

# Department of Health

**Onsite Sewage Program (OSP) Updates to The  
Research Review and Advisory Committee**



# Onsite Sewage Program

Onsite Sewage Program (OSP)  
Bureau of Environmental Health  
Division of Disease Control and Health Protection  
Florida Department of Health (DOH)

September 4, 2020



# Agenda

1:30 pm – 1:40 pm	Introductions and housekeeping
1:40 pm – 2:10 pm	OSP staff provides updates on the effects of Senate Bill 712, including the program transfer from FDOH to the Florida Department of Environmental Protection and the abolishment of Research Review and Advisory Committee (RRAC)
2:10 pm – 2:40 pm	Public comments and questions
2:40 pm – 3:10 pm	OSP staff provides a summary on the status of several research projects prioritized by the Research Review and Advisory Committee.
3:10 pm – 3:30 pm	Public comments and questions.
3:30 pm	Adjourn

# Introductions & Housekeeping

- Committee roll call
- Identification of audience
- Will overall mute when presentation starts
- Unmute phone line = \*2
- Do not put phone on hold
- Download meeting material:

<http://www.floridahealth.gov/environmental-health/onsite-sewage/research/rrac.html>



# Effects of Senate Bill 712

1. Program Transfer
  - ❑ Senate Bill 712
2. Law Chapter 2020-150

# Onsite Sewage Program Transfer

- On June 30, 2020, Governor DeSantis signed Senate Bill (SB) 712 into law
- Primary impact to the Department of Health (DOH) is the type II transfer of the Onsite Sewage Program (OSP) to the Department of Environmental Protection (DEP) on July 1, 2021
- There are several reports and an interagency agreement that must be completed prior to the transfer date



# Florida Law Chapter 2020-150 Requirements

- DOH to provide a report to the Governor & Legislature July 1, 2020 (Details Report Completed)
- Must address the OSP data (see tables on slides 8 - 10):
  - number of permits issued each year
  - number of employees working in the OSP
  - program costs and expenditures
- Link: <http://laws.flrules.org/2020/150>

OSP = Onsite Sewage Program

# Details Report Data

Average Expenses by Budget Category of the Onsite Sewage Program for DOH  
(5 Years for DOH CHDs, 2 Years for DOH Central Office)

DOH Location	Payroll Cost for Estimated FTEs + Administration Support	Expenses; Operating Capital Outlay; Vehicle Acquisitions ; Contractual Services; & Risk Management	Other	Total
DOH CHDs	\$17,452,476	\$2,940,560	\$246,503	\$20,639,539
DOH Central Office	\$1,080,899	\$131,723	\$57,201	\$1,269,823





# Details Report Data (Continued)

Average Number of Construction Permits Issued by DOH CHDs over 5 years

Application Type	Number of Construction Permits Issued
Abandonment	6,813
Existing	0
New	15,737
Repair	20,098
Modification	599
Total	43,247



# Details Report Data (Continued)

Operating Permit Renewals Yearly by the DOH CHDs

Operating Permit Type	Estimated Number of Permit Renewals Required Each Year
Aerobic	4,125
Commercial	2,326
Industrial or Manufacturing	5,158
Performance Based Treatment System	684
Total	12,293



# Law Requirements

- Requires DOH and DEP to submit a Recommendations Report of the transfer to the Governor & Legislature by December 31, 2020
- Must include recommendations on all aspects of the transfer of the Onsite Sewage Program from DOH to DEP
- Address the continued role of the DOH county health departments (CHD) in permitting, inspection, data management, and tracking of the onsite sewage treatment and disposal systems (OSTDS) under direction of DEP and an interagency agreement
- Contracting with the Florida Conflict Resolution Consortium (FCRC) at Florida State University

# Law Requirements (Continued)

- Adds language in ss. 381.0065 (7), FS, approving use of enhanced nutrient-reducing OSTDS under a fast-track approval process of no longer than 6 months by July 1, 2020:
  - Determining the use of American National Standards Institute (ANSI) 245 systems approved by the National Sanitation Foundation (NSF)
  - Internal fast-track procedure implemented on June 30, 2020
    - NSF 245 reviews take precedent (no change to 120 F.S. timelines)
    - Unit alarm requirement to demonstrate compliance streamlined
    - Requirements to resolve conflicts between the operations and maintenance manual and the rule have been simplified

# Law Requirements (Continued)

- Amends ss. 381.0101, FS
  - Removes OSTDS certification and leaves, as a minimum, the food protection program area under the Certified Environmental Health Profession (CEHP) credential program
  - Impact to private soil evaluators operating under their CEHP in OSTDS
  - Will require revision to Rule Chapter 64E-18, FAC, for certification and 64E-6 for CEHP (private site evaluators)

OSTDS = Onsite sewage treatment and disposal systems

# Law Requirements (Continued)

- Technical Review & Advisory Panel (TRAP) repealed July 1, 2021
- Research Review & Advisory Committee (RRAC) repealed July 1, 2021
- Temporarily creates the OSTDS technical advisory committee ss. 381.00652 under DEP
  - 10 member committee
  - Increase availability of enhanced nutrient-reducing OSTDS
  - Recommend set back distances; surface water, ground water, and wells
  - Active by August 1, 2021
  - Submit committee recommendations report by January 1, 2022 to Governor and Legislature
  - Section expires August 15, 2022

# Law Requirements (Continued)

- Onsite sewage permitting will be done by DEP via Interagency agreement with DOH CHDs (at least 5 years)
- Contractor Licensing Part III of Chapter 489, FS, is transferred to DEP
- Continuing education for sections 381.0101 and 489.554, FS, related to OSTDS is transferred to DEP
- Contractor enforcement transferred to DEP (CH. 489, FS)
- All effective July 1, 2021

OSTDS = Onsite sewage treatment and disposal systems



# Contact Information

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# Updates on Project Prioritized by RRAC in Recent Years

- Continuation of the Florida Water Management Inventory (FLWMI)
- Continued monitoring on passive nitrogen-reducing biofilter systems
- Investigating the funding resources for onsite sewage treatment and disposal system (OSTDS) in Florida and use of the Clean Water State Revolving Fund (CWSRF) to assist OSTDS activities
- OSTDS environmental and health effects
- Estimation of non-conformance frequency of OSTDS in Florida



# Florida Water Management Inventory (FLWMI) Accomplishments

Updated the database schema for the FLWMI

- Refined Land Use Codes
  - ✓ Additional differentiation helps with assigning the final data values for wastewater and drinking water
- Added attributes for the Domestic Wastewater and Public Water System Unique Identifiers
  - ✓ Affords additional data queries that are meaningful to other projects
- Added attribute for the OSTDS Permit Number
  - ✓ Will aid in linking the FLWMI to the updated Environmental Health Database (EHD)



# Florida Water Management Inventory (FLWMI) Accomplishments - Continued

Updated FLWMI with 2018 parcels (available 2019)

- Land Use codes and Built Status are updated
- Previous version of FLWMI is transferred to new statewide map
- Developing python code to automate the parcel update for more timely synchronization of the FLWMI with current property information

Note: FLWMI uses parcel data as the basis for the map. Parcel information comes from county property appraisers, and is compiled by the Florida Department of Revenue.



# Florida Water Management Inventory (FLWMI) Accomplishments - Continued

Incorporating new wastewater and drinking water information

- OSTDS permits and other data from EHD
  - ✓ Added new EHD records for period January 2018 – March 2020
  - ✓ Re-Geocoded all EHD records so that positional accuracy is shown for each point (previous geocoding software did not capture this measure)
- Well Surveillance Program data
- Private domestic well permits from the Water Management Districts (also includes permits from some delegated counties)



# Florida Water Management Inventory (FLWMI) Challenges

- Challenge with funding.
  - ✓ Project FTE < 1. Early phases of the project 3 FTEs
- Continued data gaps related to utility information.
  - ✓ Almost 8000 water and wastewater facilities
  - ✓ Many facilities/utilities did not provide any information, or the data incomplete
  - ✓ Requesting, receiving, and processing data requires a lot of time
  - ✓ Utility information should be updated periodically to account for new housing construction

# Florida Water Management Inventory (FLWMI) Challenges - Continued

- Continued data gaps associated with geocoding to the parcel
  - ✓ Highly dependent on address formation and quality
  - ✓ Lists with well formed addresses will achieve 75 - 90% match rate to parcel, while lists with poorly formed addresses may fall well below 50%
  - ✓ EHD enhancements will improve the location data for EHD records, as additional methods will be used to place the point
- COVID-19 has presented work related challenges for many of our project partners which has impacted efforts to update FLWMI.



# Contact Information

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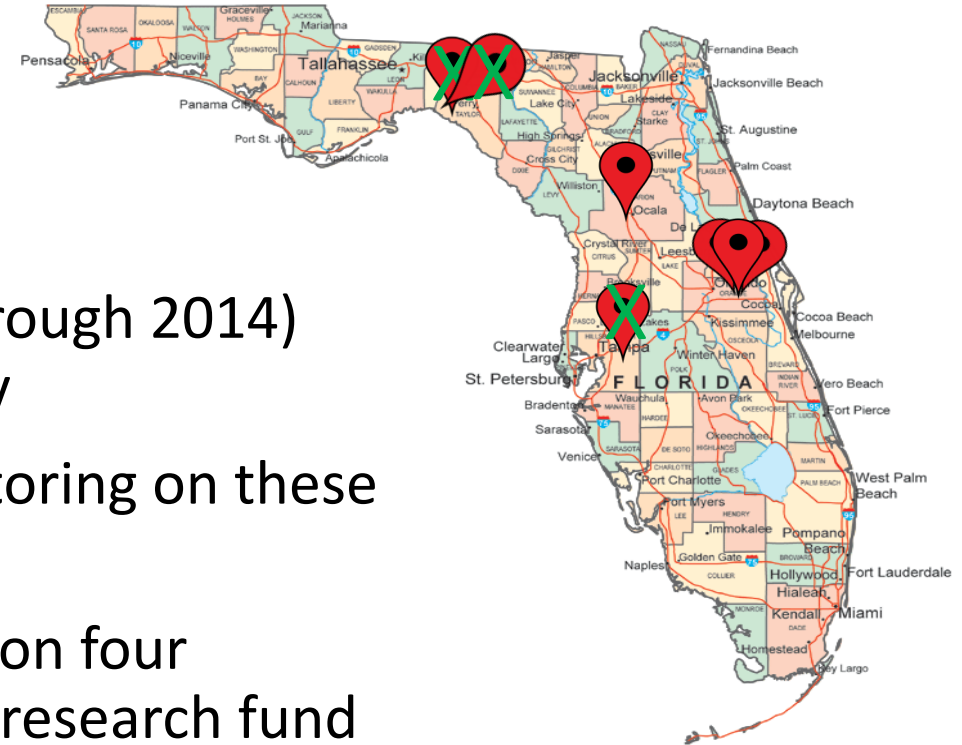
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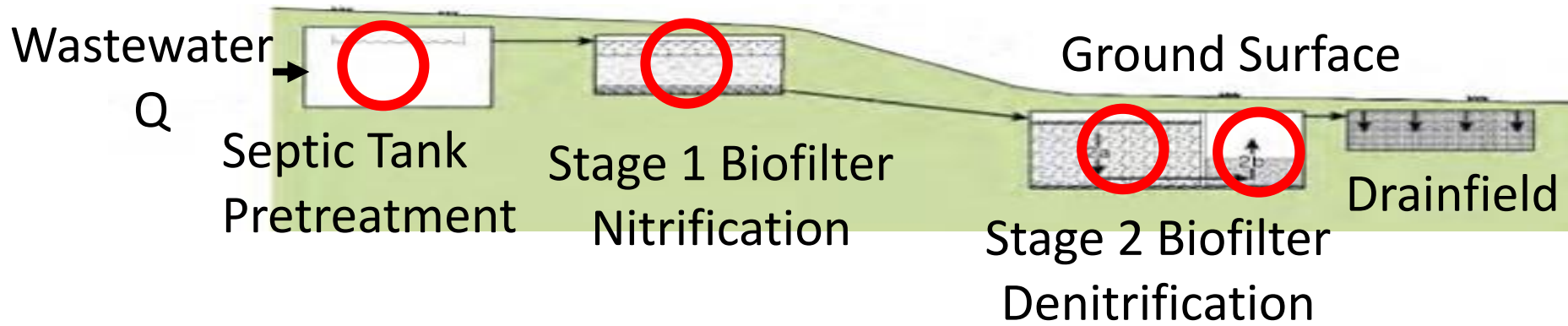
# Continued Monitoring on Passive Nitrogen Reducing Biofilter System

- Seven passive nitrogen-reducing media systems installed during the Florida Onsite Sewage Nitrogen Reducing Strategy (FOSNRS) study
- Results from the FOSNRS monitoring (2012 through 2014) showed 65% to 98% nitrogen removal capacity
- FOSNRS study recommended continued monitoring on these systems to evaluate long-term performance
- Continued monitoring started in April of 2017 on four remaining FOSNRS systems (funded by OSTDS research fund and federal 319 grant)
- Planned monitoring on two systems (funded by federal multipurpose grant)

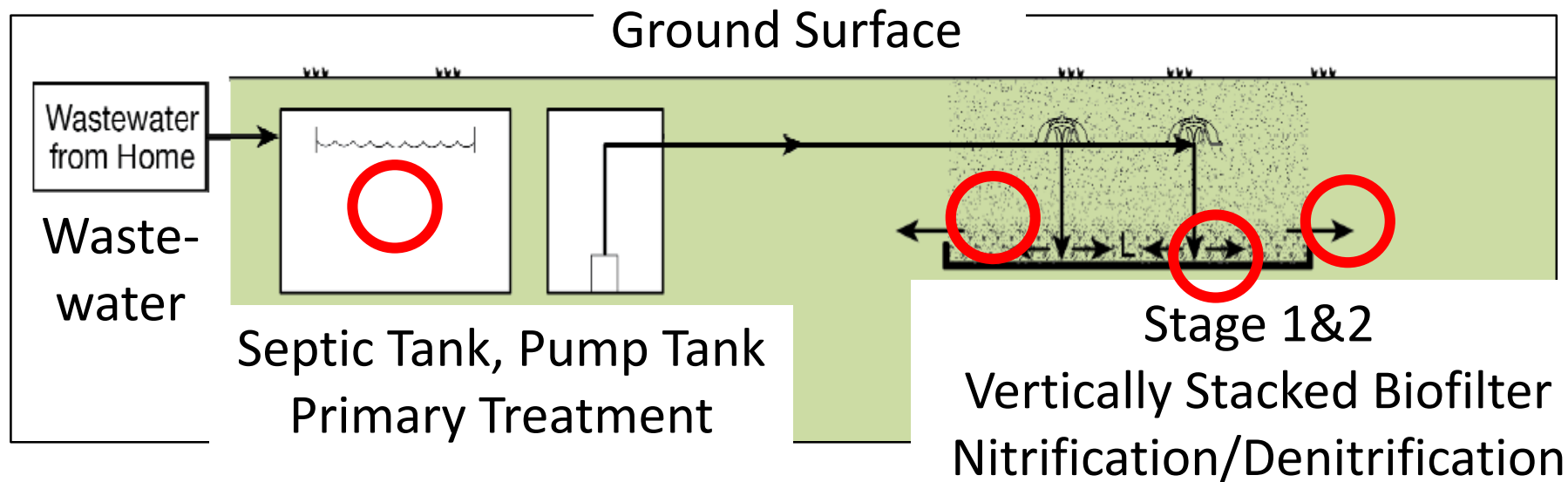




# Structure of Passive Nitrogen Media Systems

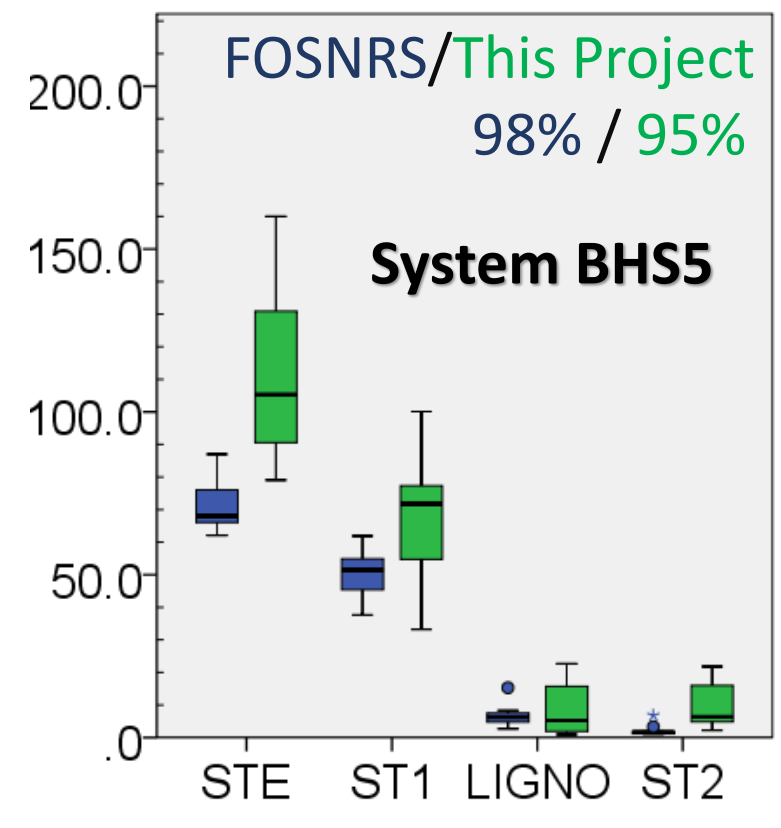
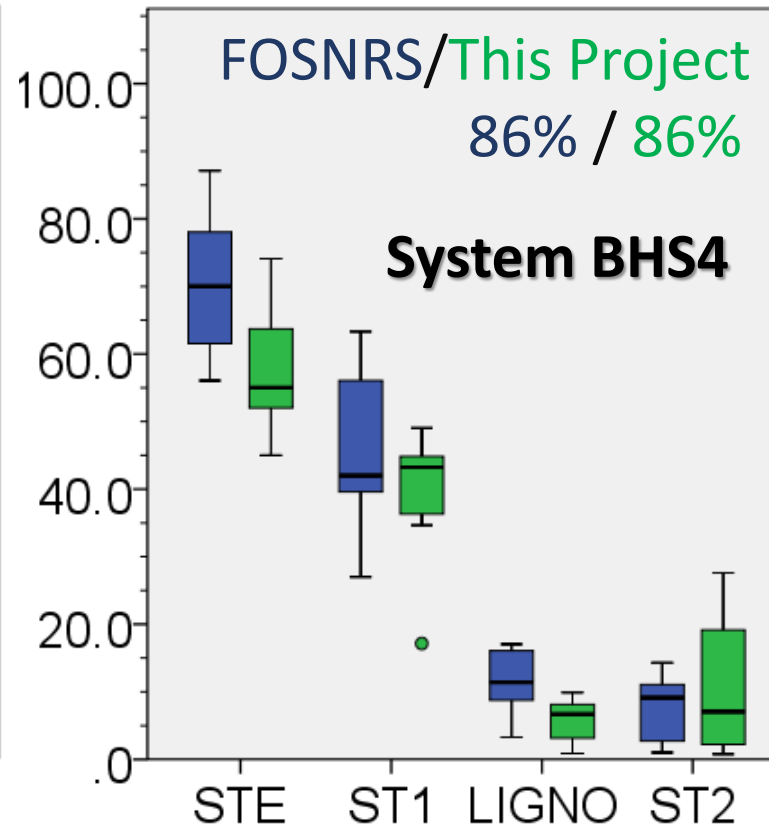
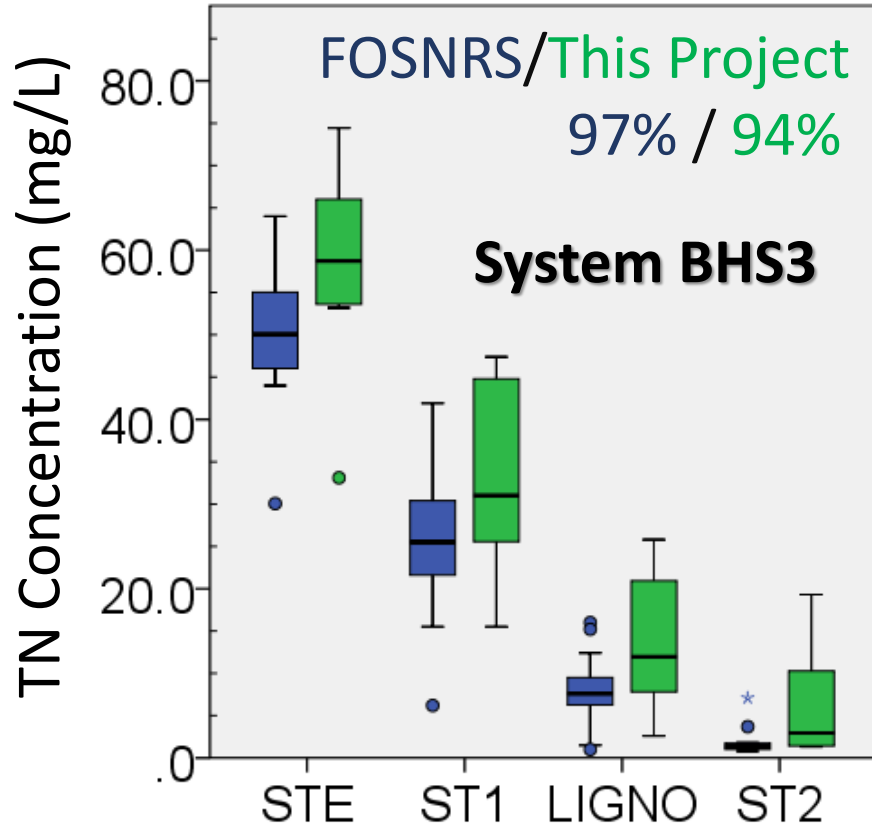


**In-tank System**



**In-ground System**

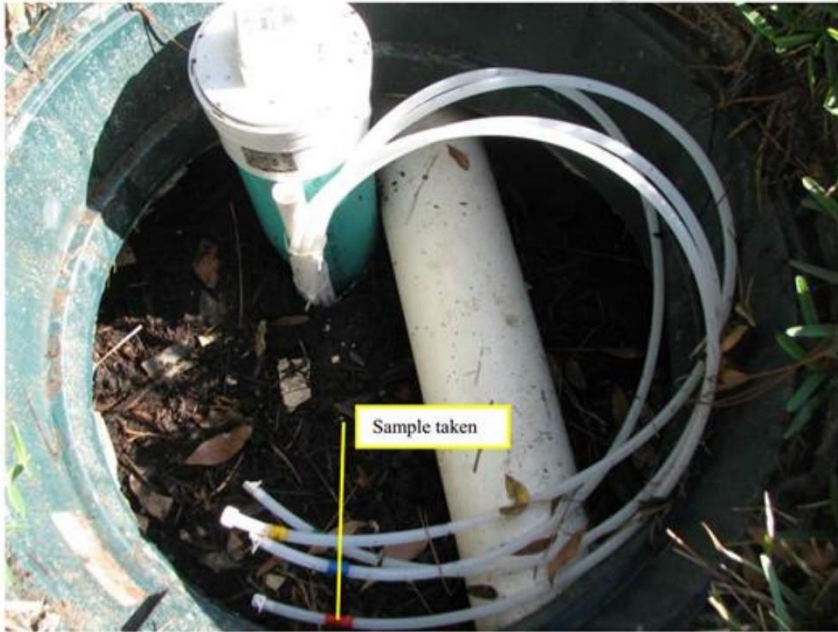
# Total Nitrogen Concentrations across the Treatment Trains



Treatment Components

STE = Septic Tank Effluent; ST1 = Stage 1 Media; LIGNO = Lignocellulose; ST2 = Sulfur Media

# Issues Observed with In-tank Nitrogen-Reducing Media Systems



Lignocellulose Chamber when System BHS5 was installed in 2013

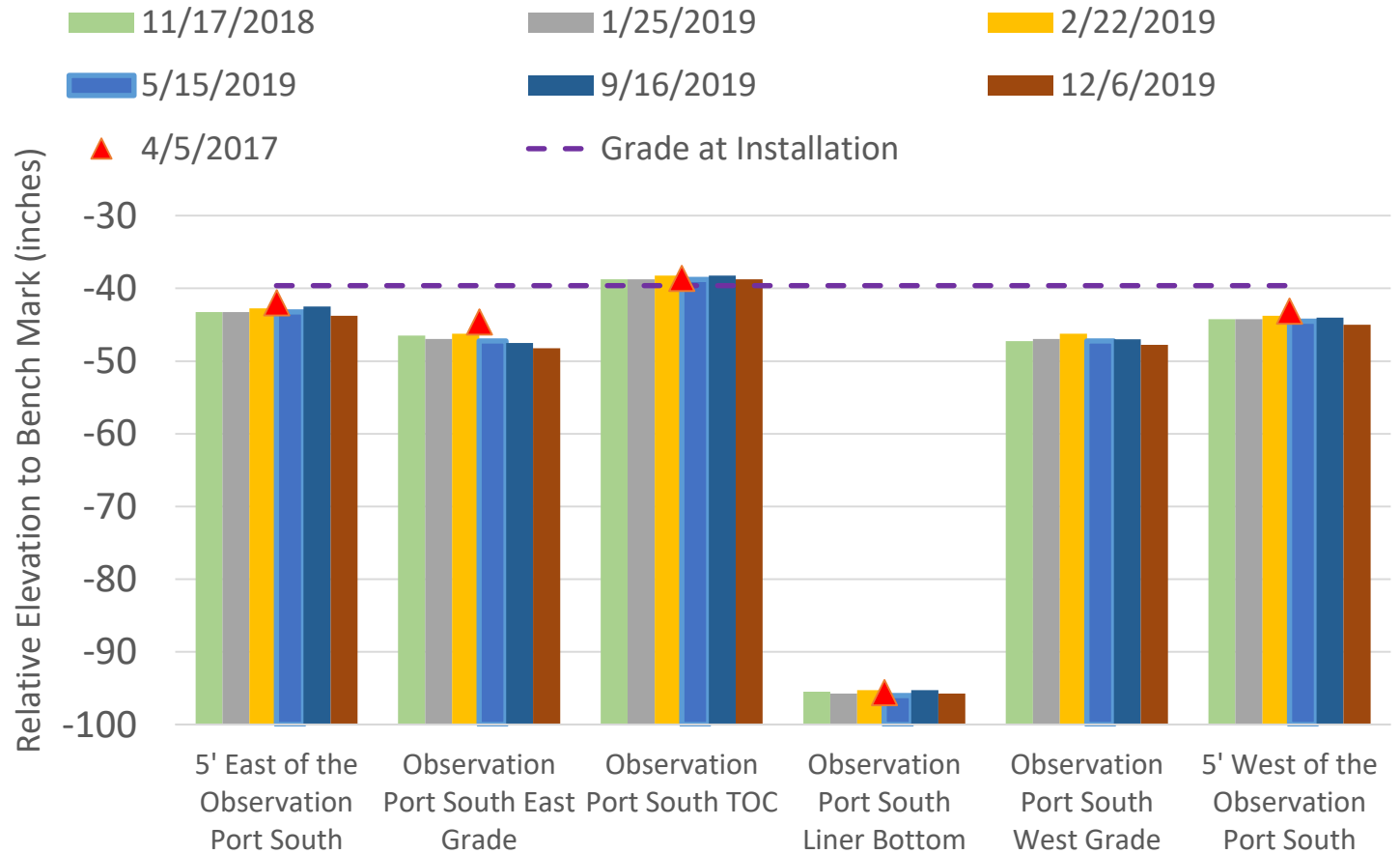
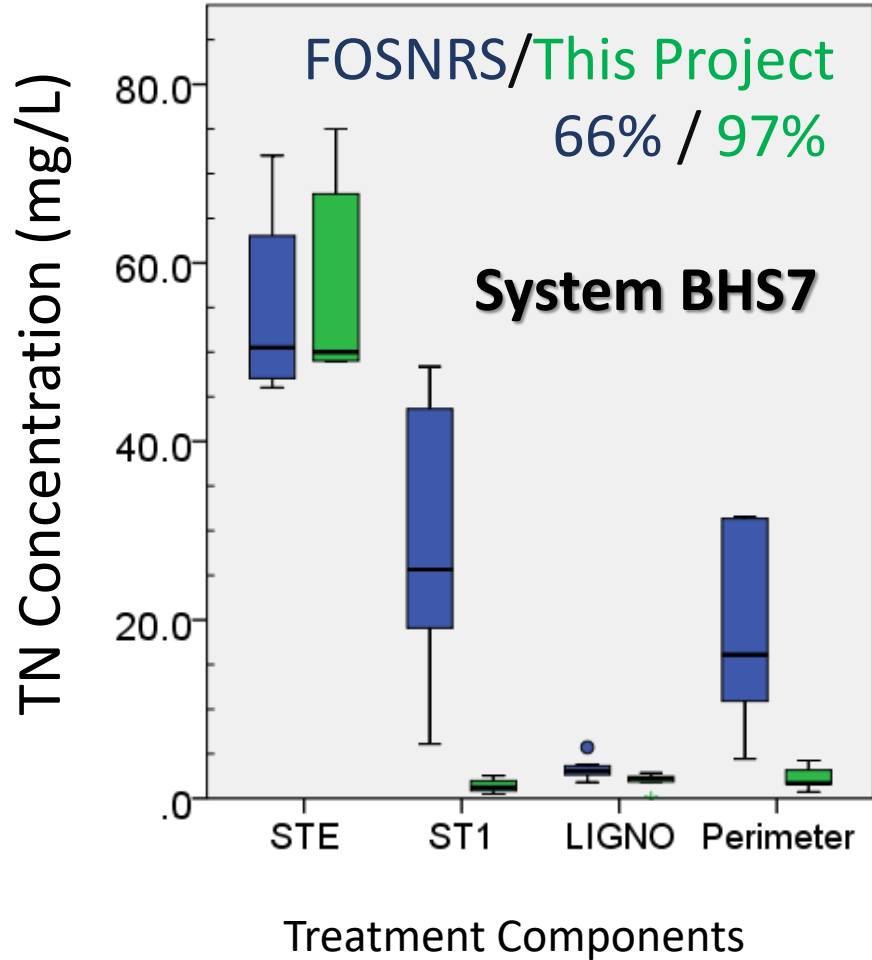


Lignocellulose Chamber when System BHS5 continued monitoring started in 2017



Top of distribution pipe is higher than the top of the baffle wall

# Total Nitrogen Concentrations across the Treatment Train – BHS7





# Summary of Continued Monitoring Project

- All scheduled eight sampling events completed
- All four systems removed nitrogen very well six years after installation
- Low maintenance effort required and low monthly electricity costs (less than \$3.00/month) if a pump is used
- Denitrification media tank design can be improved (for in-tank system).
- After six years, the lignocellulose media for an in-tank system with lift pump had decayed substantially
- In-ground system showed subsidence
- Federal multipurpose grant will be used to monitor the effect of replacement of lignocellulose media in one in-tank system



# Funding Sources for OSTDS Activities

- Goal: Identify available funding sources for OSTDS remediation and upgrade in Florida
- Possible OSTDS funding sources in Florida:
  - ✓ Springs Restoration Fund (Only for basins of impaired springs, project oriented)
  - ✓ Septic Upgrade Incentive Program(Spring basins only. Fund available to homeowners).
  - ✓ 319 (h) Grant (nonpoint source grant, project only)
  - ✓ Clean Water State Revolving Fund (low-interest loan, theoretically available to OSTDSs)
  - ✓ Single Family Housing Repair-Loan and Grant (available for low-income families in rural areas, managed by the United States Department of Agriculture)
  - ✓ Florida Small Cities Community Development Block Grant Program (available to small cities and rural communities)

# Use Clean Water State Revolving Fund (CWSRF) to Assist OSTDS Activities

- 27 states used the CWSRF to assist OSTDS related activities (Lowenstein, 2017).
- We checked CWSRF program webpages of all 50 states and visited other sources. We found 18 CWSRF programs have designated OSTDS funding programs.
- One of the major challenges: how to distribute loans to individual homeowners?
- Several approaches were used:
  - ✓ Direct funding (Used by Delaware and Utah)
  - ✓ Linked deposit (Used by Iowa, Maryland, Nebraska, and Ohio)
  - ✓ Pass-through funding (Other states having designated CWSRF OSTDS funding programs)



# Use Clean Water State Revolving Fund (CWSRF) to Assist OSTDS Activities

- Pass-through funding appears to be used by most states.
- The pass-through funding dispensing approach requires intermediate entities.
- These intermediate entities can be:
  - ✓ Non-profit organizations (including non-profit lending institutes)
  - ✓ Commercial lending institutes
  - ✓ Local communities (counties, cities, townships, wastewater districts, etc.)
- Partnership is the key.
- Zero-interest loan, principal and interest payback at the time of property transfer, principal forgiveness, grant leverage, etc. are mechanisms to assist low-income household.
- CWSRF supply and demand issue can be addressed through the loan leverage.





# Use Clean Water State Revolving Fund (CWSRF) to Assist OSTDS Activities

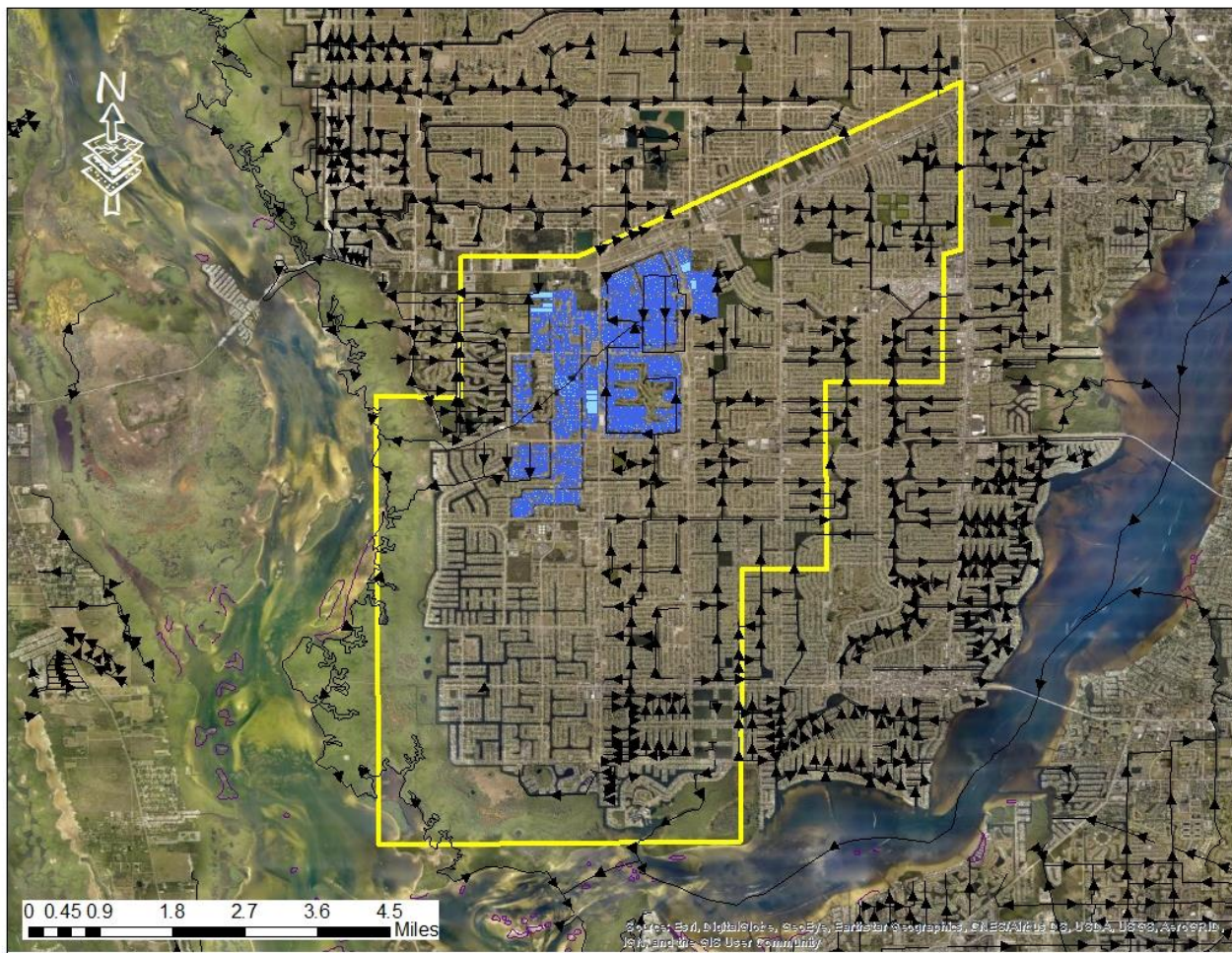
- Florida CWSRF received to date \$1.47 billion and made over \$4.6 billion in loans that covers mostly sewer and wastewater treatment plant projects.
- Florida CWSRF available to homeowners theoretically. But efforts necessary to identify approach to distribute low-interest loans to homeowners.
- Setting up partnerships with non-profit organizations, commercial lending institutes, or local communities
- Piggy-bagging with existing local governmental loan dispensing structures – County Department of Housing
- Efforts need to be made.

# OSTDS Environmental and Health Effect – Preliminary Case Study Data Review

- Numerous studies evaluated OSTDS environmental effects by analyzing groundwater impacts from individual OSTDS system. Studies on OSTDS regional impact less common
- Look for a before-after case study to examine the OSTDS regional impact on the environment (see Town of Suwannee study)
- Septic to sewer conversion project in Cape Coral Utility Southwest 6 & 7 area, construction between October 2013 and April 2015



# Location of Project Area and General Flow Direction



- Blue area – Southwest 6&7 area.
- Yellow boundary – Cape Coral Study Area.
- Black lines with arrows – 100 K National Hydrographic Dataset with flow direction.

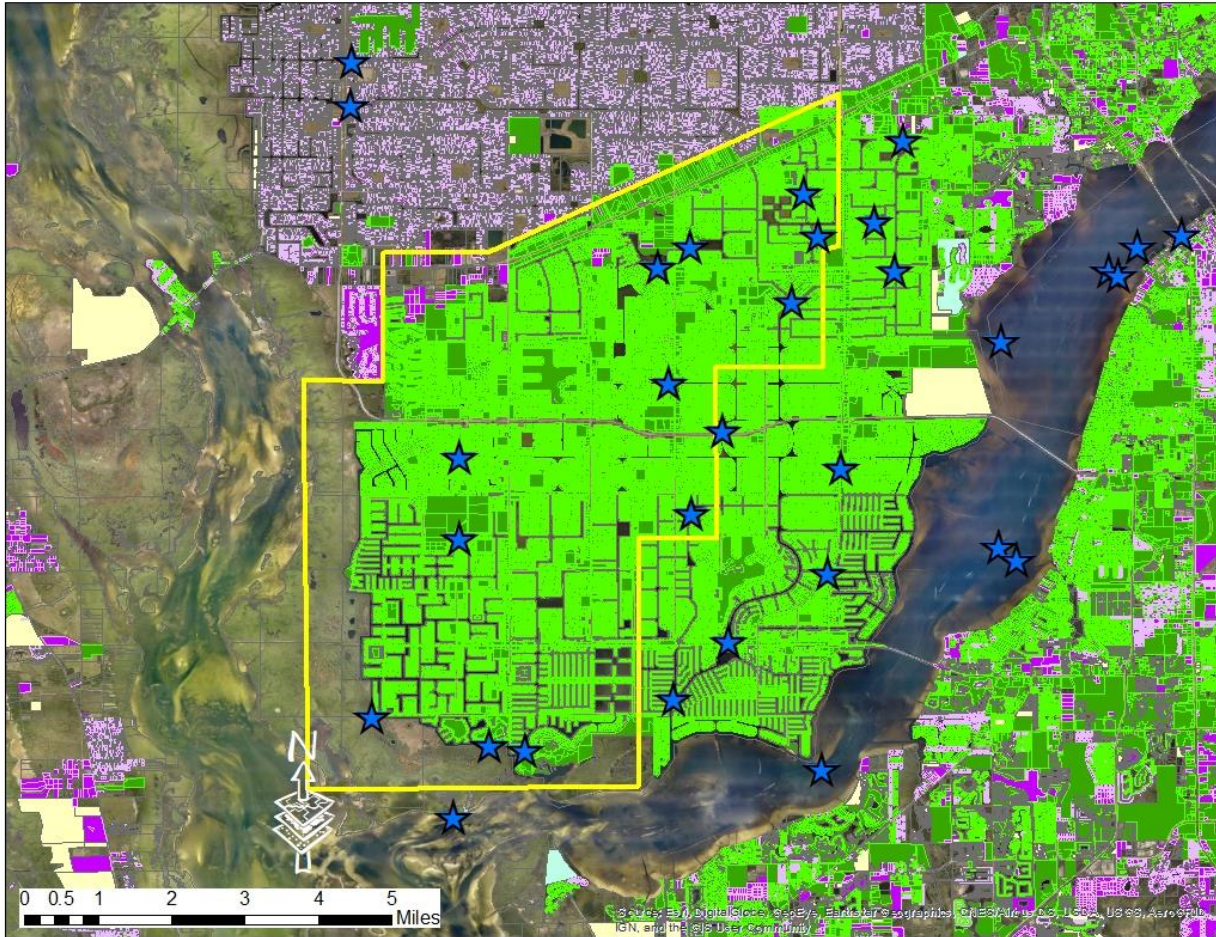
# OSTDS Environmental and Health Effect – Preliminary Case Study Data Review

- Selected water quality stations in and around project area that have data from January 2007 through May 2019 from Impaired Waters Rule database:
  - ✓ Located inside the project area
  - ✓ Located outside the project area in OSTDS area
  - ✓ Located outside the project area in sewerage area
  - ✓ Located in river and estuary
- TN concentration data in the periods of January 2007 – April 2015 and May 2015 – May 2019 were aggregated separately
- Kruskal-Wallis tests for statistically significant difference



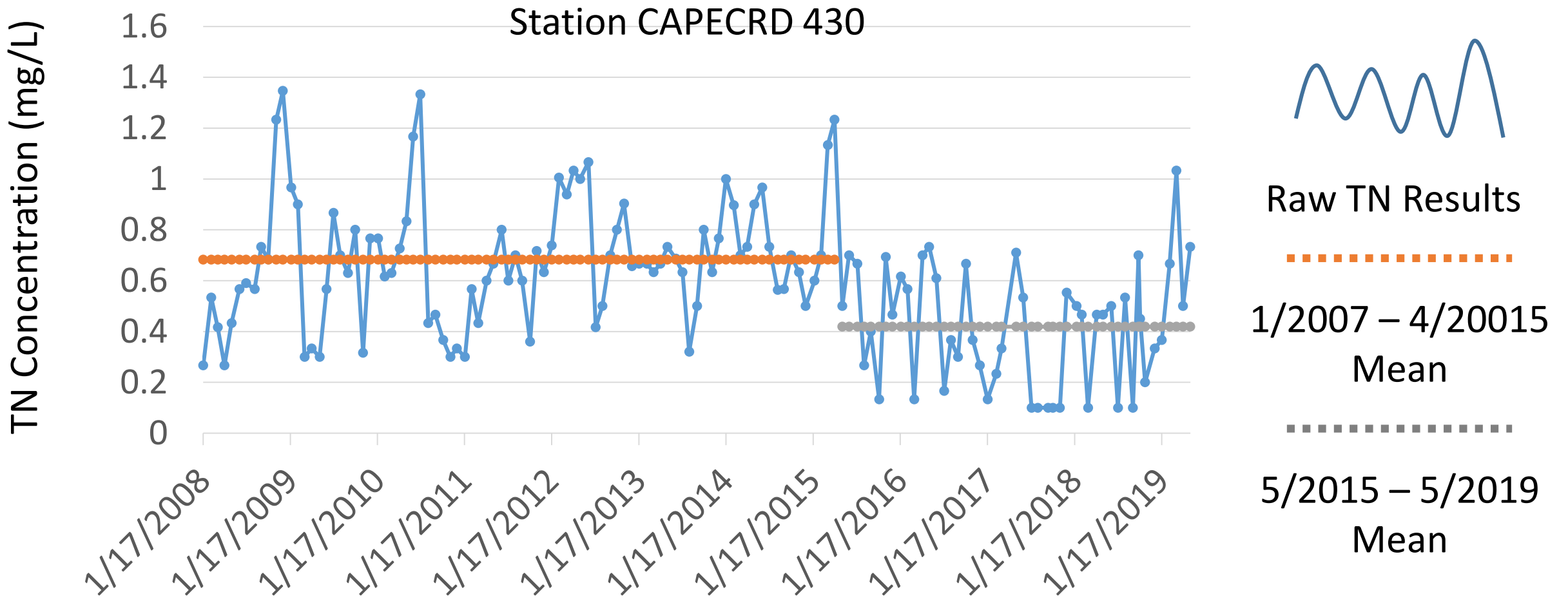


# Location of Project Area and Water Quality Stations Selected

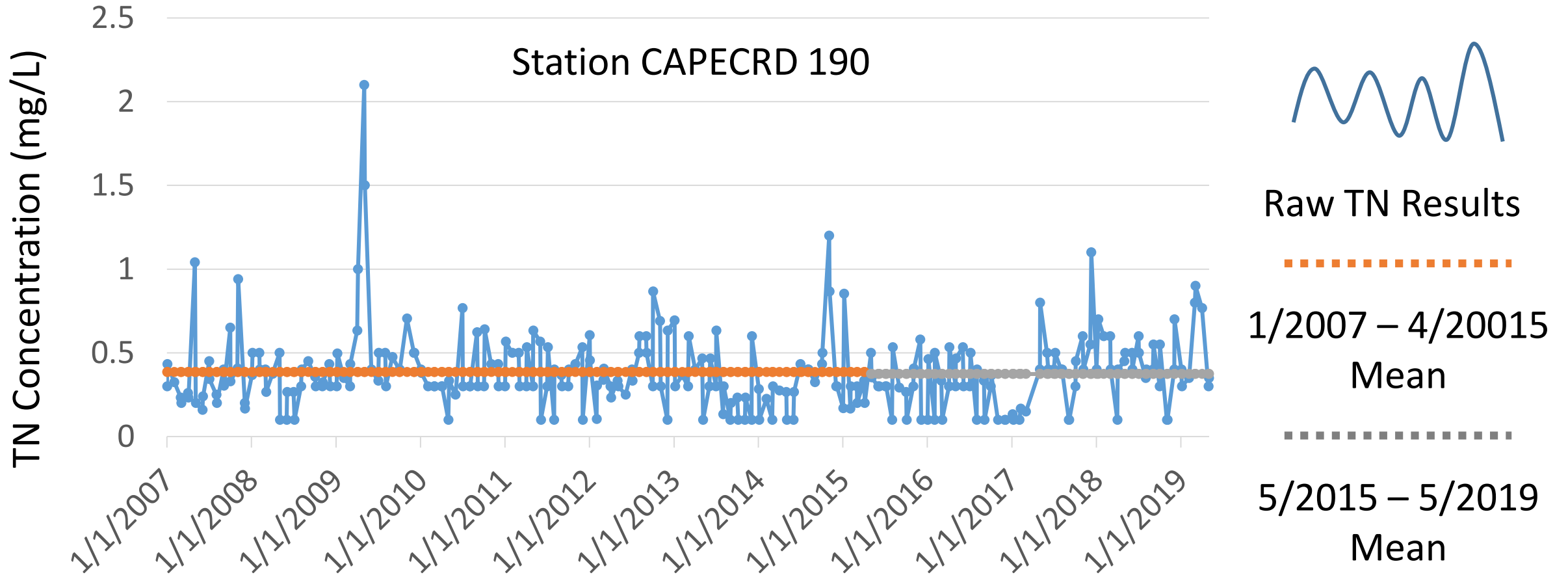


- Yellow polygon - project area.
- Green areas now (2018) sewerage
- Purple areas now (2018) OSTDS
- Blue stars are locations for selected water quality stations.

# TN over Time at Station in Project Area



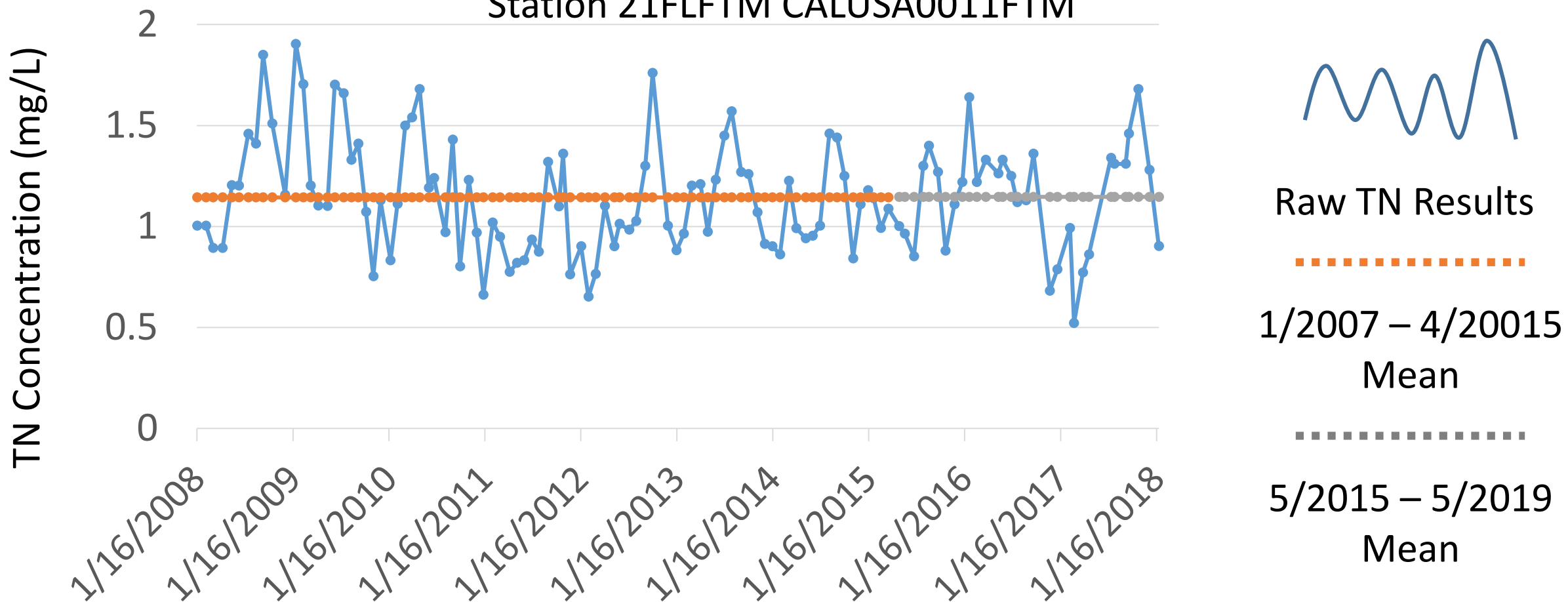
# TN over Time at Station Outside Project Area



# TN over Time at Station in the Caloosahatchee River

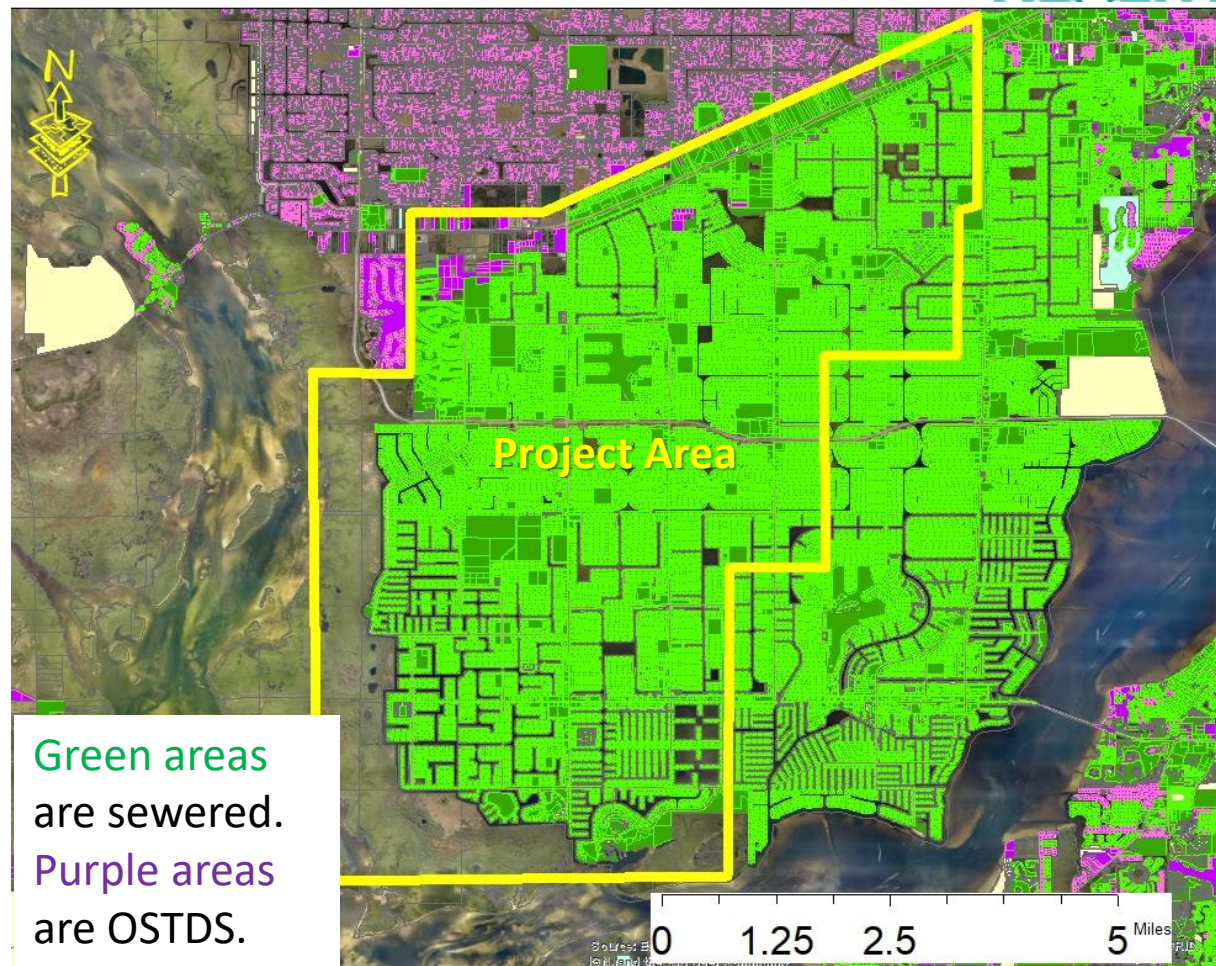
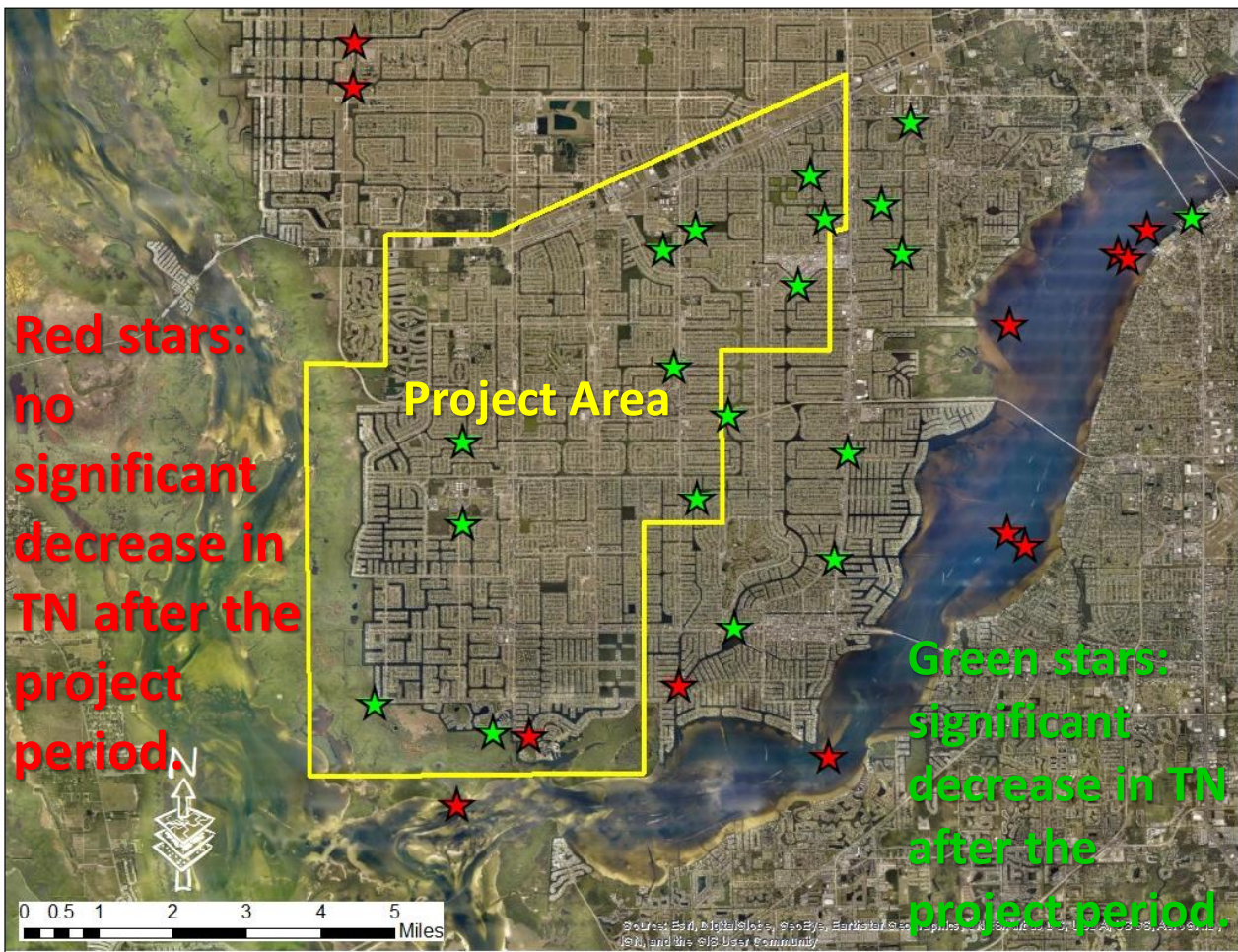


Station 21FLFTM CALUSA0011FTM





# Results of Kruskal-Wallis Analyses





# Data Collection for the OSTDS Non-Conformance Frequency and Preliminary Analyses

- Project goal:
  - ✓ Define types of “failure” or system non-conformance to the OSTDS rule
  - ✓ Estimate frequency of different types of non-conformance
- Sources of data identified:
  - ✓ St. Johns River Septic Enforcement Project
  - ✓ Suwannee River Floodplain Onsite Sewage Disposal System Inventory study
  - ✓ Point-of-sale septic inspection – Escambia and Santa Rosa Counties
  - ✓ Mandatory septic inspection required by Charlotte County ordinance
  - ✓ Mandatory septic inspection required by Lake and Polk County ordinances for systems in the Area of Critical State Concern (ACSC) in Green Swamp area

# Example: Santa Rosa Mandatory Point-of-Sale Septic Inspection

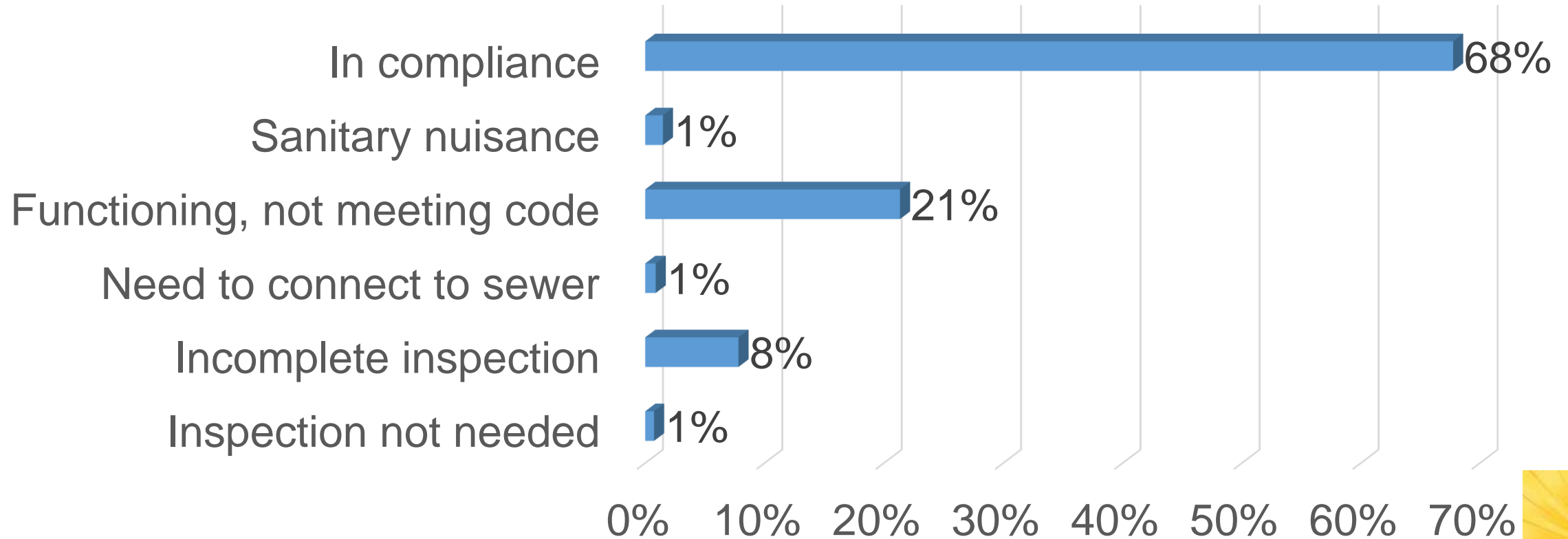
- County required point-of-sale septic tank inspection from 2000 to 2012
- Inspection items included:
  - ✓ Cracks, leaks, improper fit or other defects in the tank
  - ✓ Missing or damaged component of the system
  - ✓ Indicators of previous failure
  - ✓ Ponding of the drainfield or uneven distribution of effluent
  - ✓ Downspouts, stormwater, or other sources of water directed toward the OSTDS
  - ✓ Seasonal high water table at or above the elevation of the drainfield
  - ✓ Conditions or situations that may possibly interfere with or restrict future repair or modifications

# Preliminary Classification of Inspection Results

- System in compliance
- Sanitary nuisance (tank damaged, drainfield ponding, wastewater on ground, etc.)
- No sanitary nuisance, but not in compliance with the existing rule (not meeting the seasonal high water table separation, drainfield or septic tanks were smaller than required, septic system components missing or damaged, etc.)
- Incomplete system inspection either due to code requirement or site condition
- System needs to connect to available sewer
- System inspection not needed



# Preliminary Estimation of the Frequency of Inspection Results



# Next Steps

- Apply for funding to update FLWMI
- Replace the lignocellulose media in FOSNRS's nitrogen-reducing media system BHS5 and conduct more monitoring on BHS4 and BHS5
- Identify sites and monitor in-ground nitrogen-reducing biofilter (INRB) to evaluate performance and reliability
- Solicit provider to implement additional case studies on OSTDS environmental and health effects
- Apply for funding to monitor nitrogen-reducing aerobic treatment systems that meet the national sanitation foundation (NSF) standard 245
- Update research program website



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