Using the North Carolina Shellfish Aquaculture Siting Tool

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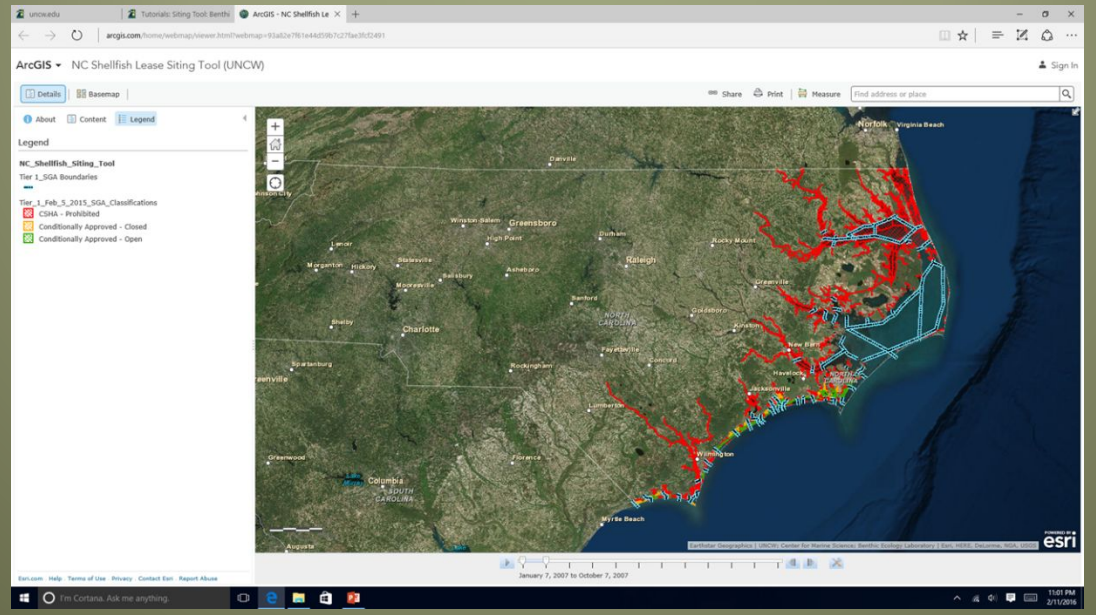


Today

- Creating the tool
  - Why use it?
- What is the tool?
  - Development
- Under development

- Case study for data tools

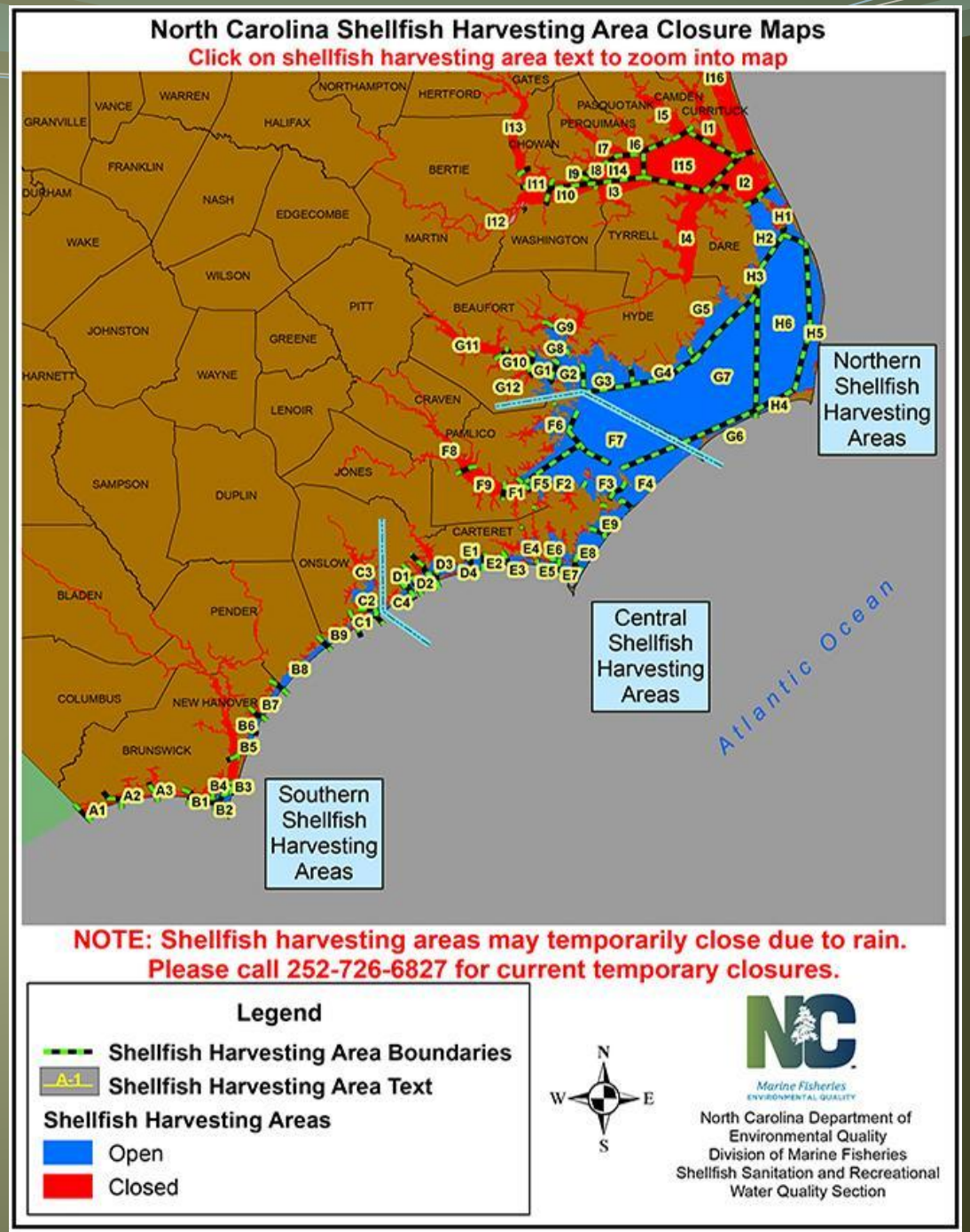
NC Shellfish Siting Tool

- Here we have developed an interactive online tool, specifically designed to help potential Shellfish growers with site selection for further investigation.
- Here we provide visualization of public datasets with the goal of reducing user conflicts and regulatory demand.
- https://uncw.edu/benthic/sitingtool/
- http://portal.ncdenr.org/web/mf/shellfish-lease-franchise-programs

Troy's Disclaimer "This is not a substitute for on site verification"

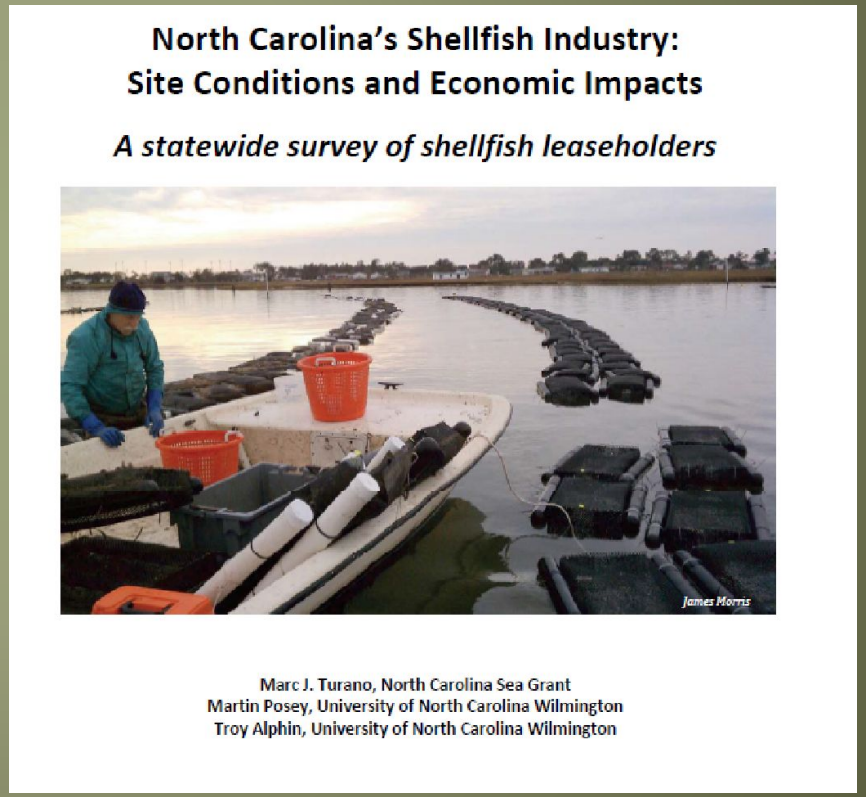
When we started

- Aquaculture needs to fill a greater portion of consumer demand
- Modeled off existing tools- UCONN Shellfish mapper https://shellfish.uconn.edu/maps/
- Guidance from
  - NCDMF
  - NC Sea Grant
  - NOAA
  - DCM
  - Growers- experienced and new
- Obstacles to the overall industry
  - Regulations (moving target)
  - Market factors
  - Perceived vs Real conflict
  - Siting of new operations



NC Grower's Concerned

- Water Quality
- Storms!
- Human interactions!
  - Not everyone agrees
  - Community Engagement
- Locations
- Others
  - Marketing
  - Distribution
  - Finance



Utilize Environmental vs non-environmental**

Orthoimagery from NC Dept. of Agriculture and Consumer Services.

NCDENR

DMF

DCM

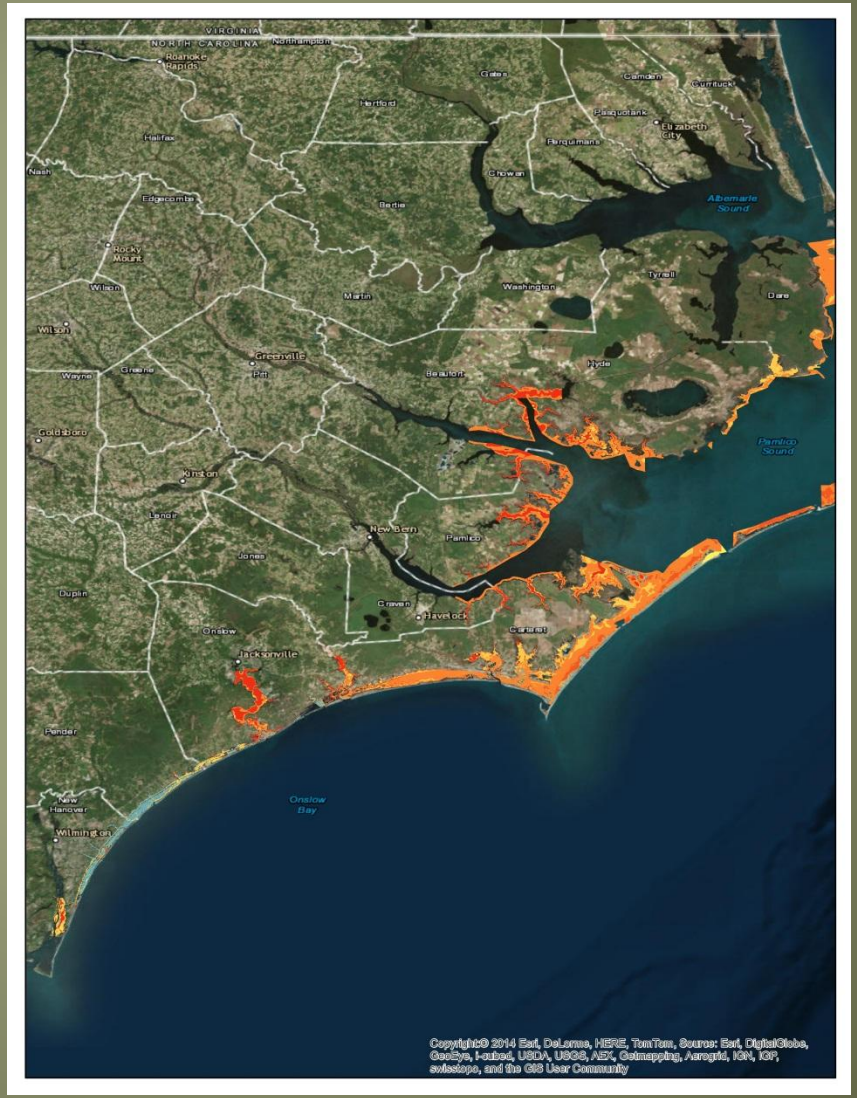
NOAA

Siting tool

1-3 thousand hits/month

~1000 unique hits

Many users not on the coast



How to Select New Areas

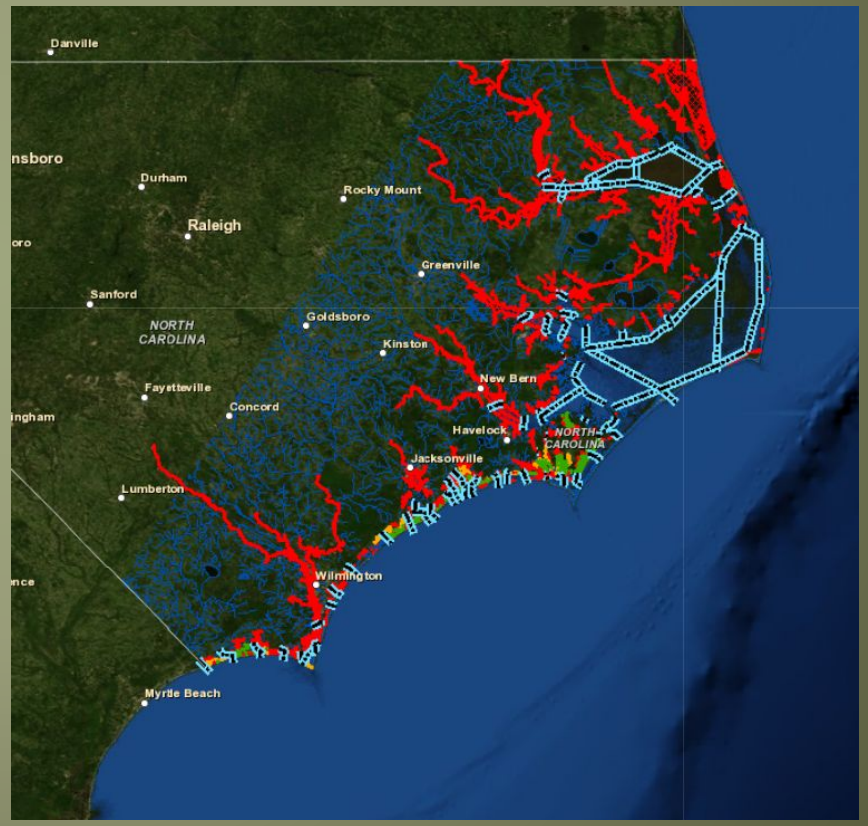
- New to the industry or new to the area
- Provides some info on classification and conditions
  - Always changing/ updating
- Provides mainly public information
  - Sometimes time from unintended uses
- For those that are familiar with your growing area historical data and metadata
  - Past might be a good predictor

Under Development

- Currently 22 layers available
- Data layers for risk factors- wind and storms, competing uses
- Decision Support tool- development in conjunction with NCDMF and stakeholders to help guide new growers through the process
- **“Developing Farm and Market tools for Shellfish Mariculture in North Carolina”- Starting 2021. Partnership with NC Sea Grant. Farm planning to business incubator for growers**

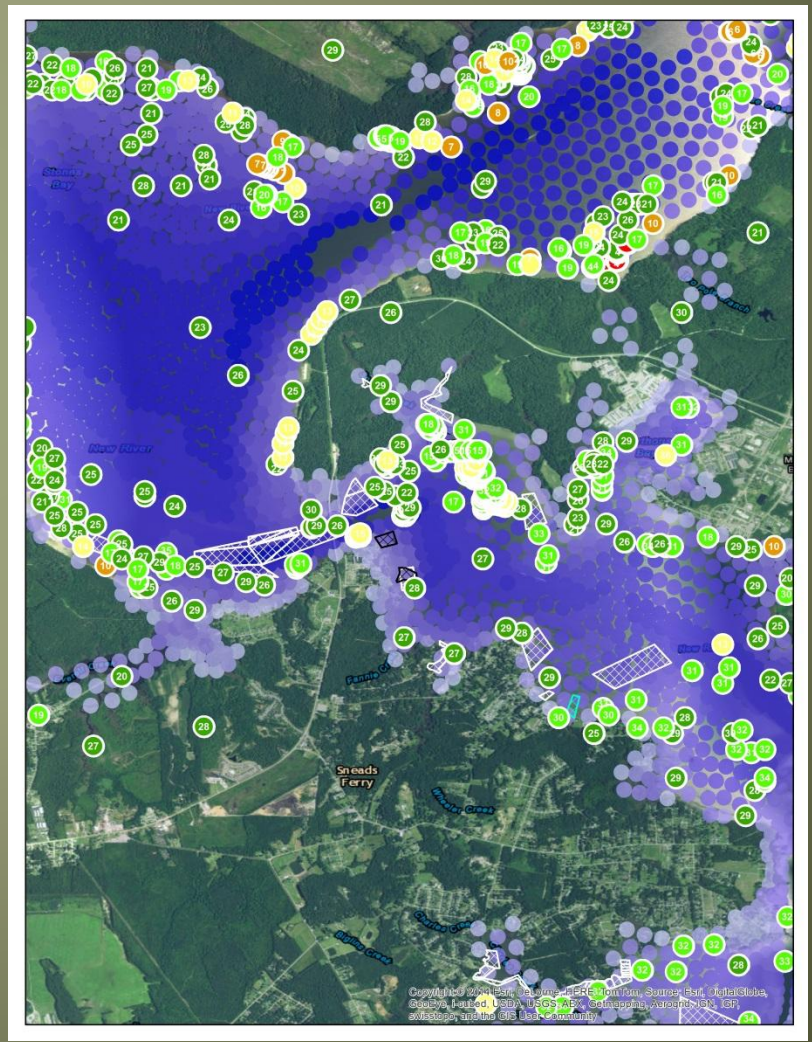
Before you get started

- Type of operation
  - Shell on bottom
    - Spat on shell
  - Floating bags
  - Bottom cages
- Effort you can commit
- How much area can you afford to work

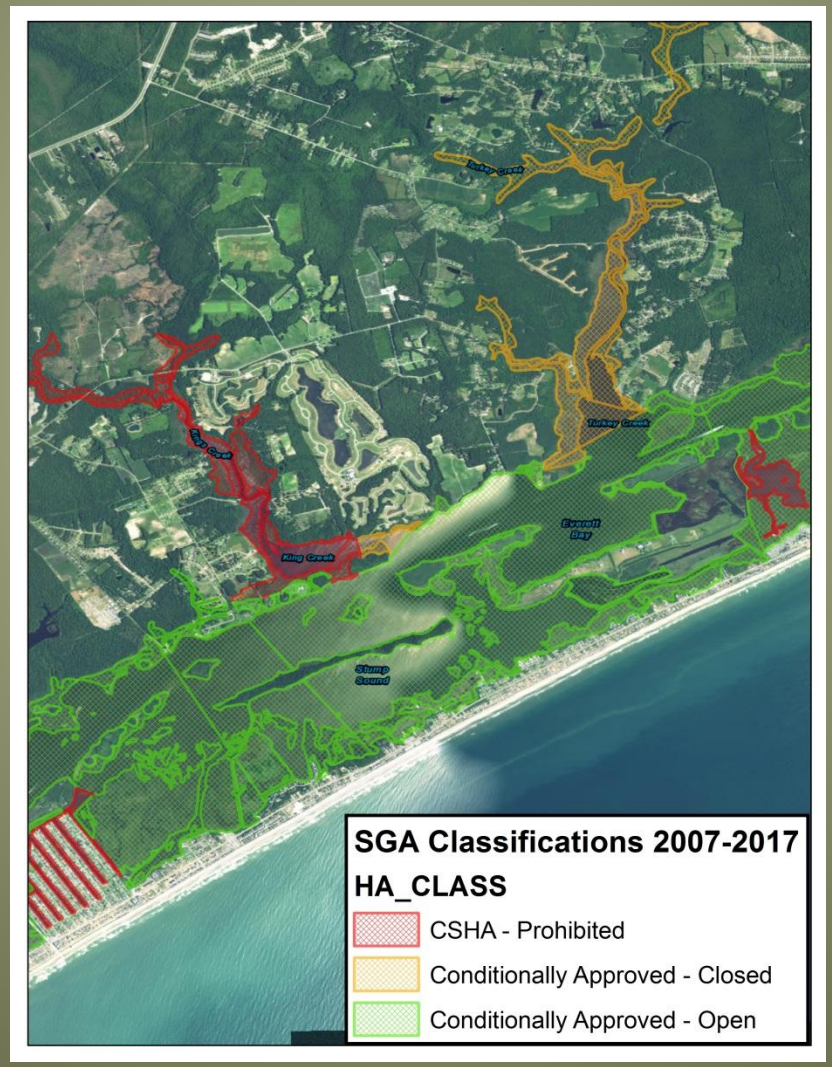


What Parameters are Most Important?

- Based on stakeholder input
- Site feasibility
  - Classification
  - Depth
  - Salinity
  - Existing Leases
  - Bottom Type
- Future site impacts
  - Land-use
  - % impervious surface
  - Rainfall

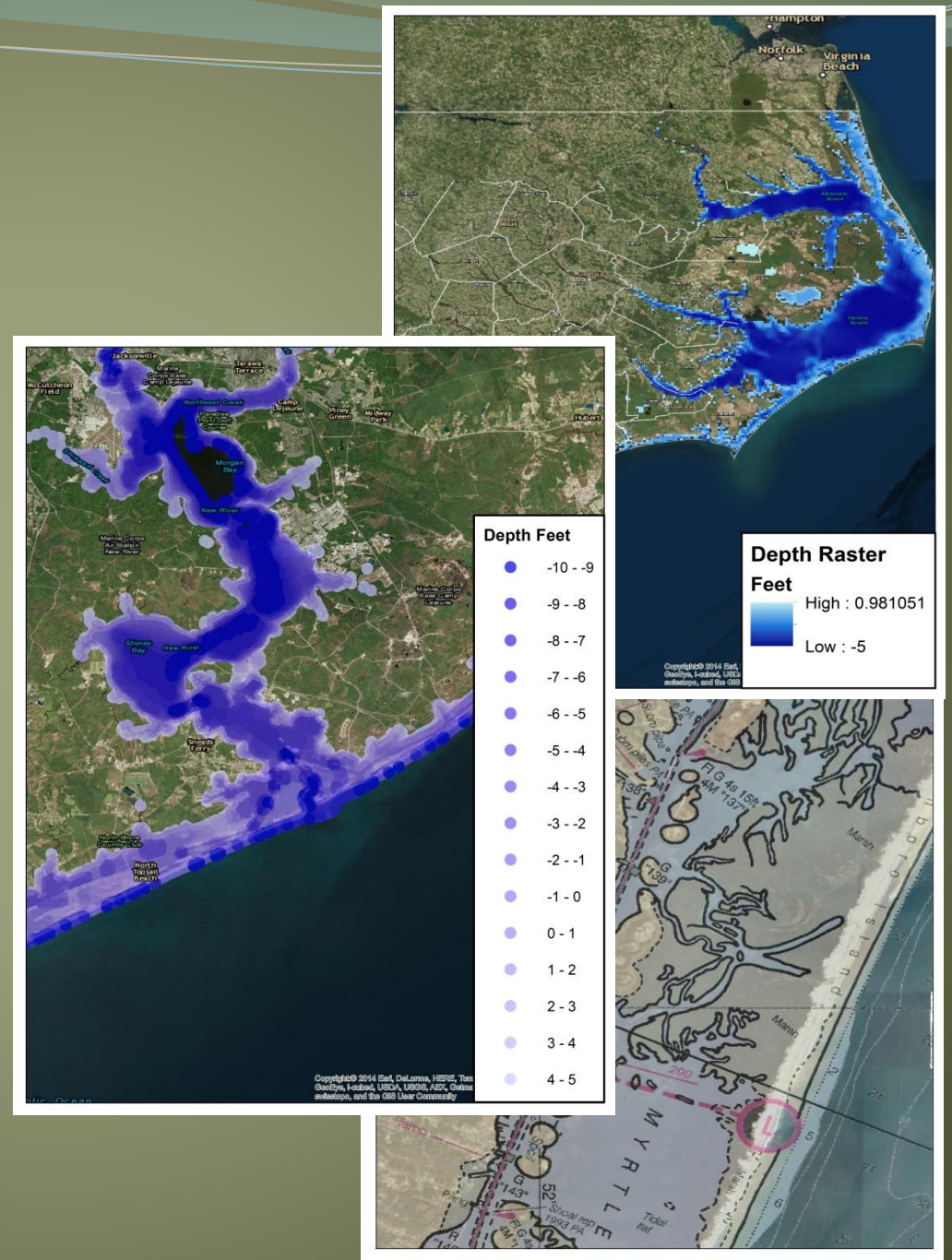


Classification Only



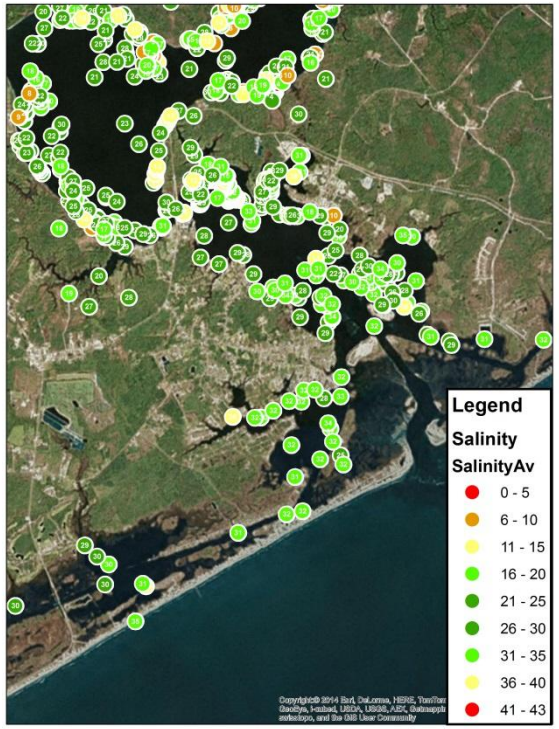
Depth Contour

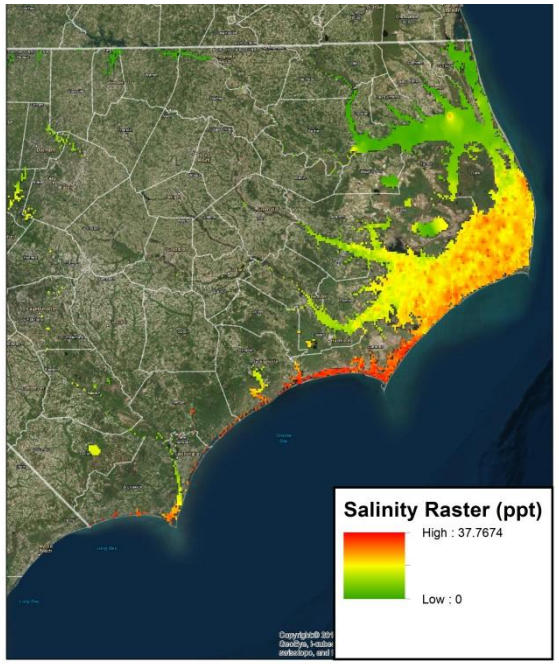
- Multiple file types
- Differences in precision
- Clarity
- Raster data currently available



Salinity

- No clear comprehensive data set
- Consistency
  - Missing metadata
- 5 yr mean (based on available data)
  - Min and Max
- Salinity Raster disappears when zoomed in at 1:300,000
- Salinity Point Data appears at 1:300,000





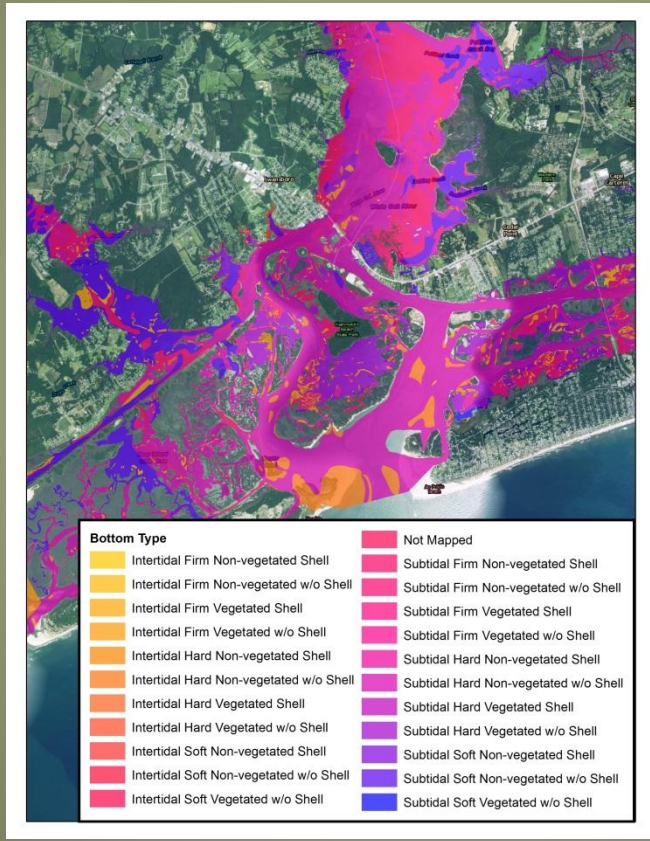
Existing Leases

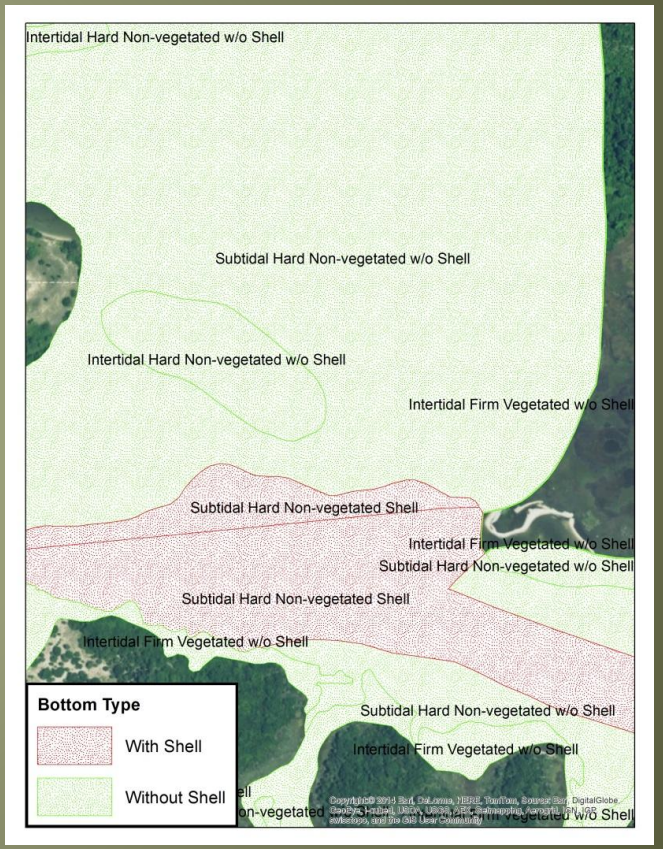
- Only shows relative size and position
  - Acreage
- No identifier in dataset

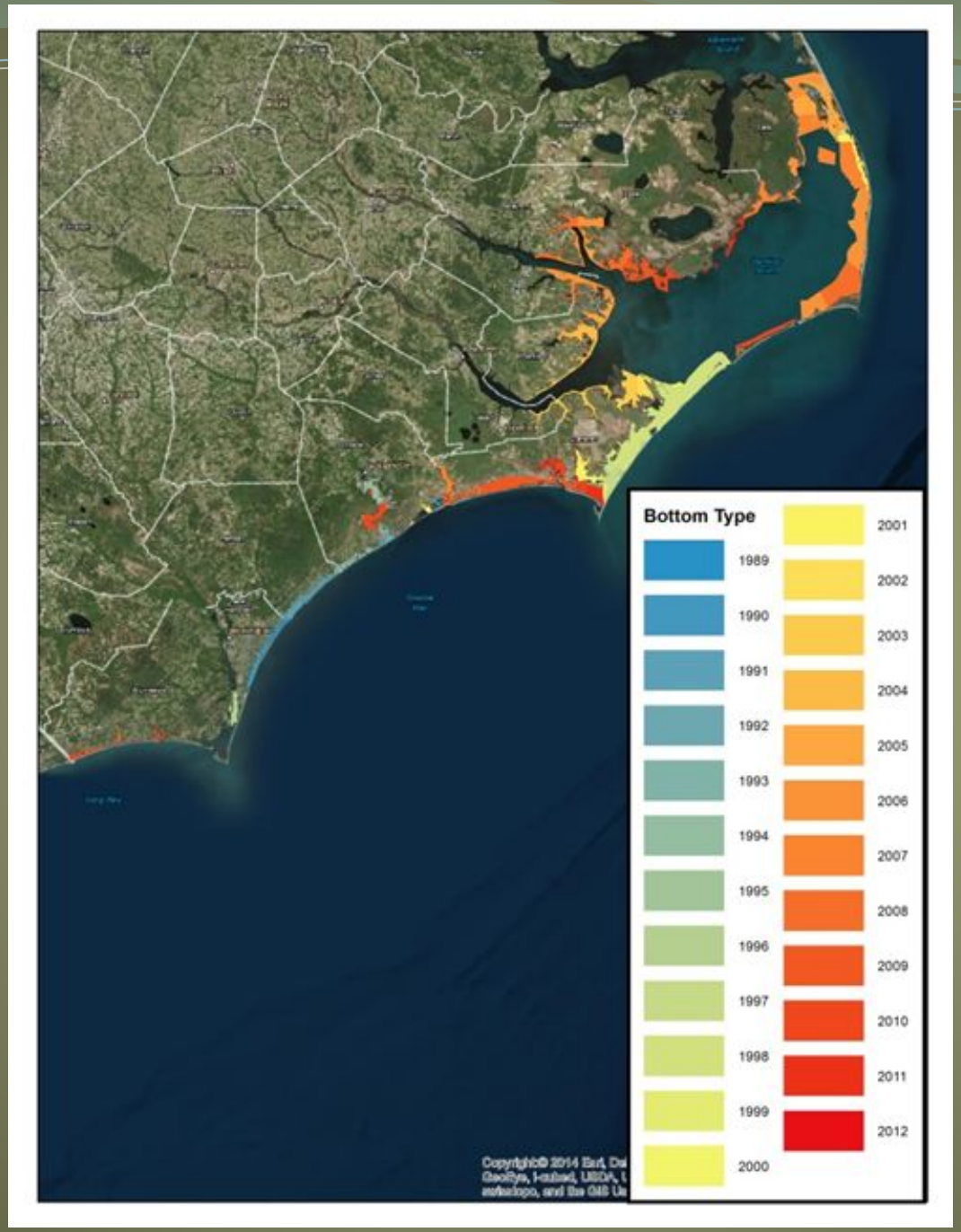
- Lease vs Franchise
- New river leases***

Bottom Type Information

- Data verification
- Note date data was collected






Bottom Type
1989
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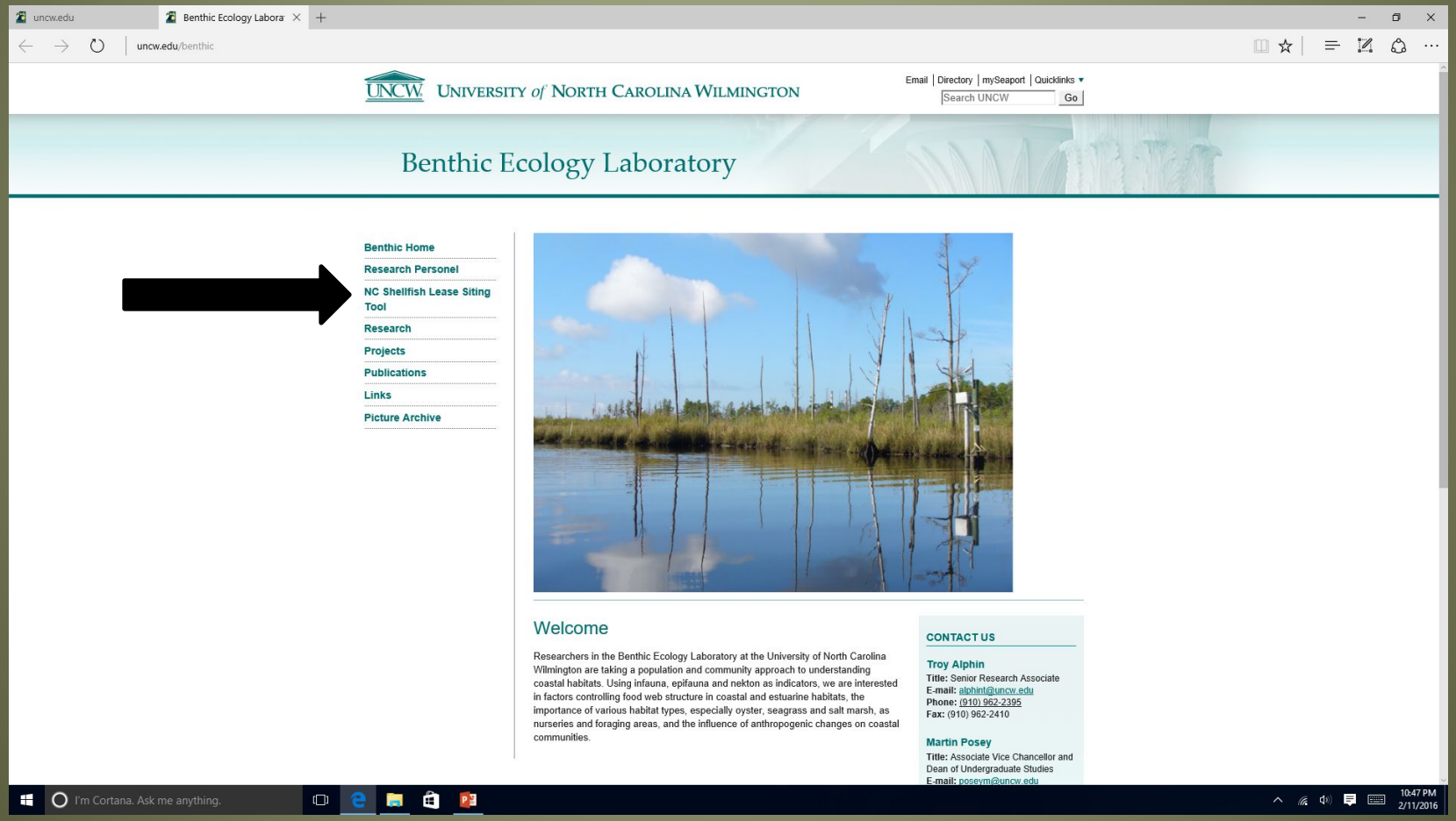
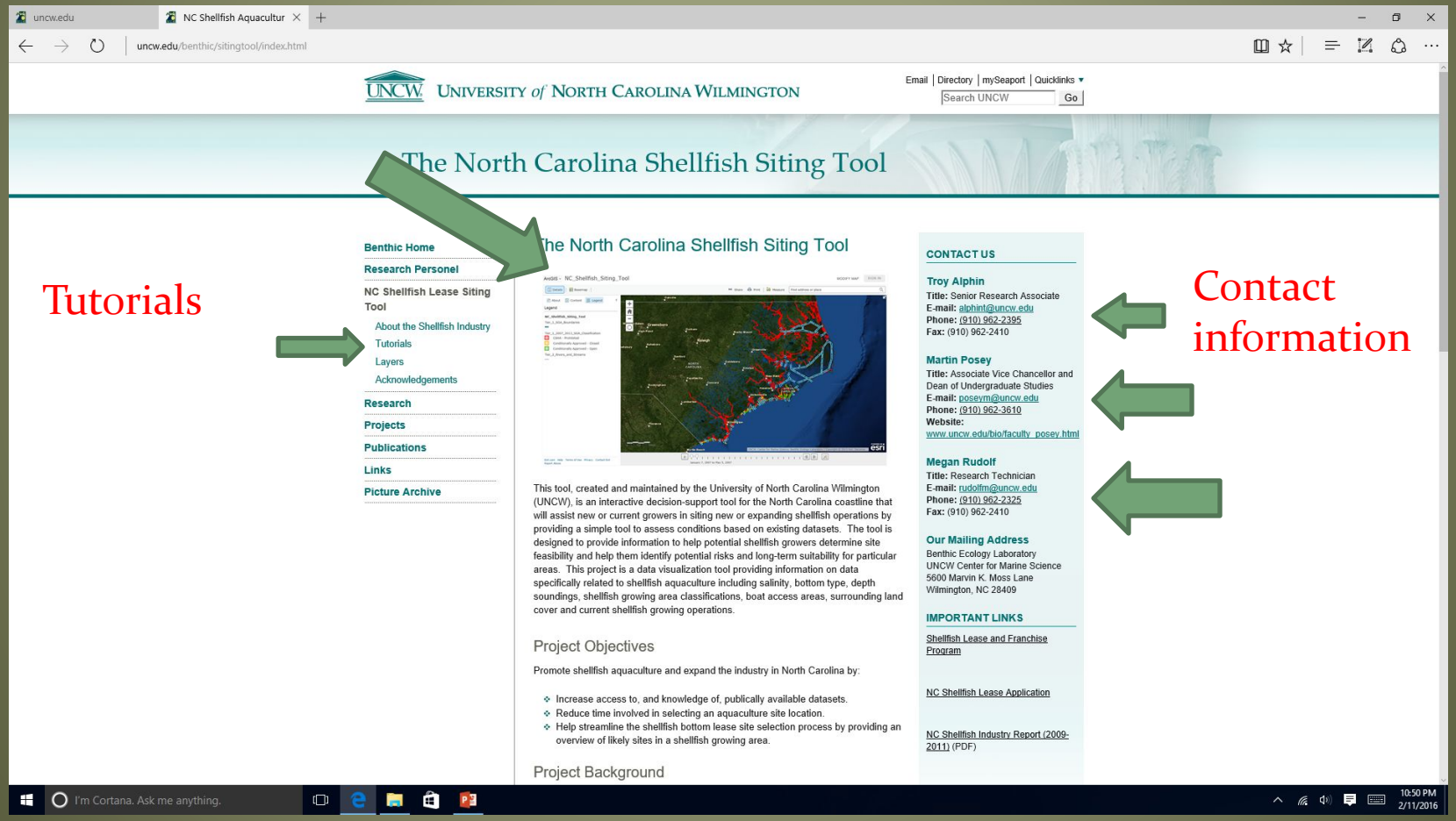
How does it work

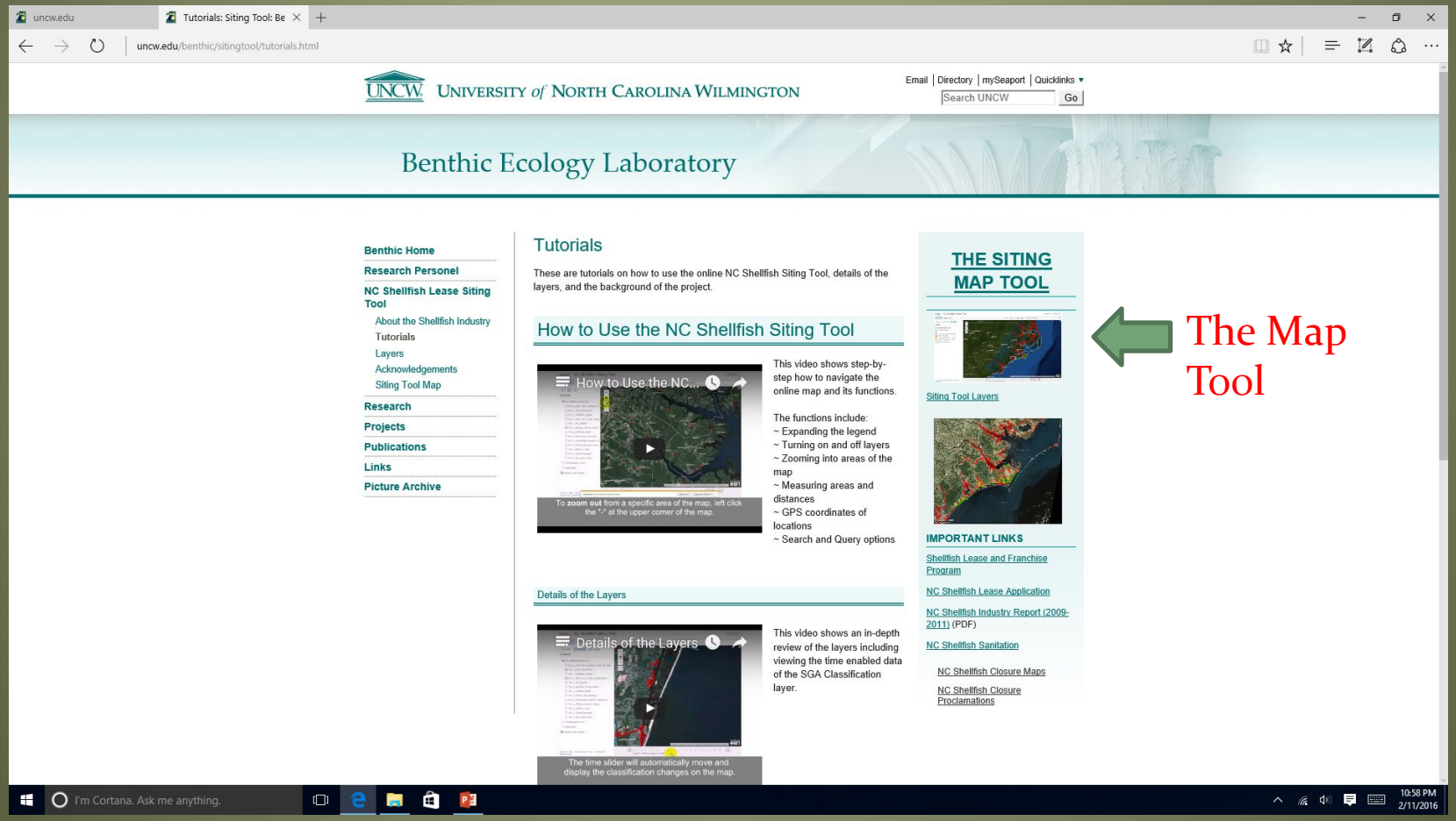
http://uncw.edu/benthic/



Contact Info and Tutorials

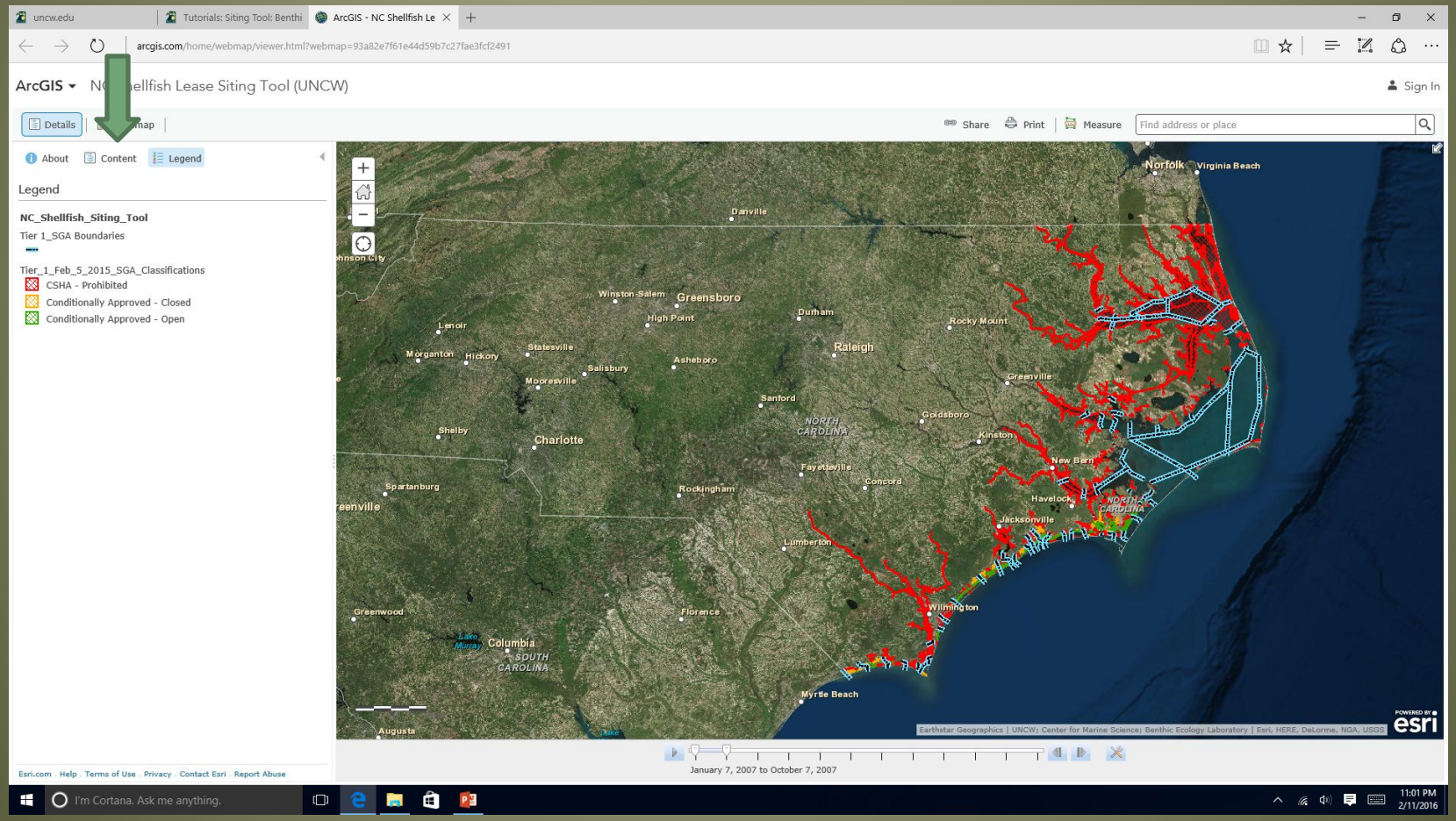


Select Tutorial or Get Started

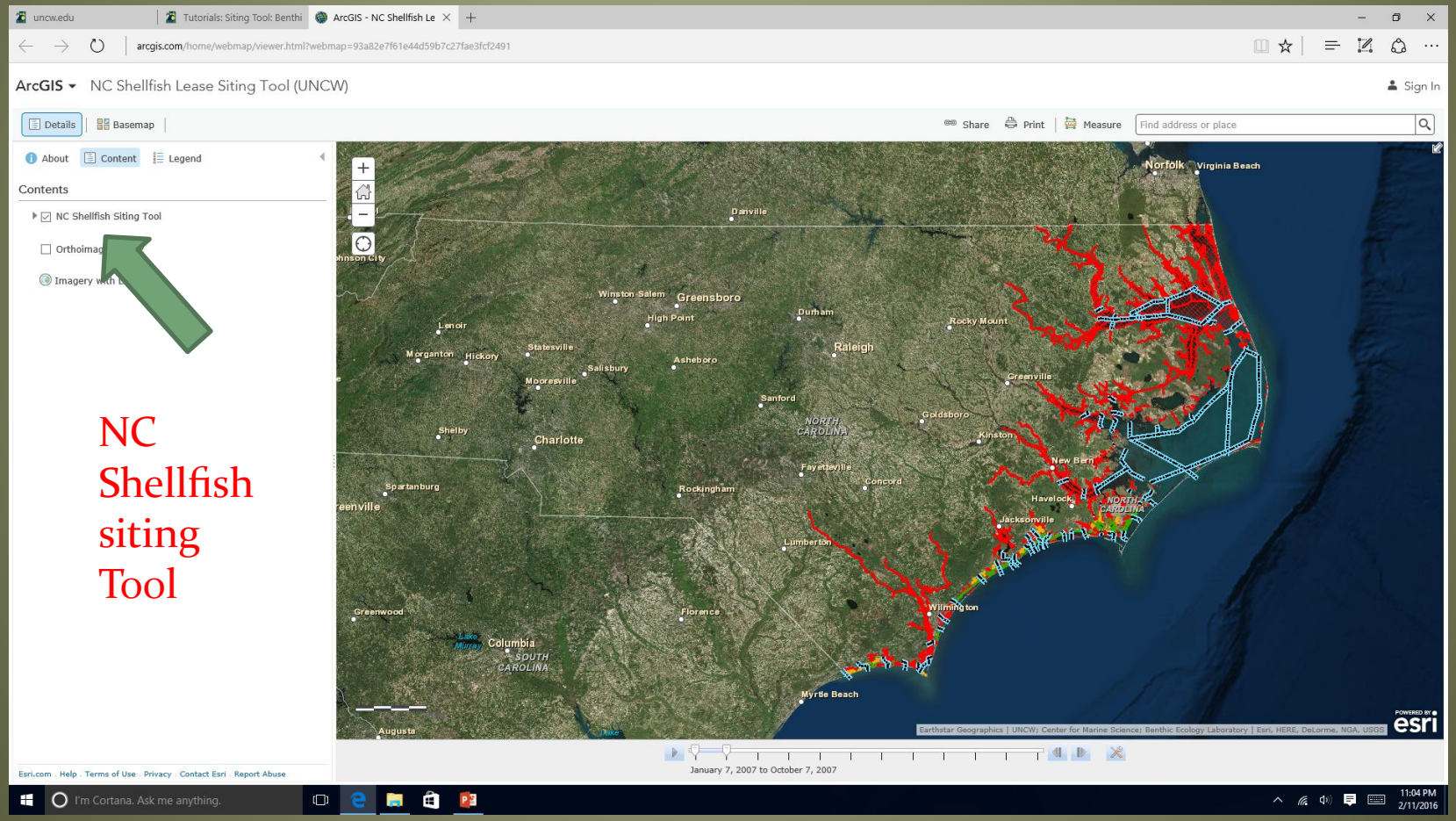


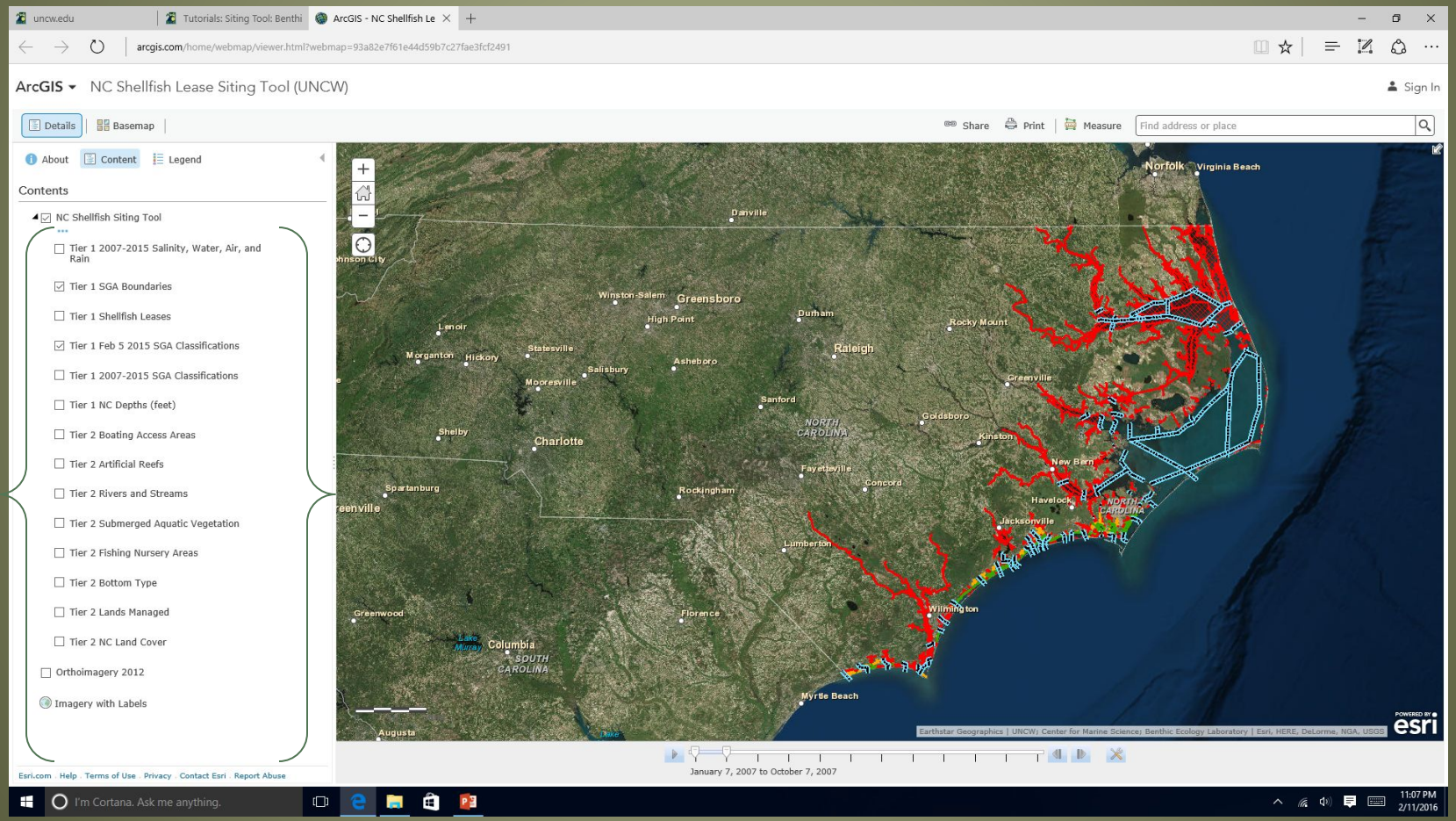
The Map Tool

The Starting Map

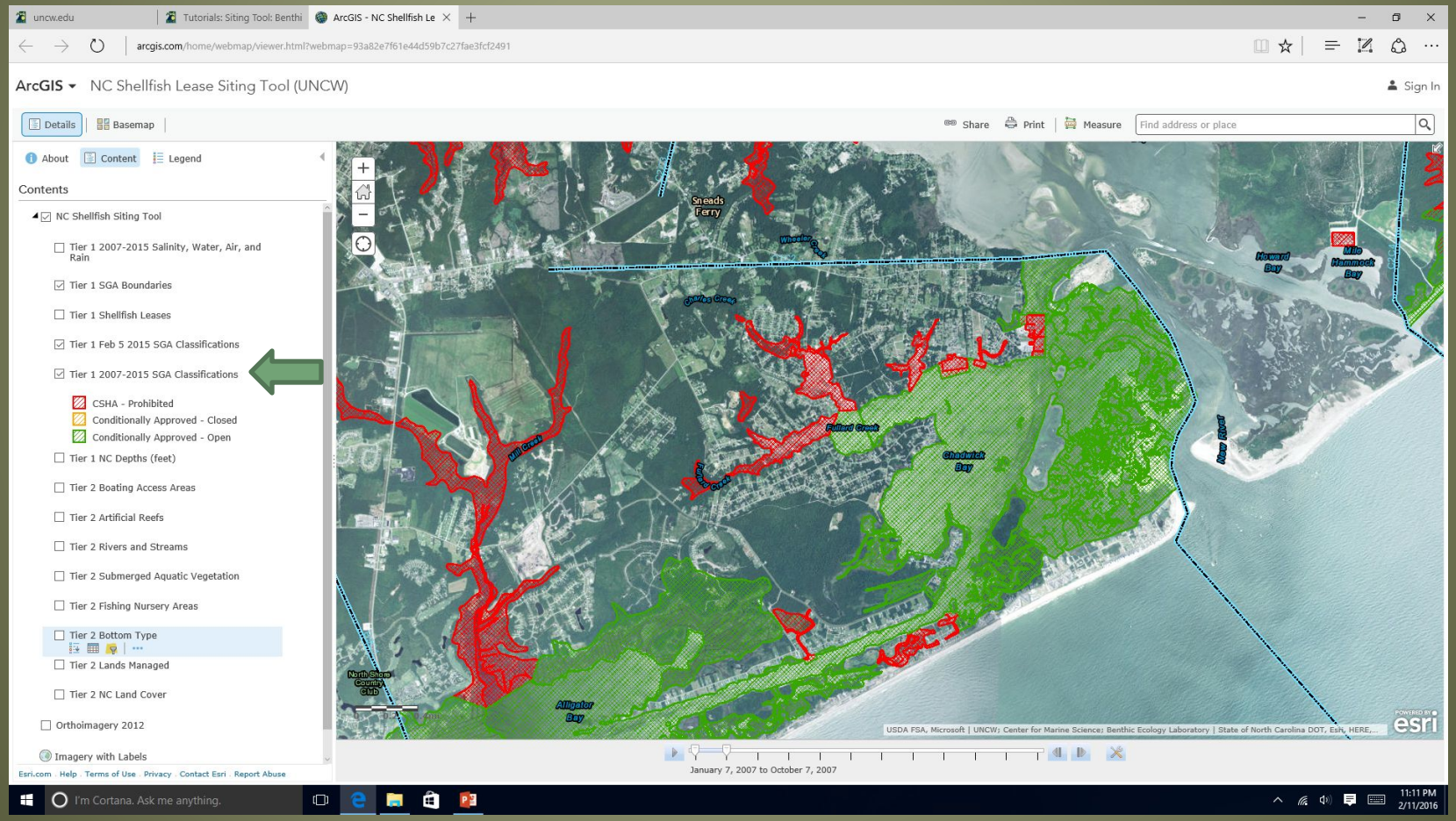


Reveal the Layers

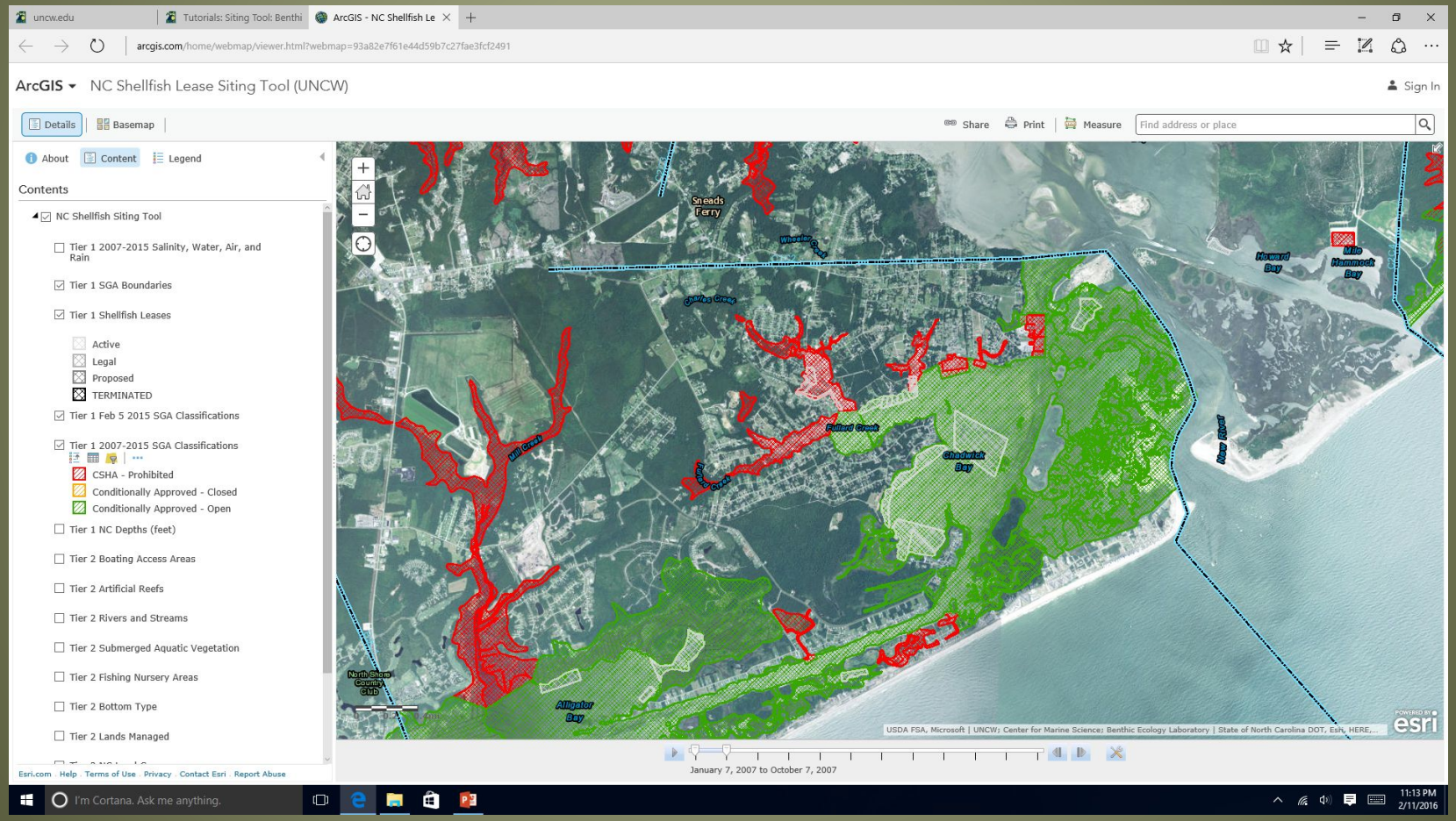



uncw.edu
Tutorials: Siting Tool: Benthi
ArcGIS - NC Shellfish Le
arcgis.com/home/webmap/viewer.html?webmap=93a82e7f61e44d59b7c27fae3fcf2491
ArcGIS
NC Shellfish Lease Siting Tool (UNCW)
Sign In
Details
Basemap
Share
Print
Measure
Find address or place
About
Content
Legend
Contents
NC Shellfish Siting Tool
Tier 1 2007-2015 Salinity, Water, Air, and Rain
Tier 1 SGA Boundaries
Tier 1 Shellfish Leases
Tier 1 Feb 5 2015 SGA Classifications
Tier 1 2007-2015 SGA Classifications
Tier 1 NC Depths (feet)
Tier 2 Boating Access Areas
Tier 2 Artificial Reefs
Tier 2 Rivers and Streams
Tier 2 Submerged Aquatic Vegetation
Tier 2 Fishing Nursery Areas
Tier 2 Bottom Type
Tier 2 Lands Managed
Tier 2 NC Land Cover
Orthoimagery 2012
Imagery with Labels
Esri.com . Help . Terms of Use . Privacy . Contact Esri . Report Abuse
Norfolk
Virginia Beach
Danville
Winston-Salem
Greensboro
High Point
Durham
Rocky Mount
Lenoir
Raleigh
Morganton
Hickory
Statesville
Asheboro
Salisbury
Mooresville
Greenville
Sanford
Goldsboro
NORTH CAROLINA
Shelby
Charlotte
Kinston
New Bern
Fayetteville
Spartanburg
Rockingham
Concord
Havelock
Jacksonville
Lumberton
Wilmington
Greenwood
Florence
Lake Murray
Columbia
SOUTH CAROLINA
Myrtle Beach
Augusta
Earthstar Geographics | UNCW; Center for Marine Science; Benthic Ecology Laboratory | Esri, HERE, DeLorme, NGA, USGS
POWERED BY esri
January 7, 2007 to October 7, 2007
I'm Cortana. Ask me anything.
11:07 PM
2/11/2016

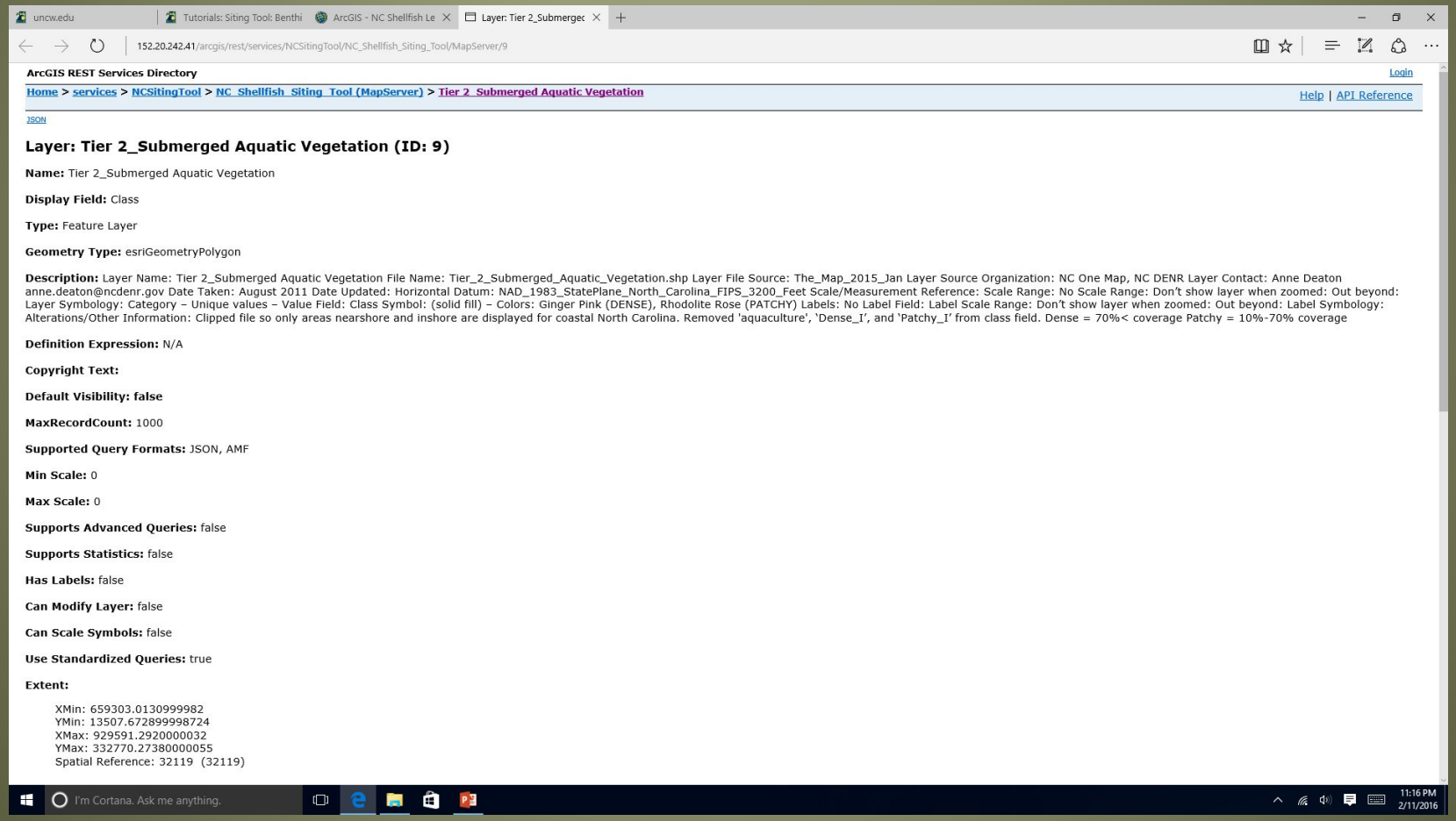
Focus on Target area



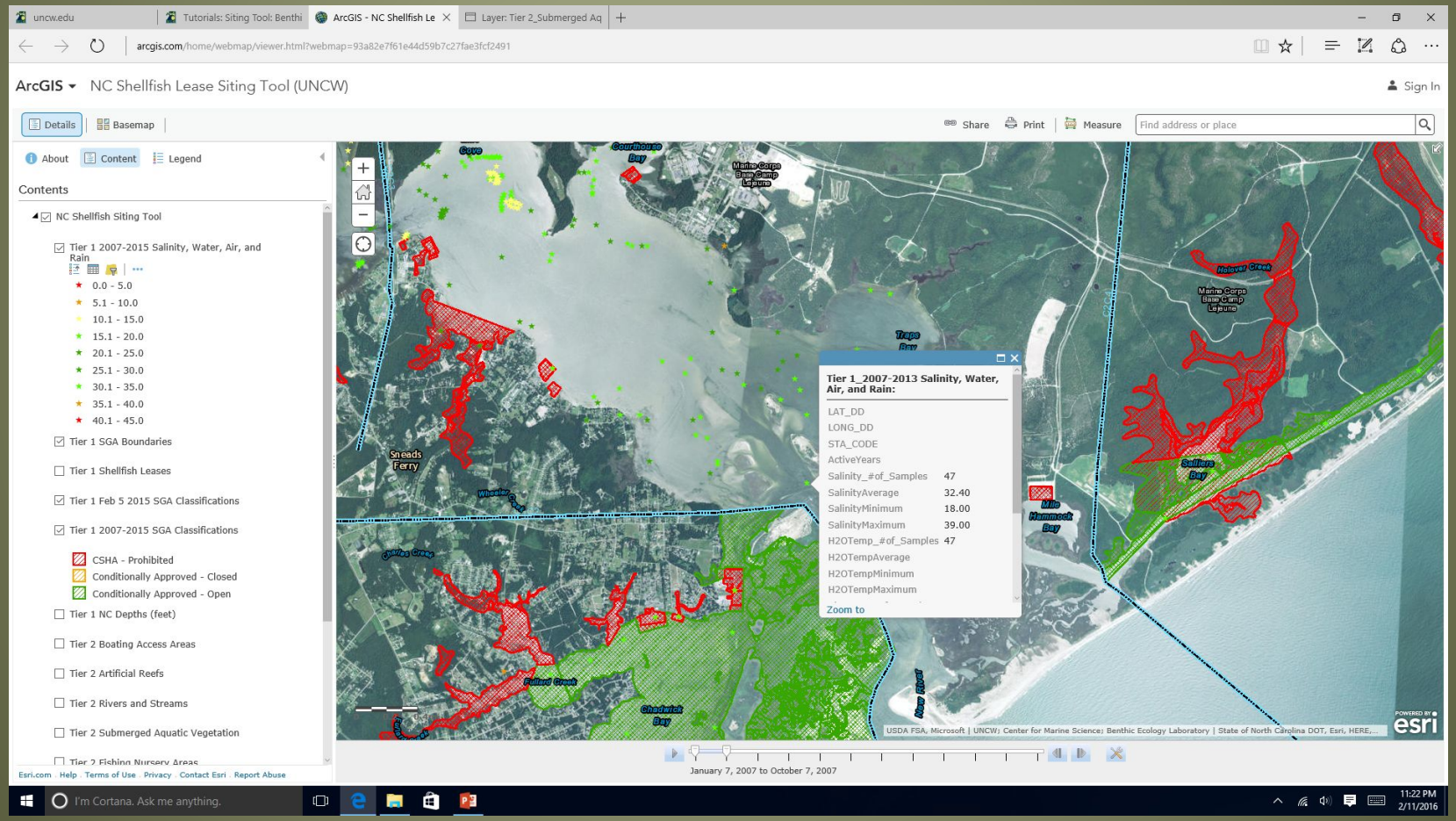
Turn on as Many Layers as Needed



Information on Data Source



Explore Information cont'd



Acknowledgements

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Sea Grant North Carolina

UNCW

North Carolina Marine Fisheries

NCDENR N.C. Department of Environment and Natural Resources

NOAA National Oceanic and Atmospheric Administration United States Department of Commerce

US Army Corps of Engineers

Questions?