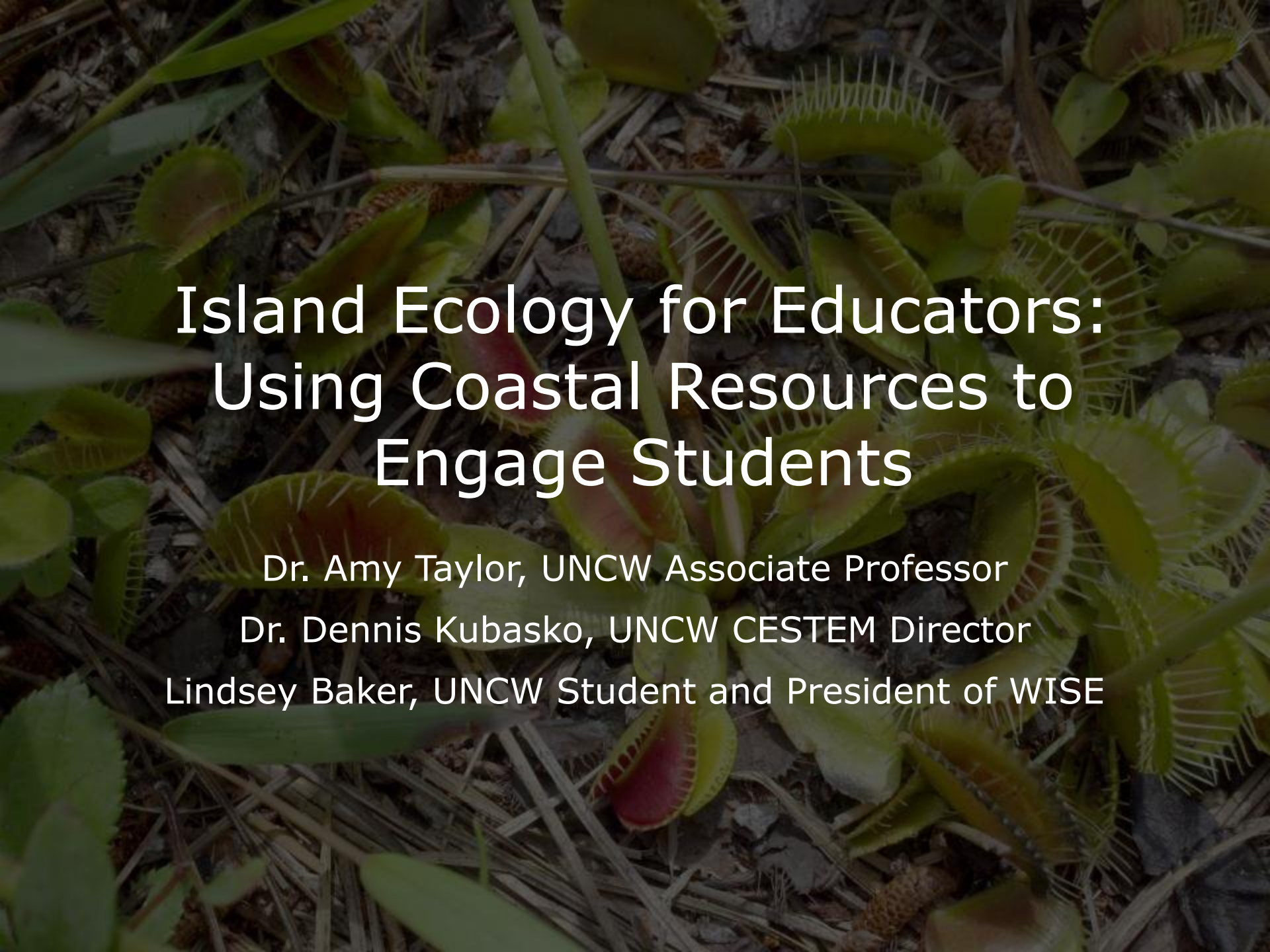

Island Ecology for Educators: Using Coastal Resources to Engage Students

Dr. Amy Taylor, UNCW Associate Professor

Dr. Dennis Kubasko, UNCW CESTEM Director

Lindsey Baker, UNCW Student and President of WISE

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Agenda

- Introduction
- Fact or Fiction
- Overview of Course
- Web-Based Resources
- Station Rotation - Hands-on Activity
- Conclusion
- Door Prizes

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Summary

- Through coastal ecosystems engagement with field based explorations of plants, animals and environmental issues, readily accessible, web-based resources and lesson plans were designed.
- The Island Ecology for Educators presentation highlights the critical juncture of science content and pedagogical resource integration.

Fact or Fiction?

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Fact or Fiction?

The average size of a Venus Fly Trap is 10 inches wide and 3 feet tall.

Fiction!

Venus Fly Traps reach a maximum size of about 5 inches in diameter!

A single leaf trap may be a bit larger than 1 inch in length.

A plant usually has 4-8 traps on it at any time.

Fact or Fiction?

Beach renourishment helps prevent erosion from different natural causes.

Fact!

Beach renourishment is the transportation of sand to the coast of North Carolina to help prevent and reverse erosion.

Erosion caused by changing tides and hurricanes on the beaches.

Fact or Fiction?

The Coquina Outcrops is the only rocky coast in North Carolina.

Fact!

- Coquina Outcrops are made out of shells and calcium carbonates which form a limestone material.
- It can be found near the coast of Fort Fisher during low tide when the tide pools and rocks are visible to those on the coast.
- The Coquina Outcrop extends into the ocean and acts as a jetty which changes the shape of other islands such as Kure Beach.

Fact or Fiction?

Pocosins are wetlands because they are generally lower than their surroundings.

Fiction!

Pocosins are actually unusual wetlands because they are generally higher than their surroundings.

Pine savannas can be found in the pocosins as well as Venus Fly Traps.

Fact or Fiction?

The Painting Bunting Bird can only be found on the coast of North Carolina during migration.

Fiction!

The painted bunting bird can only be found on coastal North Carolina during its breeding season.

Fact or Fiction?

The Cape Fear River is about 151 miles long and its source begins Fayetteville NC.

Fiction!

The Cape Fear river is 202 miles long.

The drainage basin of the Cape Fear river is about 9,140 square miles.

The source of the river originates in Greensboro NC.

Rationale

- The Island Ecology for Educators course is five weeks in duration and is offered in the first summer session at a local state park (Carolina Beach State Park).
- The intention of the class is to pair content area (EVS, Bio, Chem) students with student teacher candidates (Elem, MG, Sec) lacking content area exposure for the purpose of developing

  a) content rich and engaging online lesson plans and

  b) web-based resources to be used by teachers and children in schools.

Rationale

Partnerships with Experts

- Through student interactions and exposure to content area experts (i.e. Park Rangers, College of Arts and Sciences faculty, DENR instructors, Riverkeeper, Marine Quest at the Center for Marine Science), students are guided in their development of readily accessible, web-based materials via presentations, site visits, park walks, barrier island exploration, and field based activities,

Relevancy

- This class paired science content understanding with pedagogical resource development, making this course relevant for both education and environmental studies students.


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Syllabus

- On the Monday beginning each of the five weeks, the instructors directly address an ecological topic of interest.
  - Ecosystems - Orientation to coastal and barrier island ecology.
  - Terrestrial Fauna - Explore and investigate the biological and ecological impacts of local terrestrial fauna (such as salamanders, white tailed deer, fox, snakes, insects, alligators, etc.).
  - Terrestrial Flora - Explore and investigate the biological and ecological impacts of local terrestrial and aquatic flora (such as long leaf pine, Venus fly traps, pitcher plants, live oaks, etc.)
  - Aquatic Flora and Fauna - Explore and investigate the biological and ecological impacts of local aquatic flora and fauna (such as blue crab, periwinkle, mullet, skates, sea turtles, seaweed, and coastal grasses, etc.)
  - History and Culture of Barrier Islands - Investigate the history of Fort Fisher/Carolina Beach and other barrier islands and impacts on environmental science.

Schedule

Students are out in the field much of each week collecting information and researching their topic of interest.

- Monday – Ecosystems Hike
  - Carolina Beach State Park Ranger, Carla Edwards
- Tuesday – Kayaking, Zeke's Island (Fort Fisher Estuary)
  - Director of Marine Quest (http://uncw.edu/marinequest/)
- Wednesday – Birds/Herps Workshop
  - Mike Campbell (Coastal Outreach Educator/NC Wildlife) - (http://www.ncwildlife.org/Learning.aspx)
- Thursday – Open Workday for Students at State Park

Experts

- Students will collaborate with guest speakers and their class peers during the week.
  - Carolina Beach State Park Park Superintendent, Chris Helms
  - Roger Shew, UNCW Lecturer of Geology
  - Dr. Jack Hall, UNCW EVS Department Chair and Professor
  - Dr. John Taggart, UNCW Associate Professor of Environmental Studies
  - Matt Collogan, Education Coordinator at Airlie Gardens
  - Kemp Burdette, Cape Fear River Keeper
  - Megan Ennis, Outreach Educator, NC Aquarium at Fort Fisher

Web–Based Products

- Students were tasked with developing a web-based resource that can be used in a K-12 setting that reflects the investigation of a local environmental and/or ecological impact on the island setting.
- All products were revised and posted to the web.
- Using web based templates designed by the instructors, students utilize technology (FLIP cameras to generate video and digital cameras and smartphones to generate digital images) to study and document each week's assigned topic.

Web–Based Products

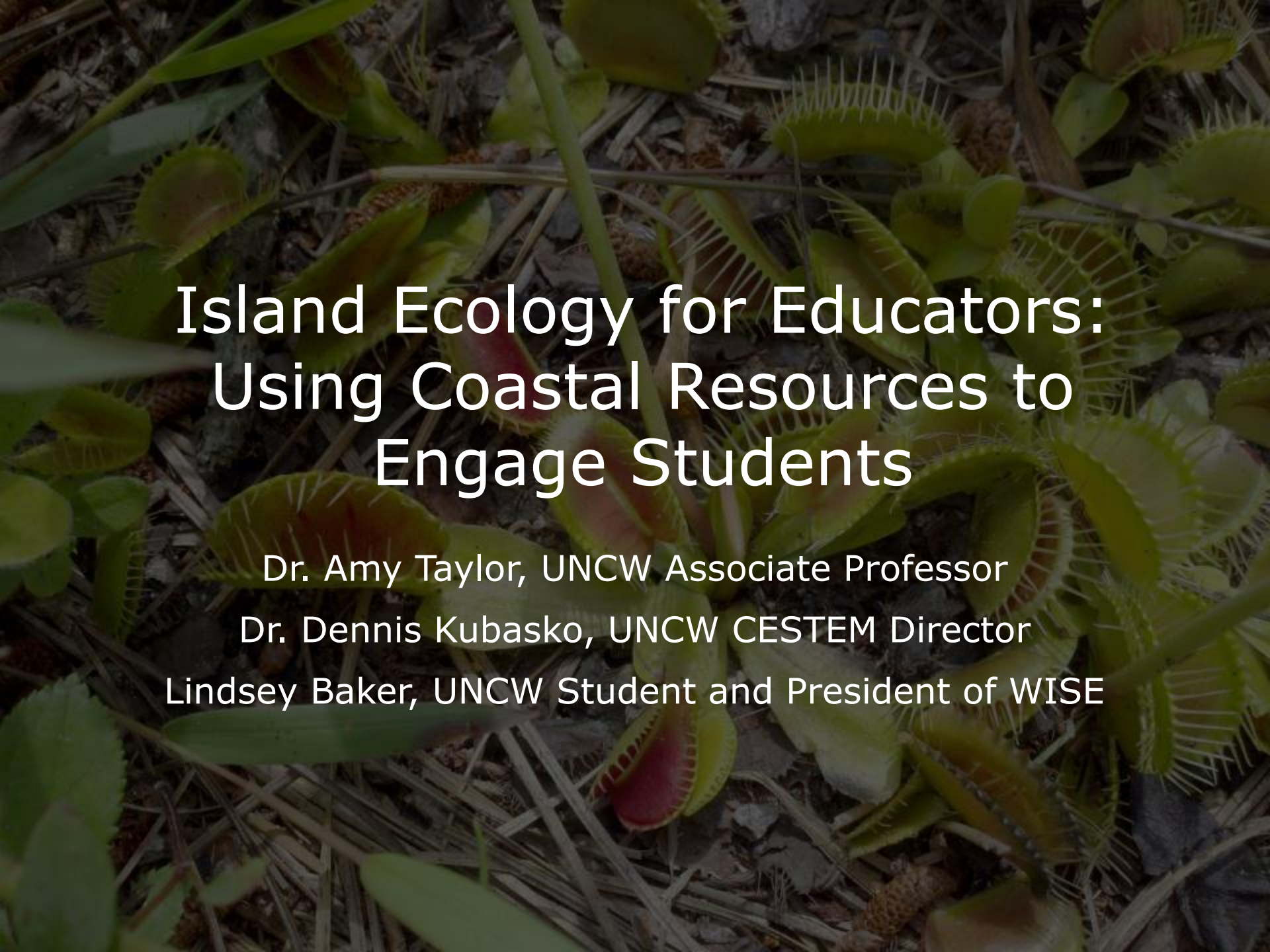
Each week for the prior two years, students have:

- Researched and recorded biological and ecological aspects of a topic via websites exploration, simulations, taking photographs, and video recording.
- Created a science lesson plan to accompany their topic using the inquiry-based five E lesson plan format (Engage, Explore, Experiment, Explain, and Evaluate).
- Developed and integrated web pages using a common platform template.
- Collaborate with informal science experts to produce an engaging learning opportunity to be utilized by the public.

We are interested in your feedback as we design the platform for dissemination.

Examples

- Venus Fly Trap
  - https://sites.google.com/site/islandecology2011/venus-fly-trap
- Pine Savanna
  - https://sites.google.com/site/islandecology12/ecosystems/pine-savanna
- Coquina
  - https://sites.google.com/site/islandecology12/aquatic-fauna/coquina-clam



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