The North Carolina Coastal Atlas

Tom Allen and Rob Howard
Department of Geography, Planning & Environment
East Carolina University

NC GICC
May 11, 2016

Why a coastal web atlas for North Carolina?

- ICAN has a long definition that says what a coastal web atlas should provide:

  > *…collections of digital **maps** and **datasets** with supplementary tables, illustrations, and **information** that systematically **illustrate** the **coast**, oftentimes with cartographic and **decision support** tools, all of which are accessible via the **Internet**.”*

- We describe our Atlas this way:

  > *The North Carolina Coastal Atlas is an online **mapping** and **investigation** system that provides both static and interactive **maps** and related **data** and **information** for **exploration**, **analysis** and **learning** about coastal issues and resources for **students**, **managers**, **scientists**, **teachers**, and the **interested public**.”*

North Carolina Coastal Atlas

What are we doing?

From these rather long descriptions we can state that coastal web atlases:

① Provide maps, data and information;

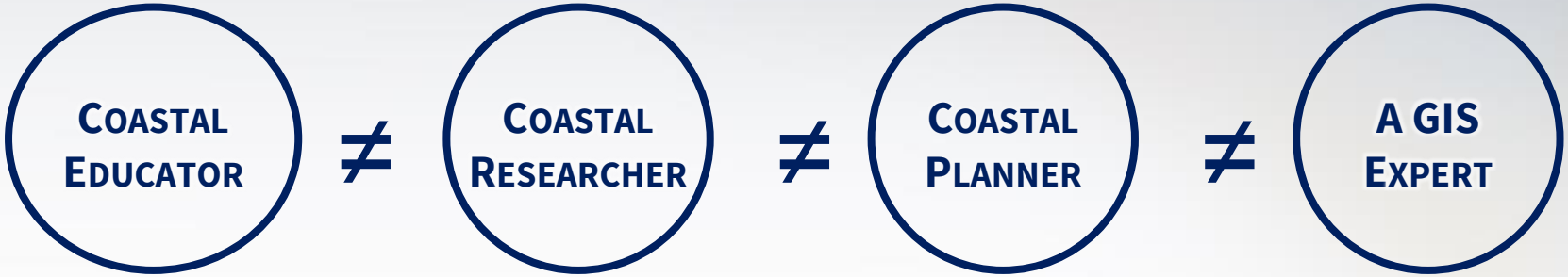
② Attempt to explain the coastal environment;

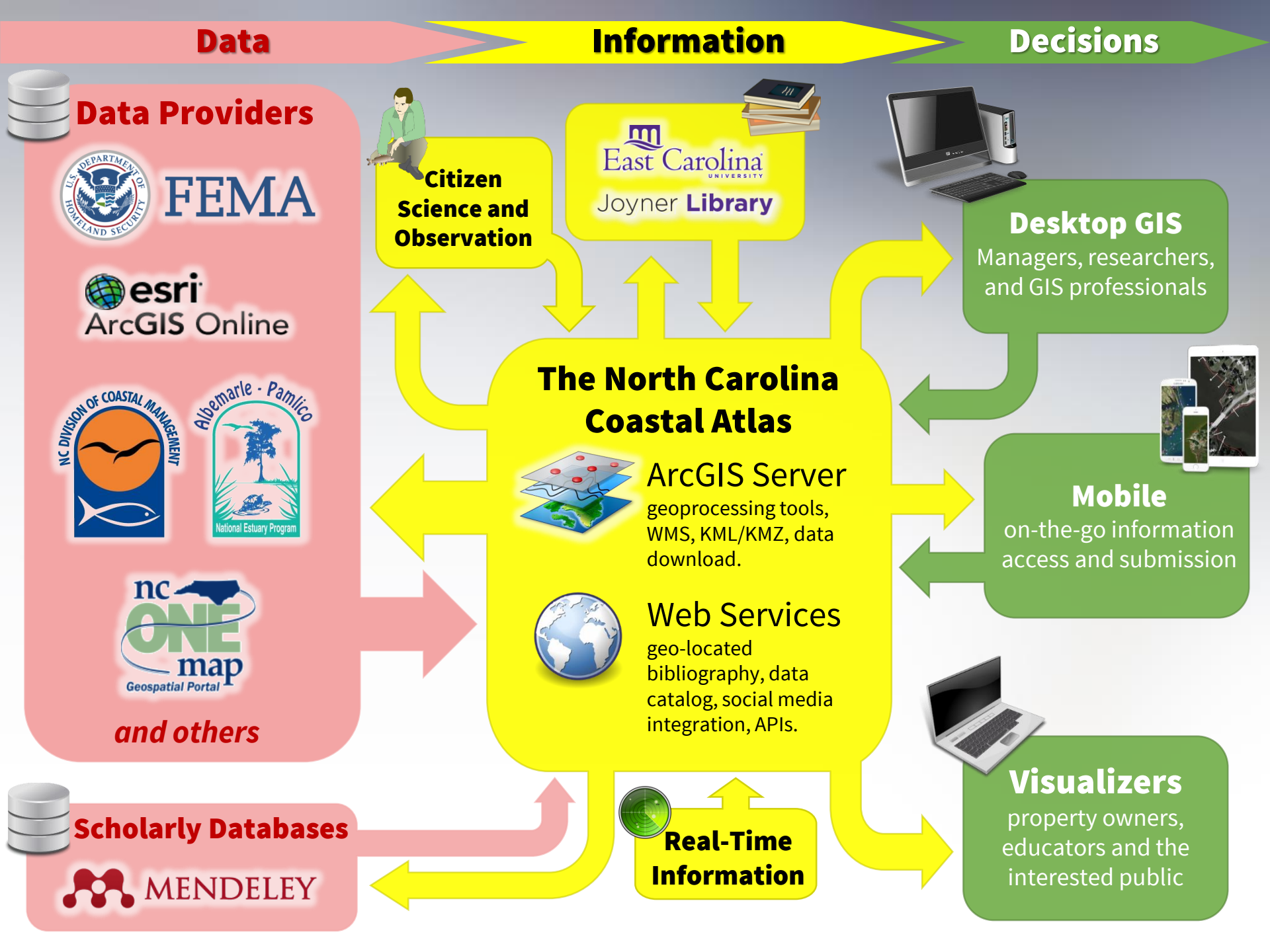
③ Help with decision-making and discovery;

④ Improve access via the Internet.

But, we should also say that a coastal web atlas is not the same thing to everybody!

“Personas” developed from a UX study of the NC Coastal Atlas




Data
Information
Decisions
Data Providers
FEMA
esri
ArcGIS Online
NC Division of Coastal Management
Albemarle - Pamlico
National Estuary Program
nc ONE map
Geospatial Portal
and others
Citizen Science and Observation
East Carolina University
Joyner Library
The North Carolina Coastal Atlas
ArcGIS Server
geoprocessing tools, WMS, KML/KMZ, data download.
Web Services
geo-located bibliography, data catalog, social media integration, APIs.
Real-Time Information
Scholarly Databases
MENDELEY
Desktop GIS
Managers, researchers, and GIS professionals
Mobile
on-the-go information access and submission
Visualizers
property owners, educators and the interested public

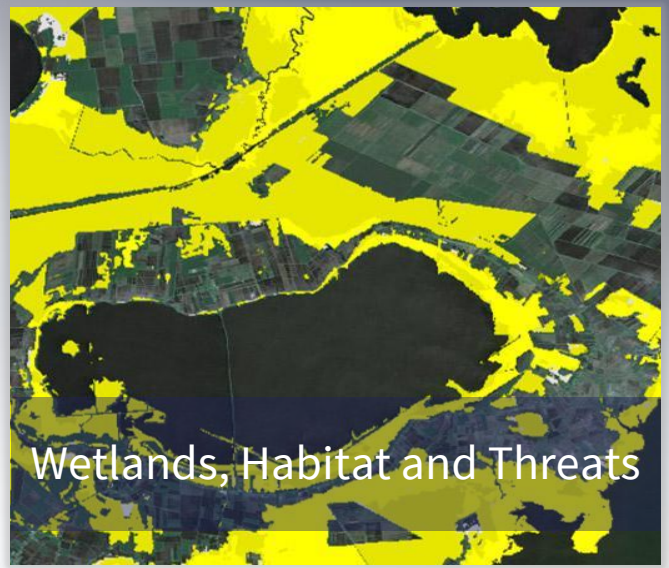
Thematic Maps

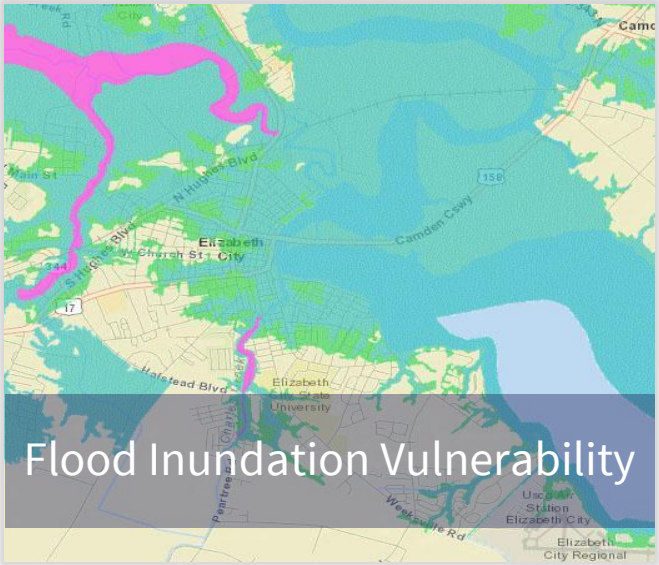
- Collection of GIS layers (data) that follow a certain theme or topic.

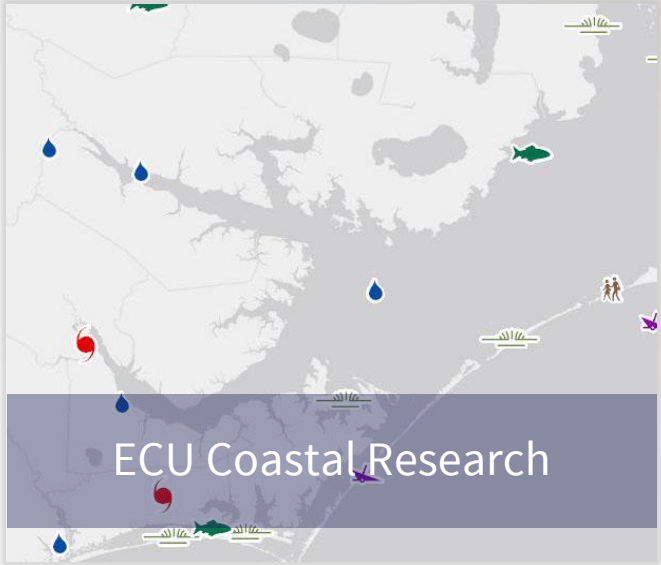
- Many existing thematic maps already on the Atlas.
  - Estuarine and Ocean Shorelines
  - Wetlands, Habitat and Threats
  - Flood Inundation Vulnerability
  - Dasymetric Population Mapping
  - others

- Story maps can convey information by stepping the user through a sequential narrative.

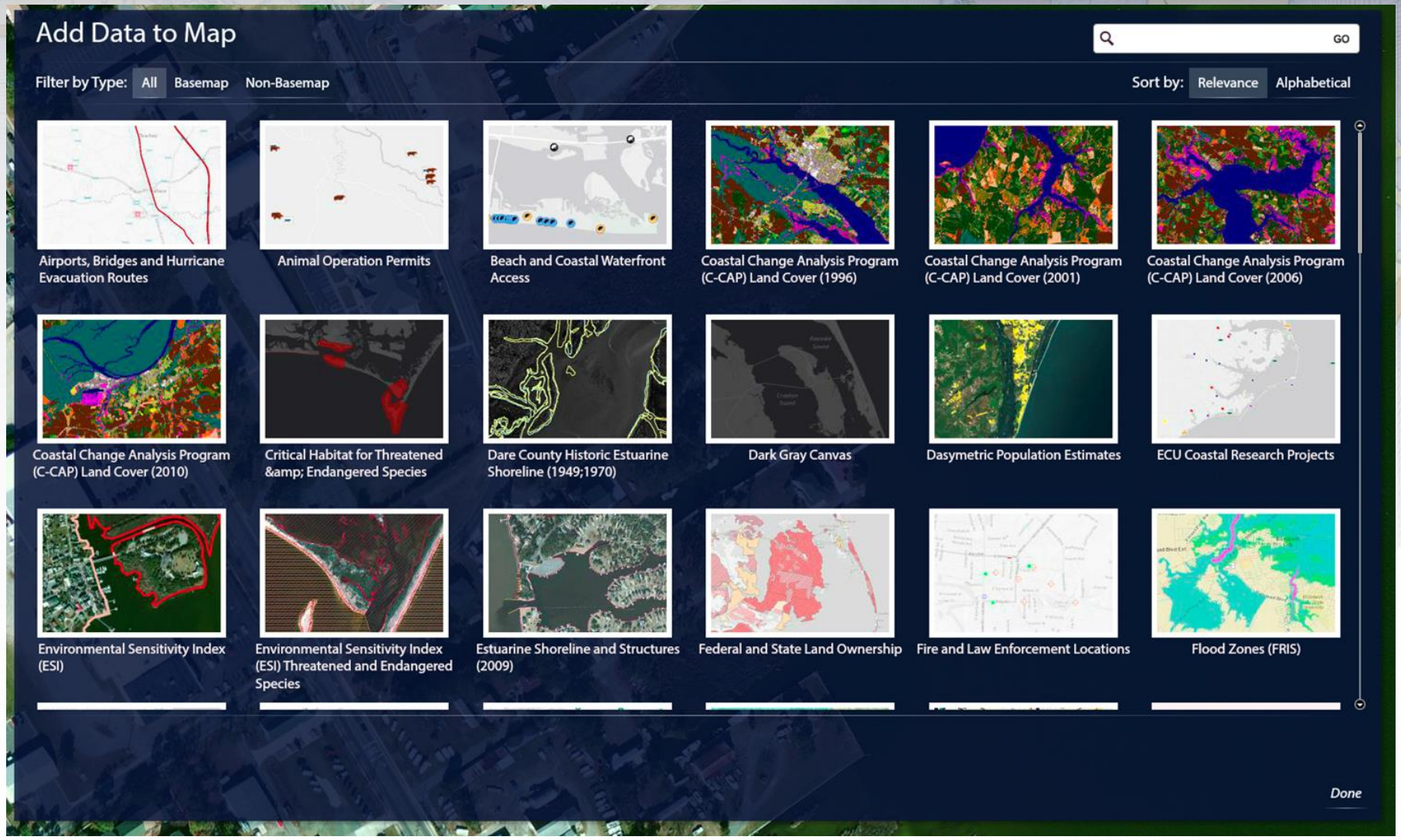
Ocean & Estuarine Shorelines

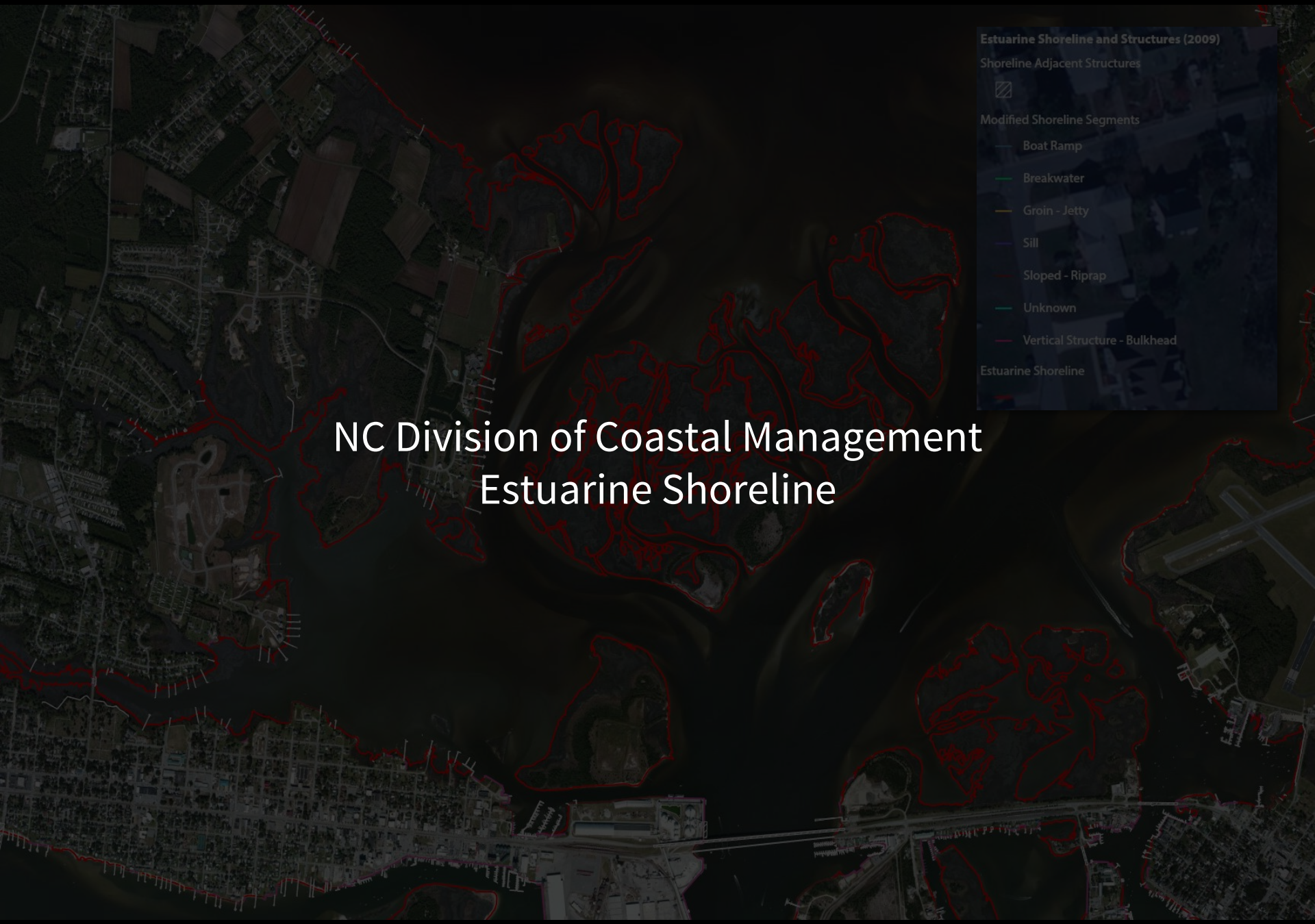

Wetlands, Habitat and Threats


Flood Inundation Vulnerability


ECU Coastal Research

Data Catalog

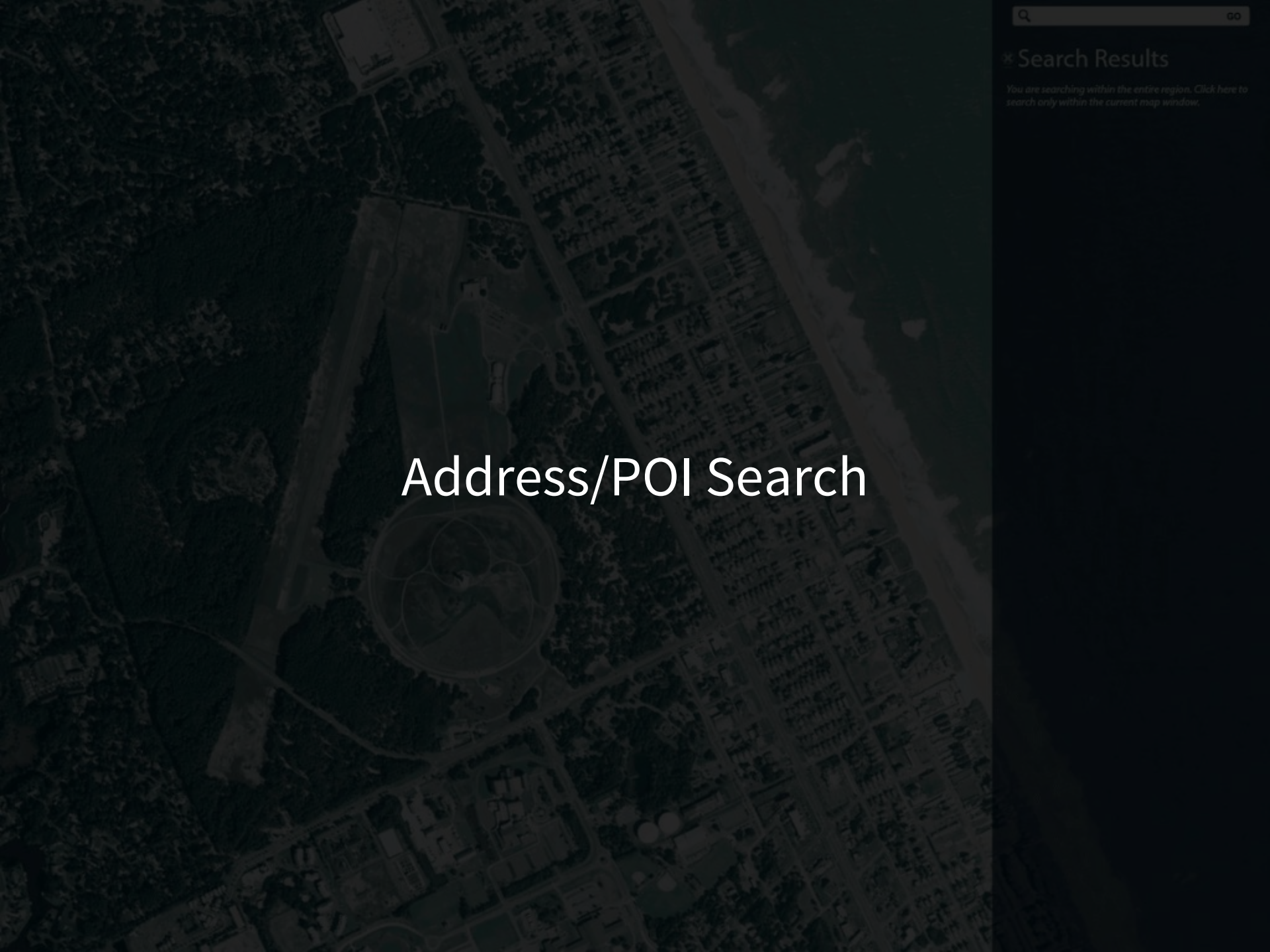




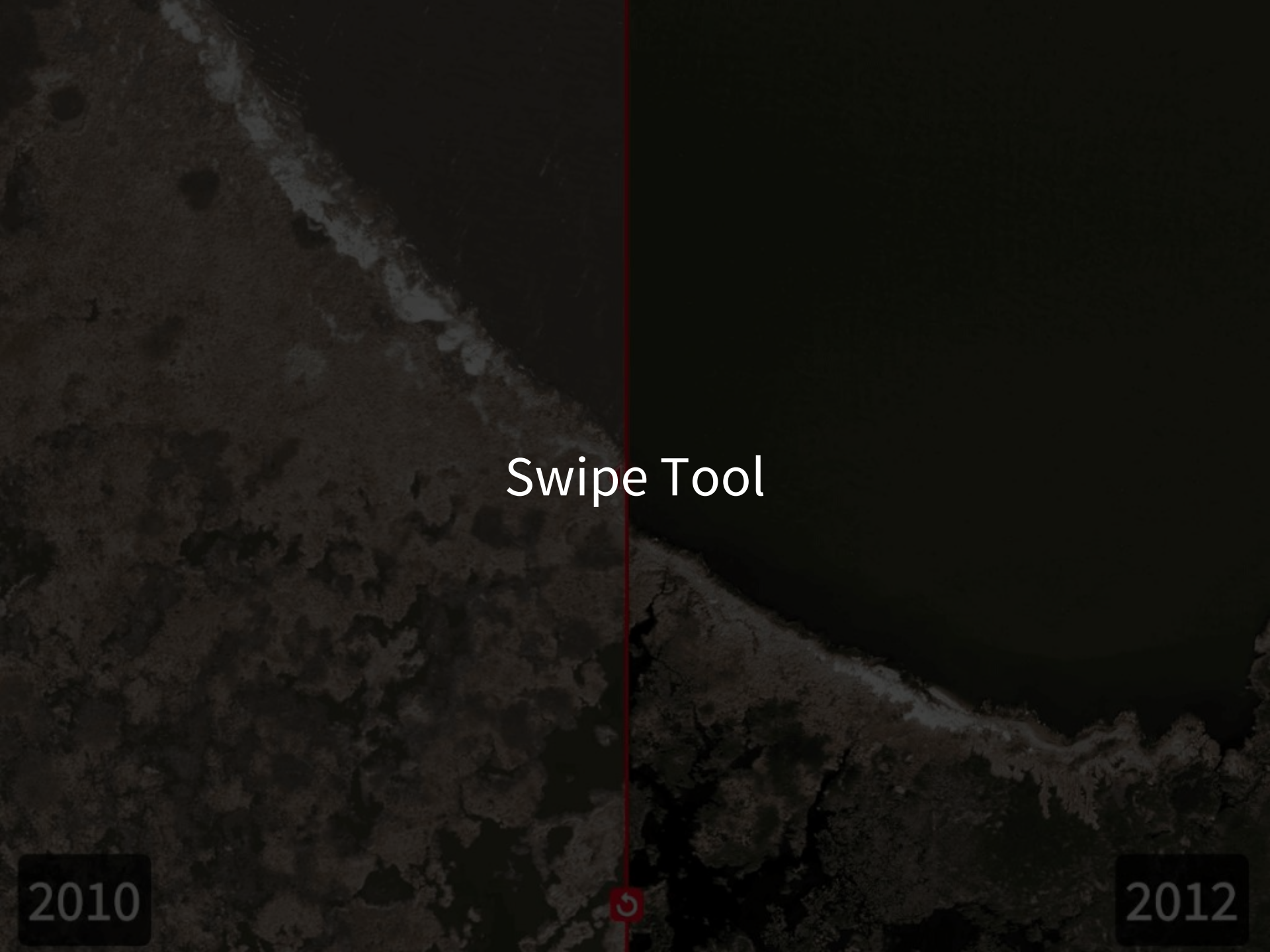
NC Division of Coastal Management
Estuarine Shoreline

Estuarine Shoreline and Structures (2009)
Shoreline Adjacent Structures
Modified Shoreline Segments
Boat Ramp
Breakwater
Groin - Jetty
Sill
Sloped - Riprap
Unknown
Vertical Structure - Bulkhead
Estuarine Shoreline
100 m

Estuarine Shoreline and Structures (2009)
Shoreline Adjacent Structures
Modified Shoreline Segments
Boat Ramp
Breakwater
Groin - Jetty
Sill
Sloped - Riprap
Unknown
Vertical Structure - Bulkhead
Estuarine Shoreline
100 m



Address/POI Search


Swipe Tool
2010
2012

Spotlight Tool

Legend
Map Contents
World Imagery
Statewide Orthoimagery (2010)
Statewide Orthoimagery (2012)
Estuarine Shoreline and Structures (2009)
Bibliography
Drawings and Annotations
Symbol Markers
Distance Measurement

Flexible Map Output

- Export map contents to common file formats.
  - PDF
  - JPEG, PNG
- Settings for page size and orientation.
- Customize map title.
- Customize output resolution.

Shoreline Erosion from 2010 to 2012

April 16, 2015

Shoreline Adjacent Structures

Modified Shoreline Segments

- Boat Ramp
- Breakwater
- Groin - Jetty
- Sill
- Sloped - Riprap
- Unknown
- Vertical Structure - Bulkhead

1:1,128

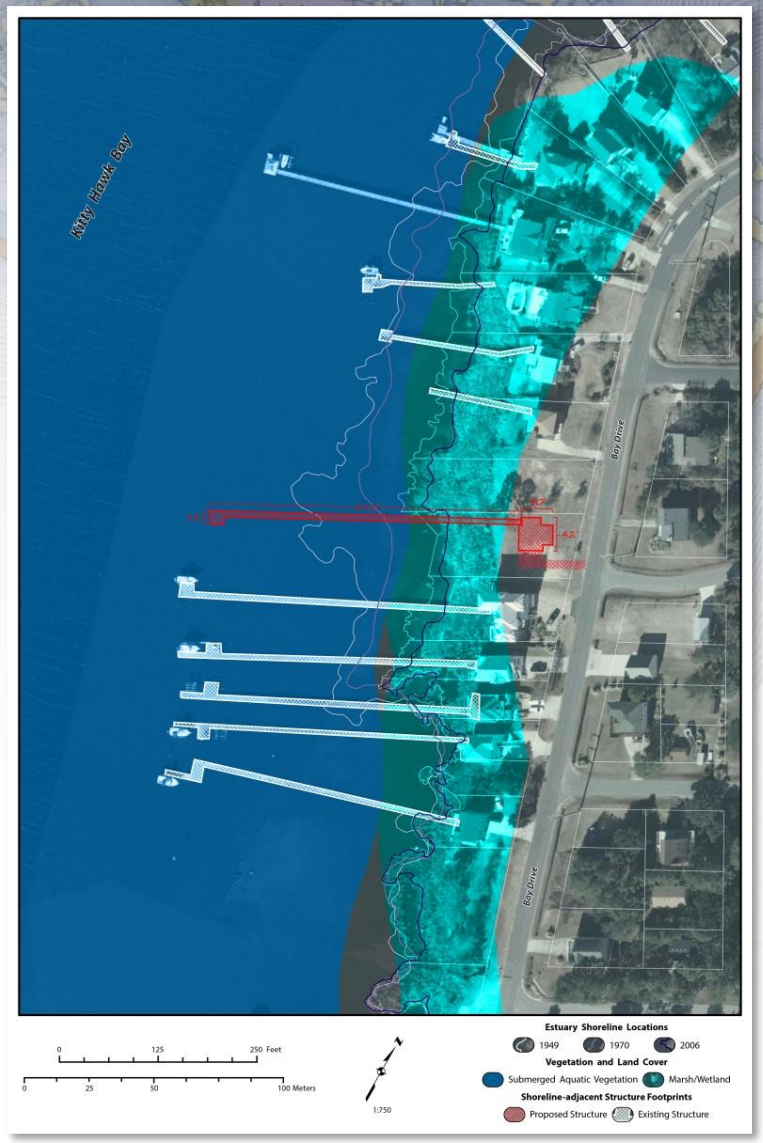
0 0.0075 0.015 0.03 mi

0 0.015 0.03 0.06 km

North Carolina Coastal Atlas
Copyright © North Carolina Coastal Atlas

Tools

- Coastal planning and permitting.
  - *Do you see what I see?*
- Markup and review: sketch and annotation tools.
- Map sharing for accurate and efficient decisions.
  - Coming this year!
  - Share via social media or email.
  - Per-map comments.

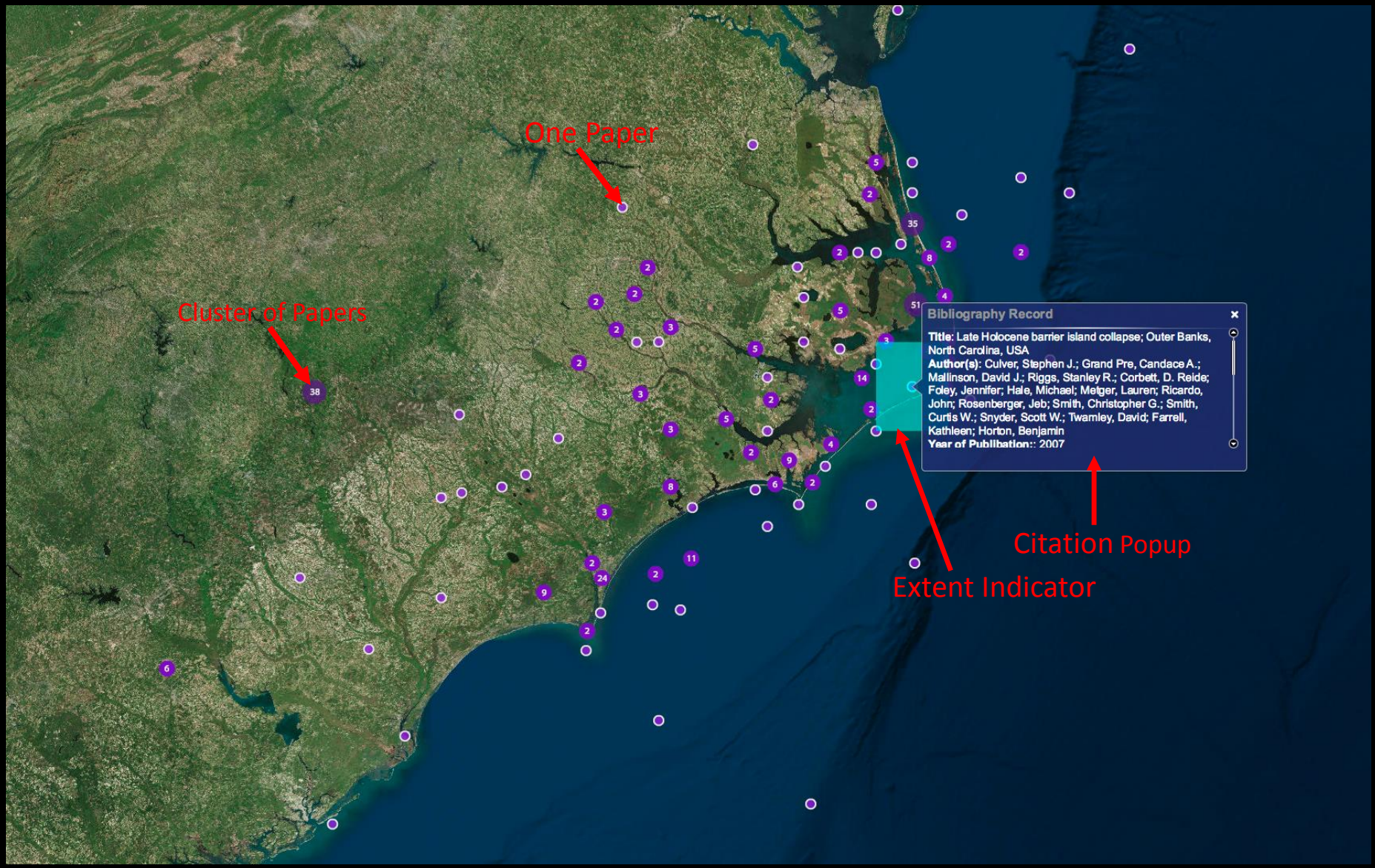


Geotagged Bibliography

- Provides a curated list of documents
  - journal articles
  - technical reports
  - books
  - theses and dissertations
  - and other works

- Allows these documents to be discovered using both geospatial and topical search.

- Link to full document text, if available.


One Paper
Cluster of Papers
Bibliography Record
Title: Late Holocene barrier island collapse; Outer Banks, North Carolina, USA
Author(s): Culver, Stephen J.; Grand Pre, Candace A.; Mallinson, David J.; Riggs, Stanley R.; Corbett, D. Reide; Foley, Jennifer; Hale, Michael; Metger, Lauren; Ricardo, John; Rosenberger, Jeb; Smith, Christopher G.; Smith, Curtis W.; Snyder, Scott W.; Twamley, David; Farrell, Kathleen; Horton, Benjamin
Year of Publication:: 2007
Citation Popup
Extent Indicator

Socially Connected?

Social media and local liaisons are key to attracting and maintaining contact between people, information, places.

- Atlas web visitors (since July 2014)
  - 4,200+ users (>900 returning)
  - 14,000 individual page views.
  - More than 500 users per month (average)
- Twitter, Facebook (launched 10-15-2013)
  - Like us at *facebook.com/NCCoastalAtlas*
    ~250 likes *(as of May, 2016)*
  - Follow us @nccoastalatlas
    ~360 followers *(as of May, 2016)*

North Carolina Coastal Atlas

What's Next?

Atlas 2.0 (estimated for fall of this year)

① Guided tour better ease of use.

② Support tablets and smartphones

③ Editing and sharing maps and collaborating with friends and colleagues.

④ Share maps by sending a link via email or social media.

⑤ Integration with ArcGIS Online to allow adding map layers from organizational accounts.

⑥ Coastal Permitting App Tool

North Carolina Coastal Atlas

Redesign for Contextual User Interface

- Guided tour based on user type.
- Walkthrough video/interactive help.
- Prioritization of UI elements based on most commonly used features.

Charles Kuralt Trail

Charles Kuralt Trail

View in Map | Map Services

The Charles Kuralt Trail is in a region of the mid-Atlantic coastal plains of Virginia and North Carolina. This region is more commonly known as the Roanoke, Tar, Neuse, Cape Fear Ecosystem, all of which are rivers that flow into the Albemarle, Currituck, and Pamilico Sounds.There is no set route that one should take to enjoy the Kuralt Trail. However, there is a 940 mile network of North Carolinian and Virginian highways and interstates that will take you through the eastern coastal portion of the state to the 12 locations that make up the interest sites of the Kuralt Trail.

There is 12 National Wildlife Refuges and one National Fish Hatchery that makes up the Kuralt. Each location provides a chance for one to experience the unique wildlife of the National Wildlife Refuge. Each location provides recreational actvities for a visitor to partake in. Many of the Refuges provide areas for camping, hunting, hiking, and fishing, but each location varies on the activities in which they offer to the

Creator Name(s)

N.C. Coastal Atlas

Provider Name(s)

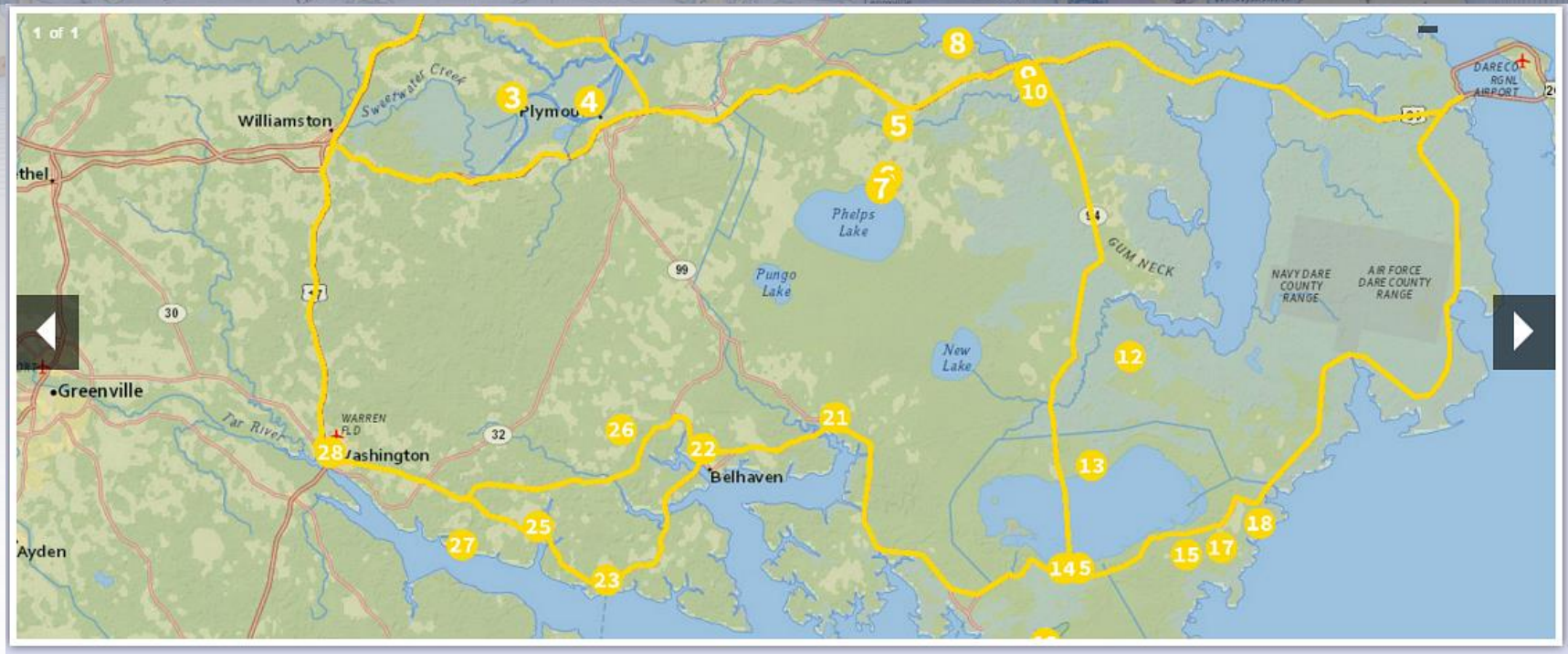
N.C. Coastal Atlas

Categories

Recreation and Tourism

Charles Kuralt Trail POIs
1 Back Bay National Wildlife Refuge
2 Mackay Island National Wildlife Refuge
3 Great Dismal Swamp National Wildlife Refuge
4 Currituck National Wildlife Refuge
5 Edenton National Fish Hatchery
6 Roanoke River National Wildlife Refuge
7 Pocosin Lakes National Wildlife Refuge
8 Alligator River National Wildlife Refuge
9 Pea Island National Wildlife Refuge
10 Mattamuskeet National Wildlife Refuge
11 Swanquater National Wildlife Refuge
12 Cedar Island National Wildlife Refuge
Charles Kuralt Trail

Sounds Discovery Trail



The Sounds Discovery Trail

View in Map | Map Services

The Sounds Discovery Trail will take you on a tour to 28 different locations throughout Hyde, Tyrrell, Washington, Beaufort, and Bertie counties in eastern North Carolina. It is not required to visit each location in numerical order however, it is designed to where one can travel from site to site with ease in a loop fashion on 320 miles of North Carolina highways.

While on the trail, one will have a chance to stop at several houses that are proctected and considered nationally registered historic locations, visit unique wildlife in several National Wildlife Refuges, and several small historic towns.

Creator Name(s)

N.C. Coastal Atlas

Provider Name(s)

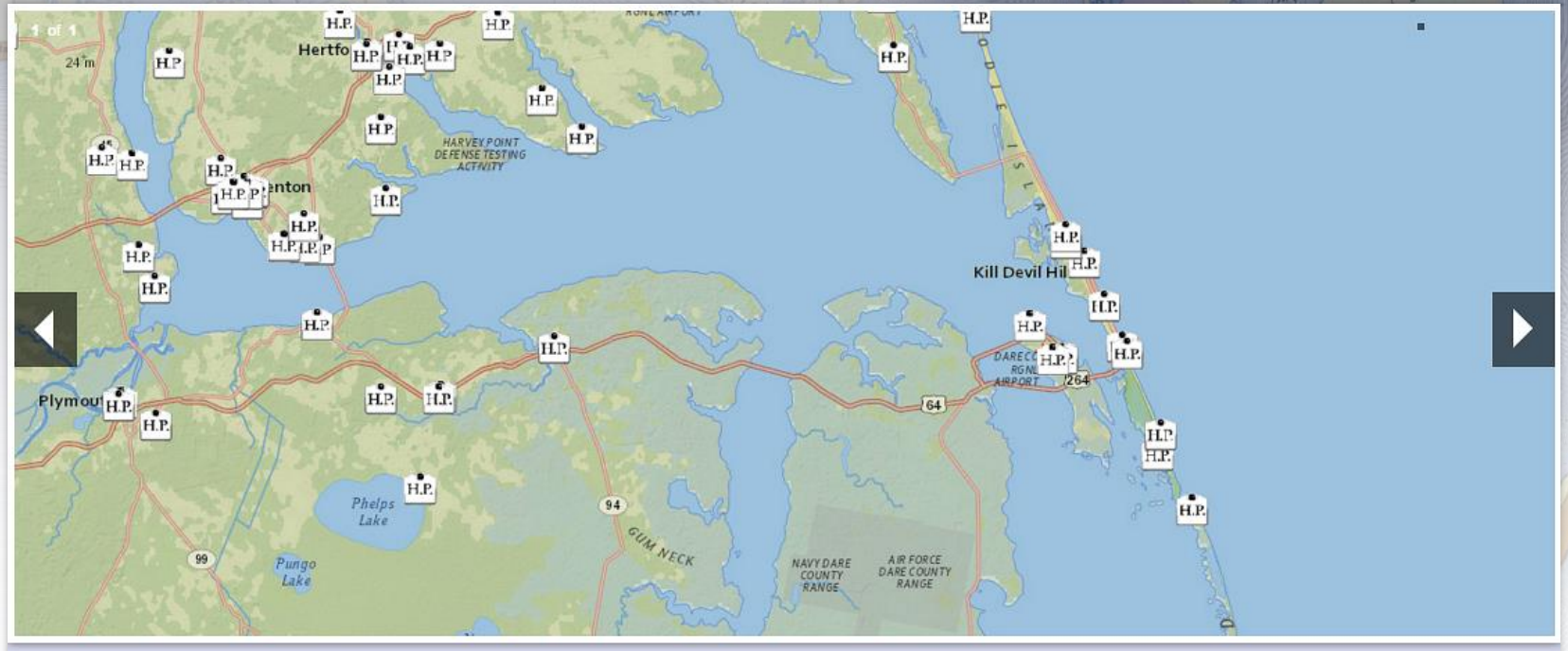
N.C. Coastal Atlas

Categories

Recreation and Tourism

The Sounds Discovery Trail
Sounds Discovery POIs
1 Hope Plantation
2 Windsor
3 Sans Succi Ferry
4 Plymouth
5 Davenport House
6 Somerset Place
7 Pettigrew State Park
8 The Eastern 4-H Environmental Education Cor
9 Columbia
10 Pocosin Lakes National Wildlife Refuge
11 Palmetto-Peartree Preserve
12 Intercoastal Waterway
13 Fairfield
14 Mattamuskeet National Wildlife Refuge
15 Mattamuskeet Lodge
15 Octagon House
17 Lake Landing Historic District
18 Villagae of Engelhard
19 Village of Swan Quarter
20 Ocracoke
21 Ponzer Area
22 Belhaven Area
23 Bayview Aurira Ferry
24 Aurora Fossil Museum
25 Historic Bath
26 Terra Ceia Area
40 km

National Register of Historic Places



National Register of Historic Places

View in Map | Map Services

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.

This map layer contains point markers for all NRHP sites in counties within the Coastal Plain physiographic province of North Carolina. This is a total of 649 places that have been deemed worthy of preservation by the National Register.

Creator Name(s)

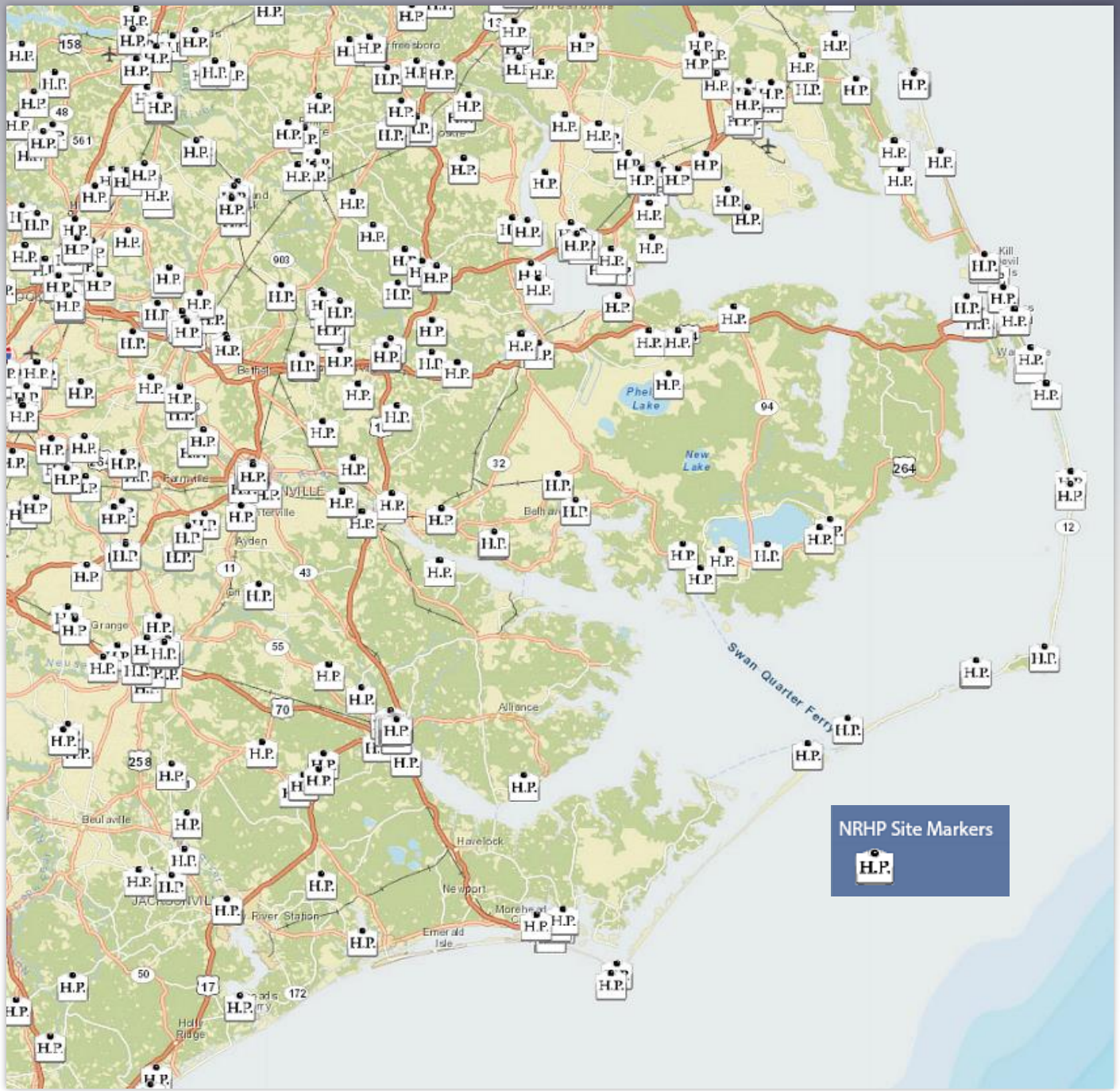
National Register of Historic Places

Provider Name(s)

N.C. Coastal Atlas

Categories

Historical


NRHP Site Markers
H.P.
Swan Quarter Ferry
Phelps Lake
New Lake
Alliance
Havelock
Newport
Morehead
Emerald Isle
River Station
Beulaville
Grange
Ayden
Farmville
Belhaven
Kill Devil Hills
Holly Ridge
Bethel
Freesboro
158
48
561
903
32
94
264
12
11
43
55
70
258
50
17
172

Paddle Trails and Access

- NC Paddle Trails Association maps.
- NC OneMap Recreation layers.
- Mid-East RC&D.
- Pamlico Co. Rural Development Panel.
- Pam Malec's (2001) Guide to Sea Kayaking North Carolina.

New Scuppernong and Columbia Trails and Access

Fishing and Boating

Coastal, Joint, and Inland Waters

View in Map | Map Services

Boundaries of Coastal, Joint and Inland Waters

Boundaries between coastal-joint and inland waters are provided in a tiled map service and GIS layers maintained by the NC Division of Marine Fisheries.

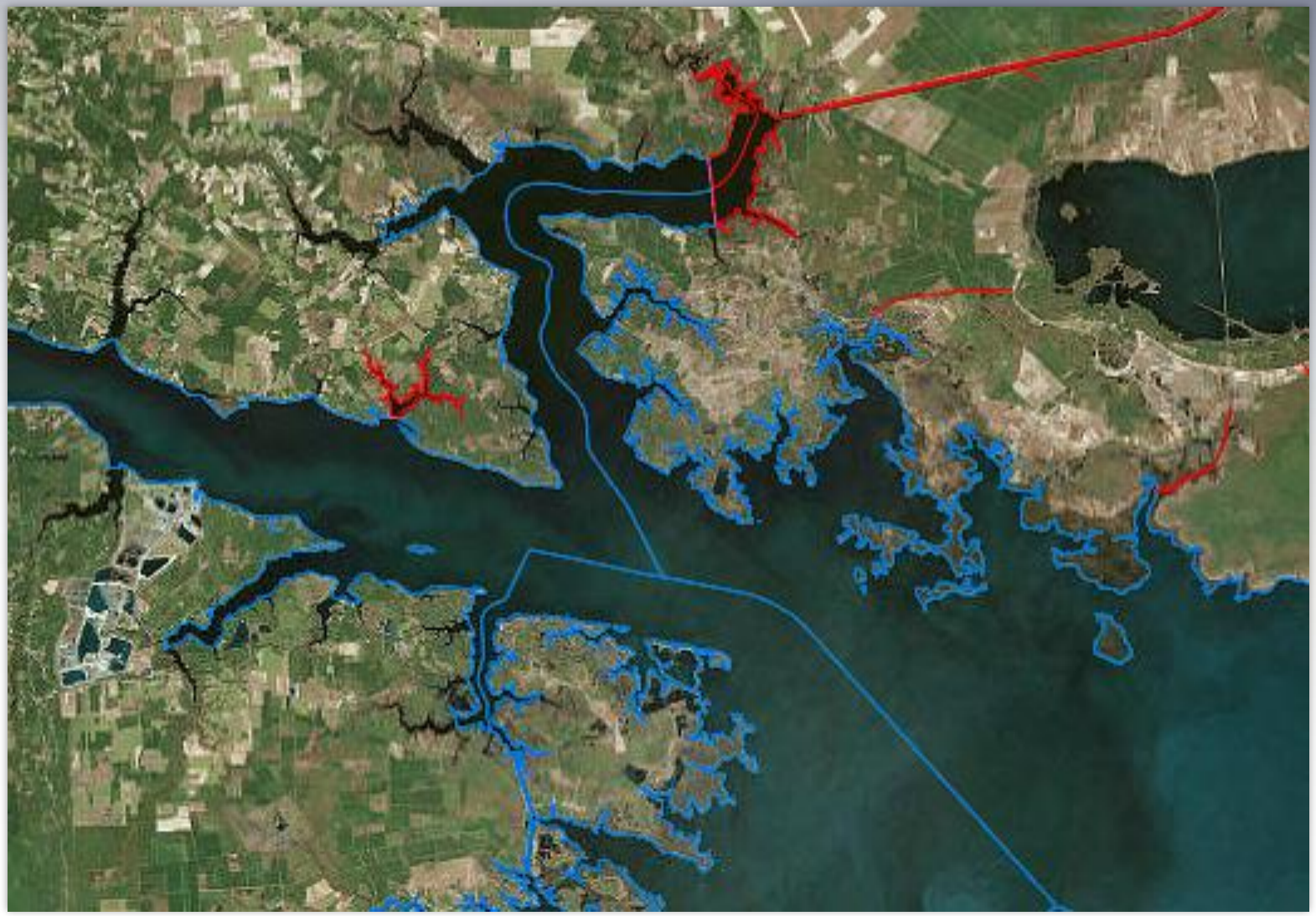
For the purposes of recreational fishing with hook and line, these boundaries define the pertinent required fishing license.

Creator Name(s)

N.C. Division of Marine Fisheries

Provider Name(s)

Esri



Boat Accesses and Marinas

NC Boating Access Areas

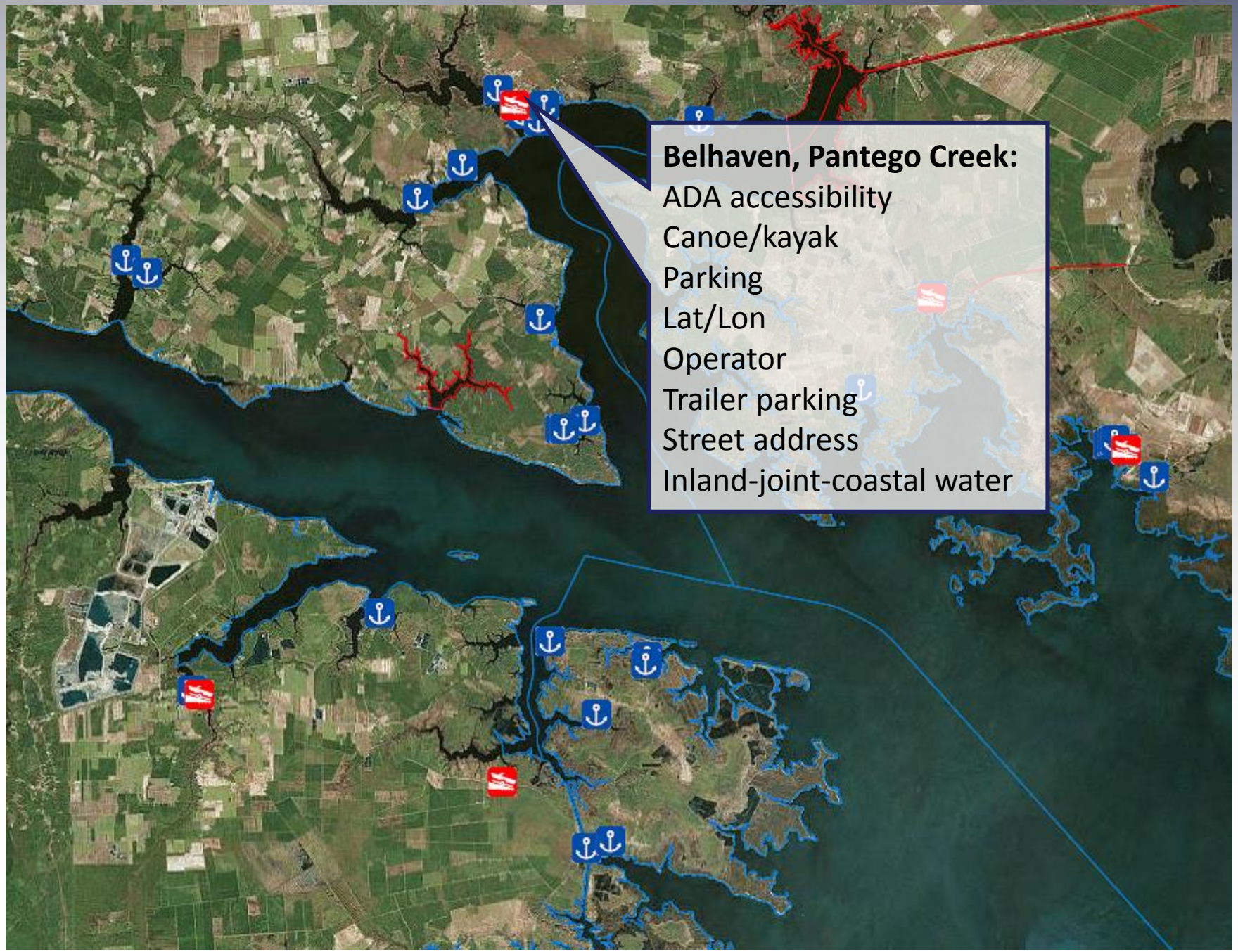
A compilation of WRC owned/maintained access areas as well as other public and free ramps developed or maintained in partnership with the agency. Further details on the source of this layer (also served by NC OneMap) can be found here.

- 130+ locations

Marinas

This layer was built upon an inventory by the NOAA Environmental Sensitivity Index (ESI) mapping program for human-use resource inventory.

- 380 locations?


Belhaven, Pantego Creek:
ADA accessibility
Canoe/kayak
Parking
Lat/Lon
Operator
Trailer parking
Street address
Inland-joint-coastal water

Data Catalog

Surf Spots

View in Map Map Services

Surfing Spots of North Carolina

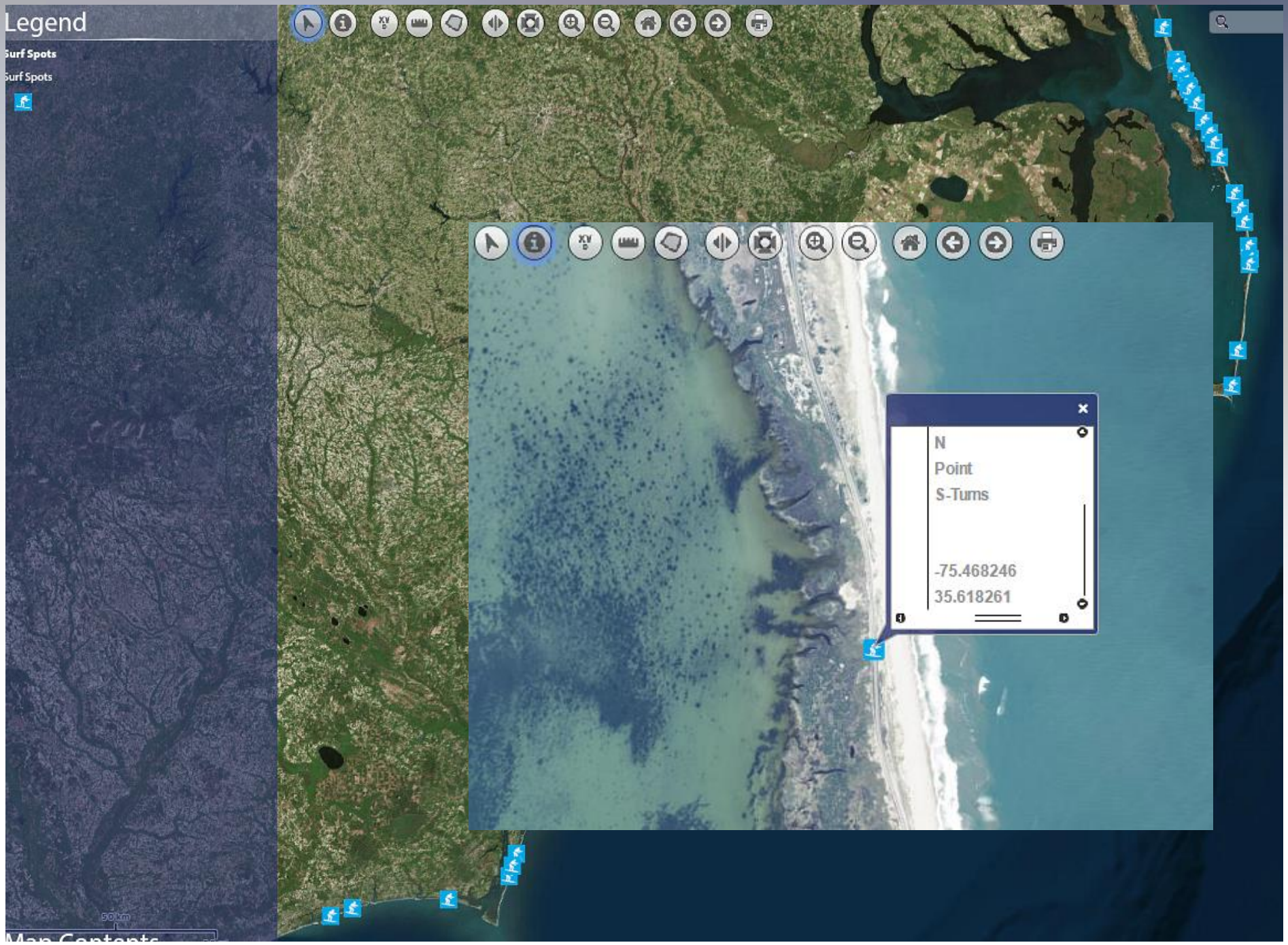
Surfing spots are inherently dynamic along North Carolina's sandy, trailing-edge coastline. Our coast features beach break sand bars that oscillate between seasonal winter and summer profiles in response to major coastal storms and prolonged flat spells. In addition, coastal inlets, beach replenishment projects, sand bags and hard structure stabilization can interact to affect many surf quality

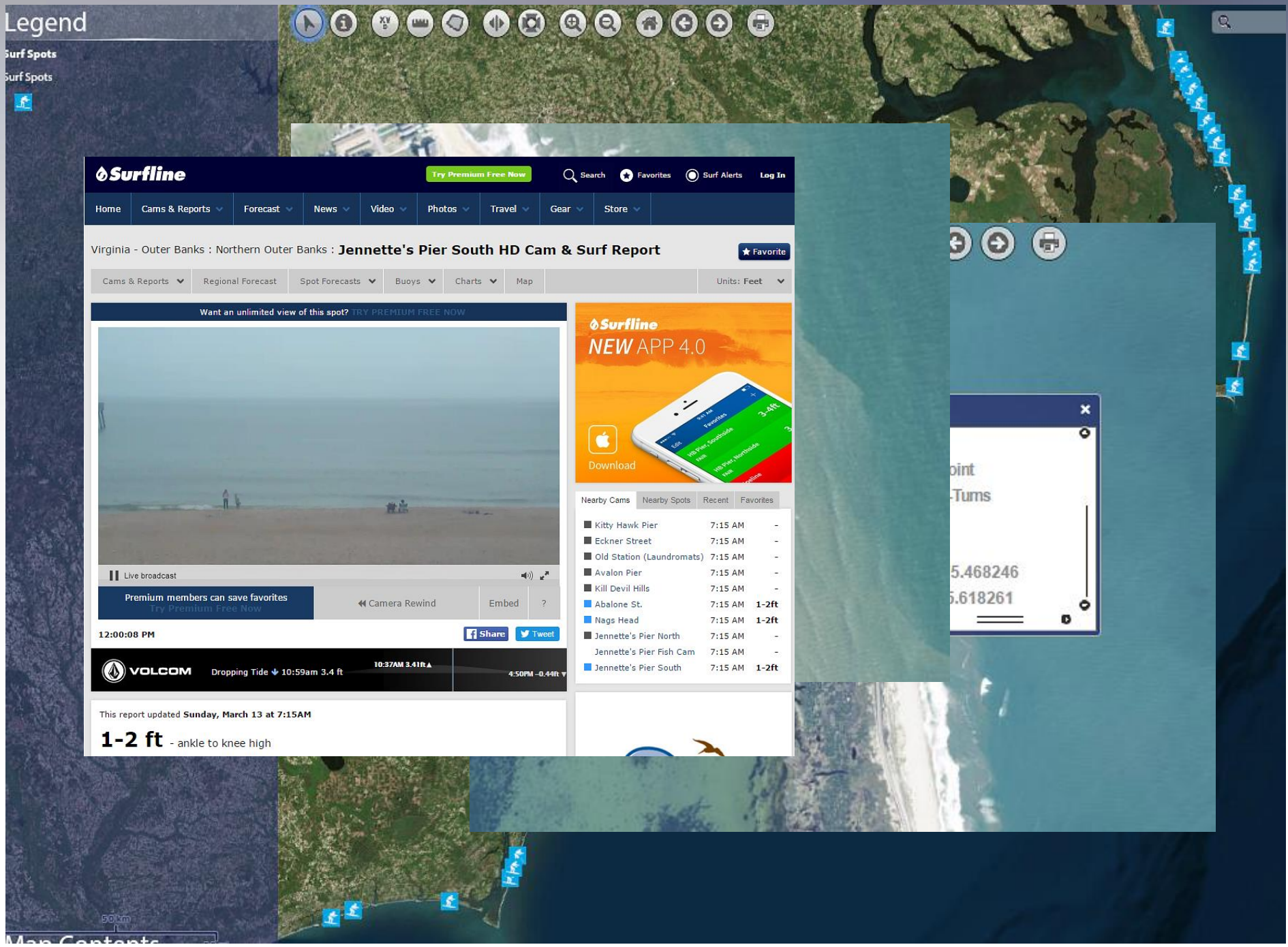
Creator Name(s)

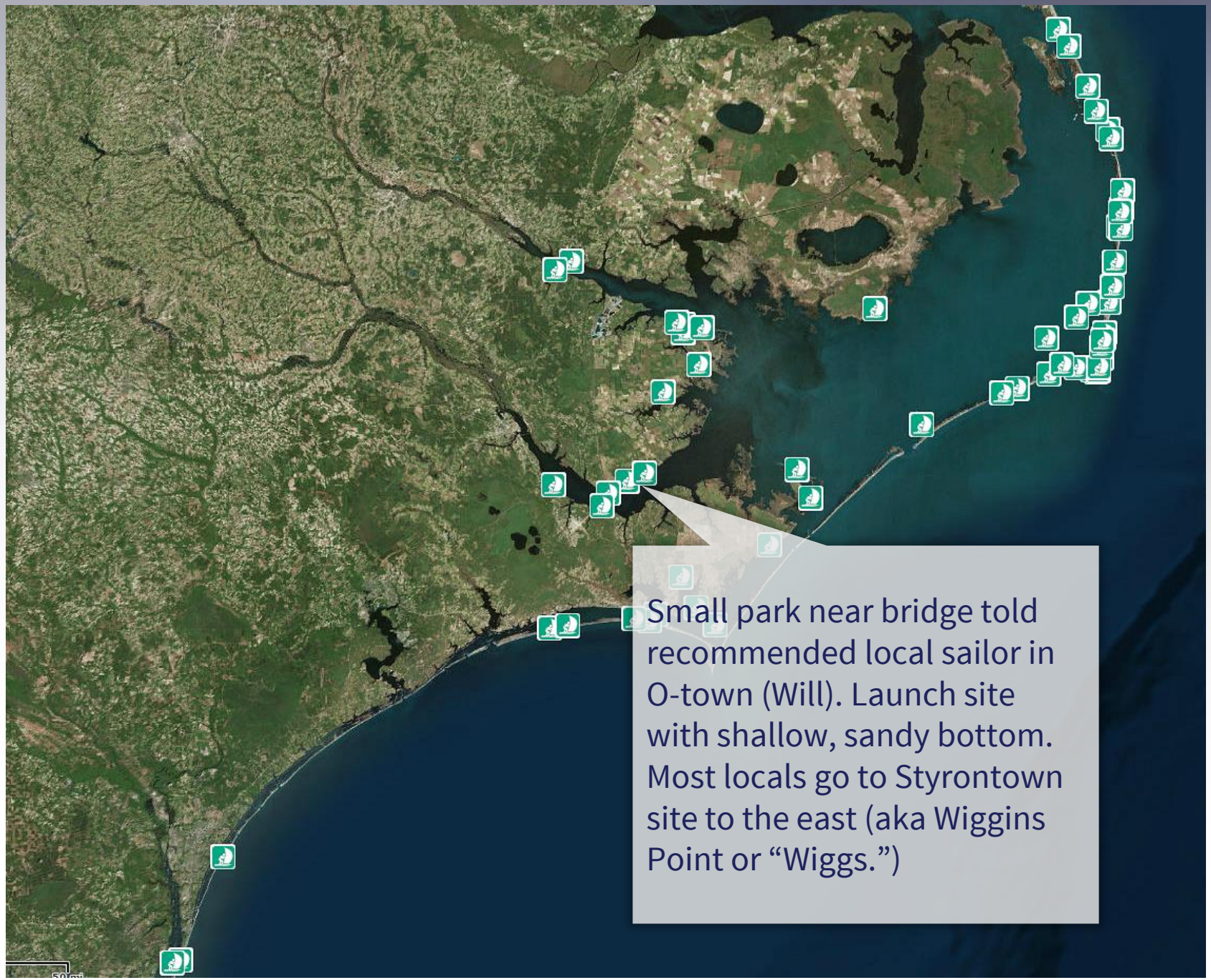
N.C. Coastal Atlas

Categories

Recreation and Tourism


Legend
Surf Spots
Surf Spots
N
Point
S-Turns
-75.468246
35.618261
50 km
Map Contents

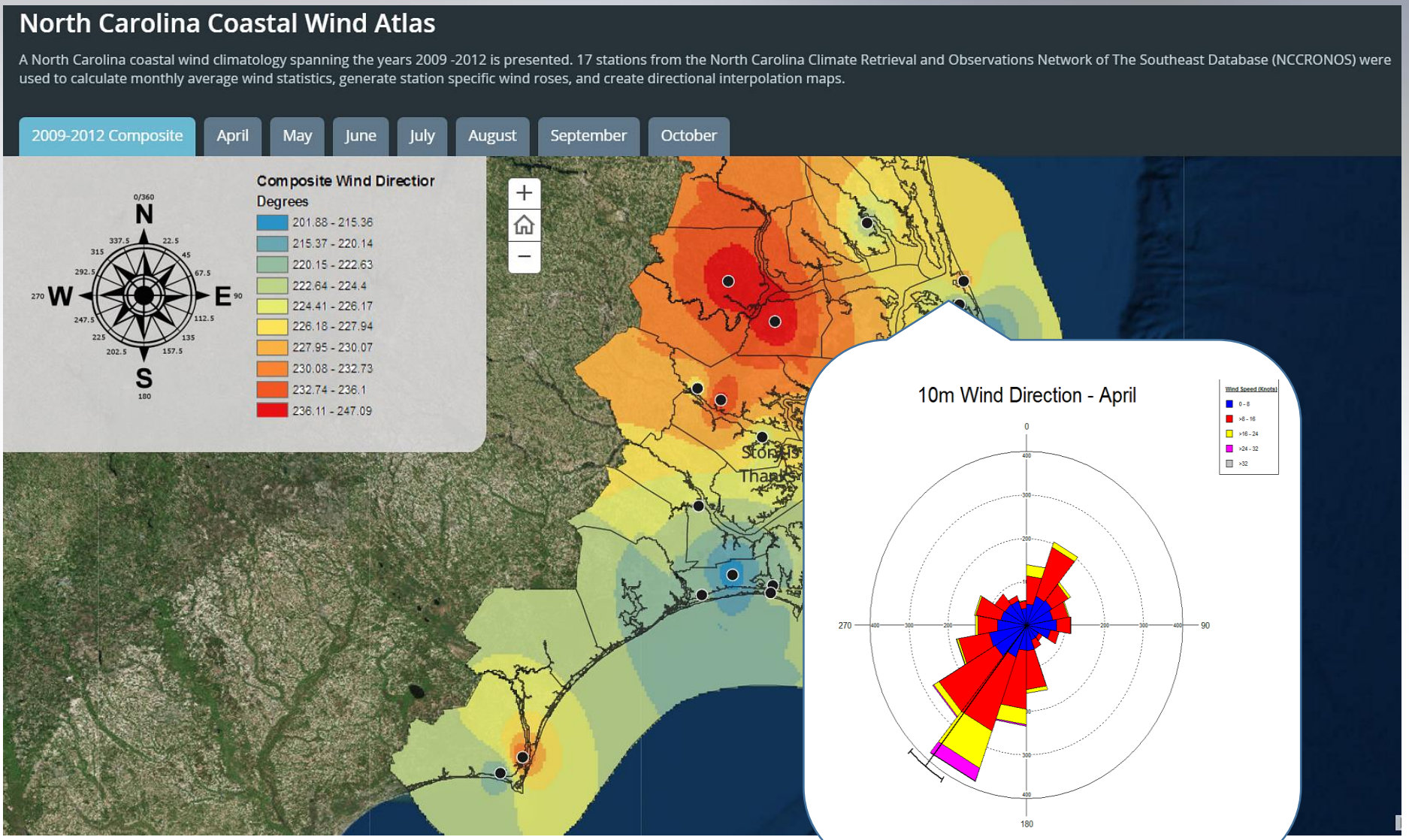

Legend
Surf Spots
Surf Spots
Surfline
Try Premium Free Now
Search
Favorites
Surf Alerts
Log In
Home
Cams & Reports
Forecast
News
Video
Photos
Travel
Gear
Store
Virginia - Outer Banks : Northern Outer Banks : Jennette's Pier South HD Cam & Surf Report
Favorite
Cams & Reports
Regional Forecast
Spot Forecasts
Buoys
Charts
Map
Units: Feet
Want an unlimited view of this spot? TRY PREMIUM FREE NOW
Live broadcast
Premium members can save favorites
Try Premium Free Now
Camera Rewind
Embed
?
12:00:08 PM
Share
Tweet
VOLCOM
Dropping Tide 10:59am 3.4 ft
10:37AM 3.41ft
4:50PM -0.44ft
This report updated Sunday, March 13 at 7:15AM
1-2 ft - ankle to knee high
Surfline
NEW APP 4.0
Download
Nearby Cams
Nearby Spots
Recent
Favorites
Kitty Hawk Pier 7:15 AM -
Eckner Street 7:15 AM -
Old Station (Laundromats) 7:15 AM -
Avalon Pier 7:15 AM -
Kill Devil Hills 7:15 AM -
Abalone St. 7:15 AM 1-2ft
Nags Head 7:15 AM 1-2ft
Jennette's Pier North 7:15 AM -
Jennette's Pier Fish Cam 7:15 AM -
Jennette's Pier South 7:15 AM 1-2ft
5.468246
5.618261
50 km


Small park near bridge told recommended local sailor in O-town (Will). Launch site with shallow, sandy bottom. Most locals go to Styrontown site to the east (aka Wiggins Point or “Wiggs.”)

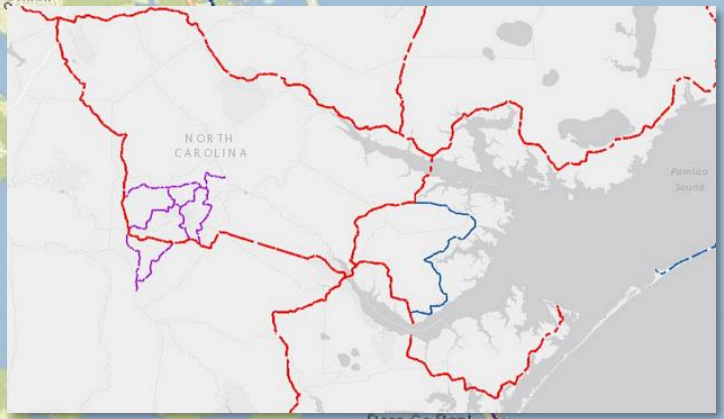
Coastal Wind Atlas…

Volunteered by ECU Jacob Twarog and Nick Lucchetti

http://arcg.is/1Nm3Lt8

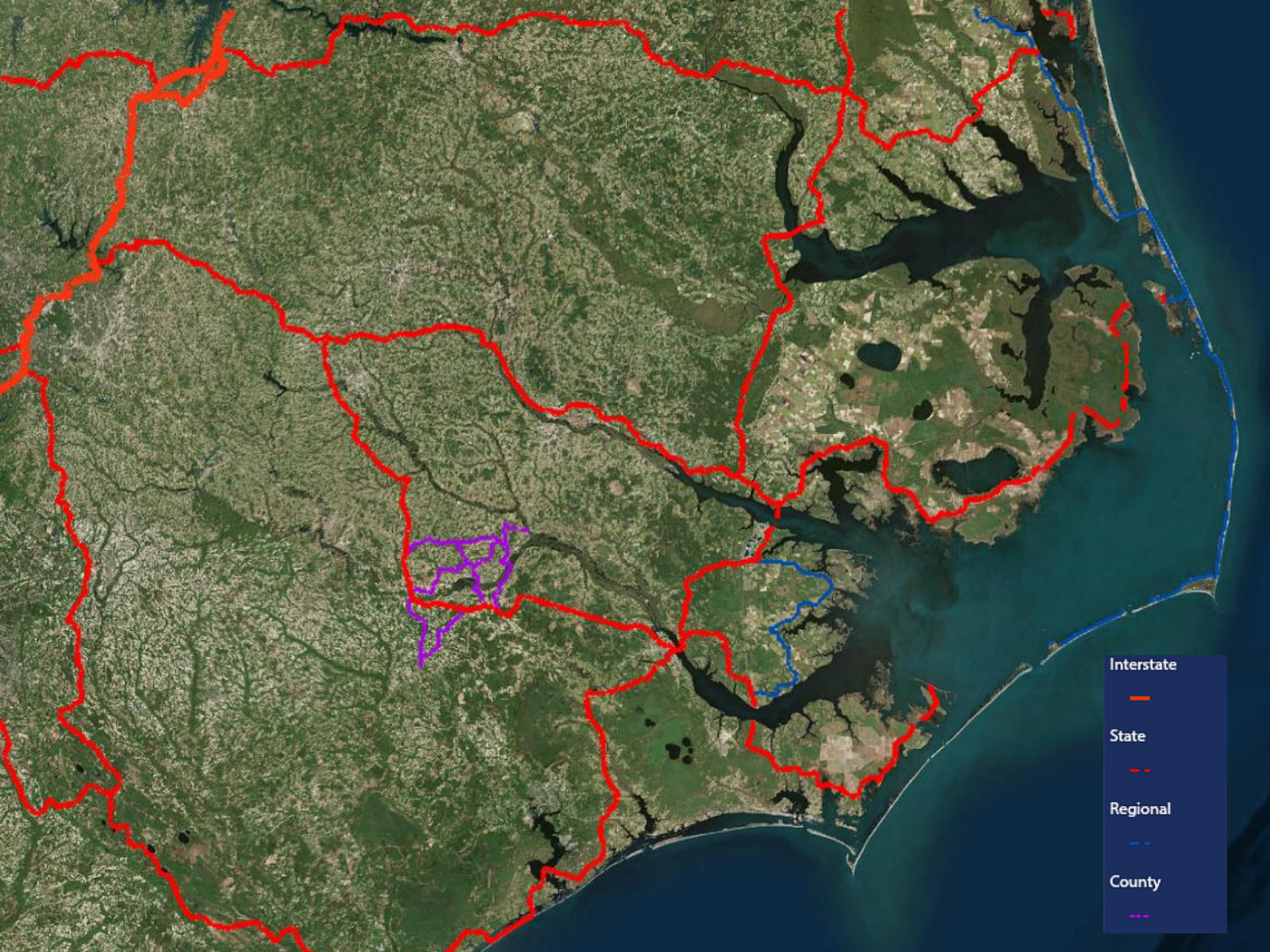


Bicycle Routes



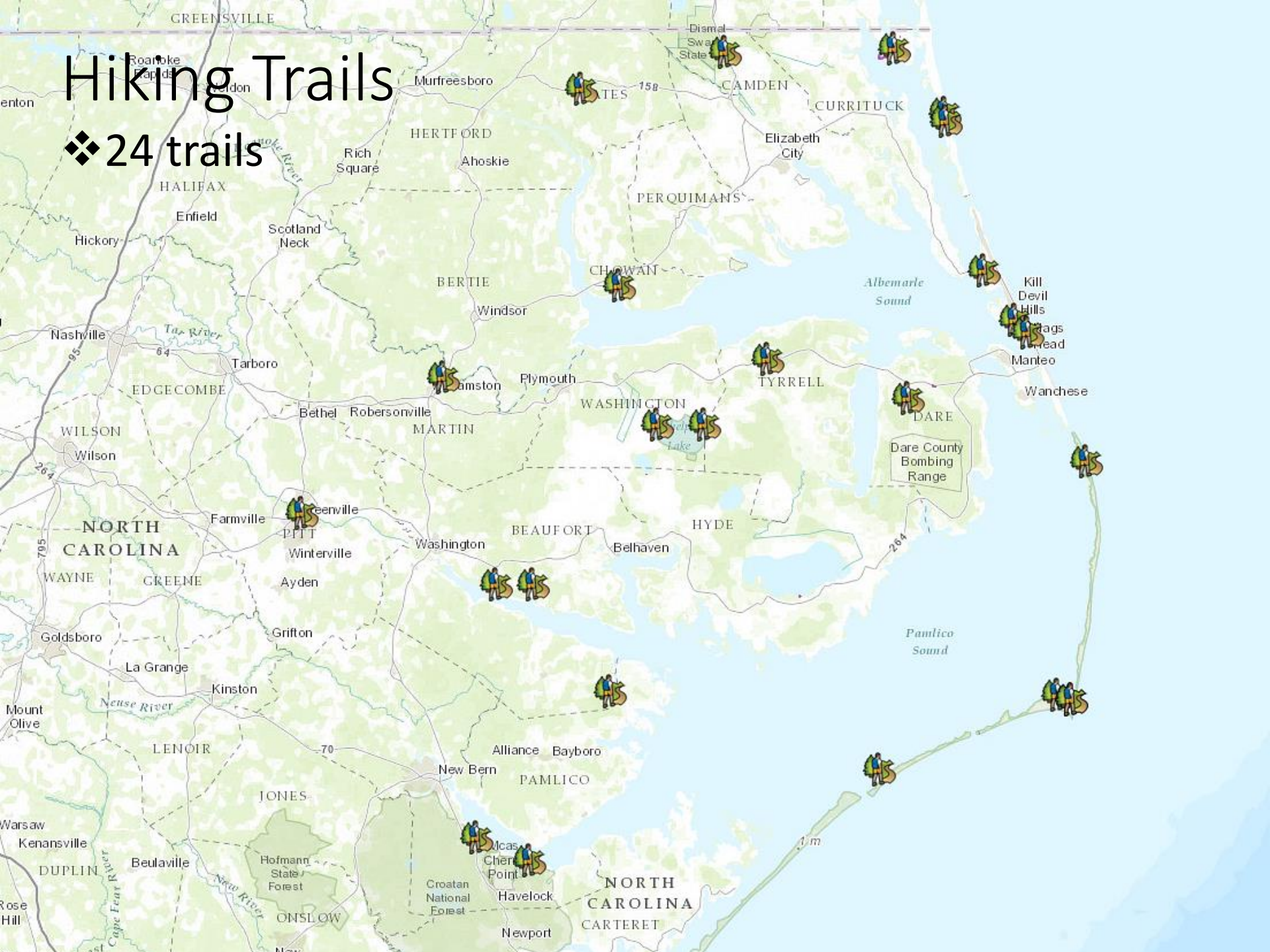
- A map showing biking routes for the state of North Carolina as defined by the Division of Bicycle and Pedestrian Transportation. The data were created in collaboration with NCDOT GIS and derived from DOT roads data.

- **Additional Information and Resources**
- Walk Bike NC
- NCDOT GIS

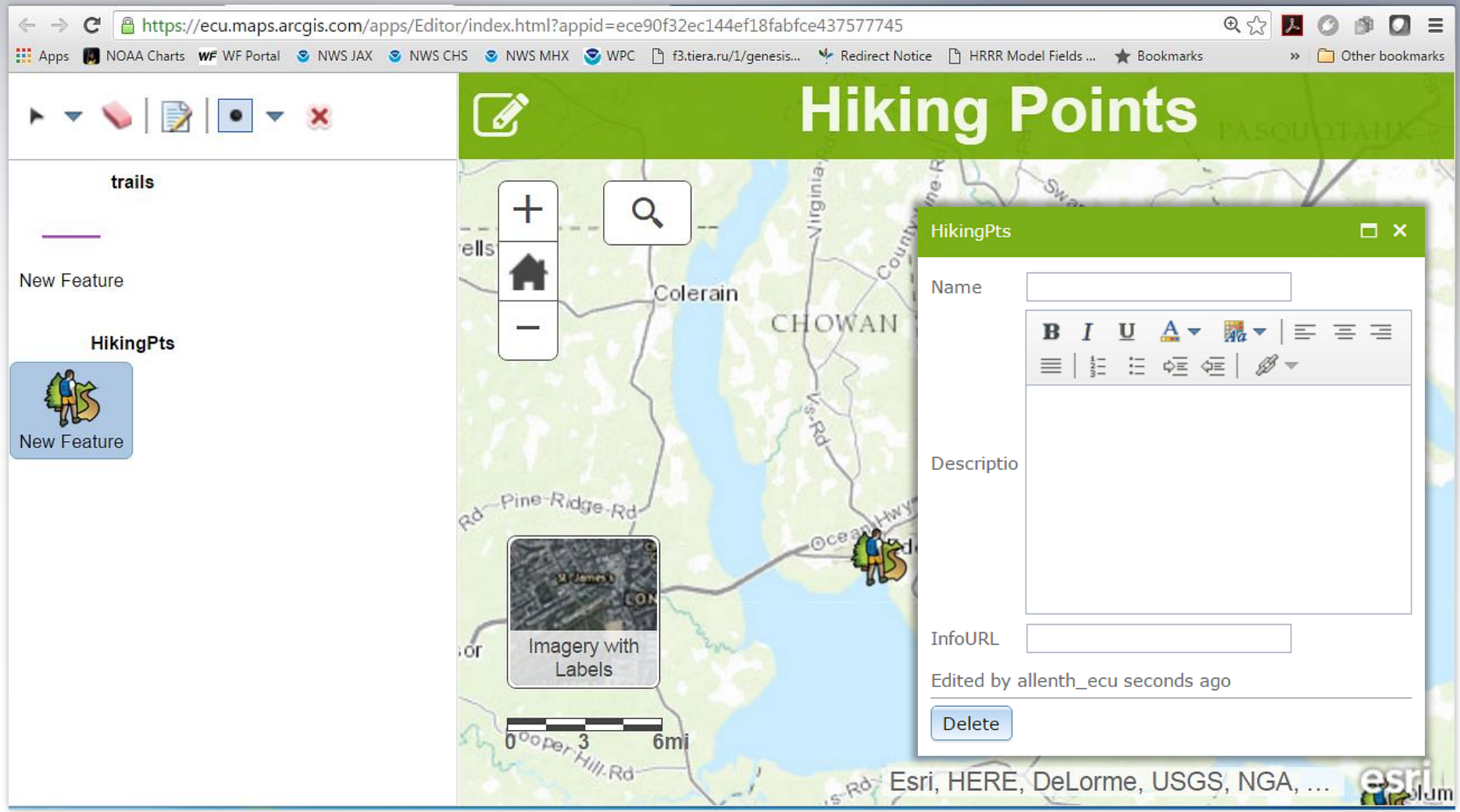

Interstate
State
Regional
County

Hiking Trails

- 24 trails



Crowdsourcing with AGOL



Content for Story Mapping

NC Land of Water: The Scuppernong Story

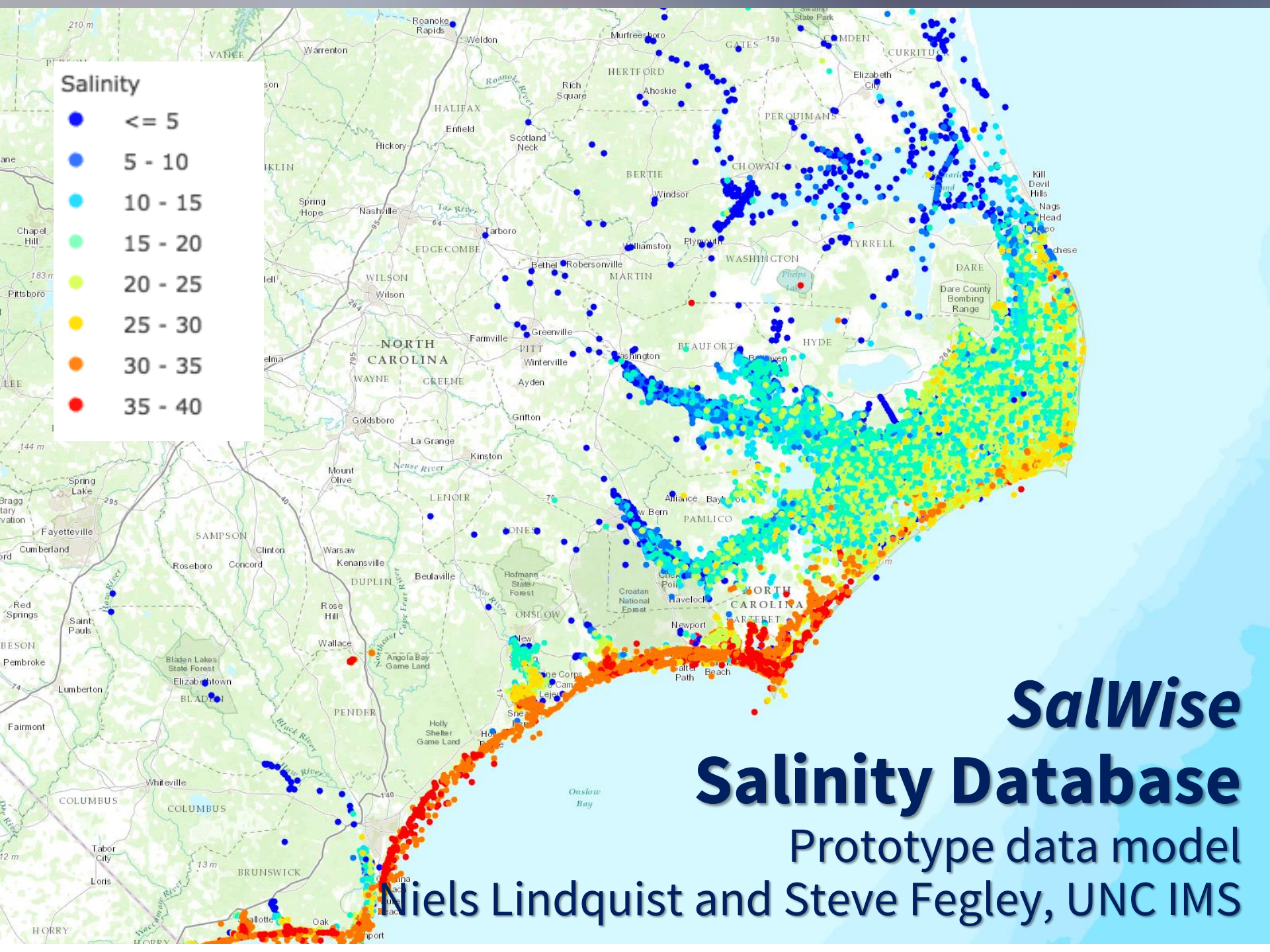
A story map

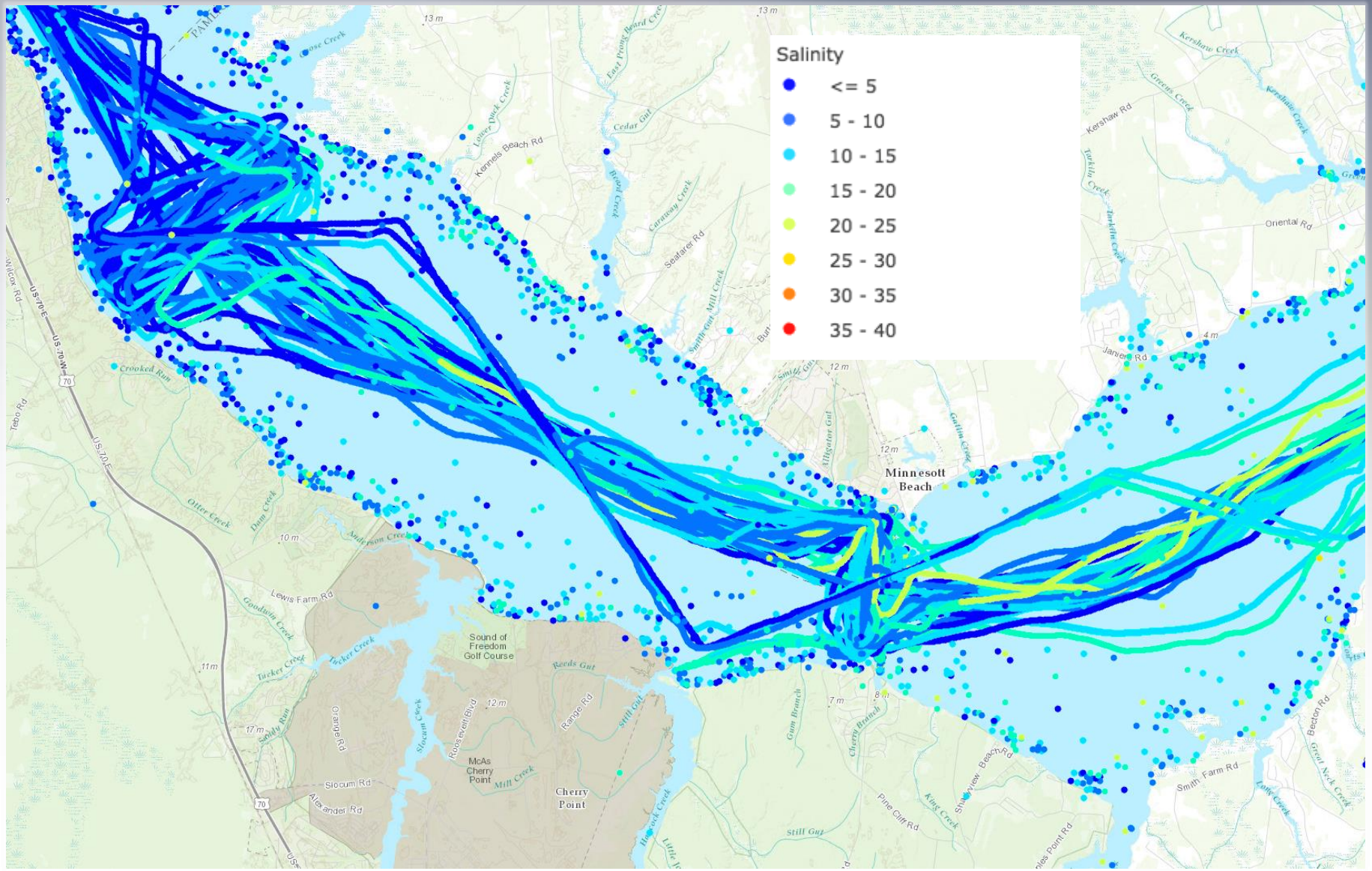
The Scuppernong Coastal System | Geology and Landforms | Ecosystems and Resources | History and Culture

The North Carolina Land of Water (NC LOW) is a 501(c)(3) regional economic development initiative. Its mission is to undertake activities that will contribute to long-term sustainable economic development based on the natural resources and cultural history of the region, integrate the diverse areas of the Inner and Outer Banks for their mutual benefit, and enhance the quality of life of its residents. The program is dependent upon the successful integration of the region's human culture and history, natural resources and societal needs.

The Scuppernong region has abundant natural and cultural resources around which to develop a very special ecotourism experience.

http://arcg.is/1TFNT90


Salinity
<= 5
5 - 10
10 - 15
15 - 20
20 - 25
25 - 30
30 - 35
35 - 40
SalWise
Salinity Database
Prototype data model
Niels Lindquist and Steve Fegley, UNC IMS


Salinity
<= 5
5 - 10
10 - 15
15 - 20
20 - 25
25 - 30
30 - 35
35 - 40
Minnesott Beach
Sound of Freedom Golf Course
McAs Cherry Point
Cherry Point
Kennels Beach Rd
Seafarer Rd
Kershaw Rd
Oriental Rd
Janier Rd
Lewis Farm Rd
Slocum Rd
Alexander Rd
Orange Rd
Range Rd
Roosevelt Blvd
Pine Cliff Rd
Smith Farm Rd
Becton Rd
Crooked Run
Otter Creek
Anderson Creek
Tucker Creek
Goodwin Creek
Mill Creek
Reeds Gut
Still Gut
Gum Branch
Cherry Branch
King Creek
Alligator Gut
Gallin Creek
Kershaw Creek
Greens Creek
Tarkiln Creek
Cedar Gut
Lower Duck Creek
Carraway Creek
Smith Gut
Mill Creek
Tebo Rd
Wilcox Rd
US-70-E
US-70-W
70
13 m
12 m
10 m
11 m
17 m
7 m
8 m
4 m

Questions? Feedback?

Please take a moment to ask any questions or provide any feedback that you may have.

Visit http://www.nccoastalatlas.org/contact-us to submit any comments, issues or feature requests.

Thank you!

Rob Howard howardro@ecu.edu

Tom Allen allenth@ecu.edu

North Carolina Coastal Atlas