

The meeting will begin shortly



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Welcome to this public meeting of the

EAST FORK SAN JACINTO RIVER WATERSHED PARTNERSHIP



May 17, 2023



MEETING OUTLINE



- Welcome and Introductions
- Project Background
- Bacteria Source Model Revisions
- Implementation Strategies
- Next Steps
- Discussion



INTRODUCTION



WHO WE ARE



Texas Commission on Environmental Quality (TCEQ)

lead state environmental management agency



Houston-Galveston Area Council (H-GAC)

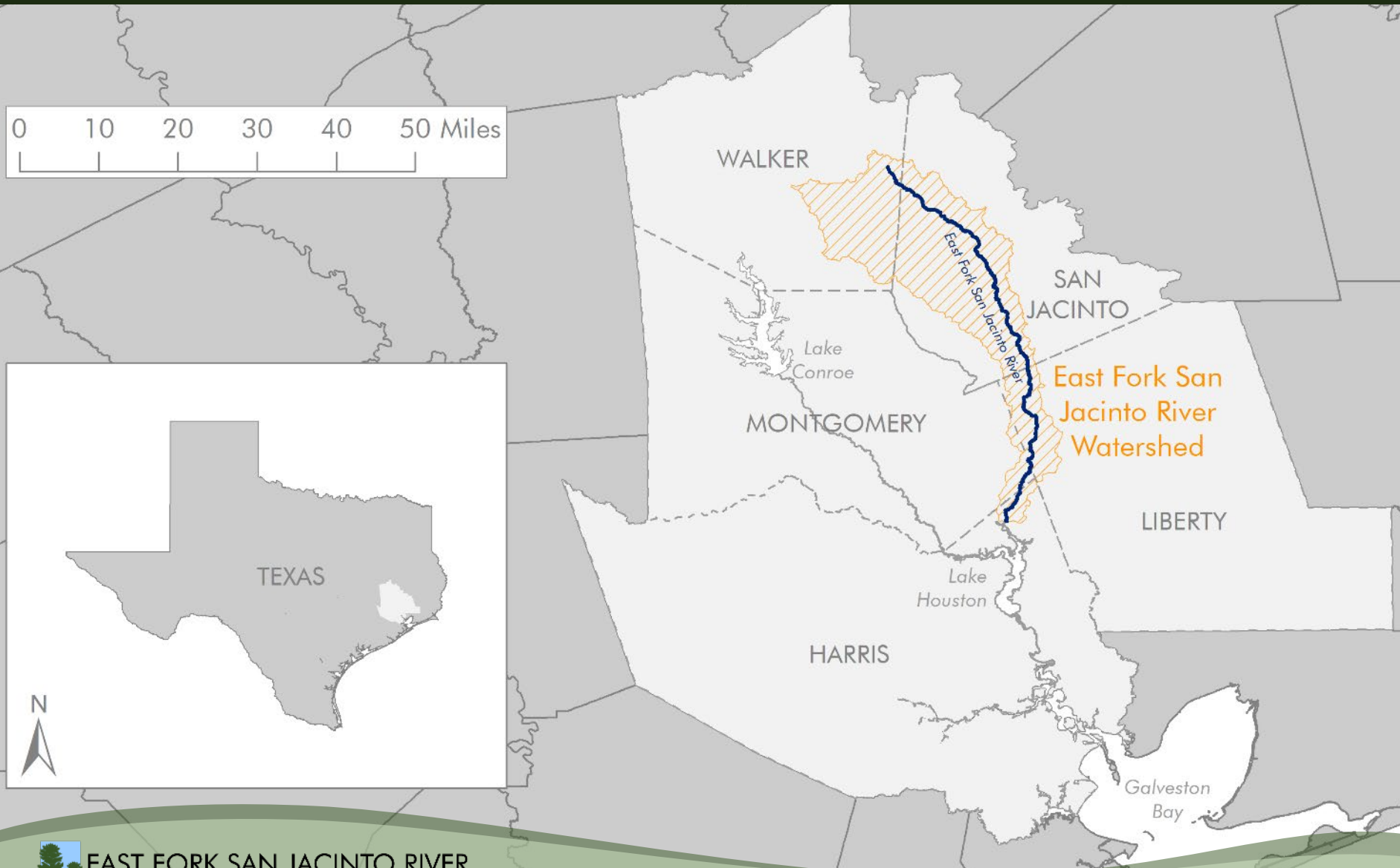
regional council of governments



Watershed Partnership

local stakeholders working with TCEQ and H-GAC to develop and implement a watershed protection plan for the East Fork San Jacinto River watershed

WHERE WE WORK



WHY WE'RE HERE

Surface water quality in the East Fork San Jacinto River Watershed is impaired due to high levels of fecal indicator bacteria.



PROJECT BACKGROUND



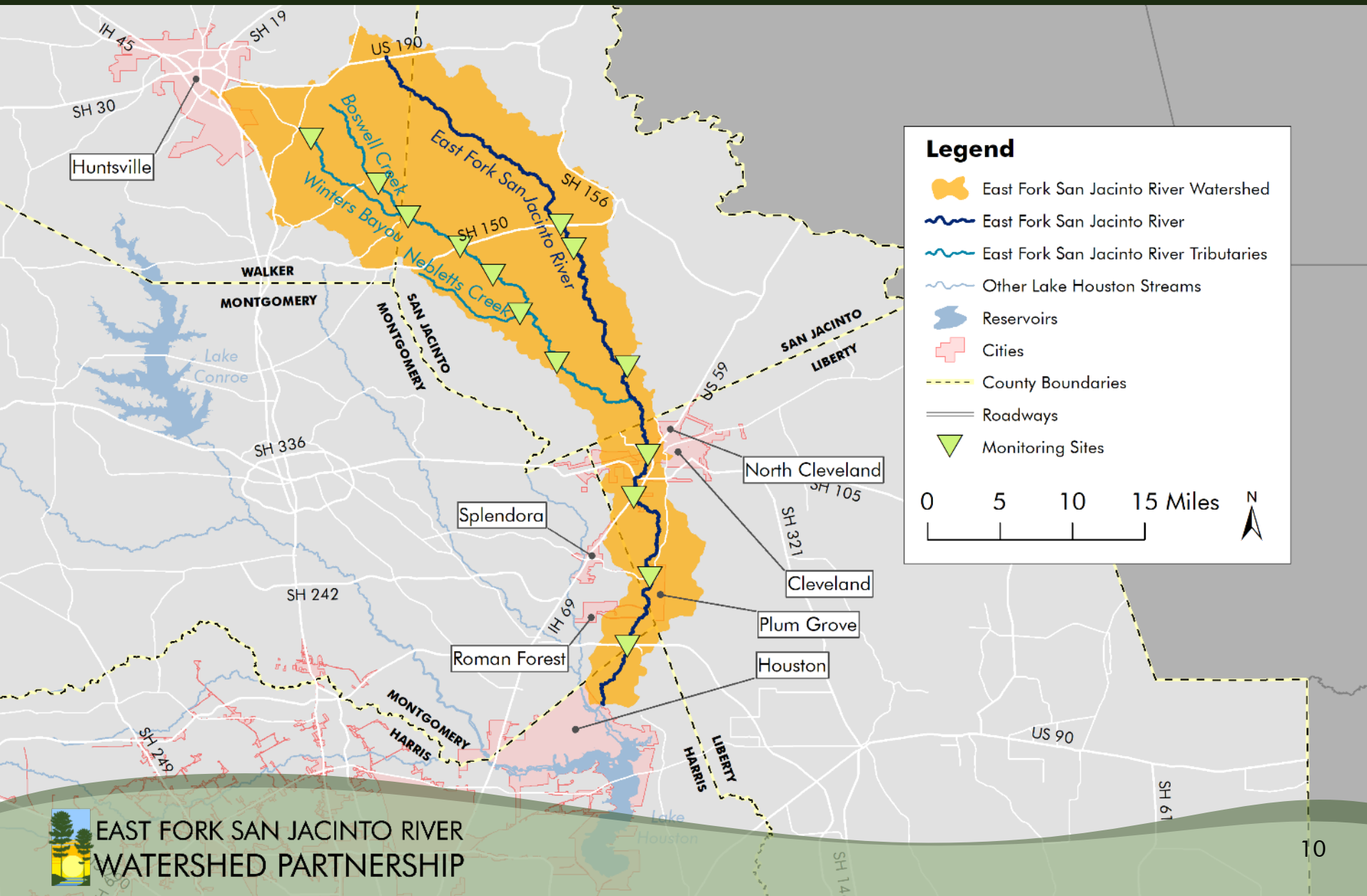
ASSESSING WATER QUALITY



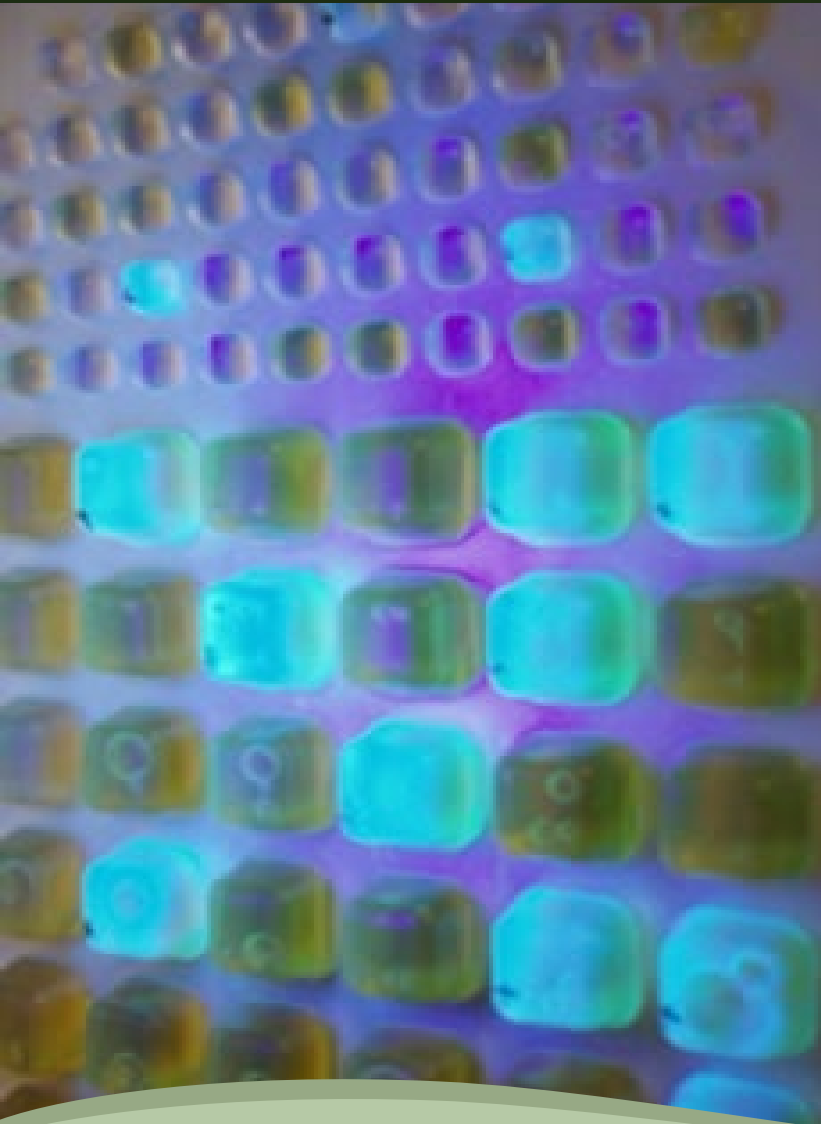
- Statewide monitoring
- TCEQ produces integrated report of results every two years
- Waterways exceeding standards are **impaired**



MONITORING IN THE WATERSHED



STATUS OF EAST FORK SAN JACINTO RIVER



- The East Fork San Jacinto River and Winters Bayou are **impaired** for contact recreation
- Recreation use **concern** in Boswell Creek
- High levels of bacteria *Escherichia coli* (*E. coli*) indicate pollution from fecal waste



BACTERIA SOURCES



Human Waste

- Wastewater
- Septic/Aerobic Systems
- Illicit Sewage

Domestic Animal Waste

- Pets
- Livestock

Wildlife and Invasive Species Waste

- Deer and Other Wildlife
- Feral Hogs

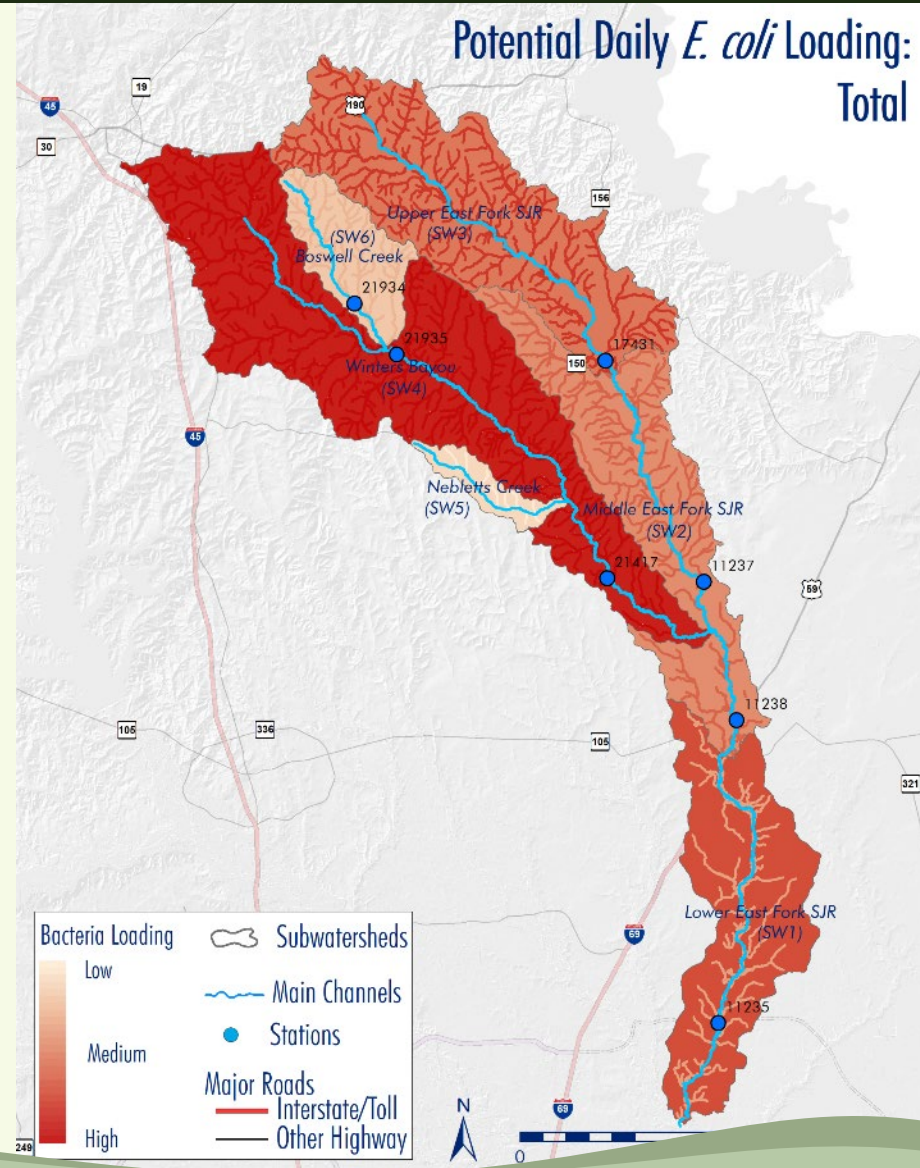


BACTERIA SOURCE MODEL REVISIONS

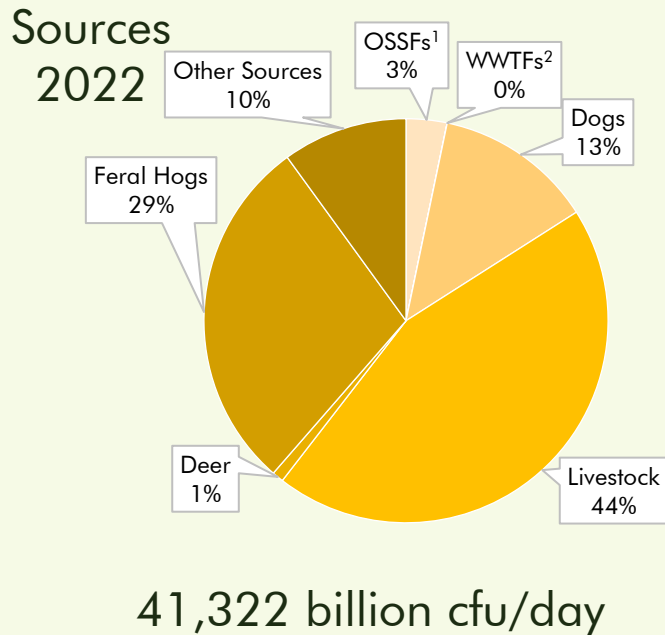


BACTERIA MODELING

- Provides defensible support for watershed protection plan development
- Visualizes pollutant dynamics throughout the watershed over time
- Balances complexity and efficiency



FEBRUARY MEETING OVERVIEW



- Source pressures vary spatially
 - Highest potential loading in the Winters Bayou subwatershed influenced by agriculture, wildlife and invasive feral hogs
 - High loading also possible in lower East Fork subwatershed due to human related sources
- Source pressures will fluctuate over time due to changes in land use and land cover
- Total daily load will increase 40% by 2050 if no action is taken
- Stakeholder feedback will refine these results

¹OSSFs – On-Site Sewage Facilities

²WWTFs – Wastewater Treatment Facilities



WASTEWATER TREATMENT FACILITIES

Methods:

- Based on outfall data (within buffer zone) from 10 facilities
- Load estimated by size (<0.1 to 1 MGD)

Findings:

- Highest relative loads occur in the middle and lower East Fork subwatersheds
- Expected to increase over time
- Significant potential for human health risk but minor contribution to total load

Recommendations:

- Depending on on-site sewage facilities methods, consider adding a failure rate based on exceedances



ON-SITE SEWAGE FACILITIES

Methods:

- Used permit data and assumption of unpermitted units based on occupied parcels outside service areas
- Estimated 10% failing

Findings:

- Highest relative loads occur in the middle and lower East Fork subwatersheds
- Expected to increase over time
- Significant human health risk but minor contribution to total load

Recommendations:

- Depending on wastewater treatment facility methods, consider no failure rate for permitted systems and higher (20%) rate for unpermitted systems



DOG WASTE

Methods:

- Literature value applied to household data
- Includes 20% reduction of estimated load based on pet waste management

Findings:

- Highest relative loads occur in the middle and lower East Fork subwatersheds
- Expected to increase over time
- Moderate contribution to total load

Recommendations:

- Seek further stakeholder input on accuracy of American Veterinary Medical Association (2018) estimation of 0.6 dogs per household



LIVESTOCK WASTE

Methods:

- County agricultural census data and suitable land cover adjusted by watershed area ratio
- Includes cattle, horses, sheep and goats

Findings:

- Highest relative loads occur in the Winters bayou subwatershed
- Expected to increase slightly over time
- Major contribution to total load

Recommendations:

- Apply good-faith reduction similar to calculation for dog waste based on best management practices in use by landowners



DEER WASTE

Methods:

- Used Texas Parks and Wildlife population density data based on ecoregion
- Density assumptions adjusted for land cover type

Findings:

- Highest relative loads occur in the Winters Bayou and Upper East Fork subwatersheds
- Expected to decrease slightly over time
- Minor contribution to total load

Recommendations:

- No changes recommended, however, stressed that populations are more dense in mixed land cover areas and that bottomland populations are seasonal



FERAL HOGS

Methods:

- Used AgriLife population density literature values
- Density assumptions adjusted for land cover type

Findings:

- Highest relative loads occur in the Winters Bayou subwatershed
- Expected to decrease slightly over time
- Major contribution to total load

Recommendations:

- Allocate 50% of lowest population density estimate to the riparian buffer in areas of medium to high development



OTHER SOURCES

Methods:

- Accounts for potential wildlife impacts on the instream load
- As no population data are available for many wildlife species, method assumes additional 10% of total calculated load can be attributed to wildlife

Findings:

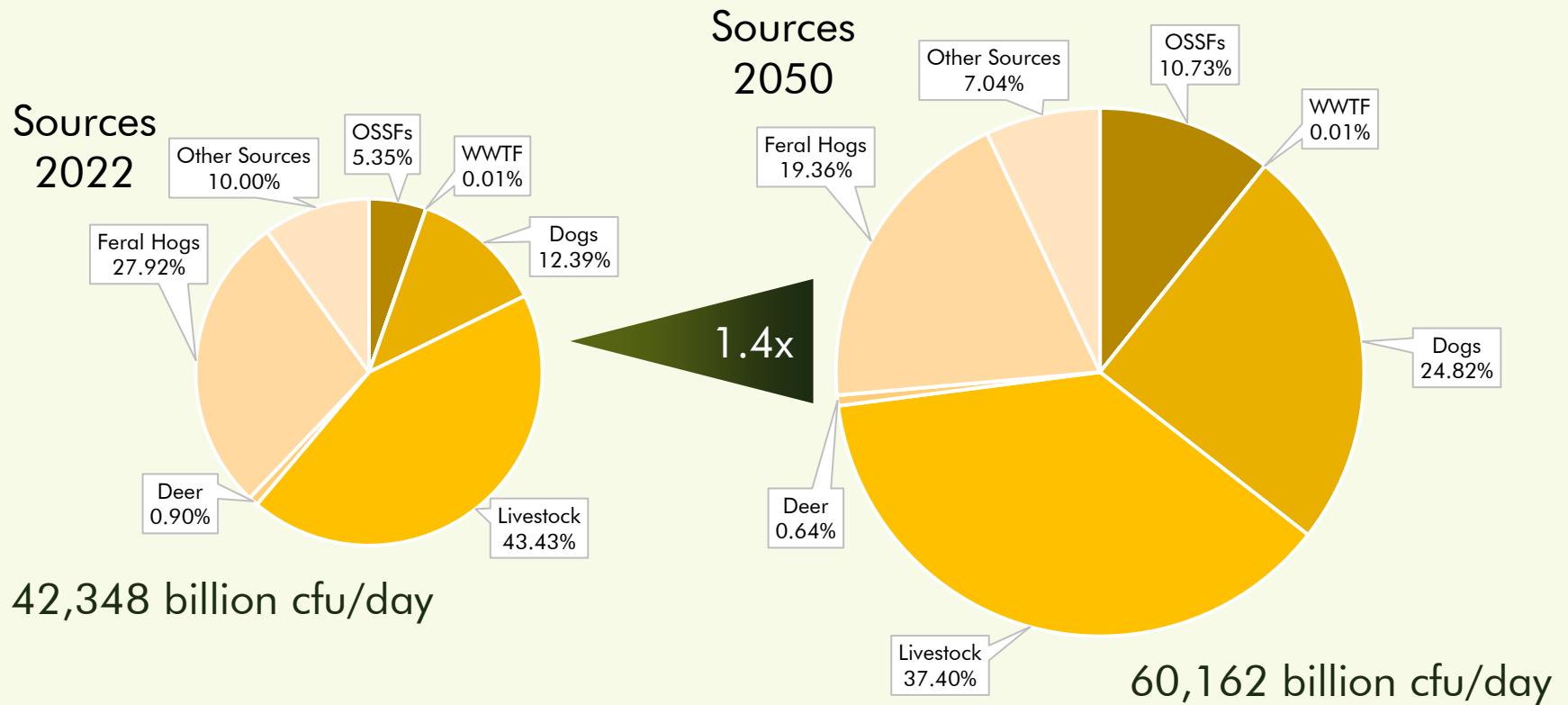
- This method is not spatially specific, applied to total watershed area

Recommendations:

- Generalize language to “other sources” or “safety margin”
- Leave assumption at 10%, load may not be significant due to animal size
- Do not assume consistent percent contribution from wildlife in future projections



UPDATED MODEL RESULTS



¹OSSFs – On-Site Sewage Facilities
²WWTFs – Wastewater Treatment Facilities

SOURCES NOT INCLUDED IN ANALYSIS

Birds

- Short-term migratory birds vs. colonial birds
- Relatively small human health risk



Sanitary Sewer Overflows

- Episodic, localized events
- Malfunctions cause highest volumes and frequencies
- Significant risk to human health, address directly in management strategies



What other considerations should be made?



IMPLEMENTATION STRATEGIES



IDENTIFYING SOLUTIONS



Goals

- Primary: compliance with water quality standards
- Secondary: multiple benefits, coordination with ongoing efforts, cost effectiveness, phased approach

Hierarchy of Solutions

- Existing Projects
- Planned Projects
- Projects Awaiting Resources
- New Projects



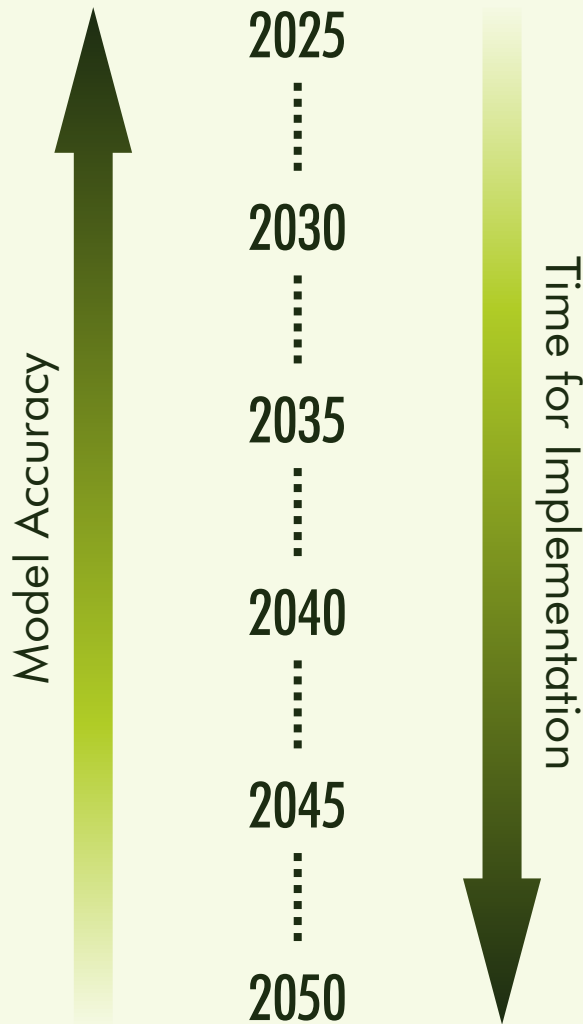
ROLE OF A WATERSHED PROTECTION PLAN



- Where coordination is possible, the WPP will describe solutions that **enhance, support** and **fill gaps** in existing efforts
- Descriptions of new proposals included in the WPP will identify:
 - Responsible parties
 - Resource needs
 - Timelines
 - Measures of success
- WPP development can attract funding/technical resources



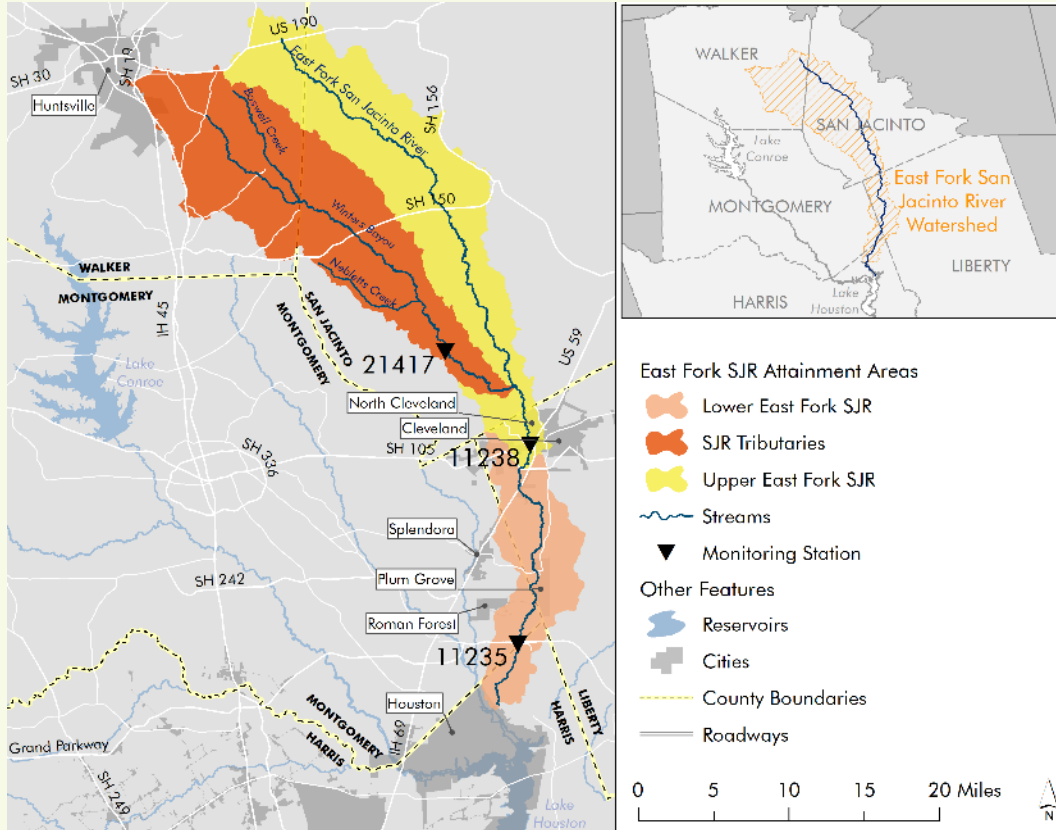
SETTING GOALS



- Select focus areas based on modeling results and stakeholder recommendations
- Effort is not required to be proportional to model results
- Decide on target date for implementation goals
- Milestones used to establish timeline



WHERE TO FOCUS



- Different pressures affect different parts of the watershed
- Implementation measures can be customized in different areas for more effective results
- H-GAC suggests focusing on three major attainment areas



NEXT STEPS



TIMELINE



SHORT TERM GOALS



- Meet with workgroups to discuss implementation strategies in June
- Next Partnership meeting in July to share workgroup recommendations and finalize implementation strategy selection
- One-on-one meetings with stakeholders



HOW CAN WE HELP?



- Tell us about your projects and organizations!
- Tell us how we can:
 - Amplify
 - Collaborate
 - Coordinate



DISCUSSION & QUESTIONS

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**EAST FORK SAN JACINTO RIVER
WATERSHED PARTNERSHIP**