



Dickinson Bayou
WATERSHED PARTNERSHIP

August 24, 2011

Hughes Road Elementary School



Agenda

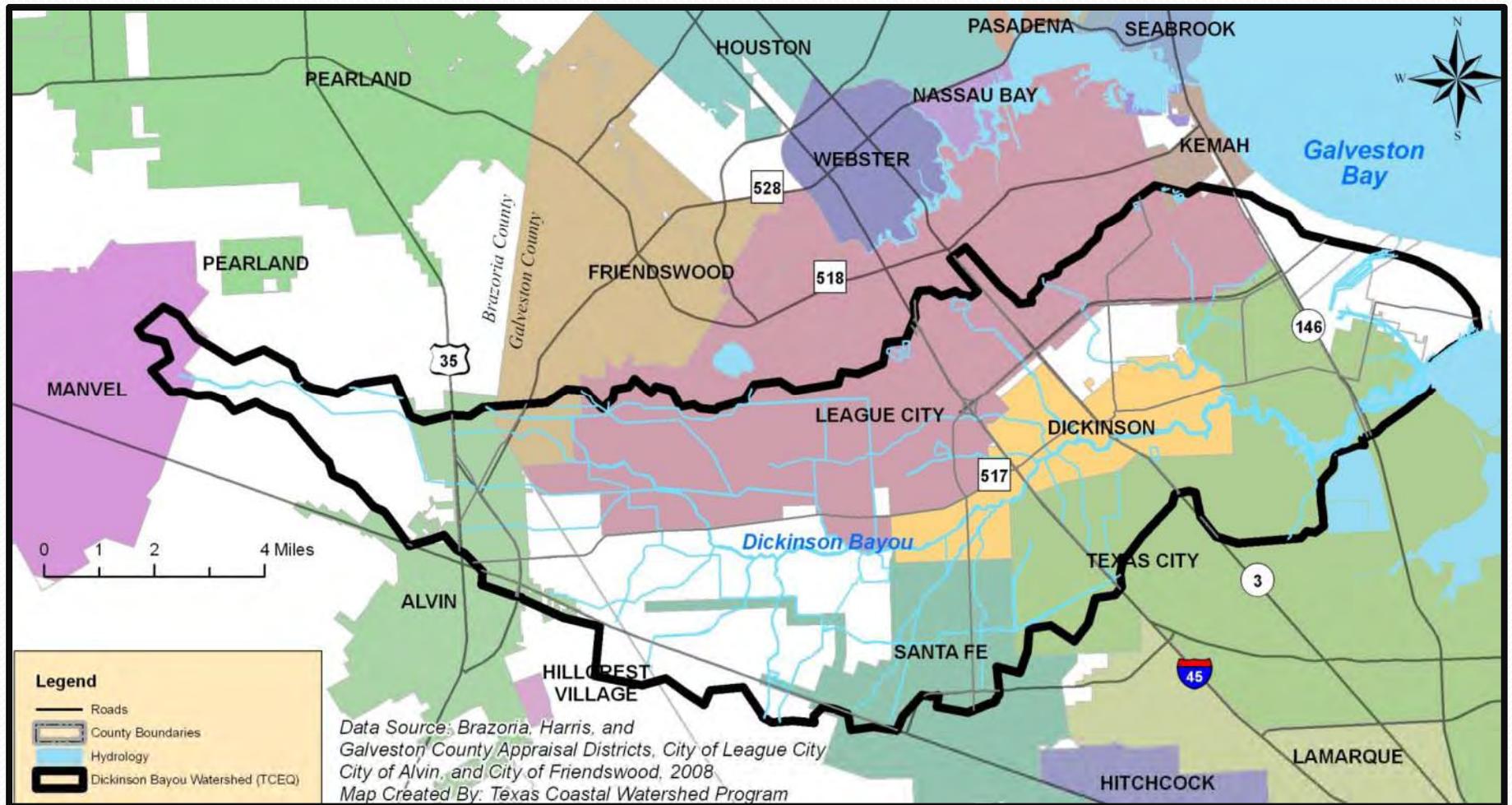
- How we got here
- Update on Bacteria TMDL
- Bacteria TMDL Implementation Plan
- Next Steps



Agenda

- **How we got here**
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Dickinson Bayou Watershed





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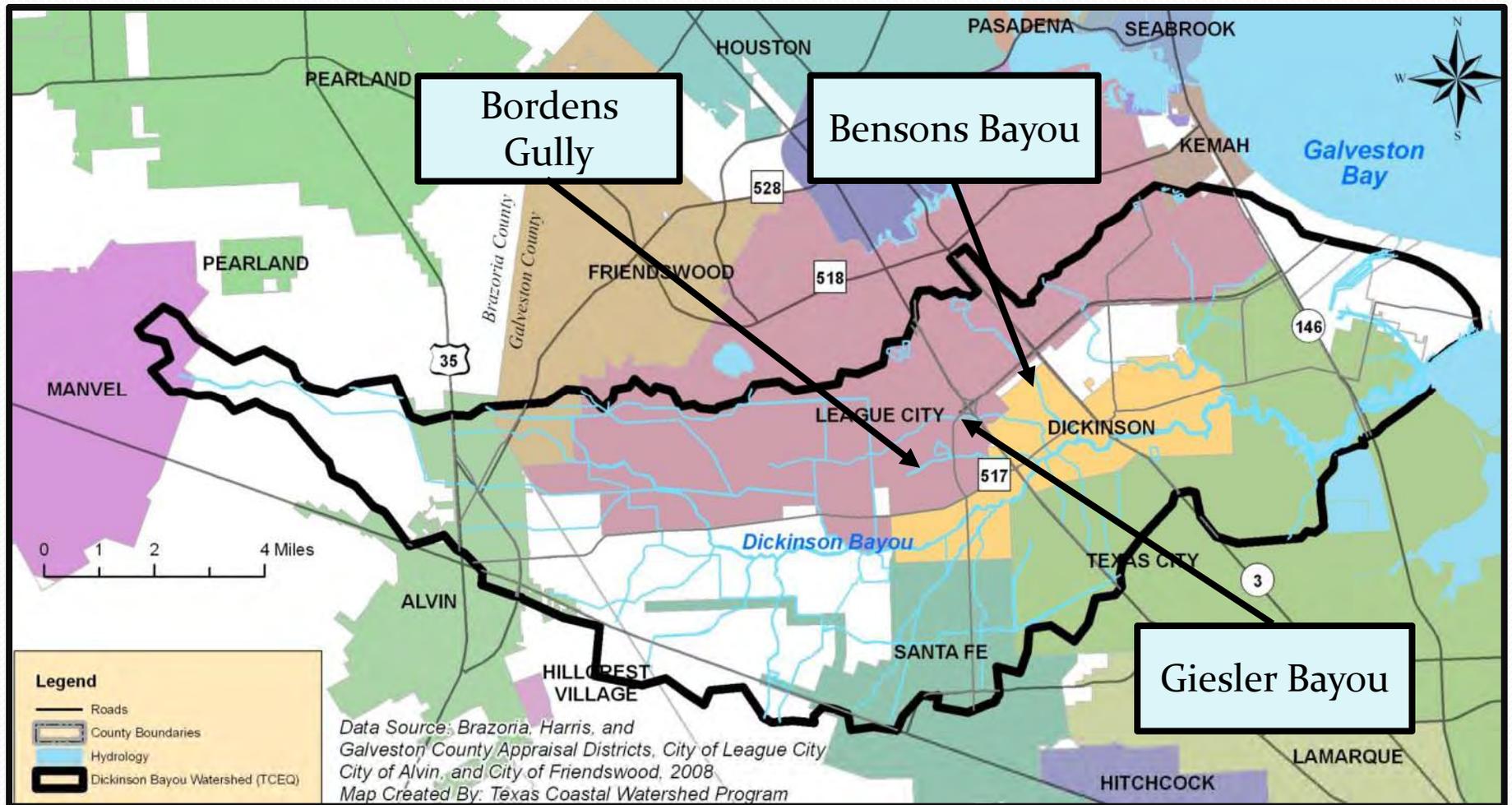
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Bacteria TMDL

- Texas Commission on Environmental Quality
- The goal is to reduce bacteria concentrations to within acceptable risk levels for contact recreation
- Total Maximum Daily Load document characterizes the sources of bacteria in the watershed
- Dickinson Bayou and Three Tidal Tributaries
 - Bordens Gully
 - Bensons Bayou
 - Giesler Bayou

Dickinson Bayou and 3 Tidal Tributaries





Bacteria TMDL

- TMDL is ready for approval by TCEQ Commissioners and release for public comment
 - August 31 – Commissioners meeting
 - September 16 – published in TX register – public comment period begins
 - Late September/early October - TCEQ will hold a public meeting in the watershed to accept oral comments
 - October 17 – Public comment period ends



Bacteria TMDL

- Comment procedures will be:
 - Outlined in Public Register
 - Available on TCEQ TMDL project website
<http://www.tceq.texas.gov/waterquality/tmdl/80-dickinsonbayoubacteria.html>
 - Linked to www.dickinsonbayou.org
- Both oral and written comments will be accepted
- Updates will be sent via the Dickinson Bayou Watershed Partnership Listserv



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What is an Implementation Plan?

Local Solution to a Local Problem

- Written plan outlining actions necessary to improve water quality based on an approved TMDL document
- Assigns responsibility for each portion of the plan
- I-Plans have a regulatory component enforceable by state, federal and local agencies responsible for managing natural resources
- Stakeholder driven



Why does Dickinson Bayou need an I-plan?

- Bayou does not meet bacteria standards for contact recreation
- Remedial actions are needed to improve the water quality
- I-Plans set measurable goals and designate responsibility



Other Local I-Plans

- Bacteria Implementation Group (BIG)
 - Coordinated by the Houston-Galveston Area Council
 - Buffalo Bayou, Whiteoak Bayou, Clear Creek, Houston Metro Area, Lake Houston
 - Began July 2008, draft plan currently available for review
- Upper Gulf Coast Oyster Waters
 - Coordinated by the Galveston Bay Foundation
 - Pieces of Galveston, Harris, Chambers counties
 - Began work April, 2010, draft expected later this year

Project Timeline

✓	November 2010	Dickinson Bayou Watershed Partnership Advisory Committee Meeting
✓	December 2010	Bacteria Workgroup Meeting – Entities who manage the resources
✓	February 2011	Dickinson Bayou Watershed Partnership Meeting
✓	February 2011 – on going	Workgroup Meetings (Animal Sources, On-Site Sewage Facilities, Wastewater Treatment Facilities)
✓	May 2011 – on going	Start drafting portions of the plan
✓	July 2011	Dickinson Bayou Watershed Partnership Open House
Tonight	August 2011	Dickinson Bayou Watershed Partnership Meeting
✓	August 2011	Draft Implementation plan completed
	Fall 2011-Spring 2012	Implementation plan comments and revisions and adoption of Implementation Plan by TCEQ



Workgroups

- On-Site Sewage Facilities (OSSF)
- Wastewater Treatment Facilities (WWTF)
- Animal Sources



OSSF

- Workgroup Chair
 - John Jacob, Texas AgriLife Extension Service
- Members:
 - Susie Blake, League City
 - Karen Carroll, Brazoria County Environmental Health
 - Bryan Eastham, TCEQ
 - Martin Etringer, Galveston County Health District
 - Lisa Marshall, Galveston Bay Foundation



WWTF

- Workgroup Chair
 - Susie Blake, League City
- Members
 - Darrell Hartwick, WCID #1
 - Hoi Heldt, resident
 - Kim Laird, TCEQ
 - Lisa Marshall, Galveston Bay Foundation
 - Angela McDowell, Galveston County Health District
 - Dawn Ryczek, Galveston County Health District



Animal Sources

- Workgroup Chair
 - Phoenix Rogers, Texas AgriLife Extension Service
- Members
 - Linda Broach, TCEQ
 - Brian Koch, Texas State Soil and Water Conservation Board
 - Tim O'Connell, The Nature Conservancy
 - Dustin Roberts, Galveston County Health District



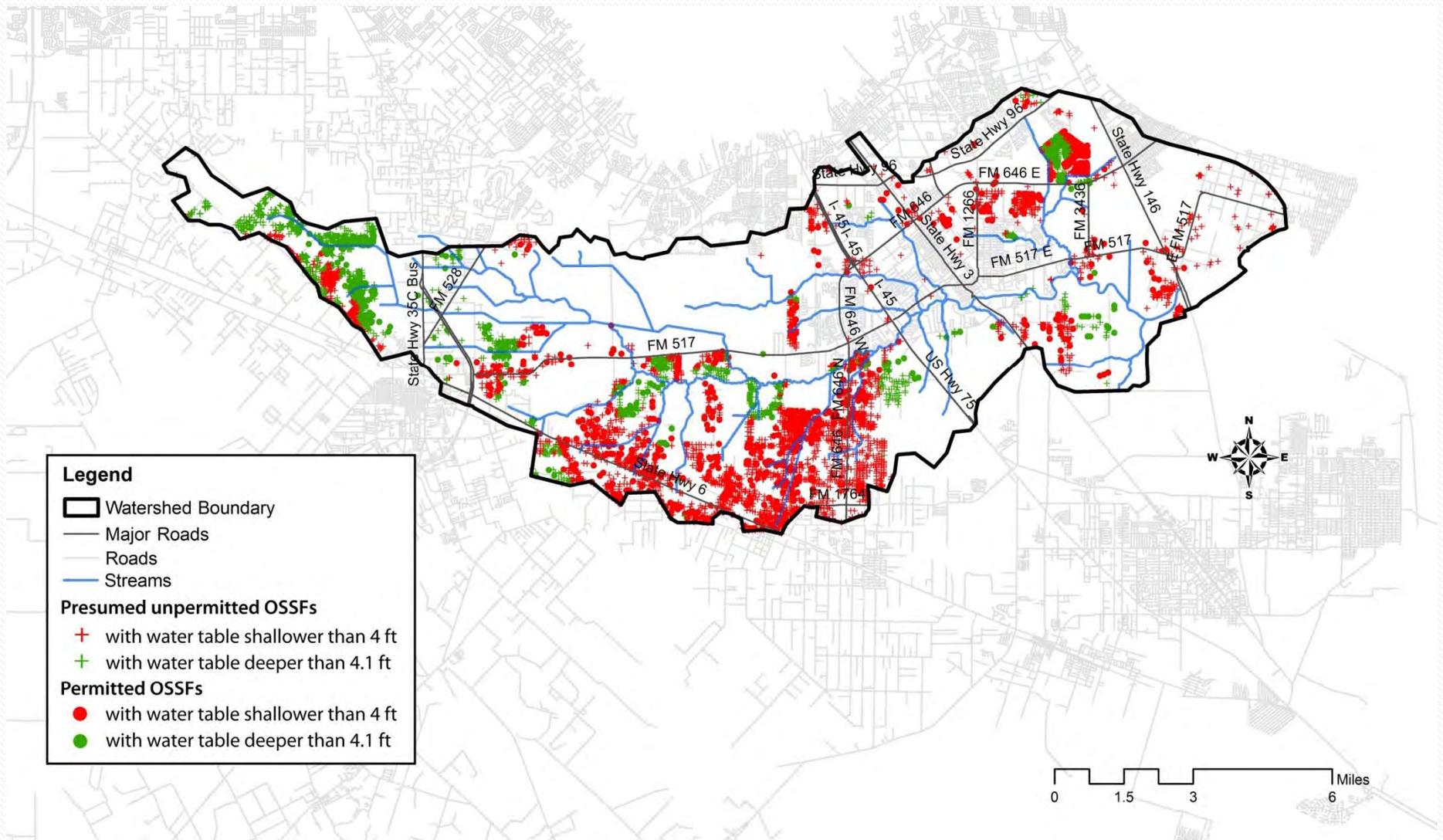
Management Measures



OSSF Management Measures

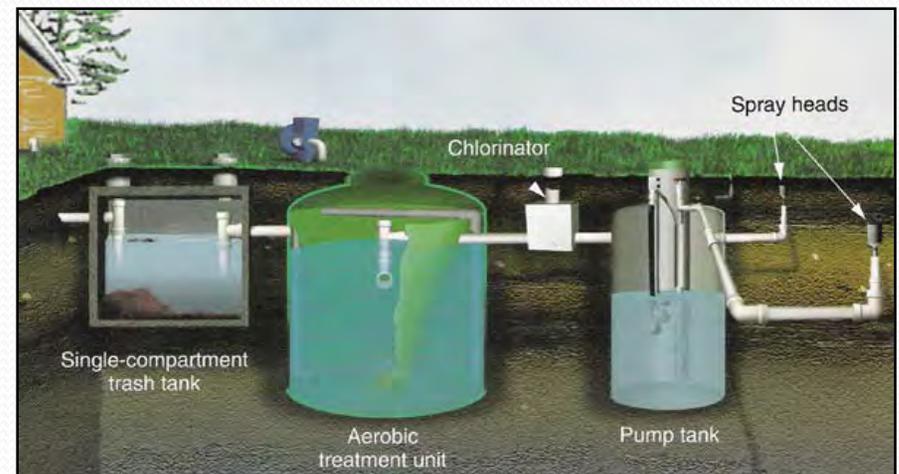
- Identify and rank target areas by need to upgrade systems and expand homeowner education
 - Create map identifying location of permitted and non-permitted OSSFs in the watershed and additional parameters necessary to adequately rank areas
 - Utilize map created to identify and rank target areas for system upgrades
 - Utilize map created to identify and rank target areas for OSSF owner education

Map of OSSFs in the Watershed



OSSF Management Measures

- Upgrade and/or fix identified failing systems
- Improve enforcement on failing systems
- Address maintenance of OSSFs
 - Homeowner education
 - Home buyer education
 - Real estate professional education



OSSF Management Measures

- Incorporate OSSF criteria into standards of practice for home sale inspection
- Target areas for intensive water quality sampling based upon mapping in first management measure



Understanding Bacteria Input



Medium

10,000,000,000 cfu

1×10^{10}



Large

1,000,000,000,000 cfu

1×10^{12}

=



X 1,000

Medium

OSSF Measures



Calculated Load = 1.73×10^{12} cfu/day
= 2 Medium

OSSF Measures

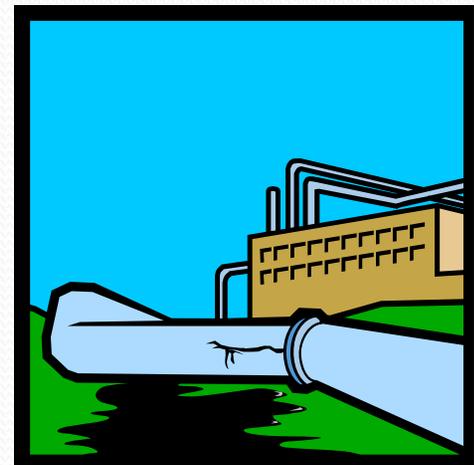


Calculated Load = 1.73×10^{12} cfu/day
= 2 Medium

Projected Load Reduction = 6.9×10^{11} cfu/day
= 0.7 Medium

WWTF Management Measures

- Increase compliance and enforcement by TCEQ
- Upgrade Plants
- Consider regionalization of discharge effluent (WWTFs and OSSFs), especially new
- Develop and implement a Sanitary Sewer Overflow Initiative plan/program for individual Sanitary Sewer Overflows



WWTF Management Measures

- Address Fats, Roots, Oils and Grease (FROG)
- Encourage appropriate mechanisms to maintain function at lift stations
- Improve reporting requirements for sanitary sewer overflows (SSOs)

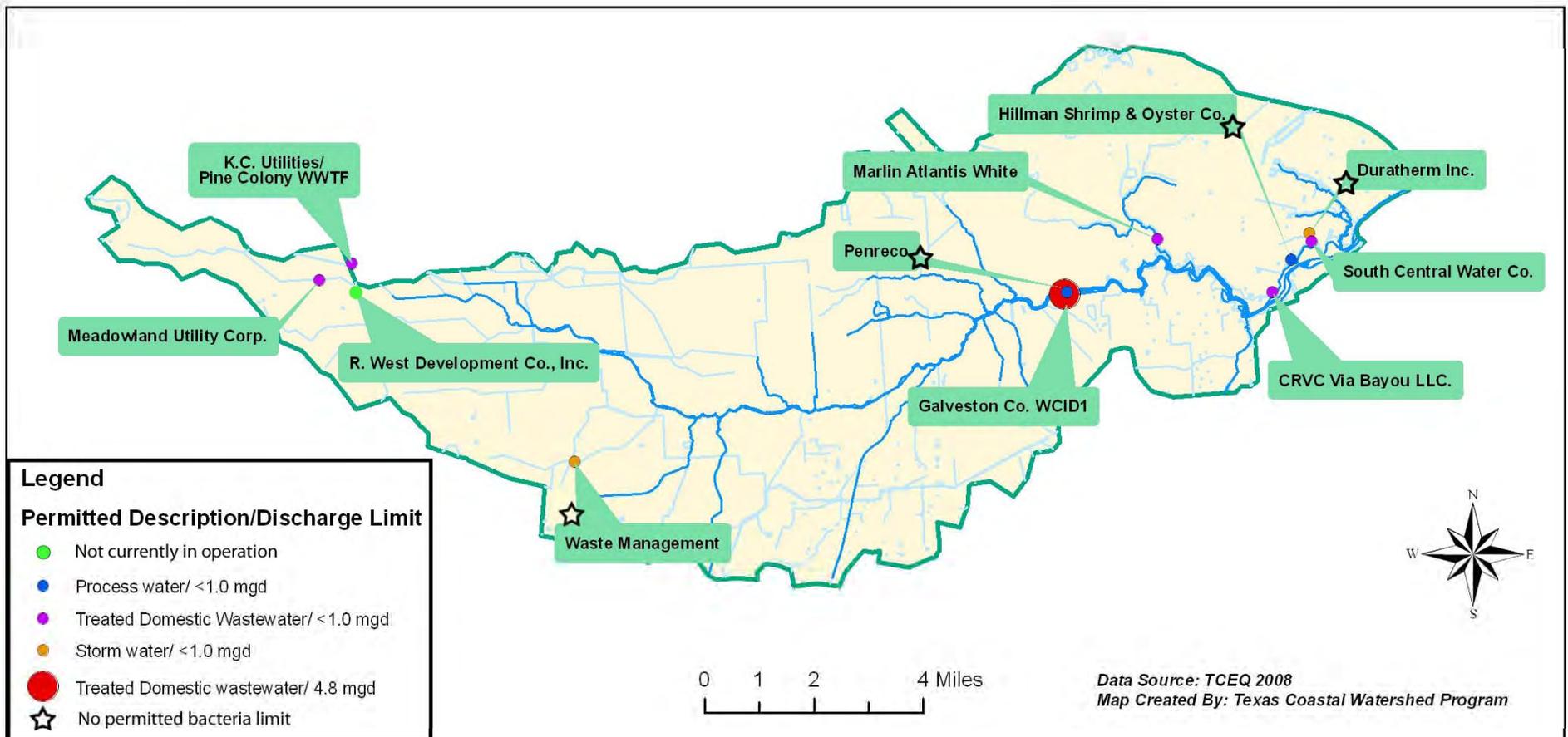




WWTF Management Measures

- Restructure penalties for Sanitary Sewer System and WWTF violations
- Impose stricter bacteria limits and stricter enforcement measures for WWTF effluent
 - *E. coli* (fresh water) change from 126 to 63
 - *Enterococci* (tidal) from 35 to 18

WWTFs in the Watershed



WWTF Measures



Calculated Load = 1.05×10^{10} cfu/day
= 1 Medium

WWTF Measures



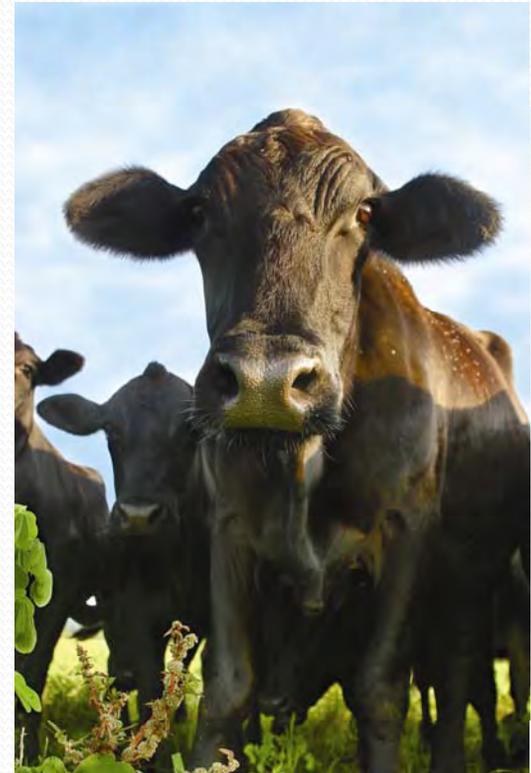
Calculated Load = 1.05×10^{10} cfu/day
= 1 Medium

Projected Load Reduction = 7.24×10^9 cfu/day
= 0.7 Medium

Animal Sources

Management Measures

- Promote increased participation in existing conservation programs
- Promote the reduction of feral hog populations
- Expand pet owner education efforts
- Install pet waste stations in parks and public areas
- Improve HOA bylaws and ordinances for pet waste control



Animal Sources

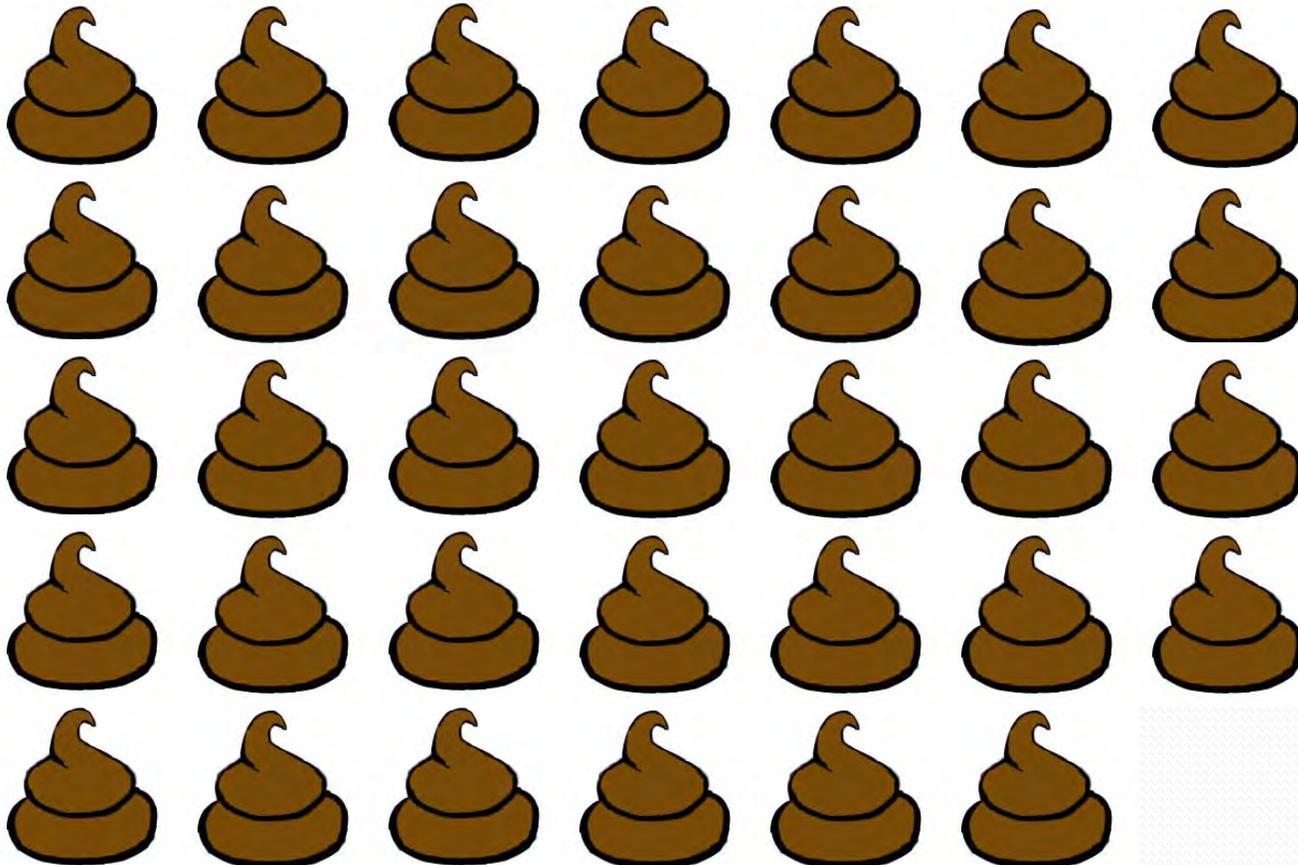
Management Measures

- Increase awareness, development and enforcement of pet waste control ordinances
- Promote best management practices (BMPs) for managing water quality for lands with large groups of animals not covered by other management measures such as a wildlife park, petting zoo or other animal feeding operation



Animal Sources Measures

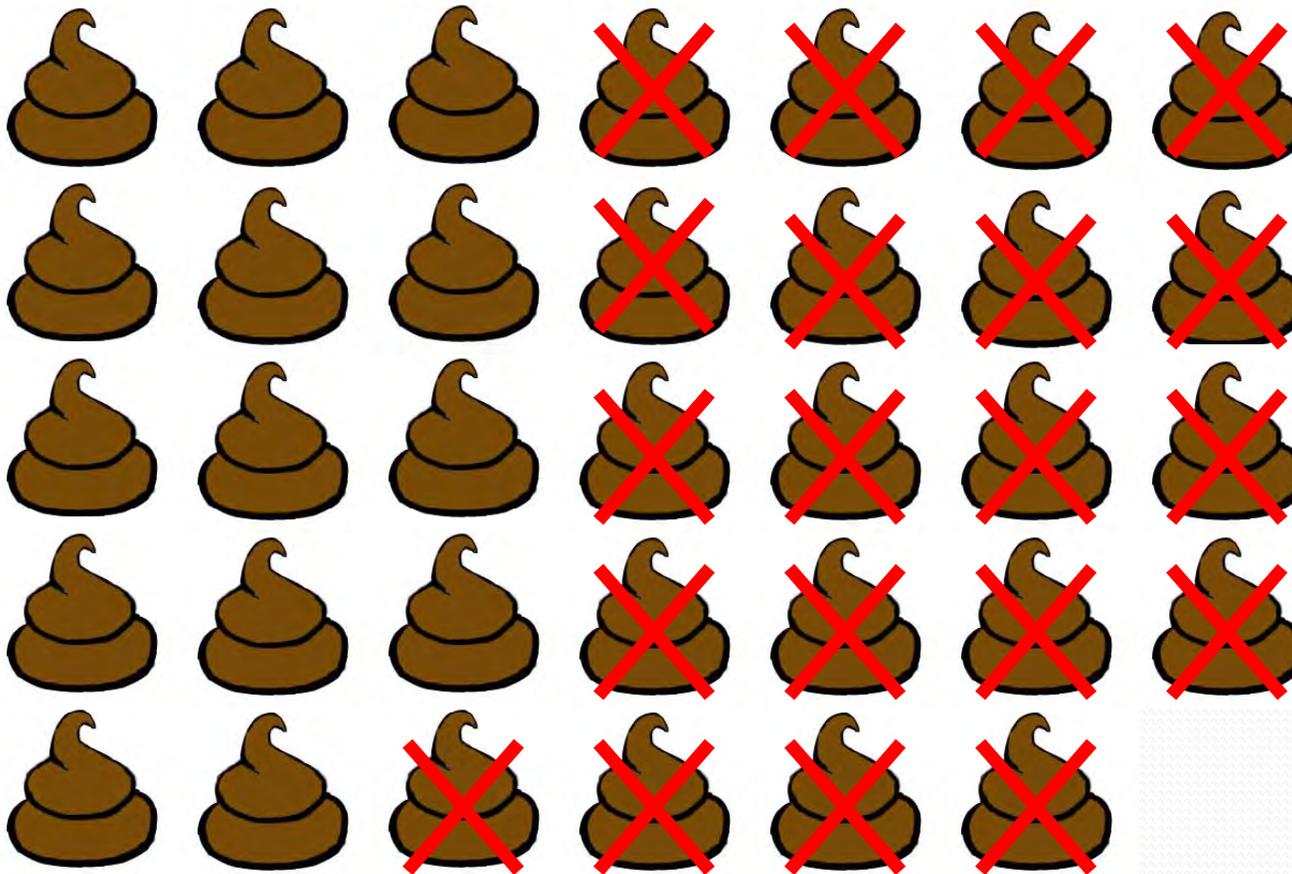
Calculated Load = 3.37×10^{13} cfu/day = 33 Large



Animal Sources Measures

Calculated Load = 3.37×10^{13} cfu/day = 33 Large

Projected Load Reduction = 1.9×10^{13} cfu/day = 20 Large



Additional Management Measures

- Restore and repair riparian zones
- Preserve and restore natural wetlands
- Construct treatment wetlands
- Provide demonstrations of and encourage installation of stormwater best management practices including rain gardens, bioswales and rain water harvesting





Additional Measures

Calculated Load = 0 cfu/day

Additional Measures

Calculated Load = 0 cfu/day

Projected Load Reduction = 1.75×10^{10} cfu/day
= 1.75 Medium





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Next Steps

- Public Comments and revisions of Implementation Plan
- Continued workgroup meetings
 - OSSF – Plan revisions, prioritization using map
 - WWTF – Plan revisions, begin outreach to WWTFs
 - Animal Sources – Plan revisions, begin outreach to landowners



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