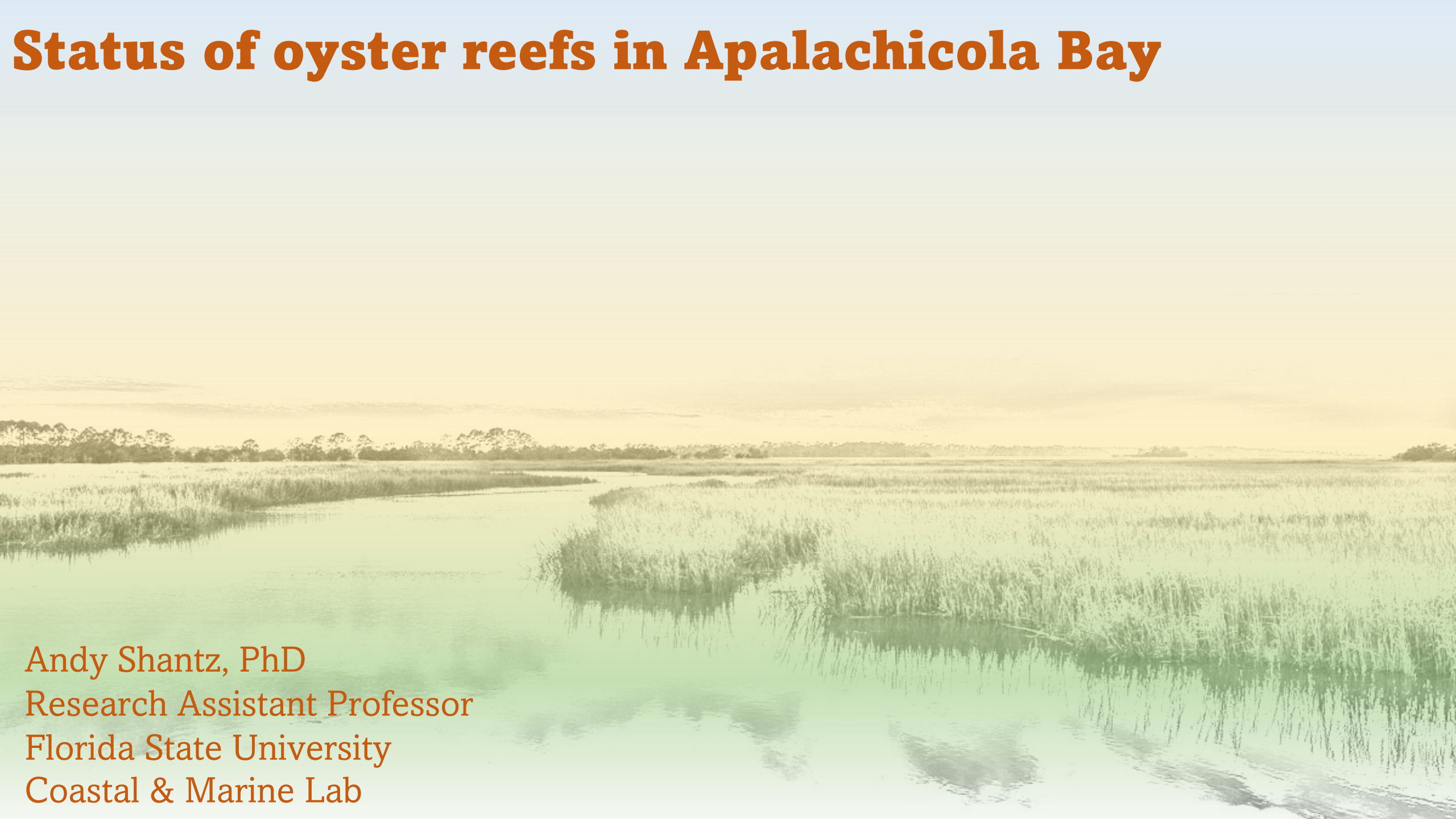
Status of oyster reefs in Apalachicola Bay



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Status of oyster reefs in Apalachicola Bay

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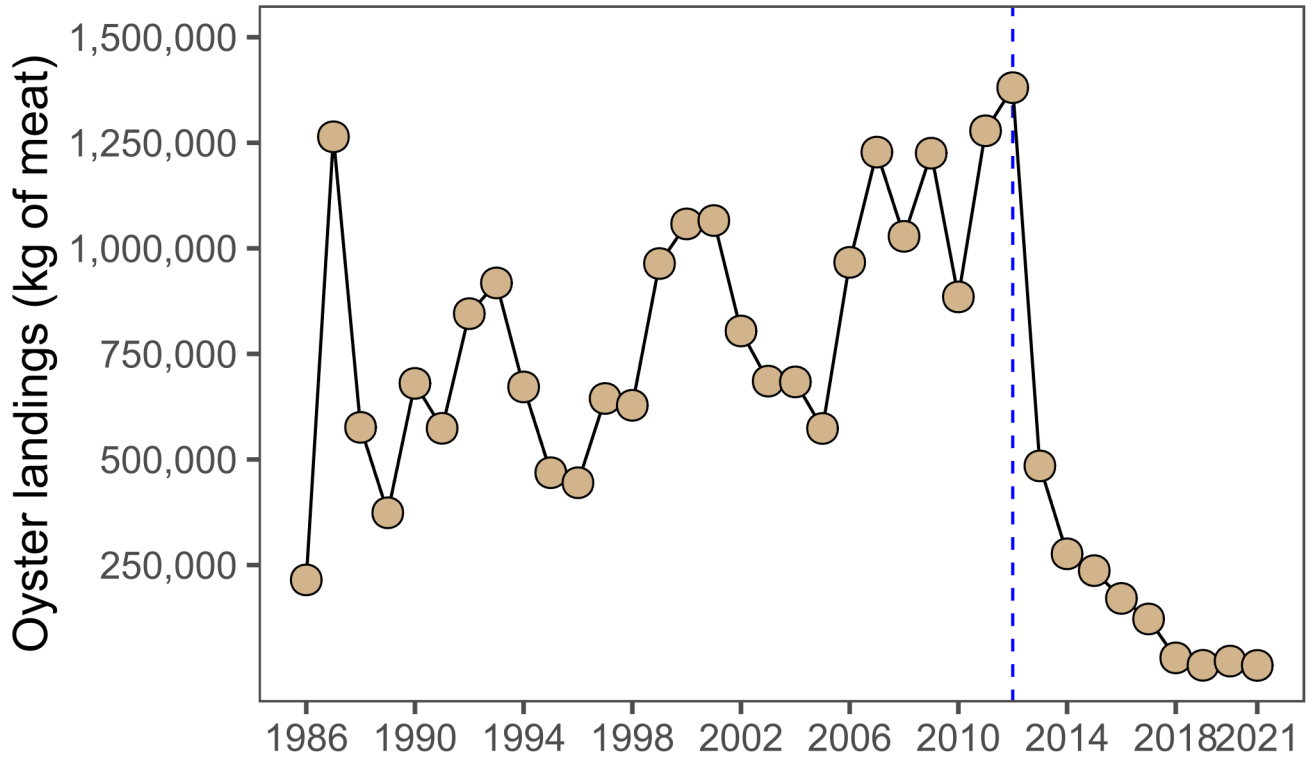
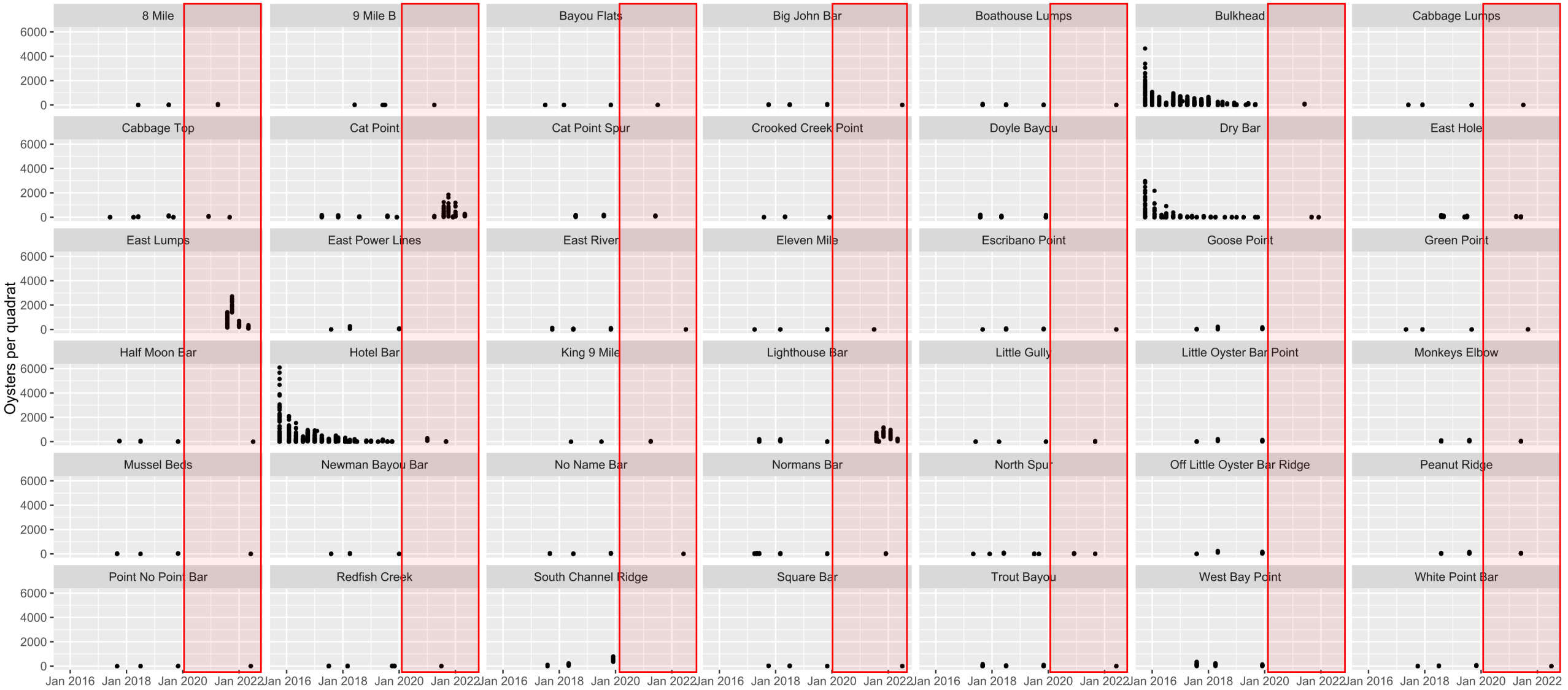

Oyster landings (kg of meat)
1,500,000
1,250,000
1,000,000
750,000
500,000
250,000
1986
1990
1994
1998
2002
2006
2010
2014
2018
2021



There is limited fisheries independent data regarding the recent status of the oyster populations.

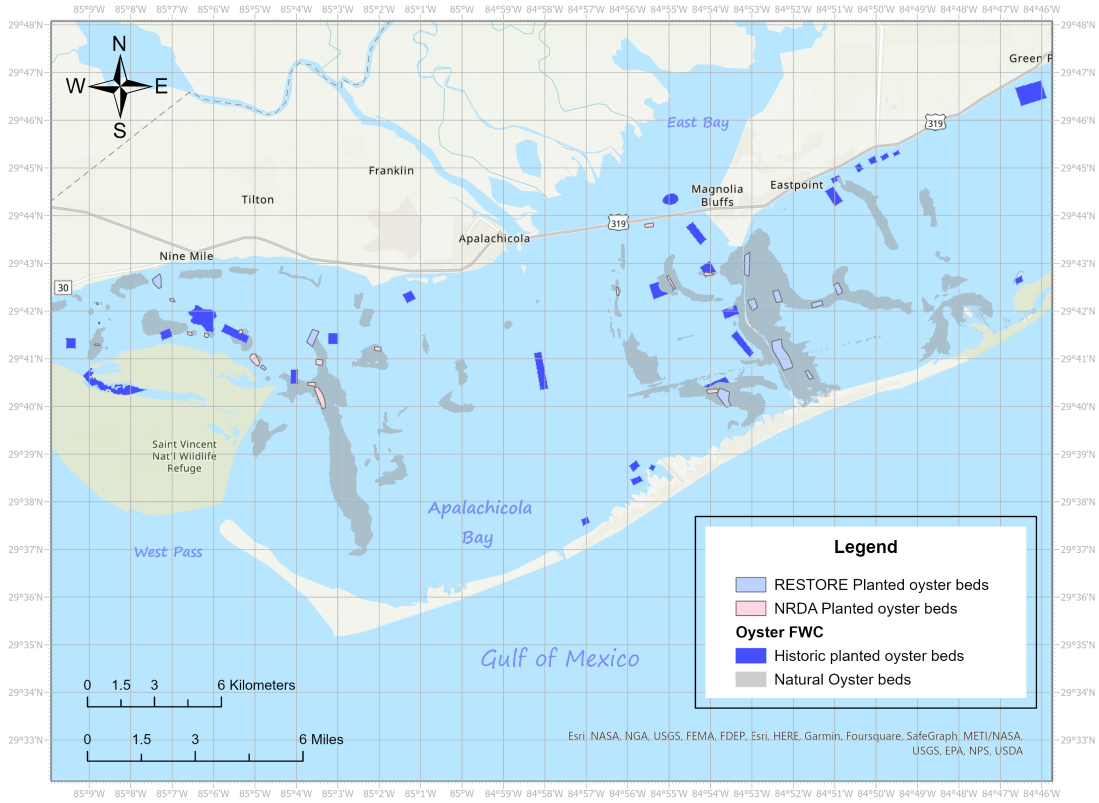
-42 sites; sporadically sampled over past 6 years in a ~540 km^2 area.

Goals of the tonging surveys are:

-To improve our understanding of oyster population status across the bay.

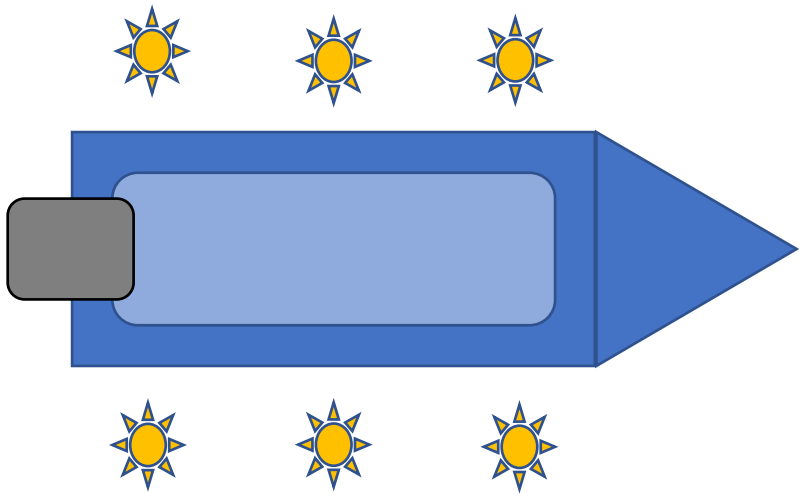
-Identify regions that are doing well/poorly to inform future efforts.

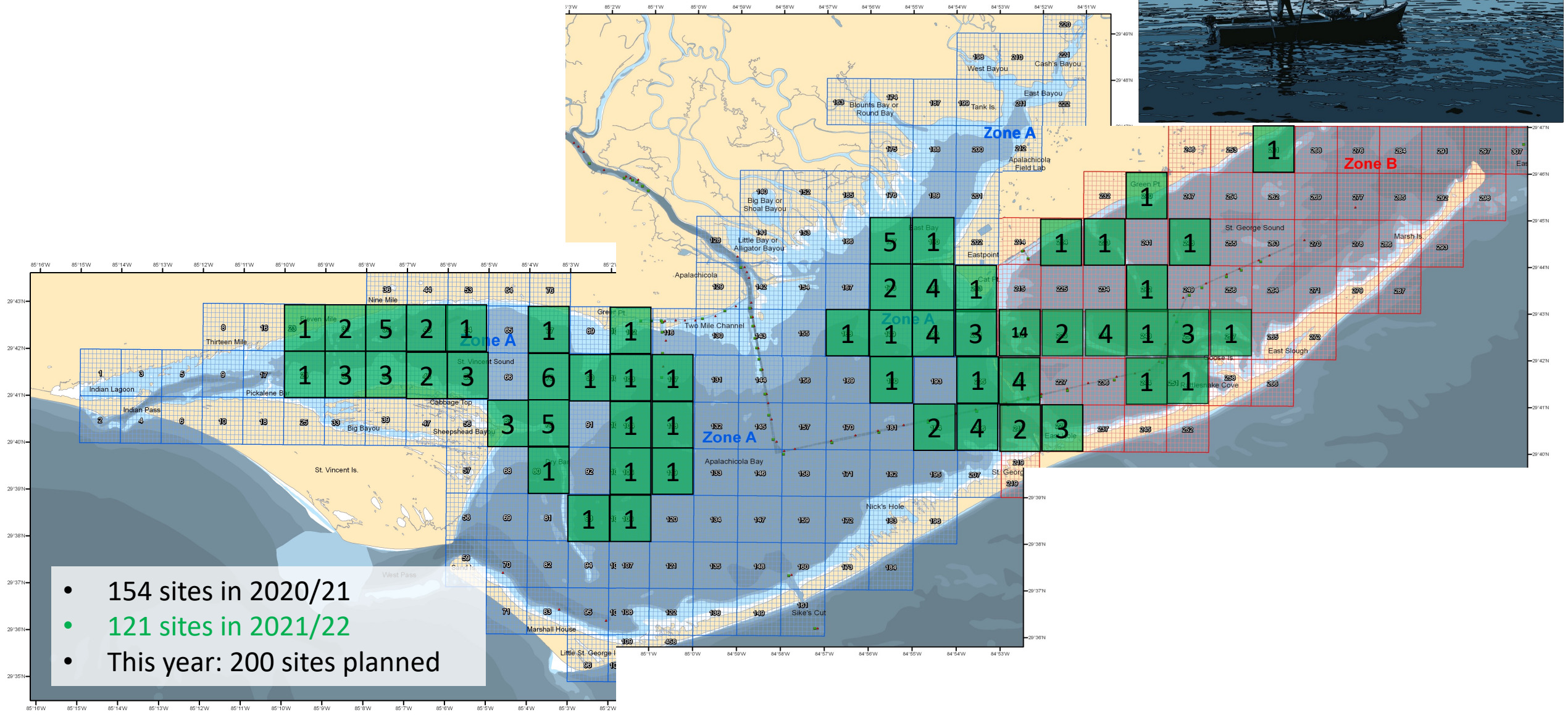
-Link oyster status to responses of other estuarine species.



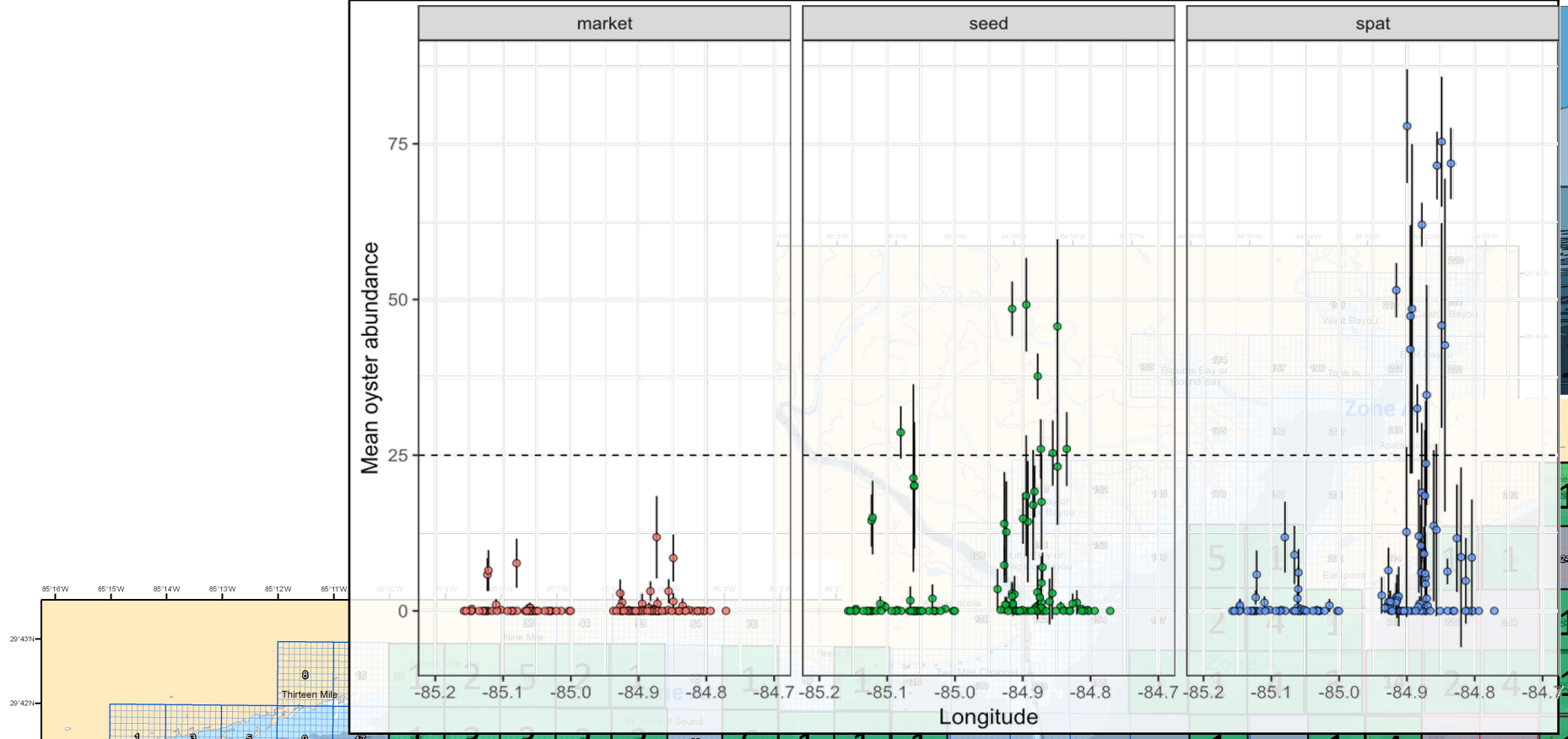
<u>At each survey site:</u>

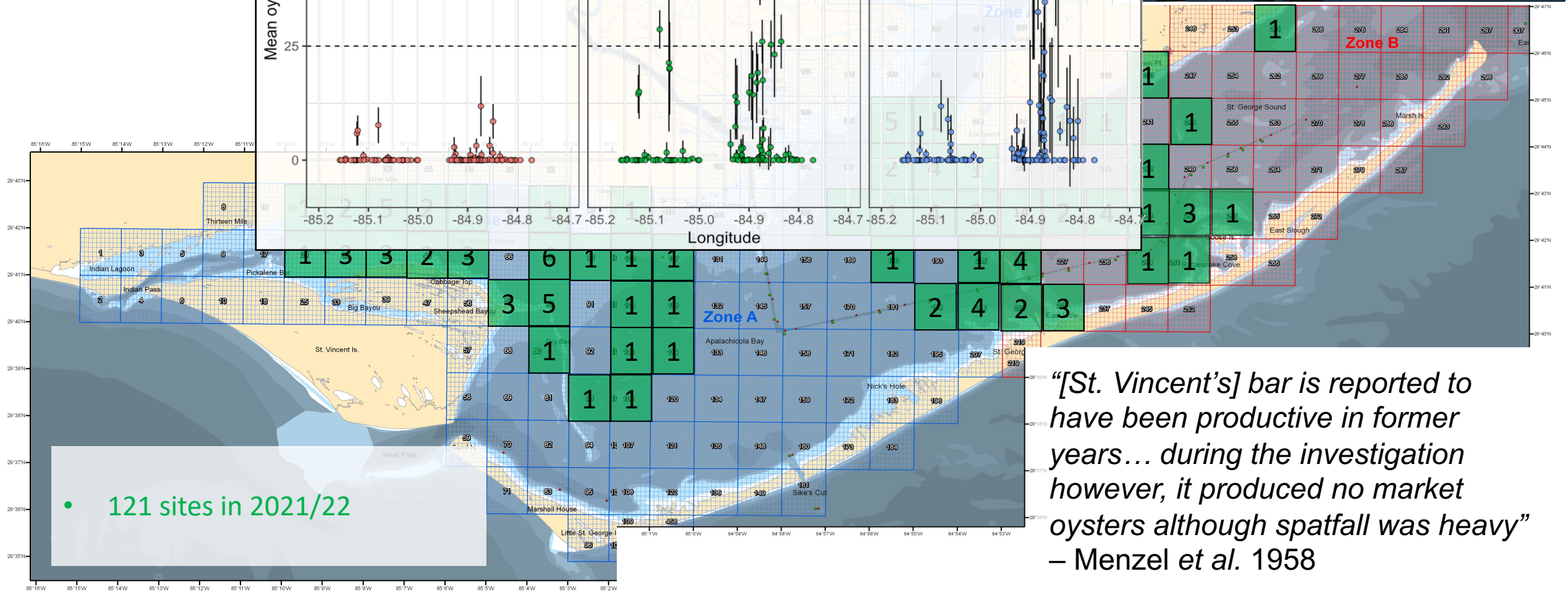
- 6 tong samples @ each survey location:
-Type, vol., wt. of substrate recorded
-All oysters counted, binned by size (Market >75mm; Seed 25-75mm; Spat <25mm)
-Shell height of first 100 in each sample measured.





- 154 sites in 2020/21
- 121 sites in 2021/22
- This year: 200 sites planned

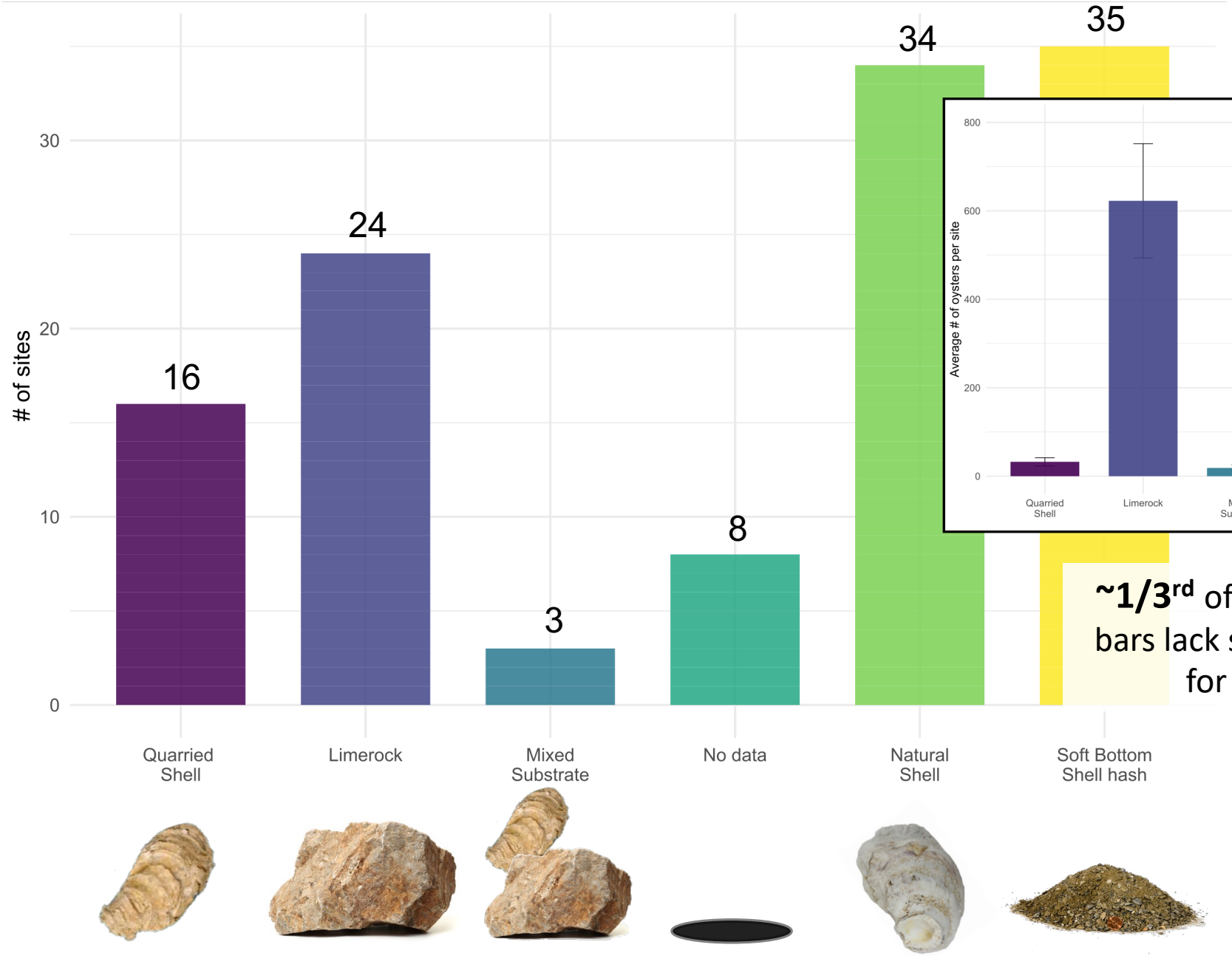


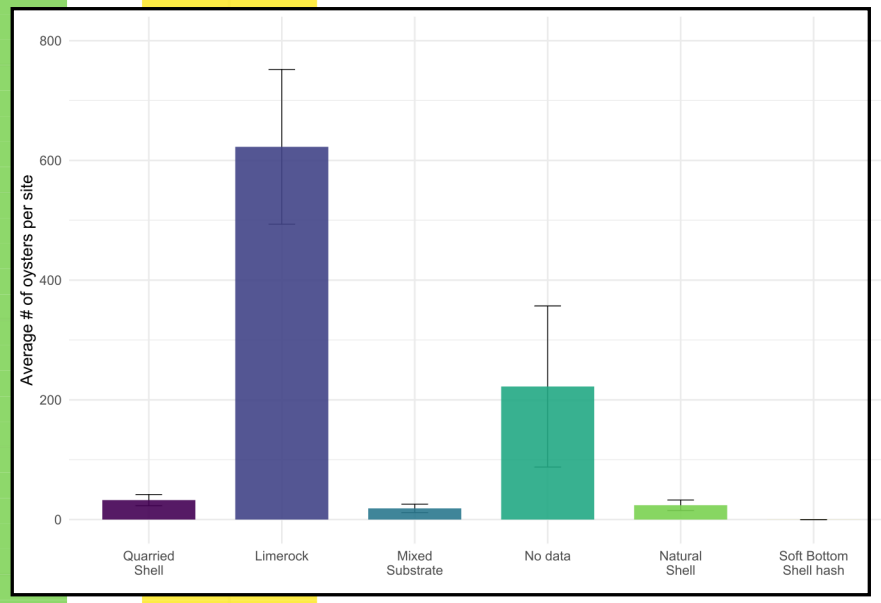


- 121 sites in 2021/22

"[St. Vincent's] bar is reported to have been productive in former years… during the investigation however, it produced no market oysters although spatfall was heavy" – Menzel *et al.* 1958

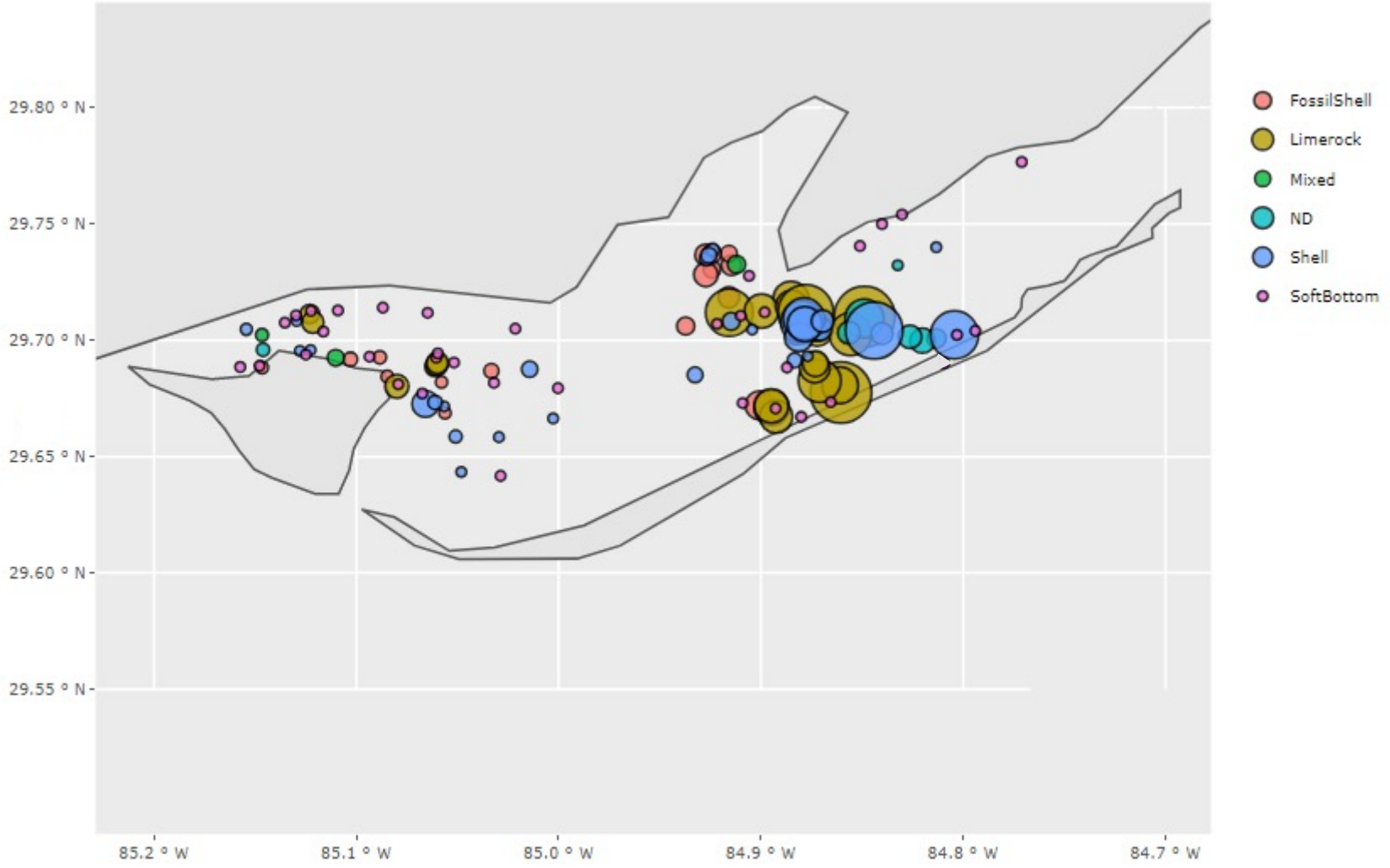
Available substrate at sites on targeted oyster bars.





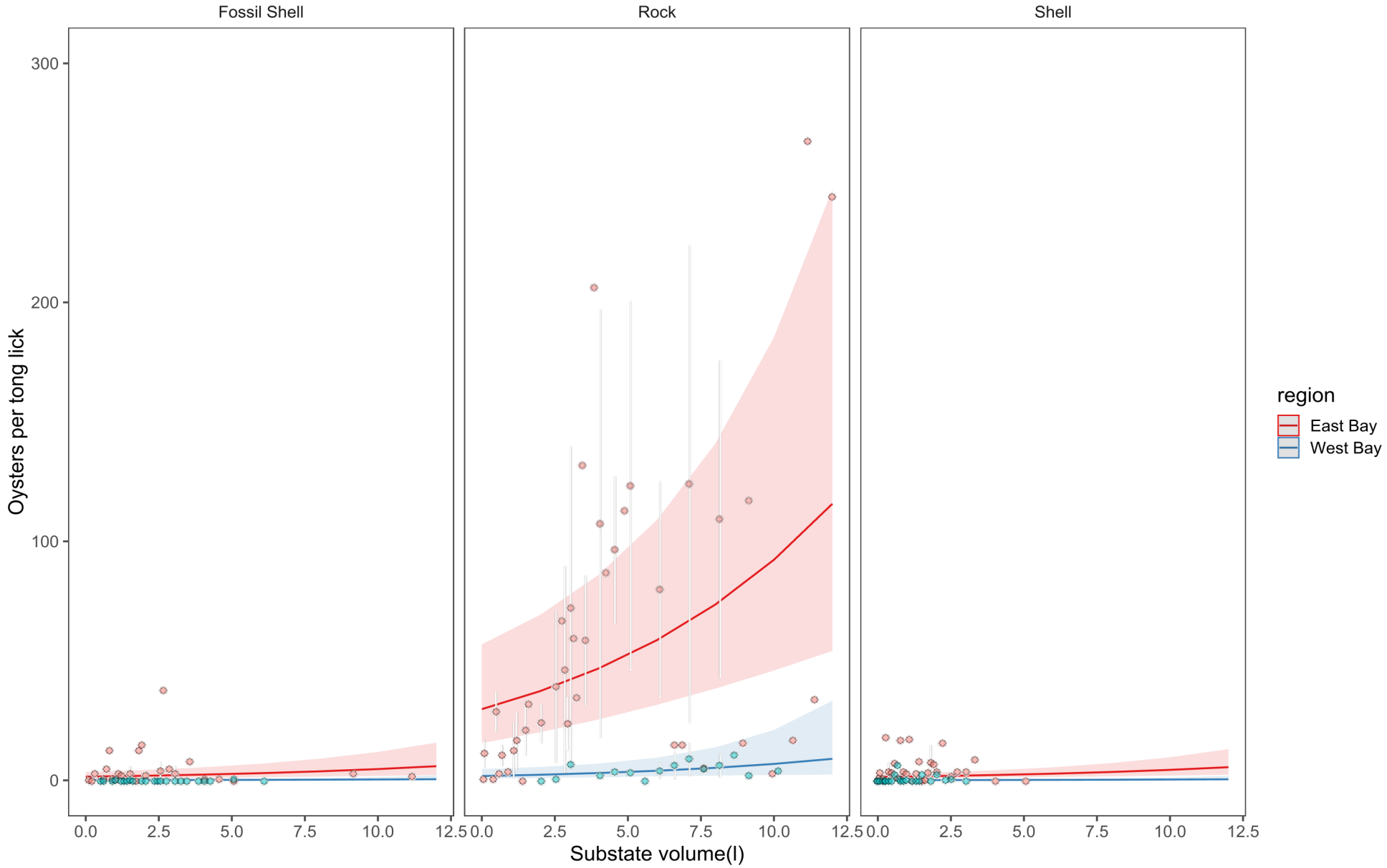
~1/3rd of sites on targeted bars lack substrate suitable for settlement

25 soft bottom sites on west; 15 on east

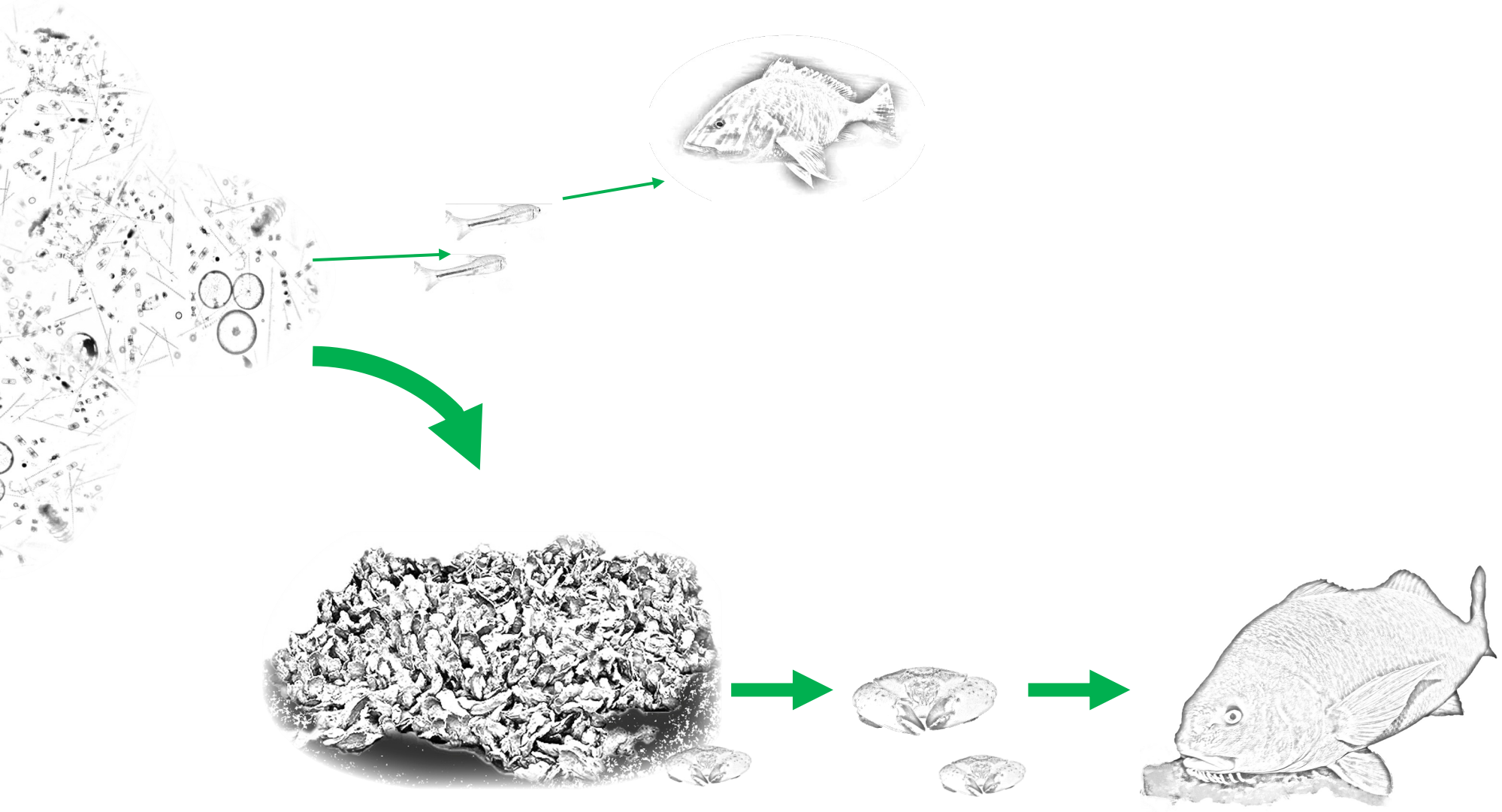


Tonging data also helps to inform potential restoration strategies.

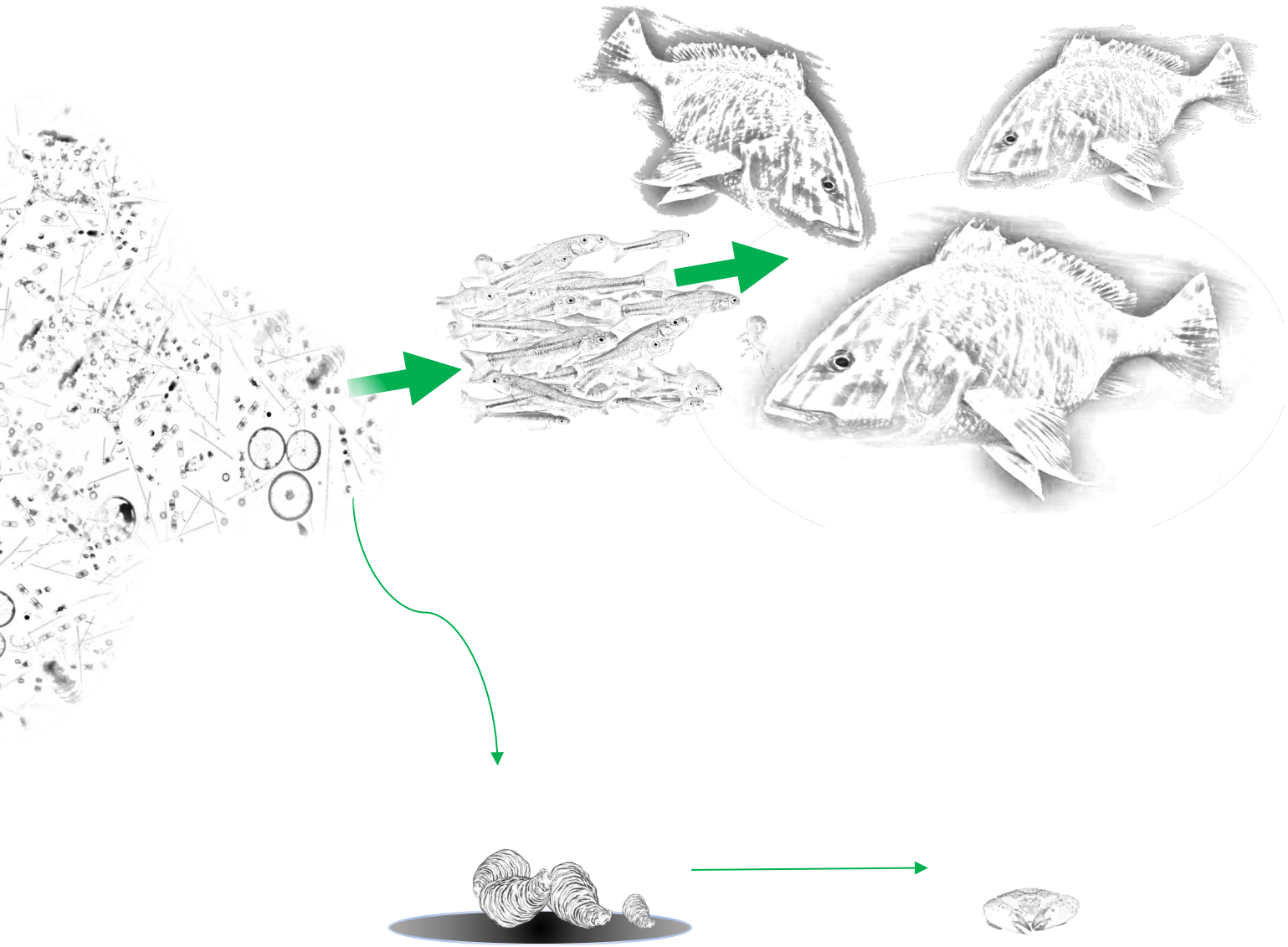
There is a strong interaction between region x cultch material x cultch volume on measured spat abundance.

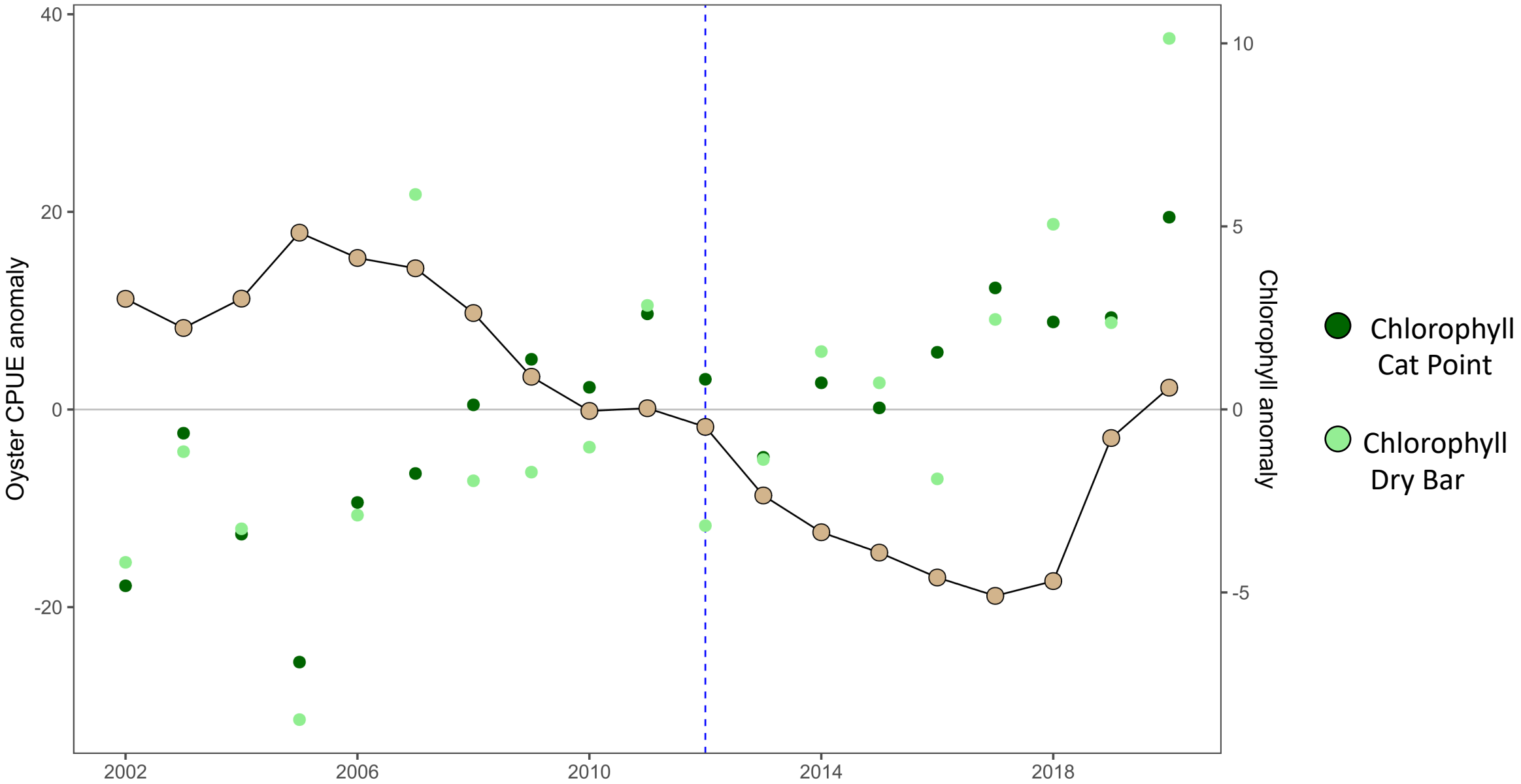


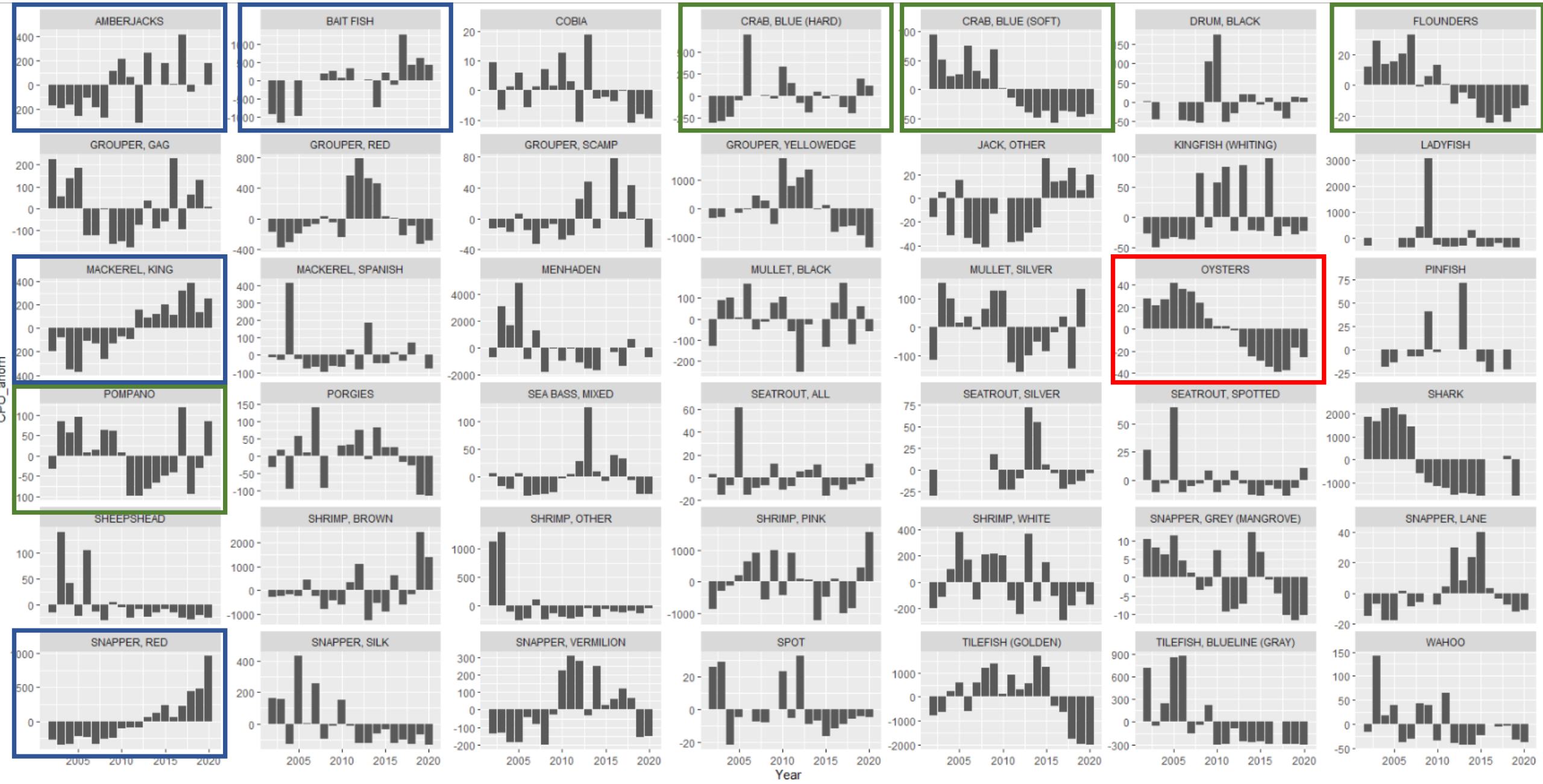
How is oyster decline impacting other species in the bay?



How is oyster decline impacting other species in the bay?



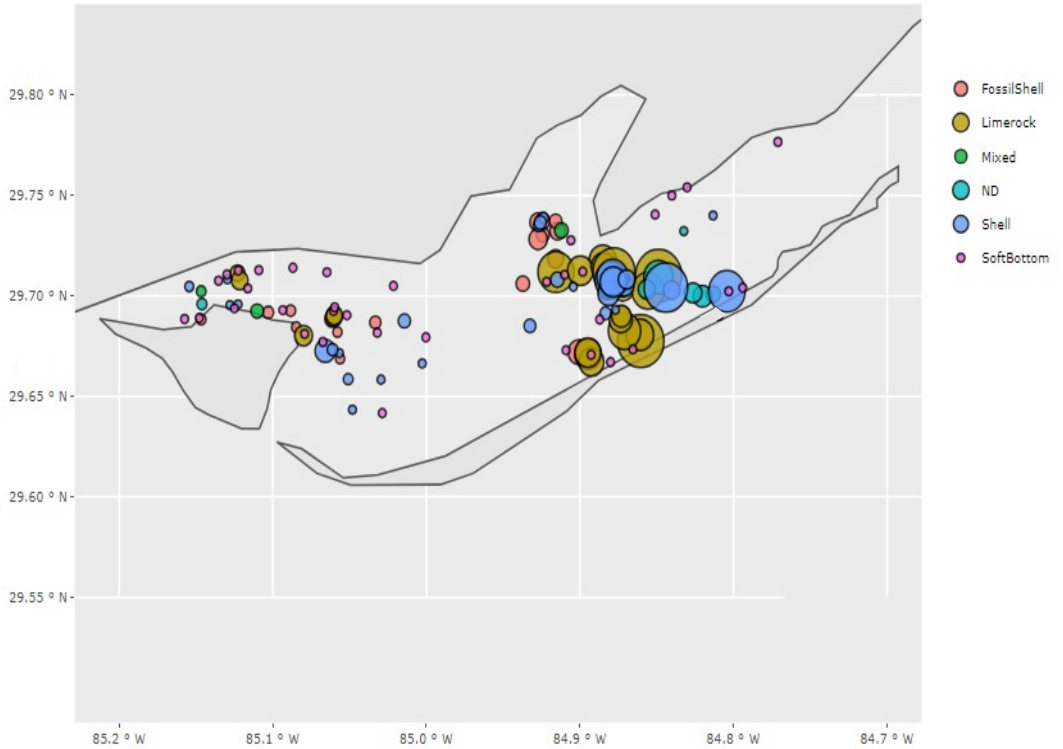

40
20
0
-20
Oyster CPUE anomaly
10
5
0
-5
Chlorophyll anomaly
2002
2006
2010
2014
2018
Chlorophyll
Cat Point
Chlorophyll
Dry Bar

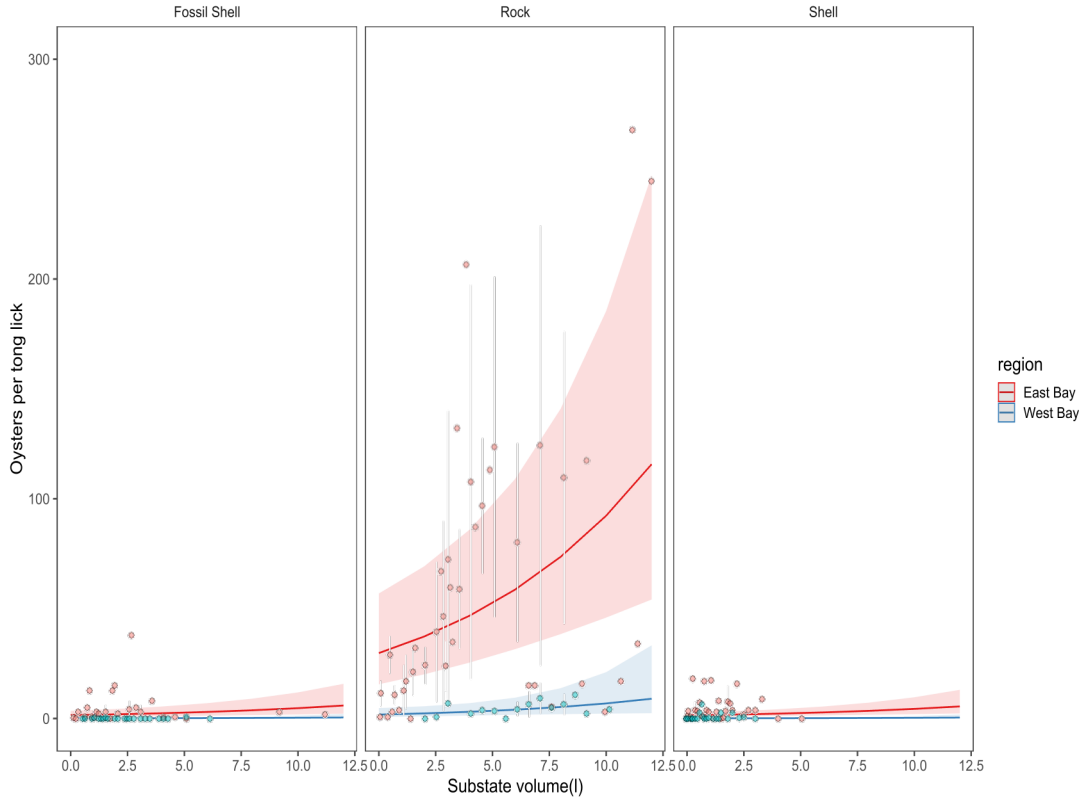

AMBERJACKS
BAIT FISH
COBIA
CRAB, BLUE (HARD)
CRAB, BLUE (SOFT)
DRUM, BLACK
FLOUNDERS
GROUPER, GAG
GROUPER, RED
GROUPER, SCAMP
GROUPER, YELLOWEDGE
JACK, OTHER
KINGFISH (WHITING)
LADYFISH
MACKEREL, KING
MACKEREL, SPANISH
MENHADEN
MULLET, BLACK
MULLET, SILVER
OYSTERS
PINFISH
POMPANO
PORGIES
SEA BASS, MIXED
SEATROUT, ALL
SEATROUT, SILVER
SEATROUT, SPOTTED
SHARK
SHEEPSHEAD
SHRIMP, BROWN
SHRIMP, OTHER
SHRIMP, PINK
SHRIMP, WHITE
SNAPPER, GREY (MANGROVE)
SNAPPER, LANE
SNAPPER, RED
SNAPPER, SILK
SNAPPER, VERMILION
SPOT
TILEFISH (GOLDEN)
TILEFISH, BLUELINE (GRAY)
WAHOO
CPUE_anom
Year

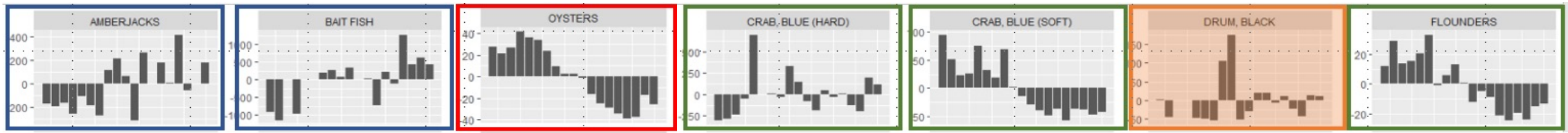
Spatiotemporal predictive species distribution models for black drum

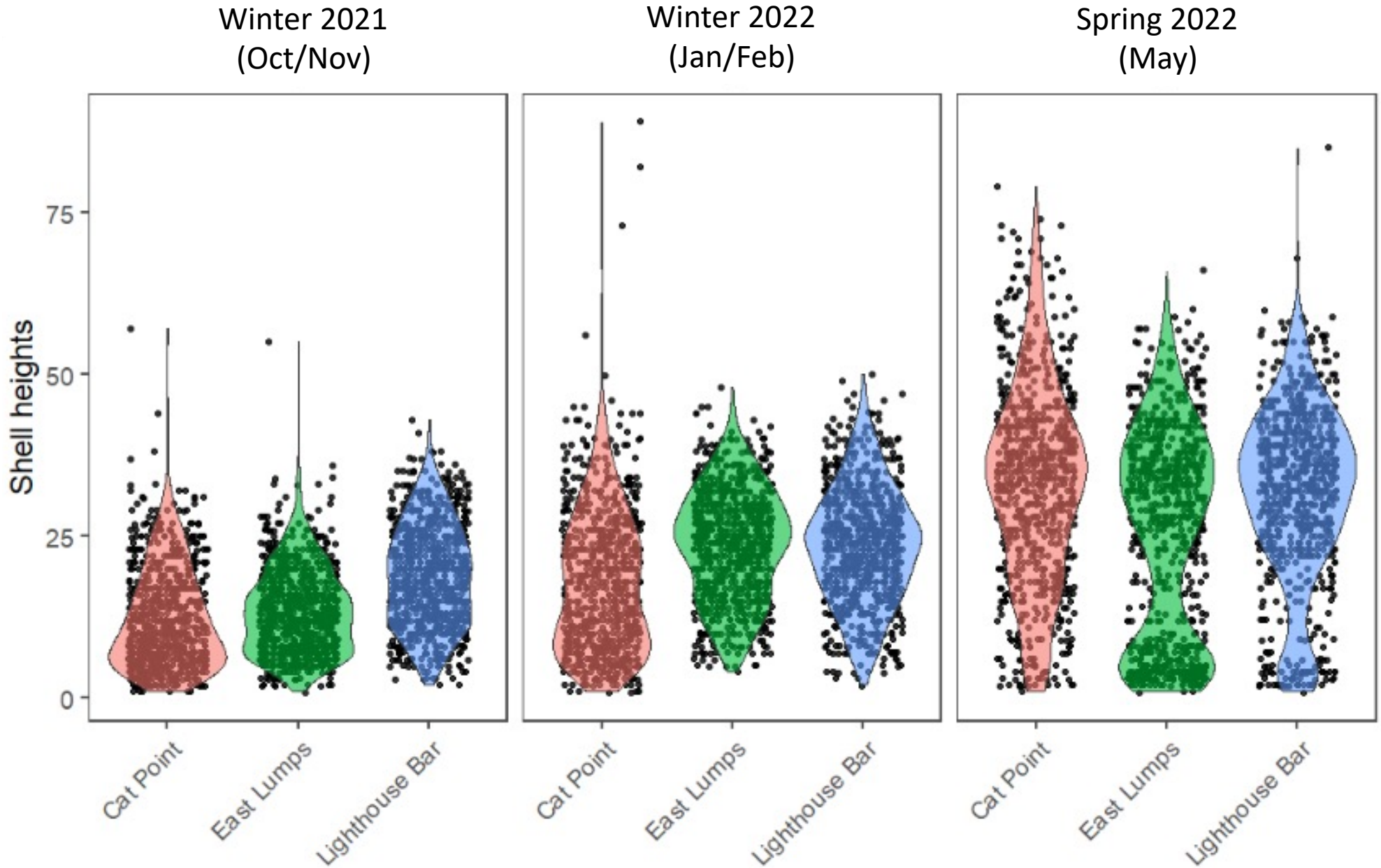
Dr. Fabio Caltabellota

Questions?


29.80 ° N
29.75 ° N
29.70 ° N
29.65 ° N
29.60 ° N
29.55 ° N
85.2 ° W
85.1 ° W
85.0 ° W
84.9 ° W
84.8 ° W
84.7 ° W
FossilShell
Limerock
Mixed
ND
Shell
SoftBottom


Fossil Shell
Rock
Shell
Oysters per tong lick
Substate volume(l)
region
East Bay
West Bay


AMBERJACKS
BAIT FISH
OYSTERS
CRAB, BLUE (HARD)
CRAB, BLUE (SOFT)
DRUM, BLACK
FLOUNDERS


Winter 2021
(Oct/Nov)
Winter 2022
(Jan/Feb)
Spring 2022
(May)
Shell heights
75
50
25
0
Cat Point
East Lumps
Lighthouse Bar
Cat Point
East Lumps
Lighthouse Bar
Cat Point
East Lumps
Lighthouse Bar