INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES SECTION

Managing Water Along the U.S. – Mexico Border

2024 MSSC Annual Salinity Summit

Las Vegas, NV

February 29, 2024

Dr. Maria-Elena Giner, P.E.

Commissioner

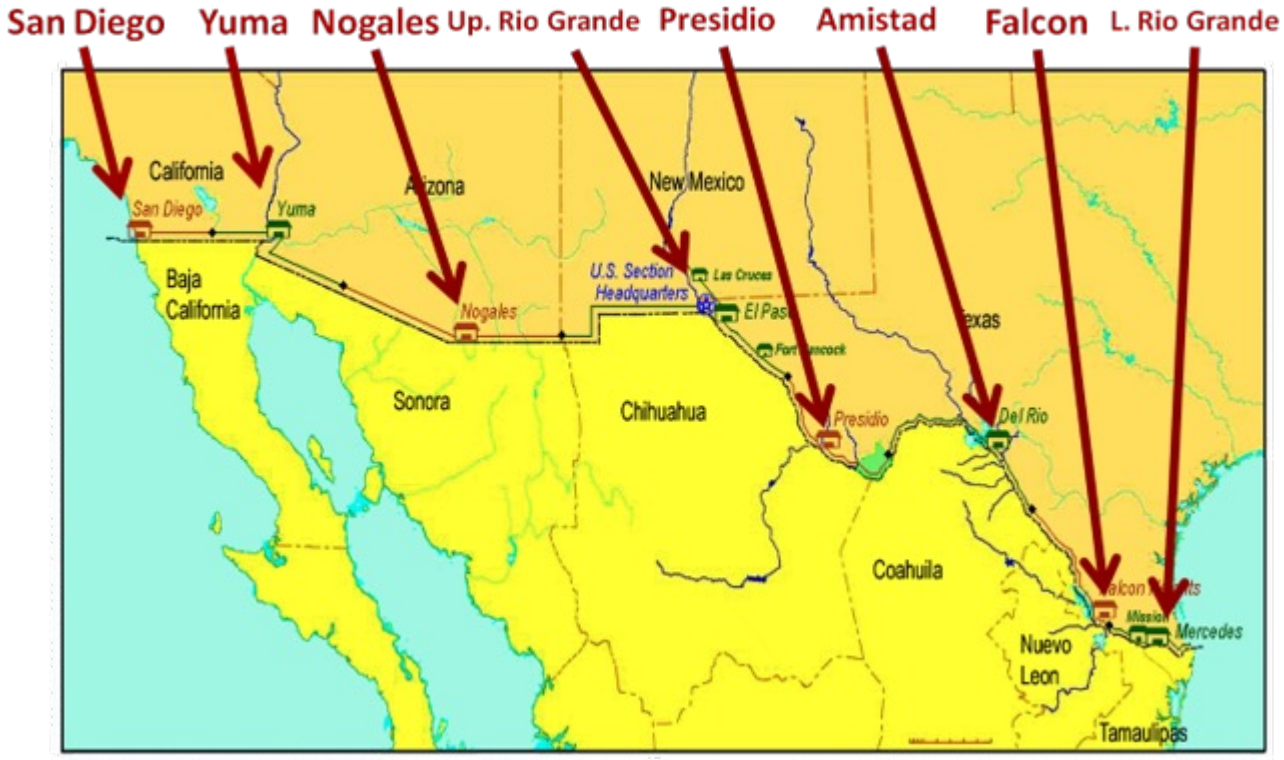
The International Boundary and Water Commission is responsible for **applying the boundary and water treaties** between the United States and Mexico. The USIBWC has a broad range of responsibilities, including:

- **Flood Control**: More than 500 miles of levees and 20,000 acres of flood plain
- **Water Delivery**: Ensure compliance with the 1906 Convention and 1944 Water Treaty for the Rio Grande and Colorado River
- **Dams and Hydroelectric Power Plants:** Manage two international dams with hydroelectric plants and four diversion dams
- **Sanitation:** Border sanitation with two international wastewater treatment plants in San Diego, CA and Nogales, AZ
- **Boundary Demarcation**: Maintain two international bridges and almost 800 monuments, markers and buoys that demarcate the U.S.-MX border

UNITED STATES POWER PLANT at Falcon Dam.

Major Ongoing Projects

- South Bay International Wastewater Treatment Plant (SBIWTP)
- Colorado River Conservation Projects (Minute 323)
- Nogales International Outfall Interceptor
- Upper Rio Grande: Sunland Park Construction
- Lower Rio Grande: Edinburg Levee Construction and Arroyo Colorado Sediment Removal
- Amistad Dam
- Heavy Equipment Replacement
- Mercedes, TX Field Office Administrative Building



USIBWC staffing at 12 offices in the border region and Washington D.C.:

- 300 authorized positions
- 1/3 of employees at or near retirement age

Annual Budget

Annual Operations budget approximately $60M

Annual Construction budget approximately $50M

Our Infrastructure Challenges

- **Sediment Management Program**
- **Equipment Replacement**
- **Flood Control**
- **Other Unfunded Projects**

Equipment on the levee


Levee rehabilitation


Amistad Dam

Sediment Management Program

Remove Sediment from the River Channel

- Protects residents from flooding (flood control mission)
- Water delivery to US and Mexico (water delivery mission)

Extraordinary deferred maintenance: $400M +

Install New Sediment Basins

- Keeps sediment from reaching the river
- Easier to remove sediment year-round

Next Steps:

- Increase Staffing and equipment for annual maintenance
- Contract Extraordinary Deferred Maintenance
- Sediment Transport Study and Modeling contract
- Agreements with key municipalities and agencies

Equipment Replacement Program

- Aging equipment, some from early 1980's, requires costly repairs, and needs replacement at a cost in 2021 of $70M
- In 2022 and 2023 over 60 pieces of equipment have been replaced. !!
- **Required Heavy Equipment:**

Dozers	Mowers
Dump Trucks	Scrapers
Excavators	Service Trucks
Graders	Tractors
Haulers	Water trucks
Loaders	

Flood Control Program

Levee Rehabilitation:

- Raising and rehabilitating levees to meet FEMA standards
- Communities with FEMA-accredited levees pay less for flood insurance
- $435 million spent on region's levee projects since 2009

Rio Grande Flood Control Program $928M is needed for 155 miles

High Priority – Levees and levee gap repairs for FEMA certification and flood control protection in urbanized areas and where high levee failure risks exist.

- **14 miles of levees and levee gaps $79 M**

Medium Priority – Based on value/benefit, complexity/constraints, and risk/safety

- **16 miles of levees and gaps $60 M**

Low Priority – Based on value/benefit, complexity/constraints, and risk/safety

- 125 miles of levees and gaps $789M

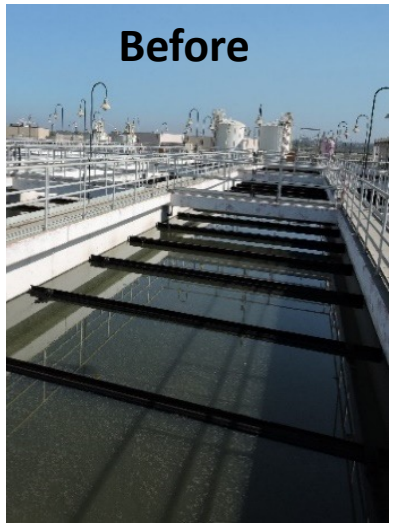
Tijuana River

High Priority –$100 M is needed for 4 miles of levee construction to comply with FEMA certification and sediment removal; $5 needed for O&M.

UNFUNDED CRITICAL CAPITAL PROJECTS

- **Safety of Dams**: Amistad Dam Seepage Correction project changed from Downstream Overbuild to the Cutoff Wall option increasing the project cost $80- $276M
- **Water Delivery:** American Canal Middle Reach in El Paso Texas $155 - $170M.
- **Sanitation Rehabilitation Needs:**
  - **Nogales** International Wastewater Treatment Plant capital improvements $10M - $20M
  - **South Bay** International Wastewater Treatment Plant capital improvements $100 - $150M

Amistad Dam - Del Rio, TX



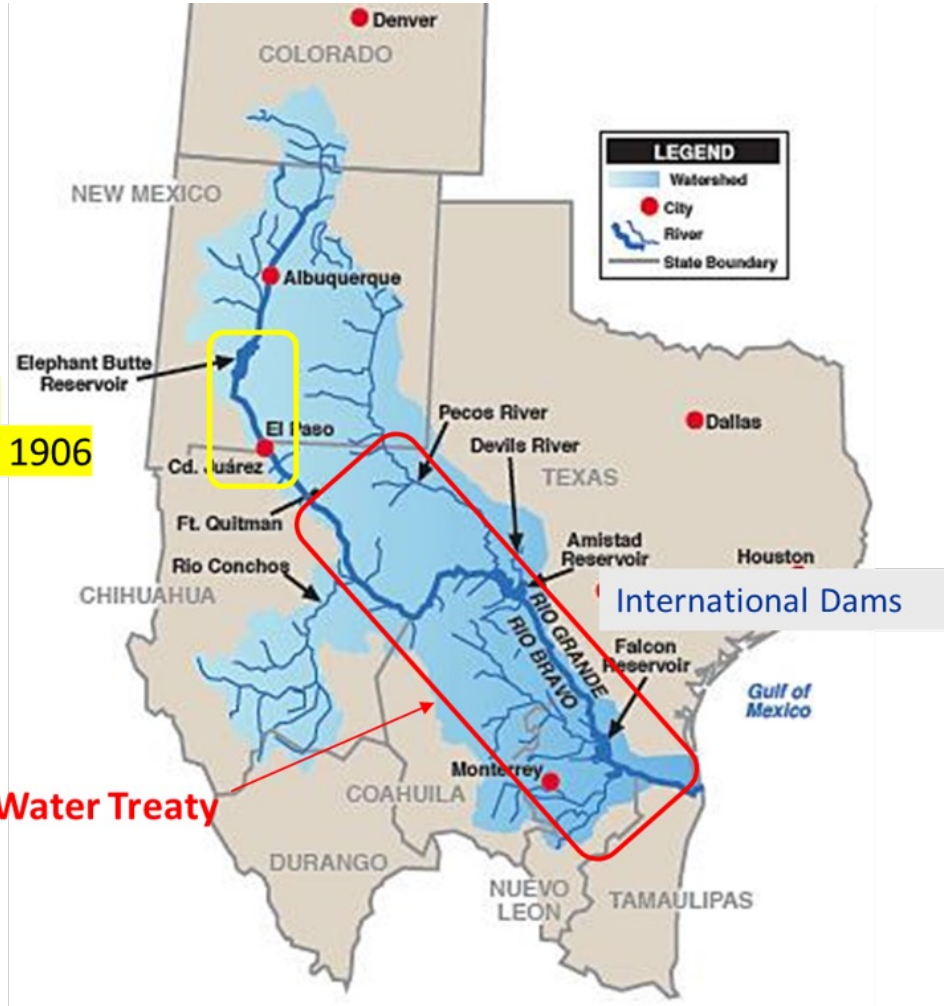
Primary Sedimentation Tank in San Diego

American Canal Middle Reach

Water Deliveries – 3 Basins, 2 Treaties, many challenges

El Paso-Juarez Convention of 1906

1944 Water Treaty



1944 Water Treaty- Colorado River

- U.S. to deliver to Mexico a volume of 1.5 maf/yr
- Challenges – Salinity & Drought
- Cooperation
  - Minute 242 (1973) - Solution to Salinity (1973)
  - Minute 317 (2010) – Conceptual Framework for cooperative actions
  - Minute 318 (2010) – Adjustment of delivery schedules as a result of earthquake damage
  - Minute 319 (2012) -Pilot on investment in conservation, conserved volumes, reduced deliveries, water for environment, creation of binational workgroups (5 year)
  - Minute 323 (2017) – Extension of Minute 319 and adoption of the binational water scarcity contingency plan (5 year)
  - Next Minute …..

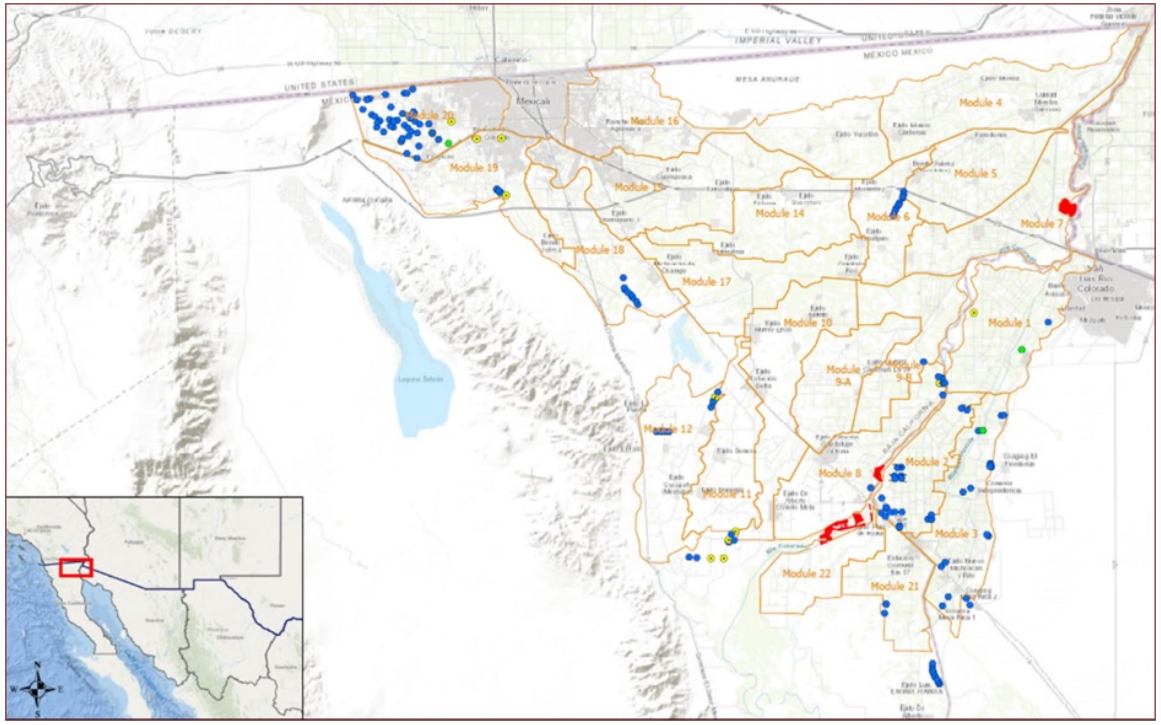
2010

2024

Cooperation on the Colorado River

Accomplishments – Minute 319 (2012 – 2017)

- **$21 M USD** invested in water conservation and environmental projects in Mexico
- Mexico made available **124,000 acre-feet to the US** in exchange for the investment in infrastructure.
- **Infrastructure projects** included and reconstruction, encasement, and lining of existing canals, gate modernizations, land leveling, among others
- Delivered **158,000 acre-feet** of water for environmental purposes
- Created **1,100 acres** of enhanced riparian habitat
- Successful pilot project that provided a **model for binational cooperation**

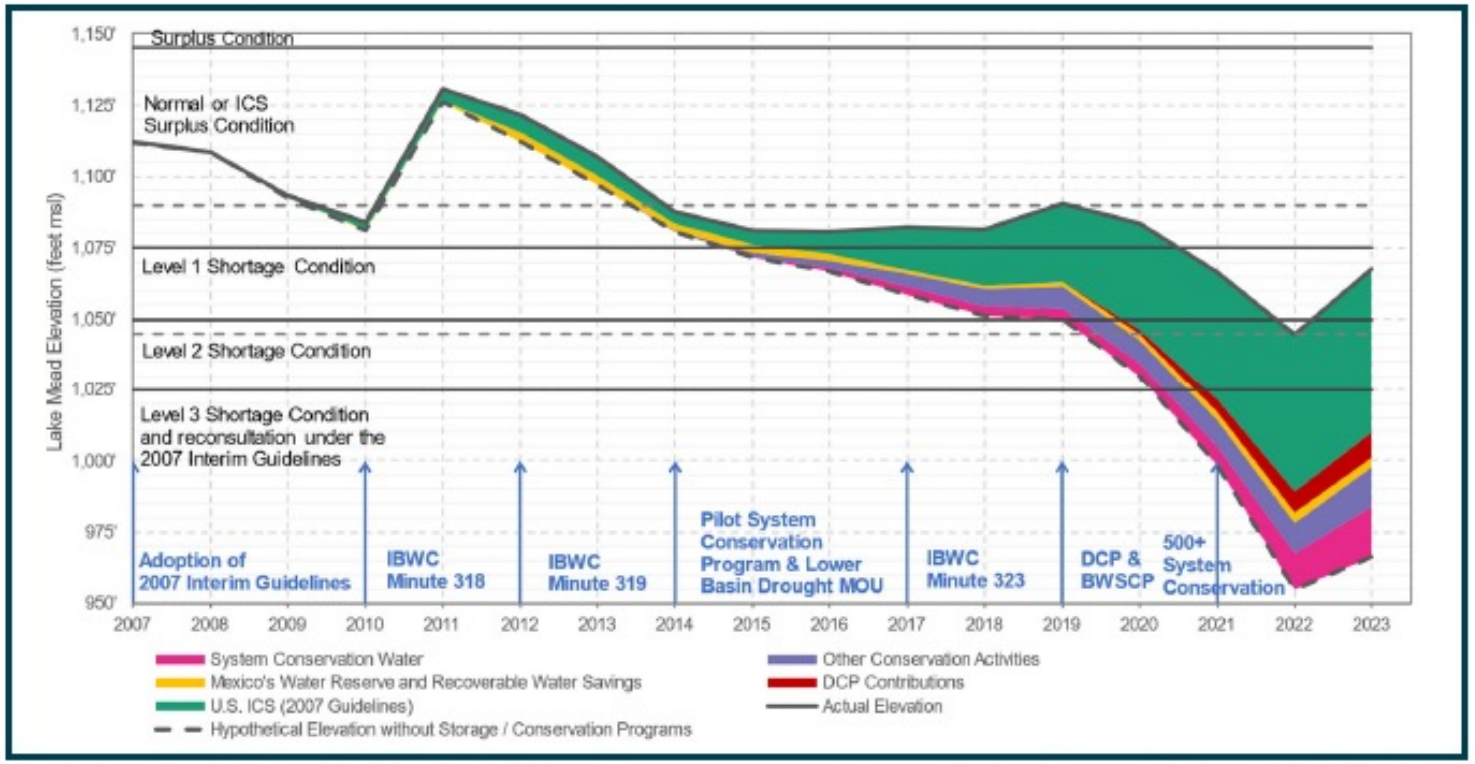


Conservation Infrastructure Projects in Mexico

Cooperation on the Colorado River

Lake Mead Storage and Conservation*

Lake Powell WY Release (maf)																
8.23	8.98	8.24	8.23	12.5	9.47	8.23	7.48	9.00	9.00	9.00	9.00	9.00	8.23	8.23	7.00	8.58



**End of calendar year 2023 balances of U.S. ICS and Mexico's Water Reserve, system conservation water, and other voluntary contributions to Lake Mead are based on projections from the November 2023 24-Month Study and are subject to change.*

Cooperation on the Colorado River

- Minute 323 (2017 - 2026) - Ongoing
  - **$31.5M in funding** for 229,000 AF i system storage
    - Water conservation and new v
    - Water for the **environment**
  - Creation of **Mexico's Water Reserve** future delivery
  - **Shortage reductions** – Annual reduc
  - **Recoverable** water savings
- Minute 330 (2024 - 2026) – N
  - Annual reductions and salinity calcul
  - Funding from Bureau of Reclamation

What is Next?

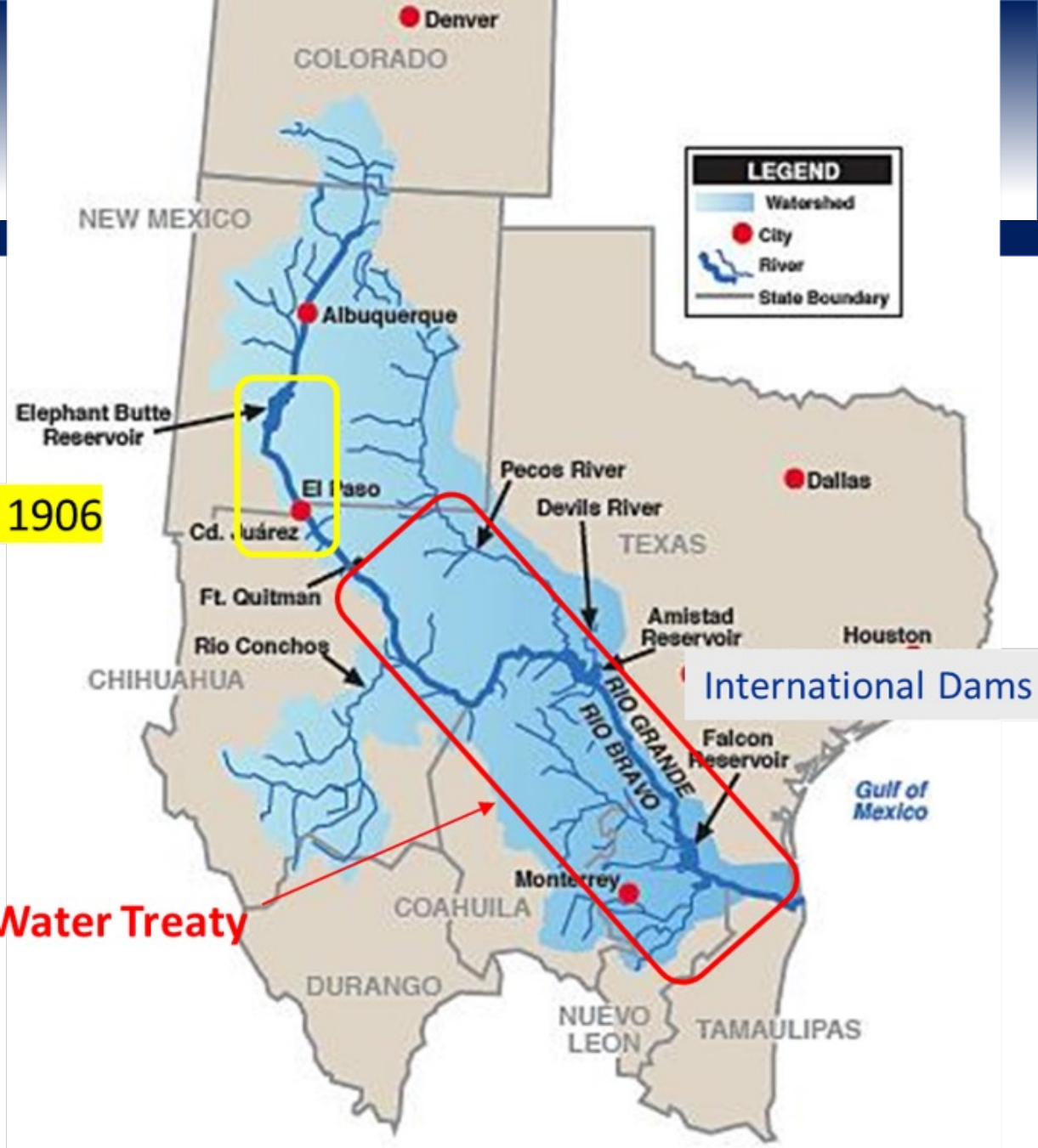
Post 2026!

Laguna Grande Restoration Site

Water Deliveries

Rio Grande

- 2 Treaties and 2 Basins
- 1906 Convention: Southern New Mexico to El Paso
- 1944 Water Treaty: Fort Quitman to Gulf Coast

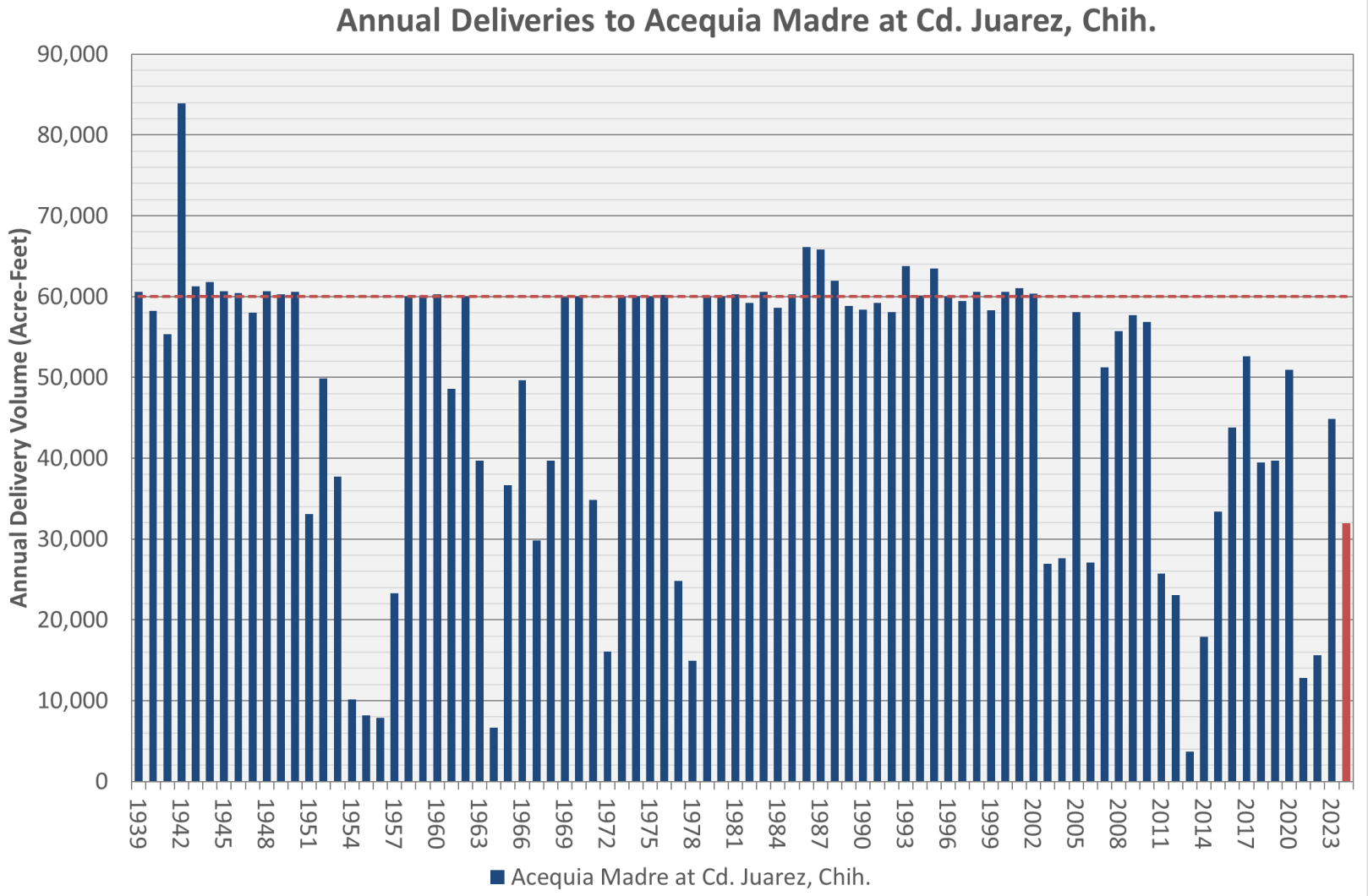


Convention of 1906 Deliveries (1939-2024)

2023 was the first time a full allocation could be made since 2001 but users could not take it.

Jan 2024 Allocation to Mexico:
31,968 acre-feet = 53% of full allocation

Planned Start to Irrigation Season: March 10, 2024



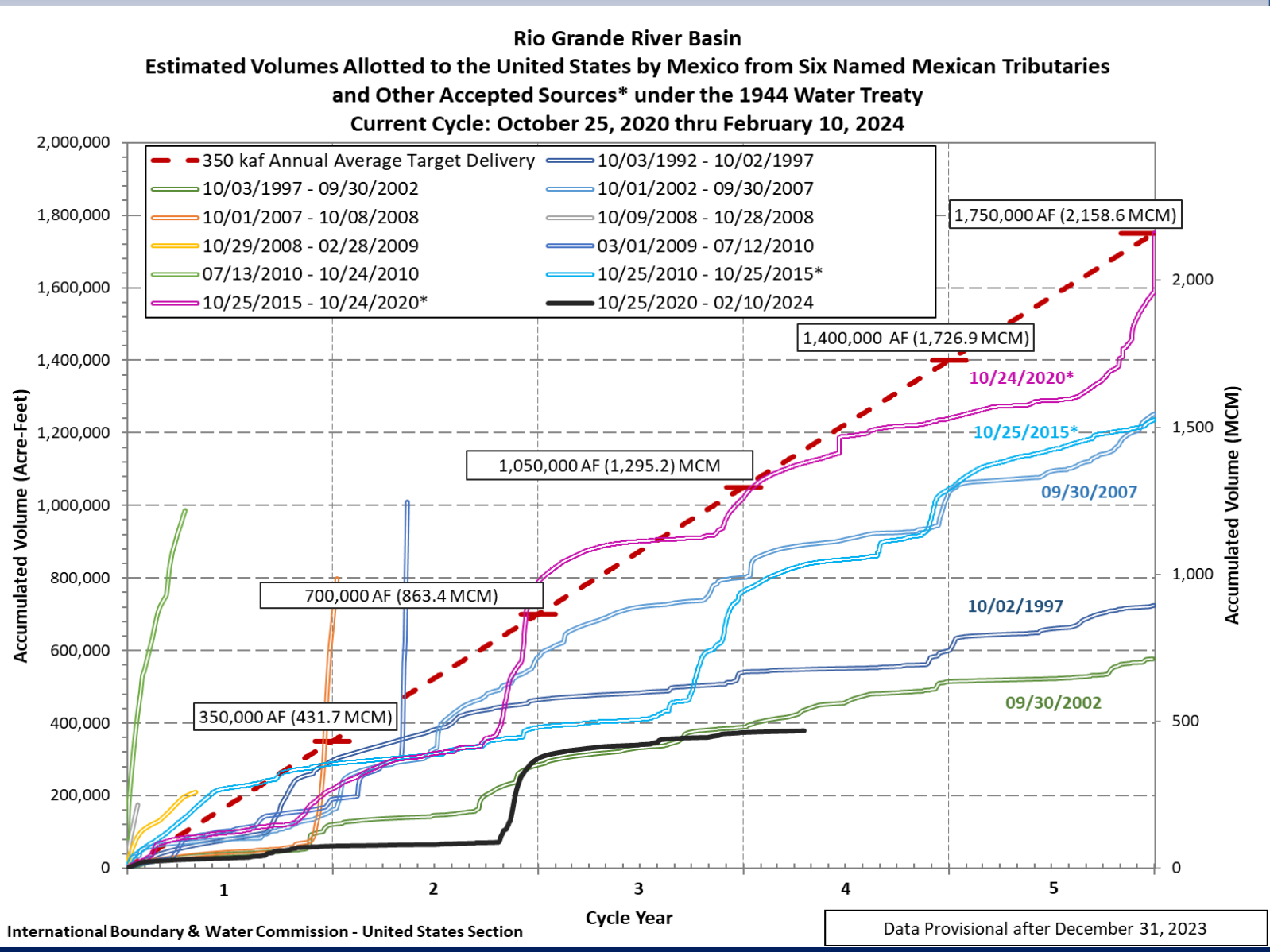
1944 Water Treaty – 5YR Cycle Deliveries

5yr Cycle Deliveries (as of February 10, 2024)

- o Cycle Year 1 – 61,161 AF (75.441 MCM)
- o Cycle Year 2 – 240,266 AF (296.4 MCM)
- o Cycle Year 3 – 72,522 AF (89.5 MCM)
- o Cycle Year 4 – 4,906 AF (6.1 MCM)

- o Cycle to date – 378,855 AF (467.3 MCM)

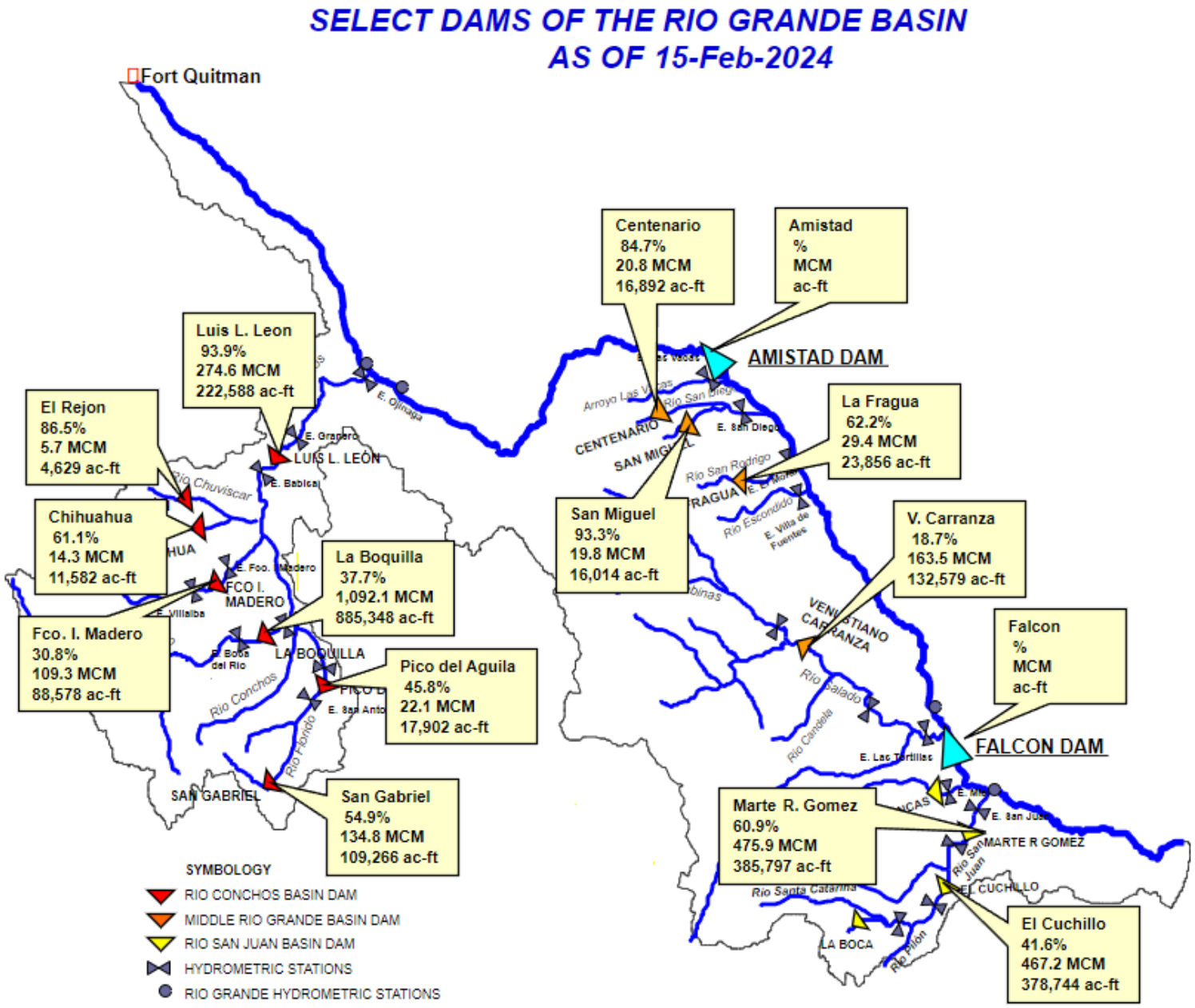
- o 740,424 AF (913 MCM) below seasonal curve
- o 33.8% of expected minimum seasonal deliveries



International Boundary & Water Commission - United States Section

Data Provisional after December 31, 2023

- Rio Conchos
  - 1,222,000 af
  - 1,507.9 mcm
  - 40.0% Full
- Middle Tribs.
  - 187,390 af
  - 231.1 mcm
  - 23.7% Full



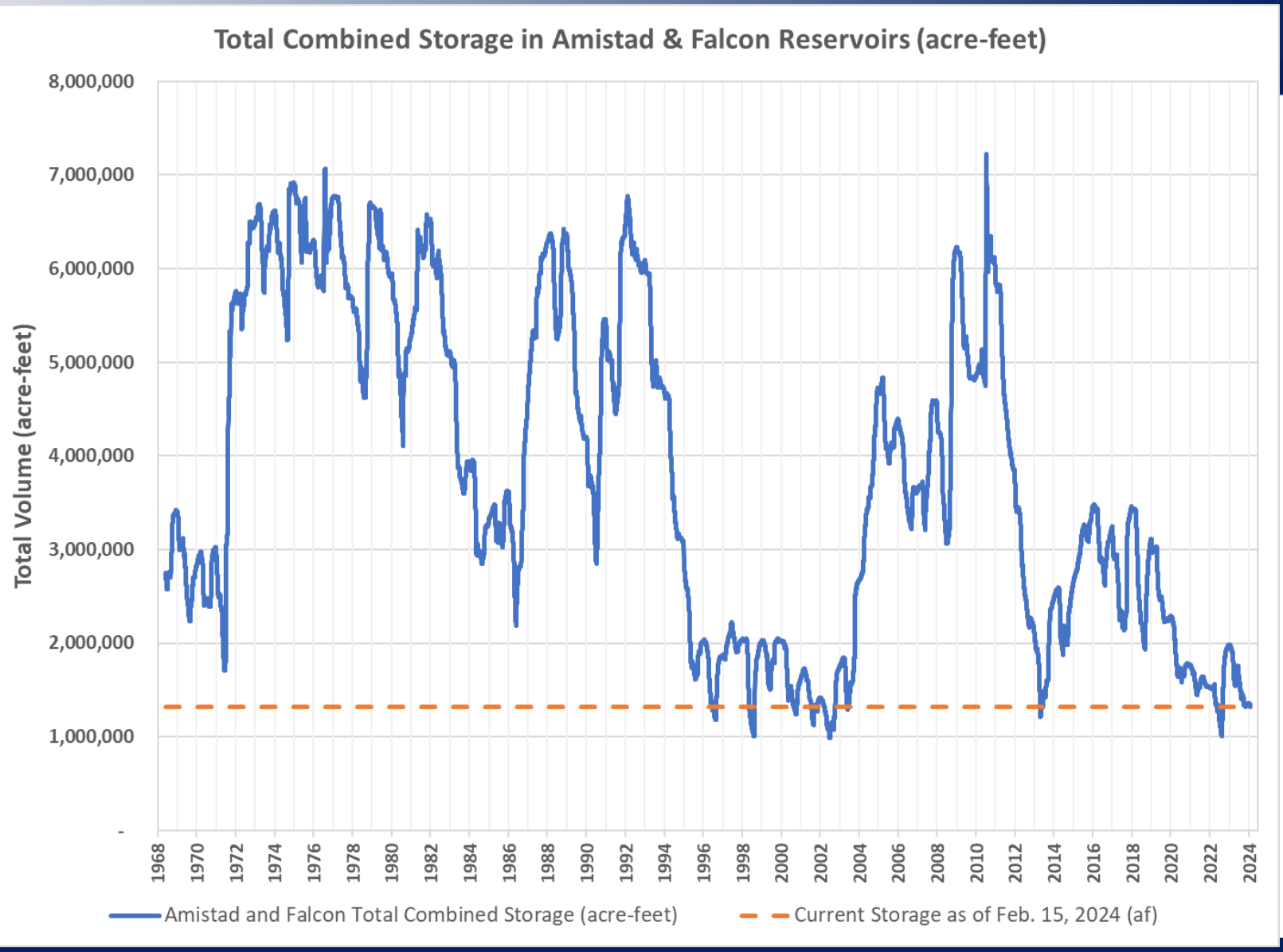
Ownerships as of Feb. 03, 2024

U.S. Storage

	%cap	TCM	Acre-Ft
Amistad	**26.7%**	597,000	484,000
Falcon	**16.2%**	313,000	254,000
Total	**21.9%**	910,000	738,000

Mx. Storage

	%cap	TCM	Acre-Ft
Amistad	**23.2%**	404,000	328,000
Falcon	**23.1%**	314,000	255,000
Total	**23.1%**	718,000	583,000

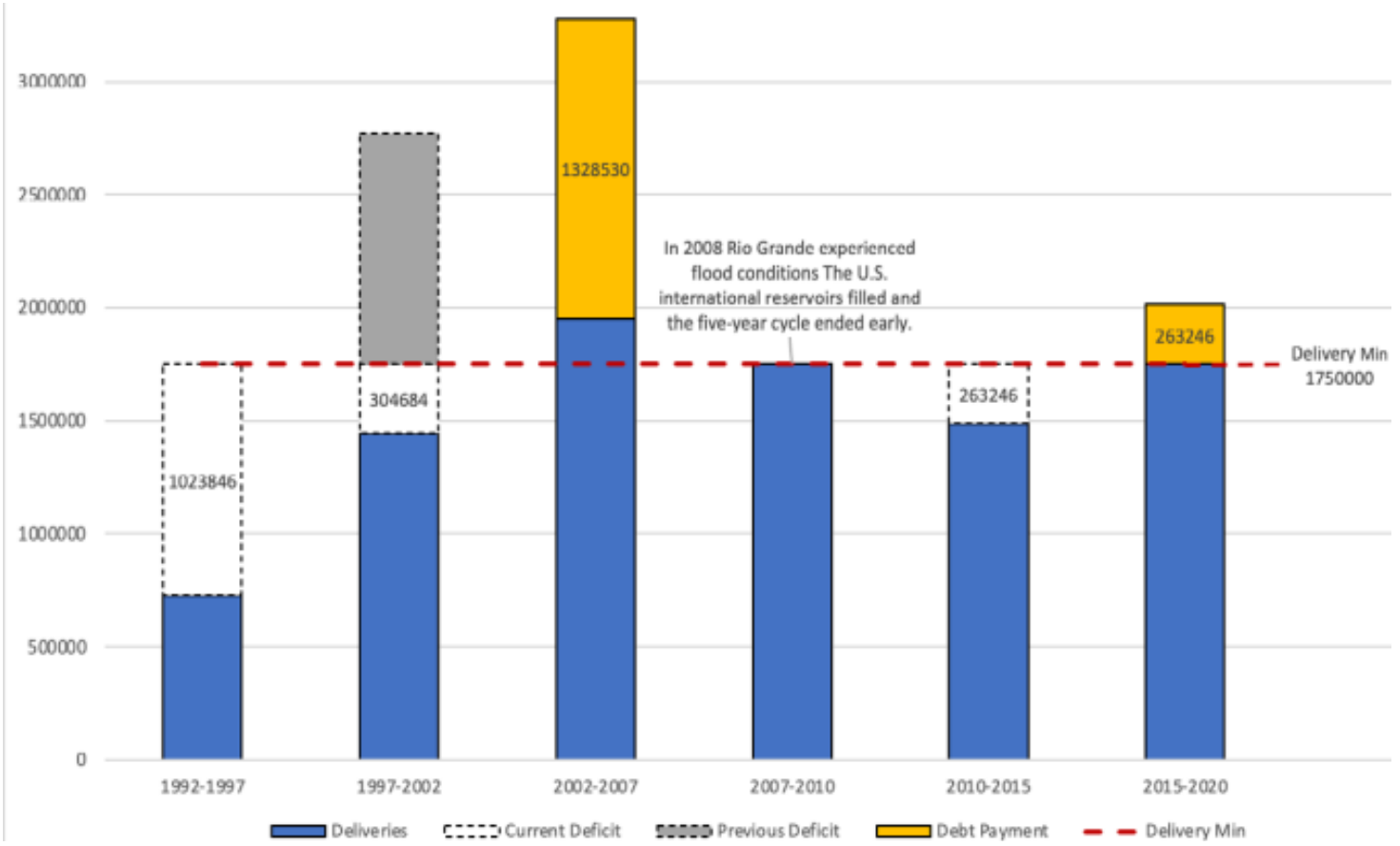


Cooperation on the Rio Grande

1969

- Minute 234 (1969): Modification to allocation of water deliveries to the U.S.
- Minute 279 (1989) and Minute 297 (1997): Sanitation at Nuevo Laredo
- Minute 282 (1990) and Minute 303 (2000): Salinity issues in Lower Rio Grande
- Other minutes on infrastructure
- Minute 325 (2020): " … to improve the predictability and reliability of Rio Grande water deliveries to users in the United States and Mexico…"
- New Minute (2024)

2020



Rio Grande Minute Team (RGMT)

- IBWC Commissioners established RGMT to negotiate the new Minute;
- **Goal:** **Negotiate a new Minute by Dec. 2023 to increase the predictability and reliability of Rio Grande water deliveries to users in both countries**
- **Members**
  - **United States:** IBWC and State of Texas
  - **Members:** CILA and CONAGUA
  - **Observers:** Department of State and Secretariat of Foreign Relations
- **Supported by** Rio Grande Policy Workgroup and Hydrology Work Group binational model to analyze water delivery scenarios

July 14 RGMT meeting in El Paso, TX

KEY ELEMENTS OF NEW MINUTE

- Existing Workgroups
  - Codifies existing binational **Lower Rio Grande Water Quality Initiative** (LRGWQI) which addresses water quality concerns
  - Emphasizes the continued role of the **Hydrology Work Group** to analyze scenarios and of the **Policy Work Group** to recommend future actions.
- New Workgroups
  - **Projects** – consider development of water conservation and new water sources projects (*grow the pie*)
  - **Environment** – Focus is on Big Bend area
- Operational Improvements
  - Improved coordination on demand and releases from **Amistad and Falcon Dams** that highlights physical constrains and formalizes a process
  - Define when **a five-year cycle** begins to ensure beneficial use
  - IBWC can modify **conservation capacities** temporarily in the international reservoirs (Amistad and Falcon) to store more water/establish a seasonal pool for use in dry season

---------- All points under negotiation ----------

KEY ELEMENTS (CONT'D)

Advancing from the Status Quo

- Affirm that Mexico must meet its delivery obligations in a **5-year cycle (not 10 years)** unless there is extraordinary drought or serious accident.
- **Change in management of watershed** by releasing from Mexico's interior reservoirs volumes of water.
- Provide new tools to Mexico to facilitate water deliveries to the United States
  - Opportunity to allot to the U.S. a **greater than 1/3 share** from the 6 tributaries (use Minute 234 in any cycle)
  - Allow **transfer from Mexican ownership to U.S. ownership** at Amistad and Falcon reservoirs (use Minute 234 in any cycle)
  - Incentivize Mexico to deliver water earlier in the cycle (**potential credit** for water delivered above 1/3 share from 6 tributaries or reservoir transfers if Mexico exceeds 1.75 maf in deliveries)
  - Consider deliveries from the **San Juan and Alamo Rivers** to address a shortfall if agreed to by the U.S.
- Minute is a **5-year pilot** unless extended or changed by another minute.

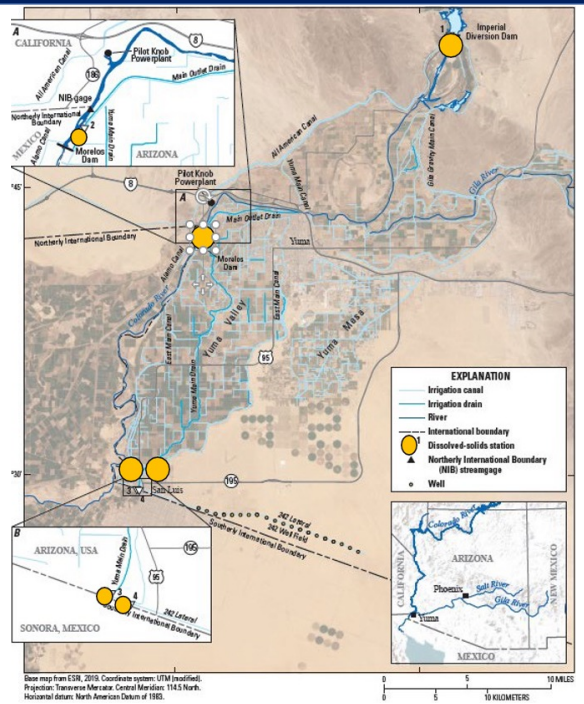
---------- All points under negotiation ----------

Salinity on Colorado River

- Mexico receives approximately 90% of their 1.5 maf of Treaty water at the NIB delivered at Morelos Dam.

- Minute 242 (1973) the water delivered to Mexico upstream of Morelos Dam (NIB), have an annual average salinity of no more than **115 ppm (parts per million) +/-30** over what arrives arrive at Imperial Dam.

Binational Salinity Workgroups



- **Min 323 D.1**
  - **a. Modernize salinity monitoring equipment** so that both countries can utilize real-time salinity levels in daily operational decision making

  Map of Yuma area salinity sites (NWISmapper)
  - **b**. The U.S. will fund, install, operate and maintain electrical conductivity monitoring equipment at **key measuring points** including Imperial Dam, Morelos Dam, and the SIB.
  - **c**. Develop **binational reporting tools** to make real-time data available to operators in both countries.
- **Min 323 D.2.**
  - On an ongoing basis, consider and **evaluate the data** in the context of the current procedures for salinity management and provide any recommendations for improve to the Commissioners.
- **Minute 242**
  - Continues to **meet at least twice per year** to review technical methods and quality control of field, lab and reporting data in both countries to help in the analysis of salinity within the framework of this Minute.

Rio Grande Salinity Issues

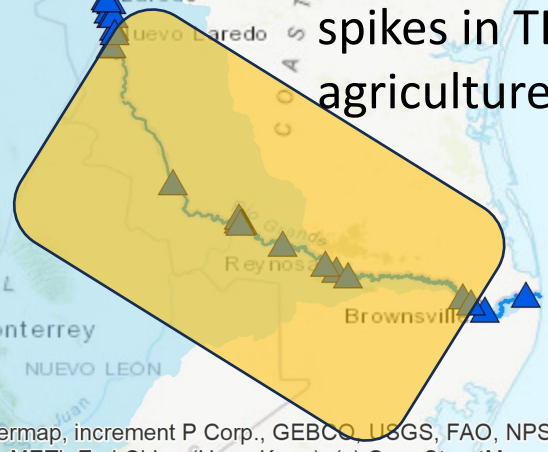
Salinity Hot Spots in the Rio Grande Basin

Naturally occurring high TDS levels buffered by springs

RG Wild & Scenic River

Concerns for TDS for aquatic species and municipal and agricultural downstream users

Low flow conditions and spikes in TDS that affect agriculture



Current Efforts

Texas Clean Rivers Program- USIBWC administers the Rio Grande basin for the Texas Commission on Environmental Quality

- Routine water quality monitoring program, special studies, and citizen stakeholder forums
- TDS does not meet U.S. standards in three segments- 2 in Rio Grande mainstem, 1 in the Pecos River (3 of 14)
- Partnerships in monitoring
  - IBWC field offices
  - Laredo Health Department
  - U.T. Rio Grande Valley
  - U.T. El Paso
  - Rio Grande International Study Center
  - TCEQ field offices
  - El Paso Water

Binational Lower Rio Grande Water Quality Initiative: Salinity Study in the Rio Grande from Falcon Dam to the Gulf of Mexico

Authorized under the IBWC Terms of Reference signed September 10, 2013

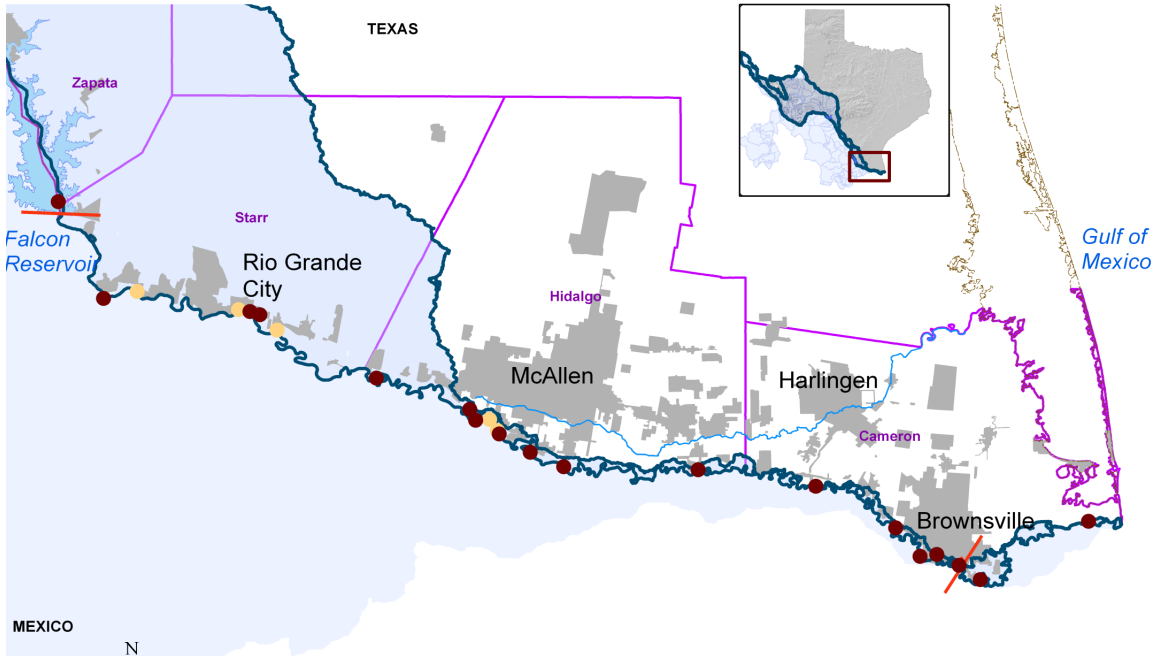
United States

- Environmental Protection Agency
- International Boundary and Water Commission, U.S. Section
- Texas Commission on Environmental Quality
- University of Texas – Lyndon B Johnson School of Public Affairs

Mexico

- Comisión Nacional del Agua
- Sección Méxicana de la Comisión Internacional de Limites y Aguas
- Comisión Estatal del Agua en Tamaulipas
- Universidad Nacional Autónoma de México

North American Development Bank



Study objectives

1. Assess the sources of salinity in the lower Rio Grande to include inputs from both sides of the border
2. Prepare a report that includes measures that can be taken to improve water quality for both U.S. and Mexican states
3. Draft report by end of 2024

Questions and Discussion

Follow us on X:
@usibwc

Linkedin: linkedin.com/company/usibwc