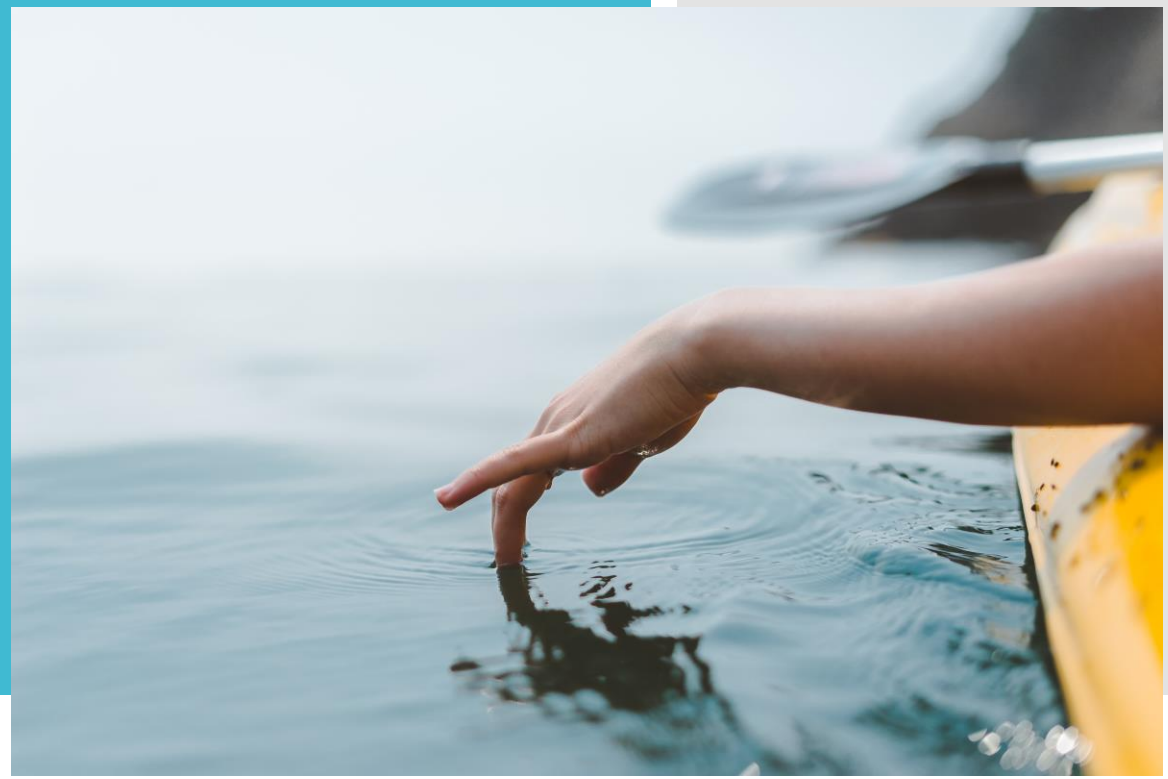
CANEY CREEK WATERSHED TMDL PROJECT

February 21, 2019

Steven Johnston



Meeting Agenda

- 5:00 – 5:05 Welcome - Open Meeting
- 5:05 – 5:35 Review Caney Creek Project Results
- 5:35 – 6:05 Coordination Committee Roles, Responsibilities and Selection
- 6:05 – 6:45 Watershed Based Planning/Bacteria Reduction
- 6:45 – 6:50 Wrap Up and Next Steps
- 6:50 – 7:00 Open Q&A / Adjourn

Why Are We Here?

Portions of Caney Creek and Linnville Bayou do not meet the State's Water Quality Standards for Contact Recreation.

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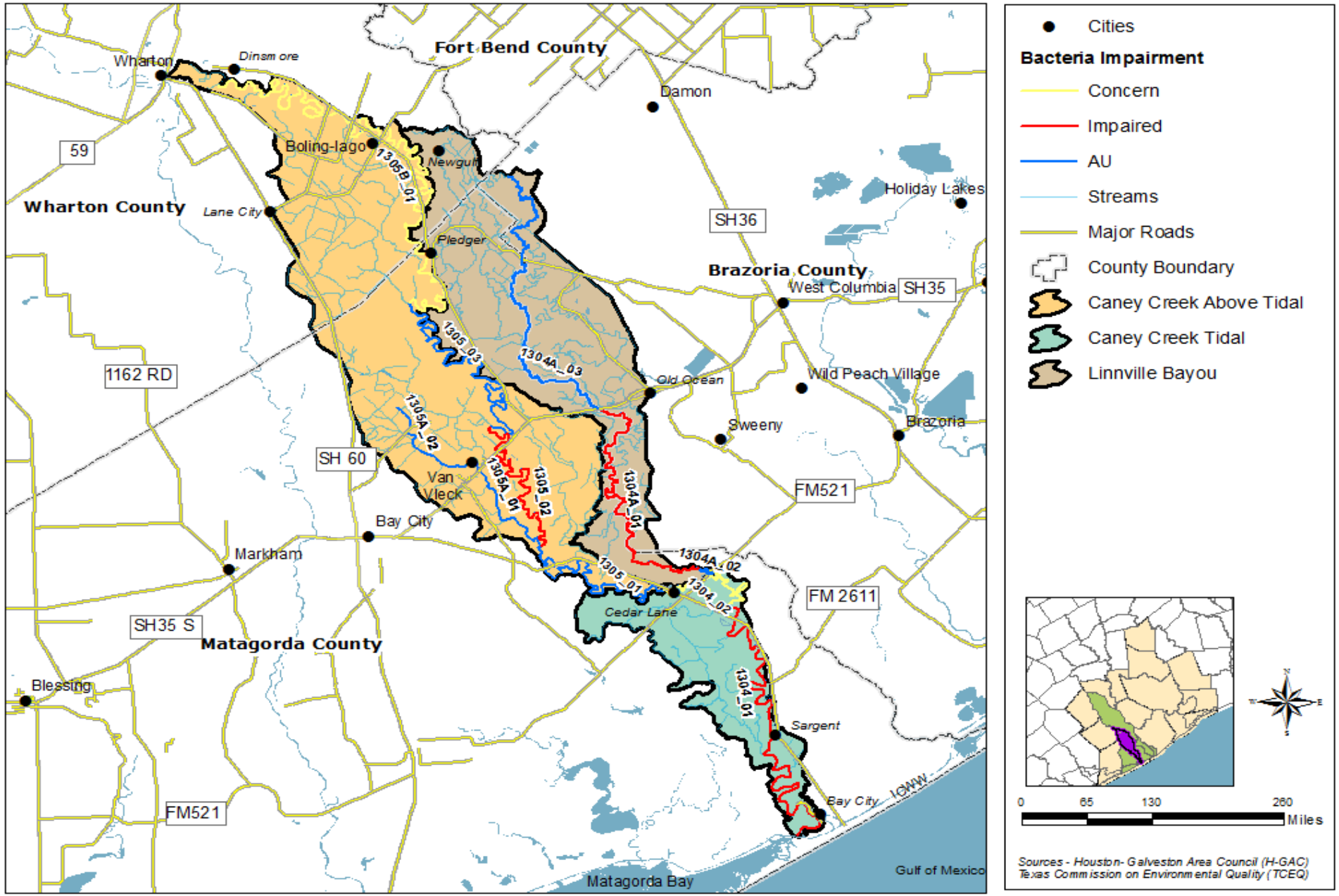
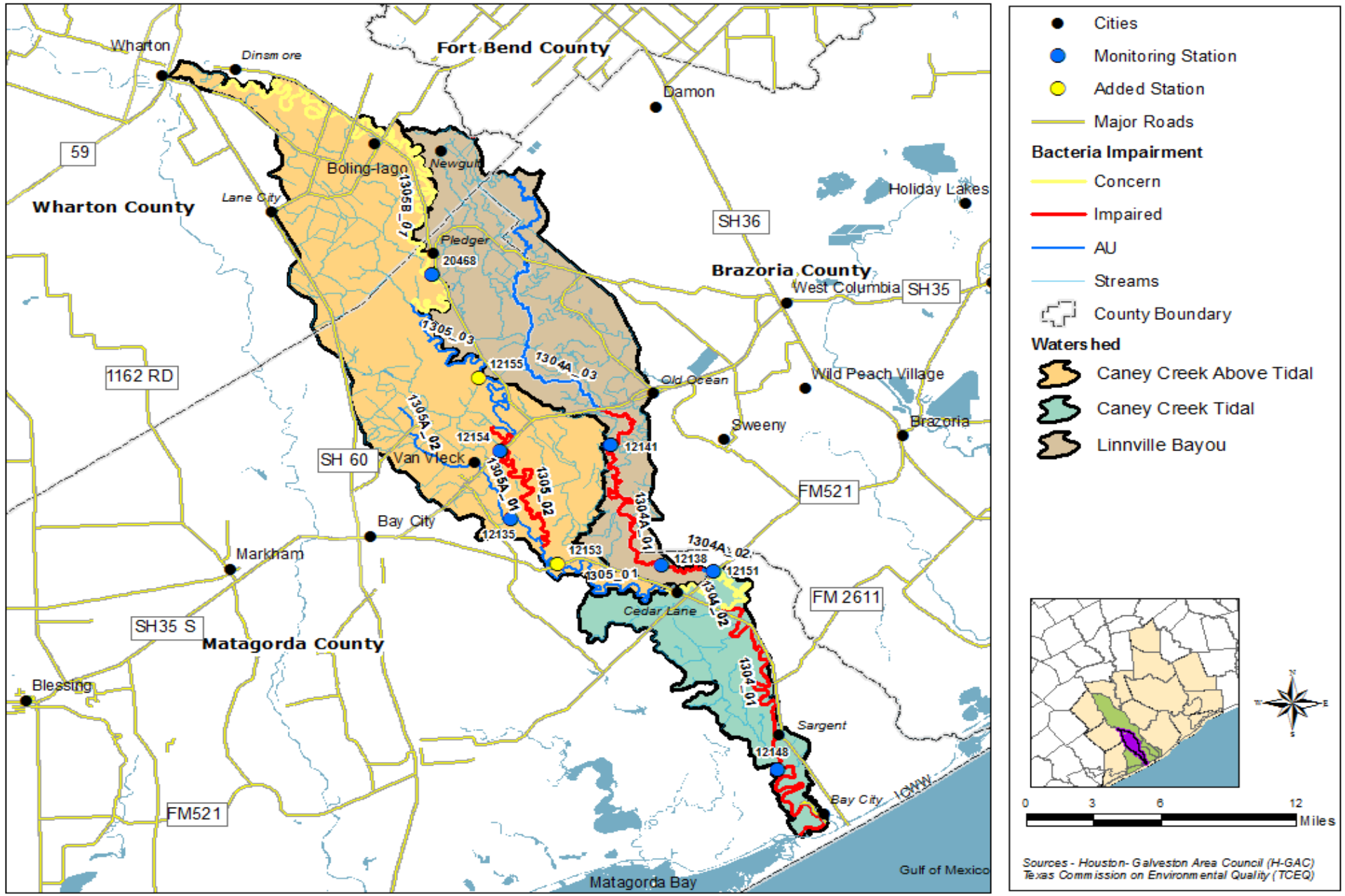
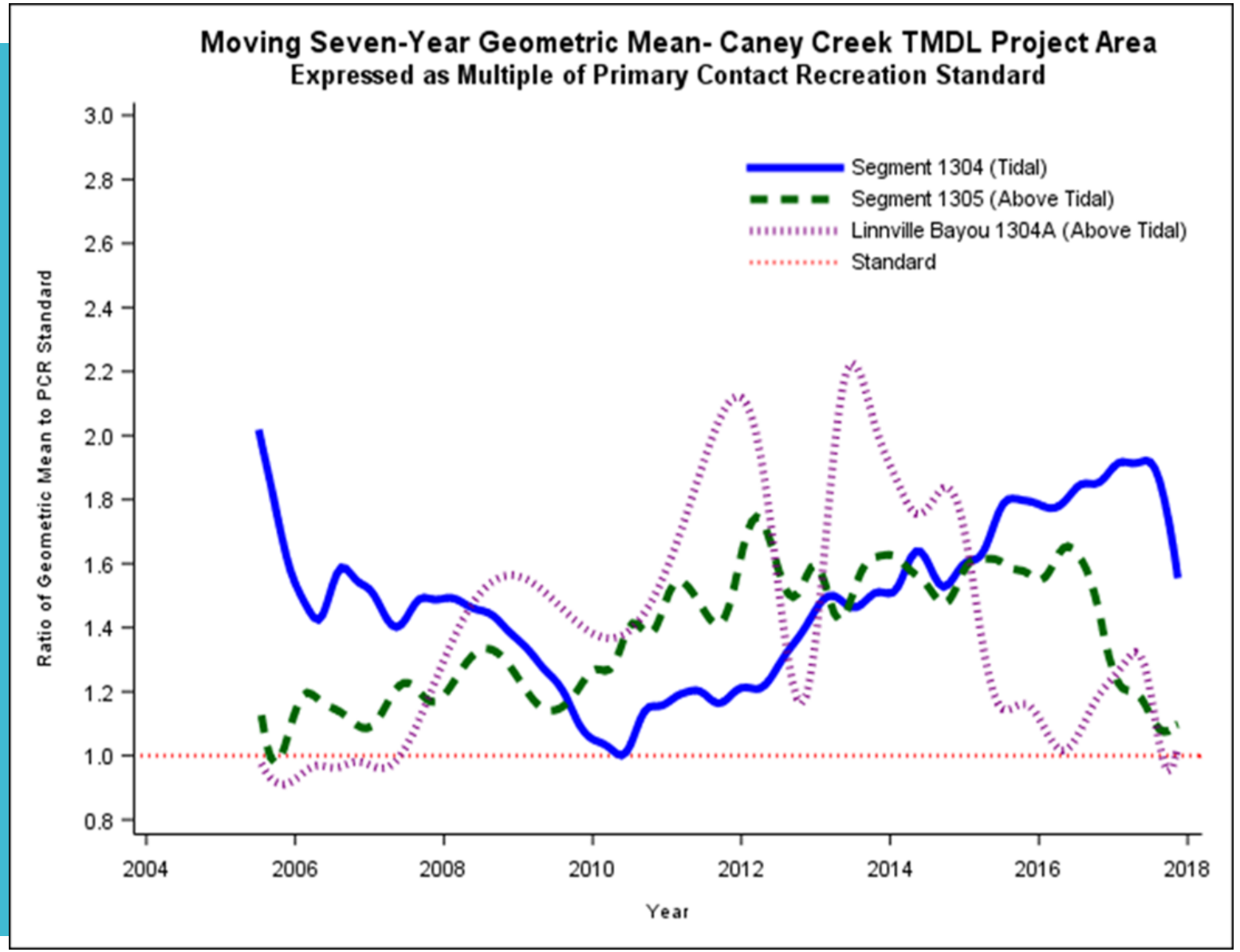
CANEY CREEK WATERSHED



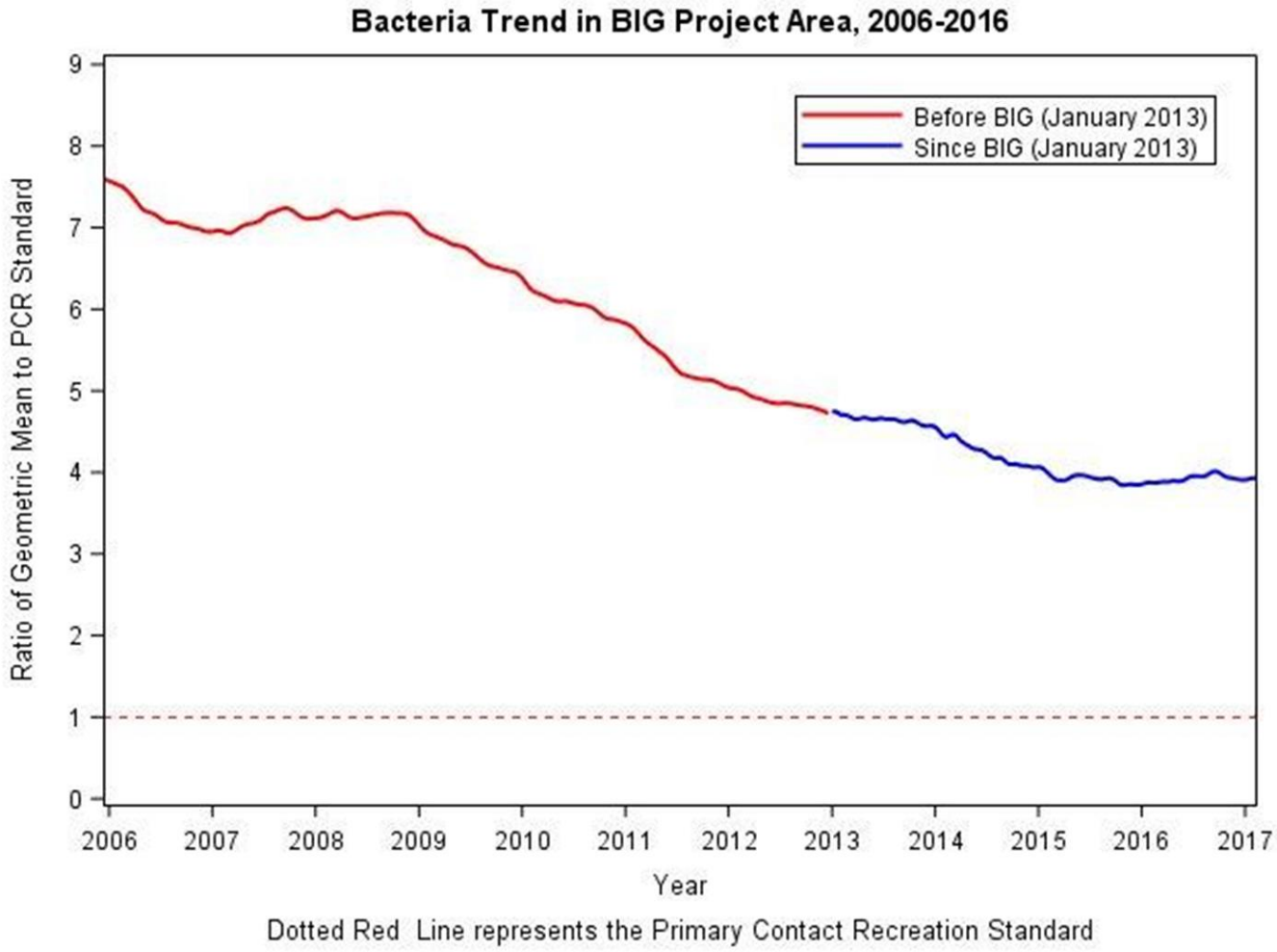
MONITORING STATIONS



Bacteria Trends



Do Watershed Plans Work?



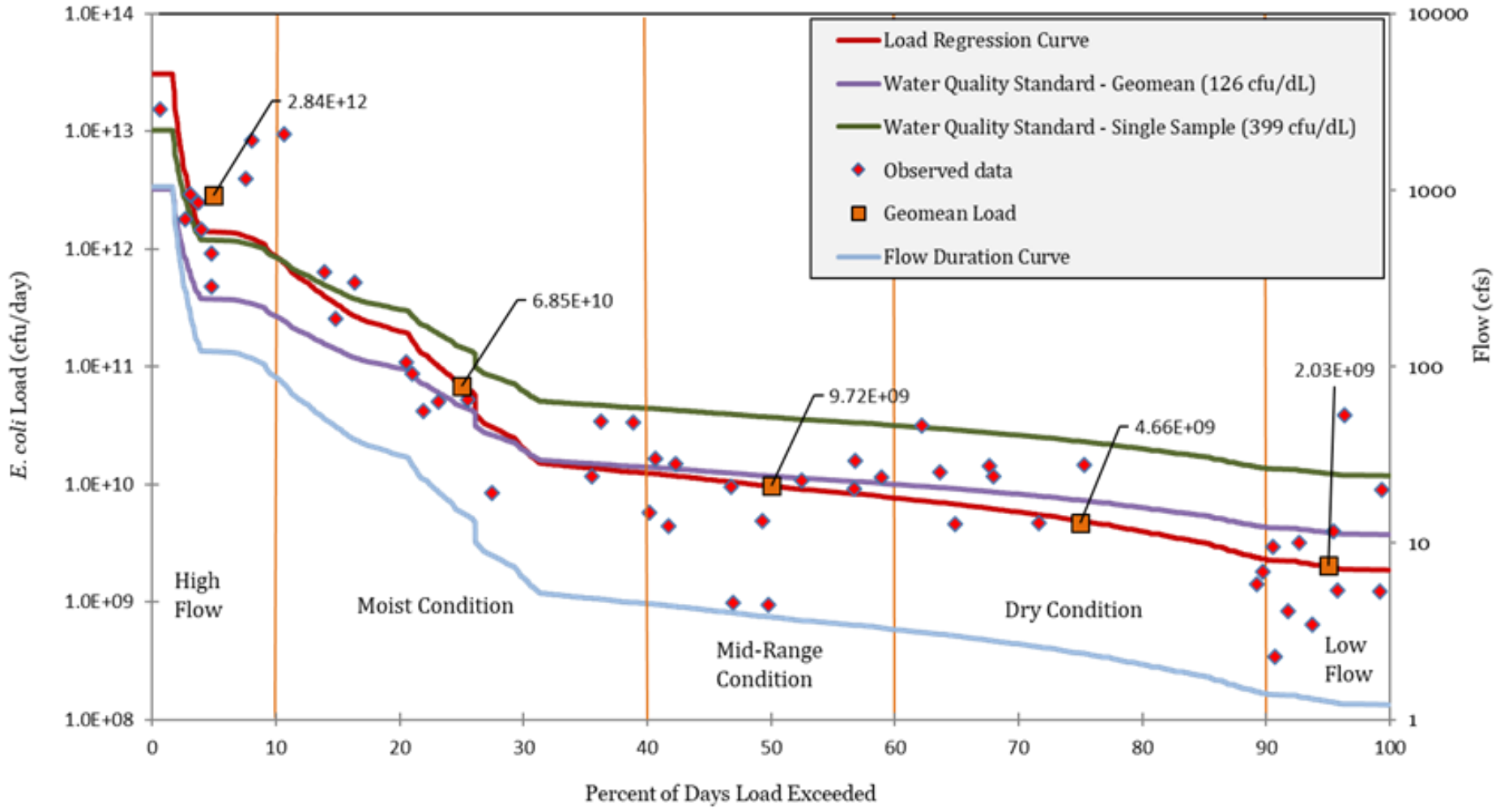
Determining Pollutant Loadings – LDC Approach

- Load Duration Curve (LDC) Method Used
- Method is widely accepted by EPA and Texas for development of bacteria WBPs
- Modification of LDCs for tidal streams pioneered by State of Oregon and being used in Texas for TMDL development.
- TMDLs adopted by TCEQ and approved by EPA in 2016 for Tidal segments of Mission & Aransas Rivers used Modified FDCs/LDCs

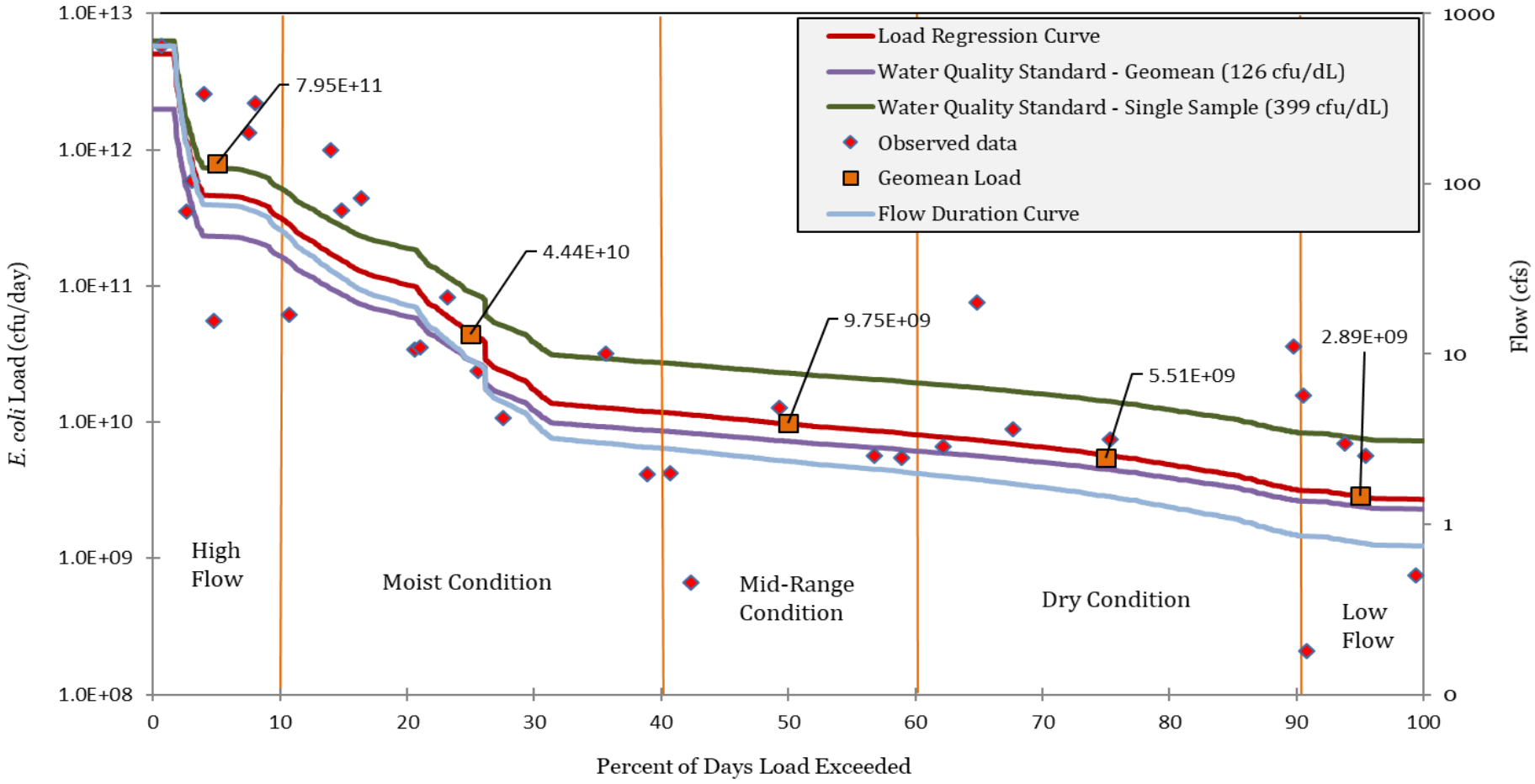
LDC Development Requires

- streamflow data,
- bacteria (Enterococci & *E. coli*) data,
- salinity data (for Modified Approach)
- the relevant bacteria criterion

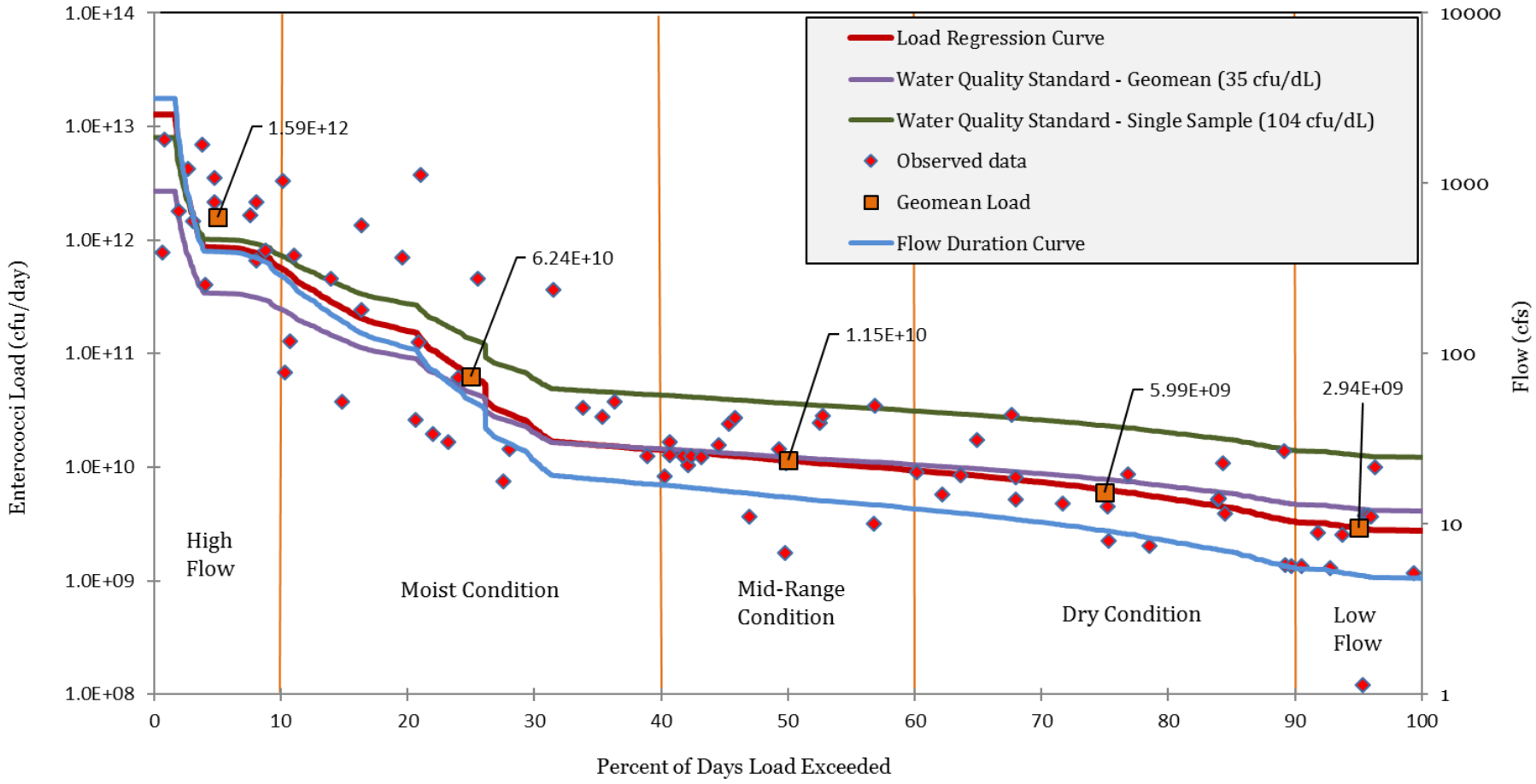
LOAD DURATION CURVES
Caney Creek Above Tidal 1305_02



LOAD DURATION CURVES
Linnville Bayou 1304A_01



LOAD DURATION CURVES
Caney Creek Tidal 1304_01



TMDL

$TMDL = WLA (WLA_{wwtf} \text{ and } WLA_{sw}) + LA + FG + MOS$

Draft TMDL – (Preliminary)

AU	Indicator Bacteria	TMDL (Billion MPN/day)	MOS (Billion MPN/day)	WLA_{wwtf} (Billion MPN/day)	WLA_{sw} (Billion MPN/day)	LA (Billion MPN/day)
1304_01	Enterococci	339.49	3.30	0.59	1.33	334.26
1304A_01	*E. coli*	231.01	11.55	0.24	7.80	211.42
1305_02	*E. coli*	375.41	18.77	0.75	0.01	355.89

BACTERIA REDUCTION

Flow Condition	Exceedance Range	1304_01		1304A_01		1305_02	
		Enterococci		*E. coli*		*E. coli*	
		35 MPN/100mL		126 MPN/100 mL		126 MPN/100 mL	
		Geometric Mean (MPN/100mL)	Required Percent Reduction	Geometric Mean (MPN/100mL)	Required Percent Reduction	Geometric Mean (MPN/100mL)	Required Percent Reduction
High Flow	(0-10%)	102.14	65.73%	264.89	52.43%	582.01	78.35%
Moist	(10-40%)	48.29	27.52%	197.47	36.19%	187.80	32.91%
Mid-Range	(40-60%)	32.65	0.00%	169.26	25.56%	103.83	0.00%
Dry	(60-90%)	29.00	0.00%	159.71	21.11%	83.04	0.00%
Low Flow	(90-100%)	23.81	0.00%	149.55	15.75%	64.48	0.00%

What's a Coordination Committee?

A proactive group of local and regional stakeholders helping to create and drive content for the TMDL/I-Plan and/or WPP documents.

Role of the Coordination Committee

- Attend Public Meetings
- Participate in Work Groups
- Act as Community Ambassadors
- Provide Input on Priorities for the Watershed
- Identify Appropriate Management Measures
- Provide Input on Documents & Reports

Group Discussion

(1) POTENTIAL INTERESTS

- Citizens
- Education
- Environmental Groups
- Government Interest
- Industry and Business
- Parks / Recreation
- Resource Agency
- Watersheds
- Wildcard
- Others?

(2) NUMBER OF REPRESENTATIVES

- Ideal size of the committee?
- Other committees range from 31 members to 18.
- Number should be fairly distributed by interest.

(3) PROCESS TYPE

FORMAL

- Formal nominations
- Recorded votes
- Written rules of order (bylaws)
- Open Meeting Act Requirements

(4) MISSING PIECES

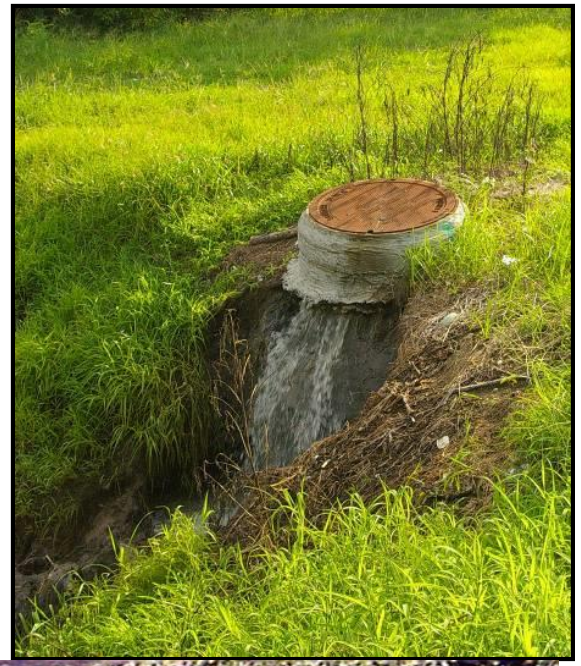
- Who should be here that isn't?
- Are we missing major industry or stakeholder groups?

Caney Creek / Linville Bayou Plan Development Process

Brazos-Colorado Coastal Basin (Basin 13)

Possible Sources of Bacteria

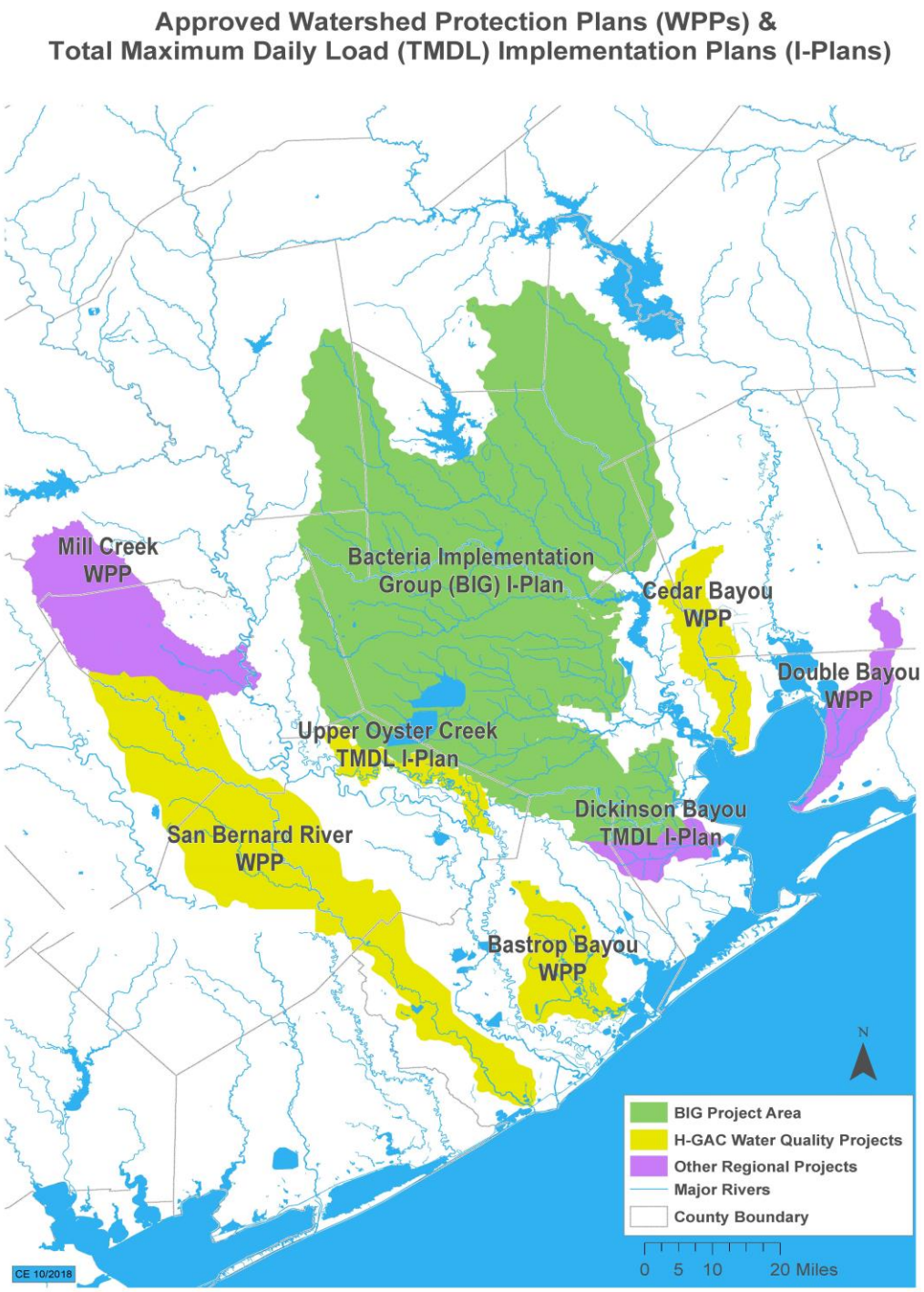
- Domestic pets (dogs, cats)
- Leaking wastewater infrastructure
- Wildlife (deer, bird, raccoon, etc.)
- Feral Hogs
- Onsite Sewage Treatment
- Urban lawns and landscaping
- Agriculture/Pasture



What are Management Measures?

Existing measures are a menu of voluntary strategies stakeholders can use to reduce bacteria levels in Caney Creek and Linnville Bayou.

Watershed-Based Plans



WATERSHED-BASED PLAN TYPE
Pros and Cons

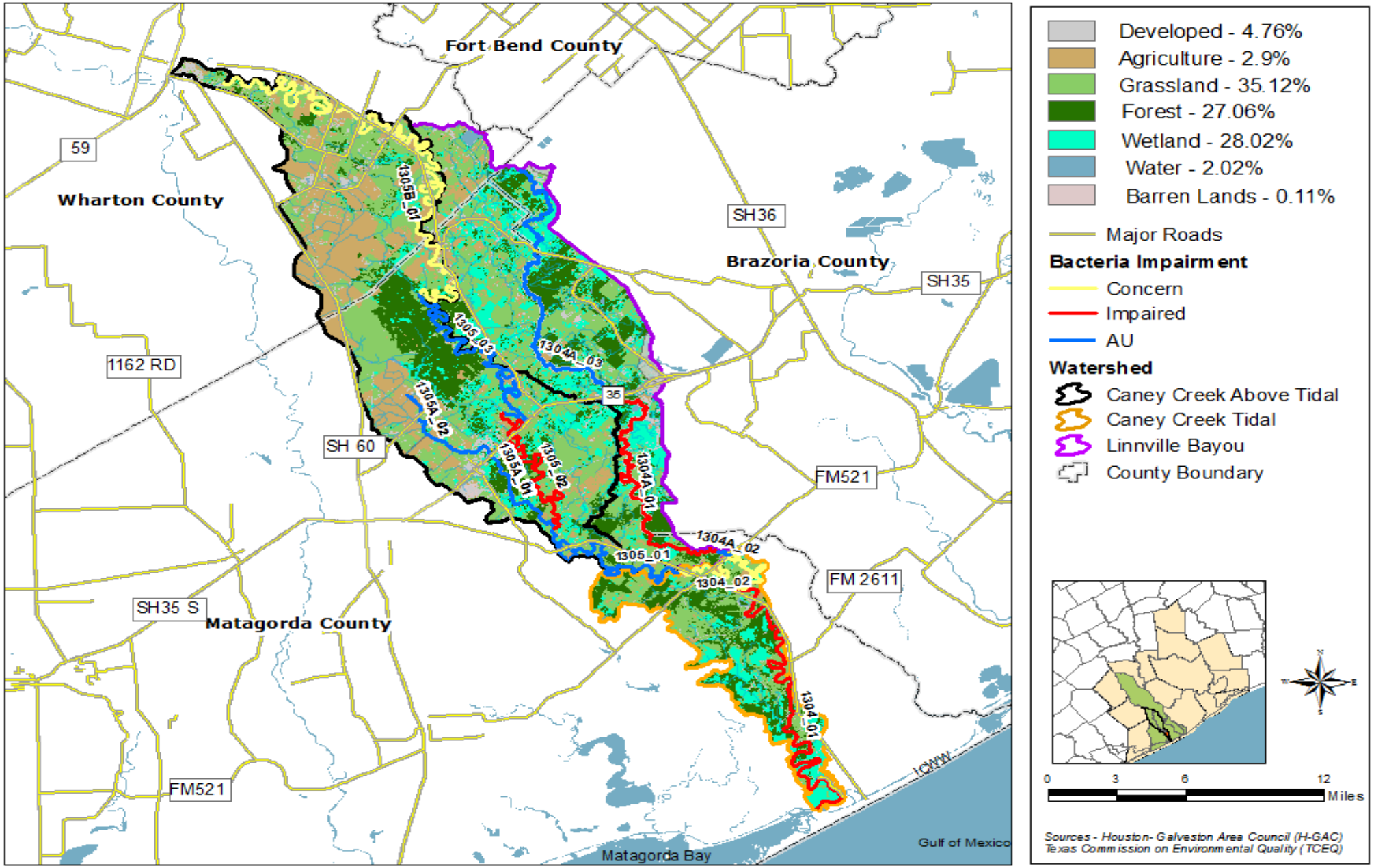
TMDL/I-Plan

- **Pros**
  - Mostly Voluntary
  - Single Pollutant
  - Short Time-Frame
  - Permittees can be ahead of the curve
  - Mostly Urban Watersheds
- **Cons**
  - Other WQ concerns
  - No 319 Funding

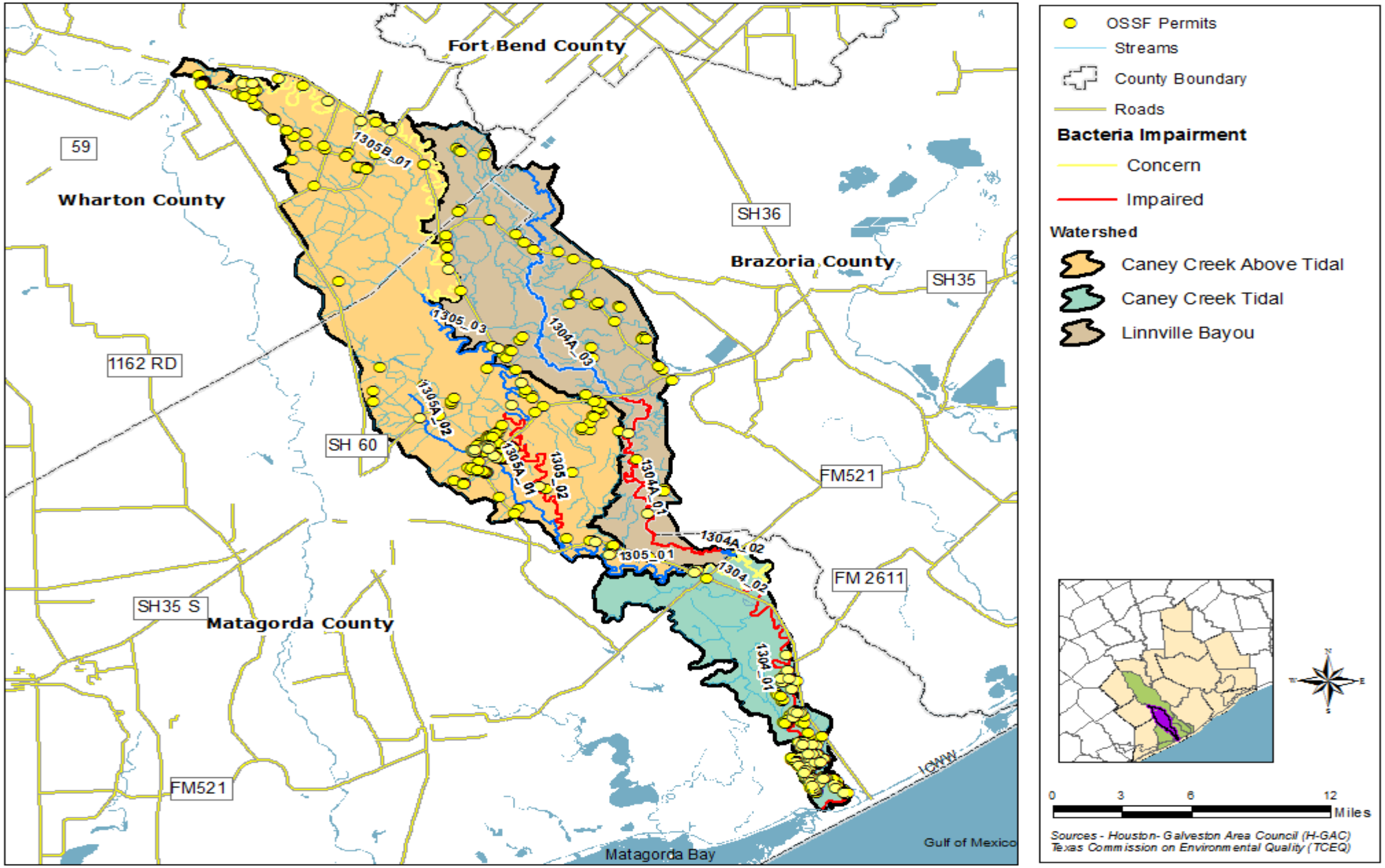
WPP

- **Pros**
  - Voluntary
  - Address multiple concerns
  - Mostly Rural Watersheds
  - 319 Funding Source
- **Cons**
  - Longer Time-Frame
  - Not typically used by State Permit Process

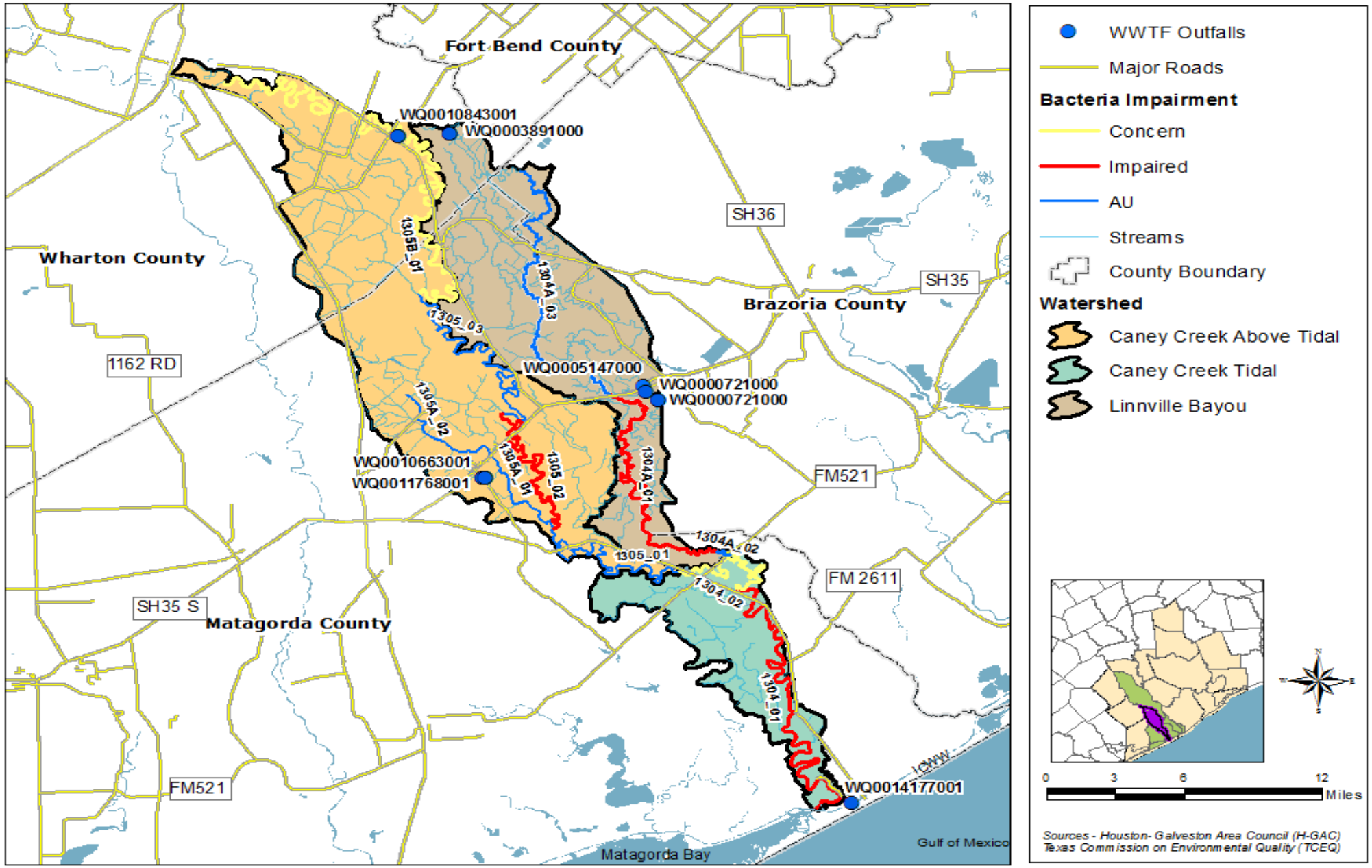
LAND COVER


Fort Bend County
Wharton County
Brazoria County
Matagorda County
59
SH36
SH35
1162 RD
SH 60
35
FM521
FM 2611
SH35 S
FM521
1305B_01
1305_03
1304A_03
1305A_02
1305A_01
1305_02
1304A_01
1304A_02
1305_01
1304_02
1304_01
ICWW
Gulf of Mexico
Matagorda Bay
Developed - 4.76%
Agriculture - 2.9%
Grassland - 35.12%
Forest - 27.06%
Wetland - 28.02%
Water - 2.02%
Barren Lands - 0.11%
Major Roads
Bacteria Impairment
Concern
Impaired
AU
Watershed
Caney Creek Above Tidal
Caney Creek Tidal
Linnville Bayou
County Boundary
0
3
6
12
Miles
Sources - Houston- Galveston Area Council (H-GAC)
Texas Commission on Environmental Quality (TCEQ)

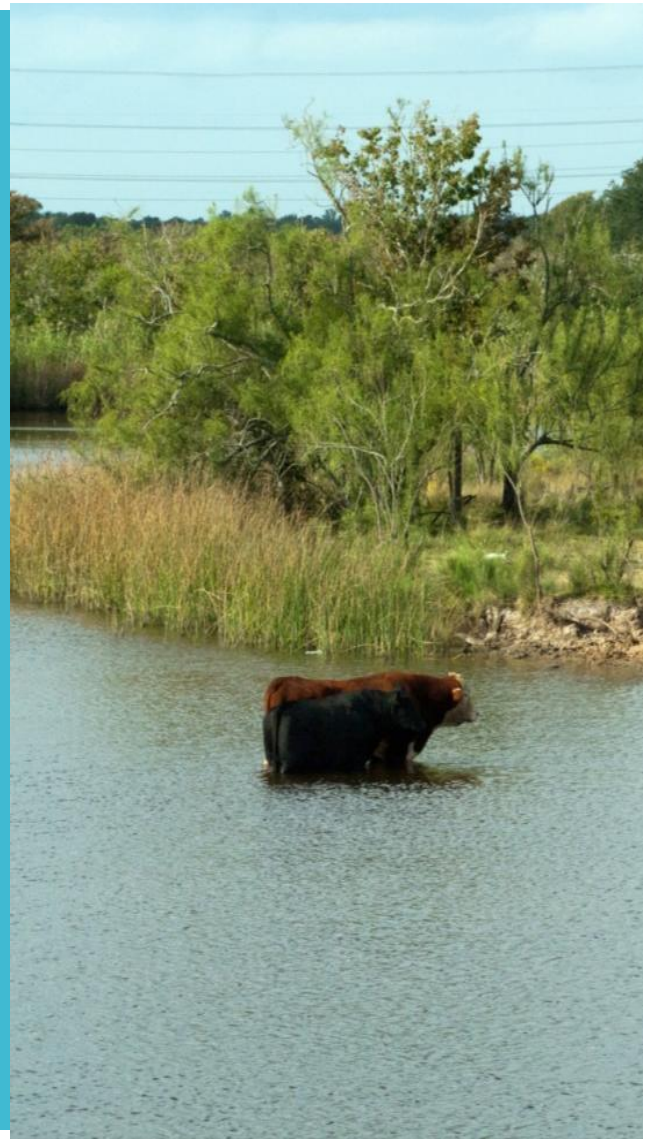
OSSFs MEASURES



WWTF MEASURES



POTENTIAL AGRICULTURAL SOURCE MEASURES



Watershed	Pasture/Grassland Area (Acres)	Cattle and Calves	Hogs and Pigs	Sheep and Lambs	Equine	Poultry
Brazoria	262112	78907	4218	1435	4572	6033
Matagorda	240492	53283	47	304	1141	1261
Wharton	256621	57168	131	395	1687	242
Caney Creek Tidal	9904.68	2194	2	13	47	52
Linnville Bayou	23429.63	5804	127	63	215	244
Caney Creek Above Tidal	40842.56	9069	13	56	224	144

PETs / FERAL HOGS MEASURES

Segment	Estimated Households	Dogs	Cats
Caney Creek Tidal	185	108	118
Linnville Bayou	357	208	228
Caney Creek Above Tidal	3,003	1,754	1,916
Total	3,545	2,070	2,262

Watershed	Suitable Area (Acres)	Suitable Area (Sq. Mile)	Feral Hog Population
Caney Creek Tidal	28,182.51	44.04	342-570
Linnville Bayou	63,782.74	99.66	774-1291
Caney Creek Above Tidal	100,742.43	157.41	1223-2038

CURRENT IMPLEMENTATION

- Coastal Communities
  - www.CoastalCommunitiesTx.com
- OSSF SEP
  - ossf@h-gac.com
- TrashBash© Lake Jackson
  - www.trashbash.org
- Texas Stream Team
- Imp. Workshops
  - Watershed Stewards (July 2017)
  - OSSF (July 2017)
  - Green Infrastructure (June 12, 2019)
  - Ag/Feral Hog?

NEXT STEPS in the PROCESS

- Coordination Committee (CC) – Discuss I-Plan/WPP Measures (February 2019)
- H-GAC Drafts Reduction Measures (March 2019)
- Leadership Forum (March 21, 2019)

- CC – Reviews Draft Measures (April 2019)
- H-GAC Drafts I-Plan / WPP (April 2019)
- CC – Reviews Draft Plan (May 2019)
- I-Plan/WPP Draft Submitted to TCEQ (June 2019)
- Leadership Forum (July 2019)

Thank You!

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