

## Reading list:

### *Modelling marine populations from physics to evolution*

#### *General circulation models, climate and biogeochemical cycles*

About climate models and modelling: [http://en.wikipedia.org/wiki/Climate\\_model](http://en.wikipedia.org/wiki/Climate_model)

Mahlman: SCIENCE AND NONSCIENCE CONCERNING HUMAN-CAUSED CLIMATE WARMING

[http://www.gfdl.noaa.gov/~gth/web\\_page/article/EG230083\\_letter.pdf](http://www.gfdl.noaa.gov/~gth/web_page/article/EG230083_letter.pdf)

IPCC – Intergovernmental Panel on Climate Change: Physical climate processes and feedbacks [http://www.grida.no/climate/ipcc\\_tar/wg1/pdf/TAR-07.PDF](http://www.grida.no/climate/ipcc_tar/wg1/pdf/TAR-07.PDF)

IPCC – Intergovernmental Panel on Climate Change: Model evaluation [http://www.grida.no/climate/ipcc\\_tar/wg1/pdf/TAR-08.PDF](http://www.grida.no/climate/ipcc_tar/wg1/pdf/TAR-08.PDF)

ACIA – Arctic Climate Impact Assessment: Future Climate Change: Modeling and Scenarios for the Arctic [http://www.acia.uaf.edu/PDFs/Ch04\\_Pre-Release.pdf](http://www.acia.uaf.edu/PDFs/Ch04_Pre-Release.pdf)

#### *Biogeochemical models*

England, M. H., and E. Maier-Reimer, 2001, Using chemical tracers to assess ocean models, *Reviews of Geophysics*, 39, 29-70.

Heinze, C., 2001, Towards the time dependent modeling of sediment core data on a global basis, *Geophysical Research Letters*, 28(22), 4211-4214.

Heinze, C., A. Hupe, E. Maier-Reimer, N. Dittert, and O. Ragueneau, 2003, Sensitivity of the marine biospheric Si cycle for biogeochemical parameter variations, *Global Biogeochemical Cycles*, 17(3), 1086, doi:10.1029/2002GB001943.

#### *Individual-based modelling*

Strand, E., G. Huse, and J. Giske. "Artificial Evolution of Life History and Behavior." *American Naturalist* 159, no. 6 (2002): 624-44.

Giske, J., G. Huse, and Ø. Fiksen. "Modelling Spatial Dynamics of Fish." *Reviews in Fish Biology and Fisheries* 8, no. 1 (1998): 57-91.

Huse, G., E. Strand, and J. Giske. "Implementing Behaviour in Individual-Based Models Using Neural Networks and Genetic Algorithms." *Evolutionary Ecology* 13, no. 5 (1999): 469-83.

#### *Optimality modelling*

Mangel, M. & Clark, C. W. (1988) Patch selection. Chapter 2 in ‘*Dynamic modeling in behavioral ecology*’ (pp. 41 – 104). Princeton University Press. (Will be copied and handed out during the course.)

Fiksen, Ø. (1997) Allocation patterns and diel vertical migration: modelling the optimal *Daphnia*. *Ecology* 78:1446-1456.

*Optional reading:* McNamara, J.M. 2001. Optimality models in biology. *SIAM Review*, 43: 413-466.

### ***Small-scale hydrodynamics models***

- Fenchel, T. (2004) Orientation in two dimensions: Chemosensory motility behaviour of *Euplotus vannus*. *European Journal of Protistology* 40:49-54.
- Robert K. Cowen RK, Kamazima MML, Sponaugle S, Paris CB, Olson DB. (2000) Connectivity of Marine Populations: Open or Closed? *Science* 287:857-859.
- Visser, AW, Jackson GA. 2004. Characteristics of the chemical plume behind a sinking particle in a turbulent water column. *Mar Ecol Prog Ser* 283: 55-71.
- Abraham, ER. 1998. The generation of plankton patchiness by turbulent stirring. *Nature* 391: 577-580

### ***Adaptive dynamics***

- Dieckmann, U. and Law, R. 1996. The dynamical theory of coevolution: a derivation from stochastic ecological processes. *J. Math. Biol.*, **34**: 579-612.
- Meszéna, G., Kisdi, É., Dieckmann, U., Geritz, S.A.H., and Metz, J.A.J. 2001. Evolutionary optimisation models and matrix games in the unified perspective of adaptive dynamics. *Selection*, 2: 193-210.
- Ernande, B. and U. Dieckmann (2004). The evolution of phenotypic plasticity in spatially structured environments: implications of intraspecific competition, plasticity costs and environmental characteristics. *Journal of Evolutionary Biology* 17: 613-628.
- Dieckmann, U. and Ferrière, R. 2004. Adaptive dynamics and evolving biodiversity. In *Evolutionary conservation biology* Edited by eds, pp. 188-224. Cambridge University Press, Cambridge, UK.
- Geritz, S. A. H., E. Kisdi, et al. (1997). "Evolutionarily singular strategies and the adaptive growth and branching of the evolutionary tree." *Evolutionary Ecology* 12(1): 35-57.
- Kisdi, E. (1999). "Evolutionary Branching under Asymmetric Competition." *Journal of Theoretical Biology* 197(2): 149-162.

### ***Fisheries-induced evolution***

- Heino, M., Dieckmann, U., and Godø, O.R. 2002. Estimating reaction norms for age and size at maturation with reconstructed immature size distributions: a new technique illustrated by application to Northeast Arctic cod. *ICES J. Mar. Sci.*, 59: 562-575.
- Heino, M., Dieckmann, U., and Godø, O.R. 2002. Measuring probabilistic reaction norms for age and size at maturation. *Evolution*, 56: 669-678.
- Grift, R.E., Rijnsdorp, A.D., Barot, S., Heino, M., and Dieckmann, U. 2003. Fisheries-induced trends in reaction norms for maturation in North Sea plaice. *Mar. Ecol.-Progr. Ser.*, 257: 247-257.
- Barot, S., Heino, M., O'Brien, L., and Dieckmann, U. 2004. Estimating reaction norms for age and size at maturation when age at first reproduction is unknown. *Evol. Ecol. Res.*, 6: 659-678.
- Olsen, E.M., Heino, M., Lilly, G.R., Morgan, M.J., Brattey, J., Ernande, B., and Dieckmann, U. 2004. Maturation trends indicative of rapid evolution preceded the collapse of northern cod. *Nature*, 428: 932-935.