



WQPP SPONGE UPDATES

Shelly Krueger, UF/IFAS Extension Monroe County

Ashley Smyth, PhD, UF/IFAS Tropical Research and Education Center

Sponges: The oysters of South Florida?

Oysters

- Efficient filters
- Large restoration efforts
- Nitrogen removal
- Oyster gardening

Sponges

- Efficient filters
- Restoration efforts
- Nitrogen removal?
- Sponge gardening?



Sponges: The oysters of South Florida?

Research Questions

- How do 3 nearshore sponge species impact the nitrogen cycle?
- Can sponge gardening support offshore nurseries?



3 HMA (high microbial abundance) sponges



Glove Sponge



Loggerhead Sponge

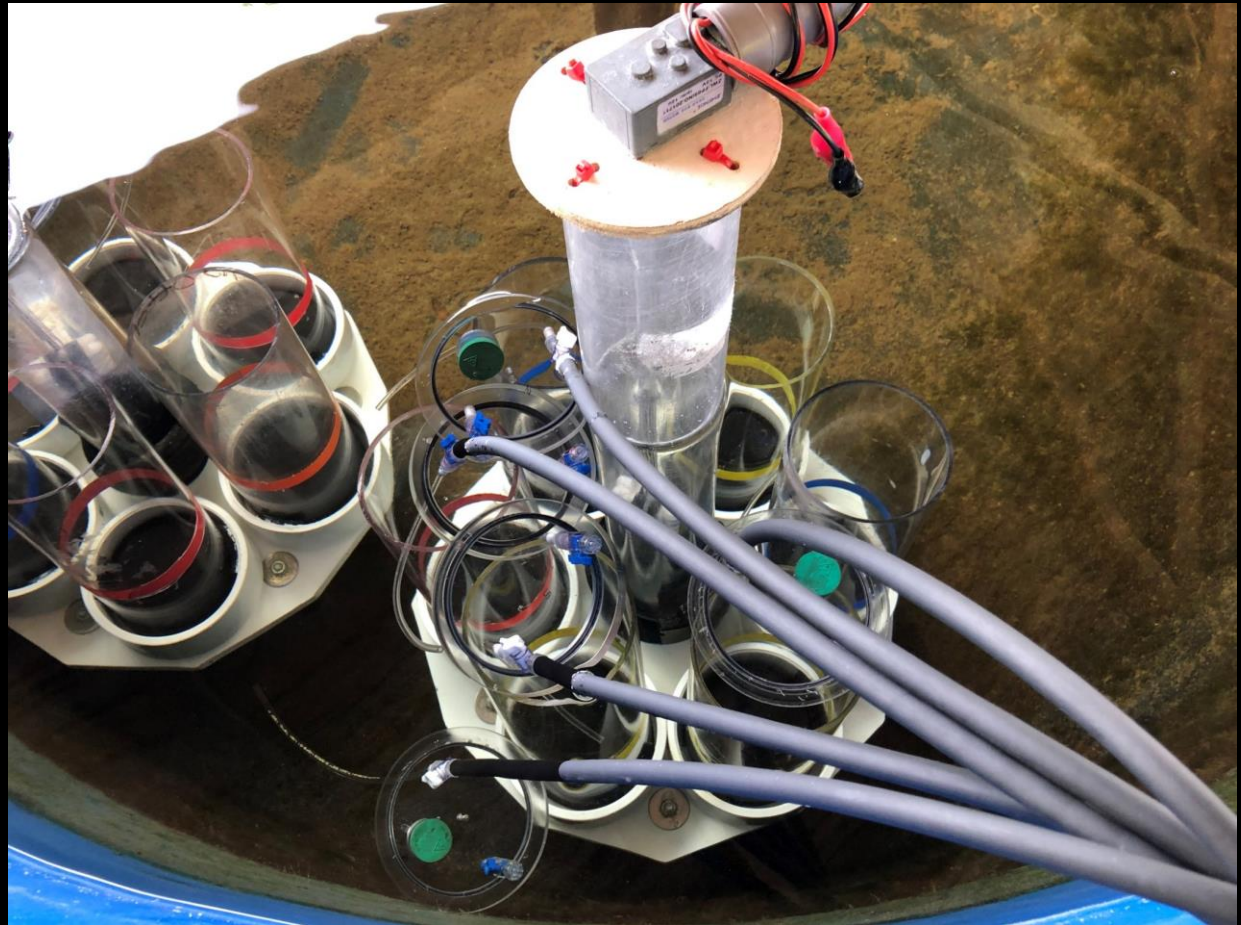


Sheepswool Sponge

Measuring nitrogen fluxes



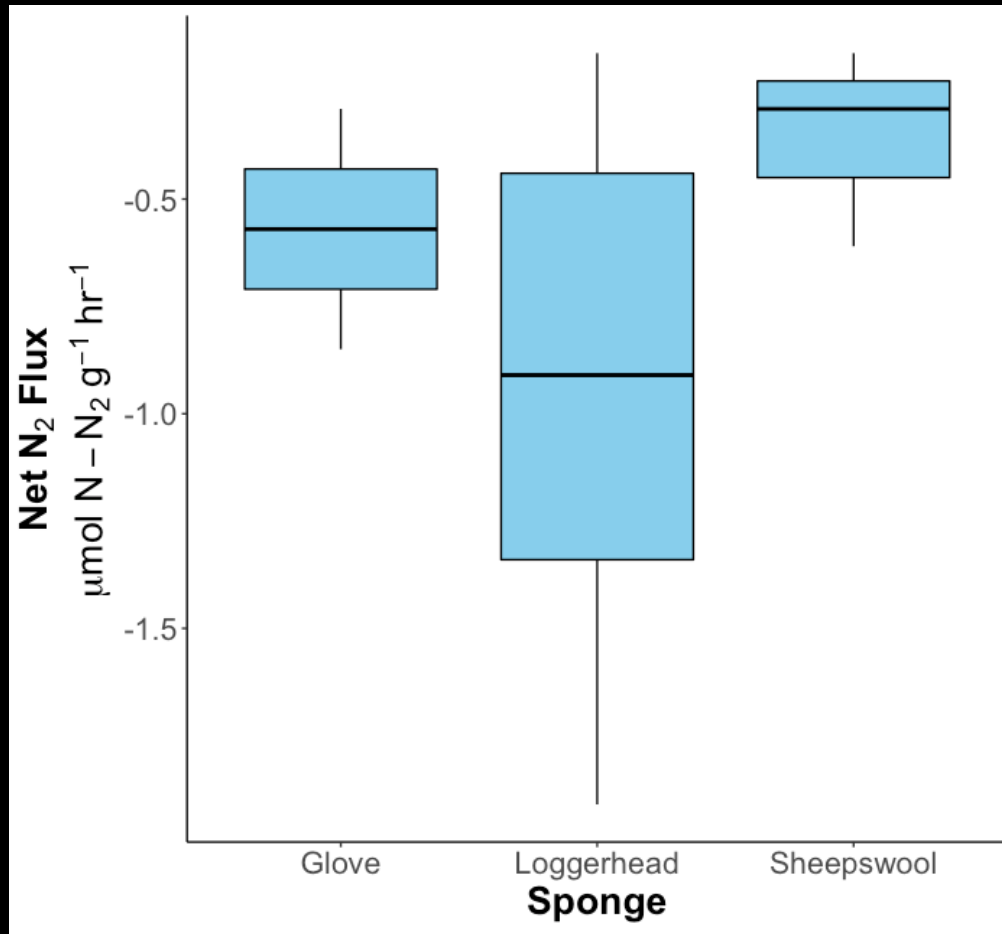
Acclimated >30 days
College of Florida Keys



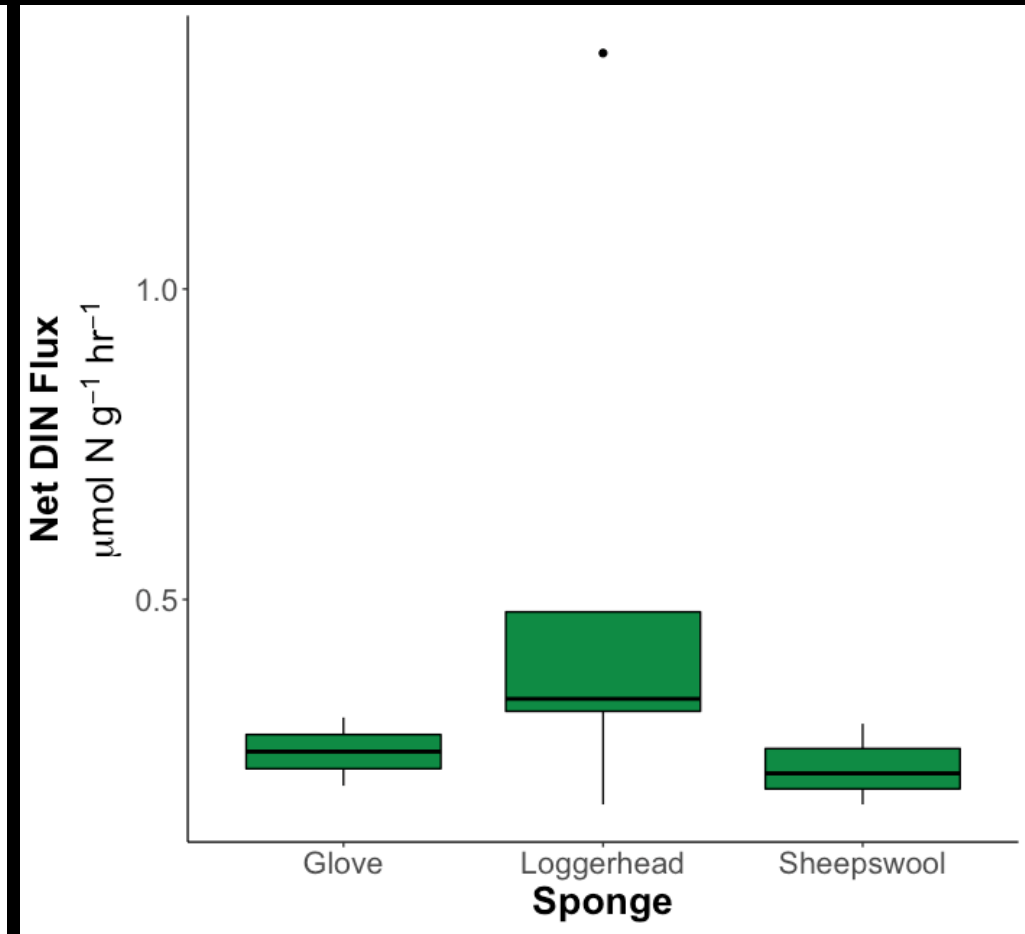
Continuous flow sponge chambers

Sponges are a source of DIN

Net N₂ Flux



Net NO_x + NH₄⁺ Flux





Sponge Gardening?

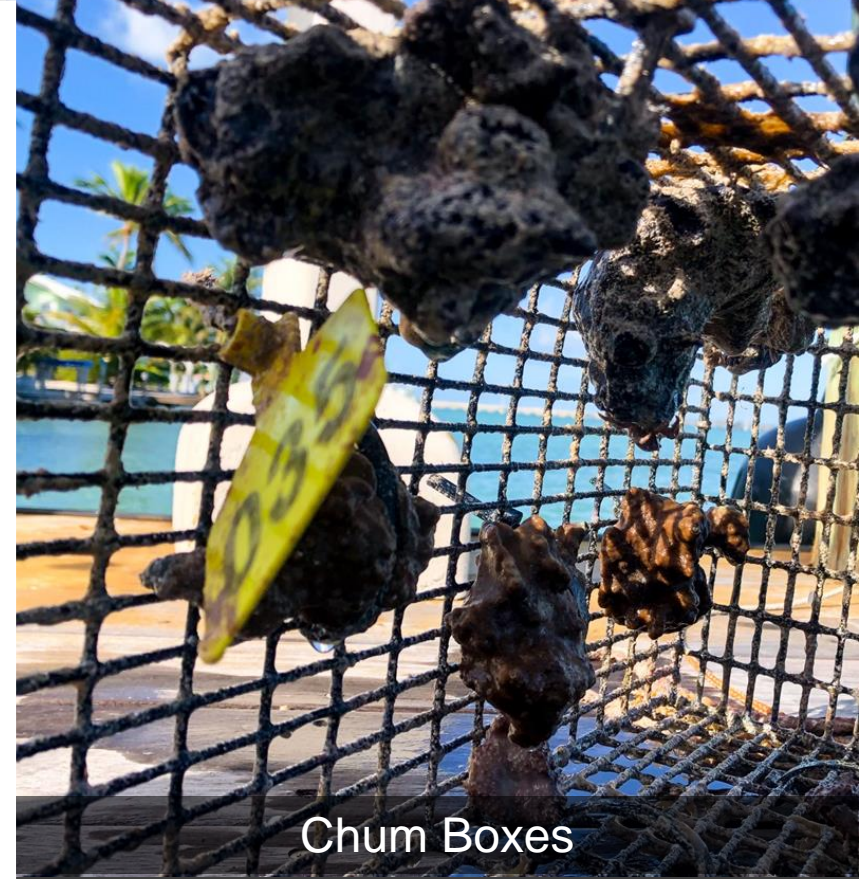
- Citizen science
- Residential canals
- Alternative nurseries



Manilla Rope



Aquaculture Mesh



Chum Boxes

3 treatments in residential canals

Chum boxes – highest recorded species



- Tiger goby
- Brittlestars
- Crabs
- Octopus
- Barracuda
- Mangrove tunicates
- Amphipods
- Fire sponge
- Pipefish
- Snails



UF/IFAS Florida Master Naturalist Program – a new Marine Habitat Restoration Course



Developed by:

Shelly Krueger, Savanna Barry, Scott Jackson, Shelly Johnson, Josh Patterson, Laura Reynolds, Martin Main

Supported by:

University of Florida/IFAS and Florida Sea Grant

UF | IFAS
UNIVERSITY of FLORIDA

Sea Grant
Florida

Modules:

- Seagrass Restoration
 - Savanna Barry, Laura Reynolds
- Coral Reef Restoration
 - Josh Patterson
- **Sponge Restoration**
 - **Shelly Krueger**
- Artificial Reefs
 - Scott Jackson



Questions?



- Research funded by EPA Region 4 South Florida Geographic Initiative X7 - 00D83018 – 1

- Acknowledgements

- US EPA
- FWC
- College of the Florida Keys
- Mimi and Simon Stafford

