

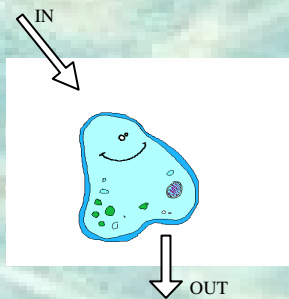
Self-organisation of Community Metabolism

Evolution of Food webs

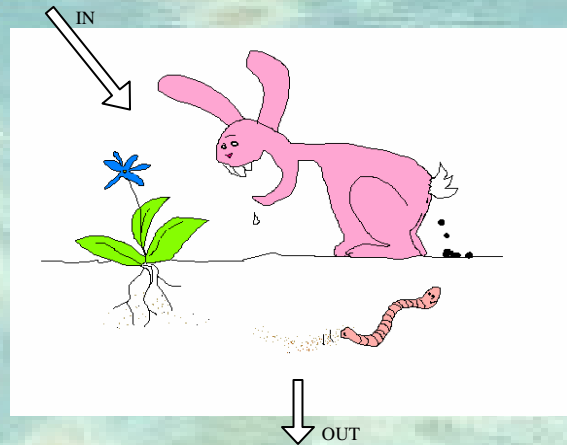
Objective

By studying the evolution of food webs, we aim to get more insight in the coupling between function and structure of biological communities. Also effects of trophic structure on the nature and stability of ecosystems will be studied.

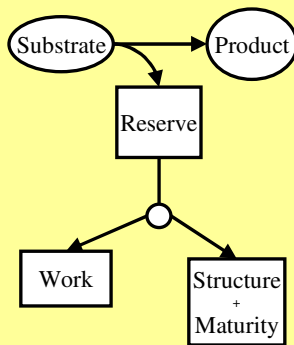
Methods



Starting from a single-species community of mixotrophs, we study their speciation into autotrophs and heterotrophs, and the subsequent evolution of complete food webs.



In the models two existing theories will be combined: DEB specifies how organisms feed and grow, AD quantifies their adaptation and speciation.

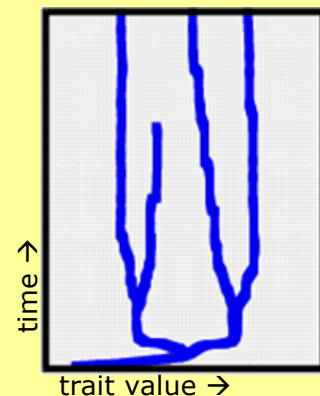


1. DEB

The Dynamic Energy Budget theory presents simple mechanistic rules for uptake and use of energy and nutrients. This framework covers all living organisms.

2. AD

The theory on Adaptive Dynamics is about quantitative changes at an evolutionary time scale in characteristics of species. It can predict under what circumstances speciation occurs.



Future

We will select parameter values that are realistic for planktonic systems, and use the model in ocean circulation models.

