Diversity of larvae from the Charleston Area

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Introduction

If zooplankton can't swim effectively, will different areas around Charleston Harbor have different diversity of zooplankton?

- Factors that may influence larval diversity, density and dispersal:
  - Location
  - Plankton type (holoplankton vs. meroplankton)
  - Ebb or Flood tides
  - Flow rate
- Is there a need for complex mathematical models to explain dispersal of passive drifters?

Materials and Methods

-10 zooplankton tows at 5 sites:

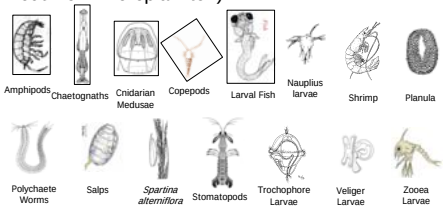
1. Charleston Harbor
2. Pitt St. Bridge
3. Stono Marina
4. Breech Inlet
5. Ashley River

-2 tows per location, one each at **flood** and **ebb** tides

-Flow rates recorded at each tow using a flowmeter

-Samples counted and larval type classified at Grice Marine Lab

-Zooplankton observed (outline = holoplankton, no outline = meroplankton):



Diversity per Location:

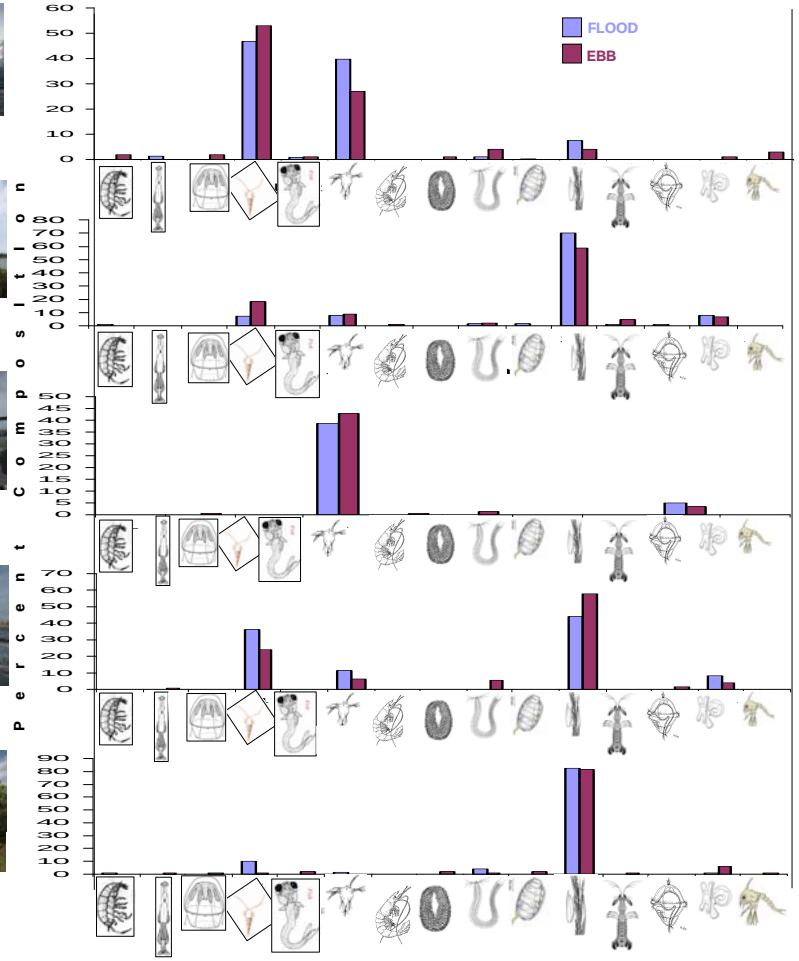
Charleston Harbor

Pitt St. Bridge

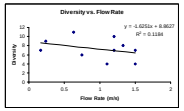
Stono Marina

Breech Inlet

Ashley River

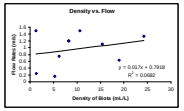


Flow Data:



Diversity vs. Flow Rate:

There is no strong correlation between the number of species observed and the flow rate recorded (in m/s).



Density vs. Flow Rate:

There is no strong correlation between the volume of biota (in mL/L) and the flow rate recorded (in m/s).

Conclusions

- No strong difference in number of individuals across ebb or flood tides
- No strong correlation between number of species observed and flow rate
- No strong correlation between the volume of biota and flow rate
- More Holoplankton found in more open sites (Harbor and Breech Inlet); *Spartina alterniflora* makes up bulk of biomass everywhere
- Differences in zooplankton diversity differ only by location, but there is no conclusive data to support why.
- Understanding diversity in adult populations would be helpful in understanding larval diversity
- Stronger mathematical models are required to understand zooplankton dispersal

Works Cited

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