

# The meeting will begin shortly



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Welcome to this public meeting of the

# EAST FORK SAN JACINTO RIVER WATERSHED PARTNERSHIP



February 15, 2023



# MEETING OUTLINE



- Welcome and Introductions
- Steering Committee Nominations
- Project Background
- Bacteria Source Models
- Next Steps
- Discussion



# INTRODUCTION



# WHO WE ARE



## **Texas Commission on Environmental Quality (TCEQ)**

lead state environmental management agency



## **Houston-Galveston Area Council (H-GAC)**

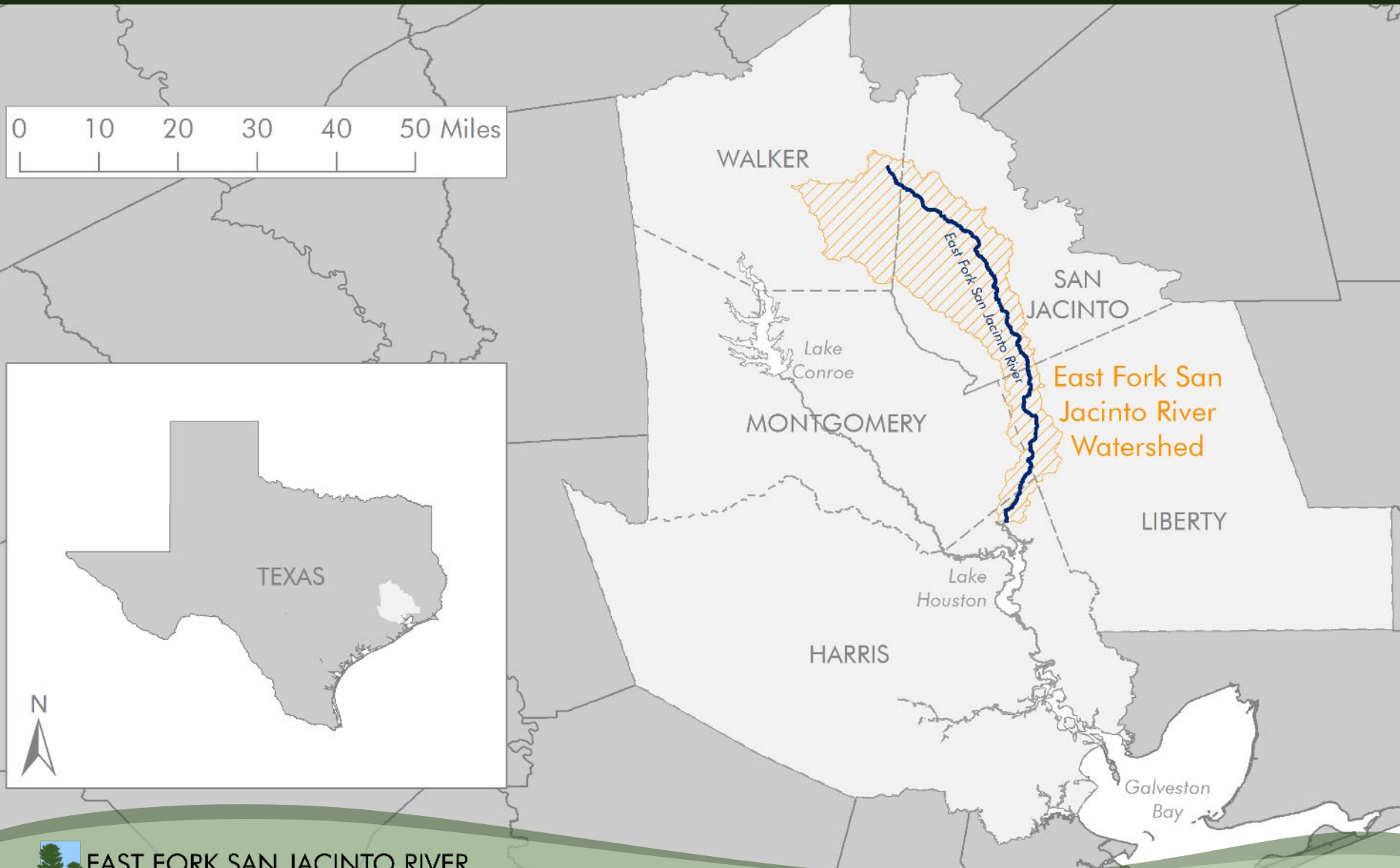
regional council of governments



## **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.*

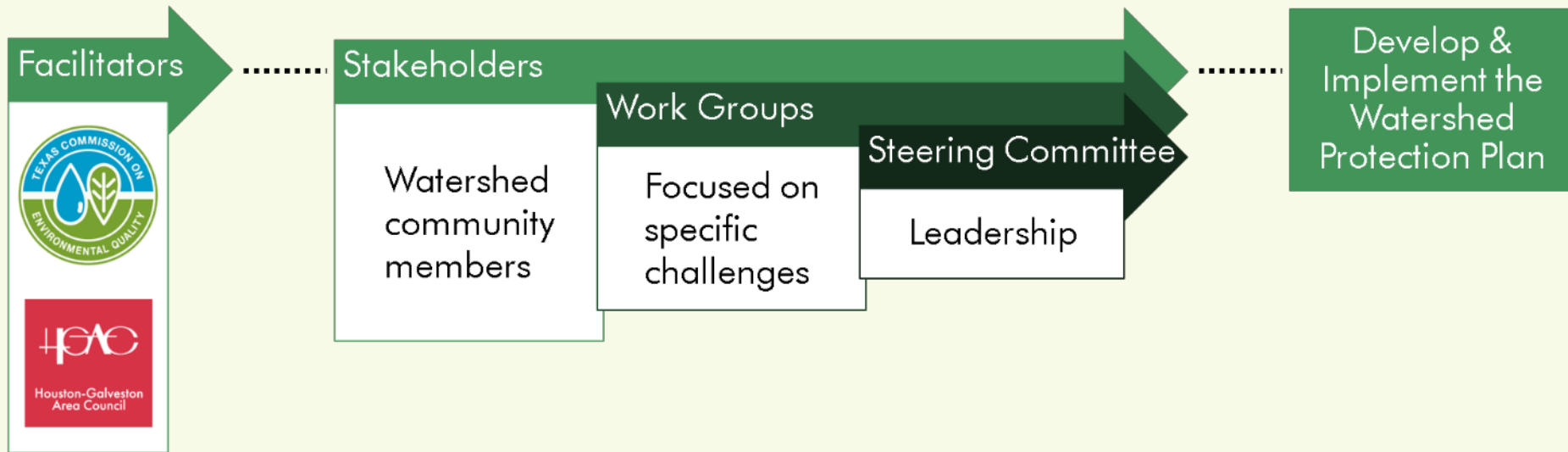


# STEERING COMMITTEE NOMINATIONS





# PARTNERSHIP STRUCTURE



# STEERING COMMITTEE NOMINEES

Name	Organization	Representing
Ashley Morgan Olvera	Sam Houston State University	Academia
Brian Koch	Texas State Soil and Water Conservation Board	Agriculture
		Business/Industry
Kevin Muraira	Bayou Land Conservancy	Community/Environmental Organizations
Kelly Norrid	Texas Parks and Wildlife Department	Community/Environmental Organizations
Cassidy Ince	TAMU Forest Service	Forestry
		Forestry
Jamie Shakar	City of Houston	Local Government
Andrew Isbell	Walker County	Local Government
		Residents



# PROJECT BACKGROUND



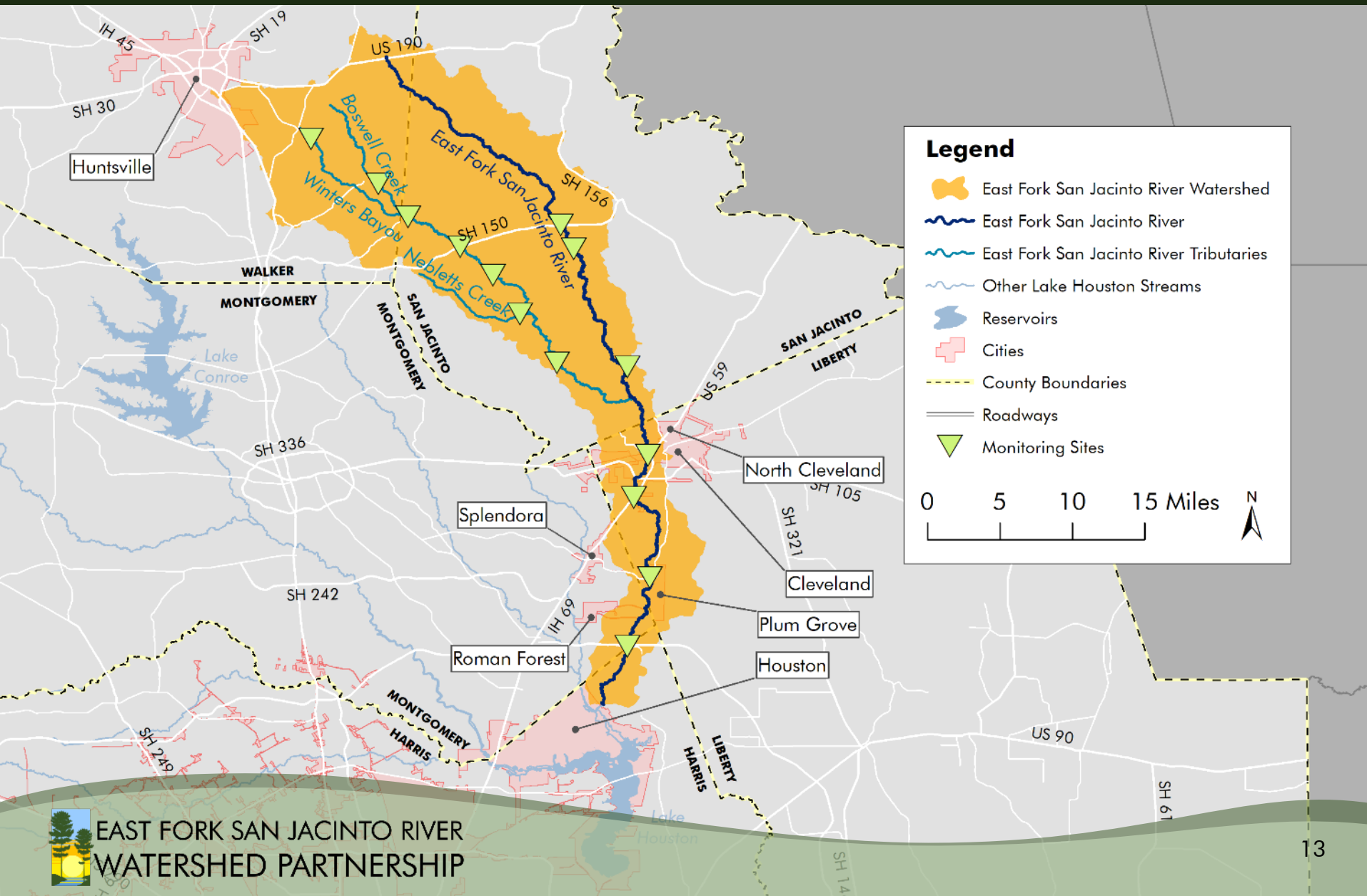
# ASSESSING WATER QUALITY



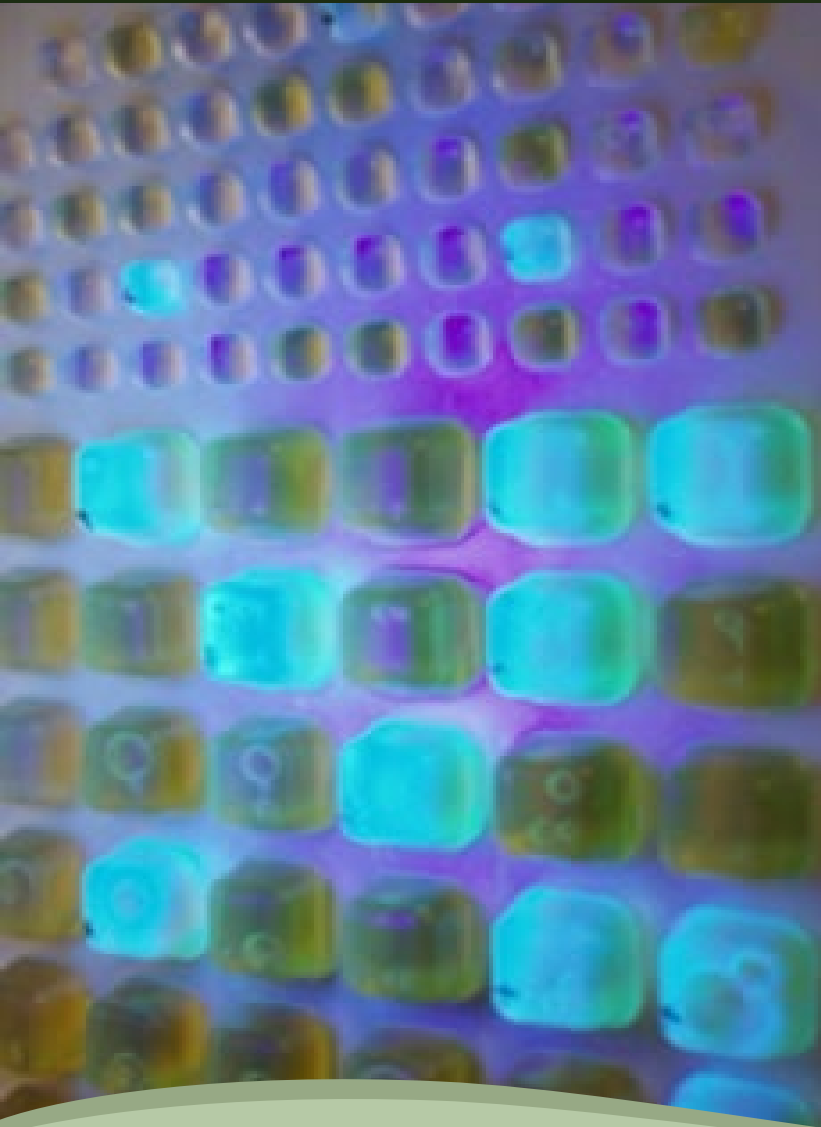
- Statewide monitoring
- TCEQ produces integrated report of results every two years
- Waterways exceeding standards are **impaired**



# 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 MODELS



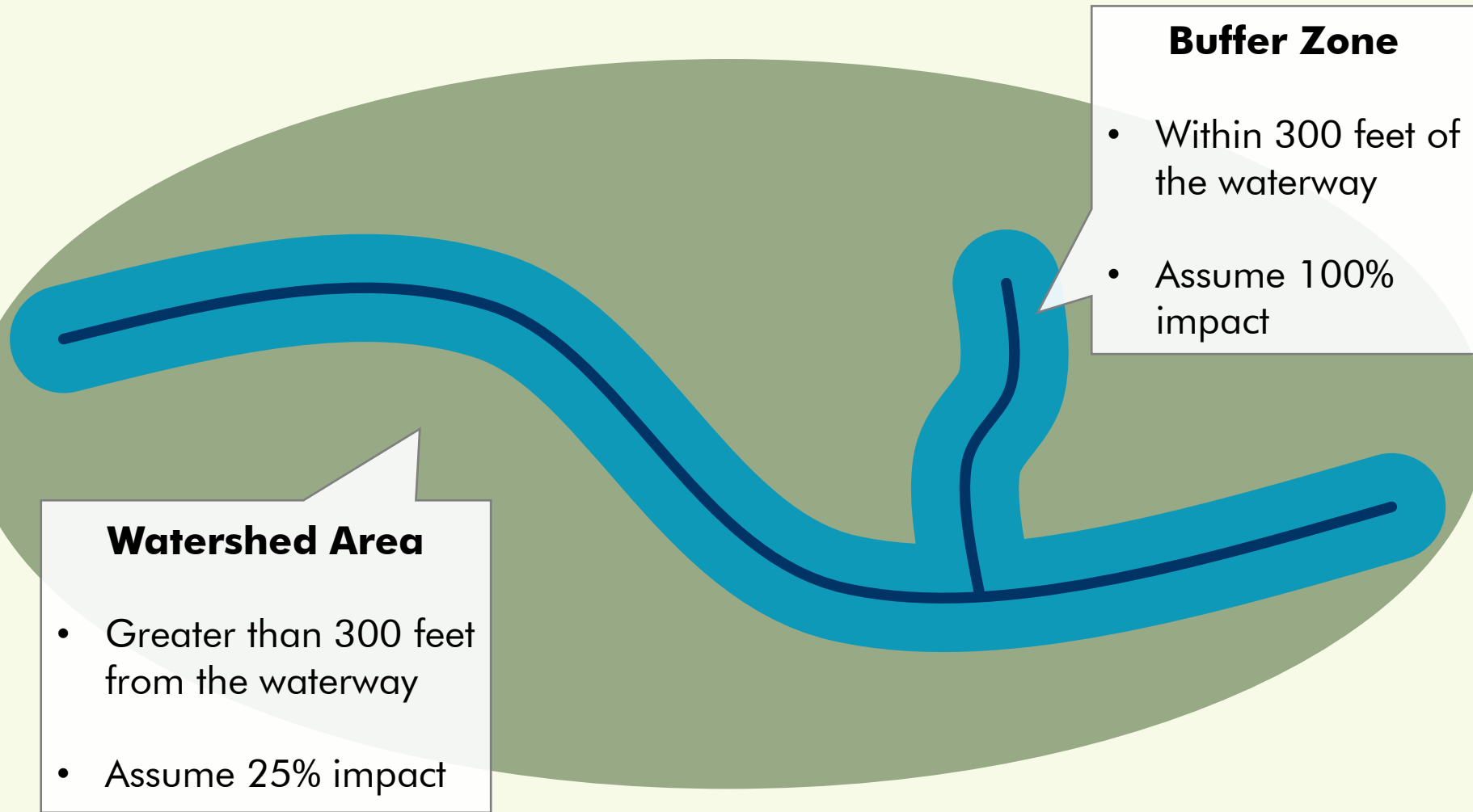


# SELECT MODELS

- Spatial estimate of total potential daily load from all fecal waste sources
- Based on 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



# BUFFER APPROACH



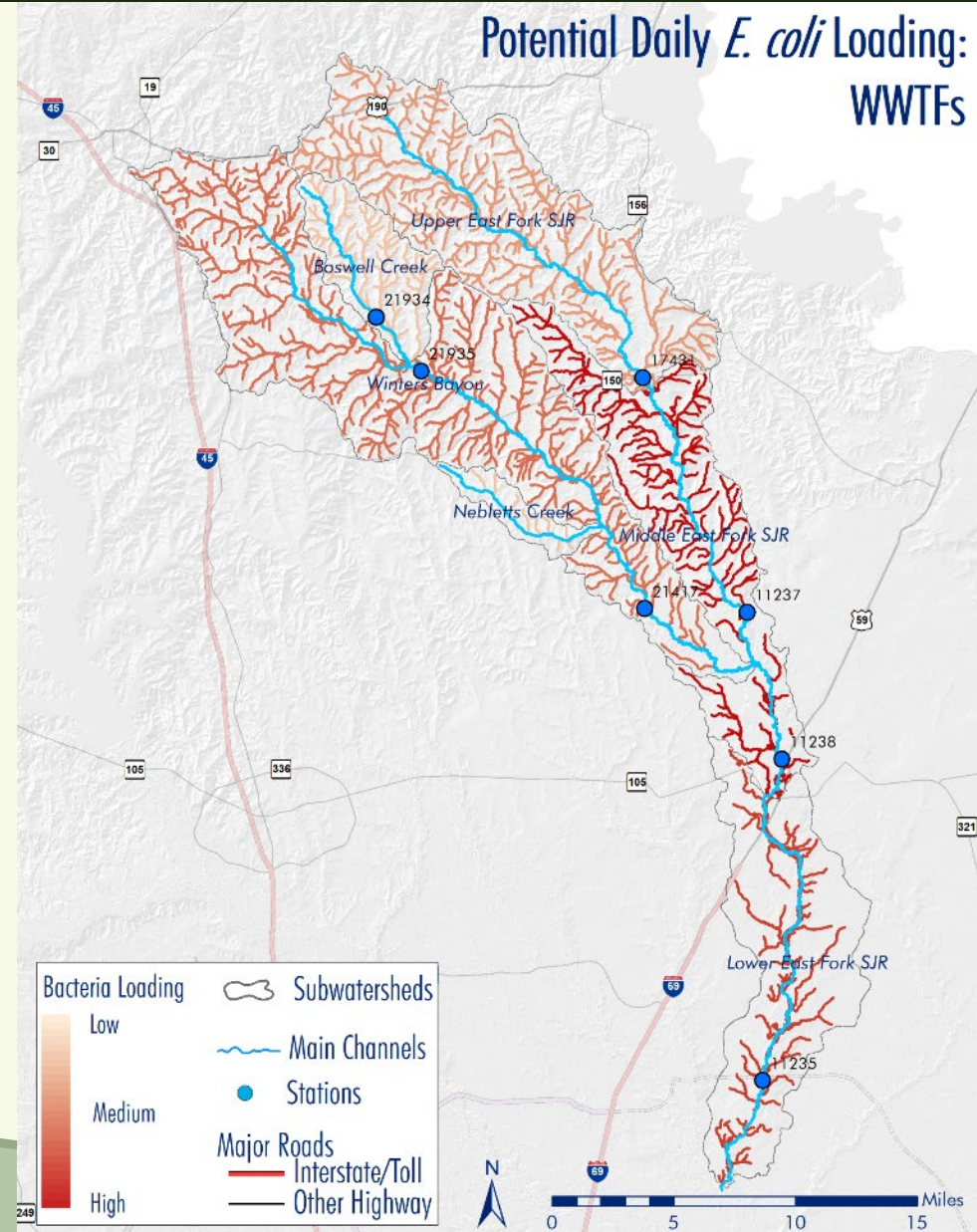
# WASTEWATER TREATMENT FACILITIES

## 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



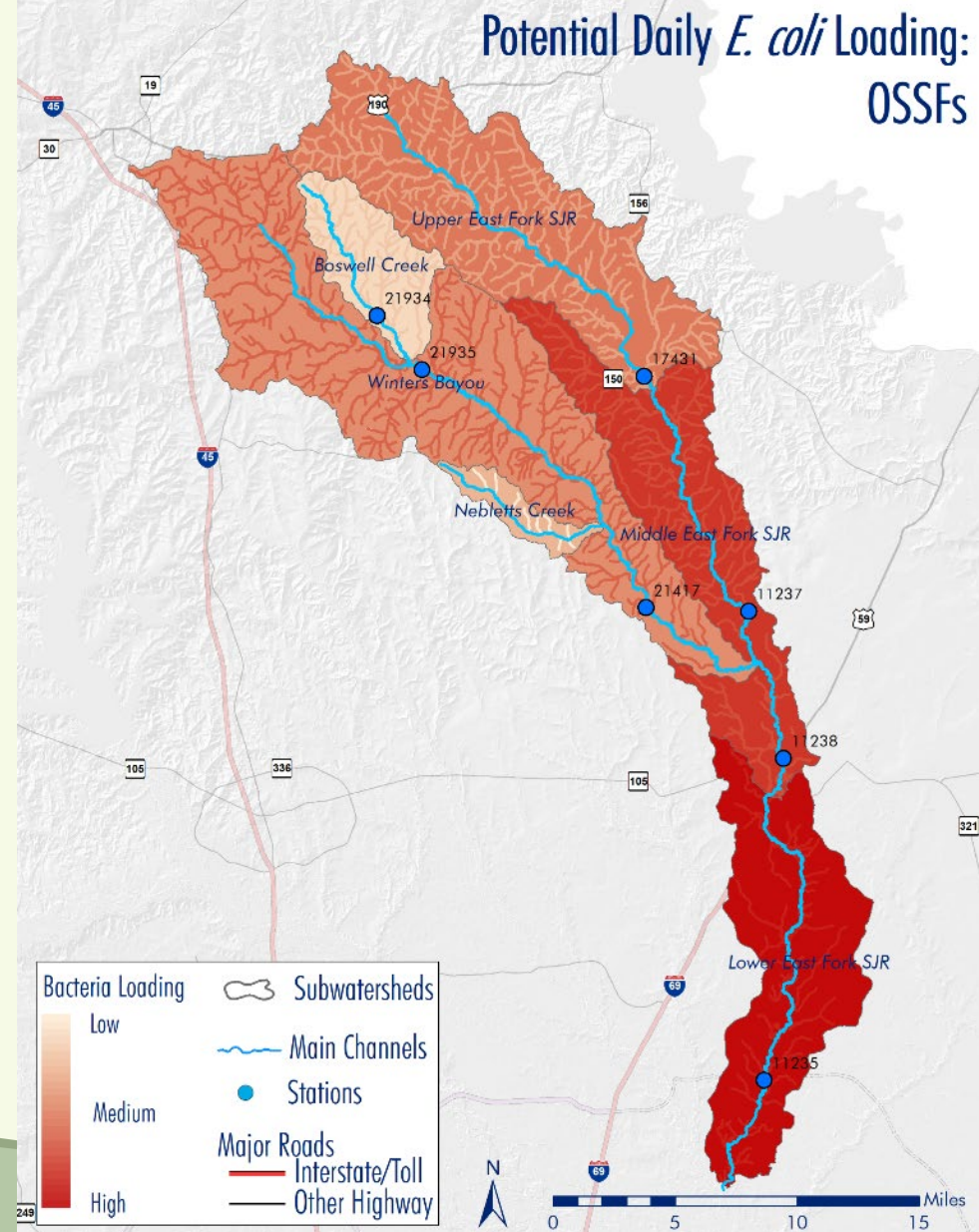
# ON-SITE SEWAGE FACILITIES

## 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



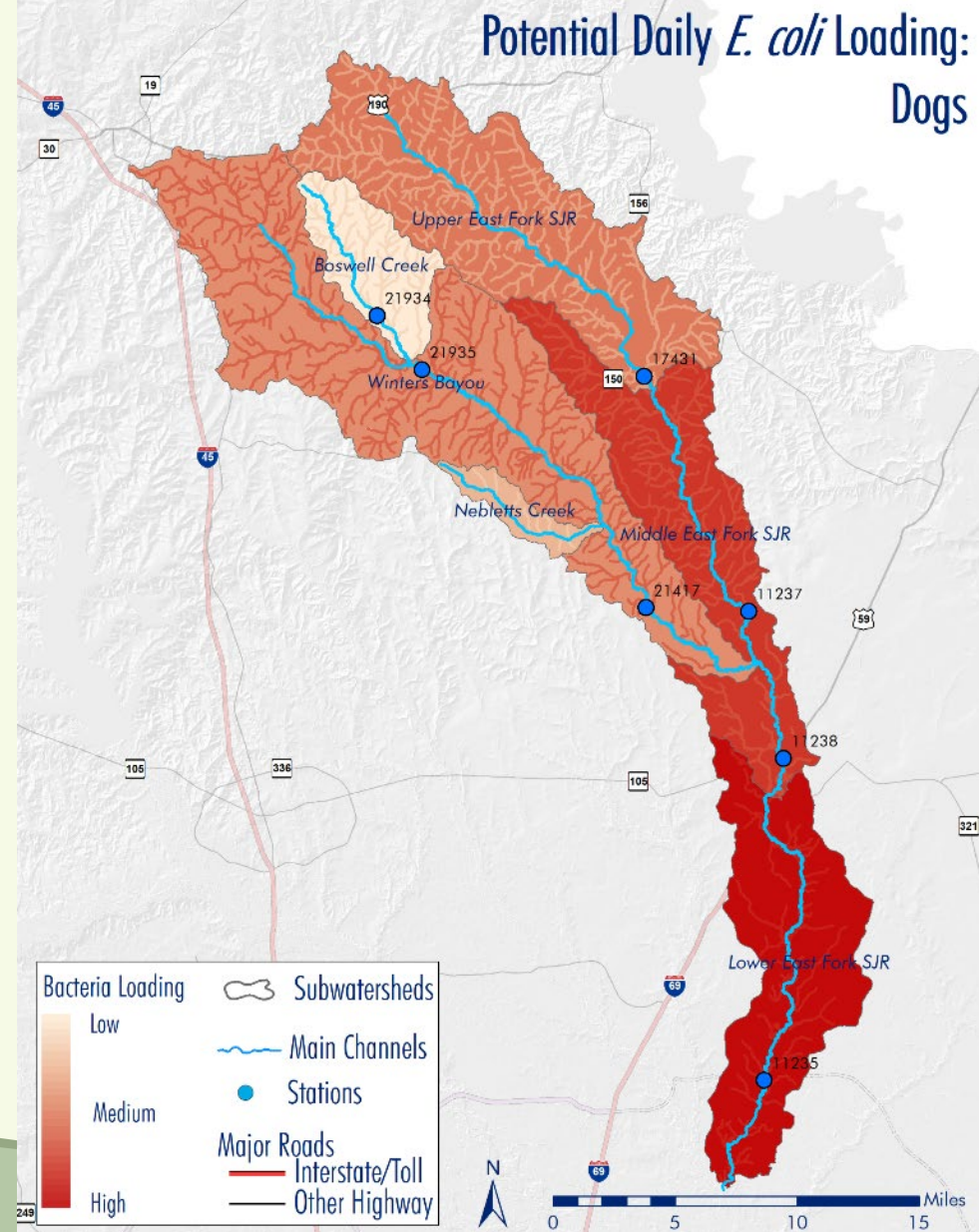
# DOG WASTE

## 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



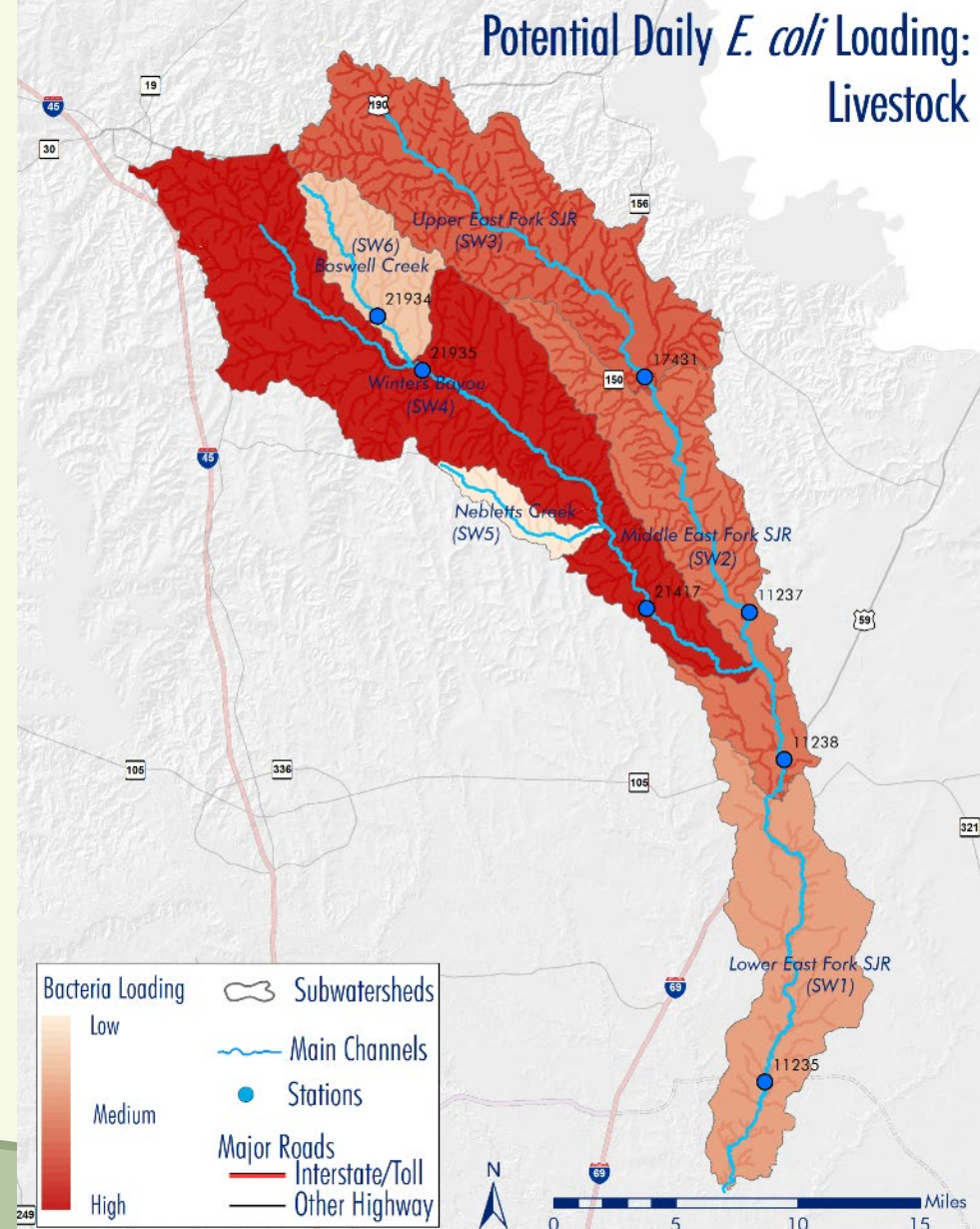
# LIVESTOCK WASTE

## 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



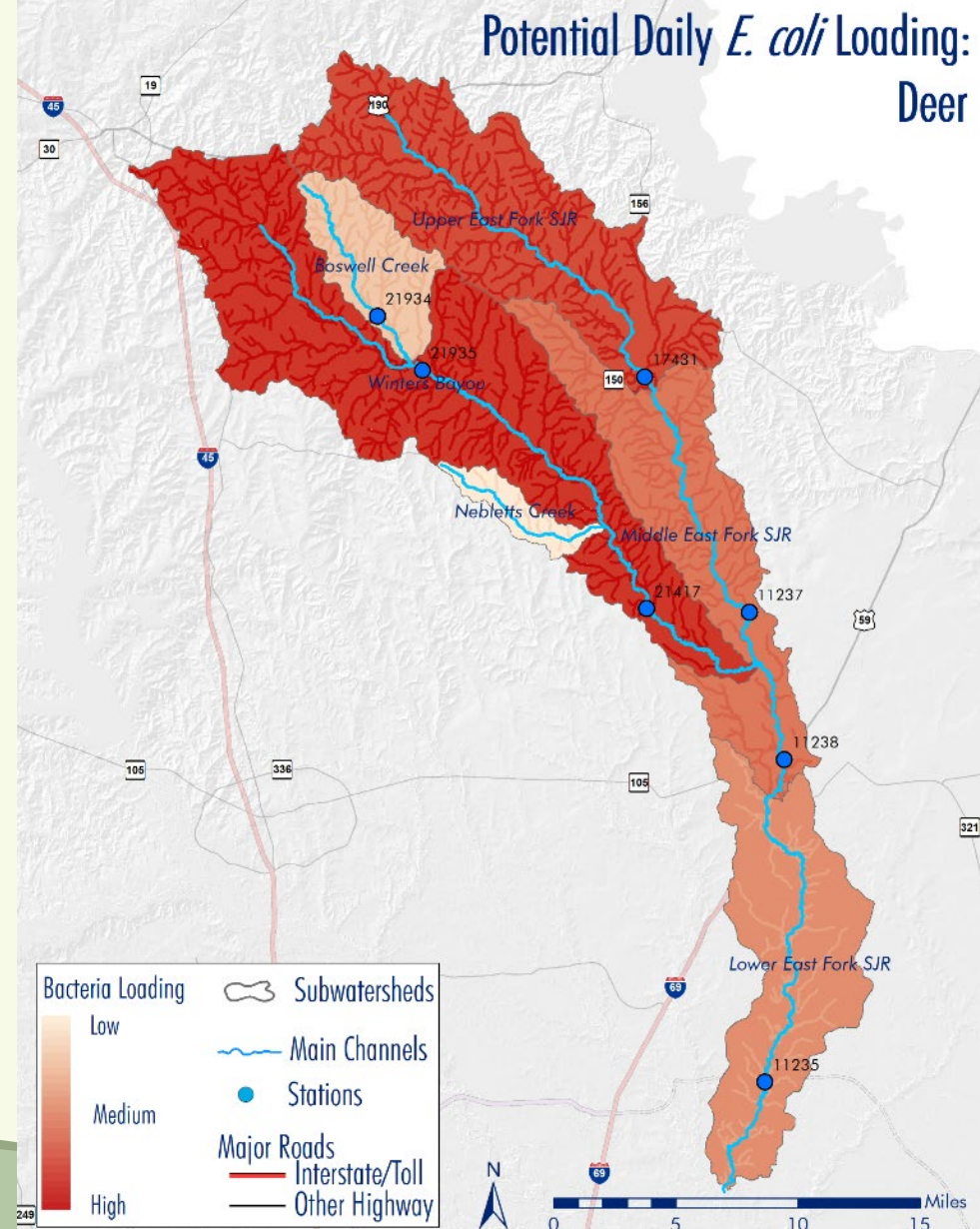
# DEER WASTE

## 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



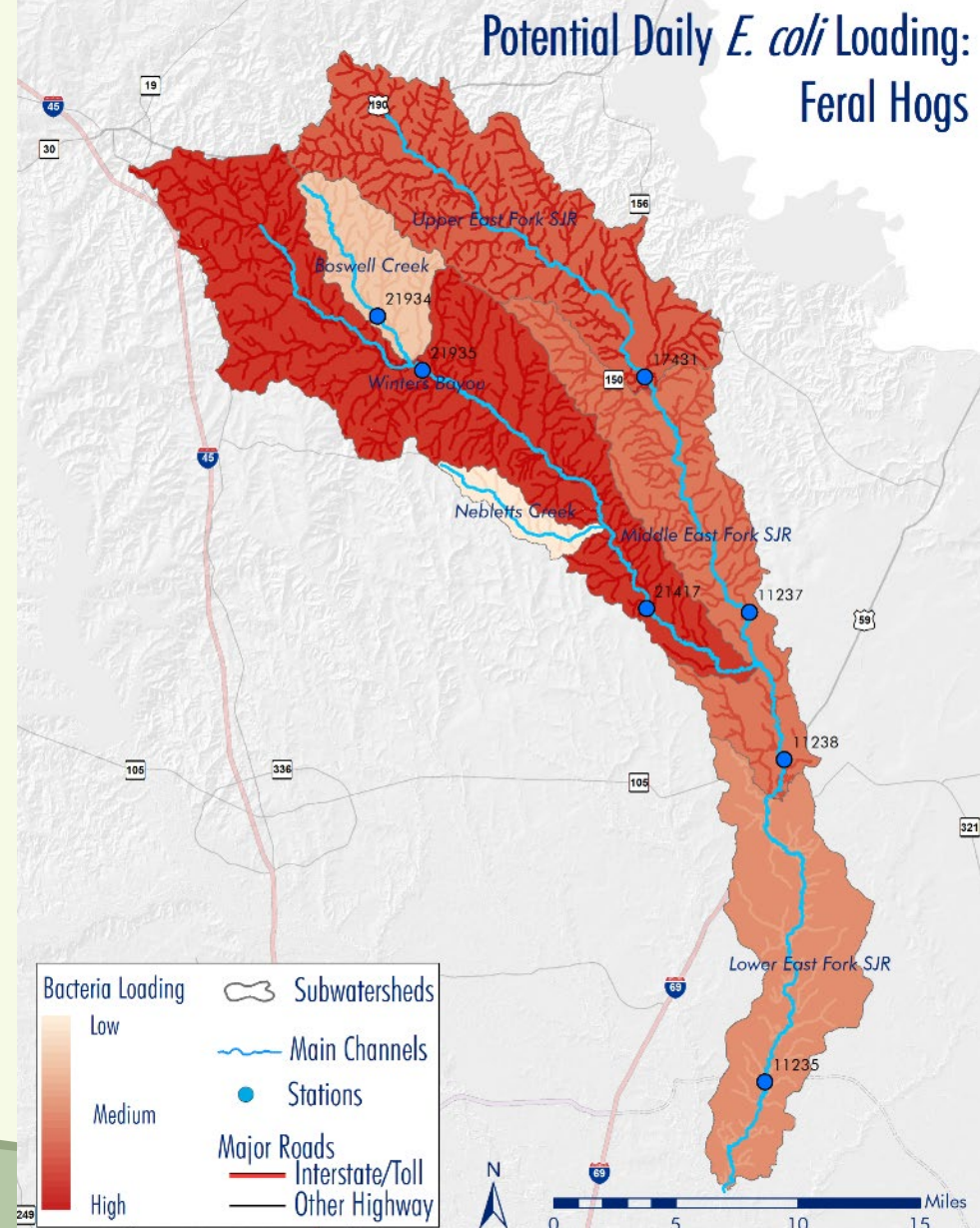
# FERAL HOGS

## 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





# OTHER SOURCES



## Other Wildlife

- Initial estimate of additional 10% of total calculated load
- Increases overall load estimation
- Stakeholder observations?



## Birds

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



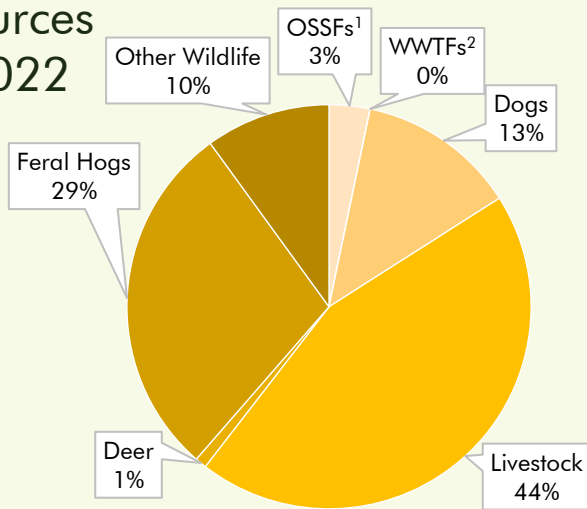
## Sanitary Sewer Overflows

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



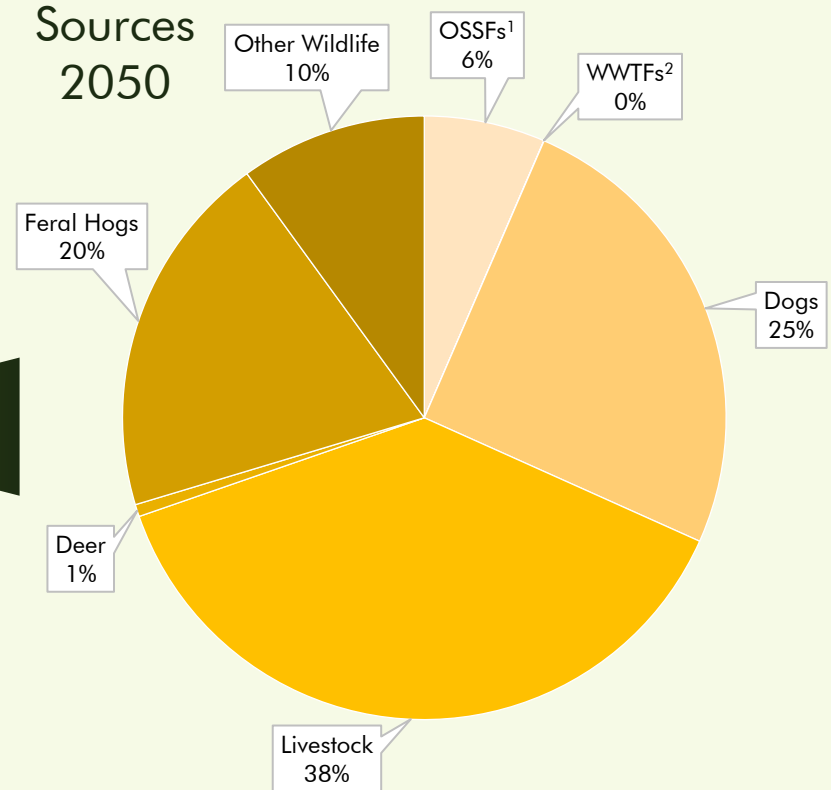
# BACTERIA SOURCE MODEL SUMMARY

Sources  
2022



41,322 billion cfu/day

Sources  
2050



59,230 billion cfu/day

1.4x

<sup>1</sup>OSSFs – On-Site Sewage Facilities

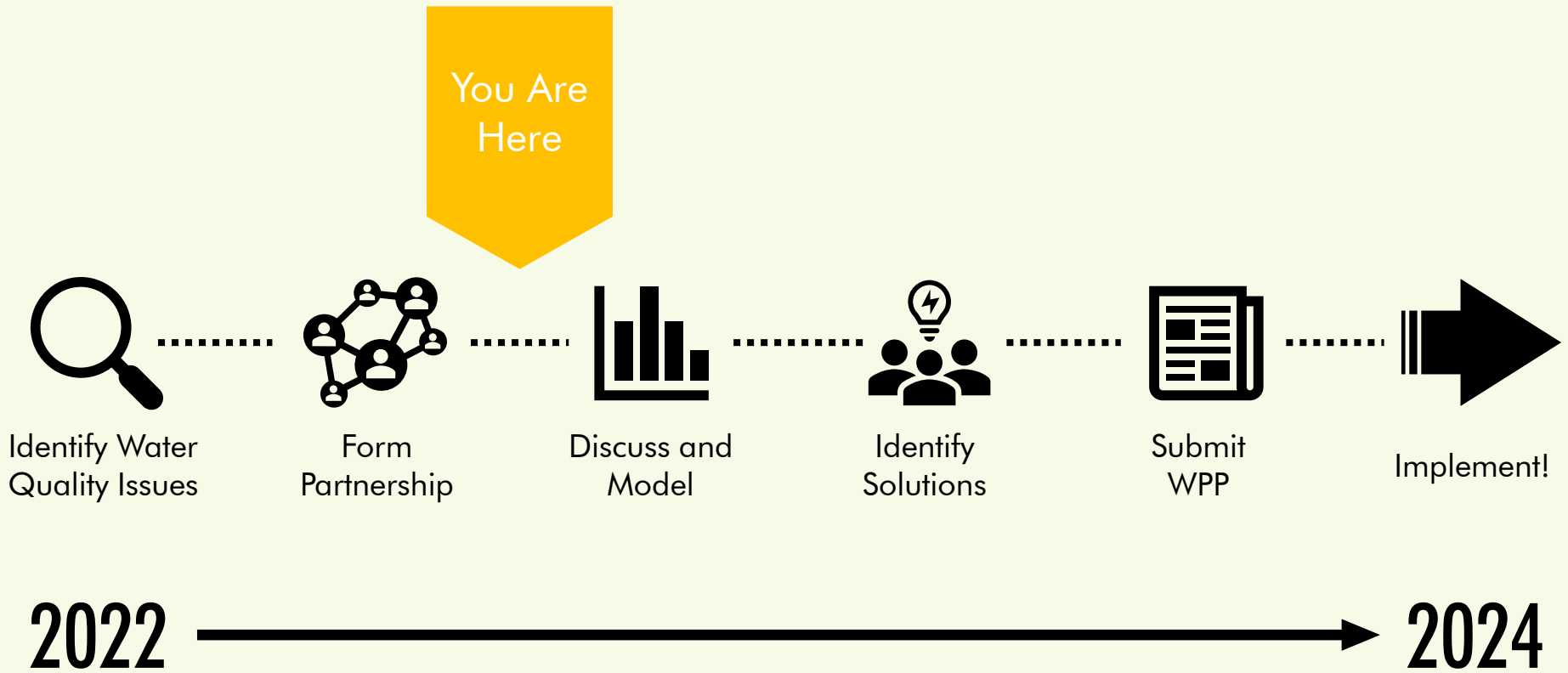
<sup>2</sup>WWTFS – Wastewater Treatment Facilities



# NEXT STEPS



# TIMELINE



# SHORT TERM GOALS



- Meet with workgroups to refine modeling results in March
- Next Partnership meeting in April to share revisions and begin discussing implementation strategies
- One-on-one meetings with stakeholders



# POLL QUESTION:

Which of the following workgroups would you like to participate in?

- Agriculture, Wildlife, and Invasive Species
- Human Sources and Pet Waste



# 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**