

# PROTECTING AND RESTORING THE QUALITY OF SURFACE WATERS ALONG THE TEXAS PORTION OF THE US/MEXICO BORDER

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**Commissioner**  
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Texas Commission on Environmental Quality



# U.S. Water Management

- ▣ U.S. states receive delegation from EPA for surface water quality management
- ▣ Water rights – ground and surface – are reserved to the states (10<sup>th</sup> Amendment to the U.S. Constitution)
- ▣ In Texas, ground water and surface water are property rights
  - A surface water right is needed from the TCEQ
  - Ground water – “Rule of Capture” – water belongs to the individual

# Federal Clean Water Act of 1972

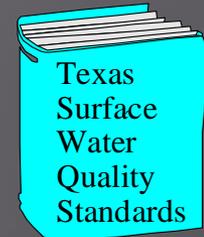
- ▣ Requires states to establish **Uses, Standards and Criteria** for Surface Waters of the US

Example:

Use → Contact Recreation

Standard → *E. coli*

Criteria → Geometric mean = 126 MPN



- ▣ Four general categories of uses:

- Aquatic life
- Contact recreation
- Public Water Supply
- Fish Consumption



# The Federal Clean Water Act

- ▣ Established a national system for the control of pollutant discharges
- ▣ Requires biennial assessment of water quality for all state waters of the US [305(b) Report]
- ▣ Requires identification and listing of water bodies that do not meet their designated uses [303(d) List]
- ▣ Requires a TMDL be established for all constituents causing impairments



# How Are Waters Assessed?

- ▣ TCEQ and partners conduct surface water quality monitoring through the Clean Rivers Program (IBWC, U.S. Section in the Rio Grande/Río Bravo)
- ▣ Waters are assessed against criteria defined in the *Texas Surface Water Quality Standards* (30 TAC 307)
- ▣ Both numeric (quantitative) and narrative criteria are evaluated



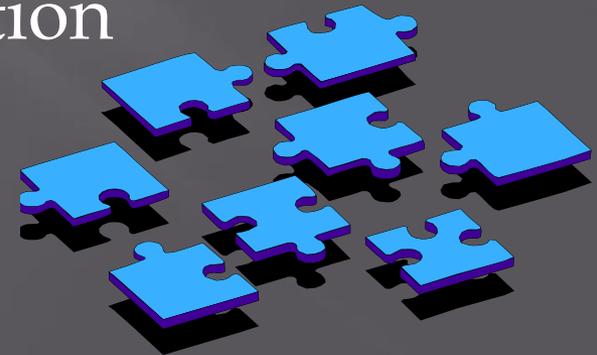
# Water Quality Restoration

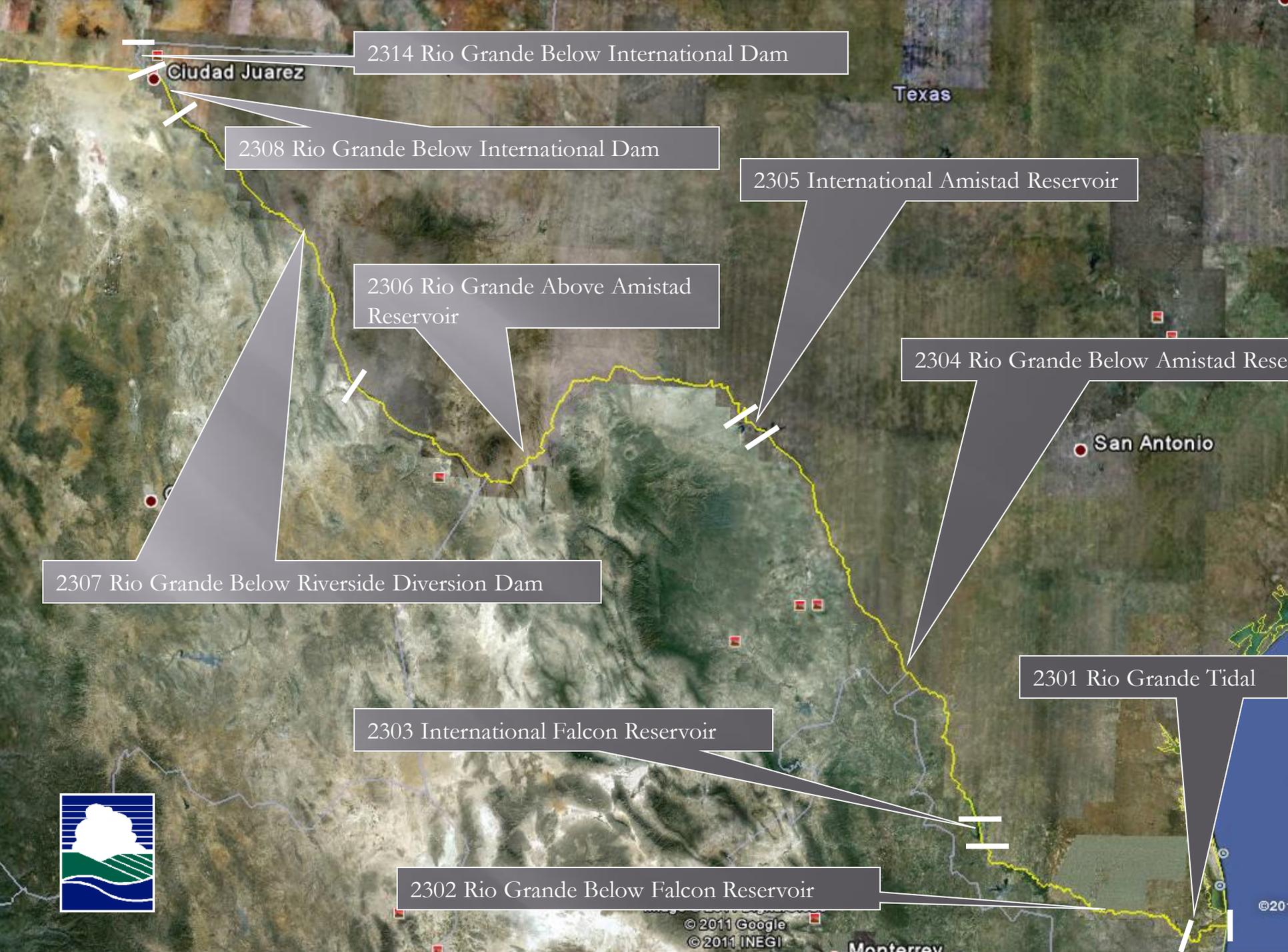
- **TMDLs – Total Maximum Daily Loads**  
Determines the maximum amount (load) of a pollutant that a water body can receive and still maintain uses and allocates this load to sources in the watershed
- **TMDL Implementation Plans**  
A description of regulatory and voluntary management measures to achieve the pollutant reductions identified in a TMDL
- **Watershed-Based Plans**  
Voluntary, stakeholder-driven plans to protect and/or restore water quality in a water body using a watershed approach



# TMDL Main Elements

- ▣ Problem Definition
- ▣ Endpoint Identification
- ▣ Source Analysis
- ▣ Linkage Between Sources and Receiving Waters
- ▣ Margin of Safety
- ▣ Pollutant Load Allocation  
(point, nonpoint, and natural)





Ciudad Juarez

2314 Rio Grande Below International Dam

2308 Rio Grande Below International Dam

2305 International Amistad Reservoir

2306 Rio Grande Above Amistad Reservoir

2304 Rio Grande Below Amistad Reservoir

San Antonio

2307 Rio Grande Below Riverside Diversion Dam

2303 International Falcon Reservoir

2301 Rio Grande Tidal

2302 Rio Grande Below Falcon Reservoir

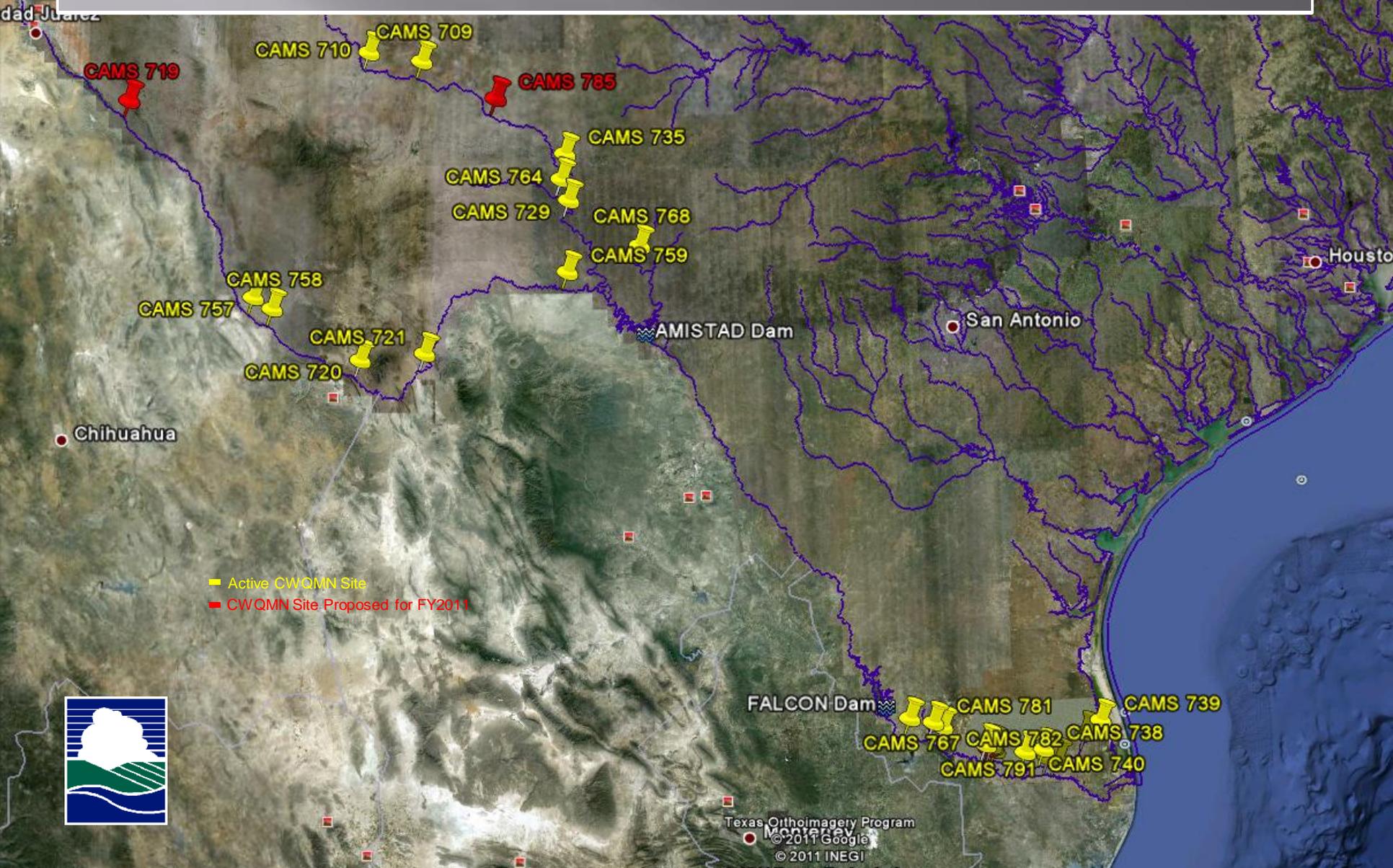


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# Twenty Active Continuous Water Quality Monitoring Stations on the Rio Grande and Rio Grande Tributaries - Three New Stations Proposed for FY 2011



# Impairments



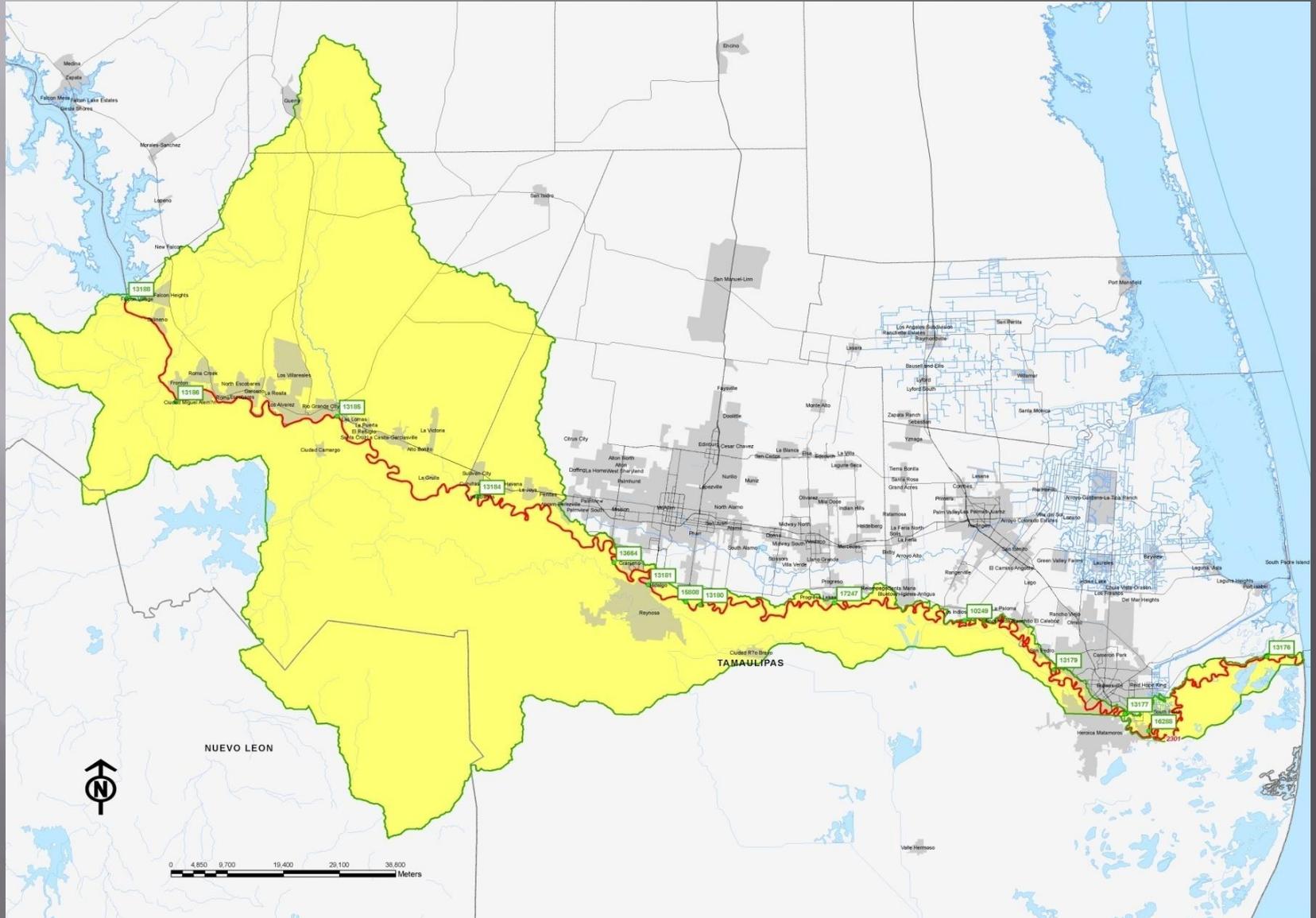
Segment Number	Segment Description	Impairment	Year Listed
2302	Rio Grande below Falcon Reservoir	Bacteria	1996
2304	Rio Grande Below Amistad Reservoir	Bacteria	1996
2306	Rio Grande Above Amistad Reservoir	Bacteria Chloride Sulfate Total Diss. Solids	1999 2010 2010 2010
2307	Rio Grande Below Riverside Diversion Dam	Bacteria Chloride Total Diss. Solids	2002 1996 1996
2314	Rio Grande Above International Dam	Bacteria	2002

# Concerns

Segment Number	Segment Description	Concerns
2301	Rio Grande Tidal	Bacteria Chlorophyll a
2302	Rio Grande below Falcon Reservoir	Ammonia Bacteria Chlorophyll a Dissolved Oxygen Mecury in Fish
2303	International Falcon Reservoir	Ammonia Nitrate Total and orthophos.
2304	Rio Grande Below Amistad Reservoir	Toxicity in Water
2305	International Amistad Res.	Nitrate
2306	Rio Grande Above Amistad Reservoir	Chlorophyll a Total phosphorus Fish Kills
2307	Rio Grande Below Riverside Diversion Dam	Ammonia Bacteria Chlorophyll a Dissolved Oxygen Nitrate Total and orthophos.
2314	Rio Grande Above International Dam	Chlorophyll a



# Rio Grande Segment 2302 Watershed



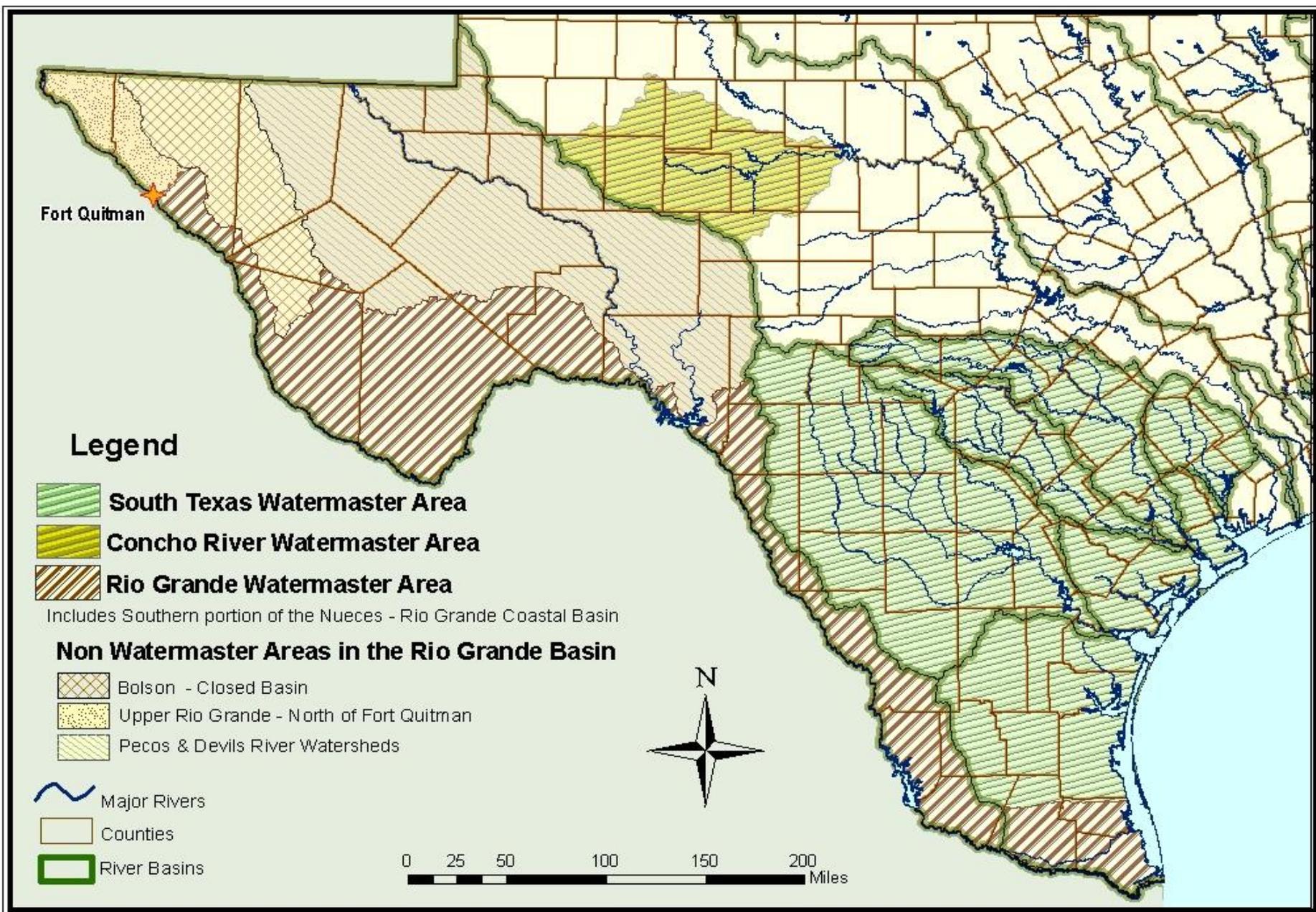
# Pilot Rio Grande Water Quality Initiative

- ▣ Planned for Segment 2302, Rio Grande below Falcon Dam
- ▣ Working with Mexico through the IBWC, U.S. & Mexico
- ▣ Mexican partners include: CONAGUA; IBWC, Mexico Section; state and local agencies; and other stakeholders
- ▣ U.S. partners include: EPA; IBWC, U.S. Section; state and local agencies; and other stakeholders, including agricultural community

# Rio Grande Surface Water: Managing a Balance

- ▣ Allocating Surface Water in Texas
- ▣ Meet Demands of Domestic, Municipal and Industrial (DMI) and Agricultural Users
- ▣ Maintain Appropriate Enforcement and Monitoring Processes to ensure equitable distribution of water
- ▣ Monitor Water Quality (REAL TIME) to ensure best use available water





Fort Quitman

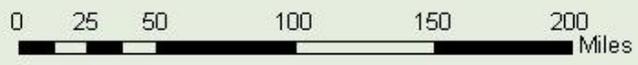
**Legend**

-  **South Texas Watermaster Area**
-  **Concho River Watermaster Area**
-  **Rio Grande Watermaster Area**  
Includes Southern portion of the Nueces - Rio Grande Coastal Basin

**Non Watermaster Areas in the Rio Grande Basin**

-  Bolson - Closed Basin
-  Upper Rio Grande - North of Fort Quitman
-  Pecos & Devils River Watersheds

-  Major Rivers
-  Counties
-  River Basins



**TEXAS WATERMASTER AREAS**

# Lower Rio Grande Valley Water Suit - A Unique Solution

## RGWM System

Water is a stock resource

No time priority

Burden of water shortage is carried by all irrigators. Municipal water rights are separate from and superior to irrigation.

Diversions must be approved by watermaster. Report is required within 5 days of end of diversion.

## Rest of Texas

Water is a flow resource

First in time first in right (FITFIR)

Burden of water shortage is carried by junior water rights, including municipal junior water rights.

No prior approval needed before diverting water in a non-watermaster area. A report required at the end of the year.

Pursuant to Court Judgment, Adjudication and Commission rules

# WM Diversion Surveillance

- ▣ Water right holder requests authorization to divert water.
- ▣ Total water to be diverted is calculated based on rate and length of pumping and authorized if sufficient water is available on balance for account and if sufficient flow is available in the stream.
- ▣ Certificate to divert is issued and mailed to diverter.



# WM Diversion Surveillance



- ▣ Watermaster Specialists monitor river diversions daily for valid certifications and verify accuracy of meter via portable doppler measurements.
- ▣ Enforcement action taken for unauthorized diversions.
- ▣ Meter readings are mailed by diverter to Watermaster within five days of ending diversions and account is charged for water used.



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