

Coastal Georgia Recreational Use Mapping Project

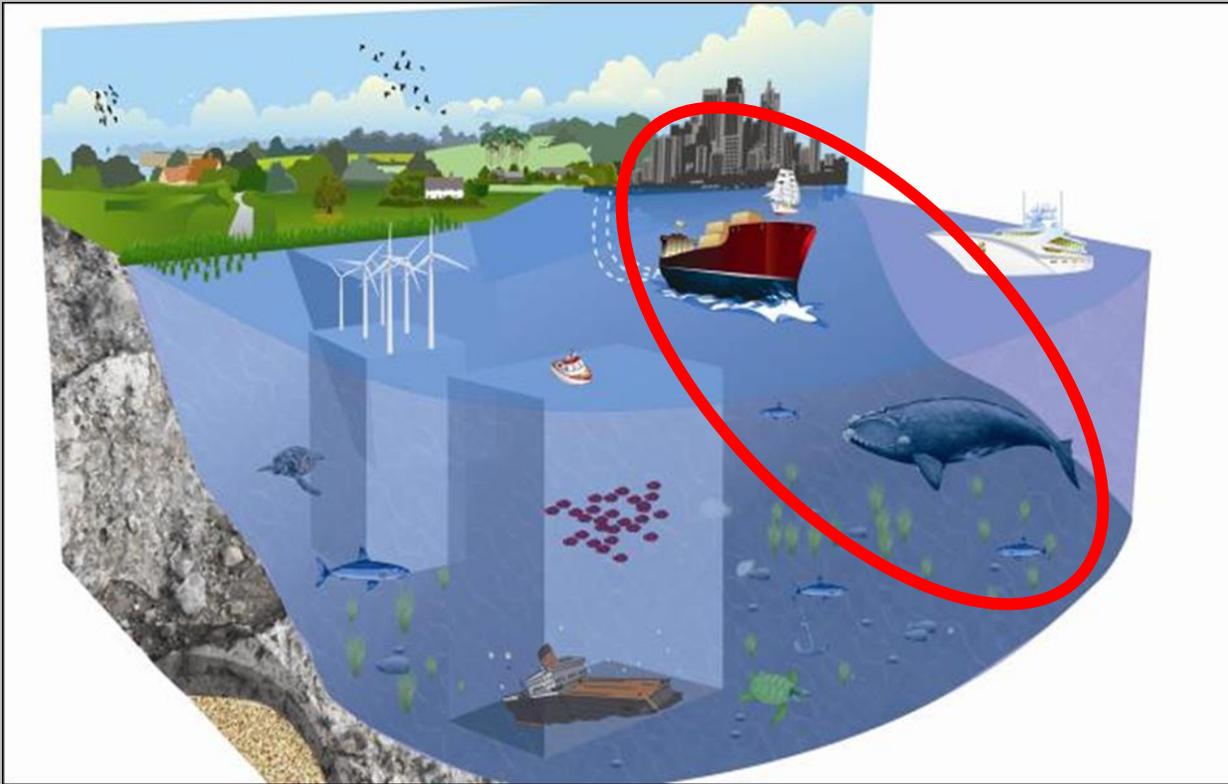


Regional Marine Economic, Ecologic and Social Drivers

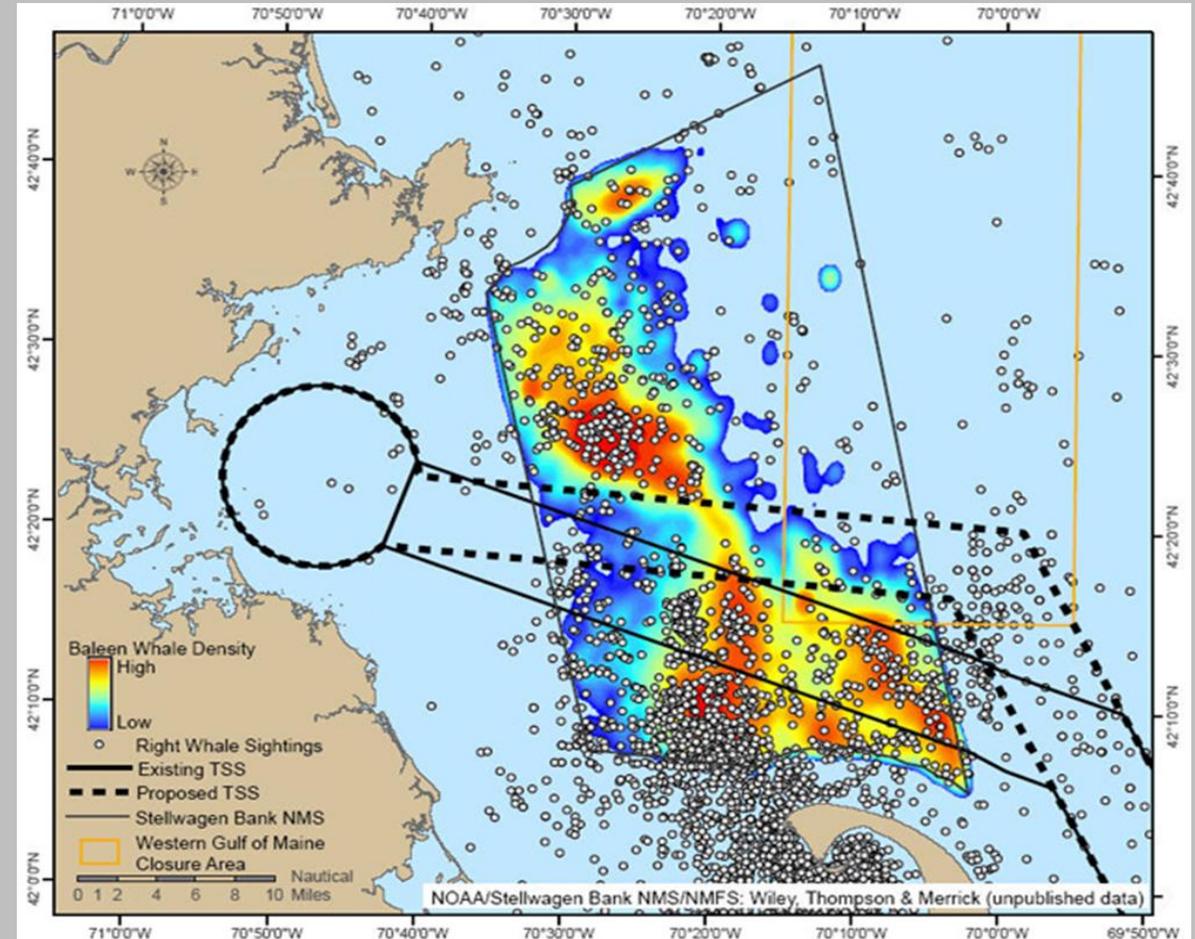
- Ports
- Fisheries
- Military
- Habitat
- Recreation
- Energy
- Tourism
- Dredging
- Wildlife
- History
- Culture
- Development



Multi-Objective Ocean Planning



To reduce whale strikes around Boston, shipping channel moved where less baleen whale density occurred. This an example of economics and conservation working together.



Why Georgia?

Willing Partners:

- Georgia Department of Natural Resources Coastal Resources Division (CRD)
- Georgia Institute of Technology (GT)

Opportunities:

- Georgia Coastal Atlas and Mapping Project (GCAMP)
- Identified Data Gap recreational activities



Project Objectives

- Collaboration with TNC, GADNR-CRD, and GT
- Collect information on recreational activities in/offshore Georgia
- Improve coastal/marine management and the coastal user experience

Three main objectives

- 1) Collect recreational use data for Georgia's estuarine, nearshore and offshore waters
- 2) Directly engage Georgia recreational stakeholders using a participatory approach
- 3) Share recreational use data and provide access to managers

Recreational Categories



Boating



Paddling



Ecotours



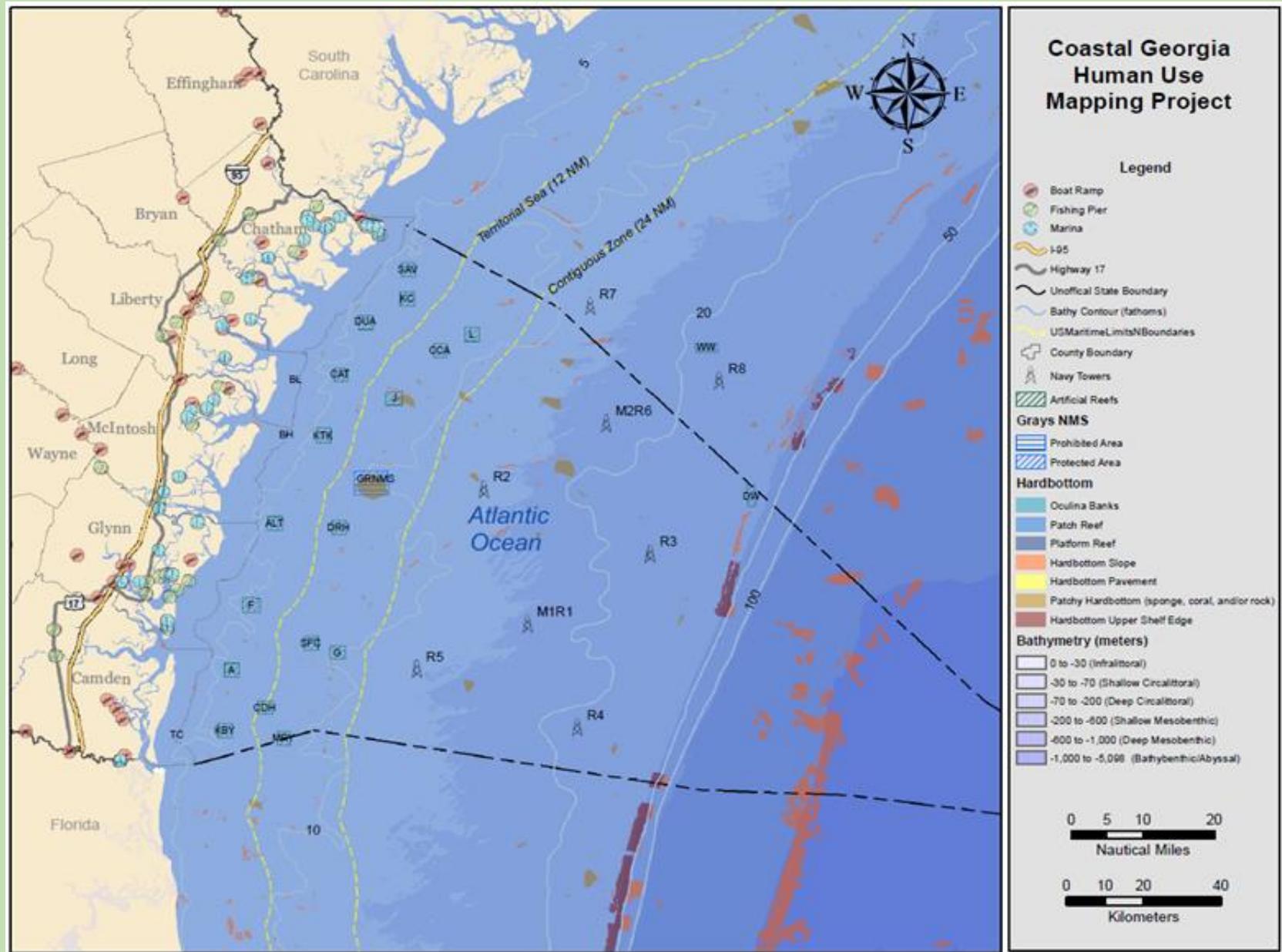
Birding



Diving



Fishing



Map showing public access points, offshore artificial reef locations, and hardbottom habitat

Project Method Chain



Fall 2014

MOU

Create Core Team

Stakeholder Analysis

Participatory Mapping Exercises

Online Mapping Application/Surveying

Secondary Source Data

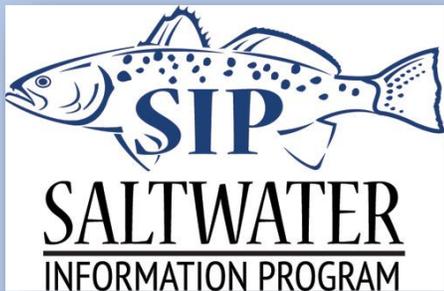
Data Processing

Stakeholder Review

Final Maps

Summer 2017

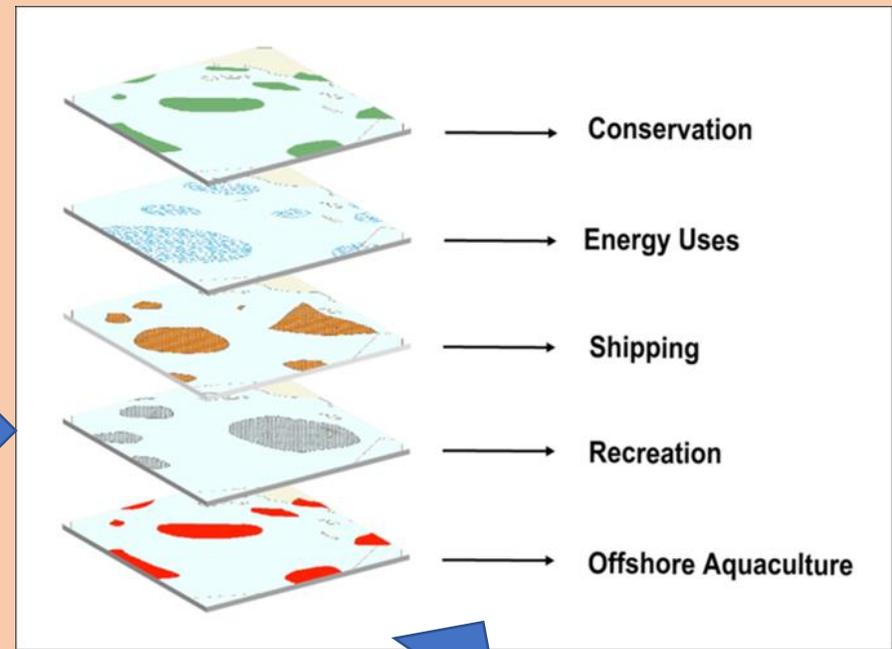
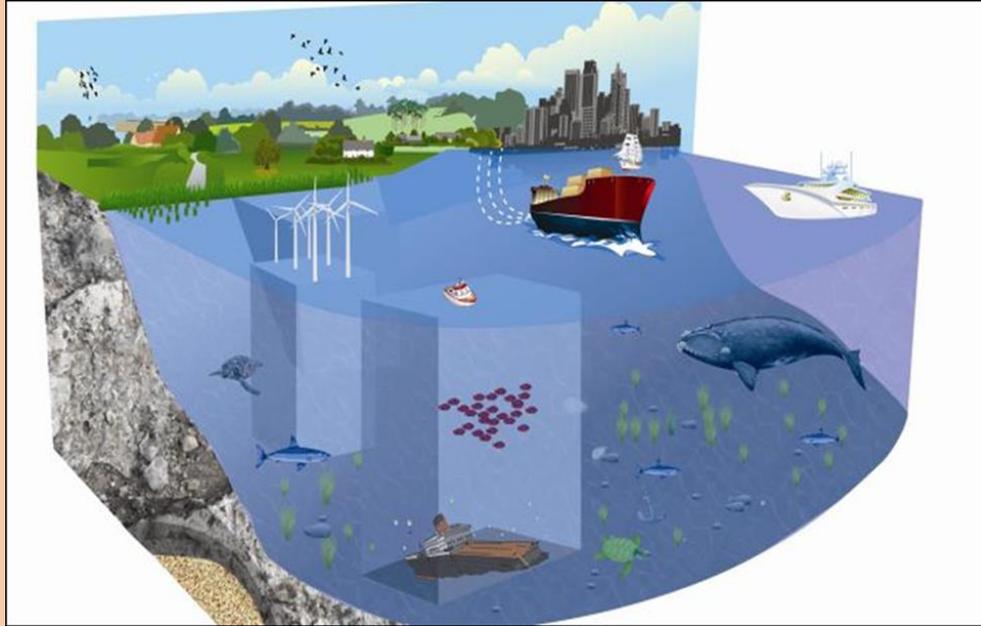
Winter 2018



Data Collection Methods: Spring 2015 – Summer 2017



Participatory Mapping



- GIS is displayed on flat surface for all participants to see
- Surface becomes interactive so people can draw shapefiles

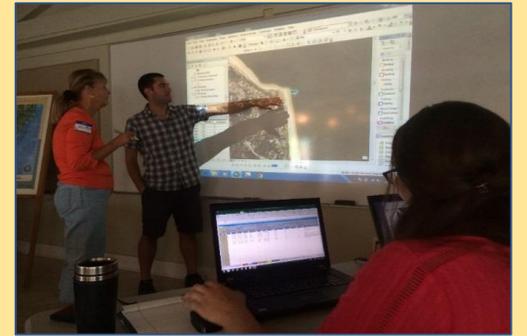
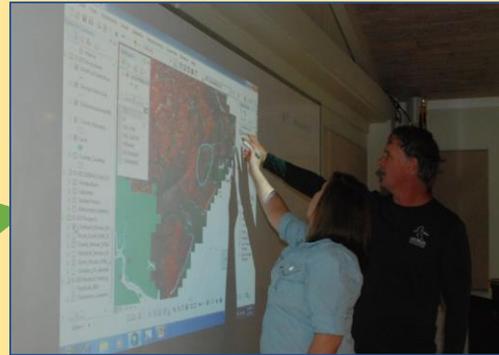


Participatory Mapping



Outreach to stakeholders

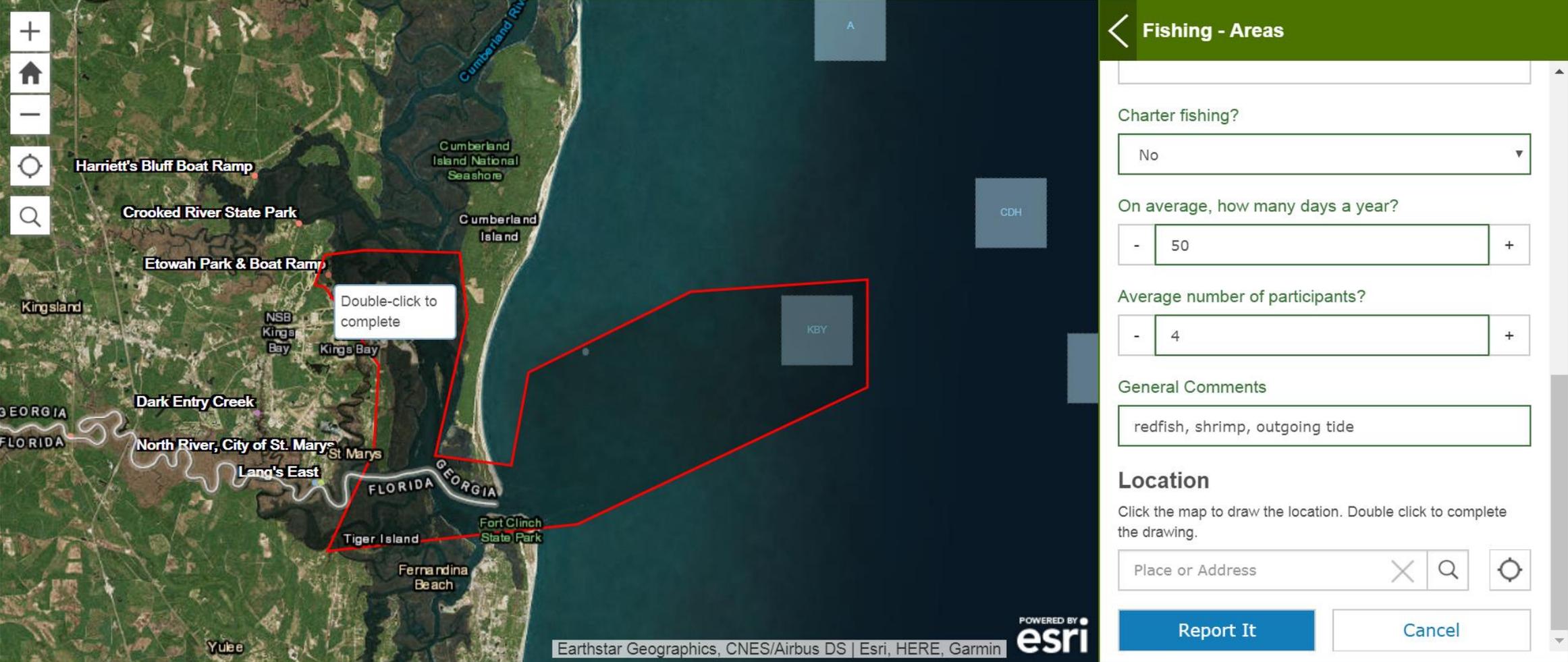
8 Workshops –
72 Participants



Participatory Mapping Workshops

Recreational Use Reporter – Online Mapping

The Nature Conservancy  Recreational Usage Reporter ?



Fishing - Areas

Charter fishing?
No

On average, how many days a year?
- 50 +

Average number of participants?
- 4 +

General Comments
redfish, shrimp, outgoing tide

Location
Click the map to draw the location. Double click to complete the drawing.

Place or Address

POWERED BY  esri

Earthstar Geographics, CNES/Airbus DS | Esri, HERE, Garmin

[Recreational Usage Reporter](#)

Estimated Participants: 160 – 210

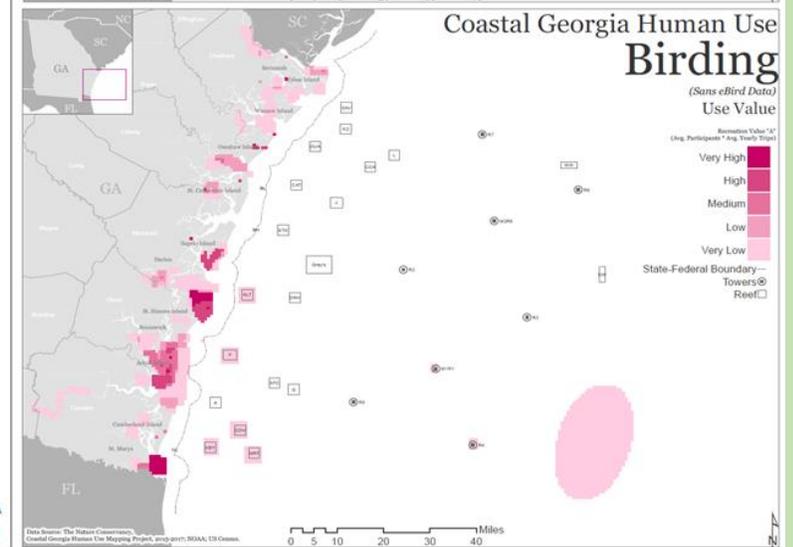
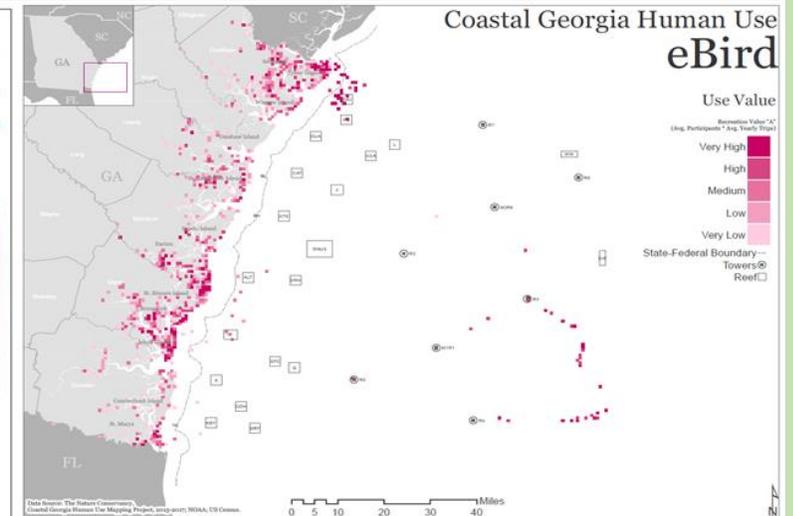
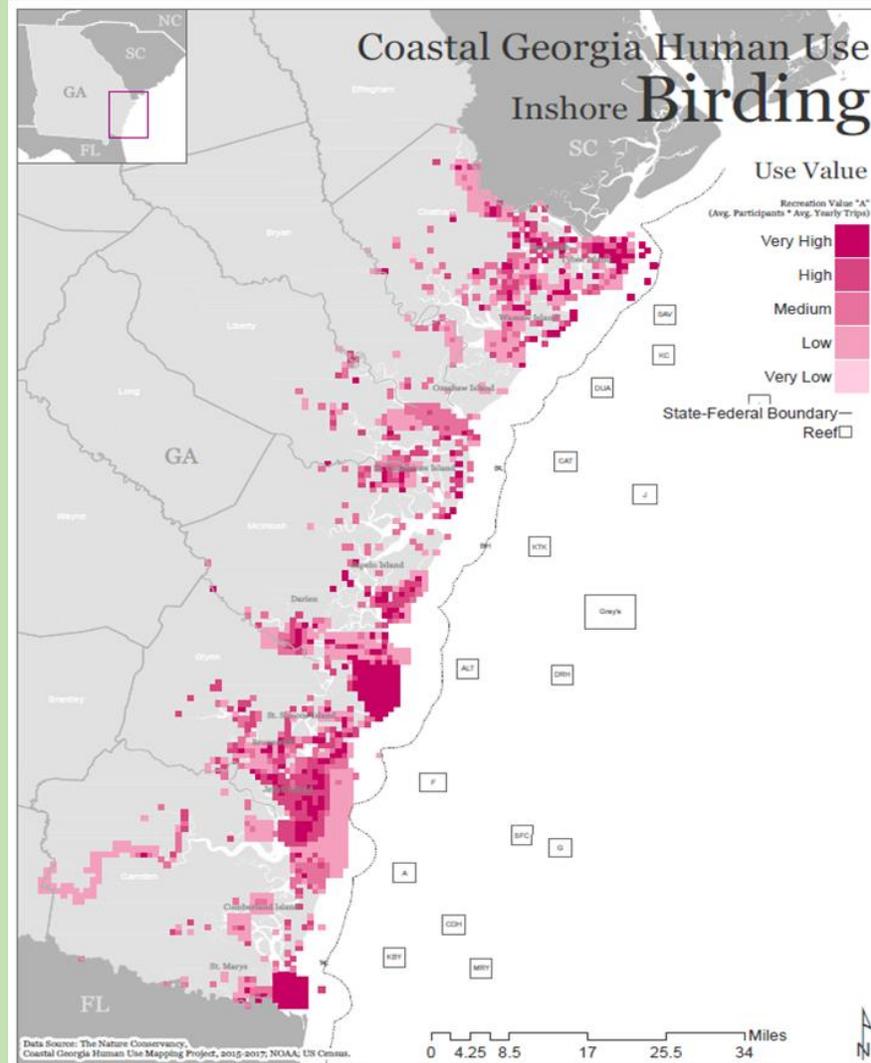
Public Access Surveys

- Used Recreational Use Reporter with Ipad
- 30 Public Access locations, 60 total visits
- All six ocean counties
- Dec. 2015 to July 2017
- 118 Participants

Public Access Locations				
Name	County	Type	Number of visits	Number of people surveyed
Tybee Island Marina	Chatham	Marina	2	4
Lazaretto Creek Boat Ramp	Chatham	Boat Ramp	2	7
Bull River Marina	Chatham	Marina	2	6
Hogan's Marina	Chatham	Marina	1	1
Turner Creek Boat Ramp	Chatham	Boat Ramp	2	4
Thunderbolt Fishing Pier	Chatham	Pier	2	3
Tybee Island Ocean Pier	Chatham	Pier	2	5
Isle of Hope Marina	Chatham	Marina	1	2
Coffee Bluff Marina	Chatham	Marina	1	1
Skidaway Narrows Boat Ramp	Chatham	Boat Ramp	2	5
Fort McAllister Boat Ramp	Bryan	Boat Ramp	2	4
Sunbury Boat Ramp	Liberty	Boat Ramp	3	6
Half Moon Marina	Liberty	Marina	2	3
BarBour Island River Landing	McIntosh	Marina	1	1
Dallas Bluff Marina	McIntosh	Marina	2	3
Shellman Bluff Fish Camp	McIntosh	Marina	1	2
Pine Harbor Marina	McIntosh	Marina	1	1
Blue-N-Hall Boat Ramp	McIntosh	Boat Ramp	2	6
Darien Boat Ramp	McIntosh	Boat Ramp	2	4
Butler River Fishing Bridge	McIntosh	Pier	3	3
Two Way Fish Camp	Glynn	Marina	1	3
Village Creek Boat Ramp	Glynn	Boat Ramp	3	4
St. Simons Island Fishing Pier	Glynn	Pier	2	6
Jekyll Island Pier	Glynn	Pier	2	6
MacKay River Boat Ramp	Glynn	Boat Ramp	3	5
Lanier Boat Ramp	Glynn	Boat Ramp	4	7
Jekyll Creek Boat Ramp	Glynn	Boat Ramp	4	6
Woodbine Community Park Boat Ramp	Camden	Boat Ramp	1	2
St. Mary's Waterfront Ramp	Camden	Boat Ramp	2	5
Harriett's Bluff Boat Ramp	Camden	Boat Ramp	2	3
TOTAL			60	118

eBird – Secondary Source

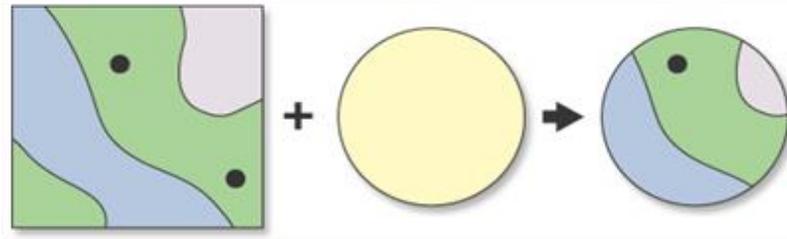
- Bird observation data
- Six ocean adjacent counties
- Jan. 2014 to June 2017
- Over 11,000 data points added



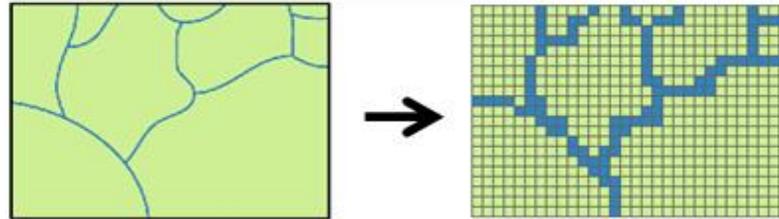
Data Processing

The conceptual flow of our data analysis has been to:

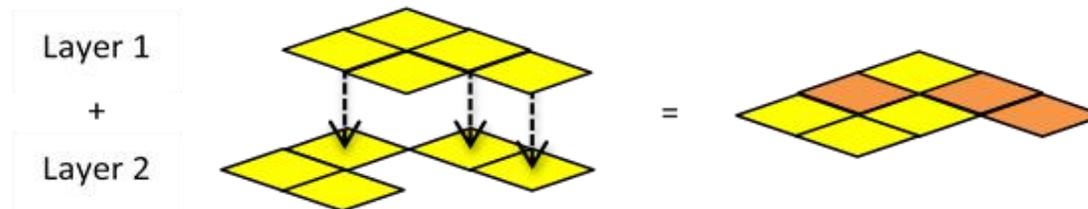
- 1) Upload raw survey data to a map.
- 2) Clip data as appropriate to remove land area from polygons.



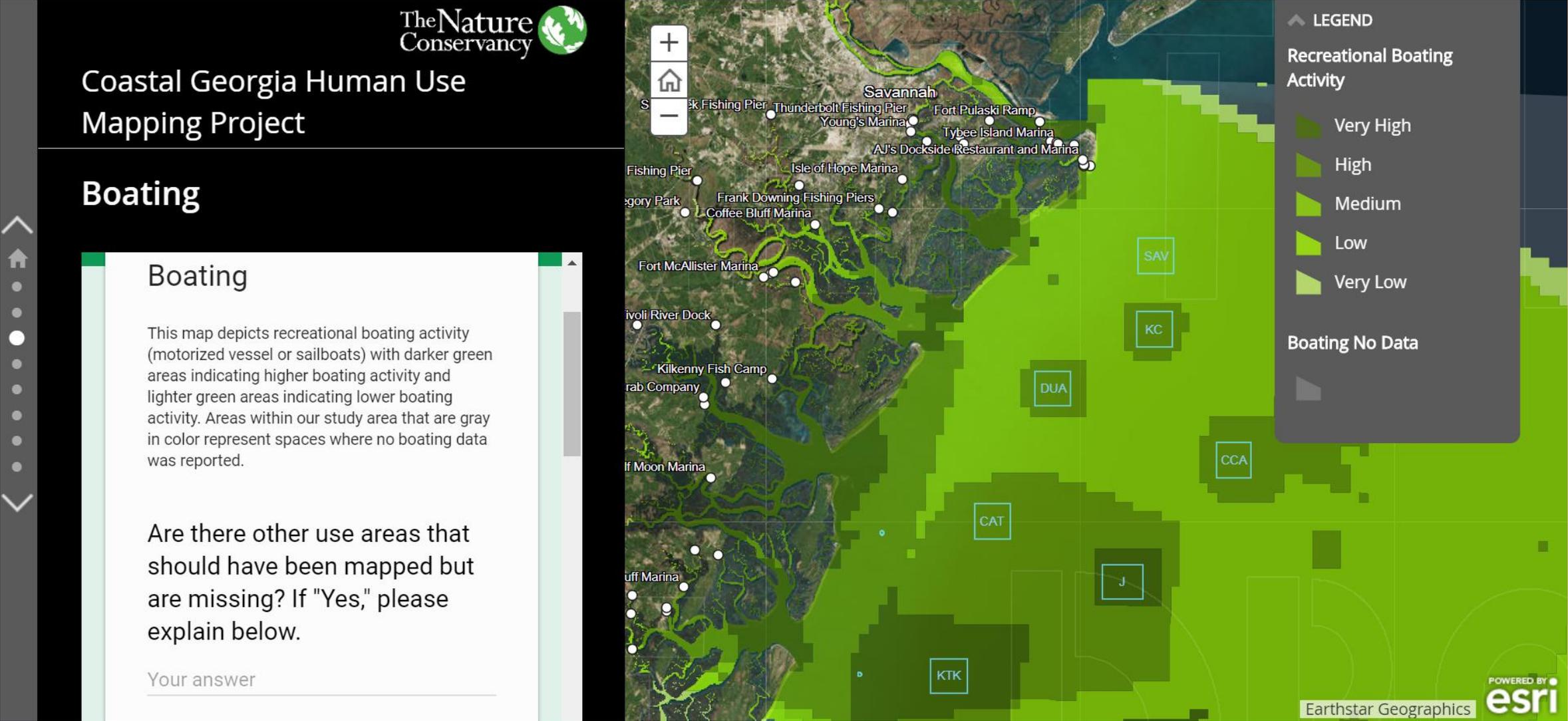
- 3) Tessellate these points and polygons by spatially joining them to an overlaid grid w/ 1 sqkm cells.



- 4) Combine tessellated data from each survey so that quantitative attributes (e.g. AveDays & AveParts) are summed together for overlaying cells. With this totaled data, we have represented the summed AveDays and AvePart variables independently to create quantile maps that represent of areas of high, medium, and low value.



Stakeholder Review – Story Map



- Used to help validate processing accurately portrayed stakeholder’s data

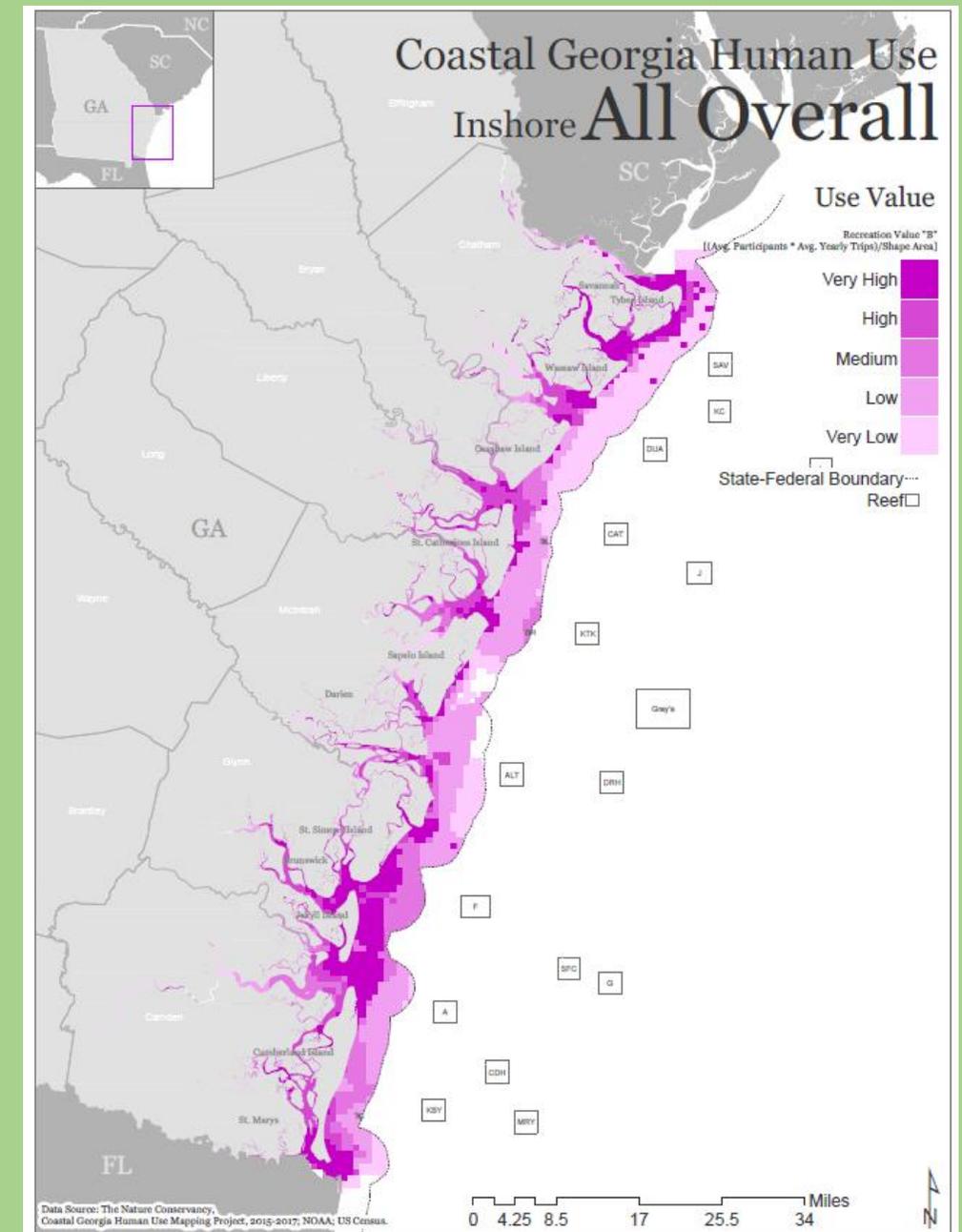
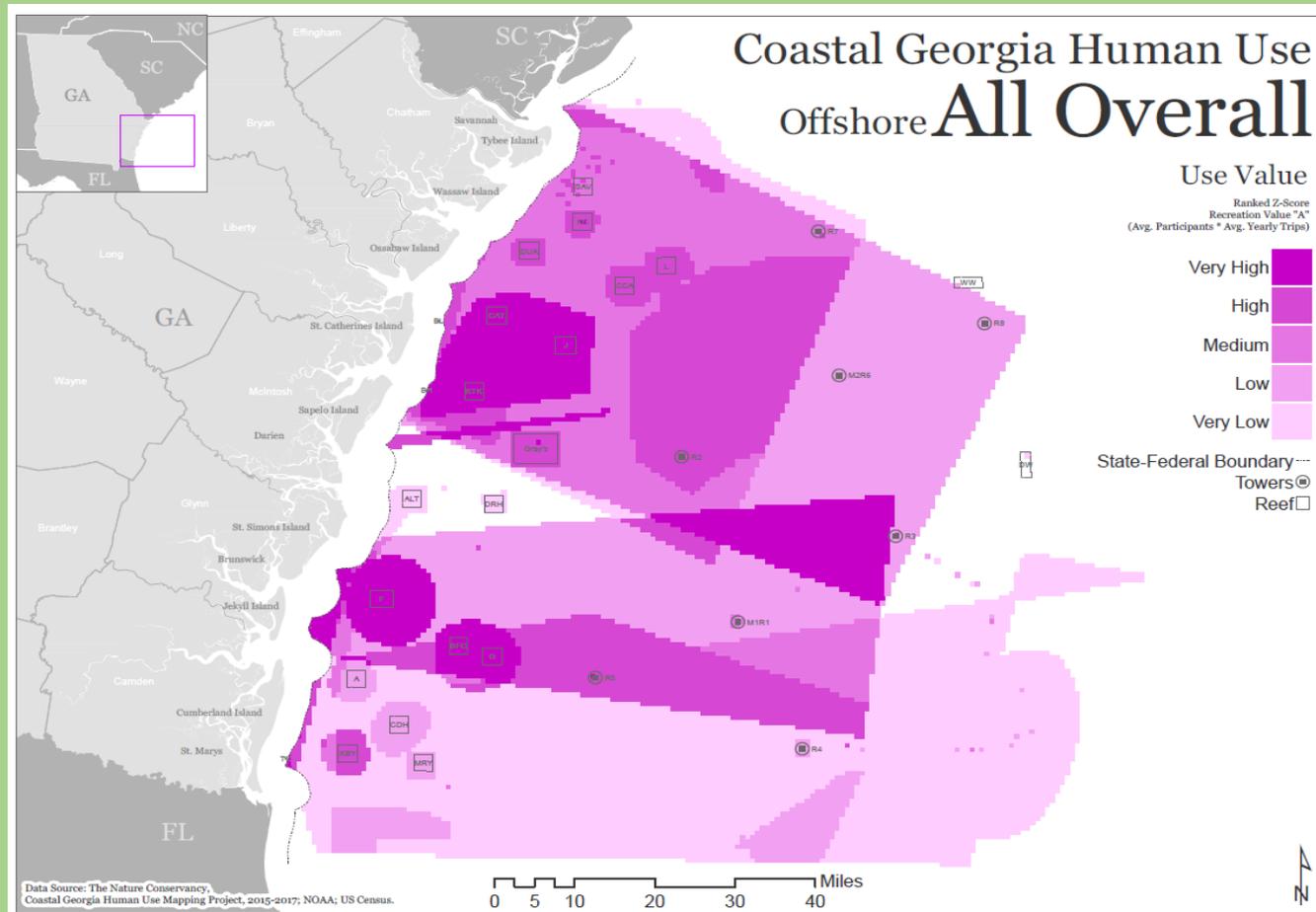
All Data Submissions (Participatory Workshops and Online Mapping)

TOTAL SUBMISSIONS						% total submissions
Fishing:	342 polygons	+	273 points	=	615 submissions	53.5%
Boating:	96 polygons	+	104 points	=	200 submissions	17.4%
Paddling:	129 polygons	+	23 points	=	152 submissions	13.2%
Birding:	50 polygons	+	20 points	=	70 submissions	6.1%
Ecotours:	57 polygons	+	7 points	=	64 submissions	5.6%
Diving:	36 polygons	+	13 points	=	49 submissions	4.3%
TOTAL:	710 polygons	+	440 points	=	1150 submissions	

- Estimated Total Participants: 350 – 400

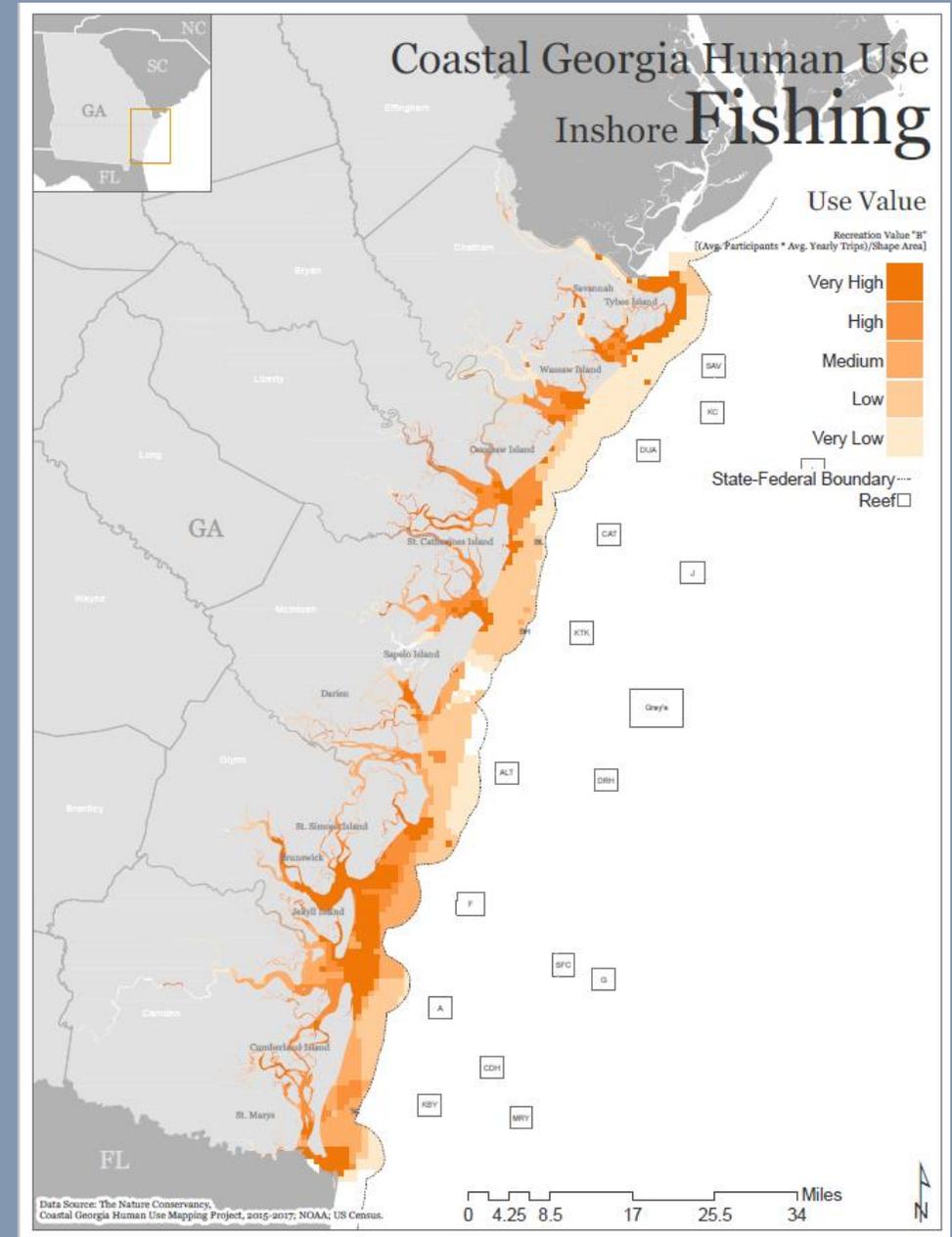
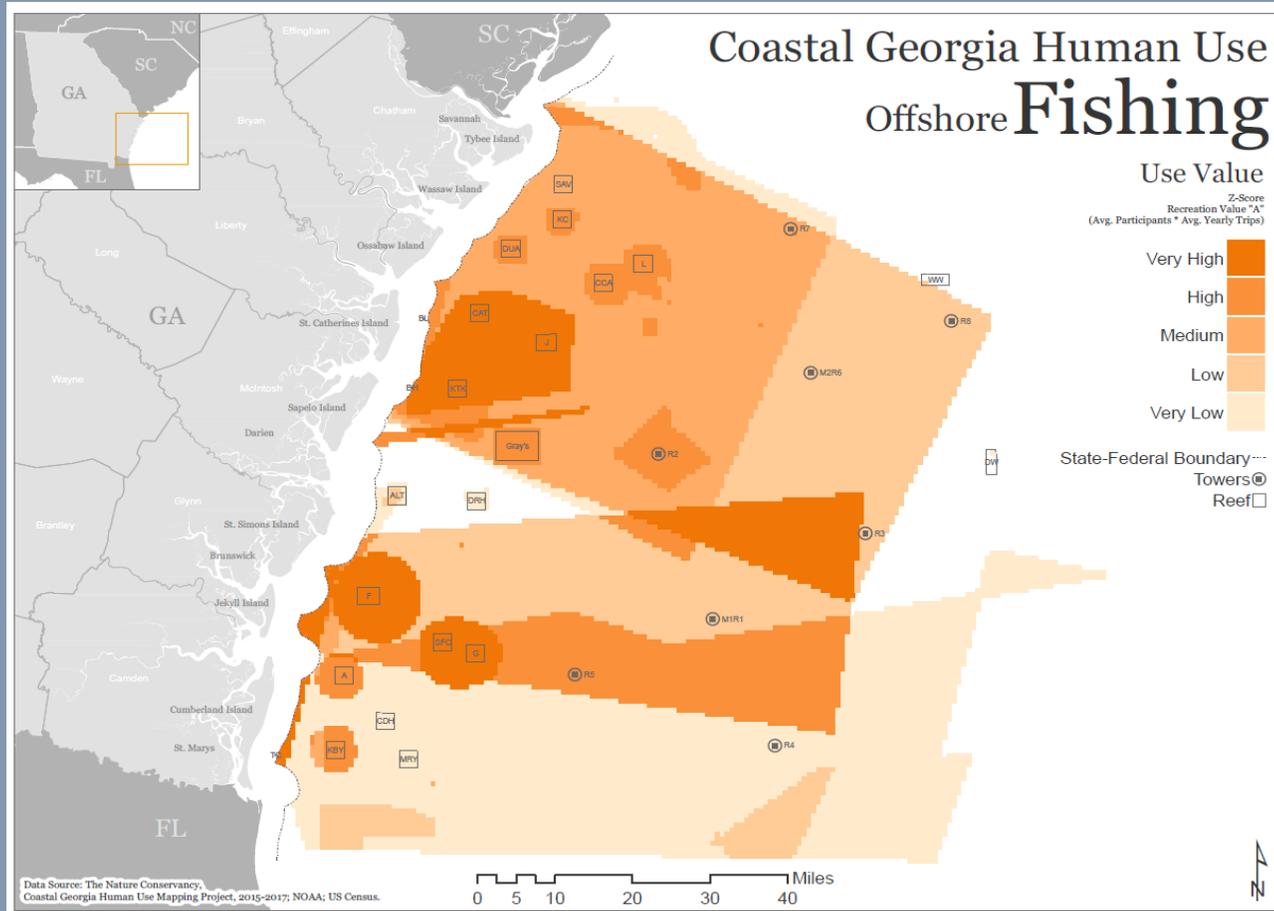
Final Recreation Use Maps

- All maps show use from Very High to Very Low



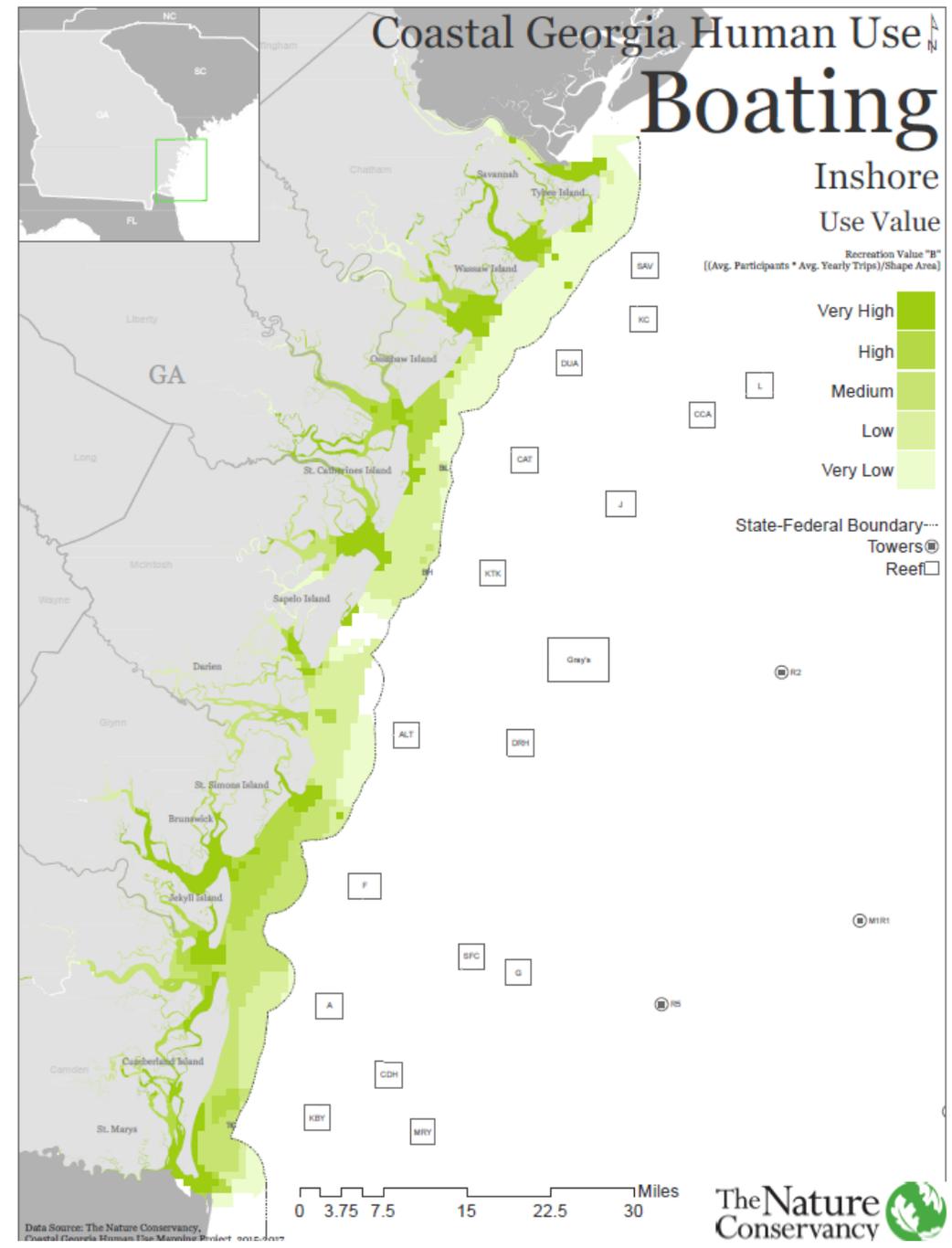
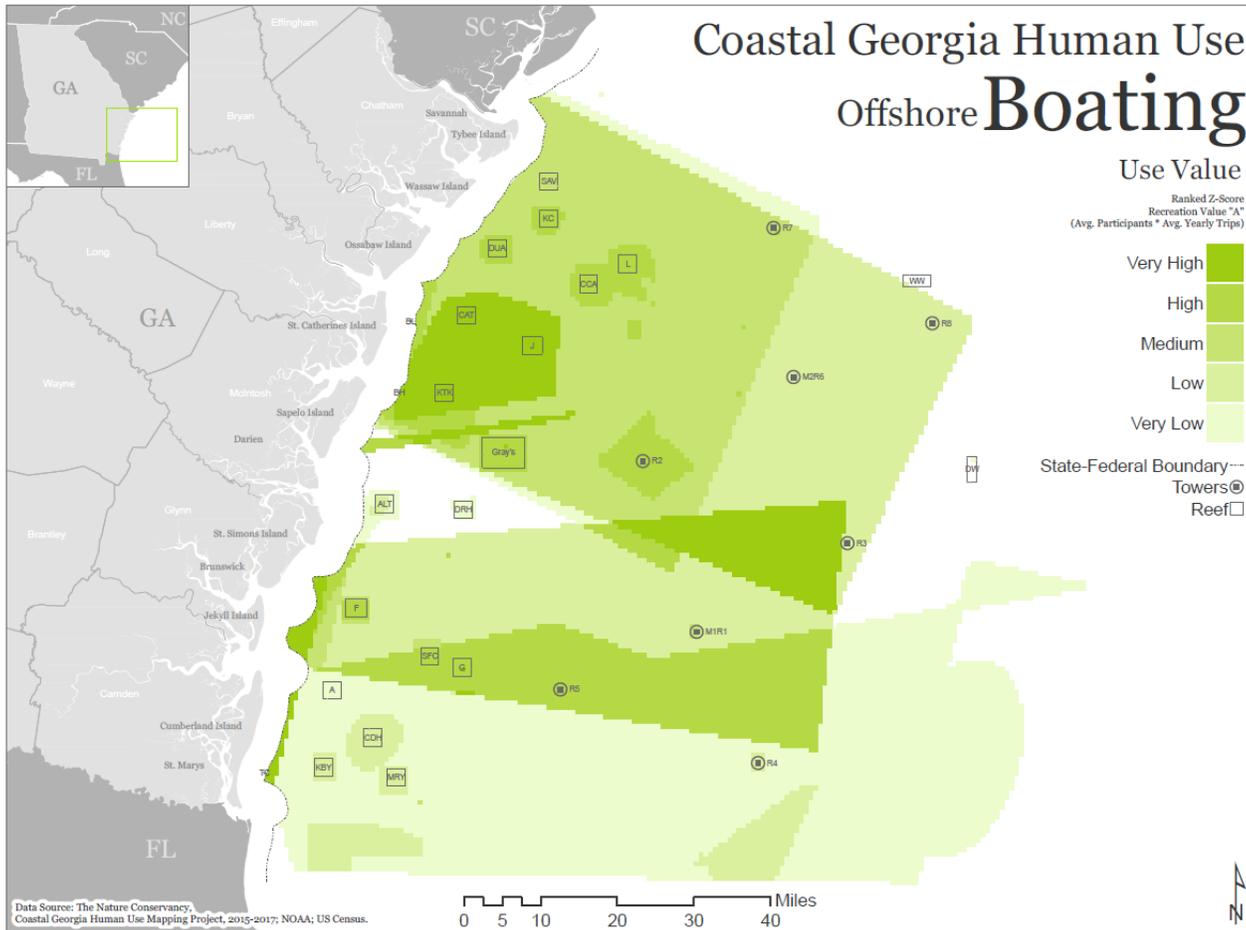
Different Use Values

- Recreation Values 'A' and 'B'
- Z-Scores for both Rec. Values 'A' and 'B'
- Ranked Z-Scores for Rec. Values 'A' and 'B'



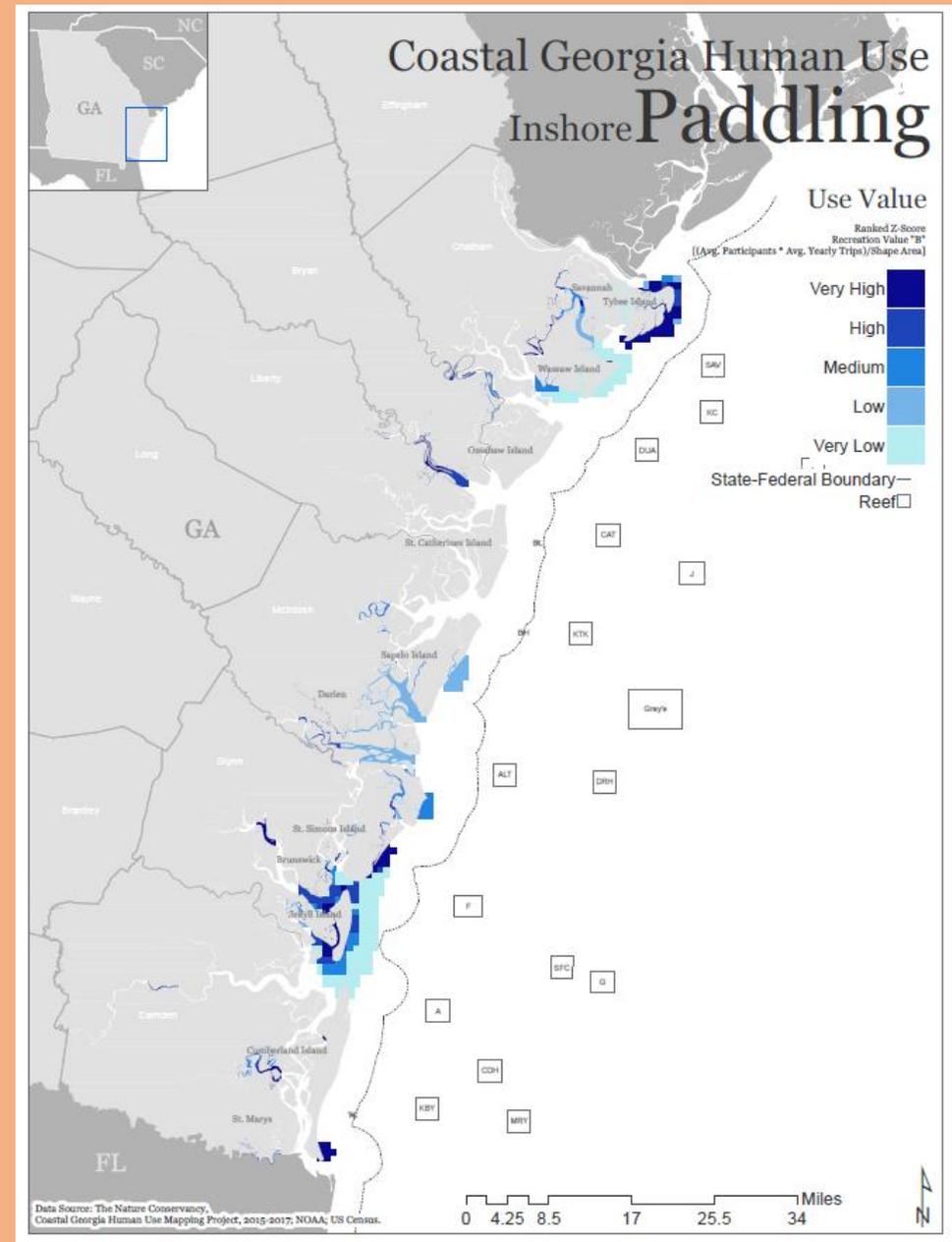
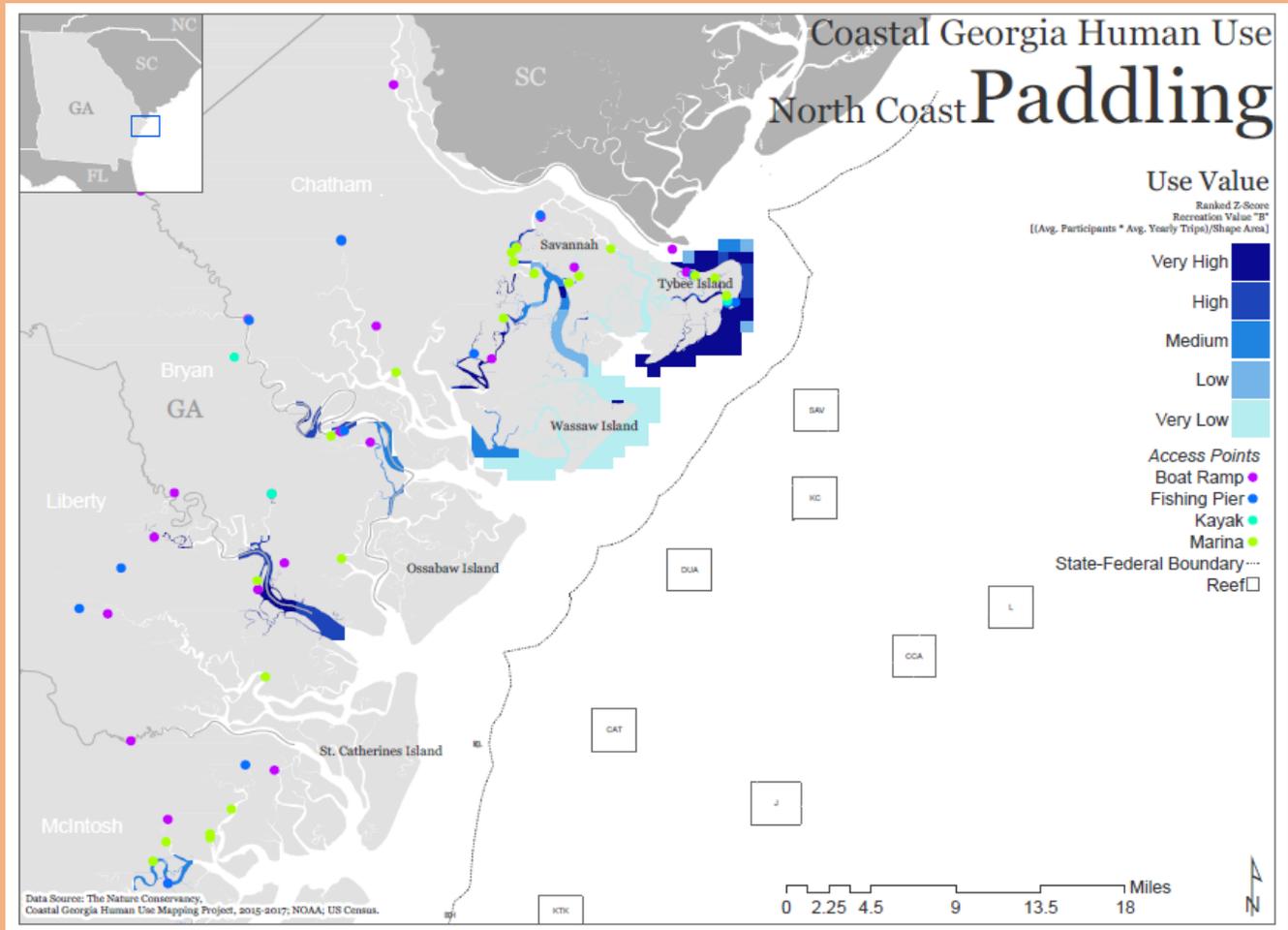
Inshore vs. Offshore

- Analysis separated between inshore and offshore data to account for less data beyond state waters (3 nm)



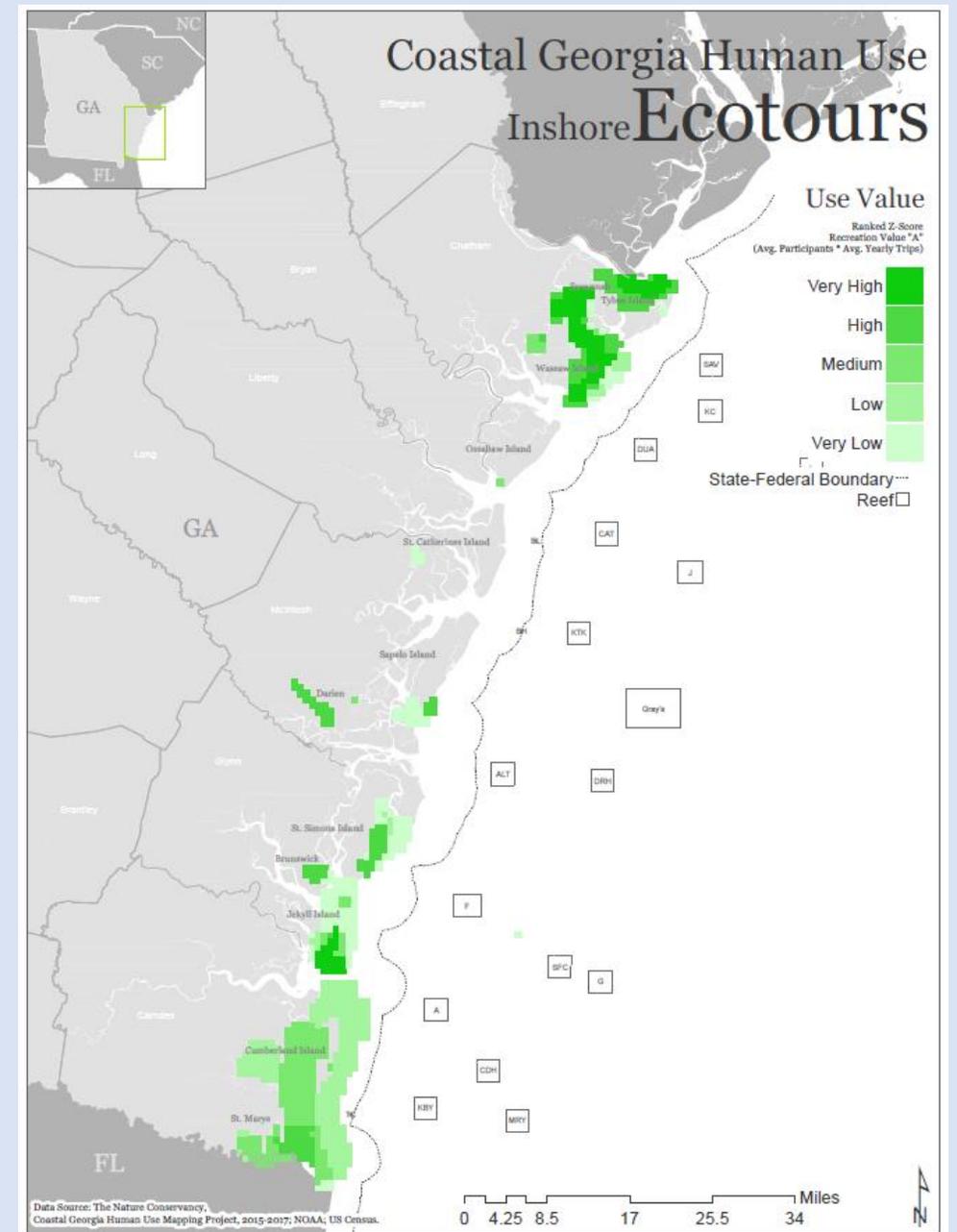
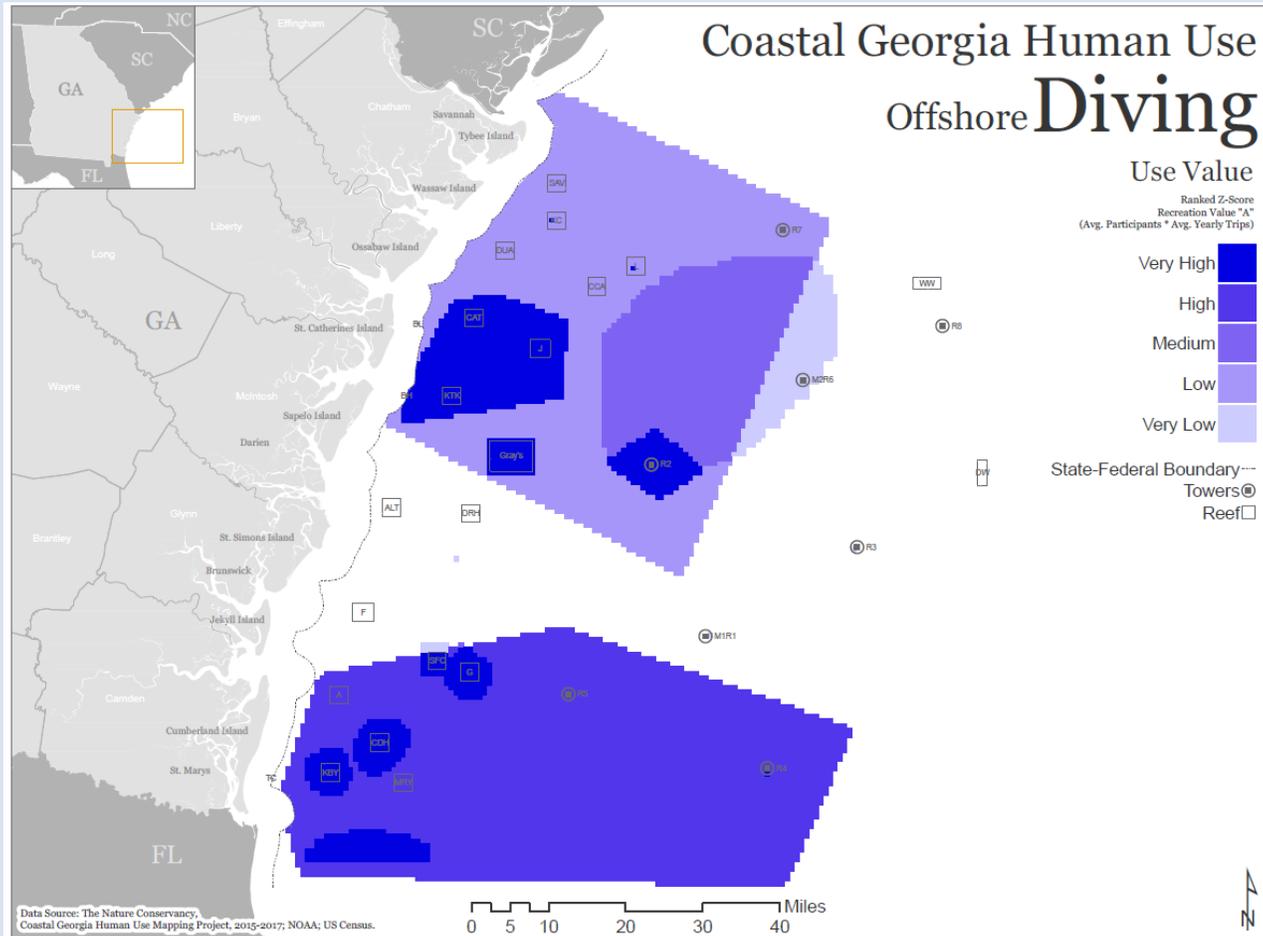
Absence of Data

- Areas without data does not conclude there is no activity occurring – more likely wasn't captured in this project



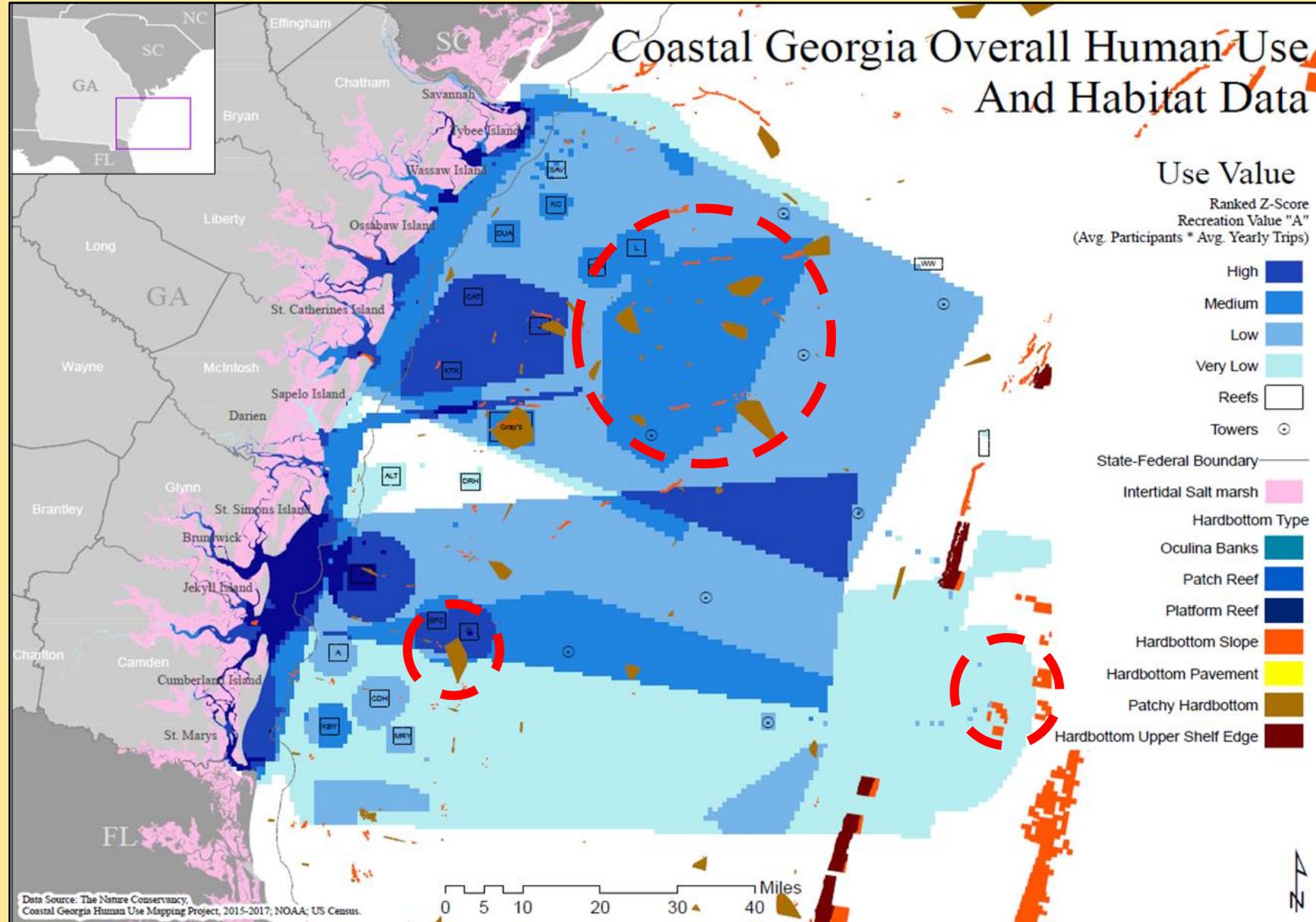
Uses with lower Participation

- Outreach efforts were not as successful in garnering participation from Diving and Ecotour communities



Seeing Bigger Picture

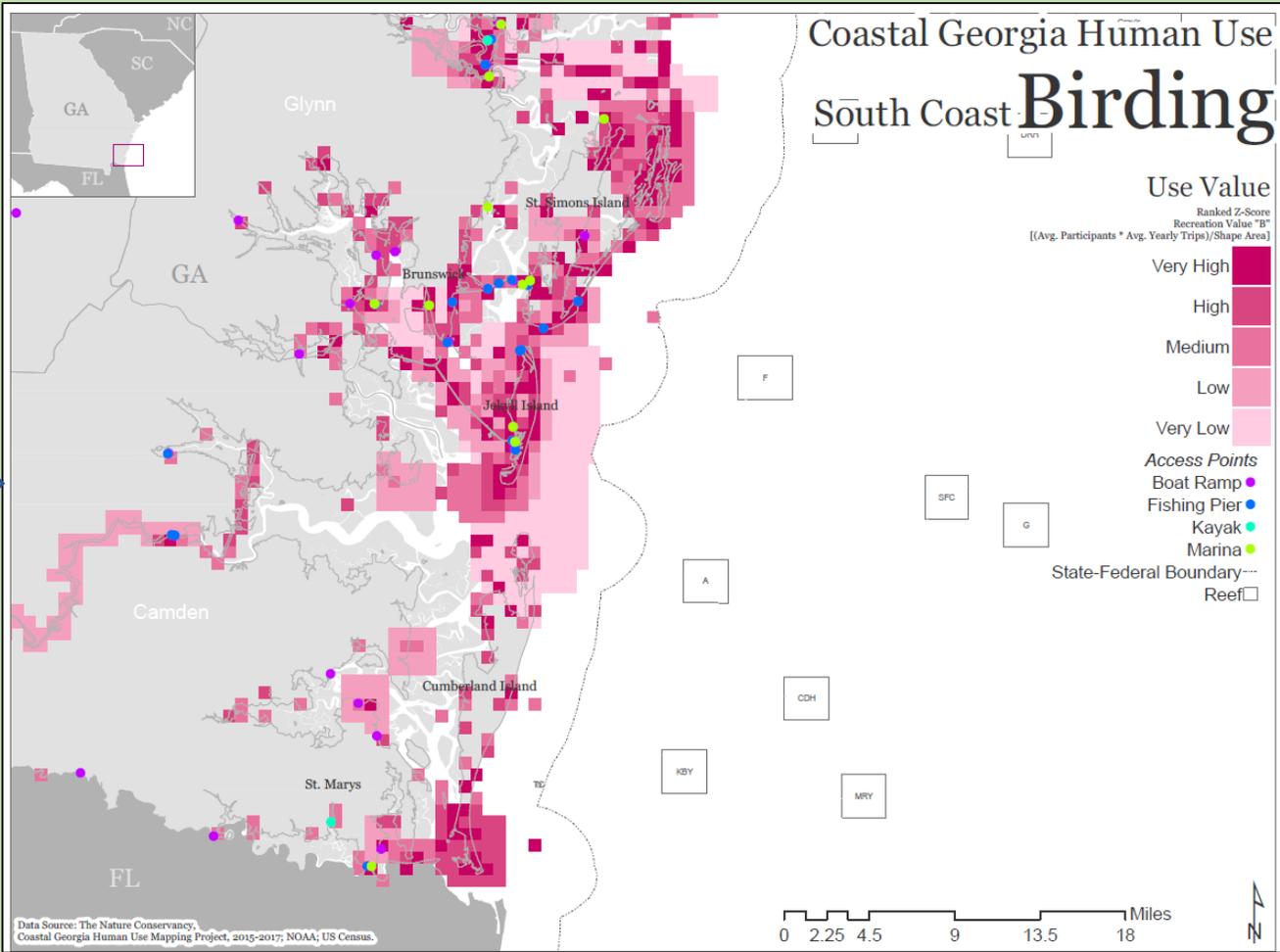
- Overall Rec. Use layered with Hardbottom habitat
- Help visualize areas with higher use concentrated around hardbottom areas (red dash circles)
- Can be used to validate more monitoring



Other Uses for Data...

- Fisheries Areas
 - Artificial Reefs Site monitoring, Hard-bottom areas protections, oyster reef areas restoration/enhancement
- Single Use Decision Making
 - Layer multiple uses to see potential conflict
- Transferability
 - Used in other areas of South Atlantic
- [TNC Conservation Gateway Website](#)
 - Go here for Summary Report, Protocols, and link to recreation data





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