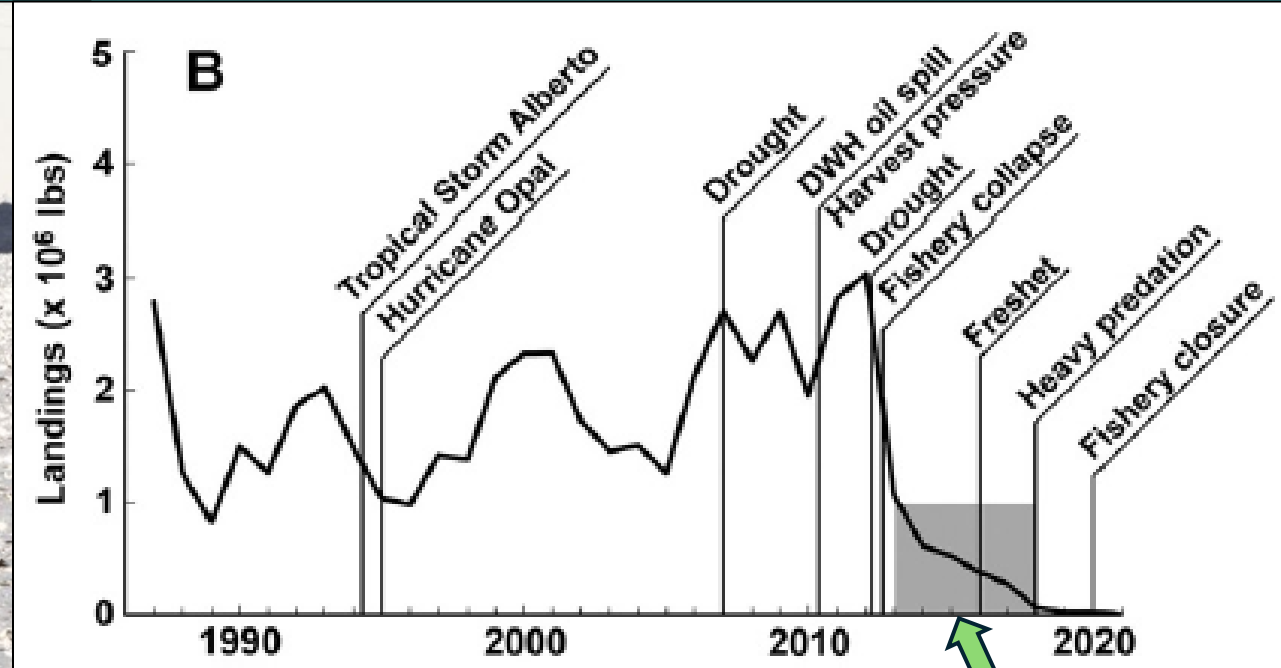


APALACHICOLA BAY OYSTER POPULATION RESPONSE TO THE FIVE-YEAR FISHERY CLOSURE

Sandra Brooke, Shannon Hartsfield,
Natalie Horn, Lauren Calvin, Caitlin
Turnbull, Adam Alfasso, Adin Domen,
Harrison Clark, Joel Trexler

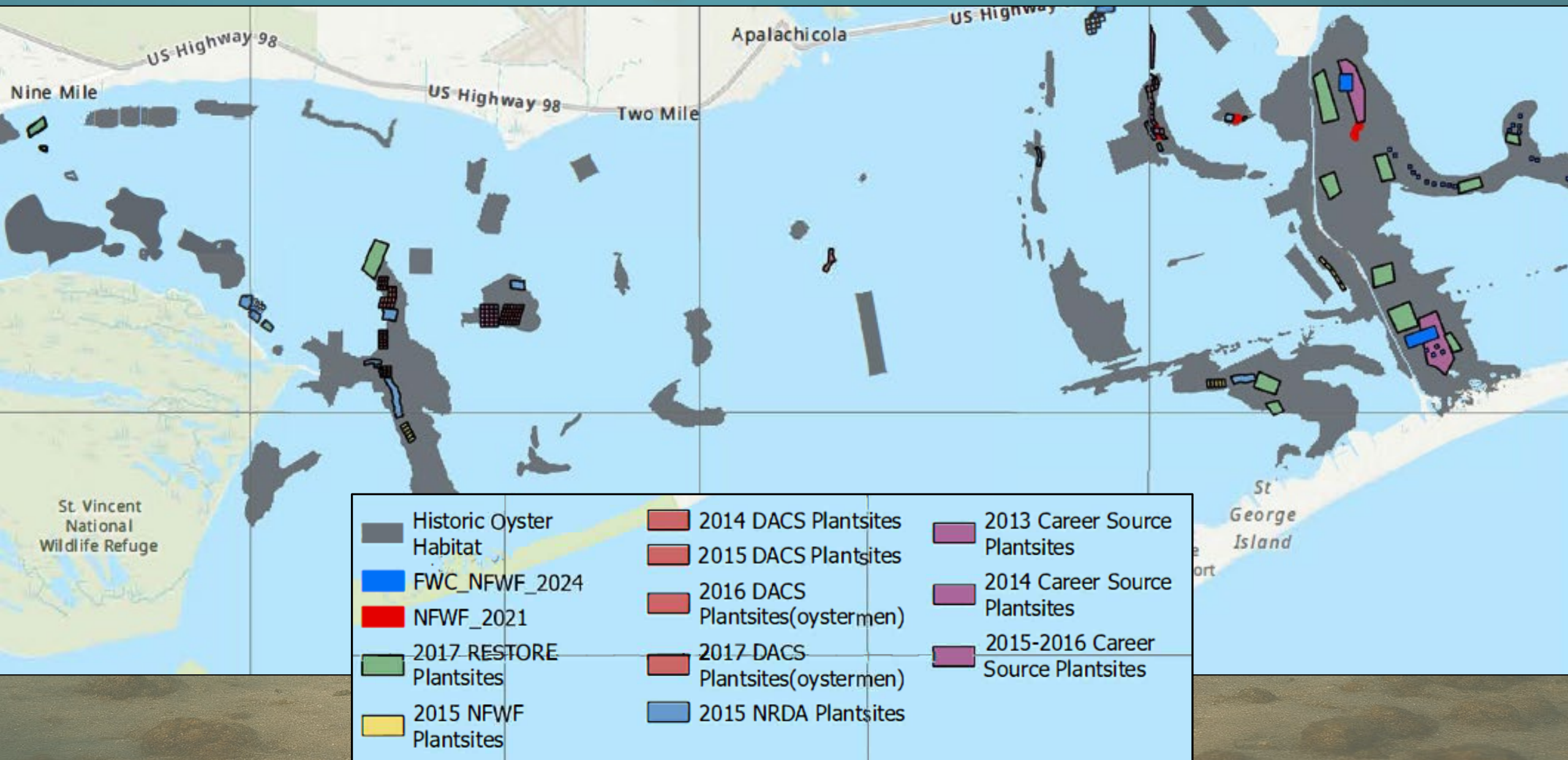


Apalachicola Bay oyster fishery fluctuation over time



From Hintenlang et al., 2023

Apalachicola Bay restoration post fishery-collapse



Before fishing closure: No sites reached 400 bags/acre

FLDEP RESTORE Act project

2017: Deployed 317 acres limestone

Sampled Summer 2019

Site	Bags/acre
8-Mile	0
9-mile	0
Cabbage Top	0
Cat Point	3
Cat Point Spur	12
East Hole 1	0
East Hole 2	0
Hotel Bar 1	0
Hotel Bar 2	0
King 9-mile	0
Monkey's Elbow	0
North Spur 2	0
Peanut Ridge	0
South Bulkhead	0

FLDEP NRDA project

2015: Deployed 124 acres fossil shell

Sampled Fall 2019

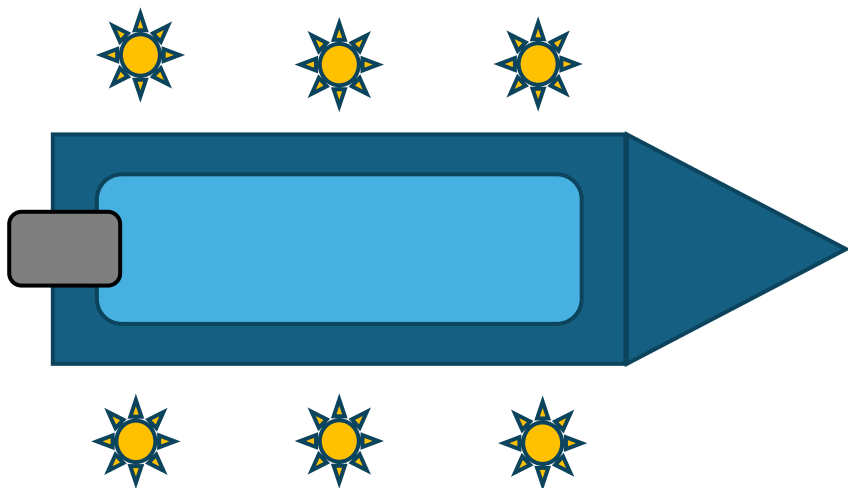
Site	Bags/acre
Bayou Flats	0
Cabbage Lumps	0
Cabbage Top	0
Cat Point	0
Dry Bar	0
Eleven Mile North	0
Eleven Mile South	0
Green Point	0
Hotel Bar	0
Lighthouse	0
Little Gully	0
Norman's Bar Middle	0
Norman's Bar North	5
North Spur	0
Redfish Creek 1	0
Redfish Creek 2	0

ABSI ANNUAL MONITORING 2020-2025

SAMPLES TAKEN USING TONGS

Six samples per site

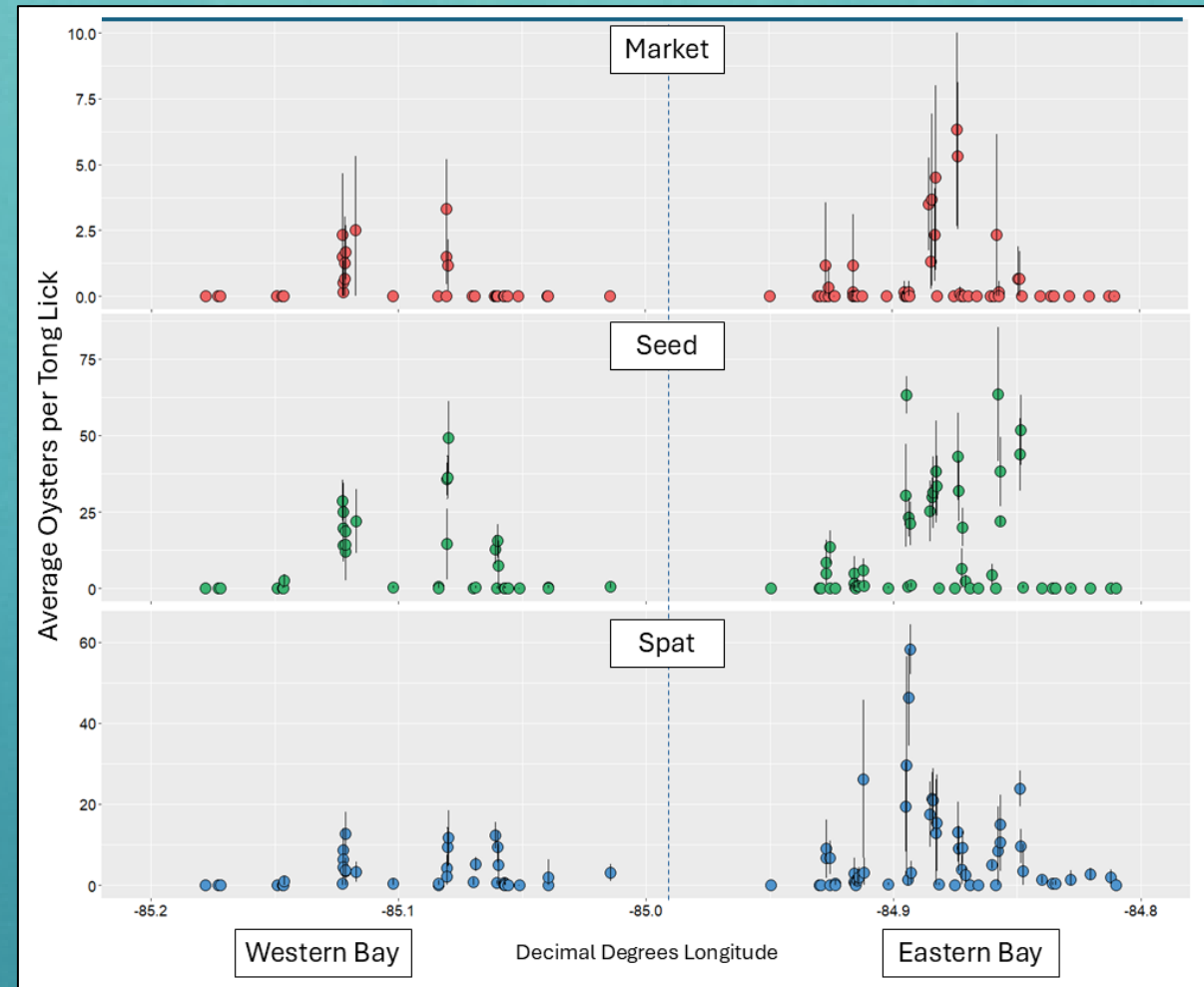
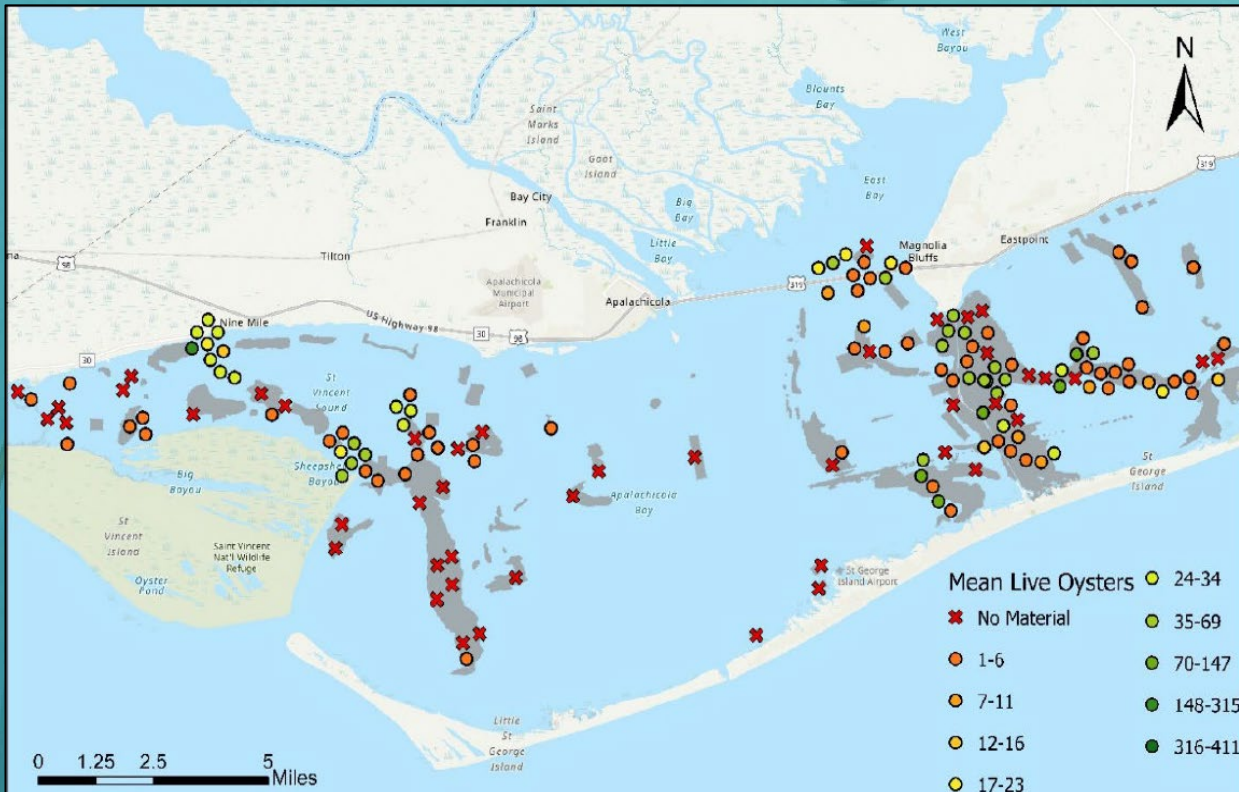
- Total volume and weight
- Number of spat (<25mm), seed (25-75mm), market (>75mm), boxes
- Shell height of all live oysters
- Predator count
- Water quality



Round 1 Bay-Wide Monitoring

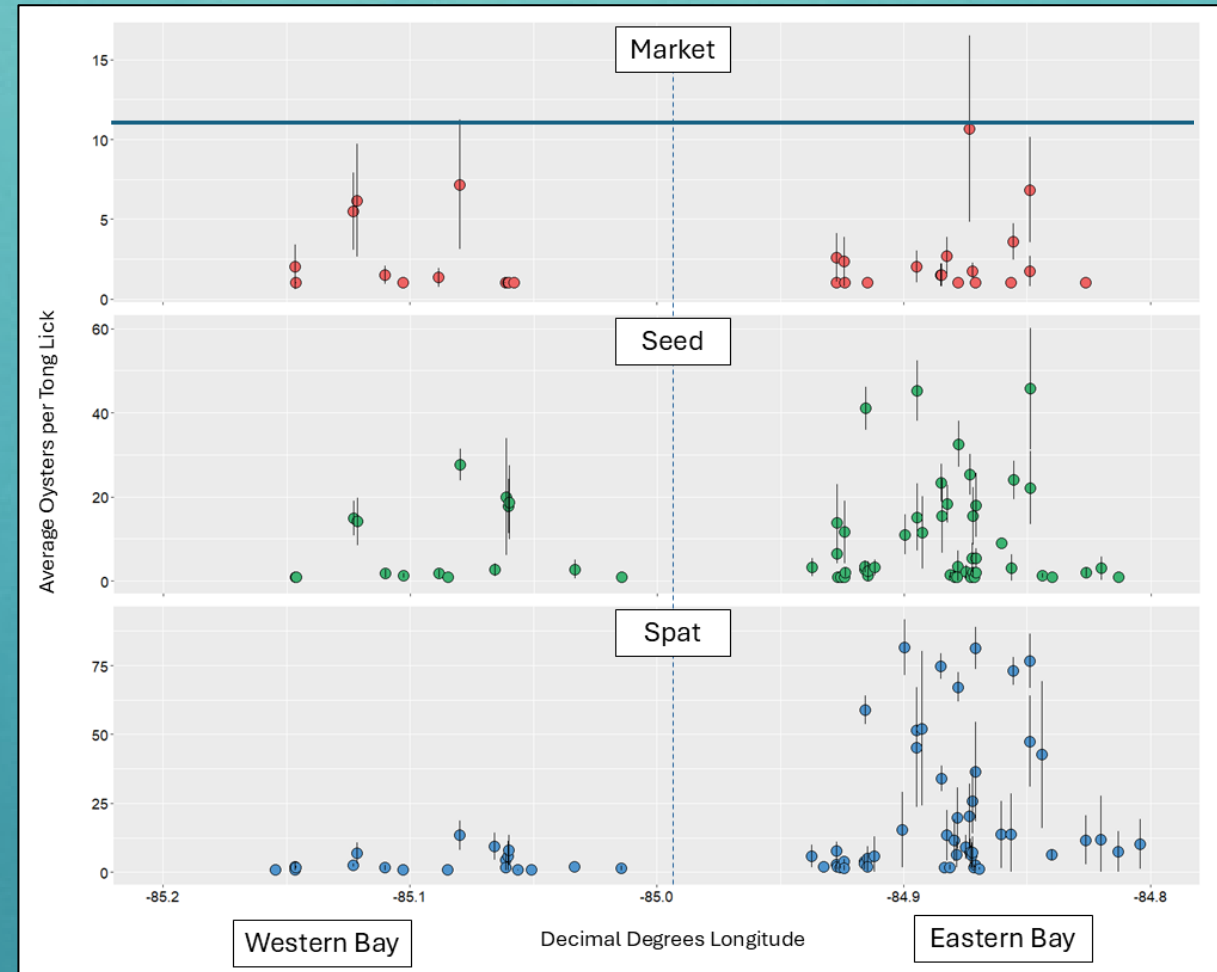
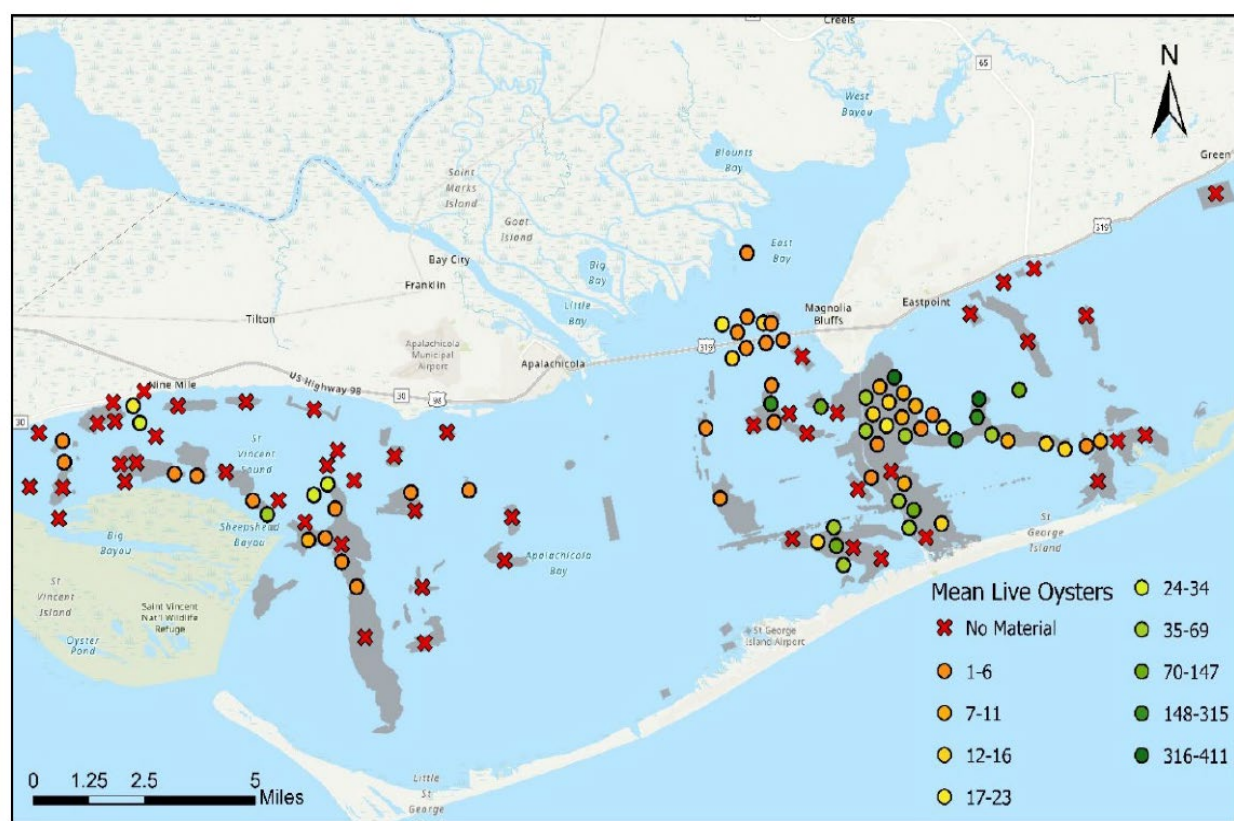
Oct 2020-May 2021

103 sites



No sites reached harvestable threshold

Round 2 Bay-Wide Monitoring Dec 2021-Mar 2022 117 sites



One site almost reached harvestable threshold

2021-2022: Three limestone sites (56 acres) reached 400 bags/acre

FWC monitoring 2022

Site	Jan	Feb	Mar	May	Sep
Bulkhead			0		0
North		29		14	
South		14		14	
Cabbage Top			58		29
Cat Point			0		0
Restoration	10			5	
Shallow	0			0	
Dry Bar North			0		0
East Lumps			0		0
Restoration	0			0	
East Hole 7			0		0
Green Point			5		48
Site 6		14		96	
Halfmoon					0
East		0		0	
Hotel			0		0
West		0		0	
Lighthouse			5		0
Restoration		0		5	
Site 8		0			
Normans			0		0
Paradise Flats			10		38
Platform			0		0
Porters			0		0

FLDEP RESTORE Act project

2017: Deployed 317 acres limestone
Round 3: Spring 2021

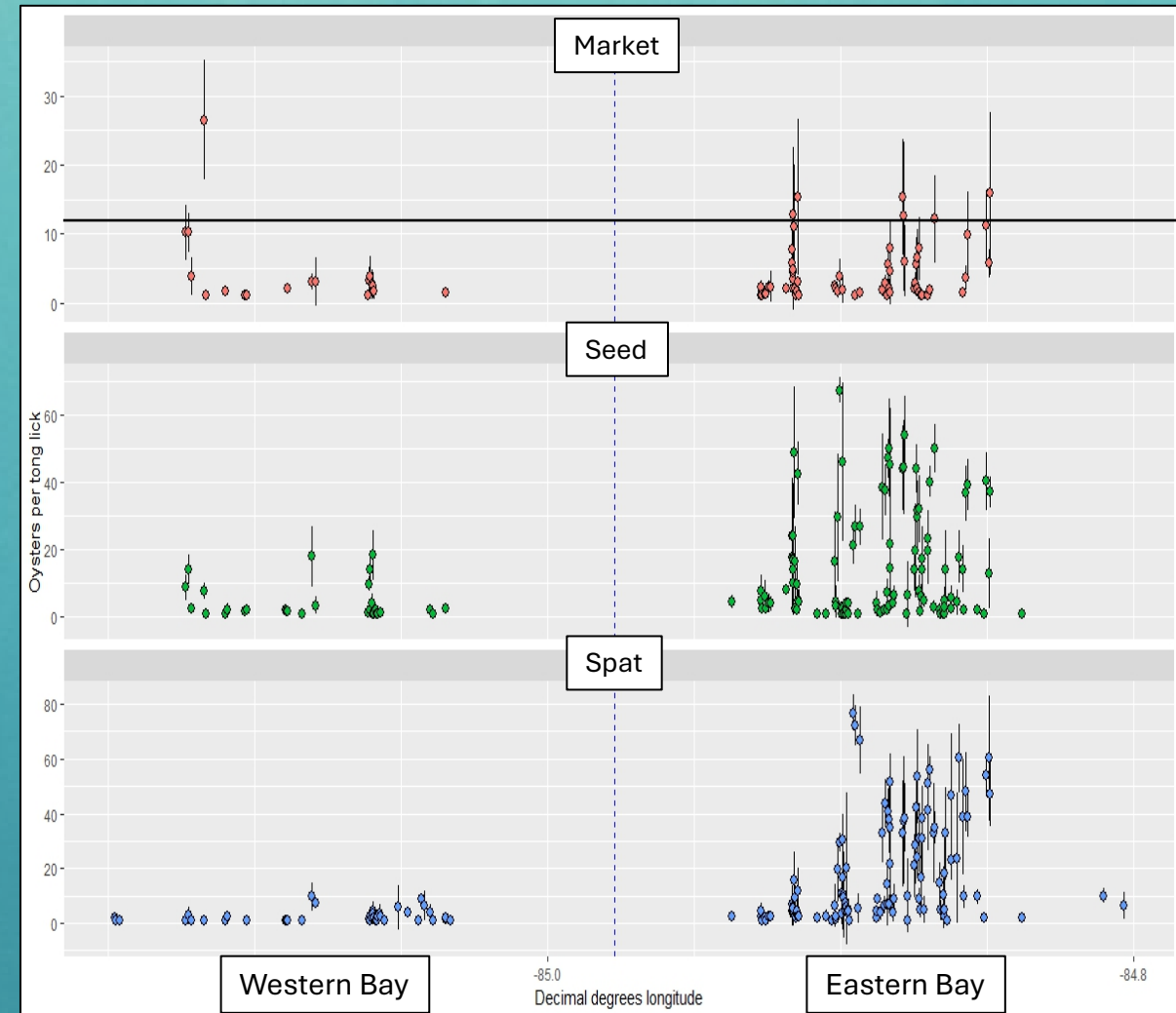
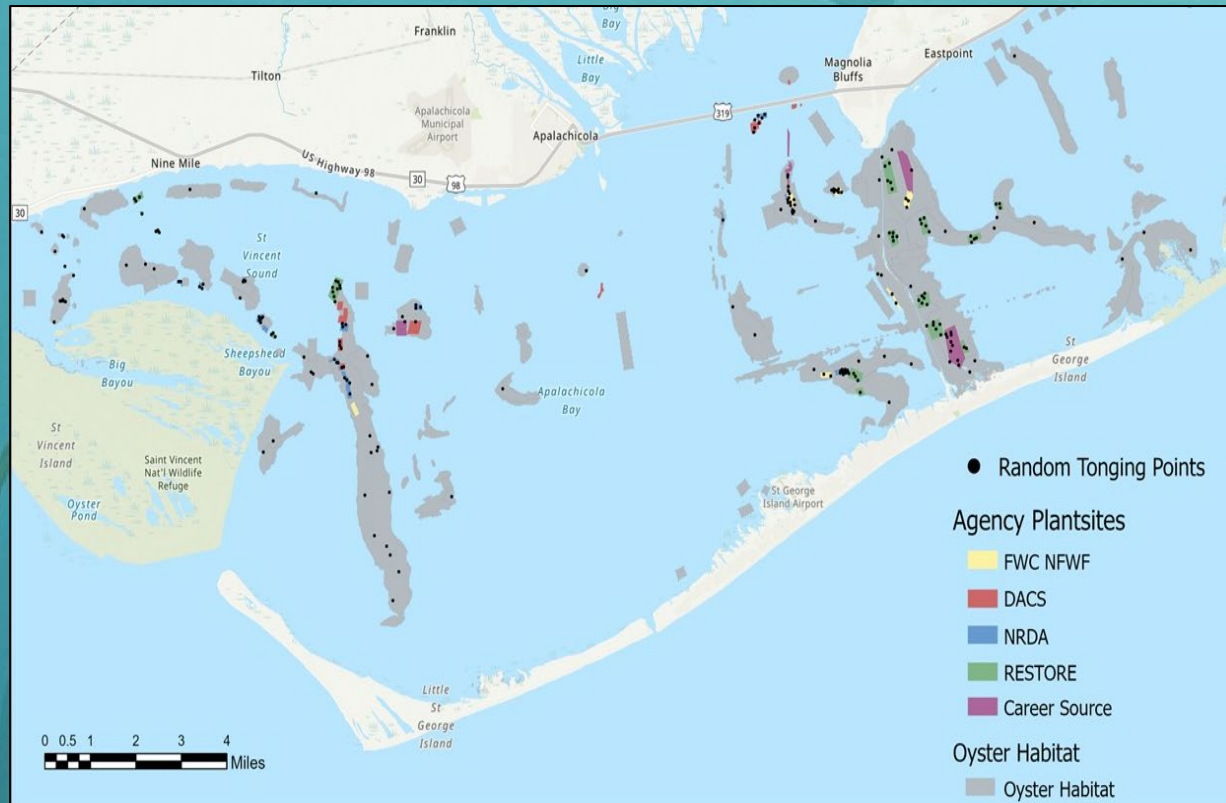
Site	Bags/acre
8-Mile	175
9-mile	5
Cabbage Top	34
Cat Point	98
Cat Point Spur	441
East Hole 1	31
East Hole 2	2
Hotel Bar 1	5
Hotel Bar 2	29
King 9-mile	82
Monkey's Elbow	285
North Spur 2	0
Peanut Ridge	403
South Bulkhead	652

FLDEP NRDA project

2015: Deployed 124 acres fossil shell
Sampled Fall 2021

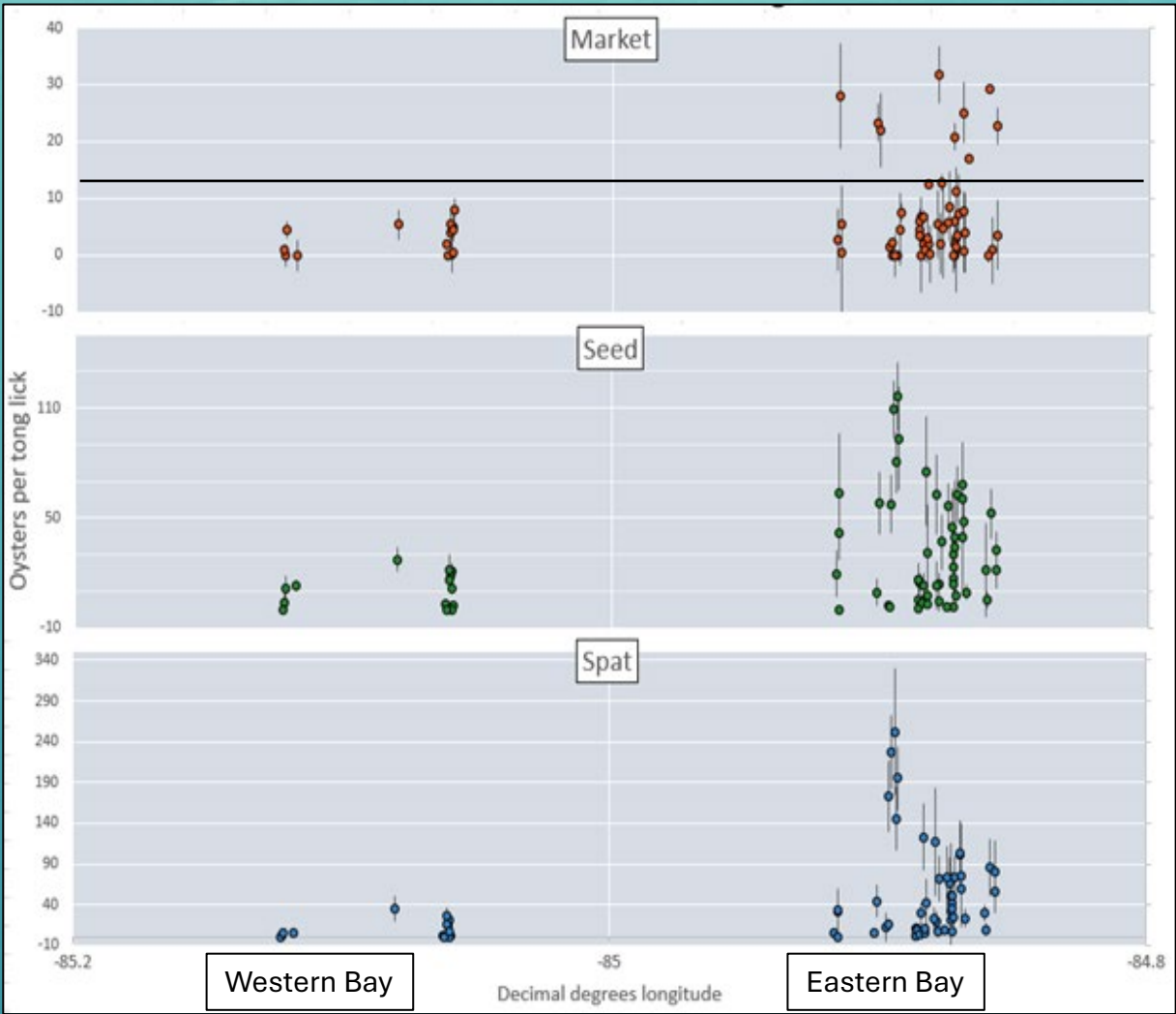
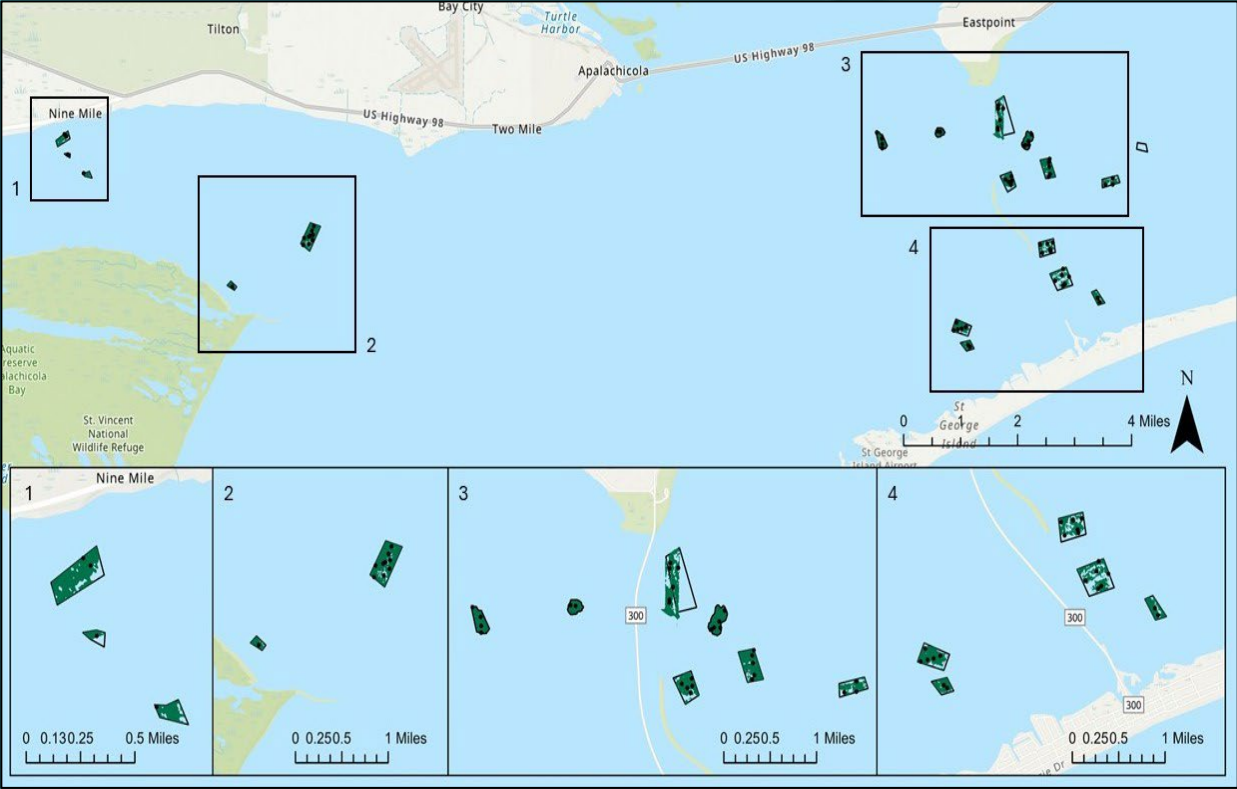
Site	Bags/acre
Bayou Flats	24
Cabbage Lumps	14
Cabbage Top	0
Cat Point	5
Dry Bar	0
Eleven Mile North	5
Eleven Mile South	19
Green Point	0
Hotel Bar	0
Lighthouse	17
Little Gully	0
Norman's Bar Middle	10
Norman's Bar North	22
North Spur	0
Redfish Creek 1	5
Redfish Creek 2	5

Round 3 Bay-Wide Monitoring Jan-Mar 2023 227 sites



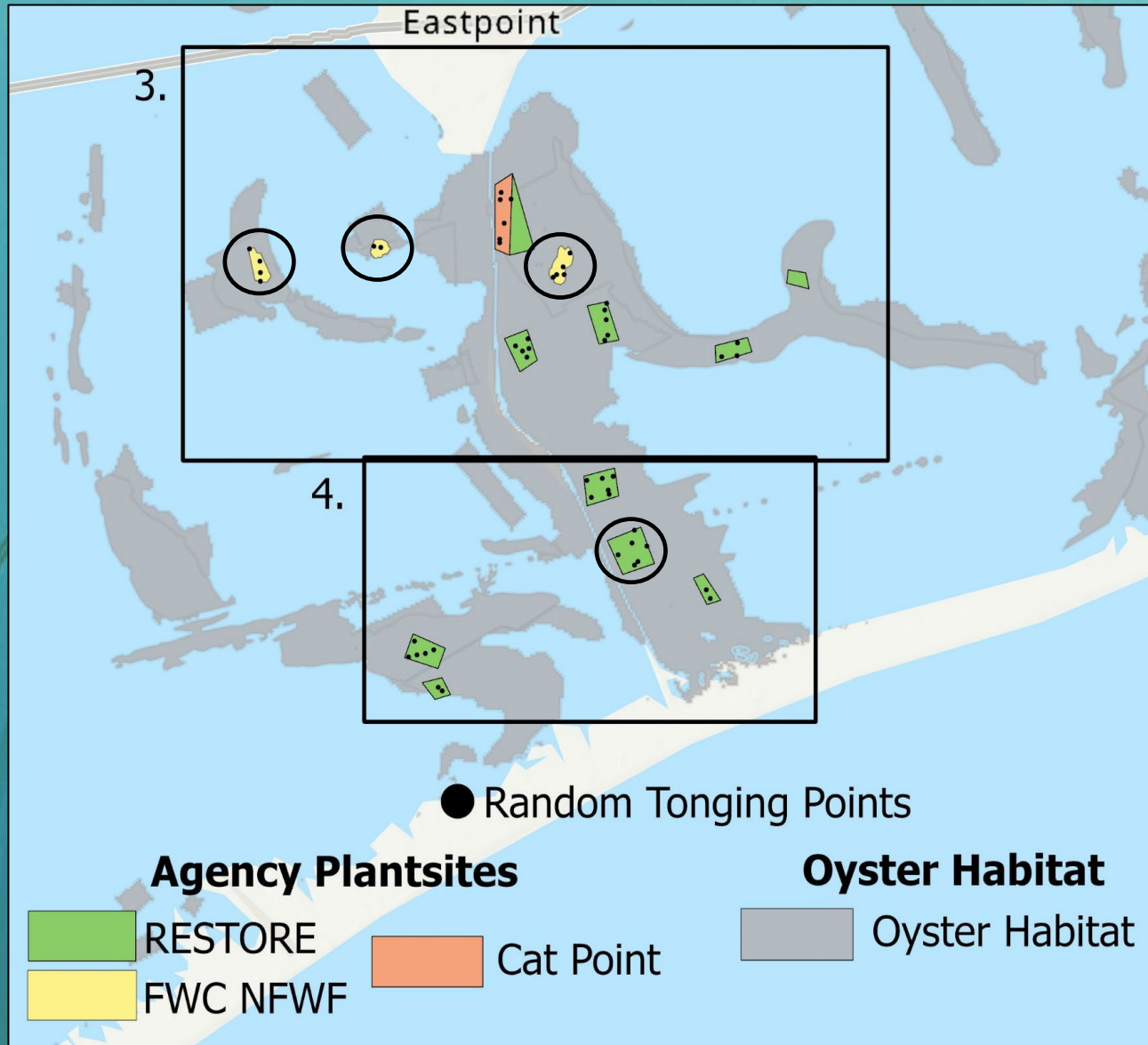
7 sites reached harvestable threshold

Round 4: Focused on limerock areas
Jan-Mar 2024
66 sites



12 sites reached harvestable threshold

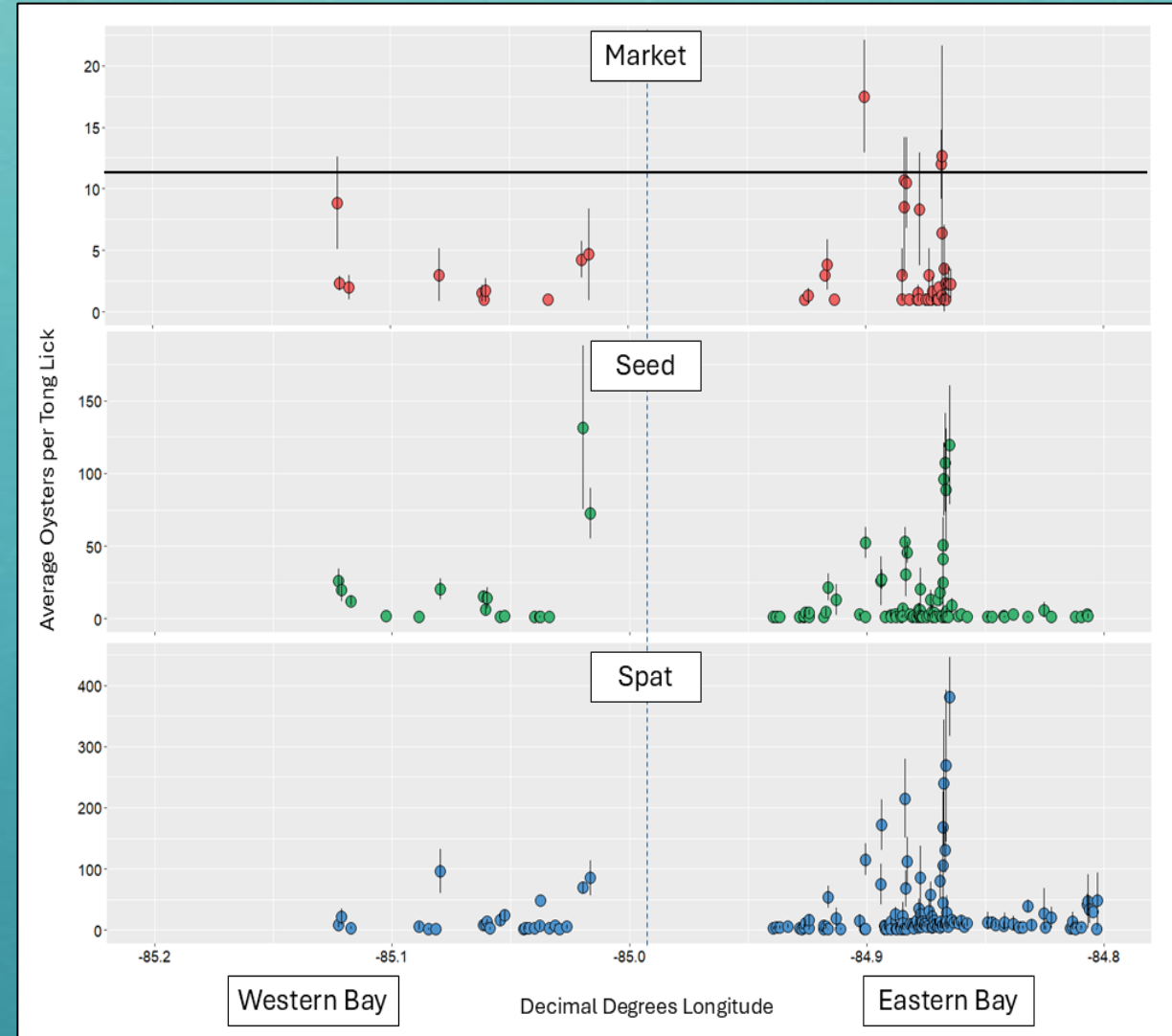
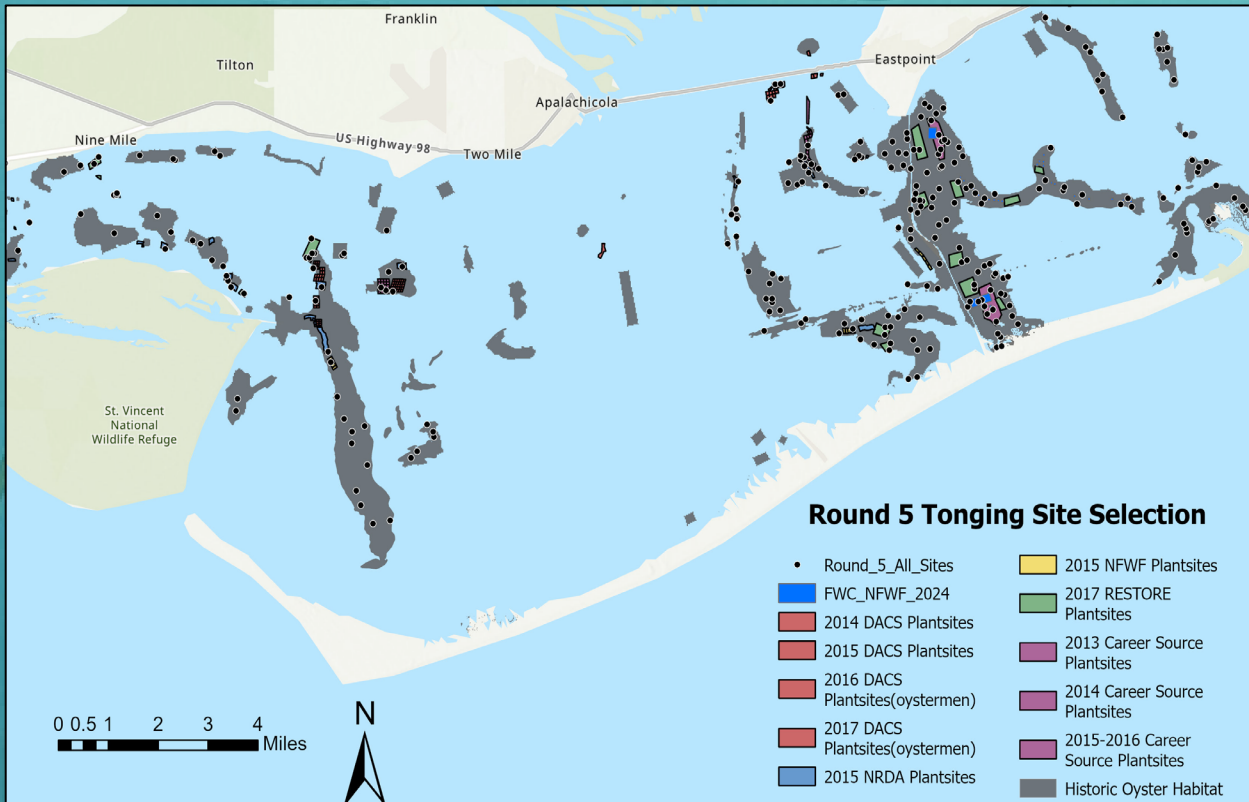
Four areas have average >400 bags/acre



Hard-bottom area, average bags/acre and total bags per area based on averages

REEF (WEST-EAST)	ACRES HARD- BOTTOM	AVERAGE BAGS/ACRE	TOTAL BAGS AVAILABLE
8M	12	18	216
9MK	1	192	192
9M	4	156	624
CT	5	180	900
NS	36	113	4,068
LHN	15	448	6,720
ELN	9	450	4,050
HB1	21	48	1,008
HB2	10	171	1,710
CP	38	130	4,940
ME	20	161	3,220
CPN	18	480	8,640
PR	25	209	5,225
SB	18	237	4,266
EH1	25	497	12,425
EH2	11	24	264
CPS	12	379	4,548
Total	280		63,016

Round 5: Bay-wide monitoring Jan-April 2025 185 sites



2 sites reached harvestable threshold

Round 5: Bay-wide monitoring Jan-April 2025 185 sites



So what happened ??

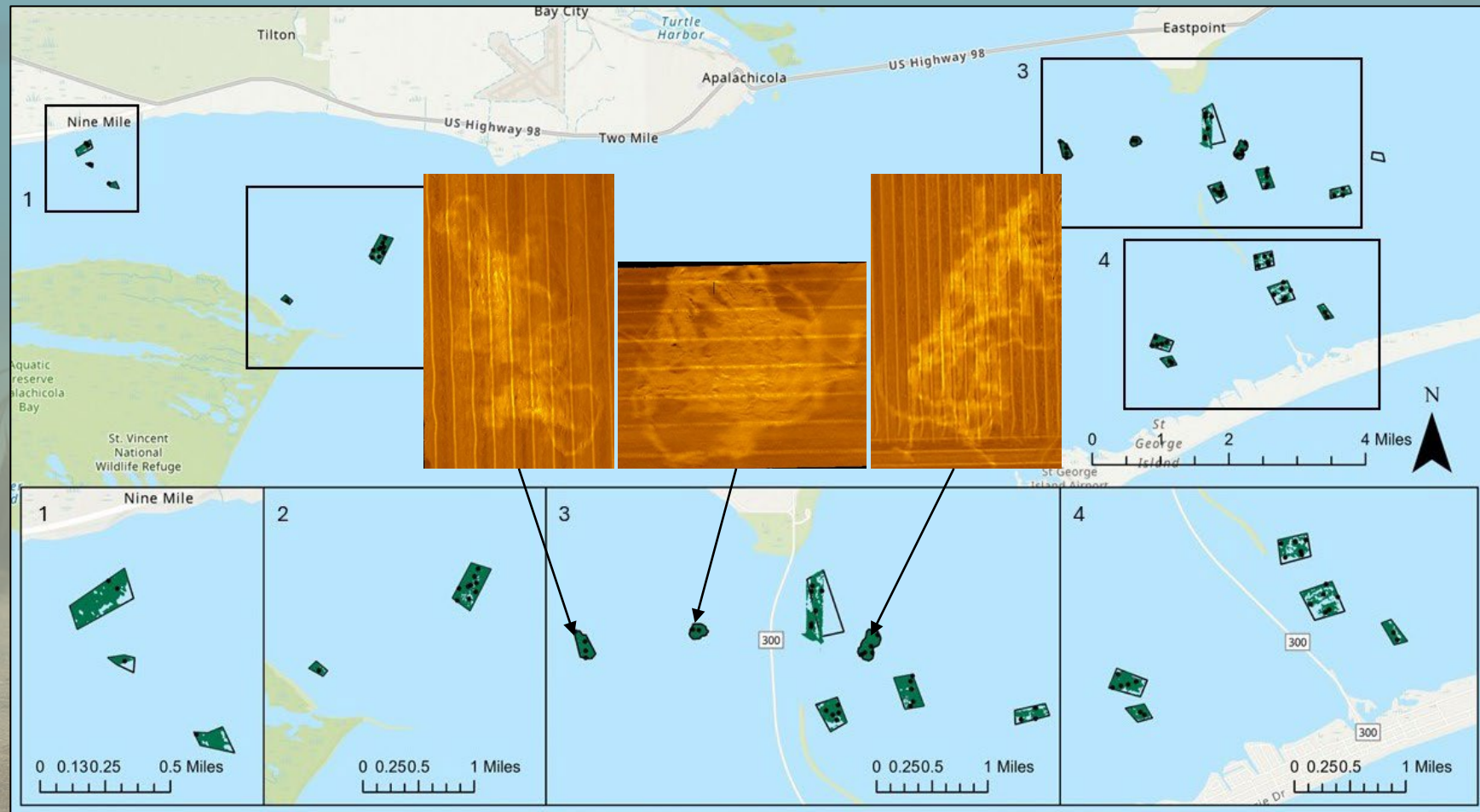


- 2016 DACS Plantsites(oystermen)
- 2017 DACS Plantsites(oystermen)
- 2015 NRDA Plantsites
- 2014 Career Source Plantsites
- 2015-2016 Career Source Plantsites
- Historic Oyster Habitat

2 sites reached harvestable threshold

Challenges of oyster population monitoring

- Habitat heterogeneity
- Spatial and temporal mortality
- Spatial and temporal variability in population drivers
- Timing of monitoring and analysis prior to harvest
- Methods matter!



Takeaway messages

- Oyster populations are increasing but their status is fragile
- Limerock is the only material that consistently supports oyster growth
- Extensive restoration is required
- Monitoring is needed to support management
- Adaptive management is needed to sustain fishery
- Re-shelling is essential part of fishery management



A wide-angle photograph of a sunset over a body of water. The sky is filled with vibrant, streaky clouds in shades of pink, magenta, and purple, with a hint of blue at the top. The sun is partially visible on the right side, creating a bright glow. In the foreground, there is a dark, silhouetted shoreline with some grass and a small body of water reflecting the sky. In the middle ground, a line of trees and buildings is visible along the water's edge. The buildings are mostly dark, but some have lights on, and a pier extends into the water. The overall mood is serene and beautiful.

QUESTIONS?

FOR ADDITIONAL INFORMATION:

ABSI website: <https://marinelab.fsu.edu/absi/>

ABSI email: fsucml-absi@fsu.edu