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

USIBWC CITIZENS’ FORUM AND UPPER RIO GRANDE BASIN ADVISORY MEETING
JULY 13, 2017

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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
- Water Quality Issues in the Rio Grande
- Challenges in a Binational Basin
- 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
- 1998 TCEQ-USIBWC partnership
- 2017 monitoring sites on Rio Grande:
  - 94 total sites
    - CRP – 67 sites
    - TCEQ – 37 sites
    - USGS – 2 sites
    - Shared – 10 sites
What is the Texas Clean Rivers Program?

- A 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
CRP Activities

Students at the EPWU Water Festival performing water quality experiments and learning about water quality.

CRP staff sampling with students from EPCC

A river cleanup by one of the Adopt-a-River partners
Local Partnerships

- 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
  - TCEQ El Paso Field Office
  - Big Bend National Park
  - Big Bend Ranch State Park
  - TCEQ Continuous Water Quality Monitoring Program

- All use TCEQ sampling procedures and an accredited laboratory for analysis
FY 2018 Monitoring Sites

2017 Upper RG Monitoring Sites
- 67 RG and Pecos sites
- 37 sites - TCEQ
- 10 collected by both TCEQ and CRP
2015 Upper RG Monitoring Sites
- 12 sites in El Paso and surrounding area
2017 Upper RG Monitoring Sites
• 27 sites from Presidio to Del Rio
• 2 sites along the Pecos River
• 1 site at Kokernot Springs in Alpine
TCEQ Continuous Water Quality Monitoring

- [www.texaswaterdata.org](http://www.texaswaterdata.org)
- 16 CWQM stations in RGB
  - Temp
  - pH
  - sp cond
  - water level
  - TDS
  - DO

Rio Grande Basin
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.

- 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

The 2014 assessment lists 9 out of the 14 established segments for the Rio Grande as impaired.

2014 assessment lists the following segments as impaired:
- 2302: Rio Grande Below Falcon Reservoir, bacteria
- 2304: Rio Grande Below Amistad Reservoir, bacteria
- 2305: International Amistad Reservoir, chloride, total dissolved solids
- 2306: Rio Grande Above Amistad Reservoir, chloride, 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
- 2313: San Felipe Creek, bacteria
- 2314: Rio Grande Above International Dam, bacteria

The 2014 Texas Water Quality Standards must be adopted by the Texas Commission on Environmental Quality.
- Must then be approved by the Environmental Protection Agency.
2014 Assessment Impaired Segments

- 2014 assessment lists 2306, 2307, 2308, 2311, 2313, 2314 as impaired
  - 2306_01-08 Chloride, Sulfate, TDS
  - 2307_03-05 Bacteria; 01-05 Chloride and TDS
  - 2308_01 Bacteria *This impairment is new.
  - 2311_03 Depressed Dissolved Oxygen
  - 2313_01 Bacteria *This impairment is new.
  - 2314_01 Bacteria

- The 2014 Texas Water Quality Standards were adopted by the Texas Commission on Environmental Quality on February 12, 2014.
  - Effective for all state permits.
  - They have not been approved by the EPA at this time.
  - Until approved by the EPA, the 2010 standards still apply to all Federal permits.
## Draft 2014 Water Quality Standards

Texas Commission on Environmental Quality  
Chapter 307 - Texas Surface Water Quality Standards  
Rule Project No. 2012-001-307-OW

### Rio Grande Basin Designated Uses and Numeric Criteria

<table>
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<th>Segment No.</th>
<th>Rio Grande Basin Segment Names</th>
<th>Recreation Use</th>
<th>Aquatic Life Use</th>
<th>Domestic Water Supply Use</th>
<th>Other Uses</th>
<th>Cl(^\text{\textsuperscript{2}}) (mg/L)</th>
<th>SO(_4\text{\textsuperscript{2-}}) (mg/L)</th>
<th>TDS (mg/L)</th>
<th>Dissolved Oxygen (mg/L)</th>
<th>pH Range (SU)</th>
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Main Rio Grande Water Quality Issues

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

An example of discharging.

An example of an invasive species, in this case aquatic weeds.
Main Issues

A large fish kill

Fish kill in Presidio, TX, June 2011

Foam in the Rio Grande, possibly due to high phosphate levels.
E coli at 13272 in El Paso, 2006-2017

Texas Surface Water Quality Standard
For E. coli (126 #/100ml geometric mean)
Conductivity at 13272 in El Paso, 2006-2016
Concerns for El Paso Reach of the Rio Grande

- Routine monitoring still shows high levels of bacteria in the El Paso area.
  - Specifically around the Sunland Park, NM/El Paso, TX area
- Station 17040, about a mile upstream from Station 13272, has shown bacteria levels of up to 24,000 cfu
  - 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.
- The Clean Rivers Program has alerted the NM Environmental Department and TCEQ Region 6 of the problem.
  - Working together to find a solution to the problem.
  - Monitoring continues.
On January 12, 2017, CRP was out with EPCC and came upon a large fish kill in the river at Sunland Park, NM.
- Staff noticed dead fish upon arrival.
- Walking along the river bank, became evident that there had been a fish kill.

CRP and USIBWC Env Management Div. staff returned that afternoon to do a full count and collect samples.
- Dead fish began about .25 miles upstream of the bridge at Racetrack Dr and McNutt, continued about ¾ mile downstream of the bridge.
- Counted 560 dead or dying fish in a 1 mile stretch of the river.
Dead fish were mainly catfish, but carp, minnows and tadpoles were also seen.

Water was very foul-smelling and a dark gray color.

Samples were collected upstream of the bridge near the Sunland Park WWTP, and downstream of the bridge near one of the larger groups of dead fish.

Sent for analysis to the EPW laboratory.

Results showed high COD and BOD levels.

- Unable to collect bacteria samples due to holding time restrictions.
- However, routine samples taken earlier that week slightly downstream showed high bacteria levels.

Environmental Complaint filed with NMED.
Video, January 2017 Fish Kill
Nutrient Criteria

- EPA has mandated that states create Numeric Nutrient Criteria
  - 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
- \(\rightarrow\) will impact WWTP effluent limits
- \(\rightarrow\) agriculture
  - USDA 2010 report estimates 65% of farmers are not optimizing nutrient management

Total Phosphorus
Total Nitrogen
Chlorophyll-a
Turbidity

Historical conditions
Stressor Response
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 in NM still 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 chapter is a CRP partner
  - Students come with CRP staff and collect water samples.
- UTEP’s Biology and Env. Science classes collect samples for 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

- Data
- Maps
- Calendar
- Publications
- Projects & studies
- Outreach
- RG info
- Photos & videos
- Links, etc
Questions?

USIBWC – CRP

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Or send an email to crp@ibwc.gov

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