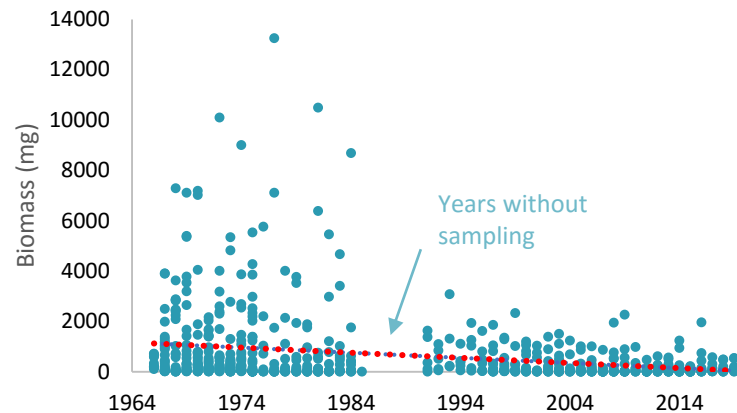


Impact of Climate Change on Baltic Sea Zooplankton and Subarctic Butterflies

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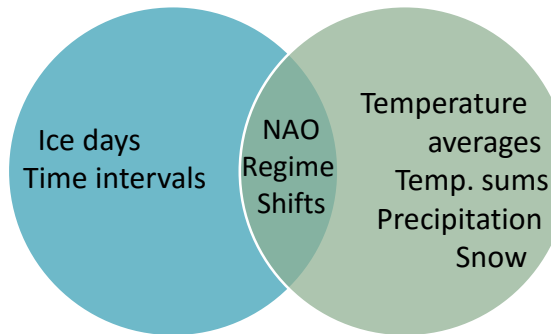
Mesozooplankton biomasses collected in Seili 1966–2019



- **The biomass of all zooplankton groups has decreased**
 - Strongest decrease in marine species
 - Brackish species also decreased greatly
- **Regime Shifts (1975/-76 and 1989/-90) explain much of the change**
 - Both shifts best explain the changes in total copepods and marine copepods
 - The -89/-90 shift best explains the change in brackish copepods, marine cladocerans and total rotifers
- **Winter NAO and decreasing number of ice days are also important**
 - Winter NAO best explained the biomass of total and brackish cladocerans
 - changes in freshwater copepods were explained by number of ice days

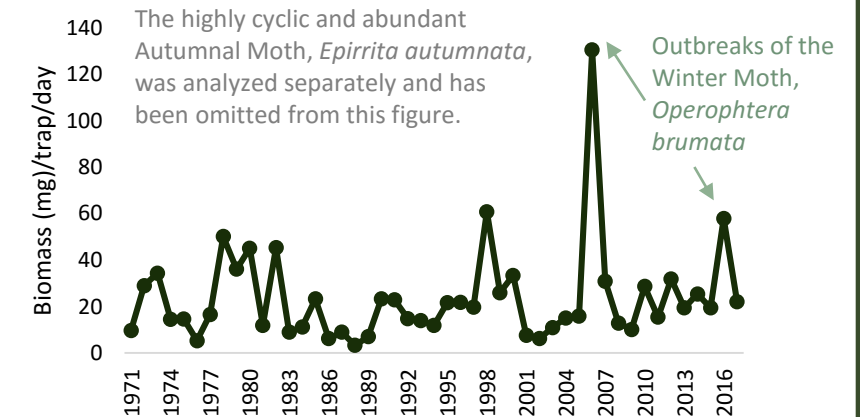
Environmental parameters

Do parameters, that are usually only used in aquatic research, also have an impact on land ecosystems?



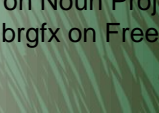
- The three parameters that were most often significant for different moth guilds were
 - NAO for the month of May (high NAO had a negative impact)
 - Average daily maximal temperature in spring (positive impact on certain guilds, negative on others)
 - NAO for the month of October (high NAO had negative impact)
- ➔ **YES! Though Regime Shifts were of minor importance, NAO indexes could be used to detect effects of climate change in a terrestrial ecosystem!**

Moth biomass data from Light Traps at Kevo 1971–2017



- No significant TRIM-trend for total biomass
- ### How have different moth guilds reacted to Climate Change?

- **4 guilds with clearly rising trends**
 - Species that fly every year
 - Species overwintering as eggs
 - Species eating both woody and herbaceous plants
 - Generalists with 3 or more host plants
- **3 guilds with clearly sinking trends**
 - Species overwintering as larvae
 - Species eating only herbaceous plants
 - Specialists with only one host plant
- **9 guilds without a clear trend**



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