



# May River Watershed Action Plan Advisory Committee Meeting

Thursday, May 23, 2024 at 3:00 PM

The Rotary Community Center at Oscar Frazier Park, 11 Recreation Court, Bluffton, SC

## AGENDA

### I. CALL TO ORDER

### II. ROLL CALL

### III. ADOPTION OF MINUTES

- [1.](#) Adoption of the March 28, 2024, Minutes

### IV. PRESENTATIONS, CELEBRATIONS, AND RECOGNITIONS

- [1.](#) May River Watershed Action Plan Project Implementation Status Report - Dan Rybak, Project Manager

### V. PUBLIC COMMENT

### VI. OLD BUSINESS

- [1.](#) Progress Report on the May River Watershed Baseline Assessment - Beth Lewis, Water Quality Program Manager

### VII. DISCUSSION

- [1.](#) Development of Strategic Plan Priority Ten (10) to complete a third-party assessment in FY24 of the stormwater regulations and Design Manual in the Unified Development Ordinance, particularly the Better Site Design element, to ensure intended outcomes are being met and modify the regulations if necessary - Andrea Moreno, MS4 Program Manager

### VIII. ADJOURNMENT

**NEXT MEETING DATE: June 27, 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](mailto: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

March 28, 2024

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## I. CALL TO ORDER

Chairman Rogers called the meeting to order at 3:07pm.

## II. ROLL CALL

### PRESENT

Amber Kuehn  
Chair, Stan Rogers  
Jessie White  
Chris Kehrer

### ABSENT

Chris Shoemaker  
Vice-Chairman, Al Stokes  
Larry Toomer

## III. ADOPTION OF THE AGENDA

### 1. Adoption of the March 28, 2024, Agenda

- Motion made by White to amend the agenda to add a staff update to the committee on the wetland buffer ordinance recently passed by the Planning Commission

Seconded by Kehrer.

Voting Yea: Chairman Rogers, White, Kuehn and Kehrer

- Motion made by White to amend the agenda to add a discussion on the April meeting schedule.

Seconded by Kuehn.

Voting Yea: Chairman Rogers and Kehrer

- Motion made by Kehrer to adopt the agenda as amended by

Seconded by Kuehn.

Voting Yea: Chairman Rogers, White, Kuehn, and Kehrer

## IV. ADOPTION OF MINUTES

### 1. Adoption of the February 22, 2024, Minutes

Motion made by White.

Seconded by Kehrer.

Voting Yea: Kuehn, Chairman Rogers, White, Kehrer

## V. PUBLIC COMMENT

## VI. OLD BUSINESS

1. **Development of the Strategic Plan Priority Five (5) to Establish an Agreement with Beaufort County to Implement the May River Watershed Action Plan within the County's Jurisdiction of the Watershed for Both Structural Stormwater Projects and Non-Structural Programs such as Implementing the Green Print Map within the Rural & Critical Lands Program** - Beth Lewis, Water Quality Program Manager

The committee reviewed and edited a memorandum detailing their recommendation to Town Council, on Strategic Plan Priority Five (5).

Motion made by Kehrer to adopt the memorandum as amended and recommend it go to Town Council for consideration.

Seconded by Kuehn.

Voting Yea: Kuehn, Chairman Rogers, White, Kehrer

Unanimous ayes.

## VII. NEW BUSINESS

1. **Wetland Buffer Ordinance Update** - Bill Baugher, Watershed Management Division Manager

Staff updated the committee on the wetland buffer ordinance they presented to Planning Commission on March 27, 2024. They provided background information that led to the ordinance being passed and allowed the committee to ask questions. Staff stated that the Planning Commission approved the proposed wetland buffer ordinance and that it would go to Town Council for first reading in April.

2. **Schedule for the April Watershed Action Plan Advisory Committee Meeting**

Motion made by White to hold the April meeting on April 24th, 2024 at 3:00pm at Town Hall

Seconded by Kuehn.

Voting Yea: Kuehn, Chair Rogers, White, Kehrer

Unanimous ayes.

## VIII. ADJOURNMENT

Motion made by Kuehn.

Seconded by White.

Voting Yea: Kuehn, Chairman Rogers, White, Kehrer

All were in favor and the motion passed. Meeting Adjourned at 4:42pm.

**NEXT MEETING DATE: April 24th, 2024**

WAPAC Meeting Presentation  
 May River Watershed Action Plan Update & Modeling Report  
 Overview and Status

Created: August 25, 2022

Updated: May 23, 2024

## Overview

- May River Watershed Action Plan Update & Modeling Report **completed** November 2020.
- Town Council Adoption of May River Watershed Action Plan Update as a Supporting Document to the Comprehensive Plan **completed** February 2021.
- May River Watershed Action Plan Update & Modeling Report Summary:
  - **Executive Summary** provides an overview of the project background, findings and interpretation, current state of knowledge concerning fecal coliform fate and transport, and an overview of proposed recommendations for the Town.
  - **1.0 Introduction** includes more detailed project background including the purpose of the document and the Project Team’s tasks to 1) develop water quality models to compare current conditions (2018) to pre-shellfish impairment conditions (2002) to develop pollutant load reduction estimates, and 2) evaluate 2011 Action Plan BMPs for appropriateness under current conditions and provide up to eleven (11) alternative projects and preliminary cost estimates.
  - **2.0 Model Setup; 3.0 Model Calibration, and 4.0 Water Quality Model Results** details the methodology used by the Project Team to establish and calibrate the models and the model outputs. This highly technical information is necessary for future Water Quality (WQ) Model calibration and use for consistency.
  - **5.0 Recommendations** includes strategies to improve the Town’s monitoring efforts to calibrate the WQ Model further (§5.1), strategies and BMPs for bacteria reduction (§5.2), an evaluation of 2011 Action Plan BMP projects (§5.3), and methodology used to develop 2020 Action Plan Update recommended projects (four septic to sewer conversion projects and eleven stormwater BMP retrofit projects) with cost-estimates and ranking/prioritization (§5.4).
  - **6.0 Conclusions** offers a summary of the WQ Model results in context of current state of knowledge.
  - **7.0 References** documents the prior research findings used to inform recommendations.
  - **Appendices** reference supporting materials:
    - Montie et al. (2019) “Technical Report: Historical Analysis of Water quality, Climate Change Endpoints, and Monitoring in Natural Resources in the May River,”
    - Technical Memo from Dr. Rachel Noble,
    - Watershed Treatment Model Spreadsheets, and
    - Detailed Project Cost Estimate Spreadsheets.

## **MRWAP 2020 Update Septic to Sewer Project Recommendations/Evaluations:**

- Four (4) septic to sewer conversion projects were evaluated in the Rose Dhu Creek and Stoney Creek subwatersheds:
  - Cahill
  - Gascoigne
  - Stoney Creek
  - Pritchardville
  - These projects overlap with 42 subcatchments in the Stoney Creek watershed and 11 in Rose Dhu Creek. Based on WQ Model outputs, these projects alone may potentially reduce FC loading by  $3.46 \times 10^{13}$  FC per year.
- The estimated septic to sewer conversion costs of these projects is \$5.5 million.

#### **Work Performed and Current Status as of August 25, 2022 Meeting**

Discussions with the Town, Beaufort County and BJWSA have been held about future Septic to Sewer Program projects identified above. Stoney Creek Septic to Sewer Project has been identified as the next priority project to pursue under the Septic to Sewer Program.

- The Town and Beaufort County are finalizing Funding and Cost share elements relative to the project and a letter to BJWSA will be developed and sent to BJWSA regarding project funding, capital outlay and schedule for implementation.

#### **Update for WAPAC February 23, 2023 Meeting:**

The Town, Beaufort County and BJWSA continue to work on details to draft a proposed Inter-Governmental Agreement (IGA) to be presented to each respective approving authority for review, finalization, and approval. It is anticipated that this process is months away from final approval/adoption of the respective parties.

#### **Update for WAPAC July 27, 2023 Meeting:**

**Stoney Creek/Palmetto Bluff Sewer: Three-party agreement is being finalized by BJWSA legal team now. BJWSA's RFP for water and sewer design services was supposed to close 6/30/23. Due to RIA protocol, they must review and approve an RFP prior to posting, thus the RFP was canceled. BJWSA anticipates receiving RIA approval and reposting the RFP on 7/17/23. BJWSA received RIA approval and reposted the RFP on 7/17/23 with a closing of 8/1/23.**

#### **Update for WAPAC January 25, 2024 Meeting:**

**Stoney Creek/Palmetto Bluff Sewer: All parties agreed to the IGA in October. The IGA will be presented to TC at the November TC meeting for review and approval. Beaufort County will present the IGA at their December meeting.**

#### **Update for WAPAC May 23, 2024 Meeting:**

**Stoney Creek/Palmetto Bluff Sewer: BJWSA is the project manager. Foresight Communications, a marketing/communications group, first community engagement for the project is 5/13/24. A new BJWSA project manager has been assigned, Beth Lowther. Kim, Mark and Felicia met with Charlie Stone, BJWSA Gov't liaison, and Ashley Goodrich, BJWSA planner, on 5/6/24 to discuss how**

they might use 319 funding to support future sewer connections. Next partner meeting is 6/13/24 at 9:30am.

## MRWAP Update Eleven Impervious Restoration (stormwater retrofit) Project Recommendations/Evaluations:

- Eleven (11) project sites (incorporating various individual BMPs) were selected in consultation with the Town (prioritizing subcatchments with FC bacteria hotspot and/or large impervious areas). These sites were evaluated in terms of the potential benefits gained by retrofitting to meet the 95th percentile storm retention, to the maximum extent possible, under the proposed Impervious Area Restoration/Stormwater Retrofit Program.

Eleven (11) proposed project sites Rose Dhu Creek (6 projects) and Stoney Creek (5 projects):

- Bluffton Early Learning Center (BELC)
- Boys and Girls Club of Bluffton (BGC)
- Benton House (BH)
- Bluffton High School (BHS)
- Buckwalter Recreation Center (BRC)
- Lowcountry Community Church (LCC)
- McCracken Middle School/Bluffton Elementary School (MMSBES)
- May River High School
- One Hampton Lake Apartments (OHLA)
- Pritchardville Elementary School (PES)
- Palmetto Pointe Townes (PPT)
- Based on WQ Model outputs, these projects alone may potentially reduce FC loading by
  - $2.99 \times 10^{14}$  FC reduction for the Full SWRv (entire sub-basin drainage area catchment).
  - $2.53 \times 10^{14}$  FC reduction for the Reduced SWRv projects (impervious area drainage area of sub-basin catchment).
- The estimated of Full SWRv projects costs is \$32.7 million and the estimated cost of Reduced SWRv projects is \$22.6 million.
- Currently the Towns' Impervious Restoration Program is targeting Reduced SWRv for future projects.

**Example** of Impervious Restoration Project evaluation from May River Watershed Action Plan Update & Modeling Report:



Figure 52. McCracken Middle School/Bluffton Elementary School Proposed Stormwater BMP Retrofits

**Work Performed and Current Status as of August 25, 2022 Meeting**

**Update for WAPAC February 23, 2023 Meeting:**

**Update for WAPAC July 27, 2023 Meeting:**

Work performed for this project is being performed by MSA Consultant Engineering Firm:

- Drafted a detailed scope of work for Engineering Consultant Firm review and cost proposal (Expression of Interest) regarding performance of the work elements presented herein and related to MRWAP Update recommendations for implementation.
- The Expression of Interest was submitted to 3 consultant firms under existing Master Service Agreements with the Town for review and a request for response.
- All 3 Firms responded and their respective responses were evaluated, scored and discussed internally.
- A recommendation for Award was made and the Consulting Firm of Goodwyn, Mills and Cawood selected.
  - Phase I of this work performed under existing FY 22 funding from Watershed Management Division.
  - Phase II of this work be presented for Town Council review and approval in the August 2022 Town Council Meeting and FY23 funding.

**Update for WAPAC February 23, 2023 Meeting:**

Phase II work was approved by Town Council and work has been initiated and reported herein. **This Task Completed**



Task 1 : MRWAP Update 11 site locations

**Update for WAPAC July 27, 2023 Meeting:**

**Update for WAPAC January 25, 2024 Meeting:**

Eleven (11) proposed project sites Rose Dhu Creek (6 projects) and Stoney Creek (5 projects):  
**Yellow** and **Blue** highlight indicates **geotechnical evaluations complete**.

- **Bluffton Early Learning Center (BELC)**. Participating in preliminary design development phase.
- **Boys and Girls Club of Bluffton (BGC)**. Participating in preliminary design development phase.
- **Benton House (BH)**. Participating in preliminary design development phase.
- **Bluffton High School (BHS)**. Participating in preliminary design development phase.
- **Buckwalter Recreation Center (BRC)**. Participating in preliminary design development phase.
- ~~Lowcountry Community Church (LCC).~~ **Declined to Participate.**
- **McCracken Middle School/Bluffton Elementary School (MMSBES)**. Participating in preliminary design development phase.
- **May River High School**. Participating in preliminary design development phase.
- ~~One Hampton Lake Apartments (OHLA).~~ **Declined to Participate.**
- **Pritchardville Elementary School (PES)**. Participating in preliminary design development phase.
- ~~Palmetto Pointe Townes (PPT).~~ **Declined to Participate.**

- Evaluate 11 sites and proposed BMPs. **Complete.**
- Update concept plans for 11 sites based on site evaluations, recommendations and discussions. **Complete.**
- Perform geotechnical evaluations at each site at locations related to BMP locations of updated concept plans. **Completed for the 5 school sites.** Geotechnical evaluations for the remaining **3** participating partner sites are being schedule based on recent property owner participation status being known/confirmed.

**Coordinating geotechnical work approval with property owners and schedule for Benton House (BH), Buckwalter Recreation Center (BRC) and Boys and Girls Club of Bluffton (BGC). Geotechnical field work for Benton House (BH), Buckwalter Recreation Center (BRC) and Boys and Girls Club of Bluffton (BGC) completed and data being analyzed and geotechnical report in development.**

**All geotechnical work and reports completed.**

- Refine updated concepts and use for presentations to Property Owner to discuss Impervious Restoration Program goals, objectives and gain support for Program and their participation. **Based on geotechnical investigation results, updated Concept plans for the 5 school sites have been refined. A meeting will be scheduled with School District to discuss the updated concept plans to get their feedback prior to beginning Preliminary Design task. Based on geotechnical investigation results, updated Concept plans for Benton House (BH), Buckwalter Recreation Center (BRC) and Boys and Girls Club of Bluffton (BGC) sites**

will be refined. A meeting will be scheduled with School District to discuss the updated concept plans to get their feedback prior to beginning Preliminary Design task.

**Field review meetings held March 28 and April 15, 2024 at each of the 9 participating sites. Meeting outcome was to review proposed BMPs and location to assess and rank BMP feasibility and cost/benefit. Based on discussions and field review Preliminary Design has been initiated.**

- Develop list of “incentives” to secure Property Owner participation (see **Policy Document Formulation below**).
- Based on geotechnical information and Property Owner feedback further refine concept plans to Preliminary Design :
  - Determine BMP types and location to maximize SWRv/WQ treatment in cost effective approach. **Estimated impervious area treated and SWrv capture based on refined Concept plans developed for the 5 school sites.**
  - Determine estimated pollutant load reductions.
  - Develop site specific BMP details.
  - Develop preliminary BMP maintenance schedule and cost for each site.
- Preliminary Design development plans will be presented to the Property Owner for review and discussion. Other Restoration Program details (maintenance responsibilities, easements, incentives, etc.) developed as part of the Program (see Policy Document Formulation below) will also be discussed in hopes of establishing a commitment from the Property Owner to participate in the Program. Once a “commitment” is secured from the Property Owner, the project site will be moved to Final design, permitting, and ultimately construction. **A meeting was held with School District on September 28, 2023 to discuss initial Preliminary Design development. Comments were noted and to be incorporated for final preliminary design plan development.**  
**Based on field review Preliminary Design has been initiated.**

**Task 2 :** Identify 15 new project sites for Town of Bluffton Impervious Restoration/BMP Retrofit Projects.

- The Town wishes to identify an additional 15 project sites located within the municipal limits of Bluffton for the Impervious Restoration/BMP Retrofit Program.. However, the criteria for site selection will be considered to be more “low hanging fruit” based on the following:
  - Within Town of Bluffton Municipal limits.
  - Soils – sandy soils with high infiltration rates offer the biggest bang for the buck for water quality treatment/improvement. Utilizing soil survey and other information target sites where infiltration can be maximized on-site.
  - Public or governmental agency land/property owner (not SCDOT RoW).

**Update for WAPAC February 23, 2023 Meeting:**

Desktop analysis and field work performed to develop a list of 45 sites that potentially meet the criteria above. This list of potential sites is under review/evaluation.

**Update for WAPAC July 27, 2023 Meeting:**

**Finalized the list of 15 additional sites (and 5 alternates) to be considered/evaluated within the municipal limits of Bluffton for Impervious Restoration feasibility and concept plan development. Site evaluations will be performed as property owner approvals for access to property to perform site assessment is obtained.**

**Update for WAPAC May 23, 2024 Meeting:**

Data search for these sites is ongoing in terms of existing plan information, current property owner and contacts.

**Yellow Highlight** indicate field investigations, drainage pattern evaluations and hand auger soil samples completed.

**Green Highlight** indicate contact made and coordination in process.

Initial concept plans are being developed for these sites for review. Other site evaluations will be performed as property owner approvals for access to property to perform site assessment is obtained.

- **Dominion Energy Engineering Office**
- **Rose Dhu Equestrian Center**
- **St. Gregory Catholic Church/School**
- **River Ridge Academy**
- **MC Riley Early Childhood Center**
- **MC Riley Elementary School**
- **MC Riley Sports Complex**
- **Bluffton Middle School**
- **Red Cedar Elementary School**
- ~~Seagrass Station Road Site determined to be not feasible, low cost/benefit.~~
- **Bluffton Pkwy West (170 to Buckwalter)**
- **Buckwalter Pkwy (Hampton Hall to May River Road)**
- **Persimmon St/Sheridan Park Cir/Pennington Dr**
- **Vaden Nissan Hilton Head**
- ~~NHC Healthcare/Bluffton (Healthcare, Rehab, Assisted Living) Declined to participate~~

**Town of Bluffton Impervious Restoration/BMP Retrofit Policy Documents.**

**Task 3** : Section 5.4.4. Stormwater BMP Retrofit Projects of the May River Watershed Action Plan Update and Model Report identifies potential Impervious Restoration/BMP Retrofit projects located on Public and Private Land. As mentioned earlier, one of the primary site selection criteria, at time of report development, was to identify sites with large impervious areas so that pollutant load reductions could be estimated and the benefits of such projects on stormwater quality quantified/estimated, if implemented into construction. Generally, Public Funds are not expended to improve private property nor is Town of Bluffton funding generally expended on Public Land owned by another government entity. In order for such projects identified in Section 5.4.4. to move forward in the interest of improved water quality and for the overall benefit and welfare of the constituents of the Town of Bluffton, Policy Documents need to be formulated that establishes the parameters of such a Program to be initiated and implemented.

- Policy Document Formulation has been initiated and includes research of similar Programs Nationwide.

**Update for WAPAC February 23, 2023 Meeting:**

2 *DRAFT* Policy Documents have been submitted for review and comment. Comments are being evaluated and addressed by consultant and an update *DRAFT* Policy Document is expected by April 2023.

**Update for WAPAC July 27, 2023 Meeting:**

- Updated Draft Policy Document was completed and submitted in June for review and comments are being finalized.
- Upon Policy Document Final Draft development, the Policy Document will be presented to WAPAC with a request for recommendation to Town Council for adoption.

**Update for WAPAC January 25, 2024 Meeting:**

- Internal review, discussion and comments of Updated Draft Policy Document was completed and submitted to Consultant September 10, 2023. Initial discussion of comments and path forward held November 3, 2023 with Consultant. Additional discussions with Consultant to be held.

**Update for WAPAC May 23, 2024 Meeting:**

- Based on review of content of the updated *DRAFT* Policy Document, The Town directed the document be organized into the following categories:
  - Enterprise Fund & Fee-in-Lieu Program – work on this section has been initiated.
  - ToB CIP Project Impervious Restoration Program & incentives
  - ToB SWrv Credit Trading Program (under evaluation)

**Other, Related MRWAP Update Recommendations**

- Adopt proposed regional Southern Lowcountry Post Construction Stormwater Ordinance and Design Manual - **complete** September 2021.
- The Town should incorporate volume reduction BMPs (those that encourage infiltration) within existing and future CIP projects to the maximum extent practical, especially for project locations with well-drained soils (HSG A or B) – **in progress**, see below.

○ **Work Performed and Current Status as of August 25, 2022 Meeting**

- Bridge Street Streetscape Project
  - Project design/permitting is complete, and Construction Contract has been awarded.
  - Incorporated Infiltration BMPs within the project to capture and treat 1.95” of rainfall over impervious surfaces within the project area, prior to discharge into the May River.
  - Received Section 319 Grant from DHEC to cost-share cost of construction of proposed BMPs.

**Update for WAPAC February 23, 2023 Meeting**

Construction was initiated by JS Construction in early December 2022. Construction considered 65% complete.

**Update for WAPAC July 27, 2023 Meeting:**

- Project work is Substantially Complete.

- **Partial reimbursement from DHEC for construction cost supported by 319 Grant requested and received.**

**Update for WAPAC January 25, 2024 Meeting**

- **Project and Grant work is complete and closed out.**
- **Total Grant funding for this project \$228,165.15**
- **Water Quality Monitoring Results**

**Water Quality Monitoring Summary:** Based on monitoring and rainfall data for the period of July 1- October 11, 2023, the only rainfall event that produced a stormwater outfall/discharge was an intense rain event on September 10, 2023 which produced 3.82” of rain in a 4 hour period. The next most intense storm happened on July 10, 2023 which produced 1.46” of rain in 1 hour and no stormwater outfall/discharge occurred. Based on this data, we estimate the BMP treatment train constructed with this project could accommodate a 10 year storm event (6.9” of rain in 24 hours) with little or zero runoff. Zero runoff equals zero pollutants, and zero freshwater being discharged to Huger Cove and the May River.

**From 319 Grant Project Final Report:** Pre-construction water quality monitoring was performed on October 19, 2022, which can be found in **Appendix C**. So, **prior to project construction** a simulated rain event was performed to provide an indication of the amount of rainfall prior to direct a discharge occurring into Heyward Cove and then water samples were collected and tested by USCB to determine pollutants present and their concentrations. The rainfall simulation was performed because there was no way to get a water sample once stormwater entered the BMP and was treated by BMP via infiltration into ground.

**Table 1** below is the Pre Construction Water Quality Monitoring Table of Pollutants:

Date	Time of Sample	TKN (mg/L)	Nitrate/Nitrite (mg/L)	Total Nitrogen (TN)	Total Phosphorus (TP)	TSS (mg/L)
10/19/2022	9:41	0.85	0.290	1.10	0.68	220.00

Three underground storage/infiltration and four pervious paver parking areas with underground storage were installed. After the completion of the BMPs, water quality monitoring was conducted to determine the reduction in pollutants with the newly installed BMPs. The installation of the Auto samplers were located at the two stormwater pipe outfalls into Heyward Cove, FES-1 and FES-2. Post-construction water quality monitoring occurred on September 11, 2023, which can be found in **Appendix C**. Based off the post-construction pollutant values, all values analyzed were reduced greatly, including TSS.

**Table 2** below is the Post Construction Water Quality Monitoring Table of Reduced Pollutants:

Date	Time of Sample	TKN (mg/L)	Nitrate/Nitrite (mg/L)	Total Nitrogen (TN)	Total Phosphorus (TP)	TSS (mg/L)
9/11/2023	16:46	0.64	0.14	0.78	0.19	8.4

Rainfall monitoring took place between July 1, 2023, and October 11, 2023, at the Watershed Building Office, 1261 May River Road. There were eight rainstorm events that had over an inch of water in 24 hours. In particular, there was one rainstorm on September 10<sup>th</sup>, 2023, where there was 3.82 inches of rain over the extent of four hours. This was the only recorded rain event, during the monitoring period, which produced a discharge of stormwater runoff into outfall FES-2 at Heyward Cove.

**Table 3** below are the eight storm events over an inch.

Rainstorms over and inch	
Rainstorm Event	Rainfall (in)
July 5th	1.46 inches over 1 hour
July 10th	1.17 inches over 7 hours
July 28 <sup>th</sup>	1.28 inches over the whole day
August 28 <sup>th</sup>	1.23 inches over 1 hour
August 30 <sup>th</sup>	1.23 inches over the whole day
September 1 <sup>st</sup>	1.1 inches over 3 hours
September 10 <sup>th</sup>	3.82 inches over 4 hours
September 17 <sup>th</sup>	1.09 inches over 6.5 hours

**Table 4** shows the monthly rain mounts in inches, with October only accounting for the first eleven days of the month and then monitoring stopped.

Monthly Rain Amounts	
Month	Rainfall (in)
July	7.35
August	5.3
September	7.56
October*	0.0
TOTAL	20.21

\*only accounted for October 1 – October 11, 2023

There are many benefits that come from the constructed/installed stormwater best management practices, that include: 1) reducing the concentrations of pollutants that are associated with stormwater runoff, 2) the amount and frequency of direct stormwater/freshwater discharges into Heyward Cove has greatly reduced. and 3) temporarily detain large portions of the runoff volume and then release it a slower rate to decrease the amount of flooding on the roads. With the BMPs that were used for Bridge Street Streetscape, the BMP benefits include the decrease in TSS and other pollutants, but also retrofitting the existing area that had no prior stormwater management in the surrounding area.

**Update for WAPAC May 23, 2024 Meeting**

**No stormwater outfall condition has been observed since the September 10, 2023 rain event.**

- Pritchard Street Drainage Improvement Project
  - Project in Design Phase and considered 30% complete.
  - Incorporated Infiltration BMPs within the project to capture and treat 1.95” of rainfall over impervious surfaces within the project area, prior to discharge into Heyward Cove.
  - Submitted Section 319 Grant proposal to DHEC to cost-share cost of construction of proposed BMPs. Pre-proposal was accepted, and Full Proposal was requested by DHEC. Under Review.
  - **Update for WAPAC February 23, 2023 Meeting**
    - 70% design plan submitted, reviewed and comments presented to consultant.
    - 319 Grant was awarded by DHEC to the Town.
  - **Update for WAPAC July 27, 2023 Meeting:**

- **Project Scope of Work and budget increase approved for FY24 to include streetscape elements of lighting, sidewalk, traffic calming and ADA compliance.**
  - **Updated survey received.**
  - **Updated 70% design drawings received in July and under review.**
  - **Update for WAPAC January 25, 2024 Meeting**
    - **Updated 70% Streetscape Design submittal made and review comments provided to Consultant for 90% Design development and permit acquisitions.**
    - **Pre-Application meeting for Project held with Growth Management and Stormwater Management.**
  - **Update for WAPAC May 23, 2024 Meeting**
    - **95% Design Submittal received February 29, 2024.**
    - **Public Project DRC meeting held April 3, 2024. Internal review comments completed and Design update in process.**
- **In-House Microbial Source Tracking – in progress, see below**
  - The Town entered a Memorandum of Understanding (MOU) with the University of South Carolina Beaufort (USCB) in July 2021 to establish and fund a regional Microbial Source Tracking (MST) laboratory capable of accepting environmental water quality samples.
  - Analytical services are provided by the USCB-MST laboratory for all environmental samples collected by the Town.
  - **Update for WAPAC February 23, 2023 Meeting** Staff has collected additional fecal samples needed for dog, bird, and deer. The USCB-MST Laboratory is conducting the assessment on additional fecal samples and Dr. Pettay will provide a final report to the Town once all fecal markers in regional watersheds have been analyzed.
  - **Update for WAPAC July 27, 2023 Meeting: Additional genetic fecal markers continue to be analyzed by Dr. Pettay and the MST Laboratory.**
  - **Update for WAPAC January 25, 2024 Meeting: Dr. Pettay is now the Lead Principal Investigator (PI) for both the MST and Water Quality Laboratories. Dr. Pettay, Town staff, and County staff met to discuss regional water quality monitoring needs. The MST Laboratory is still processing scat samples, and a final report is forthcoming.**
  - **Update for WAPAC May 23, 2024 Meeting: The MST Laboratory has finalized processing scat samples. Dr. Pettay will be providing a final report/update to the Town.**
- **Future (new) Bacteria Monitoring Locations - in progress, see below**
  - Staff increased sampling frequency and implemented additional monitoring sites and parameters in the May River headwaters based upon recommendations in the 2020 May River Watershed Action Plan Update and Model Report.
  - **Update for WAPAC February 23, 2023 Meeting:** Staff is collecting intermittent flow data at SonTek IQ sites in conjunction with grab FIB samples.

- **Update for WAPAC July 27, 2023 Meeting:** Staff is working with the consultant to identify recommended strategies for intermittent flow data collection and a review of the Town’s FIB grab sample schedule.
- **Update for WAPAC January 25, Meeting:** Staff continues to collect MRWAP bacteria grab samples twice per month at fourteen (14) monitoring locations in the May River headwaters study area. Intermittent flow measurements are collected at six (6) of these monitoring locations at the time of grab sampling.
- **Update for WAPAC May 23, Meeting:** Staff continues to collect MRWAP bacteria grab samples twice per month at fourteen (14) monitoring locations in the May River headwaters study area. Intermittent flow measurements are collected at five (5) of these monitoring locations at the time of grab sampling. The goal has been to collect grab samples following wet weather conditions to the maximum extent practicable. WEC has further defined wet weather as samples collected within 24-hours of  $\geq 0.50$  inches of rainfall. All Town grab samples are analyzed by the USCB Water Quality Laboratory.
- Future (new) Water Flow Monitoring Locations.
  - **Work Performed and Current Status as of August 25, 2022 Meeting**
    - The MRWAP Update included recommendations for the Town to perform certain rainfall and flow data measurements in May River Headwater Watersheds in order to “calibrate” and make more accurate Model predictions. These recommendations were evaluated and a game plan to address recommendations to calibrate model developed.
      - Utilizing existing flow and rainfall data collected over past years with rain gauges, IQ Plus and Sontek measuring instruments in Stoney Creek, Rose Dhu Creek, Palmetto Bluff, Duck Pond and Heyward Cove, the Town hired a consultant to review the data and determine:
        - Useful data obtained to gain the required information to calibrate model.
          - The data obtained from Stoney Creek and Heyward Cove was deemed sufficient for Model calibration and Final report for this work is in process.
          - Duck Pond was deemed inconsequential, not needed due to drainage area size and proximity/outfall to tidal waters.
  - **Update for WAPAC February 23, 2023 Meeting**
    - Consultant Final Report delivered, and Model Calibration Data for Stoney Creek and Heyward Cove identified.
  - If data review resulted in insufficient data, develop a monitoring program that would produce the data needed.
    - Rose Dhu Creek and Palmetto Bluff flow data review resulted in data that was insufficient to calibrate Model.
    - Final report identifying recommended strategies to gain required data is in process.



- Potential purchase of telemetry stations to equip continuous flow monitoring stations with real-time data access.

#### **Update for WAPAC February 23, 2023 Meeting**

- Final Report delivered. Based on recommendations of data and process needed, staff has procured needed telemetry station equipment and has hired a consultant to assist in getting the intermittent and continuous flow data and producing a Final Report. The fieldwork installation of equipment is scheduled. Once installed and operational, data collection will last 6 months.

#### **Update for WAPAC July 27, 2023 Meeting**

- **The Town of Bluffton procured and installed two (2) SonTek Turnkey Systems that enable real-time continuous flow data review to a cloud-based service. These systems are deployed in the Rose Dhu Creek and Palmetto Bluff subwatersheds.**
- **A SonTek IQ remains deployed in the Stoney Creek subwatershed. The consultant's first data review determined there was sufficient flow data for model calibration in the Stoney Creek subwatershed. However, staff determined it would continue to collect continuous flow data at this location so that continuous flow, intermittent flow, bacteria samples, and rainfall data were collected for three (3) of the four (4) Modeling Report subwatersheds simultaneously.**
- **Consultant is reviewing data and identifying power, beam, or possible maintenance issues weekly.**
- **Intermittent flow measurements, utilizing the FlowTracker2, will be conducted at the time of grab sampling at the three (3) SonTek IQ flow stations beginning 7/31/23.**

#### **Update for WAPAC January 25, 2024 Meeting:**

- **Staff continue to operate and maintain three (3) SonTek IQ continuous flow monitoring stations in the May River headwaters. Staff expect these systems to be in place for approximately one (1) full year to account for seasonality.**
- **The Duck Pond subwatershed has no channelized flow entering or exiting the system. The Town's consultant suggested that the Town monitor water**

elevation in the Duck Pond for approximately 6 months to ensure water elevations are accurately depicted by future modeling. Staff has requested permission to site a water elevation logger in the Duck Pond, near or attached to the Palmetto Bluff bridge.

- Clarification from the consultant determined that due to limited staff time, intermittent flow measurements would be most valuable at six (6) of the Town's water quality monitoring locations upstream of the SonTek IQ flow stations.
- Staff is working diligently to collect samples following wet weather conditions which have been defined as  $\geq 0.50$  inches of rainfall within 24 hours of sampling. The USCB Water Quality Laboratory has been assisting the Town with ensuring samples can be analyzed on short notice.

**Update for WAPAC May 23, 2024 Meeting:**

- Dr. Pettay continues as the Lead Principal Investigator (PI) for both the USCB-MST and Water Quality Laboratories. The MST Laboratory has finalized processing scat samples, and a final report is forthcoming.
- Staff continue to operate and maintain three (3) SonTek IQ continuous flow monitoring stations in the May River headwaters.
  - In FY23, the Town and its consultant determined it did not have sufficient data for the Rose Dhu Creek and Palmetto Bluff subwatersheds for model calibration. In April 2023, the Rose Dhu Creek and Palmetto Bluff SonTek-IQ Plus instruments, were installed and/or upgraded with Turnkey/Cloud-based Systems.
  - The Stoney Creek subwatershed SonTek IQ-Plus has operated almost continuously for two (2) full years. In FY23, the Town understood it had enough quality continuous and intermittent flow data for this subwatershed, so the SonTek-IQ Plus instrument was not upgraded with Turnkey/Cloud-based Systems. However, staff continued with continuous flow data collection (downloading data manually)

- efforts in conjunction with the Rose Dhu Creek and Palmetto Bluff subwatersheds.
- Water Environmental Consultants (WEC) has been conducting a weekly review of all continuous and intermittent flow data collected since The Town's Turnkey/Cloud-based Systems were implemented in April 2023. In April 2024, the one (1) full year of data collection ended. This data collection period allowed the Town to account for seasonality. WEC will provide final reports detailing these three (3) subwatersheds continuous and intermittent flow data for stormwater model calibration. These reports are expected to be received in FY25 for the Rose Dhu Creek, Stoney Creek, and Palmetto Bluff subwatersheds.
  - The Duck Pond subwatershed has no channelized flow entering or exiting the system. The Town's consultant suggested that the Town monitor water elevation in the Duck Pond for approximately 6 months to ensure water elevations are accurately depicted by future modeling. Staff has requested and received permission to site a water elevation logger in the Duck Pond, near or attached to the Palmetto Bluff bridge. This work is anticipated to commence July 2024 (Start of FY25).
  - Staff are working diligently to collect samples following wet weather conditions which have been WEC further defined wet weather as samples collected within 24-hours of  $\geq 0.50$  inches of rainfall. The USCB Water Quality Laboratory has been assisting the Town with ensuring samples can be analyzed on short notice.
  - The Town has been operating two (2) weather stations to collect local rainfall data in the May River Watershed. One weather station is located at the Town's Watershed Management Division Office and the other is located at the Town's Police Department Building. This data has been shared with WEC for inclusion in final reports.
  - The Town collects tidal elevation data utilizing a HOBO-U20 at the Calhoun Street Dock in Bluffton. WEC deployed two (2) headwater tidal elevation

**instruments on docks near the Rose Dhu Creek and Stoney Creek subwatershed model boundaries. This study was conducted for a period of 4-weeks to establish the relationship between the tidal amplitude and timing in the headwaters of the May River and the long-term tide gauge operated by the Town at the Calhoun Street dock. The outcomes of this study will be included in WEC's final reports.**

# **May River Action Plan 2020 Update Status Report and Update**

**Presentation to May River Watershed Action Plan  
Committee**

**May 23, 2024**

**Department of Projects & Watershed Resilience**

**Dan Rybak, Project Manager**

# Septic to Sewer Projects



- Four (4) septic to sewer conversion projects were evaluated in the Rose Dhu Creek and Stoney Creek subwatersheds:
  - Cahill
  - Gascoigne
  - Stoney Creek
  - Pritchardville
  - These projects overlap with 42 subcatchments in the Stoney Creek watershed and 11 in Rose Dhu Creek. Based on WQ Model outputs, these projects alone may potentially reduce FC loading by  $3.46 \times 10^{13}$  FC per year.
- The estimated septic to sewer conversion costs of these projects is \$5.5 million.

## Work Performed and Current Status

Discussions with the Town, Beaufort County and BJWSA have been held about future Septic to Sewer Program projects identified above. **Stoney Creek Septic to Sewer Project** has been identified as the next priority project to pursue under the Septic to Sewer Program.

Stoney Creek/Palmetto Bluff Sewer: BJWSA is the project manager. Foresight Communications, a marketing/communications group, first community engagement for the project is 5/13/24. A new BJWSA project manager has been assigned, Beth Lowther. Kim, Mark and Felicia met with Charlie Stone, BJWSA Gov't liaison, and Ashley Goodrich, BJWSA planner, on 5/6/24 to discuss how they might use 319 funding to support future sewer connections. Next partner meeting is 6/13/24 at 9:30am.

# Impervious Restoration Program Projects



Within the MRWAP 2020 Update, eleven (11) project sites (incorporating various individual BMPs) were selected in consultation with the Town (prioritizing subcatchments with FC bacteria hotspot and/or large impervious areas). These sites were evaluated in terms of the potential benefits gained by retrofitting to meet the 95th percentile storm retention, to the maximum extent possible, under the proposed Impervious Area Restoration/Stormwater Retrofit Program.

Proposed project sites Rose Dhu Creek (6 projects) and Stoney Creek (5 projects):

- Bluffton Early Learning Center (BELC). Participating in preliminary design development phase.
- Boys and Girls Club of Bluffton (BGC). Participating in preliminary design development phase.
- Benton House (BH). Participating in preliminary design development phase.
- Bluffton High School (BHS). Participating in preliminary design development phase.
- Buckwalter Recreation Center (BRC). Participating in preliminary design development phase.
- ~~Lowcountry Community Church (LCC).~~ **Declined to Participate.**
- McCracken Middle School. Participating in preliminary design development phase.
- Bluffton Elementary School (MMSBES). Participating in preliminary design development phase.
- May River High School. Participating in preliminary design development phase.
- ~~One Hampton Lake Apartments (OHLA).~~ **Declined to Participate**
- Pritchardville Elementary School (PES). Participating in preliminary design development phase.
- ~~Palmetto Pointe Townes (PPT).~~ **Declined to Participate.**

# Impervious Restoration Program Projects

## Task 1 : MRWAP Update 11 site locations

- Evaluate 11 sites and proposed BMPs. **Complete**
- Update concept plans for 11 sites based on site evaluations, recommendations and discussions. **Complete.**
- Perform geotechnical evaluations at each site at locations related to BMP locations of updated concept plans. **Complete.**
- Refine updated concepts and use for presentations to Property Owner to discuss Impervious Restoration Program goals, objectives and gain support for Program and their participation. Based on geotechnical information and Property Owner feedback further refine concept plans to Preliminary Design. **Field review meetings held March 28 and April 15 at each of the 9 participating sites. Meeting outcome was to review proposed BMPs and location to assess and rank BMP feasibility and cost/benefit. Based on discussions and field review Preliminary Design has been initiated.**
- Preliminary Design development plans will be presented to the Property Owner for review and discussion.



# Impervious Restoration Program Projects



**Task 2 :** Identify 15 new project sites for Town of Bluffton Impervious Restoration/BMP Retrofit Projects.

Data search for these sites is ongoing in terms of existing plan information, current property owner and contacts.

**Yellow Highlight** indicate field investigations, drainage pattern evaluations and hand auger soil samples completed.

**Green Highlight** indicate contact made and coordination in process.

Initial concept plans are being developed for these sites for review. Other site evaluations will be performed as property owner approvals for access to property to perform site assessment is obtained.

- **Dominion Energy Engineering Office**
- **Rose Dhu Equestrian Center**
- **St. Gregory Catholic Church/School**
- **River Ridge Academy**
- **MC Riley Early Childhood Center**
- **MC Riley Elementary School**
- **MC Riley Sports Complex**
- **Bluffton Middle School**
- **Red Cedar Elementary School**
- ~~Seagrass Station Road~~ Site determined to be not feasible, low cost/benefit
- **Bluffton Pkwy West (170 to Buckwalter)**
- **Buckwalter Pkwy (Hampton Hall to May River Road)**
- **Persimmon St/Sheridan Park Cir/Pennington Dr**
- **Vaden Nissan Hilton Head**
- ~~NHC Healthcare/Bluffton (Healthcare, Rehab, Assisted Living)~~ Declined to participate

# Impervious Restoration Program Projects



**Task 3** : Generally, Public Funds are not expended to improve private property nor is Town of Bluffton funding generally expended on Public Land owned by another government entity. In order for such projects identified in Section 5.4.4. to move forward in the interest of improved water quality and for the overall benefit and welfare of the constituents of the Town of Bluffton, Policy Documents need to be formulated that establishes the parameters of such a Program to be initiated and implemented.

## Update:

**Based on review of content of DRAFT Policy Document, The Town Feels the document needs to be organized into the following categories:**

- **Enterprise Fund & Fee-in-Lieu Program – work on this section has been initiated.**
- **ToB CIP Project Impervious Restoration Program & incentives**
- **ToB SWrv Credit Trading Program (under evaluation)**

# CIP Impervious Restoration Program Projects

Section IV. Item #1.



- **Bridge Street Streetscape Project** – Construction Complete.
- Post-construction water quality monitoring Continues.
- 319 Water Quality Grant Total Funding = **\$228,165.15**



# CIP Impervious Restoration Program Projects



- Bridge St Water Quality Monitoring Update

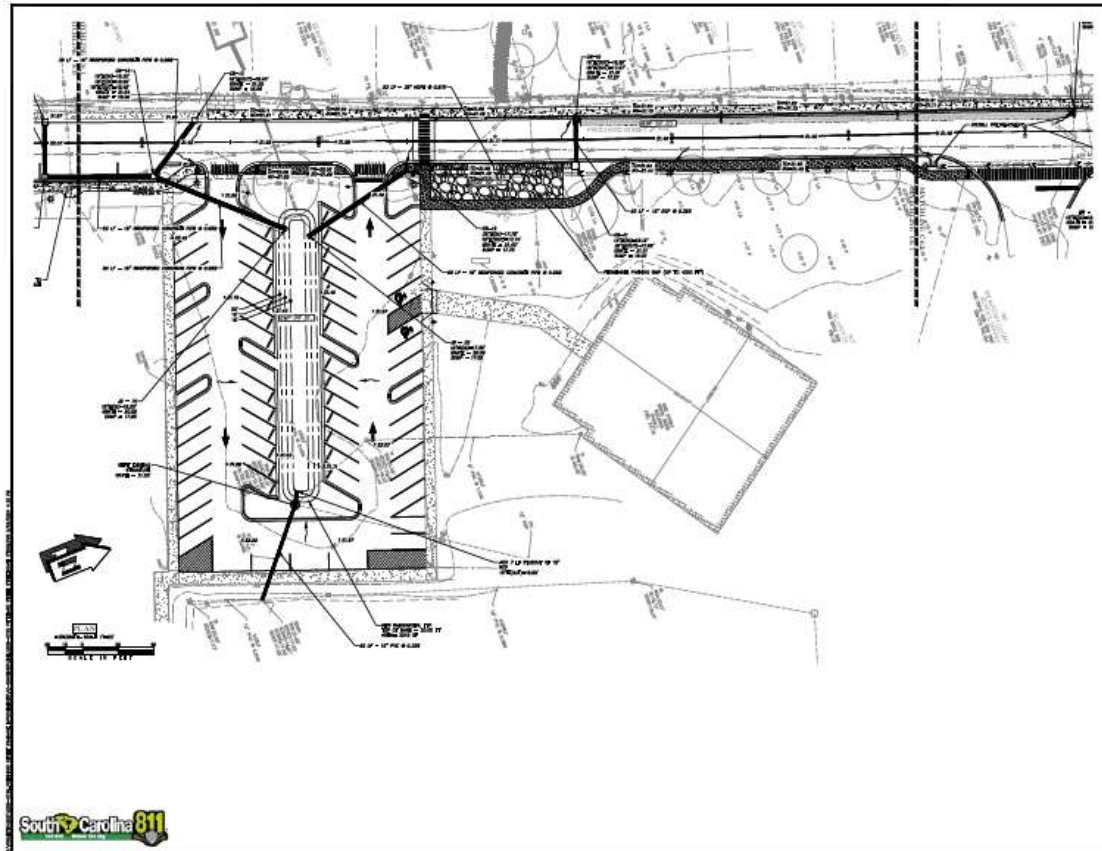
**Water Quality Monitoring Summary:** Based on monitoring and rainfall data for the period of July 1-October 11, 2023, the only rainfall event that produced a stormwater outfall/discharge was an intense rain event on September 10, 2023 which produced 3.82” of rain in a 4 hour period. The next most intense storm happened on July 10, 2023 which produced 1.46” of rain in 1 hour and no stormwater outfall/discharge occurred. Based on this data, we estimate the BMP treatment train constructed with this project could accommodate a 10 year storm event (6.9” of rain in 24 hours) with little or zero runoff. Zero runoff equals zero pollutants, and zero freshwater being discharged to Huger Cove and the May River. **No outfall condition has been observed since the September 10, 2023 rain event.**

RAINSTORMS OVER AND INCH	
Rainstorm Event	Rainfall (in)
July 5th	1.46 inches over 1 hour
July 10th	1.17 inches over 7 hours
July 28 <sup>th</sup>	1.28 inches over the whole day
August 28 <sup>th</sup>	1.23 inches over 1 hour
August 30 <sup>th</sup>	1.23 inches over the whole day
September 1 <sup>st</sup>	1.1 inches over 3 hours
September 10 <sup>th</sup>	3.82 inches over 4 hours
September 17 <sup>th</sup>	1.09 inches over 6.5 hours

# Impervious Restoration Program Projects



- **Pritchard Street Drainage Improvement and Streetscape Project**
- 95% Design Submittal received February 29, 2024.
- Public Project DRC meeting held April 3, 2024. Internal review comments completed and Design update in process.
- 319 Water Quality Grant Total Funding = **\$124,577.00**



# Impervious Restoration Program Projects



## **In-House Microbial Source Tracking**

- Dr. Pettay continues as the Lead Principal Investigator (PI) for both the USCB-MST and Water Quality Laboratories. The MST Laboratory has finalized processing scat samples, and a final report is forthcoming.

## **Future (new) Bacteria Monitoring Locations**

- Staff continues to collect MRWAP bacteria grab samples twice per month at fourteen (14) monitoring locations in the May River headwaters study area. Intermittent flow measurements are collected at five (5) of these monitoring locations at the time of grab sampling.
- Staff are working diligently to collect samples following wet weather conditions which have been Water Environmental Consultants (WEC) further defined wet weather as samples collected within 24-hours of  $\geq 0.50$  inches of rainfall. The USCB Water Quality Laboratory has been assisting the Town with ensuring samples can be analyzed on short notice.

# Impervious Restoration Program Projects



## Future (new) Water Flow Monitoring Locations

- Staff continue to operate and maintain three (3) SonTek IQ-Plus continuous flow monitoring stations in the May River headwaters.
  - In FY23, the Town and its consultant determined it did **not** have sufficient data for the Rose Dhu Creek and Palmetto Bluff subwatersheds for model calibration. In April 2023, the Rose Dhu Creek and Palmetto Bluff SonTek IQ-Plus instruments, were installed and/or upgraded with Turnkey/Cloud-based Systems. These systems have been in place, collecting continuous flow data every 15-minutes, for one (1) full year to account for seasonality.
  - The Stoney Creek subwatershed SonTek IQ-Plus has operated almost continuously for two (2) years. In FY23, the Town understood it had enough quality continuous and intermittent flow data for this subwatershed, so the SonTek IQ-Plus instrument was not upgraded with Turnkey/Cloud-based Systems. However, staff continued with data collection efforts in conjunction with the Rose Dhu Creek and Palmetto Bluff subwatersheds.
  - Water Environmental Consultants (WEC) has been conducting a weekly review of all continuous and intermittent flow data collected since The Town's Turnkey/Cloud-based Systems were implemented in April 2023. In April 2024, the one (1) full year of data collection ended. WEC will provide final reports detailing these three (3) subwatersheds all flow data for stormwater model calibration. These reports are expected to be received in FY25 for the Rose Dhu Creek, Stoney Creek, and Palmetto Bluff subwatersheds.

# Impervious Restoration Program Projects

Section IV. Item #1.



## **Future (new) Water Flow Monitoring Locations**

- The Duck Pond subwatershed has no channelized flow entering or exiting the system. The Town's consultant suggested that the Town monitor water elevation in the Duck Pond for approximately 6 months to ensure water elevations are accurately depicted by future modeling. Staff has requested and received permission to site a water elevation logger in the Duck Pond, near or attached to the Palmetto Bluff bridge. This work is anticipated to commence July 2024 (Start of FY25).
- The Town has been operating two (2) weather stations to collect local rainfall data in the May River Watershed. One weather station is located at the Town's Watershed Management Division Office and the other is located at the Town's Police Department Building. This data has been shared with WEC for inclusion in final reports.
- The Town collects tidal elevation data utilizing a HOB0-U20 at the Calhoun Street Dock in Bluffton. WEC deployed two (2) headwater tidal elevation instruments on docks near the Rose Dhu Creek and Stoney Creek subwatershed model boundaries. This study was conducted for a period of 4-weeks to establish the relationship between the tidal amplitude and timing in the headwaters of the May River and the long-term tide gauge operated by the Town at the Calhoun Street dock. The outcomes of this study will be included in WEC's final reports.





# ***QUESTIONS & DISCUSSION***

## May River Project: Assessing Change After 20 Years

### Progress Report to Town of Bluffton

3/21/2024

Prepared by: Joe Cowan, Pamela Marcum, Gary Sundin, Andrew Tweel

#### Headwater Tidal Creek Studies

Six tidal creeks were sampled in the May River estuary in July 2023. Within each creek, one site was sampled for water quality and six sites were sampled for benthic composition and community. One of the six benthic sites was also sampled for sediment chemistry and contamination.

##### *Objective 1: Water quality*

Water quality loggers were deployed at all six water quality sites for 25 hours collecting 15-min interval water quality data near-bottom for a total of 100 data points collected per site. Two water samples were collected from each site (12 total) for nutrient analysis. Two water samples were collected from each site (12 total) for Chlorophyll-*a* and bacteria analysis.

Water logger data has been downloaded and quality checked. 12 water samples were sent to Chesapeake Bay Laboratory for nutrient analysis, and the results of this analysis have been incorporated into the water quality data set. SCDNR processed 12 samples each for *Enterococcus* and fecal coliform bacteria and Chlorophyll-*a* concentrations.

Data entry and quality checking is in progress.

##### *Objective 2: Sediment Quality*

40 sediment samples were collected for grain-size composition (seven from each creek except at Brighton Beach where only five samples were collected due to hazardous conditions in the upper portion of the creek). Six sediment samples each (one per creek) were collected for chemistry, Microtox, and pore water.

Six porewater samples were processed by SCDNR. 12 chemistry and 12 Microtox samples were sent to a NOAA laboratory for analysis, processing is in progress and SCDNR is awaiting results. Sediment composition sample processing by SCDNR is scheduled to begin 3/27/2024.

Data entry and quality checking is in progress.

##### *Objective 3: Biological Communities*

34 benthic grab samples were collected from each creek (six from each creek except at Brighton Beach where only four samples were collected due to hazardous conditions in the upper portion of the creek).

All 34 benthic grabs have been sorted by SCDNR however, some samples had to be resorted to conform to quality control standards for sorting accuracy. Taxonomic identification and enumeration of infauna is ongoing with 22 of the 34 samples completed.

Data entry and checking is in progress.

### **Tidal Creek and Open Water Studies**

Ten sites were sampled in the May River estuary in July 2023, six sites in the mainstem and four sites in adjoining tidal creeks.

#### *Objective 1: Water quality*

At all 10 stations, 30 instantaneous water quality measurements were collected; one each at three depths: near-surface, mid-water column, and near-bottom. Water quality loggers were deployed at all 10 sites for 25 hours collecting 15-min interval water quality data near-bottom for a total of 100 data points collected per site. Two water samples were collected from each site (20 total) for nutrient analysis. Two water samples were collected from each site (20 total) for bacteria analysis. Two water samples were collected from each site (20 total) for Chlorophyll-*a* analysis. Secchi disk measurements were taken at nine sampling sites while one open water site was missed.

Water logger data has been downloaded and quality checked. 20 water samples were sent to Chesapeake Bay Laboratory for nutrient analysis, sample processing is in progress and SCDNR is awaiting results. SCDNR processed 20 samples each for *Enterococcus* and fecal coliform bacteria and Chlorophyll-*a* concentrations.

Data entry and quality checking is in progress.

#### *Objective 2: Sediment Quality*

10 sediment samples each were collected for grain-size composition, chemistry, Microtox, Total Organic Carbon (TOC), microplastics, and contaminants. Twenty sediment samples were collected for pore water analysis representing two replicates per site.

One replicate sediment sample from each site was processed for the porewater analysis for a total of 10 samples. Chemistry, Microtox, and contaminant samples were sent to a NOAA laboratory for analysis, processing is in progress and SCDNR is awaiting results. TOC samples were sent to the GEL Laboratories here in Charleston for analysis and the results have been incorporated into the sediment quality data set. Sediment composition samples are scheduled to be processed by SCDNR beginning 3/27/2024.

Data entry and quality checking is in progress.

### *Objective 3: Biological Communities*

Two trawl tows were completed at each site for a total of 20 samples. Catch was identified to lowest practical taxonomic level, enumerated, and up to 30 specimens of select species were measured.

Two replicate benthic grab samples were collected from each site for a total of 20 samples. One replicate benthic grab sample from each site was sort by SCDNR and the taxonomic identification and enumeration of infauna is in progress with 8 of 10 completed.

Data entry and checking is in progress.

### **Oyster Studies**

#### *Habitat trays:*

The Shellfish Research Section (SRS) placed habitat trays, each containing approximately two gallons of clean, loose oyster shell were placed at six locations in the May River watershed on April 17, 2023 (Figure 1). Two sites were chosen in each of the upper, mid, and lower watershed areas, based upon previous efforts. At each location, three trays were placed, for a total of 18 deployed.

In this current reporting period Shellfish Research Section (SRS) staff scheduled the retrieval of habitat trays placed on April 17, 2023. Retrieval is scheduled for April 8, 2024, approximately one year following deployment, as indicated in the scope of work.

#### *Demographic samples:*

The SRS collected demographic samples on August 14 – 15, 2023 at locations near the habitat trays (Figure 1). At each sample location triplicate quadrat samples were collected using a 0.0625 m<sup>2</sup> quadrat. Samples were returned to the SCDNR laboratory, and all live and recently dead oysters were enumerated and measured and the data entered into a secure Access database maintained on secure SCDNR servers.

#### *Disease and oyster health:*

On the August 14 – 15, 2023 field days, SRS staff also collected oysters for the assessment of the oyster diseases Dermo (*Perkinsus marinus*) and MSX (*Haplosporidium nelsoni*), and for the assessment of several other oyster health metrics. At each of the six sites, 30 individual oysters were collected for Dermo and MSX and 30 individual oysters were collected for other oyster health metrics. Oysters were collected by stretching a tape along the reef at the approximate mean low water line, as determined by RTK GPS, and collecting oysters near the tape. Dermo and MSX samples were returned to the SCDNR laboratory where individual oysters were shucked and dissected. Dissected tissues were placed in formalin on August 17 – 18, 2023. Because the process is time-sensitive, all dermo samples were processed and read from August 24 – September 1, 2023, and the results are entered into spreadsheets on secure SCDNR servers. MSX samples, which are not time sensitive, are stored in the SCDNR

laboratory and are scheduled for processing in the winter of 2023 – 2024. The 30 individual samples collected at each site for additional oyster health metrics were placed immediately on ice in the field and transported to the SCDNR campus at Fort Johnson, where they were delivered to NOAA staff on either the afternoon of collection or the following morning.

In this reporting period SRS staff began the histological processing of MSX oyster disease samples which were previously stored in formalin in the laboratory. All 30 samples have undergone the initial processing step of deliquifying the samples and embedding them in wax. The next step, during which the embedded samples are thinly sliced, stained, and cover-slipped, is ongoing.

<b>Time Period</b>	<b>Project Segment</b>	<b>Status</b>
Spring 2023	Deployment of oyster trays (not Town funded)	Complete, to be retrieved in 2024
Early July 2023	Project start	Documents signed 7/21/23
July-August 2023	Field sampling (tidal creeks, open water sites and oyster disease/demography)	Field sampling complete. Tidal creek, open water sites, oysters.
Fall/Winter 2023	Laboratory analyses incl. QAQC	In progress
Winter/Spring 2023/2024	Data analyses incl. QAQC. Collection of oyster trays	
Spring/Summer 2024	Writing and analysis	
Fall 2024	Report complete	
December 2024	Project end	



Figure 1. Locations of habitat trays and quadrat data collection by the SCDNR Shellfish Research Section in the May River watershed.



## Media Release



**bluffton**  
HEART OF THE LOWCOUNTRY

April 4, 2024

For More Information:

Andrea Moreno  
Town of Bluffton  
Watershed Management/Program Manager  
(Office): 843.706.4581  
(Cell): 843.368.1844  
(Email): [amoreno@townofbluffton.com](mailto:amoreno@townofbluffton.com)

Town of Bluffton seeks technical review for its Stormwater Design Manual  
Deadline is May 31 for feedback

The Town of Bluffton Watershed Management Division is seeking technical comments, feedback and/or guidance for its current version of the “Southern Lowcountry Stormwater Design Manual.” This manual provides civil engineers, landscape architects and developers with design guidelines to manage rainwater runoff to protect the town’s natural resources and mitigate pollution, erosion, and flooding.

The Town’s version of this manual is similar to other manuals in Southern Beaufort County and Jasper County in a collective effort by local governments to have consistent standards in the region. Each local government has its own version due to the specific needs and requirements of each municipality. Topics featured in these manuals include construction and management of retention ponds, installation of vegetated buffers, construction of permeable surfaces and sediment and erosion control elements.

The Town of Bluffton originally adopted its current version in September 2021 and is seeking comments to incorporate them into a revised edition.

The Town of Bluffton manual and the manuals for neighboring municipalities will provide stormwater standards for new and redevelopment projects.

The Town’s Watershed Management Division is seeking comments from residents, developers, engineers, and others with technical expertise.

Comments are accepted through May 31. Please email Andrea Moreno, a Town of Bluffton watershed program manager, at (Email): [amoreno@townofbluffton.com](mailto:amoreno@townofbluffton.com).



The Town's version of the "Southern Lowcountry Stormwater Design Manual" can be accessed via: <https://www.townofbluffton.sc.gov/DocumentCenter/View/3692/SWDM-Sept-2021?bidId=>

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