

# Trophic interactions of dominant calanoid copepods and decapods in the northern Benguela upwelling system

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## Introduction

- Copepods and Decapods are key species in the meso- and macrozooplankton community in the Benguela System. Knowledge on the feeding habits of these species is essential for understanding trophic interactions of the ecosystem.
- A major objective of sub project 6 is the development of a quantitative food web model, using the ECOPATH/ECOSIM program. For each compartment of the model following data are required:

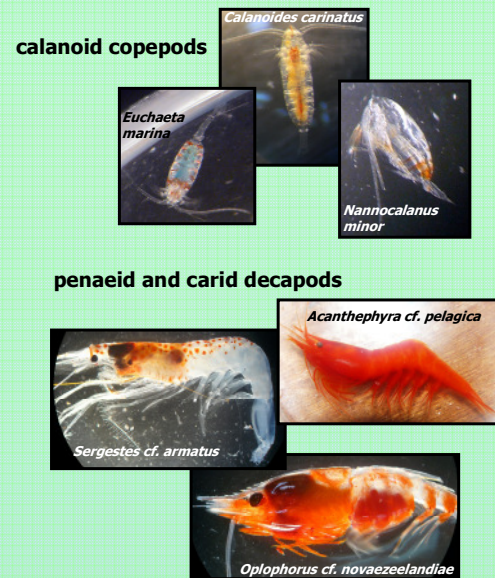
**Abundance & biomass**  
population turnovers

**Consumption**  
measured as individual respiration rate

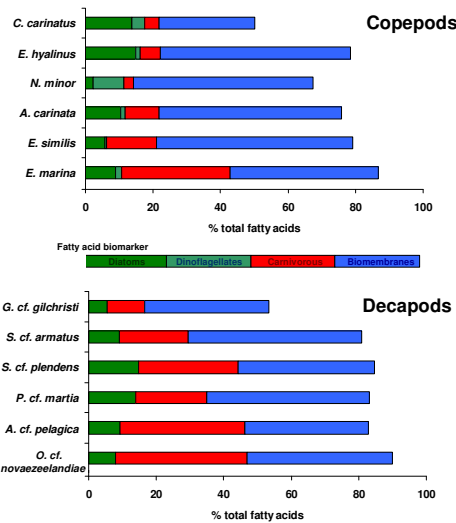
**Dietary spectra**  
determined by trophic biomarkers (Fatty acids and Stable Isotopes)

**ECOPATH model**  
combining all data

- This poster focuses on trophic biomarkers of calanoid copepods and decapods based on the GENUS cruises in 2009 (FRS *Africana*) and 2010 (RRS *Discovery*).



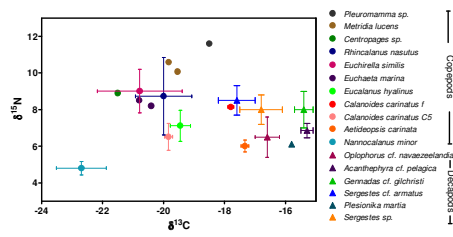
## Composition of fatty acid biomarkers



## Conclusions

- Calanoid copepods are more diverse in their feeding habits than decapods:
  - mainly herbivorous (*C. carinatus*, *E. hyalinus*, *N. minor*)
  - omnivorous (*A. carinata*)
  - high level of carnivory (*E. marina*, Decapods)
- Calanoid copepods occupy more trophic levels than decapods in the Benguela food web
  - one trophic level (Decapods)
  - three trophic levels (Copepods)

## Stable isotope signatures



## Results

### Copepods:

- Fatty acid pattern mainly dominated by biomembrane components
- Differences in the proportions of marker fatty acids for diatoms, dinoflagellates and carnivorous feeding
- Wide range of nitrogen isotope ratios (5-12‰)

### Decapods:

- High proportions of biomembrane and carnivorous marker fatty acids
- Stable isotope values of nitrogen clustered around 7‰

## Food web of the northern Benguela System (in cooperation with other GENUS sub projects)

