

Oyster culture and seagrass  
habitat: an experimental impact  
approach in Pamlico Sound

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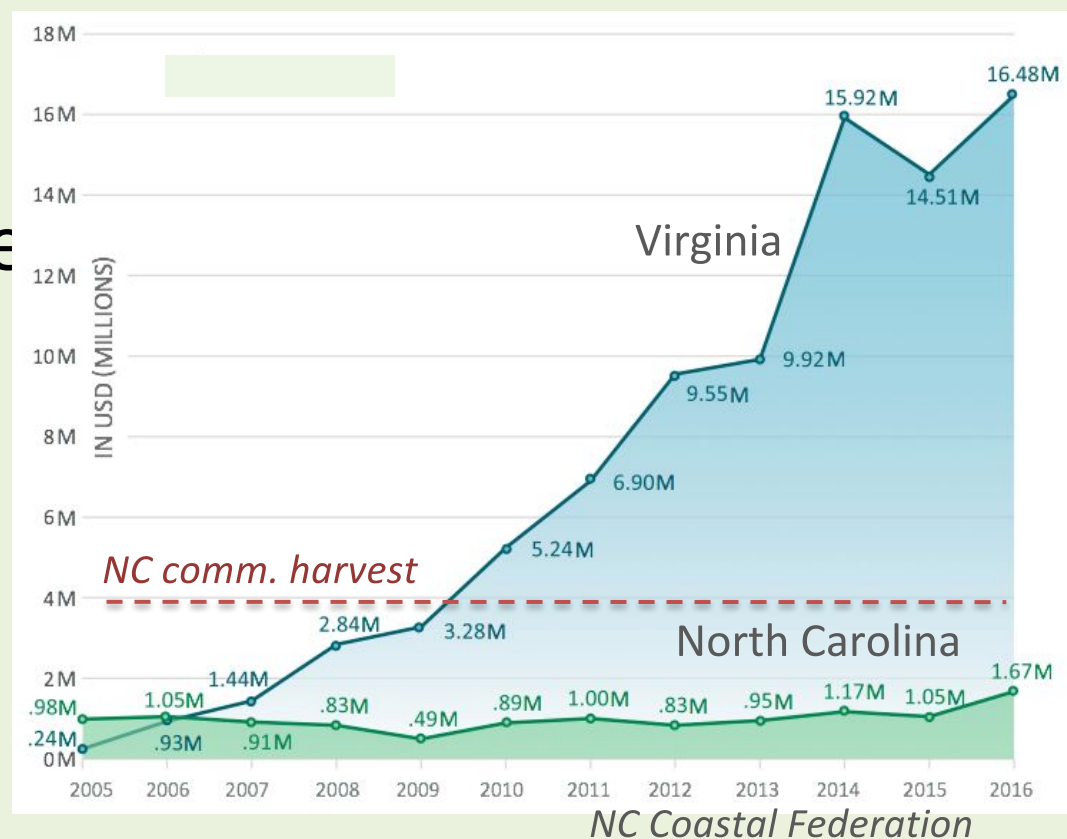
*UNC Chapel Hill, Institute of Marine Sciences*

Chris Taylor—*NOAA Beaufort Lab*

Katherine McGlade—*Kings Point Oysters, Hatteras*

# Oyster farming on the rise....elsewhere

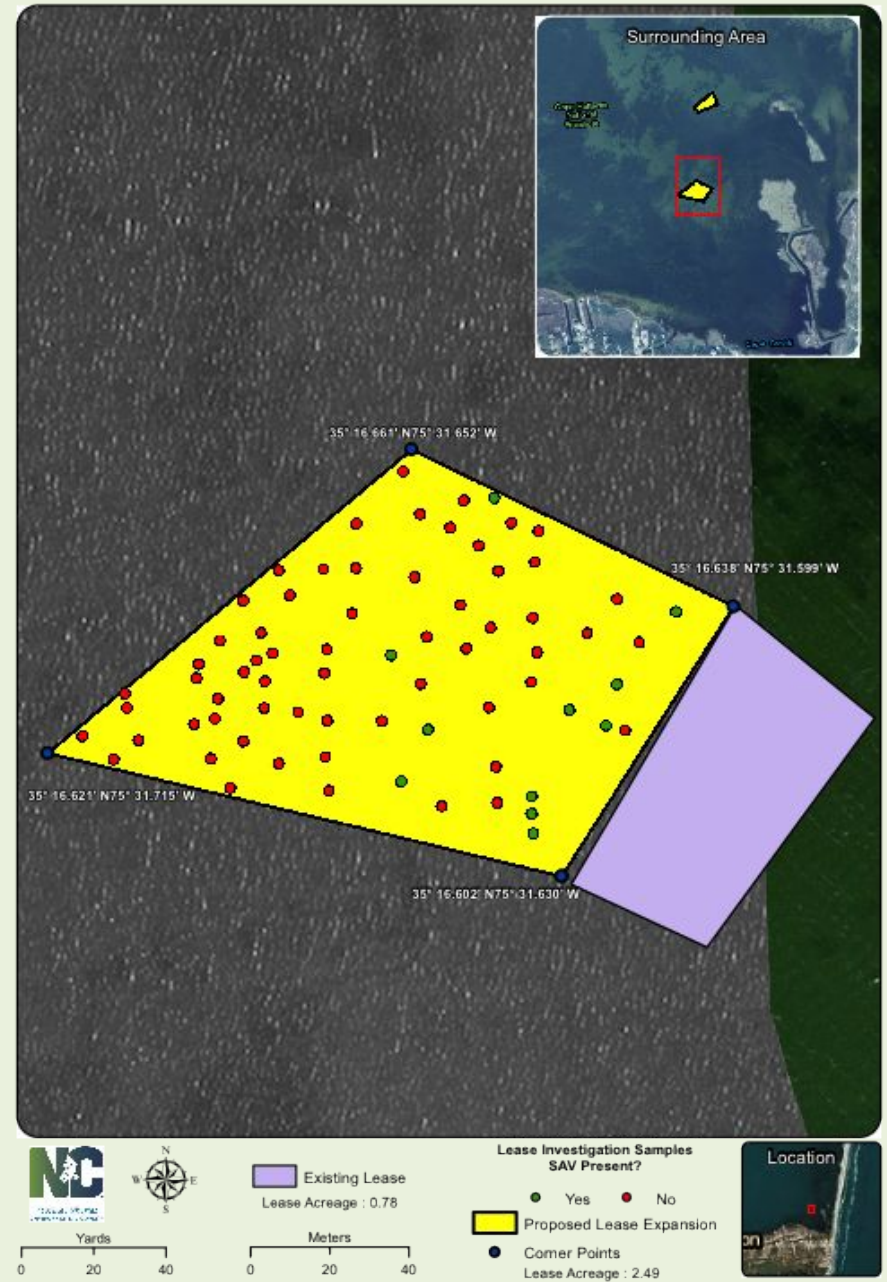
- Predetermined aquaculture zones
- SAV regulations
- Federal goals for increased mariculture production
- Broad political support for NC growth





# The SAV dilemma

UNCW Shellfish lease  
siting tool

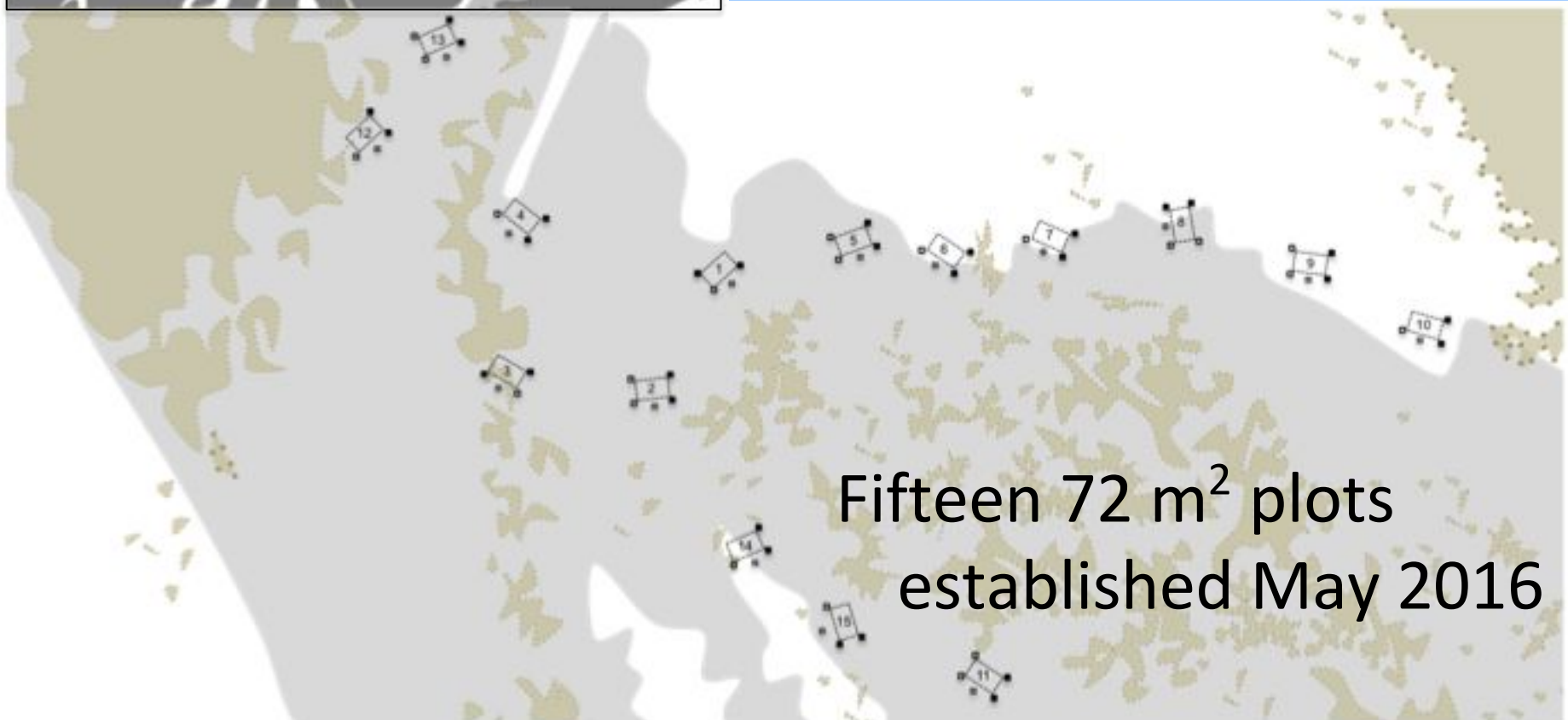
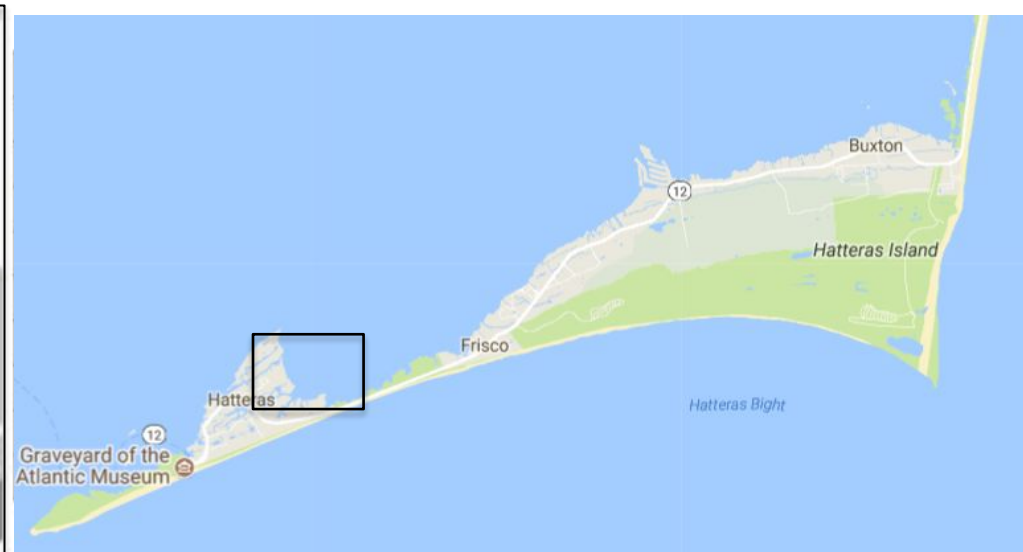


# Measuring ecosystem tradeoffs

- Seagrass inhibited by oyster culture
  - Outcome is variable
- Landscape benefits to oyster farms
- Culture gear has habitat value



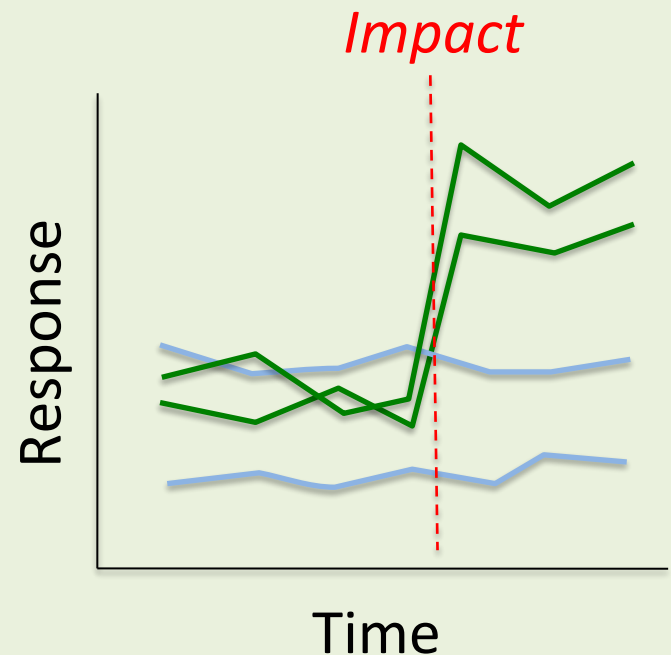
Can oyster culture restore ecosystem services of natural oyster reefs?





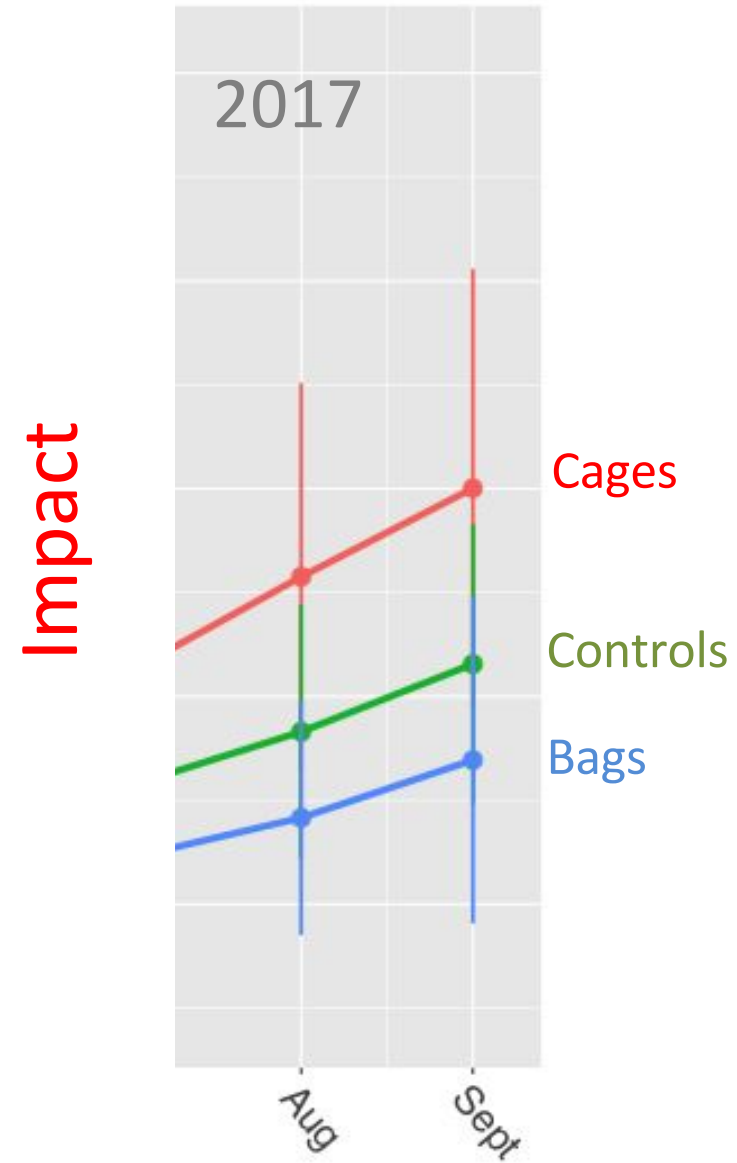
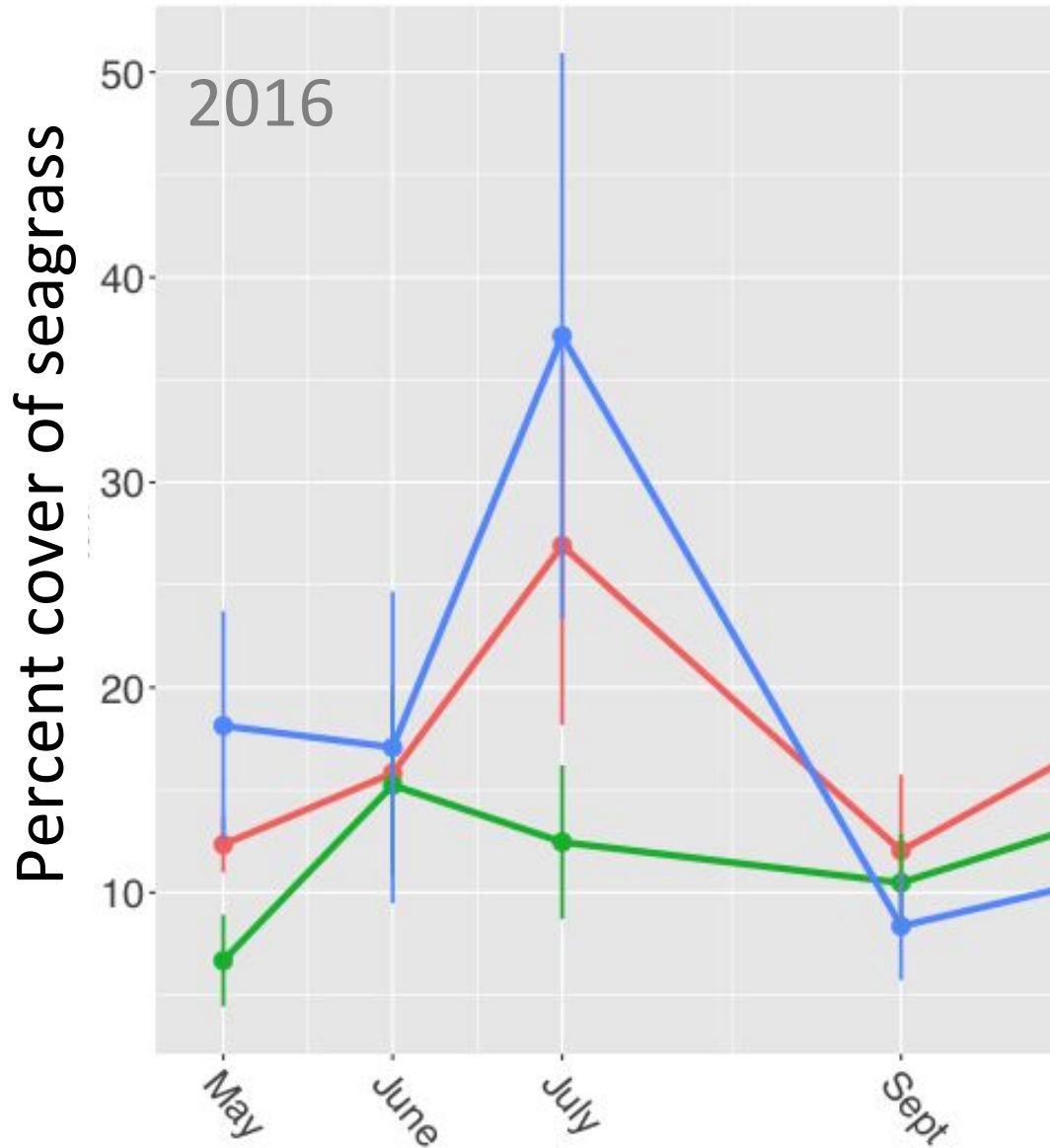
# BACI impact design

- Repeated sampling before (2016) and after impact (2017- )
- $N = 5$  each of control, floating bags, bottom cages
- DIDSON acoustic imagery
  - SAV quadrats ( $N = 15$ )
  - 10m gill net
  - Crab pots ( $N = 2$ )
  - Minnow Traps ( $N = 3$ )
  - Beam trawl



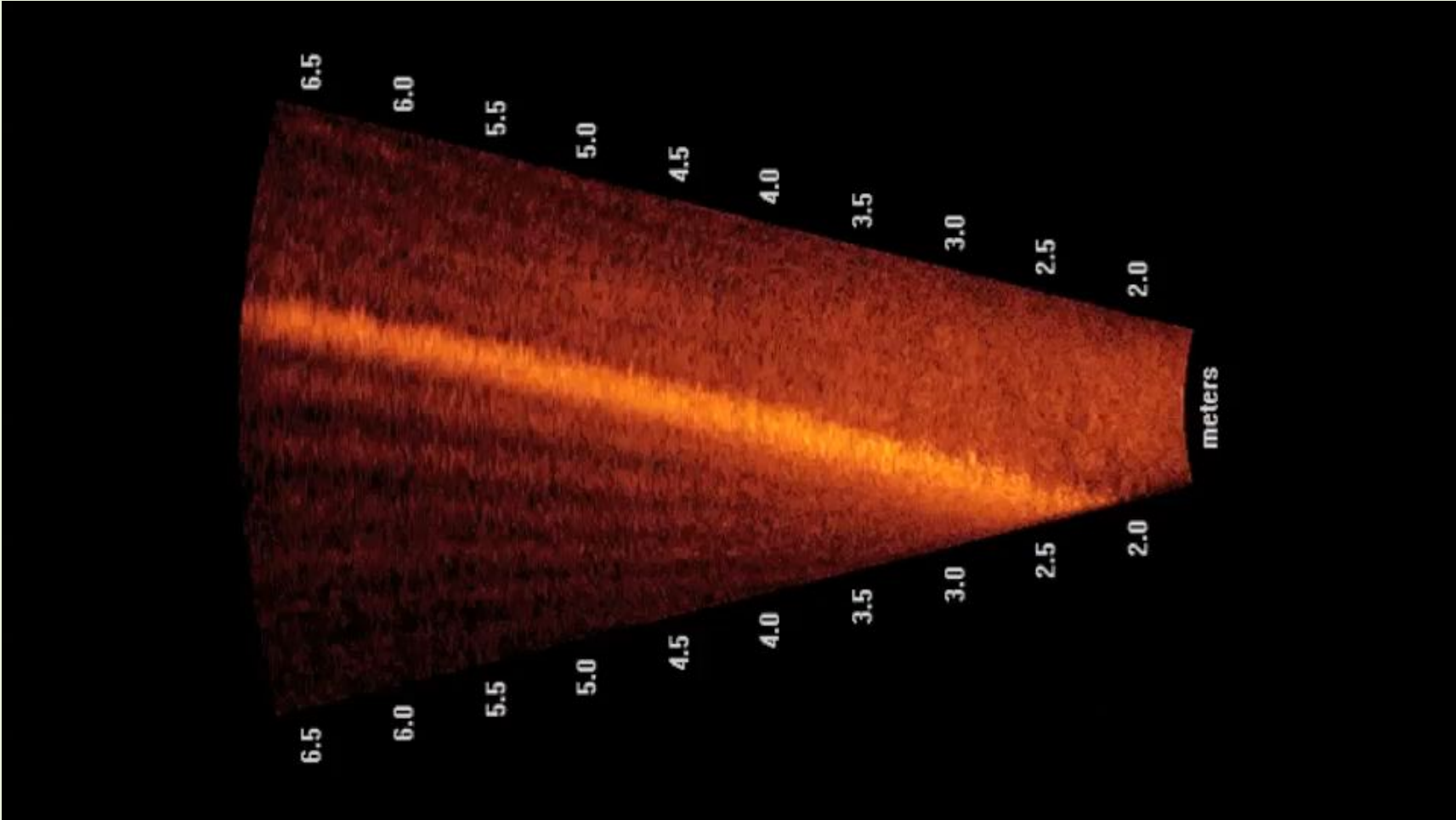


# Seagrass cover is variable

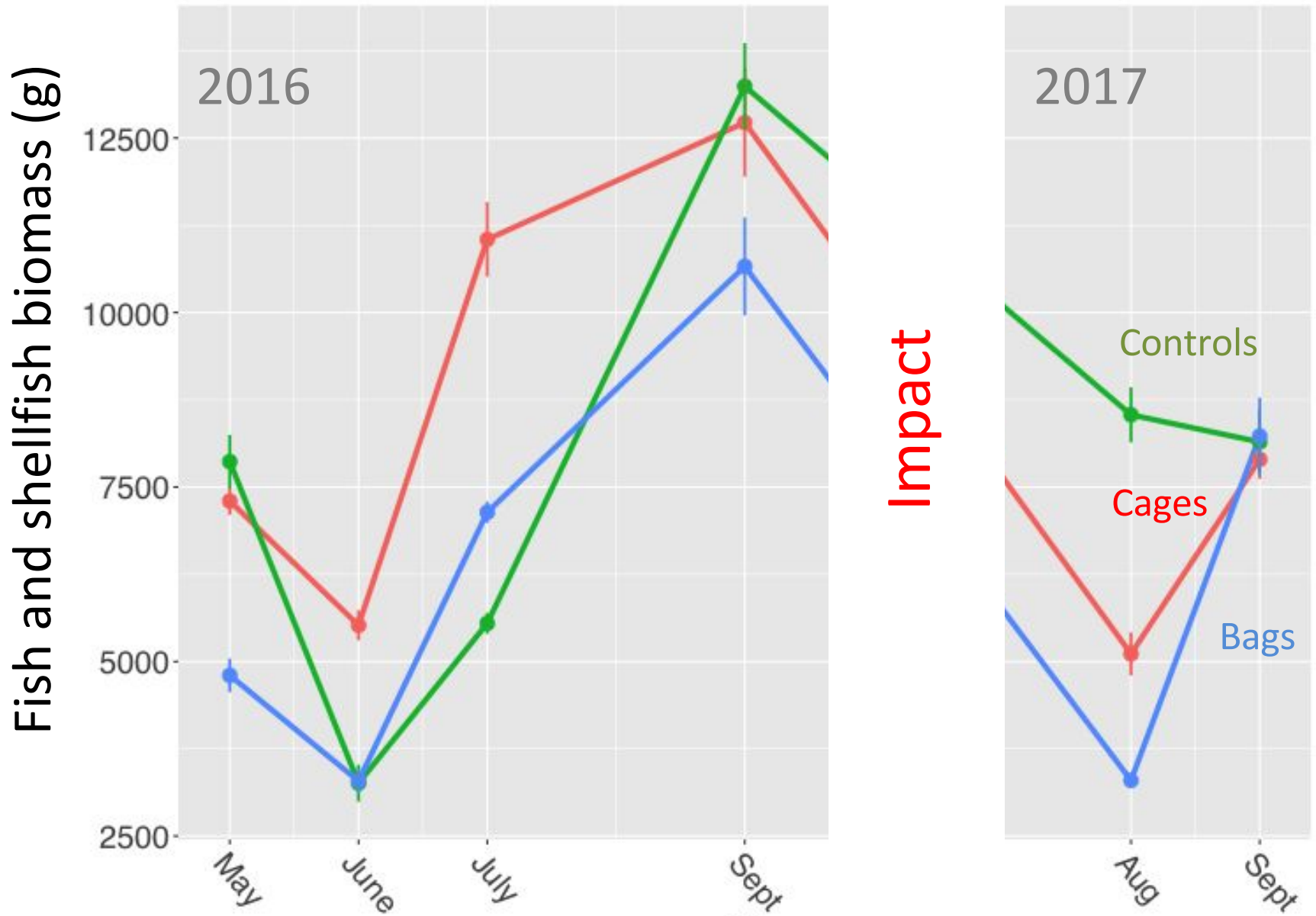




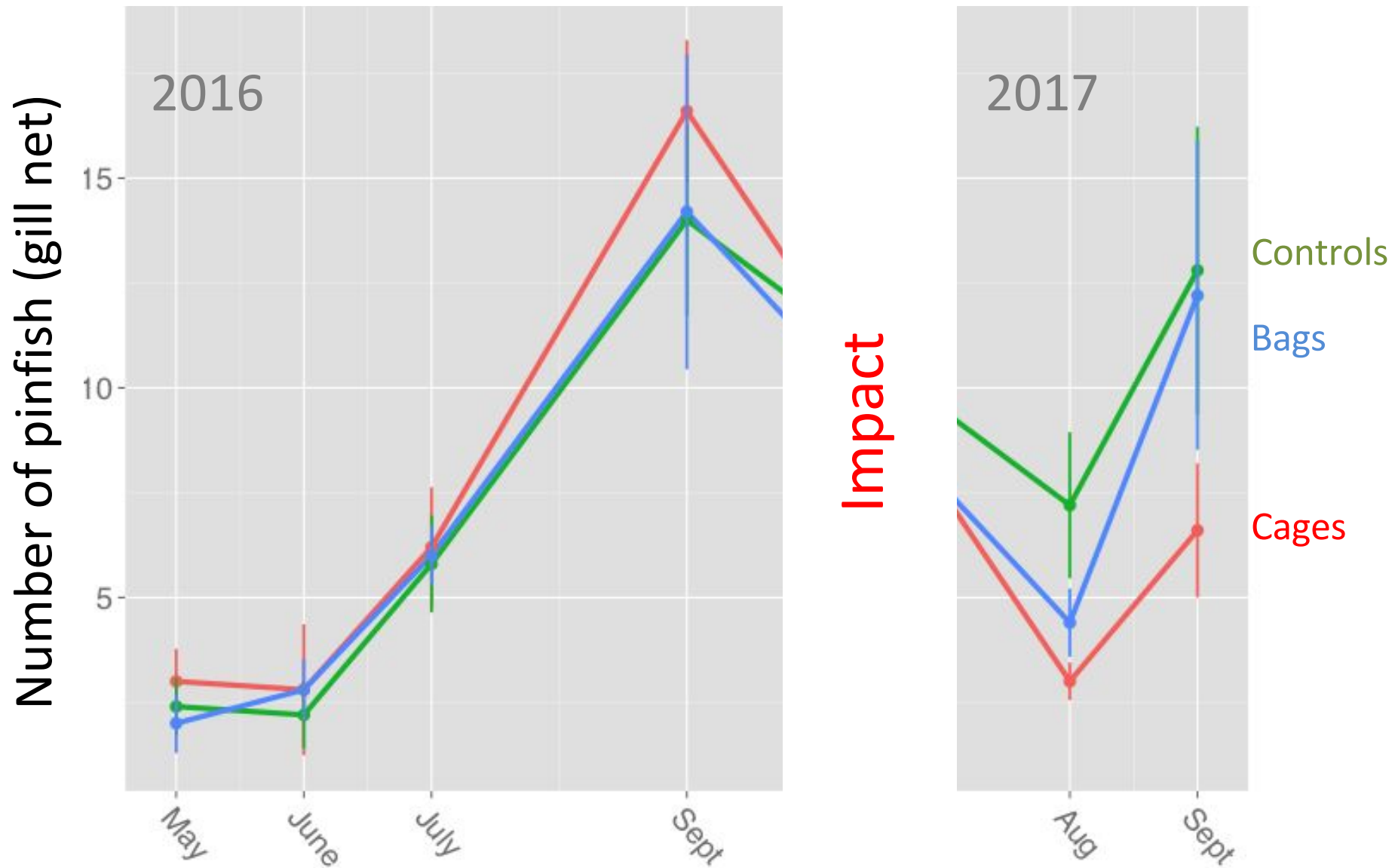
# Acoustic SAV profiling



# Net and trap sampled biomass



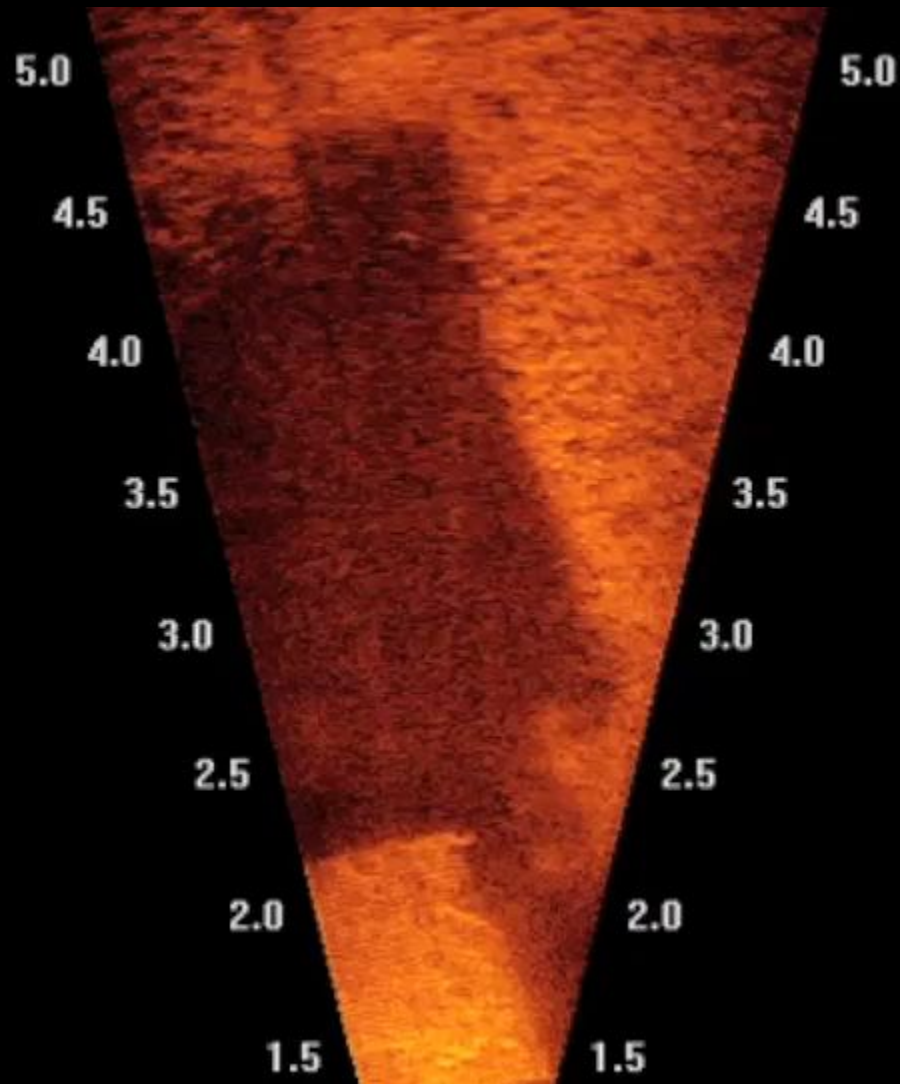
# Differences in community structure



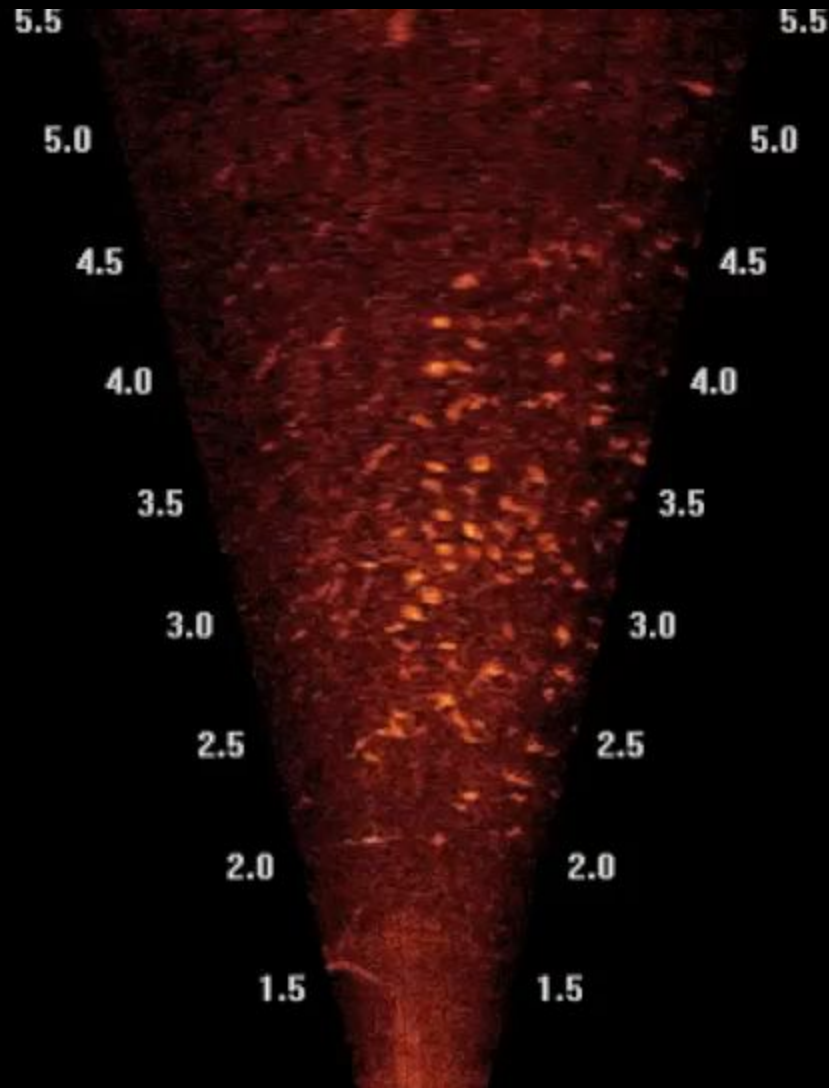




# Acoustic imagery—*Sheepshead*



# Acoustic imagery—*Prey and Piscivore*





# Preliminary conclusions

- Communities on experimental vs. control plots differed
- Evidence of ↓ mesopredators-piscivores
- Repeated measures—BACI design advantageous
- Acoustic sampling may prove critical for assessment

# Acknowledgements

- Scott Ensign
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