Oyster Pond 2004

- Did Nitrogen load change?
- Did salinity change?
- What is causing macrophyte growth in Oyster Pond?
- Can fish, especially Alewives, thrive in a saltier Oyster Pond?
- What do fish in Oyster Pond eat?

Ground Water

- N from Treetops higher this year
- Treating sewage from Treetops with RUCK© system would reduce wastewater N load by 50% per year

Water Quality

- Water quality
- Comparison of Oyster Pond to Salt Pond
- *- higher dissolved oxygen in OP*
- *- lower nitrate, ammonium, salinity in OP*
- *- no difference in phosphate except at depth*
- Limiting nutrients
- *-Both nitrogen and phosphate are limiting in OP and SP*
- Interannual difference in Oyster Pond (2004 - 2001)
- *- similar salinity or dissolved oxygen*
- *- lower nitrate in 2004*
- *- similar ammonium and phosphate except at depth*

Macrophyte Growth

- Macrophyte species, like Coontail, could indicate eutrophication

- $\delta^{15}N$ of macrophytes, especially non-rooted species, suggest a significant impact of waste water derived nitrogen into Oyster Pond

Fish in Oyster Pond

- Fish
  - More species in Salt Pond
  - 3 species common in both Salt Pond and Oyster Pond:
    - Alewife
    - Silverside
    - Mummichog
  - Growth rates of fish in both ponds are similar
    - High salinity does not impede Alewife growth during the first year
  - Carbon source at base of food web differs between ponds
    - Oyster Pond food web based on tree leaves
    - Salt Pond food web based on Spartina

Oyster Pond 2004 - Conclusions

- Not a lot of change since we started studying Oyster Pond in 2001
  - Slightly more nitrate in groundwater
  - Slightly different species of macrophytes
- Waste water remains the major source of nitrogen to the system
- Manipulating land use, by changing the input of wastewater, can significantly impact nitrogen loads to Oyster Pond
- Salt may not play as dominant a role in Alewife dynamics as is currently believed

Thank you