Water Quality Program

Katy Smith

Water Resources Specialist







EMPHASIS AREAS







- Water Quality
- Wetlands Education
- Marine Debris / Microplastics
- Contaminants of Concern



WATER SHAPES OUR PLANET AND OUR LIVES



AND OUR LIVES

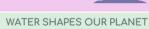
Lesson One:
THE WATER CYCLE

WATER SHAPES OUR PLANET AND OUR LIVES

Lesson Four:
WATERSHEDS AND WETLANDS

WATER SHAPES OUR PLANET AND OUR LIVES

WEATHER AND CLIMATE



AND OUR LIVES

Lesson Five:
WATER RESOURCES
AND AQUIFERS













WETLANDS EDUCATION & OUTREACH



Water Level / Chemistry Surveys









Soil Moisture / Texture Surveys









Wetland Walks









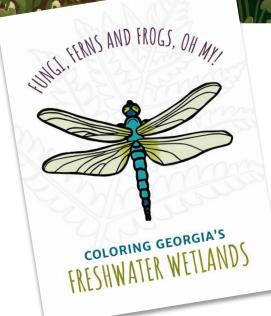


WETLANDS EDUCATION

Freshwater Wetland Investigations











COASTAL RESOURCES DIVISION

WHY ARE WETLANDS IMPORTANT?

Wetlands are fun places to explore, but it is also important to understand how they help protect the Earth! Wetlands provide habitat for all kinds of animals, like frogs, insects, small mammals and birds. To many animals, a wetland is like a five-star hotel that has all the the



Wetlands are also important to humans. They act like a sponge, soaking up harmful chemicals and heavy metals; Wettands are also important to humans, they act like a sponge, soaking up namnui criemicais and neavy inexas; but their absorbing abilities don't stop there! They also soak up water from storms and hurricanes to help prevent out trees amorting dollines dust's buy trees triey and sook up water trust storins and muricanes to neep pre-drought and flooding. They even store carbon dioxide which reduces air pollution and helps prevent climate

to you know introgen is one or the most important elements on our planet; while time to a lot in the air we breathe, only a few organisms can actually use it this way. Tiny creatures in the amp, called archaea (arr -key- yah) are Olympic Gold Medalists at a process called nitrogen mp, called archaea (arr~key~ yan) are caympirc colo medanists at a process canee mirrogen can that turns nitrogen into a form that other creatures (like you and me) can use to grow.

WHAT IS CLIMATE CHANGE AND WHAT CAUSES IT?

Climate change describes Earth's changing climate as a result of increasing amounts of certain gases in the Climate change describes Earth's changing climate as a result of increasing amounts or certain gases in the atmosphere. Greenhouse gases, like carbon dioxide (CCQ) and methane, act like a blanket over the Earth, trapping atmosphere, useenhouse gases, use carbon dioxode (LUZ) and internate, all like a mannet over the cartif, usepon, heat inside. This natural process is called the Greenhouse Effect and it keeps Earth's temperatures just right for



in Earth's climate. Places that stay cold year-round, like Antarctica or the North Pole, could warm enough for ice sheets to melt and sea levels to rise. In fact, these things are already happening. Ocean temperatures are Illmate change can cause some areas to experience drought, while other reas experience extreme weather, like hurricanes and floods. Eventually, Earth could become too hot for humans to live here comfortably. Protecting the environment and using renewable energy can help slow the effects of





Virtual Exploration of Georgia's Coastal Wetlands



This lesson introduces students to the biology and ecology of the salt marsh. Students will learn to identify some of the plants and animals found in the salt marsh, what a keystone species is, and



Coastal Schools

Marine Extension and

Georgia Sea Grant UNIVERSITY OF GEORGIA

"We [my classroom] have been able to dive into our "back-yard" and make the connection using cutting edge technology, an immediate win for both the students and teachers involved. I look forward to harnessing this curriculum for years to come!" - Alexia Branch, Georgia Educator, Glynn County



Inland Schools

"Students were submerged and engaged in their exploration. It was nice to see them taking on various roles including data collection, collaboration and supporting each other by telling each other what to expect." - Dr. Christina Hylton, Georgia educator, Athens-Clarke County



Salt Marsh Ecology

how wetlands support biodiversity

Salt Marsh Ecology Narrated PowerPoint Presentation

Salt Marsh Ecology Worksheet (Student Version)

Sketch a Wetland Model Discussion Questions (Student Version)

This lesson introduces students to the concepts of resilience, ecosystem services and what it means to be a resilient coastal community. This lesson prepares students to have a stronger understanding of scientific monitoring and how data can be used to measure long-term coastal change.

Understanding Data Collection and Coastal Monitoring

Understanding Data Collection and Coastal Monitoring Narrated PowerPoint Presentation

Data Collection Practice Activity

Virtual Site Activity Sheet (Student Version)

Wrap Up Activity Open Ended Questions (Student Version)

[Optional] End of Activity Report (Student Version)







MARINE DEBRIS EDUCATION & OUTREACH











CONTAMINANTS OF EMERGING CONCERN



Supported Research Projects

Till J.J. Hanebuth, Ph.D., Professor, Coastal Carolina University

Proposal Name: Rising water tables and increasing river flooding changing the transport pattern and fate of PFAS in the lower Winyah watershed (WinyahFlu)

Leslie Hart, Ph.D., Associate Professor, College of Charleston

Proposal Name: Climate factor influences, spatiotemporal variability, and bottlenose dolphin health related to phthalate exposure measured over 30 years in Sarasota Bay, Florida (1993-2023)

Ching-Hua Huang, Ph.D., Turnipseed Family Chair and Professor, Georgia Institute of Technology

Proposal Name: Impact of Drinking Water Treatment on the Fate of Perand Polyfluorinated Alkyl Substances (PFAS) and Precursors in Wastewater Reuse Application

Xiaoyu Xu, Ph.D., Assistant Research Scientist, University of Georgia

Proposal Name: Develop a Community-Based Participatory Approach to Evaluate the Dietary Exposure of Per- and Polyfluoroalkyl Substances (PFAS) in an Underrepresented Community

Contaminants of Emerging Concern

These include but are not limited to: perfluoroalkyl and polyfluoroalkyl substances (PFAS) and other persistent organic pollutants (POPs), pharmaceuticals and personal care products (PPCPs), and nanomaterials. CECs are being detected at increasing levels in the environment, and are receiving attention as their total toxicity to humans and wildlife is not fully understood.



Project Team

Brooke Saari

SCSGC Coastal Environmental Quality Program Specialist <u>brooke.saari@scseagrant.org</u> (843) 953-6406

Katy Austin Smith

GASG Water Resources Specialist klaustin@uga.edu
(912) 262-3338

Catherine Marie Janasie

National Sea Grant Law Center Senior Research Counsel <u>cjanasie@olemiss.edu</u> (662) 915-7775

Lola Renauer

SCSGC Contaminants of Emerging Concern Graduate Assistant <u>lola.renauer@scseagrant.org</u> (843) 953-2078



