Diversity of fish parasites in a South Carolina estuary – interesting infection patterns and taxonomic hurdles

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Introduction

- Estuaries are transitional habitats with constantly changing abiotic conditions and diverse fauna. Parasite fauna of estuarine fishes is underexplored in estuaries on the east coast of the United States of America.
- Stono River estuary is located in South Carolina; part of the estuary is protected as a Stono Preserve area due to its history and the biodiversity present.
- Biodiversity of this estuary was researched in 2023 through a BioBlitz project, which aims to record all living species within a chosen area. In this study we investigate the diversity of fish parasites collected within this project.

Stono River estuary [+]

Materials & methods

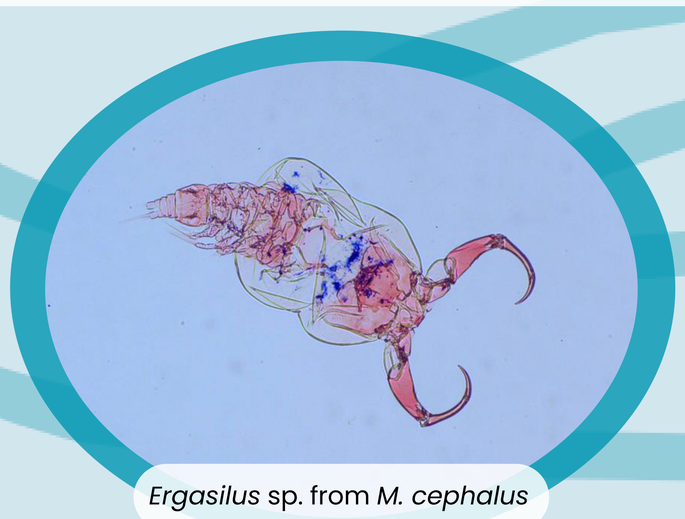
- Sampling of fishes - April and May of 2023, Stono River estuary, South Carolina, USA
- Collected parasites preserved on slides and in 96% ethanol for molecular work
- Samples identified based on their morphology and genetic markers (sequences of 28S, 18S and ITS rDNA)

The flathead mullet, *Mugil cephalus* Linnaeus, 1758 [++]

Results

- 125 fish specimens of 12 genera (17 species) caught and inspected for parasites; fishes of six genera (nine species) infected: *Anchoa* (*A. mitchilli*), *Fundulus* (*F. confluentus*, *F. heteroclitus*, *F. majalis*), *Gambusia* (*G. holbrooki*), *Gobiosoma* (*G. bosc*), *Menidia* (*Menidia sp.*) and *Mugil* (*M. cephalus*, *M. curema*)
- 130 parasites collected; identified as 15 species - monopisthocotylan flatworms (*Fundulotrema*, *Gyrodactylus*, *Ligophorus*, *Salsuginus*), polyopisthocotylan flatworms (*Metamicrocotyla*) and copepods (*Bomolochus*, *Caligus*, *Ergasilus*, *Naobranchia*)
- *Ligophorus* have the highest mean intensity and prevalence, and *Fundulotrema* the lowest
- *M. cephalus* harbors the highest parasite species richness (seven), and *Anchoa mitchilli* and *Menidia* sp. the lowest (one per each species)

Gyrodactylus sp. from *G. bosc*



Ergasilus sp. from *M. cephalus*

Salsuginus angularis from *F. heteroclitus*

Discussion

- New records of parasites of estuarine fishes for the Atlantic coast of the USA
- Sampled parasites show strong patterns of host-specificity, and they can be found in different habitats within the estuary - creeks, small lakes and water reservoirs
- Striking lack of molecular data available for North American fish parasites, and some taxa in need of taxonomical revision
- Greater knowledge of fish parasite diversity in estuaries would help in understanding how parasite diversity is influenced by changing abiotic factors and global climate change

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