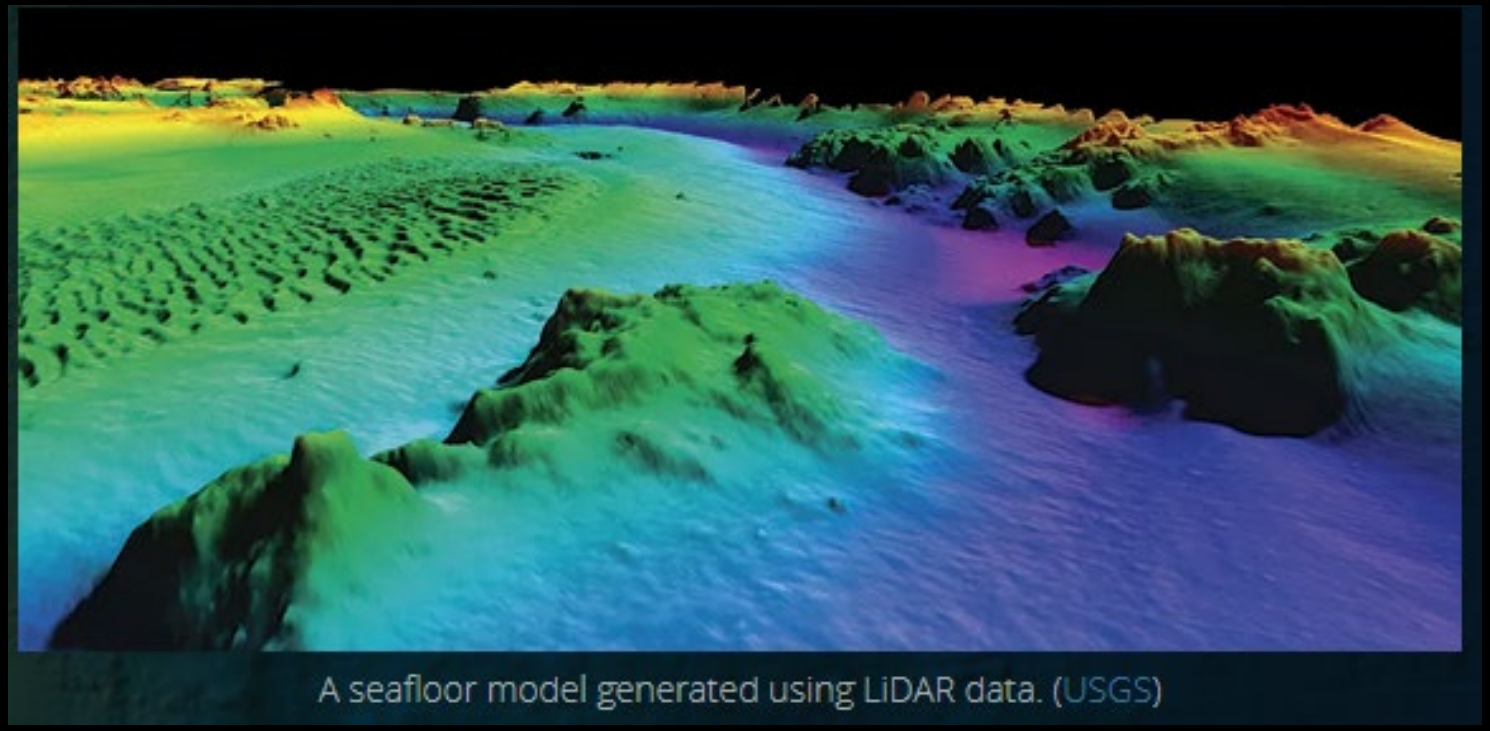
Florida Coastal Mapping Program (FCMaP)

Coordinating High-resolution Mapping of the State's Coastal Waters



A seafloor model generated using LiDAR data. (USGS)

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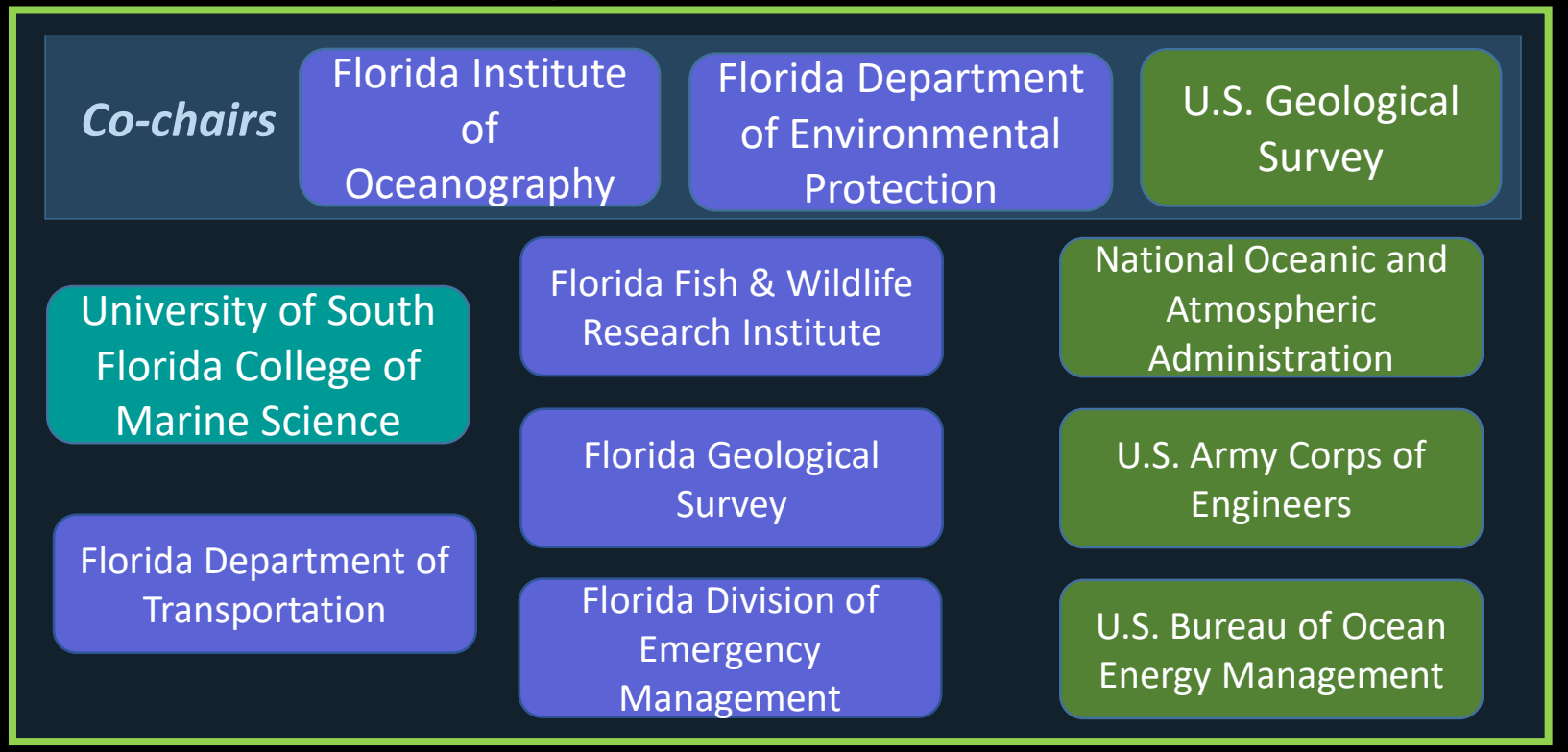
Ryan Druyor, FWRI
Rene Baumstark, FWRI
Xan Fredericks, USGS
Kim Jackson, FDEP

Why Map Florida's Coastal Waters?

- Florida has one of the most valuable coastal zones in the nation (over $30 billion in revenue per year) that extends over 1,300 miles of coastline, the longest coastline in the lower 48 states.
- Florida has the greatest number of recreational boats and saltwater fisherman in the US and large concentrations of people and infrastructure in the coastal zone.
- The coast is highly vulnerable to hurricanes and sea level rise impacts
- Many areas of the Florida coast have not been mapped, or existing maps are old and of low resolution
- New high resolution maps of the seabed are a necessary investment if Florida is going to continue to grow its Blue economy and facilitate sustainable aquaculture & alternative energy
- New high resolution maps will dramatically increase scientific baseline characterization of coastal resources (sand availability and habitats) and processes that drive changes

Florida Coastal Mapping Program

Steering committee + Coordinator



Working groups and technical teams

Steering committee agencies, academics, private industry

Inventory technical team; Prioritization technical team; prioritization implementation technical team; LBR working group

FCMaP Timeline

Jan. 2017: stand up Steering Committee

Feb 2017 – Dec 2017: Technical Team

- Compile inventory of existing coastal seafloor mapping data
- Populate portal with footprints and metadata
- Conduct gap analysis

Jan 2018: Partner & stakeholder workshop

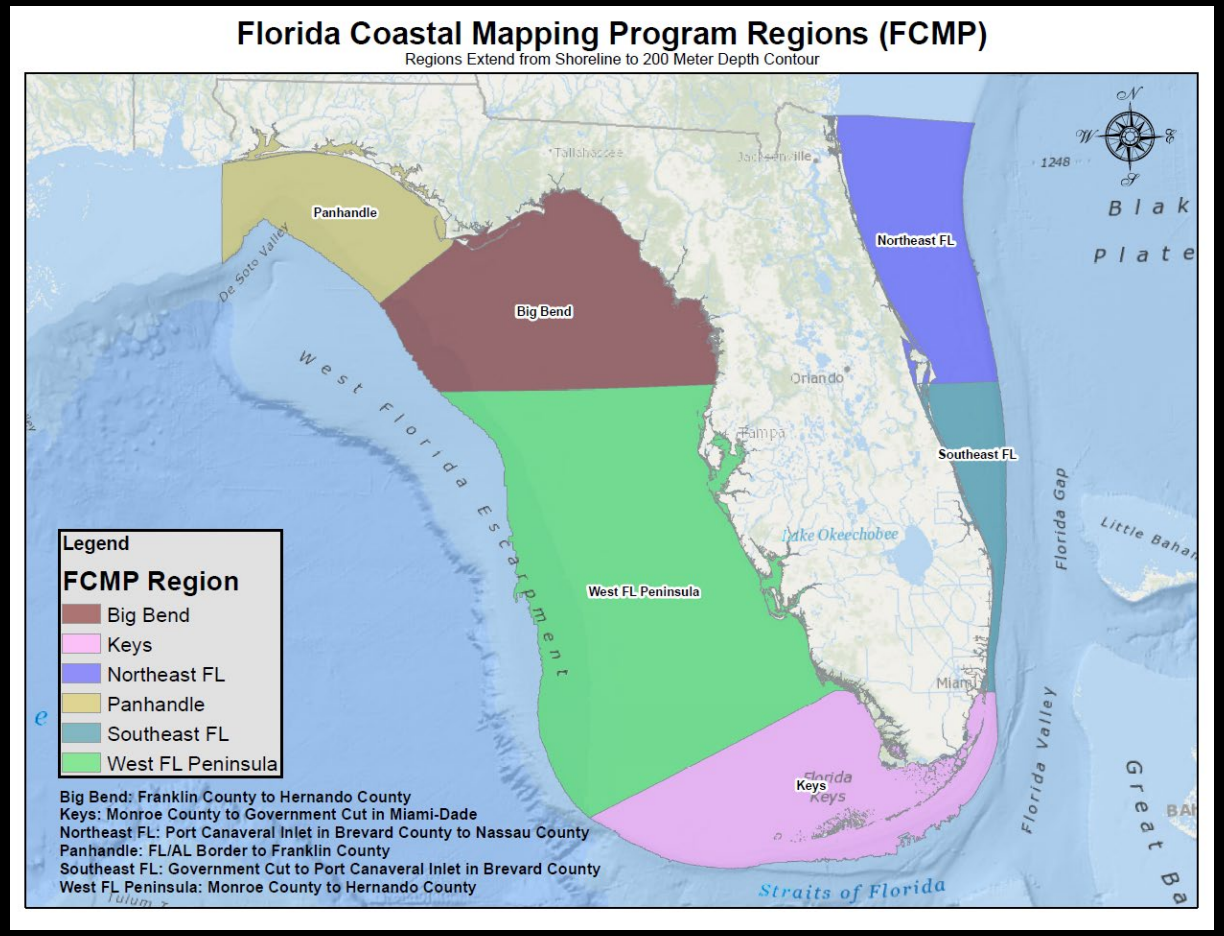
2018-19: Prioritization workshops for each region

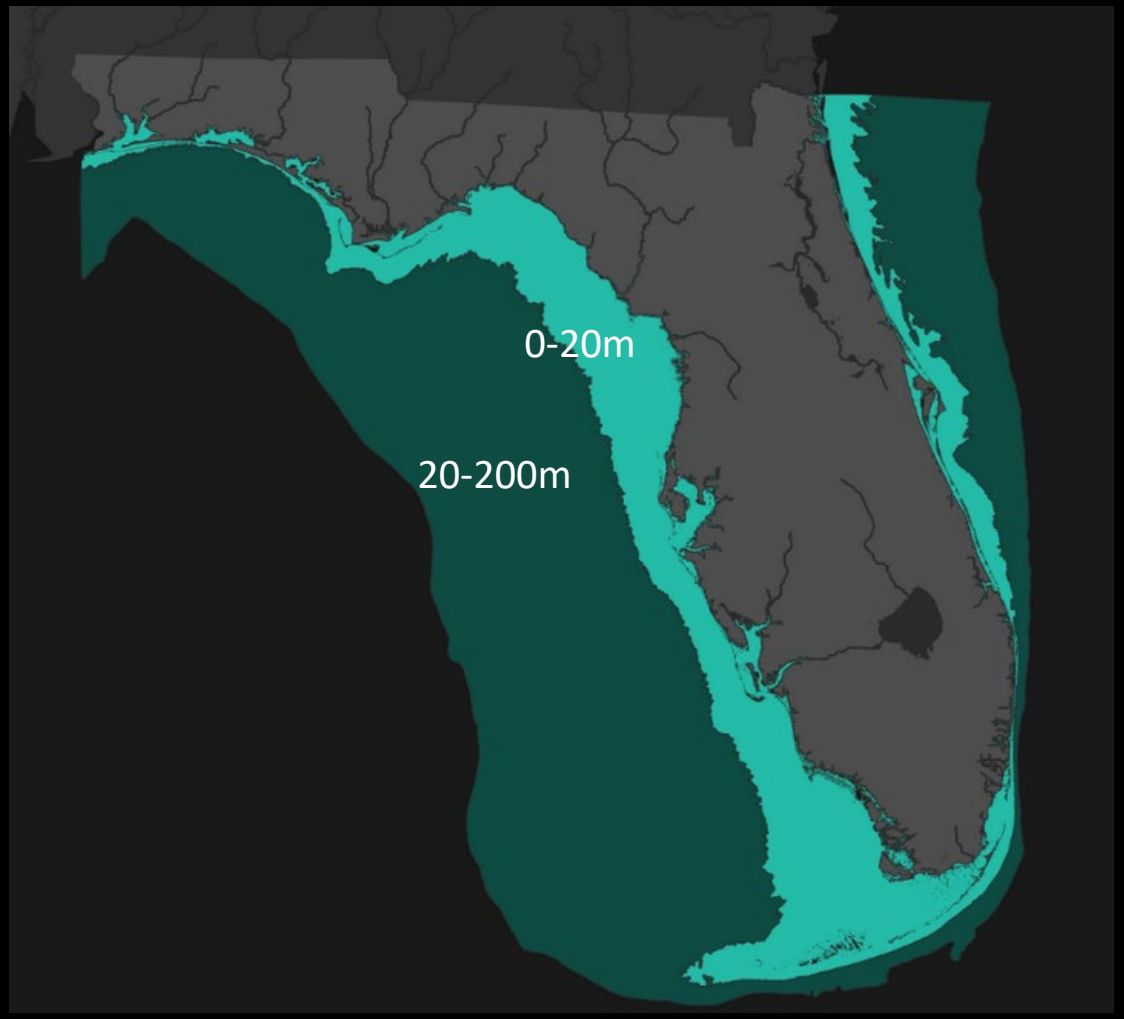
- Sept 2018: Big Bend (Cedar Key)
- Dec 2018: West FL Peninsula (St Pete)
- April 2019: Southeast FL & Keys, combined workshop (West Palm Beach)
- July 2019: Northeast FL (Jacksonville)
- August 2019: Panhandle (Pensacola)

A 2020 Florida Coastal Mapping Summit will be held March 31st, 2020, in St Petersburg, FL.

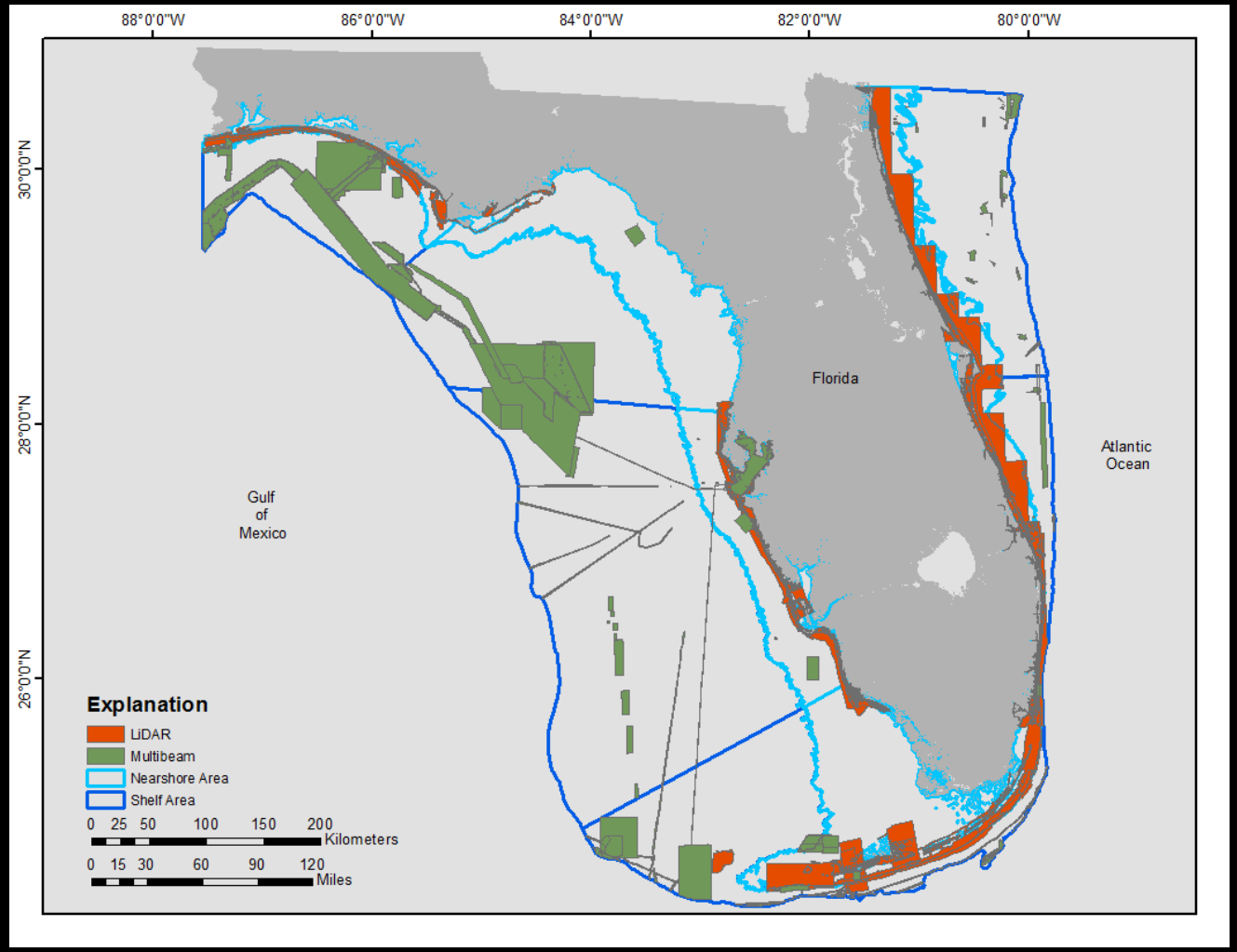
Register Here

FCMaP Regions and Depth Zones





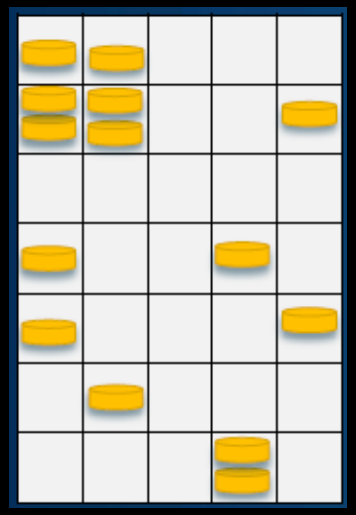
Lidar and Multibeam Bathymetry: Gap Analysis 2017



Inventory and prioritization
- 0-20m depth (nearshore)
- 20m-shelf edge (shelf)

Regions	Nearshore	Shelf
Panhandle	44%	43%
Big Bend	3%	23%
W FL Peninsula	28%	8%
Keys	27%	19%
Southeast FL	83%	20%
Northeast	60%	4%
All Regions	27%	16%

Mapping Prioritization – Participatory online GIS tool

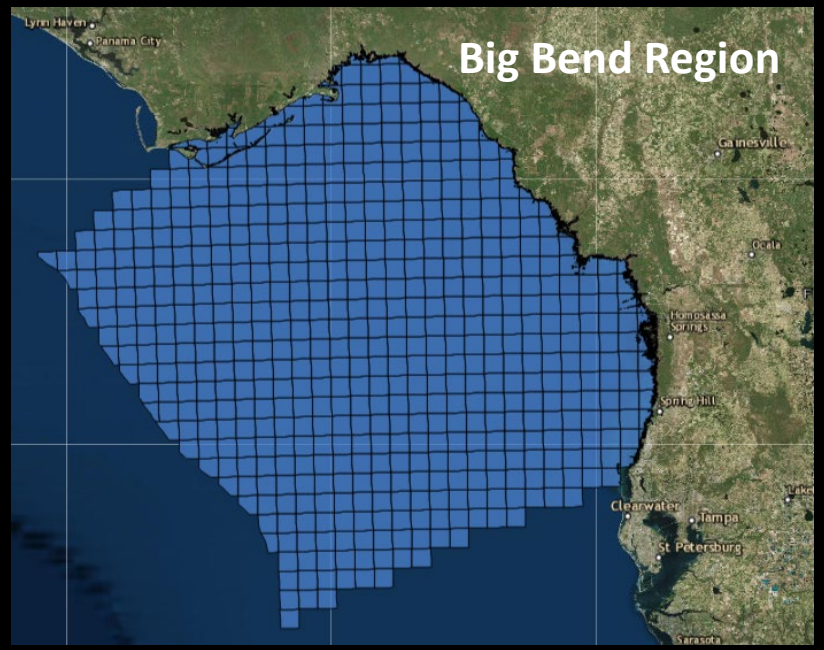


Prioritize by allocating coins

- Priority location (Where)
- Degree of priority (When, # of coins/cell)

Stakeholder Groups:

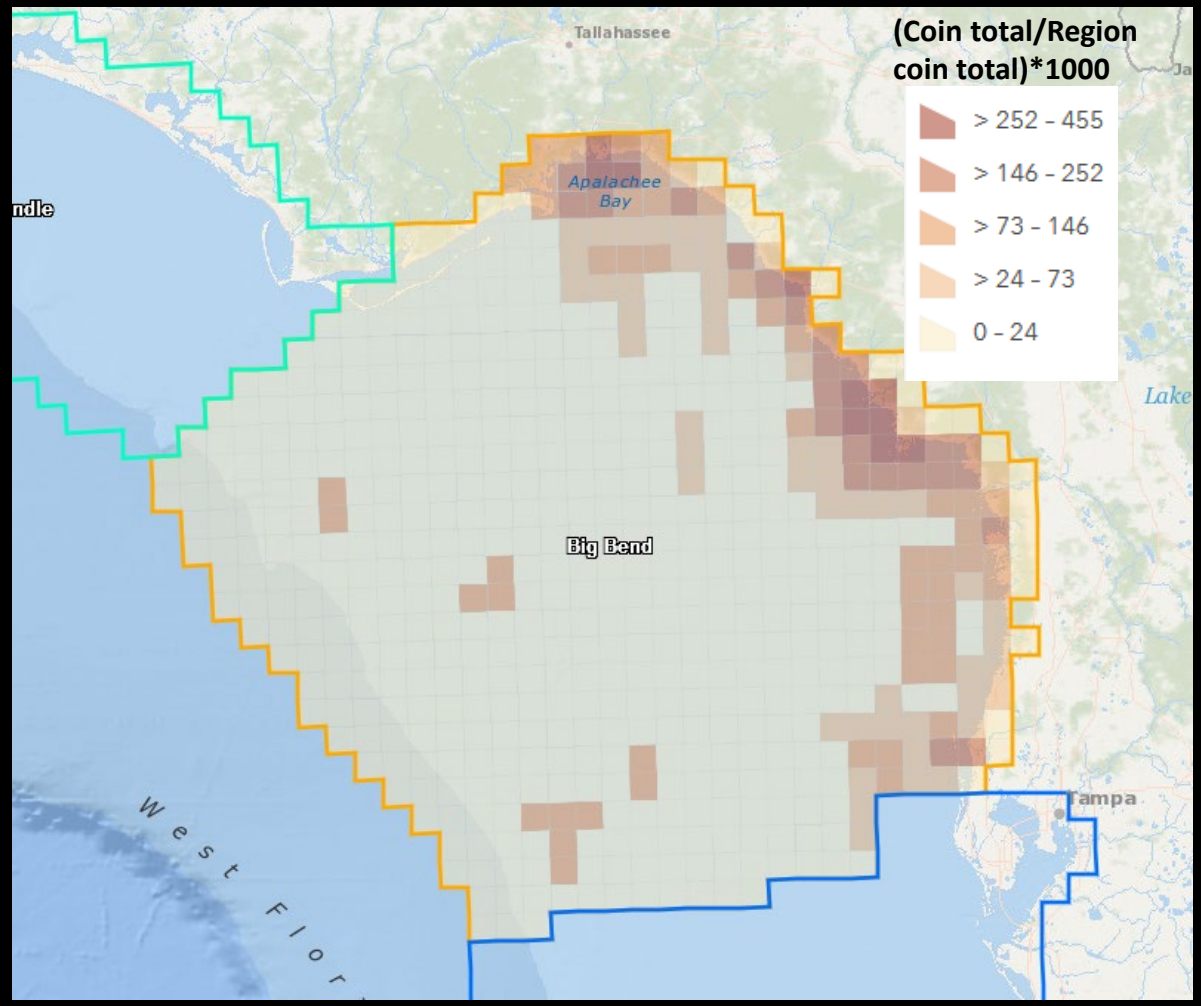
- Region divided into 10 km^2 grid cells
- 614 cells
- Each user group received 123 coins (20% of total cells)
- No more than 12 coins per cell
- (10% of total coins)

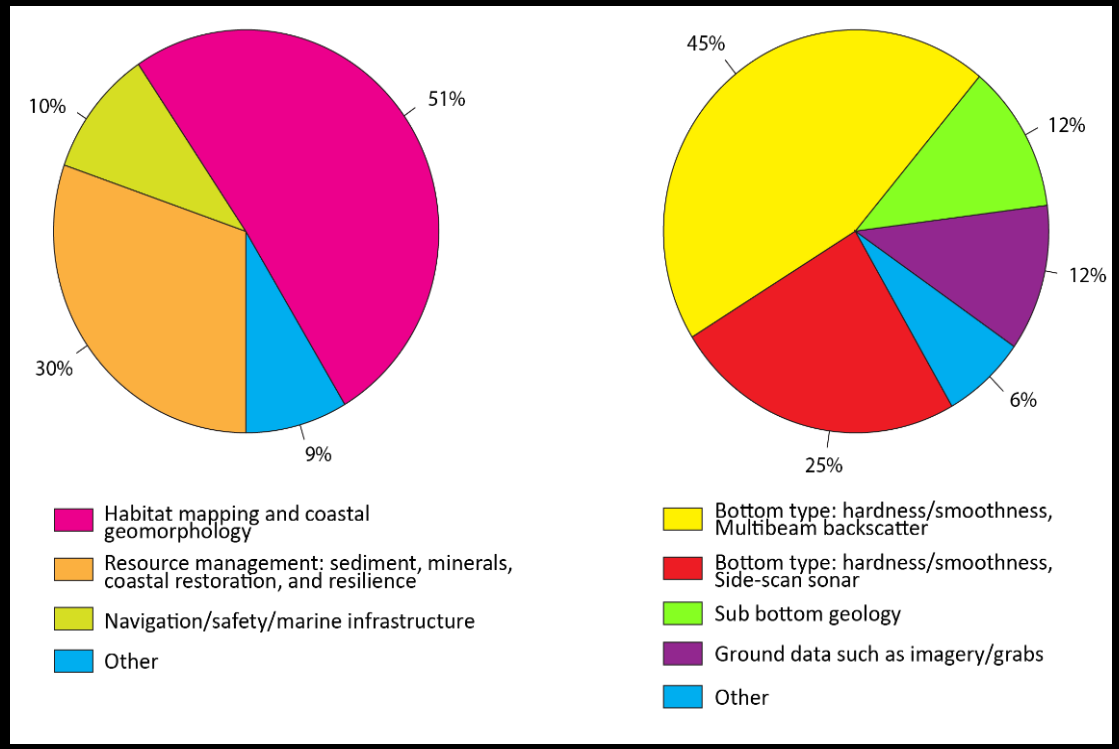


Identify

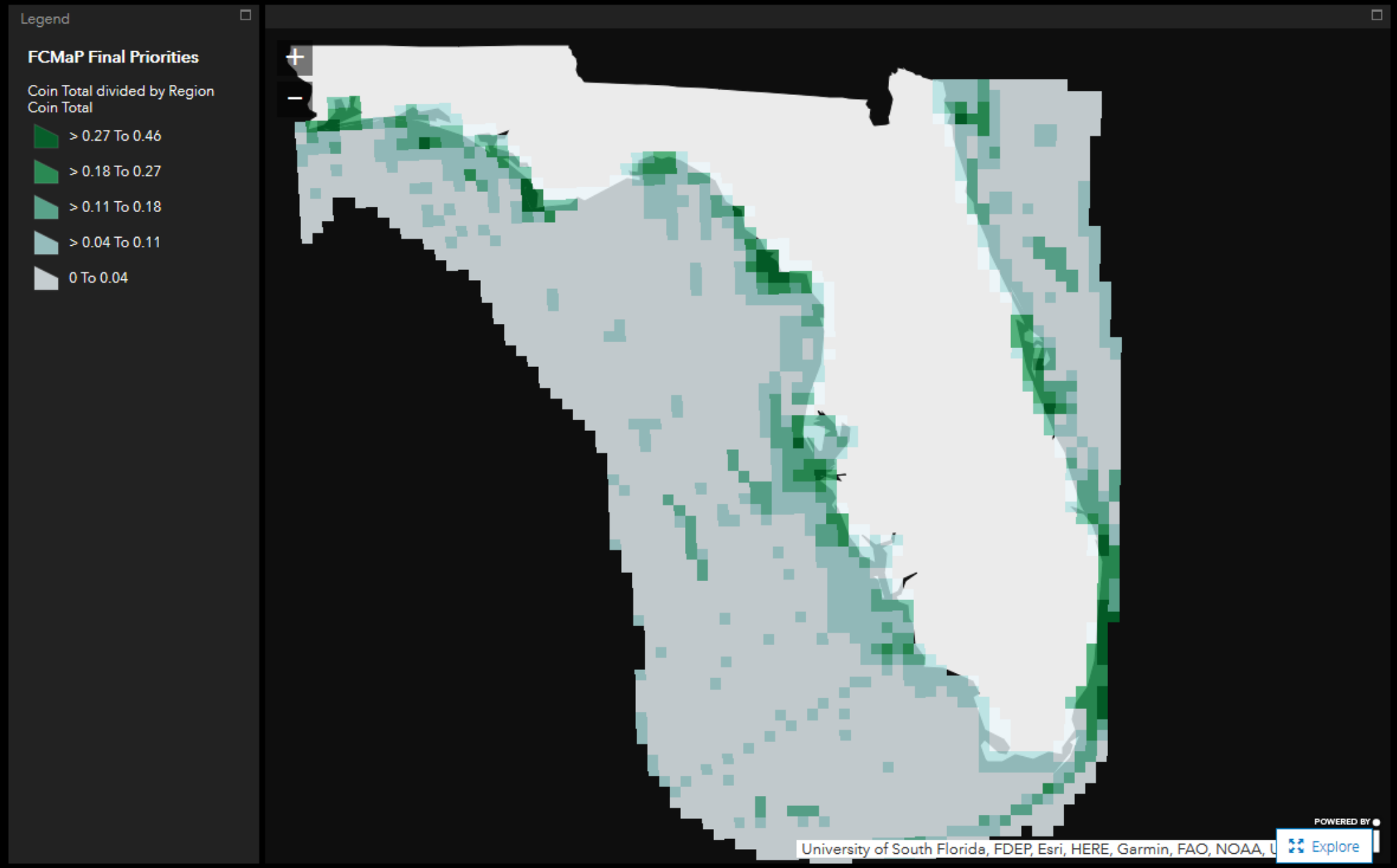
- Reason it's a priority – what application is data needed for?
- What other data (beyond bathymetry) are needed?

Results: Big Bend Prioritization

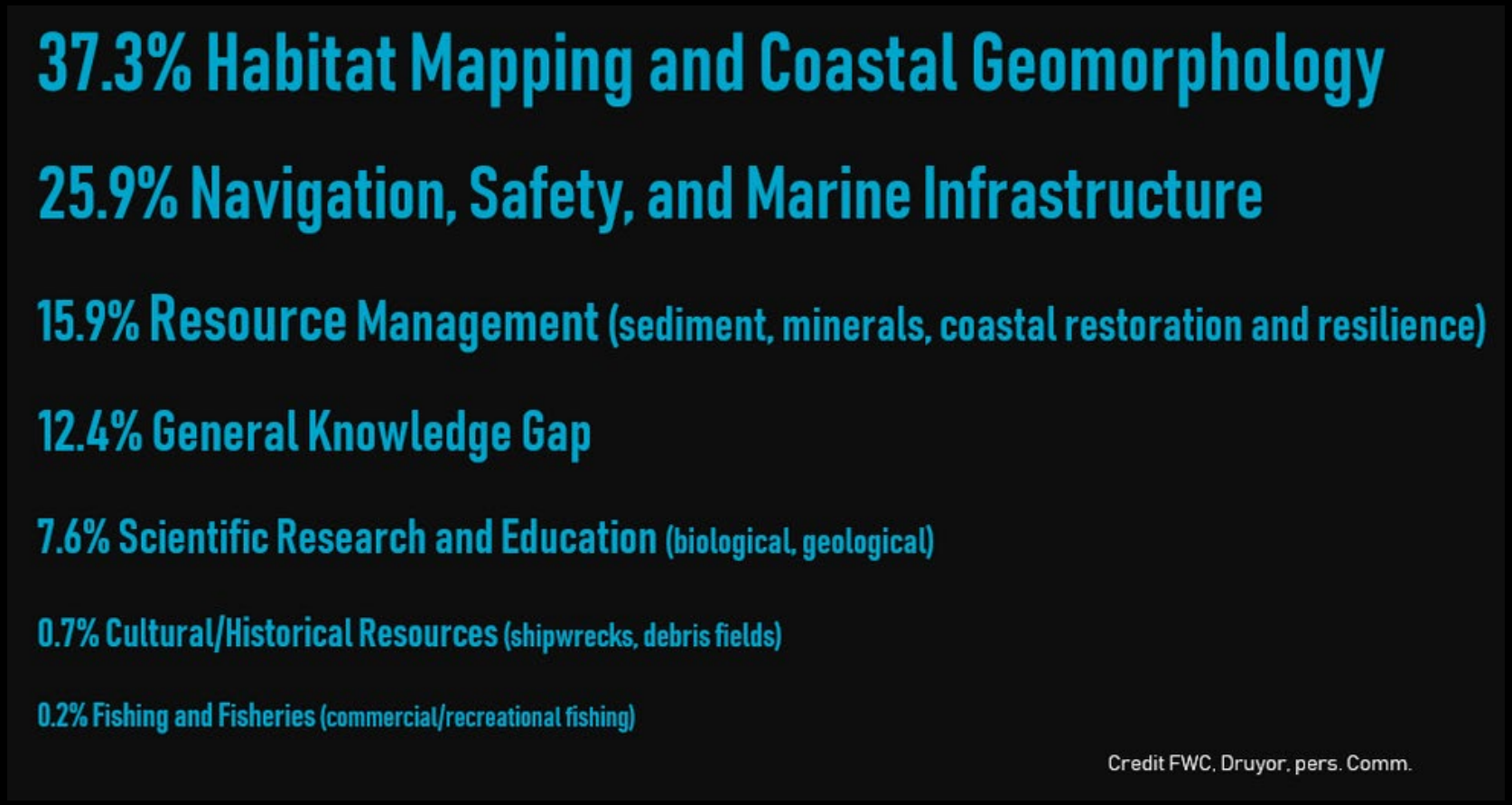




Results: Statewide Prioritization

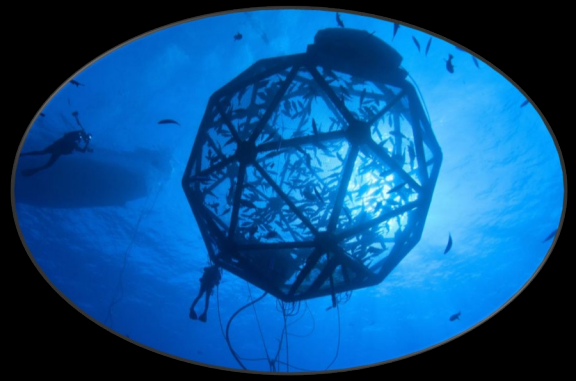


Results: Statewide Prioritization



https://arcg.is/1Of0OT0

Florida Coastal Mapping Program: Applications

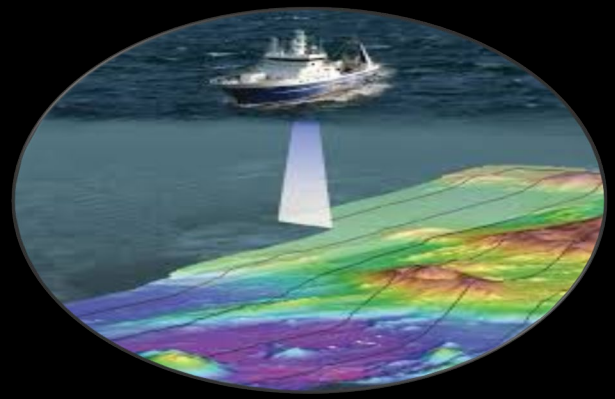


Aquaculture

Environment

Tourism

Energy



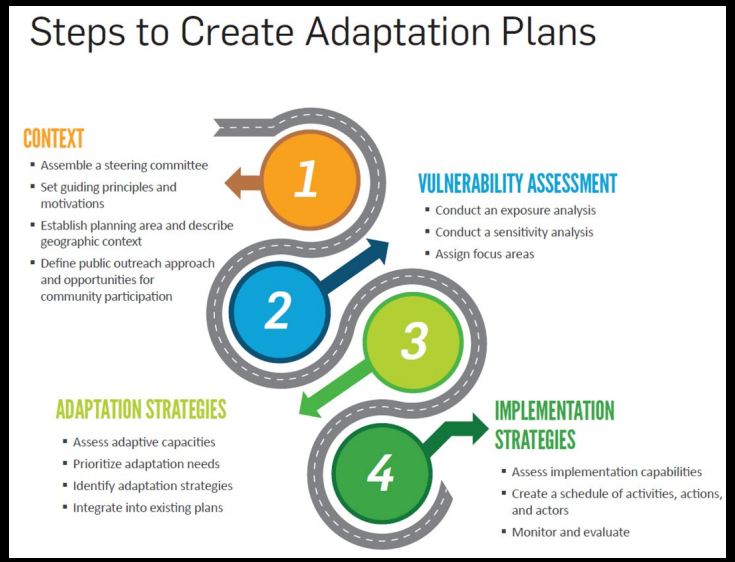
Research

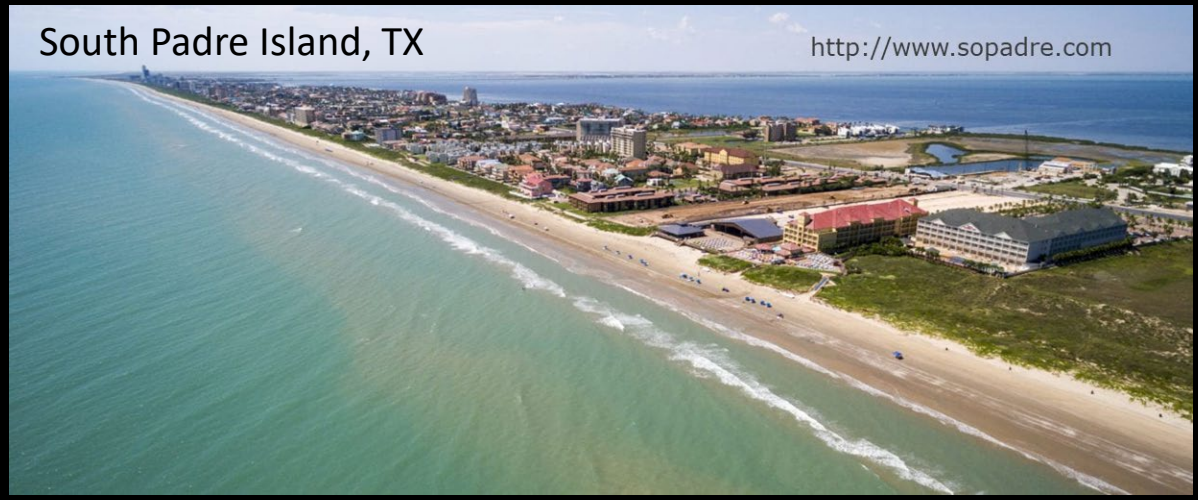
Sand Resources

Fisheries

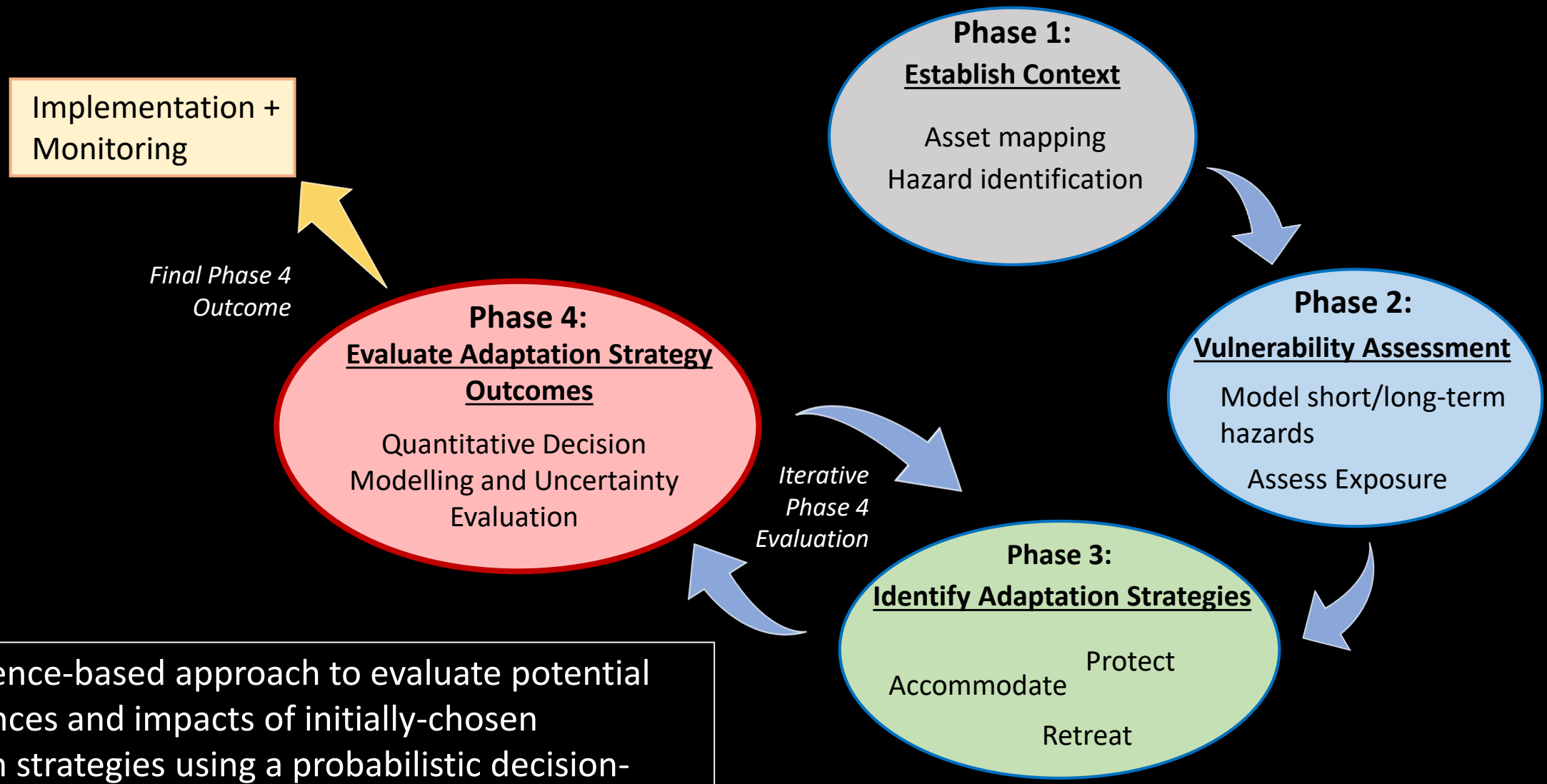
Safety

A Model-based Decision Support Framework for Coastal Community Sea-level Rise Adaptation Planning



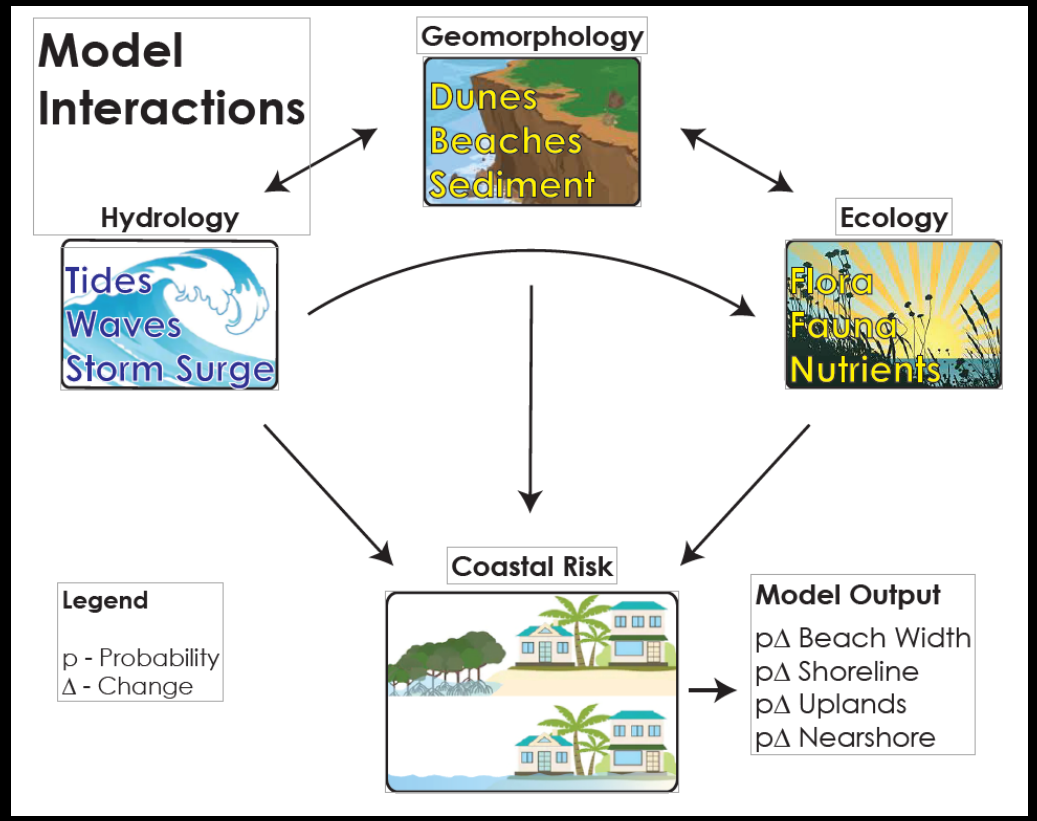


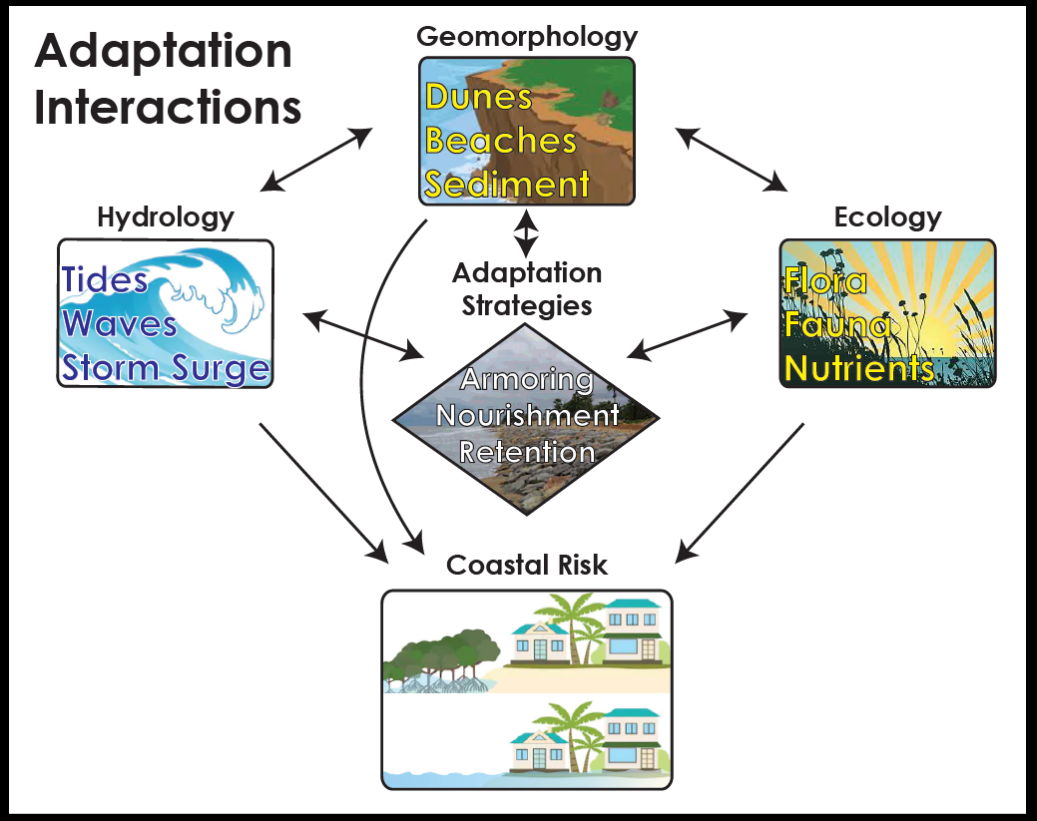
Model-based decision support framework



- Uses a science-based approach to evaluate potential consequences and impacts of initially-chosen adaptation strategies using a probabilistic decision-support framework

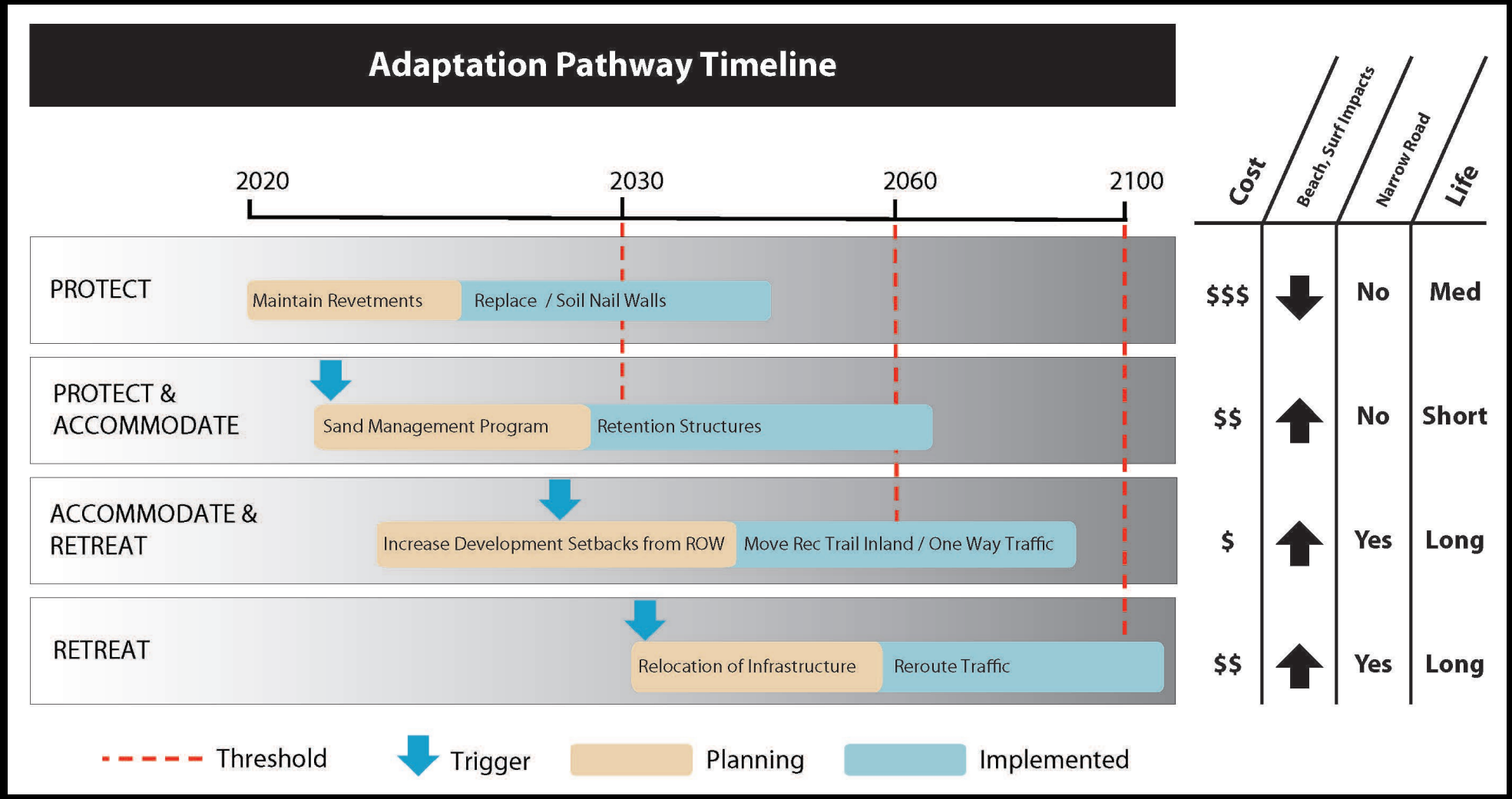
Bayesian Networks to Evaluate Adaptation Strategies





- Accommodate changes to the state (i.e. adaptation strategies) to evaluate impacts
- Update as new information is available or there are changes to the state (from natural or human causes)
- Can be used as an interactive tool to communicate complex information to communities

Adaptation Pathways Identify Triggers



Wrap Up

FCMaP

- Continued coordination with State agencies and Federal IWG-OCM, 3D Nation, Seabed 2030
- Education and Outreach to Florida State legislators -> budget requests in 2019, 2020, planned 2021
- Continued coordination for ships (or flights) of opportunity

Applications

- Compile data and modeling outputs for Coastal ADAPT
- Develop Bayesian networks of data to forecast response to adaptation strategies
- Develop adaptation pathways