The Value of Shallow Tributary Habitats of Upper Chesapeake Bay to the Summer Flounder

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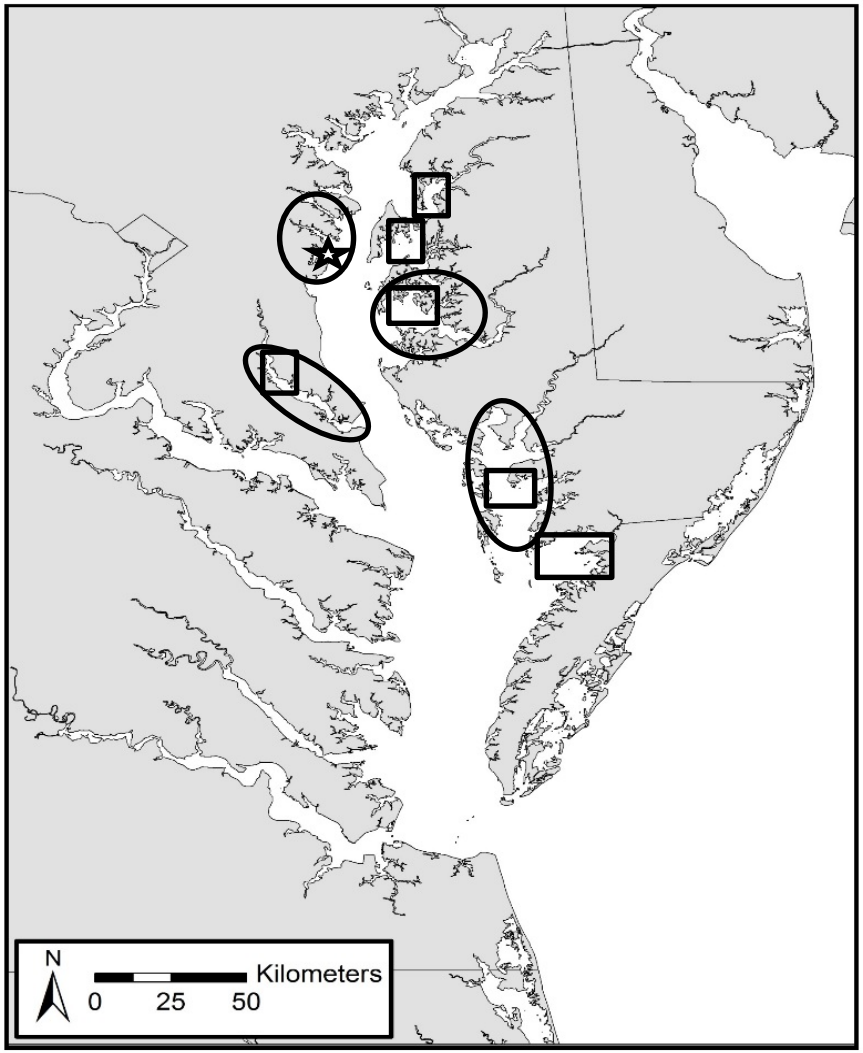
Goals and objectives

Project goals: To quantify the value of shallow tributary forage habitats of upper Chesapeake Bay as nursery and foraging habitat and identify associations with environmental variables, connectivity to offshore habitats, and key prey species.

Program priorities addressed:

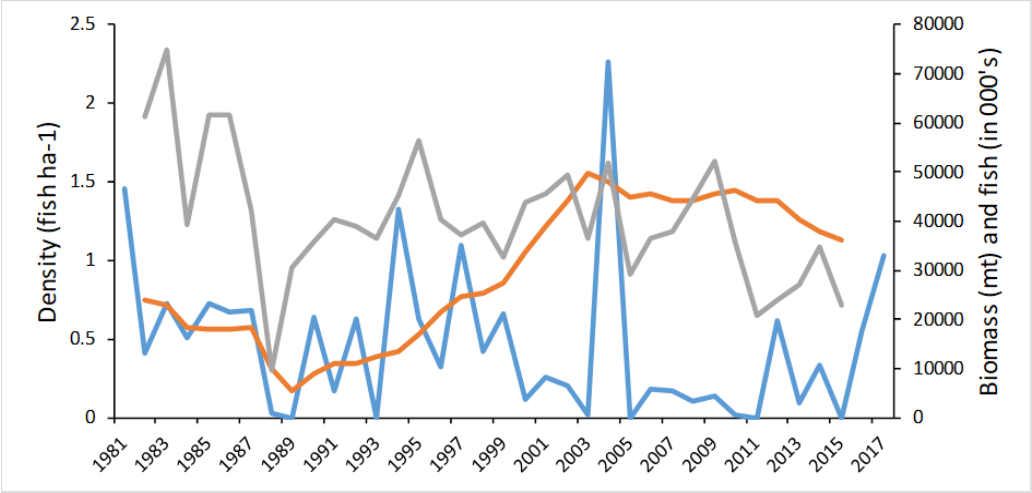
- Examining the role of inshore habitat in offshore productivity
  - Examine movement ecology and habitat utilization using telemetry
  - Inform Habitat Areas of Particular Concern through new data analysis or synthesis
- Increase shallow water monitoring of forage and habitats

Objective 1: Evaluate abundance and size distribution in four tributaries



- 16 ft otter trawl to match long term surveys - e.g. Maryland Blue Crab Summer Trawl (boxes), SERC long-term (star)
- 20 sites per tributary
- Early summer (July), late summer (August-September), fall (October)
- Measure, weigh, and release all summer flounder except 25 per area retained for diet study

Objective 2: Explore decadal trends in relative abundance

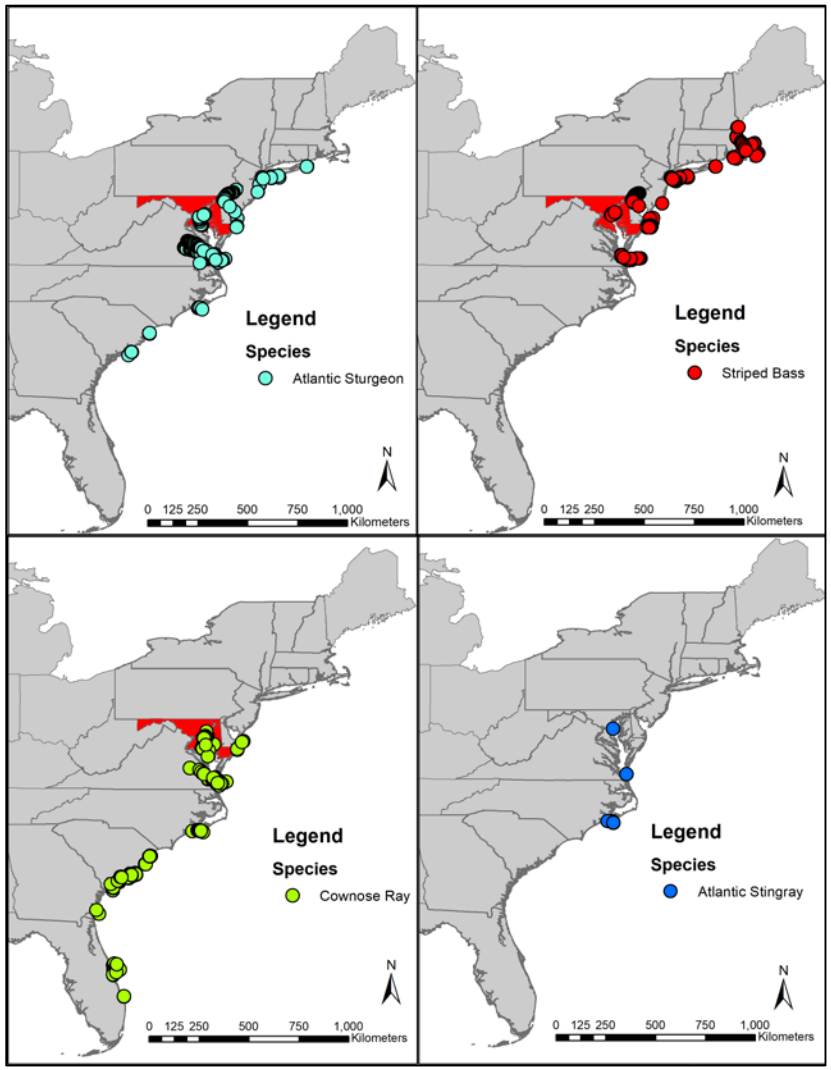


SERC trawl survey
Spawning stock biomass
Coastwide recruitment

- Maryland Blue Crab Summer Trawl
- SERC long term trawl data
- Coastwide abundance indices
- Environmental data, including CBIBS
- Climate indices

Ogburn, Hines et al. unpublished data; ASMFC

Objective 3: Examine habitat use and connectivity, site fidelity, and phenology



SERC and colleagues, unpublished data

- Deploy alphanumeric tags in summer sampling to determine if later sampling events recapture individuals
- Use acoustic telemetry on larger individuals for site fidelity, emigration timing, connectivity, and detecting presence and timing of any returning fish in year 2
- Deploy receivers in Choptank River, Rhode/West/South River, Patuxent River, Tangier Sound
- Manage data in the Mid-Atlantic Acoustic Telemetry Observation System (MATOS)







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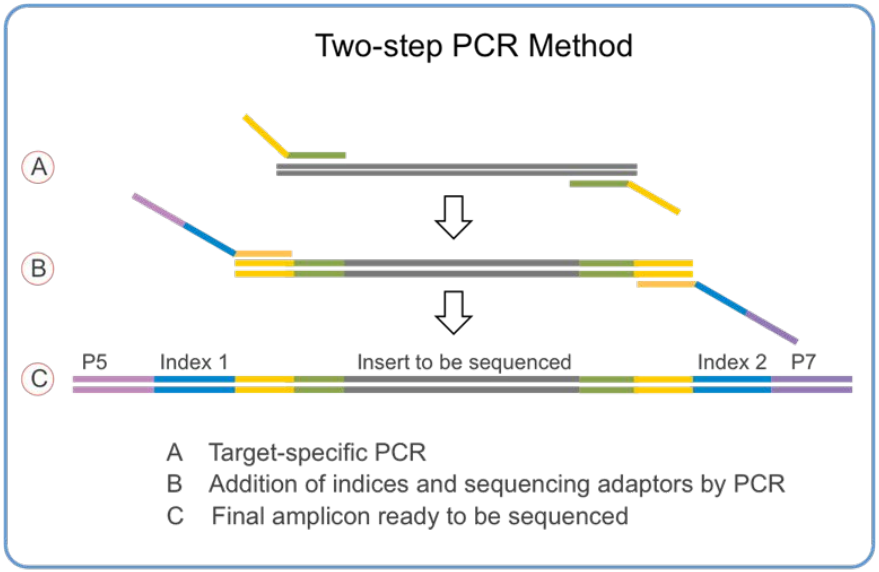
Objective 4: Quantify diet and sources of nutrition in tributary habitats



- Conduct COI and 18S meta-barcoding of gut contents from fish from each tributary
- Match sequences with GenBank, Barcode of Life Database, and Chesapeake Bay Barcode Initiative
- Conduct C and N stable isotope analysis

Chesapeake Bay Barcode Initiative

https://serc.si.edu/projects/species-diversity-chesapeake-bay

Project impacts

Evaluate role of shallow tributaries of upper Chesapeake Bay as habitat for Summer Flounder.

Add diet information from shallow tributaries to improve understanding of forage species

Leverages CBIBS data and MATOS telemetry database

Contributes to Smithsonian initiatives in genetic barcoding and animal movement ecology