

Welcome to this workgroup meeting for the

EAST FORK SAN JACINTO RIVER WATERSHED PARTNERSHIP



Human Sources and Pet Waste Workgroup
April 27, 2023



MEETING OUTLINE



- Introductions and Background
- Bacteria Source Model Review
- Discussion



BACKGROUND



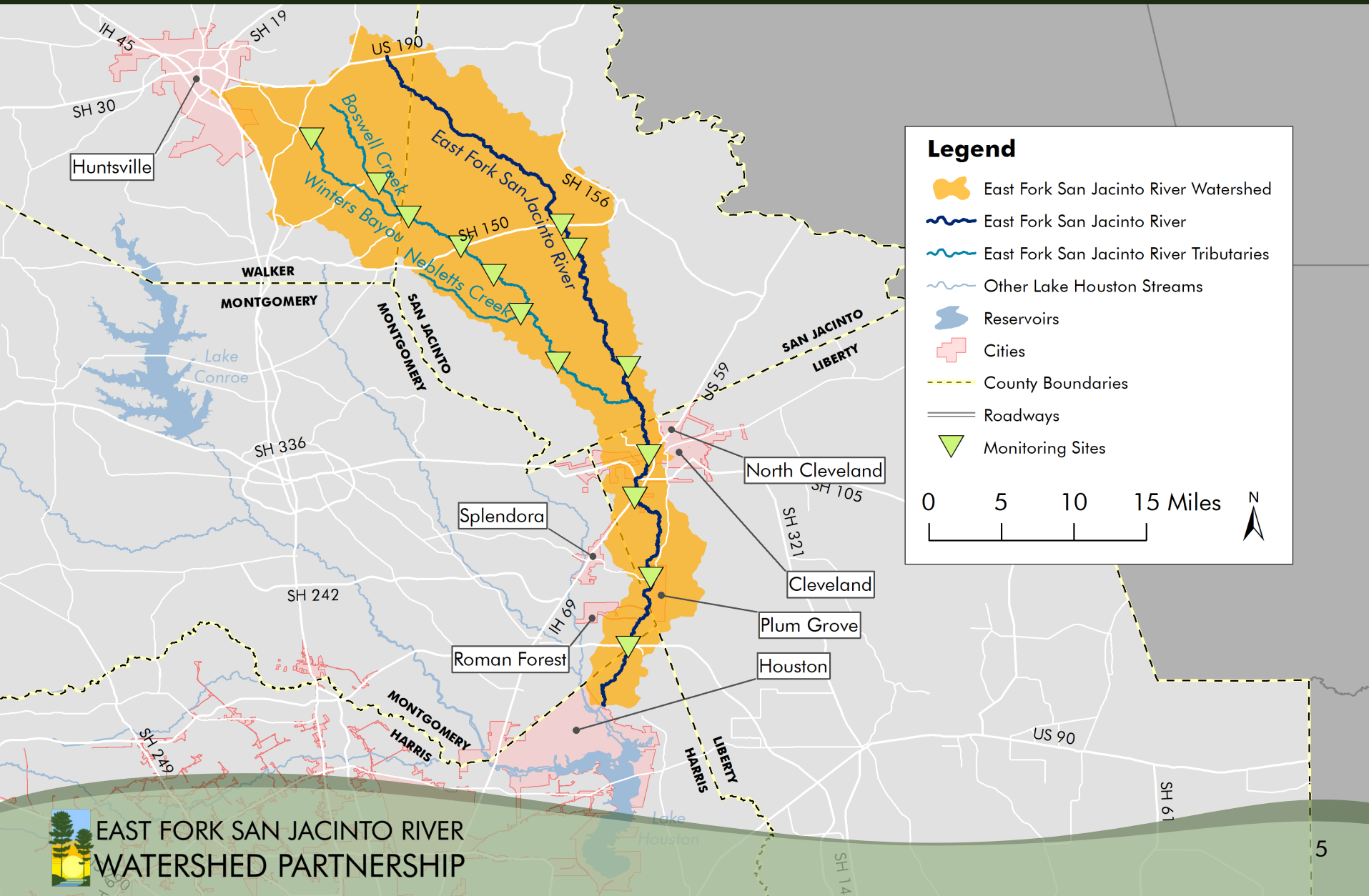
ASSESSING WATER QUALITY



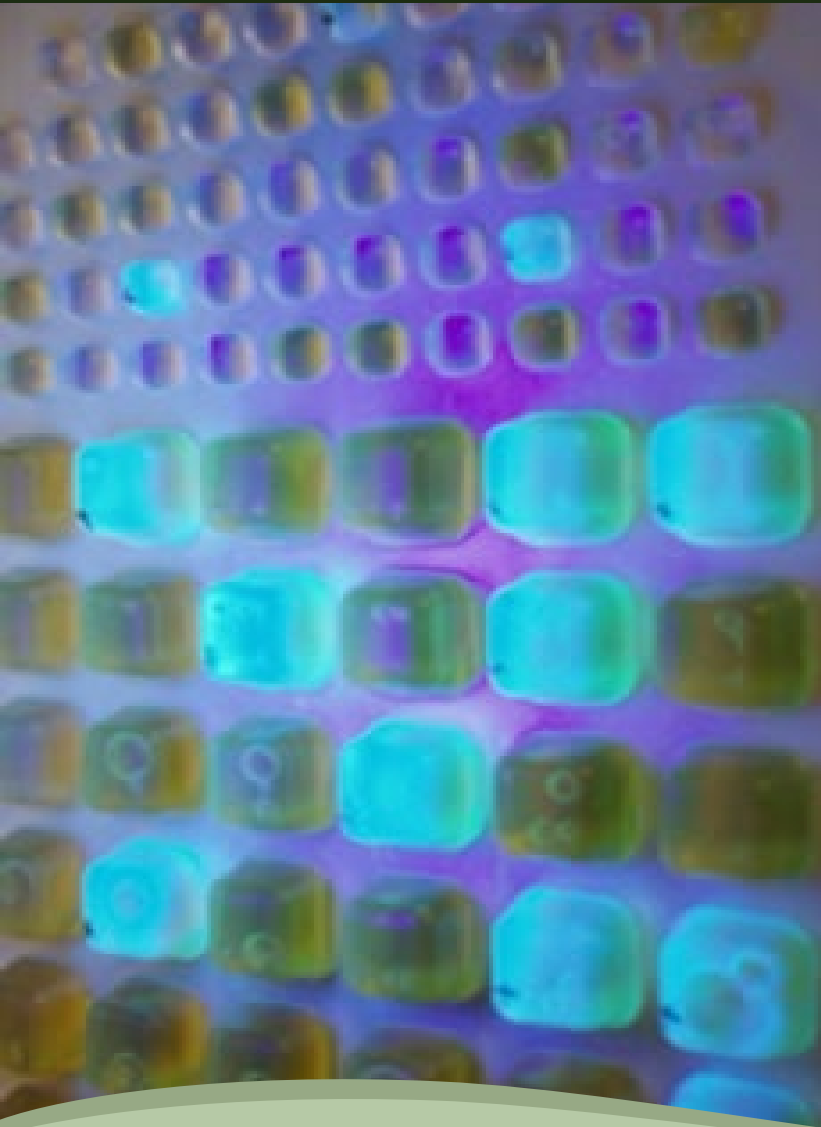
- Statewide monitoring
- TCEQ produces integrated report of results every two years
- Waterways exceeding standards are **impaired**



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 REVIEW

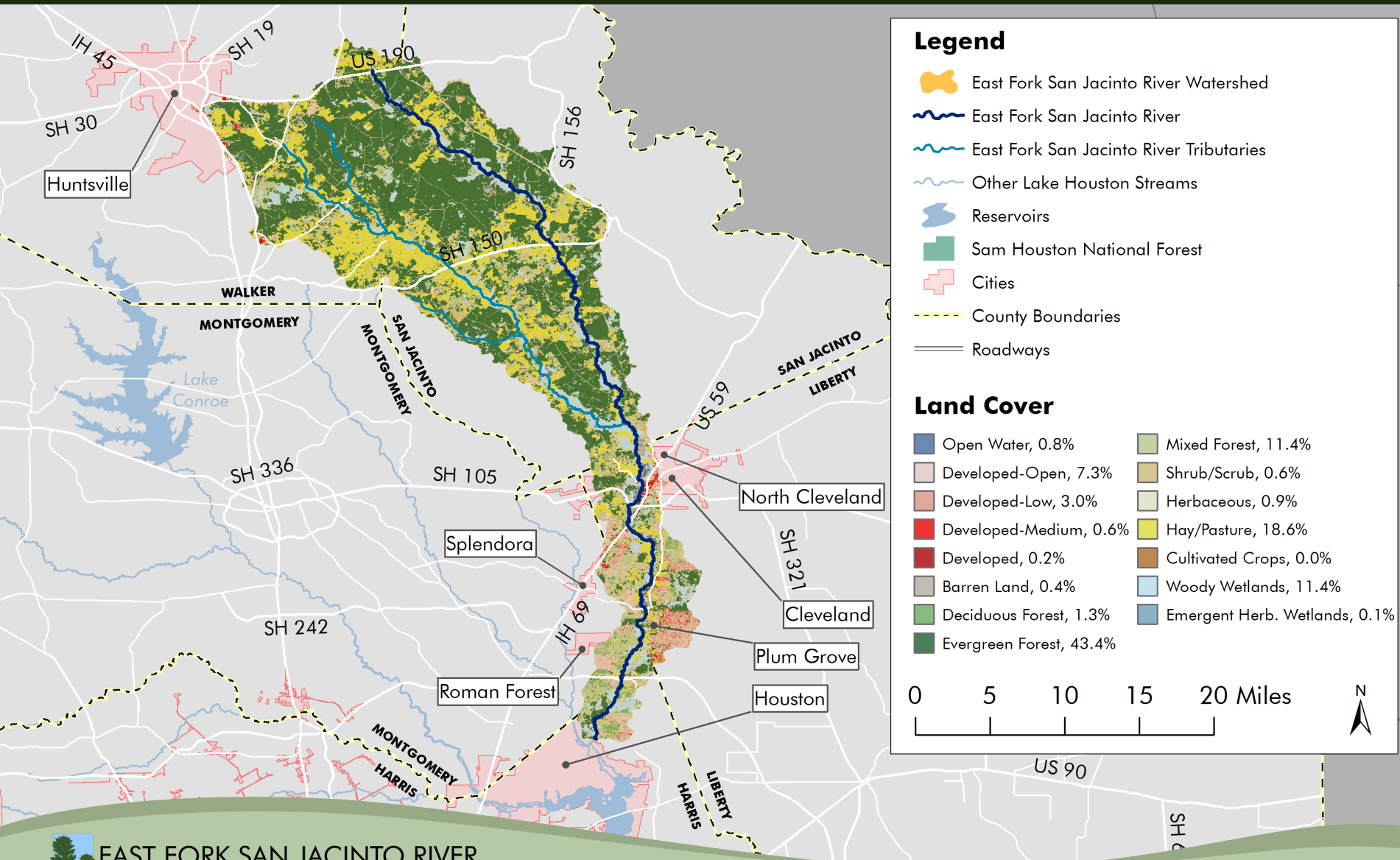


SELECT MODELS










- Spatial estimate of total potential daily load from all fecal waste sources
- Based on land cover, known data, and assumptions from literature values
- Modified to estimate loading changes over time in 5-year increments
- Modified to weight source load estimates based on distance from waterways


















LAND COVER

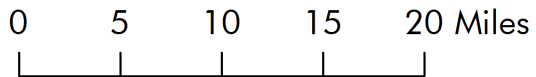


Legend

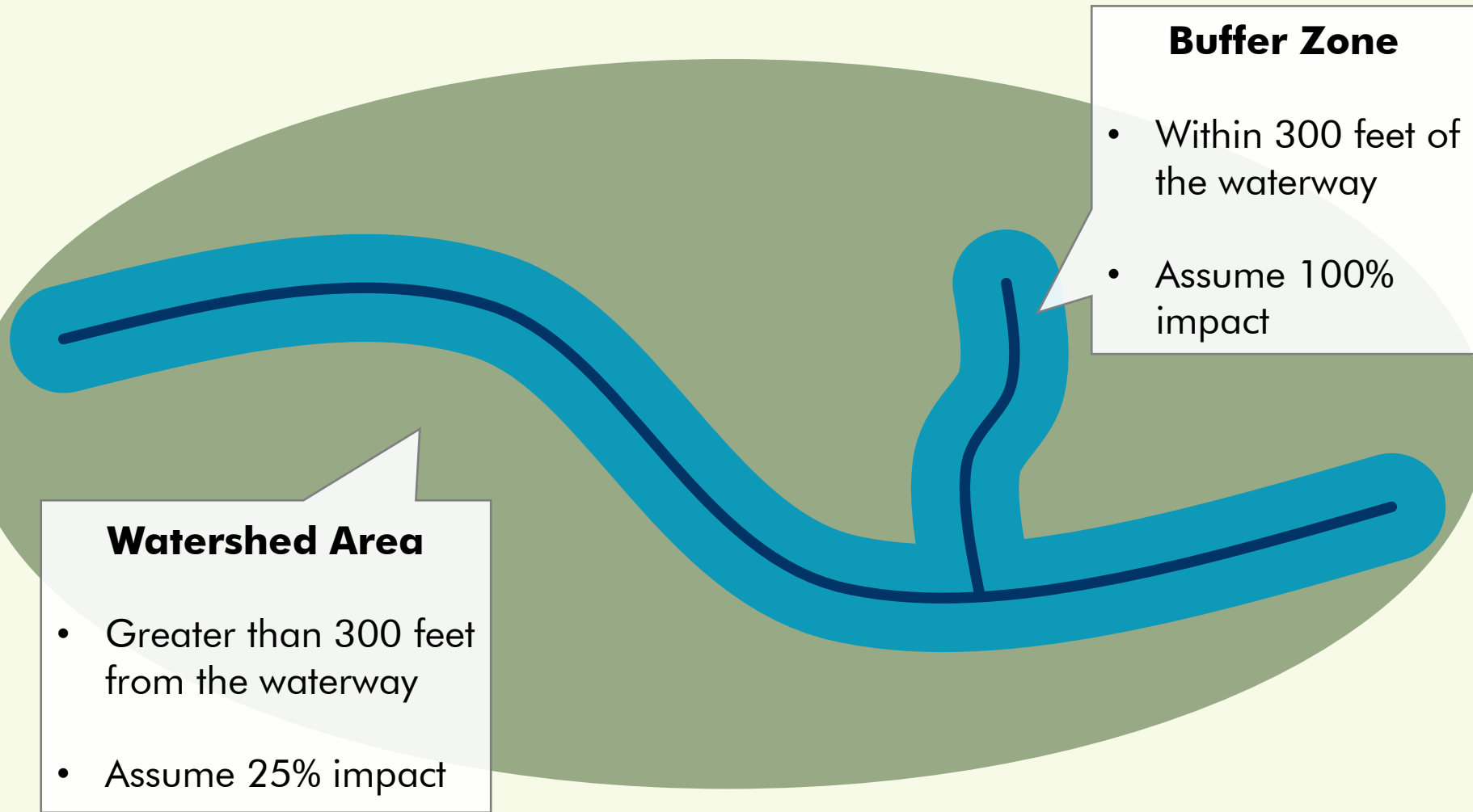
-  East Fork San Jacinto River Watershed
-  East Fork San Jacinto River
-  East Fork San Jacinto River Tributaries
-  Other Lake Houston Streams
-  Reservoirs
-  Sam Houston National Forest
-  Cities
-  County Boundaries
-  Roadways

Land Cover

- | | |
|---|---|
|  Open Water, 0.8% |  Mixed Forest, 11.4% |
|  Developed-Open, 7.3% |  Shrub/Scrub, 0.6% |
|  Developed-Low, 3.0% |  Herbaceous, 0.9% |
|  Developed-Medium, 0.6% |  Hay/Pasture, 18.6% |
|  Developed, 0.2% |  Cultivated Crops, 0.0% |
|  Barren Land, 0.4% |  Woody Wetlands, 11.4% |
|  Deciduous Forest, 1.3% |  Emergent Herb. Wetlands, 0.1% |
|  Evergreen Forest, 43.4% | |



BUFFER APPROACH



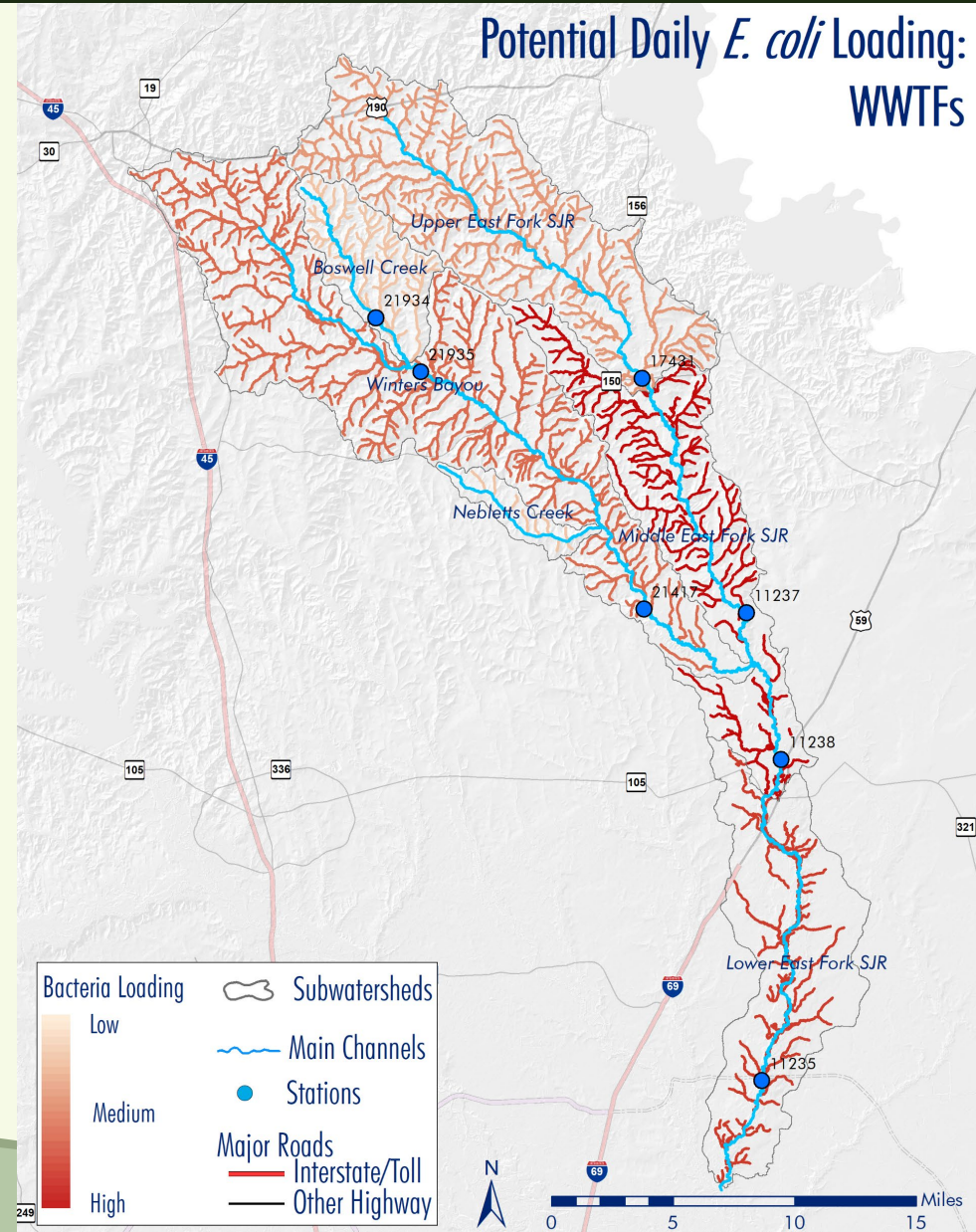
WASTEWATER TREATMENT FACILITIES

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 human health risk but minor contribution to total load



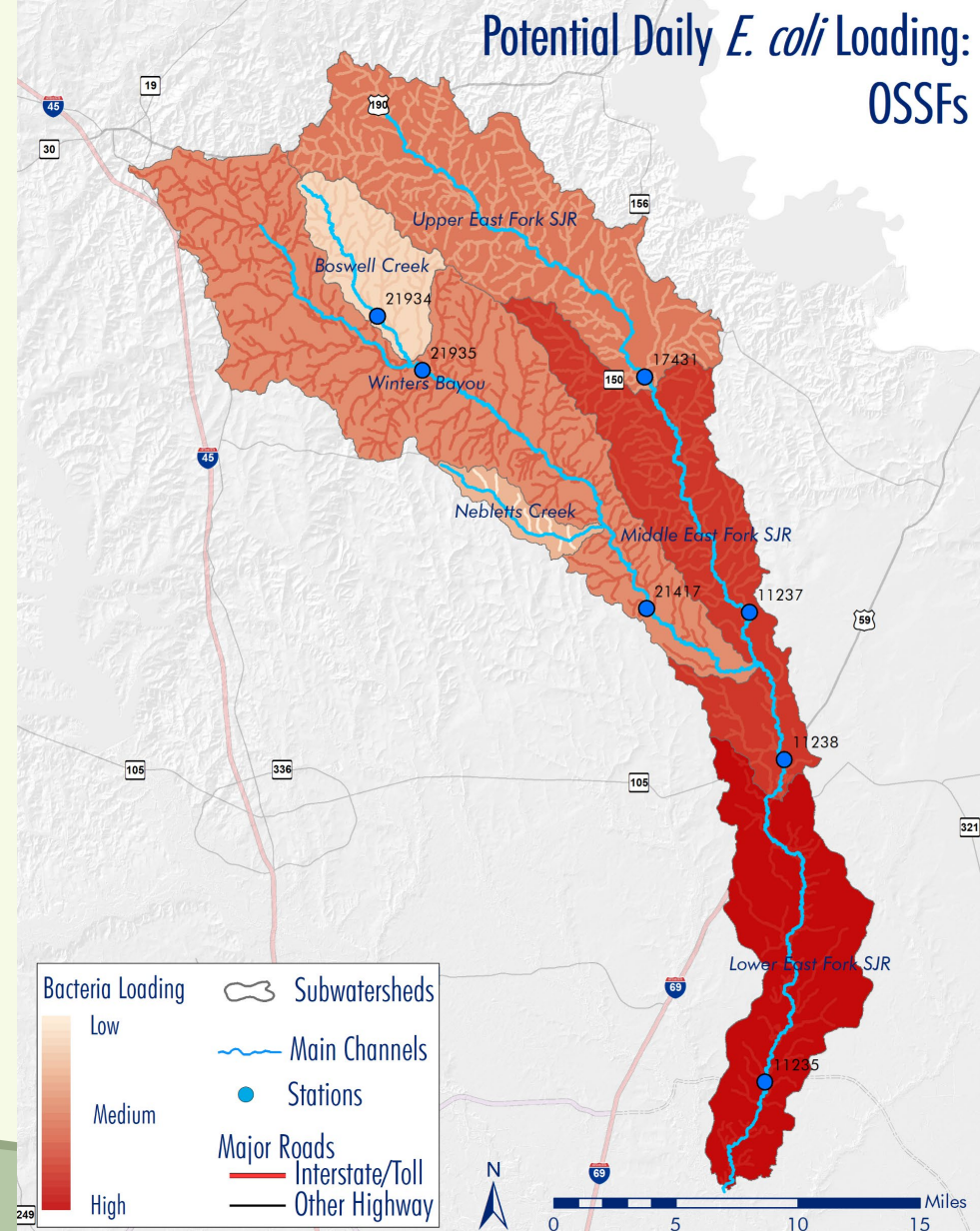
ON-SITE SEWAGE FACILITIES

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



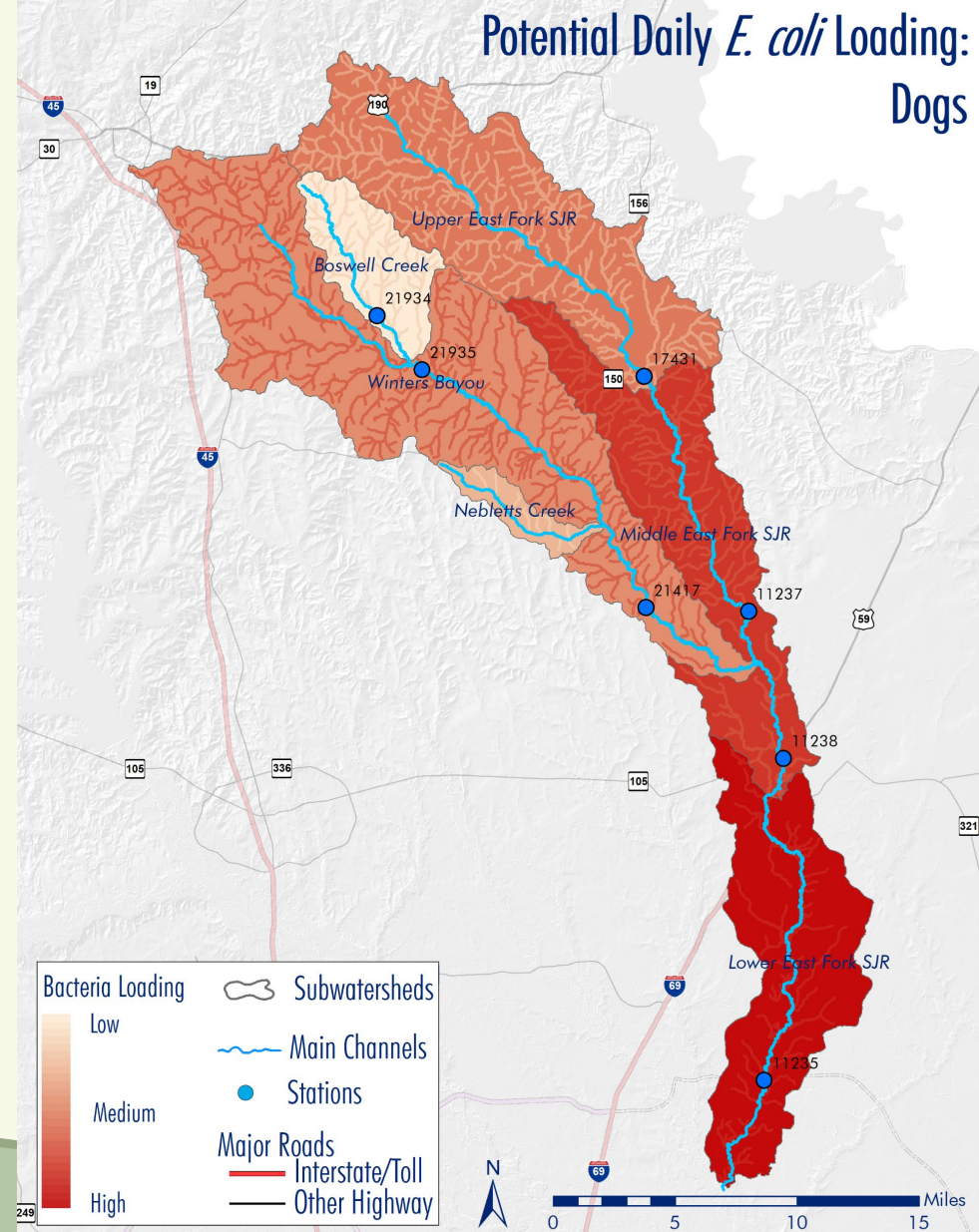
DOG WASTE

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



OTHER SOURCES



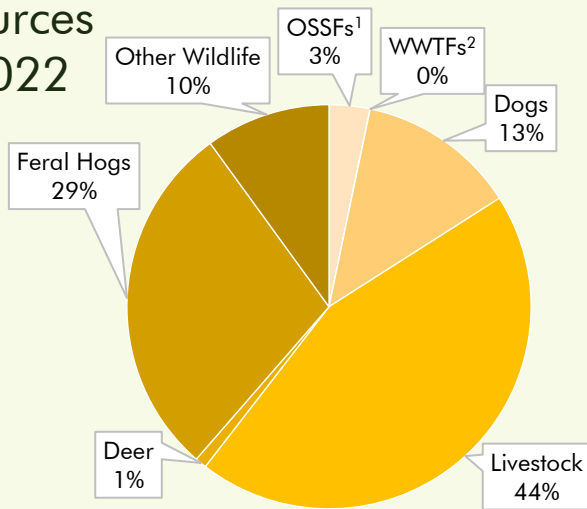
Sanitary Sewer Overflows

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



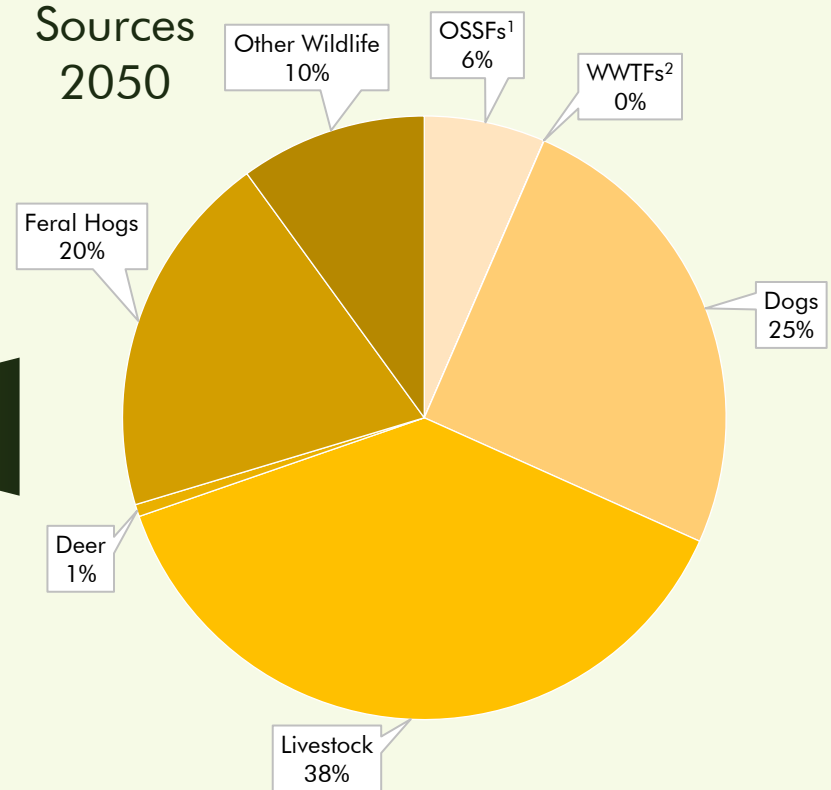
BACTERIA SOURCE MODEL SUMMARY

Sources
2022



41,322 billion cfu/day

Sources
2050



59,230 billion cfu/day

1.4x

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



DISCUSSION & QUESTIONS

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**EAST FORK SAN JACINTO RIVER
WATERSHED PARTNERSHIP**