

CARANCAHUA BAY WATERSHED MEETING

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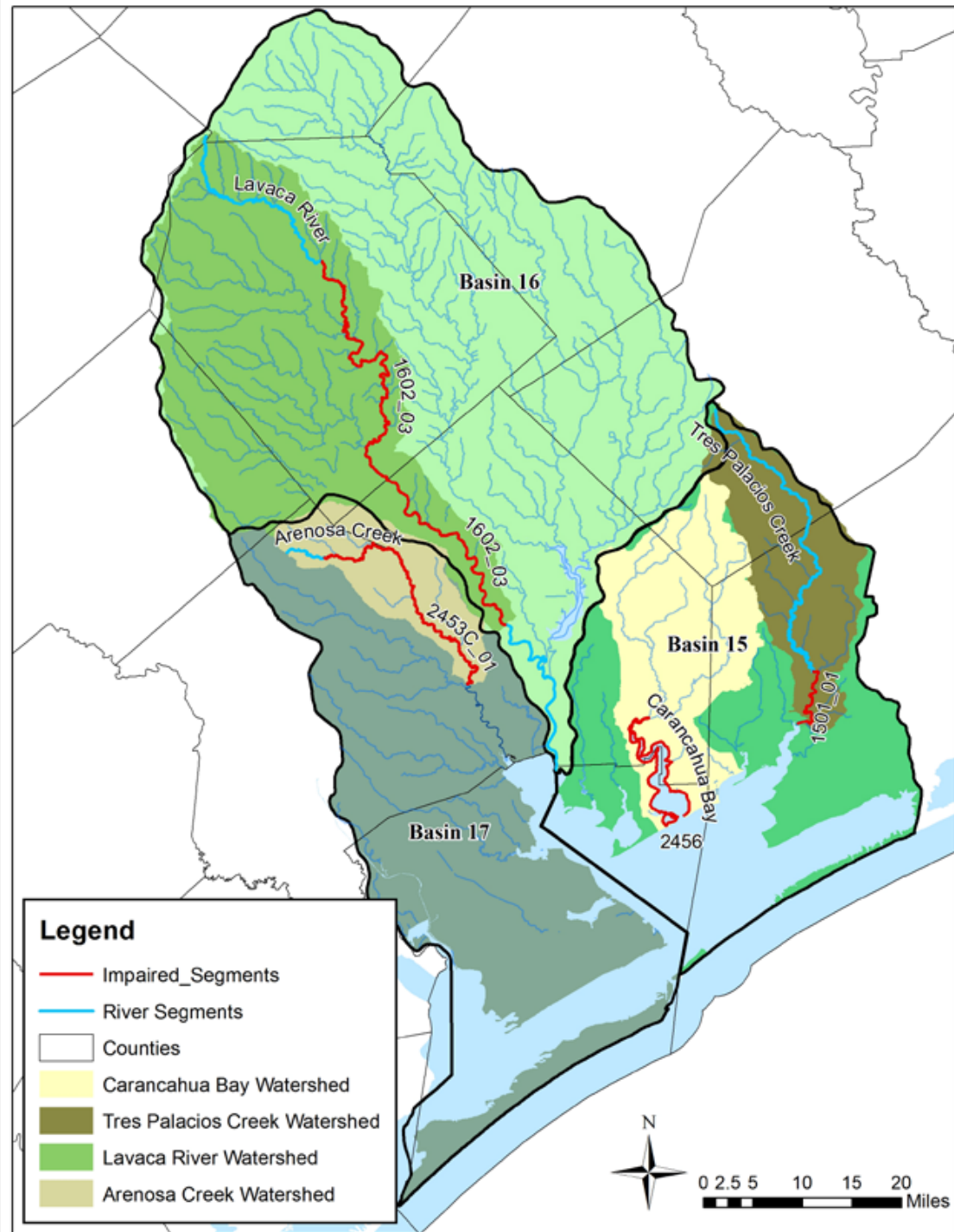
Allen Berthold, Michael Schramm - TWRI

August 17, 2017

Introductions

- Name
- Entity/group representing/
landowner/interested
citizen, etc.

Why are we here today?



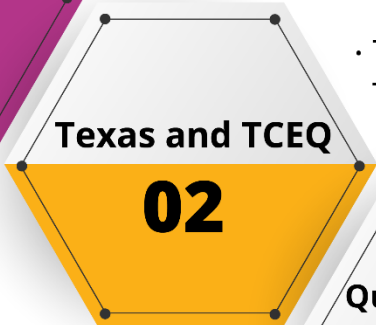
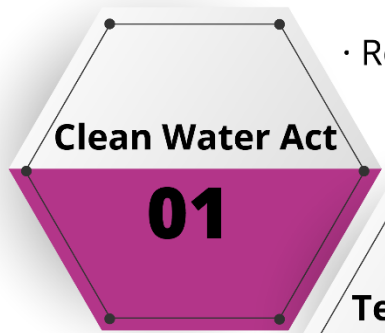
Today's Meeting



1. Background on Texas water quality regulations
2. Approaches to address water quality
3. Current water quality
4. Questions, feedback, and survey

WATER QUALITY POLICY – CARANCAHUA BAY

· Requires states to adopt water quality standards



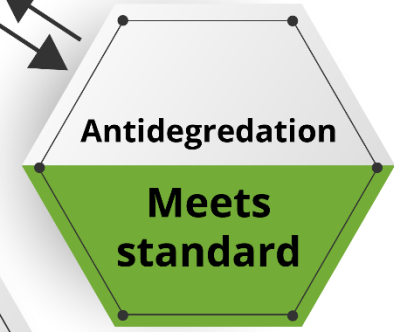
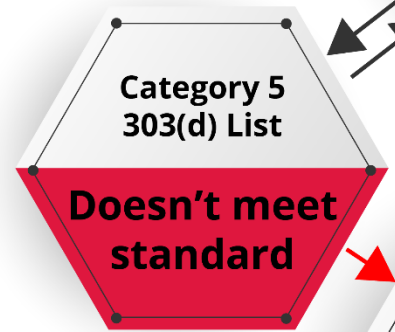
· TCEQ sets Surface Water Quality Standards under Texas Water Code Section 26.023



· TSWQS reviewed/revise every 3 years
· Adopted by state, requires EPA approval



· Assess water bodies every 2 years
· 2014 Texas Integrated Report (Dec 2005 - Nov 2012)



Developing and implementing strategies requires stakeholder support

Background Information

- Texas Surface Water Quality Standards have two components:
- Designated Uses – categorize the purpose for water. Includes general use, aquatic life use, contact recreation, and public water supply
- Criteria – Numeric (sometime narrative) limit used to evaluate water quality

* <https://www.tceq.texas.gov/waterquality/assessment/14twqi/14txir>

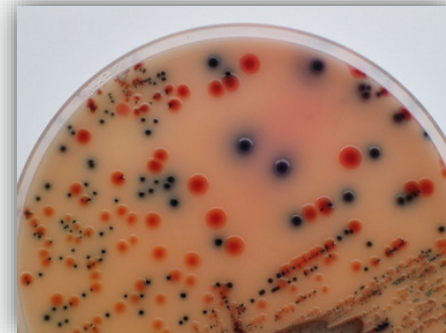
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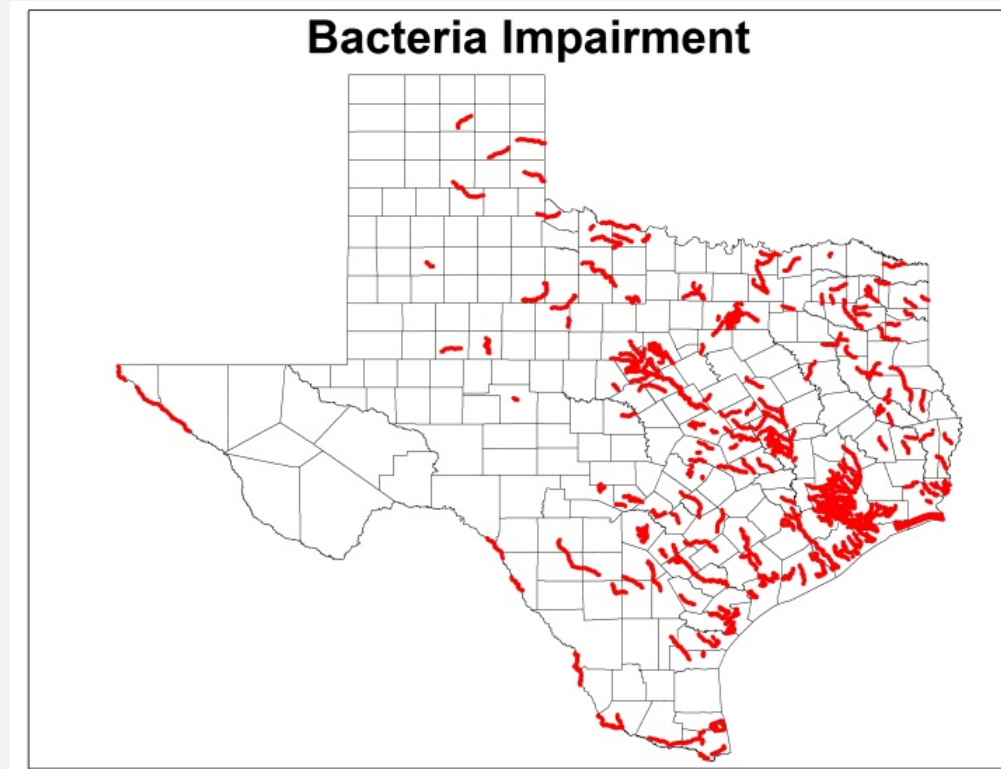
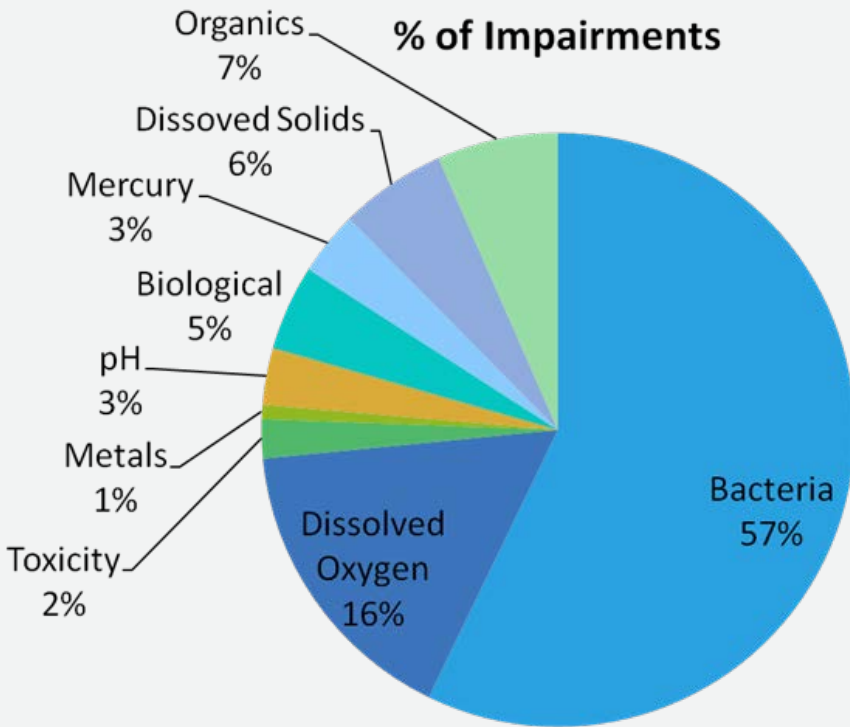
Parameter	TCEQ Standard
pH (standard units)	6.5 – 9.0 range
Chlorophyll-a ($\mu\text{g/L}$)	21
Dissolved Oxygen (mg/L)	5.0/4.0 (grab avg/min) ^a
<i>E. coli</i> (cfu/100mL) ^b	126 - Non-Tidal Segment
<i>Enterococci</i> (cfu/100mL)^b	35 - Tidal Segment^a

^aCurrently Impaired

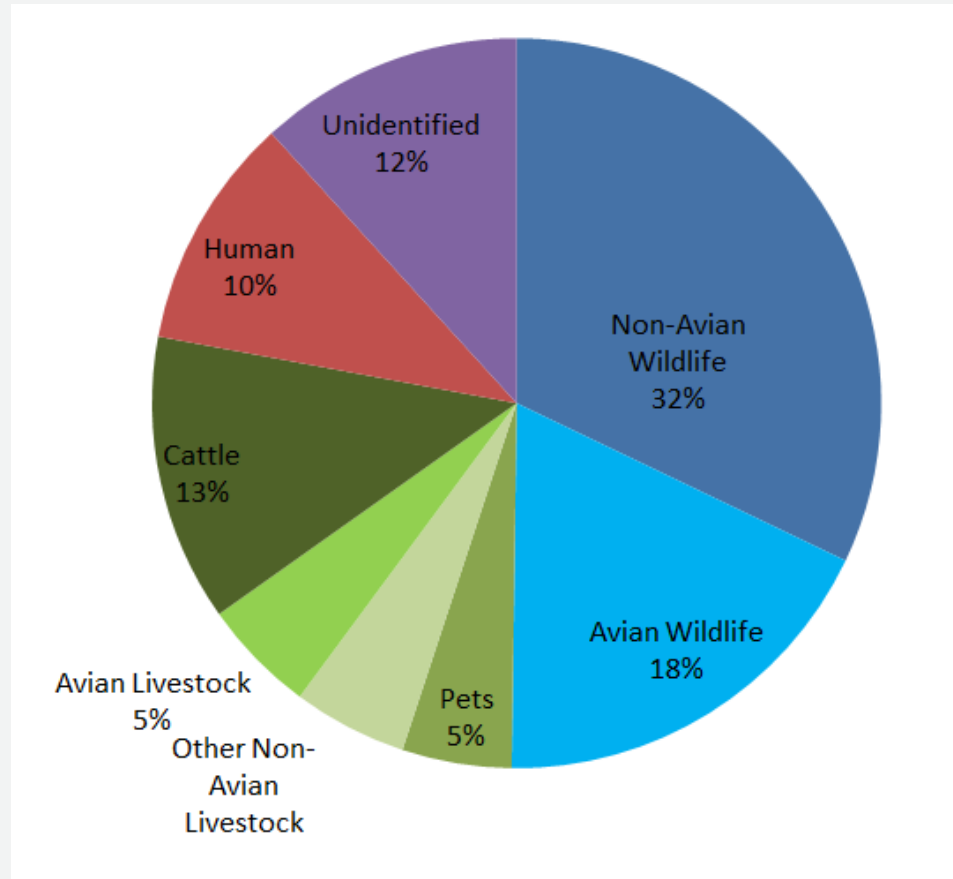
^bbacteria parameters have tiered standards



Current Impairing Parameters



Major Sources Of Bacteria (based on previous projects)

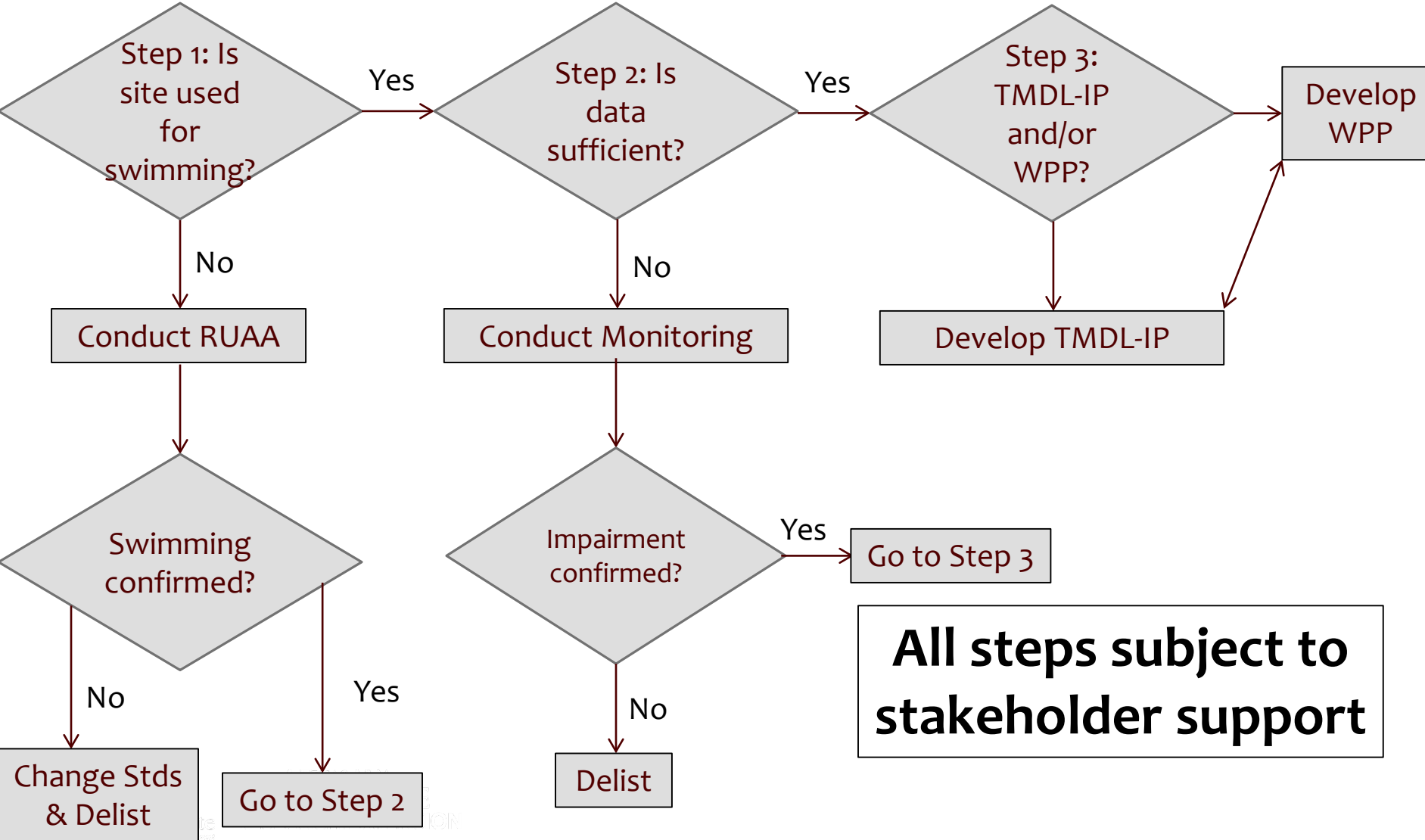


How does Bacteria get into Creeks?

- Direct deposition
 - Animals directly deposit fecal material into the water
 - Birds above water, ducks on water, livestock & wildlife drinking
- Non-Point Sources
 - Storm water runoff from landscape
 - Fecal material runoff from landscape
 - Pet waste, livestock, wildlife
 - Failing septic systems
- Point Sources
 - Improperly treated waste water treatment discharge
 - Illegal dumping
 - Storm water from cities



General approach used today

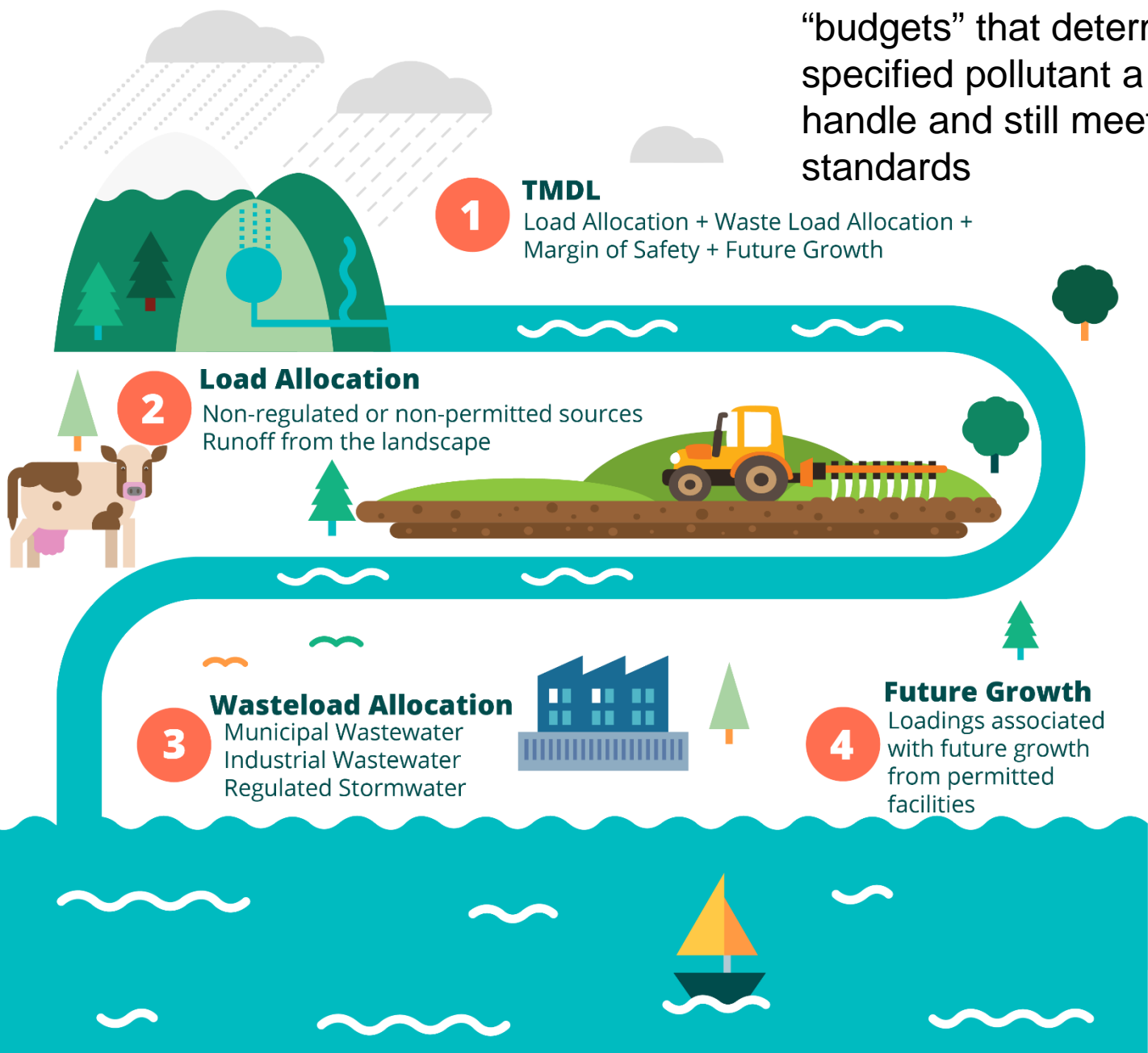


APPROACHES TO ADDRESS WATER QUALITY ISSUES

Total Maximum Daily Load

- The TMDL is also a document submitted to the EPA to fulfill requirements of the Clean Water Act. TMDLs identifies the pollutant of concern, potential sources, and allocates the allowable load.

TMDLs are scientifically derived “budgets” that determine how much of a specified pollutant a waterbody can handle and still meet water quality standards



TMDL I-Plan

- The TMDL Implementation Plan (I-Plan) is a document outlining steps and schedules for reducing a pollutant load in the waterbody covered by the TMDL.
- The management measures and control actions identified in the I-Plan are developed by local stakeholders.
- I-Plans typically address the pollutant of concern in the TMDL.

Watershed Protection Plan

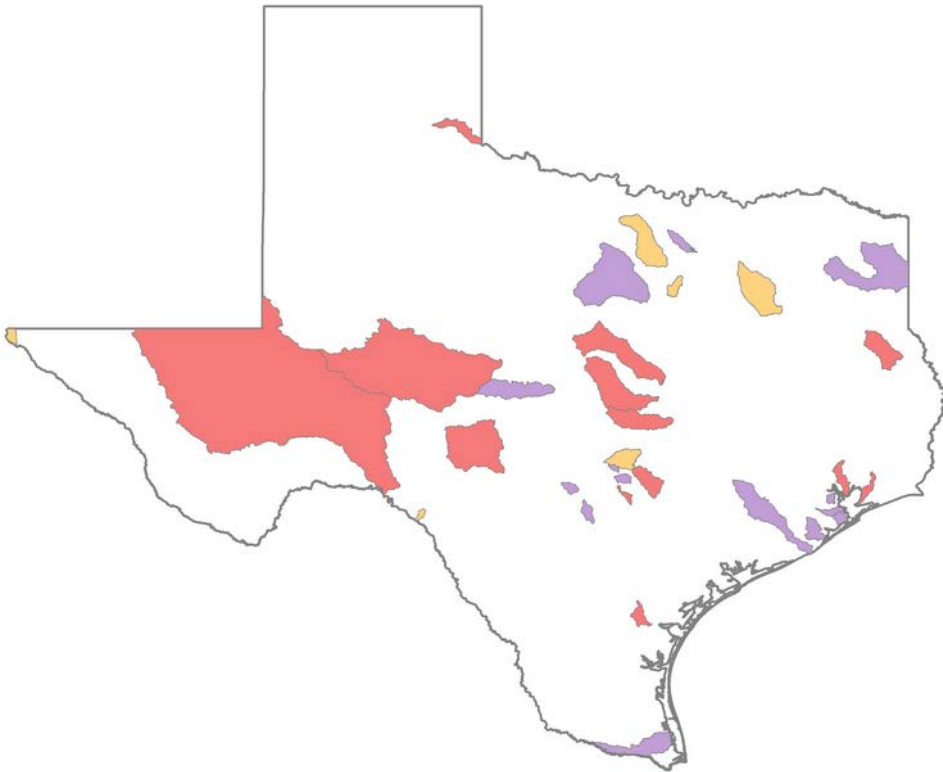
- A holistic stakeholder driven plan that addresses water quality in a watershed rather than political subdivisions
- A mechanism for voluntarily addressing complex water quality problems that cross multiple jurisdictions
- Provides a framework for coordinated implementation of prioritized and integrated protection and restoration strategies
- Integrates ongoing activities, prioritizes implementation projects based on technical merit and benefits to the community

9 Elements of Successful Watershed Protection Plans

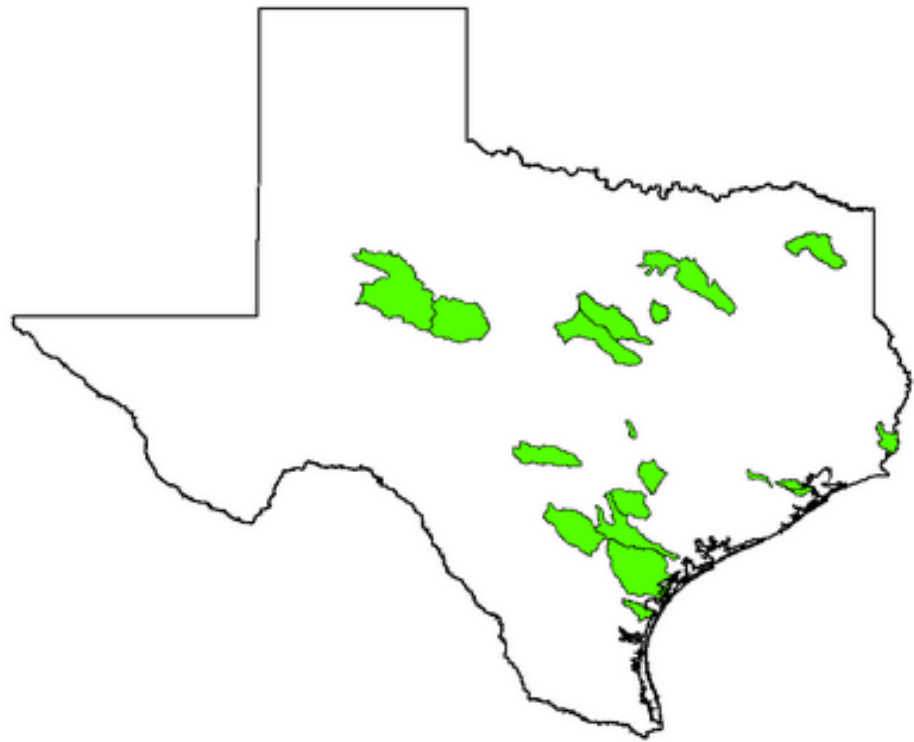
1. Identify causes and sources of pollution
2. Estimate needed reductions
3. Describe management measures
4. Include education and outreach
5. Design implementation schedule
6. Provide measurable milestones
7. Estimate costs and document sources of financial assistance
8. Progress indicators and adaptive management
9. Monitoring to evaluate effectiveness

Watershed-Based Plans Across Texas

Watershed Protection Plans (WPP)



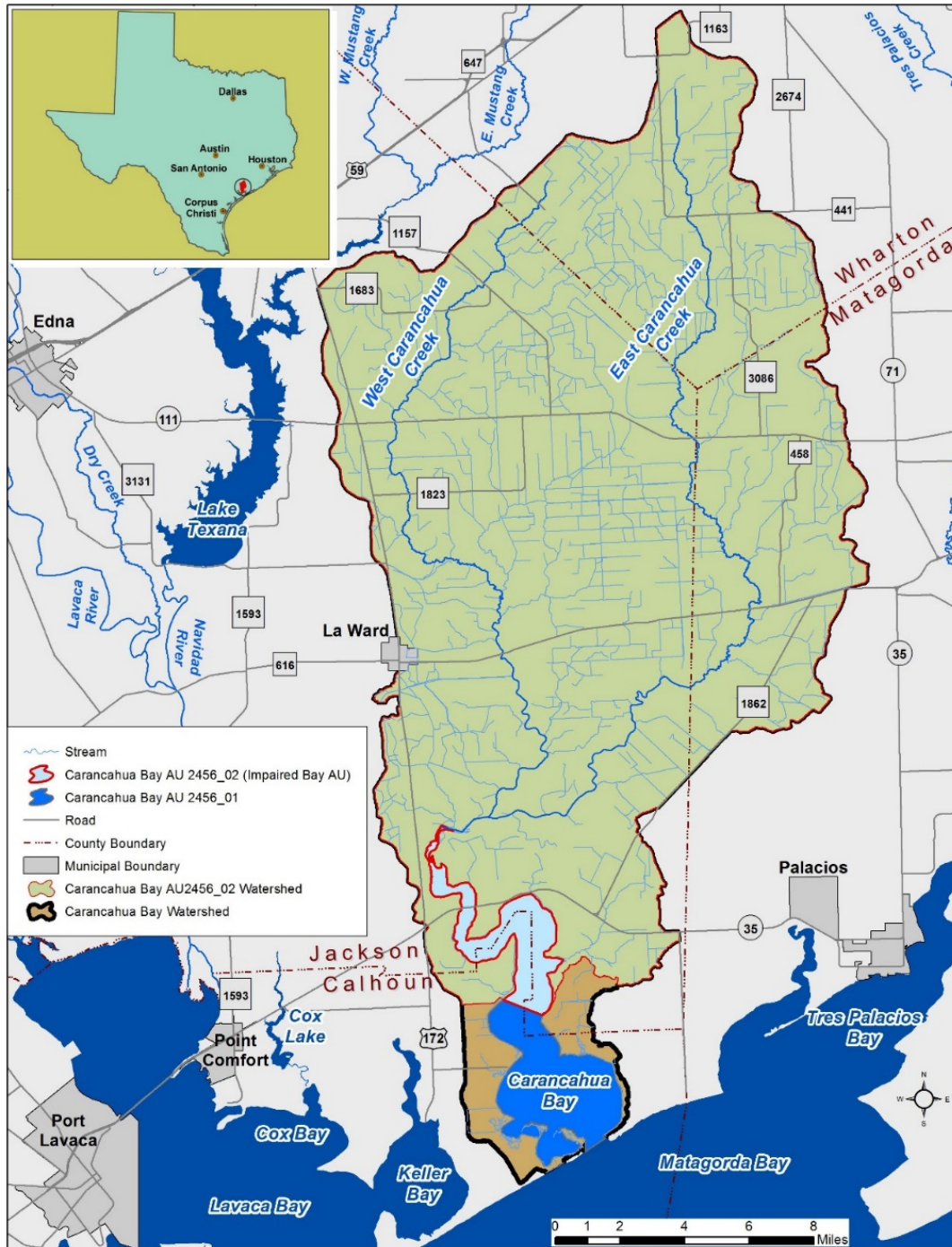
Total Maximum Daily Load (TMDL) and Implementation Plan (I-Plan)



WATER QUALITY UPDATE

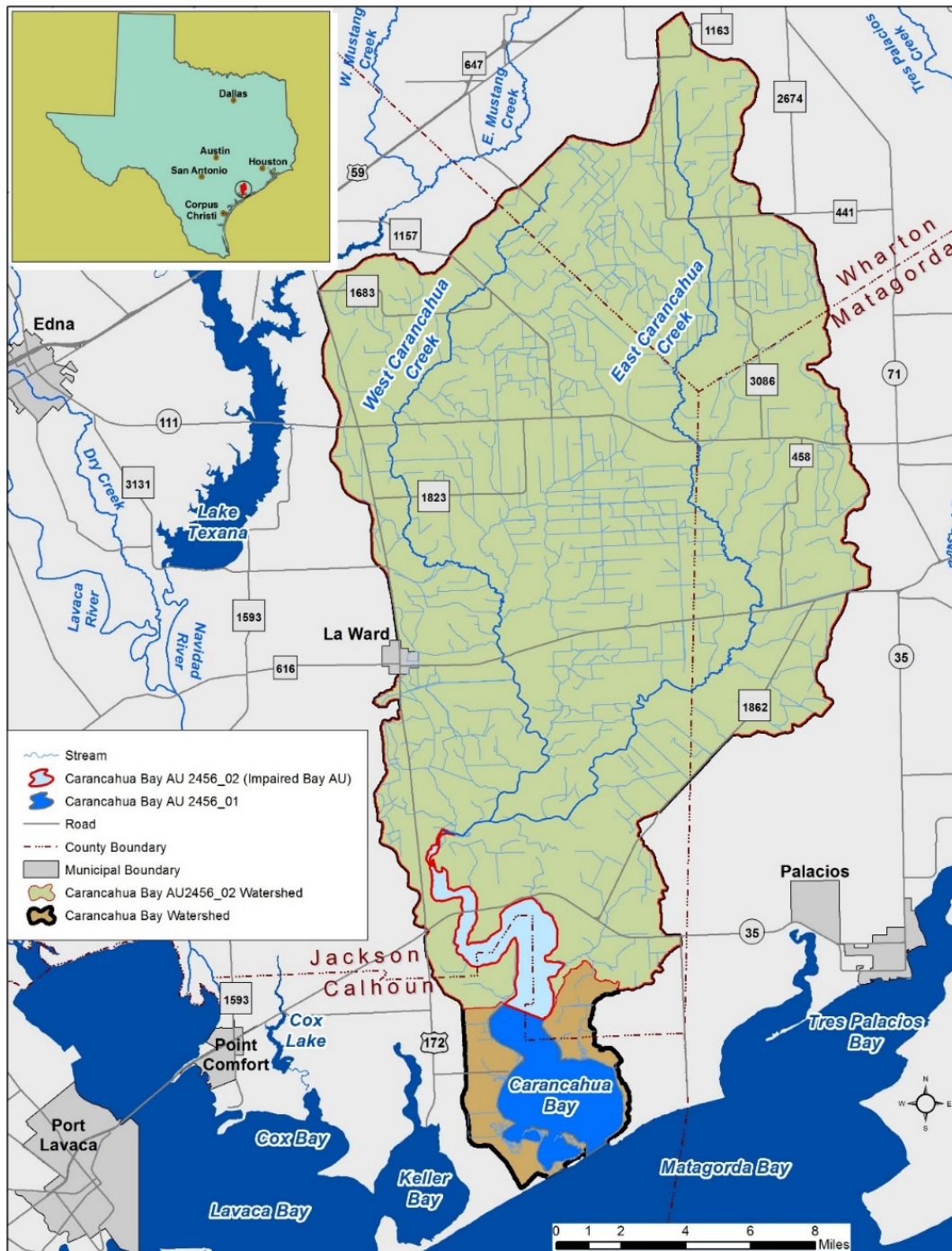
Water Quality Update

- The Carancahua Bay Watershed drains portions of Calhoun, Jackson, Matagorda, and Wharton counties
- Over 320 sq miles



Water Quality Update

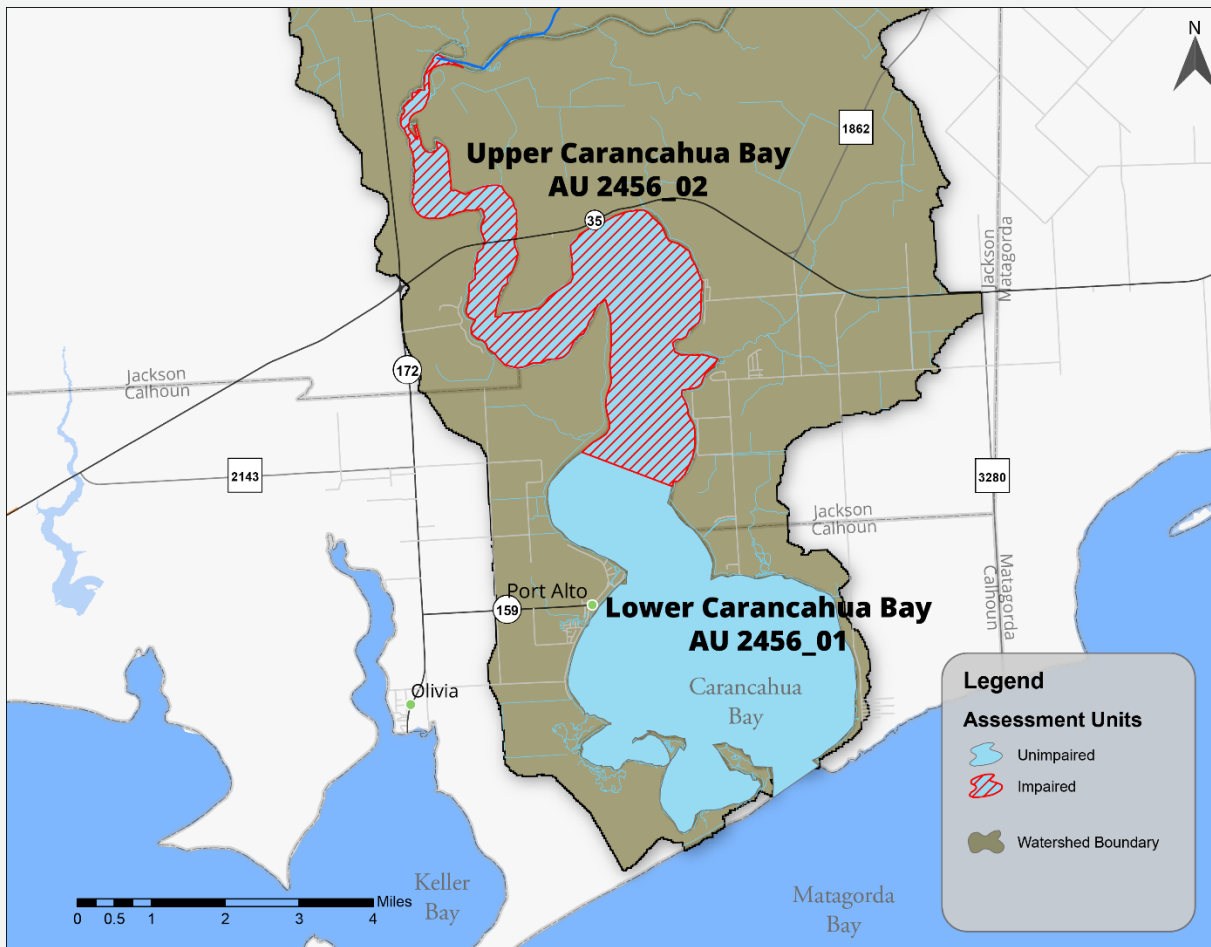
- Freshwater inflows primarily from West Carancahua and East Carancahua Creeks
- For assessment purposes, Carancahua Bay is split into **two hydrologically distinct assessment units (AUs)**
- Lower Bay = AU 2456_01
- Upper Bay = AU 2456_02



Water Quality Update

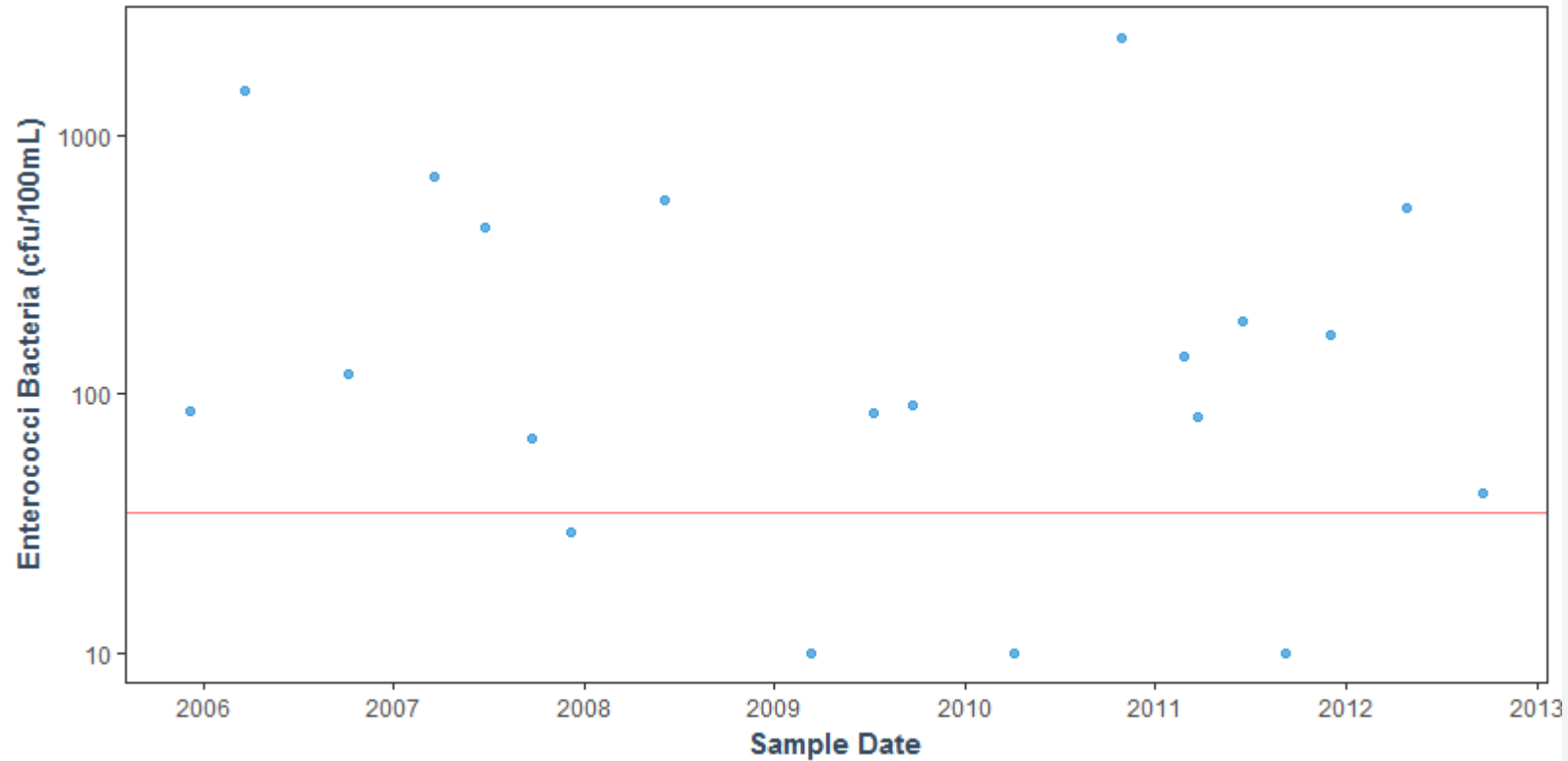
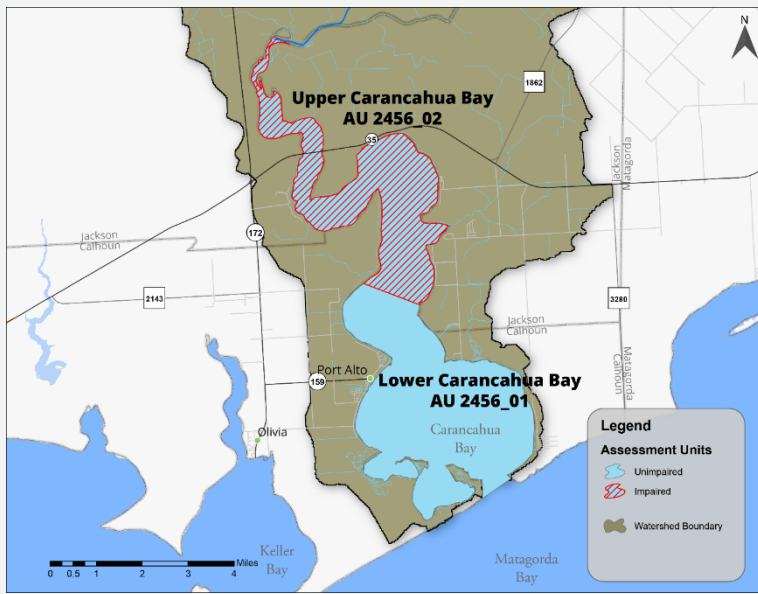
Upper half of Carancahua Bay (AU 2456_02) –

Listed Impaired for Primary Contact Recreation due to elevated Enterococcus levels

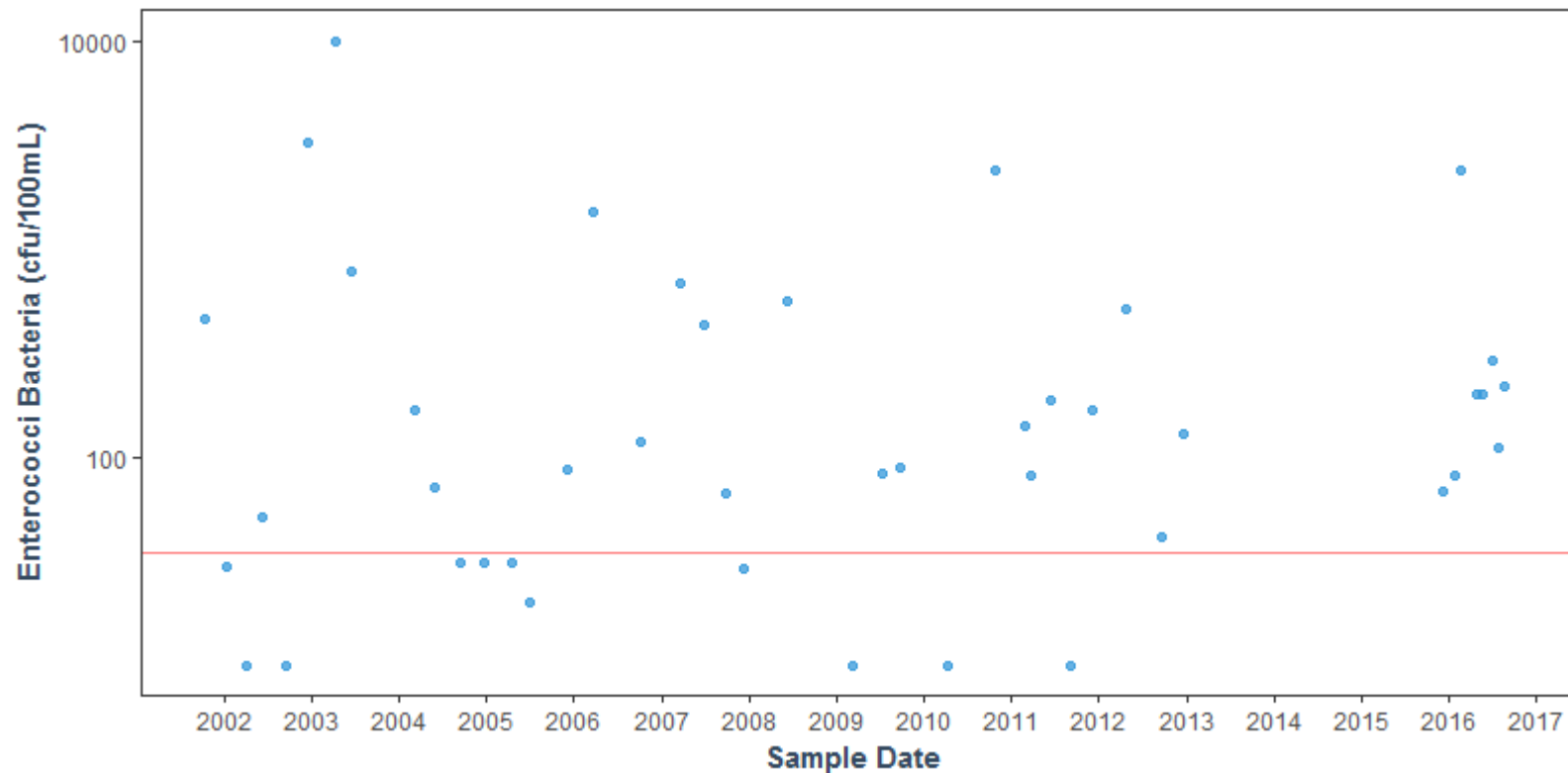
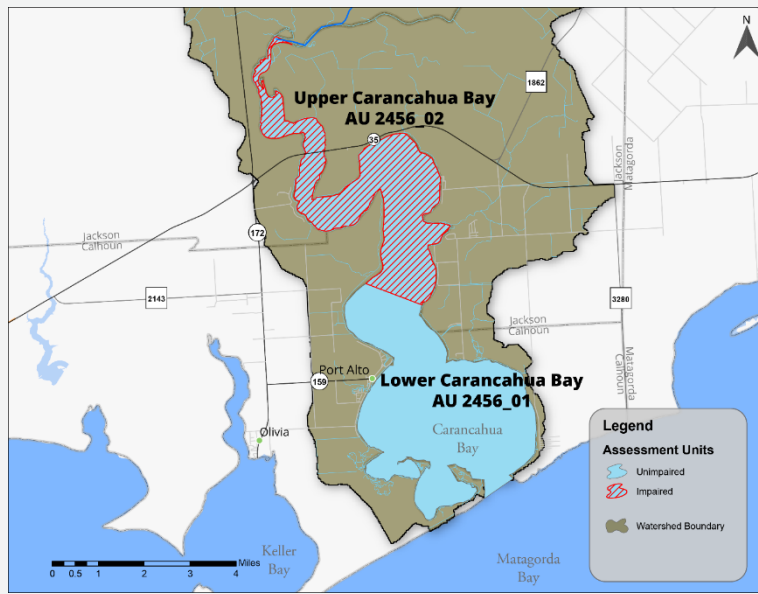


Water Body	Assessment Unit	Parameter	Station	Date Range	Samples	Geometric Mean
Carancahua Bay	2456_02	Enterococcus Geomean	13388	12/01/2005 – 11/30/2012	20	123.82

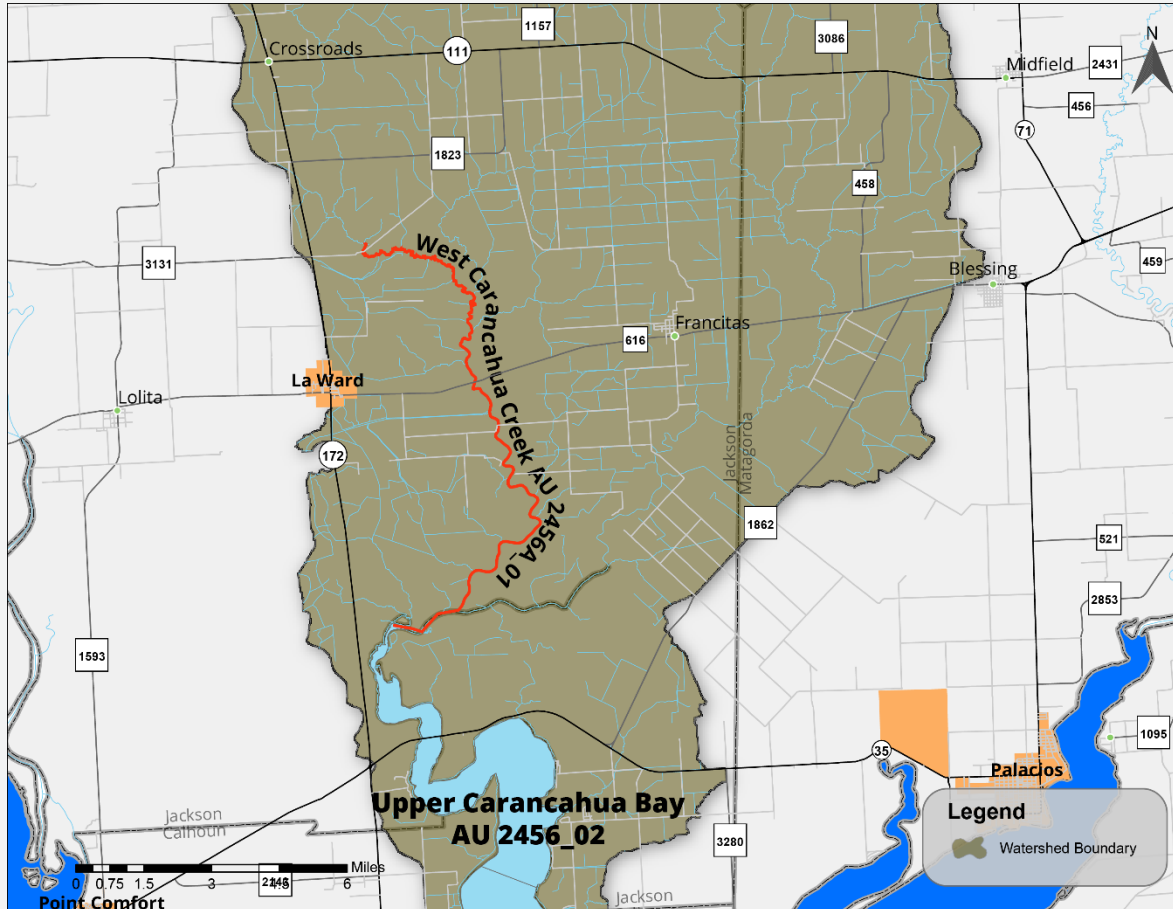
Water Quality Update



Water Quality Update



Water Quality Update



West Carancahua Creek Tidal
2456A_01 –

Listed impaired for depressed
dissolved oxygen

Impairment is carried forward
from previous assessment due
to inadequate data

Thank you!

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