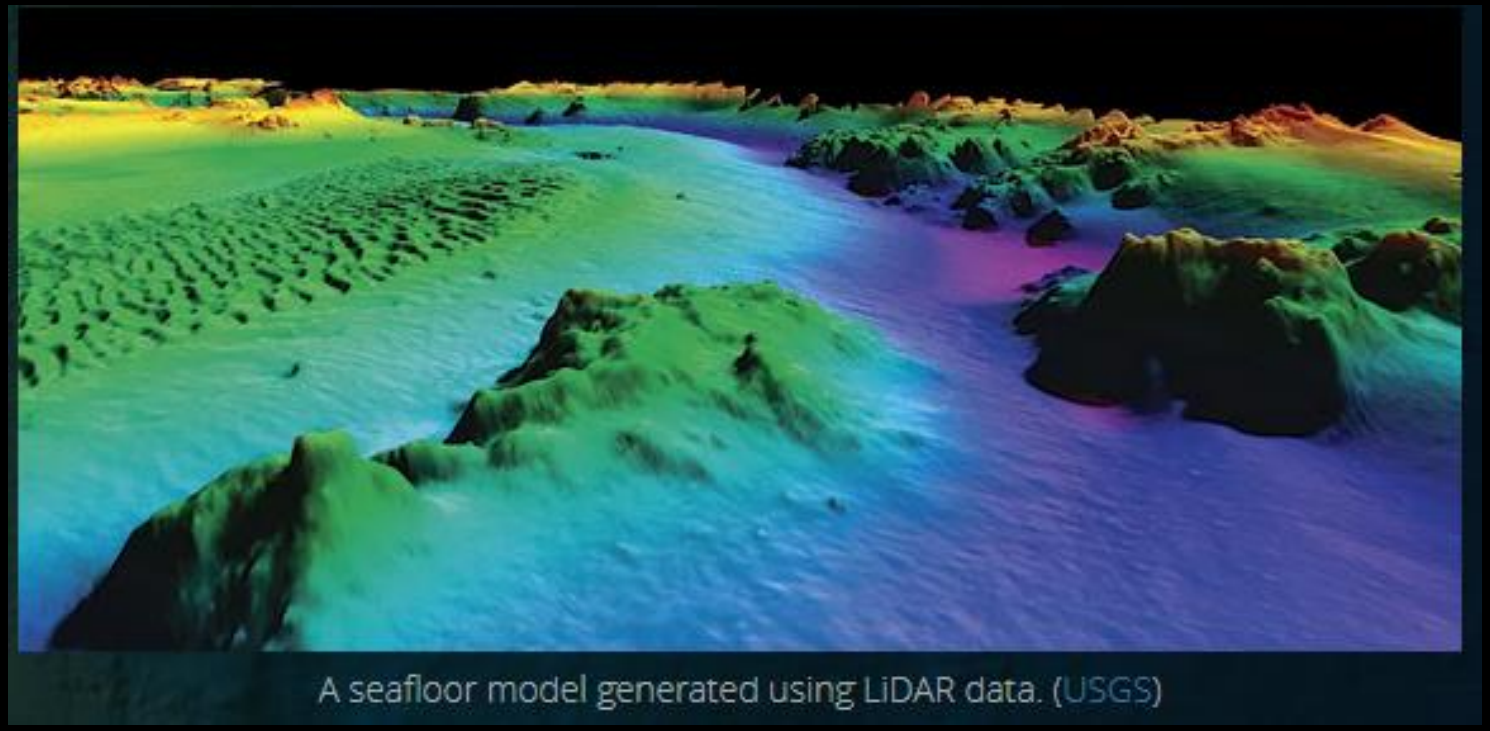
Florida Coastal Mapping Program (FCMaP)

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



A seafloor model generated using LiDAR data. (USGS)

Cheryl Hapke, USF College of Marine Science
Ryan Druyor, FWRI
Rene Baumstark, FWRI
Xan Fredericks, USGS
Kim Jackson, FDEP

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)

Florida Coastal Mapping Program

Steering committee + Coordinator

Co-chairs

- Florida Institute of Oceanography
- Florida Department of Environmental Protection
- U.S. Geological Survey

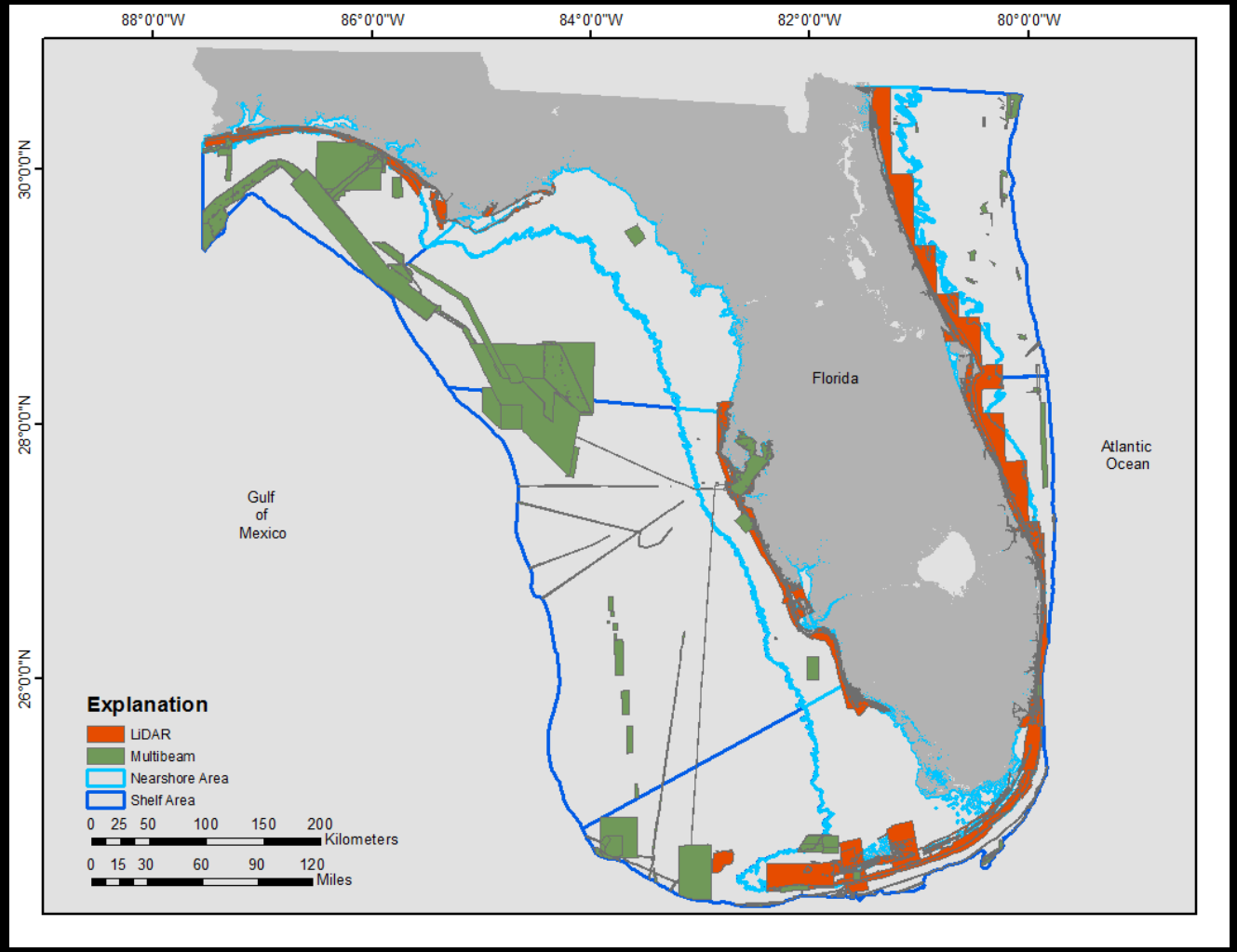
- University of South Florida College of Marine Science
- Florida Fish & Wildlife Research Institute
- National Oceanic and Atmospheric Administration
- Florida Geological Survey
- U.S. Army Corps of Engineers
- Florida Department of Transportation
- Florida Division of Emergency Management
- U.S. Bureau of Ocean Energy Management

Working groups and technical teams

Steering committee agencies, academics, private industry

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%

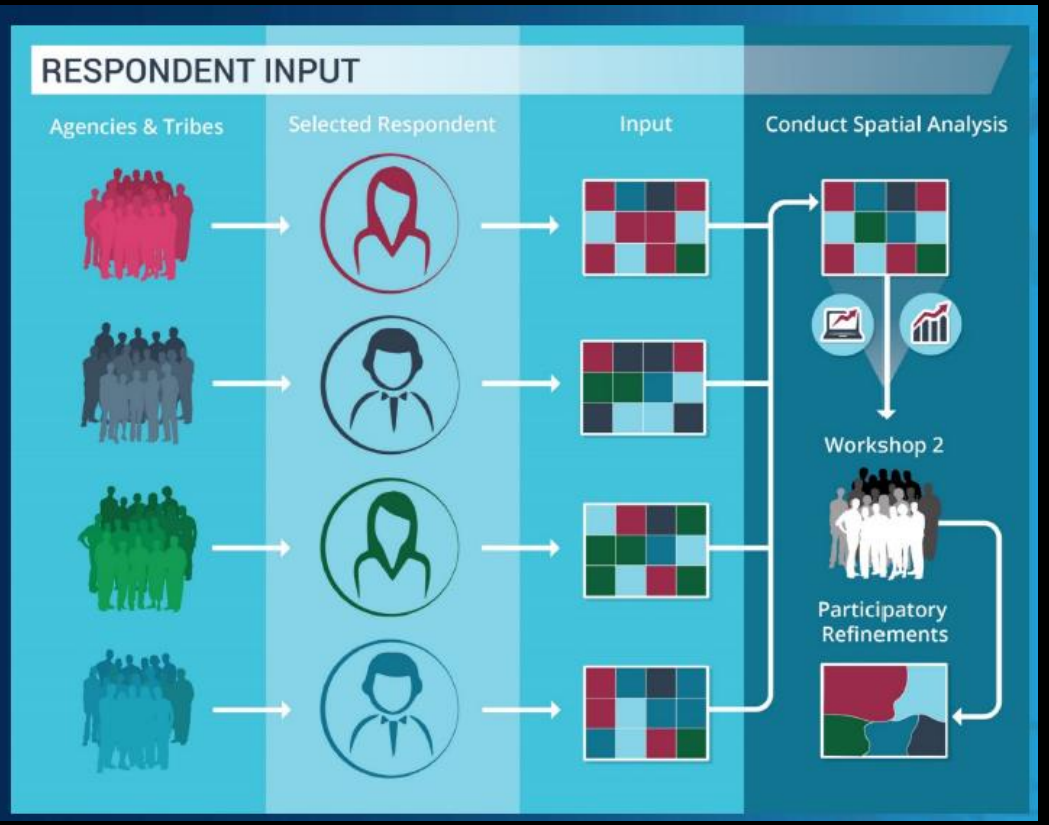
Mapping Prioritization Process

Tool: Participatory GIS – NOAA Biogeography Branch

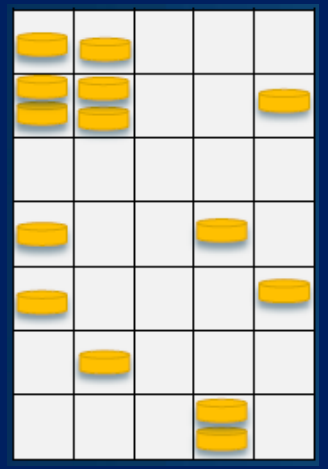
- Developed by Ken Buja – transferred to FWC-FWRI – configured for FCMaP
- Collect stakeholder input
- Successfully employed in other parts of the nation

Methods overview

- Participatory GIS (PGIS) used to survey the mapping interests of a diversity of stakeholder organizations
- Respondents prioritize specific areas, needs, and reasons for future mapping
- Selections from the respondents are summarized using descriptive statistics, cluster analysis, and other approaches



Mapping Prioritization

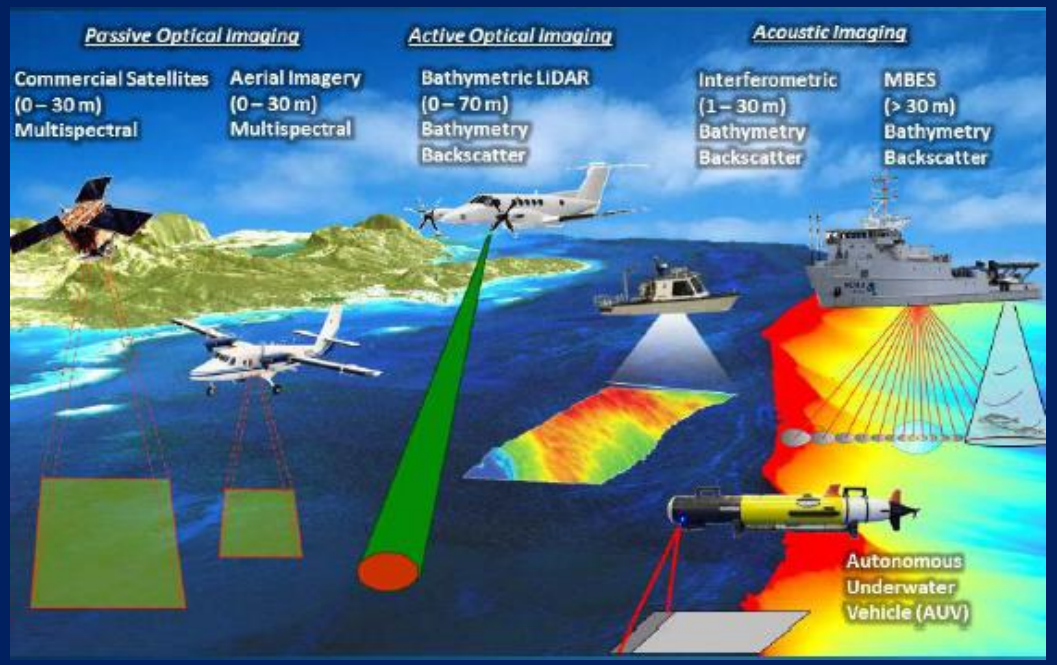


Prioritize by allocating coins

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

Each respondent group:

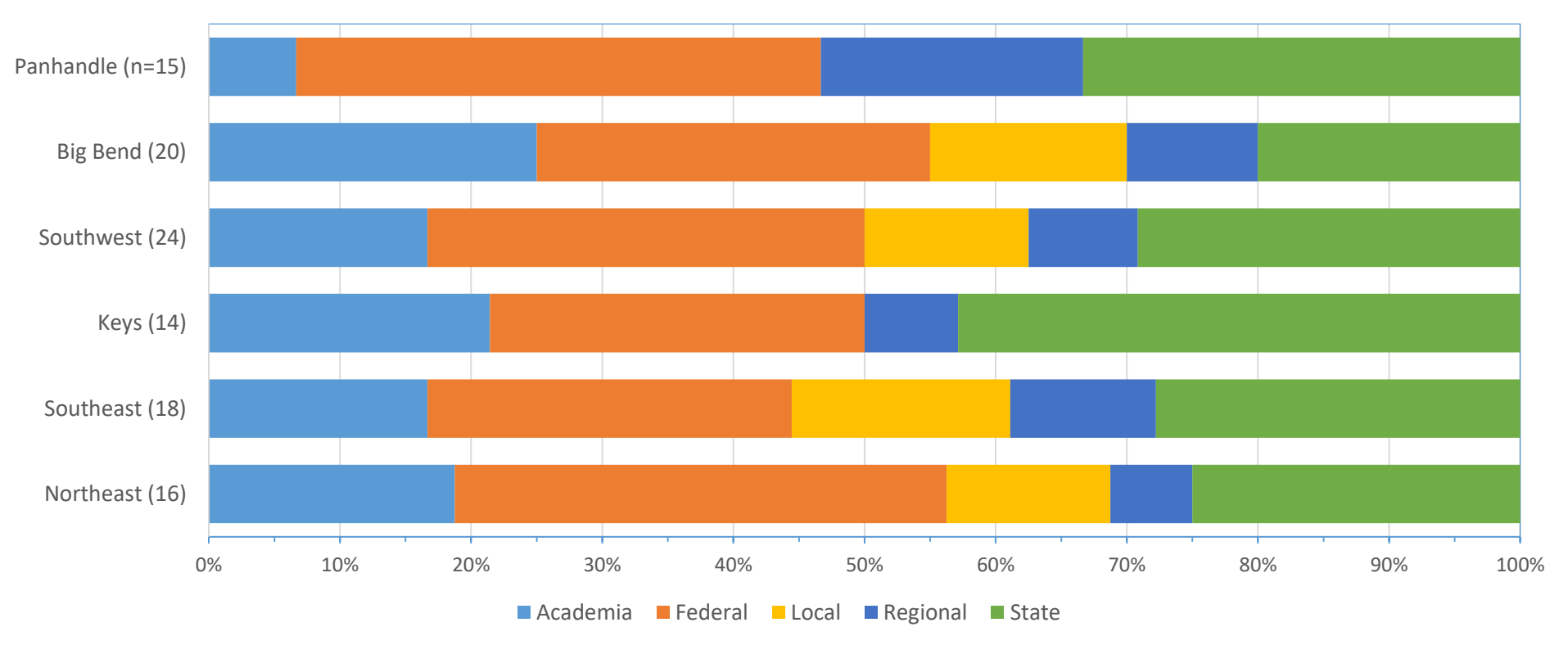
- Total coins - 20% of cells in the region
- Maximum coins per cell - 10% of total allocated coins



Identify

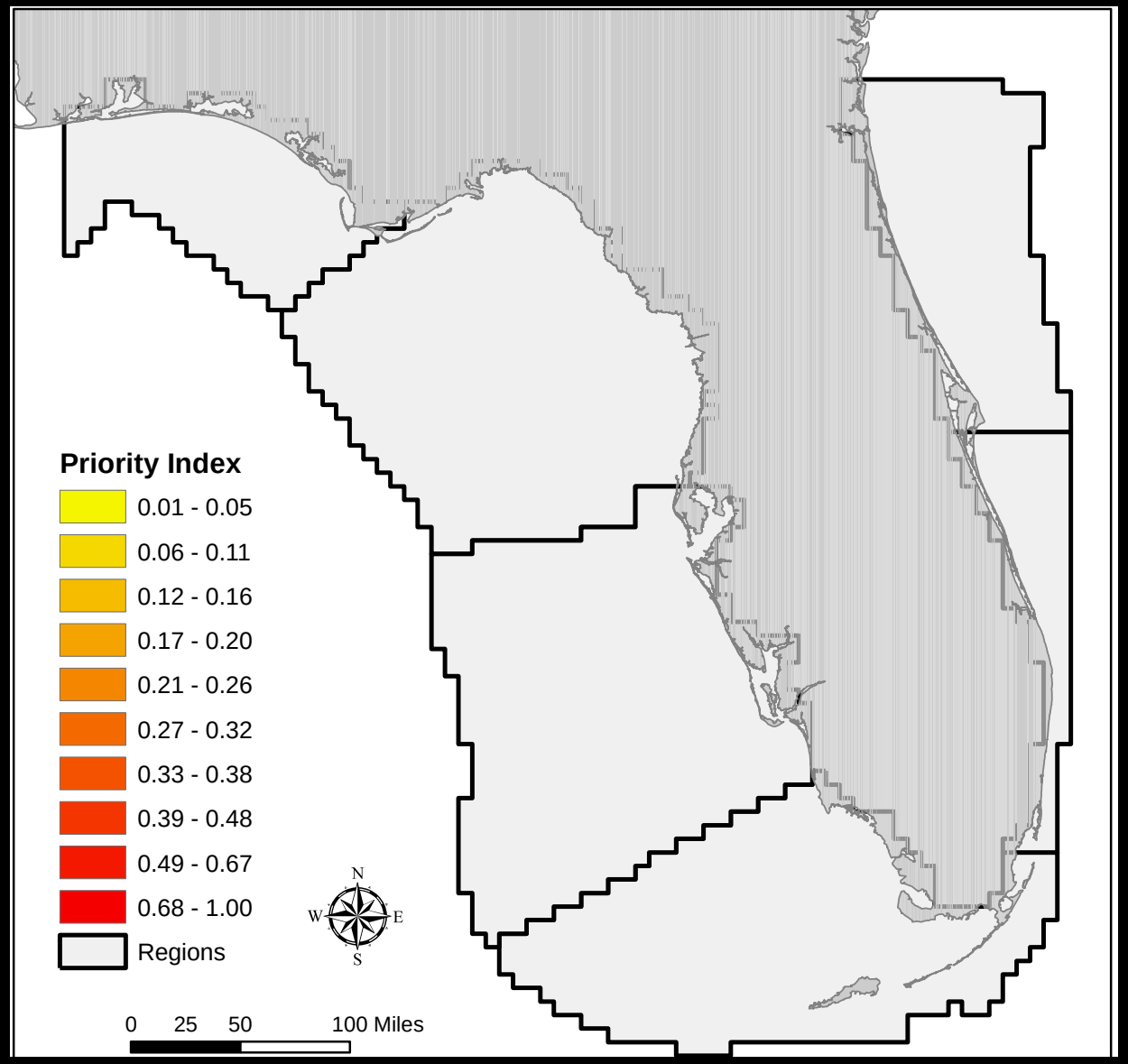
- Reason it's a priority – what application is data needed for?
- What other data (beyond bathymetry) are needed?

Stakeholder Participation

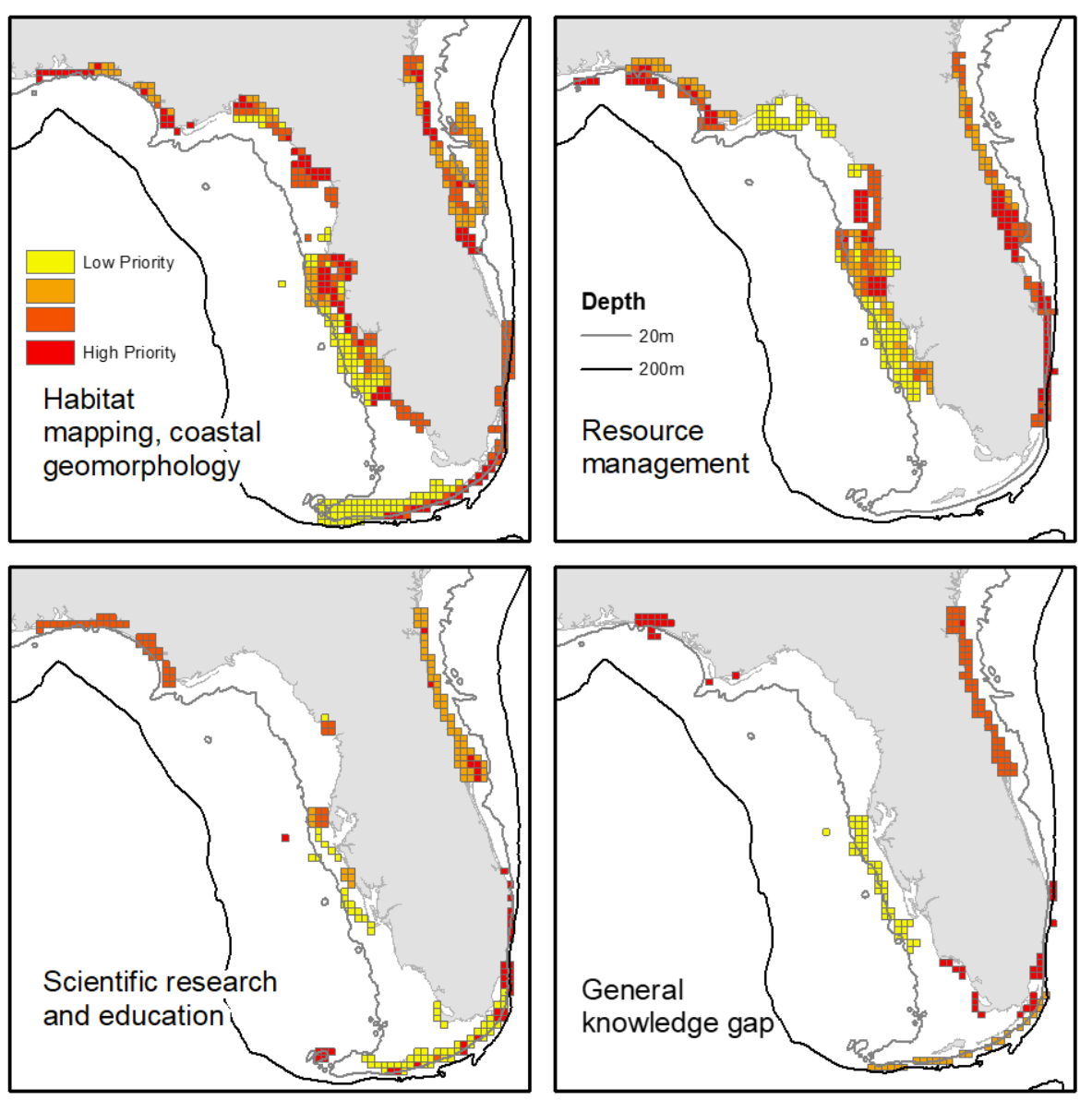


107 stakeholder respondents

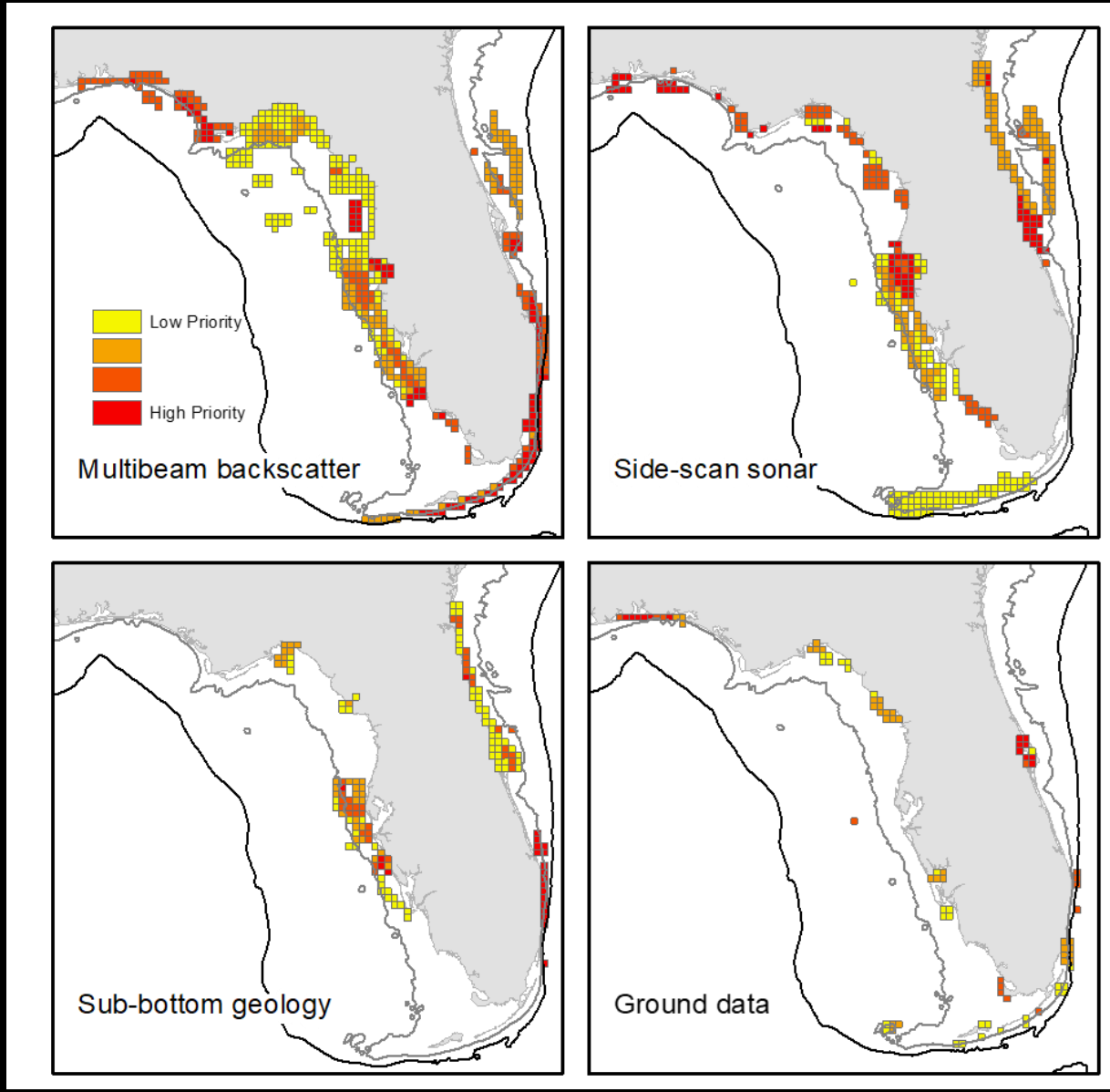
Results: Statewide Prioritization



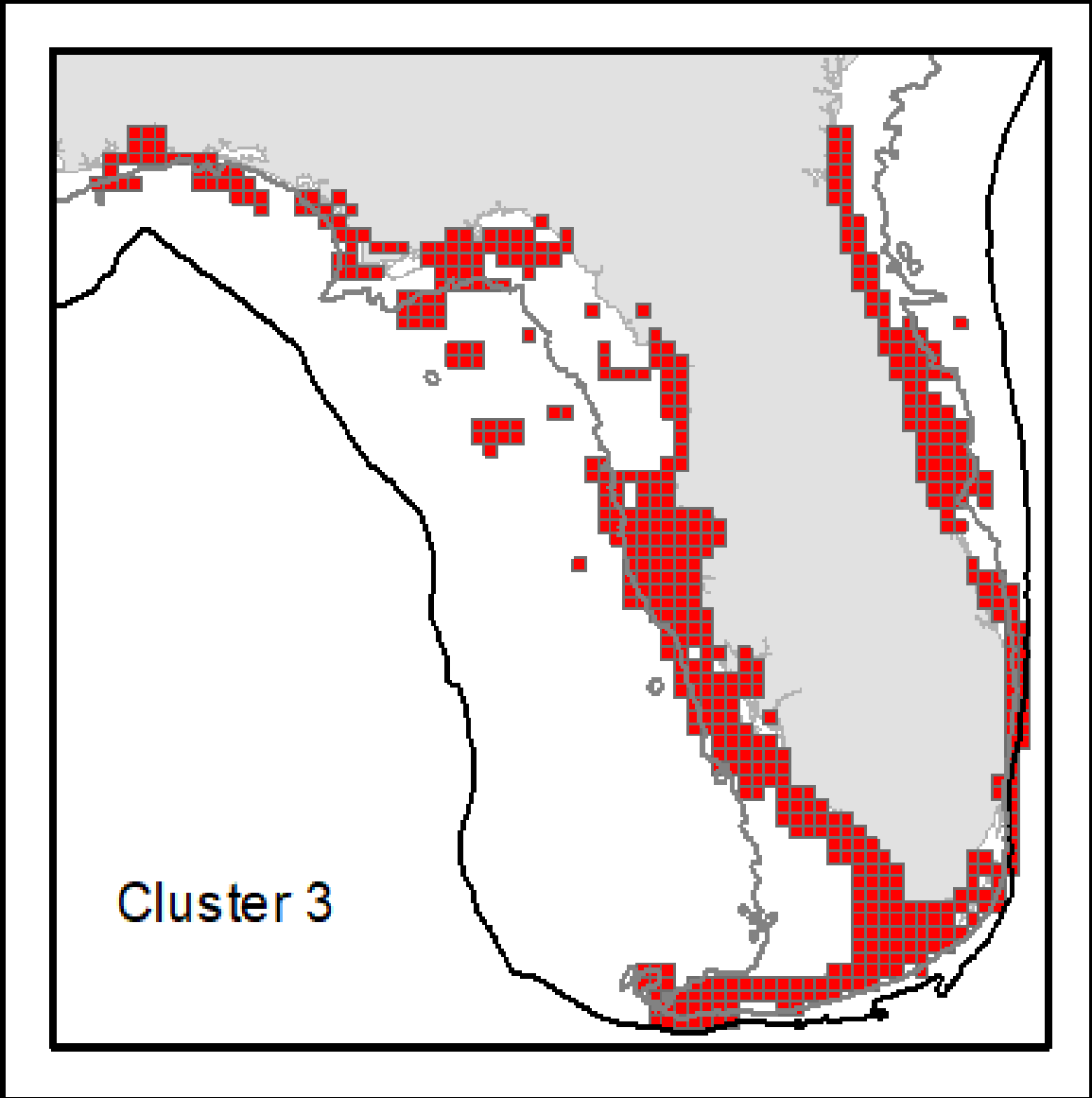
Results: Mapping Need



Results: Ancillary Data



Cluster Analysis



- Highest average coins
- Largest need for data types and applications

→ Biggest bang for the buck!

	Cluster	1	2	3	4
	Cell count	448	275	598	244
Mapping Need	General knowledge gap	0.01	2.1	1.99	**2.49**
	Habitat mapping	0	5.17	**7.47**	3.78
	Resource mgmt.	0	0.96	**6.26**	1.8
	Fishing & fisheries	0	0.35	**0.66**	0.15
	Recreation	0	0.07	**0.87**	0.24
	Navigation & saftey	0	0.39	**2.2**	0.56
	Science & education	0	4.21	**4.87**	3.12
	Cultural & historical	0	0.07	**0.77**	0.12
	No stated need	2.71	0.28	2.96	**6.75**
Ancillary Data Needed	Side-scan sonar	0	**4.7**	4.46	2.69
	Multi- beam	0	5.03	**5.74**	3.25
	Sub-bottom geology	0	0.3	**3.58**	0.54
	Ferrous objects	0	0	**0.48**	0
	Ground data	0	2.43	**4.61**	2.29
	Seafloor color	0	0.14	1.33	**2.3**
	No stated data	2.72	0.51	3.65	**7.45**

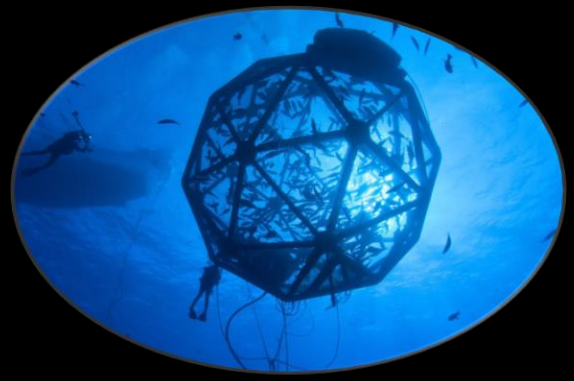
Summary

- FCMaP successfully developed and implemented a mapping prioritization tool for the State of Florida
- Stakeholders included federal, state, academic local and industry participants, with the greatest participation from federal and state
- The highest priority areas are in the nearshore shallow water zone (0 – 20 m water depth)
- The majority of stakeholders indicated that habitat mapping and coastal geomorphology was their primary mapping need and bottom type was the top priority ancillary data type
- A cluster analysis indicates the areas with the highest cell counts in all categories; prioritizing these areas will provide the most “bang for the buck”
- The outcomes of the prioritization provide the pathway to begin implementation of systematic mapping for the State

Contact me: chapke@usf.edu

https://arcg.is/1Of0OT0

Florida Coastal Mapping Program – Something for Everyone



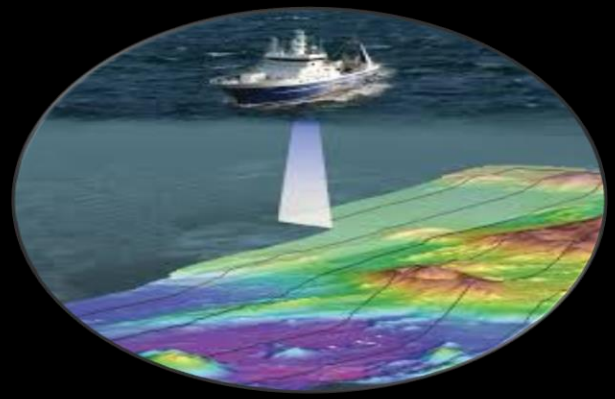
Aquaculture

Environment

Tourism

Research

Energy



Sand Resources

Fisheries

Safety