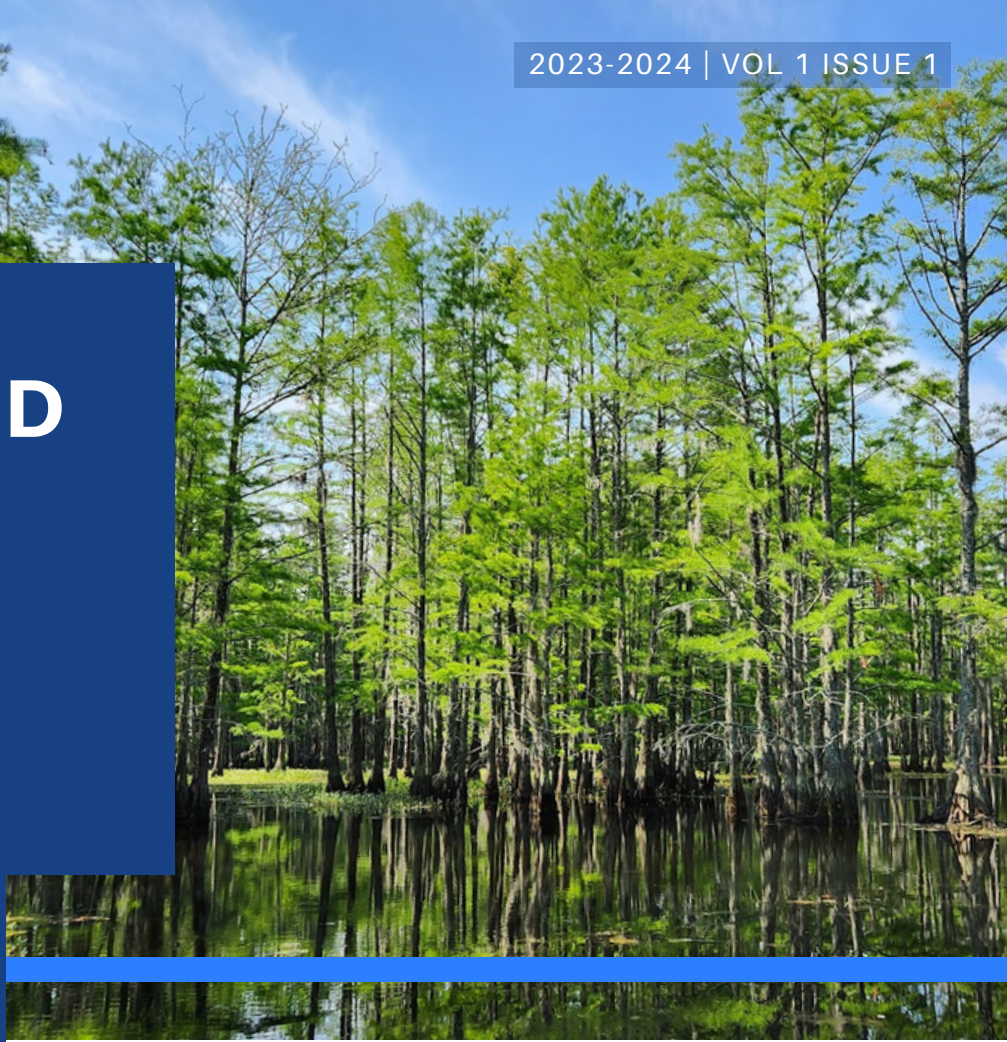




# GEORGIA COLLEGE AND STATE UNIVERSITY AQUATIC SCIENCES CENTER

Annual ASC Newsletter  
2023-2024



## INFORMATION ABOUT THE CENTER

The Aquatic Sciences Center is now up and running and is grateful to the faculty involved and supporting the program. The center will provide Georgia College & State University as well as the local community with access to renowned scientists and equipment in order to assess, mitigate and treat every day problems in our waterways. Georgia College & State University's Aquatic Sciences center is lucky to have a group of faculty with such diverse expertise and specialties that will be nothing but an asset to the university and community. The Aquatic Sciences Center hopes to soon take on projects and community samples in order to assist and give back to the Middle Georgia Community. With Georgia College & State University being very centrally located, it puts us in a great position to be able to provide a variety of water quality services. We look forward to seeing what the center can accomplish in the coming year!

### Latest Releases:

ANOTHER SUCCESSFUL  
CLEANUP

[Learn More](#)

CONGRATULATIONS TO  
OUR ASC MEMBERS!

[Learn More](#)

GCSU RESEARCH DAY 2024

[Learn More](#)

# ***A MESSAGE FROM THE ASC DIRECTOR***

**Dr. Samuel Mutiti**

Welcome to the inaugural issue of the GCSU Aquatic Sciences Center Newsletter! As the Director of the recently established GCSU Aquatic Sciences Center, I am thrilled to introduce this annual publication dedicated to keeping our community informed and engaged with the latest advancements, research and accomplishment in aquatic sciences. Our center is committed to fostering interdisciplinary collaboration and innovation to address the pressing water challenges of our time (both emerging and old challenges). This newsletter also covers the inaugural GCSU Aquatic Sciences Club.

Join us on this exciting journey as we explore the depths of water and help protect our water resources.



# ***A MESSAGE FROM THE DEPARTMENT CHAIR***

**Dr. Indiren Pillay**

This is an exciting time for our faculty, staff and students. As GCSU's newest academic center, the Aquatic Sciences Center is leveraging the Department of Biological & Environmental Sciences' faculty expertise and technology to provide a platform and structure for research, grant writing, student instruction, and community engagement, student instruction, and community engagement. In keeping with our mission, this center will train our undergraduate and graduate students to be competent aquatic science researchers, qualified to enter the workforce. Additionally, we are excited about the prospect of providing faculty expertise to deal with water issues affecting regional and statewide communities.

We are still in our formative stage, and I commend those affiliated faculty who are giving their expertise and countless volunteer hours to establish the operation of the Center. In addition to the established Marine Lab and recent acquired research contracts, we will soon transition to a dedicated research center space in the forthcoming renovation of Herty Hall that will be a student-centered, research and community outreach facility addressing water quality, quantity, utilization, conservation, and aquatic ecosystems. Congratulations to the Center's participating faculty and students.



# ASC ACCOMPLISHMENTS



## CONGRATULATIONS TO ASC MEMBERS

- Both Anna Agi and Sally Sir, members of the Aquatic Sciences Club (ASC), were recognized at the Graduate School's 6th Annual Spring Reception. [Learn More](#)



## GCSU RESEARCH DAY 2024

- Several of our members participated in GCSU's Research Day: (Posters) Anna Agi, Tori Morgan, Wiley Bundy, Shannon Northen, Sally Sir, Lauren Ballenger, Marisa Lopata, Jaiden Stidston, Head Rhodes, Ray Allen, Sarah Edwards, and Ashley Clark. (Presentation) Erik Wolstenholme. [Learn More](#)
- Ashley Clark also presented in the "3-in-3" competition and placed 2nd place.



## CONGRATULATIONS TO DR. MANOYLOV!

- Katie Johnson and Sydney Brown, both graduates of Dr. Kalina Manoylov's Phycology Lab at GCSU, recently published their research in the Journal of Phycology, a high impact journal. [Learn More](#)



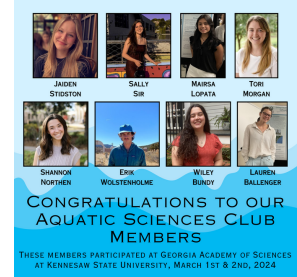
## CONGRATULATIONS TO GEORGIA ACADEMY OF SCIENCE WINNERS!

- March 1st and 2nd, Aquatic Sciences Club Members presented at Georgia Academy of Science. Sally Sir and Tori Morgan both won Best Graduate Presentation, Shannon Northen won Best Undergraduate Poster. [Learn More](#)



## AQUATIC SCIENCES CLUB MEMBERS AT GEORGIA ACADEMY OF SCIENCES

- Eight of our members presented at the Georgia Academy of Science March 1st & 2nd. Jaiden Stidston, Marisa Lopata, Lauren Ballenger, Shannon Northen and Erik Wolstenholme presented in the undergraduate section. Sally Sir and Tori Morgan presented in the graduate section. [Learn More](#)



## CONGRATULATIONS TO ASC SUMMER FELLOWS

- Both Sally Sir and Karagan Royer have been awarded Aquatic Sciences Center summer funding to help with their research. [Sally's Paper](#) and [Images](#). [Learn More](#)





**Dr. Dave Bachoon**

Ph.D. Microbiology  
Specialty

- Microbial Source Tracking



**Dr. C. Daniel Burt**

Ph.D. Crop & Soil Science  
Specialty

- Enumeration of fecal bacteria in soil and water



**Dr. Gregory Glotzbecker**

Ph.D. Ichthyology and  
Invasion Ecology  
Specialty

- Aquatic disturbance ecology & ID of fishes



**Dr. Matt Milnes**

Ph.D. Zoology  
Specialty

- Vertebrate physiology



**Dr. Samuel Mutiti**

Ph.D. Hydrology/Geology  
Specialty

- Soil & water quality monitoring/assessment (physical, chemical, & biological)



**Dr. Kristine White**

Ph.D. Coastal Sciences  
Specialty

- Water quality assessment with aquatic arthropods



**Dr. Andrei L. Barkovskii**

Ph.D. Microbiology  
Specialty

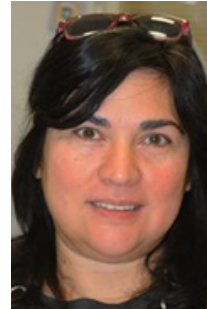
- Waterborne Pathogens



**Dr. Melanie DeVore**

Ph.D. Plant Biology  
Specialty

- Community outreach and services



**Dr. Kalina Manoylov**

Ph.D. Zoology/Ecology,  
Evol. Biology/ Behaviour  
Specialty

- Algal Ecology & Water Quality



**Dr. Christine Mutiti**

Ph.D. Botany  
Specialty

- GIS & wetland ecology



**Dr. Allison Rick Vandervoort**

Ph.D. Plant & Environmental  
Science  
Specialty

- Soil characterization & analysis



**Dr. David Weese**

Ph.D. Biological Sciences  
Specialty

- Population genetics & biodiversity through DNA



## **Anna Agi**

Aquatic Sciences Center Graduate Assistant- Biology

- Georgia College & State University, Milledgeville, Georgia
- Help maintain the website, organize community service events, and help write grants for the center
- President and founder of the Aquatic Sciences Club (ASC)



## **Nina Nkonge**

Aquatic Sciences Center Research Intern

- Linköping University, Linköping, Sweden
- Worked with the Aquatic Sciences Center using remote-sensing to map vegetation shifts due to climate change-induced salt water intrusion on Sapelo Island, Georgia, United States



## **Amber Johnson**

Aquatic Sciences Center Research Intern

- University of Miami, Miami, Florida
- Researched the relationship between *Vibrio splendidus* and microplastics in Tybee Island and Sapelo Island, Georgia waters



## **Ruth Eilers**

Aquatic Sciences Center Partnership with Academic Outreach

- Provides a variety of hands-on science activities to P-12 students and adults in Middle Georgia and beyond.
- 2022 recipient of the Georgia Adopt-a-Stream Trainer of the year award
- Heads the GCSU Thirst for Knowledge and offers Adopt-a-Stream monitoring events and trainings

## Dr. Dave Bachoon

- **Title:** Tracking the sources of *Leptospira* and nutrient flows in two urban watersheds of Puerto Rico. **Journal:** *Environmental Monitoring and Assessment*
- **Title:** Environmental risk assessment for fecal contamination sources in urban and petri-urban estuaries, in Escambia and Santa Rosa counties, FL, USA. **Journal:** *Environmental Monitoring and Assessment*, 2022.
- **Title:** Detection of *Campylobacter jejuni* presence in Trinidad's Aquatic Environments. **Journal:** *Water, Air, & Soil Pollution*, 2022

## Dr. Andrei L. Barkovskii

- **Title:** In situ dynamics of *Vibrio parahaemolyticus* and *Vibrio vulnificus* in water, sediment and triploid *Crassostrea virginica* oysters cultivated in floating gear. **Journal:** *Journal of Applied Microbiology*, 2022.

## Dr. C. Daniel Burt

- **Title:** Microbially induced calcium carbonate precipitation in broiler litter and its effect on soil pH. **Journal:** *Soil Science Society*, 2023.\*

## Dr. Kalina Manoylov

- **Title:** A voucher flora of diatoms from fens in the Tanana River Floodplain, Alaska. **Journal:** *Water*, 2023.
- **Title:** Diatom voucher flora and comparison of collection and taxonomic methods for biodiversity hotspot Upper Three Runs Creek. **Journal:** *Water*, 2023.
- **Title:** Characterization of algal community composition and structure from the nearshore environment, Lake Tahoe (United States). **Journal:** *Frontiers in Ecology*, 2023.
- **Title:** Assessing diatom community dynamics in a recovering agricultural stream in Middle Georgia, USA. **Journal:** *Phycology*, 2023.
- **Title:** *Achnantheidium luectorii* sp. nov. and *A. enigmaticum* sp. nov., novel diatoms (Bacillariophyta, Achnanthidiaceae) from Texas, USA. **Journal:** *Phytotaxa*, 2023.
- **Title:** Changes in periphyton communities with land use in tropical mountain streams from Loja (Ecuador). **Journal:** *Aquatic Sciences*, 2023.
- **Title:** Estuarine Diatom Community Dynamics due to Sedimentation Changes **Journal:** *Diatoms: Ecology & Biotechnological Applications*, 2023.
- **Title:** Metabolic regulation of diatoms and other chromalveolates. **Journal:** *Frontiers in Plant Science*, 2022.

## Dr. Christine Mutiti

- **Title:** Investigating the effects of increasing water salinity on an endemic crayfish. **Journal:** *Journal of Coastal Research*, 2023.\*

## Dr. Samuel Mutiti

- **Title:** Investigating the effects of increasing water salinity on an endemic crayfish. **Journal:** *Journal of Coastal Research*, 2023. \*

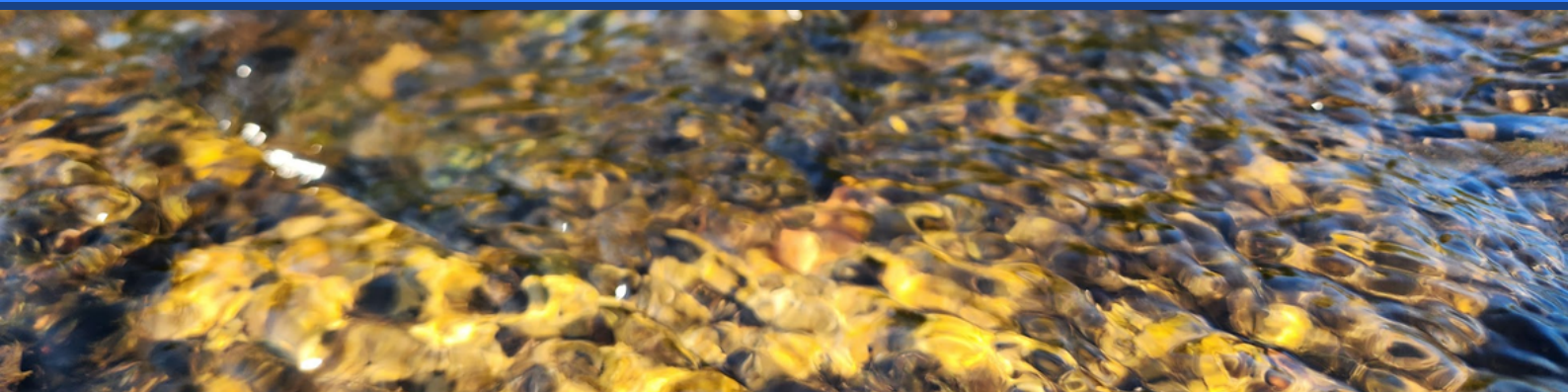
## Dr. Kristine White

- **Title:** Freshwater Macroinvertebrate Communities in Baldwin County, Georgia. **Journal:** *Georgia Journal of Science*, 2023.
- **Title:** Regional Aquatic Macroinvertebrate Biodiversity. **Journal:** *Georgia Journal of Science*, 2023.
- **Title:** Caribbean Amphipoda (Crustacea) of Panama. Part I: parvorder Oedicerotidira. **Journal:** *Zookeys*, 2023.
- **Title:** Leucothoid amphipod and terebellid polychaete symbiosis with description of a new species of the genus *Leucothoe* Leach, 1814 (Crustacea: Amphipoda: Leucothoidae). **Journal:** *Systematics and Biodiversity*, 2022.
- **Title:** Two new endemic species of leucothoid amphipods (Amphipoda: Leucothoidae) from New Zealand and northeastern Indonesia. **Journal:** *Journal of Crustacean Biology*, 2022.
- **Title:** Maerid amphipods (Crustacea: Amphipoda) from Okinawa, Japan with description of a new species. **Journal:** *Zootaxa*, 2022.

## Dr. David Weese

- **Title:** Microbially induced calcium carbonate precipitation in broiler litter and its effect on soil pH. **Journal:** *Soil Science Society*, 2023. \*
- **Title:** Biogeographic role of the Indonesian Seaway implicated by colonization history of purpleback flying squid, *Sthenoteuthis oualaniensis* (Lesson, 1830), in the Indo-Pacific Ocean. **Journal:** *Frontiers in Marine Science*, 2022.
- **Title:** Identification of Nile tilapia (*Oreochromis niloticus*) and its hybrids in natural environments in Hawaii. **Journal:** *Aquaculture*, 2022.
- **Title:** Investigating the effects of increasing water salinity on an endemic crayfish. **Journal:** *Journal of Coastal Research*, 2023. \*

Those marked with an asterisk (\*) indicate overlapping faculty authors



## ANOTHER SUCCESSFUL CLEANUP

- It was another successful cleanup and we cannot believe just how much trash was pulled from the creek in those two hours. [Learn More](#)

## AQUATIC SCIENCES ACADEMY 2024

- First EVER GCSU Aquatic Sciences Center Aquatic Sciences Academy! The Aquatic Sciences Center is partnering with GCSU's Academic Outreach to bring you the most fun this summer. [Learn More](#) and [Register Here!](#)

## NEW AQUATIC SCIENCES CLUB

- The GCSU Aquatic Sciences Center has created a new Aquatic Sciences Club, focused on educating those about the waters in and around Middle Georgia as well as globally. [Learn More](#)

## CLEAN UP SUCCESS!

- On Friday, December 1st, students of Georgia College helped to clean up Tanyard Creek by the College Station Apartments. [Learn more](#)

## GCSU GRAD STUDENT APPLIES SKILLS AT NORTH CAROLINA INTERNSHIP

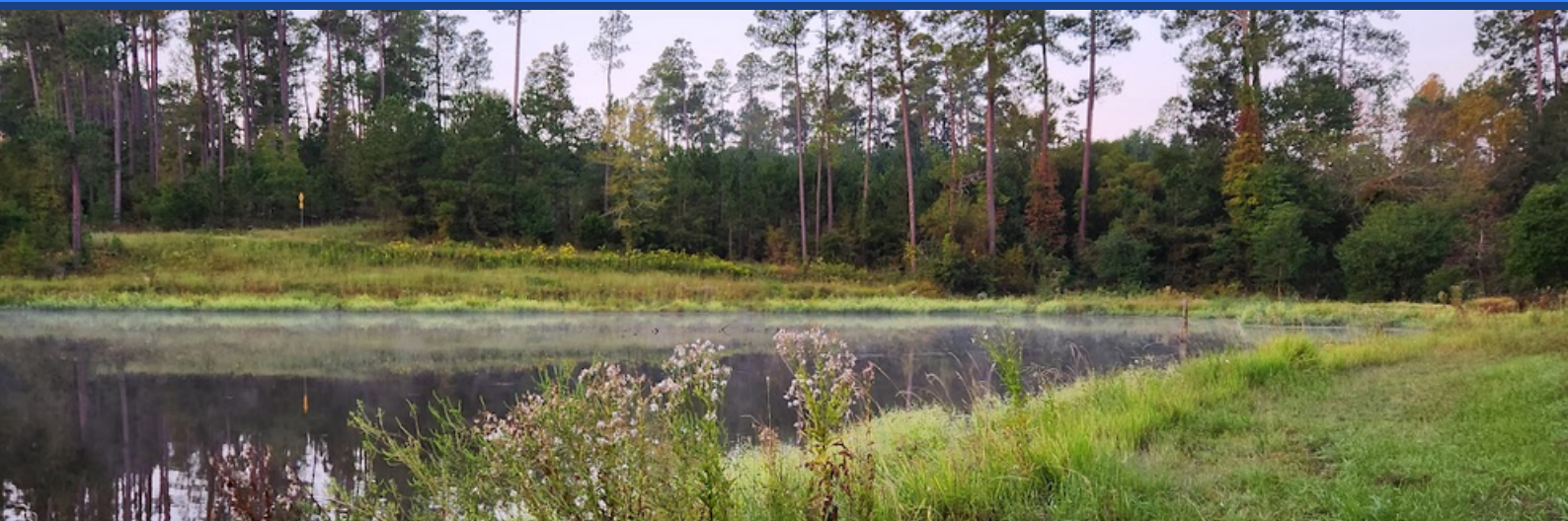
- Anna Agi took the skills she learned in her undergraduate biology degree and put them to the test during her internship with SePRO this summer. [Learn More](#)

## WATER EDUCATION DAY

- Saturday , October 21st, the Aquatic Sciences Center and Academic Outreach hosted a Water Education Day to share the passion of water and water quality with the local Milledgeville community. [Learn More](#)

## STUDENTS TAKE TRIP TO SAPELO ISLAND

- Dr. Mutiti and students took a trip to Sapelo Island to research salt infiltration [Learn More](#)





## CONGRATULATIONS TO ASC FACULTY FOR BEING AWARDED GRANTS

- Dr. Indiren Pillay:
  - Effects of Soil Chemistry on the Distribution and Genomic Diversity of Actinobacteriophages in Central Georgia - \$4,944.50
- Dr. Kalina Manoylov:
  - Region 5 Roar Diatoms Project - \$99,200 from EPA TetraTech
- Dr. Dave Bachhon
  - 2023 Source ID and Sampling Support - \$3,320 from Gwinett County Department of Water Resources
  - Implementation of a Water Quality Restoration Strategy at the San Juan Bay Estuary watershed and the Río Grande de Loíza (below dam) Estuary Contributing Zone - \$25,000

## CONGRATULATIONS TO DR. DAVE BACHHOON

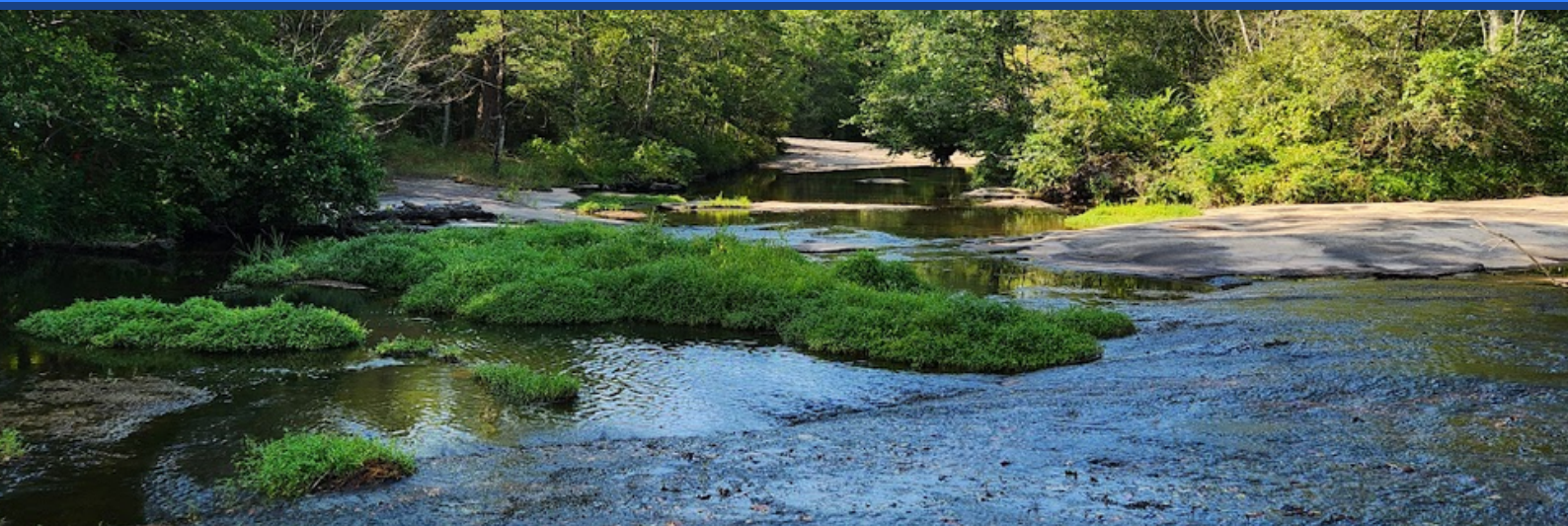
- Project: "Implementation of a Water Quality Restoration Strategy at the San Juan Bay Estuary watershed and the Río Grande de Loíza (below dam) Estuary Contributing Zone." [Learn More](#)

## NEW AMPHIPOD SPECIES

- "Dr. Kristine White and junior environmental science student Sally Sir identified the new species while studying White's collection of roughly 7,000 amphipods" [Learn More](#)

## NEW MARINE LAB

- Aquatic Sciences Center is home to a new marine lab featuring a 300 gallon tank. [Learn more](#)



- Enumeration of fecal bacteria in water, soil or food samples
- PCR base detection of fecal bacteria & pathogenic bacteria in air, food & water
- Assessment of levels of microbial contamination in environmental samples
- Microbial source tracking
- Bioindicators of organic pollutants
- Indoor air quality analysis
- Quantification of chlorinated dioxins, furans, & phenols in water & sediment
- Surveys of endangered waters
- Modelling & prediction of outcomes for mitigation projects & water management (sediment dredging & storage) projects
- Wastewater treatment control, water sanitation & disinfection technologies
- Soils & water quality monitoring & assessment (physical, chemical & biological)
- Soil characterization, analysis & nutrient cycling
- Species identification of native & invasive fishes
- Assessment of biological indicators of environmental estrogens
- Wetland delineation & assessment
- GIS mapping
- Wetland plant identification
- Wetland ecological assessment
- Groundwater & surface water characterization & mapping
- Dye tracing in groundwater & surface water interactions
- Geochemical water quality assessment
- Water quality assessment
  - Macroinvertebrate analyses
  - Bacterial analyses
  - Turbidity
  - Dissolved oxygen (DO)
  - Conductivity
  - pH
  - Total suspended solids (TSS)
  - Total dissolved solids (TDS)
  - Anions & Cations
- Algae analysis
  - Harmful algal bloom assessment
  - Chlorophyll-a analysis
  - Distinction of green, blue-green (cyanobacteria), diatoms & cryptophytes in flow-through chamber
  - Collection, enumeration & species-level identification of various algal groups
  - Ash-free dry weights of primary producers for biomass assessment
- Heat transport modeling
- Radon monitoring in groundwater wells
- Biogeochemical modeling
- Assessment & monitoring of biodiversity based on DNA extraction & computational analysis of NextGen DNA sequencing data
- Detection of rare, endangered, & invasive species in aquatic systems
- 3D images of aquatic organisms

**[See website for more details](#)**

# STAY IN THE LOOP

## Contact Us:

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Milledgeville, GA, 41061  
aquaticscience@gcsu.edu  
478-445-5858



## SOCIAL MEDIA

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@asc\_gcsu



@asc\_gcsu

## UPCOMING EVENTS

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- Earth Day Tabling -  
April 19th  
11 a.m. - 3 p.m.
- Aquatic Sciences  
Center Symposium -  
April 26th, 3 - 5 p.m.  
Kenneth S. Saladin  
Integrated Sciences  
Center Atrium
- Aquatic Sciences  
Academy -  
July 8th-12th,  
9 a.m - 4 p.m.

