



PECOS RIVER IMPROVEMENT PLAN (PRIP)

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Mission Statement

The **PRIP** is a plan designed for the *Pecos River* of New Mexico and Texas, United States, which seeks to increase water flow, decrease salinity, and encourage habitat restoration by the end of 2025.



Presentation outline

- 1. Background-History**
- 2. Policies and mandates in place**
- 3. Problem 1 and Goal 1**
- 4. Problem 2 and Goal 2**
- 5. Problem 3 and Goal 3**
- 6. Conclusion and Recommendations**

Background

The Pecos River

- Runs for more than 900 miles through New Mexico and Texas
- Total drainage area of 44,000 square miles, the land is composed of:
 - Mountainous pastures
 - Grasslands
 - Semi-arid irrigated farmlands
 - Deserts
 - Canyons



Image provided by the Texas State Historical Association

History

Year	Event
800	Pecos Pueblo Indians established their settlement along the river
1794	The first known European settlement along the river was established
1845- 1881	The first Anglo settlement along the Pecos River emerged
1877-1936	Irrigation systems along the river were developed to support agriculture
1948	Pecos River Compact
1987	Supreme Court ruled that New Mexico owed water to Texas
2003	Pecos Settlement Agreement

Policies and Mandates in Place

Point Source Pollution

- New Mexico Water Quality Control Commission regulations (20.6.4.8A, NMAC)
- Federal National Pollutant Discharge Elimination System
- Clean Water Act
- Total Maximum Daily Load

Nonpoint Source Pollution

- Designated campgrounds
- Grant funding
- Technical assistance
- Best management practices
- Outreach activities



Problem 1: *Decreased flow*

❖ Causes:

- Drought
- Human activities (agricultural irrigation using surface water and groundwater, and the invitation of Salt cedar.)



Goal 1: Increase water flow

❖ Actions needed:

- Modifying the channel; switching into a ditch
- Cleaning the river and wood clearing in the watersheds.
- Suppress the growth of Salt cedar.

Problem 2: *High levels of dissolved minerals are present in the water*

- ❖ Decline in the quantity and quality of *potable water, water for irrigation and water to support agriculture*
- ❖ Limit the biodiversity of aquatic and riparian species along the river
- ❖ As the Pecos River enters Texas it is already carrying an *average annual salt load* of roughly **150,000** tons per year.
- ❖ The Pecos River accounts for nearly **30%** of the salt loading into Amistad International Reservoir while providing about **10%** of the flow, thus **raising** the *background salinity* of the reservoir
- ❖ Significant adverse economic impacts



Reference points along the Pecos River



The Texas portion of the Pecos experiences significant increases in salinity from saline water intrusion, surface inflow, and water impoundment (75,000 tons/year)

Another potential source of salts entering the Pecos is derived from surface inflows from Salt Creek, Salt Draw, and possibly Toyah Creek

Saline groundwater entering the river near Malaga Bend is the most critical source of salinity that can be managed

Texas sources and New Mexico sources

Problem 2: High levels of dissolved minerals are present in the water

- ❖ Salinity (TDS) levels in the lake are slowly approaching the 800 mg/L drinking water standard and are heavily influenced by salts entering the Pecos River between Coyanosa and Girvin.
- ❖ The high-salt conditions are perfect for a species of **coastal algae** toxic to freshwater fish



Goal 2: Controlling and reducing salt loads in the Pecos River

- ❖ The **volume of flow** in a river plays a significant role in the overall effects of salt loading into a stream
- ❖ The **reduction of the streamflow salinity**, could increase the freshwater inflow into the Pecos River
- ❖ Maintaining a **constant flow level** in the river has also shown to decrease the influence of saline groundwater entering the river (but limited quantities of water in the area)
- ❖ In Texas, **controlling salt sources** in the river between **Coyanosa** and **Girvin** is of critical importance
- ❖ Technical and financial assistance are needed to effectively implement salinity management measures in the Pecos River watershed

Problem 3: *Habitat destruction with decline of native plant species and associated wildlife*

- ❖ Activities such as Sand Mining, oil and gas development, agriculture and urbanization affects availability of ***Dunes sagebrush lizard***



- ❖ Damming and dewatering of the Pecos River, excessive groundwater pumping causes ***declines of Pecos pupfish***

Problem 3: *Habitat destruction with decline of native plant species and associated wildlife*

- ❖ Agriculture altered the stream habitat; water pollution; water diversion and groundwater pumping; oil and gas contamination; sedimentation and presence of silt threatens the habitat of *horn shell mussels*



- ❖ Land use issues, habitat degradation and loss, and removal of groundwater is a threat to the survival of *Pecos sunflower*

Goal 3

- Wildlife and native species conservation and restoration will :
 - Improve the riparian and in-channel habitat,
 - Extend the reach of connected good-quality habitat for the benefit of native aquatic, riparian plant and animal communities.
- Extending the existence of wildlife animals and plant species which are listed under the Endangered Species Act within states and the country.
- Beneficial output will have additional advantages for the country, state and all users within the Pecos River watershed.

Conclusion and Recommendations

- ❖ Following the challenges facing Pecos Basin of Texas such as water quality, water supply shortages there is a need to consider community involvement to ensure successful implementation.
- ❖ Working with stakeholders and carrying out research and demonstration projects in association with agency partners and private sectors, the Pecos Basin Assessment Program will strengthen the developed watershed management plan that will provide guidance on how the limited waters within the region can be preserved, protected and used most effectively.

Thank you