, Commercial, Mining, and Power**
- **Recreation and Quality of Life**

Surveys open through Nov. 30.

Recorded presentation are on our webpage: In Case You Missed It! Previous Meeting Recordings

OSE TRUST FUND PROJECTION SCENARIO #1

"Status Quo" Scenario:

In this scenario the reliance on TF remains unchanged at $13.3M; Trust land revenues at historic trend; and SIC returns step down as investment corpus liquidated over time

IRRIGATION WORKS CONSTRUCTION FUND (326)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	$15,207,005	$13,509,420	$15,418,005	$15,496,439	$16,248,298	$15,234,917	$18,129,419	$17,118,943	$10,287,065	$2,955,187
REVENUE										
Permanent Fund	$6,633,195	$6,320,881	$6,664,822	$6,968,489	$6,968,762	$7,636,606	$7,427,200	$6,711,230	$6,711,230	$6,711,230
Interest/Loans	$23,408	$36,108	$23,397	$19,059	$17,874	$14,377	$17,104	$23,969	$23,969	$23,969
Lease Income	$747,611	$2,968,259	$1,640,000	$988,106	$808,139		$368,461	$1,430,423	$1,430,423	$1,430,423
Interest on Investments					$3,250	$3,835				
SIC Unrealized Gain/Loss	$342,433	$1,787,009	$1,430,320	$1,798,600	$1,795,916	$5,499,473	$1,889,124	$1,000,000	$500,000	$0
Miscellaneous	$35,800			$128,709	$5,500	$6,766	$10,000	$10,000	$10,000	$10,000
Adjustments										
TOTAL REVENUE	$7,782,447	$11,112,257	$9,758,539	$9,902,963	$9,599,440	$13,161,057	$9,711,889	$9,175,622	$8,675,622	$8,175,622
EXPENDITURES										
Specials & BAR Authority							$1,850,000	$1,850,000	$1,850,000	$1,850,000
Operating Budget	$9,480,032	$9,203,672	$9,680,105	$9,151,104	$9,612,822	$9,266,554	$5,936,700	$11,500,000	$11,500,000	$11,500,000
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Acequia Fund							$2,500,000	$2,500,000	$2,500,000	$2,500,000
Reversions							($564,335)	($842,500)	($842,500)	($842,500)
TOTAL EXPENDITURES	$9,480,032	$9,203,672	$9,680,105	$9,151,104	$10,612,822	$10,266,554	$10,722,365	$16,007,500	$16,007,500	$16,007,500
ADJUSTED BALANCE	$13,509,420	$15,418,005	$15,496,439	$16,248,298	$15,234,917	$18,129,419	$17,118,943	$10,287,065	$2,955,187	($4,876,691)

IMPROVEMENT OF THE RIO GRANDE INCOME FUND (328)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	$6,502,230	$6,574,787	$9,012,226	$9,112,726	$9,887,723	$8,744,469	$8,550,626	$2,751,742	$2,170,761	$1,569,781
REVENUE										
Permanent Fund	$1,495,407	$1,414,189	$1,523,935	$1,556,253	$1,556,192	$1,708,206	$1,617,900	$1,509,195	$1,509,195	$1,509,195
Interest/Loans										
Lease Income	$90,505	$1,443,926	$587,020	$221,008	$156,664		$105,799	$499,825	$499,825	$499,825
Interest on Investments						$12,611				
SIC Unrealized Gain/Loss	$35,837	$277,493	$289,259	$479,910	$239,176	$761,359	$419,417	$70,000	$50,000	$25,000
Miscellaneous			$42,741		$249,908					
TOTAL REVENUE	$1,621,749	$3,135,608	$2,442,955	$2,257,171	$2,201,940	$2,482,176	$2,143,116	$2,079,020	$2,059,020	$2,034,020
EXPENDITURES										
Specials & BAR Authority										
Operating Budget	$1,549,191	$698,168	$2,342,455	$1,482,174	$2,345,194	$1,676,019	$7,360,000	$1,800,000	$1,800,000	$1,800,000
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Reversions							($418,000)	($140,000)	($140,000)	($140,000)
TOTAL EXPENDITURES	$1,549,191	$698,168	$2,342,455	$1,482,174	$3,345,194	$2,676,019	$7,942,000	$2,660,000	$2,660,000	$2,660,000
ADJUSTED BALANCE	$6,574,788	$9,012,226	$9,112,726	$9,887,723	$8,744,469	$8,550,626	$2,751,742	$2,170,761	$1,569,781	$943,801

Key to Color Coding

FY22 Starting Balance:	OSE/LFC agreed upon starting balance
Projected Land Grant Income:	Average (using FY16-20 data)
Outlier:	Unprecidented FY22 income from SIC investments
Projected SIC Investment Income:	Revenue generated off invested funds declines proportionally as corpus generating income is liquidated
Agency Recurring Operational Budget Reliance:	Assumes $13.3M combined reliance on the two trust funds is maintained
Distributions to External Recipients:	Distributions out of the trust funds to the recently established statutory forestry and acequia funds
Reversions:	Assumes Agency is able to revert 5% of appropriated TF amounts
LFC-established BAR Authority:	Longstanding drought and water delivery operations LFC moved out of operating budget to BAR authority

OSE TRUST FUND PROJECTION SCENARIO #2

"Worst Case" Scenario:

In this scenario stock market/investments crash in FY23 and turn back to average by FY25; no GF replacement of TF reliance; drought maximizes expenditures

IRRIGATION WORKS CONSTRUCTION FUND (326)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	$15,207,005	$13,509,420	$15,418,005	$15,496,439	$16,248,298	$15,234,917	$18,129,419	$16,554,608	$7,063,668	($2,077,272)
REVENUE										
Permanent Fund	$6,633,195	$6,320,881	$6,664,822	$6,968,489	$6,968,762	$7,636,606	$7,427,200	$6,040,107	$6,040,107	$6,711,230
Interest/Loans	$23,408	$36,108	$23,397	$19,059	$17,874	$14,377	$17,104	$21,572	$21,572	$23,969
Lease Income	$747,611	$2,968,259	$1,640,000	$988,106	$808,139		$368,461	$1,287,381	$1,287,381	$1,430,423
Interest on Investments					$3,250	$3,835				
SIC Unrealized Gain/Loss	$342,433	$1,787,009	$1,430,320	$1,798,600	$1,795,916	$5,499,473	$1,889,124	$0	$350,000	$0
Miscellaneous	$35,800			$128,709	$5,500	$6,766	$10,000	$10,000	$10,000	$10,000
Adjustments										
TOTAL REVENUE	$7,782,447	$11,112,257	$9,758,539	$9,902,963	$9,599,440	$13,161,057	$9,711,889	$7,359,060	$7,709,060	$8,175,622
EXPENDITURES										
Specials & BAR Authority							$1,850,000	$1,850,000	$1,850,000	$1,850,000
Operating Budget	$9,480,032	$9,203,672	$9,680,105	$9,151,104	$9,612,822	$9,266,554	$5,936,700	$11,500,000	$11,500,000	$11,500,000
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Acequia Fund							$2,500,000	$2,500,000	$2,500,000	$2,500,000
Reversions							$0	$0	$0	$0
TOTAL EXPENDITURES	$9,480,032	$9,203,672	$9,680,105	$9,151,104	$10,612,822	$10,266,554	$11,286,700	$16,850,000	$16,850,000	$16,850,000
ADJUSTED BALANCE	$13,509,420	$15,418,005	$15,496,439	$16,248,298	$15,234,917	$18,129,419	$16,554,608	$7,063,668	($2,077,272)	($10,751,650)

IMPROVEMENT OF THE RIO GRANDE INCOME FUND (328)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	$6,502,230	$6,574,787	$9,012,226	$9,112,726	$9,887,723	$8,744,469	$8,550,626	$2,333,742	$1,341,859	$399,977
REVENUE										
Permanent Fund	$1,495,407	$1,414,189	$1,523,935	$1,556,253	$1,556,192	$1,708,206	$1,617,900	$1,358,276	$1,358,276	$1,509,195
Interest/Loans										
Lease Income	$90,505	$1,443,926	$587,020	$221,008	$156,664		$105,799	$449,842	$449,842	$499,825
Interest on Investments						$12,611				
SIC Unrealized Gain/Loss	$35,837	$277,493	$289,259	$479,910	$239,176	$761,359	$419,417	$0	$50,000	$25,000
Miscellaneous			$42,741		$249,908					
TOTAL REVENUE	$1,621,749	$3,135,608	$2,442,955	$2,257,171	$2,201,940	$2,482,176	$2,143,116	$1,808,118	$1,858,118	$2,034,020
EXPENDITURES										
Specials & BAR Authority										
Operating Budget	$1,549,191	$698,168	$2,342,455	$1,482,174	$2,345,194	$1,676,019	$7,360,000	$1,800,000	$1,800,000	$1,800,000
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Reversions							$0	$0	$0	$0
TOTAL EXPENDITURES	$1,549,191	$698,168	$2,342,455	$1,482,174	$3,345,194	$2,676,019	$8,360,000	$2,800,000	$2,800,000	$2,800,000
ADJUSTED BALANCE	$6,574,788	$9,012,226	$9,112,726	$9,887,723	$8,744,469	$8,550,626	$2,333,742	$1,341,859	$399,977	($366,003)

Key to Color Coding

FY22 Starting Balance:	OSE/LFC agreed upon starting balance
Projected Land Grant Income:	10% below Average for FY23 & FY24, return to average in FY25 (using FY16-20 data)
Outlier:	Unprecidented FY22 income from SIC investments
Projected SIC Investment Income:	Revenue generated off invested funds declines proportionally as corpus generating income is liquidated
Agency Recurring Operational Budget Reliance:	Assumes $13.3M combined reliance on the two trust funds is maintained
Distributions to External Recipients:	Distributions out of the trust funds to the recently established statutory forestry and acequia funds
Reversions:	Assumes Agency reverts no amounts back to either trust fund
LFC-established BAR Authority:	Longstanding drought and water delivery operations LFC moved out of operating budget to BAR authority

OSE TRUST FUND PROJECTION SCENARIO #3

"Best Case" Scenario:

In this scenario revenues stay at all time highs; investment corpus at SIC not liquidated (continues to generate revenues); and $9.2M recurring GF replacement of TF reliance

IRRIGATION WORKS CONSTRUCTION FUND (326)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	**$15,207,005**	**$13,509,420**	**$15,418,005**	**$15,496,439**	**$16,248,298**	**$15,234,917**	**$18,129,419**	**$17,683,278**	**$20,439,552**	**$23,295,826**
REVENUE										
Permanent Fund	$6,633,195	$6,320,881	$6,664,822	$6,968,489	$6,968,762	$7,636,606	$7,427,200	$7,382,353	$7,382,353	$7,382,353
Interest/Loans	$23,408	$36,108	$23,397	$19,059	$17,874	$14,377	$17,104	$26,366	$26,366	$26,366
Lease Income	$747,611	$2,968,259	$1,640,000	$988,106	$808,139		$368,461	$1,573,465	$1,573,465	$1,573,465
Interest on Investments					$3,250	$3,835				
SIC Unrealized Gain/Loss	$342,433	$1,787,009	$1,430,320	$1,798,600	$1,795,916	$5,499,473	$1,889,124	$1,900,000	$2,000,000	$2,100,000
Miscellaneous	$35,800			$128,709	$5,500	$6,766	$10,000	$10,000	$10,000	$10,000
Adjustments										
TOTAL REVENUE	**$7,782,447**	**$11,112,257**	**$9,758,539**	**$9,902,963**	**$9,599,440**	**$13,161,057**	**$9,711,889**	**$10,892,184**	**$10,992,184**	**$11,092,184**
EXPENDITURES										
Specials & BAR Authority							$1,850,000	$1,850,000	$1,850,000	$1,850,000
Operating Budget	$9,480,032	$9,203,672	$9,680,105	$9,151,104	$9,612,822	$9,266,554	$5,936,700	$3,689,900	$3,689,900	$3,689,900
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Acequia Fund							$2,500,000	$2,500,000	$2,500,000	$2,500,000
Reversions							($1,128,670)	($903,990)	($903,990)	($903,990)
TOTAL EXPENDITURES	**$9,480,032**	**$9,203,672**	**$9,680,105**	**$9,151,104**	**$10,612,822**	**$10,266,554**	**$10,158,030**	**$8,135,910**	**$8,135,910**	**$8,135,910**
ADJUSTED BALANCE	**$13,509,420**	**$15,418,005**	**$15,496,439**	**$16,248,298**	**$15,234,917**	**$18,129,419**	**$17,683,278**	**$20,439,552**	**$23,295,826**	**$26,252,101**

IMPROVEMENT OF THE RIO GRANDE INCOME FUND (328)										
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	Pre-Audit	Projected			
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
BEGINNING BALANCE	**$6,502,230**	**$6,574,787**	**$9,012,226**	**$9,112,726**	**$9,887,723**	**$8,744,469**	**$8,550,626**	**$3,169,742**	**$3,649,663**	**$4,134,585**
REVENUE										
Permanent Fund	$1,495,407	$1,414,189	$1,523,935	$1,556,253	$1,556,192	$1,708,206	$1,617,900	$1,660,115	$1,660,115	$1,660,115
Interest/Loans										
Lease Income	$90,505	$1,443,926	$587,020	$221,008	$156,664		$105,799	$549,807	$549,807	$549,807
Interest on Investments						$12,611				
SIC Unrealized Gain/Loss	$35,837	$277,493	$289,259	$479,910	$239,176	$761,359	$419,417	$70,000	$75,000	$80,000
Miscellaneous			$42,741		$249,908					
TOTAL REVENUE	**$1,621,749**	**$3,135,608**	**$2,442,955**	**$2,257,171**	**$2,201,940**	**$2,482,176**	**$2,143,116**	**$2,279,922**	**$2,284,922**	**$2,289,922**
EXPENDITURES										
Specials & BAR Authority										
Operating Budget	$1,549,191	$698,168	$2,342,455	$1,482,174	$2,345,194	$1,676,019	$7,360,000	$1,000,000	$1,000,000	$1,000,000
Forestry Fund					$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Reversions							($836,000)	($200,000)	($200,000)	($200,000)
TOTAL EXPENDITURES	**$1,549,191**	**$698,168**	**$2,342,455**	**$1,482,174**	**$3,345,194**	**$2,676,019**	**$7,524,000**	**$1,800,000**	**$1,800,000**	**$1,800,000**
ADJUSTED BALANCE	**$6,574,788**	**$9,012,226**	**$9,112,726**	**$9,887,723**	**$8,744,469**	**$8,550,626**	**$3,169,742**	**$3,649,663**	**$4,134,585**	**$4,624,507**

Key to Color Coding

FY22 Starting Balance:	OSE/LFC agreed upon starting balance
Projected Land Grant Income:	10% above Average (using FY16-20 data)
Outlier:	Unprecidented FY22 income from SIC investments
Projected SIC Investment Income:	Revenue generated off invested funds grows proportionally from FY23 on as corpus generating income grows
Agency Recurring Operational Budget Reliance:	Assumes Agency Request that $9.2M of current $13.3M reliance on the two trust funds is replaced by General Fund
Distributions to External Recipients:	Distributions out of the trust funds to the recently established statutory forestry and acequia funds
Reversions:	Assumes Agency is able to revert 10% of appropriated TF amounts
LFC-established BAR Authority:	Longstanding drought and water delivery operations LFC moved out of operating budget to BAR authority

Average Historical Revenues into OSE Trust Funds by Fund:

Average Revenues FY16-20

Revenues	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	Average Period Revenue
IMPROVEMENT OF THE RIO GRANDE INCOME FUND (32800)							$1,621,749	$3,135,608	$2,442,955	$2,257,171	$2,201,940		**$2,331,885**
IRRIGATION WORKS CONSTRUCTION FUND (32600)							$7,782,447	$11,112,257	$9,758,539	$9,902,963	$9,599,440		**$9,631,129**
Total Revenue							$9,404,196	$14,247,865	$12,201,494	$12,160,134	$11,801,380		

Average Revenues FY10-21 INCLUDING Outliers

Outlier: Low — Outlier: High

Revenues	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	Average Period Revenue
IMPROVEMENT OF THE RIO GRANDE INCOME FUND (32800)	**$2,404,671**	**$1,787,941**	**$1,604,853**	**$1,538,906**	**$1,651,024**	**$1,571,347**	$1,621,749	$3,135,608	$2,442,955	$2,257,171	$2,201,940	$2,482,176	**$2,058,362**
IRRIGATION WORKS CONSTRUCTION FUND (32600)	**$10,392,059**	**$9,462,408**	**$8,147,809**	**$10,331,603**	**$10,082,147**	**$7,489,733**	$7,782,447	$11,112,257	$9,758,539	$9,902,963	$9,599,440	$13,161,057	**$9,768,539**
Total Revenue	$12,796,730	$11,250,349	$9,752,662	$11,870,509	$11,733,171	$9,061,080	$9,404,196	$14,247,865	$12,201,494	$12,160,134	$11,801,380	$15,643,233	