Snails, worms and flies: Invertebrate life in the tidal flats and low marshes of the Saco River Estuary

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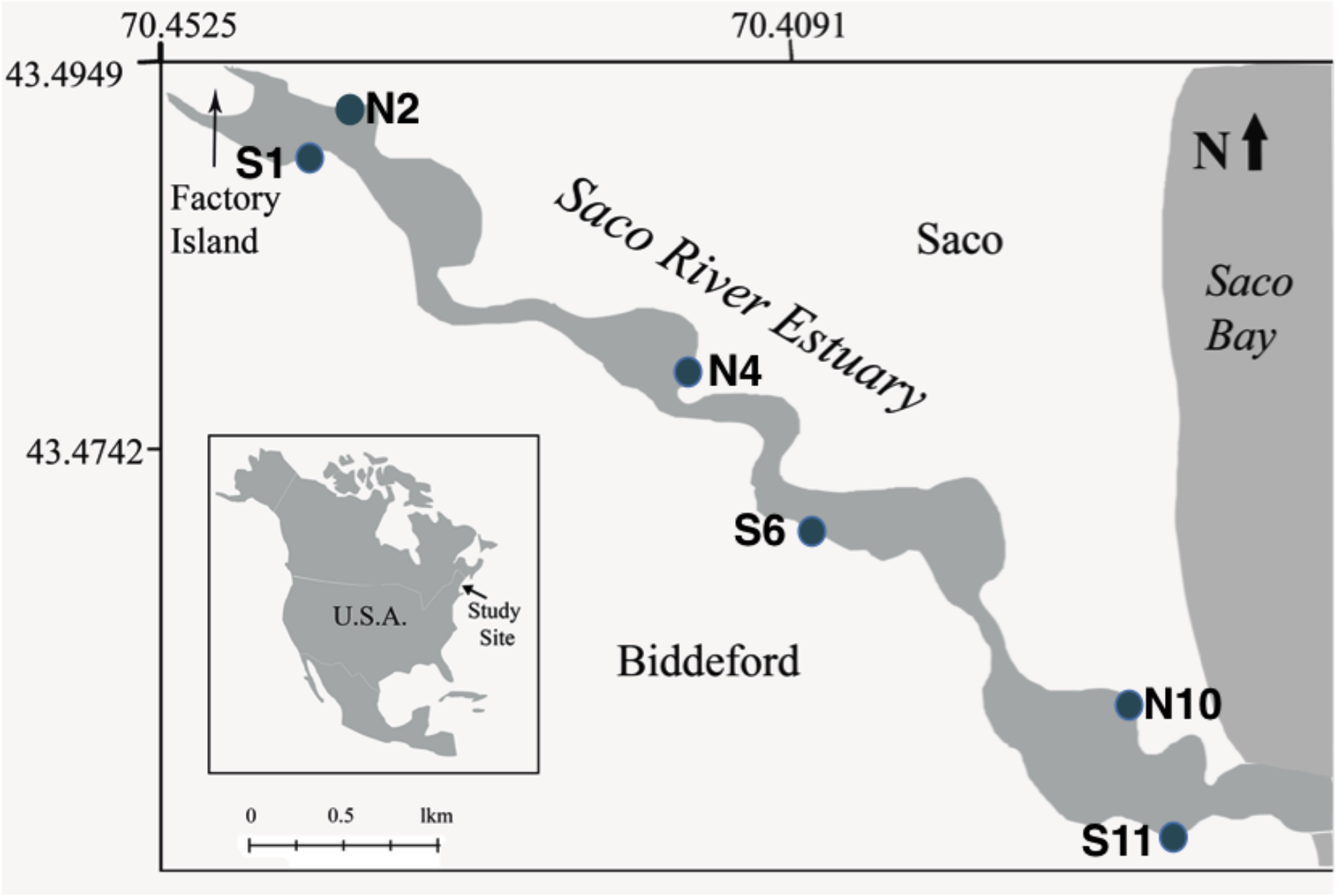
Why Benthic Invertebrates?

- Limited mobility
- Wide tolerance range - pollutants and disturbance
- Relatively easy to sample

Questions

1) ***What types of invertebrates inhabit the tidal flats and low marsh habitats of the Saco River Estuary?***
2) ***How diverse are the invertebrate communities in the tidal flats and low marsh habitats?***
3) ***How similar are the communities in the estuary and what structures these communities?***

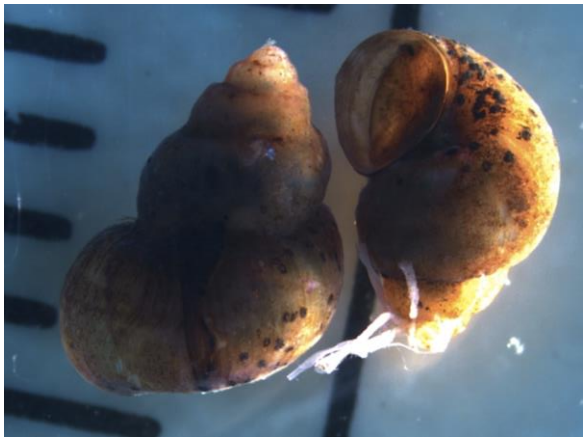

70.4525
70.4091
43.4949
43.4742
N2
S1
Factory
Island
Saco River Estuary
Saco
Saco
Bay
N
N4
S6
U.S.A.
Study
Site
Biddeford
N10
S11
0
0.5
1km

Who's in the Saco River Estuary?

- 5 phyla represented
- 24 families (min)
- 19 species (min)

Snails and worm like critters

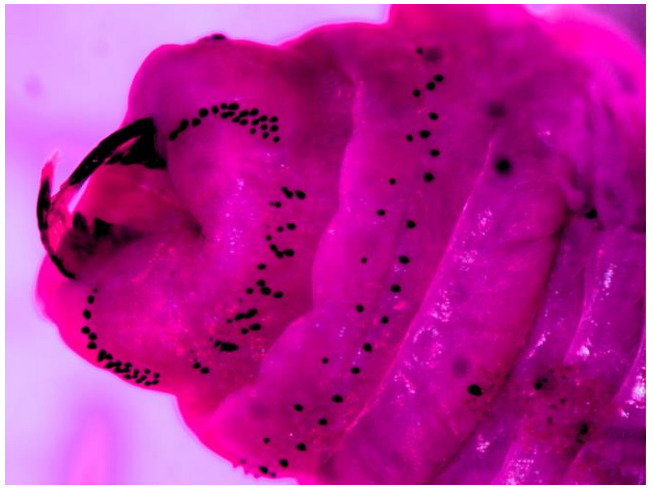
- Mollusca
  - Bivalvia
    - 2 families
  - Gastropoda
    - 2 families
- Nematoda
- Nemertea
  - 1 family



Hydrobiidae

Worms

- Annelida
  - Leeches
    - 2 families
  - Polychaeta
    - 4 families
  - Oligochaeta
    - 2 families



Hediste diversicolor

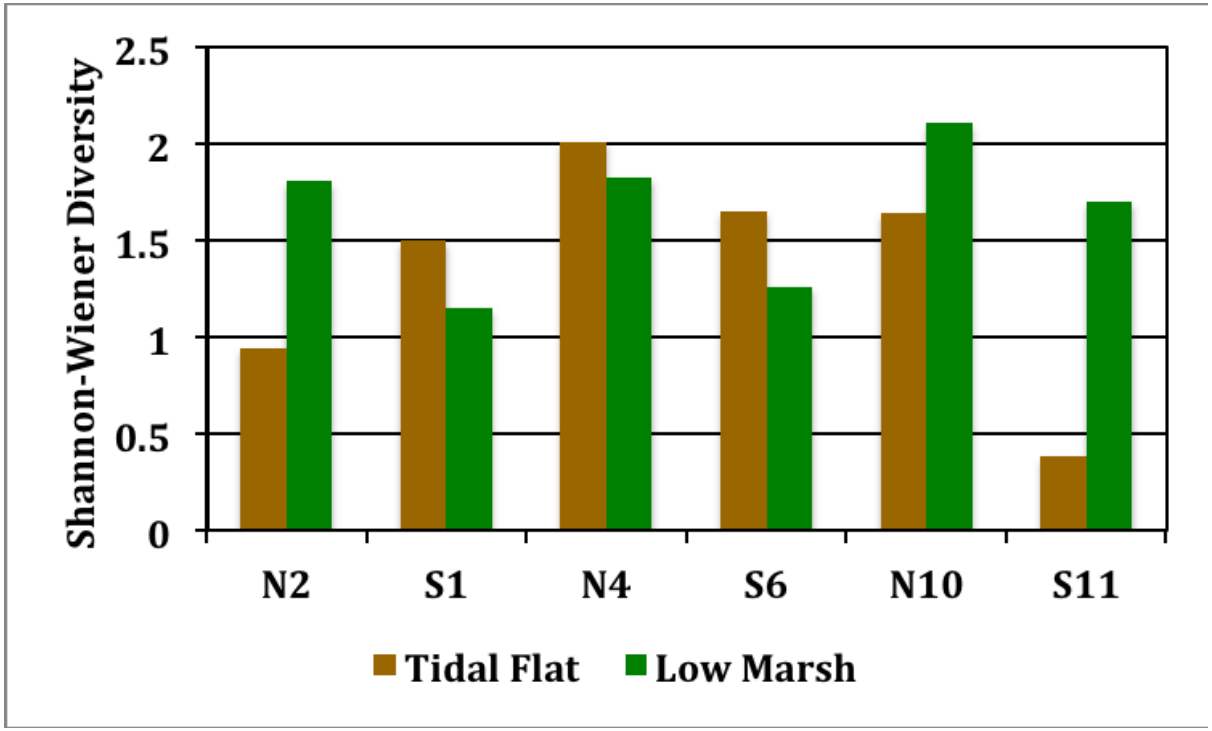
Oligochaeta

Flies, etc.

- Arthropoda
  - Insecta
    - 5 families
  - Malacostraca
    - 5 families

Bezzia/Palpomyia sp.

How diverse are these sites?

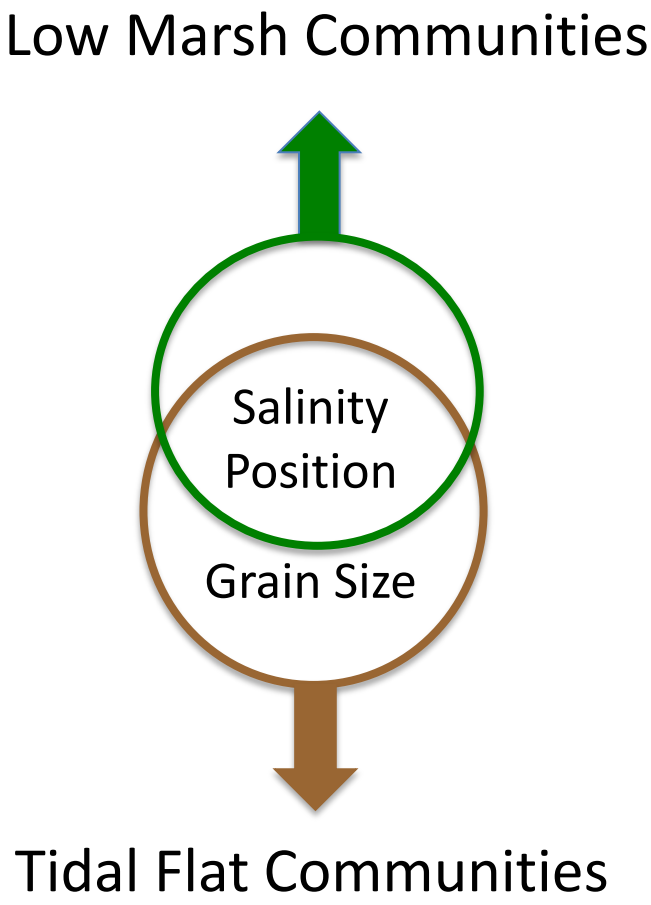


Family level except for Oligochaeta and Nematoda

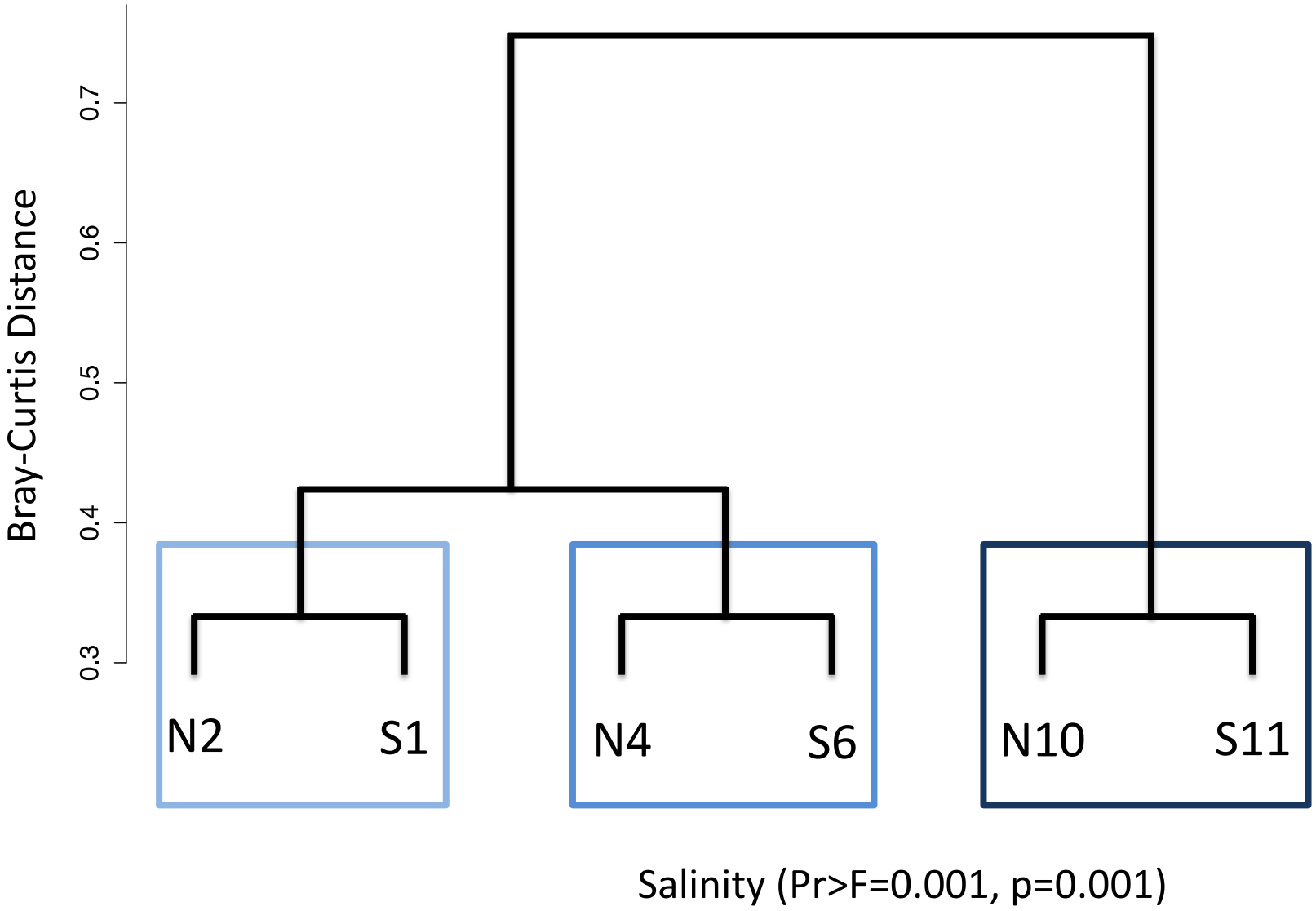
What structures these communities and how similar are the sites in the Estuary?

Two Analytical Approaches:

1. Nested permutational MANOVA
   - Standardized abundances
   - Months nested
2. Hierarchical clustering
   - Presence/Absence
   - Bray-Curtis

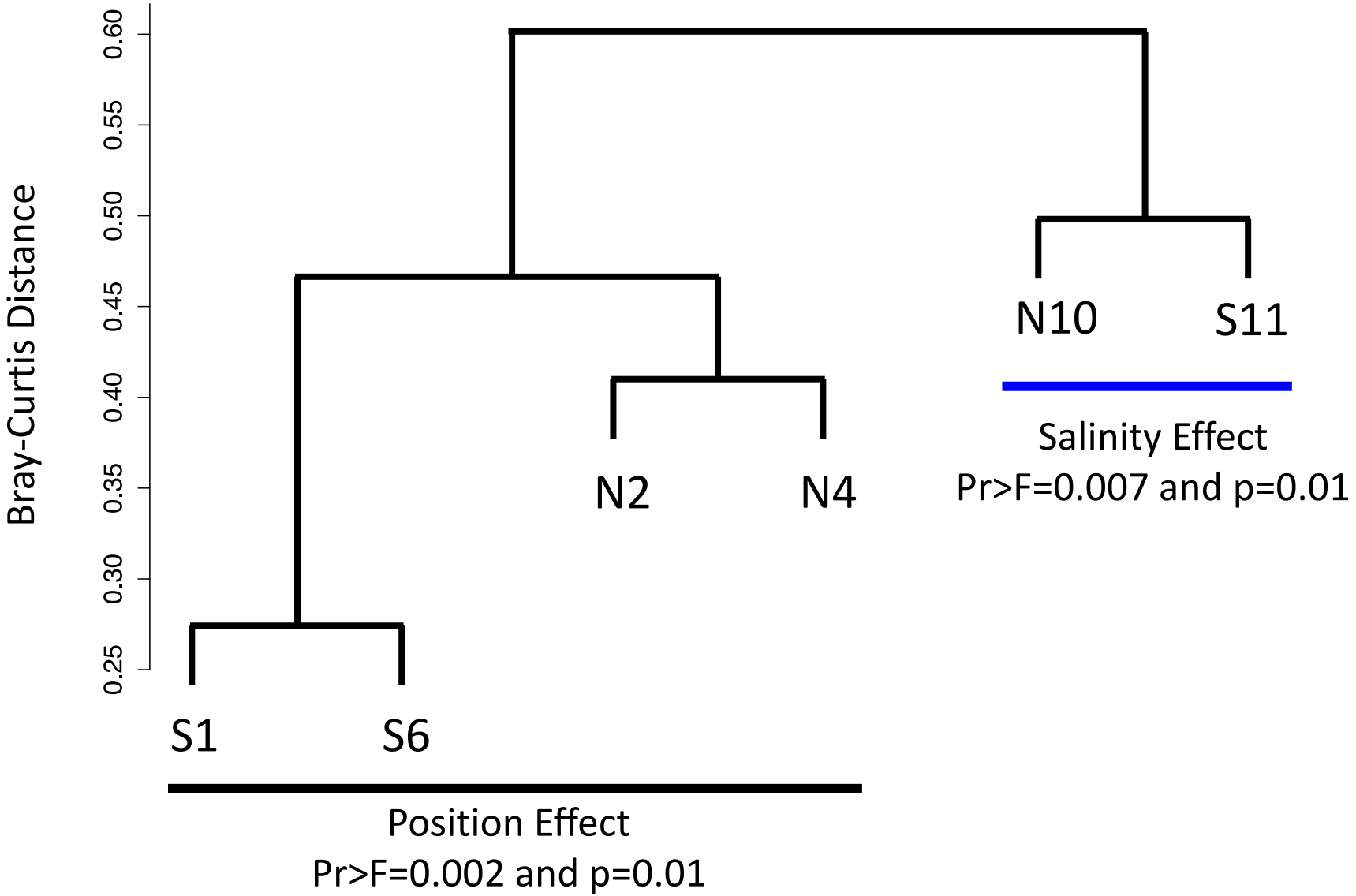


Tidal Flat Benthic Invertebrate Communities



Salinity (Pr>F=0.001, p=0.001)

Low Marsh Benthic Invertebrate Communities



Preliminary Conclusions

- Tidal flats versus low marsh habitats
  - Different factors controlling
- In low marsh habitats, need to examine:
  - Land use patterns
  - River Hydrodynamics
- More surveys needed
  - High Marsh
  - Other sampling methods

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- *"Does this sound right?"* help:

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