

# Water Quality Management in Texas

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# Clean Water Act

- Objective:
  - Restore and maintain the chemical, physical, and biological integrity of the Nation's waters
- Two goals:
  - zero discharge of pollutants by 1985
  - where possible, water quality that is “fishable and swimmable” by mid-1983

# History of Clean Water Act

- Rivers and Harbors Act of 1899
- **1948: Federal Water Pollution Control Act**
- **1972: Federal Water Pollution Control Act Amendments**
- **1987: Water Quality Act of 1987**



# Clean Water Act in Action

- EPA works with the States to apply and enforce the Clean Water Act
- Texas Commission on Environmental Quality (TCEQ) administers rules and regulations supporting the Clean Water Act
- EPA reviews and approves rules and regs and checks to ensure that TCEQ is adequately enforcing them

# Who is involved?

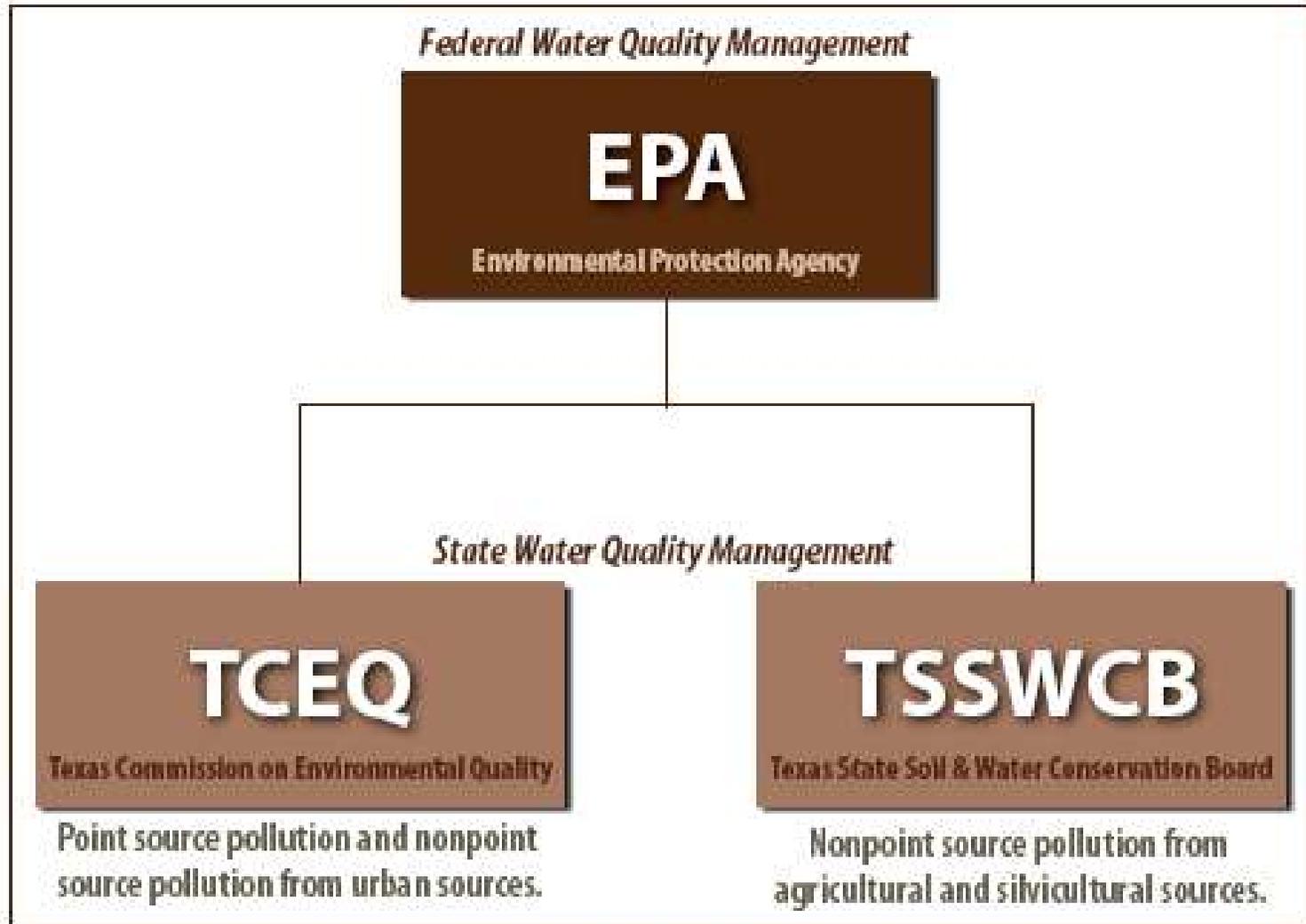
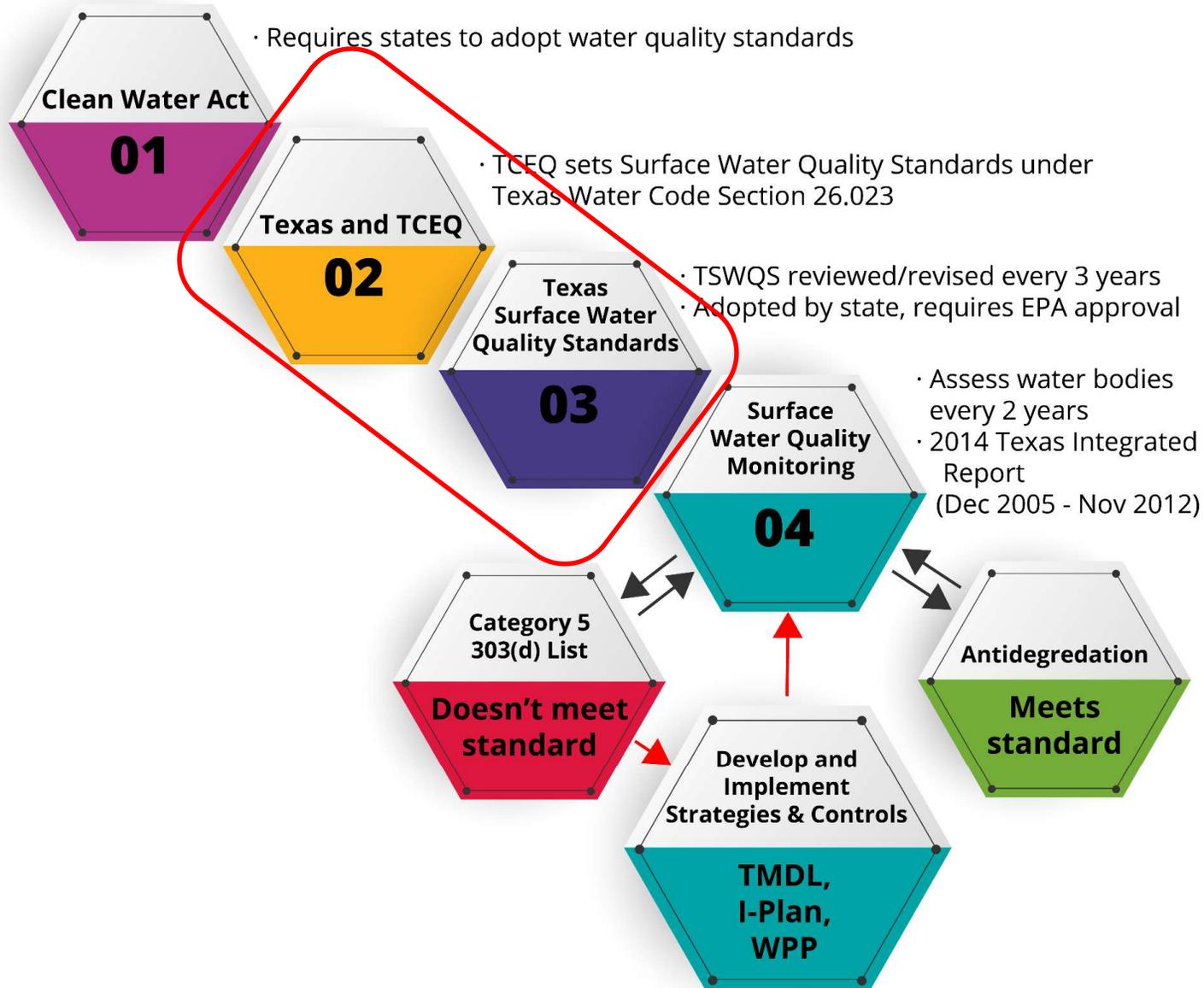


Figure 1. Hierarchy of federal and state agencies primarily involved in water quality management in Texas. Illustration courtesy of Jennifer Peterson.

# Two Main Pollutant Types

- **Point source pollution:**
  - Pollution from a single, identifiable point (i.e. pipe)
    - Wastewater treatment plant or industrial discharge
  - Regulated through discharge permits
- **Nonpoint source pollution:**
  - Results from rainfall (or snowmelt) runoff from many diffuse sources
  - As runoff moves across land, it picks up & carries natural and human-made pollutants into waterbodies
  - Managed primarily through voluntary programs



# Framework for Managing Surface Water Quality

# Water Quality Standards

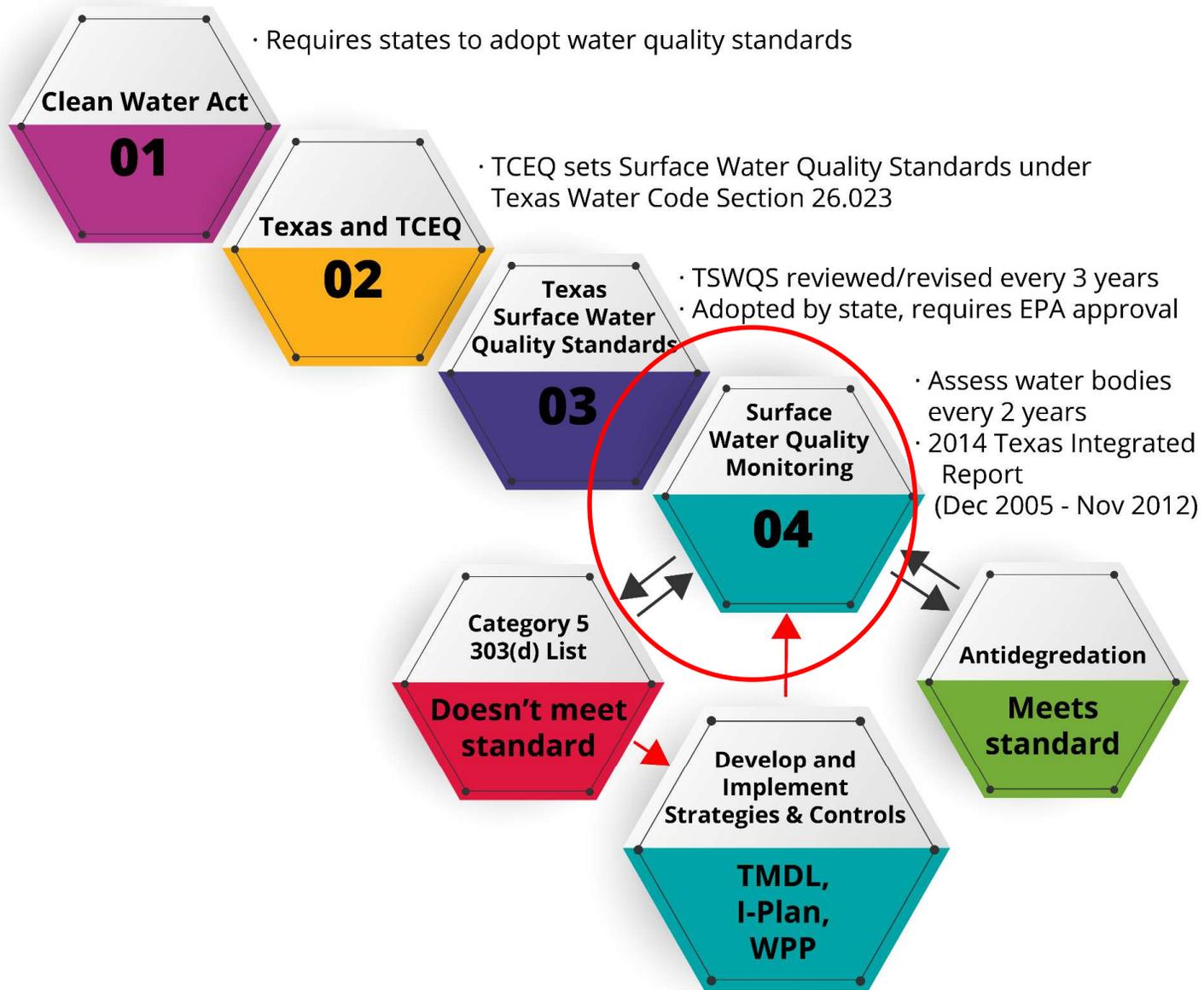
- Apply to surface waters
- Key elements:
  - Designated uses
  - Water quality criteria
  - Antidegradation

# Designated Use Categories in Texas

- **Recreation**
  - **Primary Contact**
  - **Secondary Contact 1**
  - **Secondary Contact 2**
  - **Noncontact**
- **Domestic Water Supply**
- **Aquatic Life**
- **Fish Consumption**
- **General Use**

# Water Quality Standards Process

- WQS established by state (TCEQ)
  - Texas Administrative Code, Title 30, Part 1, Ch. 307
- EPA reviews/approves
- Triennial review (i.e. revised every ~3 years)
  - 2018, 2014, 2010, 2000, 1997
  - Addresses new pollutant info, new regulatory requirements, new site specific conditions



# Framework for Managing Surface Water Quality

# Monitoring

- About 1,200 waterbodies generally surveyed
  - TCEQ Drinking Water & TMDL programs
  - USEPA
  - International Boundary & Water Commission (IBWC)
  - US Geological Survey (USGS)
  - Texas Parks and Wildlife (TPWD)
  - Texas Department of State Health Services (DSHS)
  - Texas General Land Office (GLO)
  - River Authorities / Clean Rivers Program (CRP)
  - Universities

# Assessment

- Assess if state's surface waters meet water quality standards
  - Required by Sections 305(b) and 303(d) of CWA
  - 5 assessment categories
- Summarize status of state's surface waters
  - *Texas Integrated Report of Surface Water Quality*  
Uses data collected over most recent 7-yr period
  - Published every 2 years

<https://www.tceq.texas.gov/waterquality/assessment/20twqi/20txir>

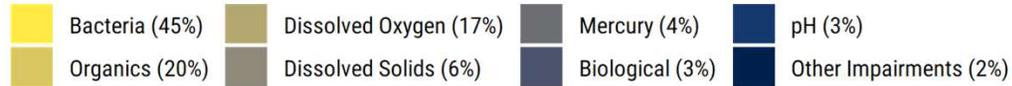
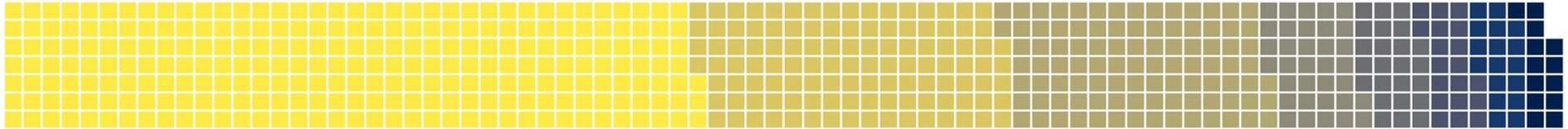
Search "Texas 303d List"

# Assessment Categories in Texas Water Quality Inventory & 303(d) List

Category	Definition
1	<b>All standards are attained</b>
2	<b>Some standards are attained; insufficient or no data for other standards \</b>
3	<b>Insufficient or no data- all standards</b>
4	<b>Standard is not attained, but no TMDLs are required.</b> a. TMDLs already completed and approved by EPA b. Other controls expected to result in standards attainment c. Nonattainment of standard is <b>caused by pollution, not by pollutants</b>
5	<b>Standard is not attained</b> or nonattainment is threatened in the near future. a. TMDLs underway or scheduled b. A review of the standards will be conducted c. Additional data will be collected

# 2014 Integrated Report Summary

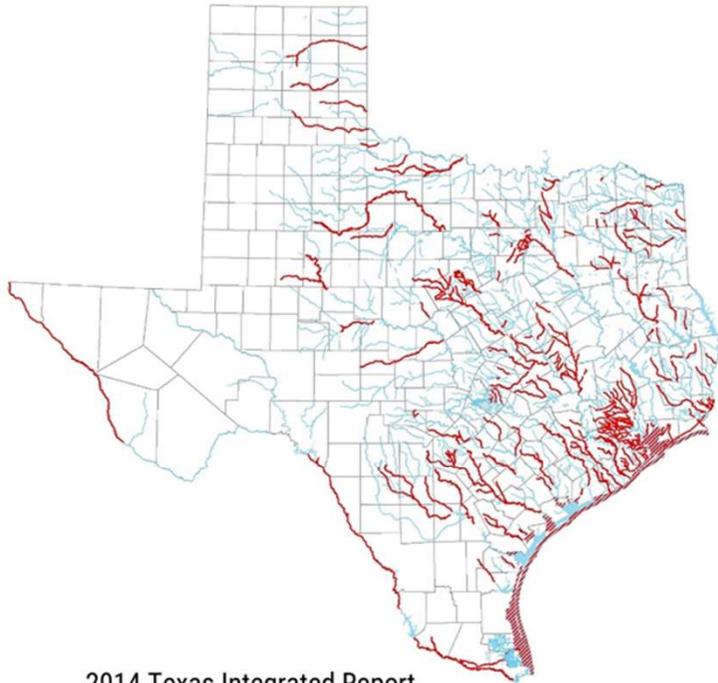
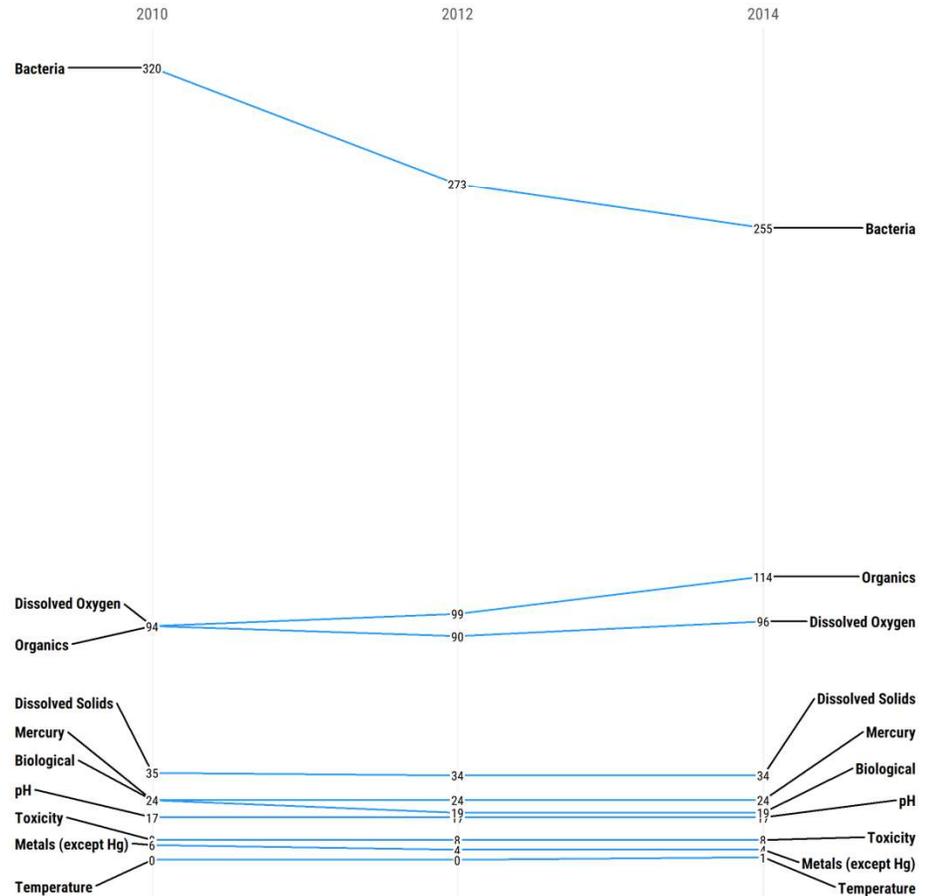
589 total impairments in 1,065 assessed waterbodies



Source: TCEQ ([https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/14txir/2014\\_exec\\_summ.pdf](https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/14txir/2014_exec_summ.pdf))

## 2014 Texas Integrated Report Summary

Total number of impairments by parameter



2014 Texas Integrated Report  
Waterbodies with Bacteria Impairments

# Excerpt from 2020 303(d) List

## 2020 Texas Integrated Report - Texas 303(d) List (Category 5)

### SegID: 0611 Angelina River Above Sam Rayburn Reservoir

From the aqueduct crossing 1.0 km (0.6 mi) upstream of the confluence of Paper Mill Creek in Angelina/Nacogdoches County to the confluence of Barnhardt Creek and Mill Creek at FM 225 in Rusk County

<u>Impairment Description(s)</u>	<u>Category</u>	<u>Year Segment First Listed</u>
<b>Bacteria in water (Recreation Use)</b>	<b>5c</b>	<b>2000</b>
0611_01 From the aqueduct crossing upstream to the confluence with Old River Channel in Nacogdoches County about 2.8 km downstream of County Hwy 2625 at NHD RC 12020004000039.		
0611_04 From a point immediately upstream of confluence with East Fork Angelina River (0611A) upstream to confluence with Barnhardt and Mill Creeks.		

### SegID: 0611A East Fork Angelina River

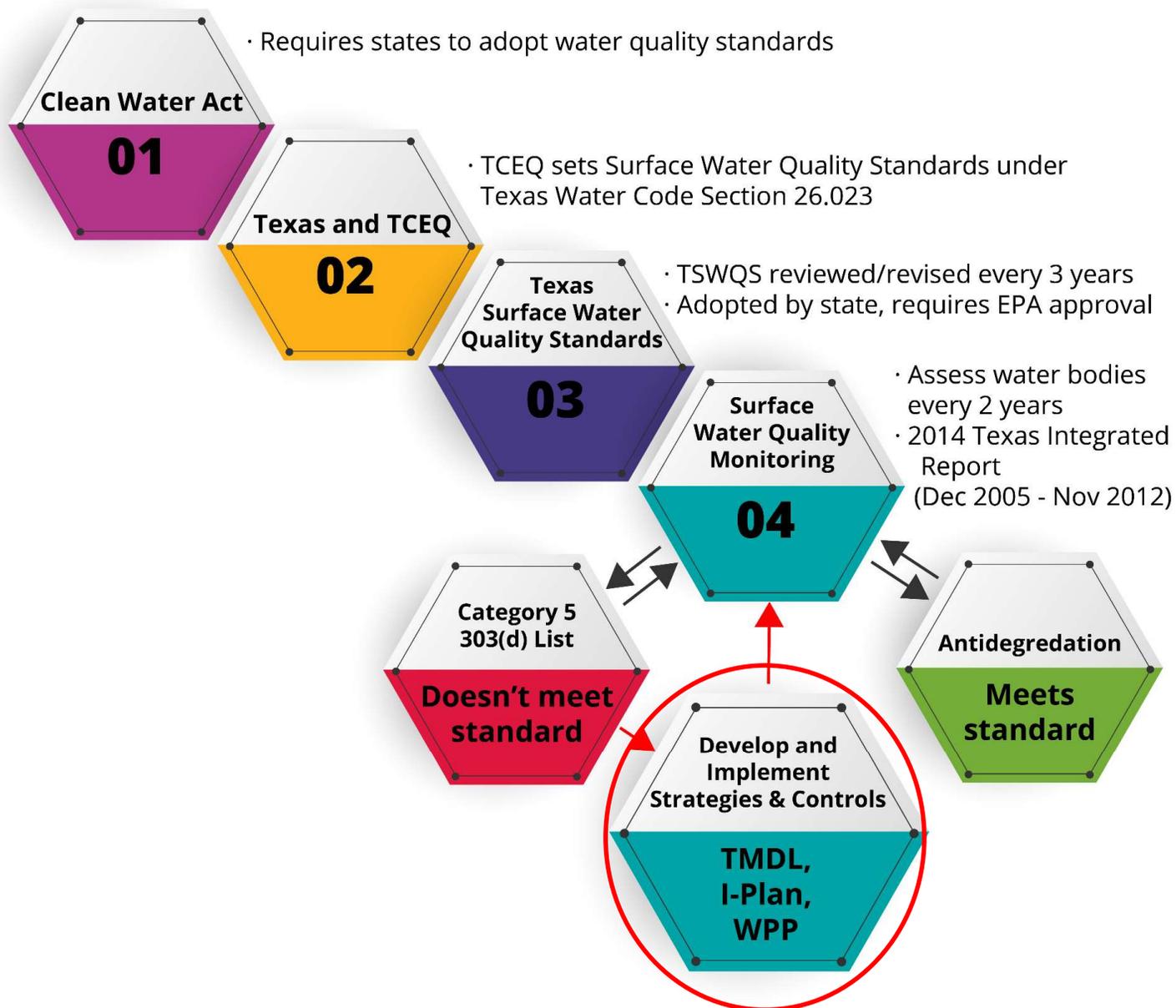
From the confluence of the Angelina River at the Rusk/Nacogdoches county line upstream to the confluence with Wooten Creek in Rusk County

<u>Impairment Description(s)</u>	<u>Category</u>	<u>Year Segment First Listed</u>
<b>Bacteria in water (Recreation Use)</b>	<b>5c</b>	<b>2002</b>
0611A_01 From the confluence with Angelina River (0611) at Rusk/Nacogdoches county line upstream to confluence with Beech Creek (0611J) in Rusk County		
0611A_02 From a point immediately upstream of confluence with Beech Creek (0611J) upstream to confluence with Wooten Creek (0611P)		

### SegID: 0611B La Nana Bayou

From the confluence of the Angelina River south of Nacogdoches in Nacogdoches County to the upstream perennial portion of the stream north of Nacogdoches in Nacogdoches County

<u>Impairment Description(s)</u>	<u>Category</u>	<u>Year Segment First Listed</u>
<b>Bacteria in water (Recreation Use)</b>	<b>5b</b>	<b>2000</b>
0611B_01 From the confluence with Angelina River (0611), per WQS App. D, upstream to State Loop 224 in City of Nacogdoches		
0611B_02 From the upstream side of State Loop 224 upstream to FM 1878 in City of Nacogdoches, per WQS App. D.		
0611B_03 From the upstream side of FM 1878 in City of Nacogdoches upstream to confluence with Banita Creek.		



# Framework for Managing Surface Water Quality

# THANK YOU

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Texas Water  
Resources Institute  
*make every drop count*

