

# EFFECTS OF CLIMATE CHANGE INDUCED DOMINANCE SHIFTS IN ZOOPLANKTON COMMUNITY COMPOSITION ON THE CARBON CYCLE

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# Baltic Sea

- Shallow sea with a strong salinity gradient
  - Highly affected by climate change
  - Changes in zooplankton communities are location dependent
- Knowledge of regional change in community composition is important to estimate effects on carbon cycling

Reusch et al. (2018)

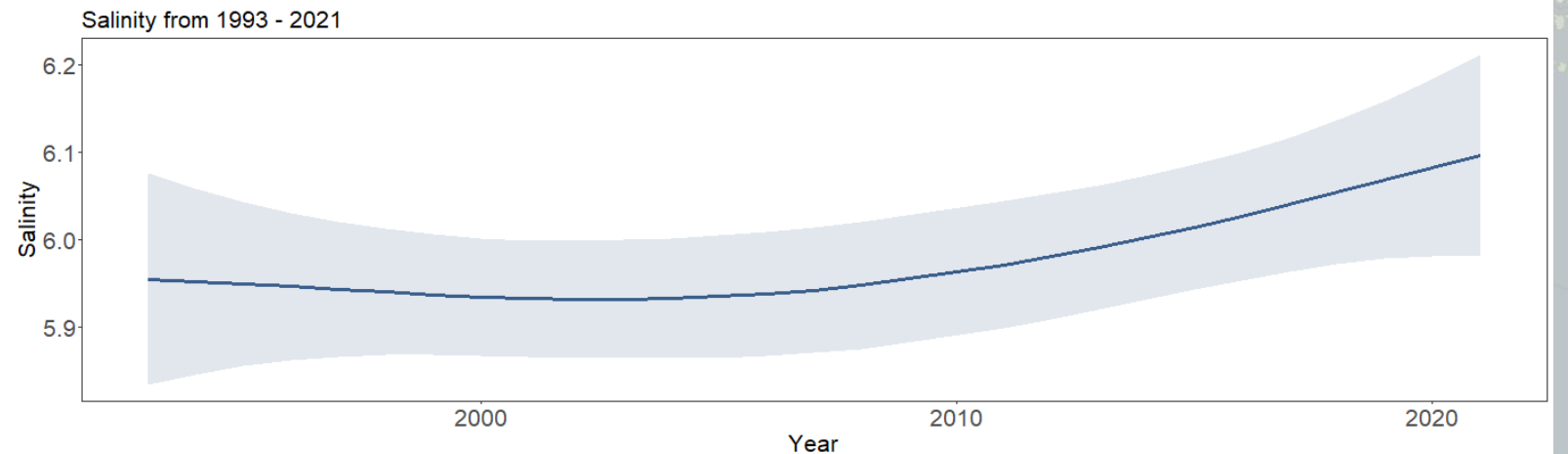
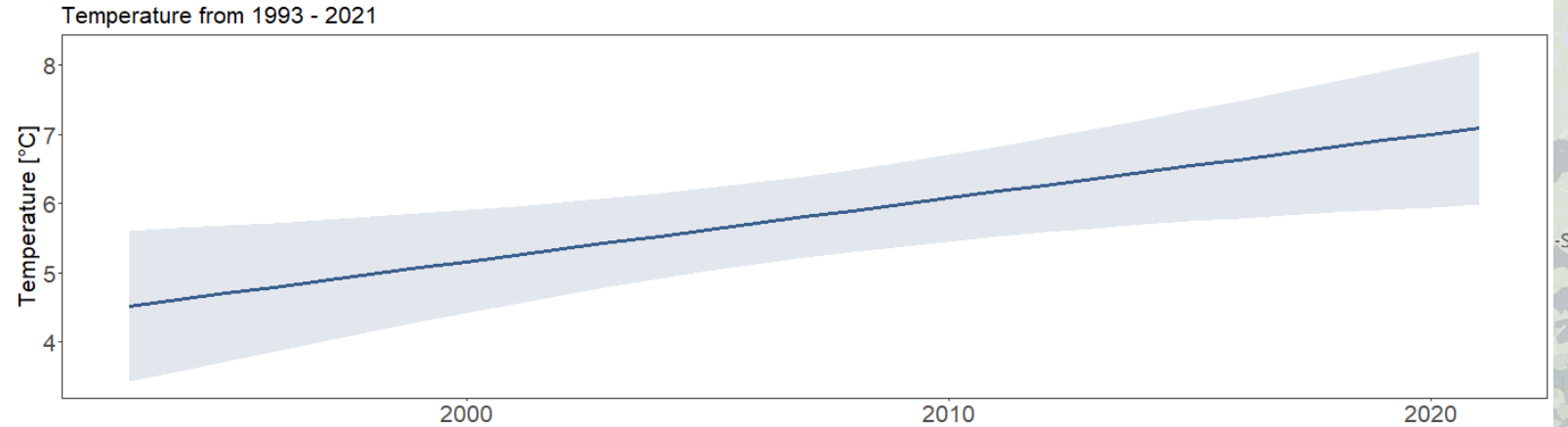
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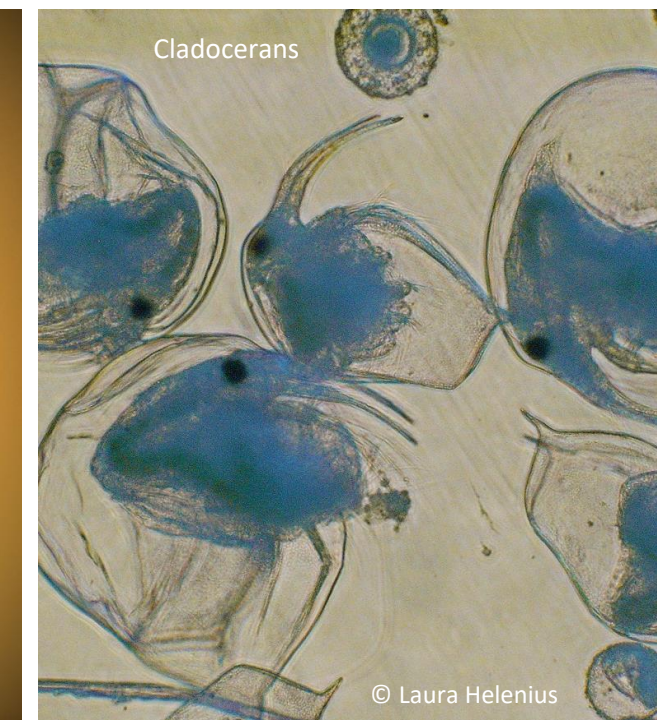
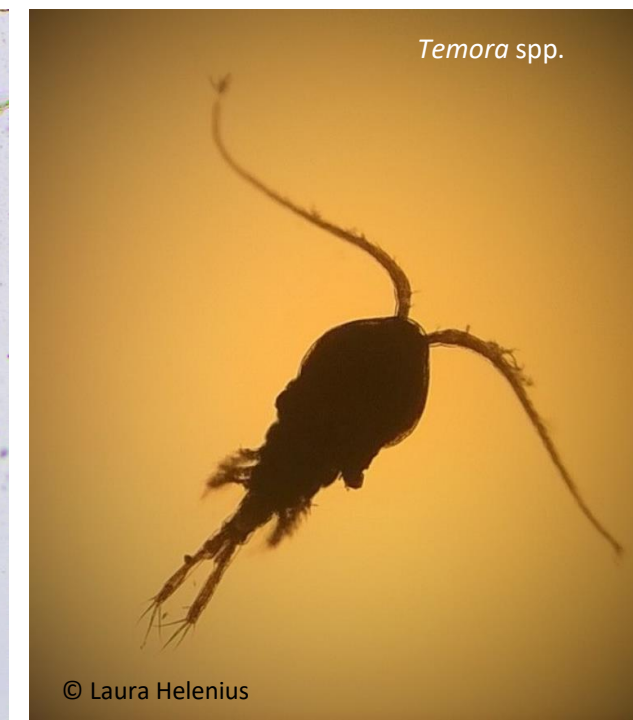
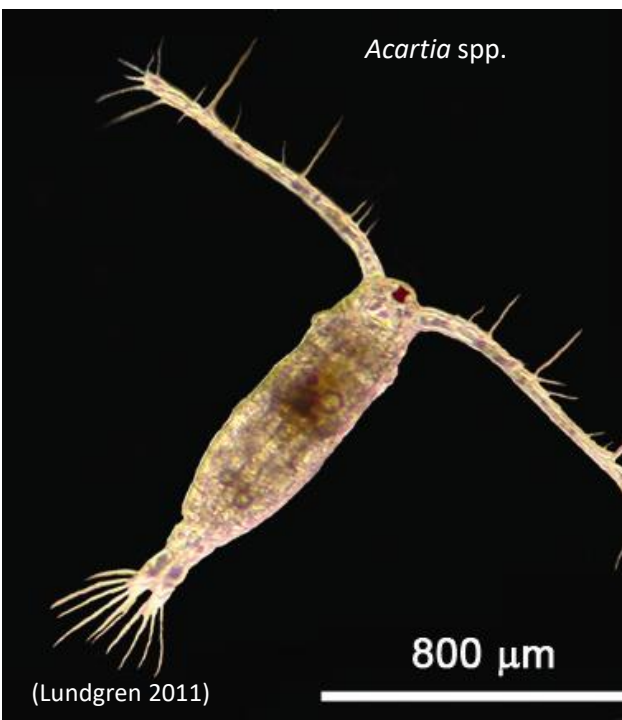


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# Monitoring Site

- Monitoring site at Tvärminne Storfjärden in the Gulf of Finland
- Brackish conditions
- Dataset comprises samples taken once a month from 1993 to 2021
- Includes zooplankton counts, CTD data and nutrient data



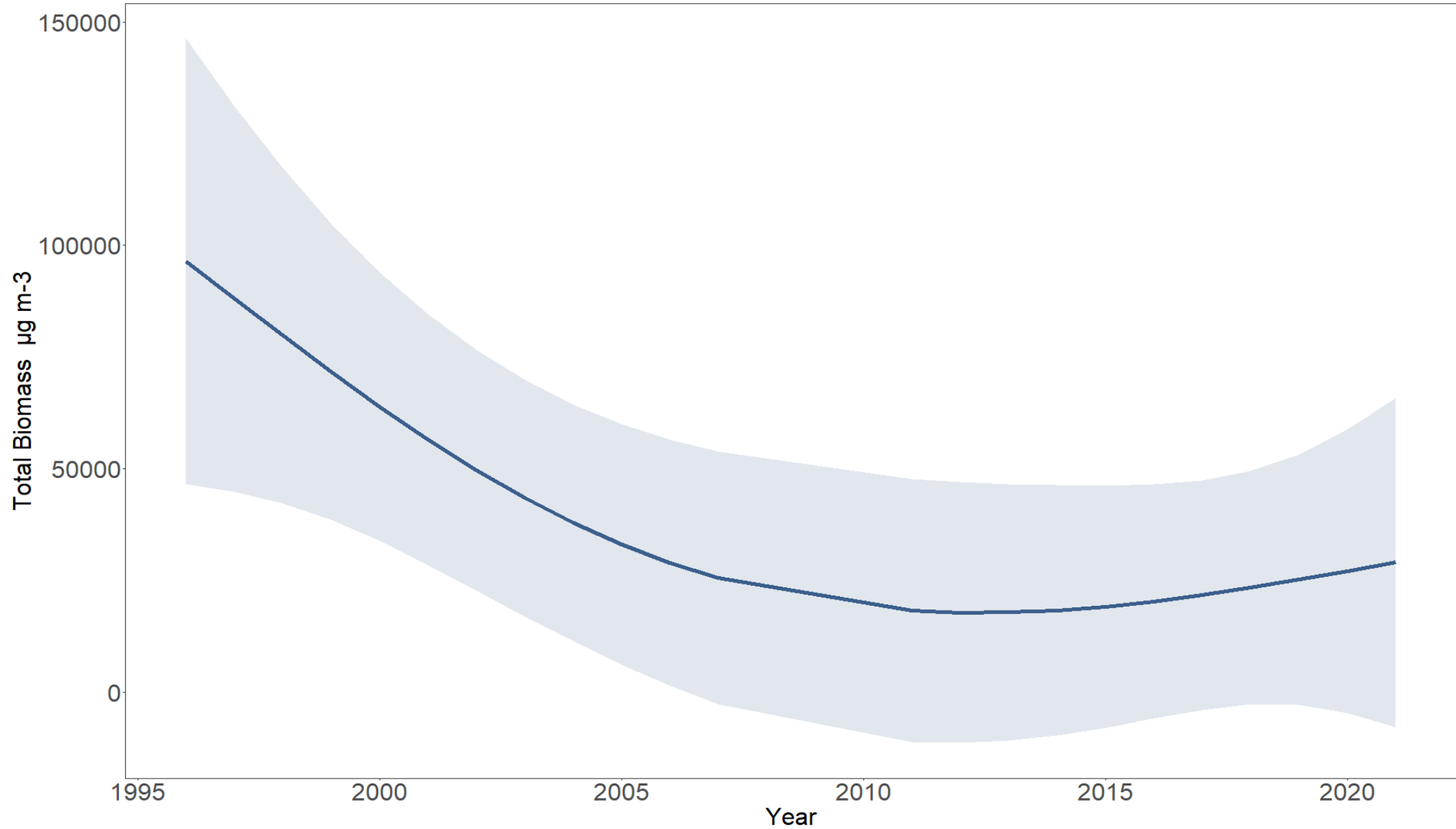


Zooplankton Community at the Study Site

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# Total Zooplankton Biomass from 1993 - 2021



SERa = Abundance based turnover

SERr = Richness based turnover

- Each sampling is compared to the initial sampling
- High SERa = Strong dominance shift
- High SERr = Strong species exchange



Hillebrand et al. (2018)

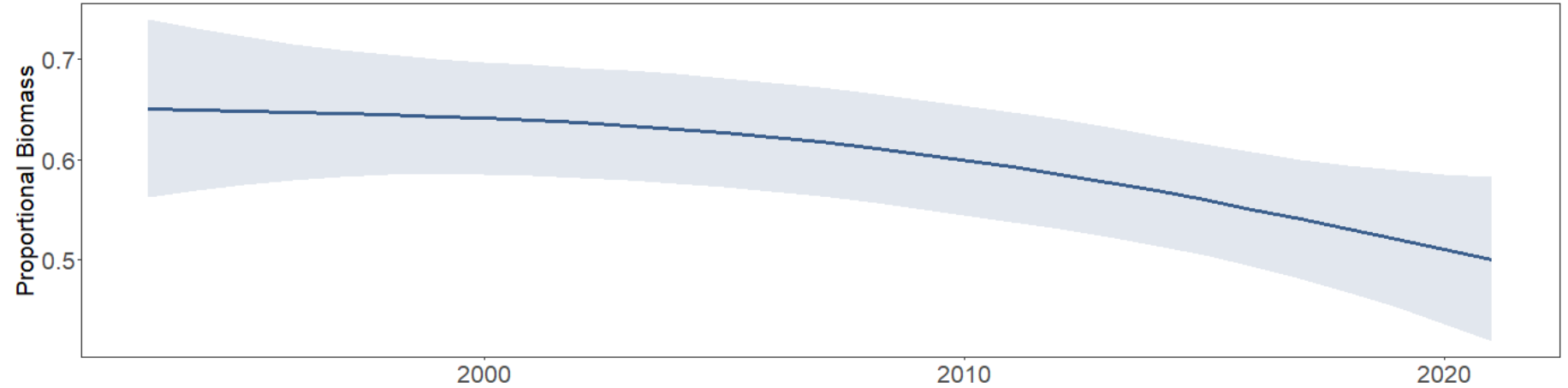
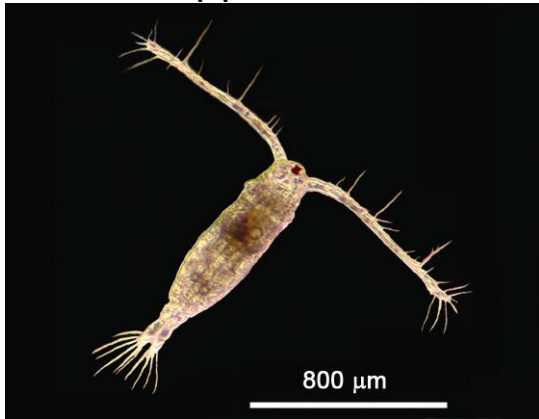
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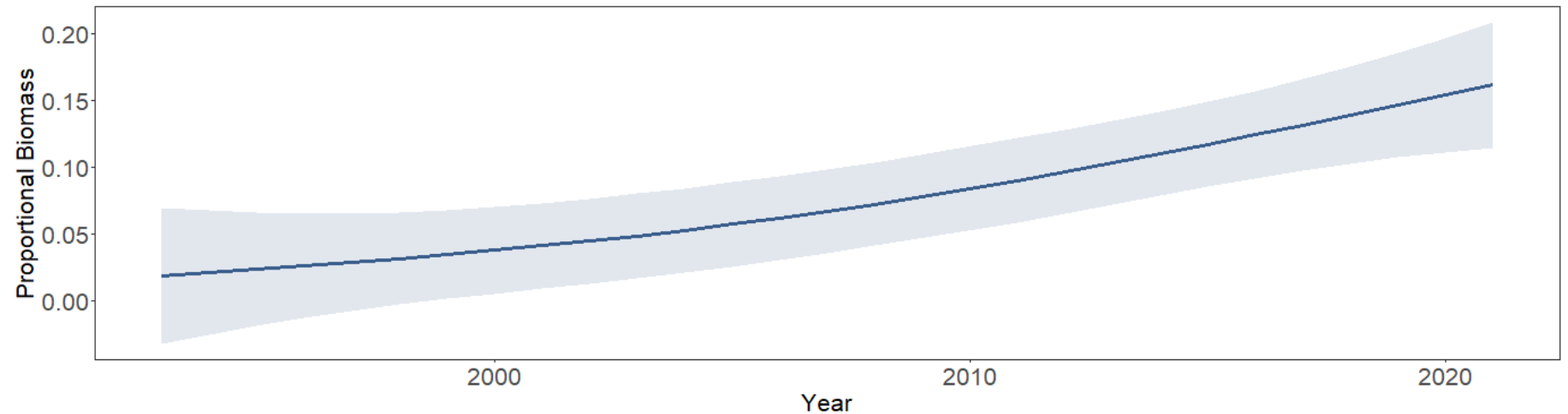
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# Trends in Proportional Biomass

*Acartia* spp.

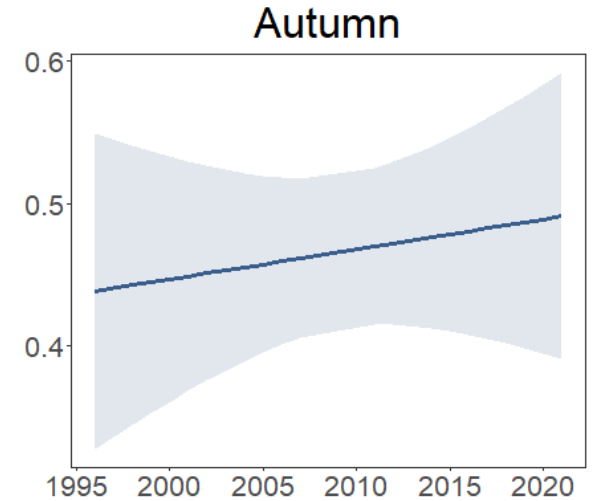
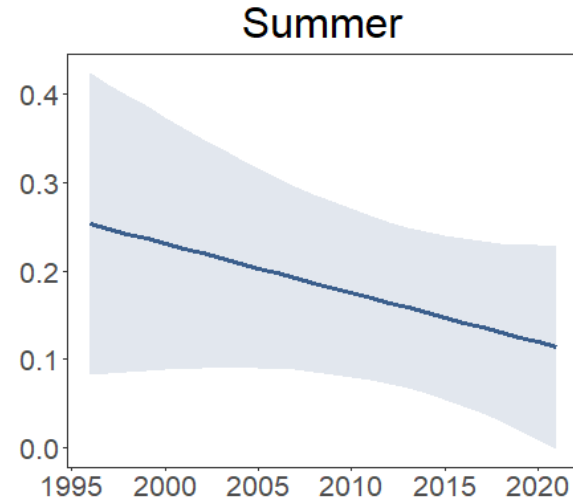
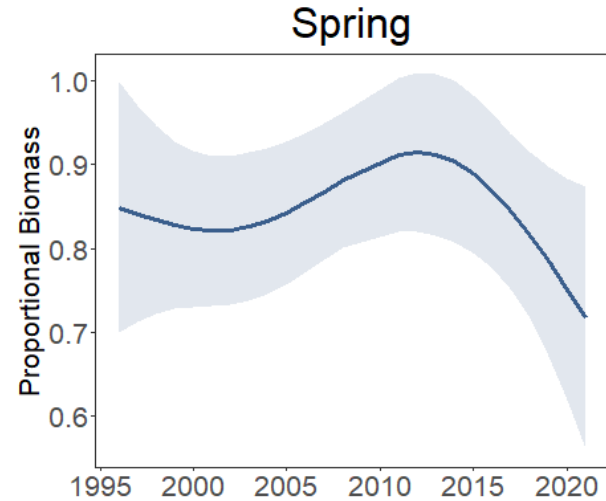
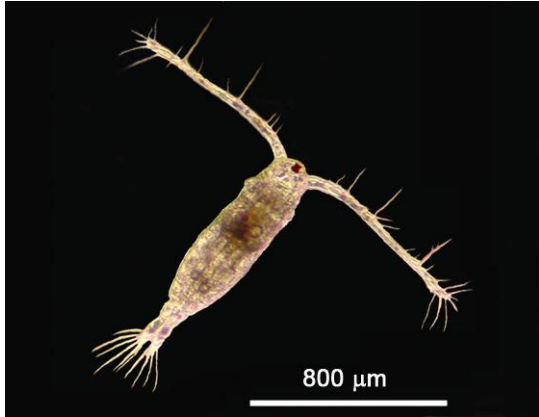


*Synchaeta* spp.

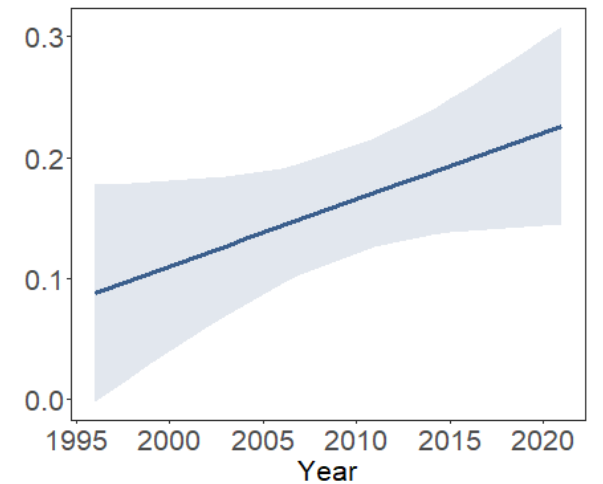
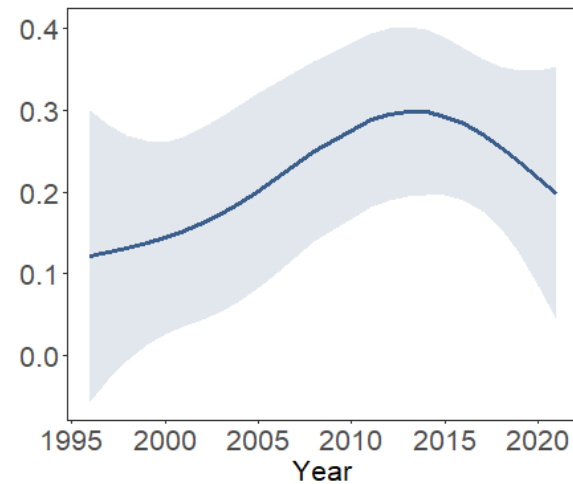
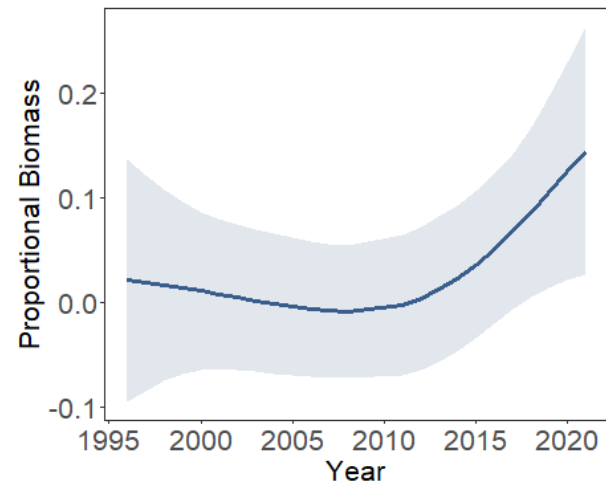


# Trends in Proportional Biomass per Season

*Acartia* spp.

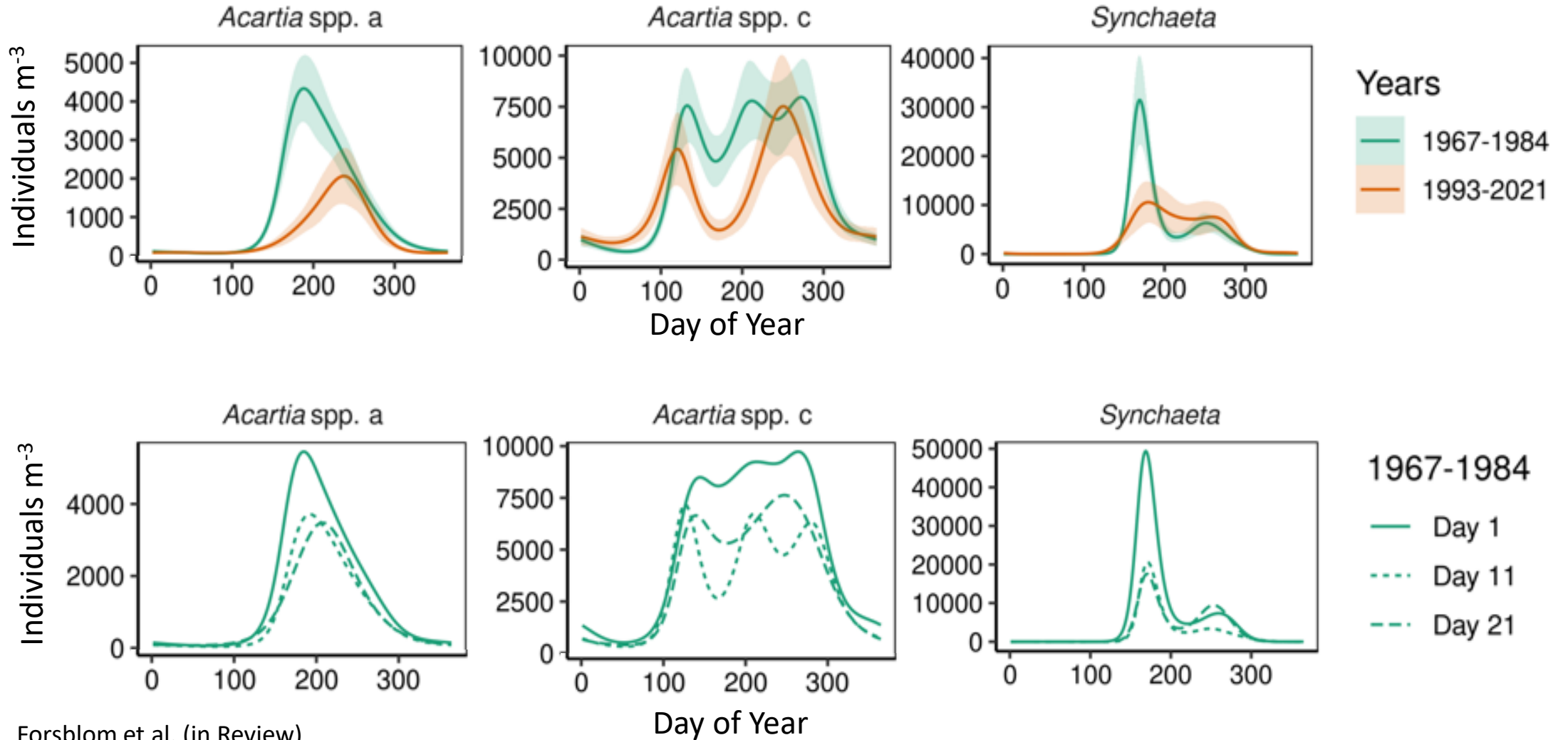


*Synchaeta* spp.





# Changes in Seasonality



Forsblom et al. (in Review)

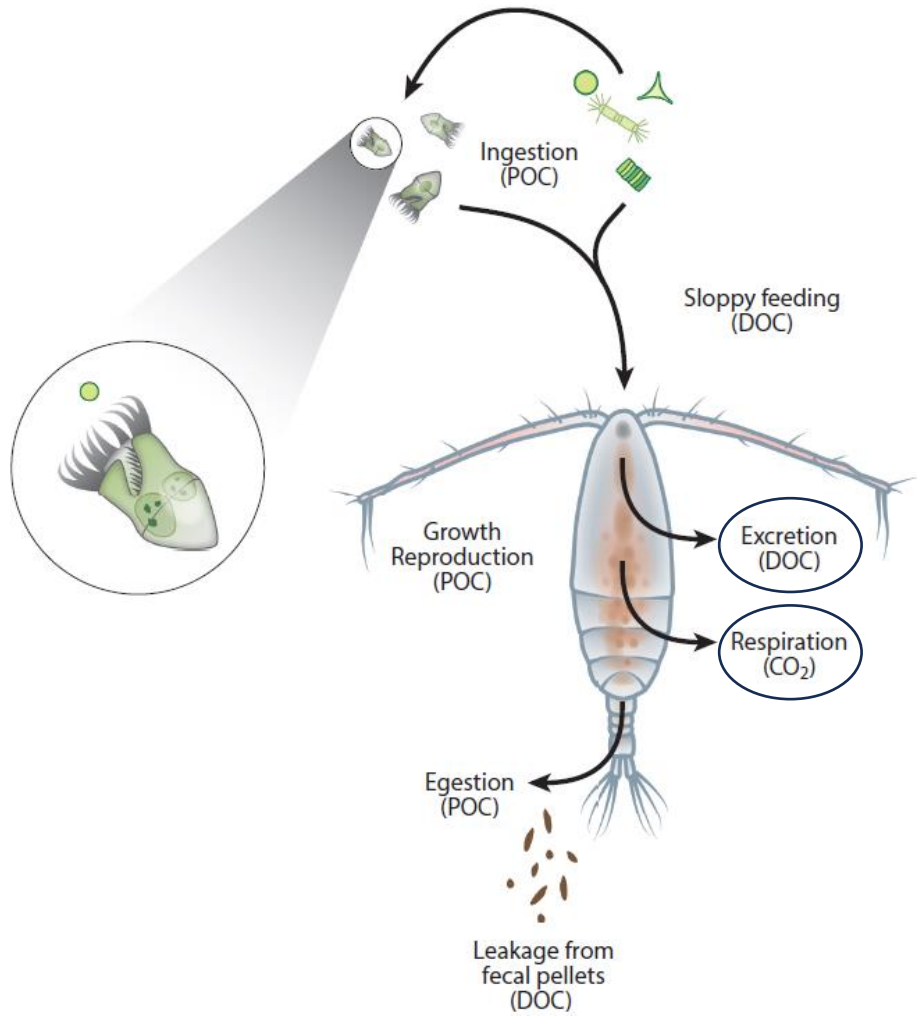
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What are the effects of  
these community  
changes on the carbon  
cycle?

# Experimental Set-Up



Steinberg & Landry (2017)



# Conclusion

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Location dependent change in zooplankton community composition

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Decline in zooplankton biomass

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Dominance shift from larger towards smaller organisms

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Monitoring should be done as frequently as possible

# Thank you!



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