



May River Watershed Action Plan Advisory Committee Meeting

Thursday, August 22, 2024 at 3:00 PM

Theodore D. Washington Municipal Building, Henry "Emmett" McCracken Jr. Council Chambers,
20 Bridge Street, Bluffton, SC

AGENDA

I. CALL TO ORDER

II. ROLL CALL

III. ADOPTION OF MINUTES

- [1.](#) Adoption of July 25th, 2024 Minutes

IV. PUBLIC COMMENT

V. PRESENTATIONS, CELEBRATIONS, AND RECOGNITIONS

- [1.](#) Presentation on USCB Microbial Source Tracking (MST) Program - Dr. Tye Pettay, Assistant Professor, Department of Natural Sciences, USCB
- [2.](#) May River Watershed Action Plan Water Quality Program Update - Beth Lewis, Water Quality Program Manager

VI. ADJOURNMENT

NEXT MEETING DATE: September 26th, 2024

“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. Auditory accommodations are available. Any person requiring further accommodation should contact the Town of Bluffton ADA Coordinator at 843.706.4500 or adacoordinator@townofbluffton.com as soon as possible but no later than 48 hours before the scheduled event.

Executive Session – The public body may vote to go into executive session for any item identified for action on the agenda.

**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. To submit a public comment online, please click here:*

<https://www.townofbluffton.sc.gov/FormCenter/Town-15/Public-Comment-60>

Public comment is limited to 3 minutes per speaker.

May River Watershed Action Plan Advisory Committee Meeting

Theodore D. Washington Municipal Building, Henry “Emmett” McCracken Jr. Council Chambers, 20
Bridge Street, Bluffton, SC

July 25, 2024

I. CALL TO ORDER

Chair Rogers called the meeting to order at 3:03pm.

II. ROLL CALL

PRESENT

Chris Shoemaker
Vice Chair Al Stokes
Chair Stan Rogers
Jessie White
Chris Kehrer
Larry Toomer

ABSENT

Amber Kuehn

III. ADOPTION OF MINUTES

1. Adoption of June 27th, 2024 Minutes

Motion to adopt the June 27th, 2024 made by White, Seconded by Shoemaker.

Voting Yea: Shoemaker, Vice Chair Stokes, Chair Rogers, White, Kehrer, Toomer

IV. PUBLIC COMMENT

V. NEW BUSINESS

1. Election of Officers - Beth Lewis, Water Quality Program Manager

Motion to have Stan Rogers continue serving as WAPAC Chairman and Al Stokes continue serving as WAPAC Vice-Chairman made by White, Seconded by Shoemaker.

Voting Yea: Shoemaker, Vice Chair Stokes, Chair Rogers, White, Kehrer, Toomer

2. Strategic Plan Priority Seven (7) to establish a Climate Resiliency Plan for adaptation to coastal impacts from changing environmental conditions (“rain bombs” and sea level rise) on stormwater runoff water quality and quantity. Assess the environmental resilience of stormwater ponds to changing climate conditions for retrofit opportunities, e.g. ensuring ponds have capacity to hold rain events instead of being pumped full of ground water. – Beth Lewis, Water Quality Program Manager

Staff presented on the Resiliency Analysis and Comprehensive Drainage Studies currently in process by the Town. These studies include engaging community members to identify historical areas of flooding through a coastal flooding survey, scientific modeling, and

analyzing current stormwater infrastructure. The committee then offered feedback for Town consideration, which included the following: releasing the coastal flooding survey in Spanish; including marsh migration data in the Town's dataset that will drive a watershed resiliency plan; working with the South Carolina Department of Natural Resources (SCDNR) to obtain data on oyster migration and oyster leases and focusing Town HOA educational resources on best irrigation practices.

VI. ADJOURNMENT

Motion to adjourn at 4:30pm made by White, Seconded by Shoemaker.

Voting Yea: Shoemaker, Vice Chair Stokes, Chair Rogers, White, Kehrer, Toomer

NEXT MEETING DATE: August 22nd, 2024

DEVELOPMENT OF NEW MARKERS TO TRACK FECAL CONTAMINATION IN THE MAY RIVER



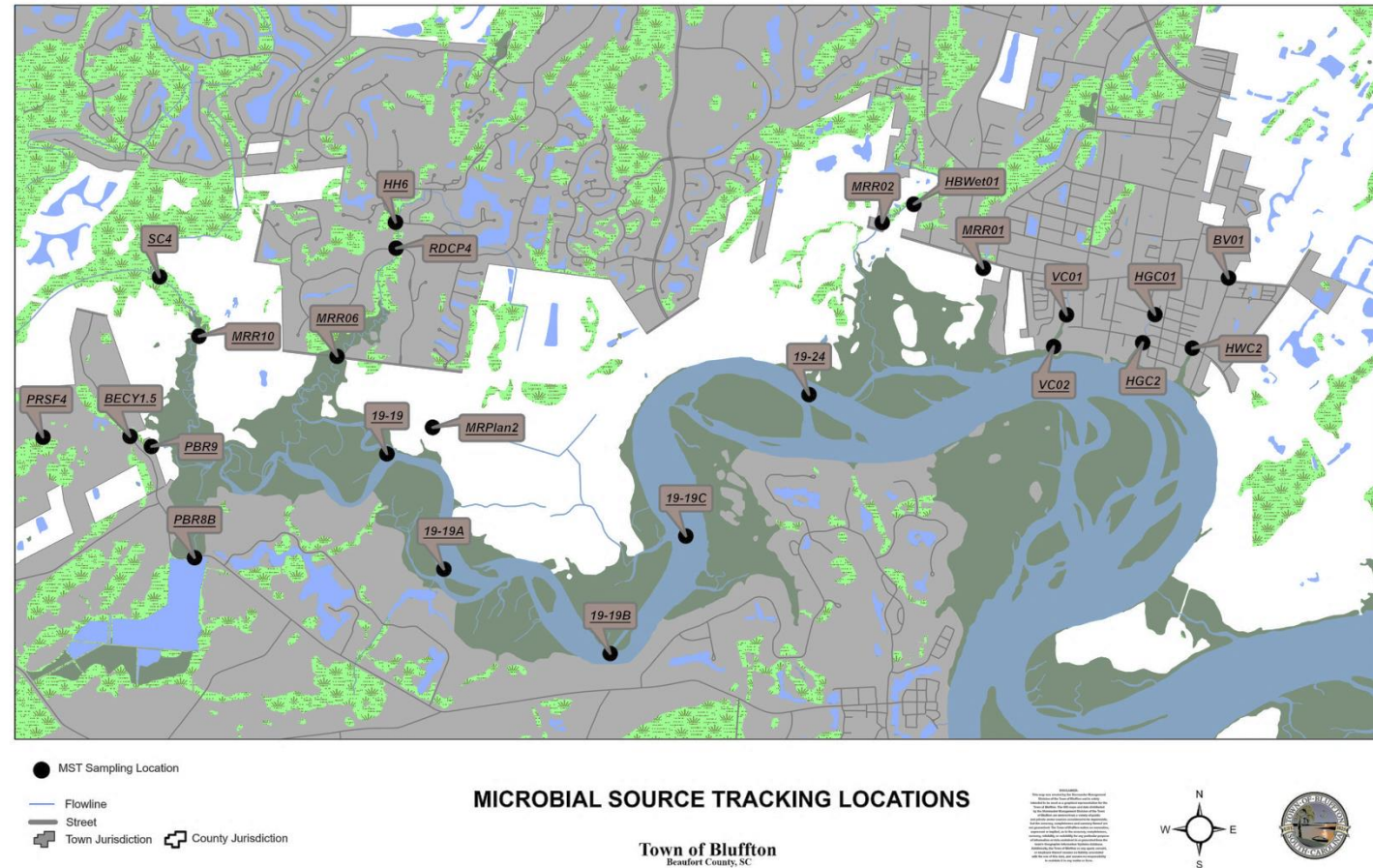
Water Quality Lab
Tye Pettay
August 22, 2024



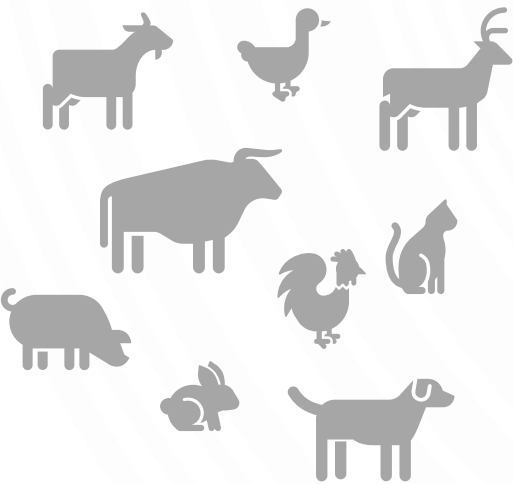


BACTERIAL SOURCE TRACKING – MAY RIVER

- Began in late 2016
 - Goal: identify source of bacteria
 - Establish mitigation plans
 - Monitor for “leaky” septic systems
- Detect:
 - Human fecal contamination
 - Livestock/pets
 - Wildlife
- Samples collected:
 - Monthly basis at DHEC sites (Shellfish)
 - Town of Bluffton
 - Wet & dry
 - MRWAP & MS4
- Began at USCB in July 2021

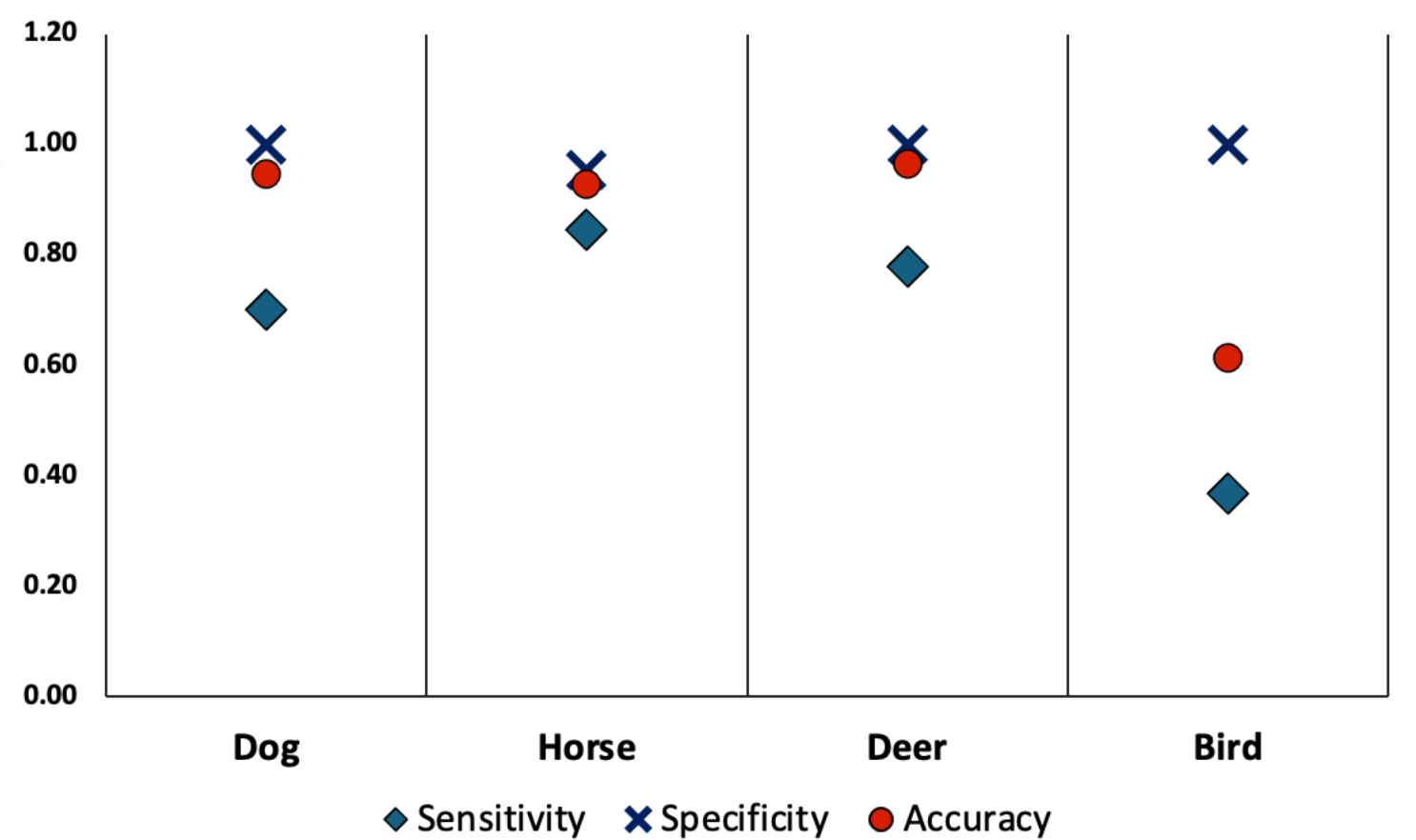


SOURCE SAMPLES



Animal	# Samples	Location	Section V. Item #1.
Dog	11	Beaufort, Bluffton, Hilton Head, Summerville	10
Horse	14	Beaufort, Okatie, Claxton (GA)	13
Deer	9	Bluffton, Sheldon	9
Goose	14	Beaufort, Bluffton	14
Chicken	4	Okatie, Columbia	3
Duck	2	Bluffton	2
Pig	3	Okatie, Columbia	2
Donkey	2	Okatie, Columbia	1
Goat	3	Beaufort, Okatie, Columbia, Summerville	1
Bobcat	2	Sheldon	0
River Otter	2	Sheldon	0
Rabbit	2	Beaufort, Columbia	0
Turkey	1	Sheldon	0
Woodstork	1	Sheldon	0
Cow	6	Yemassee, Summerville	0
Alpaca	1	Columbia	0
Cat	0	N/A	0
Total	77		55

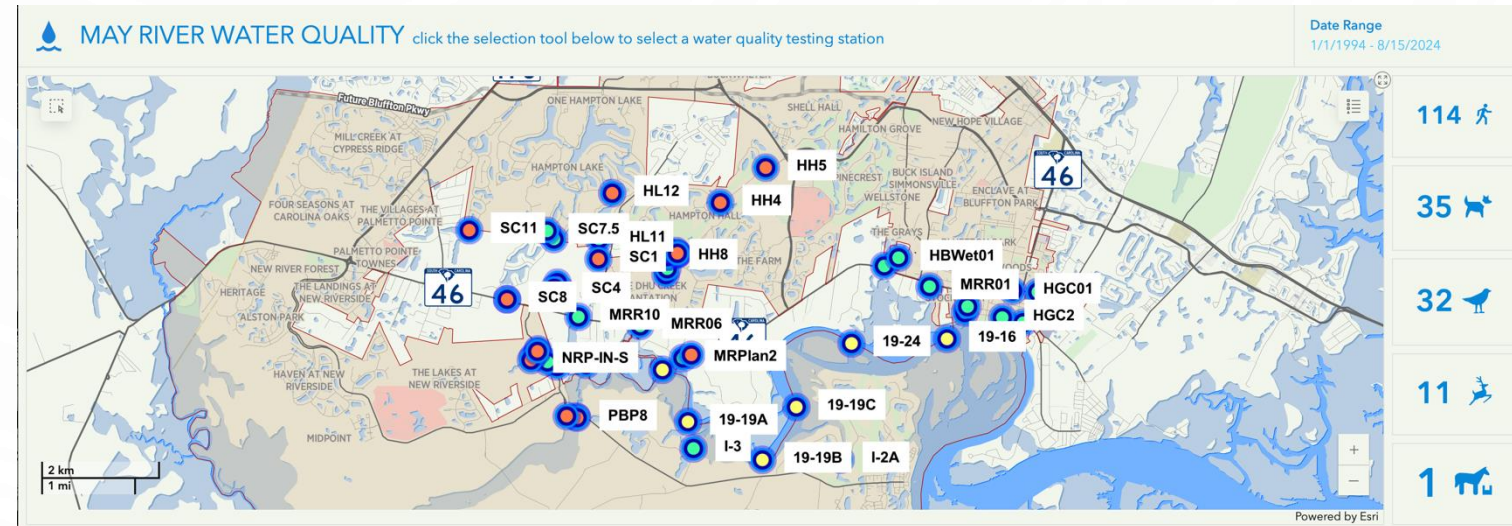
NEW MARKER RESULTS



MST Marker	Positive	False Negative	Negative	False Positive	Sensitivity	Specificity	Accuracy
Dog	7	3	46	0	0.70	1.00	0.95
Horse	11	2	41	2	0.85	0.95	0.95
Deer	7	2	47	0	0.78	1.00	0.95
Bird	7	12	12	0	0.37	1.00	0.61

NEXT STEPS

- Discuss locations to begin using new markers on a regular basis
- Retroactively analyze previous samples with high contamination not attributed to human sources
- Continue screening markers from additional animal sources
- Develop additional new markers
 - Optimization
 - Newly designed (i.e., cat)
- Publish results
 - Screening of new markers
 - Long-term MST data for the May River



QUESTIONS?



TOWN OF BLUFFTON

MAY RIVER WATERSHED ACTION PLAN

WATER QUALITY PROGRAM UPDATE

Section V. Item #2.



August 2024

Beth Lewis, Town of Bluffton Water Quality Program Manager

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04 Fiscal Year 2025

BACKGROUND - 2011 ACTION PLAN

Section V. Item #2.



- 2009 SC Department of Health and Environmental Control (SCDHEC now DES) Shellfish Harvesting impairment in the May River Headwaters.
- The May River Watershed Action Plan (Action Plan) was adopted by Town Council in 2011.
- The Action Plan is considered a “living document” periodic assessment of its recommendations is required to reflect the current state of knowledge about stormwater treatment practices and policies to reduce fecal coliform (FC) bacteria levels.

BACKGROUND – 2021 ACTION PLAN UPDATE & MODEL REPORT

Section V. Item #2.



- Beginning in 2019, the Town worked with a Project Team to develop watershed-water quality models for the four (4) May River Headwaters subwatersheds (Stoney Creek, Rose Dhu Creek, Duck Pond, and Palmetto Bluff) where the shellfish impairments are located.
- The purpose of the modeling effort is to better understand fecal coliform (FC) fate and transport in the Headwaters subwatersheds to develop strategies ultimately intended to open all shellfish stations to harvesting.
- At the time of model development, the Town had flow data gaps due to a lack of continuous and intermittent flow.
- The May River Watershed Action Plan Update & Model Report (Action Plan Model Report) was adopted by Town Council in 2021.

BACKGROUND

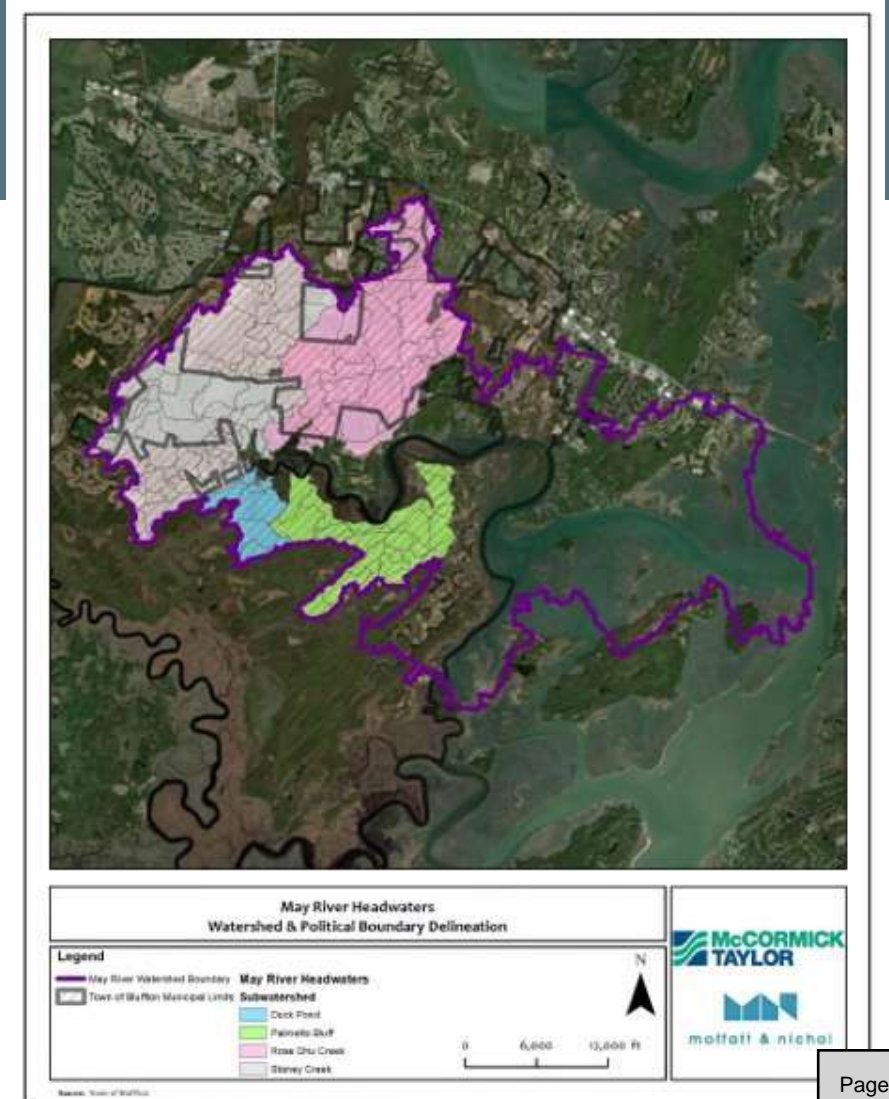
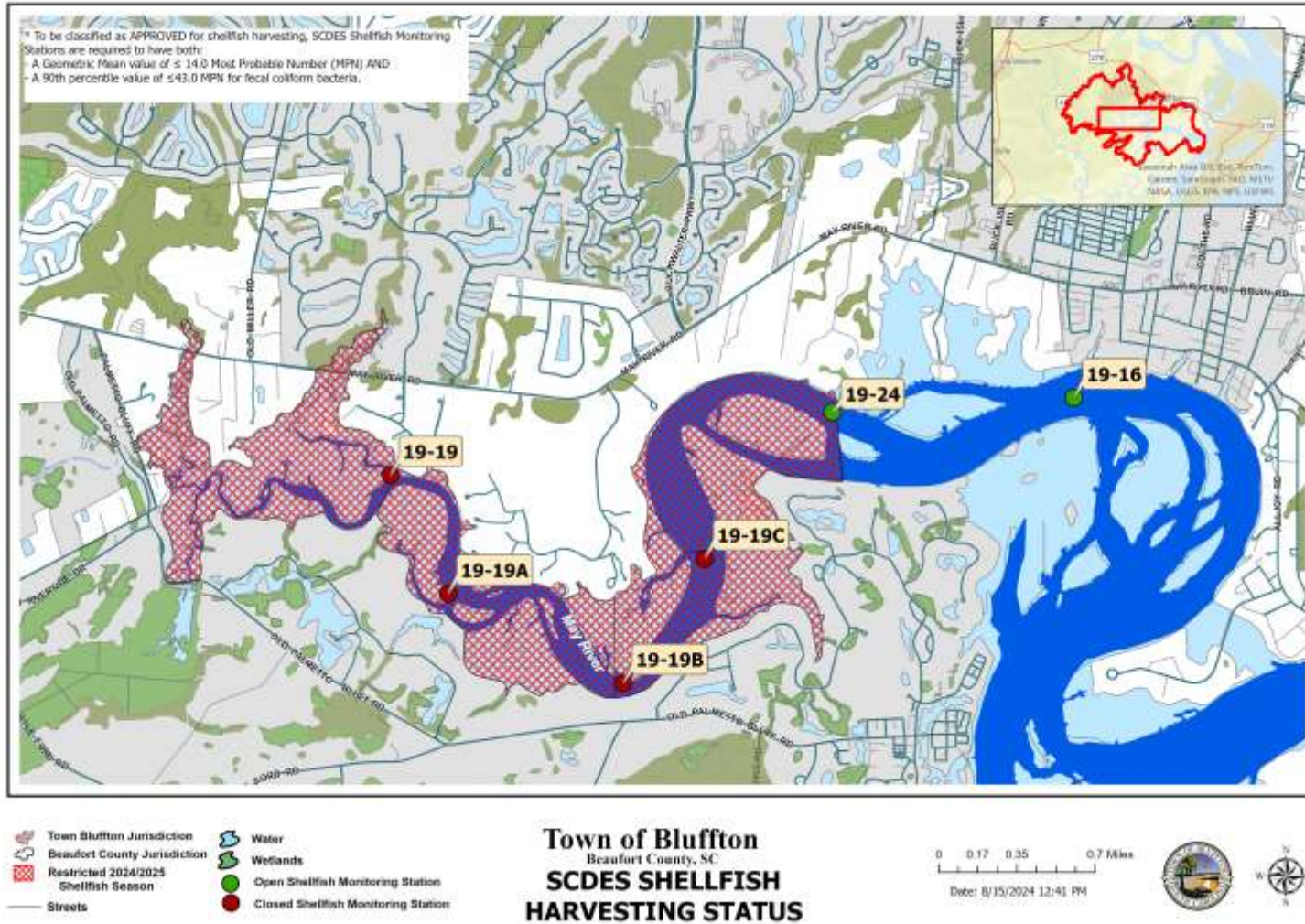


Figure 3. The May River Watershed and Headwaters

BACKGROUND – ACTION PLAN MODEL REPORT RECOMMENDATIONS

Action Plan Model Report Section 5.1.3 Future Water Flow Monitoring Locations:

The Town should set up gages for multiple conditions (baseflow, stormflow, wet seasons, dry seasons). A combination of continuous, long-term (1-2 years) and shorter-duration monitoring should be conducted. This would allow the model to be compared to an entire hydrograph & sequential hydrographs rather than a single point (a single flow measurement).

1. Establish at least 1 continuous flow monitoring site in the headwater subwatershed, nearest the outlet but with no or very minimal tidal influence. Potential candidates include upstream of MRR06 or MRR10. At the same station, perform regular bacteria monitoring using a combination of weekly or biweekly grab samples or if possible composite storm samples.
2. Take flow measurements & bacteria samples (flow and water quality at the same time) at two or 3 stations farther up in the watersheds and where significant development occurs. Sampling every 2 weeks is recommended.

2021-2022 DATA COLLECTION

Section V. Item #2.

- Since early 2021, the Town has collected meteorological data and monitored flow to support calibration of the XPSWMM water quality model.
- In 2022, the Town retained Goodwyn, Mills, and Cawood (GMC) and their subconsultant, Water Environmental Consultants (WEC) to review and quality check (QC) measured data and determine its viability for model calibration.

2021-2022 DATA COLLECTION

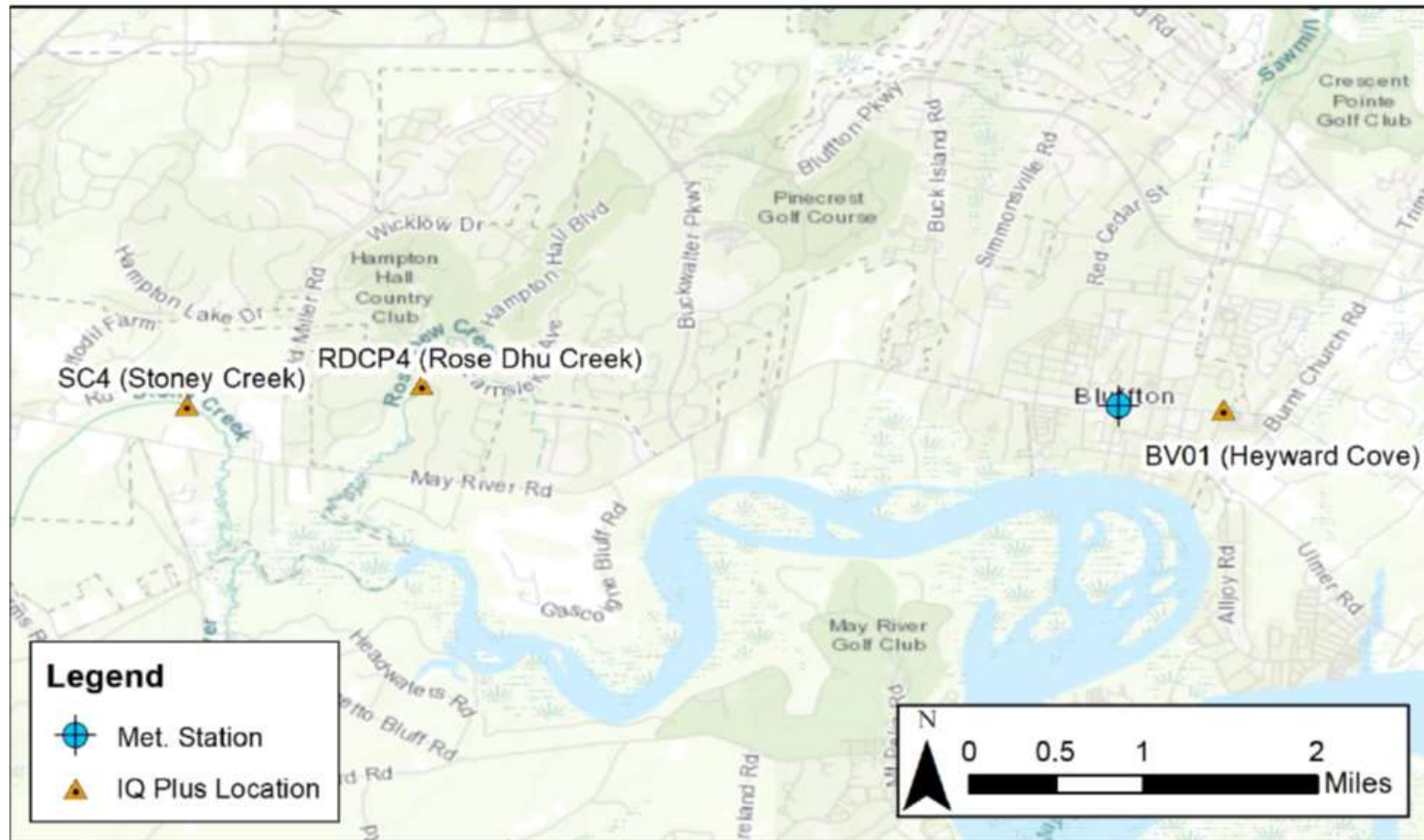


Figure 2-1. IQ Plus flow monitoring locations

2021-2022 DATA COLLECTION



SonTek IQ-Plus Deployments for Continuous Flow
Data Collection

2021-2022 DATA COLLECTION

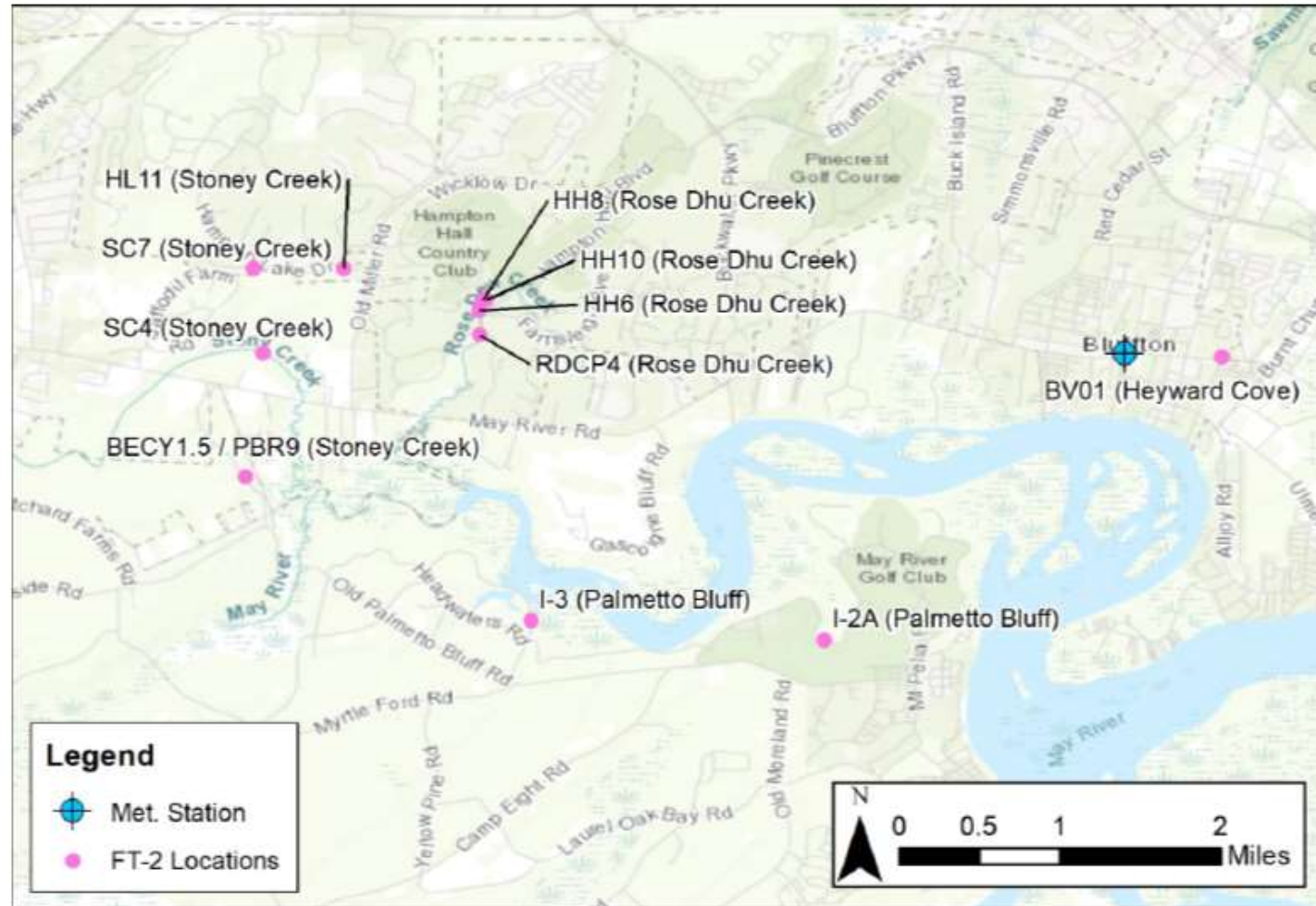


Figure 2-2. FT-2 flow monitoring locations

2021-2022 DATA COLLECTION



SonTek FlowTracker2 (FT2) for Intermittent Flow Data Collection

2021-2022 DATA COLLECTION



Parameters	Frequency
Fecal Coliform	Twice per Month
E. coli Bacteria	Twice per Month
Total Nitrogen (TN)	Once per Month
Total Phosphorus (TP)	Once per Month

Legend

-  SCDHEC Shellfish and Town MST

 Monthly

 Monthly and MS4
-  MS4 AND MS4

 MS4 Sites
-  May River Watershed

 I-2 Locations
-  Town of Bluffton Jurisdiction/ MS4 Boundary

Town of Bluffton
Beaufort County, SC
Sampling Locations



2021-2022 DATA COLLECTION

STONE CREEK SUBWATERSH ED OUTCOMES

- The IQ Plus gauge was located due north of the Stoney Crest Plantation Campground.
- Raw data records begin on 02/01/21.
- Creek cross-section was surveyed by the Town and input into the IQ-Plus instrument.
- Not referenced to a fixed datum such as North American Vertical Datum of 1988 (NAVD88).
- WEC data review in July 2022 determined the Town had sufficient continuous and intermittent flow data for model calibration in this subwatershed.

2021-2022 DATA COLLECTION

ROSE DHU CREEK SUBWATERSH ED OUTCOME S

- Instrument was located in Rose Dhu Creek Plantation and had to be relocated by staff several times due to on-going power issues and the depth of the channel.
- WEC review in July 2022 of the data from these locations determined the water depth was too low, and experienced frequent and often daily tidal influences.
- Data was not suitable for model calibration or the development of a stage-flow relationship.
- Recommendation to relocate the instrument to an upstream location in Hampton Hall.

2021-2022 DATA COLLECTION RESULTS

Section V. Item #2.



- 2022 WEC Final Report Recommendations:
 - While the Town had the minimum requirements for model calibration, WEC recommended extending the modeling period to capture more continuous wet and dry periods to ensure as much measured flow and stage data as possible to support the model calibration.
 - Calibration of the Rose Dhu Creek & Palmetto Bluff subwatersheds needed to be performed for a future data collection period.
 - Grab sampling should focus on wet weather events.

2023-2024 DATA COLLECTION

- Two (2) Turnkey SonTek IQ-Plus Systems purchased in Fiscal Year (FY2023) to allow for real-time data review through cloud-based service.
- Heyward Cove SonTek IQ-Plus moved to Palmetto Bluff for Palmetto Bluff subwatershed data collection. This instrument was integrated with a Turnkey system.
- The Town again retained Goodwyn, Mills, and Cawood (GMC) and their subconsultant, Water Environmental Consultants (WEC) to review and quality check (QC) measured data and determine its viability for model calibration.
- Rose Dhu Creek subwatershed instrument was moved to Hampton Hall off Farnsleigh Drive. This instrument was integrated with a Turnkey system.
- Intermittent Flow Tracking (FT2) sites were modified to address staff time. Sites with continuous flow meters did not have FT2 measurements collected routinely during grab sampling.

2023-2024 DATA COLLECTION

Section V. Item #2.



- Grab samples targeted wet weather events defined as ≥ 0.50 inches of rainfall within 24-hours of grab sample collection.
- WEC weekly review of data utilizing the Hydrosphere cloud-based service.
- Channel surveyed by Atlas and fixed datum such as North American Vertical Datum of 1988 (NAVD88).
- Duck Pond water elevation monitoring planning and implementation.

2023-2024 DATA COLLECTION



Telemetry SonTek IQ-Plus Systems
Installed April 2023
WEC Data Collection Period Ended April 2024

2023-2024 DATA COLLECTION DUCK POND

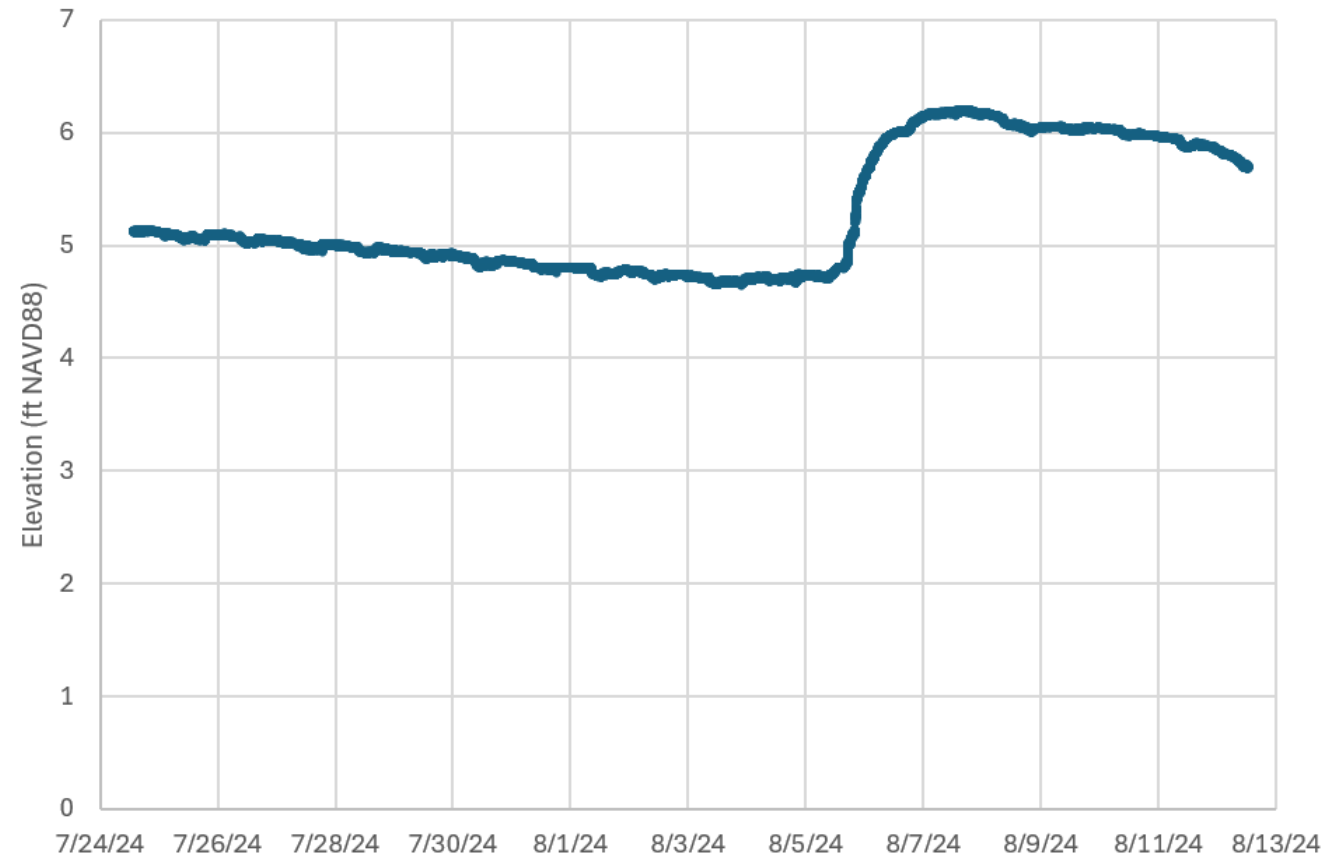
Section V. Item #2.

- July 2024 WEC installed a water elevation monitoring instrument on the Palmetto Bluff bridge at the Duck Pond.
- 6-month data collection period with expected completion in January 2024.



2023-2024 DATA COLLECTION

Duck Pond Water Surface Elevation



Tropical Storm Debby

FISCAL YEAR 2025

Section V. Item #2.



- The Town will have sufficient data to better calibrate its stormwater model this fiscal year.
- Town Council adopted the FY25 operating budget to include funding for model calibration.
- Staff anticipates initiating work in early 2025.

THANK YOU

Section V. Item #2.

Beth Lewis
Town of Bluffton
Water Quality Program
Manager
blewis@townofbluffton.com

Questions?