



# **Bacteria Levels in the Lower Rio Grande**

Annual Water Quality Update and Basin Advisory Meeting

Elizabeth Verdecchia, USIBWC Texas Clean Rivers Program

# What is the Texas Clean Rivers Program?

- State fee-funded program
- In every river basin in TX
- USIBWC collects water quality in the Rio Grande and Pecos rivers
  - Water quality monitoring
  - Assessment
  - Public Outreach

Identify &  
Evaluate  
Water Quality  
Issues

Provide data so  
that corrective  
actions can be  
prioritized and  
implemented

# Texas Clean Rivers Program History

1991

Texas Clean Rivers Act

1998

TCEQ-USIBWC partnership established

2012

Monitoring sites on the Rio Grande

- USIBWC CRP – 68 sites
- TCEQ – 35 sites
  - 9 duplicate
  - Total 91 stations

# What Does CRP do?

## Water Quality Monitoring

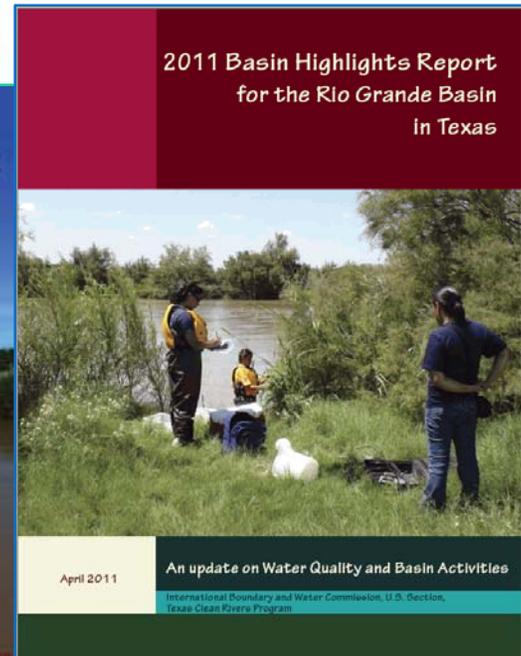
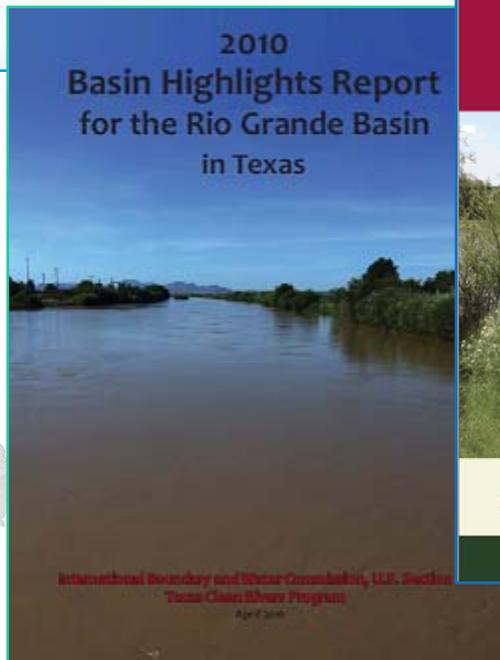
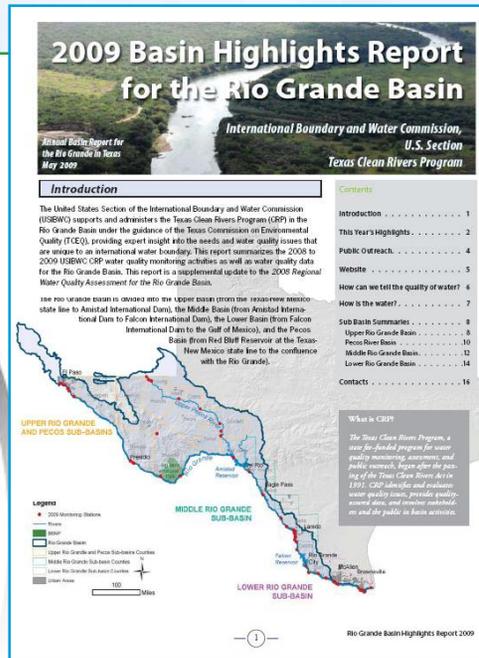
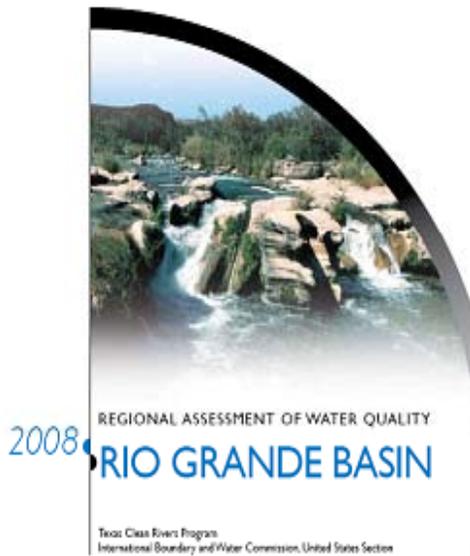
- Routine monitoring
- Special Studies



# What Does CRP do?

## Water Quality Assessment and Publications

- Annual Basin Highlights Report
- 5-year report
- Watershed characterizations



# What Does CRP do?

## Public Participation, Outreach, & Education



# What kind of data does CRP collect?



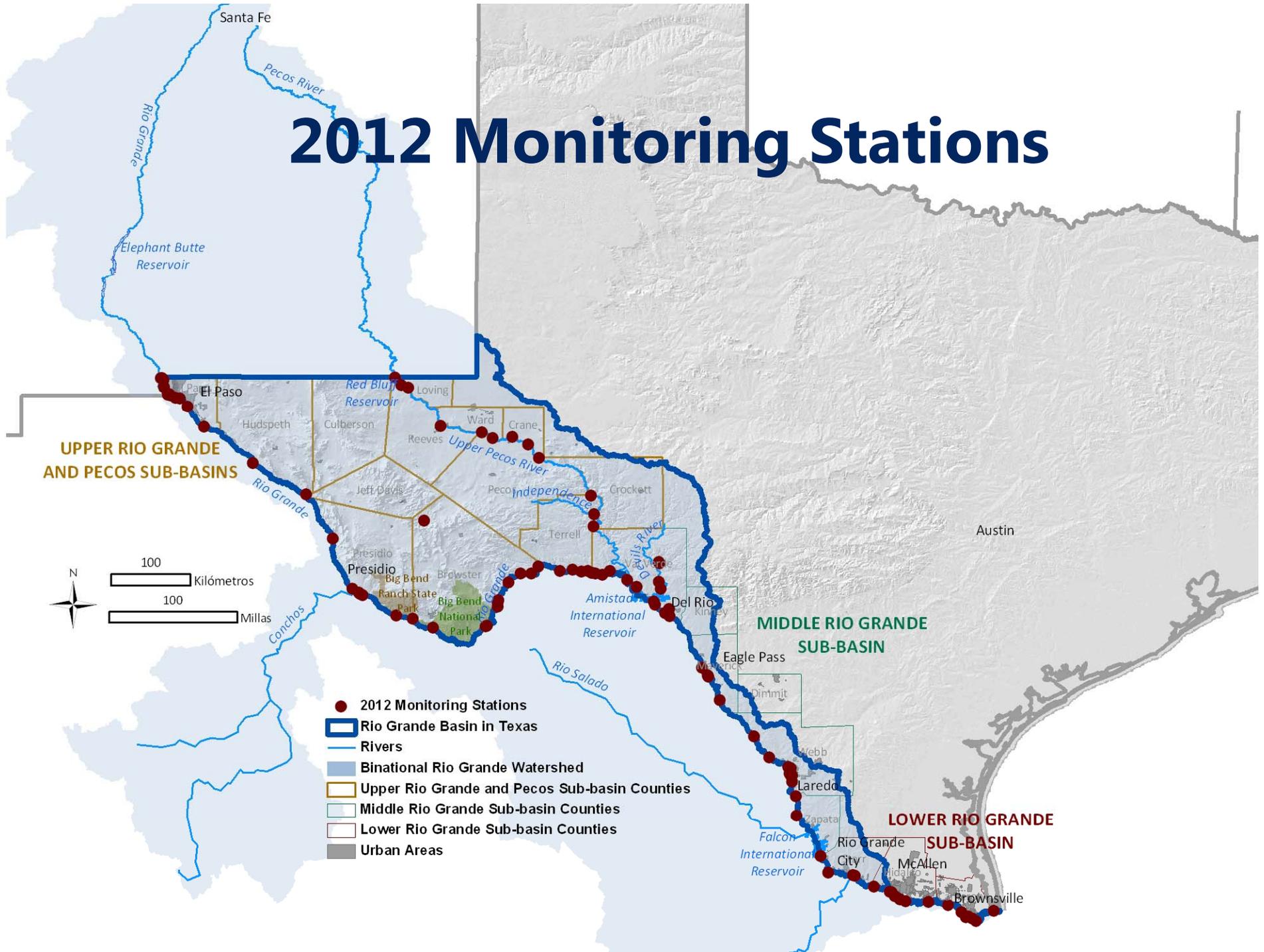
## Routine parameters

- Field data (pH, DO, EC, Temp)
- Conventional (nutrients, salts, BOD)
- Bacteria

## Non-routine

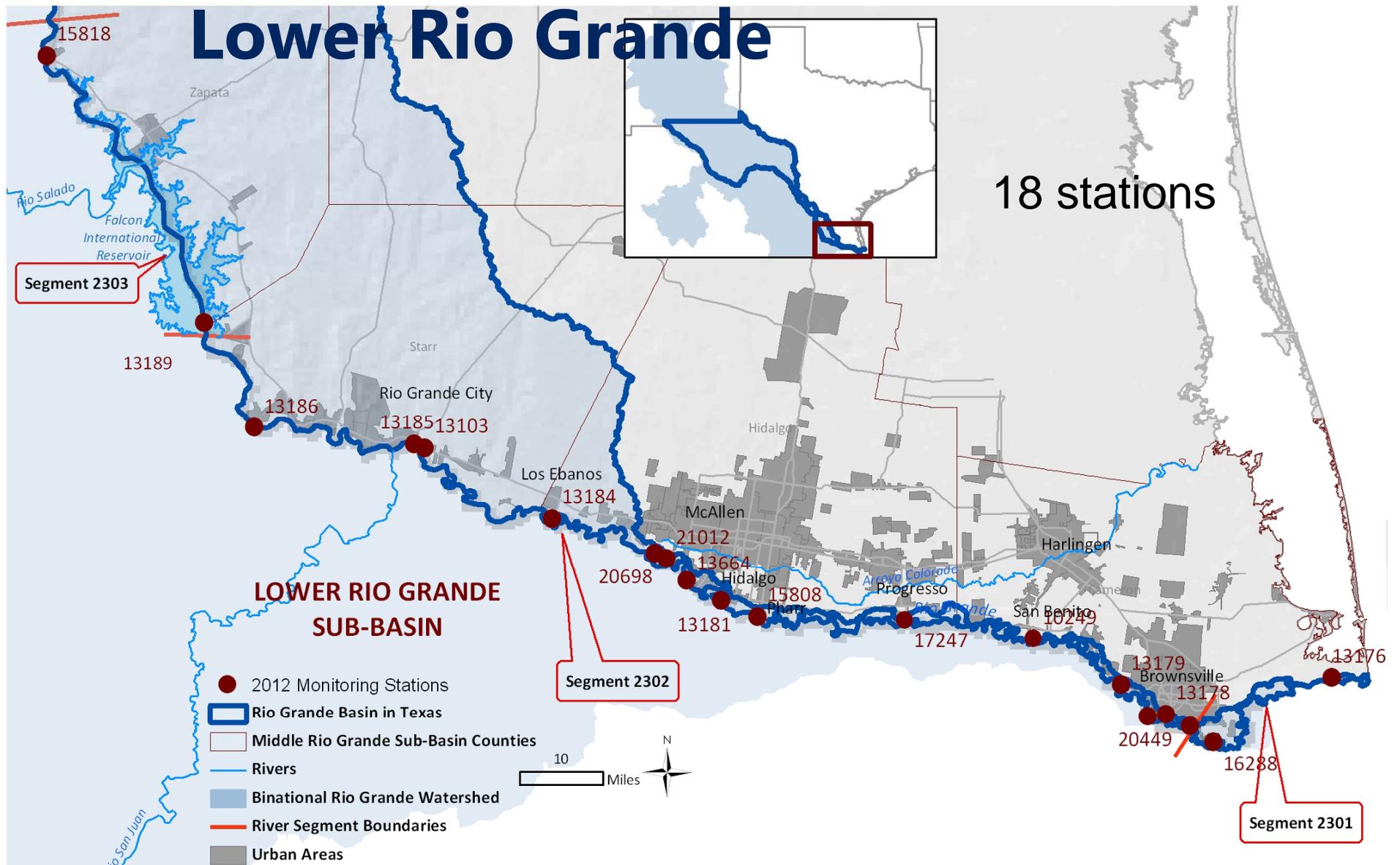
- organics in sediment
- metals
- biological data

# 2012 Monitoring Stations



# 2012 Monitoring Stations –

## Lower Rio Grande



# Local Partnerships – Lower RG

Help monitor, collect, and analyze

**USIBWC MERCEDES**

**USIBWC FALCON**

**SABAL PALM SANCTUARY**

**UT BROWNSVILLE**

**US FISH & WILDLIFE**

**BROWNSVILLE PUB**

**USGS**

**TCEQ HARLINGEN**

**TCEQ CONTINUOUS WQ MONITORING**









# What happens to the data?

CRP and TCEQ regional offices collect and review data

Submit Data to TCEQ

TCEQ compares data to Standards

Segments not meeting standards are listed as impaired on the 303d List

# Texas Surface Water Quality Standards

## For the Lower Rio Grande

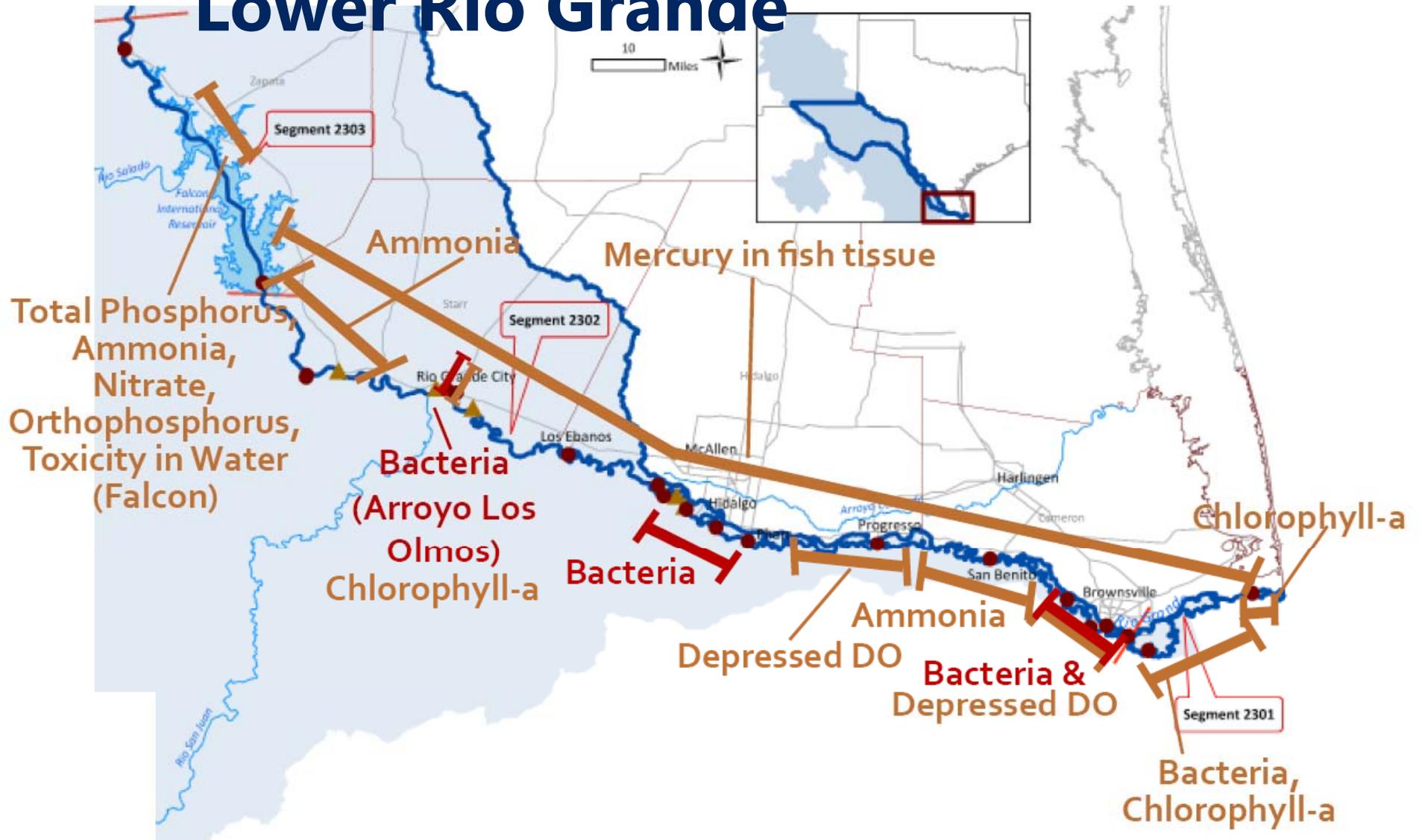
SEGMENT	USES	TDS (mg/l)	Bacteria (#/100 ml)
2301 – Tidal	<ul style="list-style-type: none"> <li>• Primary Contact Recreation</li> <li>• Excellent Aquatic Life</li> </ul>	--	35 Enterococci
2302 – Below Falcon	<ul style="list-style-type: none"> <li>• Primary Contact Recreation</li> <li>• High Aquatic Life</li> <li>• Sole-source public drinking supply</li> </ul>	880	126 E. Coli
2303 – Falcon Reservoir	<ul style="list-style-type: none"> <li>• Primary Contact Recreation</li> <li>• High Aquatic Life</li> <li>• Sole-source public drinking supply</li> </ul>	1,000	126 E. Coli

# Integrated Report 303d List

**IMPAIRMENTS** → don't meet standards

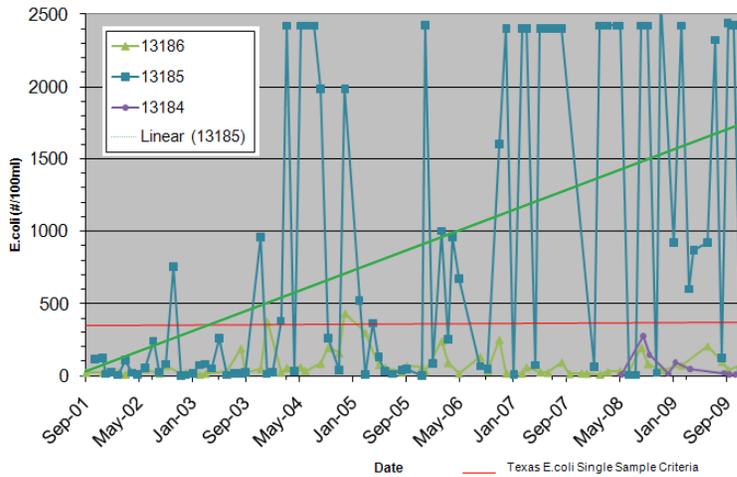
**CONCERNS** → almost don't meet standards,  
or have high values of parameters for which  
there are no standards

# 2010 Impaired Waters in the Lower Rio Grande

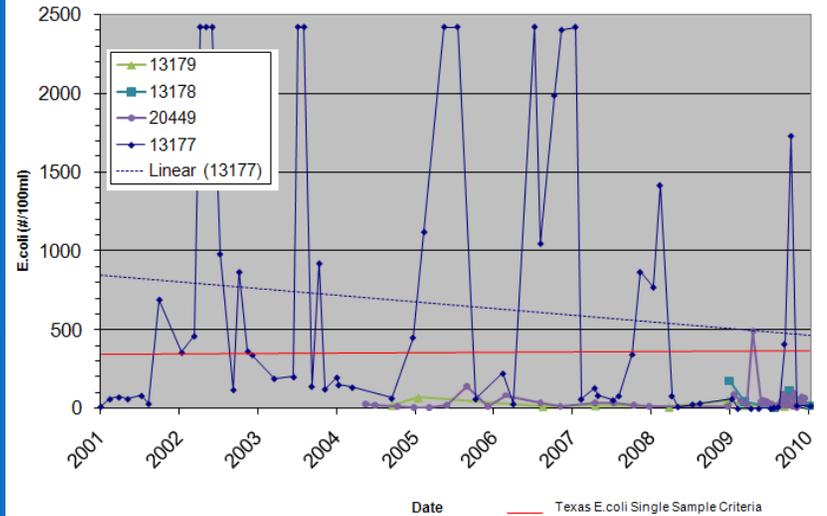


# Bacteria – Lower RG

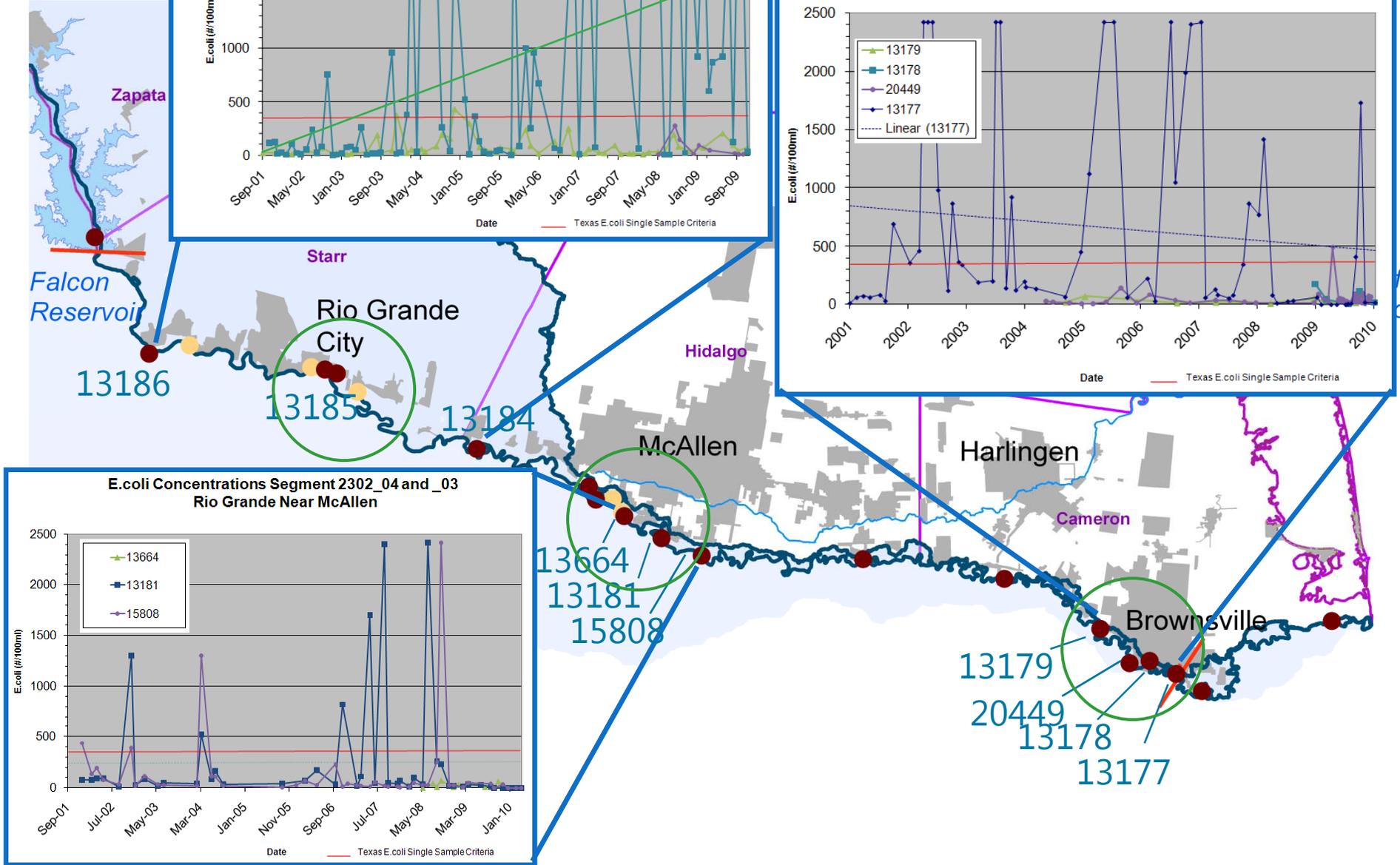
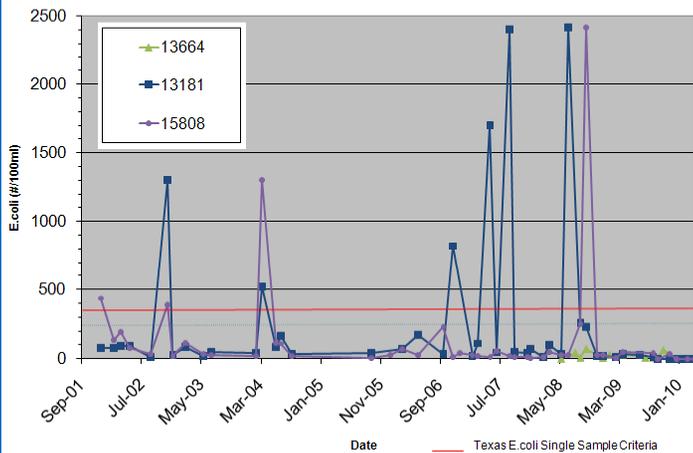
**E.coli Concentrations Segment 2302\_06  
Rio Grande Near Rio Grande City**



**E.coli Concentrations Segment 2302\_01  
Rio Grande Near Brownsville/Matamoros**



**E.coli Concentrations Segment 2302\_04 and \_03  
Rio Grande Near McAllen**



# Arroyo Los Olmos



# Alex Flood Bacteria Sampling



- To support IBWC Mercedes flood operations
- USIBWC CRP collected 59 bacteria samples in structures, floodways, and Rio Grande flood waters
- Bacteria low



# Brownsville Bacteria Special Study

To characterize bacteria impairment in Brownsville

- Planning Phase 2008-2009
- Sampling 2010
- Final Report 2011

Study did not pick up historically high bacteria



# Brownsville Bacteria Special Study

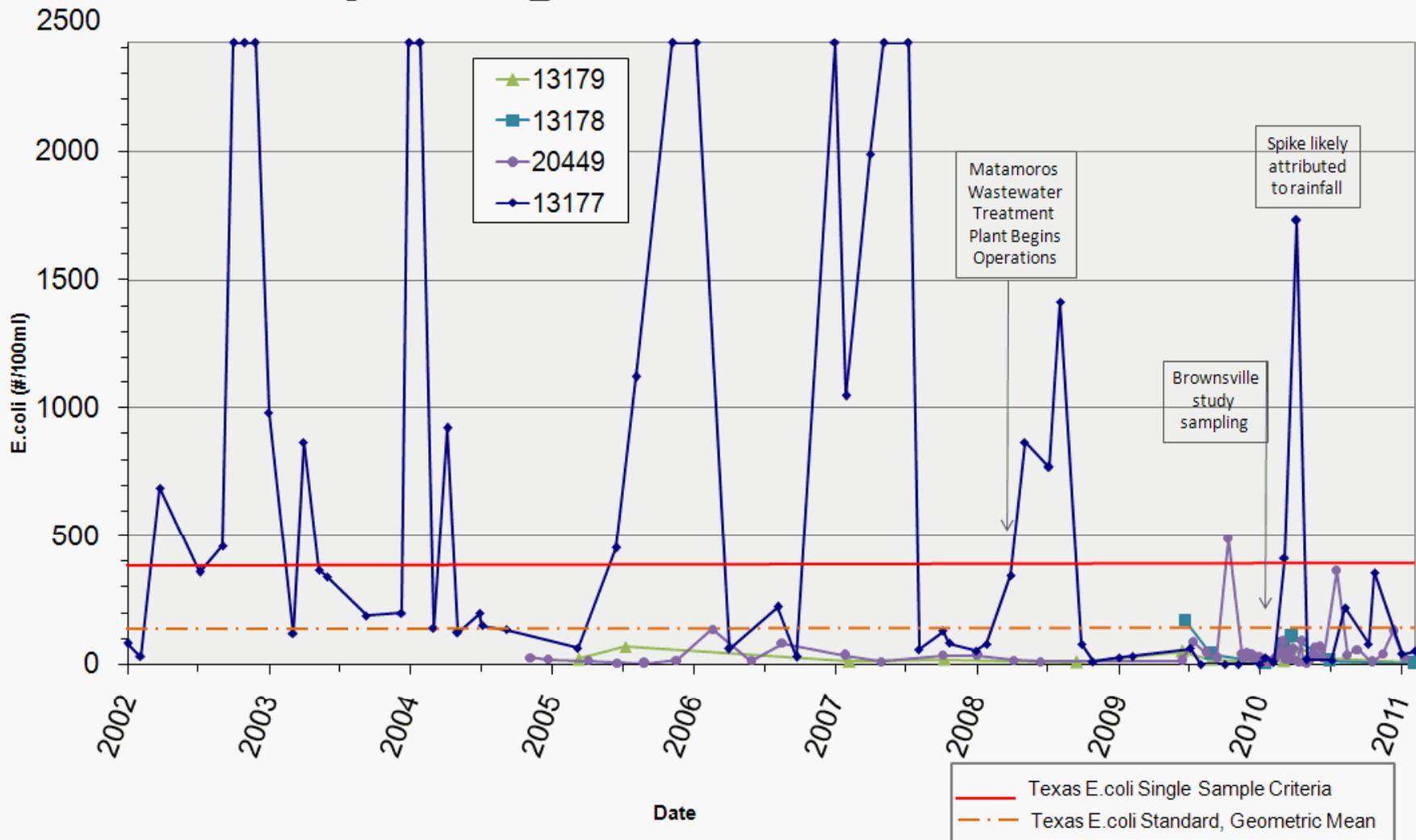
## RESULTS

- 63 total bacteria samples were taken
- Study did not pick up historically high bacteria
- Report documents total of 37 features on both banks
  - Pipes, drains, outfalls, structures
  - Trash dumps, goat trails
- No one feature could be pointed to as a likely cause
- Wastewater infrastructure improvements likely cause of decrease bacteria



# Bacteria in the Brownsville Area

Historical E.coli Concentrations 2002 to 2011  
Segment 2302\_01 - Rio Grande Near Brownsville/Matamoros



# Matamoros Wastewater Plant



- First WWTP in Matamoros
  - Certified by BECC
  - Funded by NADBank in 2003
  - Completed 2008
  - Inaugurated 2009
- Secondary Treatment, Capacity 390 l/s
- Comprehensive Water and Sanitation Project



→ improving bacteria in the RG

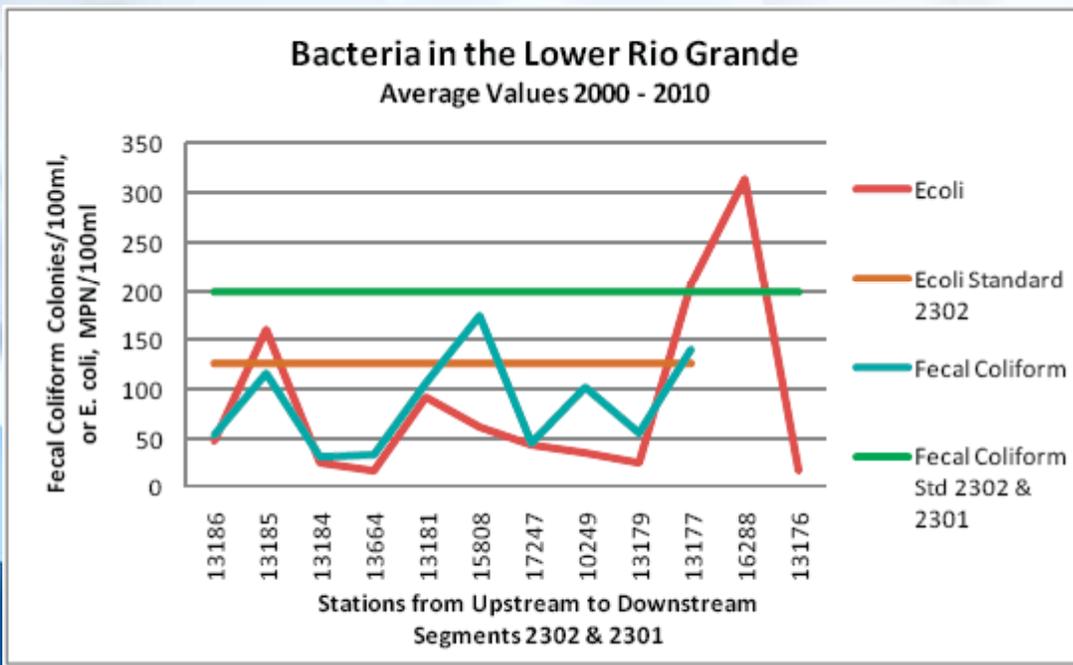
# Lower RG Bacteria Summary

## Increasing bacteria:

- Rio Grande City
- Hidalgo/McAllen

## Decreasing bacteria

- Brownsville (impaired section)



## Lower RG Watershed Initiative

### Continuous Monitoring

- Continuous Water Quality Monitoring (CWQM)
  - Evaluate TDS (salinity)
  - 8 CWQM stations used by TCEQ RG Watermaster
  - → important for irrigation

to protect water  
and Río Bravo

### Characterization

to characterize impaired

hydrology, water  
quality, tributaries, etc

- Evaluation of sources of contamination
- → Series of maps and recommendations

# CRP Website

[www.ibwc.gov/CRP/Index.htm](http://www.ibwc.gov/CRP/Index.htm)

International Boundary & Water Commission  
United States and Mexico  
United States Section  
Est. 1889

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## USIBWC Texas Clean Rivers Program

for the Rio Grande Basin

The International Boundary and Water Commission, U.S. Section (USIBWC) Texas Clean Rivers Program (CRP) is responsible for collecting water quality data throughout the Texas portion of the Rio Grande Basin. CRP is a state fee-funded program for water quality monitoring, assessment, and public outreach, and aims to maintain and improve the quality of water within each river basin in Texas through partnerships with the Texas Commission on Environmental Quality (TCEQ) and participating entities. [More...](#)

**THE TEXAS CLEAN RIVERS PROGRAM**

**NEWS JUNE 2011:**  
LOWER RIO GRANDE BASIN ADVISORY MEETING SCHEDULED FOR JUNE 22 IN WESLACO, TX.  
FINAL 2011 BASIN HIGHLIGHTS REPORT POSTED ON PUBLICATIONS PAGE.  
LAREDO BACTERIA SPECIAL STUDY SAMPLING CONDUCTED MAY 2011. STUDY PLAN AND MEDIA ARTICLES POSTED ON STUDIES PAGE.  
WORLD WATER DAY STUDENT DRAWING CONTEST WINNING ENTRIES WILL BE POSTED ON GALLERY IN LATE JUNE.  
UPPER PECOS AQUATIC LIFE MONITORING VIDEO AVAILABLE ON GALLERY.  
USIBWC CRP CONTINUES TO WORK WITH EPCC FOR SERVICE LEARNING PROGRAM OPPORTUNITIES.

**Study Area**  
Locate IBWC stream gages, data and other useful map information using the USIBWC GIS Interactive Map page. Also has static maps of the Rio Grande Basin

**Monitoring Station Data**  
View a list of monitoring stations by segment in the Rio Grande basin. Click on the station ID to view an Excel file with water quality data for that station from 1995 to present

**Calendar / Current Activities**  
Learn about upcoming events and current activities of the Clean Rivers Program

**Publications**  
View the CRP Basin Reports, outreach publications, administrative docs, and QAPP

**Media Gallery**  
See photos and videos of past CRP events and monitoring activities

**Participation**  
Learn about the CRP Basin Advisory Committee and ways to get involved

- Data
- Maps
- Calendar
- Publications
- Studies
- Links, etc

**Thank you!**



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