Beaufort County Stormwater Management Utility Board (SWMU Board) Meeting Minutes

February 15, 2017 at 2:00 p.m. in Executive Conference Room, Administration Building, Beaufort County Government Robert Smalls Complex, 100 Ribaut Road, Beaufort, South Carolina

Board Members

Present	**Absent**
Don Smith	
Allyn Schneider	
Patrick Mitchell	
William Bruggeman	
Marc Feinberg	
Larry Meisner	
James Fargher	

Ex-Officio Members

Present	**Absent**
Kim Jones	Scott Liggett
	Van Willis
	Andy Kinghorn

Beaufort County Staff
Eric Larson
David Wilhelm
Rebecca Baker
Melissa Allen

Visitors
Jeff Netzinger, Town of Hilton Head Island
Jeff Buckalew, Town of Hilton Head Island
Neil Desai, City of Beaufort
Tom Zinn, Buckwalter Commercial

1. Meeting called to order – Don Smith

A. Agenda – Approved.
B. January 18, 2017 - Approved.

2. Introductions – Completed.

3. Public Comment(s) – Tom Zinn

Mr. Tom Zinn addressed the Stormwater Management Utility Board about the Hwy 170 road widening project and the effect it is having on his property (Crossroads). Mr. Zinn referenced recommendations that were noted in a report from Bowman Engineering and asked what the action plan or next steps might be. Mr. Eric Larson responded by recapping the three recommendations listed in the Bowman report and provided a brief explanation of how the County looks to address those recommendations. Mr. Larson indicated that the County is in the process of drafting a response to Mr. Zinn's email regarding the Bowman report and indicated it will include the County's plan to address the recommendations noted in the report.

4. Reports – Mr. Eric Larson and Mr. David Wilhelm provided a written report which is included in the posted agenda and can be accessed at:
http://www.bcgov.net/departments/Administrative/beaufort-county-council/boards-and-commissions/council-appointed/board-list/stormwater-management-utility-board/agendas/2017/021517.pdf

A. Utility Update – Eric Larson

In reference to item #4, Mr. Larson noted that the management fee budget report should be ready for the municipalities by the end of the week.

B. Monitoring Update – Eric Larson

Mr. Larson noted that item #2 regarding the Rose Dhu watershed made the local newspaper today. Mr. William Bruggeman shared that the news article indicated that human fecal coliform was found in Rose Dhu Creek, as well as two failing septic tanks in the area, and that the septic tanks haven't been identified as being the cause of the human fecal coliform hit. Mr. Larry Meisner asked if they were single family septic tanks and Mr. Larson responded yes. Mr. Don Smith asked if it looked like a permanent problem. Ms. Kim Jones indicated from the field investigations that one has been going on for several months and the other was a minor surface discharge.

C. Stormwater Implementation Committee (SWIC) Report – Eric Larson

Mr. Larson indicated that the SWIC will be meeting in March and that they will receive an update on the Stormwater Management Plan from the consultant (ATM).

D. Stormwater Related Projects – Eric Larson

Mr. James Fargher asked about the meeting with the Councilmen Glover on Saint Helena. Mr. Larson indicated as a new council member he wanted to know what was going on in his district. He presented a few problems that the County wasn't aware of and informed him of what projects were going on in his area.

E. Professional Contracts Report – Eric Larson

Please reference the report which is included in the posted agenda. No additional updates.

F. Regional Coordination – Eric Larson

Please reference the report which is included in the posted agenda. No additional updates.

G. Municipal Reports – Eric Larson

Mr. Larson introduced Mr. Jeff Netzinger, the new Stormwater Manager/Asst. Town Engineer, for the Town of Hilton Head. Mr. Jeff Buckalew indicated the Town of HHI is applying for a NRCS USDA grant to remove disaster debris in drainage ways through an exigency program. They have identified 11 distinct projects. There is still follow on work in addition to those projects that will need to be done and paper work has been submitted for that estimate as well. Mr. Larson mentioned that the County has a grant application pending with them as well.

Ms. Kim Jones provided additional details about the microbial source testing that took place near Rose Dhu Creek. The Town of Bluffton (ToB) notified BJWSA, the County and DHEC of the positive hit and the County delegated authority to ToB to inspect since they were unable to get out there. Currently DHEC is working with the homeowners directly for mitigation and repairs. The Town of Bluffton has taken samples in the headwaters again and anticipates the results around February 22nd to see if this is an ongoing trend. Ms. Jones also indicated that the ToB and the County are still working to complete a MOA to formalize their relationship for shared watersheds.

Mr. Neil Desai noted the 319 project with the County has wrapped up and the system seems to be working well.

H. Municipal Separate Storm Sewer System (MS4 Update) – Eric Larson

Mr. Larson highlighted that the County has submitted the annual report to DHEC and commented on how it reflects the amount of work that has been done in the last year. He informed the board that the Stormwater department will be posting interim BMP manual updates, when forms are updated, on the County website and a BMP manual update will be done occasionally to include the updates. In response to a question, he stated that once a new form has been posted it will go into effect/use immediately.

I. Maintenance Projects Report – David Wilhelm

Mr. David Wilhelm's noted that his maintenance report for February was all regular routine maintenance.

Berkley Hall Pond – The landscaping on the 1 acre pond on HWY 278 is now complete.

Salem Drive East – Began the improvement of the 1,200 feet of existing stormwater channel this week and the project will take approximately 6-8 weeks to complete.

Mint Farm – This project should be completed this week and a report on this project will be provided at a later date.

J. Financial Report –

No financial update was provided.

5. Unfinished Business – None.

6. New Business

A. *Special Presentation: Management Decision Implications Following Stormwater BMP Analysis* – Ms. Kim Jones presented information on the Town of Bluffton's New Riverside project that was completed in 2013 and what things they are doing to see if it is meeting the Town's water quality improvement goals and the type of management decision implications need to be made.

According to the census Historic Old Town Bluffton was 1 square mile in 2000 (1,275 population) and grew to 54 square miles in 2010 (12,530 population). This area is experiencing intense coastal development pressure and the land use has changed significantly. In 2007 increased fecal coliform levels were found in May River headwater and in 2009 there was a change in shellfish harvesting classification. Currently, about one-third of the May River is closed to shellfish harvesting.

The May River Watershed Action Plan took about a year to complete and contains projects, policies, and programs to implement to restore and protect shellfish harvesting along the May River. Since 2011, the Town of Bluffton have been working with the Action Plan; utilizing engineer based solutions to fix the issues and planning based solutions to help prevent additional problems. Fecal coliform hotspots were identified and noted as potential locations for different BMP's to be employed. The Town of Bluffton has a partnership with Crescent Resources, who donated a six acre lot in the New Riverside Tract where a 1.25 acre pond was constructed and completed in 2013. The ToB had great pre-project historical data and in 2015 completed 2 years post monitoring.

The results showed that there was a 90% reduction of fecal coliform concentration in the New Riverside Pond between pre and post-pond. Additional testing took place showing that there was no significant difference between summer efficacy and winter, the pond performed better at year 2 than year 1, as well as indicated ponds are an efficient way to reduce fecal coliform, but the removal efficiencies may not be maintained downstream.

The results helped identify that microbial source tracking is important in the next steps, as well as determine if there are other BMP's in series that could be placed downstream. BMP maintenance would also need to be done to preserve the function. These are important to help preserve the aesthetics, keep the recreational and historical use of waterways, as well as maintain the economical functioning of waterways.

Discussion took place about historic data and how as the community has grown, development standards have changed and will continue to change. Ms. Jones mentioned that we continue to put pressures on infrastructures and resources and they continue to respond; therefore, it's important to continually revisit our plans to make sure we address these issues. Mr. Smith mentioned to achieve the water quality standards with the development pressures we have, it will not be attained easily.

The Management Decision Implications Following Stormwater BMP Analysis presentation is attached to the minutes.

7. Public Comment(s) – Tom Zinn

Mr. Zinn readdressed the board with regard to the Bowman Report and the concerns he has with two items noted in the report.

8. Executive Session

A motion was made to go into Execution Session. The Board unanimously (7:0) approved to go into Executive Session.

9. Matters Arising Out of Executive Session

A motion was made to move forward with Item A of the Executive Session. The Board unanimously (7:0) approved for Project M to continue.

10. Next Meeting Agenda – Approved.

Addition to New Business for March 15th – Hearing on Stormwater Fee Appeal

11. Meeting Adjourned

MANAGEMENT DECISION IMPLICATIONS RESULTING FROM ANALYSIS OF STORMWATER BEST MANAGEMENT PRACTICE EFFICACY ACROSS TEMPORAL AND VARYING SPATIAL SCALES

Kimberly W. Jones[1],MS, D. Alan Warren[2], Ph.D.,
Beth Lewis[3],CSPR, and Jeremy S. Ritchie[4], PE, CSPR

Town of Bluffton
Est. 1852

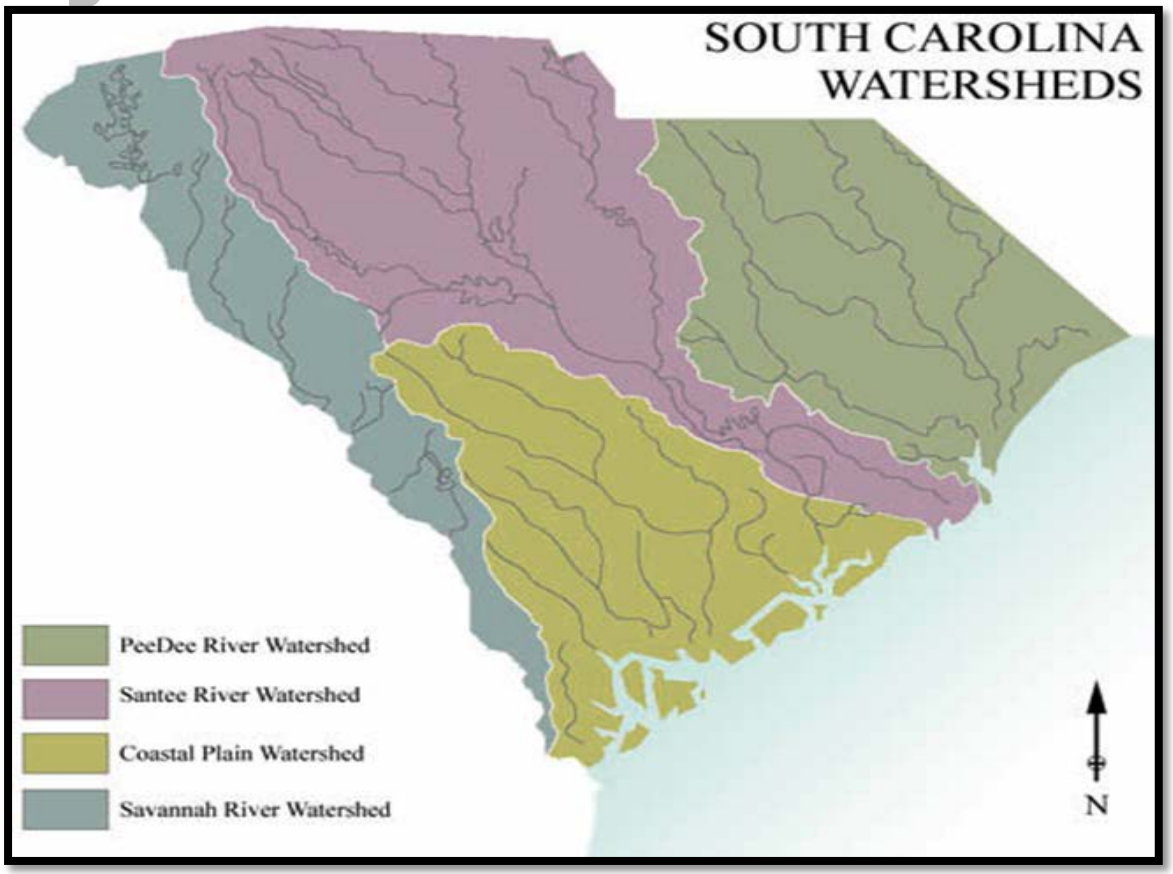
[1]Watershed Mngt. Division Manager, Town of Bluffton, Bluffton, SC
[2]Envir. Health Program Director, University of South Carolina - Beaufort, Beaufort, SC
[3]Stormwater Technician, Town of Bluffton, Bluffton, SC
[4]Civil Engineer, Gray Engineering Consultants, Inc., Greenville, SC

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & Background
- BMP Installation & Monitoring
- Results
- Conclusion & Next Steps

Management Decision Implications Resulting from MRWAP Implementation

- **Location** & Background



Management Decision Implications Resulting from MRWAP Implementation

- **Location** & Background

Green: Bluffton

Red: Historic District

White: Beaufort County

Brown: Wetlands

Dashed: Watershed

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & **Background**
  - SCDHEC Outstanding Resource Waters designation

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

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  - SCDHEC Outstanding Resource Waters designation

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location &

Background

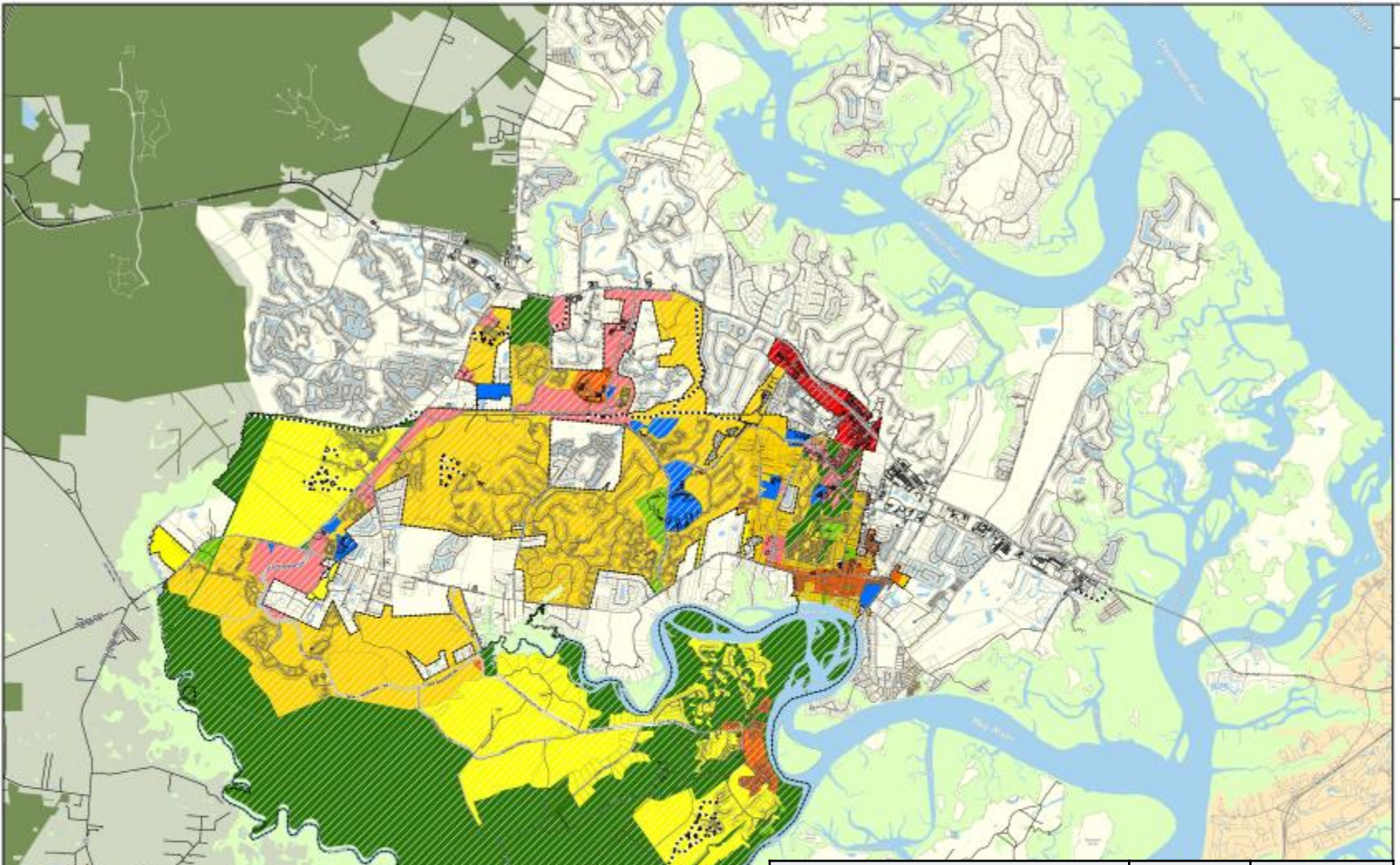
- SCDHEC Outstanding Resource Waters designation

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location &

Background

- SCDHEC Outstanding Resource Waters designation



Town of Bluffton
Beaufort County, SC

Growth Management Department

FUTURE LAND USE

Legend

FUTURE LAND USE

- High Intensity Commercial
- Medium Intensity Commercial
- Low Intensity Commercial
- Mixed Use
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Civic/ Institutional
- Recreation/ Open Space
- Conservation/ Preservation
- In PUD

JURISDICTIONAL

- Hilton Head Island
- Hardeeville
- Beaufort County
- Jasper County
- Bluffton Town Limit

MISCELLANEOUS

- Bluffton Parcel Lines
- Beaufort County Jasper County Parcel Lines

TRANSPORTATION

- Paved Road
- Bluffton Parkway (Proposed)

HYDROLOGY

- Marsh
- Water

Effective 2014-03-19

Map Prepared By: GIS Office

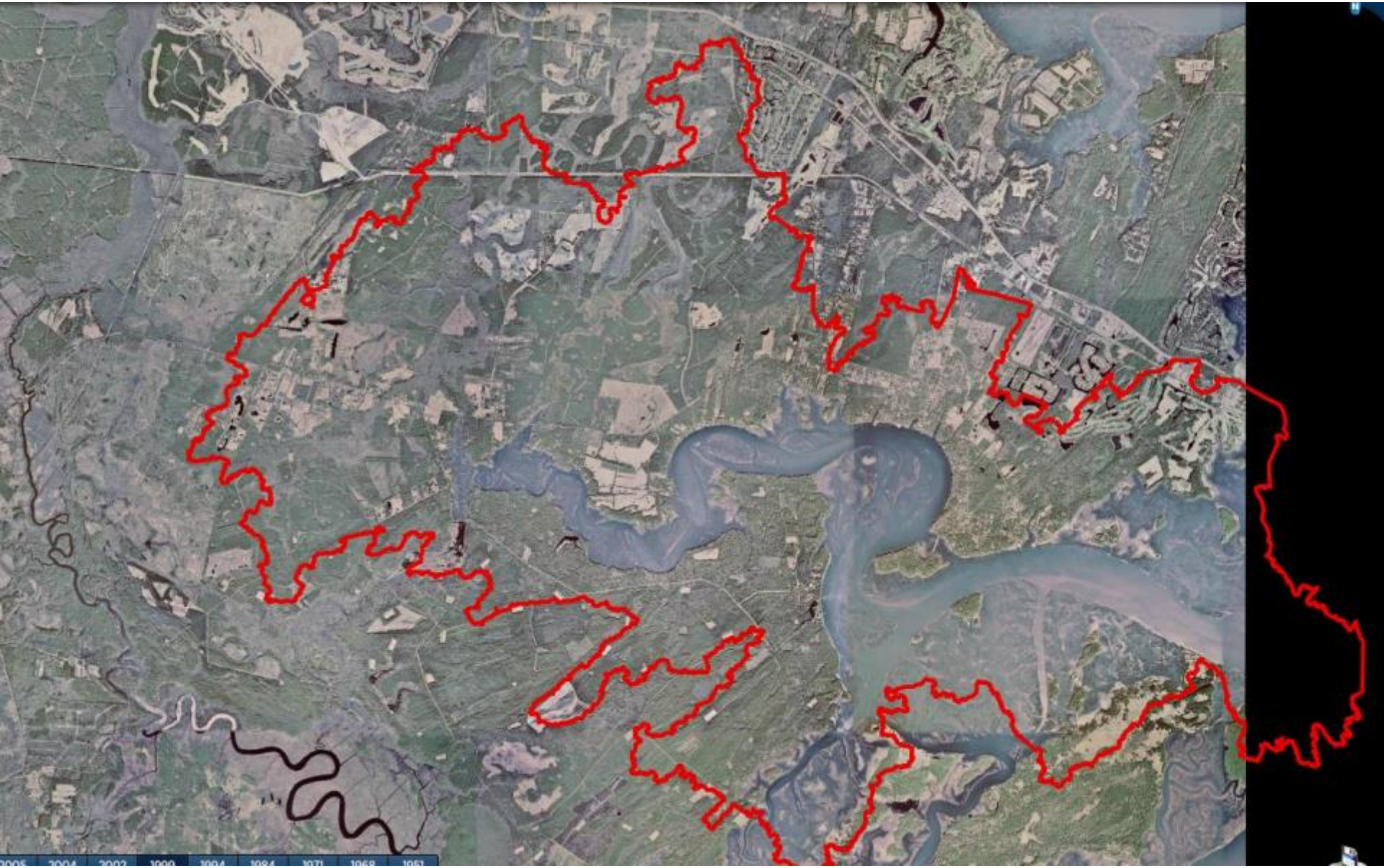
Scale in Feet

NORTH

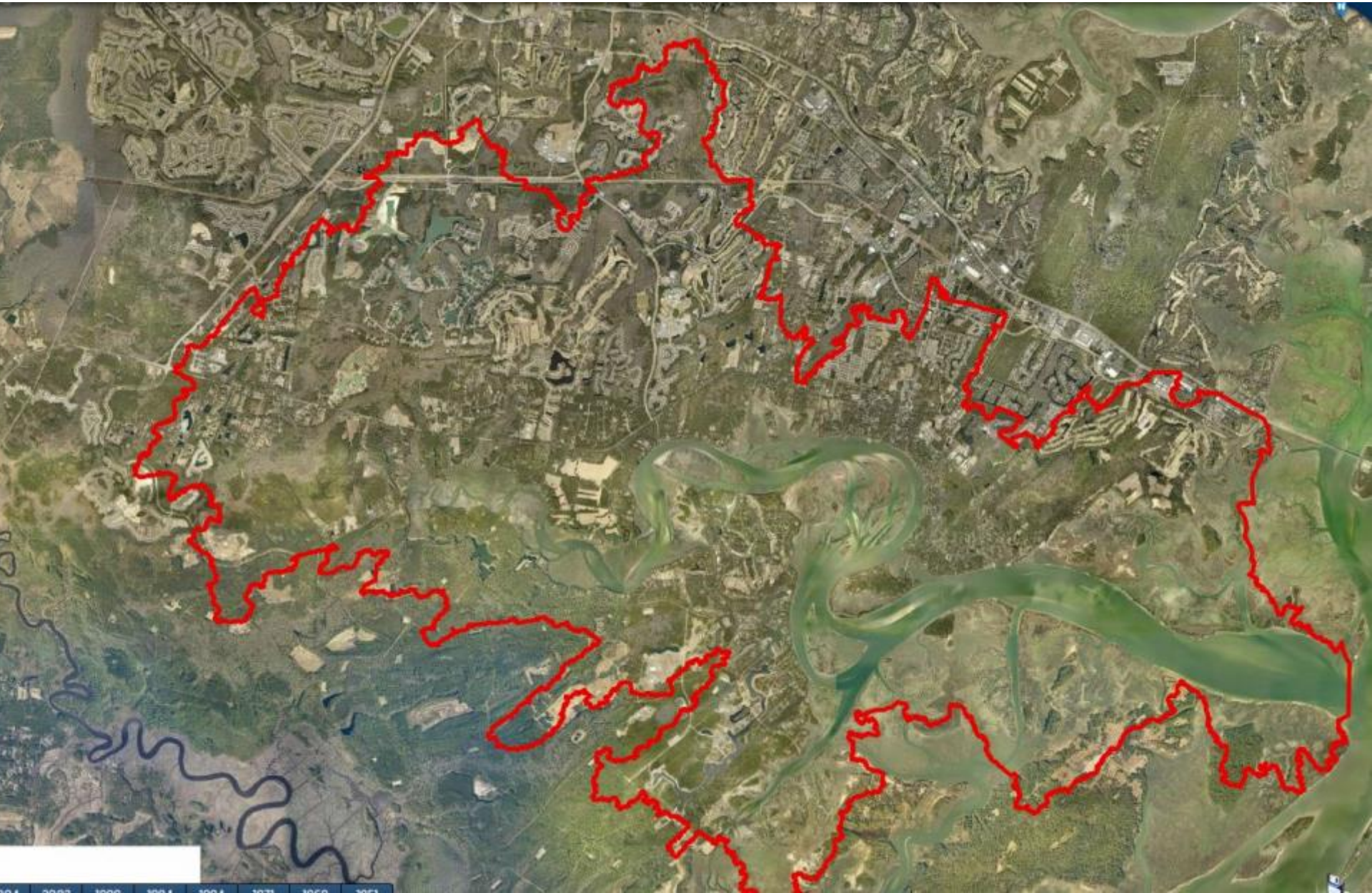
	2000	2010
Town Size (miles²)	1	54
Population	1,275	12,530
Residences	501	5,393

(US Census Bureau 2000 and 2010)

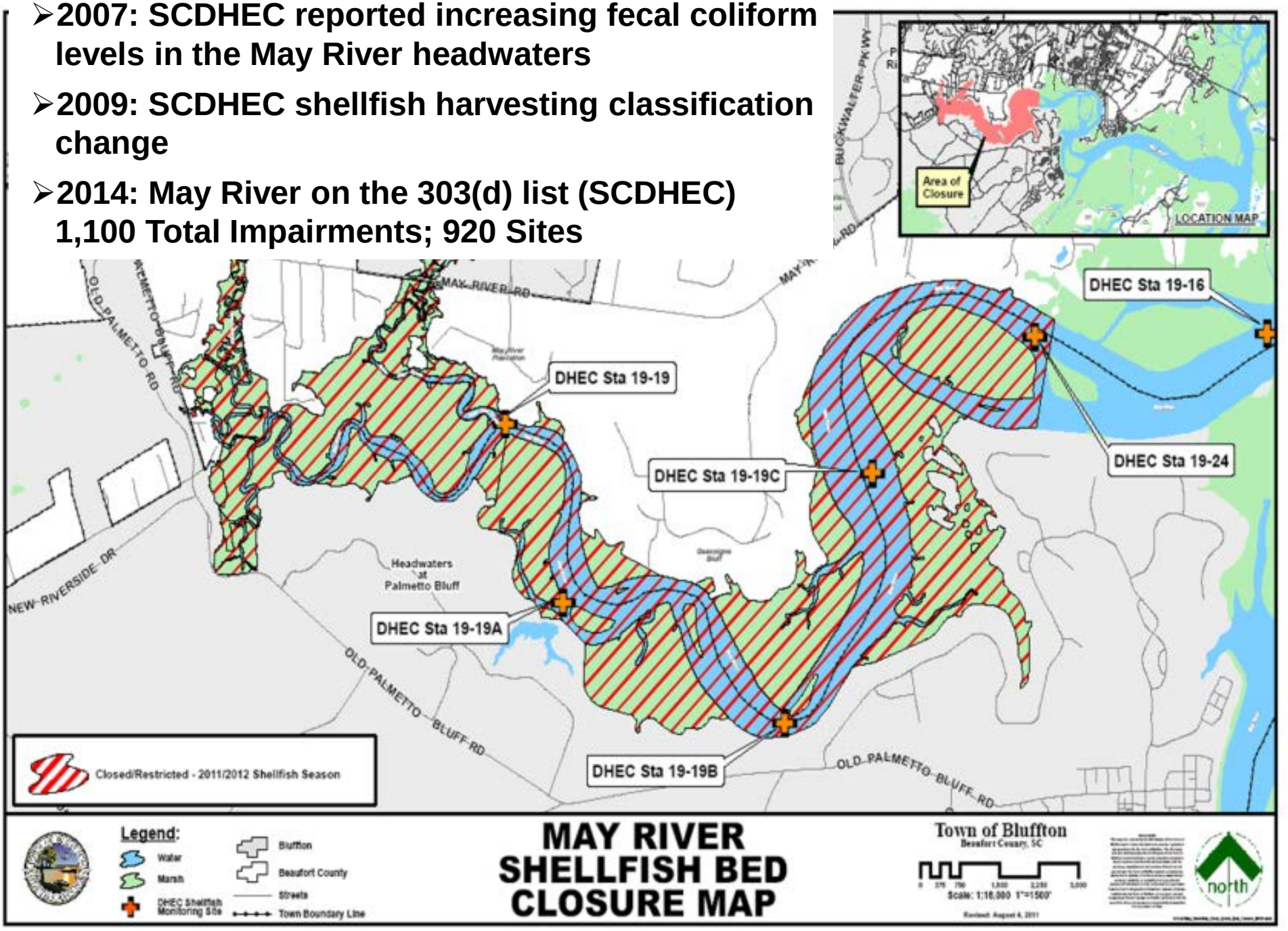
1999 Land Cover



2015 Land Cover



- **2007: SCDHEC reported increasing fecal coliform levels in the May River headwaters**
- **2009: SCDHEC shellfish harvesting classification change**
- **2014: May River on the 303(d) list (SCDHEC) 1,100 Total Impairments; 920 Sites**



Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

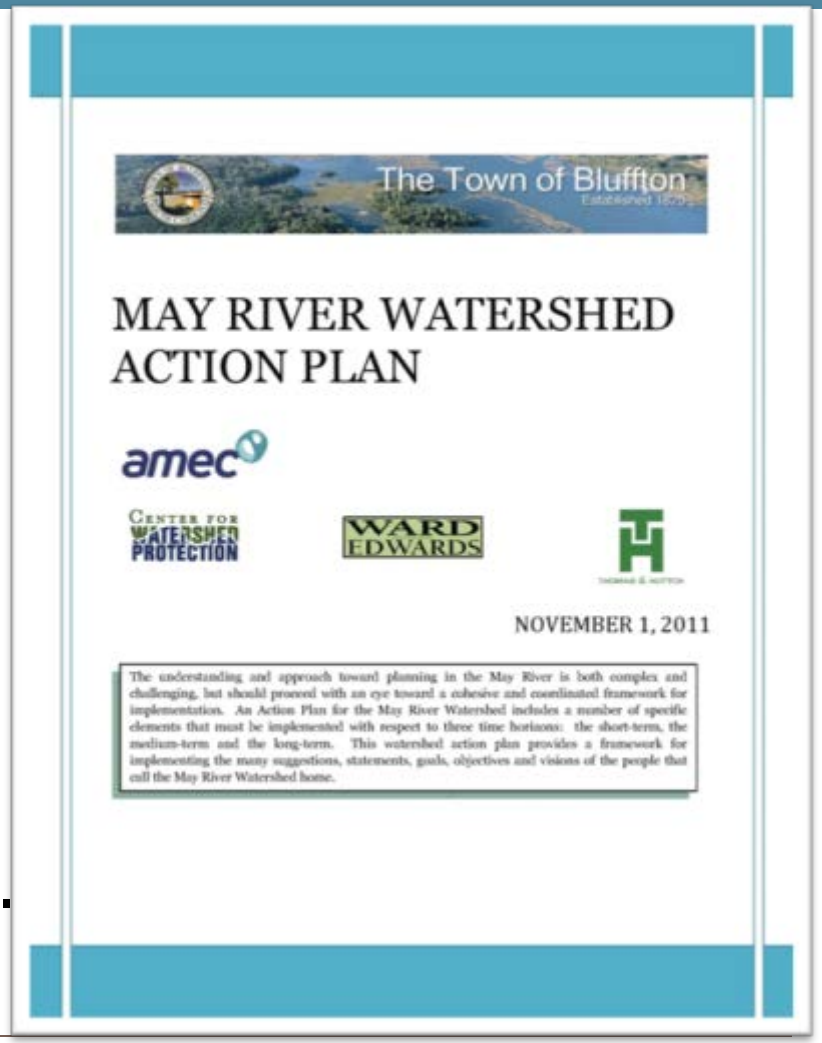
- Location & **Background**
  - Issues – Ecological, Social, Political

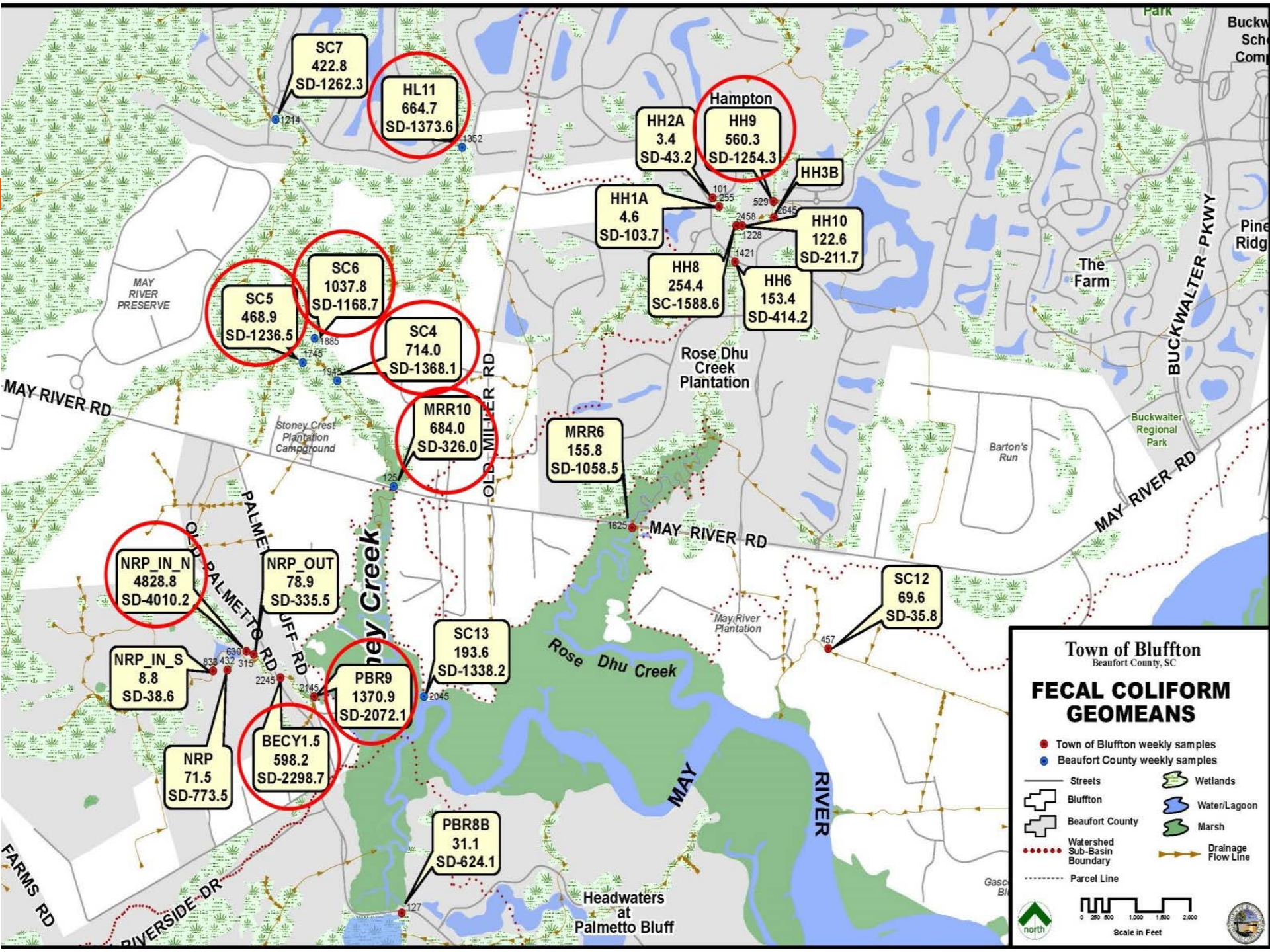
Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

Coordinated proactive approach
(Dec 2010 – Nov 2011)
- Strategies & projects for sustainable watershed
- Dynamic & adaptable document
- Provide measureable goals

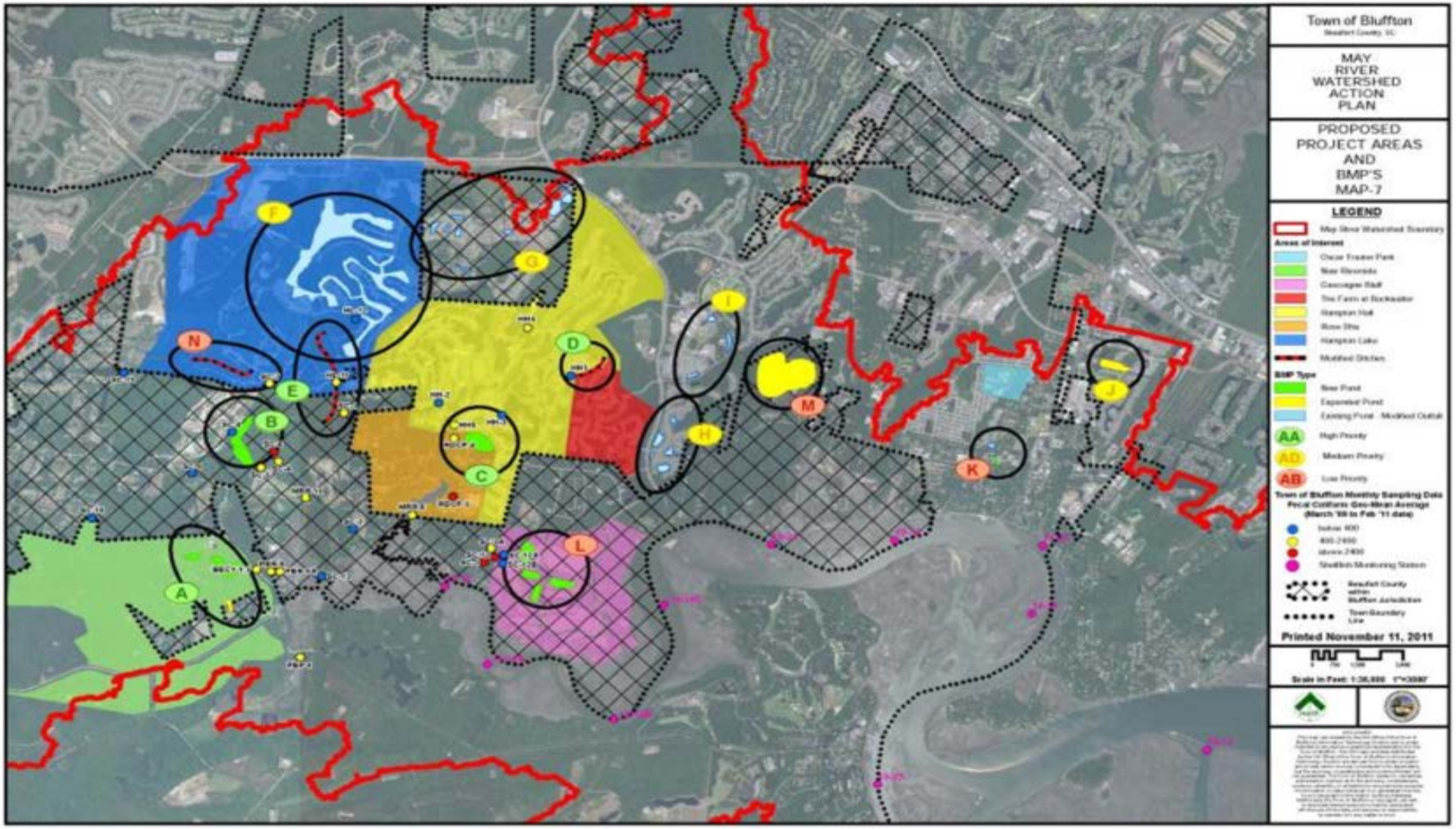
Public Comment Period
(Jul 2011 – Aug 2011)
- Document is the Town's and stakeholders'
- >250 total comments and suggestions

Restoration & Prevention Measures:
- Engineering-based solutions…
- Planning-based solutions…




SC7
422.8
SD-1262.3
HL11
664.7
SD-1373.6
Hampton
HH9
560.3
SD-1254.3
HH2A
3.4
SD-43.2
HH3B
HH1A
4.6
SD-103.7
HH10
122.6
SD-211.7
HH8
254.4
SC-1588.6
HH6
153.4
SD-414.2
SC6
1037.8
SD-1168.7
SC5
468.9
SD-1236.5
SC4
714.0
SD-1368.1
MRR10
684.0
SD-326.0
MRR6
155.8
SD-1058.5
SC12
69.6
SD-35.8
SC13
193.6
SD-1338.2
PBR9
1370.9
SD-2072.1
BECY1.5
598.2
SD-2298.7
NRP_IN_N
4828.8
SD-4010.2
NRP_OUT
78.9
SD-335.5
NRP_IN_S
8.8
SD-38.6
NRP
71.5
SD-773.5
PBR8B
31.1
SD-624.1
MAY RIVER PRESERVE
Stoney Crest Plantation Campground
Rose Dhu Creek Plantation
The Farm
Buckwalter Regional Park
Barton's Run
May River Plantation
MAY RIVER RD
OLD MILLER RD
PALMETTO BLUFF RD
OLD PALMETTO RD
BUCKWALTER PKWY
Rose Dhu Creek
MAY RIVER
FARMS RD
RIVERSIDE DR
Headwaters at Palmetto Bluff
Town of Bluffton
Beaufort County, SC
FECAL COLIFORM GEOMEANS
Town of Bluffton weekly samples
Beaufort County weekly samples
Streets
Bluffton
Beaufort County
Watershed Sub-Basin Boundary
Parcel Line
Wetlands
Water/Lagoon
Marsh
Drainage Flow Line
north
0 250 500 1,000 1,500 2,000
Scale in Feet

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

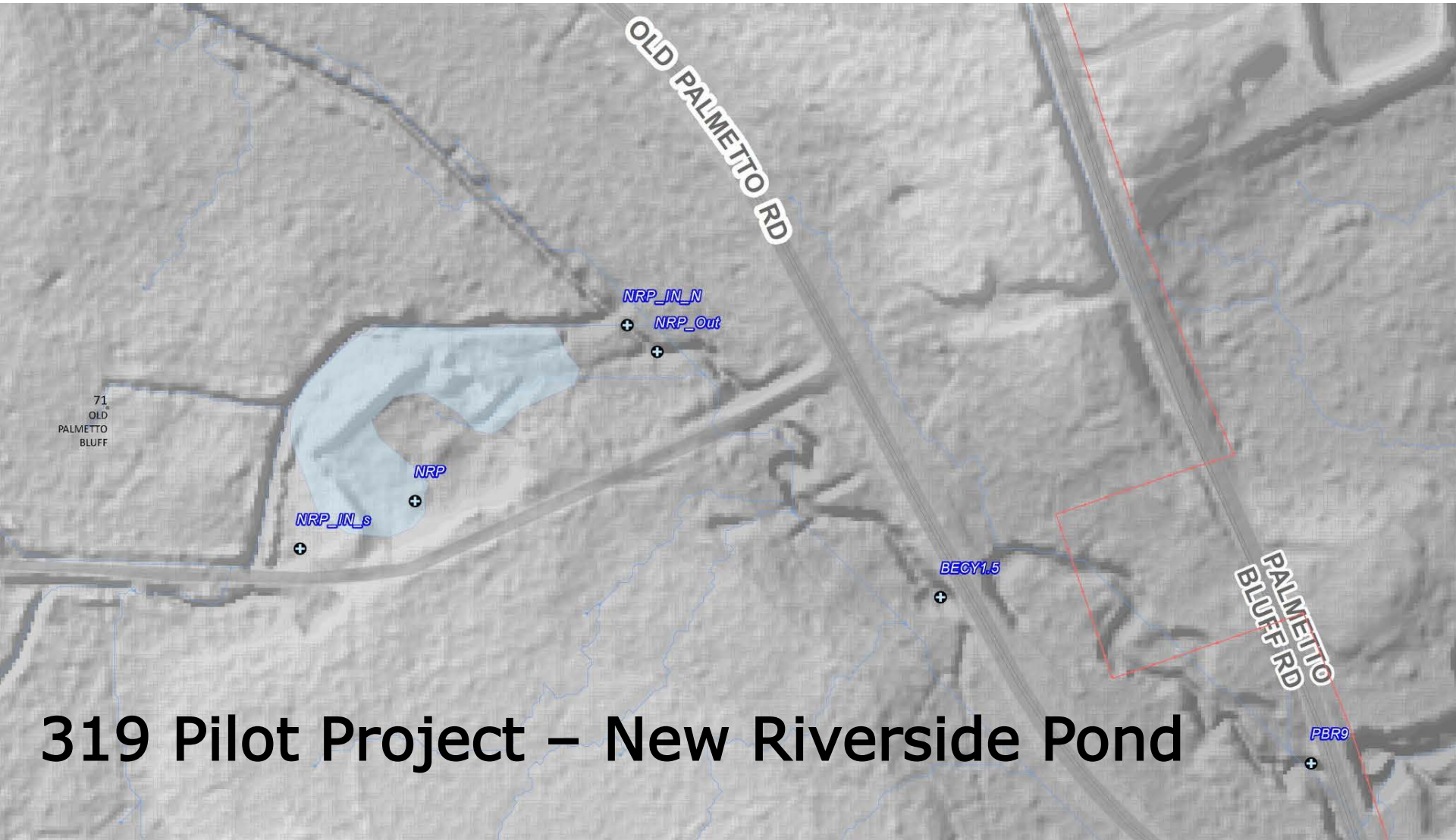


Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & Background
- **BMP Installation & Monitoring**
  - 319 Grant Pilot Project – New Riverside Pond
  - 1.25 acre pond constructed in 2013
  - 300 acre watershed
  - USCB statistical analysis to evaluate BMP efficacy

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy



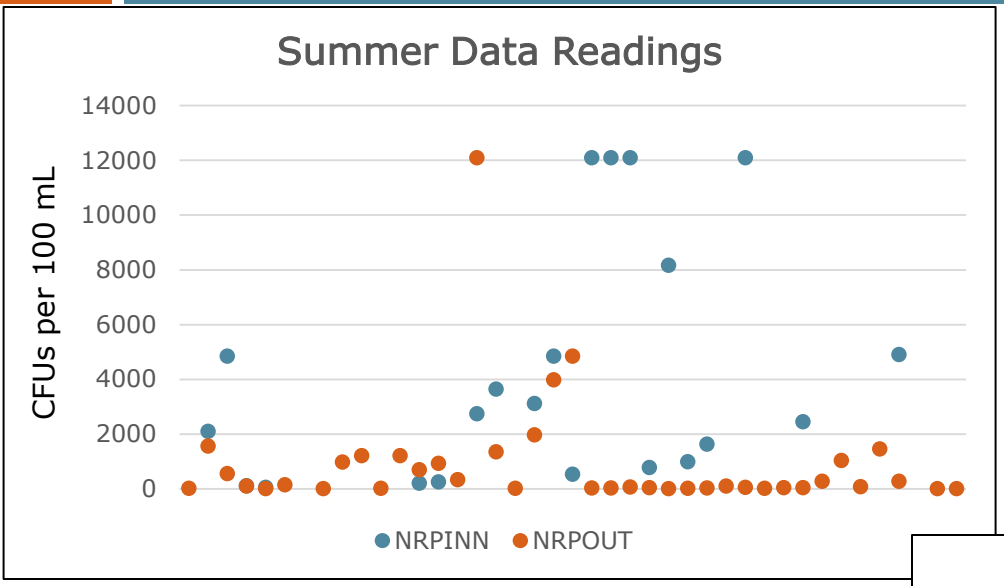
319 Pilot Project – New Riverside Pond

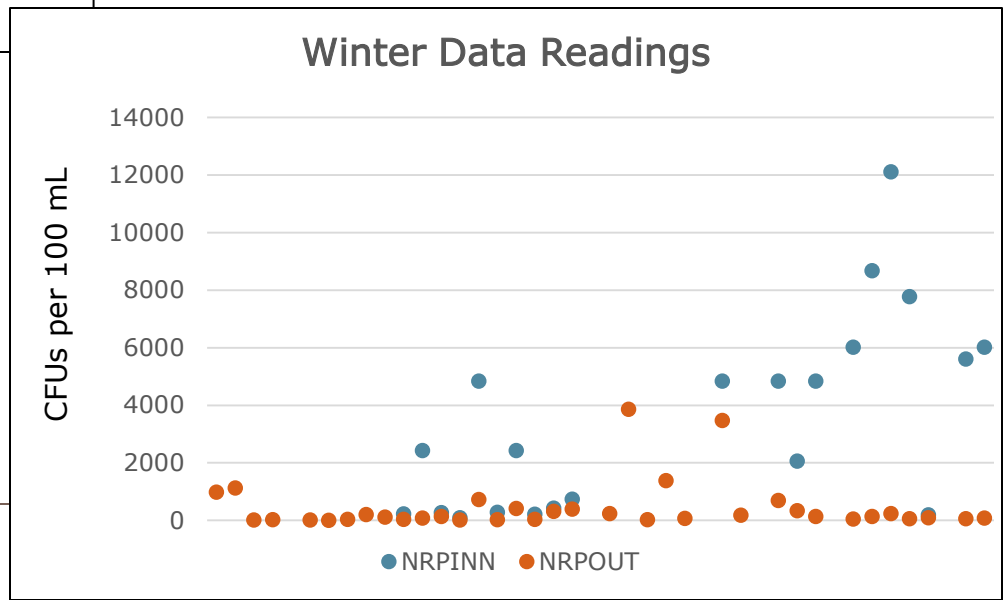
Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & Background
- BMP Installation & Monitoring
- **Results**
  - 2013 data compared to 2015 data – 90% reduction of fecal coliform concentrations in New Riverside Pond from pre-pond influent versus post-pond effluent concentrations
  - However, what environmentally significant water quality improvements has the project had:
    1. Seasonally and Annually (varying temporal scales) or
    2. Downstream (varying spatial scales)?

Question 1: Is there a substantial difference in the efficacy (fecal coliform reduction) of the New Riverside Pond between summer and winter seasons?





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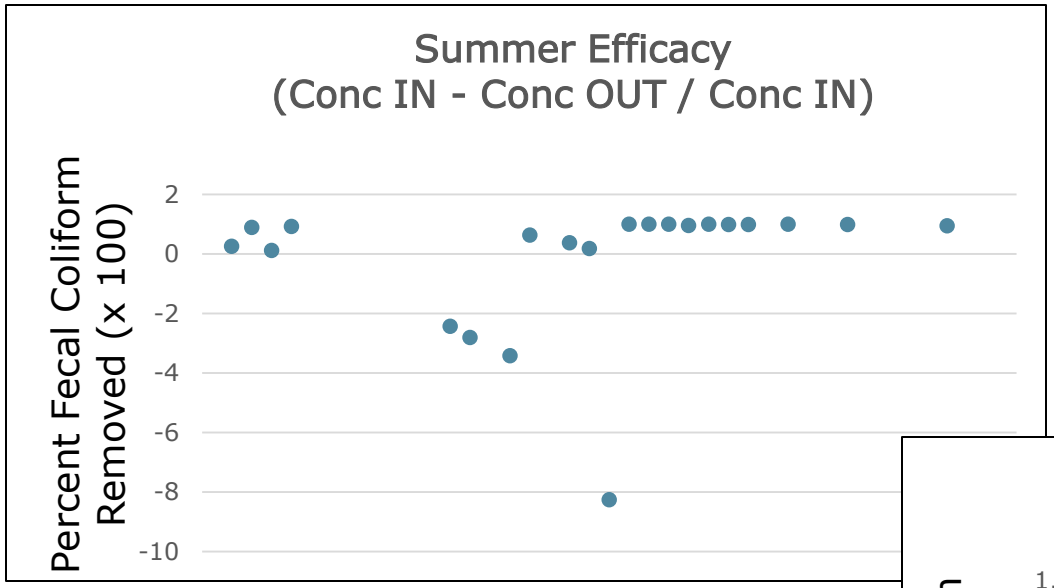
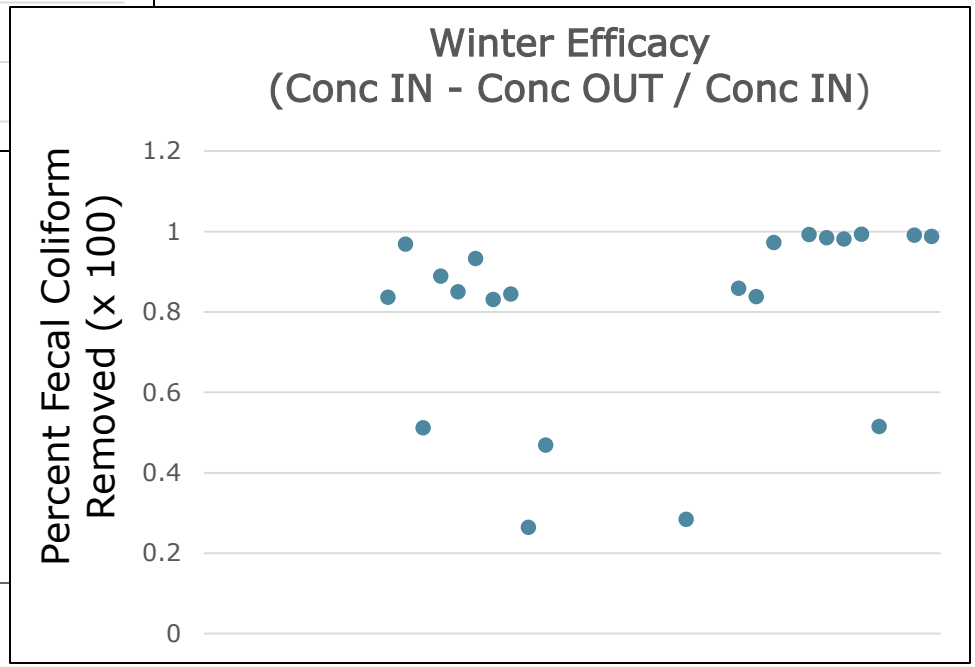
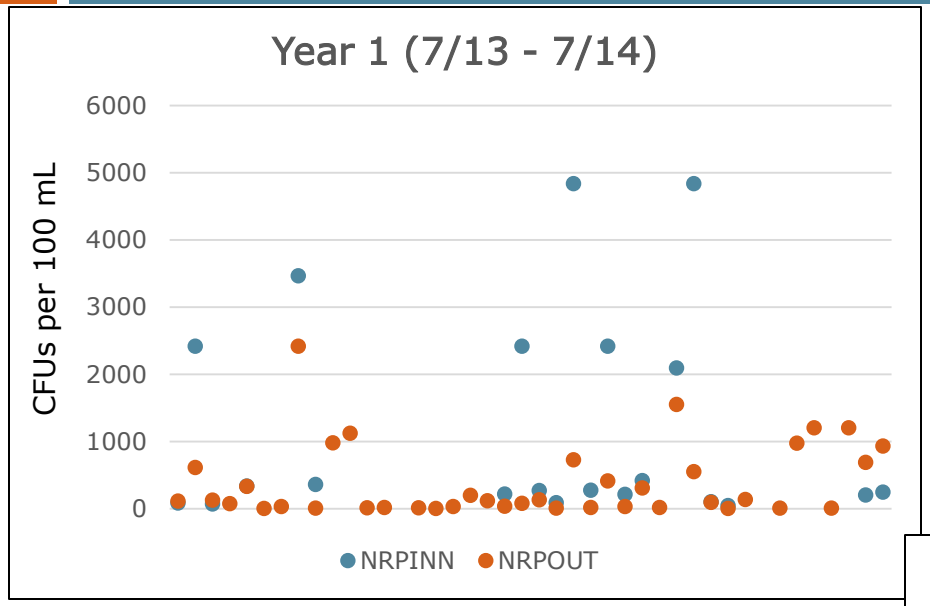
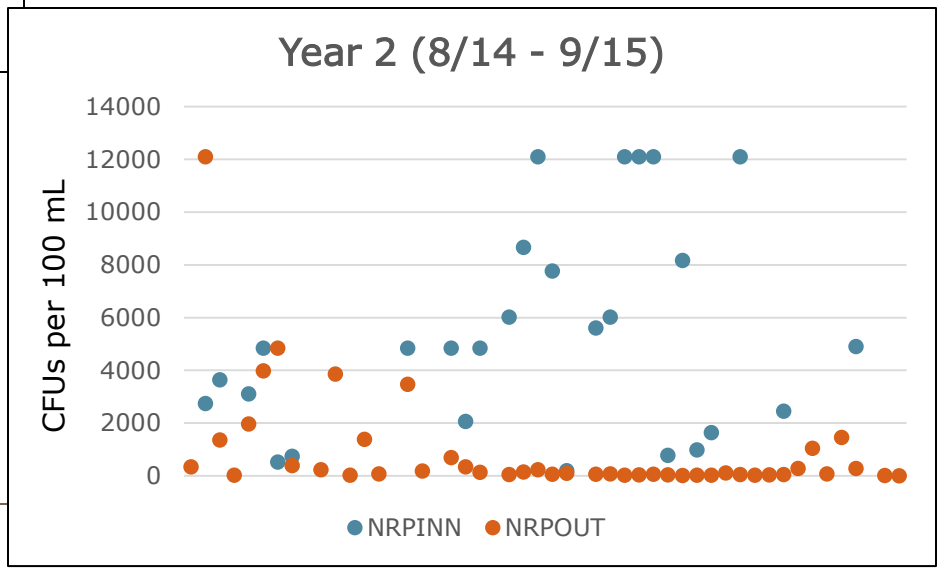


Based on the overall distributions of efficacy as shown in the accompanying diagrams, there is not statistically significant evidence (p = 0.4114) that summer efficacy differs from that in winter.



Question 2: Has there been a substantial increase in the efficacy of the New Riverside Pond as it has become more established (i.e., between years one and two)?





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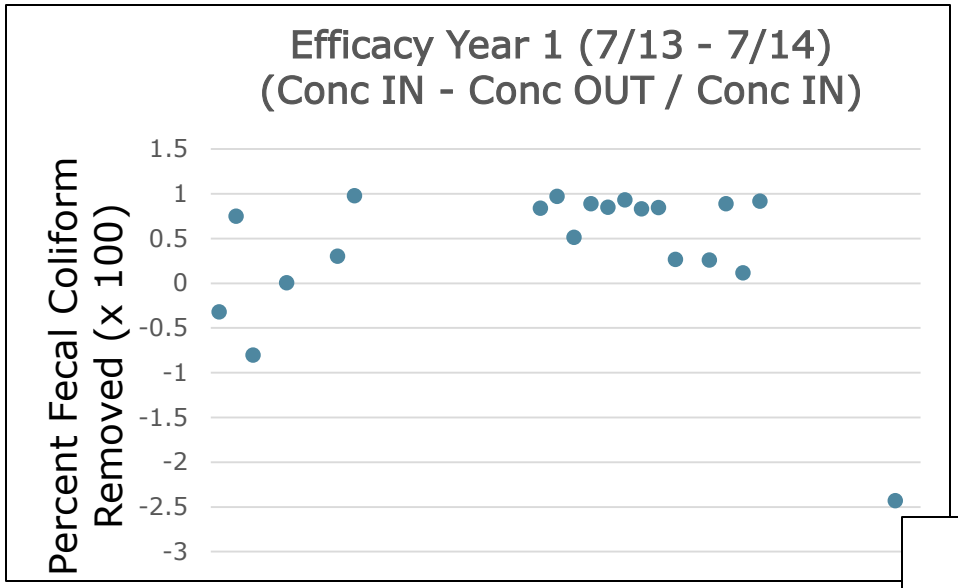
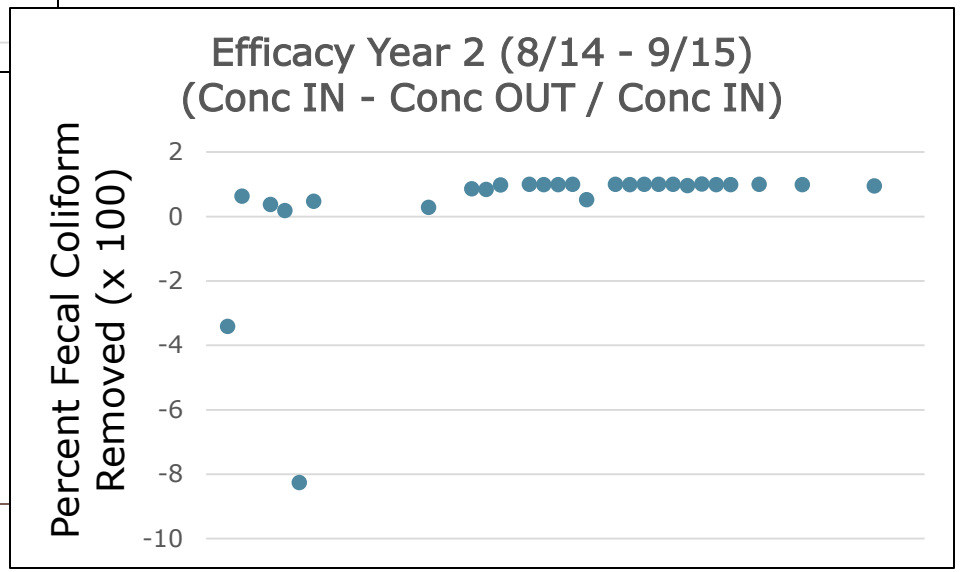
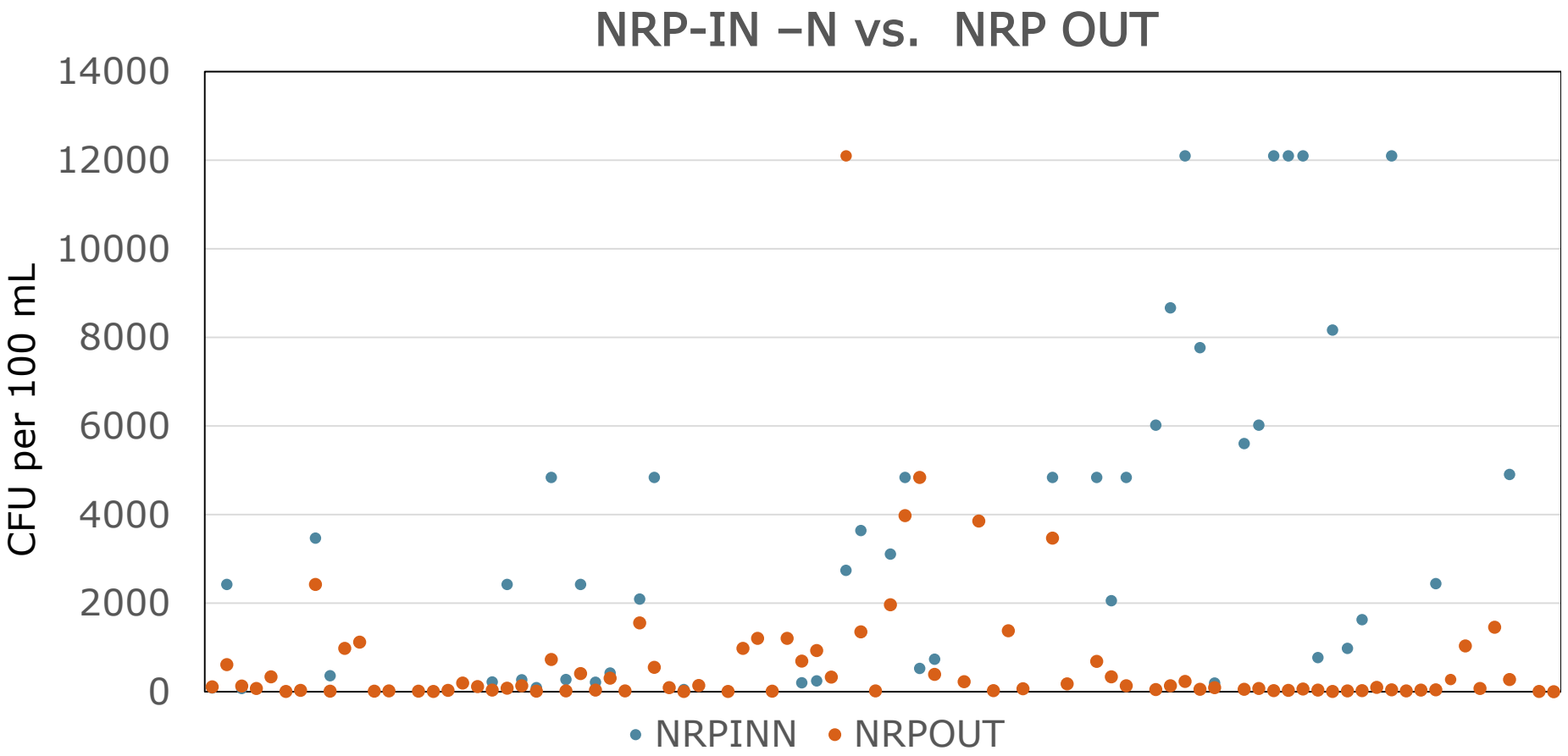


Based on the overall distributions of efficacy as shown in the accompanying diagrams, there is statistically significant evidence (p = 0.0008) that efficacy in Year 1 is less than that in Year 2.



Question 3: Is there a statistically significant reduction in fecal coliform concentrations between influent (NRP-IN-N) and effluent (NRP-OUT) at the New Riverside Pond?



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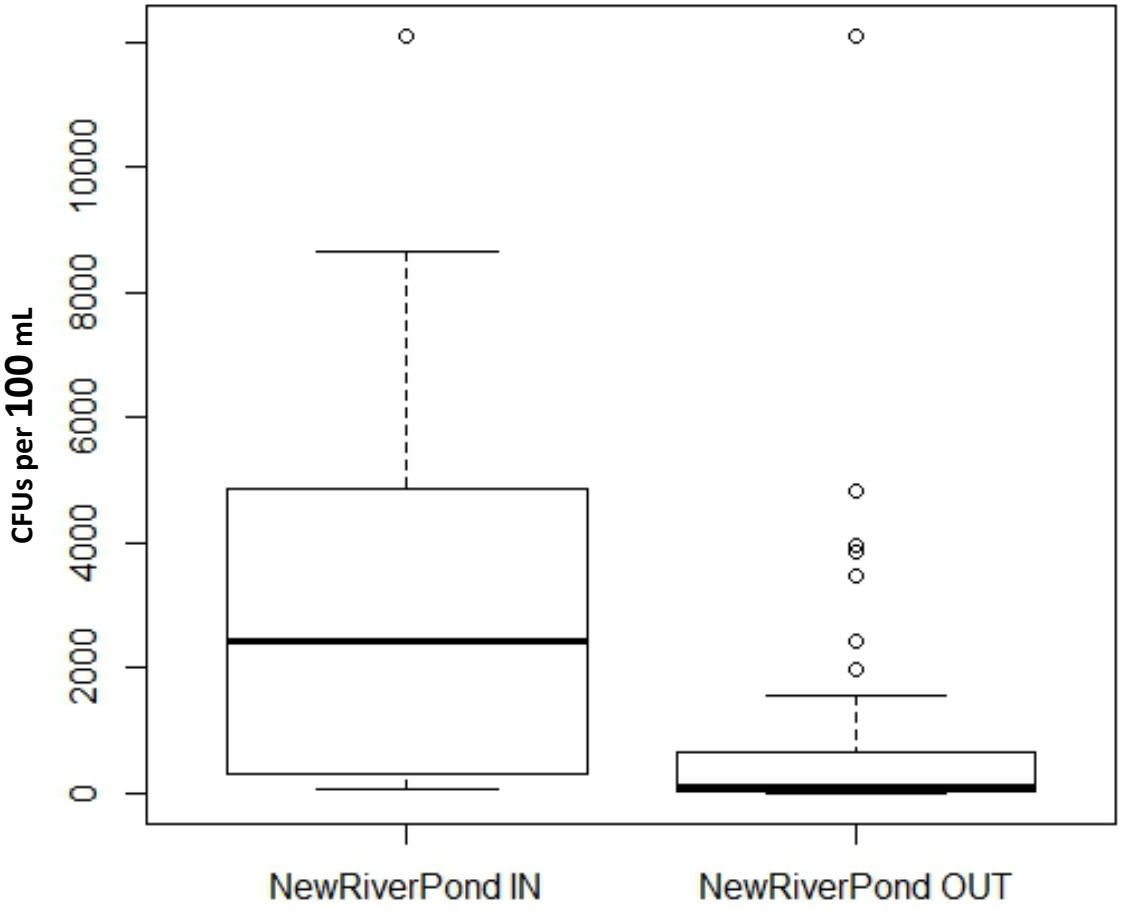
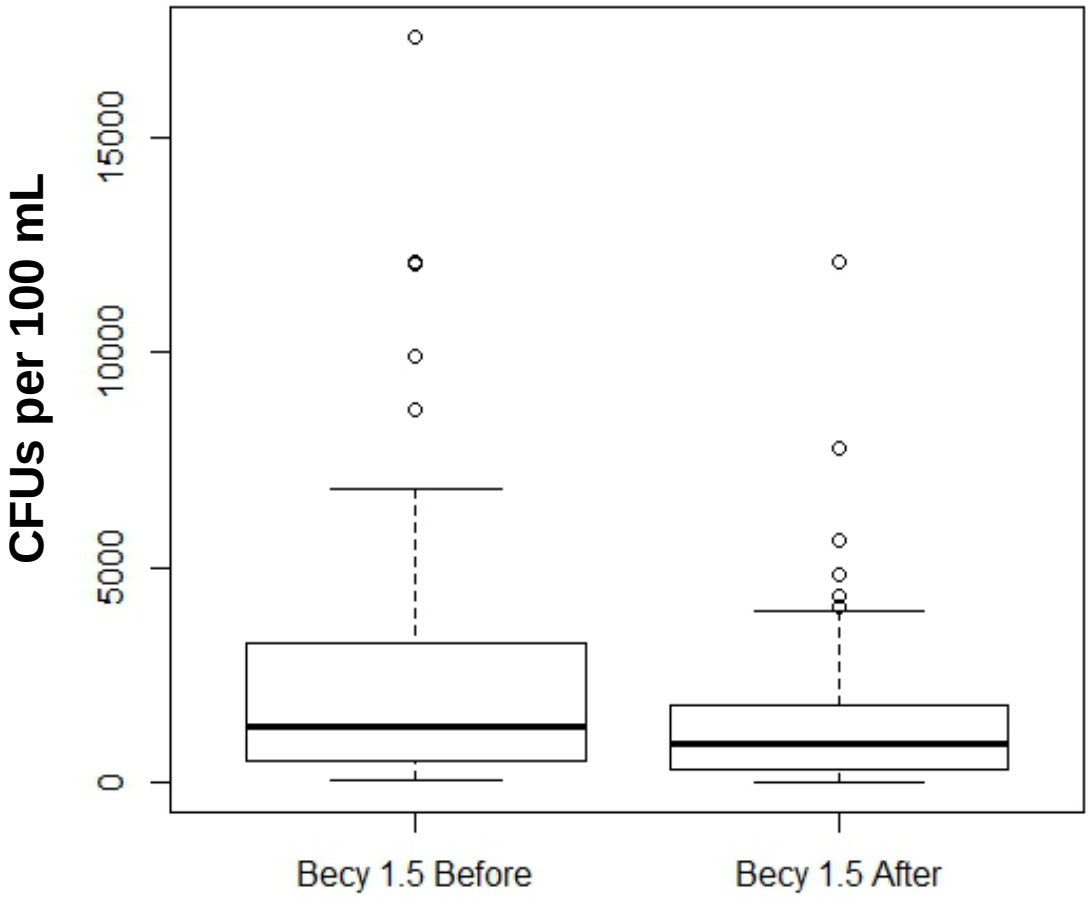


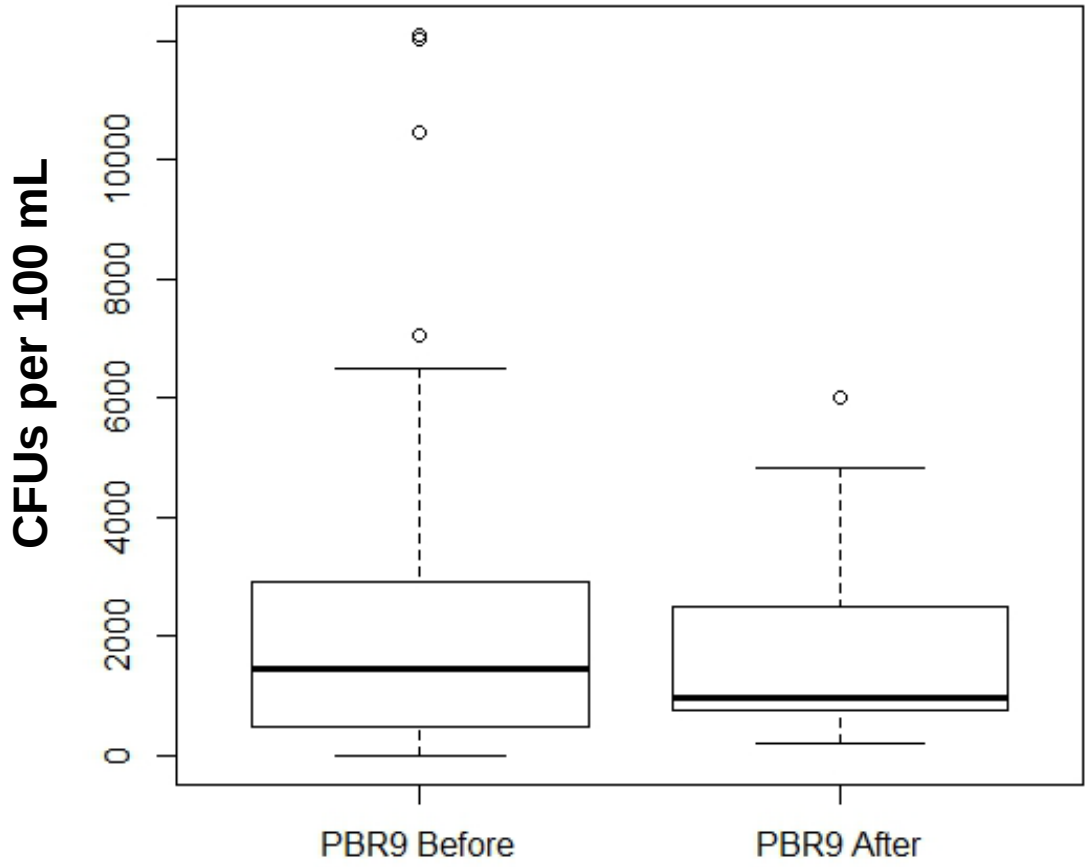
At the α = 0.01 level, there is statistically significant evidence (p = 0.000002) that the mean fecal coliform concentration at NRP-IN (3,567 CFUs per 100 mL) is greater than that at NRP-OUT (653 CFUs per 100 mL).

Question 4: Has there been a statistically significant reduction in fecal coliform concentrations at "downstream sites" (BECY1.5 and PBR9) since construction of the New Riverside Pond?



At the α = 0.01 level, there is statistically significant evidence (p = 0.0064) that the mean concentration of fecal coliform at BECY1.5 before pond construction (2,624 CFUs per 100 mL) is greater than that after construction (1,558 CFUs per 100 mL).

Question 4: Has there been a statistically significant reduction in fecal coliform concentrations at "downstream sites" (BECY1.5 and PBR9) since construction of the New Riverside Pond?



At the α = 0.01 level, there is not statistically significant evidence (p = 0.0954) that the mean concentration of fecal coliform at PBR9 before pond construction (2,406 CFUs per 100 mL) is greater than that after construction (1,863 CFUs per 100 mL).

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & Background
- BMP Installation & Monitoring
- Results
- **Conclusion** & Next Steps
  - Based on these data, ponds are an efficient method of FC reduction
  - However, removal efficiencies may not be maintained down stream **AND** should be verified to meet assumptions
  - Decision implications include:
    1. Right BMP,
    2. Right site,
    3. BMPs in series

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

- Location & Background
- BMP Installation & Monitoring
- Results
- Conclusion & **Next Steps**
  - Microbial Source Tracking to identify appropriate BMP or other management strategy
  - Placing additional downstream BMPs in series and continue monitoring to quantify environmental impact
  - BMP maintenance to preserve function
  - May River Watershed Action Plan implementation – consider downstream conditions as part of the decision-making process for future, similar BMP locations

Management Decision Implications Resulting from Analysis of Stormwater BMP Efficacy

Photo courtesy of Lowcountry Kitchen Events

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blewis@townofbluffton.com

Kim Jones 843.706.4593
kjones@townofbluffton.com