

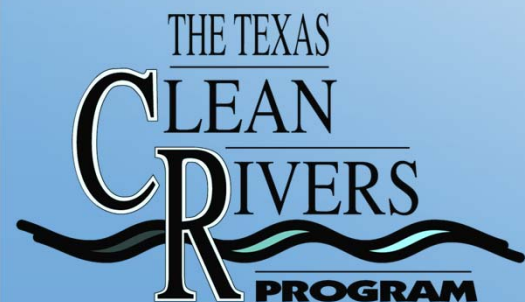


WATER QUALITY IN THE LOWER RIO GRANDE

ANNUAL WATER QUALITY UPDATE AND BASIN ADVISORY MEETING

LESLIE GRIJALVA, USIBWC TEXAS CLEAN RIVERS PROGRAM

AUGUST 8, 2018, MERCEDES, TX



WHAT IS THE IBWC TEXAS CLEAN RIVERS PROGRAM?

- State fee-funded program created in 1991
- IBWC integrated water quality monitoring program with TCEQ in 1998
- USIBWC collects ambient water quality for entire reach of the international portion of the Rio Grande
 - Samples are collected monthly or quarterly by IBWC, TCEQ Regional Offices, and volunteer groups such as City of Brownsville
 - Sample and analysis was standardized to ensure data quality

Monitoring sites on the Rio Grande

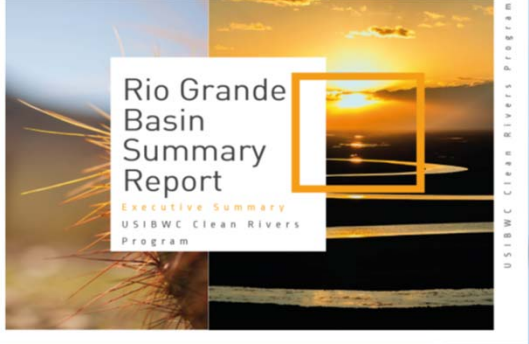
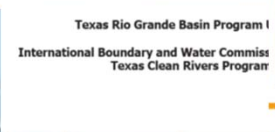
- USIBWC CRP – 74 SITES
- TCEQ – 36 sites
 - 9 DUPLICATE
 - Total 94 stations

Identify &
Evaluate Water
Quality Issues

Provide data so
that corrective
actions can be
prioritized and
implemented

WHAT DOES CRP DO?

- Water Quality Monitoring
 - Routine Monitoring
 - Special Studies
- Water Quality Assessment and Reports
 - Annual Basin Highlights Report
 - Basin Summary Report (5- year report)
 - Watershed Characterizations (1st report 2016)



OTHER CRP ACTIVITIES

- PUBLIC PARTICIPATION, OUTREACH, AND ENVIRONMENTAL EDUCATION



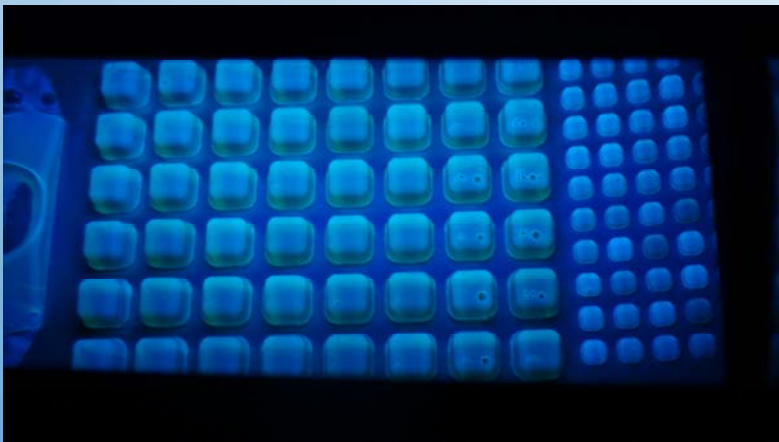
WHAT DATA DOES CRP COLLECT?

- **ROUTINE PARAMETERS**

- FIELD DATA (PH, DO, EC, TEMP)
- CONVENTIONALS (NUTRIENTS, SALTS, BOD, TDS)
- BACTERIA

- **NON-ROUTINE**

- ORGANICS IN SEDIMENT
- METALS IN WATER AND SEDIMENT



LOCAL PARTNERSHIPS- LOWER RIO GRANDE

Help monitor and collect water samples, and analyze water samples:

- USIBWC Mercedes field office
- USIBWC Falcon Dam field office
 - UTRGV- EDINBURG
 - Brownsville PUB
 - USGS
 - TCEQ Harlingen
- TCEQ Continuous WQ Monitoring

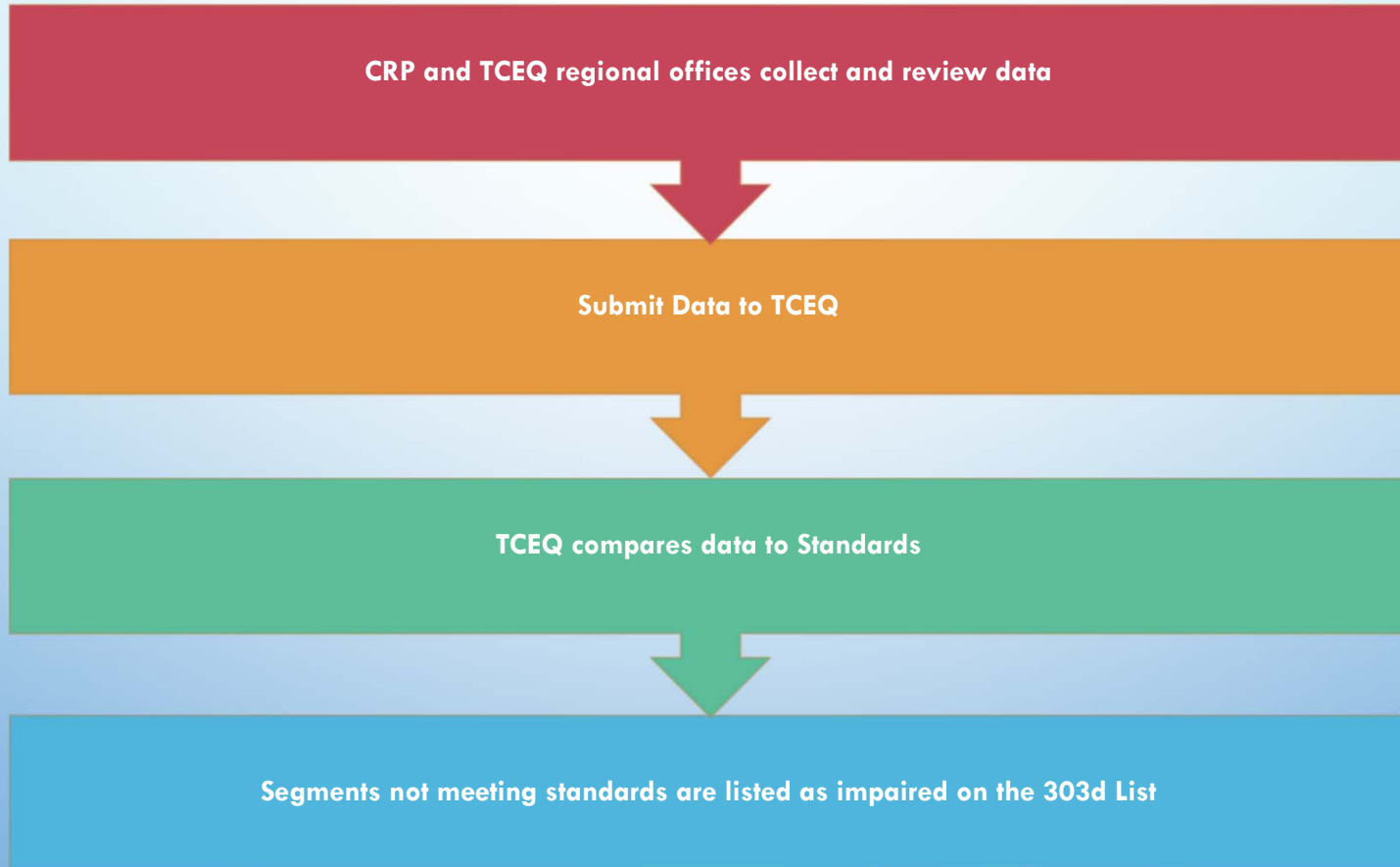
WHAT HAPPENS TO THE DATA?

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">• Primary Contact Recreation• Excellent Aquatic Life	--	35 Enterococci
2302 – Below Falcon	<ul style="list-style-type: none">• Primary Contact Recreation• High Aquatic Life• Sole-source public drinking supply	880	126 E. Coli
2303 – Falcon Reservoir	<ul style="list-style-type: none">• Primary Contact Recreation• High Aquatic Life• Sole-source public drinking supply	1,000	126 E. Coli

INTEGRATED REPORT AND 303D LIST

IMPAIRMENTS → DOES NOT MEET WATER QUALITY STANDARDS

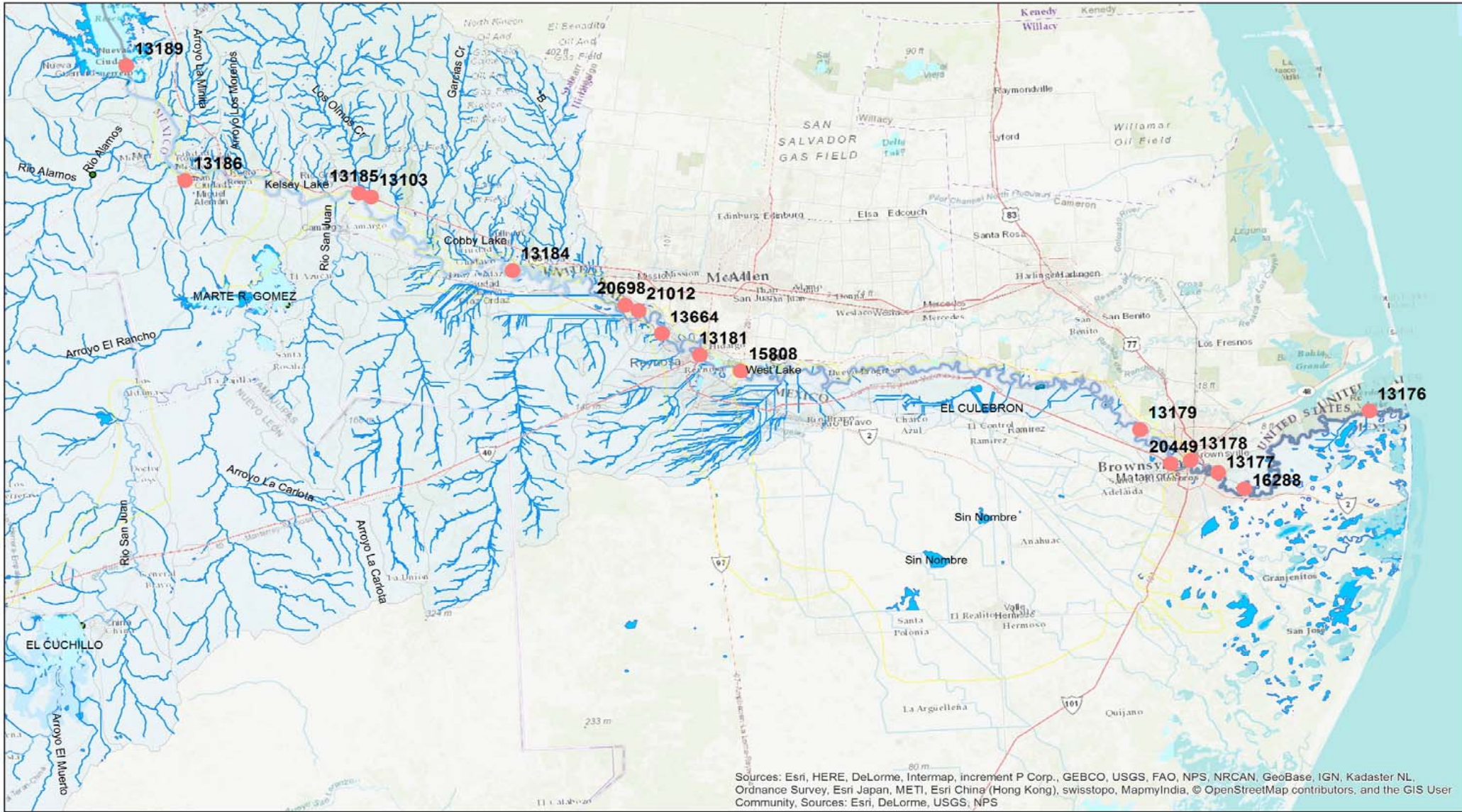
CONCERNS → CLOSE TO NOT MEETING WATER QUALITY STANDARDS, OR HAVE HIGH VALUES OF PARAMETERS FOR WHICH THERE ARE NO STANDARDS

WATER QUALITY IMPAIRMENTS AND CONCERNS IN THE LOWER RIO GRANDE BASIN

Segment	Segment Name	Parameter(s) Impaired	Year First Listed	Assessment Category	Parameter (s) of Concern	Level of Concern ²
2303	International Falcon Reservoir	No Impairments	--	--	Ammonia Nitrate Total Phosphorus Toxicity in Water	CS CS CS CN

Segment	Segment Name	Parameter(s) Impaired	Year First Listed	Parameter (s) of Concern	Level of Concern ²
2302	Below International Falcon Reservoir	<i>E. coli</i>	1996	Ammonia Chlorophyll- <i>a</i> Depressed DO	CS CS CS
2302A	Los Olmos Arroyo	<i>E. coli</i>	2004	Chlorophyll- <i>a</i>	CS

Segment	Segment Name	Parameter(s) Impaired	Year First Listed	Assessment Category ¹	Parameter (s) of Concern	Level of Concern ²
2301	Rio Grande Tidal	No Impairments	--	--	<i>Enterococci</i> Chlorophyll- <i>a</i> nitrate	CN CS CS



BACTERIA ISSUES IN THE LOWER RIO GRANDE

- DECREASING BACTERIA IN THE VALLEY
 - DECREASING IN BROWNSVILLE SINCE 2008
 - MOST LIKELY DUE TO WASTEWATER TREATMENT PLANT GOING ONLINE IN 2008 IN MATAMOROS.
 - BACTERIA ISSUES IN THIS SECTION OF THE RIVER ARE IMPROVING
- OTHER AREAS SHOW INCREASING LEVELS OF BACTERIA
 - RIO GRANDE CITY
 - HIDALGO
 - MCALLEN

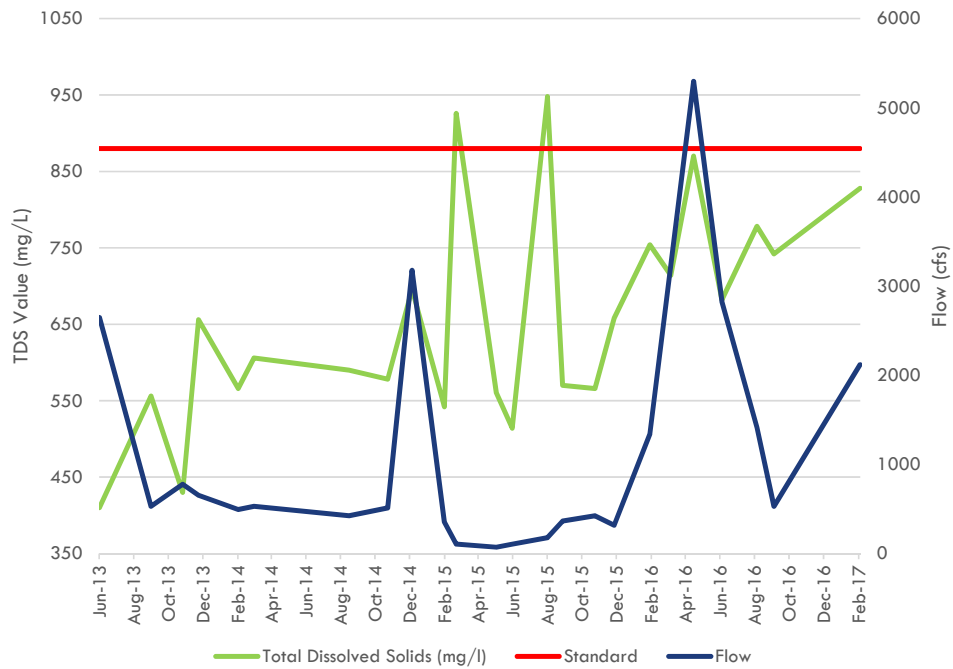


SALINITY IN THE LOWER RIO GRANDE

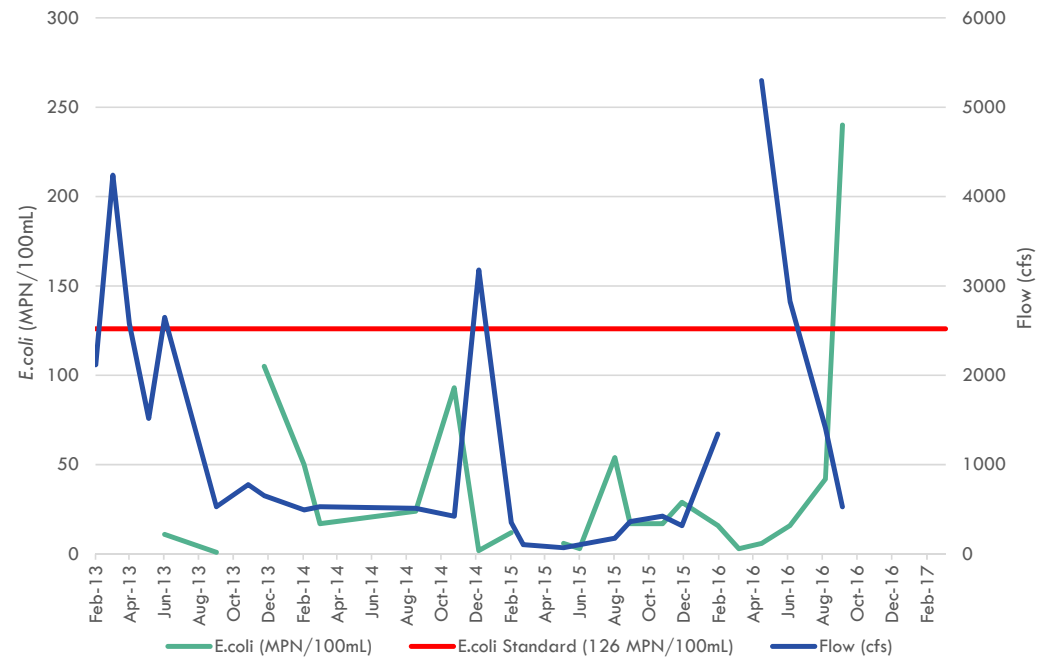
- HIGH SALINITY HAS RECENTLY BEEN REPORTED, PARTICULARLY AFTER THE RECENT FLOOD EVENT
 - HIGH SALINITY VALUES RESULT IN THE NEED TO RELEASE MORE WATER TO DILUTE
- POSSIBLE CAUSES
 - RECENT FLOOD EVENT IN JUNE, RESULTING IN SIGNIFICANT RUNOFF INTO THE RIVER.
 - RUNOFF BRINGS WITH IT EVERYTHING ON ROADS, AGRICULTURAL FIELDS, ETC.
 - IRRIGATION RETURN FLOWS COUPLED WITH PREVIOUSLY LOW FLOWS
 - FEWER RELEASES FROM FALCON RESERVOIR
 - OTHER INPUTS INTO THE RIVER (MORILLO DRAIN)

UPSTREAM OF RIO GRANDE CITY

Rio Grande near Fronton Texas: Station 13186

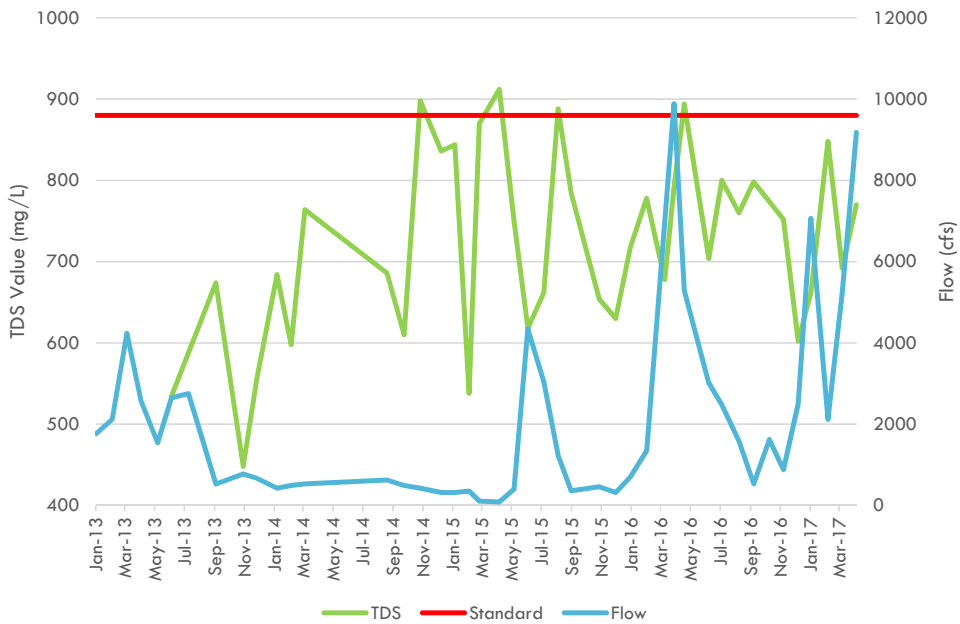


Rio Grande near Fronton Texas: Station 13186

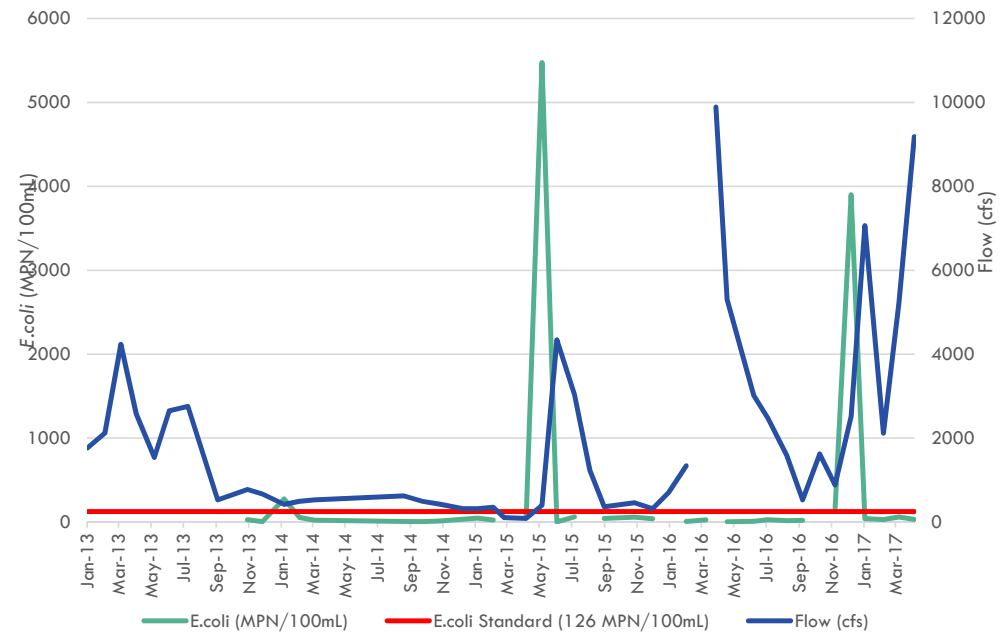


UPSTREAM OF RIO GRANDE CITY

Rio Grande River at Fort Ringgold, near Rio Grande City: Station 13185

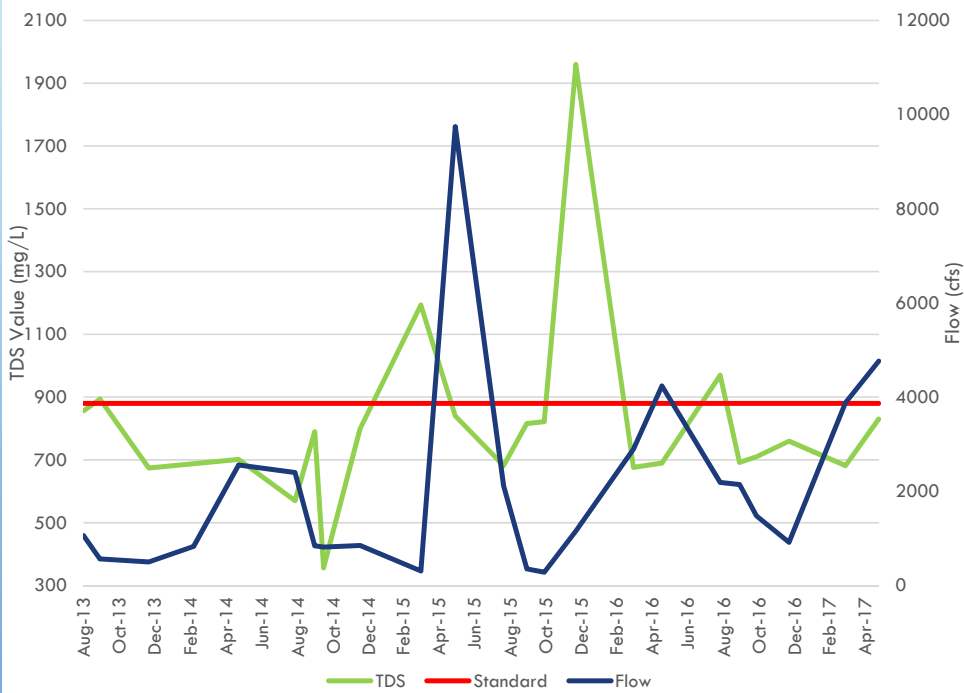


Rio Grande River at Fort Ringgold, near Rio Grande City: Station 13185

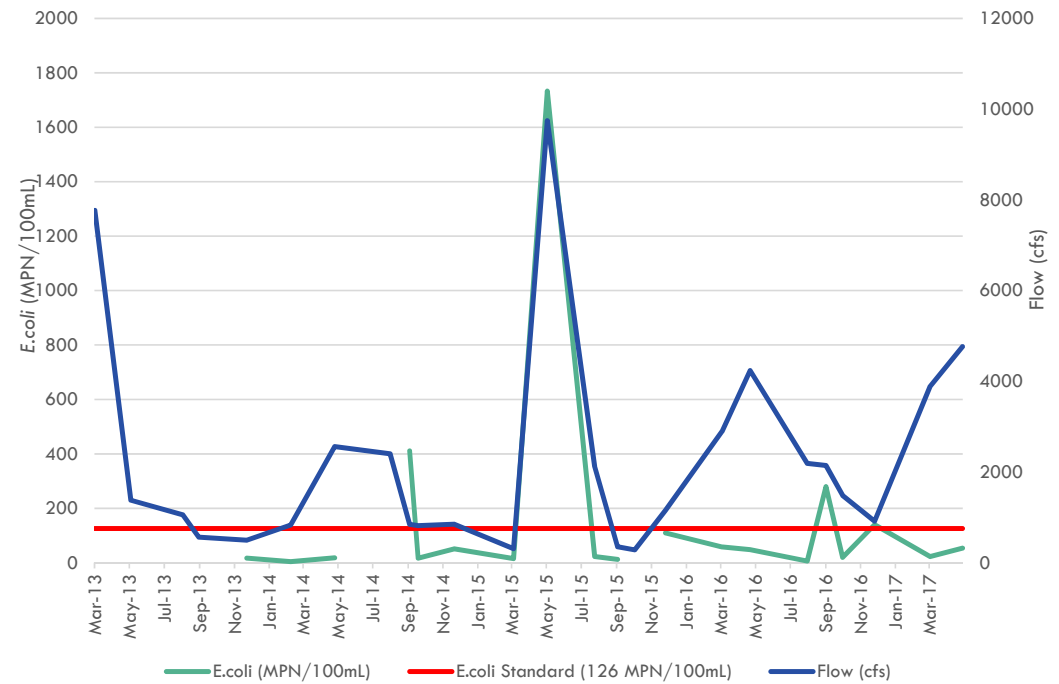


UPSTREAM OF MCALLEN

Rio Grande River near Los Ebanos: Station 13184

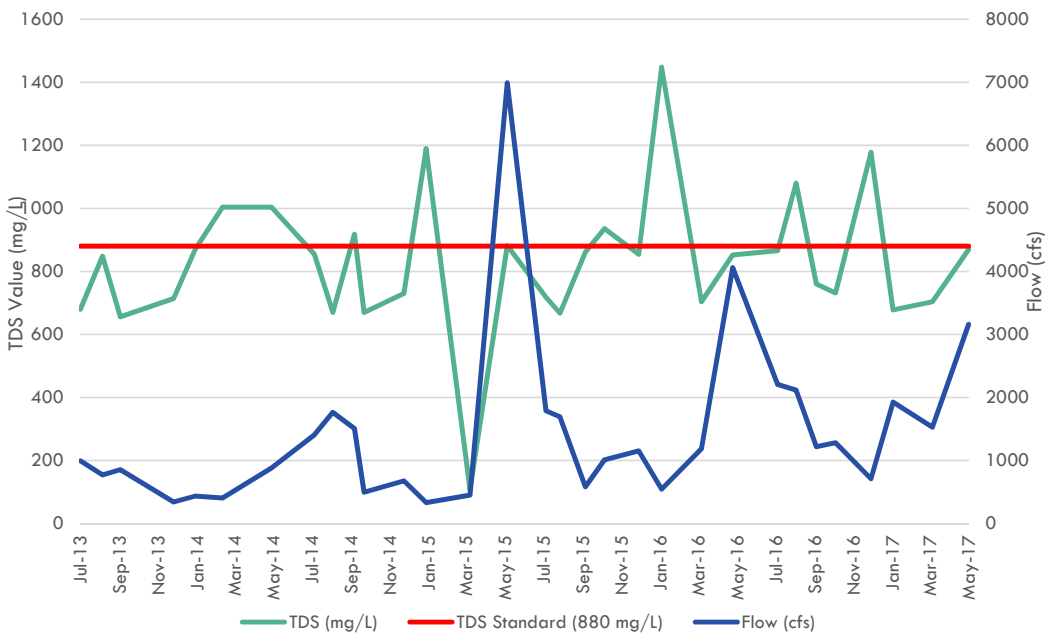


Rio Grande River near Los Ebanos: Station 13184

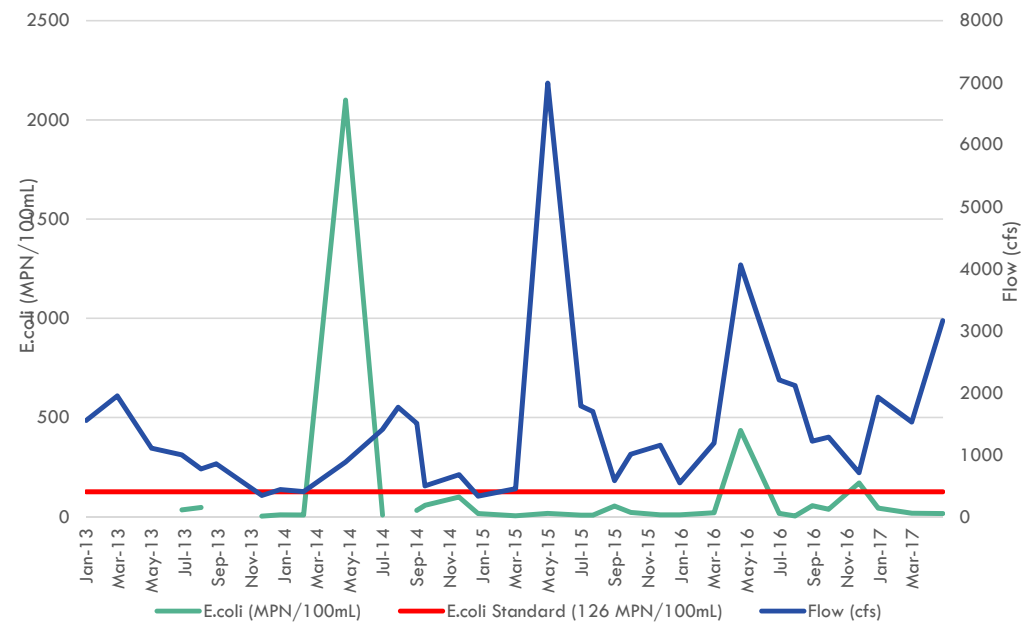


UPSTREAM OF MCALLEN

Rio Grande Downstream of Anzalduas Dam: Station 13664

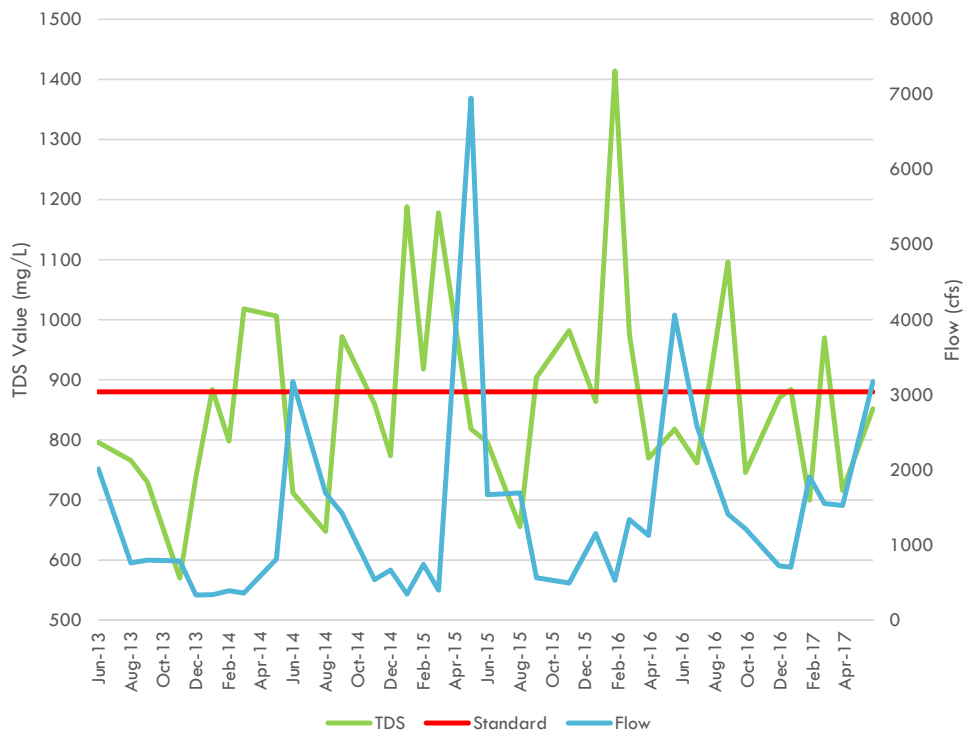


Rio Grande Downstream of Anzalduas Dam: Station 13664

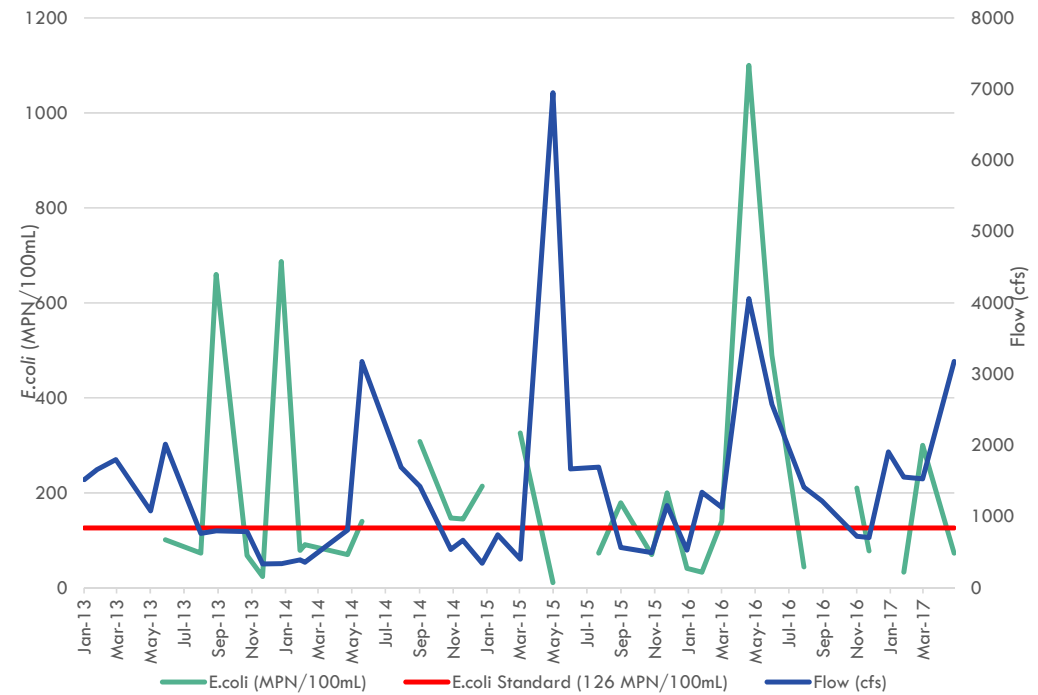


DOWNSTREAM OF MCALLEN

Rio Grande River at Hidalgo: Station 13181

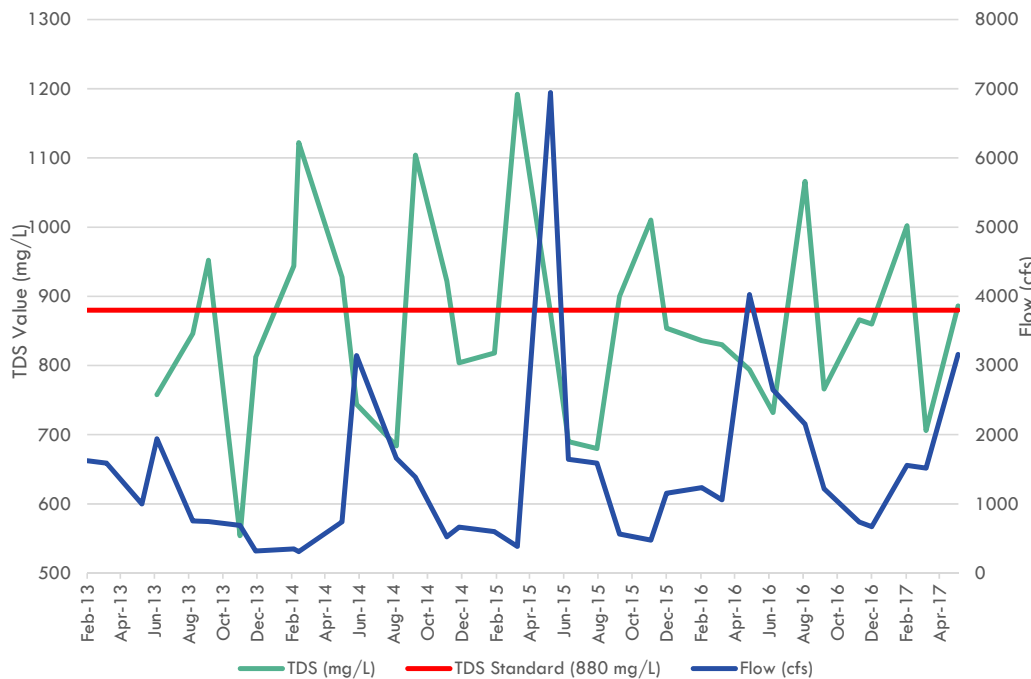


Rio Grande River at Hidalgo: Station 13181

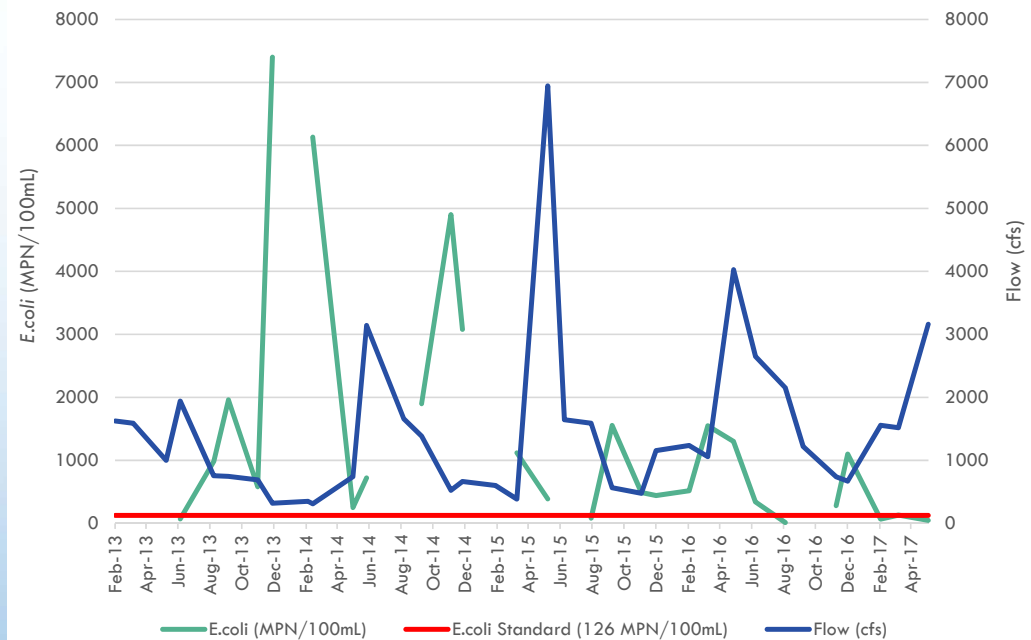


DOWNSTREAM OF MCALLEN

Rio Grande Upstream of Pharr International Bridge: Station 15808

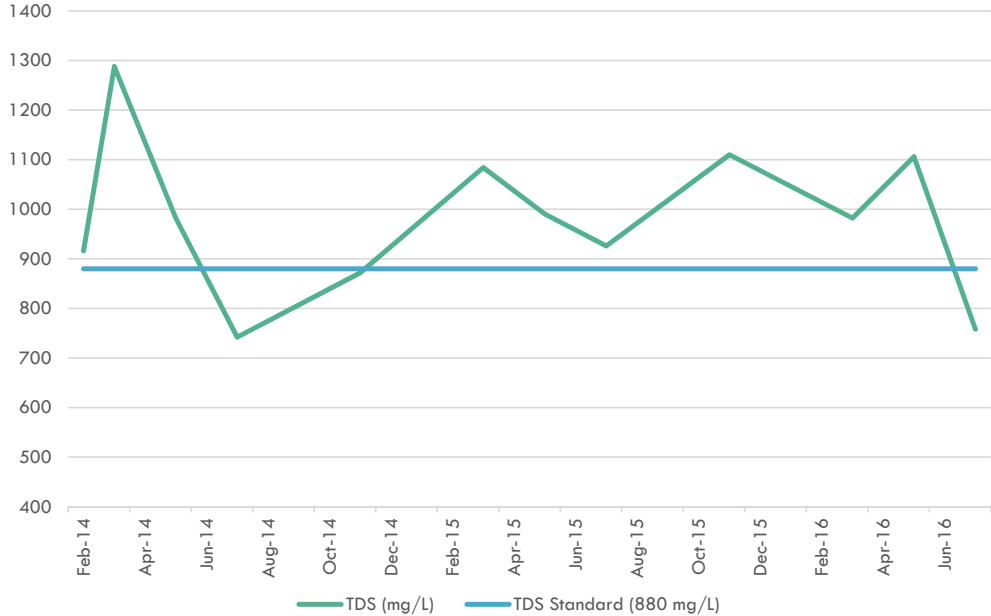


Rio Grande Upstream of Pharr International Bridge: Station 15808

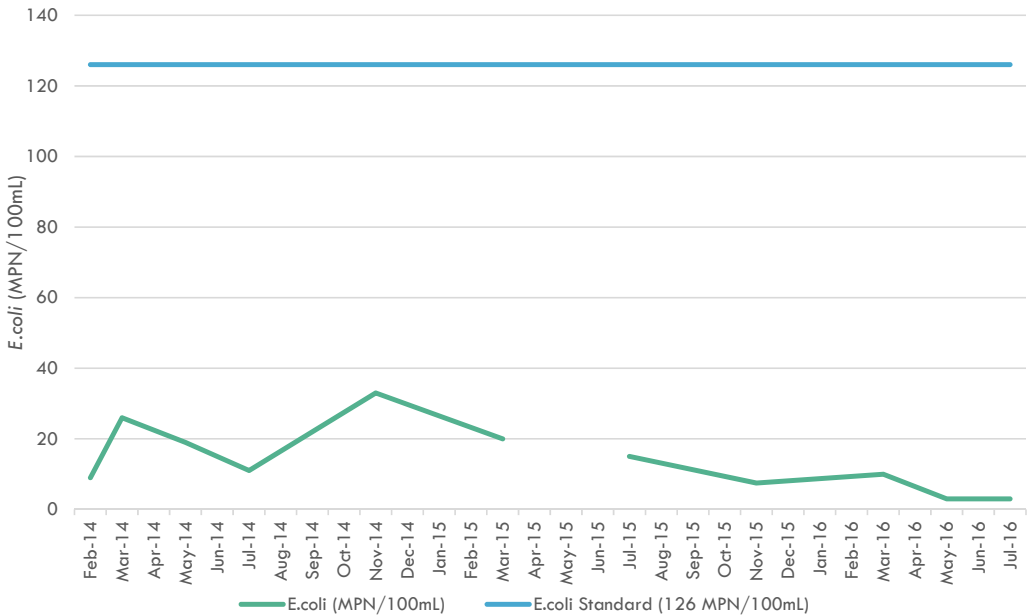


NORTH OF BROWNSVILLE

Rio Grande at Riverbend Golf Course West of Brownsville:
Station 13179

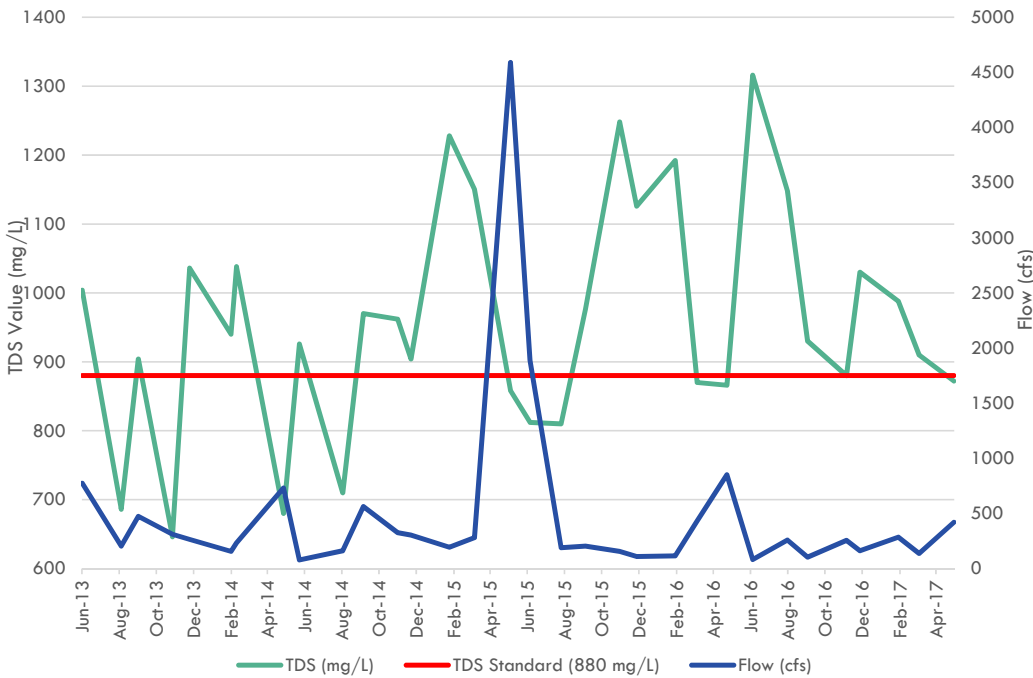


Rio Grande at Riverbend Golf Course West of Brownsville: Station
13179

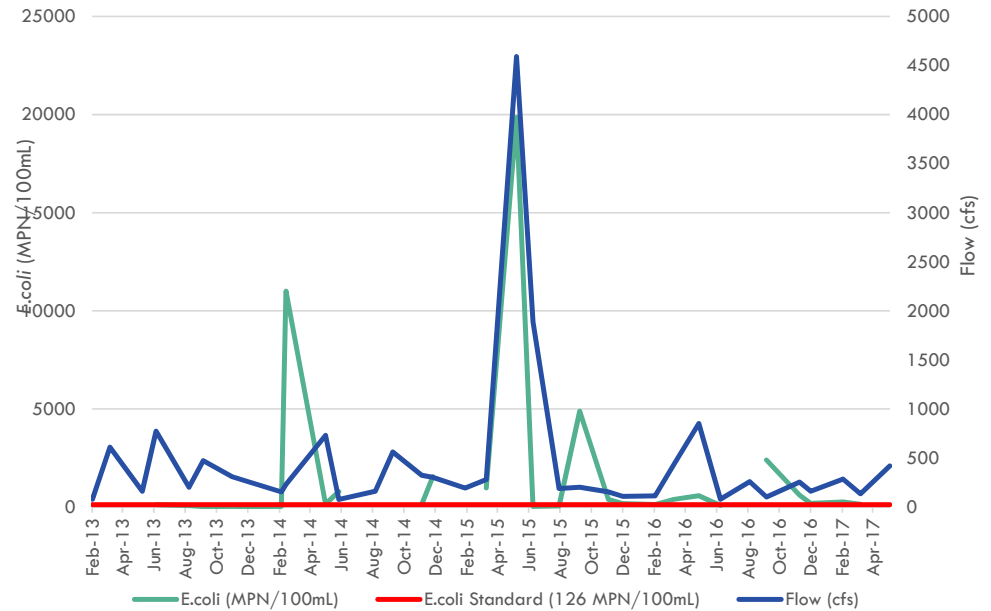


DOWNSTREAM OF BROWNSVILLE

Rio Grande at El Jardin Pump: Station 13177



Rio Grande at El Jardin Pump: Station 13177



WHAT DOES THE DATA TELL US?

- BACTERIA COUNTS ARE DECREASING IN THE BROWNSVILLE AREA, BUT INCREASING UPSTREAM NEAR RIO GRANDE CITY AND MCALLEN.
 - MAY BE NON-POINT SOURCE RATHER THAN A POINT SOURCE.
 - RAINFALL, STORM WATER RUNOFF, AND AGRICULTURAL RETURN FLOWS MAY ALL BE CONTRIBUTING FACTORS.
 - URBAN AREAS HAVE GROWN AND INCREASING POPULATION MAY ALSO BE CONTRIBUTING TO THE ISSUE.
- TDS LEVELS TEND TO RISE WHEN FLOWS ARE LOW, AND DECREASE WHEN FLOWS ARE HIGH.
 - THEY ARE ALSO HIGHER AS WE GET FURTHER DOWNSTREAM
- CURRENTLY, IN CRP'S MONITORING FRAMEWORK, THE INCREASING SALINITY VALUES ARE SOMETHING WE ARE MONITORING CLOSELY
 - NO CURRENT IMPAIRMENT OR CONCERN EXISTS FOR SALINITY IN THIS REACH UNDER THE 303D LIST.
 - AVERAGE IS STILL UNDER THE WATER QUALITY STANDARD OF 880 MG/L.
- THE PROGRAM CONTINUES TO MONITOR AT THE STATIONS ON A ROUTINE BASIS AND PROVIDES THE DATA TO THE TCEQ.

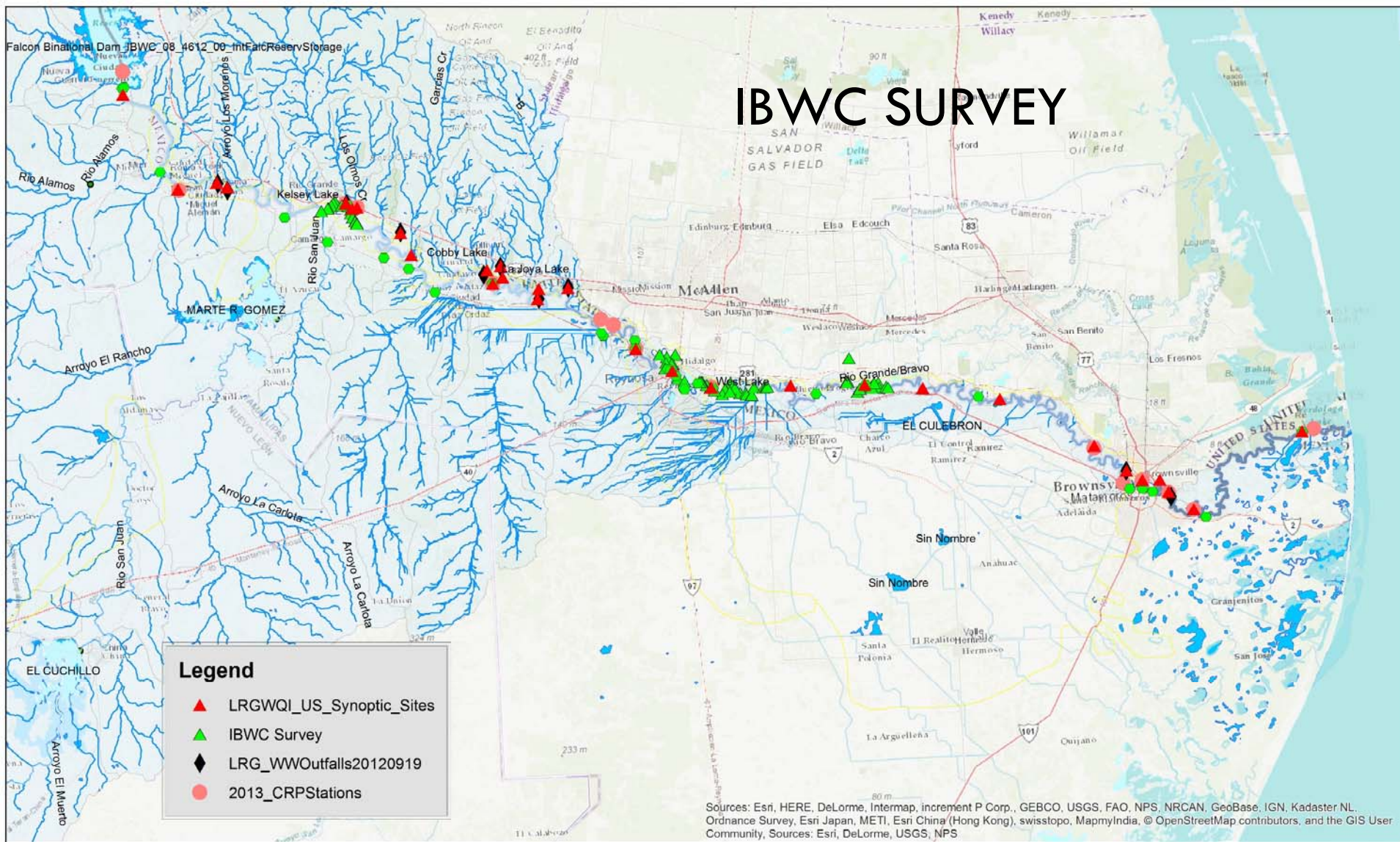
RIO GRANDE WATER QUALITY

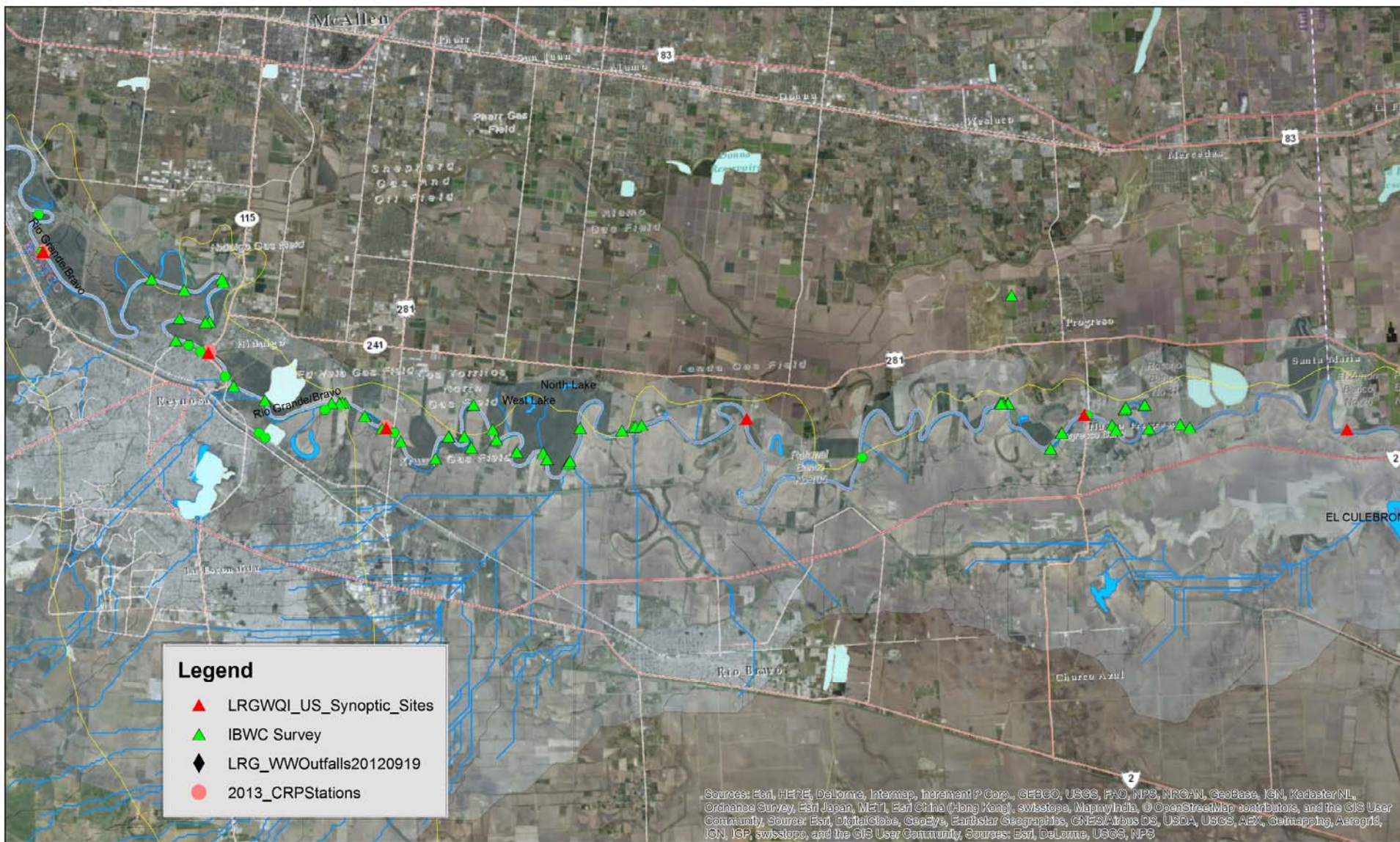
- RECENT TIMELINE- SEPTEMBER 10, 2013, **IBWC TERMS OF REFERENCE “UNITED STATES-MEXICO JOINT COOPERATIVE ACTIONS IN THE LOWER RIO BRAVO/RIO GRANDE RIVER BASIN”**
- GENERAL OBJECTIVE- TO ESTABLISH, UNDER THE IBWC, A GROUP FROM THE UNITED STATES AND MEXICO TO EXPLORE BORDER SANITATION AND WATER QUALITY MANAGEMENT
 - SPECIFIC OBJECTIVES-
 - IMPROVE SALINITY MANAGEMENT FOR RETURN FLOWS INTO THE LOWER RIO GRANDE
 - ADDRESS CURRENT AND FUTURE WATER QUALITY ISSUES OF THE LOWER RIO GRANDE
 - IMPLEMENT MANAGEMENT PROCEDURES AND PROGRAMS THAT ENABLE AFFECTED PARTIES TO MANAGE WASTEWATER DISCHARGES AND IMPROVE WATER QUALITY CONDITIONS
 - EVALUATE CURRENT WASTEWATER INFRASTRUCTURE AND MANAGEMENT STRATEGIES FOR THE POTENTIAL FOR IMPROVING THE EFFLUENT QUALITY
 - EVALUATE NEW MECHANISMS AND STRATEGIES FOR SYSTEM OPERATIONS THAT COULD IMPROVE AMBIENT WATER QUALITY
 - **BASED ON THE RESULTS OF THE EVALUATIONS, IMPLEMENT PROGRAMS AND PROJECTS TO MEET THESE OBJECTIVES AS APPROPRIATE, AND RESULT IN MEASURABLE AND SUSTAINABLE IMPROVEMENT IN WQ**

LOWER RIO GRANDE WATER QUALITY INITIATIVE

- SEPTEMBER 10, 2013- **LOWER RIO GRANDE/RIO BRAVO WATER QUALITY INITIATIVE, PILOT PROJECT**
- INITIAL PROJECT TO DEVELOP A BINATIONAL WATER QUALITY PLANNING EFFORT FROM FALCON INTERNATIONAL DAM TO THE GULF OF MEXICO TO IMPROVE AND PROTECT WATER QUALITY (FOCUS ON BACTERIA BUT INCLUDED SALINITY SOURCES AS ANOTHER EFFORT)
 - TECHNICAL APPROACH
 - HISTORICAL DATA REVIEW
 - IDENTIFICATION OF DATA GAPS
 - DATA COLLECTION
 - DATA ANALYSIS AND MODELING
 - IDENTIFYING FEASIBLE OPTIONS TO IMPROVE WATER QUALITY
 - LEGITIMIZING THE ANALYSIS
 - LEGAL FRAMEWORK

IBWC SURVEY





LOWER RIO GRANDE WATER QUALITY INITIATIVE

- STATUS OF THE LRGWQI
 - MODEL (LAQUAL II) HAS BEEN COMPLETED
 - CALIBRATED
 - APPROVED BY BOTH U.S. AND MEXICAN TEAMS
 - STAKEHOLDER ENGAGEMENT
 - ONGOING, WORKSHOPS HELD IN U.S. COMMUNITIES AND ARE BEING PLANNED IN MEXICO AT THIS TIME
 - BINATIONAL MEETING (AUGUST 2018, TENTATIVE)
 - DISCUSS MODEL AND SCENARIO DEVELOPMENT
 - DRAFT REPORT OF INITIATIVE AND WATER QUALITY IMPROVEMENT PLAN
- WILL SERVE AS AN INSTITUTIONAL MODEL FOR ADDRESSING ADDITIONAL TRANS-BOUNDARY WATER QUALITY ISSUES IN OTHER PARTS OF THE RIO GRANDE.



CONTACT INFO:

LESLIE GRIJALVA, USIBWC CRP PROGRAM MANAGER

Leslie.Grijalva@ibwc.gov

915-832-4770

CRP Website: <https://www.ibwc.gov/CRP/Index.htm>

Thank you!