

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

September 30, 2015 at 2:00 p.m. in Beaufort Industrial Village Building #3 Conference Room

Board Members

Present

Don Smith
William Bruggeman
Marc Feinberg
Larry Meisner
Patrick Mitchell
James Fargher

Absent

Allyn Schneider

Ex-Officio Members

Present

Andy Kinghorn
Jeremy Ritchie

Absent

Van Willis
Scott Liggett

Beaufort County Staff

Eric Larson
Kevin Pitts
Patricia Wilson

Visitors

Robbie O'Quinn, SCDNR
John Hutchinson, Town of Bluffton
Reed Armstrong, Coastal Conservation League
April Turner, SC Sea Grant
Alice Howard, County Council
Bryan McIlwee, Town of Hilton Head Island
Denise Sanger SCDNR

1. Meeting called to order – Don Smith

- A. Agenda – The Agenda was approved. Mr. Don Smith later moved Item 6A before Item 4A.
- B. August 26, 2015 Minutes - Approved.

2. Introductions – Completed.

3. Public Comment(s) – None.

4. Reports – (Mr. Eric Larson 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/2015/093015.pdf>)

A. Utility Update – Eric Larson

Rate Structure Ordinance and Rate Increase – Mr. Eric Larson updated his written report based on County Council passing the Rate Structure Ordinance and Rate Increase on September 28, 2015. Utility staff and consultants are in the process of incorporating the new rates into the 2015 Beaufort County tax run.

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

MS4 Permit Application –Mr. Larson stated that the DHEC Public Notice was issued August 31, 2015 and the effective date of the permit will be October 1, 2015. No comments have been received as of September 28, 2015.

MS4 Staffing – Mr. Larson said that a recommendation has been made for the MS4 Coordinator Position.

Beaufort County Pond Conference – Mr. Larson reported that the Pond Conference is set for October 22, 2015 at USCB Gateway campus in Bluffton. More information can be found at <http://www.neighborsforcleanwater.org/>, bcgov.net or Facebook. Mr. Larson encouraged all board members to attend the pond conference. A motion was made for the Stormwater Management Utility to pay for board members' registration fee and was passed unanimously.

Natural Resources Defense Council (NRDC) – Mr. Larson noted that the NRDC sued the EPA in 2003 demanding that the EPA strengthen their Phase II Stormwater Rules (MS4 Program) and won. NRDC has stated that since 2003 nothing has been done, therefore the NRDC renewed their objection in 2014 and courts again ruled in their favor. Now the EPA has until November 17, 2016 to publish new rules. DHEC will have to make changes which will affect the utility in about two or three years when the current permit is renewed.

Clean Water Rule – Waters of the United States have been redefined by the Army Corps of Engineers and US EPA on August 28, 2015. Broadening the definition could negatively affect compliance with NPDES permits and the MS4 program. Redefinition changes could limit the County's ability to modify or maintain manmade ditches and ponds. The Southeastern Stormwater Association (SESWA) and the County sent comments to the EPA on possible negative outcomes of the broadened definition. Federal courts in North Dakota granted an injunction to prevent that rule from going into effect. Attorney Generals representing 27 states have filed a lawsuit challenging the rule asking to be part of the injunction.

C. Monitoring Update – Eric Larson

Mr. Larson had nothing to report.

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

Mr. Larson had nothing to report.

E. Stormwater Related Projects – Eric Larson

Okatie West / SC 170 Widening Retrofit Land Purchase – Mr. Larson updated his written report by stating recent actions by County Council make it possible to continue with the contract process.

Huspah Court South Ditch Easement / Mike Zara – Mr. Larson updated his written report by stating that discussions are ongoing with the property owner.

F. Professional Contracts Report – Eric Larson

Stormwater Management Plan (Master Plan) Update – Applied Technology and Management, Inc. (ATM) is still working on a scope of work, cost of service, and contract. SWIC will be meeting October 8, 2015 to review the scope of services.

G. Regional Coordination - Eric Larson

Buckingham Plantation Drive Innovation District Conceptual Design Study – This project was in jeopardy due to possible budget cuts. Mr. Larson is continuing to move forward on this project as a result of the rate increase.

Factory Creek Watershed Regional Detention Basin & Academy Park Subdivision Proposal – Staff is discussing a potential Public – Private Partnership with the developer to construct a regional facility on this site. This would involve revising the current concept as defined by the 2006 Stormwater Management Plan. Mr. Larson will provide updates as available.

H. Financial Report –

The report was not provided this month.

I. Maintenance Projects Report –

The report was not provided this month.

5. Unfinished Business –

A. Update on Rate Study – Eric Larson

Option E of the rate study was approved by County Council as proposed. As part of Option E, the creation of a Countywide Infrastructure (CWI) fee was approved and will be charged to each parcel within a municipality. Stormwater staff has until the county deadline of October 16, 2015 to update the tax system. A Public Education Campaign will provide flyers, website and contact information to address questions regarding the fee change. Passing of the rate increase paves the way to move forward with the 5 year plan, propose an expanded extent of service plan, execute capital project plans which align with the updated management plan, and emphasize MS4 implementation, which includes hiring additional staff.

6. New Business – (All studies presented below were provided in advance and can be accessed at the previously mentioned posted agenda.)

A. Presentation of the D.N.R. Volume Sensitivity (Salinity) Study- Dr. Denise Sanger ([backup](#))

Dr. Denise Sanger with the Department of Natural Resources (DNR) presented the findings of a Volume Sensitivity Study. She summed up the study with the following:

- **Sensitivity within system is correlated to (but not necessarily caused by)**
 - Greater % Imperviousness
 - Greater proportion of % freshwater wetlands
 - Less proportion of % estuarine wetlands
 - Smaller creek width
 - **Sensitivity across systems is correlated to (but not necessarily caused by)**
 - Greater proportion of freshwater wetlands
 - Larger size
 - Greater proportion of poorly draining soils
 - Less % estuarine wetlands
- Watersheds west and north of Port Royal Sound are more likely to contain sensitive headwaters than to the east; however, all are sensitive in their headwaters.
 - Runoff modeling can be used to understand potential changes within a watershed.

B. Presentation of the May River Watershed Sewer Master Plan – John Hutchinson, TOB

Mr. John Hutchinson with the Town of Bluffton presented the May River Watershed Sewer Master Plan completed in cooperation with Beaufort Jasper Water Sewer Authority (BJWSA). Mr. Hutchinson demonstrated how the concentrated number of septic systems negatively impacts the water quality of the May River Watershed, which the May River Action Plan is trying to prevent. This study focused on vacuum sewer systems, low pressure sewer systems, gravity sewer systems and the costs involved with implementing these systems in the desired locations. Mr. Hutchinson responded to questions about funding for the sewer systems by stating that this study focuses on the cost to implement rather than the funding for the sewer systems. Mr. Jeremy Ritchie replied to other funding questions by stating that some of the funding is provided from the Town’s Stormwater Fees. Mr. Eric Larson questioned funding sources outside of the Town of Bluffton and Mr. Hutchinson replied that the county could work with BJWSA for funding options. Mr. Andy Kinghorn expressed his understanding that BJWSA will not ask existing rate payers to pay for expansion of services. Mr. William Bruggeman asked how to justify using Stormwater fees to paying for Point Source

Pollution. Mr. Ritchie responded that septic systems eventually cause water quality impairment. The fee allocation was set up before he joined the Town of Bluffton.

C. Draft 2016 Stormwater Management Utility Board Meeting Schedule – Eric Larson

The proposed schedule was included in the posted agenda for board members to review and discuss at the next board meeting.

7. Public Comment(s) – None

9. Next Meeting Agenda- Approved and can be viewed on the posted agenda.

10. Meeting Adjourned.

Beaufort County Volume Sensitive Waters Study

Beaufort County Stormwater Utility Board

September 30, 2015



Beaufort County

- Water quality impairments in the County
- Strong stormwater standards with requirement to meet volume limits, also controls pollutants
- NPDES Phase II MS4 Permitting
- Stormwater Management Plan being revised
- The county is faced with managing stormwater to maintain the health of the waterways in the face of coastal growth.

Objectives

1. Delineate the **spatial extent** (within) of stormwater impact on major tidal waters.
2. Identify **which watersheds** (across) are more volume sensitive.
3. **Project impacts** on volume control.

Load = Volume * Concentration



Methods

- Five study creeks
- Install rain gauges in each watershed
- Measure salinity and depth down-stream from headwaters
- Evaluate magnitude of salinity change as function of rainfall
- Identify location of “critical volume-sensitive waters” - within and across
- Model stormwater runoff to assess BMPs and changing rainfall patterns



May River



Watershed Advisory Committee Members

- Don Smith
- Andy Kinghorn
- Eric Larson
- Danny Polk
- Kim Jones
- Al Segars
- Al Stokes
- Russell Berry
- Alan Warren
- Chris Marsh
- Reed Armstrong
- Dan Ahern
- Bob Gross

Precipitation Impact on Estuarine Waters

Within Watersheds

Across Watersheds

Volume Impacts
(contaminants)

Impacts on
Organisms

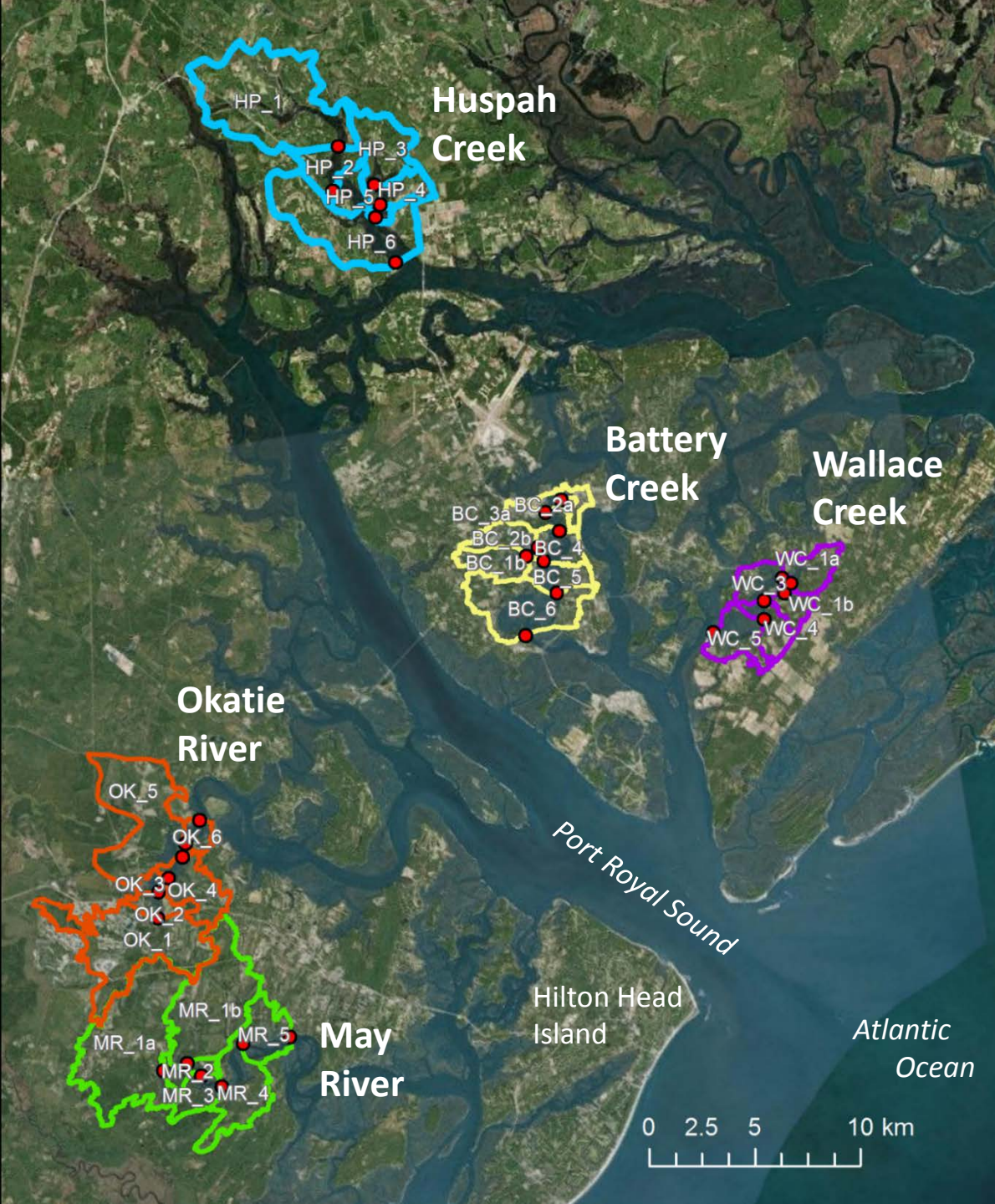
Data

Collection

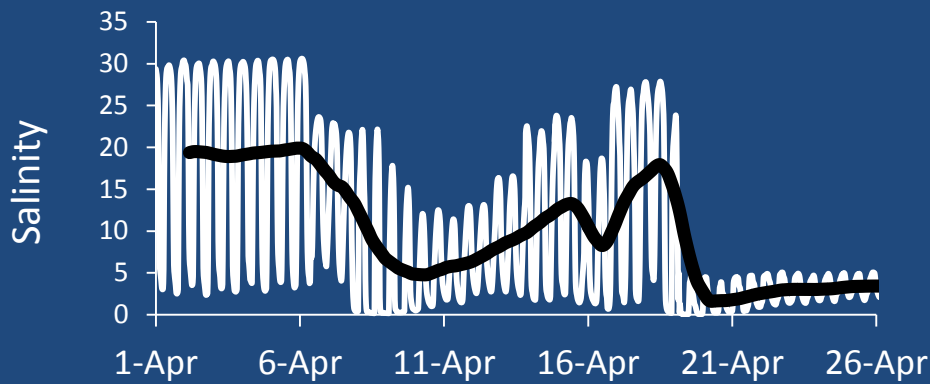
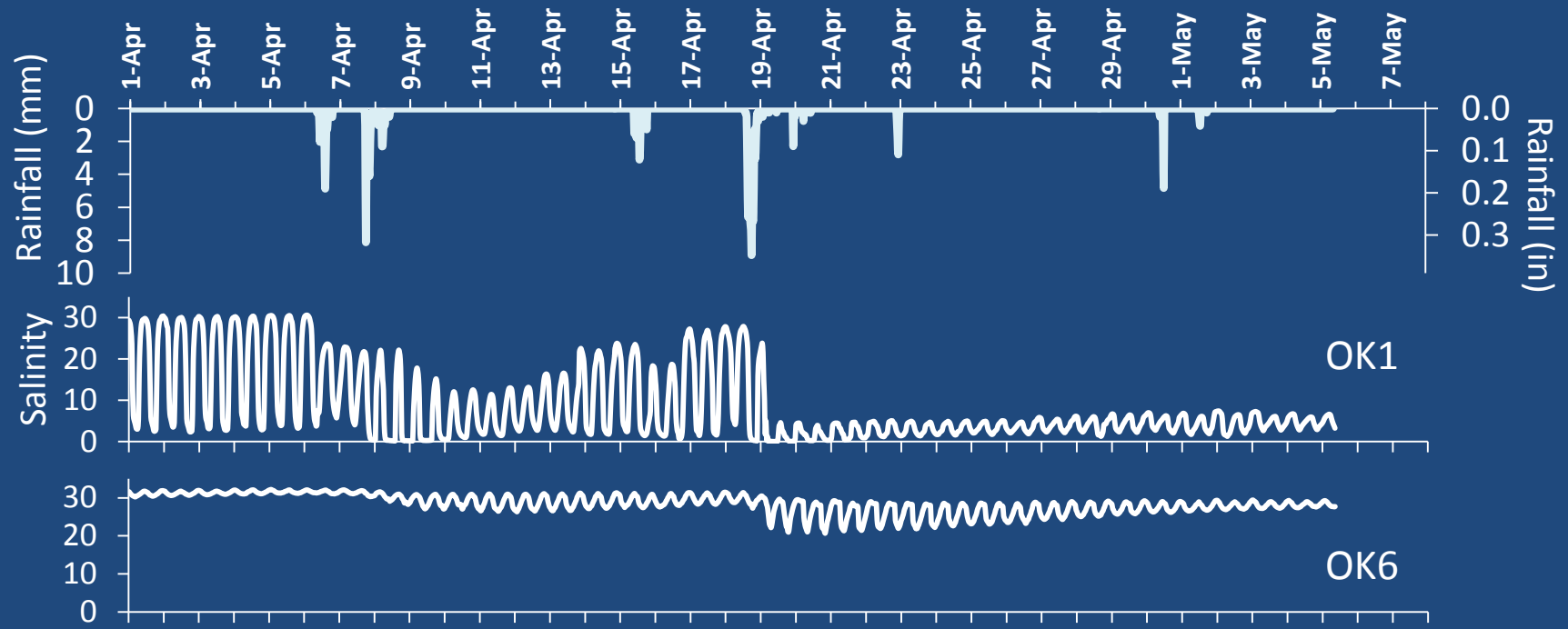
Salinity Drop

Predictive
Models

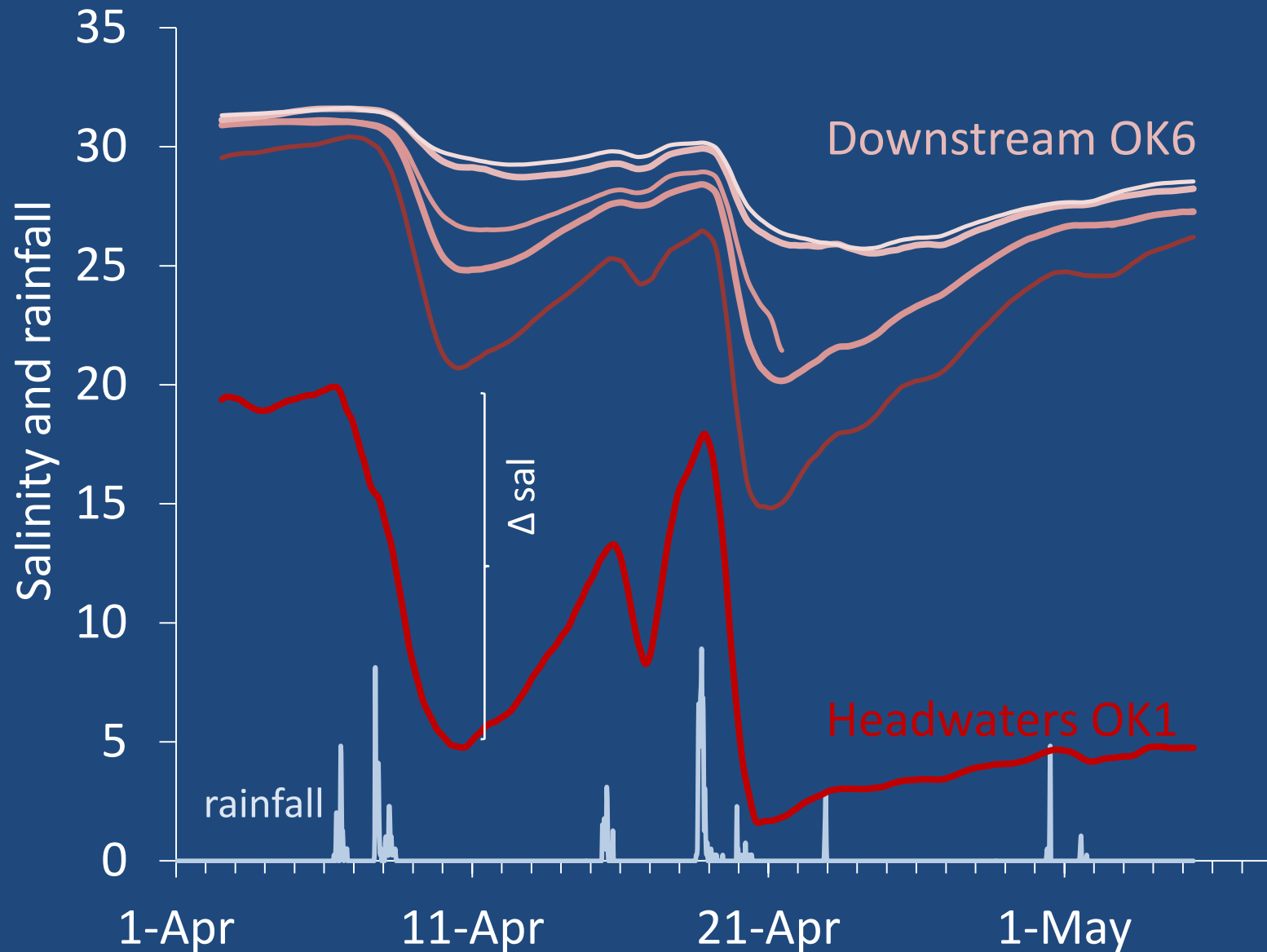
Within Watersheds



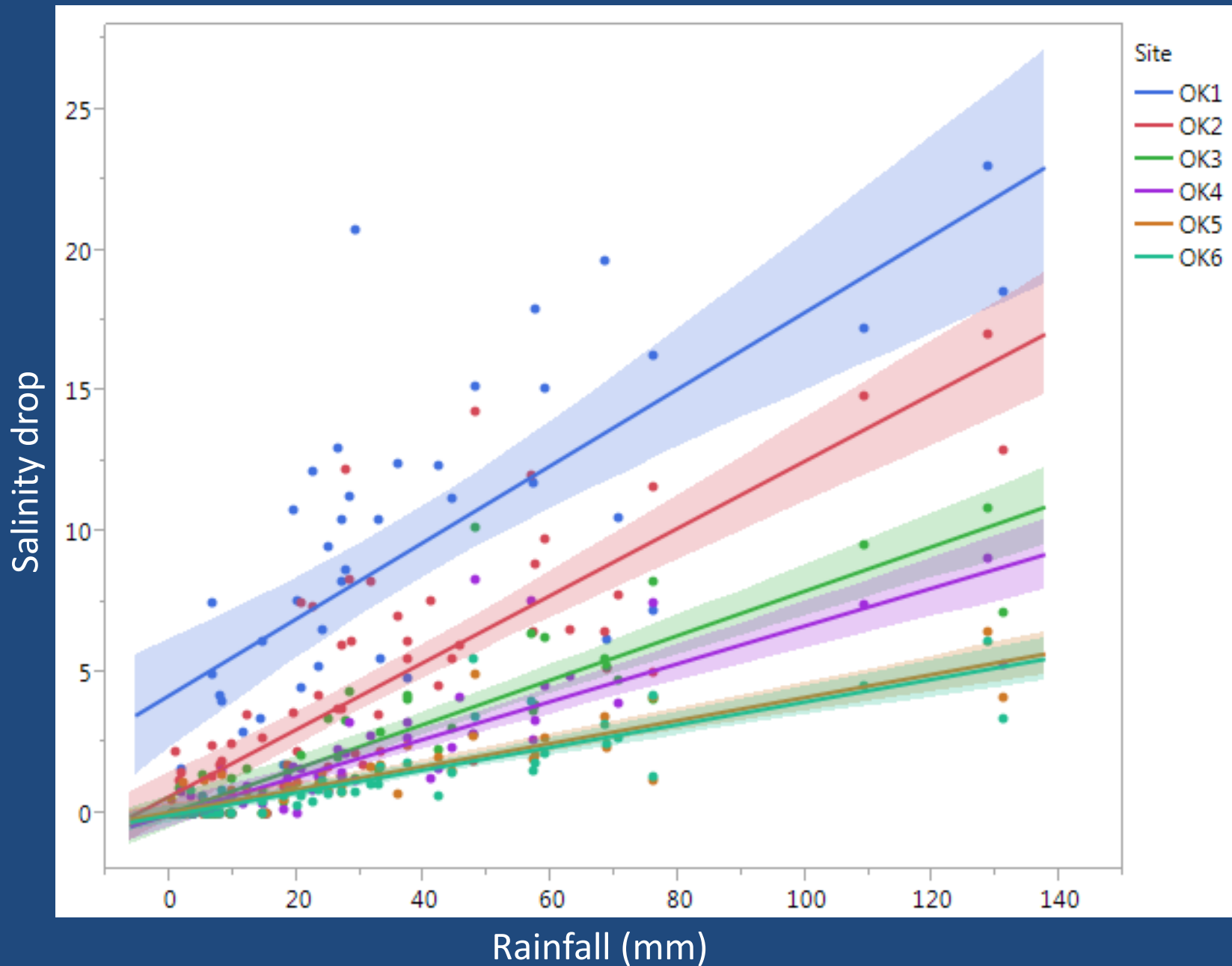
Data Preparation



Okatie River



Okatie River



Within Watersheds Model

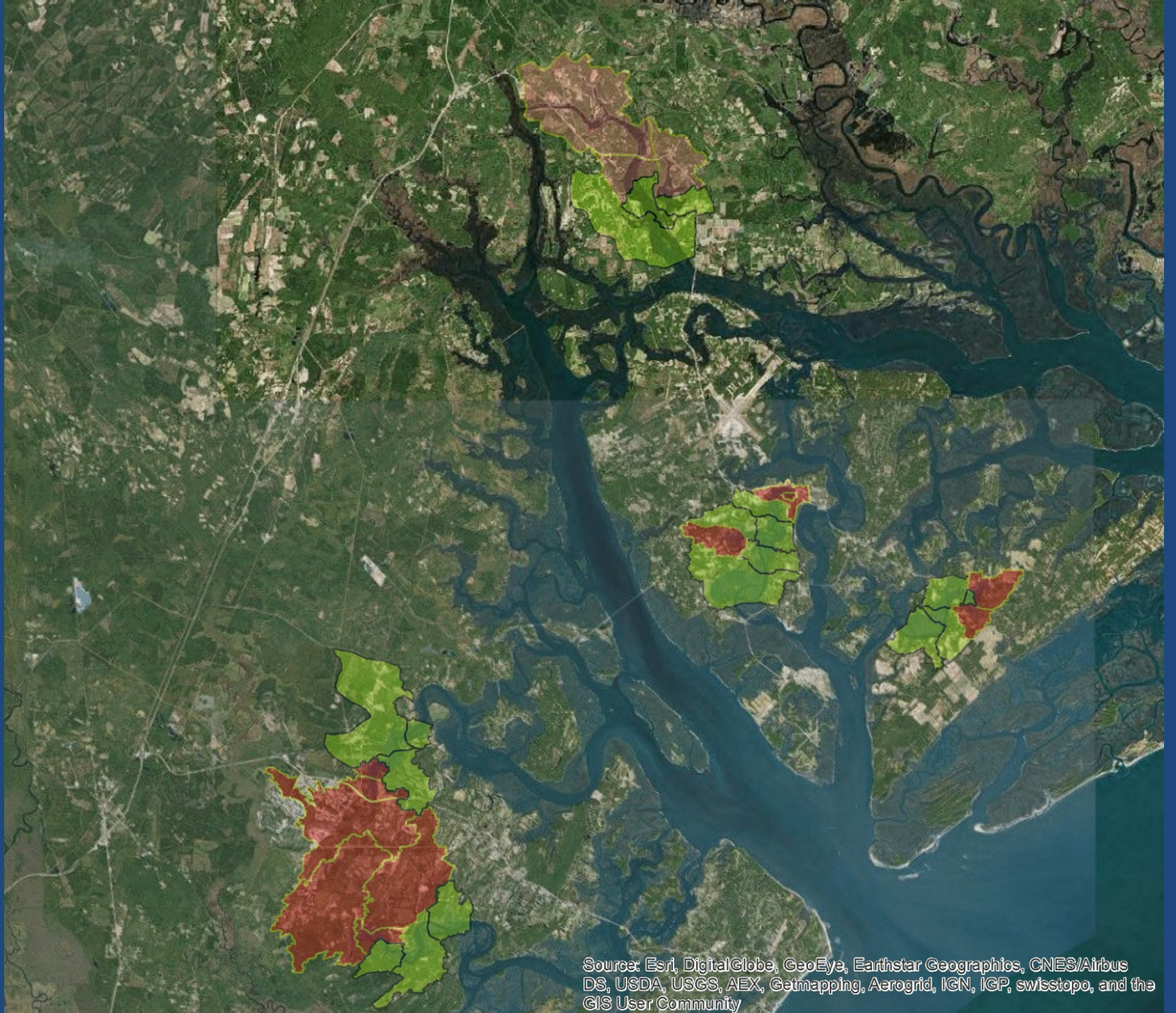
Salinity Drop/mm rainfall related to

Imperviousness (developed/soils)

Freshwater wetlands

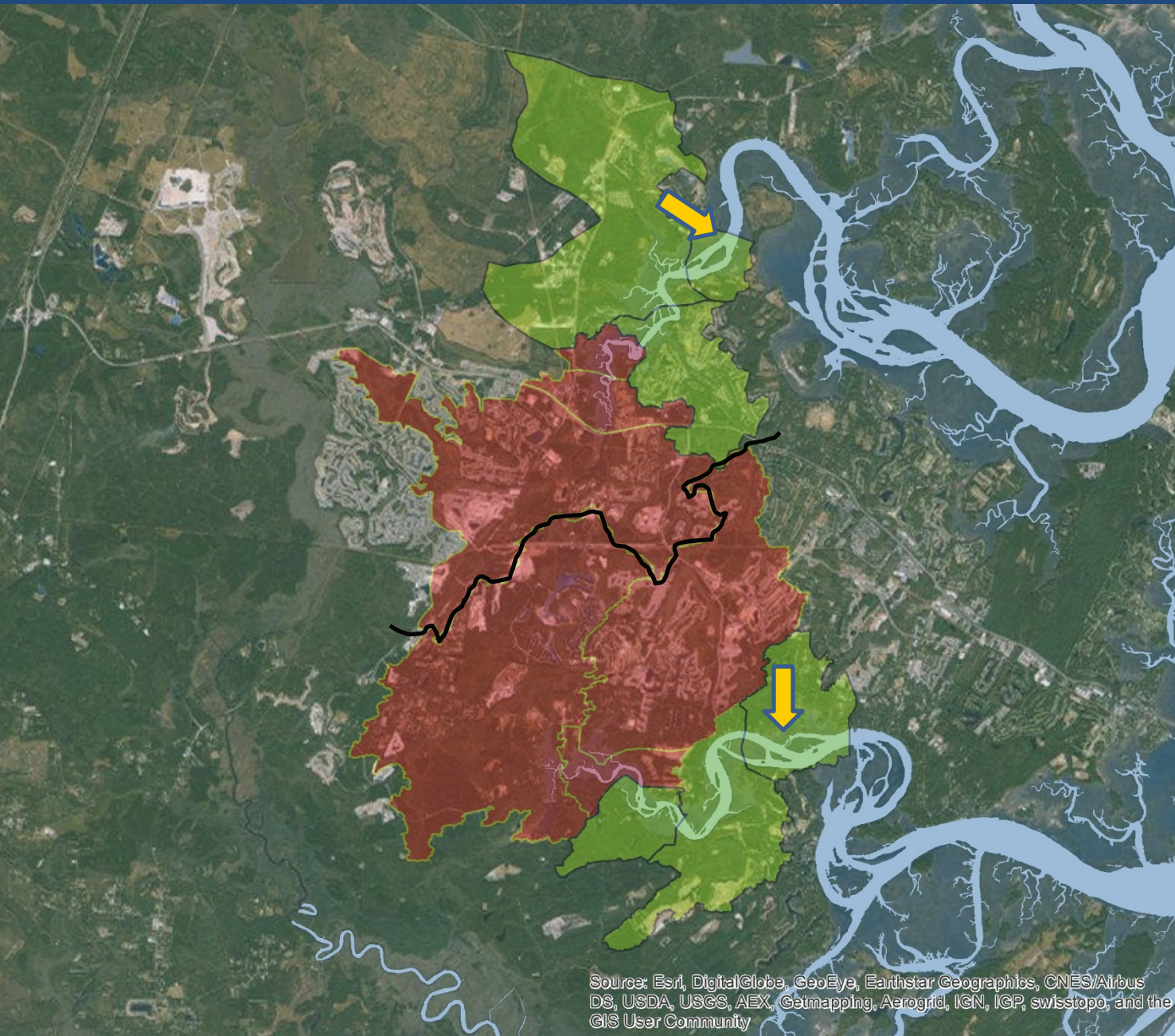
Estuarine wetlands

Creek width



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Okatie and May Rivers



Large
watersheds

Restricted

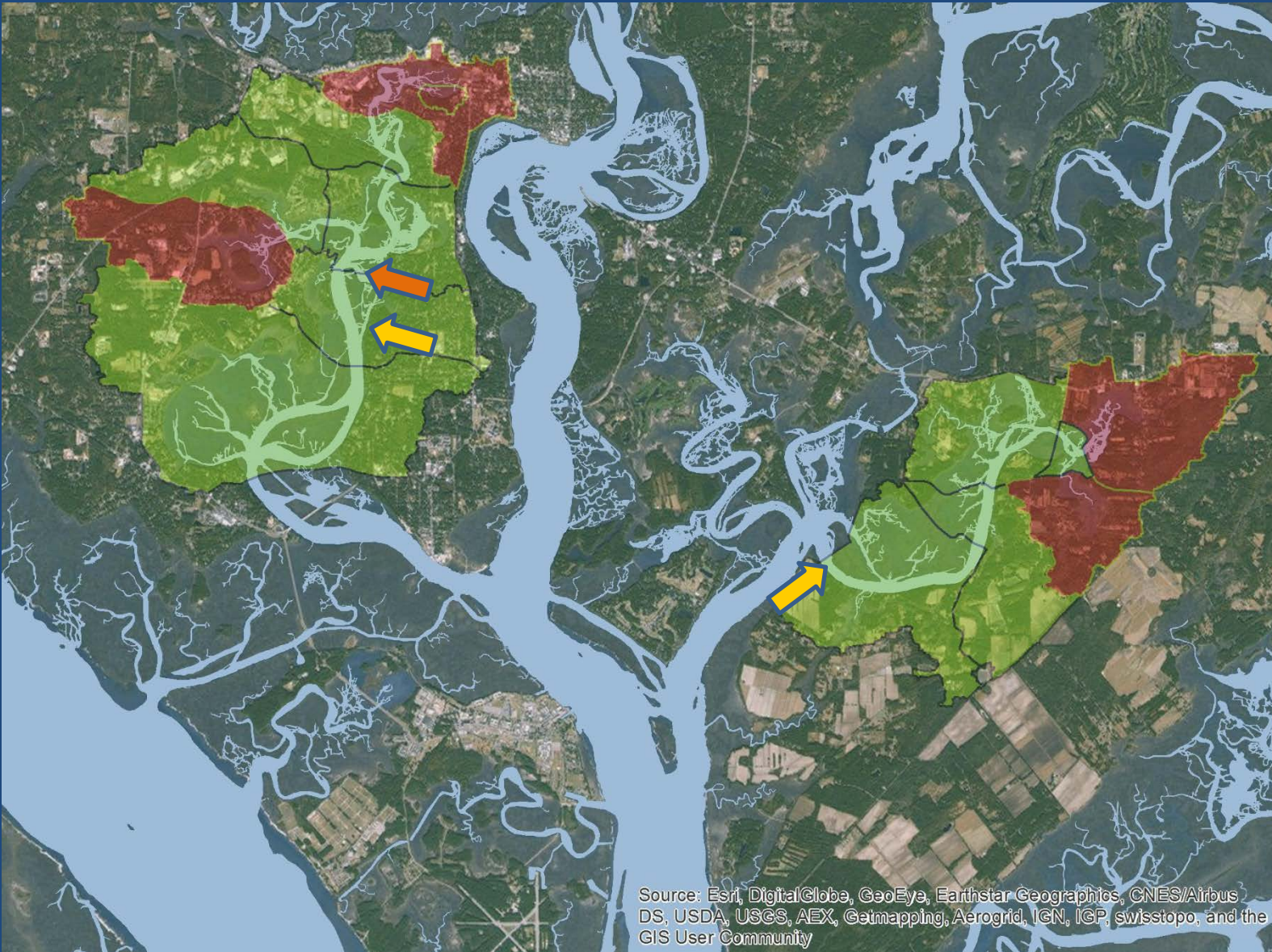
Impervious soils

Suburban

➔ Restricted
➔ Prohibited

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Battery and Wallace Creeks



Small
watersheds

Restricted/
Prohibited

Pervious soils

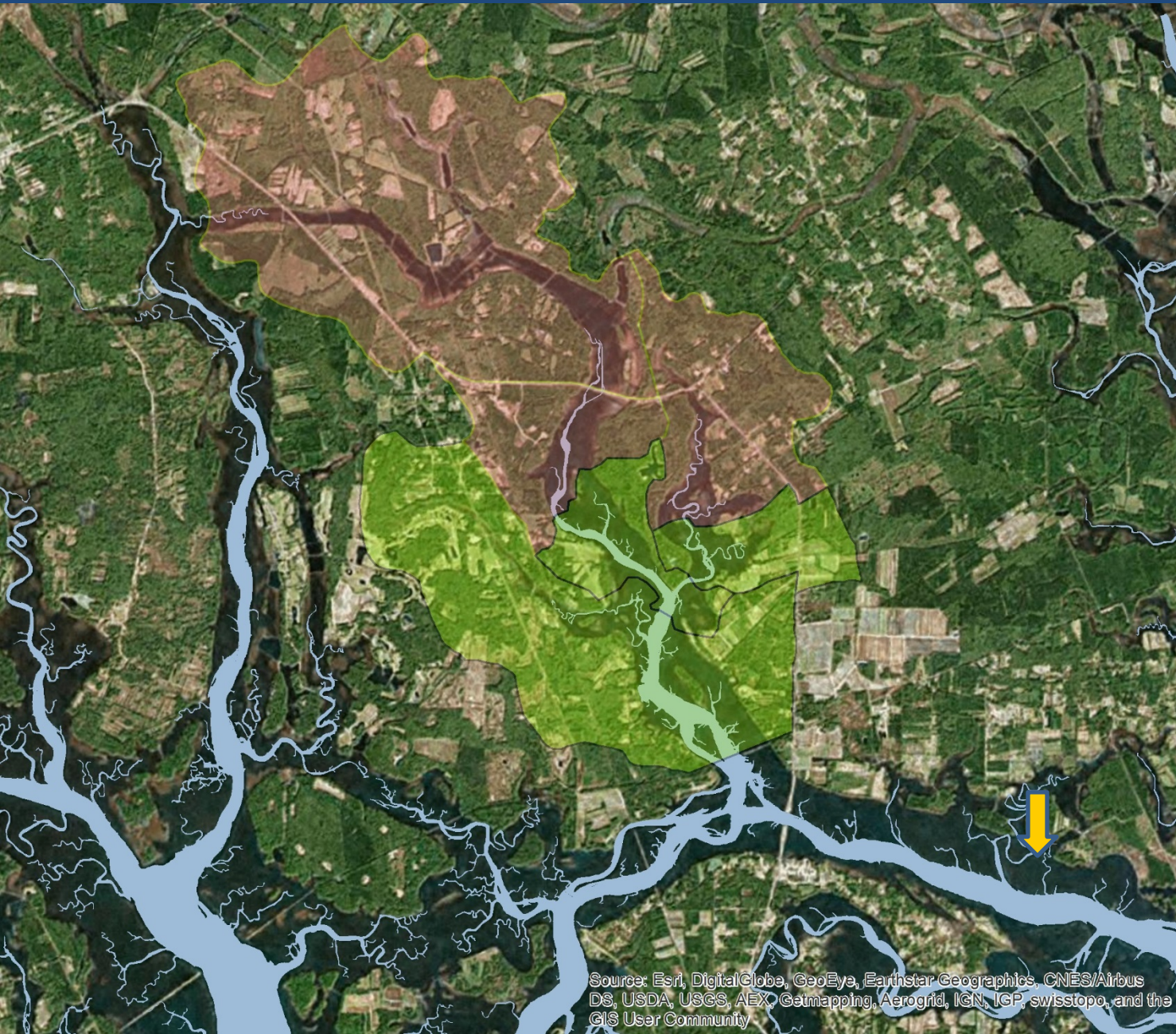
Suburban

Forested

➡ Restricted
➡ Prohibited

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Huspah Creek



Large watershed

Restricted

Impervious soils

Forested/
Agriculture

➔ Restricted
➔ Prohibited

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Precipitation Impact on Estuarine Waters

Within Watersheds

Across Watersheds

Volume Impacts
(contaminants)

Impacts on
Organisms

Volume Impacts
(contaminants)

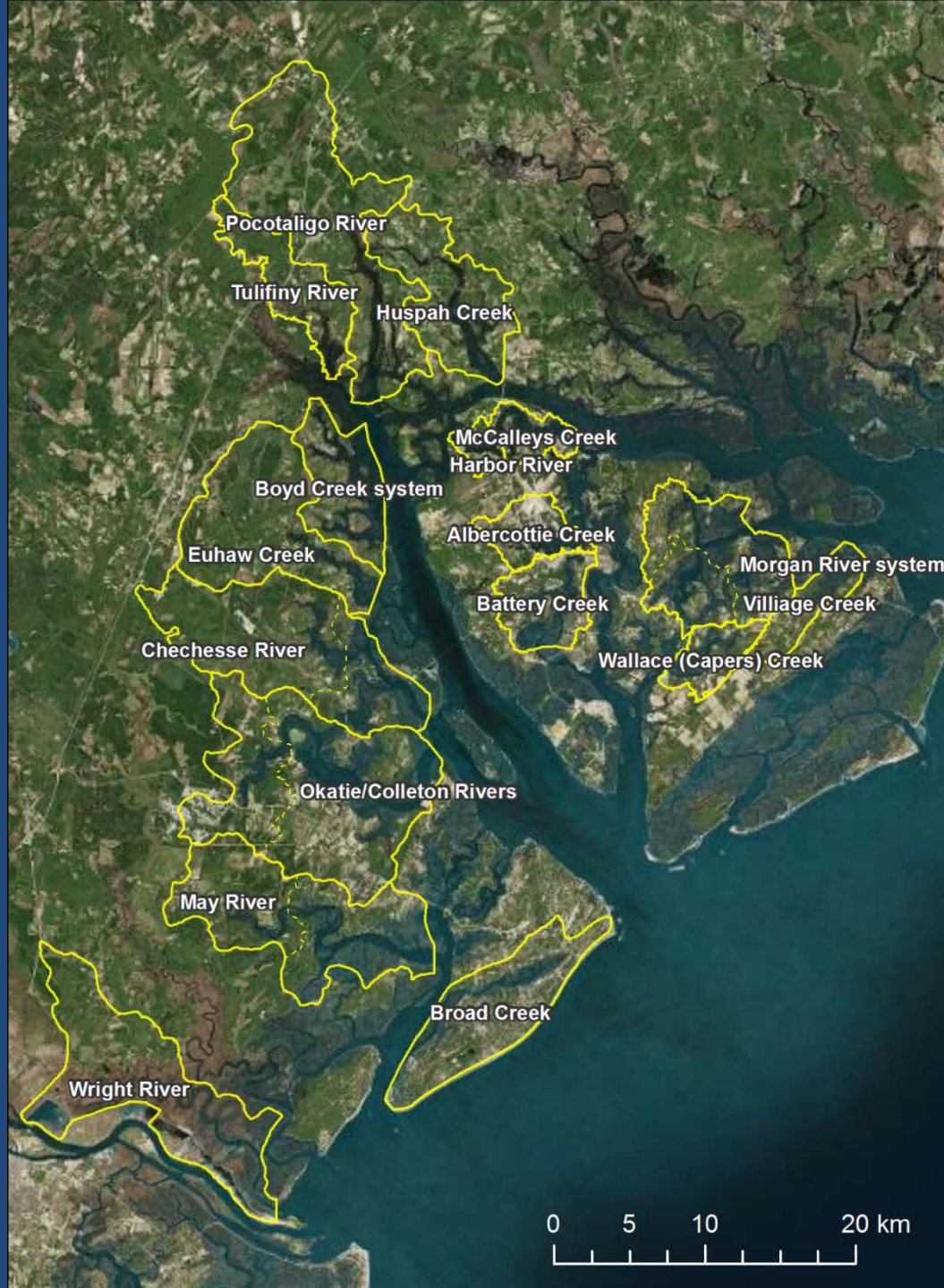
Data
Collection

Watershed
Assessment

Salinity Drop

Predictive
Models of
Sensitivity

Predictive
Models



Across Watershed Modeling

Modeling salinity drop/mm rainfall:

Model 1:

slope = % estuarine wetlands

Model 2:

slope = % estuarine wetlands
% very poorly drained soils

Model 3:

slope = % estuarine wetlands
% freshwater wetlands
% very poorly drained soils

Modeling average salinity drop:

Model 1:

avg drop = watershed area

Model 2:

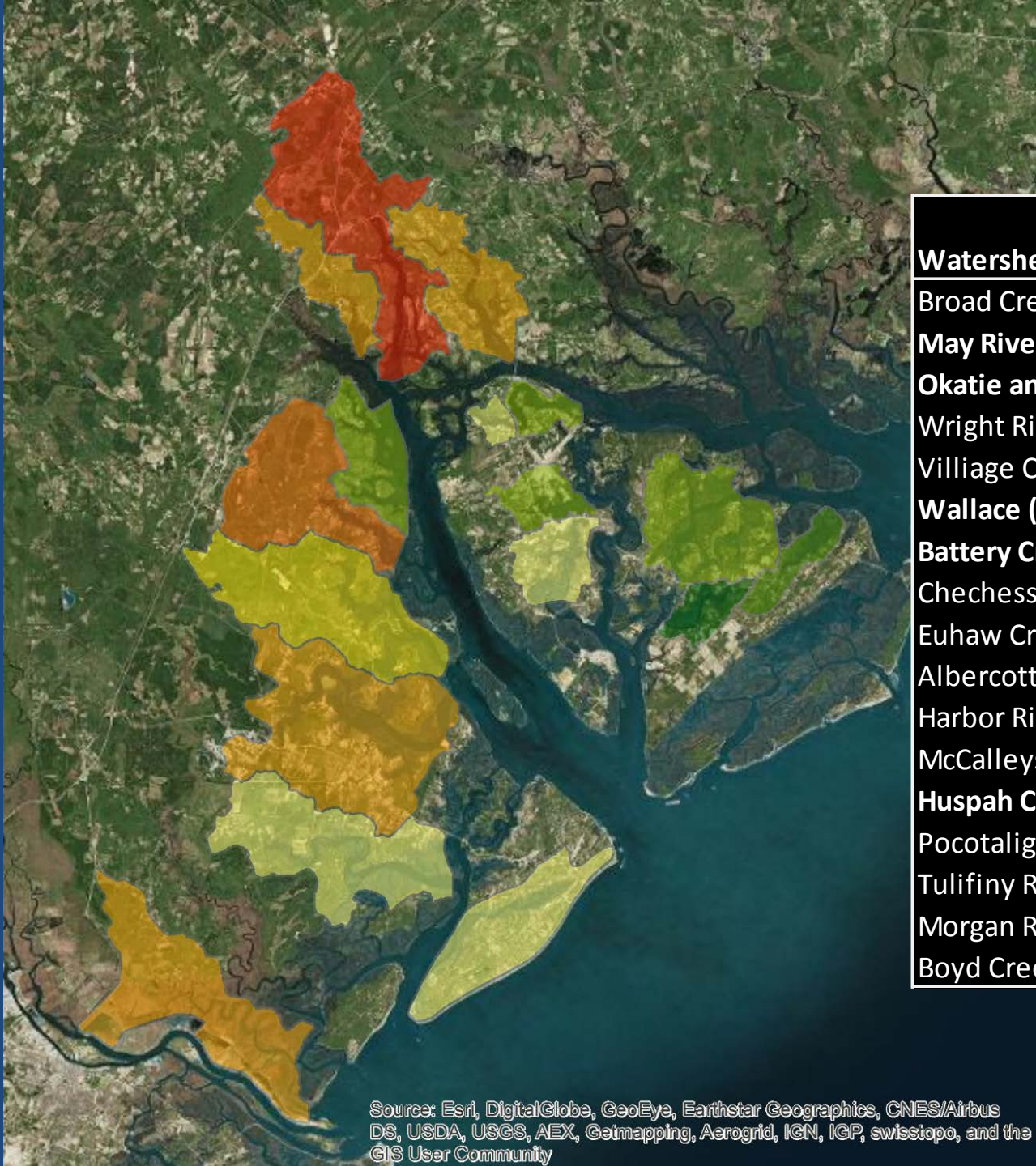
avg drop = watershed area
% very poorly drained soils

Model 3:

avg drop = watershed area
% very poorly drained soils
water body width at mouth



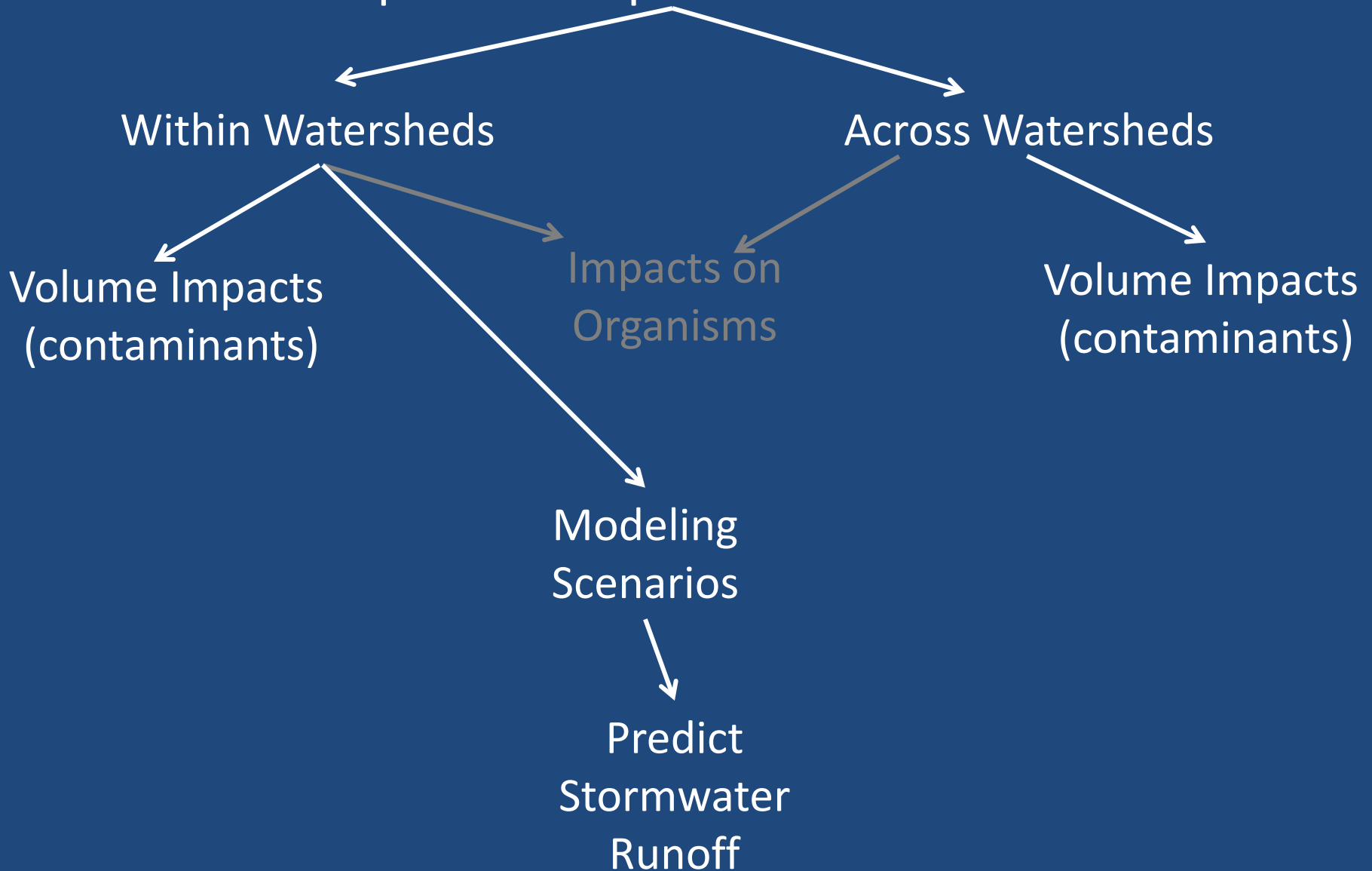
Top 25% and bottom 25% from each given 1 or -1 points respectively



Watershed	Combined 25% rank score
Broad Creek	0
May River	0
Okatie and Colleton Rivers	3
Wright River	3
Villiage Creek	-5
Wallace (Capers) Creek	-6
Battery Creek	0
Chechesse River	2
Euhaw Creek	4
Albercottie Creek	-3
Harbor River	0
McCalleys Creek	-3
Huspah Creek	3
Pocotaligo River	5
Tulifiny River	3
Morgan River system	-3
Boyd Creek system	-3

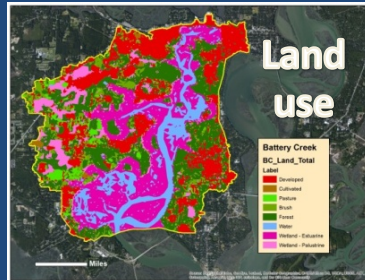
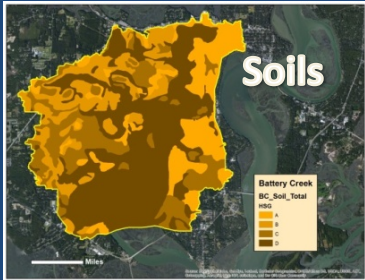
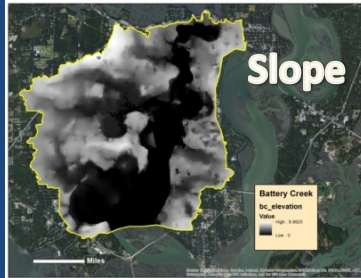
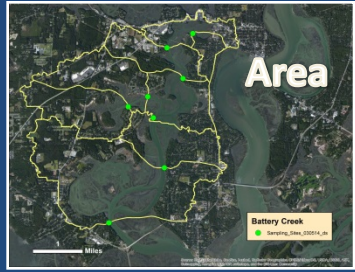
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geimapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Precipitation Impact on Estuarine Waters



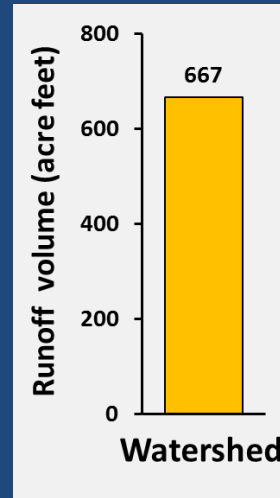
SWARM – Stormwater Runoff Modeling System

Inputs

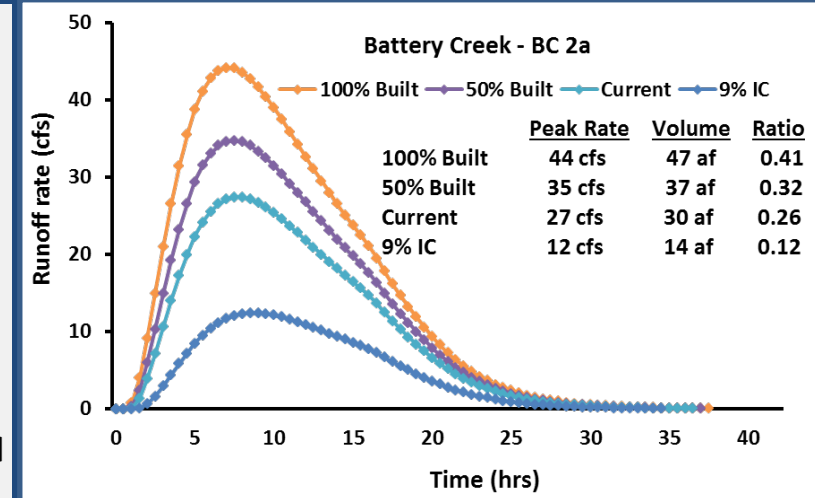


Outputs

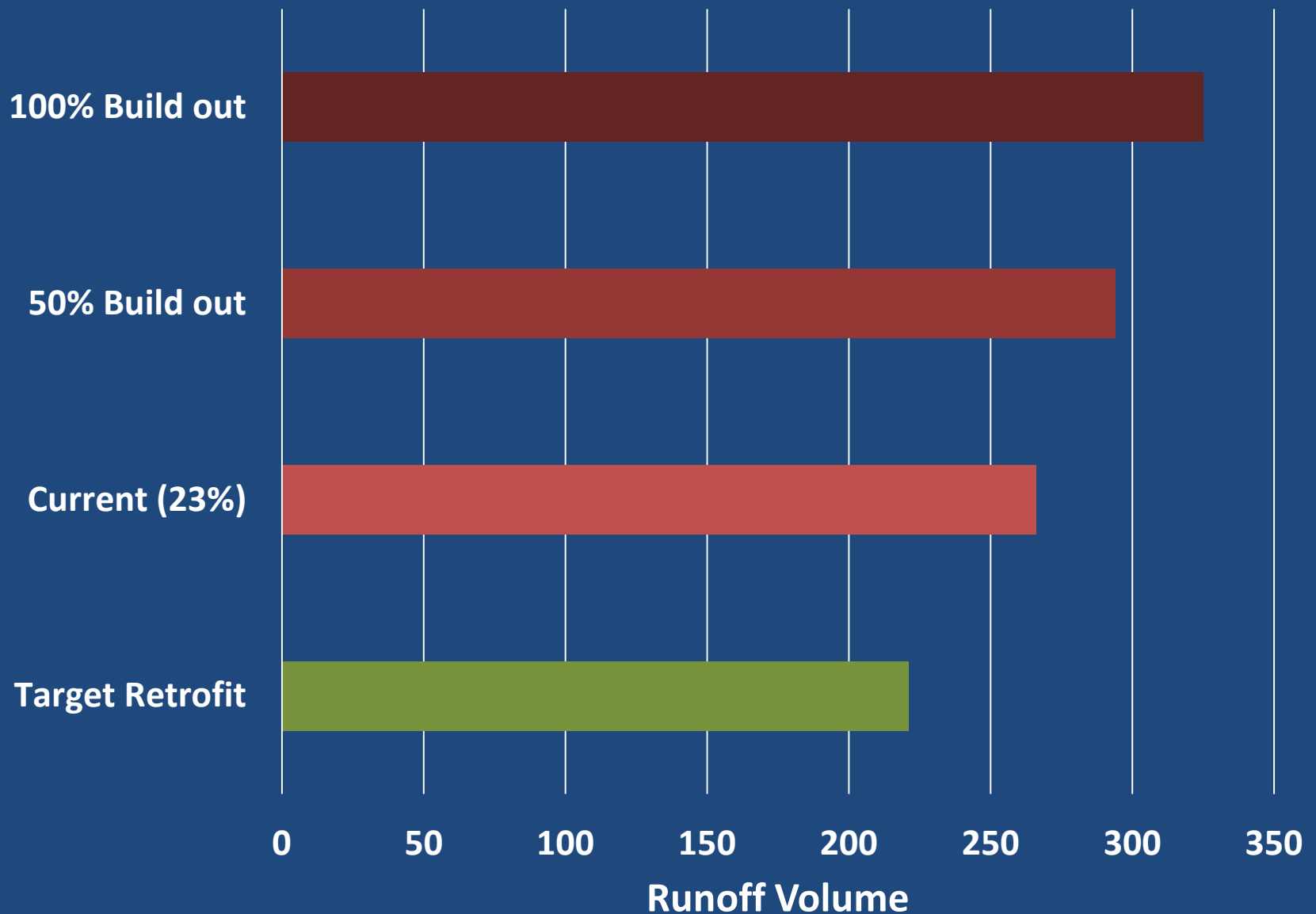
Amount



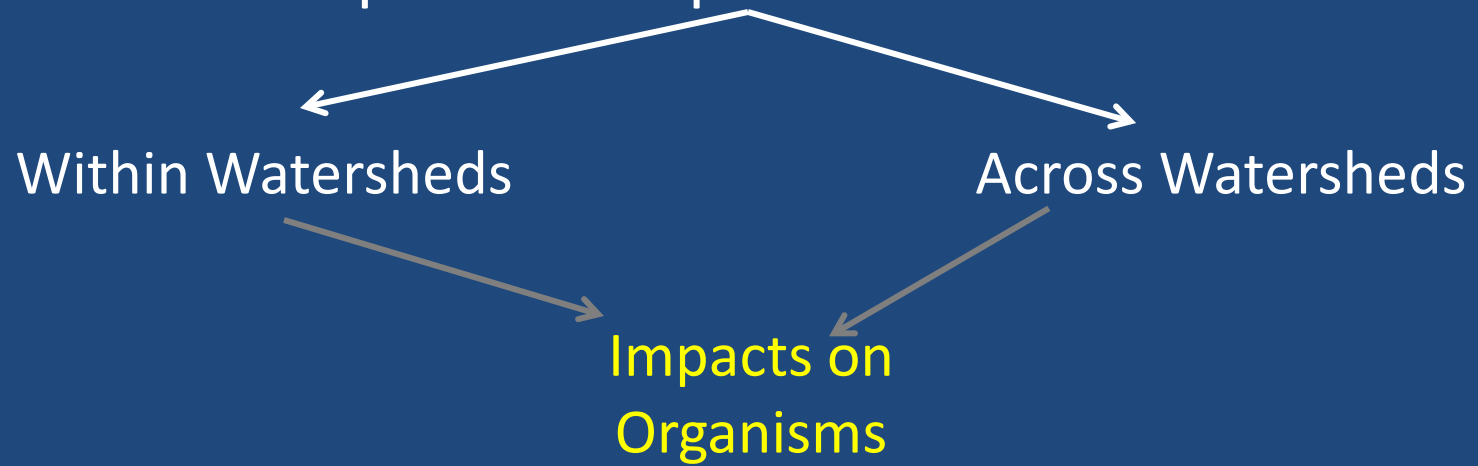
Rate & Time



SWARM – Okatie Example



Precipitation Impact on Estuarine Waters



Impacts on Estuarine Animals

- Marine zooplankton (rotifers and copepods) – change from ~30 to 15 ppt.
- Oysters spat - minimum 6 ppt for larvae to settle and metamorphose into spat.
- Blue crab larvae - minimum 20 ppt salt.
- Spotted sea trout spawn - levels above 20 ppt.
- Brown shrimp post larvae (<day 13) - < 25 ppt causing mortality.



Summary

- Sensitivity within system is correlated to (but not necessarily caused by)
 - Greater % Imperviousness
 - Greater proportion of % freshwater wetlands
 - Less proportion of % estuarine wetlands
 - Smaller creek width
- Sensitivity across systems is correlated to (but not necessarily caused by)
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- Watersheds west and north of Port Royal Sound are more likely to contain sensitive headwaters than to the east; however, all are sensitive in their headwaters.
- Runoff modeling can be used to understand potential changes within a watershed.

What Does It Mean?

- Potential for impacts to living resources.
- Current on-site volume control is important
- Can predict potential volume changes with development and changing rainfall
- Ability to understand differences within watersheds based on physical characteristics
- Data available to inform management decisions
- Limited resources can be targeted to appropriate types of BMPs and policy, for example
 - Battery Creek – concentration important
 - Okatie Creek – volume (and concentration) important