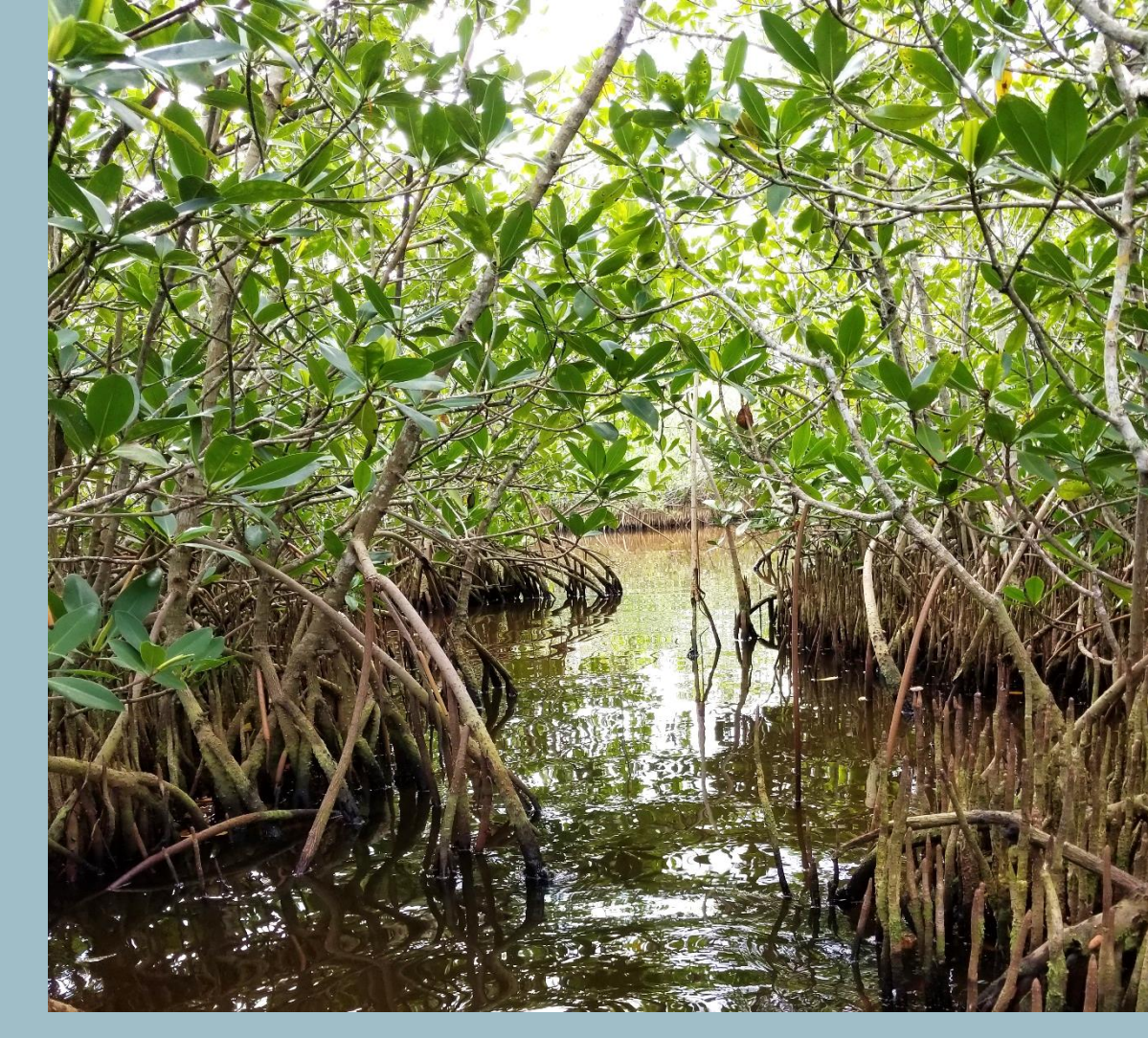




Integrating Sport Fish Nursery Habitat Into Land-Use Management

Courtney Saari, David Blewett, Corey Anderson, Matthew Bunting, Philip Stevens
Florida Fish and Wildlife Conservation Commission



Background

- In southwest Florida, coastal wetlands include tidal creeks and a series of semi-isolated coastal ponds at the upland interface. Ongoing research has found these habitats to be the primary nursery grounds for Snook and Tarpon, two highly targeted sport fish.
- Charlotte Harbor estuary is experiencing urbanization
 - Coastal salt marsh habitat is becoming rare
 - Limited nursery habitat → limits recruitment & population resilience
- Collaborative effort to identify, monitor, conserve, and restore sport fish nursery habitat, and establish place-based fishery and habitat management partnerships
- Ongoing fisheries monitoring of natural and restored coastal ponds to assess habitat features for juvenile sport fish
 - Coral Creek Ecosystem Restoration
 - Cape Haze Peninsula



Juvenile Snook



Juvenile Tarpon

Methodology

- Characterize physical attributes of restored & natural coastal ponds
 - Hydrologic connection
 - Tidal inundation
 - Flooding frequency
 - Shoreline habitat
 - Depth
- Characterize fish use of restored & natural coastal ponds
 - Community assemblages
 - Sport fish abundance
 - Sport fish age & size
 - Emigration of sport fish
- Fisheries Sampling
 - 3 Seasons: Wet (Aug/Sep), Transition (Nov/Dec), Dry (Apr/May)
 - 9-m and 40-m seine
 - Water level loggers
 - 13 natural and 3 stormwater ponds
 - 6 restored ponds



Measuring a young-of-the-year tarpon



Setting a 9-m seine in a natural pond



Setting a 9-m seine in a restored pond

Study Area

Cape Haze Peninsula, Charlotte County, Florida



Coastal ponds at the urban-estuarine interface



Natural coastal ponds



Restored coastal ponds

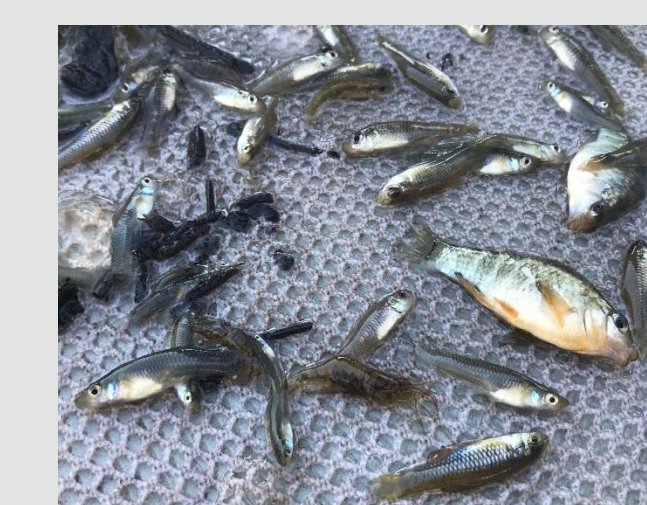
Preliminary Results

- Natural, Restored, and Stormwater Ponds on the Cape Haze Peninsula are productive snook and tarpon nurseries
- 75% of ponds had juvenile sport fish
 - Snook used 14 different ponds, typically those closest to creeks or those linked by narrow creek or ditch connections
 - Tarpon used 11 different ponds, typically those with ephemeral connections



Fish Assemblages

- 47 different species
- Dominated by marsh fishes
- Similar community assemblages
- Varied by degree of connectivity & upstream hydrology
- Restored ponds were more similar to stormwater and natural ponds with urban influence than natural ponds surrounded by undisturbed lands



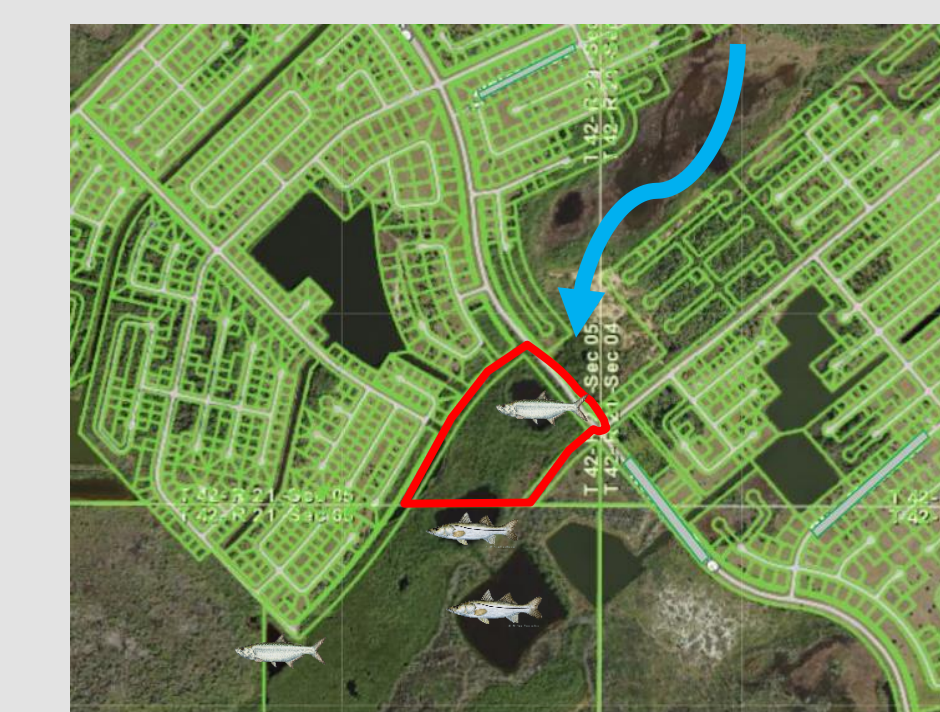
Juvenile Tarpon Emigration

- In ephemerally connected ponds, emigration is driven by storm events and stochastic seasonal high water levels

Connecting Science to Management

This research laid the foundation for a science co-production planning project: *Place-Based Recreational Fishery Conservation in Charlotte Harbor, Florida*

- Currently developing a research plan to adaptively manage restored fish habitat
 - Monitoring results feed back to fish habitat management
- Generating site-specific information for targeted actions and place-based partnerships to address local threats
- Creating conservation policies that promote sustainability of habitat and fisheries
- Urban planning that includes habitat management
 - Revising local policies for zoning, infrastructure, land acquisition, and restoration
- Identifying research needs and applications to management



Identifying critical habitats at risk of loss



Adaptive management of habitat restoration

More Information

- See Corey Anderson's GoMCON presentation "Informing Place-Based Recreational Fishery Conservation with Co-produced Science."
- Scan this QR Code for more information on the Co-production workshops.
- Visit the NOAA project page: <https://tinyurl.com/Fish-Conserve>



Acknowledgements & Partners

Thank you to all the FIM staff who have contributed to this project. This poster is the result of research funded by the National Oceanic and Atmospheric Administration's RESTORE Science Program under award RDCGR040058 to Charlotte County with a subaward to FWRI and award NA21NOS4510190 to The Fish and Wildlife Foundation of Florida, Inc.

