



*Research on Sapelo Island and at the
Sapelo Island National Estuarine
Research Reserve (SINERR)*

An Overview

Georgia Coastal Research Council Colloquium
Sept. 13, 2018

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SINERR Reserve Manager



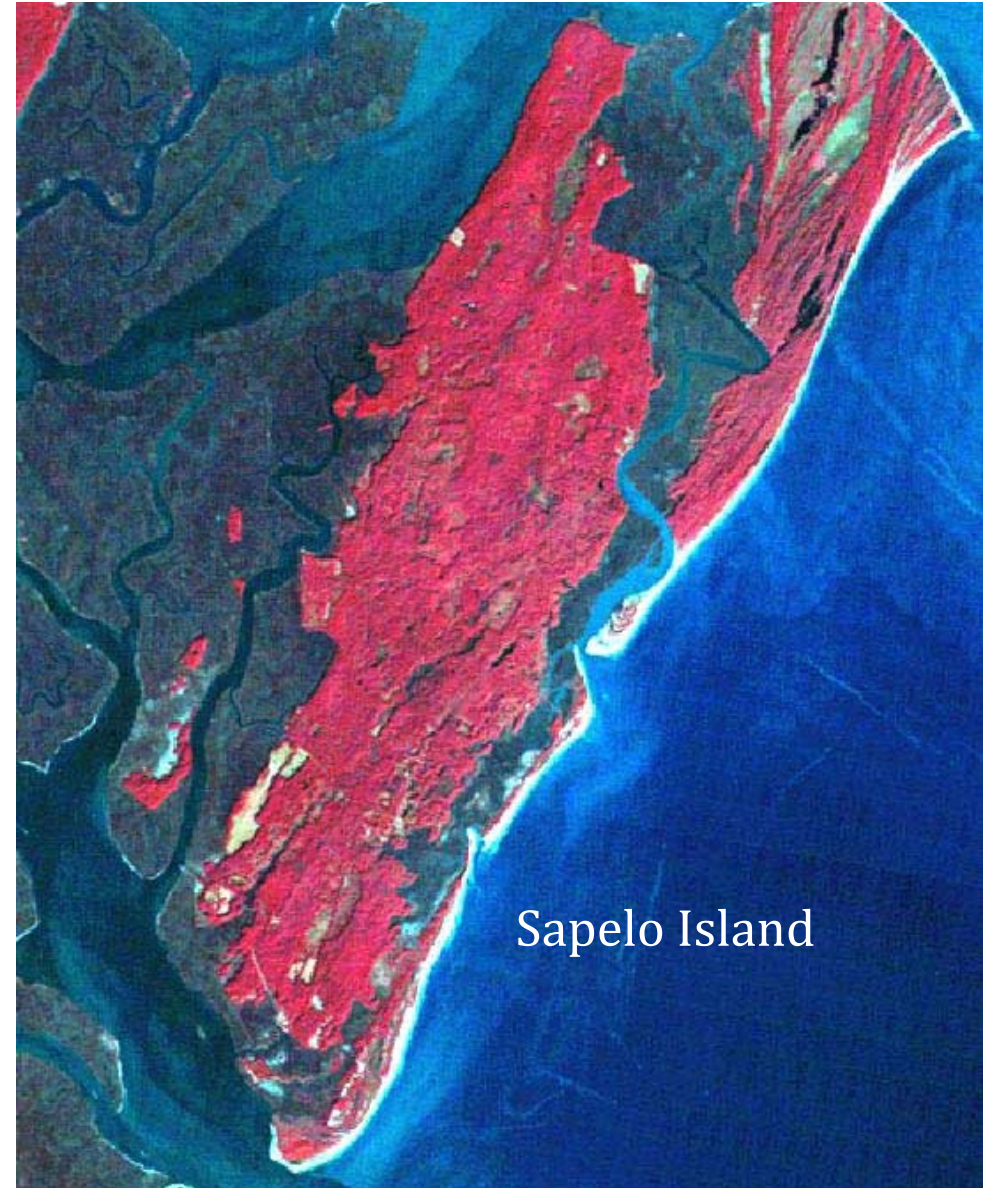
Sapelo Island vs. Sapelo Island NERR

- 18,100 ac - State owned (DNR) lands & marshes
- 7,500 ac - SINERR (6,050 ac - marshes & tidal creeks, 1,450 ac - upland)
- 1500 ac - UGA Marine Institute long-term lease (south end)
- 434 ac - Hog Hammock (private)



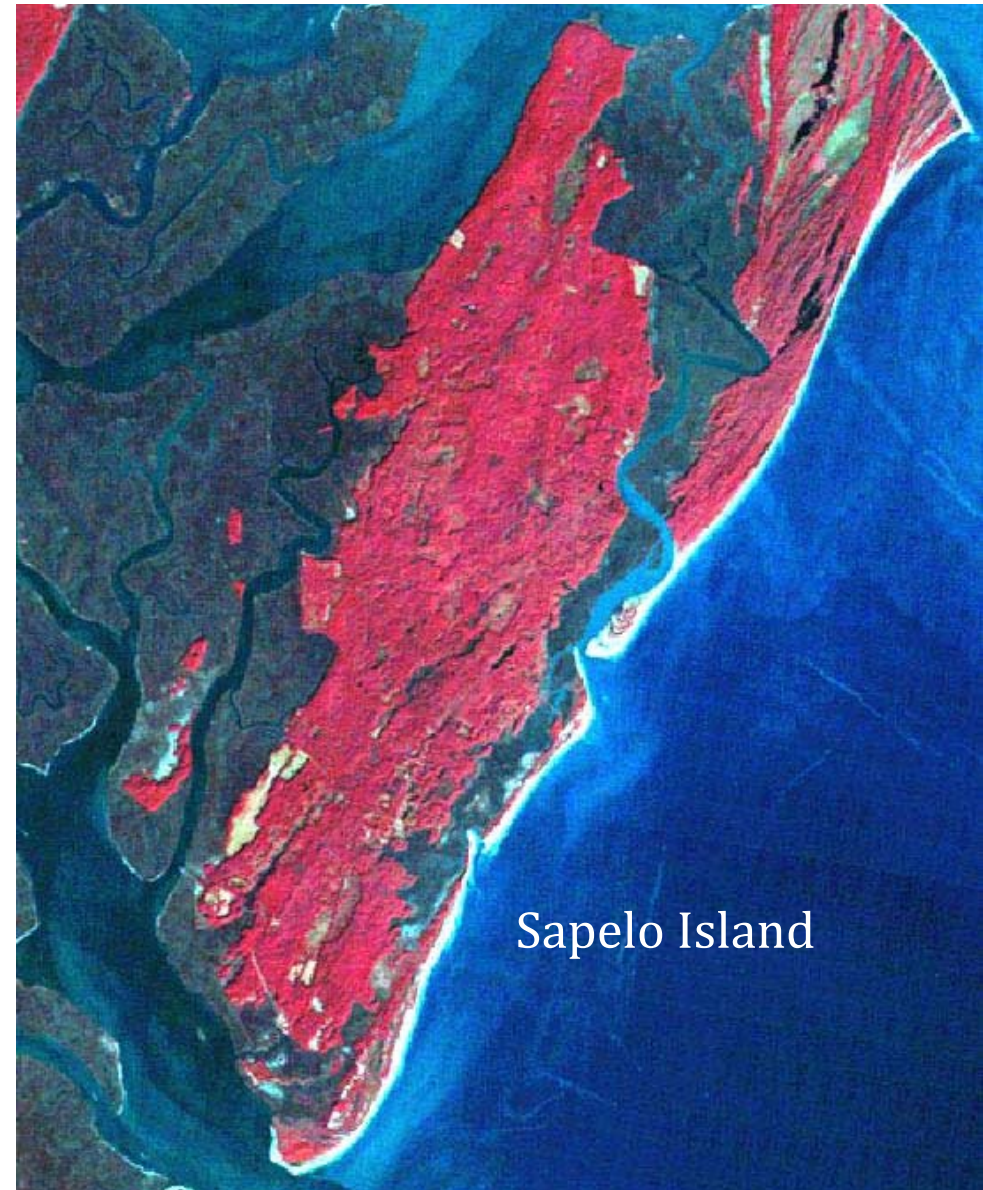
Challenges to conducting research on/around Sapelo:

- limited access (3 ferry runs/day)
- transportation provided by host
- limited housing options
- no restaurants, stores, etc.
- state-owned land => permits
- restricted areas (e.g., hunting)



Benefits of conducting research on/around Sapelo:

- undeveloped, unmanaged (+/-)
- protected marshes & creeks
- diversity of coastal habitats
- legacy of prior research
- field station setting





NATIONAL
ESTUARINE
RESEARCH
RESERVE
SYSTEM

NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM



29 NERR's in U.S.



re system

National Estuarine Research Reserve System

(NERRS) Mission: *To practice and promote stewardship of coasts and estuaries through innovative research, education, and training using a place-based system of protected areas*

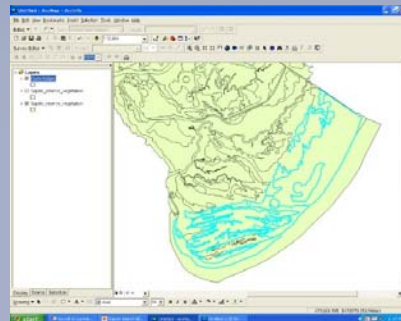
NERR's Protected for:

- **Long-term research and monitoring**
- **Education**
- **Resource stewardship**



4 NERRS Core Programs:

- Research & Monitoring Program
- Education Program
- Coastal Training Program
- Stewardship Program



NERRS Core Monitoring Programs

- **System Wide Monitoring Program (SWMP)**
(long-term water quality monitoring program)

Parameters Monitored

Water parameters:

pH
Conductivity
Salinity
Temperature
Dissolved Oxygen
Turbidity
Nitrate
Ammonia
Ortho-Phosphate
Chlorophyll a

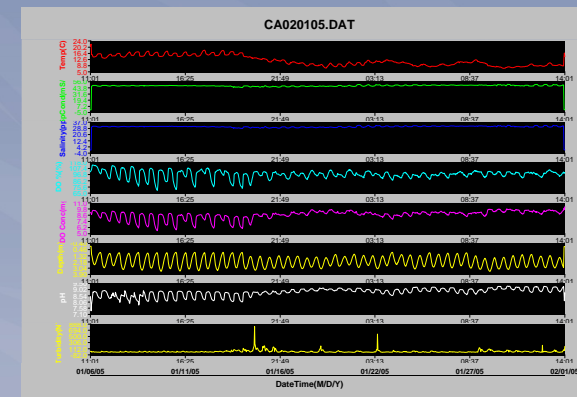
Weather parameters:

Temperature
Wind speed and direction
Relative humidity
Barometric pressure
Rainfall
Photosynthetic
Active Radiation



NERRS Core Monitoring Programs

- **System Wide Monitoring Program (SWMP)**
(long-term water quality monitoring program)
- **SINERR's SWMP network on Sapelo:**
 - 4 stations
 - 9 parameters recorded every 15 min
 - meteorological station
 - continuous operation since ~2001
 - data uploaded to, available at, CDMO online



NERRS Core Monitoring Programs

- **System Wide Monitoring Program (SWMP)**
- **Sentinel Site (*marsh adaptation to SLR*)**
 - **multiple SETS**
 - **multiple vegetation transects**
 - **groundwater monitoring**
 - **associated SWMP station**



NERRS Core Monitoring Programs

- **System Wide Monitoring Program (SWMP)**
- **Sentinel Site (*marsh adaptation to SLR*)**
 - **SINERR's Sentinel Site – in Dean Creek**
 - **2 SETS**
 - **6 veg transects**
 - **groundwater wells**
 - **SWMP station**



Facilitation of research conducted on Sapelo Island:

- 1) **GCE LTER research**
- 2) **hosted by UGA Marine Institute (UGAMI)**
- 3) **hosted by Sapelo DNR**
- 4) **hosted by SINERR**
- 5) **SINERR-led**

**hosting = provide transportation, housing, etc.*

Two Sapelo Research Registration & Tracking systems:

- **GCE LTER system**
- **SINERR system** *(both developed by Wade Sheldon – UGA, GCE LTER)*



[Home](#) > [Research](#) > [Registration](#)

Sapelo Research Registration

Research Request Forms

- » [Fill out a new research request application](#) *(registration required)*
- » [View, update or review existing applications](#) *(registration required)*
- » [View approved research applications](#)
- » [Download annual report template for ongoing projects](#)

Welcome

Thank you for your interest in conducting research on Sapelo Island. The Sapelo Island NERR (SINERR), Georgia Department of Natural Resources Wildlife Resources Division (DNR WRD) and the [University of Georgia Marine Institute](#) (UGAMI) are all interested in fostering scientific research on the island, while being responsible stewards of the land by protecting sensitive natural ecosystems from disturbance. These agencies have designed an online digital application form for you to fill out, along with guidelines for identifying your sponsoring agency on the island. We maintain this online system to: 1) ensure that proposed research will not have negative impacts on protected species and habitats; 2) help avoid interference and conflicts among users; 3) track research projects and site locations so that such information can be summarized in reports, displayed on maps, and so on, as needed by on-island partners; 4) track projects so that all equipment, markers, materials and so on used at a field site are removed at the end of the project, and that the site is left in reasonably good condition.

Process

Research request applications are reviewed through the SINERR program. Note that each researcher is responsible for independently

Home > Research > Registration > View Approved Applications

View Sapelo Research Application Forms

» Approved Applications for Ongoing and Completed Projects

Application ID and Description ▼	Project Type ▼	Investigator ▼	Status ▼	Start Date ▼	End Date ▼	Permits ▼
SINERR-2018-7 – Comparison of microbial communities and enzyme activity in freshwater and saltwater wetlands on the Gulf and Atlantic Coasts of the United States	PhD Research	Colin Jackson	approved	2018-06-23	2018-06-23	none
UGAMI-2018-2 – Nitrogen oxidation by marine archaea	Academic Research	James Hollibaugh	approved	2018-06-07	2018-09-01	none
SINERR-2018-6 – Confined Coastlines: Understanding the relational use of edge habitat by key coastal species	Academic Research	Kimberly M. Andrews	approved	2018-06-04	2020-06-08	none
GADNR-2018-2 – Spatial Distribution of Adenovirus spp. in Eastern Diamondback Rattlesnakes in Georgia.	Other	Anthony Daly-Crews	approved	2018-07-16	2018-08-31	none
SINERR-2018-4 – Rising Seas, Herbivore Outbreaks, and the Uncertain Future of Blue Carbon	Academic Research	Alberto Canestrelli	approved	2018-05-21	2018-07-31	none
SINERR-2018-3 – Cattle herd health:	Undergraduate	Dr Alastair	approved	2018-06-04	2018-07-08	none

Research on Sapelo Hosted by UGA Marine Institute (2017, 2018)

Principal Investigator	Project Title	Project Type	Home Institution
Joseph Butler, Ph.D.	Survey of diamondback terrapin populations and nesting areas	academic research	Univ. North Florida
Jeb Byers, Ph.D.	Biogeographic survey of predatory salt marsh crabs	academic research	Univ. Georgia
Thomas Jennings, Ph.D.	Sapelo Voices revisited	academic research	Univ. West Georgia
James Hollibaugh, Ph.D.	Nitrogen oxidation by marine archaea	academic research	Univ. Georgia

Research on Sapelo Hosted by GA DNR (2017, 2018)

Nickolas Honerkamp, Ph.D.	Arachaeological investigations of Bush Camp Field, Behavior, and Chocolate	research experience for undergrads	Univ. Tenn., Chattanooga
Fletcher Smith, Ph.D.	Black rail status survey in coastal Georgia	academic research	College of William & Mary
Hannah Morris	Multiple environmental stressors and the future of barrier island live oak forests	dissertation research	Univ. Georgia
Katrina Morris	Georgia anabat acoustic survey	other research	GA DNR
Anthony Daly-Crews	Spatial distribution of adenovirus spp. In eastern diamondback rattlesnakes in Georgia	other research	Rattlesnake Conservancy



Research on Sapelo Hosted by SINERR (2017, 2018)

Principal Investigator	Project Title	Project Type	Home Institution
Sam Labarba	Comparison of marine debris on developed and undeveloped Georgia barrier island	master's research	American Military Univ.
Kimberly Andrews, Ph.D.	Confined coastlines: understanding the relational use of edge habitat by key coastal species	academic research	Univ. Georgia
Chris Seminack, Ph.D.	Morphostratigraphic framework of Sapelo Island, GA: the link between Pleistocene and Holocene-aged barrier island evolution	undergrad research	Univ. North Georgia
Neo Molopo	Cattle herd health: endoparasites	undergrad research	Univ. Edinburgh
Alberto Canestrelli, Ph.D.	Rising seas, herbivore outbreaks, and the uncertain future of blue carbon	academic research	Univ. Florida
Colin Jackson	Comparison of microbial communities and enzyme activity in freshwater and saltwater wetlands on the Gulf and Atlantic coasts of the United States	dissertation research	Univ. Mississippi



Recent SINERR Research on Sapelo

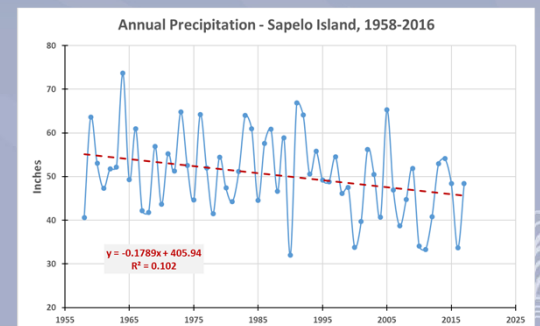
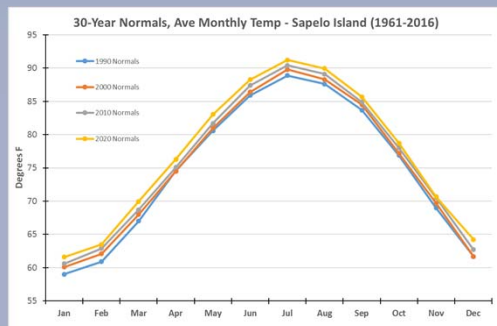
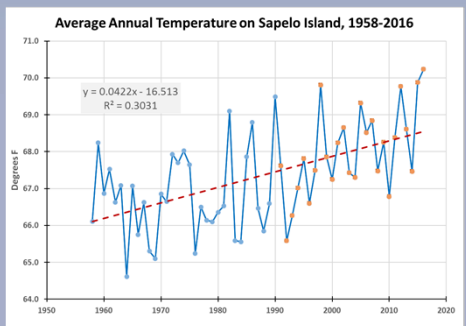
Rachel Guy

Crab distribution, abundance, and community composition across regions and in relation to vegetation condition (9 NERR's)



Doug Samson

Sixty years of climate change on Sapelo





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Research at GTMNERR (Florida)

Principal Investigator	Project Title	Home Institution
Christine Angelini, Ph.D.	Salt marsh restoration with BESE (Biodegradable Element for Starting Ecosystems)	Univ. Florida
Rebecca Atkins	Shifts in <i>Littoraria</i> diet as a function of body size, microhabitat use and plant traits across Western Atlantic salt marshes	Univ. Georgia
Kelly Smith, Ph.D.	<i>Spartina alterniflora</i> floating nurseries: growing plants to reduce nutrient loading and enhance coastal shoreline restoration	Univ. North Florida
Todd Osborne, Ph.D.	Paleoclimatic influences on blue carbon storage in the Matanzas River Basin	Univ. Florida
Pamela Brannock, Ph.D.	Mangrove movements impacts on microbenthic communities	Rollins College
Samatha Chapman, Ph.D.	The influence of mangrove invasion and rising temperatures on belowground processes in coastal ecosystems	Villanova Univ.



NERRS Science Collaborative Projects in Southeast US

Principal Investigator	Project Title	Location	Partner Institutions
J. Wilson White, Ph.D.	Stakeholder-driven modeling investigation of factors affecting oyster population sustainability	GTMNERR (FL)	Oregon State Univ., Northeastern Univ.
Christine Angelini, Ph.D.	Re-engineering living shorelines for high-energy coastal environments	GTMNERR (FL)	Univ. FL, NIOZ Royal Neth. Inst. Sea Research, Radboud Univ. Nijmegen, Univ. Groningen, Univ. New Hampshire
Denise Sanger, Ph.D.	Evaluating living shorelines to inform regulatory decision-making in South Carolina	ACENERR (SC)	NIWBNERR, SC DHEC, SC DNR Marine Res. Research Inst., SC DNR Fisheries Mgmt.
Elizabeth Darrow, Ph.D.	Evaluation of ecosystem services of shellfish culture operations in North Carolina	NCNERR (NC)	UNC, Longline Environment Ltd., NOAA, local oyster farmers
Jennifer Plunkett, Ph.D.	Understanding the vulnerabilities of Southeastern coastal habitats to climate change impacts	NIWBNERR (SC)	NCNERR
Lydia Olander, Ph.D.	Exploring applications of ecosystem service conceptual models for coastal habitats	NCNERR (NC)	RBNERR
Kenny Raposa	Thin-layer sediment placement: evaluating an adaptation strategy to enhance coastal marsh resilience across the NERRS	NBNERR (RI)	CBMNERR, CBVNERR, ESNERR, GBNERR, NBNERR, NCNERR, SFNERR, WBNERR





If you're interested in doing research on Sapelo, please contact:

Rachel Guy Research Coordinator rachel.guy@dnr.ga.gov

Doug Samson Reserve Manager doug.samson@dnr.ga.gov

Thanks!

www.sapelonerr.org

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national estuarine research reserve system



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national estuarine research reserve system

