Linking Climate Science and Biodiversity through Experiential Learning

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Background and Objectives

Introduction to the Department of Biology at Chowan University

- Chowan University (CU) is a 4-year liberal arts institution located in rural Northeastern North Carolina.
- Approximately 77% of the 1500 students identify themselves as non-white, and 50% are first-generation college students.
- The university offers two Bachelor of Science degrees in Biology (Allied Health Track and Environmental Biology Track).
- Biology majors typically account for approximately 14% of the total student body, but only about 10% of these enroll in the Environmental Biology Track.

Climate Change and Biodiversity as Central Themes

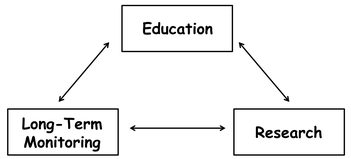
- The Department of Biology and Physical Sciences at CU is actively working towards emphasizing climate change and biodiversity as central pedagogical themes.
- We recognize climate change as one of the most significant issues of our time, and realize the importance of field studies to understand and educate for climate change and its impacts.
- Our objectives are to increase climate literacy and promote an appreciation of the linkages between biodiversity and climate.

Approach

Three part integrated framework

Field-Based Activities

- Meherrin River Field Site
- Maritime Forest Studies
- Prothonotary Warbler Project
- Marsh Response to Sea Level Rise



Courses

- AMS Climate Studies course provides a foundation for our efforts.
- Coastal Ecology Field Camp highlights connections between climate and biodiversity.
- Integration of climate science into other courses:

Earth Science	Marine Science
Ecology	Vertebrate Natural History
Environmental Science	Wetlands
Geographic Information Systems	Wildlife and Fisheries

Partnering Organizations

Special Thanks to the AMS Climate Studies Diversity Project!!

Field-Based Activities

Meherrin River Field Site

- The 120 acre site consists of riparian, cypress swamp and bottom-land hardwood habitats.
- Monthly monitoring efforts provide long-term biodiversity data, are the basis of student-faculty research, and support a variety of environmental education initiatives.



Maritime Forest Studies

- Maritime forests along North Carolina's Outer Banks face increasing threats from human development and sea level rise.
- Our main effort in these systems is long-term monitoring of freshwater inter-dune ponds.



Coastal Ecology Field Camp

- This course involves intense field training and discovery along the Outer Banks of North Carolina.
- Emphasis is placed on taxonomic identification, sampling and data collection techniques, and the connections between physical and ecological processes.



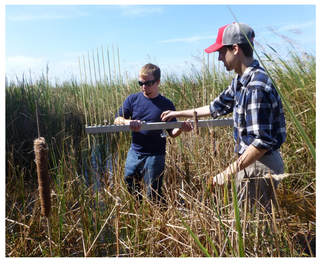


Prothonotary Warbler Project

- This project examines the breeding biology of Prothonotary Warblers (*Protonotaria citrea*) along the Meherrin and Chowan Rivers in northeastern North Carolina.
- Study objectives are to document long-term reproductive success and breeding activities (e.g. timing of reproductive activity).

Marsh Response to Sea Level Rise

- Currituck Sound is a unique, shallow, oligohaline estuary located landward of the Outer Banks in northeastern North Carolina.
- It is a wind tide system supporting marshes that provide important ecosystem services.
- This project examines how these marshes maintain elevation with increasing inundation.

Expected Outcomes

- An exposure of underrepresented students from different academic backgrounds to climate science,
- A greater understanding of biodiversity and the impacts of climate change,
- An increase in enrollment and graduation from our department's environmental program.
- A greater student awareness of careers in the environmental and physical sciences.