

SEACAR Frontiers: Supporting Data-Driven Management Planning



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Oyster Workshop | Apr. 15, 2026



STATEWIDE ECOSYSTEM ASSESSMENT OF COASTAL AND AQUATIC RESOURCES

ONE DATABASE

- Standardized
- Well-documented
- Multiple locations
- Multiple sources



STATEWIDE ECOSYSTEM ASSESSMENT OF COASTAL AND AQUATIC RESOURCES

FIVE HABITATS

- Submerged Aquatic Vegetation
- Water Column
- Coral Reef
- Coastal Wetlands
- Oyster Reef



Submerged Aquatic Vegetation



Water Column



Coral/Coral Reef



Coastal Wetlands



Oyster/Oyster Reef



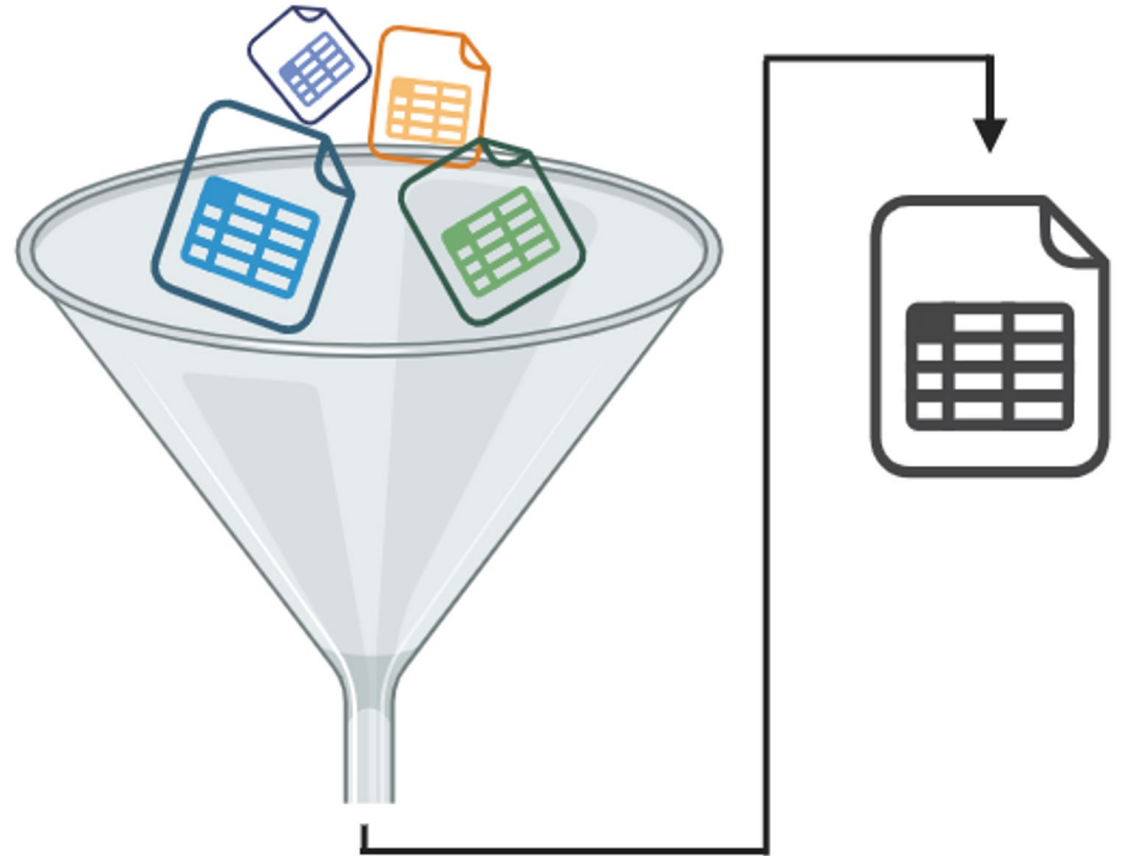
STATEWIDE ECOSYSTEM ASSESSMENT OF COASTAL AND AQUATIC RESOURCES

Bringing data together:

- Scientists and researchers
- Policymakers
- General public

Accessibility is crucial:

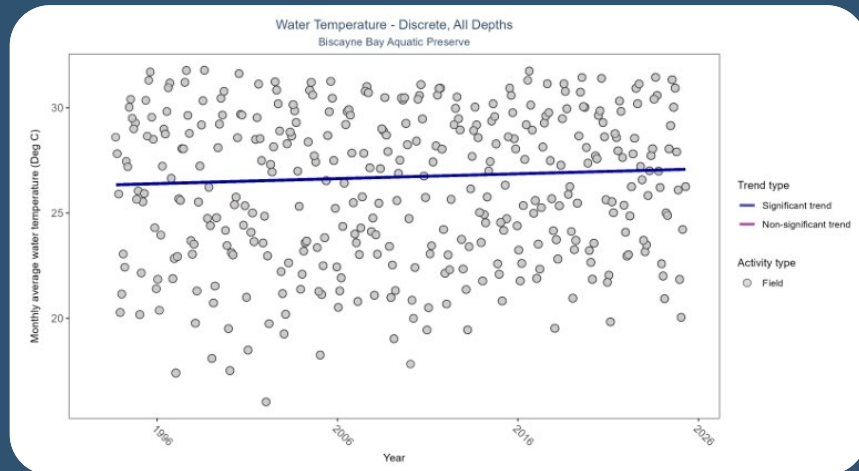
- Trend analysis
- Data visualization



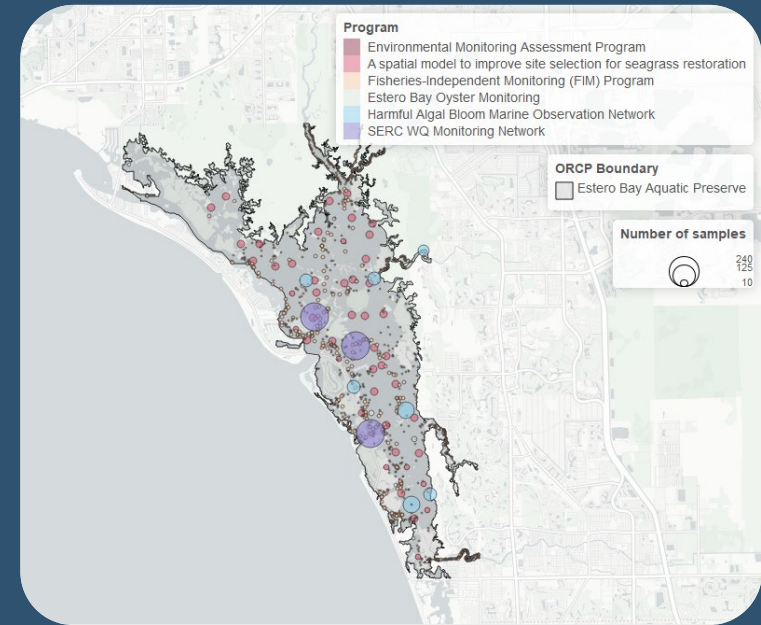


INFORMING MANAGEMENT PLANNING

Trend analysis



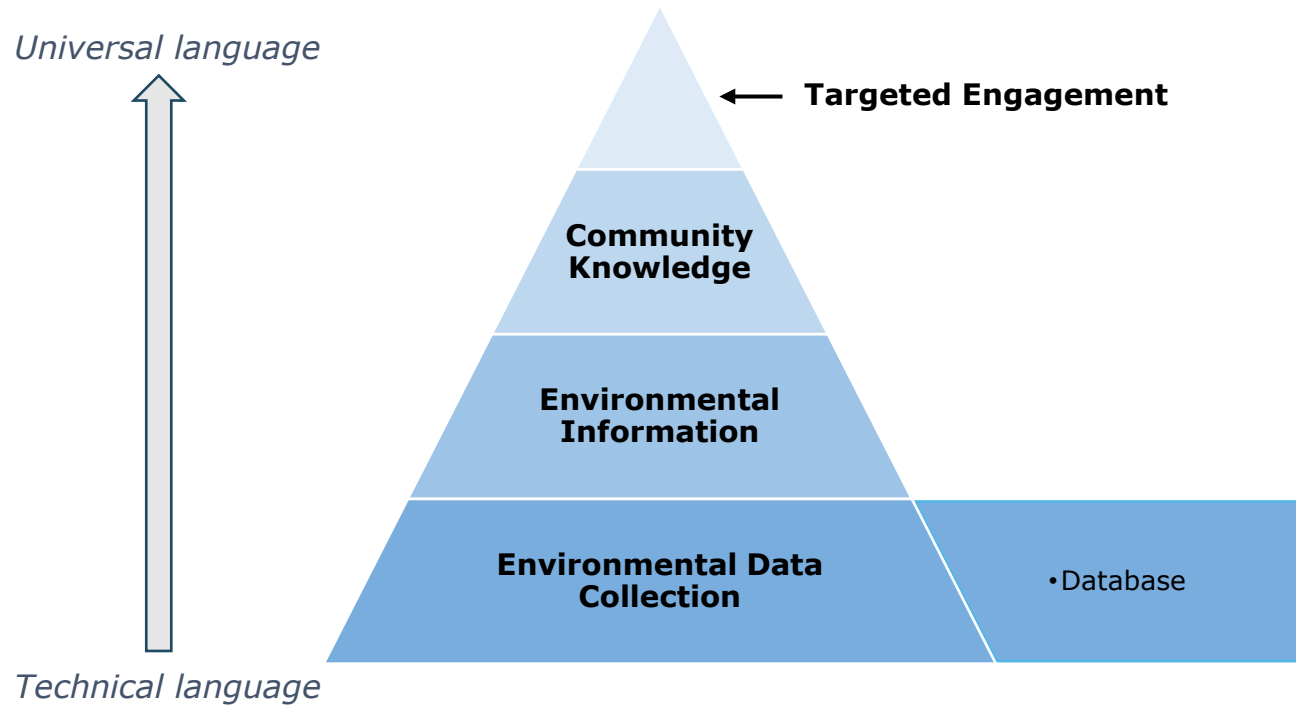
Data visualization



- Increase efficiency
- Save time and money
- Create opportunities for further collaboration



DATA IS NOT INFORMATION



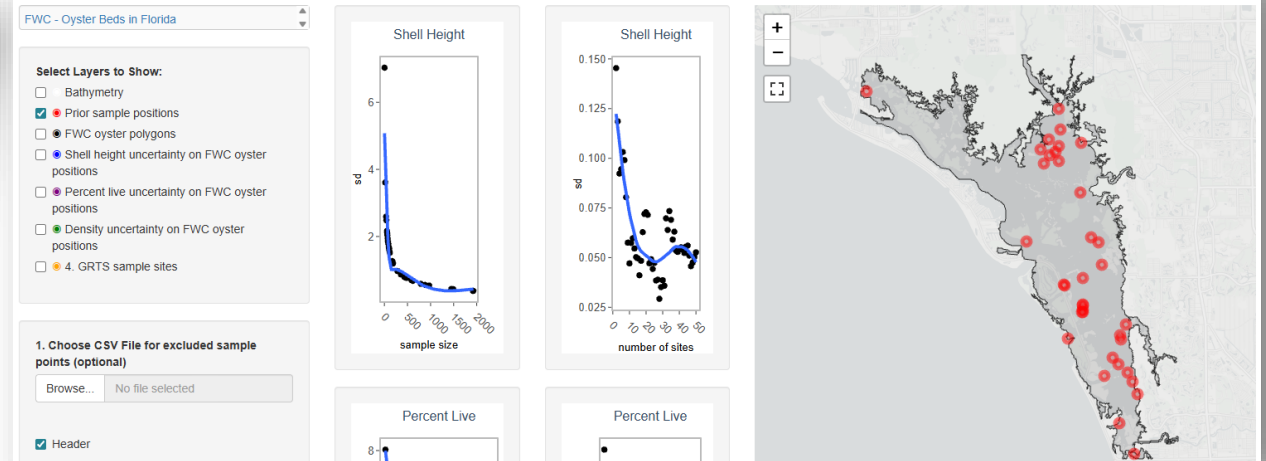
- Requires interpretation to be used
- Requires statistical expertise to analyze
- Proprietary tools are not publicly accessible



MOVING FROM DATA TO INFORMATION



Estero Bay Aquatic Preserve



Visualization and analysis

- Dashboards
- Reports

Site selection optimization

- Water Quality Optimization
- Oyster Sample Size and Site Selection



MONITORING OPTIMIZATION

Oyster Sample Size and Site Selection Tool

- Collaboration with Paleontological Research Institution



Select a managed area to view.
Estero Bay Aquatic Preserve

Estero Bay Aquatic Preserve

FWC - Oyster Beds in Florida

Select Layers to Show:

- Bathymetry
- Prior sample positions
- FWC oyster polygons
- Shell height uncertainty on FWC oyster positions
- Percent live uncertainty on FWC oyster positions
- Density uncertainty on FWC oyster positions
- 4. GRTS sample sites

1. Choose CSV File for excluded sample points (optional)
Browse... No file selected

Header

Shell Height

Shell Height



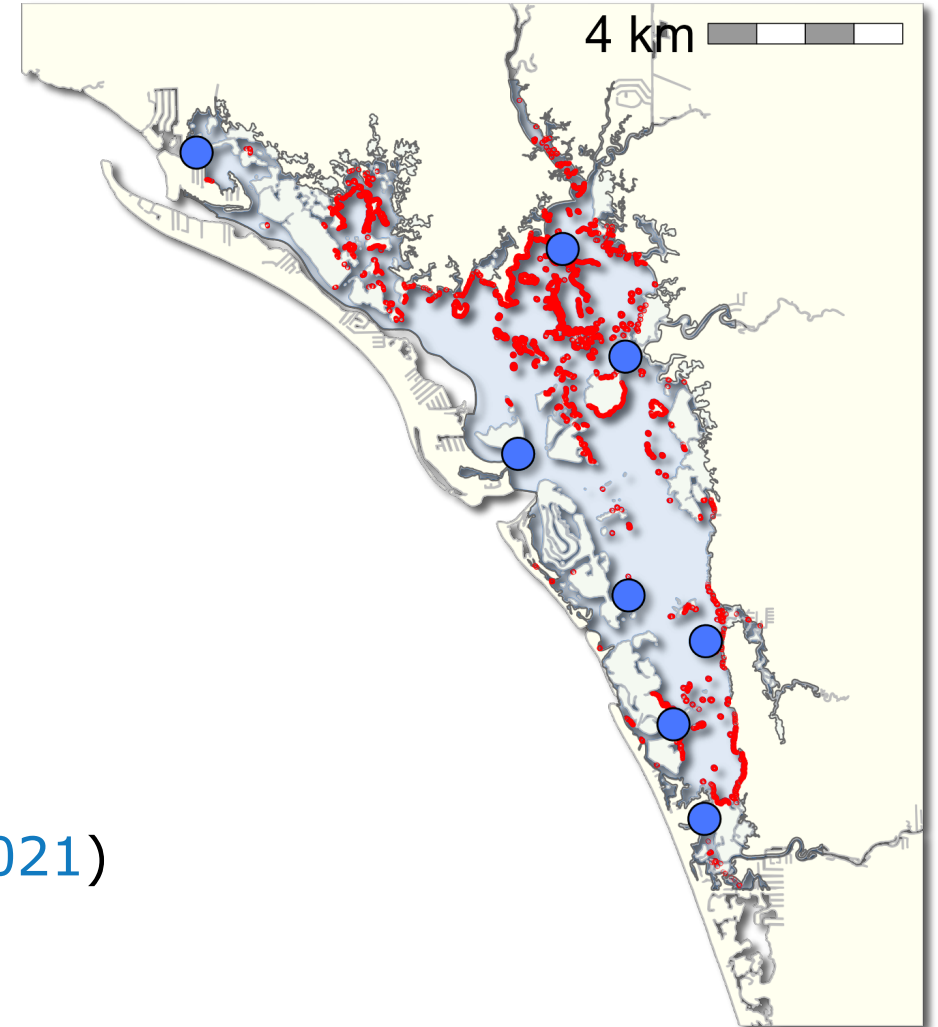
MONITORING OPTIMIZATION

Oyster Sample Size and Site Selection Tool

1. How many reefs?
2. Which reefs?

Estero Bay Aquatic Preserve

- 549 mapped oyster reefs (**red**)
- 13,829 acres
- 1-15 reefs sampled in any given year (**8 sites in 2021**)



Mapping layer source Florida Fish and Wildlife Conservation Commission (<https://data.florida-seacar.org/programs/details/5059>)

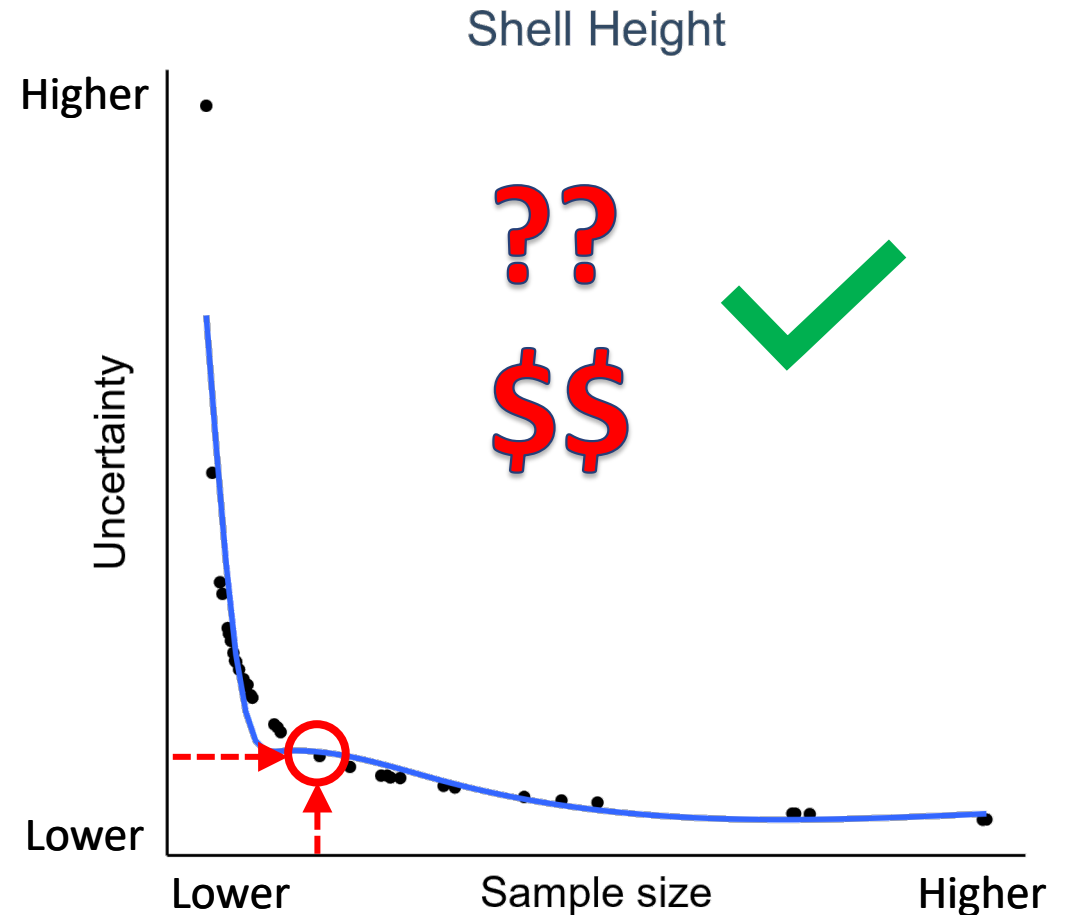


MONITORING OPTIMIZATION: HOW MANY SAMPLES?

Oyster Sample Size and Site Selection Tool

1. How many samples?

- Too few samples
- Too many samples
- ✓ Balancing effort and precision



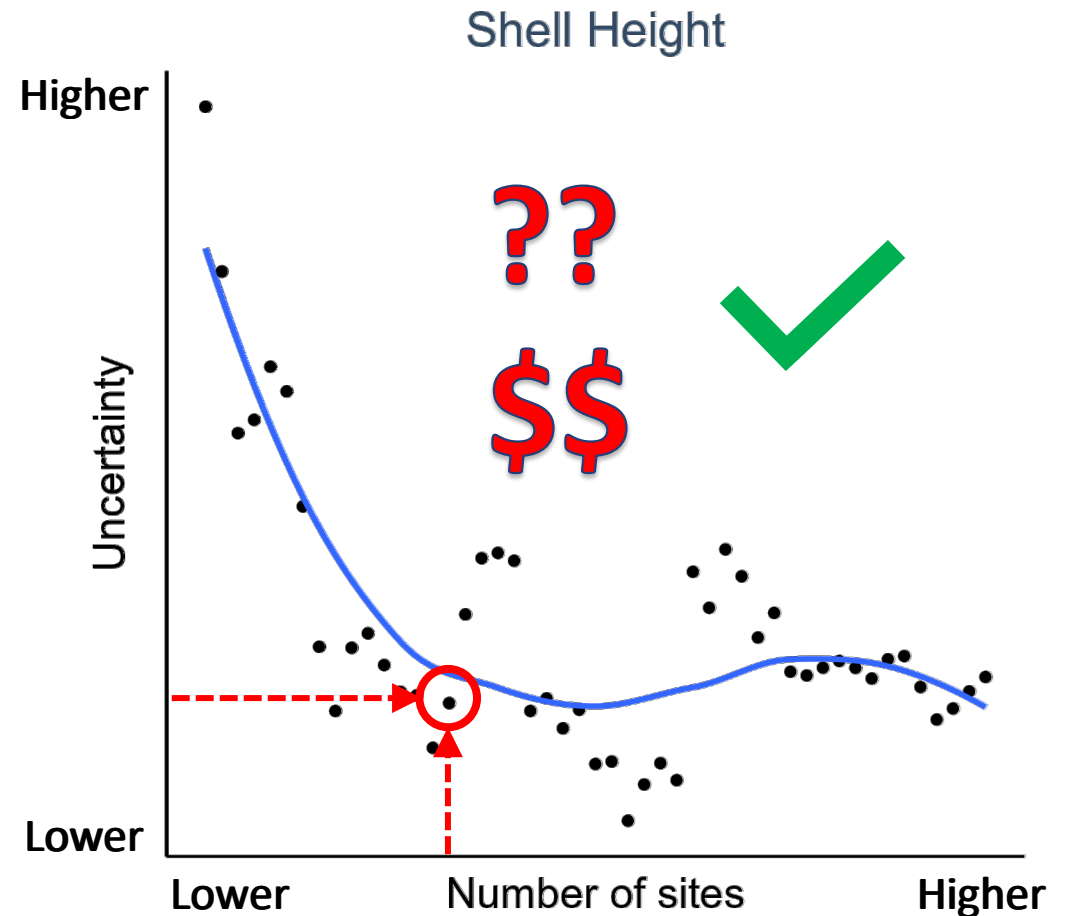


MONITORING OPTIMIZATION: HOW MANY REEFS?

Oyster Sample Size and Site Selection Tool

1. How many reefs?

- The same principle applies.



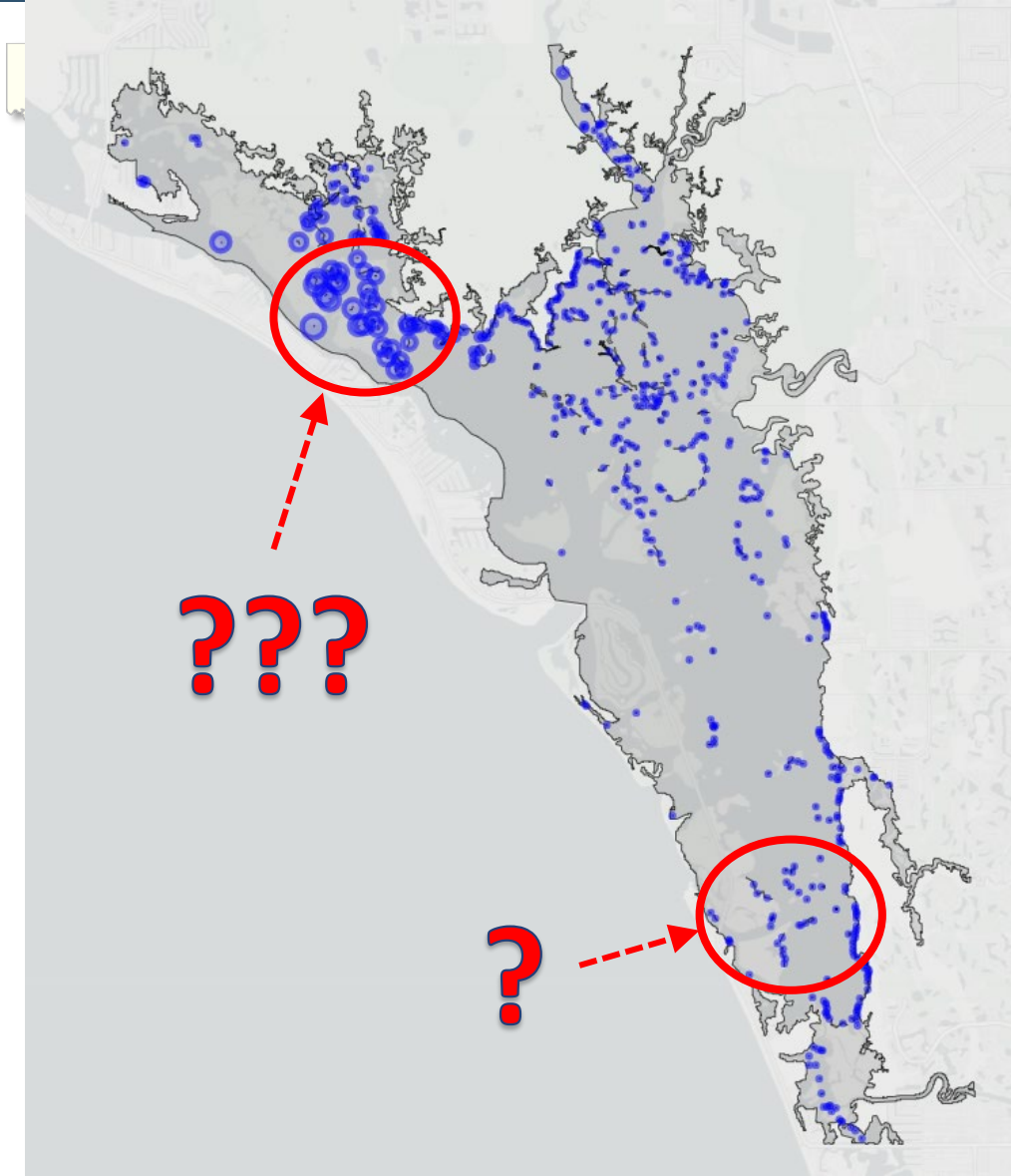


MONITORING OPTIMIZATION: WHICH REEFS?

Oyster Sample Size and Site Selection Tool

2. Which reefs?

- Spatial extent
- How uncertain are our estimates?
 - Modeled **uncertainty** for each reef.





MONITORING OPTIMIZATION: IMPLEMENTATION

Oyster Sample Size and Site Selection Tool

2. Which reefs?

- Select number of reefs (e.g., 10)
- Prospective **locations**

Please Enter GRTS Sample Size

Number:

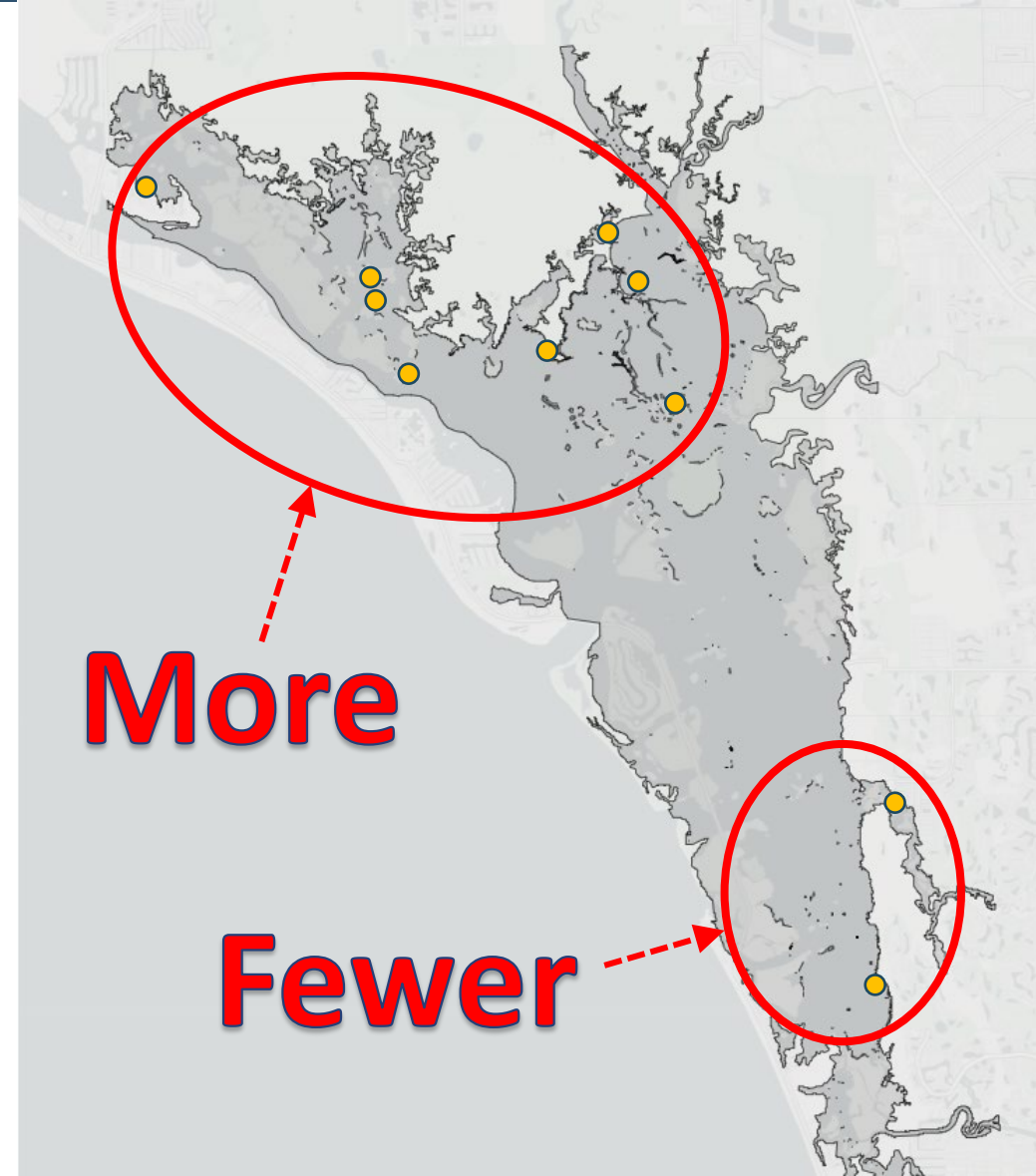
1 10 50



1 6 11 16 21 26 31 36 41 46 50

Cancel Submit

The image shows a web-based form for entering the GRTS Sample Size. It features a slider control with a range from 1 to 50. The current value is set to 10. Below the slider are "Cancel" and "Submit" buttons.





MONITORING OPTIMIZATION: FEATURES

Oyster Sample Size and Site Selection Tool

Convenience features

- Upload a list of reef IDs to exclude
- Restrict by water depth
 - Bathymetry
- Restrict by reef area
- Export the coordinates

1. Choose CSV File for excluded sample points (optional)

Browse... No file selected

Header

Separator

Comma

Semicolon

Tab

Quote

None

Double Quote

Single Quote

2a. Choose depths to include (optional)

2b. Choose reef areas to include (optional)

3. Enter Number of GRTS Samples

5. Choose file format for GRTS sample sites:

CSV

Download File



MONITORING OPTIMIZATION

Oyster Sample Size and Site Selection Tool

- Identify monitoring locations
- Determine sampling frequency
- More efficient monitoring programs
- Better ecological outcomes



CONCLUSION

SEACAR: data accessibility and collaboration

We look forward to sharing additional resources and tools in the coming years.

We also welcome and appreciate community feedback, please get in touch with us!





THANK YOU

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<https://FloridaSEACAR.github.io/>