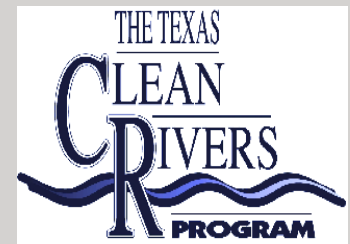


Annual Update on Rio Grande Water Quality and the Clean Rivers Program



**USIBWC CITIZENS FORUM
AND UPPER RIO GRANDE BASIN
ADVISORY MEETING
JULY 11, 2019**

**LESLIE GRIJALVA
TEXAS CLEAN RIVERS PROGRAM
U.S. SECTION,
INTERNATIONAL BOUNDARY AND WATER COMMISSION**



Outline



- Brief history of the IBWC's TX Clean Rivers Program
- What is the Texas Clean Rivers Program?
- Monitoring in the Rio Grande Basin in Texas
- Integrated Report and Water Quality Standards
- Water Quality Issues in the Rio Grande
- Other studies and efforts in the Rio Grande Basin
- Contact Information

IBWC's TX Clean Rivers Program History



- IBWC began routine water quality monitoring after 1977 Joint Report of Engineers
- 1991 Texas Clean Rivers Act (SB 818)
- TCEQ ran the Clean Rivers Program in the Rio Grande until 1998
- 1998 TCEQ-USIBWC partnership, due to the river's international nature
- 2019 monitoring sites on Rio Grande:
 - 90 total sites
 - ✦ CRP – 64 sites
 - ✦ TCEQ – 35 sites
 - ✦ Shared – 9 sites



What is the Texas Clean Rivers Program?



- A non-regulatory, state fee-funded program
- Every major river basin in Texas has a Clean Rivers Program
- A group of federal, state and local organizations that have an interest in the health of our state's streams, rivers and lakes.
- The USIBWC Clean Rivers Program collects water quality data from the Rio Grande and Pecos Rivers.
- We then use that data to:
 - identify and evaluate water quality issues
 - establish priorities for corrective actions
 - work to implement those actions.



CRP Activities

- Water Quality Monitoring
 - Routine monitoring
 - Special studies
- Water Quality Assessment
- Publications
 - Annual Basin Highlight Report
 - 5-year Basin Summary Report
- Outreach
- Environmental Education
- Public Participation
 - Basin Advisory Committee



2017 Basin Highlights Report



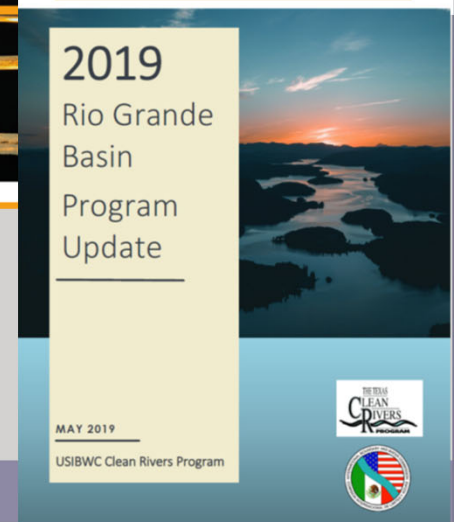
2018 Basin Summary Report
June 2018



Rio Grande Basin Summary Report
Executive Summary
USIBWC Clean Rivers Program



2018 Basin Program Update
Inter Commission, U.S. Section
of the Clean Rivers Program



2019 Rio Grande Basin Program Update
MAY 2019
USIBWC Clean Rivers Program



CRP Activities



Public Participation, Outreach, and Environmental Education

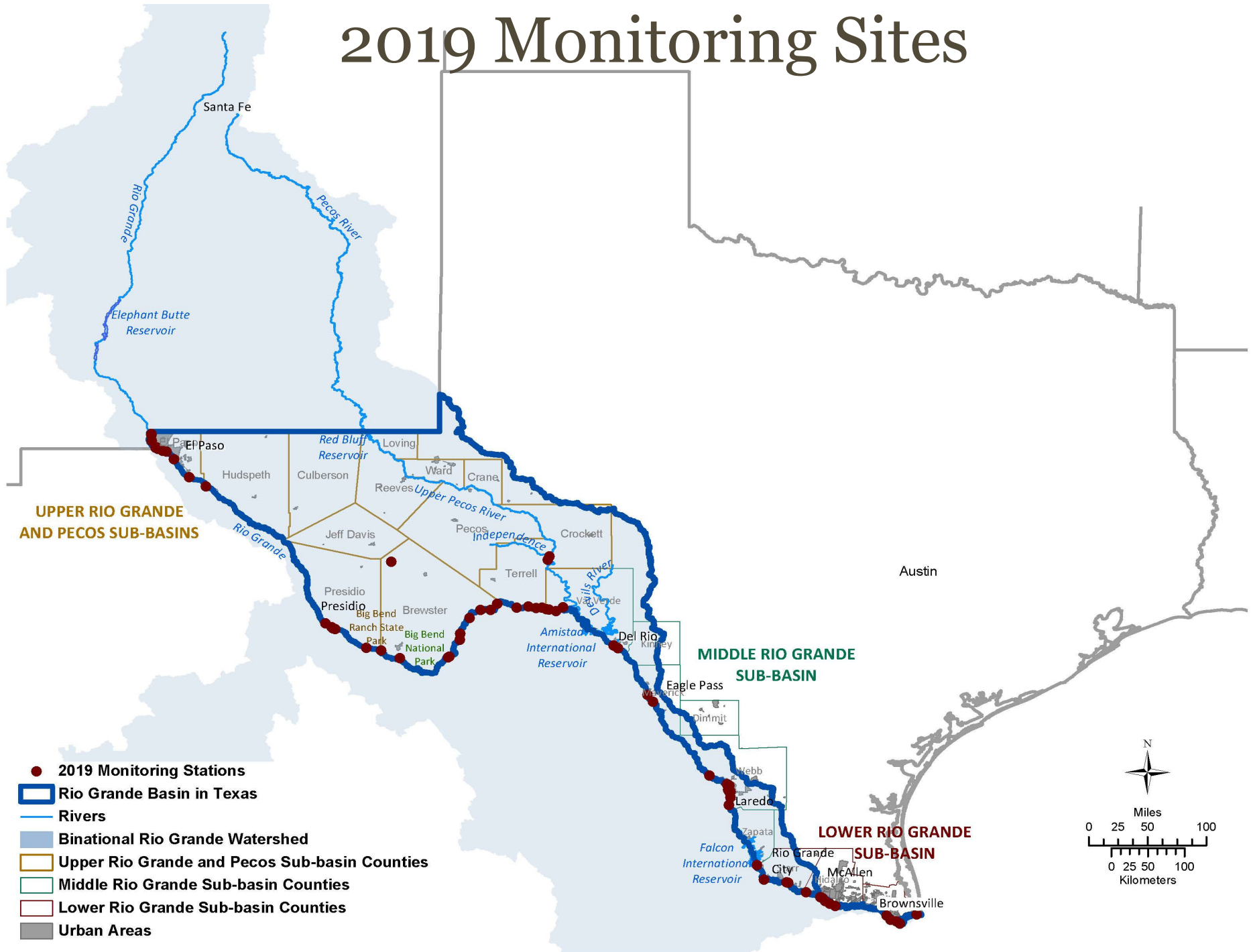


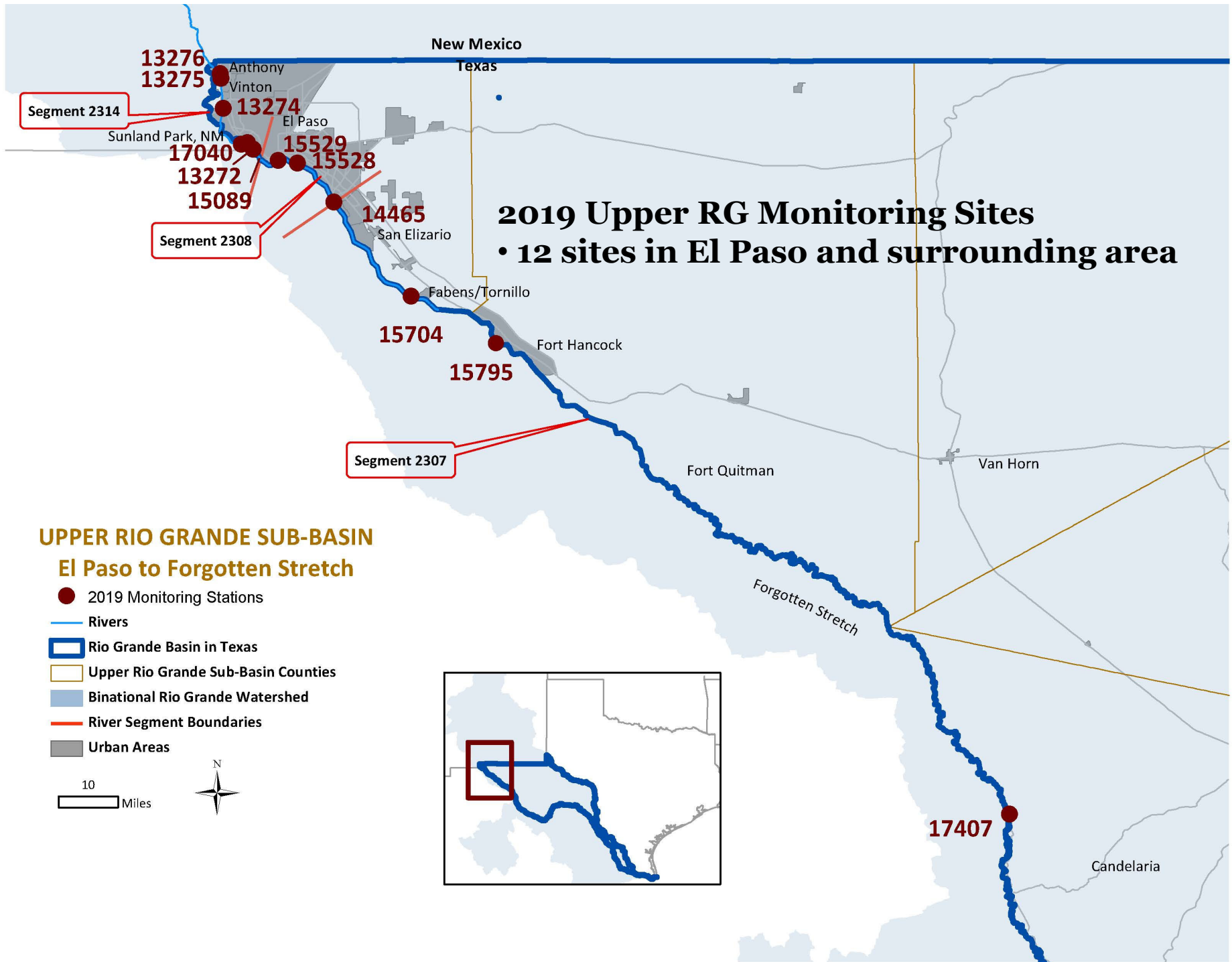
Local Partnerships are Key!



- Partners in the Upper Rio Grande help monitor, collect, & analyze samples:
 - USIBWC Field Offices in El Paso and Presidio
 - University of Texas at El Paso
 - El Paso Community College
 - El Paso Water Utilities
 - Big Bend National Park
 - Big Bend Ranch State Park
- TCEQ Region 6 office and Continuous Water Quality Network also contribute data
- All partners use TCEQ sampling procedures and a NELAC accredited laboratory for analysis.
- All partners use the same equipment.
- Standardizing is our best friend!

2019 Monitoring Sites



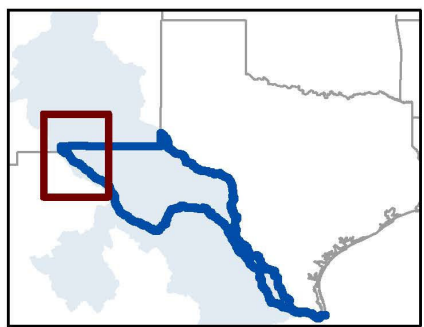


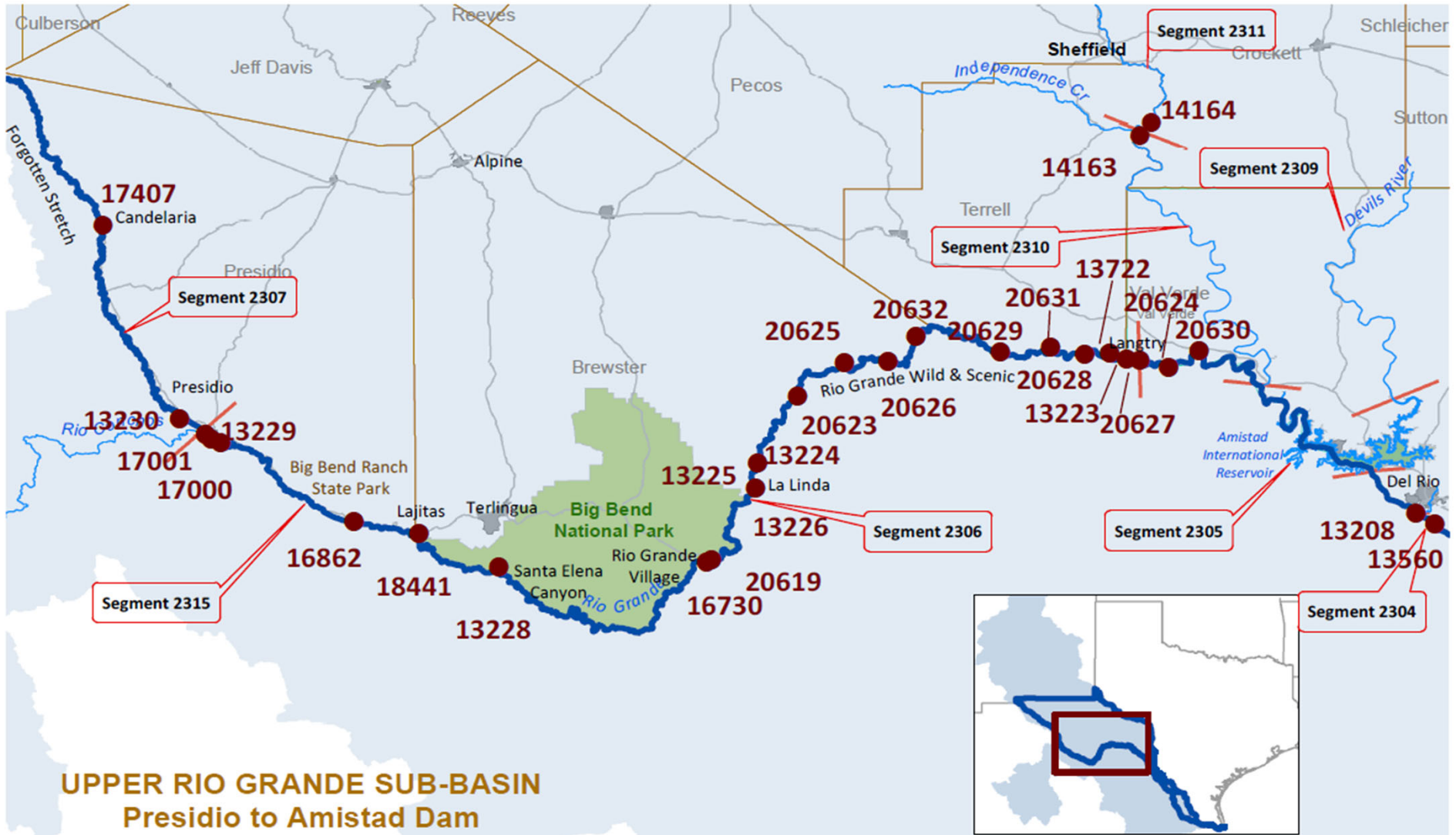
2019 Upper RG Monitoring Sites

- 12 sites in El Paso and surrounding area

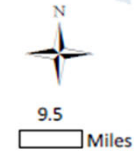
UPPER RIO GRANDE SUB-BASIN El Paso to Forgotten Stretch

- 2019 Monitoring Stations
- Rivers
- ▭ Rio Grande Basin in Texas
- ▭ Upper Rio Grande Sub-Basin Counties
- ▭ Binational Rio Grande Watershed
- River Segment Boundaries
- ▭ Urban Areas





- 2019 Monitoring Stations
- ▭ Rio Grande Basin in Texas
- Rivers
- ▭ Upper Rio Grande Sub-Basin Counties
- ▭ Binational Rio Grande Watershed
- River Segment Boundaries
- ▭ Urban Areas



2019 Upper RG Monitoring Sites

- 26 sites from Presidio to Del Rio
- 2 sites along the Pecos River

Monitoring Stations

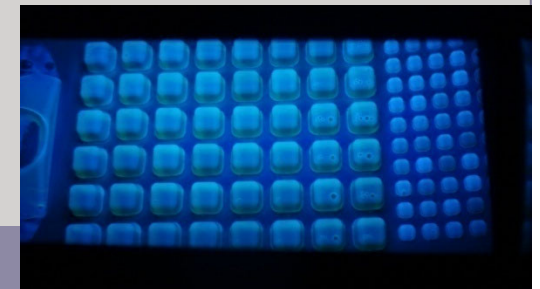


- **Stations are selected to:**
 - represent a stretch of river
 - capture a change of stream characteristics (below a wastewater outfall or below a dam, or upstream and downstream of an agricultural drain)
- **Stations are monitored on various schedules**
 - Grab samples (semi-annual, quarterly, monthly, etc)
 - Continuous monitoring (flow and/or water quality)
 - ✦ IBWC gaging stations (33 on the Rio Grande, 2 on the Pecos and 21 on smaller creeks and tributaries)
 - ✦ TCEQ Continuous Water Monitoring Stations (21 on the Rio Grande, 10 on the Pecos and 3 on smaller tributaries)
 - ✦ Gaging stations managed by irrigation districts

What do we monitor?



- **Conventionals:**
 - Field – pH, DO, temp, specific conductance
 - Conventional – salts, nutrients
 - Microbiological (Fecal Coliform, *E.coli*)
- **Other Parameters on a case-by-case basis:**
 - Metals in water and sediment
 - Organics in water and sediment
 - Aquatic habitat assessment, including macroinvertebrates

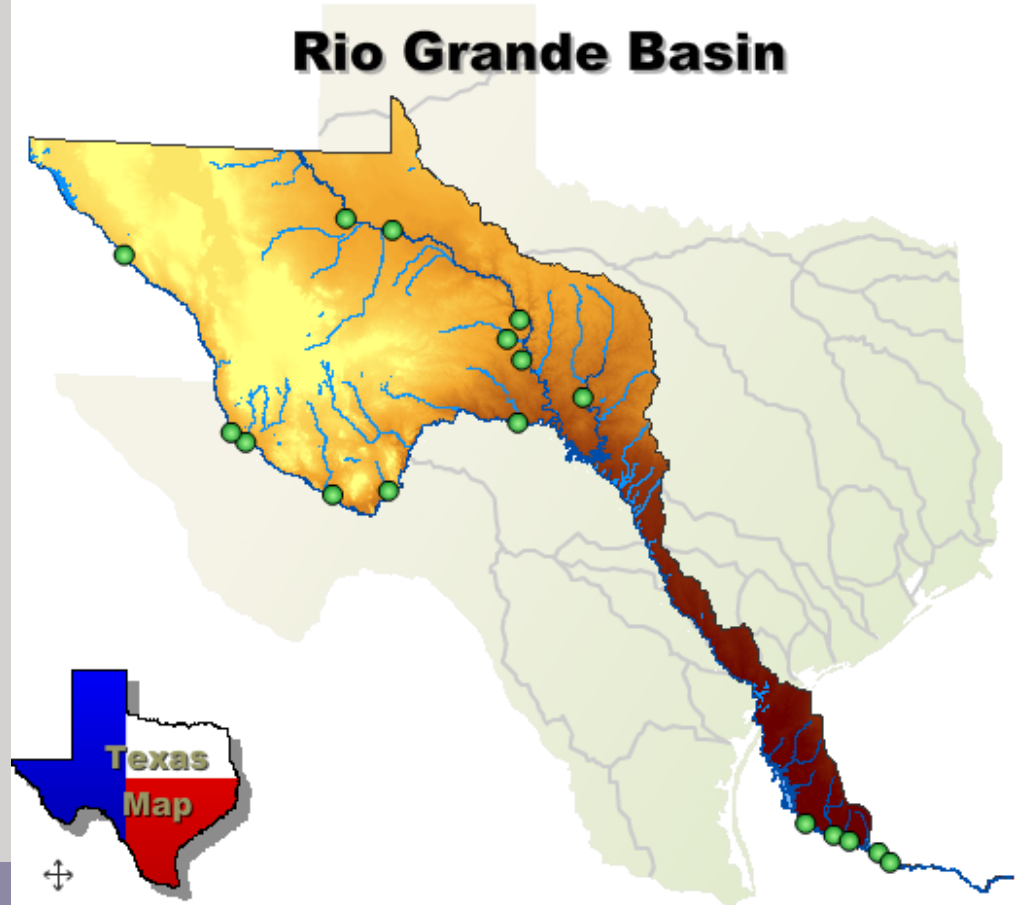


TCEQ Continuous Water Quality Monitoring



- 20 CWQM stations in Upper Rio Grande Basin
 - Water Temp
 - pH
 - sp cond
 - water level
 - TDS
 - DO
- 8 along the Upper RG
- 12 along the Pecos River

Rio Grande Basin



Draft 2016 Assessment (Integrated Report)



- States are required by the Clean Water Act to “assess” the health of the river basins, determine water quality standards, and determine whether the water bodies meet these established standards.
 - The assessment of the water quality data collected is called the Integrated Report, and is where we get the 303(d) list.
- Water bodies not meeting state water quality standards are listed on the impaired waters list (303d list)
 - **Impairments** → not meeting standards
 - **Concerns** → near non-attainment of standards, or
→ issues with parameters where standards don't exist
- Most Rio Grande impairments are for bacteria or salinity.

TCEQ Impaired Waters List:

<https://www.tceq.texas.gov/waterquality/assessment>



What's the difference (IR vs Standards)?



- Standards are the goal for quality of streams, rivers, lakes and bays in the state.
- The IR determines whether the water body is meeting this goal.
- Both the assessment of the data and the development of the standards is done by TCEQ.
 - We just collect the data.
- The 2016 303(d) List was adopted by the TCEQ on October 17, 2018.
 - Must then be approved by the Environmental Protection Agency.
 - EPA individually reviews and approves proposed revisions on a case-by-case basis. May approve certain things but not others.
- Draft 2018 and 2020 Integrated Reports are currently being worked on.
- The 2018 Texas Water Quality Standards were adopted by the Texas Commission on Environmental Quality on February 17, 2018.
 - Effective for all state permits.
 - They have not been approved by the EPA at this time.
 - Until approved by the EPA, the 2014 standards still apply to all Federal permits (2010 standards for primary contact recreation)

Draft 2016 Integrated Report Impaired Segments



- The draft 2016 Integrated Report assessment lists 8 out of the 14 established segments for the Rio Grande as **impaired**.
- 2016 assessment lists the following segments as impaired:
 - 2304: Rio Grande Below Amistad Reservoir, bacteria
 - 2306: Rio Grande Above Amistad Reservoir, sulfate, total dissolved solids
 - 2307: Rio Grande Below Riverside Diversion Dam, bacteria, chloride, total dissolved solids
 - 2308: Rio Grande Below International Dam, bacteria
 - 2311: Upper Pecos River, depressed dissolved oxygen
 - 2312: Red Bluff Reservoir, chloride, sulfate
 - 2313: San Felipe Creek, bacteria
 - 2314: Rio Grande Above International Dam, bacteria

Draft 2016 IR Assessment, Segment Concerns



- Draft 2016 assessment lists **concerns** for 11 segments.
 - 2301, Bacteria, chlorophyll-a, depressed dissolved oxygen
 - 2302, Ammonia, chlorophyll-a, depressed dissolved oxygen
 - 2303, Toxicity in water
 - 2304, Ammonia, toxicity in water
 - 2306, Chlorophyll-a, fish kill report
 - 2307, Ammonia, chlorophyll-a, depressed dissolved oxygen, nitrate, total phosphorus
 - 2308, Ammonia, chlorophyll-a, total phosphorus
 - 2310, Harmful algal bloom/golden alga
 - 2311, Bacteria, chlorophyll-a, depressed dissolved oxygen, harmful algal bloom/golden alga
 - 2312, Depressed dissolved oxygen, harmful algal bloom/golden alga
 - 2314, Ammonia, chlorophyll-a, nitrate

Nutrient Criteria

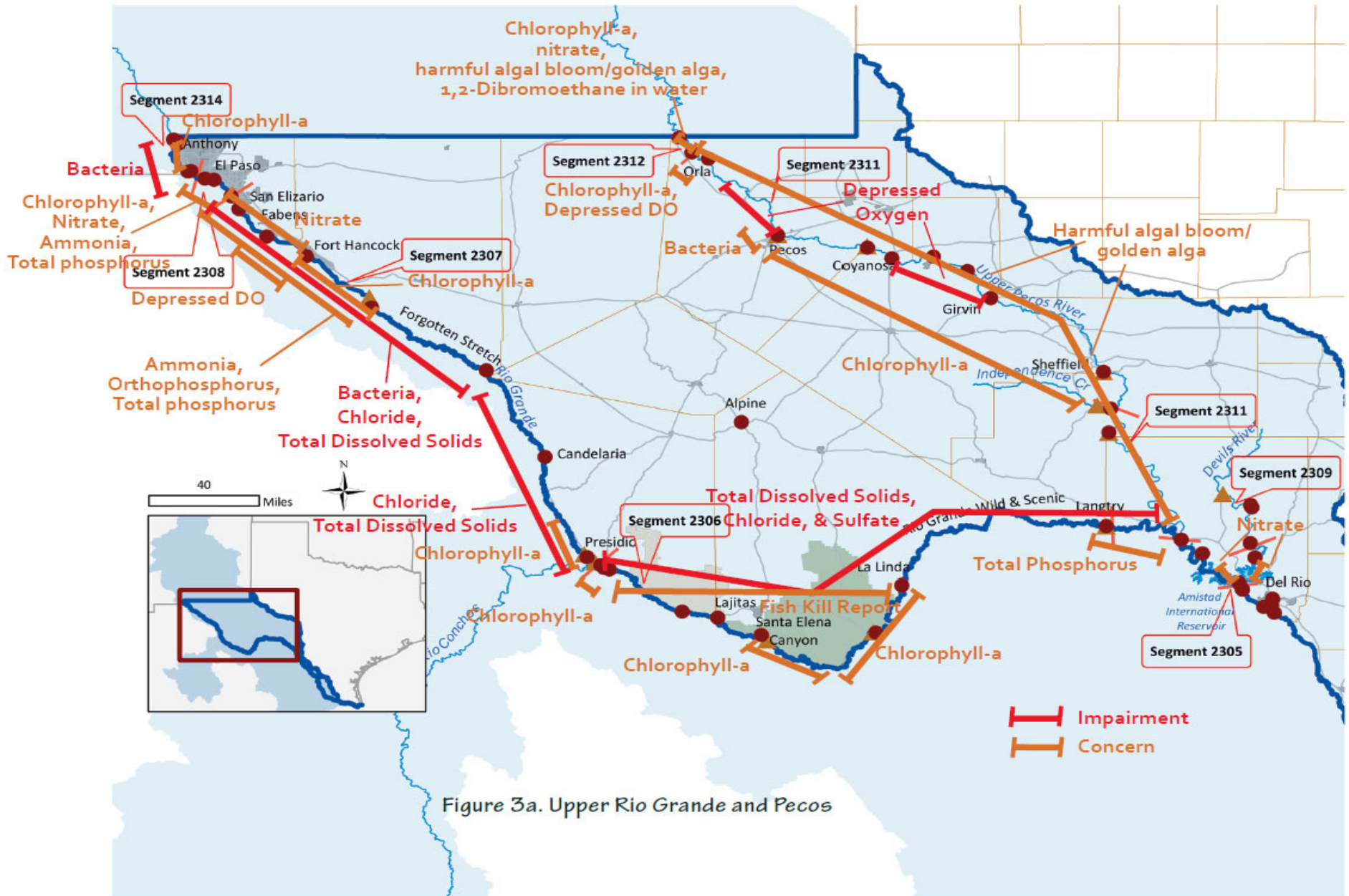


- EPA has mandated that states create Numeric Nutrient Criteria
 - In Texas, TCEQ is tasked with this.
- 2013 Standards:
 - Chlorophyll-a criteria for 75 Reservoirs
 - Nothing new since 2013
- Still in development:
 - Criteria for rivers and streams
- → will impact WWTP effluent limits
- → agriculture
 - USDA 2010 report estimates 65% of farmers are not optimizing nutrient management

Total Phosphorus
Total Nitrogen
Chlorophyll-a
Turbidity

Historical conditions
Stressor Response

List of Impairments and Concerns in the Upper Rio Grande



Draft 2018 Water Quality Standards

Texas Commission on Environmental Quality
 Chapter 307 - Texas Surface Water Quality Standards
 Rule Project No. 2016-002-307-OW

Page 91

Rio Grande Basin Designated Uses and Numeric Criteria

Segment No.	Rio Grande Basin Segment Names	Recreation Use	Aquatic Life Use	Domestic Water Supply Use	Other Uses	Cl ⁻¹ (mg/L)	SO ₄ ⁻² (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria ¹ #/100 mL	Temperature (degrees F)
2301	Rio Grande Tidal	PCR1	E						5.0	6.5-9.0	35	95
2302	Rio Grande Below Falcon Reservoir	PCR1	H	PS		270	350	880	5.0	6.5-9.0	126	90
2303	International Falcon Reservoir	PCR1	H	PS		200	300	1,000	5.0	6.5-9.0	126	93
2304	Rio Grande Below Amistad Reservoir	PCR1	H	PS		200	300	1,000	5.0	6.5-9.0	126	95
2305	International Amistad Reservoir	PCR1	H	PS		150	270	800	5.0	6.5-9.0	126	88
2306	Rio Grande Above Amistad Reservoir	PCR1	H	PS		200	450	1,400	5.0	6.5-9.0	126	93
2307	Rio Grande Below Riverside Diversion Dam	PCR1	H	PS		300	550	1,500	5.0	6.5-9.0	126	93
2308	Rio Grande Below International Dam	NCR	L			250	450	1,400	3.0	6.5-9.0	605	95
2309	Devils River ²	PCR1	E	PS		50	50	300	6.0	6.5-9.0	126	90
2310	Lower Pecos River	PCR1	H	PS		1,700	1,000	4,000	5.0	6.5-9.0	126	92
2311	Upper Pecos River	PCR1	L			7,000	3,500	15,000	5.0 ³	6.5-9.0	33	92
2312	Red Bluff Reservoir	PCR1	H			3,200	2,200	9,400	5.0	6.5-9.0	33	90
2313	San Felipe Creek ²	PCR1	H	PS		50	50	400	5.0	6.5-9.0	126	90
2314	Rio Grande Above International Dam	PCR1	H	PS		340	600	1,800	5.0	6.5-9.0	126	92
2315	Rio Grande Below Rio Conchos	PCR1	H			450	750	2,100	5.0	6.5-9.0	126	93

- 1 The indicator bacteria for freshwater is *E. coli* and for saltwater is Enterococci. The indicator bacteria for Segments 2311 and 2312 is Enterococci.
- 2 The critical low-flow is calculated in accordance with §307.8(a)(2)(A) of this title.
- 3 The 24-hour minimum dissolved oxygen criterion is 1.0 mg/L.

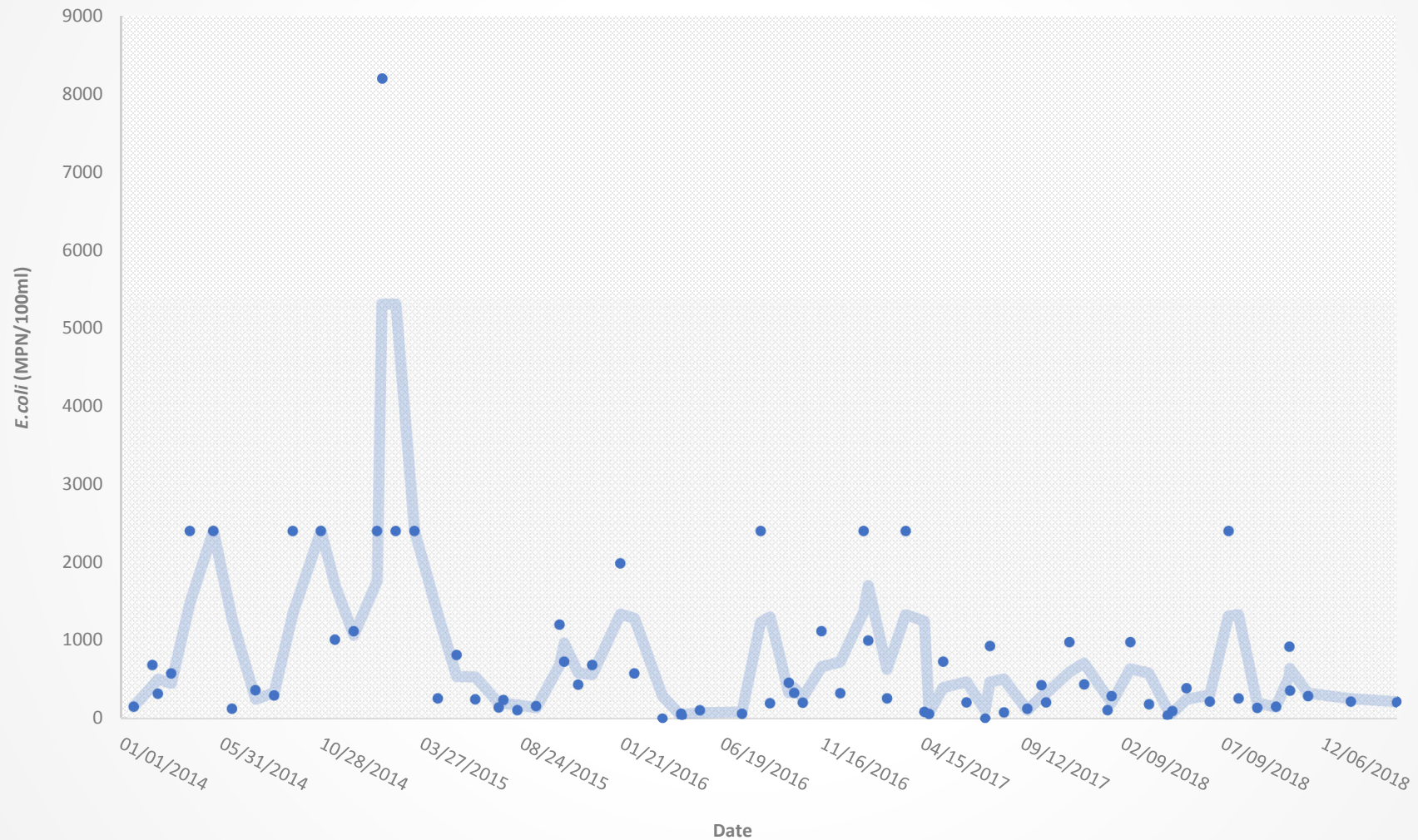
Main Rio Grande Water Quality Issues

- Bacteria
- Nutrients
- Salts
- Depressed DO
- Fish kills
- Illegal discharging
- Trash
- Exotic species



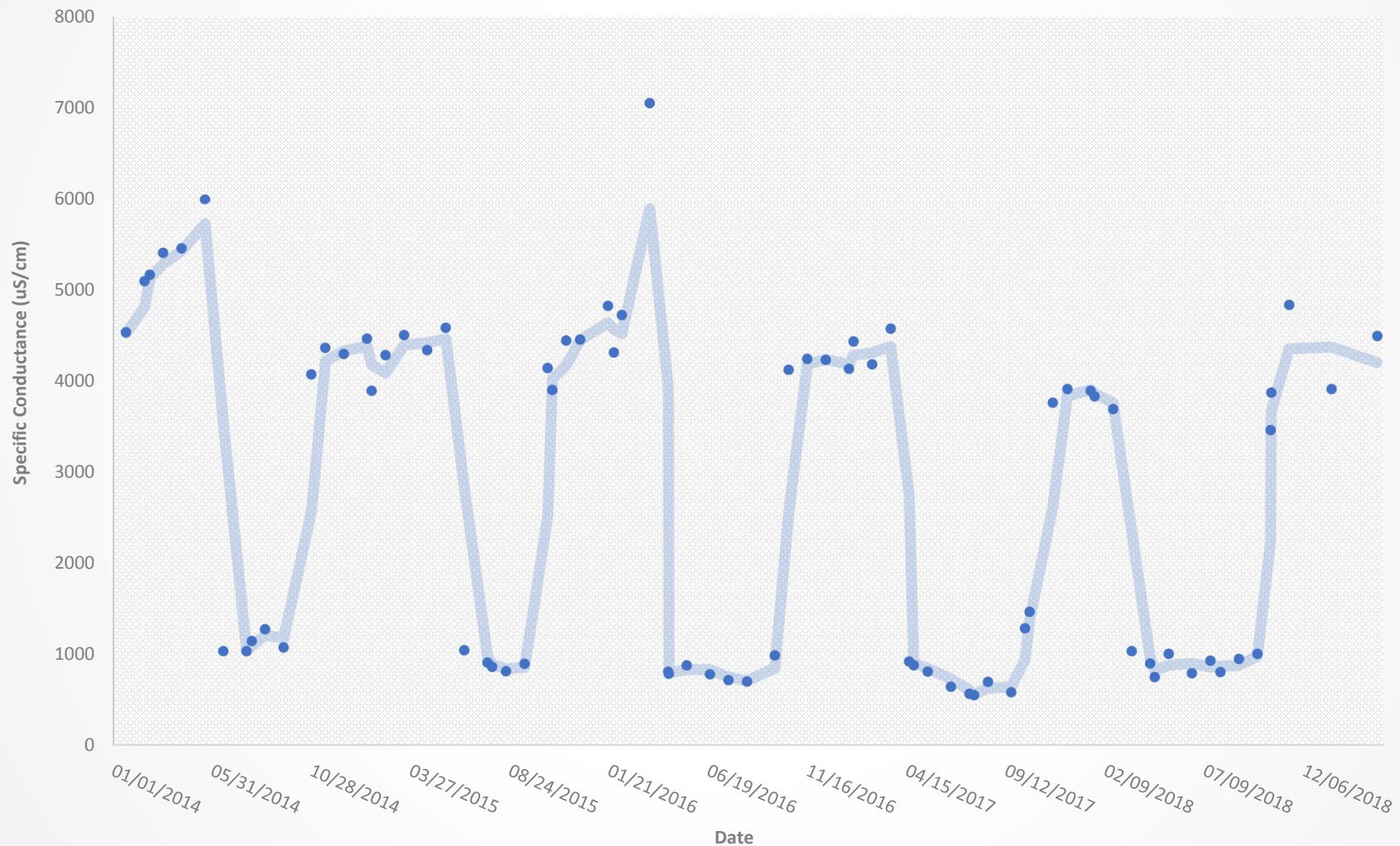
Station 13272 in El Paso, 2014-2018

E. coli at Courchesne Bridge, El Paso, TX



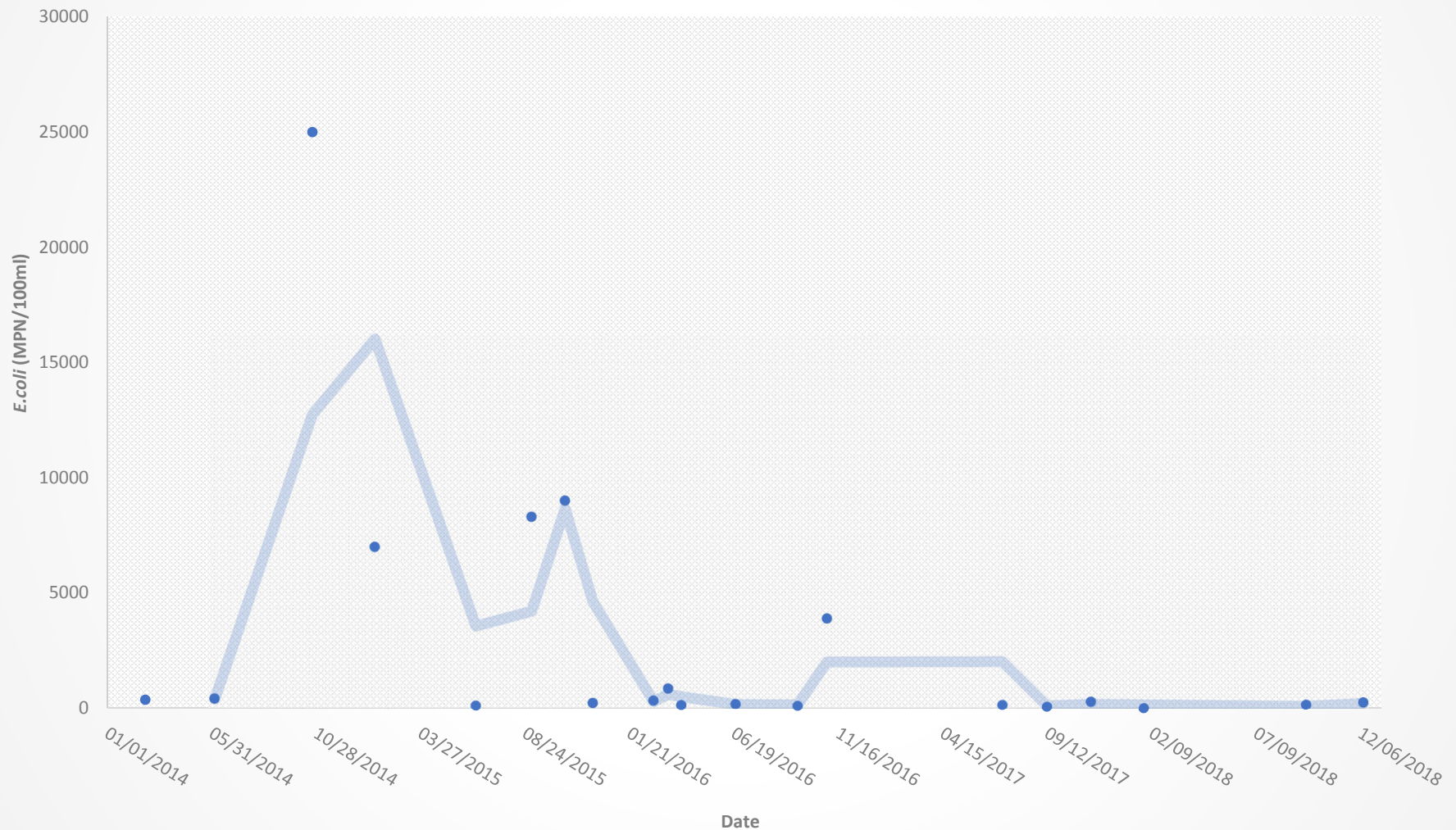
Station 13272 in El Paso, TX, 2014-2019

Specific Conductance at Courchesne Bridge, El Paso, TX



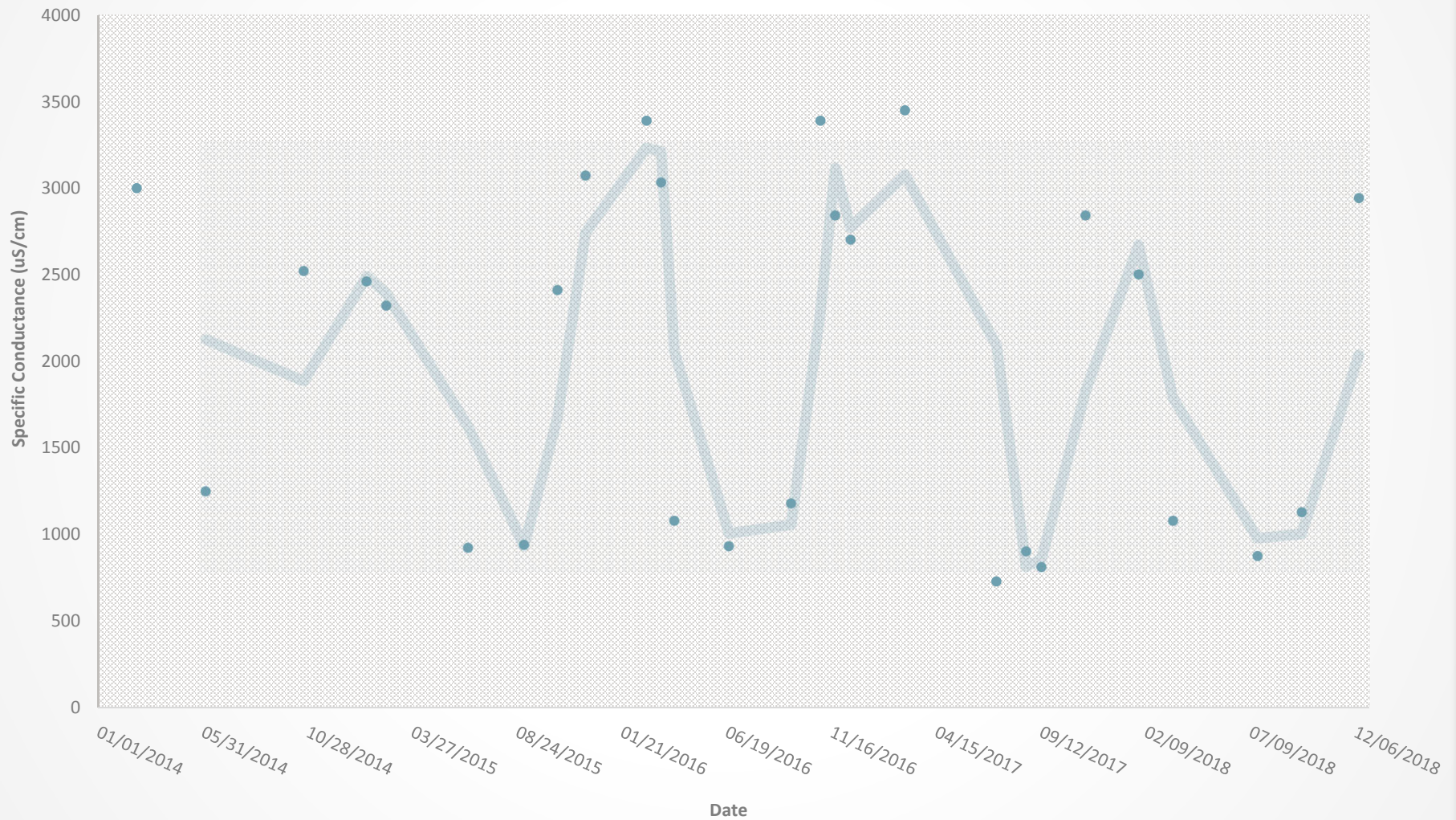
Station 15089 in El Paso, TX, 2014-2018

E.coli at American Eagle Brick Factory, El Paso, TX



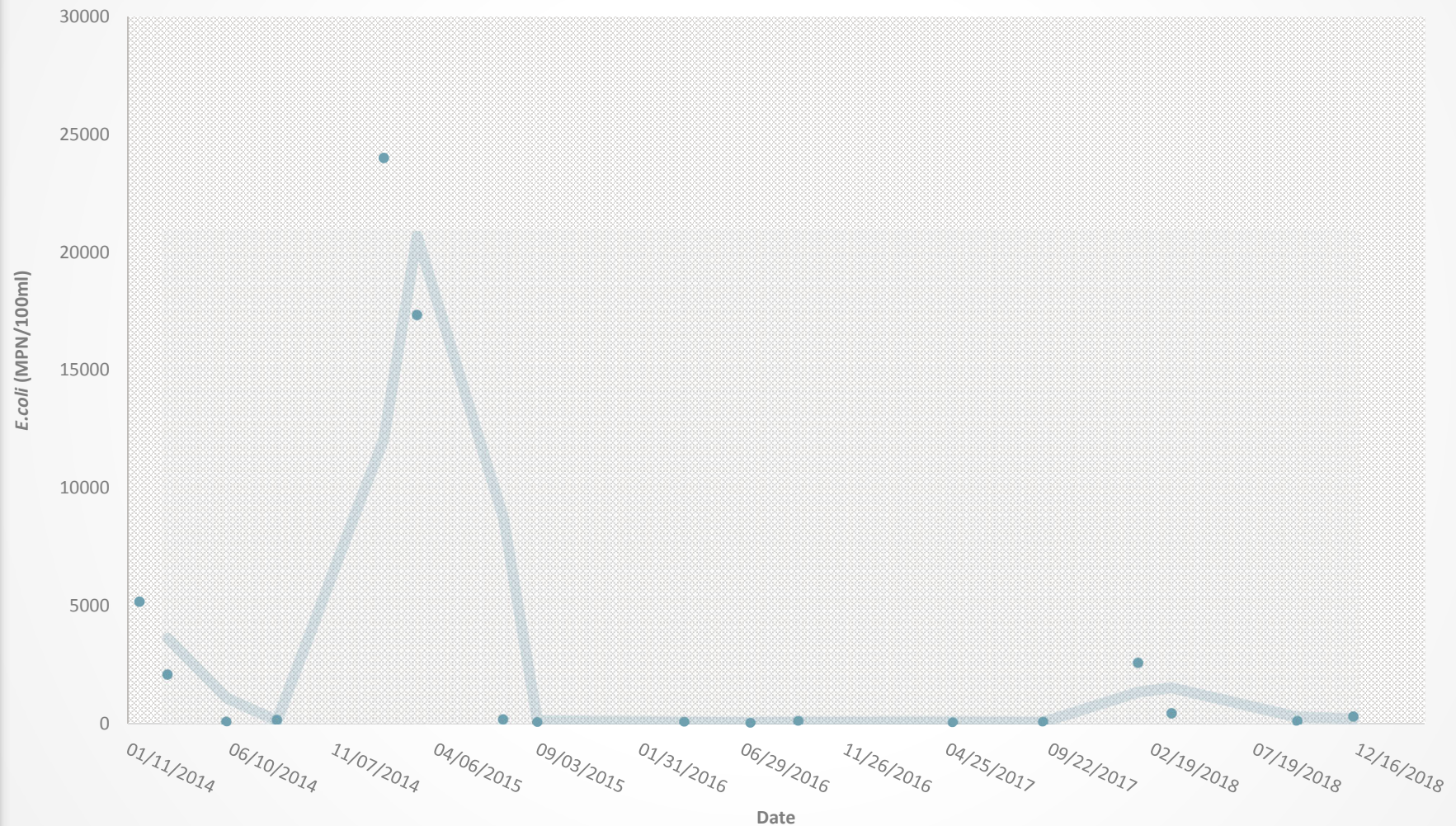
Station 15089 in El Paso, TX, 2014-2018

Specific Conductance at American Eagle Brick Factory, El Paso, TX



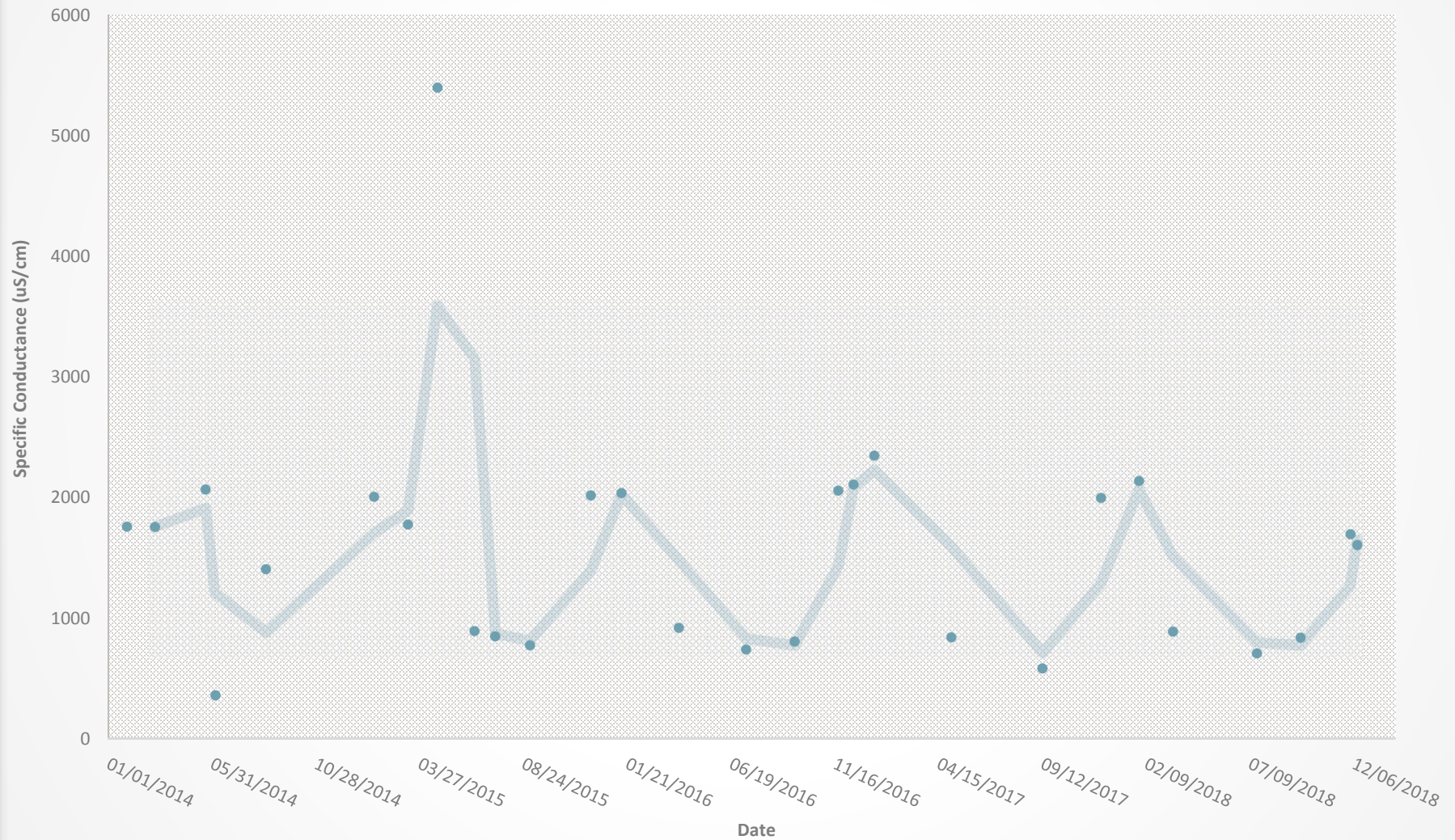
Station 17040 in El Paso, TX, 2014-2018

E.coli at Anapra Bridge, Sunland Park, NM



Station 17040 in El Paso, TX, 2014-2018

Specific Conductance at Anapra Bridge, Sunland Park, NM



Concerns the Rio Grande near El Paso



- Routine monitoring still shows high levels of bacteria in the El Paso area.
 - Specifically around the Sunland Park, NM/ El Paso, TX area
 - Some stations have shown bacteria levels of up to 24,000 cfu (colony forming units)
 - Higher when flows are low, but there have been instances of high levels even when there is water in the river from releases, rain, etc.
- Monitoring continues at same frequency.
 - Report to NMED if situation requires it (i.e. fish kill, obvious sewage, etc.)

On a positive note...



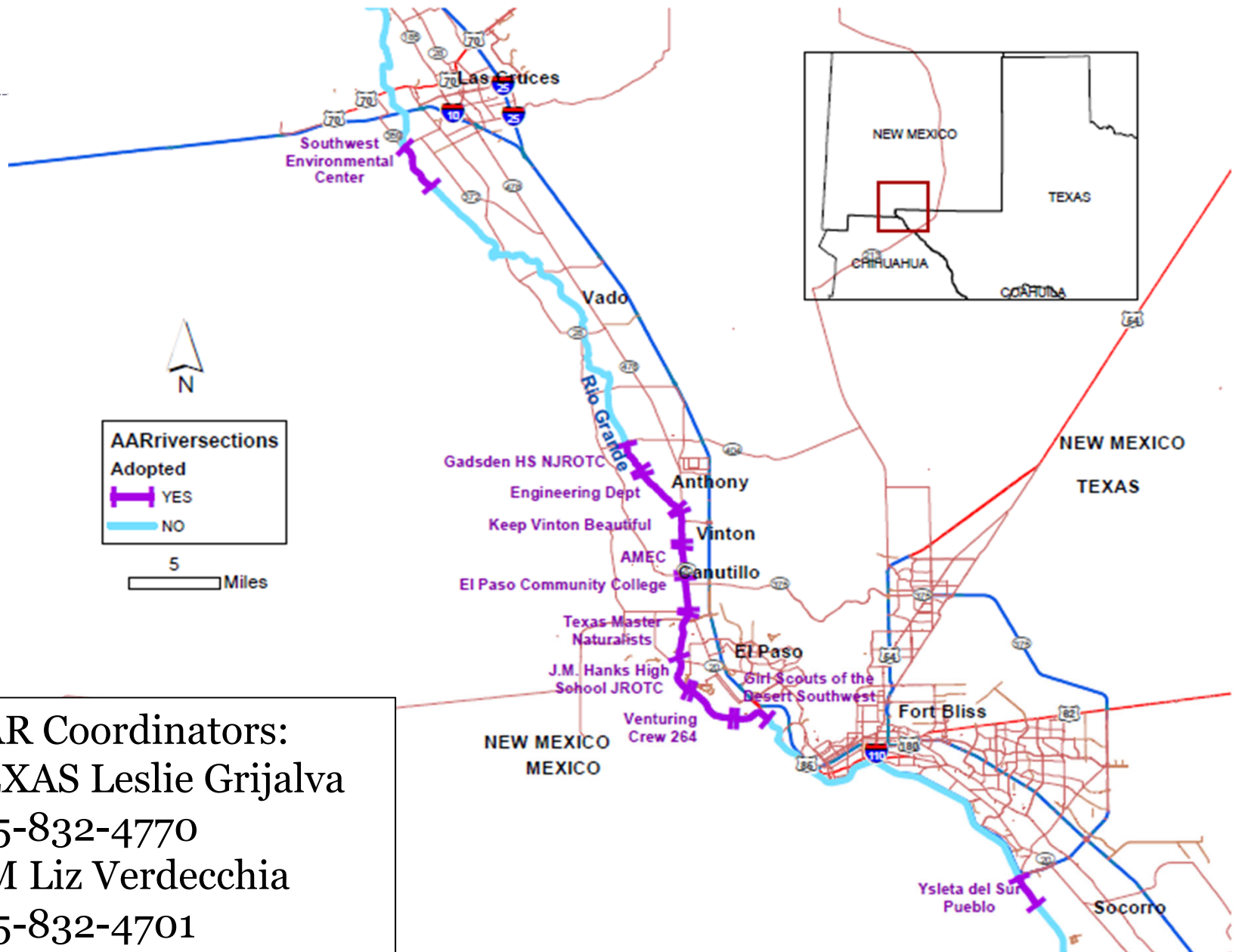
- The CRP has many activities aimed at promoting environmental awareness.
 - Participate heavily in events put on by the EPW TechH2O Center and local schools.
 - Work with TPWD, the City of El Paso, the El Paso Zoo
- Staff is trained in different environmental education curriculums.
 - Project WET, Project WILD, Project Learning Tree, Texas Stream Team
- The USIBWC's Adopt-a-River Program was created to assist with the issues of trash in and along the RG.
- Work with local higher learning institutions (UTEP and EPCC locally).

USIBWC's Adopt-a-River Program

- Community groups adopt a 2-mile section of river for 2 years
- Commit to 2-3 cleanups per year
- Community groups leave trash bags on levee
- IBWC picks up and disposes of trash
- Sign acknowledging group posted
- Sections available for adoption



Adopted River Sections



AAR Coordinators:
TEXAS Leslie Grijalva
915-832-4770
NM Liz Verdecchia
915-832-4701

EPCC and UTEP work with CRP



- The CRP is partnered with EPCC's Service Learning Program
 - Program integrates community service or special projects into the professor's curriculum.
 - Students have helped the CRP by analyzing data and making graphs, entering data, helping during a river clean-up, and helping with water sampling.
- RISE (Research Initiative for Scientific Enhancement) Program
 - Program is aimed at providing underrepresented students research opportunities and encourage them to pursue graduate degrees and biomedical research.
 - EPCC program students come out with CRP staff and collect water samples.
- UTEP's Biology and Env. Science classes collect samples with the CRP.
 - Students gain experience in the field and in water collection techniques
- The CRP is always looking for ways to help students learn about the environmental science field, and help them gain exposure to field and sampling techniques.
 - CRP staff provide training in the field and with water quality monitoring equipment.

CRP Website

www.ibwc.gov/CRP/Index.htm



- RECOVERY.GOV
- Home
- About Us
- Employment Opportunities
- Organization
- Mission Operations
 - Flood Control Levee Systems
 - Diversion Dams & Related Structures
 - Storage Dams (Reservoirs) / Power Plants
 - Wastewater Treatment Plants
 - Field Offices
 - TEXAS CLEAN RIVERS
 - Emergency Management
- Treaties / Minutes
- Permits / Licenses
- Water Data
- GIS / Maps
- News / Publications
- Citizens Forums
- Reports / Studies
- Links



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...](#)



APRIL 2019:
PLEASE CHECK THE [CALENDAR](#) PAGE FOR LINKS TO THE COORDINATED MONITORING MEETING MINUTES AND INFORMATION ON THE PECOS BAC MEETING IN MAY

- 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
- Projects & studies
- Outreach
- RG info
- Photos & videos
- Links, etc

Questions?

USIBWC – CRP

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crp@ibwc.gov

CRP Website

www.ibwc.gov/CRP/Index.htm