Cotton Bayou Watershed Total Maximum Daily Load Development

Public Meeting
May 31, 2022

Meeting Outline

- **Introductions**
- *Project Overview & Updates*
- *Technical Support Document*
- *Next Steps*
- *Discussion*

Introductions

Texas Commission on Environmental Quality (TCEQ)

lead state environmental management agency

Houston-Galveston Area Council (H-GAC)

regional council of governments

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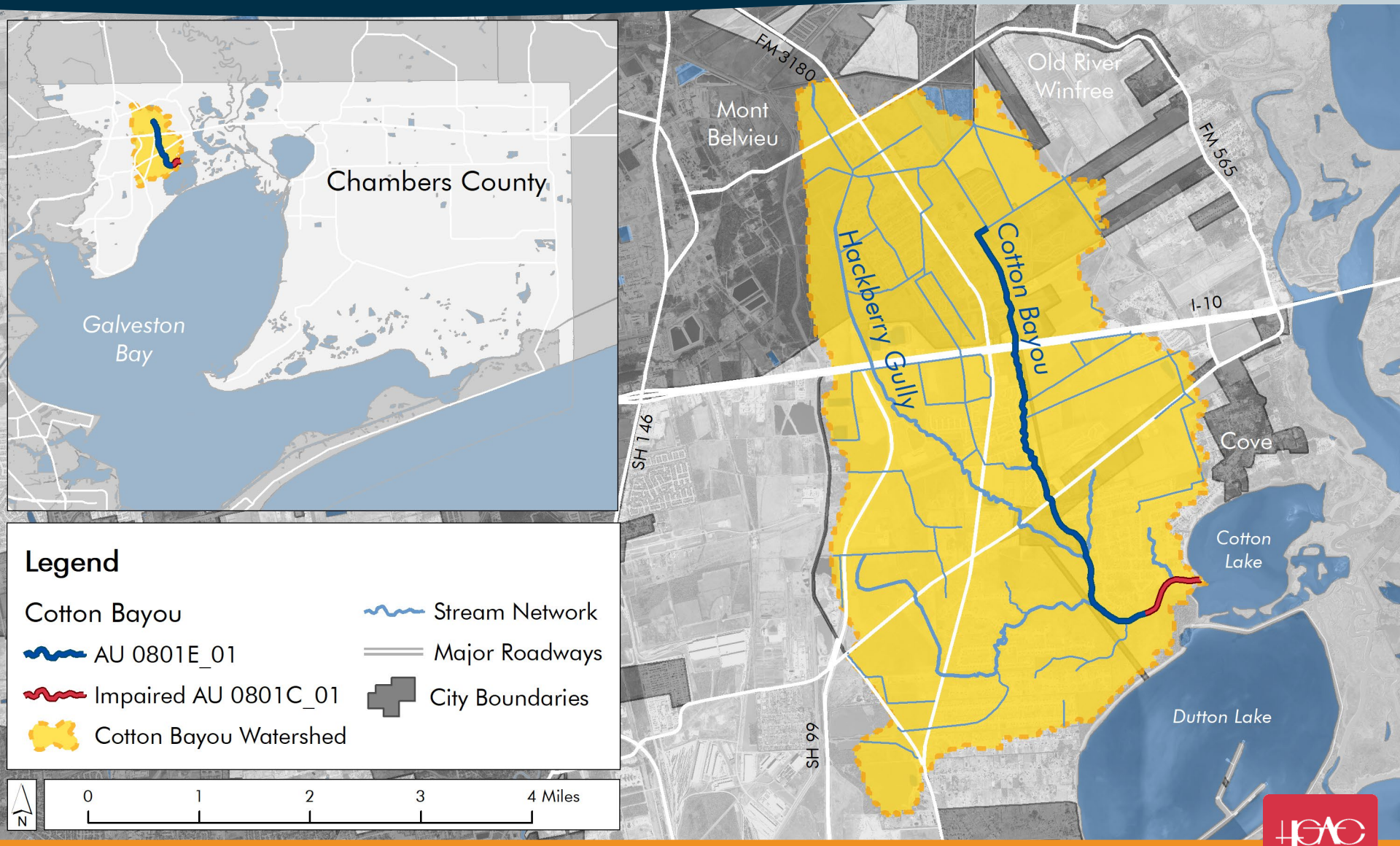
Watershed Area



Water Quality

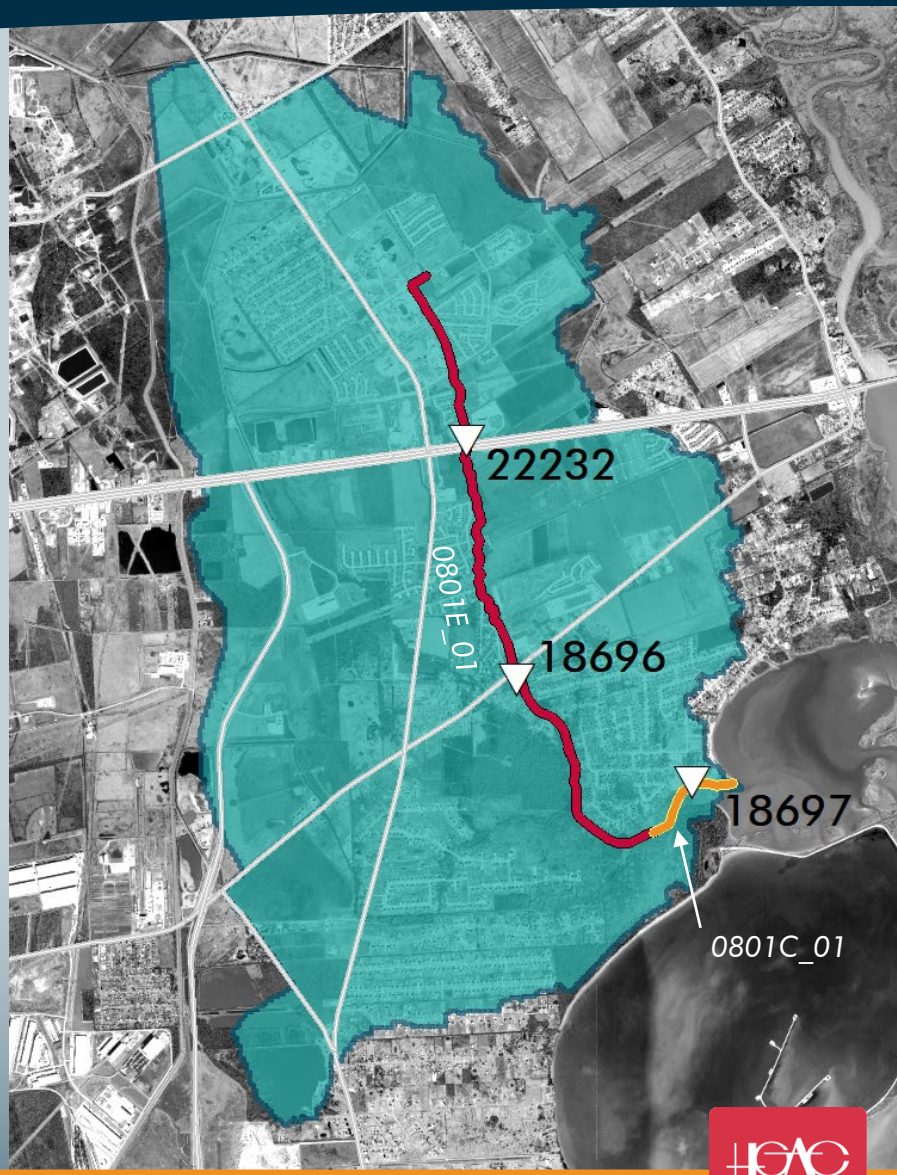
- Contact recreation use **impaired** due to high levels of fecal indicator bacteria (Enterococci) in surface water
- Other water quality **concerns** include low dissolved oxygen and high concentrations of nutrients
- This project is focused on characterizing sources of fecal indicator bacteria to determine a **Total Maximum Daily Load** (TMDL) for the impaired water body

Bacteria Sources

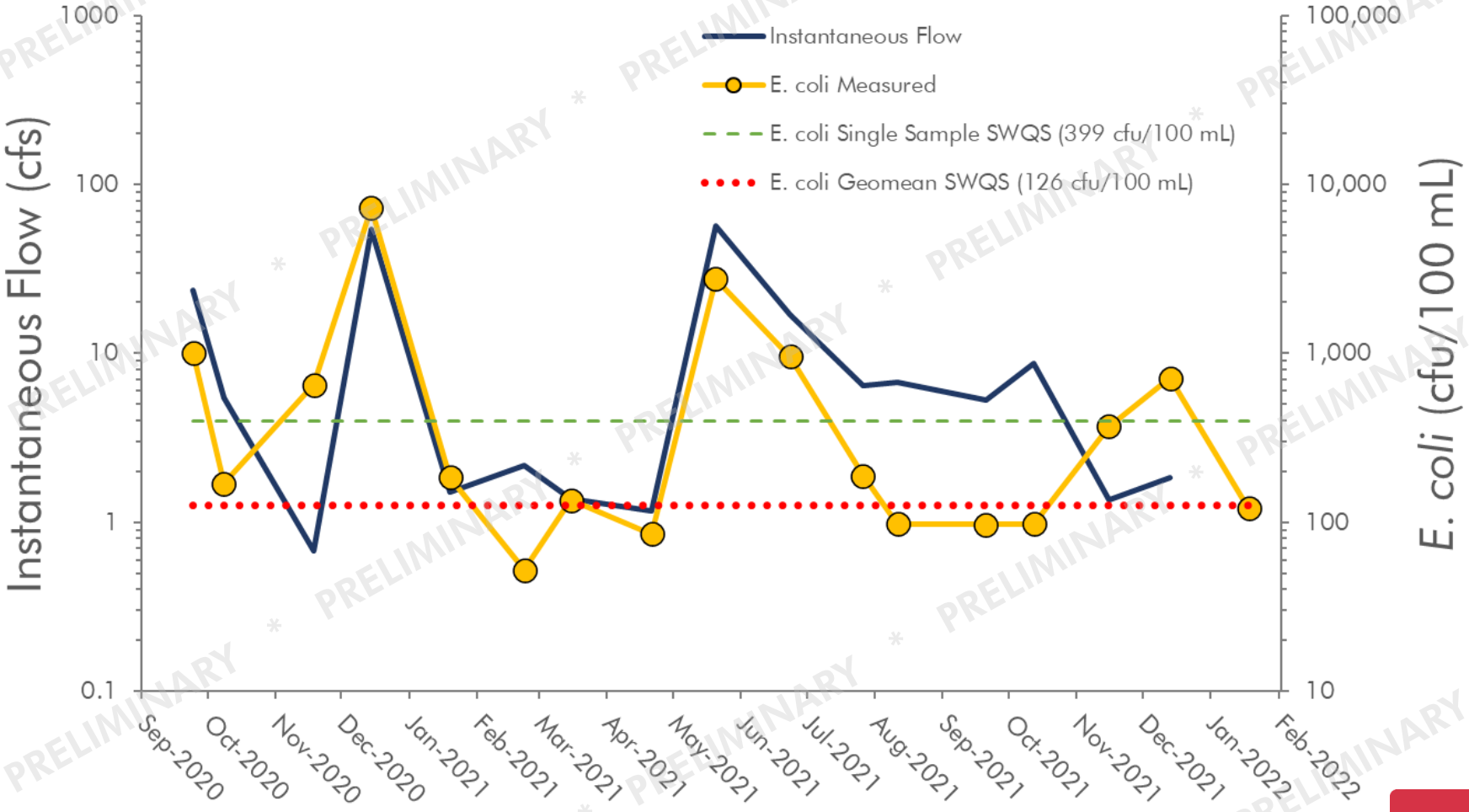
- **Human Waste**
  - Wastewater
  - Septic/Aerobic Systems
  - Illicit Sewage
- **Domestic Animal Waste**
  - Pets
  - Livestock
- **Wildlife/Feral Hog Waste**
  - Deer and Other Wildlife
  - Feral Hogs

Other Updates

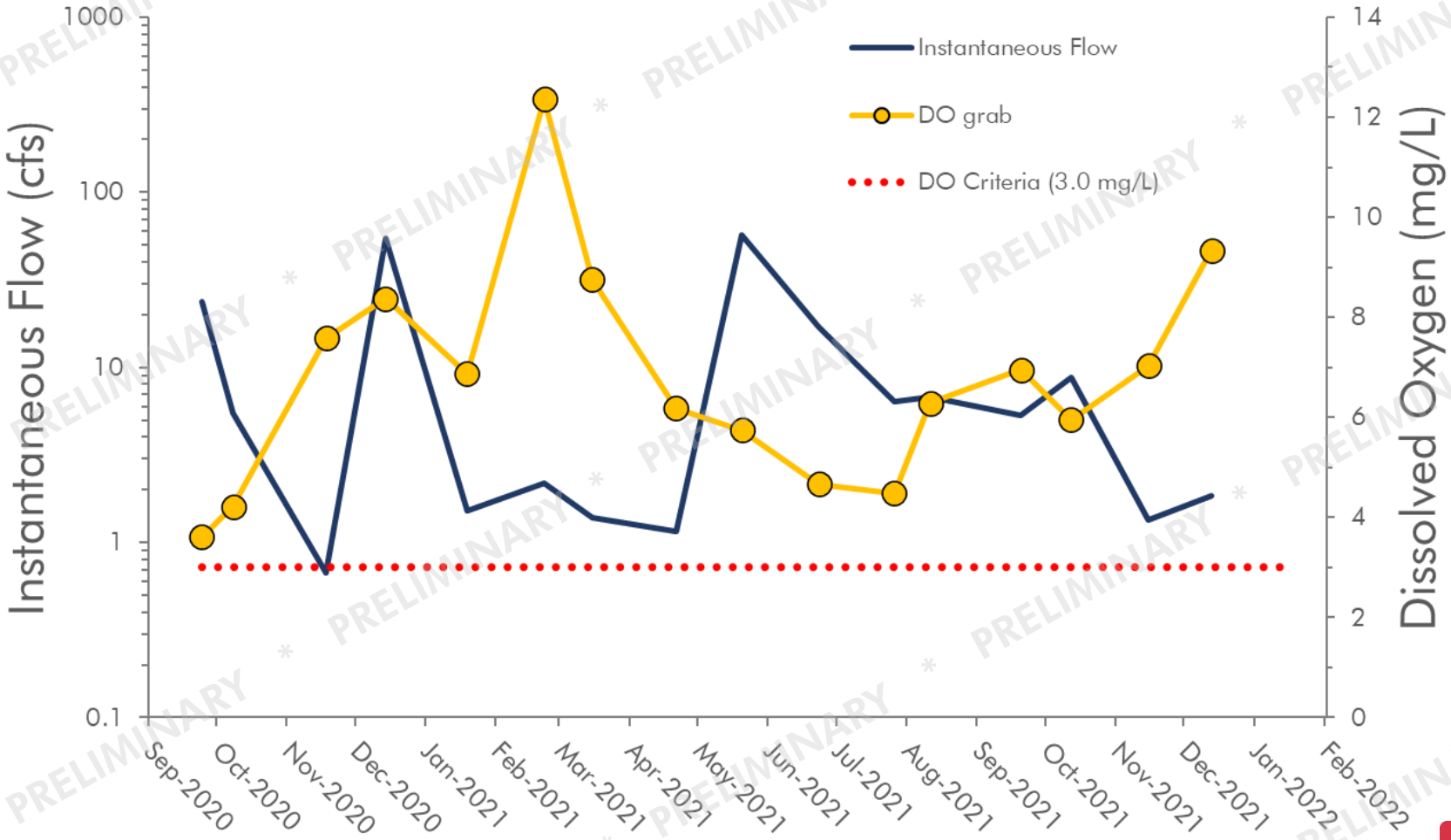
- TCEQ has reclassified the upstream portion of Cotton Bayou as an above-tidal segment
  - Bacteria monitoring at 18696 now targets *Escherichia coli* (*E. coli*)
  - Established new station (22232) in Mont Belvieu to assess water quality further upstream



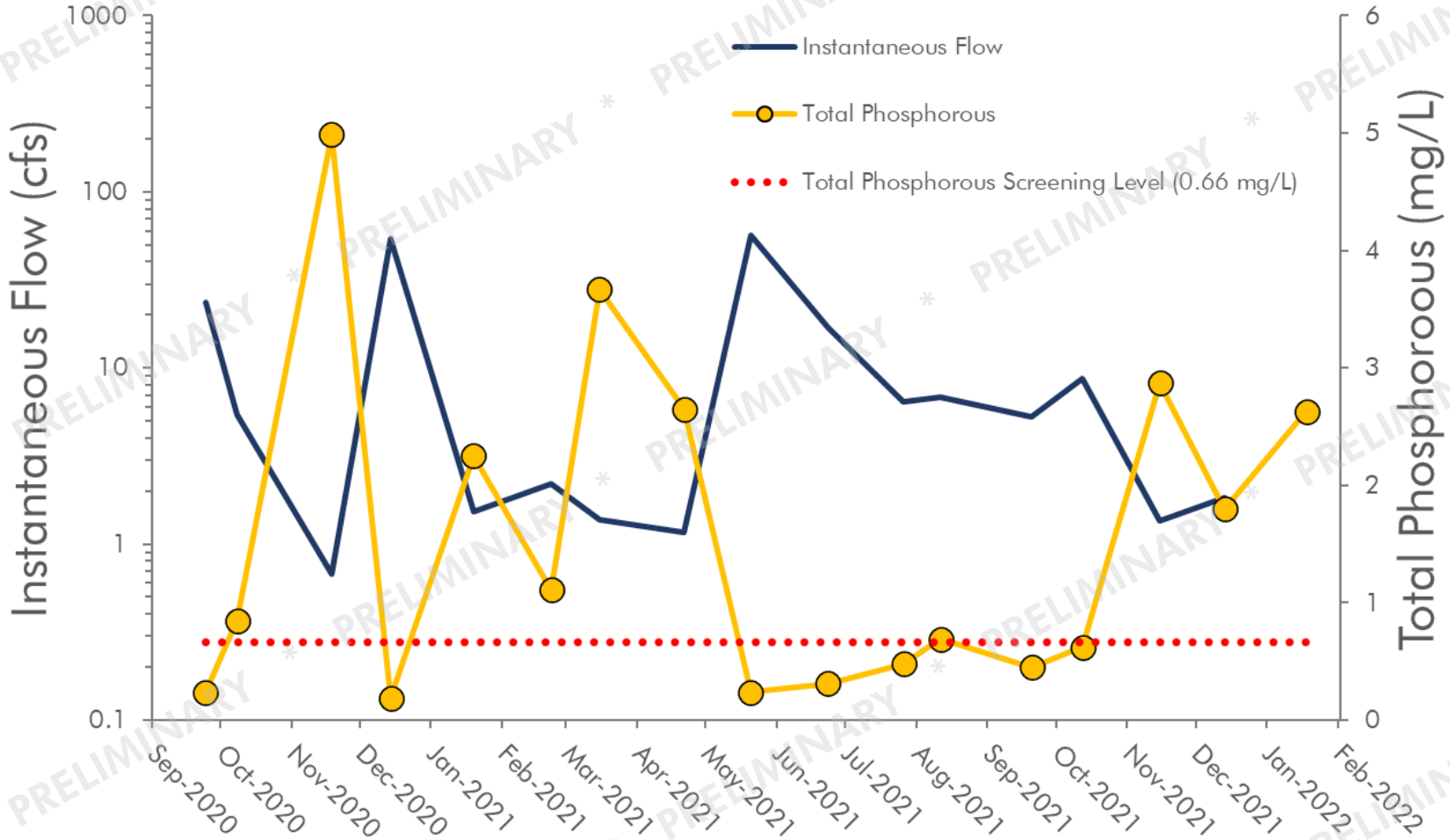
22232 - Bacteria



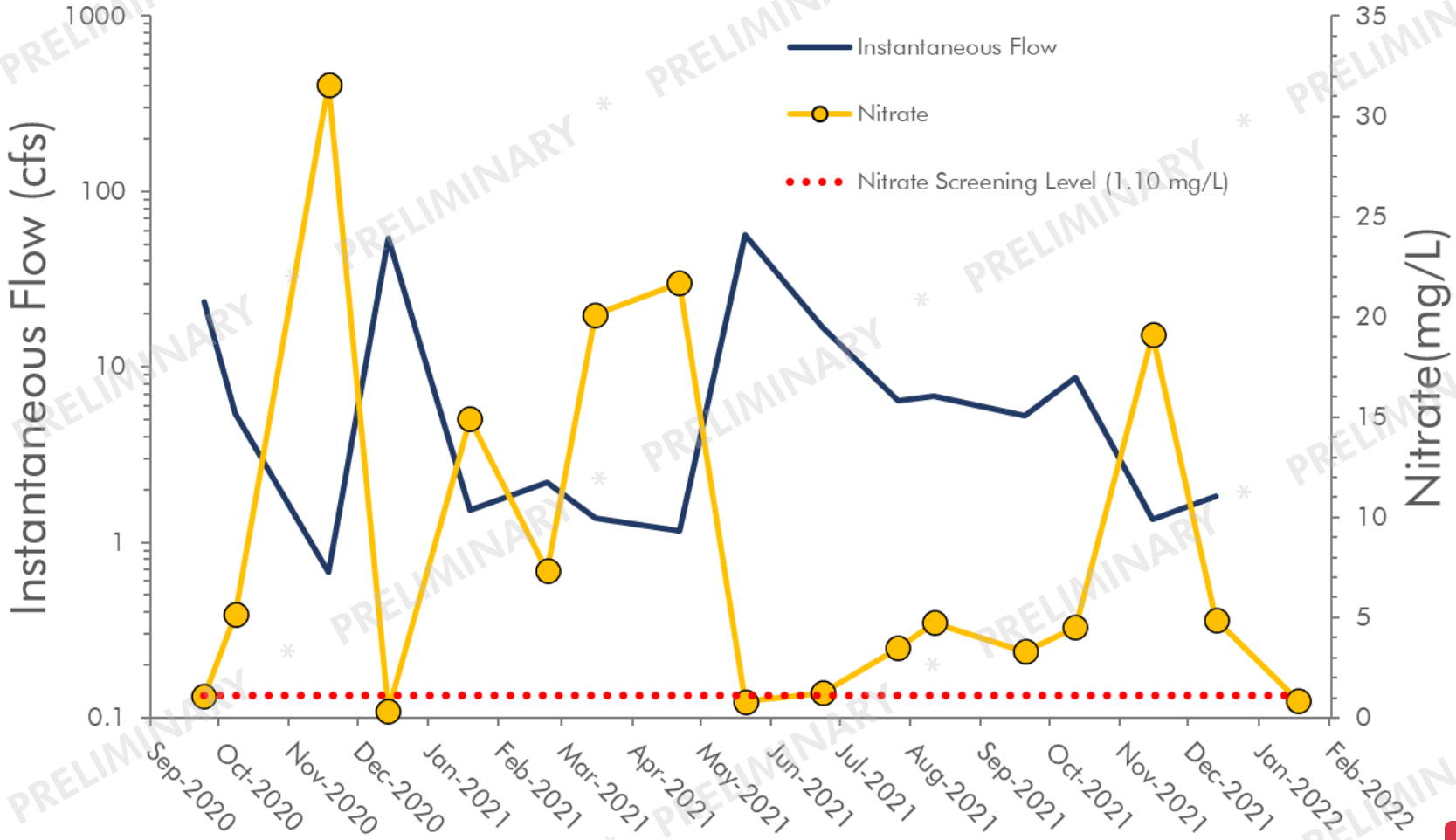
22232 – Dissolved Oxygen



22232 – Total Phosphorous



22232 - Nitrate



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Watershed Analysis

- Technical Support Document under review
  - Revised population estimations
  - Revised flow calculations
- Developed Total Maximum Daily Load (TMDL) calculations

TMDL Calculations

- The TMDL is a calculation of the criterion load at the 95th percentile of flows

- The TMDL includes allocations for regulated and unregulated sources of pollution, future growth, and a 5% margin of safety by calculating the following components:

$$TMDL = MOS + WLA_{wwtf} + WLA_{sw} + LA$$

Margin of Safety (MOS)
5% of the allowable load at 95th percentile of flows

Wasteload Allocation for WWTFs (WLA_{wwtf})
permitted wastewater treatment facility load; includes allocation for future growth

Wasteload Allocation for Stormwater (WLA_{sw})
permitted stormwater load

Load Allocation:
unregulated source load

Cotton Bayou TMDL

Assessment Unit	TMDL (Total Allowable Load)	MOS (Margin of Safety)	WLA_{wwtf} (includes future growth) (Wastewater Allocation)	WLA_{sw} (Stormwater Allocation)	LA (Other Sources)
0801C_01	89.23	4.46	15.25	24.41	45.11

* Units for all values = billion cfu/day of Enterococcus *

Bacteria Reductions

Flow Regime	Bacteria Geometric Mean (cfu/100 mL)	Percent Reduction
High Flow	3,332.81	98.95%
Moist Conditions	117.54	70.22%
Mid-Range Conditions	38.88	9.98%
Dry Conditions	91.19	61.62%
Low Flow	60.62	42.26%

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Project Timeline

Implementation Plan

- Facilitate stakeholder development of an **Implementation Plan** (I-Plan) to address issues identified in the TMDL
  - Describes strategies for achieving reductions
  - Outlines schedule for implementation activities

Stakeholder Involvement

- **Stakeholder participation** essential for tasks including:
  - Source surveys
  - Feedback and review

Other Ways to Get Involved

- Share your knowledge and feedback
- Help us coordinate with local efforts
- What are your ideas for this watershed?

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Discussion and Questions

For more information, please contact:

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Visit our project website at:

www.h-gac.com/watershed-based-plans/cotton-bayou-tmdl

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