Overview of Texas Surface Water Quality Standards & Impaired Water Bodies in the Neches Basin

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Statutory Authority

- Clean Water Act §303(c)
  - Water Quality Standards and Implementation Plans
  - Requires states to adopt water quality standards and revise standards
- Texas Water Code §26.023
  - Provides TCEQ with authority to make rules setting TSWQS
- Texas Administrative Code §307.1-307.10
  - Texas Surface Water Quality Standards (TSWQS)
  - Reviewed/revised every 3 years
  - Adopted by state & EPA approval required
  - Apply to state and federal activities

Texas Surface Water Quality Standards

- Establish instream water quality goals for waters in the state of Texas
  - Uses and criteria
- Maintain the quality of water in the state consistent with:
  - Public health & enjoyment
  - Propagation and protection of terrestrial and aquatic life
  - Operation of existing industries
  - Taking into consideration economic development of the state
  - Encouraging/promoting development and use of regional wastewater systems

§ 307.4 General Criteria

- Narrative
  - Qualitative
  - Statements that describe the desired water quality goal
  - Example

    "No foaming or frothing of a persistent nature is permissible."
- Numeric
  - Quantitative
  - Level of particular chemical or conditions allowable in a water body
  - Example:

    5.0 mg/L dissolved oxygen

§307.6 Toxic Materials

- Toxic criteria for aquatic life and human health protection
- Aquatic life
  - Acute toxicity
  - Chronic toxicity
- Human Health
  - Public water supply
  - Sustainable fishery

§307.7 Site-specific Uses and Criteria

Aquatic Life Use Subcategories & Corresponding Dissolved Oxygen Criteria

Aquatic Life Use Subcategory	Freshwater DO Mean/Minimum	Saltwater DO Mean/Minimum
Exceptional	6.0/4.0	5.0/4.0
High	5.0/3.0	4.0/3.0
Intermediate	4.0/3.0	3.0/2.0
Limited	3.0/2.0	
Minimal	2.0/1.5	

Recreational Use Categories & Corresponding Criteria

Recreation Uses	*E. coli* (FW) Geometric Mean Criteria (colonies/100 ml)	Enterococci (SW) Geometric Mean Criteria (colonies/100 ml)
Primary contact	126	35
Secondary contact 1	630	175
Secondary contact 2	1030	--
Noncontact	2060	350

Multiple Uses

- TSWQS protect for multiple uses by designating criteria for:
  - Temperature
  - Total Dissolved Solids
  - Chloride
  - Sulfate
  - pH

§ 307.10 Appendices

- Appendix A – Site-specific Uses and Criteria for Classified Segments
  - Partially approved; portions under EPA review
- Appendix B – Sole-source Surface Drinking Water Supplies
- Appendix C – Segment Descriptions
- Appendix D – Site-specific Uses and Criteria for Unclassified Water Bodies
  - Partially approved; portion under EPA review
- Appendix E – Site-specific Toxic Criteria
- Appendix F – Site-specific Nutrient Criteria for Selected Reservoirs
  - Still under EPA Review
- Appendix G – Site-specific Recreational Uses and Criteria for Unclassified Water Bodies

Use-Attainability Analysis

- Scientific assessment of the physical, chemical, and biological characteristics of a water body
- Evaluate designated or presumed uses
- EPA requirement if recommending less stringent site-specific use
- Types of UAAs
  - Aquatic Life UAA
  - Recreational UAA
- Involves coordination with stakeholders, state & federal agencies, and the public
- Results are incorporated during TSWQS rule revision

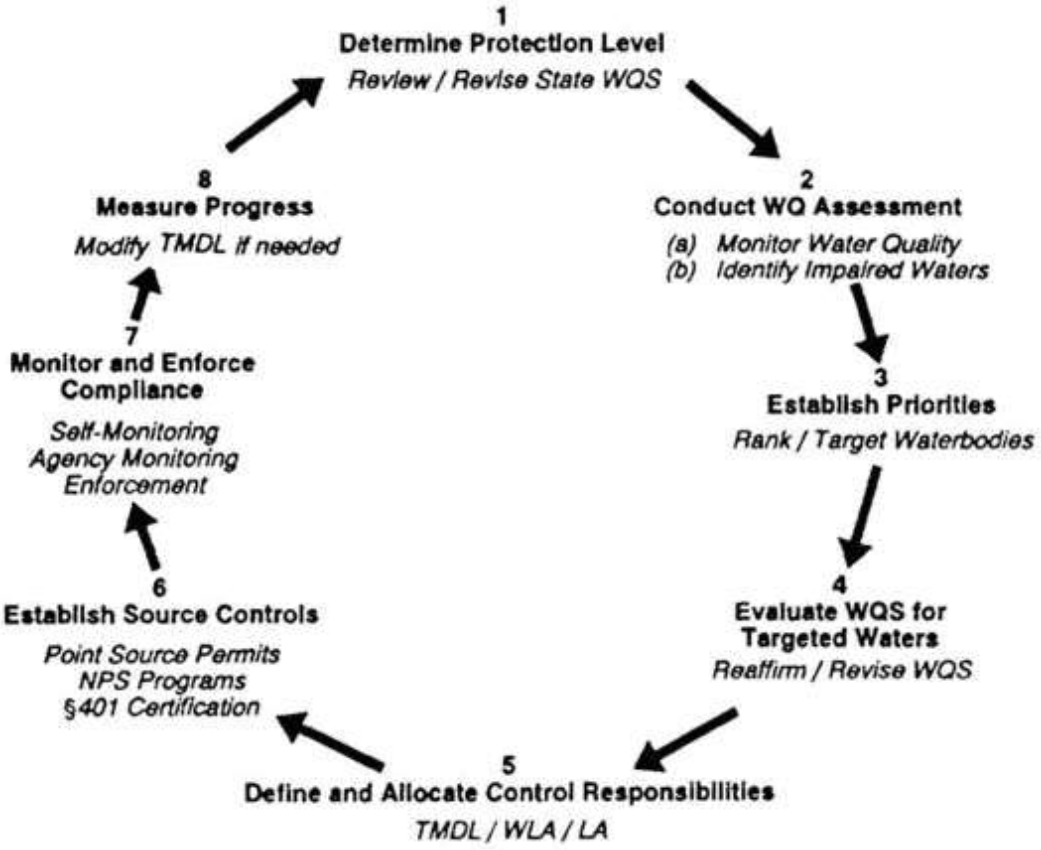
TSWQS Webpage

- http://www.tceq.texas.gov/waterquality/standards/eq_swqs.html

Implementing TSWQS

- TSWQS are implemented by TCEQ water quality management programs
  - Surface Water Quality Monitoring Program
    - Texas Integrated Report
    - Assessing standards compliance with monitoring data
    - Identify impaired waters
  - Wastewater Permitting
    - *Procedures to Implement Texas Surface Water Quality Standards,* (RG-194)
  - TMDLs and Nonpoint Source Programs

WQ Management Cycle
EPA WQ Standards Handbook



Texas Integrated Report

- Assessment of water bodies every 2 years
  - WQ Inventory – overview of each water body
  - Identify impaired water bodies
- 303 (d) List of Impaired Waters
  - Categories
    - 5a – TMDL, watershed action plan
    - 5b – Evaluate water quality standard
    - 5c – Additional data needed

Texas Integrated Report

- 2012 Texas Integrated Report and 2012 Texas 303(d) List
  - Comprehensive Assessment
- Approved by EPA on May 9, 2013
- Data collected during a seven-year period (December 1, 2003 to November 30, 2010); up to 10 yrs of data if needed.
- Evaluated 1,214 water bodies
  - 1,041 of the 1,214 had sufficient data for assessment purposes
- Identified 568 impairments in Category 5
- Bacteria impairments – highest percentage (45%)
- Dissolved oxygen (16%) & organics in fish tissue (17%) – next highest percentages

303(d) Listed Water Bodies in the Upper and Middle Portions of the Neches River Basin

Impairments –Upper Neches Basin Overview

- Out of a total of 35 water bodies evaluated:
  - 7 classified segments and 15 unclassified water bodies are listed as impaired on the 2012 303(d) List
  - 3 classified segments and 13 unclassified water bodies are listed as impaired for elevated bacteria
  - 2 classified segments and 3 unclassified water bodies are listed as impaired for depressed dissolved oxygen
  - 3 classified segments and 1 unclassified water body are listed as impaired for mercury
  - 2 classified segments are listed as impaired for pH
  - 1 classified segment is listed as having an impaired fish community

2012 303(d) Listings - Upper & Middle Neches Basin

Segment	Name	Parameter	Year First Listed
0604	Neches River Below Lake Palestine	Mercury	2010
0604A	Cedar Creek	Bacteria	2000
0604B	Hurricane Creek	Bacteria	2000
0604C	Jack Creek	Bacteria	2000
0604D	Piney Creek	Dissolved Oxygen	2004
0604M	Biloxi Creek	Bacteria Dissolved Oxygen	2004 2006
0604T	Lake Ratcliff	Mercury	2002
0605	Lake Palestine	pH	2006
0605A	Kickapoo Creek	Bacteria Dissolved Oxygen	2000 2006

2012 303(d) Listings - Upper & Middle Neches Basin

Segment	Name	Parameter	Year First Listed
0606	Neches River Above Lake Palestine	Bacteria Dissolved Oxygen pH	2008 2004 2002
0606A	Prairie Creek	Bacteria	2002
0606D	Black Fork Creek	Bacteria	2012
0610	Sam Rayburn Reservoir	Mercury	1996
0610A	Ayish Bayou	Bacteria	2000
0611	Angelina River Above Sam Rayburn Reservoir	Bacteria	2000
0611A	East Fork Angelina River	Bacteria	2002

2012 303(d) Listings - Upper & Middle Neches Basin

Segment	Name	Parameter	Year First Listed
0611B	La Nana Bayou	Bacteria	2000
0611C	Mud Creek	Bacteria	2010
0611D	West Mud Creek	Bacteria	2010
0612	Attoyac Bayou	Bacteria	2004
0615	Angelina River/Sam Rayburn Reservoir	Dissolved Oxygen Fish community Mercury	2002 2002 2002
0615A	Paper Mill Creek	Bacteria	2006