

Neches River Tidal and Hillebrandt Bayou TMDL Public Meeting

Water Quality Planning and Implementation in Texas

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The Law requires us to determine...


- What are the problems?
- How bad are they?
- How can they be addressed?

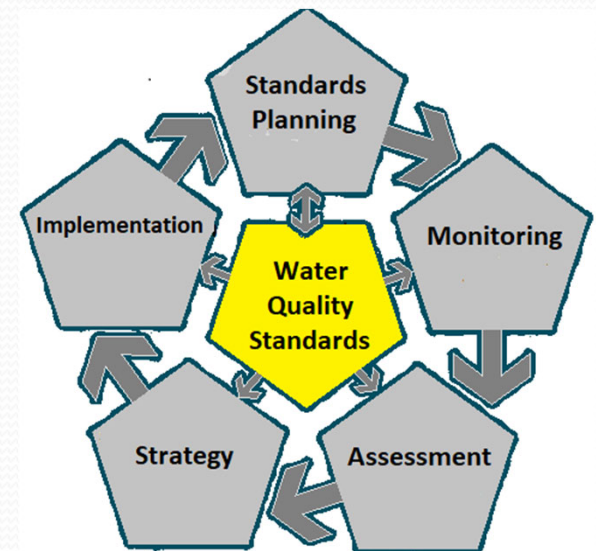


Enterococcus



Texas Surface Water Quality Standards

- Explicit goals for the quality of streams, rivers, lakes, and bays throughout the state
-  Texas Surface Water Quality Standards are State Rules codified in Title 30 Chapter 307 of the Texas Administrative Code
- The Standards identify appropriate uses (and associated criteria) for surface waters:
 - Aquatic life
 - Recreation
 - Public Water Supply
 - Fish Consumption/Oyster Waters



Standards for Selected Streams

NECHES RIVER BASIN		USES				CRITERIA						
		Recreation	Aquatic Life	Domestic Water Supply	Other	Cl ⁻¹ (mg/L)	SO ₄ ⁻² (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria ¹ #/100ml	Temperature (°F)
Segment No.	SEGMENT NAME											
0601	Neches River Tidal	PCR	I					3.0	6.0-8.5	35	95	
0602	Neches River Below B. A. Steinhagen Lake	PCR	H	PS		50	50	200	5.0	6.0-8.5	126	91
0603	B. A. Steinhagen Lake	PCR	H	PS		50	50	200	5.0	6.0-8.5	126	93
0604	Neches River Below Lake Palestine	PCR	H	PS		50	50	200	5.0	6.0-8.5	126	91
0605	Lake Palestine	PCR	H	PS		50	50	200	5.0	6.0-8.5	126	90
0606	Neches River Above Lake Palestine	PCR	I	PS		100	50	300	4.0	6.0-8.5	126	95
0607	Pine Island Bayou	PCR	H	PS		150	50	300	5.0	6.0-8.5	126	95

NECHES-TRINITY COASTAL BASIN		USES				CRITERIA						
		Recreation	Aquatic Life	Domestic Water Supply	Other	Cl ⁻¹ (mg/L)	SO ₄ ⁻² (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria ¹ #/100ml	Temperature (°F)
Segment No.	SEGMENT NAME											
0701	Taylor Bayou Above Tidal	PCR	I			400	100	1,100	4.0	6.5-9.0	126	95
0702	Intracoastal Waterway Tidal	PCR	H						4.0	6.5-9.0	35	95
0703	Sabine-Neches Canal Tidal	PCR	H						4.0	6.5-9.0	35	95
0704	Hillebrandt Bayou	PCR	I			250	100	600	4.0	6.5-9.0	126	95



Primary Contact Recreation Use

- Primary contact recreation activities are those involving a significant risk of ingestion of water, such as wading by children or swimming.
- The primary contact recreation use is not met if the geometric mean of all indicator bacteria is greater than:
 - 126 cfu/100 mL for *E. coli* in freshwater streams
 - 35 cfu/100 mL for Enterococci in tidal streams

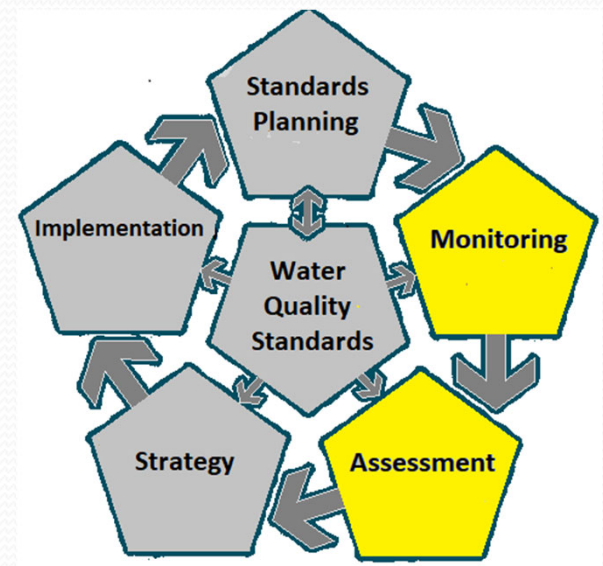
Monitoring

- The SWQM program coordinates the collection of physical, chemical, and biological samples from more than 1,800 surface water sites statewide.
 - Surface water data collected by Clean Rivers Program partners, and other local, regional, and state cooperators.
 - This data may be used by TCEQ to determine compliance with the Texas Surface Water Quality Standards through the Texas Integrated Report.
- Neches River Tidal
 - TCEQ Region 10 and LNVA
- Hillebrandt Bayou
 - TCEQ Region 10



Assessment

- The Texas Integrated Report of Surface Water Quality
 - Requirement of Clean Water Act Sections 305(b) and 303(d).
 - Assessment period of seven years
 - New report every two years in even-numbered years. The 303(d) List is submitted to EPA for approval.
- Draft 2016 Texas 303(d) List



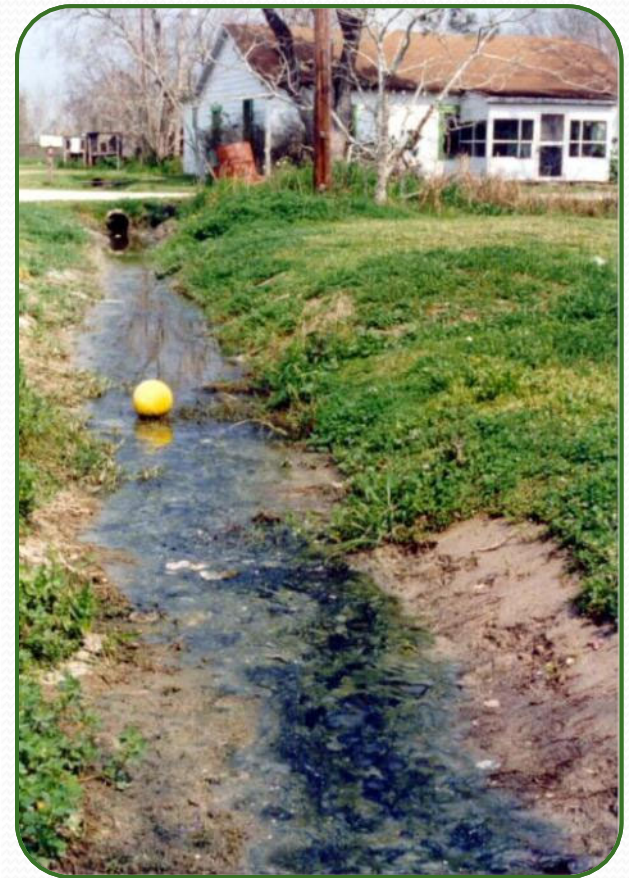


Section 303(d) of the Clean Water Act

- Identify water bodies that do not meet water quality standards, or are not expected to meet standards within two years (threatened)
- Establish schedules for developing total maximum daily loads (TMDLs)
- Develop TMDLs and Implementation Plans that identify parties responsible for reducing pollution loads

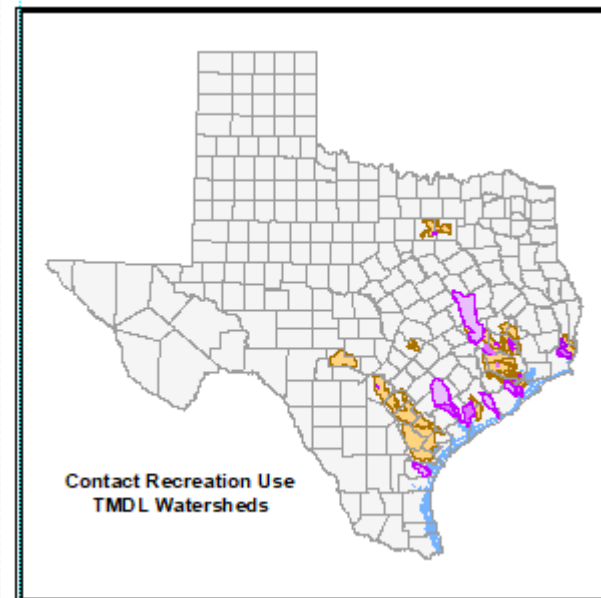
TMDL: Total Maximum Daily Load

- How much is too much?
- How bad is the problem?
- Where is it coming from?



TMDL – Total Maximum Daily Load

- Determines the maximum amount (load) of a pollutant that a water body can receive and still maintain uses
- Allocates this load to broad categories of sources in the watershed.
- Adopted by the TCEQ
- Approved by the EPA



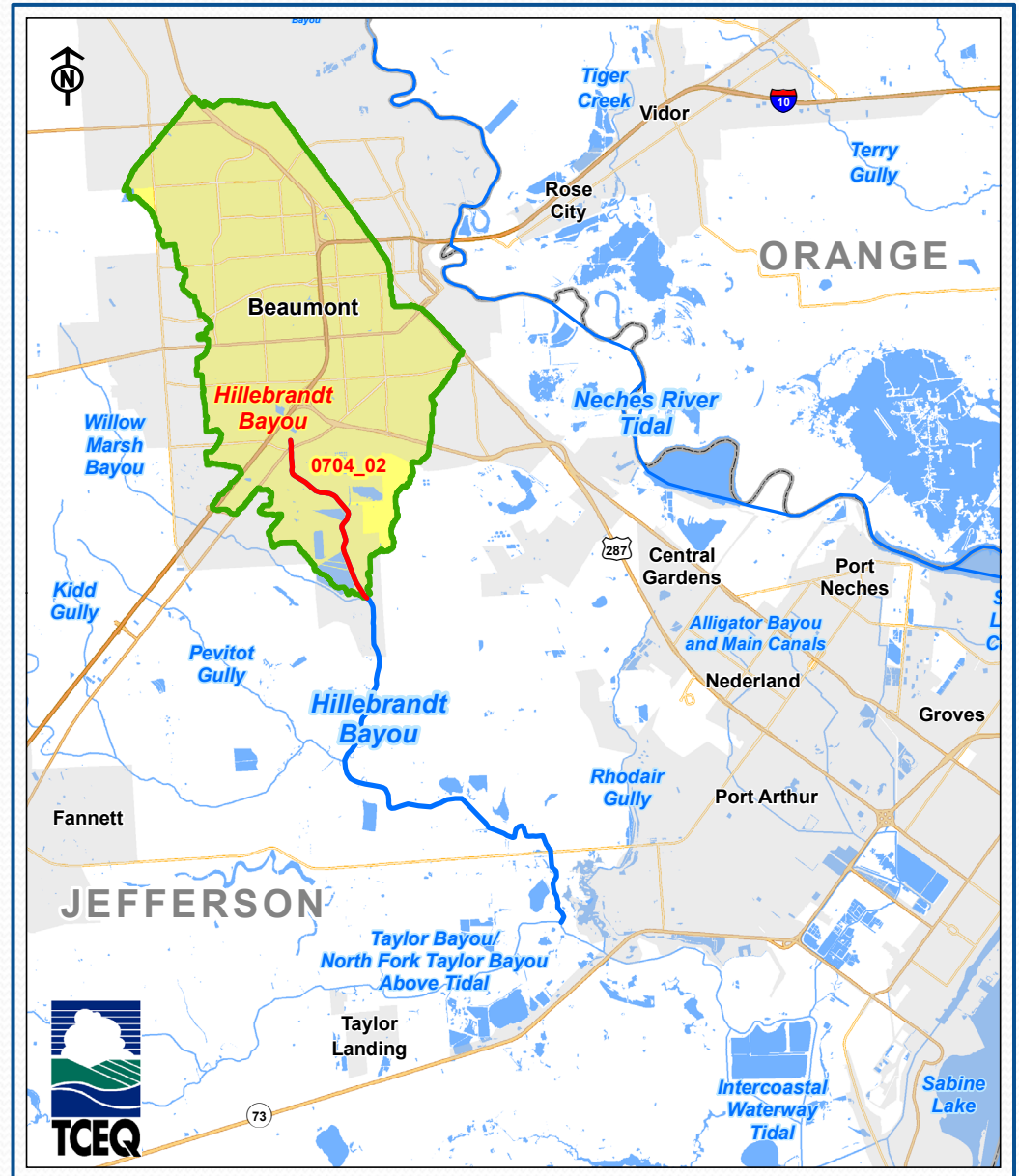


Implementing Legislation

- Federal mandate for state TMDL programs: Clean Water Act of 1972 and its amendments (U.S. Code 1987)
- Section 303(d)(1)(C) of the Clean Water Act; EPA's implementing regulations in 40 CFR 130
- Texas develops TMDLs for water bodies in Category 5 of its *Texas Water Quality Inventory and 303(d) List*

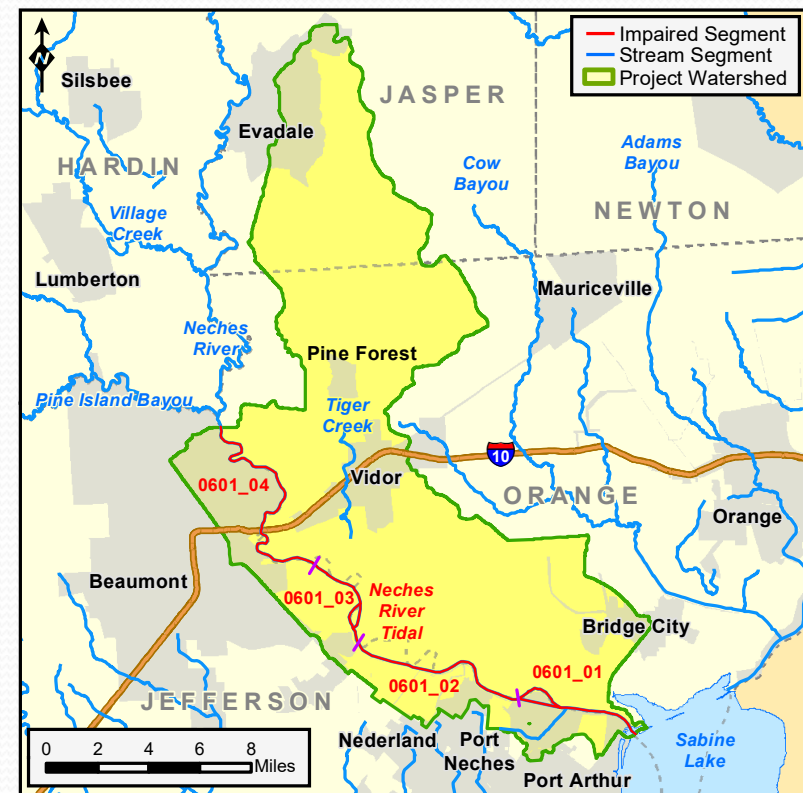
Hillebrandt Bayou

- From the confluence with Taylor Bayou to SH 124
 - Lower portion – depressed oxygen impairment
 - **Upper portion – elevated bacteria levels** since 2010 Integrated Report
 - 255 cfu/100mL *E. coli* (Dec. 2009 – Nov. 2016)



Neches River Tidal

- From the confluence with Sabine Lake to Neches River Saltwater Barrier (four assessment units)
 - Fish consumption advisory (PCBs) since 2012 IR
 - **Elevated bacteria levels** since 2012 IR
 - 102, 300, 166, 170 cfu/100 mL Enterococci (Dec. 2009 – Nov. 2016)





Potential Sources of Bacteria

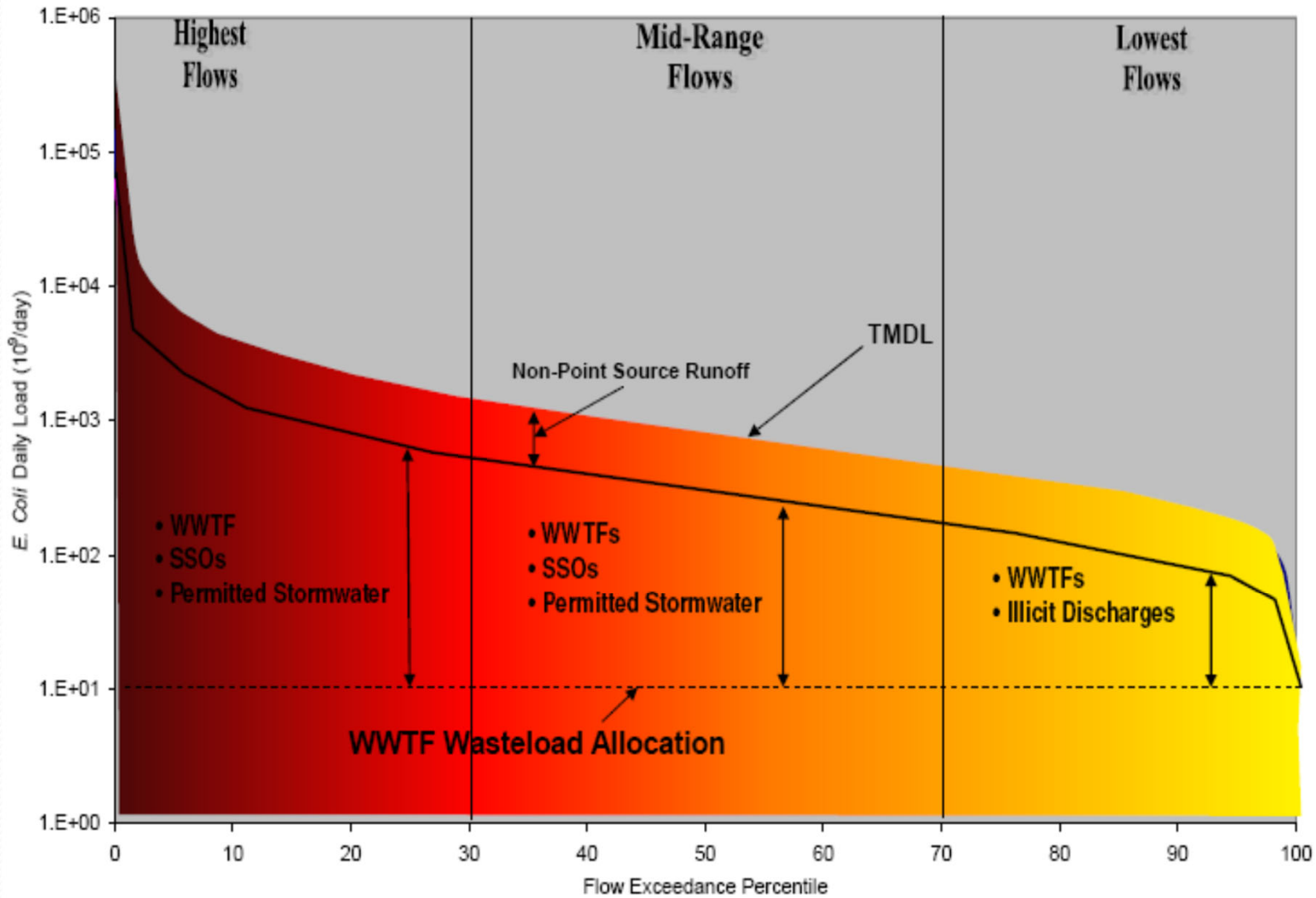
- Wastewater treatment facilities,
- Urban stormwater runoff not covered by permit,
- Land application fields,
- On-site sewage facilities,
- Wildlife,
- Agricultural activities and animals,
- Unmanaged and feral animals, and
- Domesticated animals/pets

TMDL Equation

$$\mathbf{TMDL} = \mathbf{WLA}_{(WWTF)} + \mathbf{WLA}_{(RSW)} + \mathbf{LA} + \mathbf{FG} + \mathbf{MOS}$$

- $\mathbf{WLA}_{(WWTF)}$ – wasteload allocation for WWTF discharges
- $\mathbf{WLA}_{(RSW)}$ – wasteload allocation for aggregate regulated stormwater discharges
- \mathbf{LA} – load allocation
- \mathbf{FG} – future growth
- \mathbf{MOS} – margin of safety
 - Units per day

TMDL Allocations





Questions?

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