



## 2019 Living Shorelines Tech Transfer Workshop

Beaufort, NC | October 8-9

### Day 1: October 8, 2019

- 7:30 am      **Registration Opens**  
 ▶ Rachel Carson Ballroom Foyer
- 8:30 am      **Welcome**  
 ▶ Rachel Carson Ballroom  
 Jeff Benoit, Restore America's Estuaries  
 Todd Miller, North Carolina Coastal Federation  
 Everette Newton, Mayor, Town of Beaufort  
 Sharon Harker, Mayor Pro Tem, Town of Beaufort
- 9:15 am-  
 2:00 pm      **Field Session (*ALL attendees participate, lunch provided*)**  
[Details on Page 3.](#)
- 2:00-3:15 pm      **Plenary/Full Group Session #1**  
 ▶ Rachel Carson Ballroom  
**Engagement and changing attitudes – What makes people and sectors adopt living shorelines?**  
 Moderator: Bob Stokes, Galveston Bay Foundation  
 Tina Hodges, Federal Highway Administration  
 Matthew Lauffer, North Carolina Department of Transportation  
 Dr. Thomas Steepy, Former Mayor, Town of Beaufort/living shorelines property owner  
 Joshua Merritt & Grainger Coughtrey, Carolina Silvics, Inc.
- 3:15-3:45 pm      **Networking Break**
- 3:45-5:00 pm      **Plenary/Full Group Session #2**  
 ▶ Rachel Carson Ballroom  
**Permitting and regulatory environment – What are the obstacles & challenges?**  
 Moderator: Todd Miller, North Carolina Coastal Federation  
 Chris Hilke, National Wildlife Federation  
 Daniel Govoni, North Carolina Department of Environment and Natural Resources  
 Sadie Drescher, Chesapeake Bay Trust  
 Bhaskar Subramanian, Maryland Department of Natural Resources
- 5:00-6:30 pm      **Networking Reception & Poster Session (*light appetizers and refreshments*)**  
 ▶ Rachel Carson Ballroom & Foyer

*Continued on Page 2.*

## Day 2: October 9, 2019

- 7:30 am            **Registration Opens**  
▶ Rachel Carson Ballroom Foyer
- 8:30-9:45 am     **Plenary/Full Group Session #3**  
▶ Rachel Carson Ballroom  
**Efficacy in storm and higher-energy environments**  
Moderator: Capt. Al Modjeski, American Littoral Society  
Dr. Rachel Gittman, Eastern Carolina University  
Dr. Johanna Rosman, University of North Carolina  
Dr. Candice Piercy, USACE
- 9:45-10:15 am    **Networking Break**
- 10:15am-  
12:15 pm          **Breakout Sessions**  
The intent of these sessions is to hear from experts in each focus area and to offer attendees the opportunity to interact with each other by sharing their experiences and lessons learned. We will work together to identify challenges and solutions for each of these categories.
- **Topic 1: Materials – role of plastics & alternatives** ▶ Town Marsh Room  
Lead: Dr. Lexia Weaver, North Carolina Coastal Federation
  - **Topic 2: Training successes & lessons learned** ▶ Bird Shoal Room  
Leads: Whitney Jenkins, North Carolina National Estuarine Research Reserve | Chris Hilke, National Wildlife Federation
  - **Topic 3: Developments in monitoring – emphasis on technology** ▶ Carrot Island Room  
Lead: Dr. Devon Eulie, University of North Carolina
  - **Topic 4: Intersection of living shorelines, water quality, & shellfish** ▶ Shackleford Room  
Lead: Erin Fleckenstein, North Carolina Coastal Federation
  - **Topic 5: Costs of living shorelines vs. other approaches** ▶ Horse Island Room  
Leads: Melody Ray-Culp, U.S. Fish & Wildlife Service | Tom Ries, Environmental Science Associates
- 12:15-1:30 pm    **Lunch (*provided*)**
- 1:30-1:45 pm     **The philosophy and science that drives dynamic living shorelines in Maryland**  
Chris Becraft, Underwood & Associates  
▶ Rachel Carson Ballroom
- 1:45-2:45 pm     **Plenary/Full Group Session #4**  
▶ Rachel Carson Ballroom  
**Report of Breakout Sessions & lessons learned**  
Moderator: Marilyn Latta, California State Coastal Conservancy
- 2:45-3:45 pm     **Plenary/Full Group Session #5**  
▶ Rachel Carson Ballroom  
**The future and living shorelines**  
Moderator: Dr. Carolyn Currin, NOAA  
Dr. Molly Mitchell, Virginia Institute of Marine Sciences  
Dr. Jenny Davis, NOAA  
Penny Hooper, Community Advocate & Leader
- 3:45-4:00 pm     **Closing Comments**

# Field Sessions

## Field Session #1: Hammocks Beach State Park's Jones Island | Swansboro, N.C.

Field trip participants will take a bus from the conference center to Hammocks Beach State Park in Swansboro and then a ferry ride over to Jones Island in the White Oak River. This island features a variety of living shoreline techniques, including salt marsh grass plantings, oyster shell bag sills and marsh toe revetments, and loose oyster shell patch reefs. Research on the stabilization of the shoreline over time and the development of marsh and oyster habitat post-installation will be discussed. A granite sill with landward salt marsh grass plantings can also be viewed at the Park's Visitor Center.

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## Field Session #2: Pivers Island, Sandbar Oyster Company Shellfish Lease, Rachel Carson National Estuarine Research Reserve | Beaufort/Morehead City, N.C.

Field trip participants will take a ferry along Taylor's Creek to several living shoreline sites in the Beaufort/Morehead City area. Participants will rotate between Pivers Island (home of the Duke University Marine Laboratory and the National Oceanic and Atmospheric Administration Beaufort Lab), the Rachel Carson Reserve (part of the N.C. Coastal Reserve and National Estuarine Research Reserve), and Sandbar Oyster Company's shellfish lease located at the mouth of the Newport River. Living shoreline examples across a range of wave energy environments at these sites include salt marsh grass plantings, granite sills, loose oyster shell placement, oyster shell bag marsh toe revetments, and marsh toe revetment and sandflat oyster reef creation with OysterCatcher™. Research on the long-term performance of living shorelines, as well as factors to consider when installing living shorelines in high-energy environments will be discussed.

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## Field Session #3: Trinity Center and N.C. Aquarium at Pine Knoll Shores | Bogue Banks, N.C.

Field trip participants will travel by bus to view a variety of living shoreline techniques at Trinity Center and the N.C. Aquarium at Pine Knoll Shores including granite and oyster shell bag sills and OysterCatcher™ marsh toe revetments. Researchers will discuss findings on fish utilization of living shorelines, as well as the performance of living shorelines during Hurricanes Irene, Arthur, Matthew, and Florence as compared to bulkheads.

## Posters

1. **Property owner perception and interests may influence shoreline modification decision-making**  
Amanda G. Guthrie, Virginia Institute of Marine Science, William & Mary
2. **Slade Dale Sanctuary living shoreline project: A Christmas miracle in May**  
Capt. Alek Modjeski, American Littoral Society
3. **Restoring Wreck Pond Inlet**  
Zack Royle, American Littoral Society
4. **Shoreline protection of historic and coastal resources at Brunswick Town/ Fort Anderson**  
Randy Boyd, Atlantic Reefmaker
5. **Living shorelines from New York to the Gulf of Mexico....one size does not fit all**  
Erin Hague, Tetra Tech
6. **Working towards building a better coast**  
Grainger Coughtrey, Carolina Silvics, Inc.
7. **Large scale living shoreline site identification study for the South Carolina coast**  
Joy Brown, The Nature Conservancy - South Carolina Chapter
8. **Live Oak Point: A living shorelines proposal for Choctawhatchee Bay, Florida**  
Robert F. Lide, Northwest Florida Water Management District
9. **Using dredge sediment and coir log containment to recover the elevation of a salt marsh**  
Shane Godshall, American Littoral Society
10. **Customized living shoreline structures produced through advanced manufacturing and ecological design**  
Matthew Campbell, Natrx, Inc.
11. **Low-cost, low-impact alternative materials and methods for building resilient living shorelines**  
Savanna Barry, Ph.D. and Mark Clark, Ph.D., University of Florida, UF/IFAS Extension - Florida Sea Grant
12. **Assateague Island State Park shoreline resiliency project**  
Chris Becraft, Underwood & Associates
13. **Living shoreline implementation is better when we're all working together**  
Whitney Jenkins, NC Division of Coastal Management / NC National Estuarine Research Reserve
14. **Applying living shoreline approaches to increase resilience and reduce risk in New England**  
Eric Roberts, The Nature Conservancy, and Pete Slovinsky, Maine Geological Survey
15. **Implementation of innovative hybrid living shorelines in the urbanized Elizabeth River: A case study for the nation**  
Josef Rieger, The Elizabeth River Project
16. **Apalachicola Bay shoreline habitats and resilient coasts (SHARC): A comprehensive GIS analysis to identify and prioritize restoration opportunities**  
Rick Harter, Ecology & Environment, Inc.

17. **Adaptation planning using nature's boundaries: San Francisco Bay shoreline adaptation atlas**  
Katie McKnight, San Francisco Estuary Institute
18. **Tiling the marsh: Utilization of sediment tiles to quantify erosion and accretion along shorelines**  
Mackenzie Taggart, University of North Carolina Wilmington
19. **Intertidal reef construction methods and challenges in a higher energy environment**  
Quinn Whitesall, American Littoral Society
20. **The Pointe-au-Chien living shoreline: Protecting cultural heritage on Louisiana's Coast**  
Christa Russell, Coalition to Restore Coastal Louisiana
21. **Win some lose some: Monitoring results from an oyster reef breakwater at Gandy's Beach in Downe Township, NJ**  
Adrianna Zito-Livingston, The Nature Conservancy New Jersey
22. **Bringing up bivalves: Establishing community-based oyster restoration in the Central Indian River Lagoon, FL**  
Katey Leban, Brevard Zoo
23. **Incorporation of recycled oyster shell in living shorelines: Pros, cons, and lessons learned in Galveston Bay, Texas**  
Haille Leija, Galveston Bay Foundation
24. **Operation oyster**  
Julianne Schumacher, American Littoral Society
25. **Restoring oysters In New York Harbor: Proposed installations for the "Living Breakwaters Project," and emerging techniques for pilot projects**  
Danielle Bissett, Billion Oyster Project
26. **Comparing the performance of alternative reef substrates in halting salt marsh erosion and supporting oyster reef development**  
Emory Wellman, Department of Biology, East Carolina University
27. **Creation of a living shoreline in an urban harbor using reef ball modules and lab cultured oyster sets**  
Peter Solomon, The Sound School
28. **Unoccupied aircraft system applications for salt marsh shorelines: A handbook**  
Kelly Dobroski, Duke University Marine Lab
29. **Shoreline management BMP verification for Chesapeake Bay TMDL pollutant reduction credits**  
Aaron Wendt, Virginia Department of Conservation and Recreation, Shoreline Erosion Advisory Service (DCR SEAS)