

Spatial & temporal patterns of disease on Georgia oyster reefs

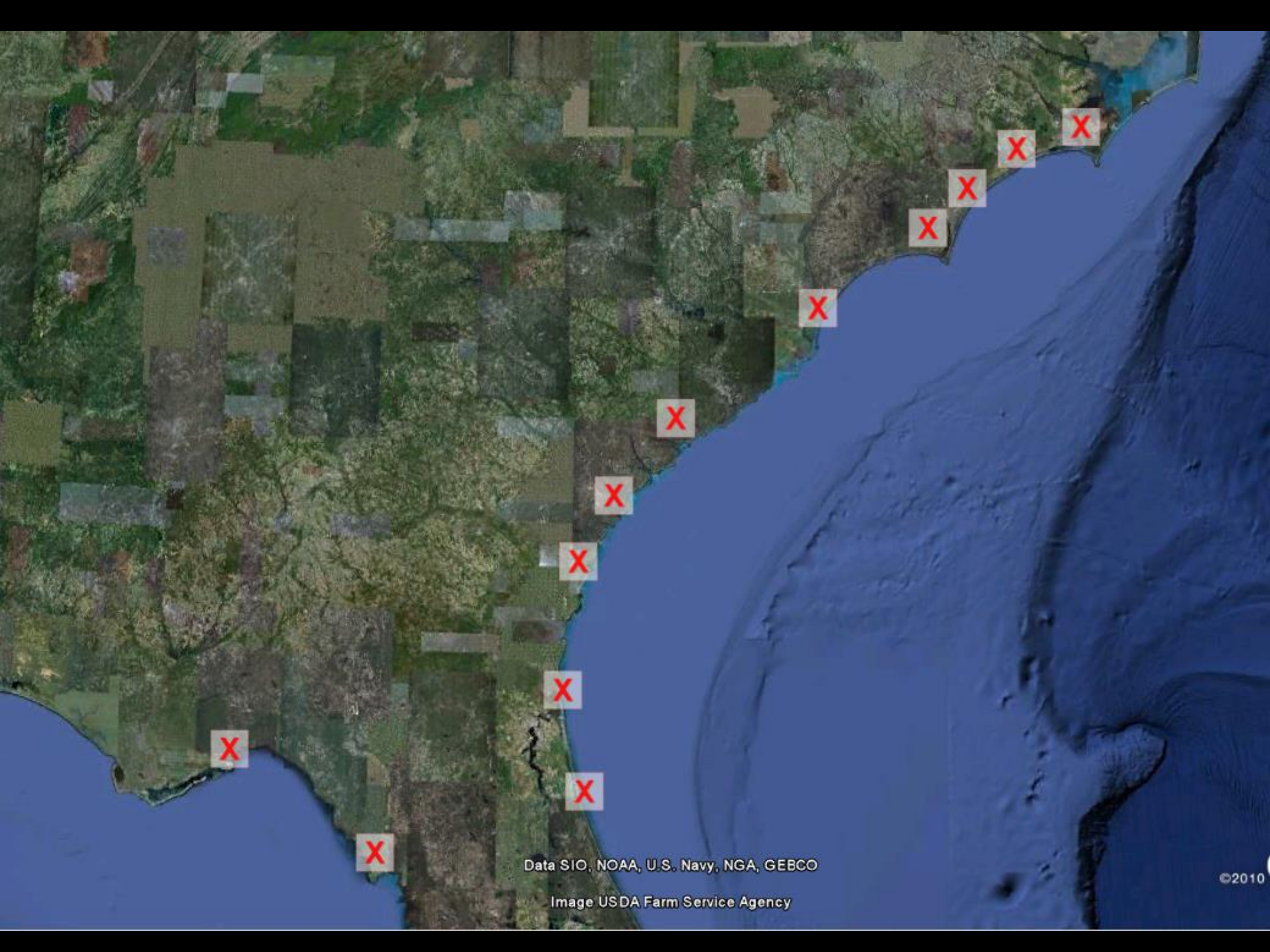
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John Carroll (GA Southern)
Dominic Guadagnoli (DNR)

Ecosystem Functions of Reefs

- Oyster Production (food)
- Fish Habitat
- Sediment stabilization
- Filtration—water quality
- Denitrification



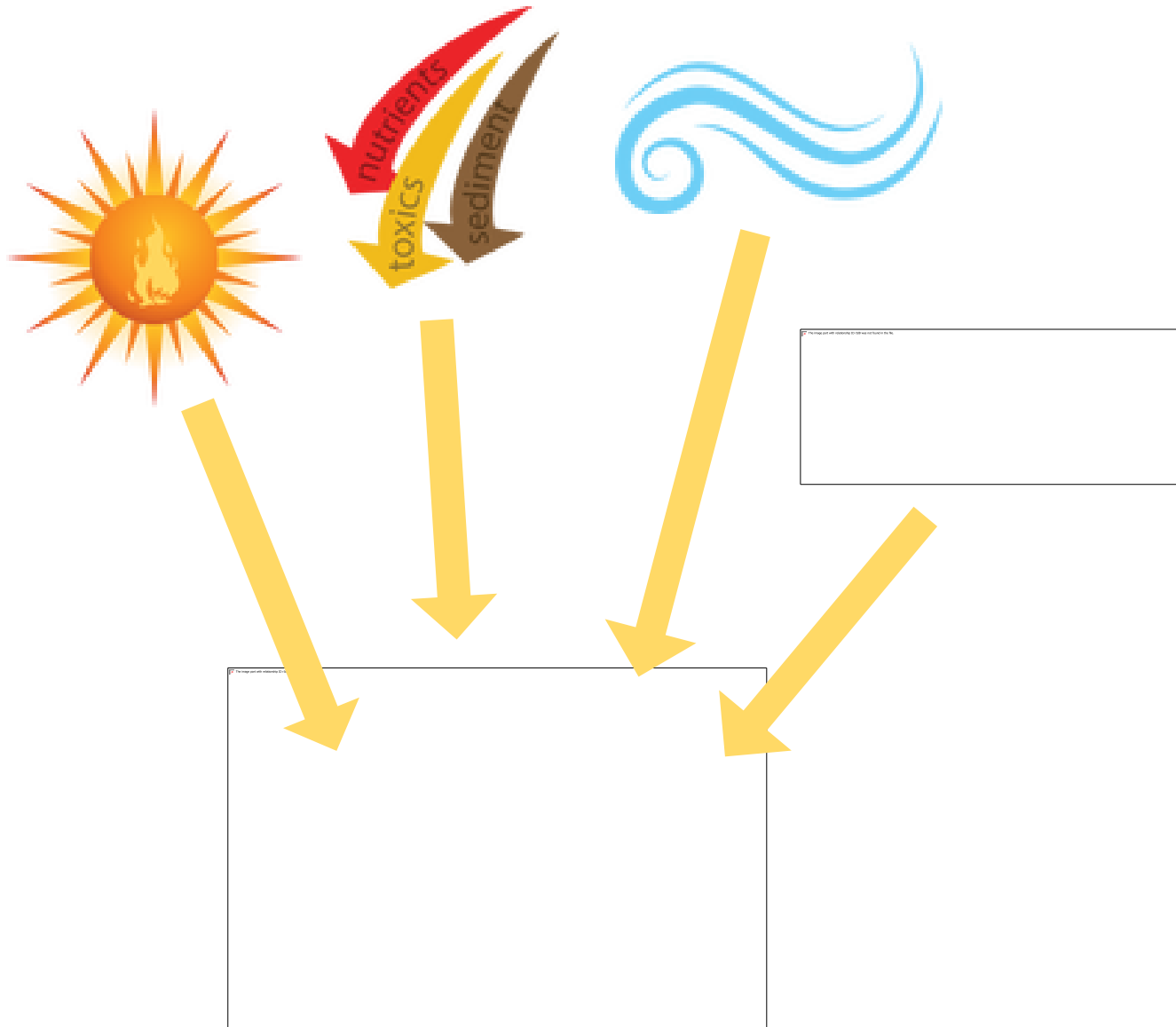


Data SIO, NOAA, U.S. Navy, NGA, GEBCO

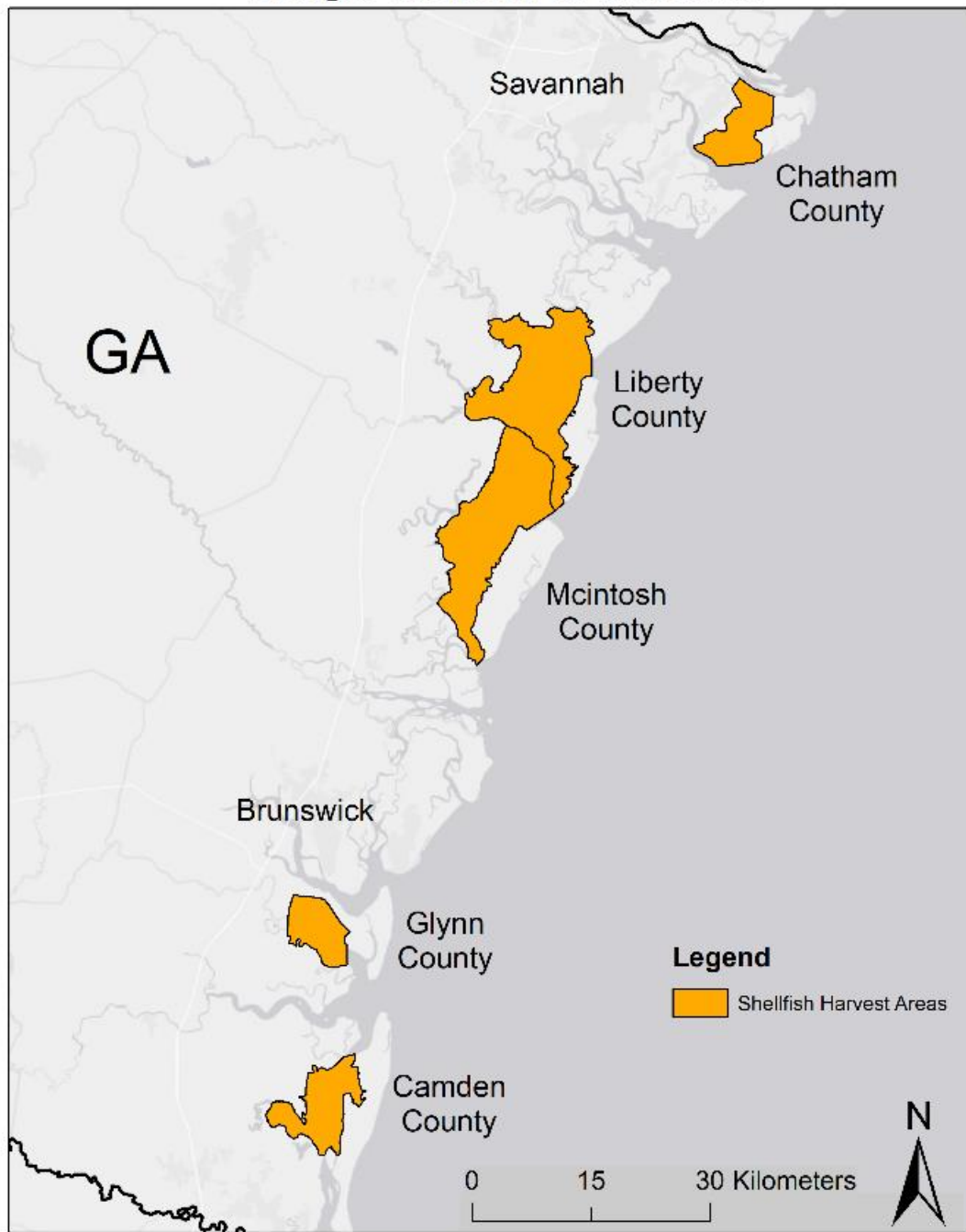
Image USDA Farm Service Agency



How do multiple environmental stressors influence oyster disease dynamics?

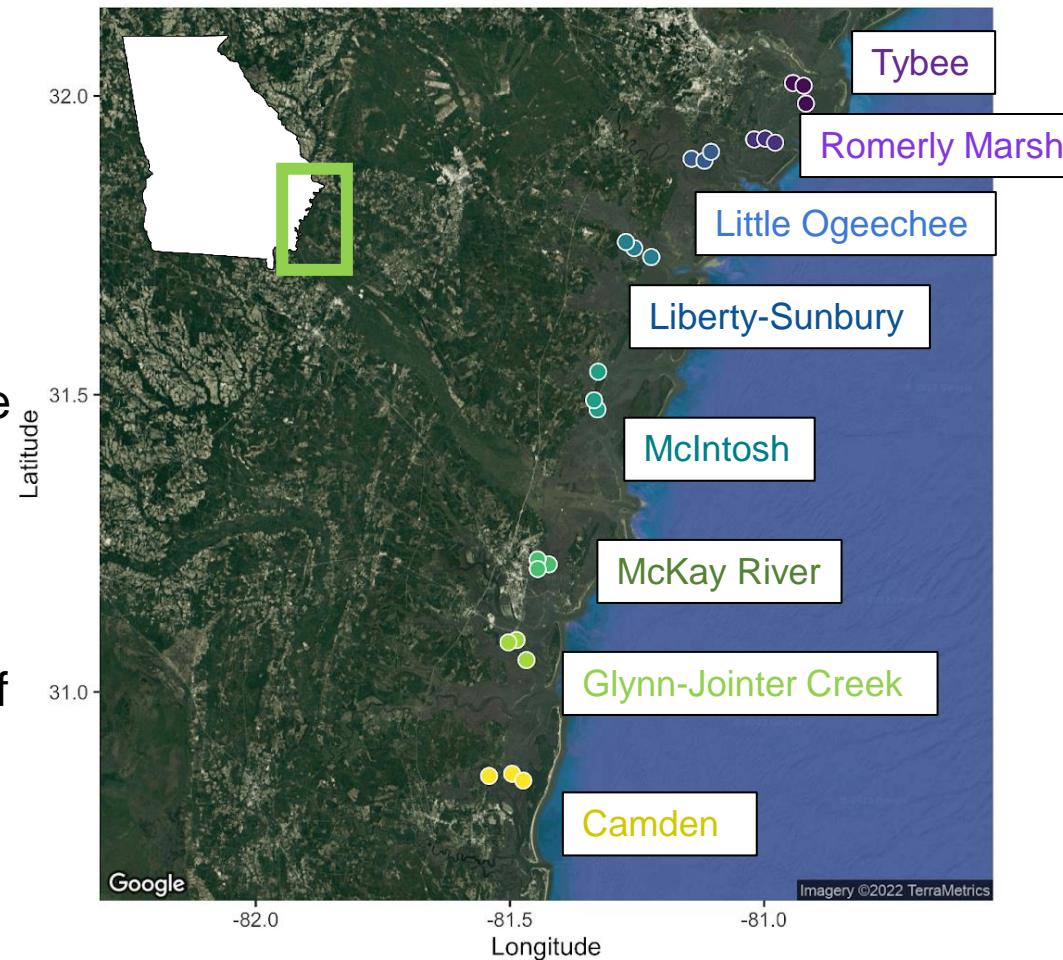


Georgia Shellfish Harvest Areas



Sites

- Site selection
 - Worked with GA DNR
 - Selected 6 clusters with state growing areas, 2 clusters outside
 - 3 reefs in each cluster
- Site standardization
 - At least 1000 m from other sites
 - Reef landward edge within 1m of marsh
 - 20-30% slope



Monitored Metrics

- Physical
 - Temperature
 - Salinity
 - Inundation
 - Slope
 - Topography
 - Flow
 - Landscape features

Monitored Metrics

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- Biological

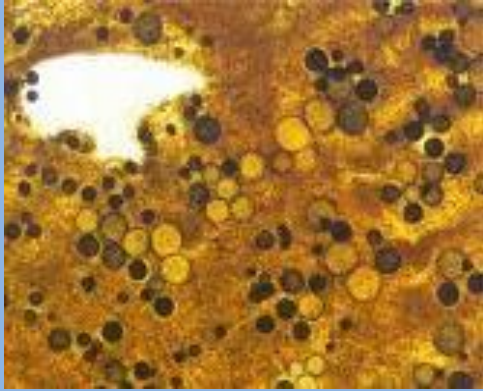
- Benthic Productivity/SOM
- Invertebrates
- Oysters themselves
 - Density, demography, filtration





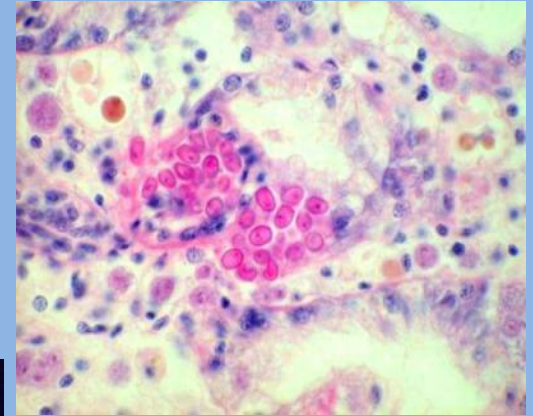


The 2 Diseases



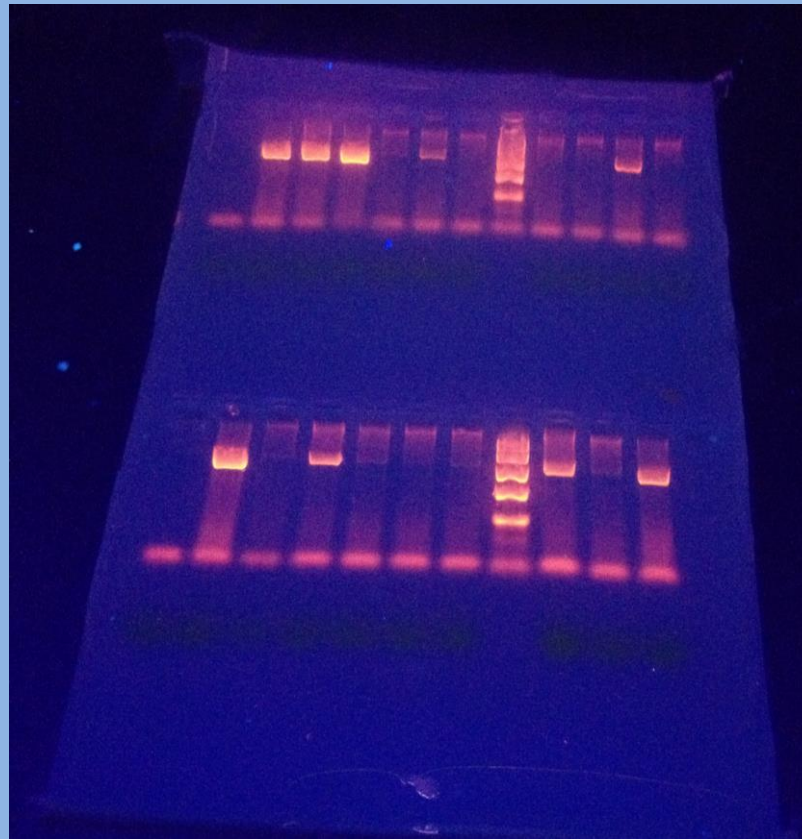
Perkinsus marinus

Dermo



Haplosporidium nelsoni

MSX



Other parasites



5 mm

Image by E. A. Lazo-Wasem
© 2010 Yale Peabody Museum

Zaops ostreus



Blister Worms

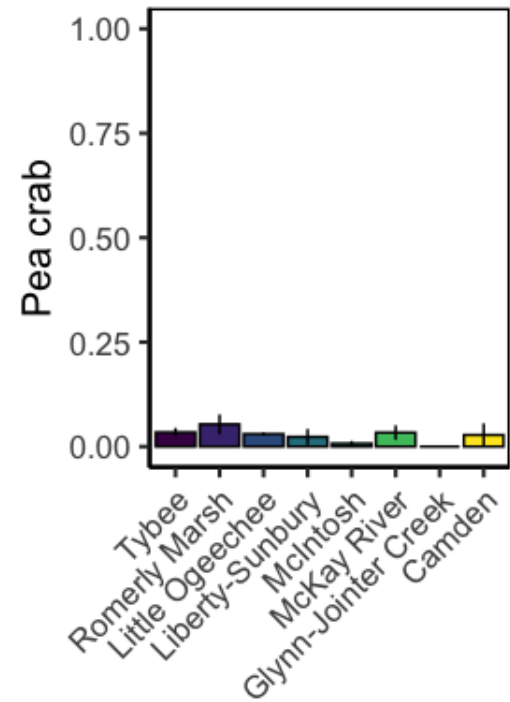
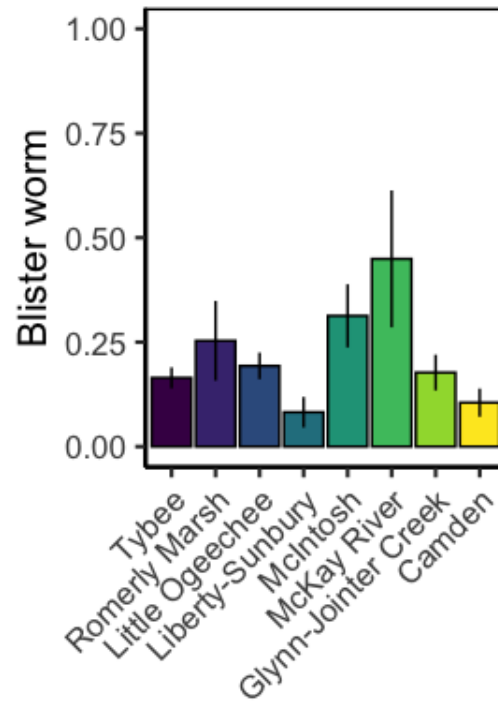
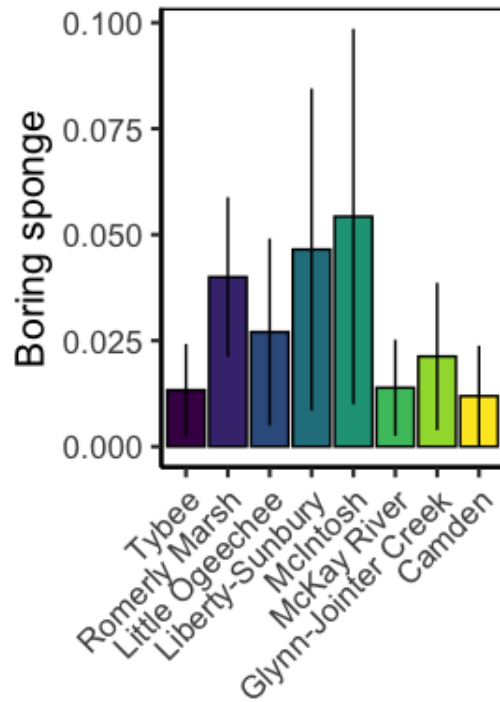


Boonea impressa

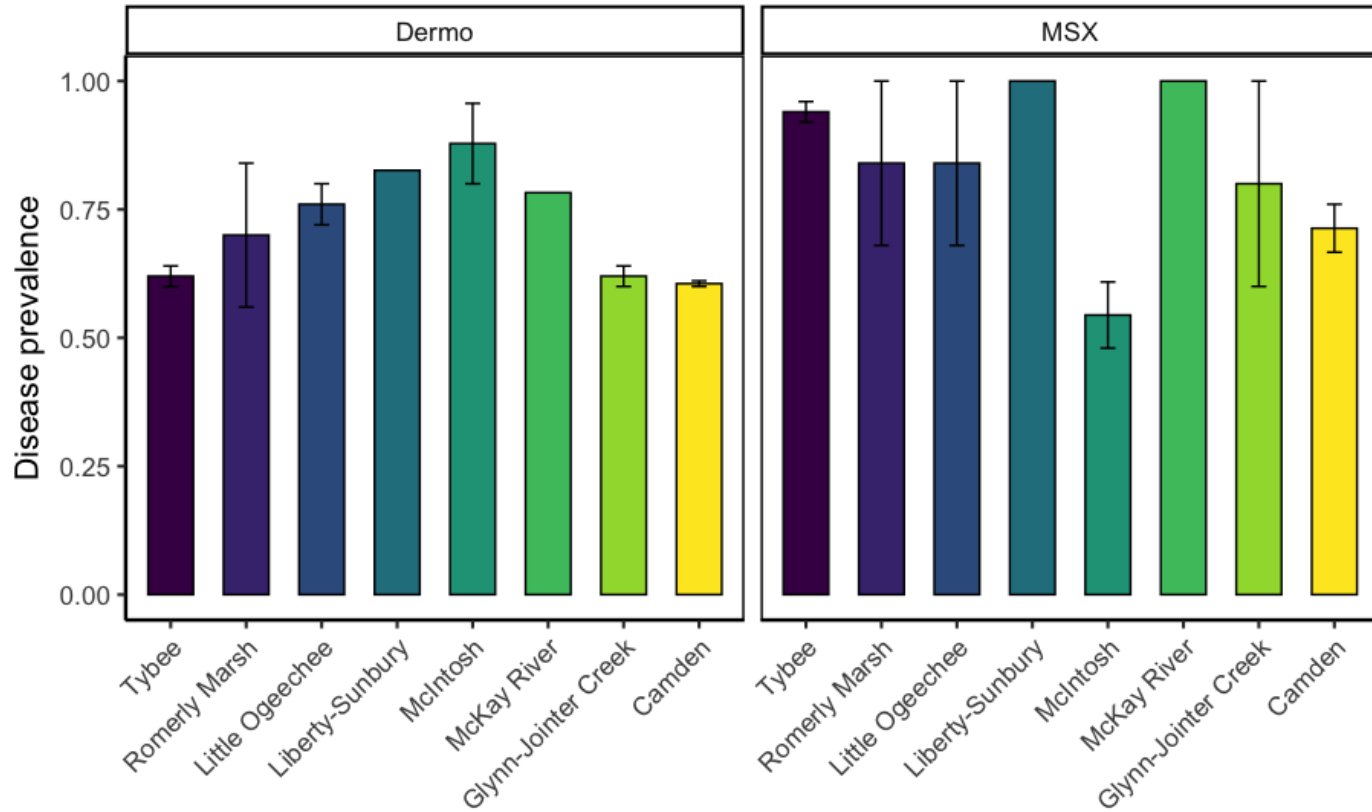


Cliona (boring sponge)

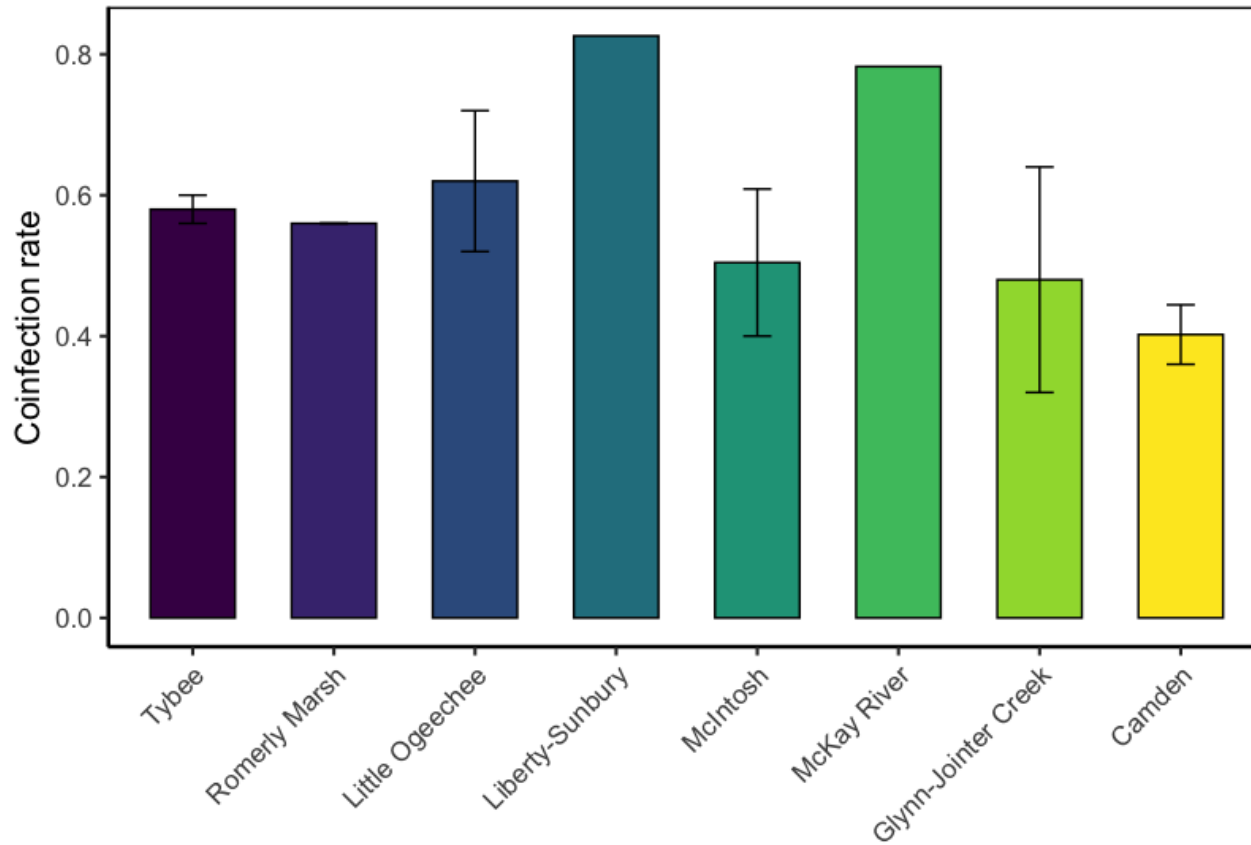
Macroparasite prevalence (individual)



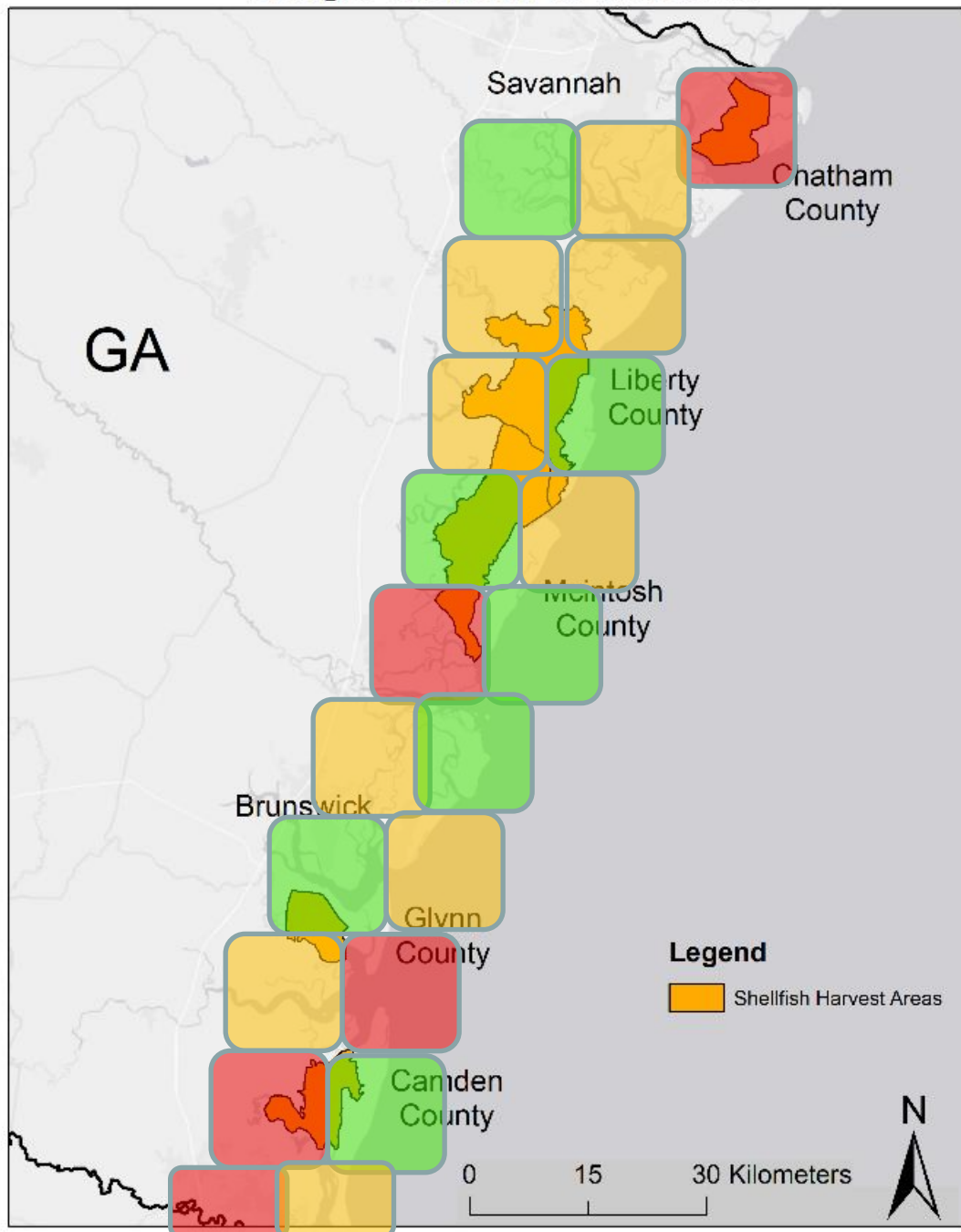
Microparasite prevalence



Microparasite co-infection



Georgia Shellfish Harvest Areas



Acknowledgments

- GA DNR



