Nueces River Authority Texas Clean Rivers Program



November 6th, 2019







In 1991, The Texas Legislature passed the Texas Clean Rivers Act (Senate Bill 818) requiring basinwide water quality assessments to be conducted for each river basin in Texas. Under this act, the CRP developed a partnership with the TCEQ, other state agencies, river authorities, local governments, industry, and citizens.

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The TCEQ and the Nueces River Authority work together to identify and evaluate surface water quality issues and to establish priorities for corrective action. Under CRP, Nueces River Authority is responsible for the San Antonio-Nueces Coastal Basin, the Nueces River Basin, the Nueces-Rio Grande Coastal Basin, and the adjacent bays and estuaries.

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El Pas



Monitoring Partners

- TCEQ Region 13 San Antonio
- TCEQ Region 14 Corpus Christi
- TCEQ Region 15 Harlingen
- TCEQ Region 16 Laredo
- Bandera County River Authority and Groundwater District (BCRAGD)

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NRA's CRP Monitoring

33 River/Lake Stations10 Coastal Stations

Data gathered

- Multiprobe instrument pH, dissolved oxygen, temperature, specific conductance, water appearance
- Water chemistry
- Air temp, wind/dir., pictures, notes
- Streamflow, tide stage, precipitation

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Laboratory Analysis

CC-Water Utilities Lab

- Alkalinity and Hardness
- Chloride/Sulfate/TDS
- Turbidity and TSS
- Nutrients (TKN, Ammonia, Total Phosphorus, Nitrate/Nitrite, TOC)
- E. coli (Fresh Water)
- Enterococcus (Marine and High Conductivity Water)

Center for Coastal Studies

 Chlorophyll-*a* and Pheophytin

LCRA - ELS

- Total Metals
- Dissolved Metals

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Quarterly Monitoring

 Routine monitoring occurs on a quarterly basis.



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What do we do with the data?

- Field and lab data are compiled, reviewed, and submitted to the TCEQ SWQMIS Database.
- Every 2 years the TCEQ uses the data to update the Texas Integrated Report (IR) for Clean Water Act, Sections 305(b) and 303(d).



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Texas Integrated Report (IR)

 The IR describes the status of Texas' natural waters based on historical data and the extent to which they attain the Texas Surface Water Quality Standards



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Texas Surface Water Quality Standards

- They establish goals for the quality of streams, rivers, lakes, and bays throughout the state.
- They support health, enjoyment, and protect aquatic life.



Texas Surface Water Quality Standards

- General Use temperature, nutrients, pH
- Aquatic Life dissolved oxygen
- Recreation bacteria
- **Public Water Supply** minerals, toxic substances
- Fish Consumption DDE, PCBs, Mercury

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Addressing Impairments



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Addressing Impairments

- Water Quality Impairments must be addressed.
 - Additional Data is needed
 - Total Maximum Daily Load (TMDL)
 - Watershed Protection
 Plan (WPP)
 - Standards Revision



Additional Data Needed

- In some cases, sampling can increase from a quarterly schedule to a monthly schedule.
- Additional monitoring sites can be added.
- Looking to confirm the concern or impairment.

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Total Maximum Daily Load (TMDL)

 A TMDL establishes the maximum amount of a pollutant in a waterbody and serves as a starting point or planning tool for restoring water quality.

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The Total Maximum Daily Load

Two key meanings of the TMDL

- The TMDL is a *process* used to implement state water quality standards
- The TMDL is a *quantity*, or the assimilative capacity (AC), consisting of:

Point-Source Allocation (PSA) Nonpoint-Source Allocation (NPA) Margin of Safety (MOS)

 $TMDL = \Sigma PSA + \Sigma NPA = AC - MOS$



TMDL Development Process

Monitor: Assessment: Water Quality Assess monitoring data Ecosystem Health to determine impaired waters Fish tissue TMDL TMDL Implementation Development: Plans: Determine point Prescribes BMPs source and

to reduce nonpoint source load Determine point source and nonpoint source loads for impaired waters

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Watershed Protection Plan

Through the watershed planning process, the State of Texas encourages stakeholders to develop WPPs that holistically address all of the sources and causes of impairments and threats to both surface and ground water resources within a watershed.

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Revising the Texas Surface Water Quality Standards

The process to revise the Texas Surface Water Quality Standards (Standards) includes the public and is usually conducted at least every three years. Revisions address new information about pollutants, additional data about water quality conditions in specific segments, and new state and federal regulatory requirements.

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Revising the Texas Surface Water Quality Standards

Stakeholders in the review and revision process include the TCEQ, EPA, the general public, other governmental agencies, industries, municipalities, environmental groups, and others. Much of the coordination is done through the Surface Water Quality Standards Advisory Workgroup.

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Basin 24 – Bays and Estuaries

The Bays and Estuaries region of Texas covers approximately 2,002 square miles along the entire Texas Coast. There are 48 classified estuarine segments that are monitored by several river authorities and TCEQ regional offices.

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List of Impaired Waters Basin 24 – Laguna Madre and Drains Segment 2491 01 - Laguna Madre north of AC confluence **Depressed Dissolved Oxygen** Chlorophyll-a Segment 2491 02 - Laguna Madre north near AC confluence **Depressed Dissolved Oxygen** Bacteria + Bacteria (oyster waters) Nitrate and Chlorophyll-*a* Segment 2491 03 - Laguna Madre south of AC confluence Bacteria **Depressed Dissolved Oxygen**

List of Impaired Waters Basin 24 – Laguna Madre and Drains Segment 2491B 01–North Floodway Nitrate and Chlorophyll-a Segment 2491C – Hidalgo Main Drain Insufficient Data to Assess Segment 2491C – Raymondville Drain Insufficient Data to Assess





Station 22003 - Hidalgo Main											
Date	Bacteria	Ammonia	TKN	TP	Nitrate	Nitrite	Chl-a				
10/4/2017	610	<0.02	<1.0	0.733	3.02 N+N		57				
12/3/2017	10	0.26	2.85	0.847	3.87 N+N		13.5				
					4.71						
5/1/2018	120	<0.02	3.63	0.755	N+N		91.5				
7/18/2018	20	0.2	2.1	0.2	1.2	0.099	98.5				
10/31/2018	80	<0.1	1.5	0.67	5.6	0.09	23.9				
1/29/2019	31	<0.1	1.21	0.7	5.6	0.06	19.3				
4/2/2019	1400	0.2	1.4	0.78	4.02	0.06	27				
7/16/2019	2200	0.26	2.1	0.23	0.03	0.02	19.3				
<mark>Average</mark>	<mark>559</mark>	<mark>0.23</mark>	<mark>2.11</mark>	<mark>0.61</mark>	<mark>3.29</mark>	<mark>0.07</mark>	<mark>43.75</mark>				





Station 22004 - Raymondville Drain											
Date	Bacteria	Ammonia	TKN	ТР	Nitrate	Nitrite	Chl-a				
10/4/2017	1940	<0.02	<1.0	0.28	1.17 N+N		36.30				
12/3/2017	150	0.10	0.42	0.20	1.52 N+N		18.00				
					2.34						
5/1/2018	220	<0.02	2.75	0.12	N+N		33.30				
7/18/2018	250	<0.1	3.10	0.20	0.80	0.05	39.80				
10/31/2018	1700	0.20	1.30	0.20	1.50	0.05	11.70				
1/29/2019	74	0.17	1.43	0.20	5.60	0.06	3.80				
4/2/2019	2400	0.40	1.70	0.44	1.34	0.08	67.00				
7/16/2019	130	0.20	1.60	0.19	0.64	0.11	19.80				
<mark>Average</mark>	<mark>858</mark>	<mark>0.21</mark>	<mark>1.76</mark>	<mark>0.23</mark>	<mark>1.98</mark>	<mark>0.07</mark>	<mark>28.71</mark>				



List of Impaired Waters Basin 24 – Laguna Madre and Drains Segment 2494 01 – Brownsville ship Channel Bacteria Depressed Dissolved Oxygen Segment 2494A 01 – Port Isabel Fishing Harbor Bacteria Segment 2494C – San Martin Lake Insufficient Data to Assess

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