

Introduction

How can we use ecological models in an ERA context?

Ecological Risk Assessment (ERA):
Protection of ecosystems

Ecosystems = large variation
e.g. food web structure, stress tolerance, degree of isolation

➔ Use food web models + pre-defined scenarios

Materials and Methods

ChimERA food web model: Simple, generic and flexible approach (see also poster TH146)

- IBMs (Individual Based Models) for individual species based on DEBKiss (“Dynamic Energy Budget, keep it simple, stupid”) theory
- Toxicity: Concentration-effect

Testing different scenarios

- Two grazers
- Two grazers + immigration
- Two grazers + predation
- Exposed vs. non-exposed
 - Exposure: two peaks
 - Only *D. magna* sensitive (LC₅₀ = 65 µg/L)

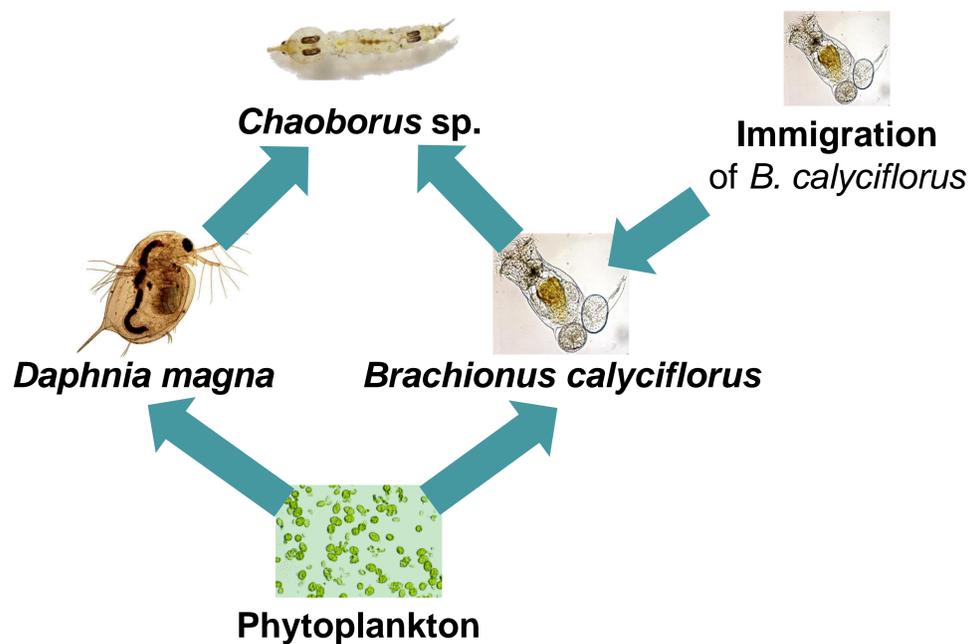
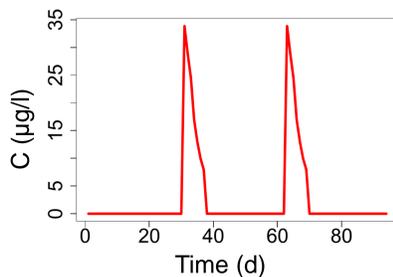


Figure 1: Food web structure used in the ChimERA model

Results & Discussion

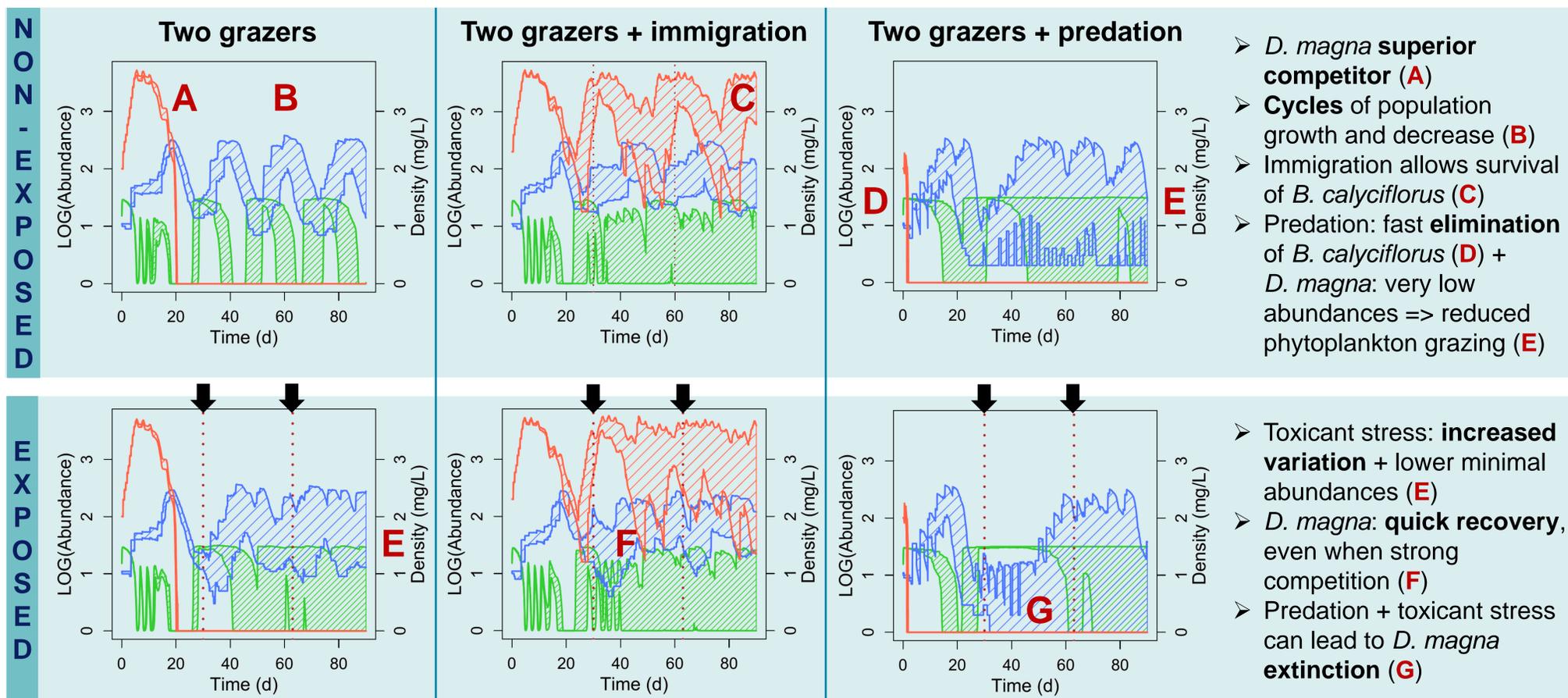


Figure 2: Minimum and maximum predictions by the ChimERA food web model for different food web structures and toxicant stress scenarios

Conclusion

Using the ChimERA model, the effects of toxicant stress on different food web configurations could be assessed, including the effects of predation and immigration

