



**TOWN OF BLUFFTON TOWN COUNCIL  
& BEAUFORT COUNTY COUNCIL  
JOINT WORKSHOP**

Rotary Community Center  
11 Recreation Court, Bluffton, SC  
Tuesday, February 25, 2020 | 11 AM – 12 PM

- 
1. Call to Order – Mayor Sulka
  2. Public Comments – Pertaining only to Agenda Items
  3. Workshop Items:
    - a. [Historical Analysis of Water Quality Trends in the May River – Dr. Eric Montie, M.S. Ph.D., Associate Professor of Biology, University of South Carolina](#)
    - b. [Sanitary Sewer Extension and Connection in the May River Watershed](#)
    - c. Discussion
  4. Adjournment

“FOIA Compliance – Public notification of this meeting has been published and posted in compliance with the Freedom of Information Act and the Town of Bluffton policies.”

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 ("ADA"), the Town of Bluffton will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs, or activities. The Town of Bluffton Council Chambers are ADA compatible. Any person requiring further accommodation should contact the Town of Bluffton ADA Coordinator at 843.706.4500 or [adacoordinator@townofbluffton.com](mailto:adacoordinator@townofbluffton.com) as soon as possible but no later than 48 hours before the scheduled event.

\*Please note that each member of the public may speak at one public comment session and a form must be filled out and given to the Town Clerk. Public comment must not exceed three (3) minutes.

# Historical Analysis of Water Quality and Climate Change Endpoints and Monitoring of Natural Resources in the May River



<sup>1</sup> Eric W. Montie, M.S., Ph.D., and Jamileh Soueidan

<sup>2</sup> Alan Warren, M.P.H., Ph.D.

<sup>3</sup> Mike Pearson

<sup>1</sup> USCB Marine Sensory and Neurobiology Lab

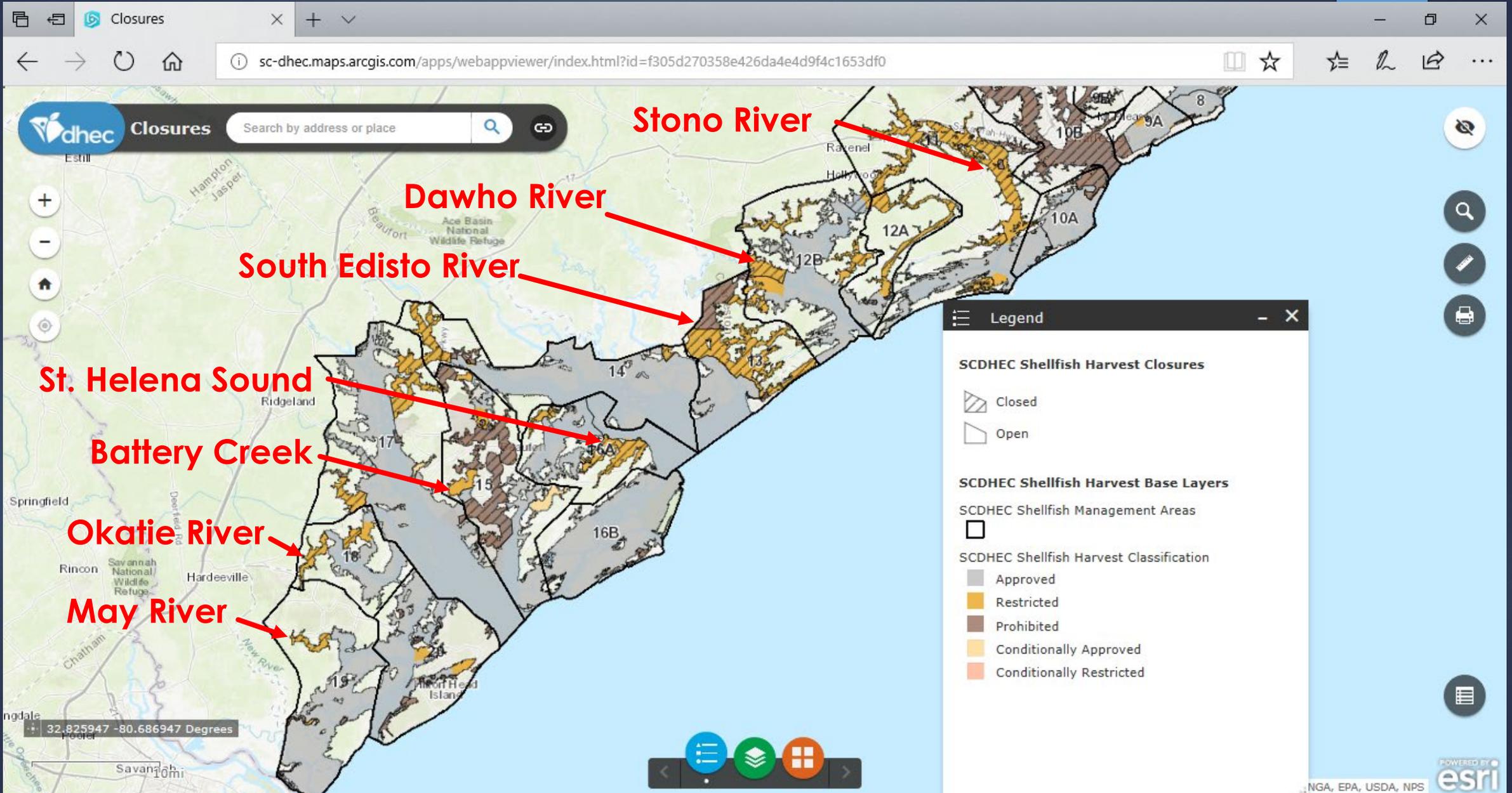
<sup>2</sup> USCB Water Quality Lab

<sup>3</sup> SCDHEC

# Scope of Work

- A. Historical Analysis of SCDHEC Shellfish Monitoring Data
- B. Understanding Factors that Influence Fecal Coliform Levels
- C. Mining of Other Historical Chemical, Physical, and Biological Data
- D. Comparing Historical Data of the May River to Other Watersheds
- E. Novel Techniques to Monitor Our Natural Resources in the May River

# Shellfish Closures from Savannah to Charleston

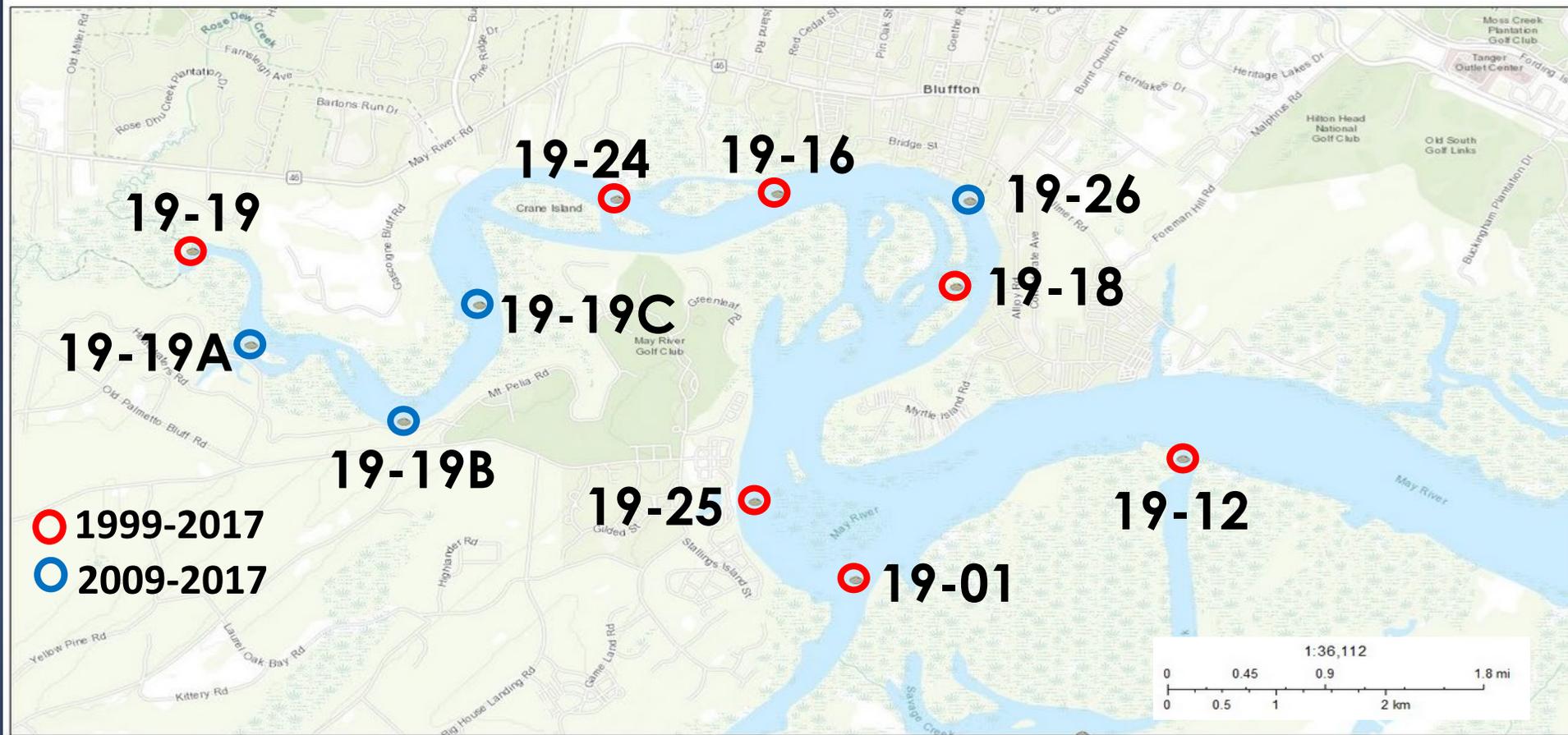


# SCDHEC Sampling

- Salinity & fecal coliform analysis was performed at 7 stations along the May River once a month from 1999-2017
- 4 additional stations were added in 2009 because of shellfish closures

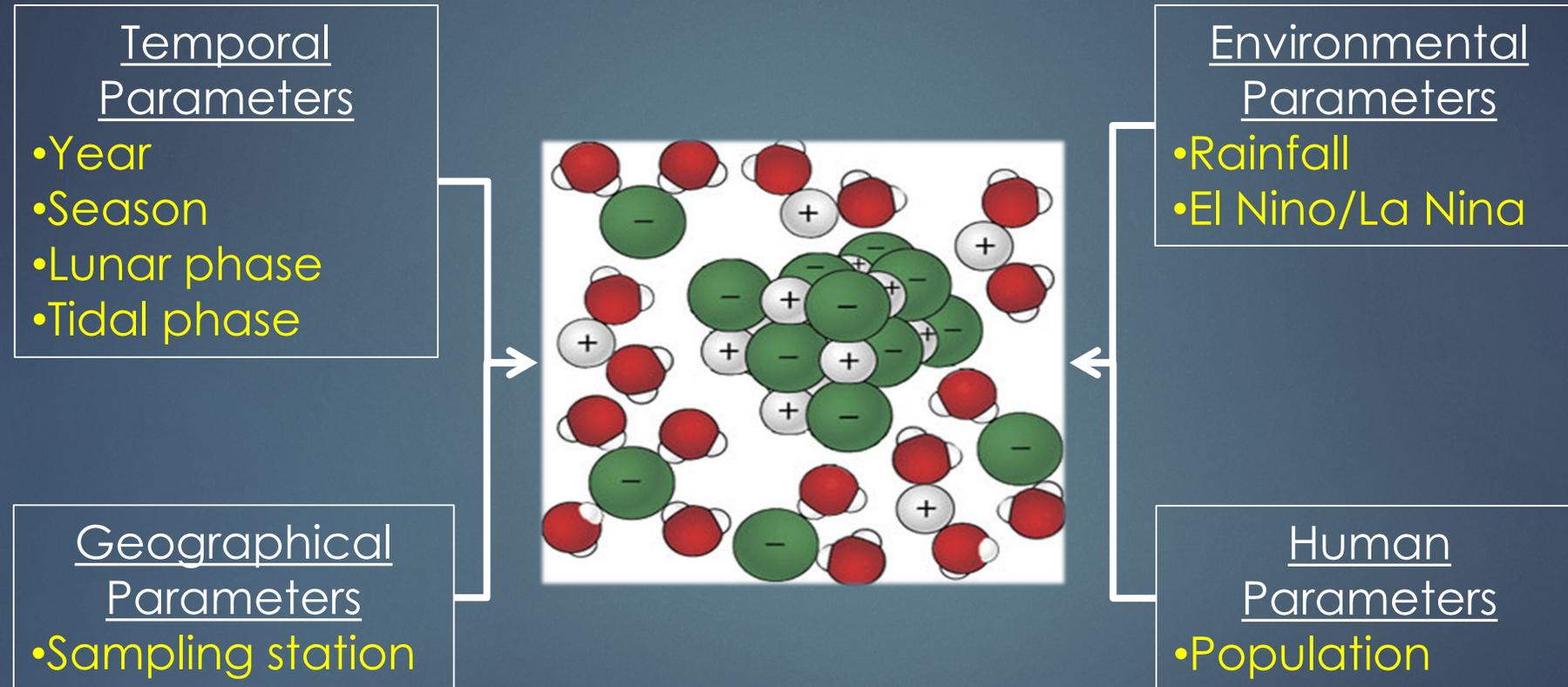


# SCDHEC Shellfish Monitoring Stations



- Near headwaters = more sensitive to freshwater input
- Near mouth = less sensitive to freshwater input

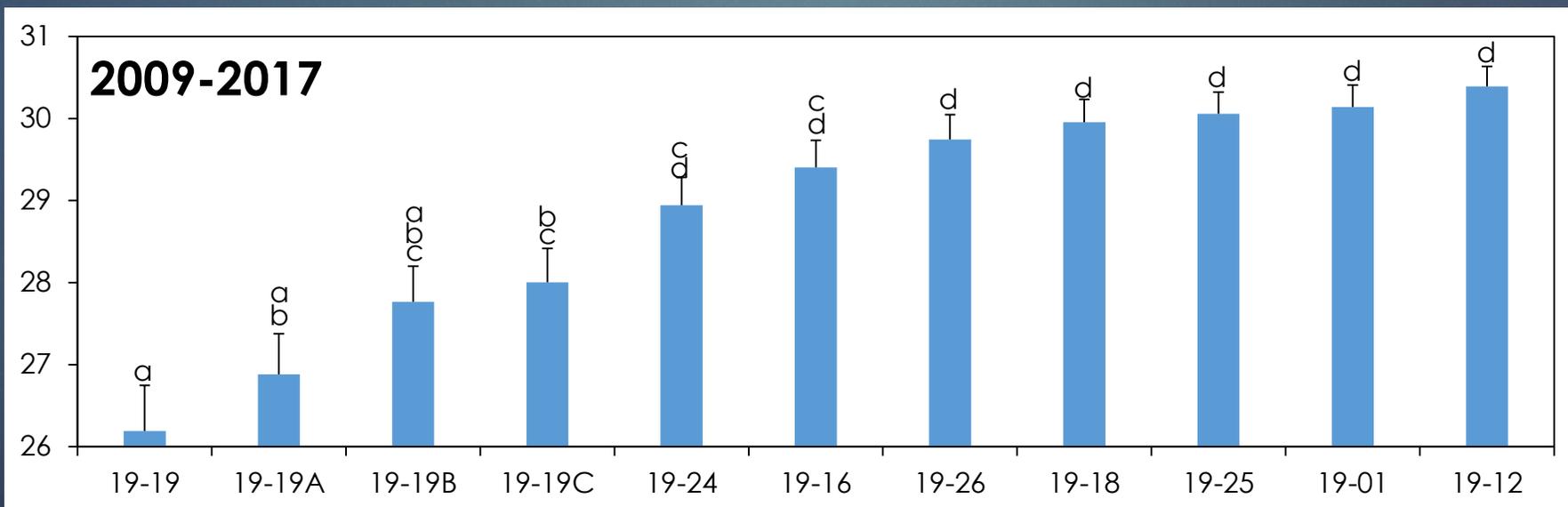
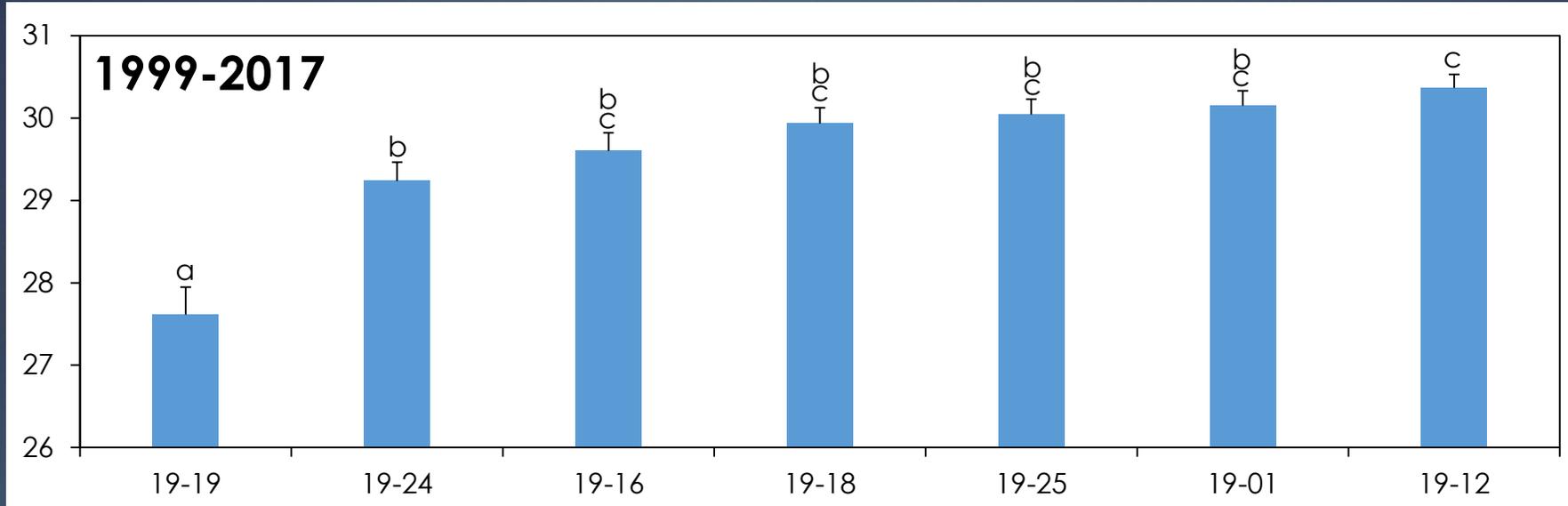
# Understanding Factors that Influence Salinity Levels in the May River



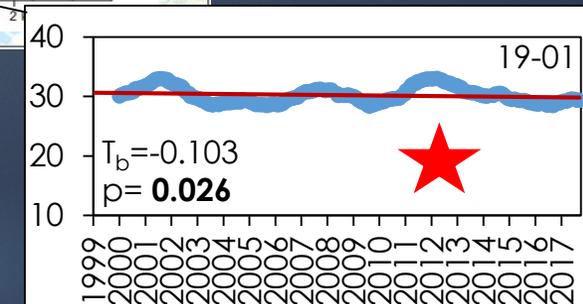
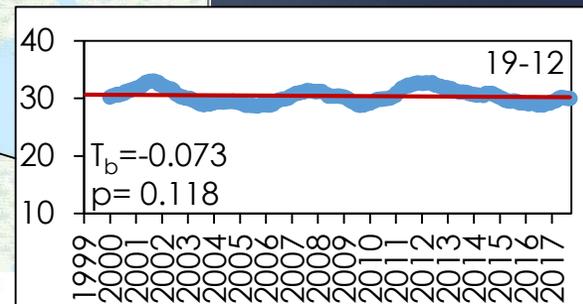
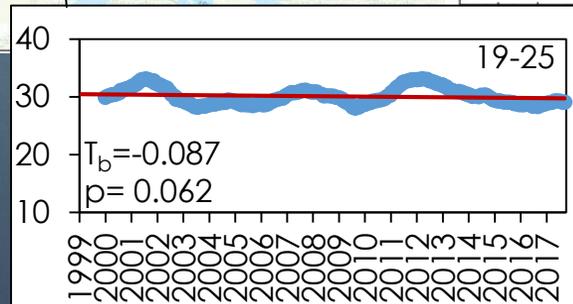
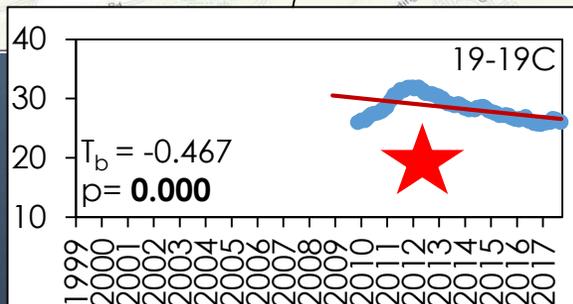
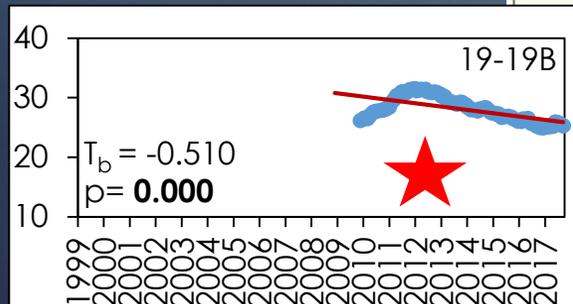
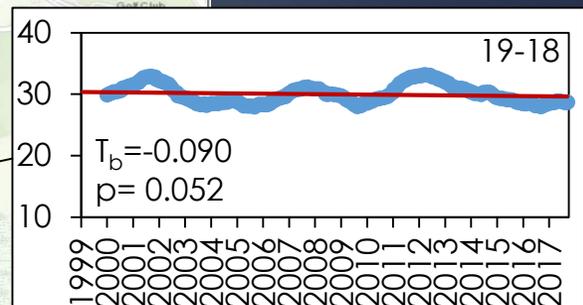
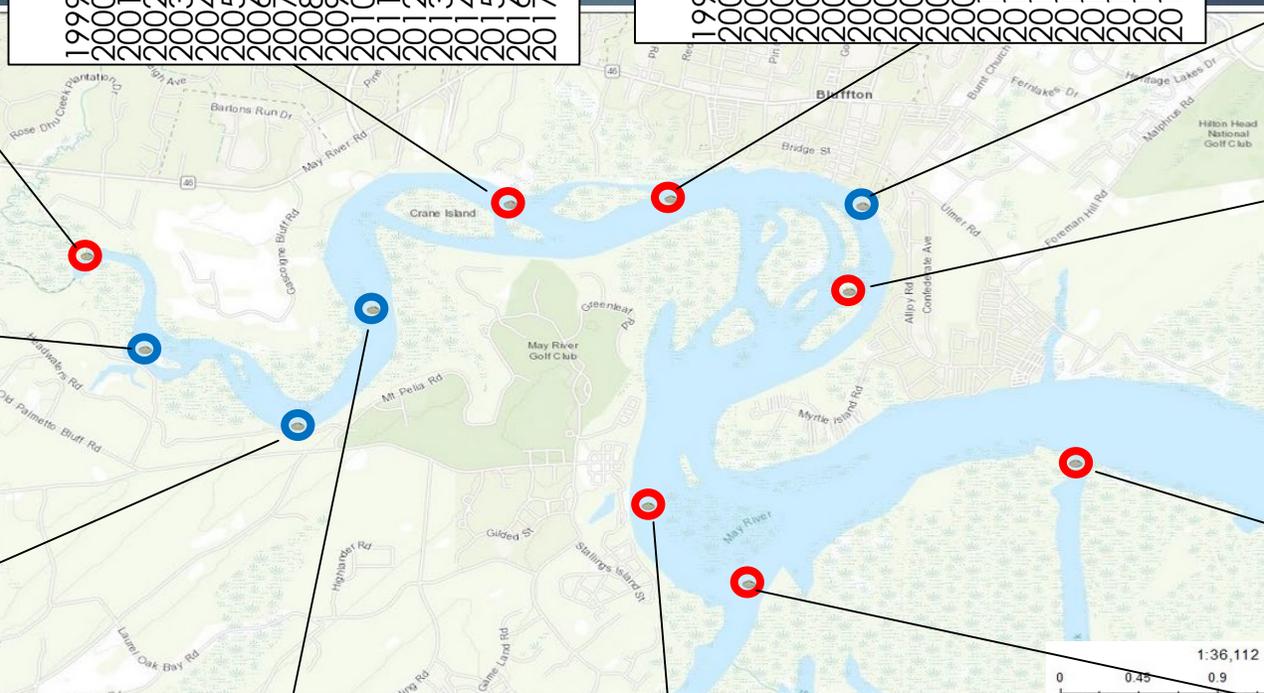
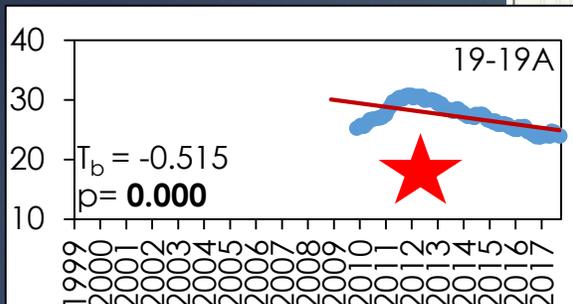
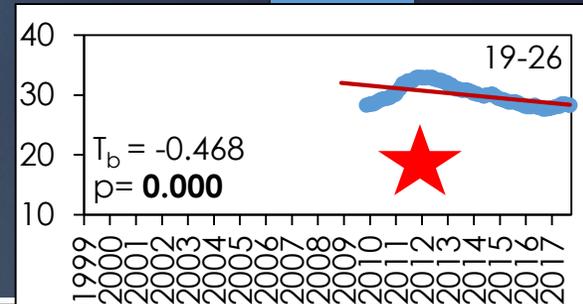
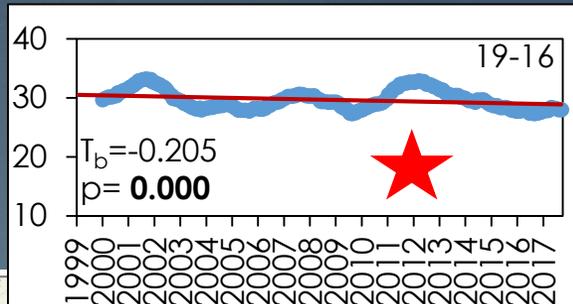
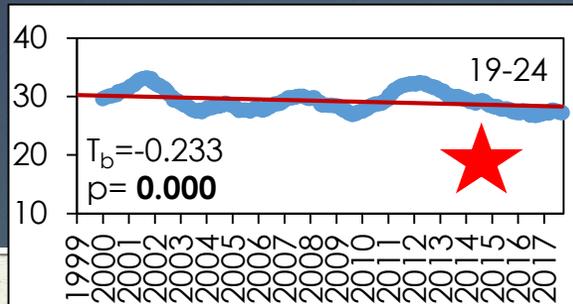
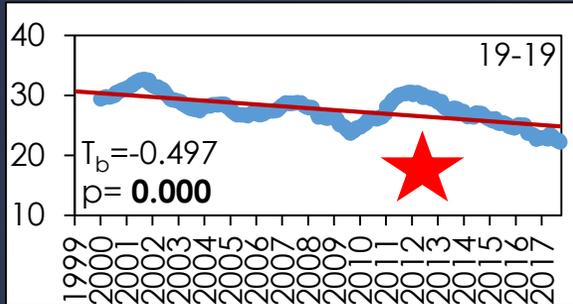
\*We applied general linear models for the two datasets (1999-2017 and 2009-2017) to determine whether factors significantly influenced salinity.

# Location Affects Salinity

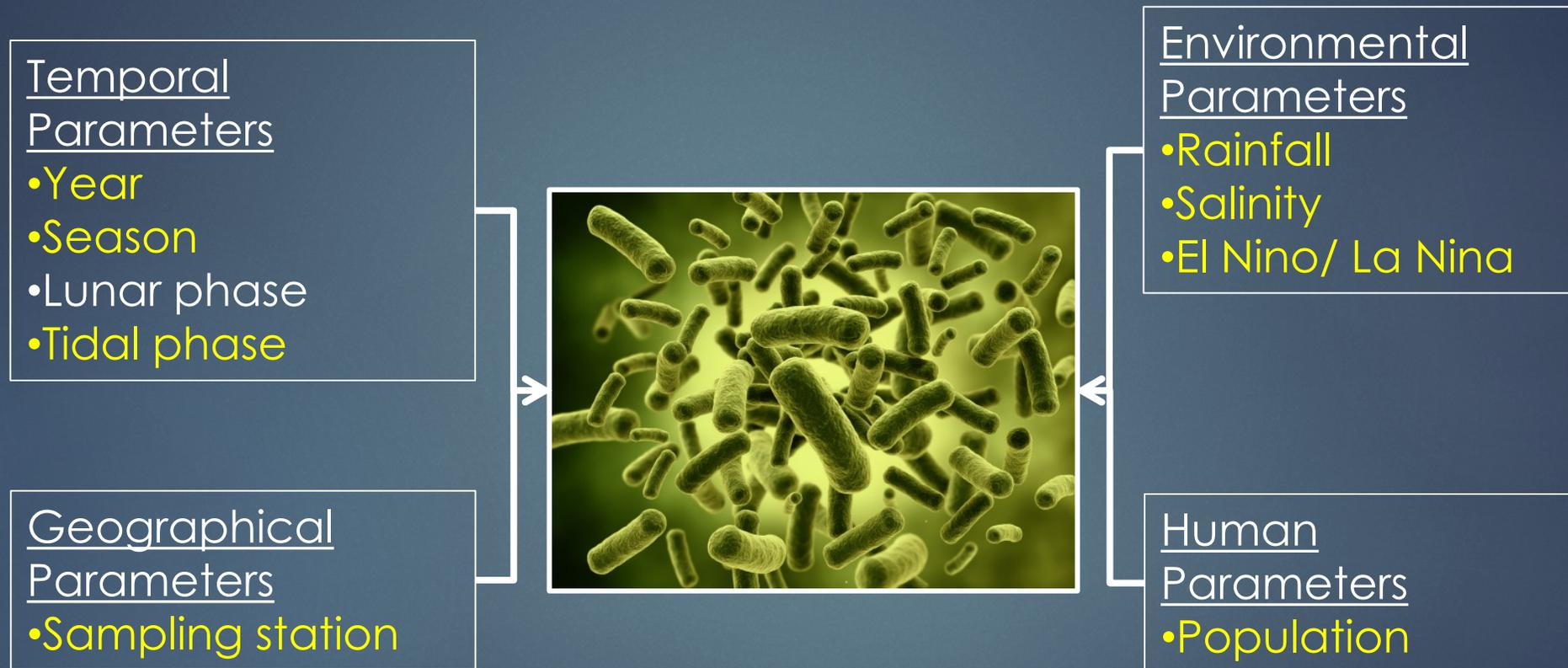
Salinity (‰)



# Historically - Salinity Levels Have Decreased



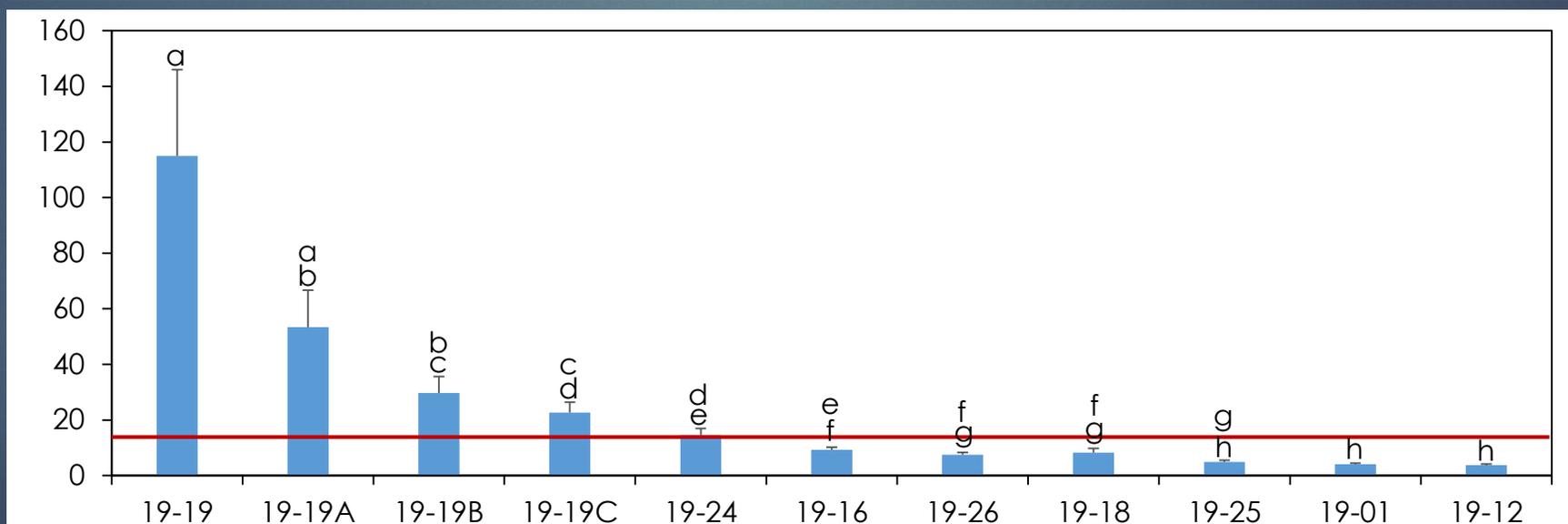
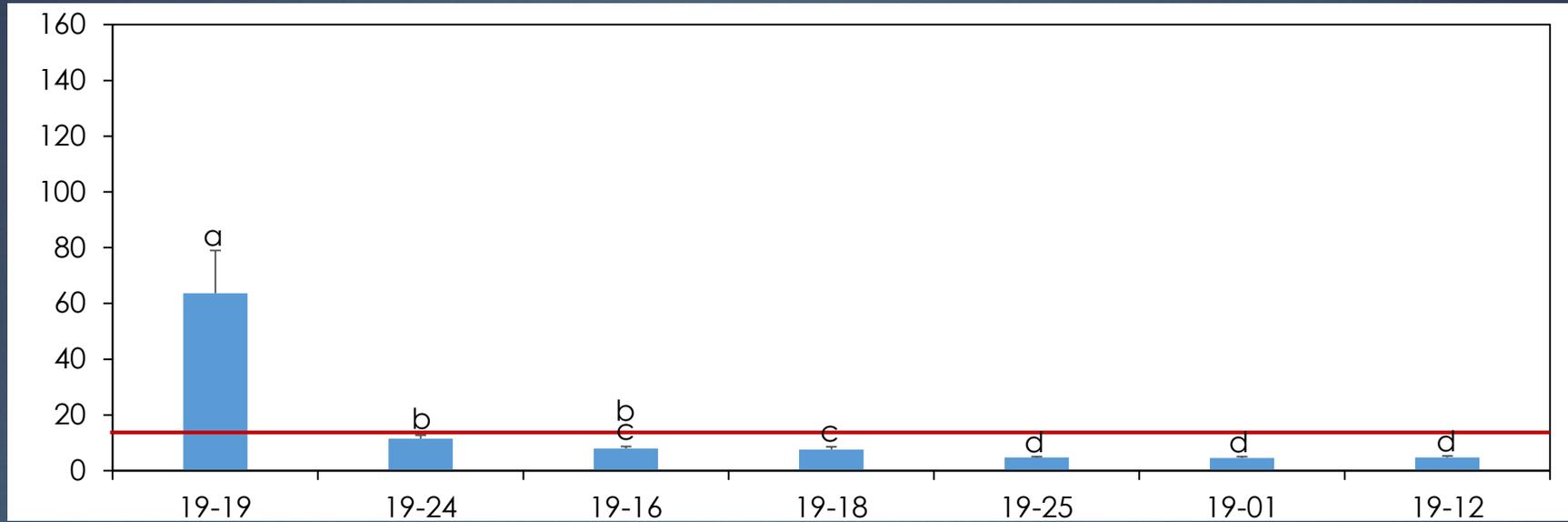
# B. Understanding Factors that Influence Fecal Coliform Levels in the May River



\*We applied general linear models for the two datasets (1999-2017 and 2009-2017) to determine whether factors significantly influenced fecal coliform levels.

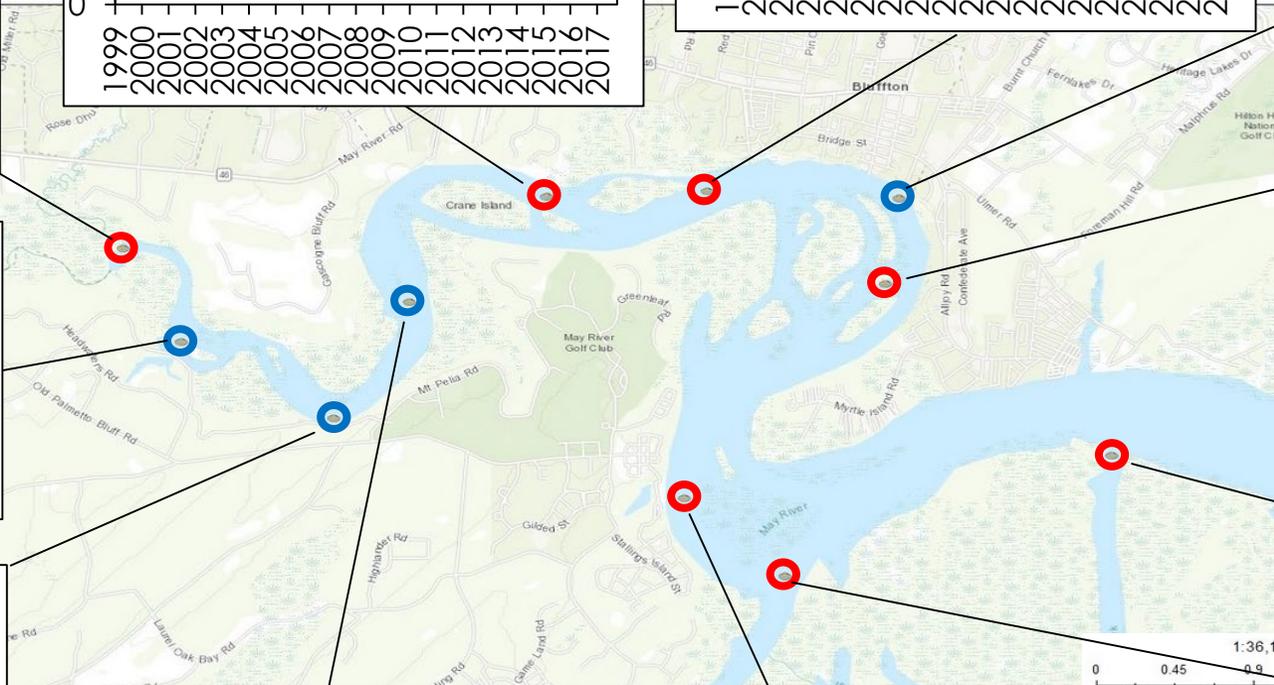
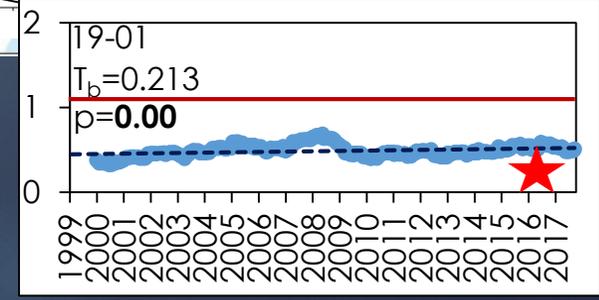
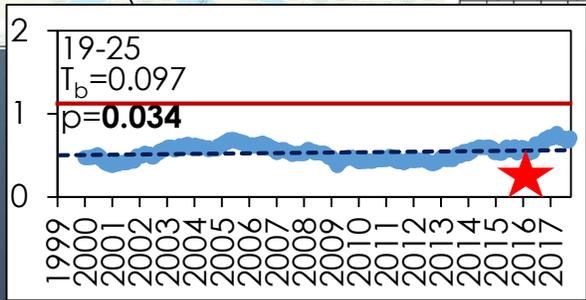
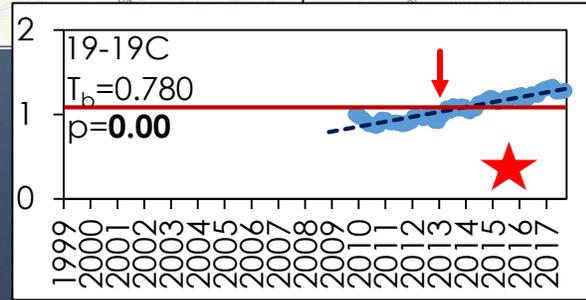
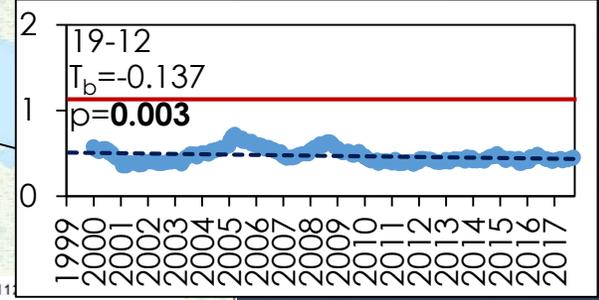
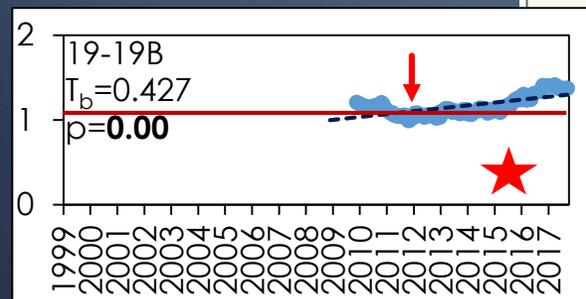
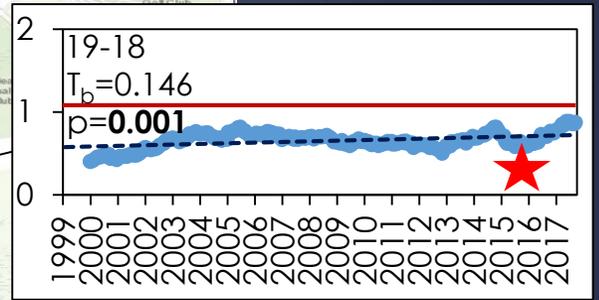
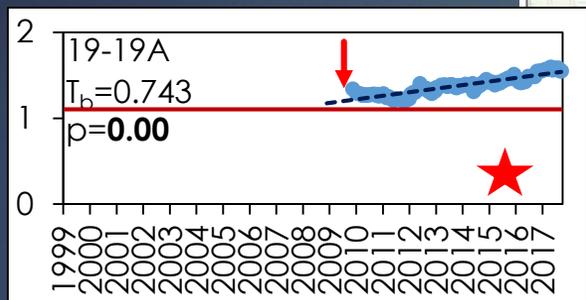
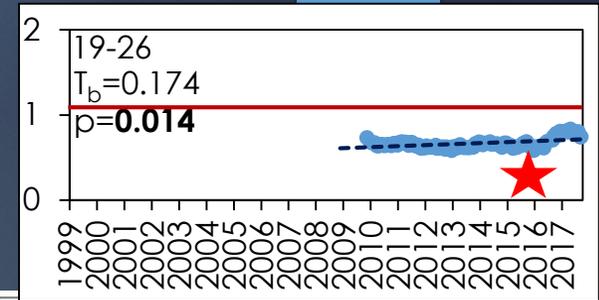
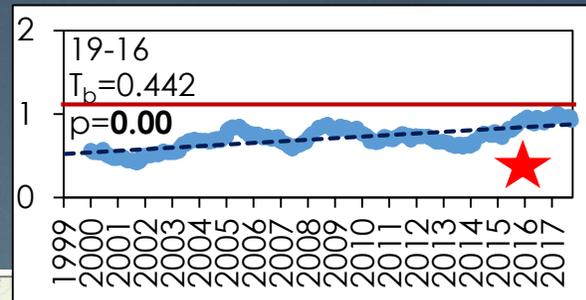
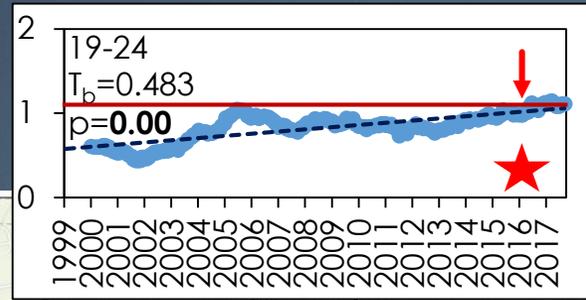
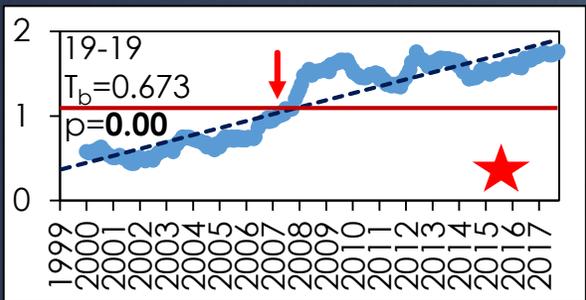
# Location Influences Fecal Coliform Levels

Fecal Coliform (MPN per 100 mL)

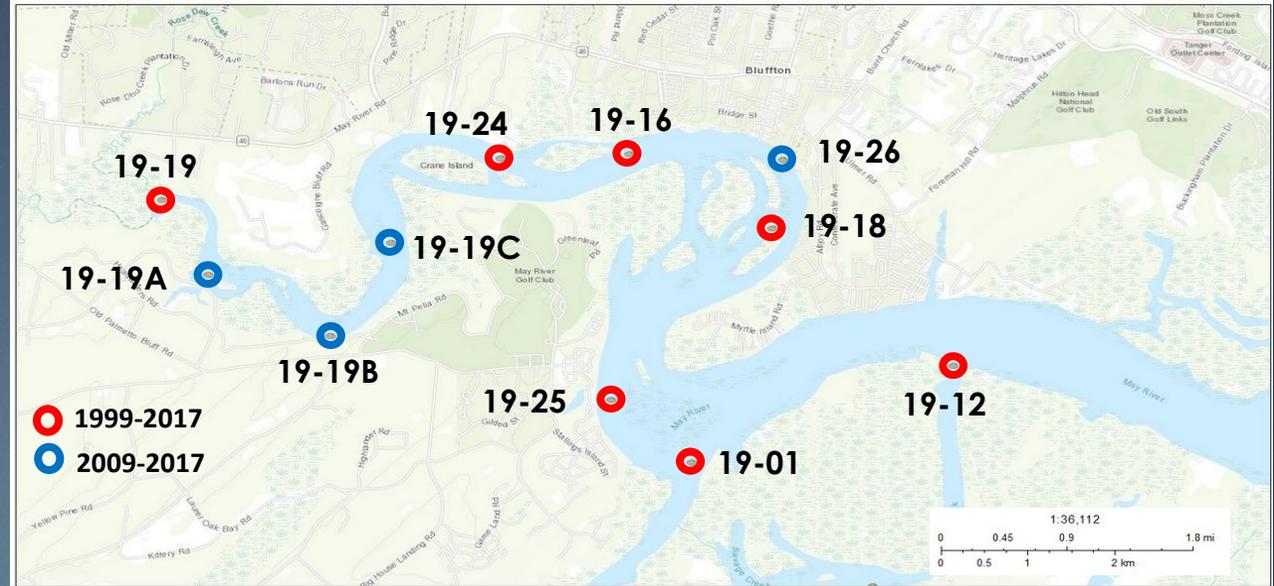


Station

# Historically - Fecal Coliform Levels Have Increased throughout the May River

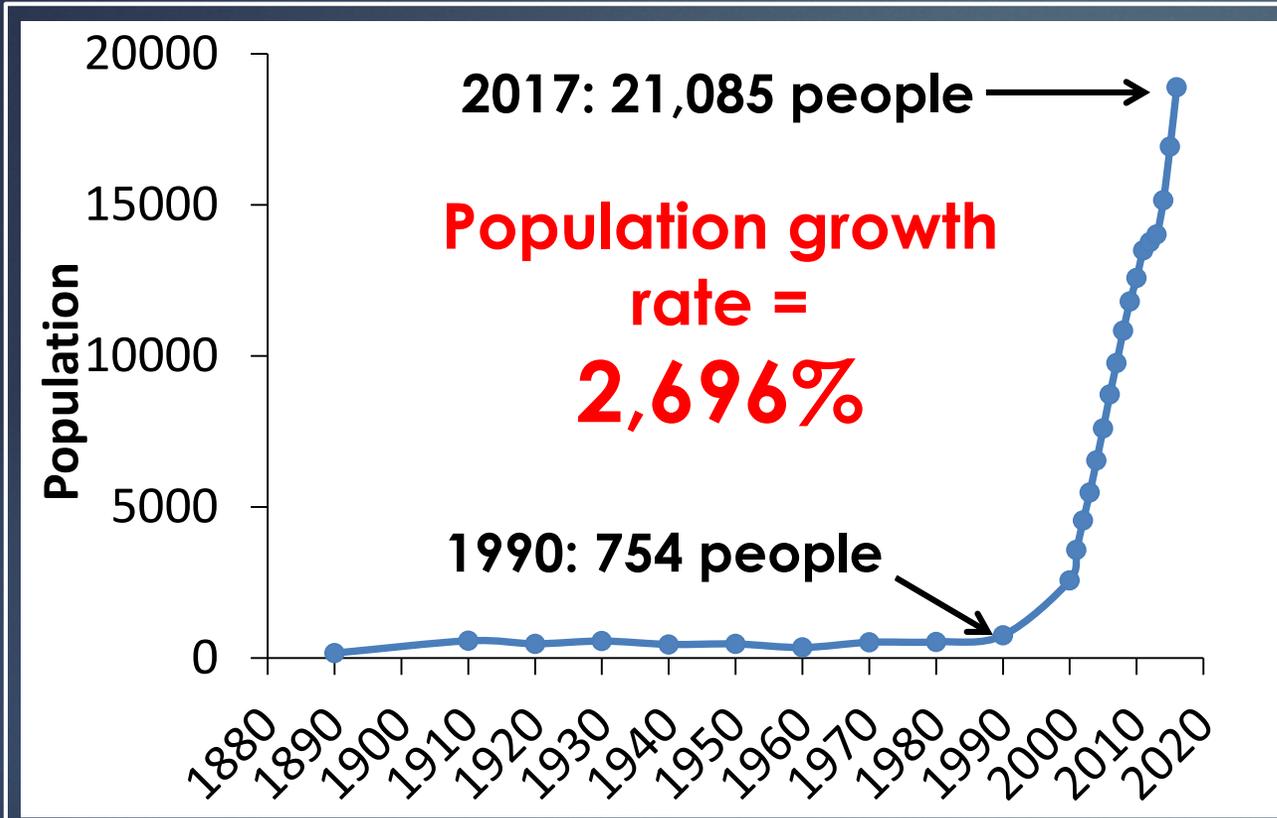


# Average Fecal Coliform Levels in 1999, 2009, and 2017



	1999	2009	2017	% Incr.
19-19	6.73 ± 2.38	52.69 ± 16.68	218.57 ± 130.59	3150
19-19A	-	27.25 ± 7.19	115.22 ± 73.72	323
19-19B	-	21.41 ± 6.26	71.26 ± 43.70	233
19-19C	-	12.82 ± 2.78	39.88 ± 18.77	211
19-24	6.64 ± 1.95	11.80 ± 4.45	33.43 ± 17.45	403
19-16	5.89 ± 1.35	8.79 ± 1.82	15.92 ± 4.91	170
19-26	-	6.90 ± 1.91	10.09 ± 2.82	46
19-18	3.96 ± 1.75	4.49 ± 0.97	12.61 ± 3.57	219
19-25	4.57 ± 0.84	3.28 ± 0.65	8.86 ± 2.81	94
19-01	2.97 ± 0.77	3.71 ± 0.96	4.74 ± 1.25	60
19-12	6.48 ± 1.41	4.65 ± 1.17	4.87 ± 1.86	-25

# Exponential Growth of Bluffton



United States Census Bureau  
<https://www.census.gov/programs-surveys/popest/data/data-sets.html>

- Forested land decreased
- Impervious surface increased
- More storm-water runoff
- Salinity drops in headwaters
- Conducive for fecal growth

# Key Points

## Climate Change



More El Nino Events



Increasing Population



Increasing Stormwater Runoff



More Impervious Surface & Loss of Forested Land

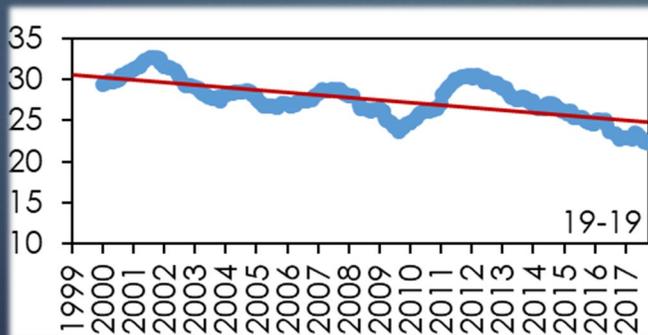


More Septic Failures

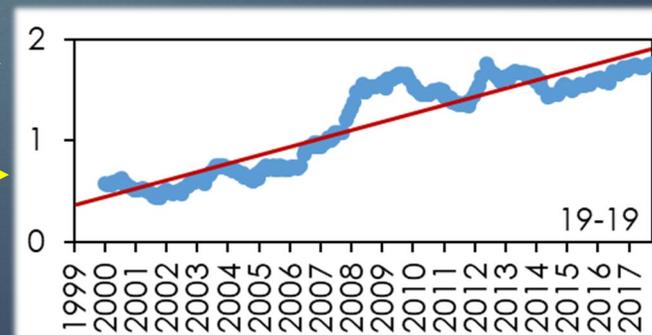
Increasing Rainfall



Decreasing Salinity



Increasing Fecal Coliform



# Recommendations

## CHANGE LAND MANAGEMENT PRACTICES:

1. Create an “Environmental Sustainability Committee”
2. Do we have a land management plan?
3. Protect critical habitats and preserve future natural habitats & ecosystems
4. Maximize & restore undisturbed, forested & wetland habitats (NOT lawns or fields)

## CHANGE DEVELOPMENT STANDARDS:

1. STOP clear-cutting development sites
2. MANDATE “Better Site Design” - cluster development & maximize natural, preserved open space
3. PROTECT isolated, “pocket” wetlands that are not currently protected by Federal regulation
4. PREVENT fill from changing topography/characteristics of a development site

## REDUCE DENSITY AND IMPERVIOUS SURFACE:

1. How much more impervious surface?
2. How much density/surface needs to be retired/mitigated to stop/reverse water quality?
3. Land preservation - purchase critical areas for density reduction beyond “headwaters”

## CONTINUE TO MONITOR (and NOT JUST FECAL COLIFORM):

1. Plan → implement → monitor → modify → repeat
2. pH, dissolved oxygen, natural resources

# Next Steps

## A. Continuing Historical Analysis of SCDHEC Salinity & Fecal Coliform

- Publication of May River data in peer-reviewed literature
- Continue historical analysis from 2018 – 2022; improvement?
- Add **impervious surface** & **forested land** as factors in models.
- Conduct analyses on other Beaufort County watersheds, which will provide insight on **susceptibility** and **resistance**.

## B. Mining of Other Historical Data

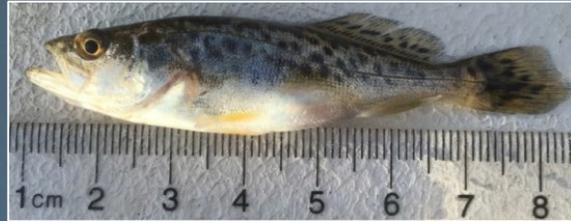
May River,

- YSI monthly 2015-present: **water temperature, pH, salinity, & DO**
- Continuous loggers 2013-present: **water temperature & depth**
- Datasonde continuous 2014: **salinity**

Regionally,

- NERRS sites continuous: **salinity, pH, DO, depth, water temp, nutrients, & chlorophyll**
- NOAA buoys continuous: **water temperature & water level**
- These data help with interpretation of May River data

# Important – Monitoring Natural Resources Invertebrates, Fish, and Dolphins



- Tracking fish spawning (2013 – 2022)
- Tracking abundance of invertebrates & fish (2016 – 2022)
- Monitoring bottlenose dolphin abundance (2015 – 2022)

# Acknowledgements and Funding

## Special Thanks to:

- Jamileh Soueidan (USCB MSN Lab; CoC)
- Agnieszka Monczak (USCB MSN Lab; University of Aberdeen Scotland)
- Alyssa Marian (USCB MSN Lab; CoC)
- May River Watershed Action Plan Advisory Committee (WAPAC)
- Beaufort County Storm Water Utility Board

## Funding:

- Town of Bluffton
- Beaufort County





EXTRA SLIDES

# El Nino Southern Oscillation

El Nino Southern Oscillation (ENSO) is a periodical fluctuation in Earth's Climate that affects:

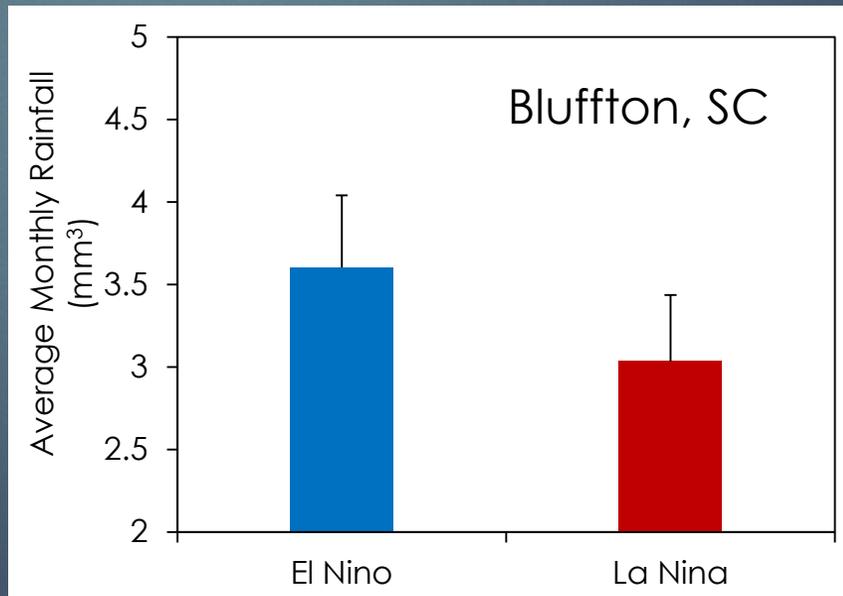
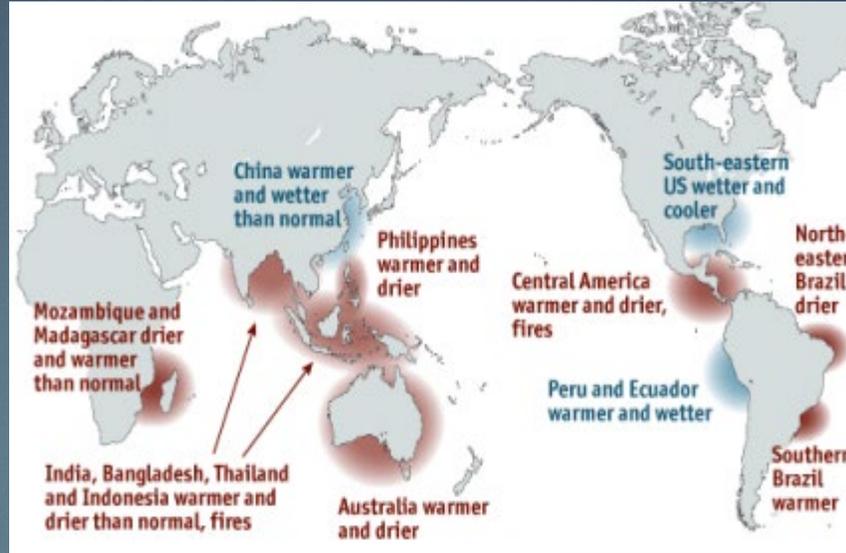
- Sea surface temperature over the equatorial Pacific Ocean (El Nino and La Nina)

El Nino:

- Southeast US wetter and cooler

La Nina:

- Southeast US dryer and warmer



# Using a General Linear Model to Analyze Data

- A General Linear Model (GLM) was used to statistically determine if certain factors influence salinity levels in the May River
- To use the GLM, the dataset must meet certain assumptions or additional statistical analyses will need to be conducted
  - Normal Distribution
  - Equality of Variances
- We conducted two different GLMs on the long-term salinity data gathered by SCDHEC

# General Linear Model Results

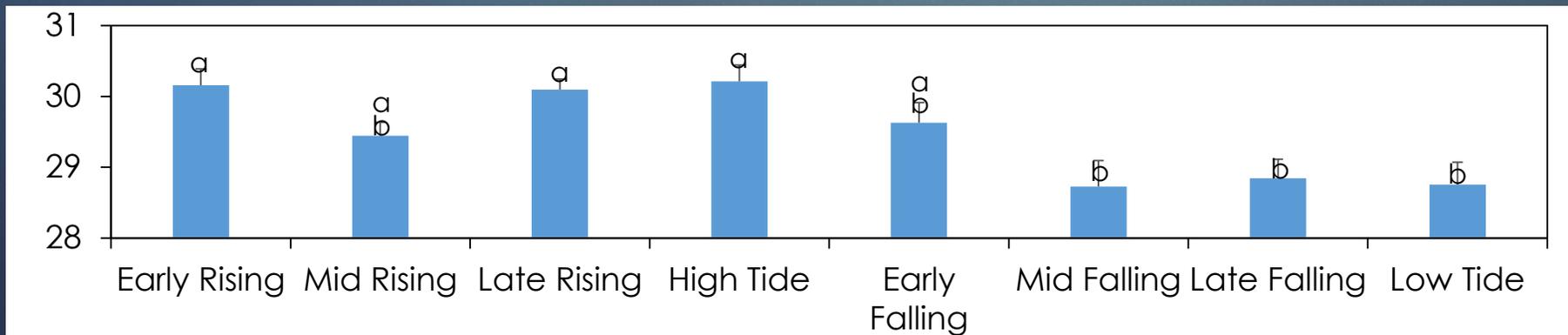
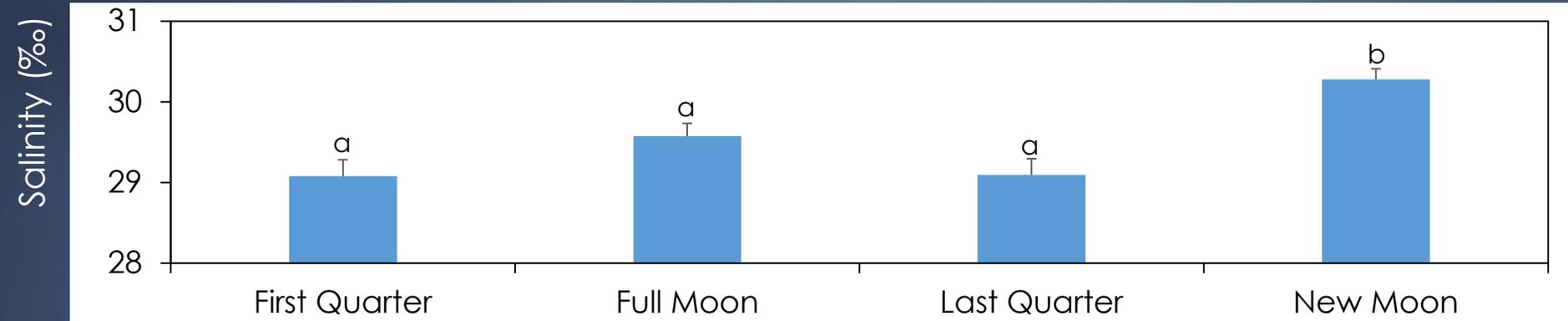
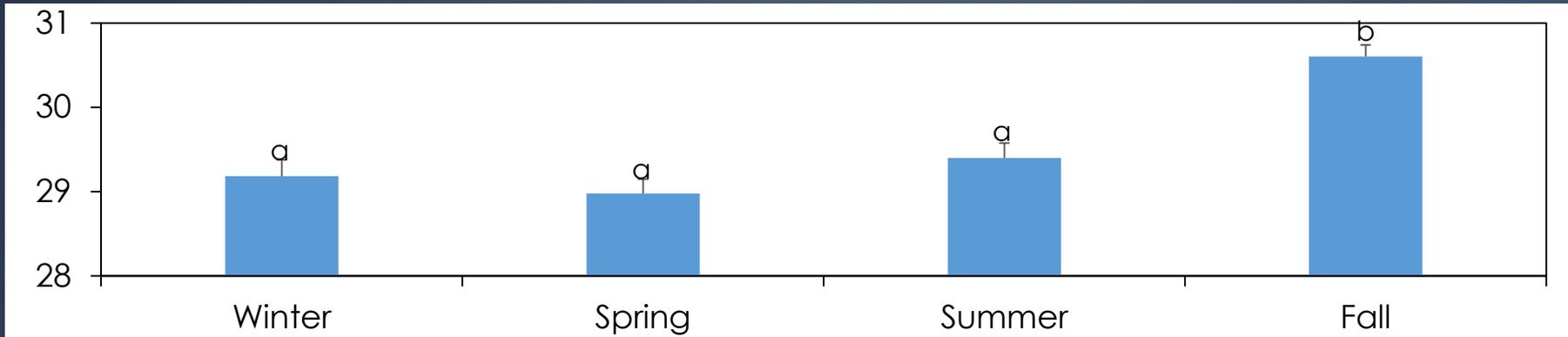
## 1999-2017 Dataset

Factors	df	F	Partial $\eta^2$	p
Station	6	27.831	0.099	<b>0.00</b>
Year	18	35.483	0.296	<b>0.00</b>
Season	3	29.050	0.054	<b>0.00</b>
Lunar Cycle	3	29.40	0.006	<b>0.03</b>
Tidal Cycle	7	5.202	0.023	<b>0.00</b>
Oceanic Nino Index	1	27.246	0.018	<b>0.00</b>
R Squared	<b>0.413</b>			

## 2009-2017 Dataset

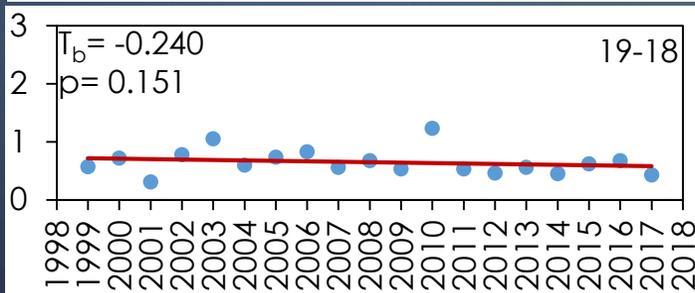
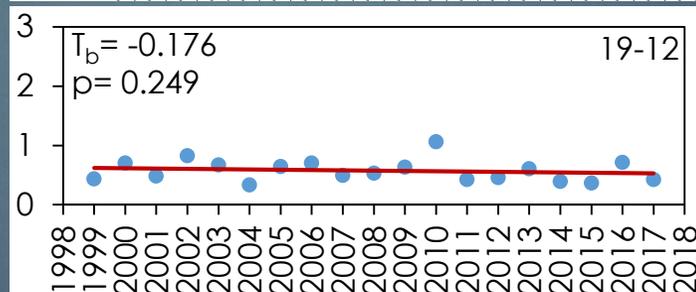
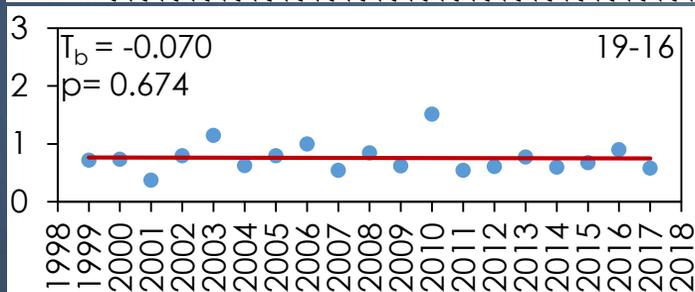
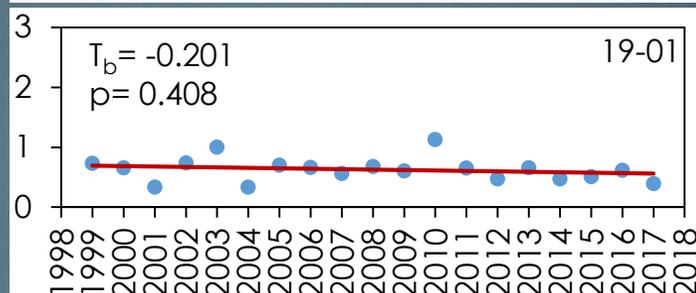
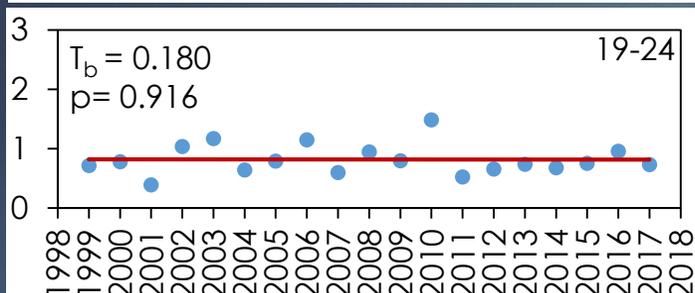
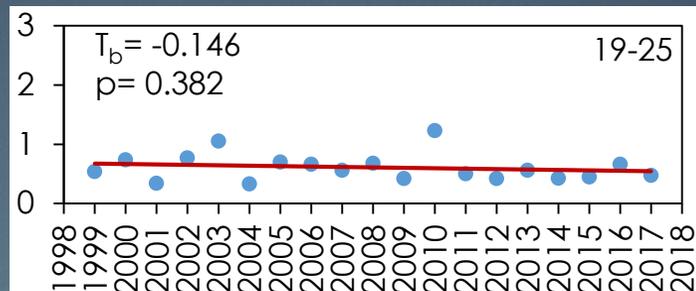
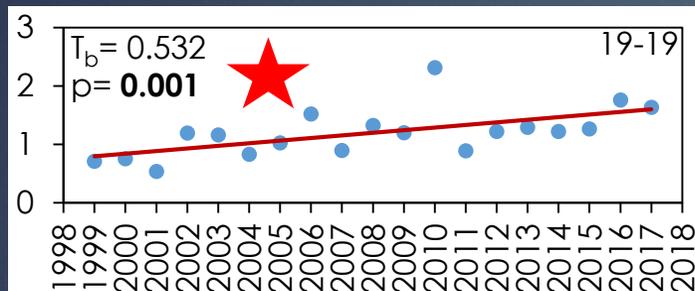
Factors	df	F	Partial $\eta^2$	p
Station	10	33.748	0.231	<b>0.00</b>
Year	8	61.859	0.306	<b>0.00</b>
Season	3	43.735	0.105	<b>0.00</b>
Lunar Cycle	3	1.113	0.003	0.34
Tidal Cycle	7	4.487	0.027	<b>0.00</b>
Rainfall	1	205.997	0.155	<b>0.00</b>
Oceanic Nino Index	1	98.430	0.081	<b>0.00</b>
R Squared	<b>0.650</b>			

# Seasonal, Lunar, and Tidal Cycles Affect Salinity

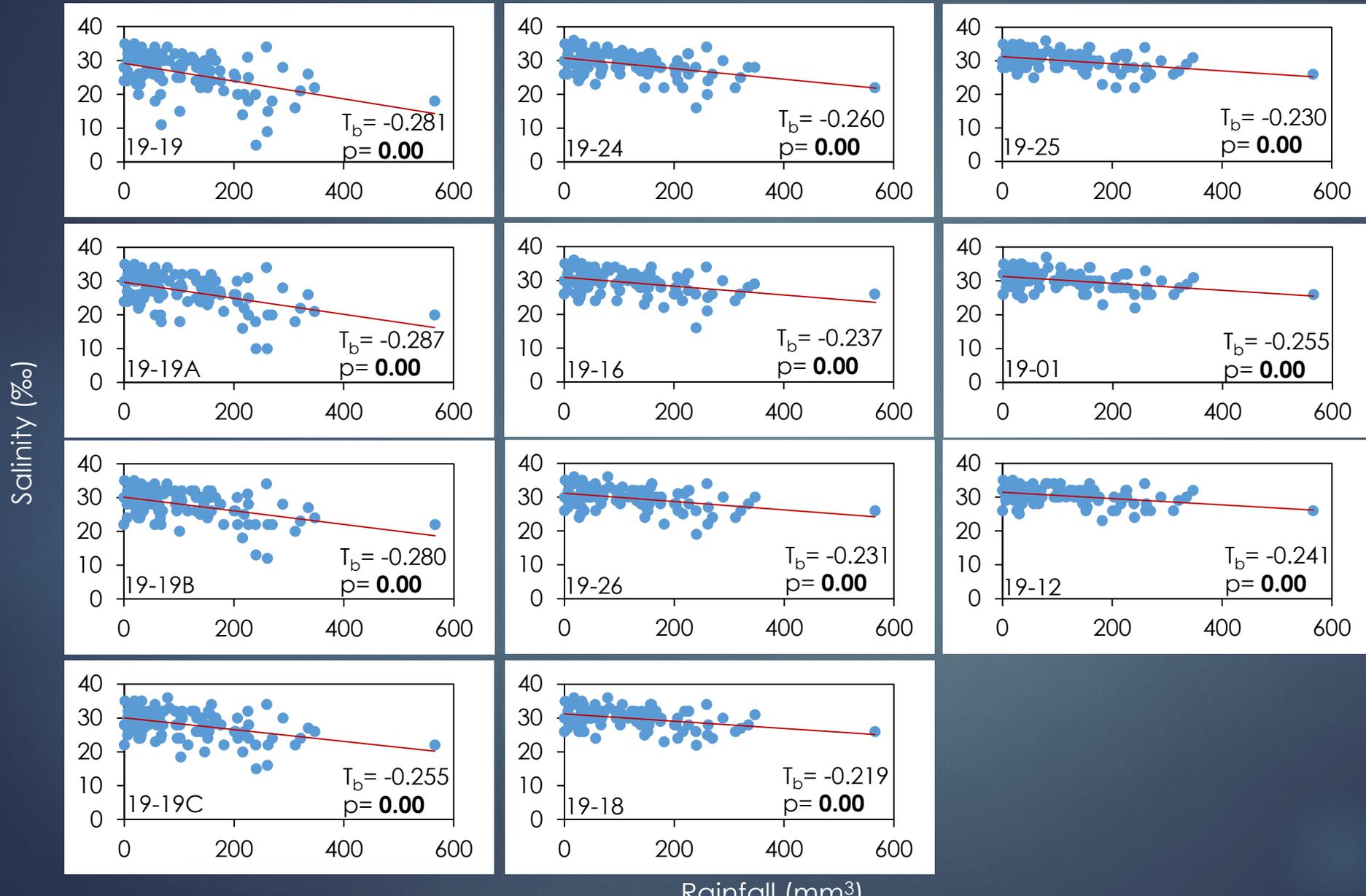


# Historically Salinity Variability Has Increased in the Headwaters

Salinity Standard Error (‰)

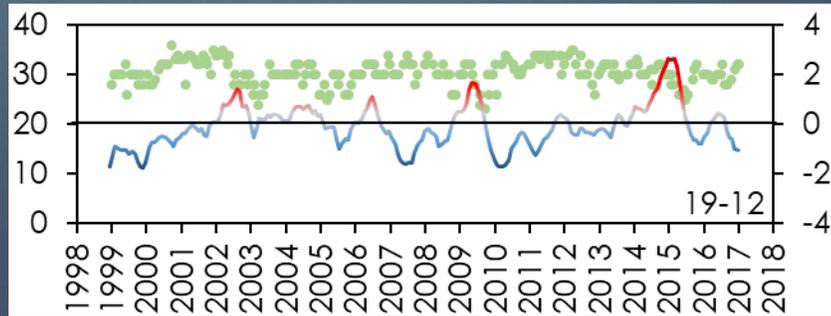
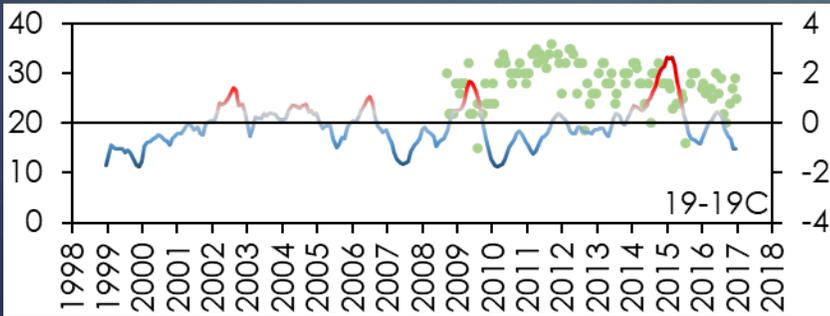
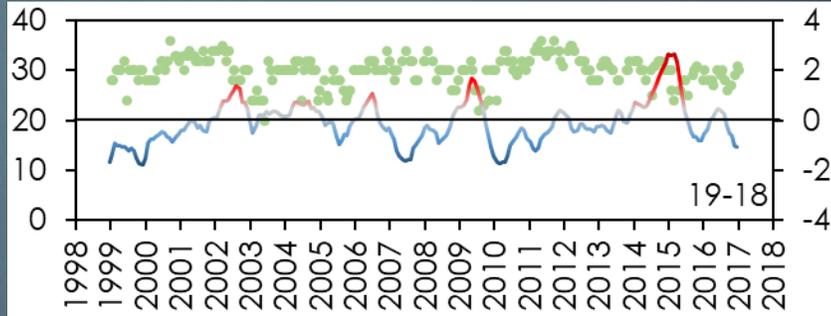
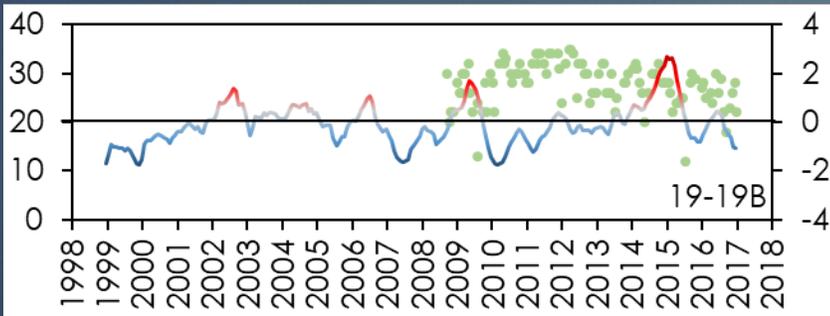
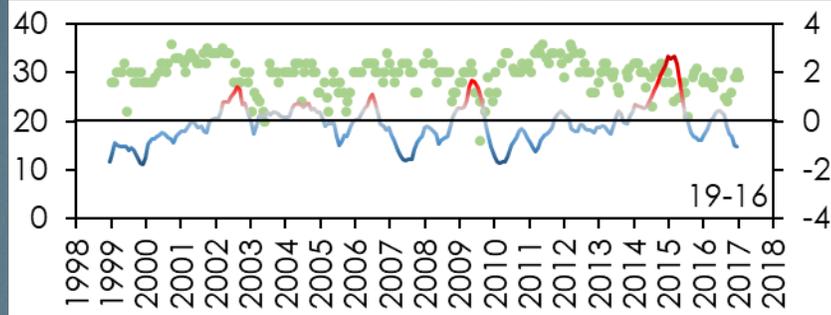
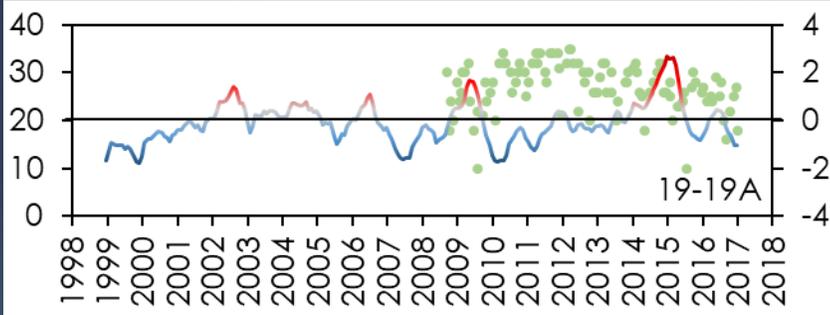
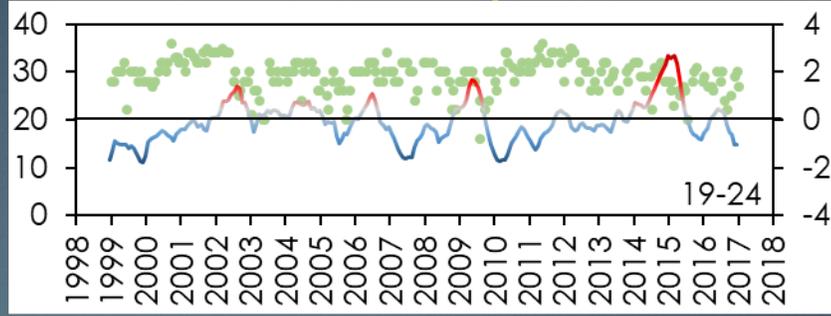
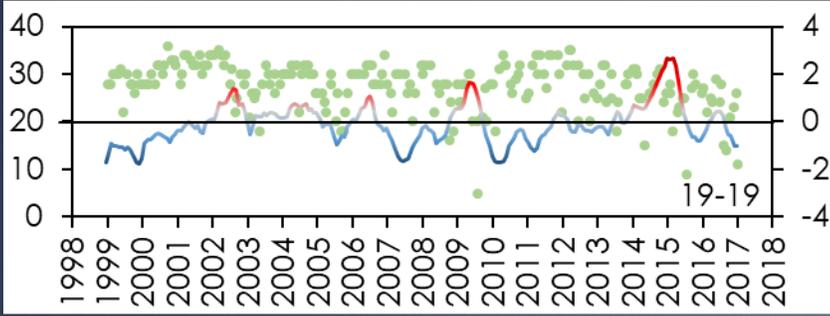


# Rainfall Influences Salinity throughout the River



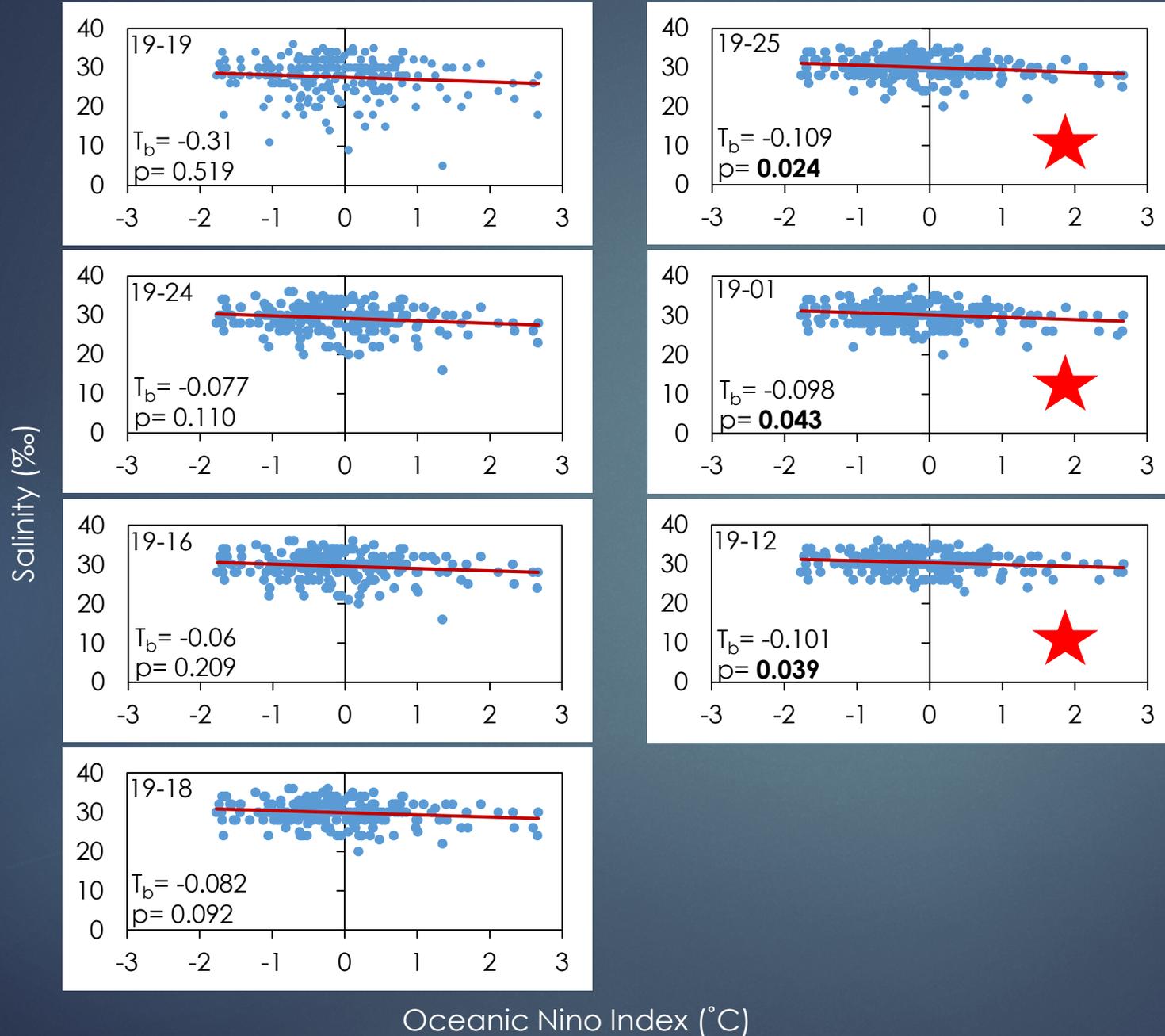
# Historical Trends of El Nino and Salinity

Salinity (‰)



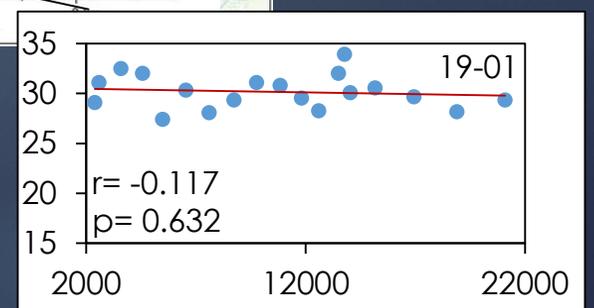
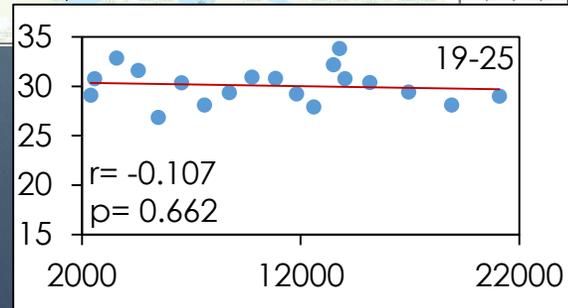
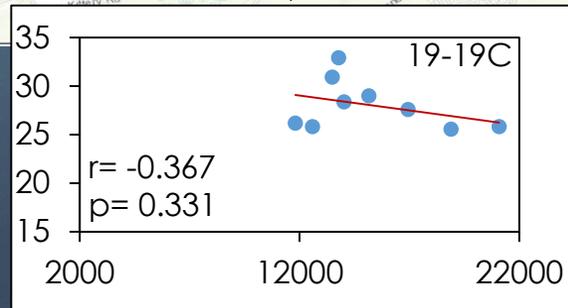
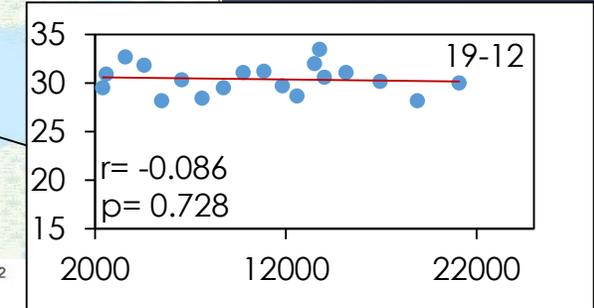
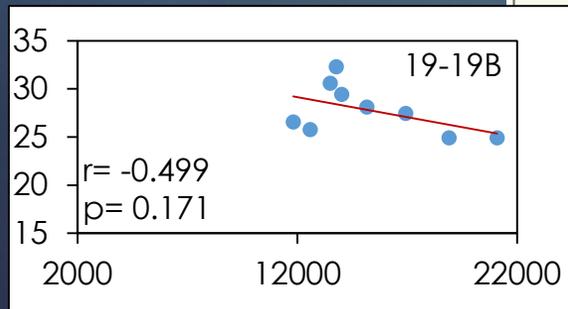
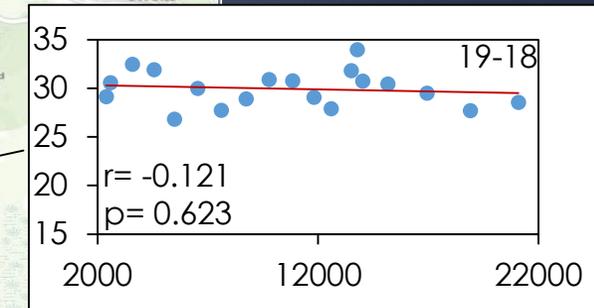
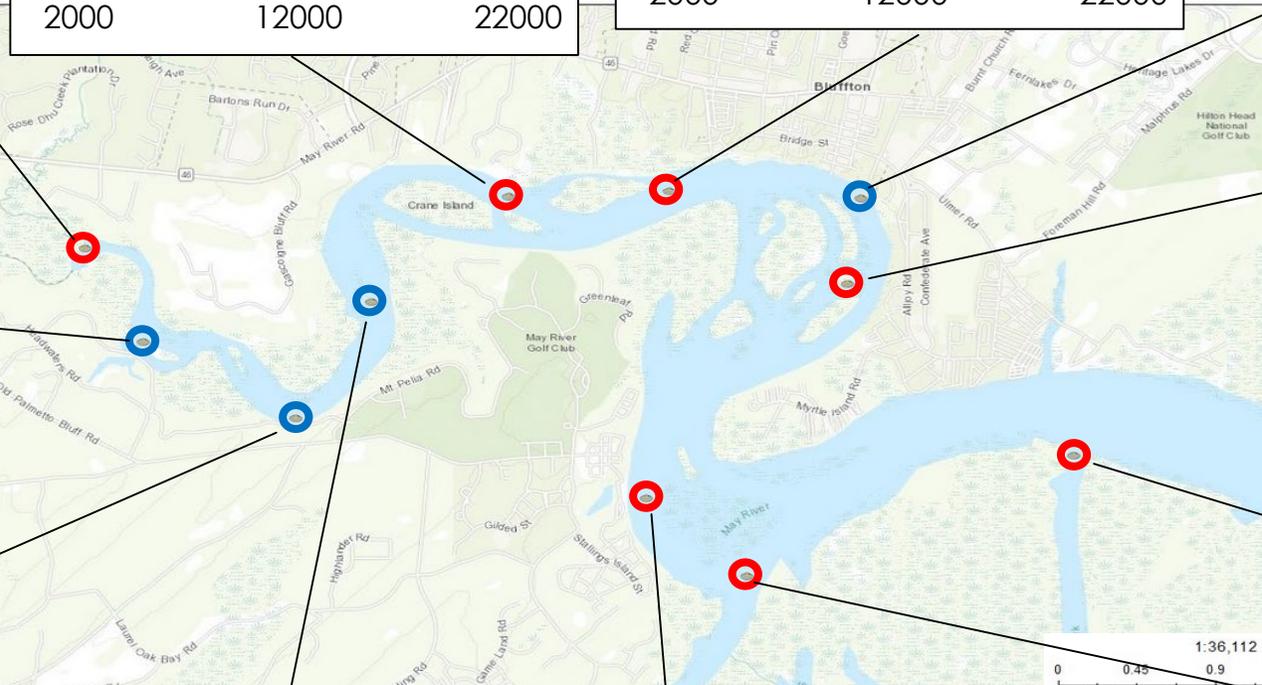
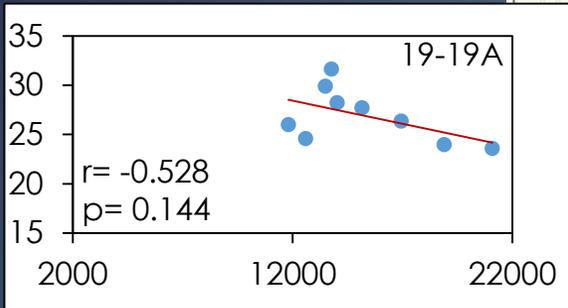
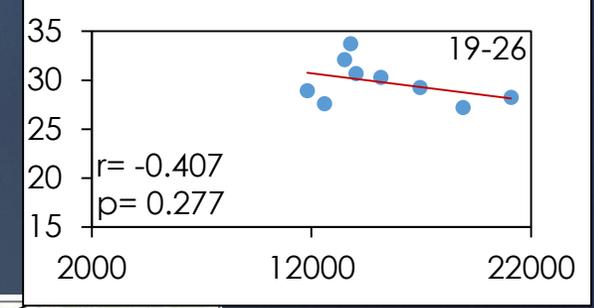
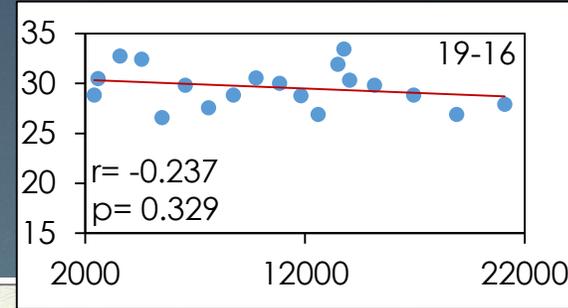
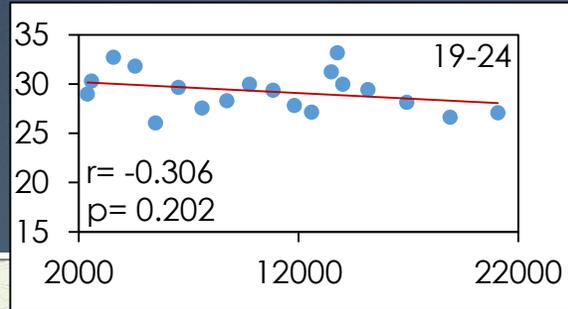
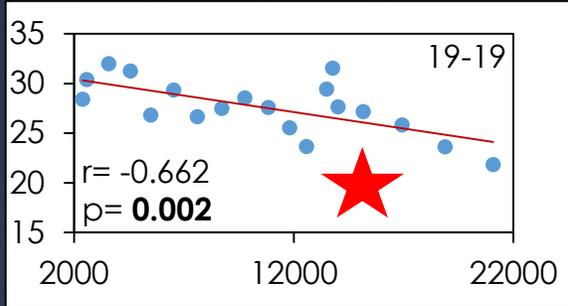
Oceanic Niño Index (C°)

# El Nino Influences Salinity More Towards the Mouth



Oceanic Nino Index (°C)

# Population Influences Salinity in the Headwaters



# Fecal Coliform- Background

## Fecal coliform measurements

- Three genera included: *Escherichia*, *Citrobacter*, *Klebsiella*; some are pathogenic
- Utilized as indicator bacteria for more toxic pathogens including viruses, bacteria, & other parasites; list is exhaustive
- Higher likelihood of antibiotic resistance if source is human or agricultural (any source that abuses antibiotic use)
- Prefer lower saline waters (Chigbu et al. 2004)

## Shellfish restrictions

- SCDHEC management – harvesting is restricted if a location exceeds a fecal coliform geometric mean of 14 MPN per 100 mL for the 30 most recent samples analyzed

# GLM results 1999-2017

## 1999-2017 Dataset

### Factors

	df	F	Partial $\eta^2$	p
<b>Station</b>	6	51.057	0.170	<b>0.00</b>
<b>Year</b>	18	9.438	0.102	<b>0.00</b>
<b>Season</b>	3	3.000	0.006	<b>0.03</b>
Lunar Cycle	3	2.395	0.005	0.07
<b>Tidal Cycle</b>	7	8.005	0.036	<b>0.00</b>
<b>Salinity</b>	1	157.701	0.095	<b>0.00</b>
<b>Oceanic Nino Index</b>	1	25.814	0.017	<b>0.00</b>
R Squared	<b>0.40</b>			

# GLM results 2009 to 2017

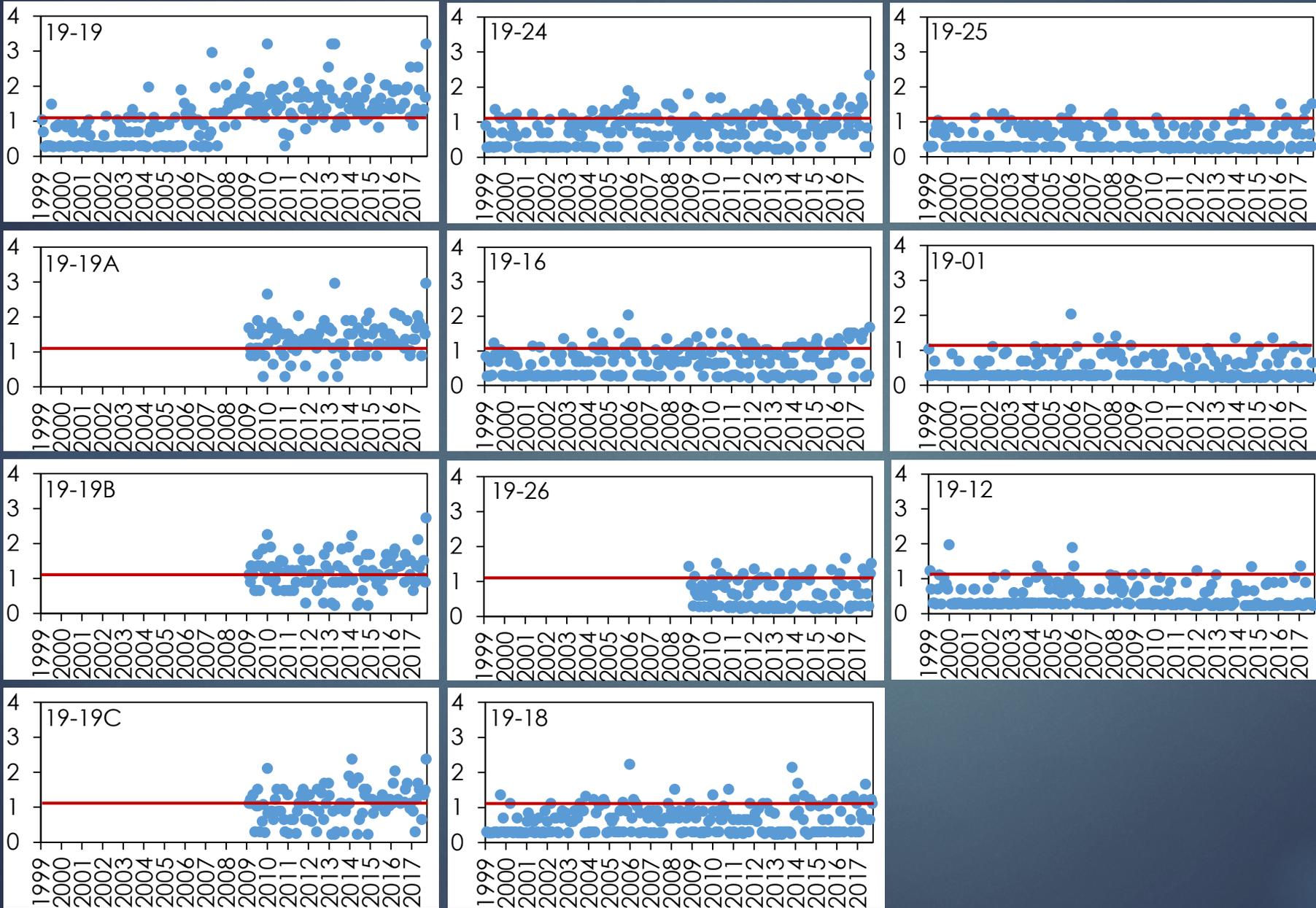
## 2009-2017 Dataset (with Salinity)

Factors	df	F	Partial $\eta^2$	p
<b>Station</b>	10	65.825	0.375	<b>0.00</b>
<b>Year</b>	8	7.985	0.055	<b>0.00</b>
Season	3	1.383	0.004	0.25
<b>Lunar Cycle</b>	3	4.762	0.013	<b>0.00</b>
<b>Tidal Cycle</b>	7	19.587	0.111	<b>0.00</b>
<b>Salinity</b>	1	60.620	0.052	<b>0.00</b>
<b>Oceanic Nino Index</b>	1	8.435	0.008	<b>0.00</b>
R Squared	<b>0.56</b>			

## 2009-2017 Dataset (with Rainfall)

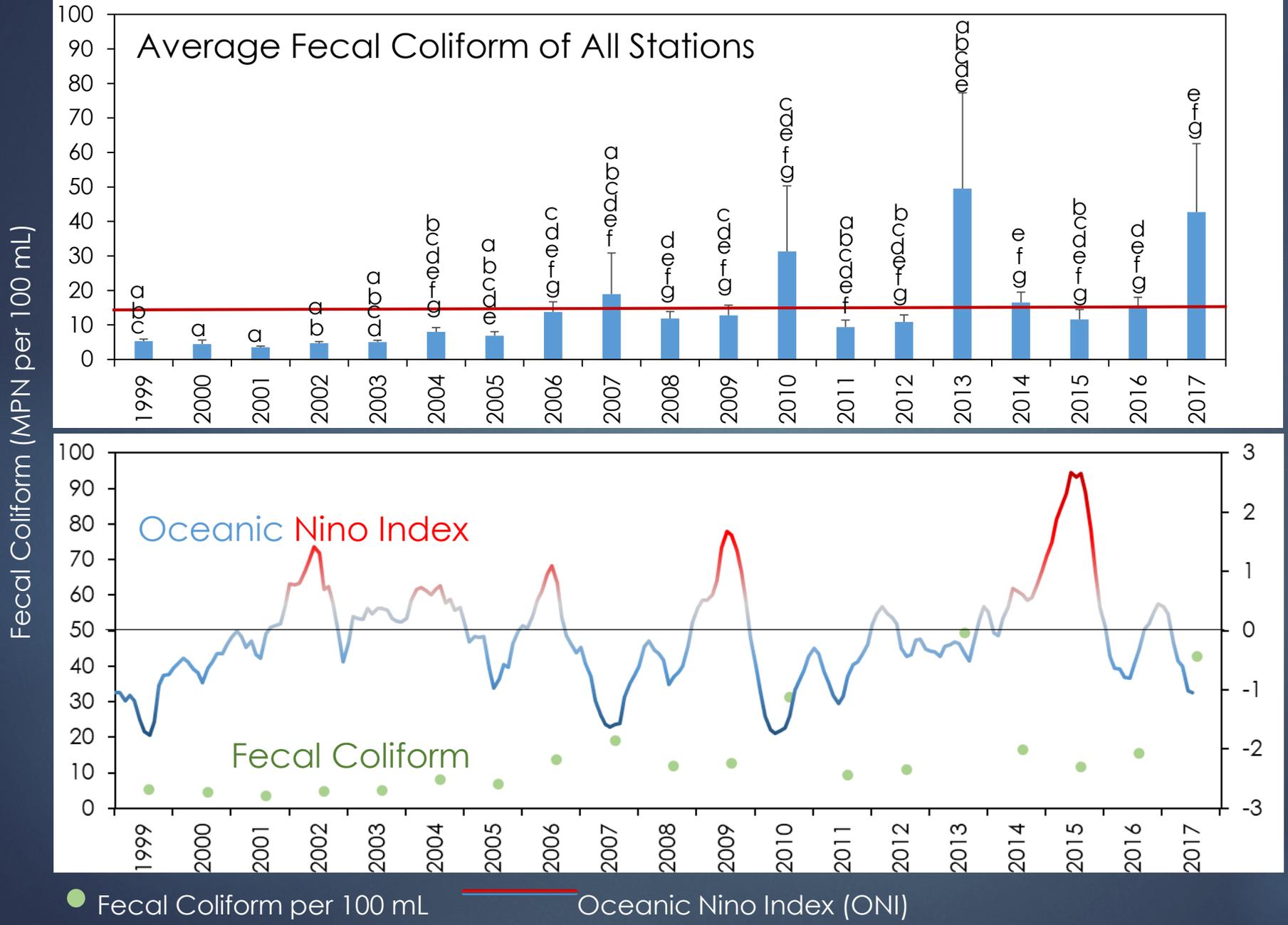
Factors	df	F	Partial $\eta^2$	p
<b>Station</b>	10	101.998	0.482	<b>0.00</b>
<b>Year</b>	8	7.891	0.054	<b>0.00</b>
Season	3	1.871	0.005	0.13
<b>Lunar Cycle</b>	3	4.688	0.013	<b>0.00</b>
<b>Tidal Cycle</b>	7	21.622	0.121	<b>0.00</b>
<b>Rainfall</b>	1	9.159	0.008	<b>0.00</b>
Oceanic Nino Index	1	0.889	0.001	0.35
R Squared	<b>0.54</b>			

# Historical Trends in Fecal Coliform Levels



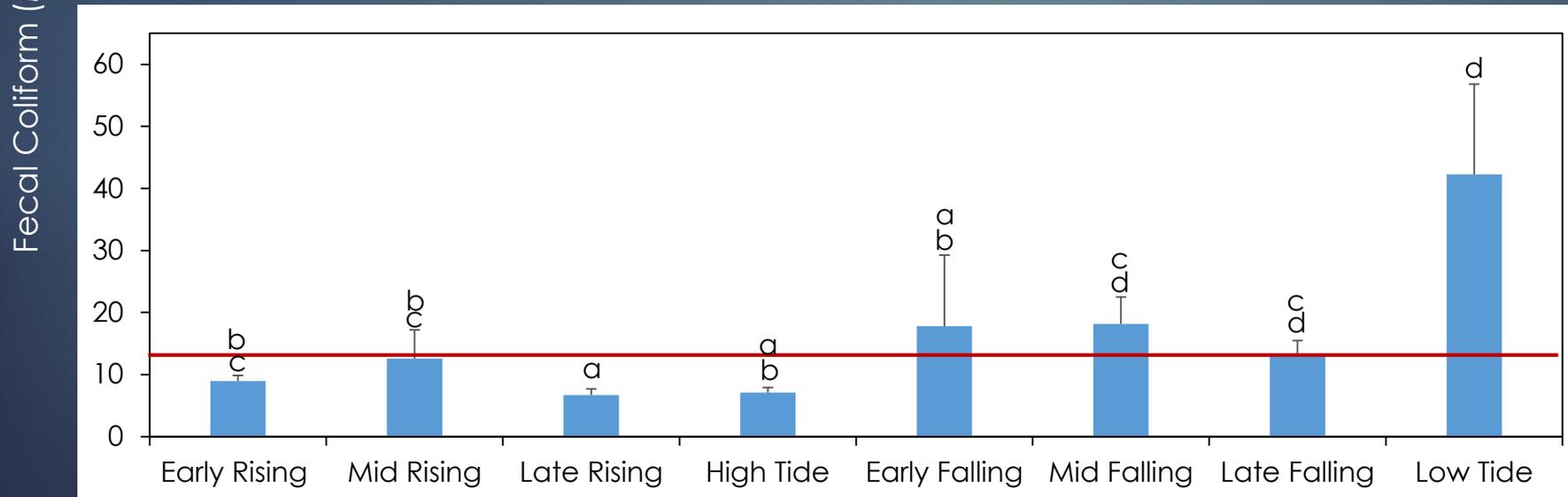
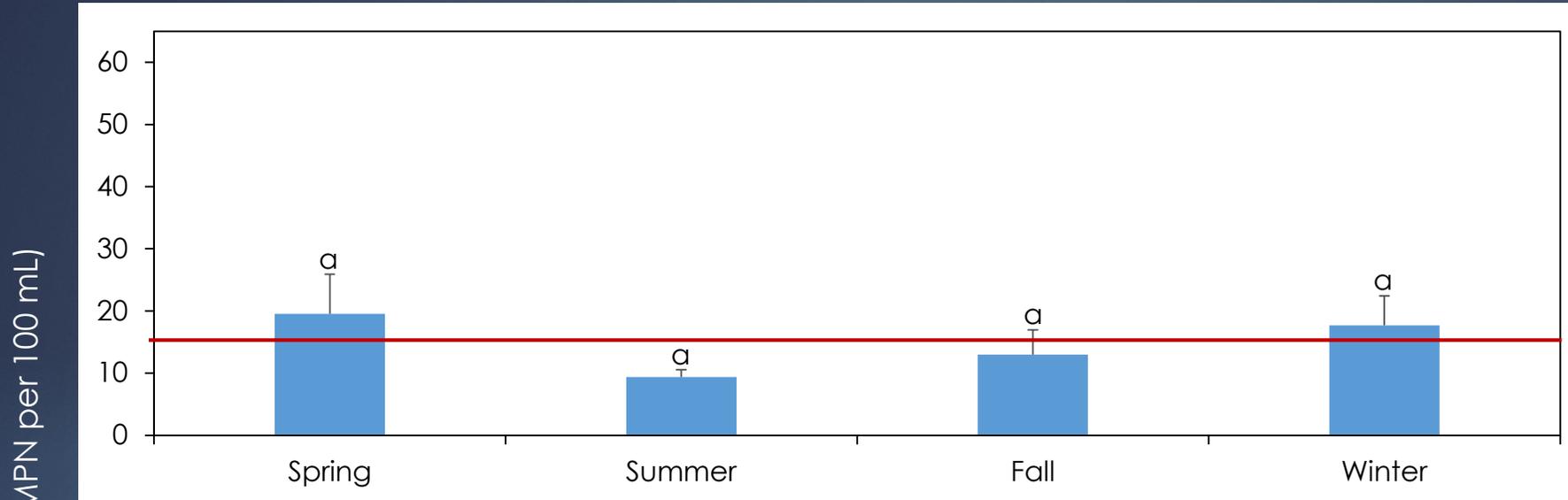
Log MPN of FC per 100 mL

# El Nino May Influence Fecal Coliform Indirectly



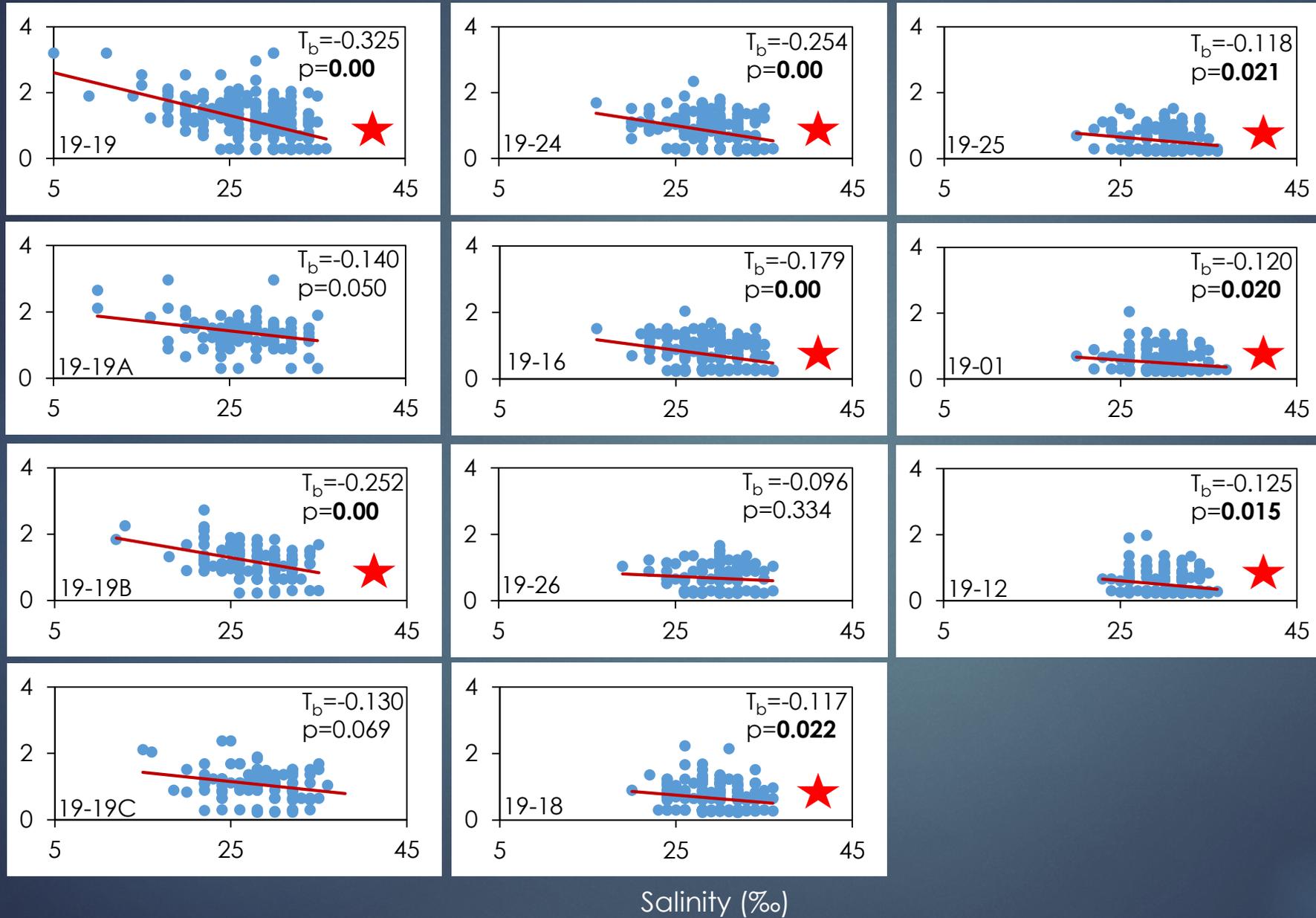
Oceanic Nino Index (°C)

# Seasonal and Tidal Cycles Affect Fecal Coliform Levels



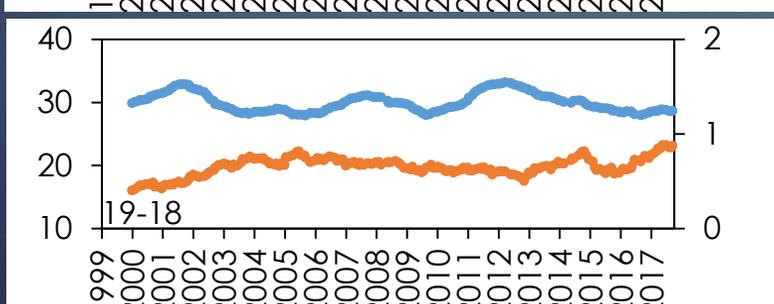
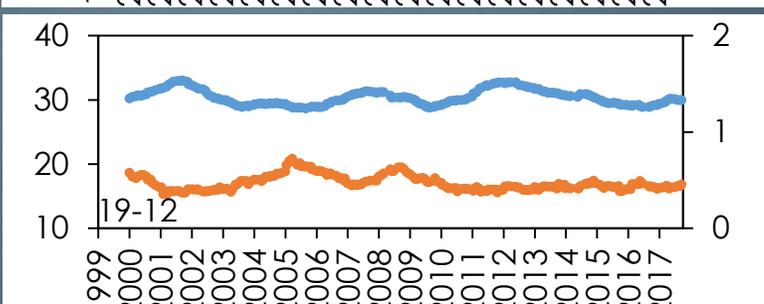
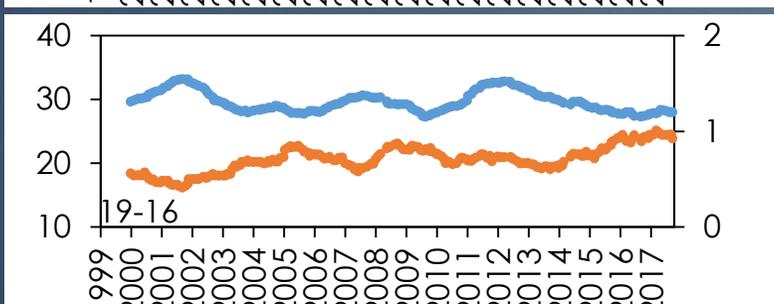
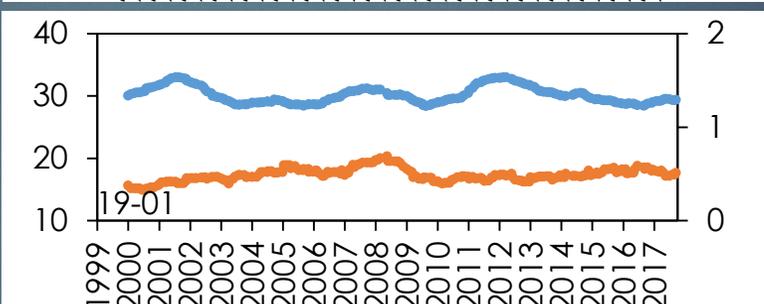
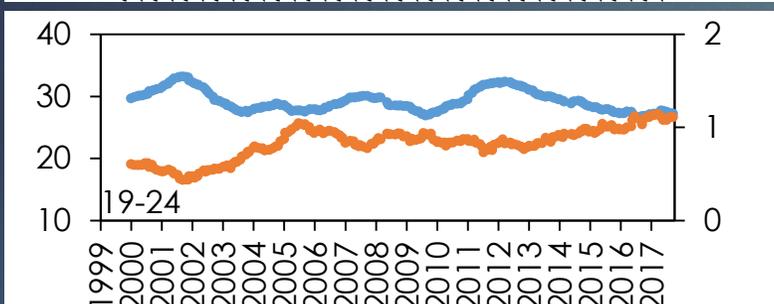
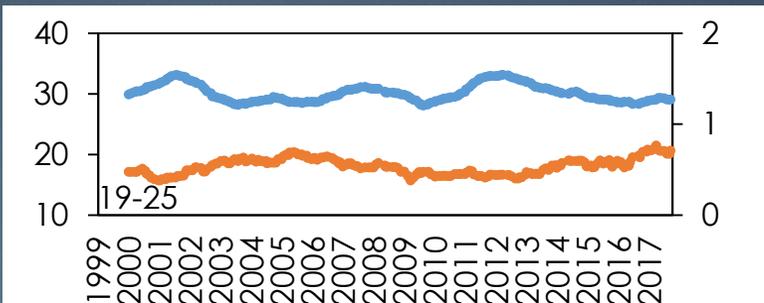
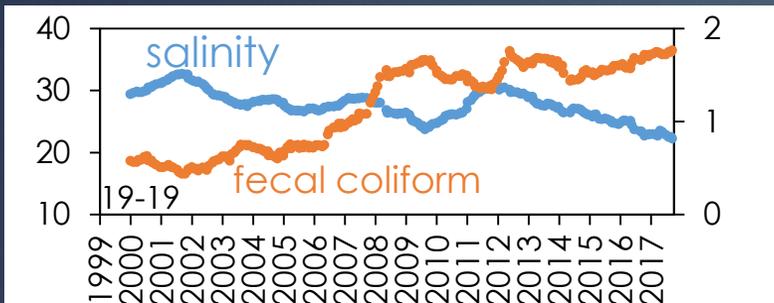
# Salinity Influences Fecal Coliform Levels

Log MPN of FC per 100 mL



# Historically - Salinity Has Decreased and Fecal Coliform Levels Have Increased

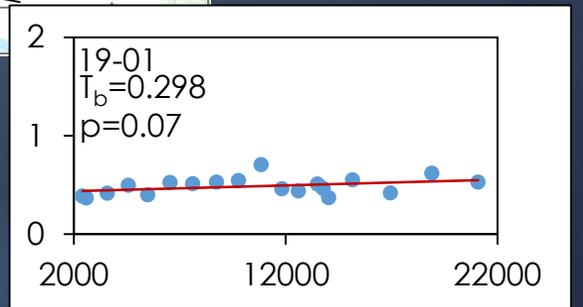
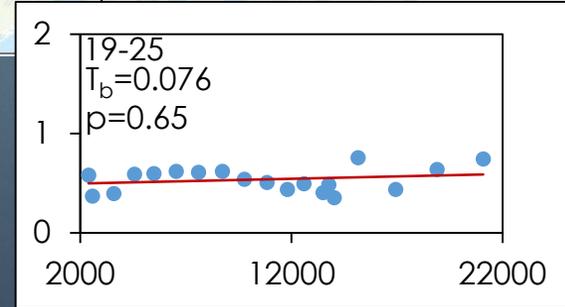
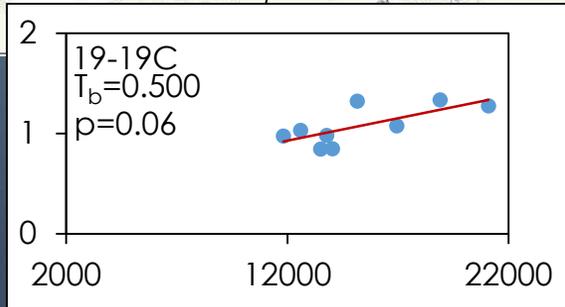
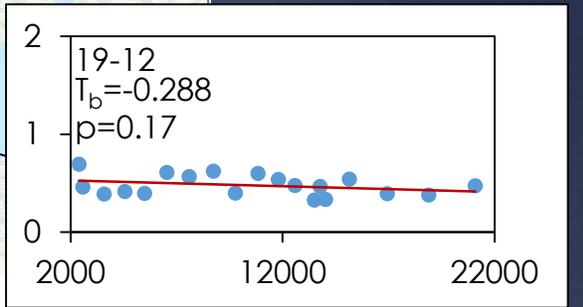
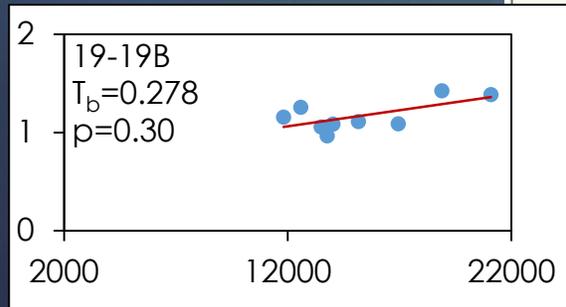
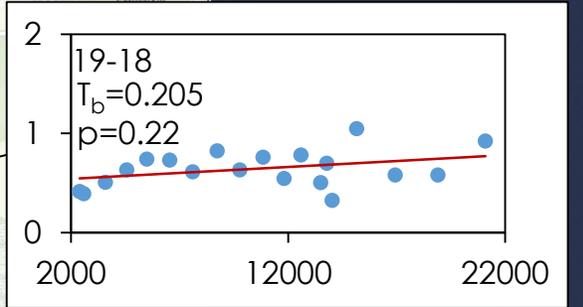
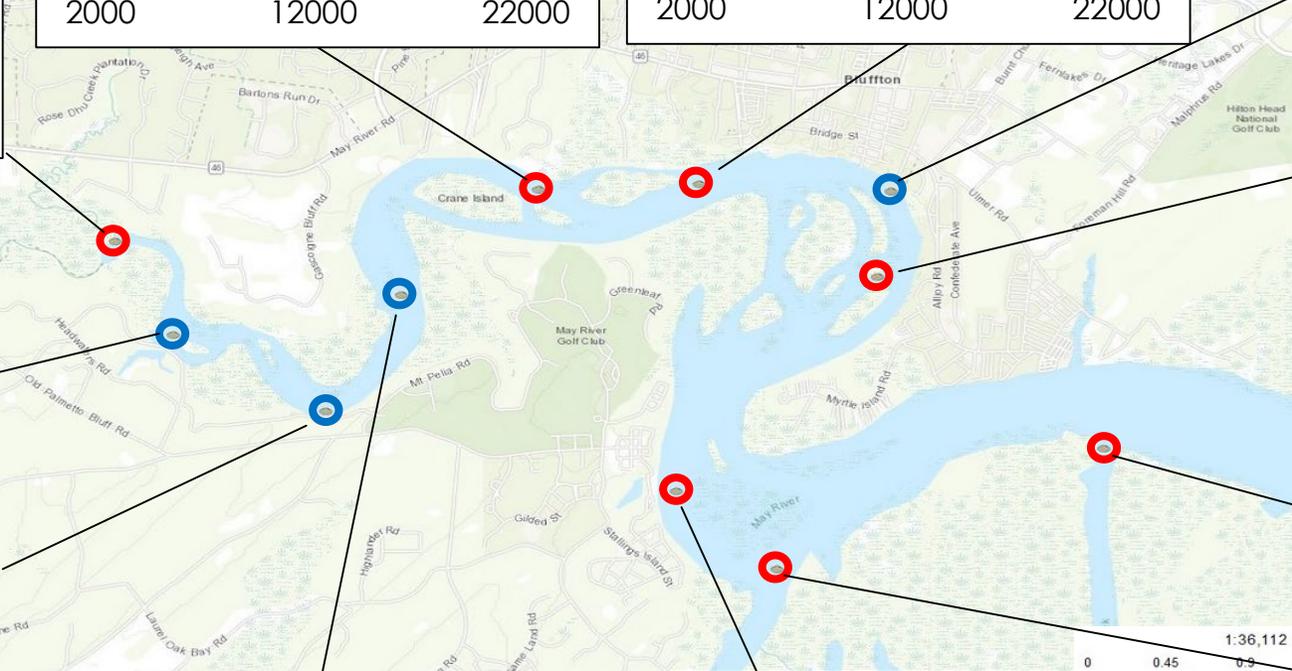
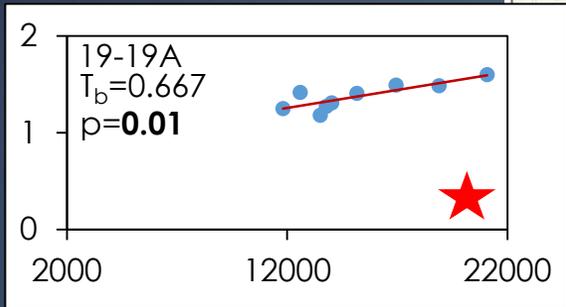
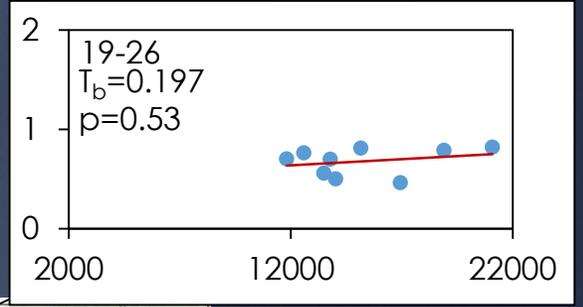
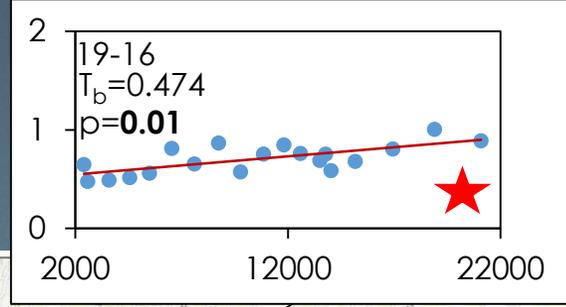
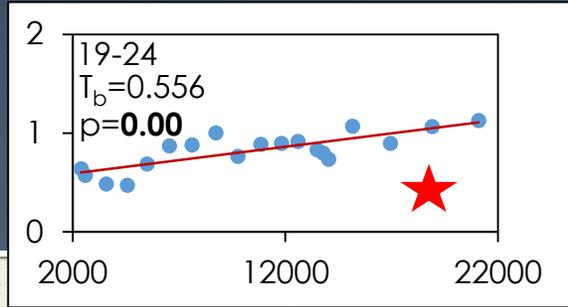
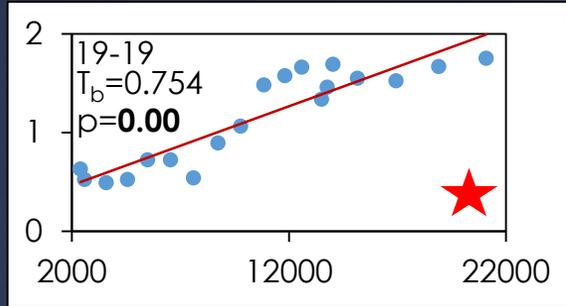
Salinity (2-year Moving Average, ‰)



Log MPN of FC per 100 mL (2-year Moving Average)

● Salinity ● Log Fecal Coliform

# Population Influences Fecal Coliform in the Headwaters





# Watershed Investments and Improvements

Town of Bluffton

Joint Councils Meeting

February 25, 2020

# Agenda

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- Introduction
- Background
- Financial Analysis
- Stormwater Utility Fee Comparison
- Current & Proposed Priorities



# Introduction

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## TOWN OF BLUFFTON STRATEGIC PLAN - May River and Surrounding Rivers and Watersheds

- Guiding Principle 1 – Support initiatives, such as the May River Watershed Action Plan, to improve water quality of the May, Okatie/Colleton and New Rivers and their watersheds.
- Guiding Principle 2 – Seek collaboration and partnerships that protect, and improve the May, Okatie/Colleton and New Rivers and their watersheds.
- Guiding Principle 3 – Celebrate the May River, its heritage and importance to the community.



# Introduction

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## TOWN OF BLUFFTON - DEPARTMENT OF ENGINEERING WATERSHED MANAGEMENT DIVISION

### DIVISION VISION

*Bluffton is a regionally- and nationally-recognized leader in watershed management through meaningful, local actions.*

### DIVISION MISSION

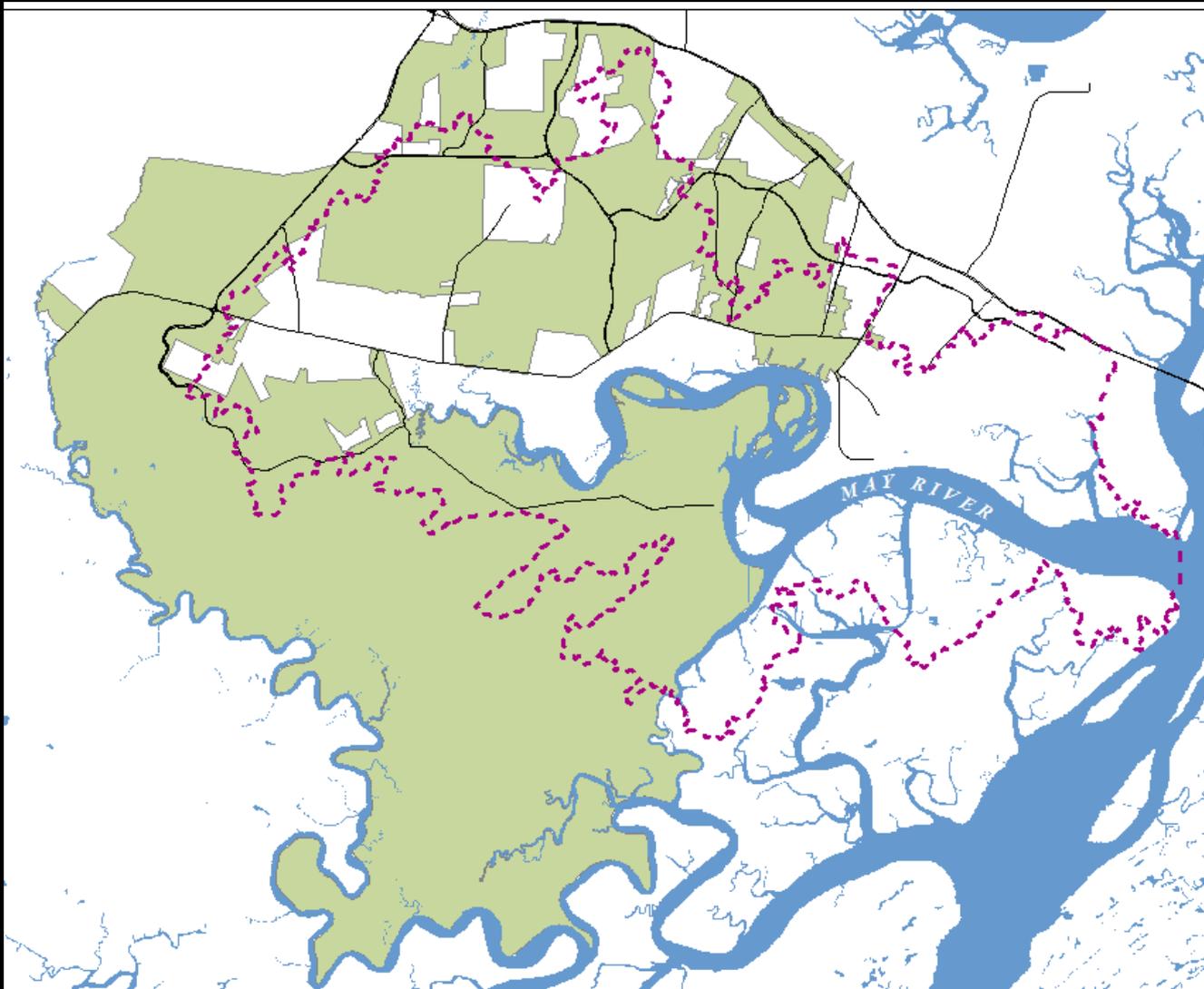
*We understand, strengthen and preserve the relationships between our community and its watersheds.*

### EMPLOYEES:

- Watershed Management Division Manager
- MS4 Program Manager
- Stormwater Project Manager
- Water Quality Program Administrator
- Stormwater Inspector
- Stormwater Technician
- Stormwater Coordinator/Field Assistant
- Support from Public Works staff



# Introduction



Green:  
Bluffton

Dashed:  
May River  
Watershed



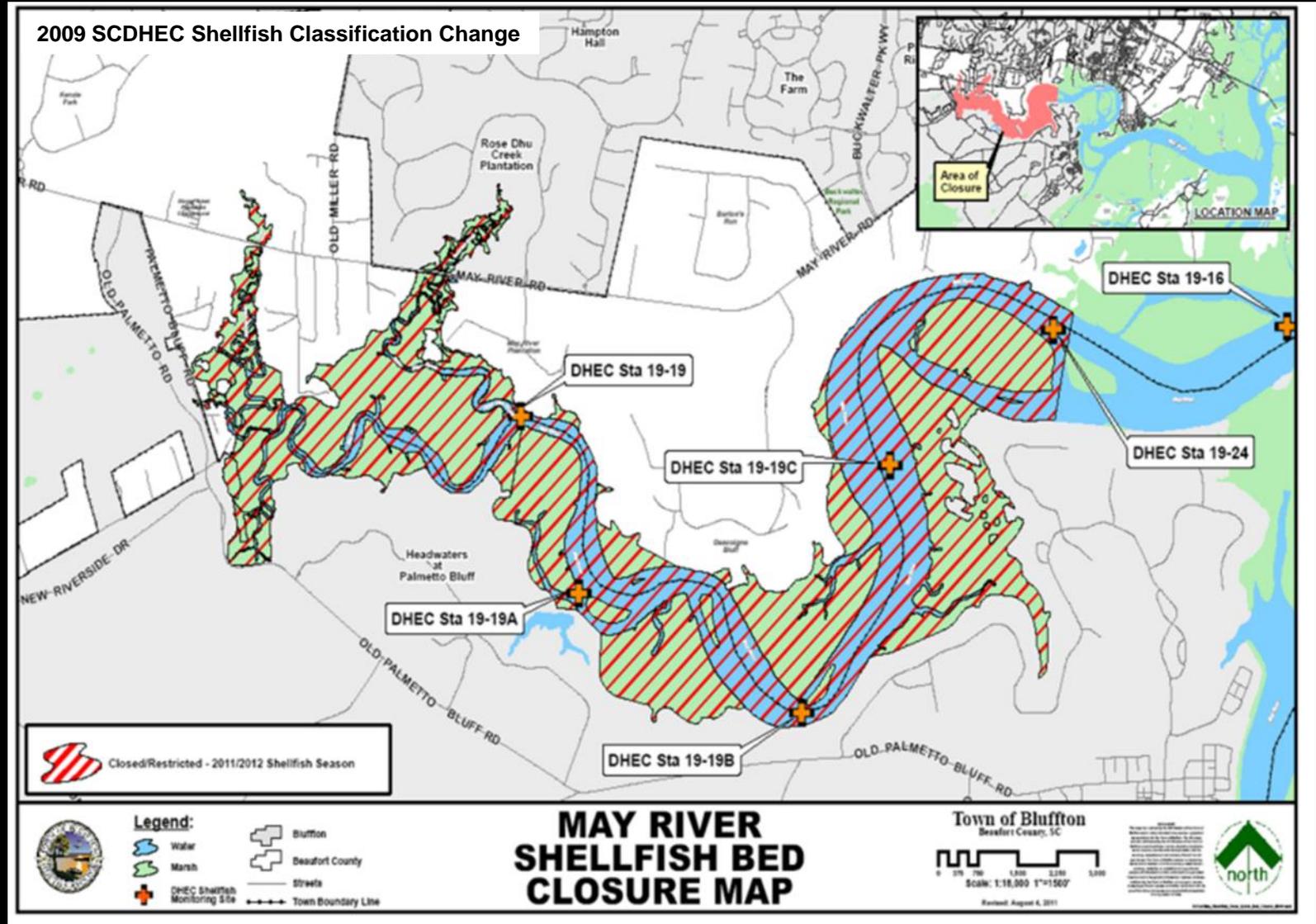
# Background

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- 2002 – 2003: USGS/NOAA/DNR - May River Baseline
- 2005 – 2006: Town of Bluffton - Stormwater Sampling Study
- 2007 – 2009: Town of Bluffton - May River Water Quality Monitoring Project
- 2007: SCDHEC reported increasing fecal coliform levels in the May River headwaters
- 2007: Adopted the Town's first Stormwater Ordinance & Design Manual and construction site inspection program
- 2009: Memorandum of Understanding to establish a water quality monitoring laboratory & program with University of South Carolina Beaufort
- 2009: Intergovernmental Agreement with Beaufort County on a watershed approach to stormwater mngt.
- 2009 – Present: Town of Bluffton – Bacteria and *in situ* samples
- 2009: SCDHEC shellfish harvesting classification change & inclusion on SC 303(d) List of Impaired Waterbodies



# Background



# Background

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Continued...

- 2010: Volume requirement for water quality in stormwater ordinance
- 2011: Unified Development Code Overhaul based in Sustainability & Watershed Management elements
- 2011: Adoption & initiation of the May River Watershed Action Plan
- 2012: TDR of 1,300 future units out of the May River headwaters (146 ac)
- 2013: Completed 319 Grant Phase 1 – Concentration Reduction Project
- 2015: Adopted Sewer Connection Ordinance
- 2015: Adopted May River Watershed Sewer Master Plan
- 2015: TDR of 449 residential dwelling units and 50,000 square feet of commercial use out of the Okatie River headwaters



# Background

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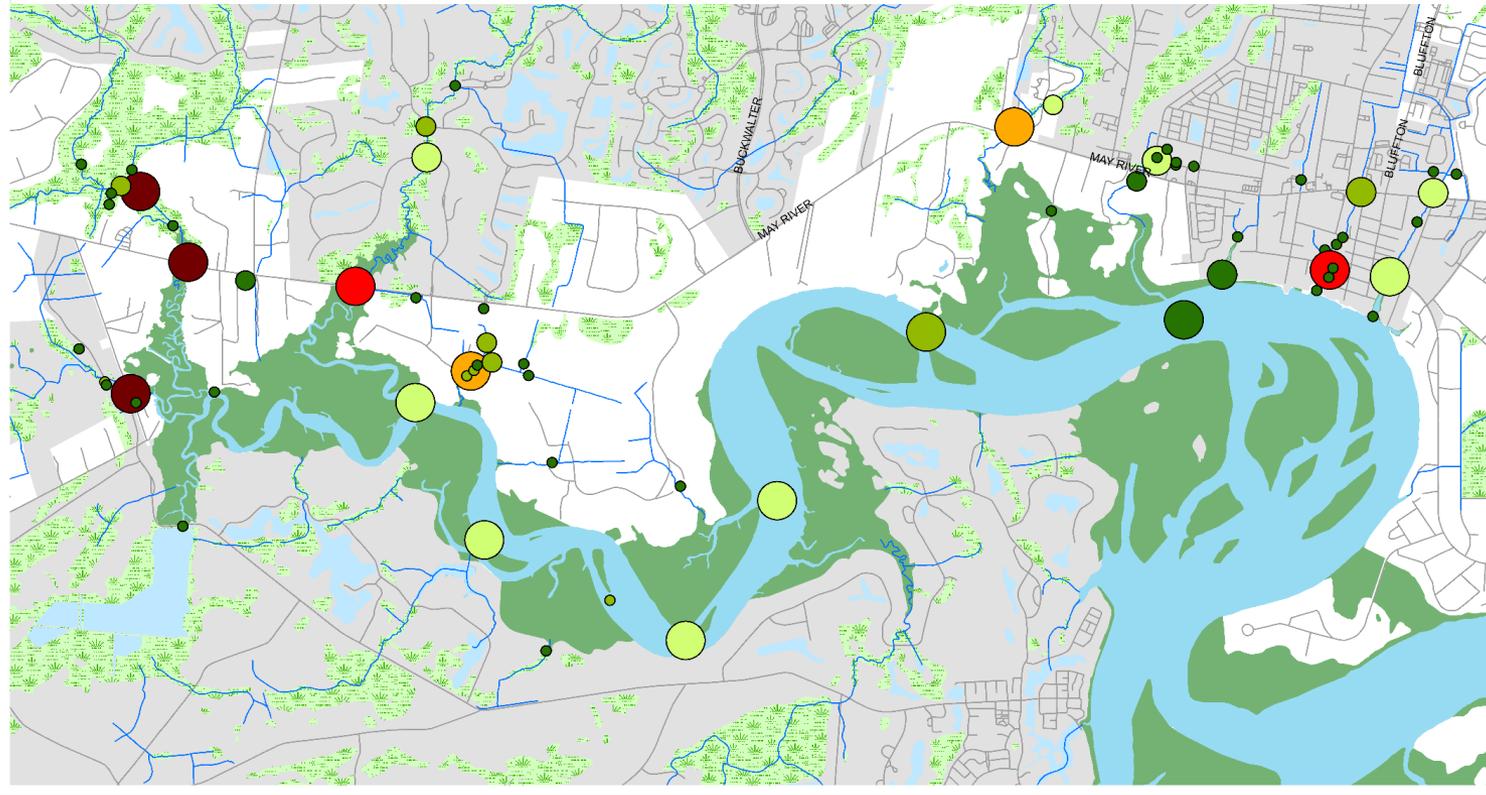
Continued...

- 2015: Delegated Municipal Separate Storm Sewer System (MS4) by SCDHEC
- 2016: Completed 319 Grant Phase 2 – Volume Reduction Project
- 2016: Initiated Microbial Source Tracking sampling
- 2017: Memorandum of Agreement with County for MS4 Coordination
- 2017: Adopted Sewer Connection & Extension Policy
- 2018: Sewer Connection Ordinance Amendment to require connections within 1 year of notification of available sanitary sewer
- 2018: Septic to Sewer Conversion Program established
- 2019: Completed 319 Grant Phase 3 – Town Hall Parking Lot Retrofit
- 2019: Awarded 319 Grant Phase 4 – Sanitary Sewer Connections in Historic District Phases 1 and 2



# Background

## Microbial Source Tracking Trend Map – Human (since 2016)



- Town Jurisdiction
- Beaufort County
- Drainage Flow Lines

### Positive Hits

- 0
- 1-3
- 3-6
- 6-9
- >10

### Times Sampled

- 1 - 3
- 4 - 6
- 7 - 10
- >10

Size of dot correlates to # of times the site has been sampled.

Updated Date: 2/21/2020



# Background

## Develop/Implement May River Watershed Action Plan

Coordinated proactive approach:

(Dec 2010 – Nov 2011)

- Strategies & projects for sustainable watershed
- Dynamic & adaptable document
- Provide measureable goals
- Partnerships and Funding

Public Comment Period:

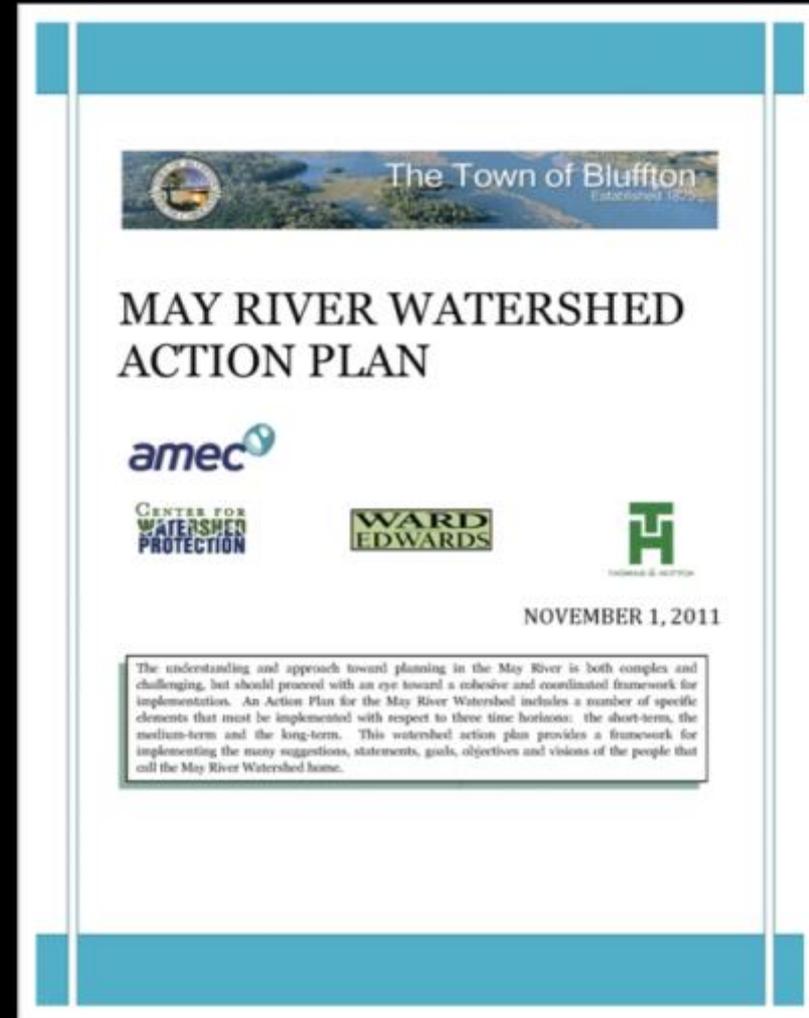
(Jul 2011 – Aug 2011)

- Document is the Town's and stakeholders'
- >250 total comments & suggestions

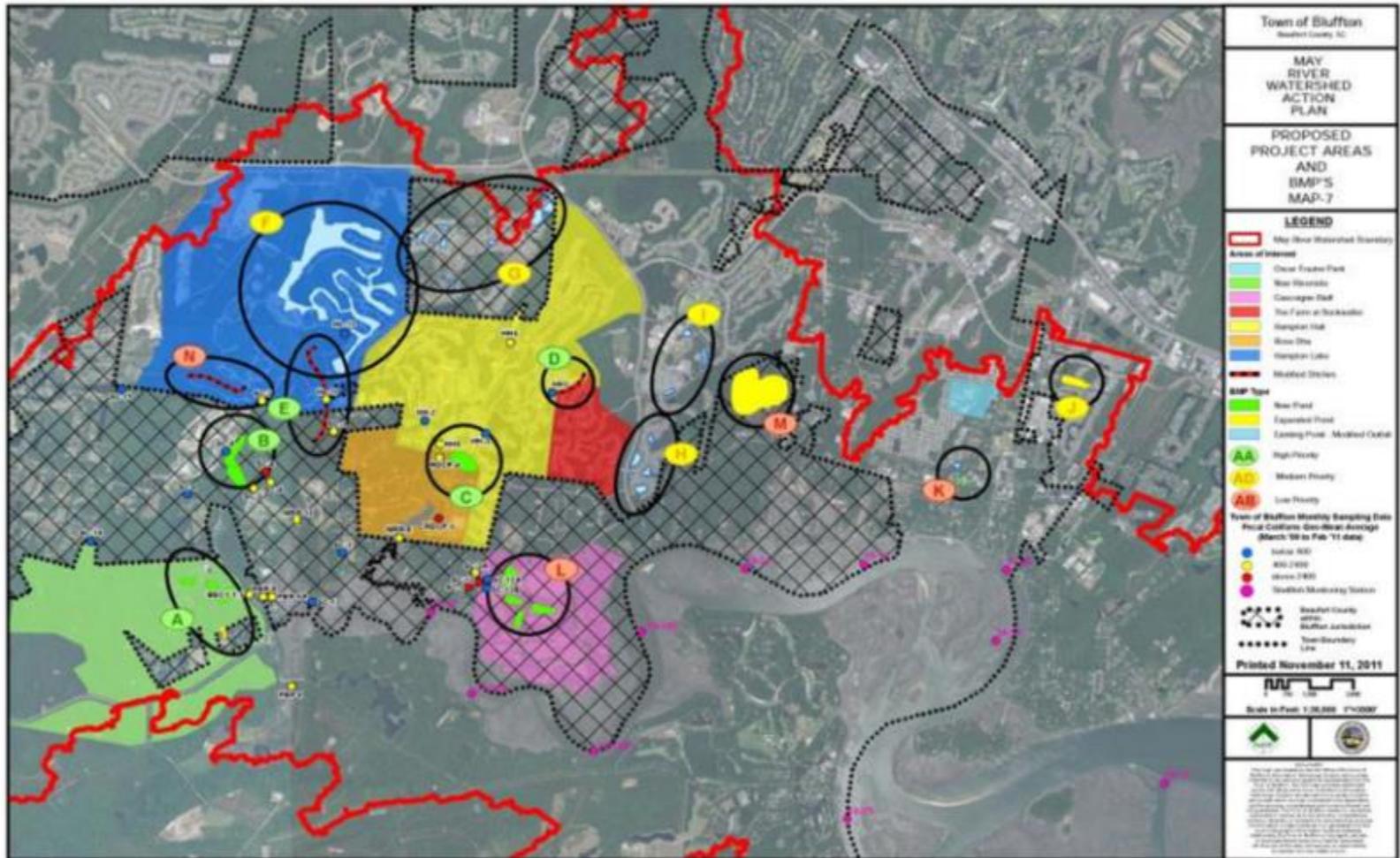
Restoration & Prevention Measures:

- Engineering-based solutions
- Planning-based solutions

Adopted by Town Council 2011



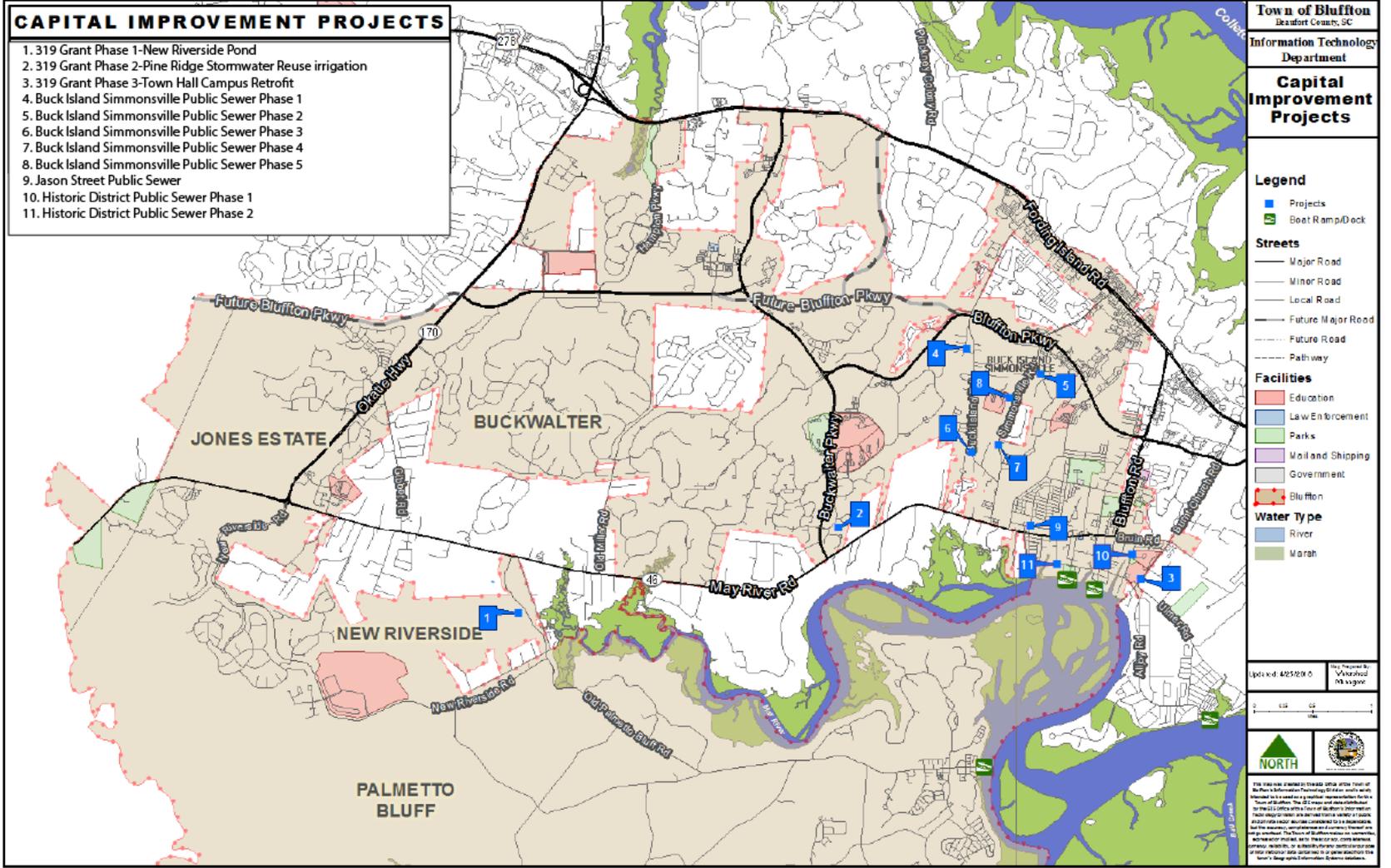
# Background



# Background

## CAPITAL IMPROVEMENT PROJECTS

1. 319 Grant Phase 1-New Riverside Pond
2. 319 Grant Phase 2-Pine Ridge Stormwater Reuse irrigation
3. 319 Grant Phase 3-Town Hall Campus Retrofit
4. Buck Island Simmonsville Public Sewer Phase 1
5. Buck Island Simmonsville Public Sewer Phase 2
6. Buck Island Simmonsville Public Sewer Phase 3
7. Buck Island Simmonsville Public Sewer Phase 4
8. Buck Island Simmonsville Public Sewer Phase 5
9. Jason Street Public Sewer
10. Historic District Public Sewer Phase 1
11. Historic District Public Sewer Phase 2



**Town of Bluffton**  
Beaufort County, SC  
Information Technology  
Department  
**Capital  
Improvement  
Projects**

- Legend**
- Projects
  - Boat Ramp/Dock
- Streets**
- Major Road
  - Minor Road
  - Local Road
  - Future Major Road
  - Future Road
  - Pathway
- Facilities**
- Education
  - Law Enforcement
  - Parks
  - Mail and Shipping
  - Government
  - Bluffton
- Water Type**
- River
  - Marsh

Map No. 425201-0  
Prepared By: V. Kozicki  
Date: 08/13/2019

0 0.2 0.4  
Miles

**NORTH**

This map was created by the staff of the Town of Bluffton Information Technology Department and is provided as a public information service. It is not intended to be used for legal purposes. The Town of Bluffton is not responsible for any errors or omissions on this map. The Town of Bluffton is not responsible for any damages or losses resulting from the use of this map. The Town of Bluffton is not responsible for any damages or losses resulting from the use of this map. The Town of Bluffton is not responsible for any damages or losses resulting from the use of this map.



# Financial Analysis

IMPROVEMENT: Activity				Investment	Status
<b>May River Watershed Action Plan</b>				<b>\$317,940</b>	<b>current</b>
<ul style="list-style-type: none"> <li>Development &amp; Implementation - \$87,940 (complete)</li> <li>Update of project types &amp; locations in progress (FY20) - \$230,000 (current)</li> </ul>					
<b>Water Quality Monitoring</b>				<b>\$1,520,455</b>	<b>current</b>
<b>Type of Testing</b>	<b>Approx. # of Annual Samples</b>	<b>Total Samples in program</b>	<b>Cost</b>		
University of USCB-MOUs	1,000	11,000	\$1,320,000		
Source Molecular MST + S/H	152	532	\$139,155		
MS4 & Field Data Collection-Town & County sites	724	2,353	\$61,300		
<b>BMP Projects for Stormwater Quality &amp; Volume Reduction</b>				<b>\$1,227,501</b>	<b>complete</b>
<b>Project</b>			<b>Cost</b>		
New Riverside Pond - Crescent Resources Partnership			\$336,435		
Pine Ridge Irrigation Re-use - Pine Ridge POA Partnership			\$498,100		
Town Hall Parking Lot Retrofit			\$392,966		
<b>Septic Inspections, Maintenance &amp; Repair Assistance</b>				<b>\$117,185</b>	<b>current</b>
<ul style="list-style-type: none"> <li>Inspections in Town &amp; County following positive human MST results.</li> <li>Maintenance/repair assistance previously in County &amp; Town with grant assistance; current efforts provided for Town citizens.</li> </ul>					
<b>May River Watershed Sewer Master Plan Development</b>				<b>\$27,500</b>	<b>complete</b>
<ul style="list-style-type: none"> <li>Even cost-share partnership with BJWSA</li> </ul>					
<b>Sanitary Sewer Extension &amp; Connection in Partnership with BJWSA</b>				<b>\$8,842,622</b>	<b>current</b>
<b>Project</b>	<b>Residents Served</b>	<b>Homes Served</b>	<b>Cost</b>		
Bruin Rd. & Maiden Lane	20	6	\$106,918		
BIS Sewer Phase 1	263	76	\$1,156,049		
BIS Sewer Phase 2	130	39	\$912,774		
BIS Village Renaissance	21	9	\$115,569		
BIS Sewer Phase 3	140	45	\$993,450		
BIS Toy Fields	37	12	\$300,000		
BIS Phase 4	102	33	\$783,017		
Jason St.	129	38	\$1,140,427		
BIS Phase 5A-E*	113	36	\$1,414,274		
May River Rd. Lots	-	-	\$130,000		
Historic District Phases 1 - 6*	177	52	\$1,735,145		
	<b>1,132</b>	<b>346</b>	<b>\$8,842,622</b>		
*These projects are currently in design or construction and connections have not yet been completed.					
<b>TOTAL INVESTMENT</b> (Not including staff time)				<b>\$12,053,203</b>	



# Financial Analysis

## SWU FEE COMPARISON

<http://www.bcgov.net/departments/Engineering-and-Infrastructure/stormwater-management/faq.php#sixteen>

Jurisdiction	TY 2016 SWU Fee	TY 2017 SWU Fee	TY 2018 SWU Fee	TY 2019 SWU Fee Option E	TY 2020 SWU Fee Option E
Town of Hilton Head Island	Option A-\$108.70 / SFU	Option E-\$108.70 / SFU	Option E-\$150	\$150	\$150
City of Beaufort	Option E-\$105	Option E-\$105	Option E-\$105	\$105	\$100
Town of Bluffton	Option A-\$98 / SFU	Option A-\$98 / SFU	Option A-\$98 / SFU	\$98	Propose \$148
Town of Port Royal	Option E-\$50	Option E-\$60	Option E-\$60	\$60	\$60
Beaufort County	Option E-\$87	Option E-\$87	Option E-\$87	\$87	\$100

Option A. Current rate structure with updated source data; current approach for administrative fees based on impervious area units; compliance with current rate ordinance; pay-as-you-go capital financing

Option E. Modified rate structure based on impervious and gross area at 80/20 or 90/10 allocation; continued use of simplified residential rates; continued application of agricultural use policy; County-wide administrative costs allocated to per account basis; County-wide infrastructure maintenance costs allocated to impervious and gross area based on infrastructure miles per jurisdiction or other intra-jurisdictional allocation model; debt for some capital financing



# Financial Analysis

## Beaufort County Countywide Infrastructure Fee

	FY 2019-2020	FY 2020-2021	FY 2021-2022	FY 2022-2023	FY 2023-2024
Countywide Infrastructure (CWI) Cost Share					
City of Beaufort	\$ 6.11	\$ 6.28	\$ 6.48	\$ 6.68	\$ 6.68
Town of Port Royal	\$ 4.35	\$ 4.48	\$ 4.62	\$ 4.76	\$ 4.76
Town of Bluffton	\$ 26.29	\$ 27.02	\$ 27.85	\$ 28.72	\$ 28.71
Town of Hilton Head Island	\$ 6.73	\$ 6.92	\$ 7.14	\$ 7.37	\$ 7.37

- The CWI charge distributes the County's costs for County-wide infrastructure maintenance across all the unincorporated and incorporated areas of the County based on linear feet of pipes and open ditches in each jurisdiction.
- CWI Collected from Bluffton Residents in TY2018 estimated to be ~\$316k (~15,000 SFUs x \$20.38 = \$315,890)

<http://www.bcgov.net/departments/Administrative/beaufort-county-council/boards-and-commissions/council-appointed/board-list/stormwater-management-utility-board/agendas/2018/031418.pdf>



# Financial Analysis

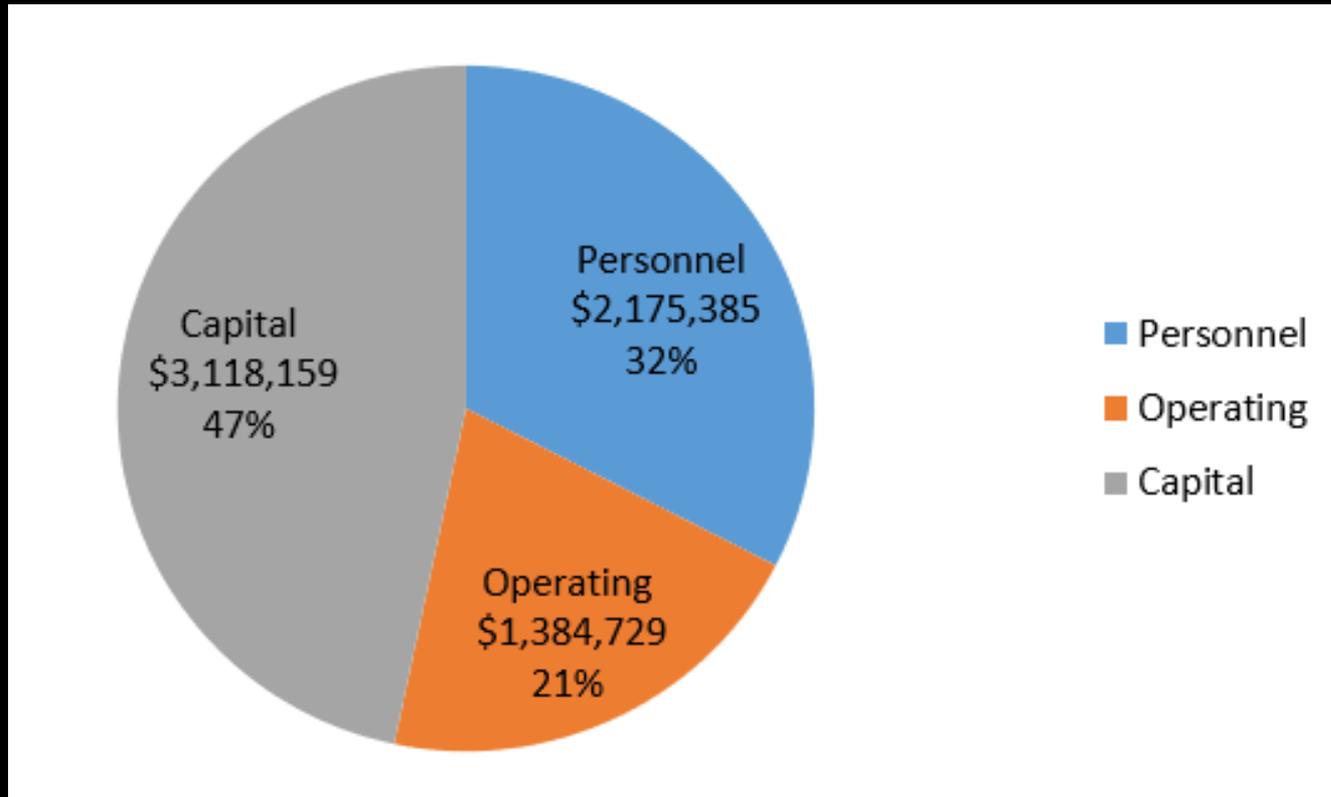
## CAFR – Stormwater Utility Fund Last 5 Fiscal Year Comparison

	2015	2016	2017	2018	2019	5 Year Total
<b><u>CAFR - Stormwater Fund</u></b>						
<b>Personnel</b>	404,182	420,851	451,797	463,368	435,187	2,175,385
<b>Operating</b>	215,397	213,586	272,208	277,219	406,319	1,384,729
<b>Capital Outlay</b>	108,234	394,499	96,749	-	39,860	639,342
<b>Transfer In/Out</b>	152,701	337,482	673,616	1,509,254	314,619	2,987,672
<b>Capital</b>	260,935	731,981	770,365	1,509,254	354,479	3,627,014
<b>Stormwater Fees</b>	1,115,601	1,219,119	1,276,931	1,350,857	1,484,111	6,446,619
<b>Total</b>	1,120,604	1,497,763	1,422,476	1,415,520	1,499,111	6,955,474
					Other Revenue Sources	508,855
					Interest Income	-
					Grants Revenue	508,855
Personnel	\$ 2,175,385					
Operating	\$ 1,384,729					
Capital	\$ 3,118,159					
	\$ 6,678,273					



# Financial Analysis

## 5-year Stormwater Utility Fee Allocation (FY15 – FY19)



# Current Priorities

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## Town of Bluffton Strategic Plan Fiscal Years 19-20 Priorities

- Municipal Separate Storm Sewer System (MS4) Implementation & Refinement – *on-going*
  - Minimum Control Measure #1 Public Outreach & Education
  - Minimum Control Measure #2 Public Involvement & Participation
  - Minimum Control Measure #3 Illicit Discharge Detection & Elimination
  - Minimum Control Measure #4 Construction Site Runoff Control
  - Minimum Control Measure #5 Post-construction Stormwater Management
  - Minimum Control Measure #6 Pollution Prevention “Good Housekeeping” for Municipal Operations
- Citizen Access Portal – See/Click/Fix – *completed*
- Cost/Level of Service Study for Stormwater Utility Fee – *completed*
- May River Watershed Action Plan Implementation: 319 Grant Phase 3 – Town Hall Parking Lot Retrofit – *completed*



# Current Priorities

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## Town of Bluffton Strategic Plan Fiscal Years 19-20 Priorities Continued...

- Old Town Master Plan Drainage Improvements Study – *on-going*
- May River Watershed Action Plan Update – Water Quality Model\* – *on-going*
- Establish Regional Ditch Maintenance Strategy & Implementation\* – *on-going*
- Southern Lowcountry Regional Stormwater Ordinance & Design Manual\* – *on-going*
- Sewer Extension & Connection in Town's jurisdiction – *on-going*

\*in coordination & cooperation with Beaufort County



# Proposed Priorities

Lisa Sulka  
*Mayor*  
Larry Toomer  
*Mayor Pro Tempore*  
Marc Orlando  
*Town Manager*



*Council Members*  
Fred Hamilton  
Harry Lutz  
Dan Wood  
Sandra Lunceford  
*Town Clerk*

August 22, 2018

Mr. Ed Saxon, P.E., General Manager  
Beaufort-Jasper Water & Sewer Authority  
6 Snake Road  
Okatie, SC 29909

Dear Mr. Saxon:

Subject: Prioritization of Sanitary Sewer Extension in the May River Watershed

This letter is in response to BJWSA's request for prioritization of sanitary sewer extension projects within the May River Watershed. This request arose from discussion following BJWSA's presentation of the May River Sewer Master Plan to the Joint Councils of Town of Bluffton and Beaufort County on 6/28/18.

At a staff level meeting between Dick Deuel, Bryan McIlwee, Kim Jones, Eric Larson, and Eric Greenway, the group jointly developed the following Town and County sewer extension recommendations based on the May River Watershed Sewer Master Plan exhibits:

Funded Projects Prioritization (Town of Bluffton CIP):

1. Old Town – Town of Bluffton Historic District Phases 1 – 6 (exhibit 1)

Unfunded Projects Prioritization (exhibit 2):

1. Stoney Creek/Palmetto Bluff Road area (area of concern: human fecal detection in receiving waters)
2. Gascoigne Bluff area – May River Plantation (area of concern: human fecal detection in receiving waters)
3. Alljoy area – Thomas Lawton to Shad Avenue (area of concern: septic inundation and episodic failures due to localized flooding)
4. Alljoy area – Ulmer Road to Pine Island (area of concern: septic inundation and episodic failures due to localized flooding)
5. Gascoigne Bluff area (area of concern: lack of sanitary sewer; septic uses)
6. Cahill area (area of concern: lack of sanitary sewer; septic uses)
7. Pritchardville area (area of concern: lack of sanitary sewer; septic uses)

Based upon this information, our understanding of the next steps are that BJWSA staff will develop phased schematics for sewer extension within these prioritized areas and cost estimates for each phase for further discussion with Town and County.

Theodore D. Washington Municipal Building  
20 Bridge Street P.O. Box 386 Bluffton, South Carolina 29910  
Telephone (843) 706-4500 Fax (843) 757-6720  
[www.townofbluffton.sc.gov](http://www.townofbluffton.sc.gov)

Sincerely,

*Marc Orlando*  
Marc Orlando, ICMA-CM, Town Manager  
Town of Bluffton

MO/kj

Enclosures (2)

EC: Town of Bluffton Town Council; Beaufort County Council; BJWSA Board; Tom Keaveny, Beaufort County Interim County Administrator; Bryan McIlwee, P.E., Director of Engineering; Eric Larson, P.E., Beaufort County Director of Environmental Engineering & Land Management, Eric Greenway, Beaufort County Community Development Director; Dick Deuel, P.E., Development Projects Manager

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# Proposed Priorities

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- 2019 BJWSA Cost estimates (via BJWSA email from Brian Chemsak, PE on 7/22/19):
  - Old Town Gravity Sewer - \$2,600,000
  - Stoney Creek Vacuum - \$4,700,000
  - Gascoigne Low Pressure Sewer – \$2,100,000
  - Alljoy Gravity Sewer - \$12,500,000
  - Cahill Low Pressure Sewer - \$3,700,000
  - Pritchardville Vacuum - \$9,500,000
- BJWSA anticipates 1/3 of total project budget in their capital funds, leaving 2/3 unfunded.



# Discussion



## Watershed Investments and Improvements

Town of Bluffton

Joint Councils Meeting

February 25, 2020