

TOWN OF BLUFFTON

MAY RIVER WATERSHED ACTION PLAN

WATER QUALITY PROGRAM UPDATE



August 2024

Beth Lewis, Town of Bluffton Water Quality Program Manager



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BACKGROUND - 2011 ACTION PLAN



- 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



- 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

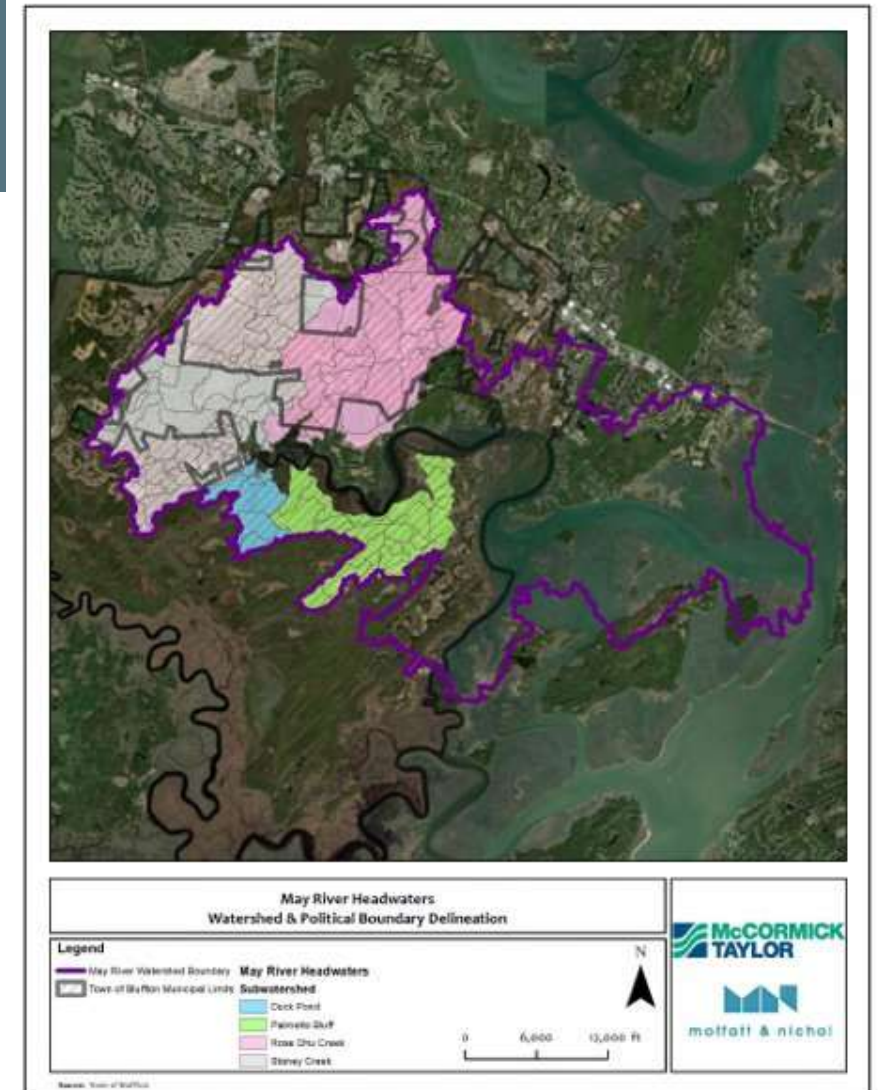
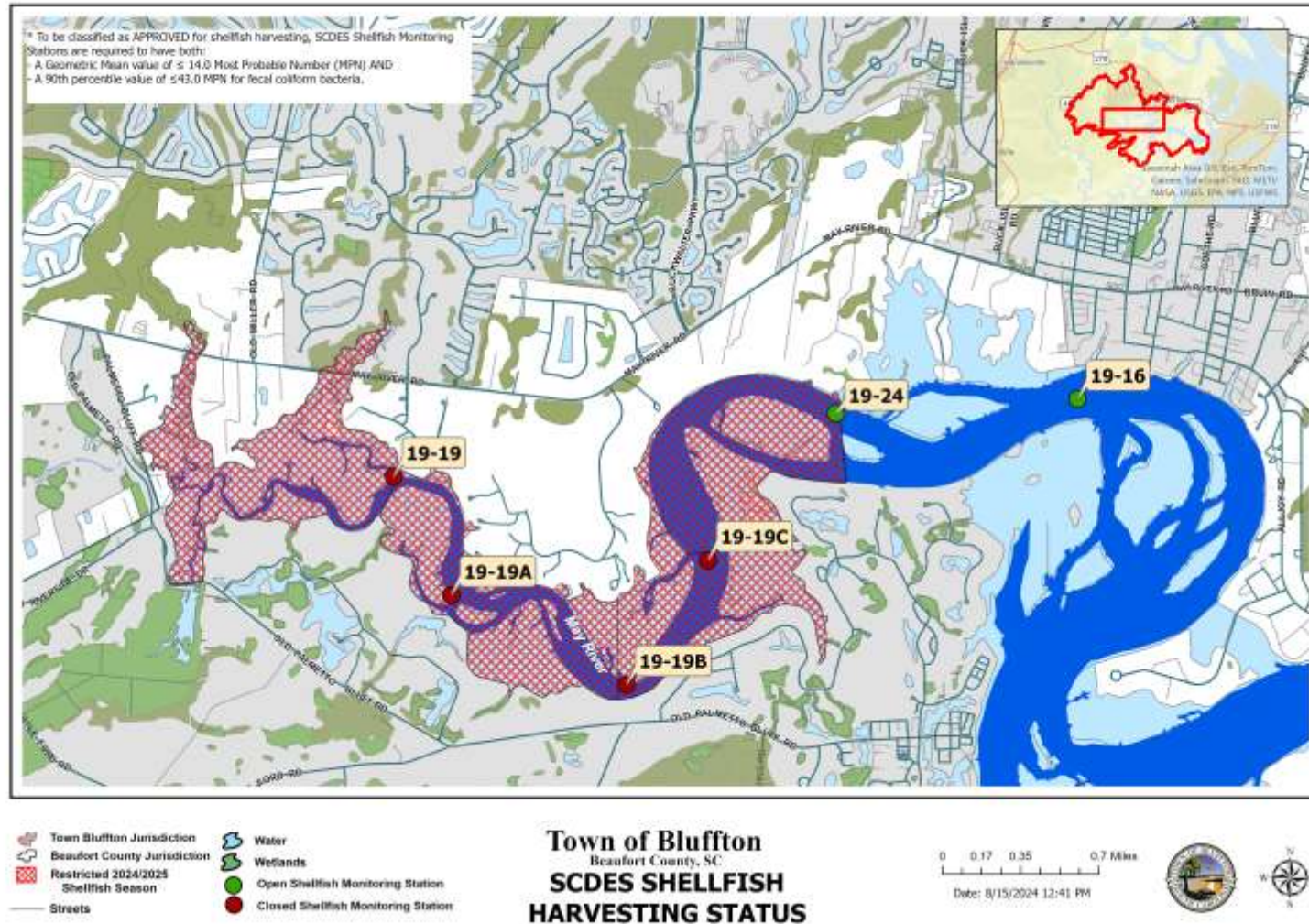


Figure 3. The May River Watershed and Headwaters

BACKGROUND – ACTION PLAN MODEL REPORT RECOMMENDATIONS



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

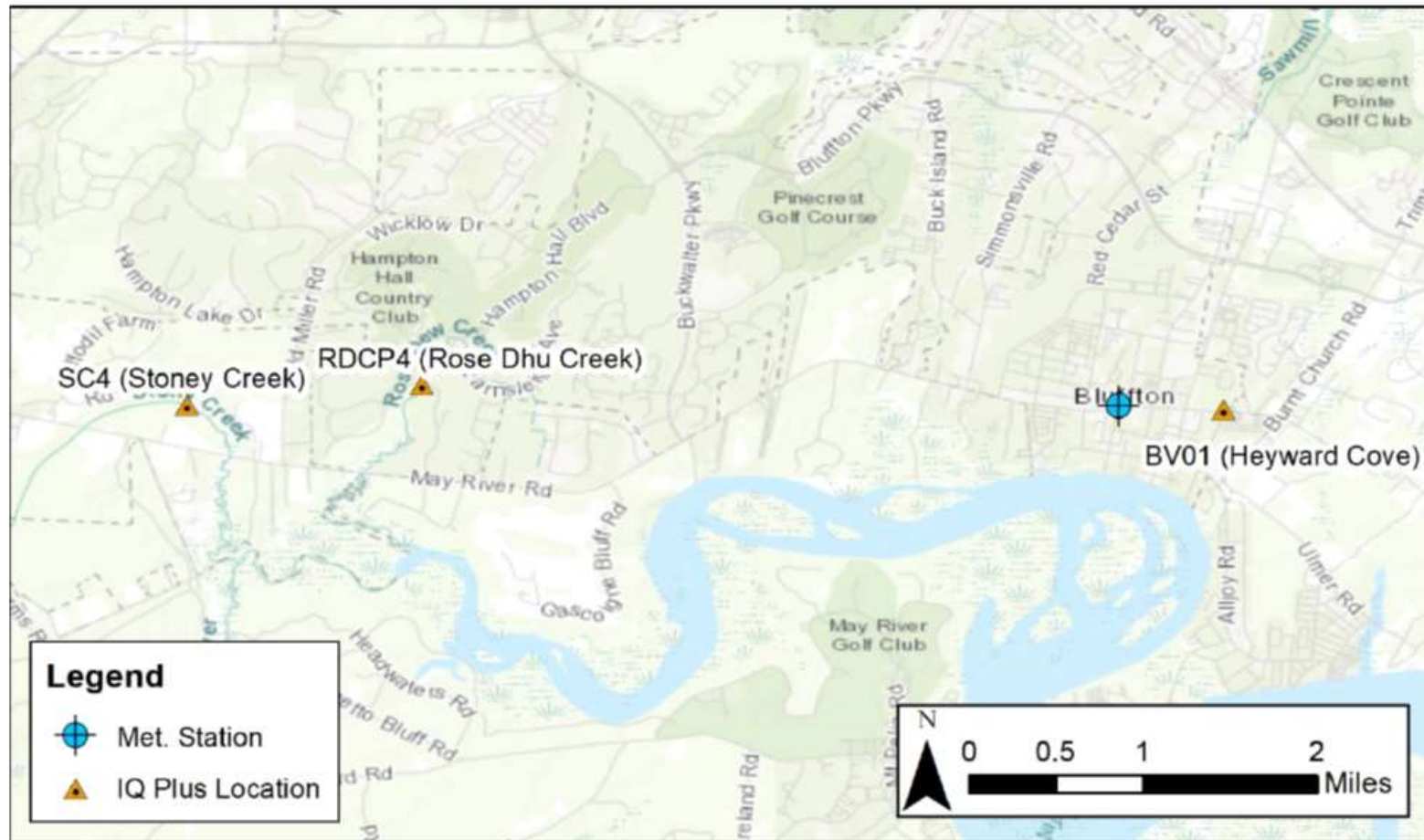
The Town should set up gages for multiple conditions (baseflow, stormflow, wet seasons, dry seasons). A combination of continuous, long-term (1-2 years) and shorter-duration monitoring should be conducted. This would allow the model to be compared to an entire hydrograph & sequential hydrographs rather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

- 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



2021-2022 DATA COLLECTION



SonTek IQ-Plus Deployments for Continuous Flow
Data Collection

2021-2022 DATA COLLECTION

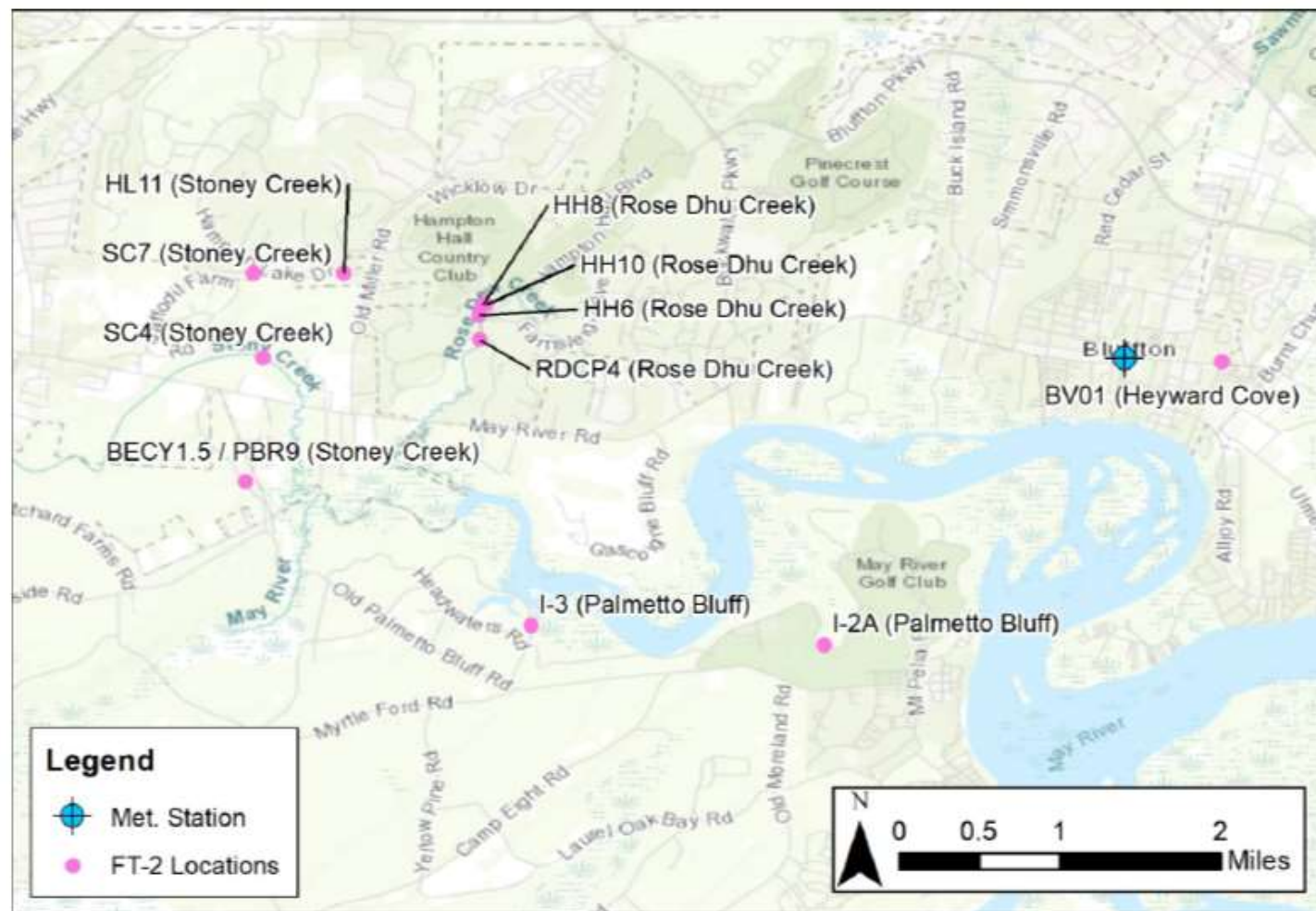


Figure 2-2. FT-2 flow monitoring locations

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

- SCDHDC Shellfish and Town MST
- Monthly
- Monthly and MS4
- MS4AP AND MS4
- MS4AP Sites
- May River Watershed
- Town of Bluffton Jurisdiction/ MS4 Boundary
- WQ Locations

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



- 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



- 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

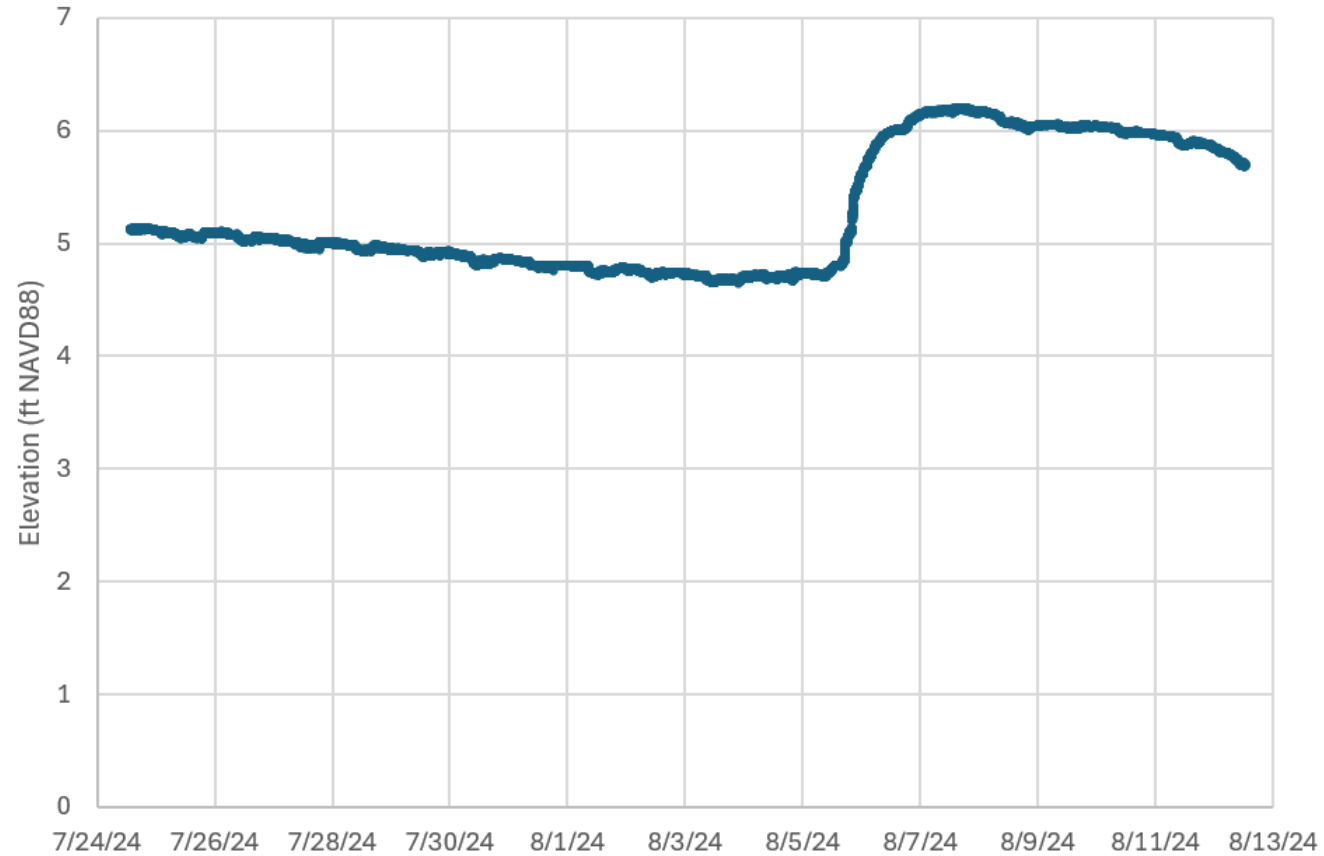


- July 2024 WEC installed a water elevation monitoring instrument on the Palmetto Bluff bridge at the Duck Pond.
- 6-month data collection period with expected completion in January 2024.



2023-2024 DATA COLLECTION

Duck Pond Water Surface Elevation



Tropical Storm Debby

FISCAL YEAR 2025



- 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



Beth Lewis

Town of Bluffton

Water Quality Program
Manager

blewis@townofbluffton.com

Questions?