Henrike Andresen

General part

Although in the end I am also interested in effects at the population level, I followed the sub-program “individuals in depth” to get a good basis.

Chapter 5

The DEB theory is extended for the use of several substrates. If essential nutrients are not available at the same time, several reserves are necessary. This is for example important for planctonic algae, that are alternately limited by light and nutrients. For terrestric plants the model is extended to accommodate two structures, for root and shoot.
This chapter may become important to my research plans, as regards the algal food for the bivalves I want to study. The introduction of several structural masses allows to handle deviations from isomorphy, which is again interesting for the bivalves, because they adapt organ sizes according to the feeding conditions. Yet, there is a big increase in complexity introduced in chapter 5.

Chapter 7

This chapter gives examples from different taxa for applications in a variable environment.
For me the sections about changing feeding conditions and different levels of starvation were most interesting. Especially the possibility to reconstruct food intake over the seasons on the basis of length and temperature data seems attractive.
We also learned that parameter values can change, most notably kappa, which was probably the most discussed parameter during the course.

Chapter 8

Not read through yet

Specific part

I am at the beginning of my Ph.D. in the subject area of predation and parasitism on bivalves in the Wadden Sea. Concerning predation, instead of focussing on the direct effects (prey dies), I want to study the indirect effects: the presence of predators can induce anti-predation mechanisms in bivalves, such as thick shells or deep-burying behaviour. As this behaviour is less developed when there are no predators around, it must come along with disadvantages. I would like to study the energetic costs, there may be higher maintenance requirements, a lower intake rate or a change in allocation to reproduction. With the predation avoidance costs in mind already, but before the actual start of the Ph.D., I worked on parasites, and after all I know about them I think I should include parasites in my study. Parasites have their own energy requirements, they interact systematically with prey availability (efficiency of predation avoidance), with prey quality (energetic value) and they can manipulate energy allocation. Some predation avoidance strategies of bivalves may also have an parasitism avoiding effect. Little is known about the ecological effects of parasites in the marine environment. As parasites do not necessarily kill their hosts, studies on energetics seem a good approach. The other way round, the study of parasitism may give more insight in energy allocation processes in bivalves.
For a more general picture, I want to do field work in areas with different predator (and parasite) regimes, but these also differ in food and temperature. I hope DEB can help me to separate the different processes.
The animal I will probably focus on is *Macoma balthica*, because it is well studied at the NIOZ. However, there are some practical problems due to its feeding mode. It is a surface deposit-feeder, and can also switch to filter-feeding. During feeding at the surface the animal depletes its food locally, the quality of “deposit” can vary a lot, and how can I measure the food density?