PLAN FISH models
of the Baltic Sea food-webs: *where are we?*

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PLAN FISH modelling context

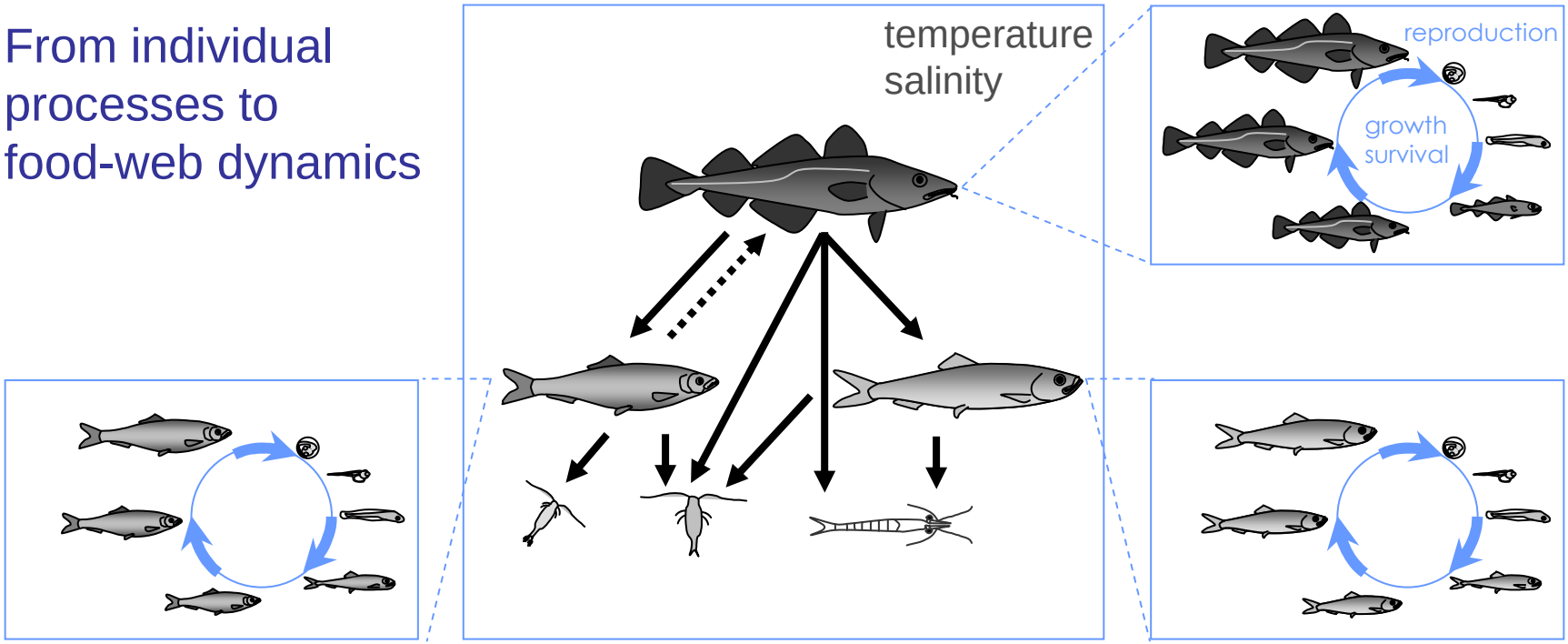
- Research project, 2008-2013
- *on* commission from Swedish government
- *to* understand “how to get big fish back” (cod, pike, perch) and the ecosystem consequences thereof
- *through* food web modelling, lab experiments, field experiments (incl. experimental fishing of sprat), risk analytical modelling of management actions

Aims of food-web modelling

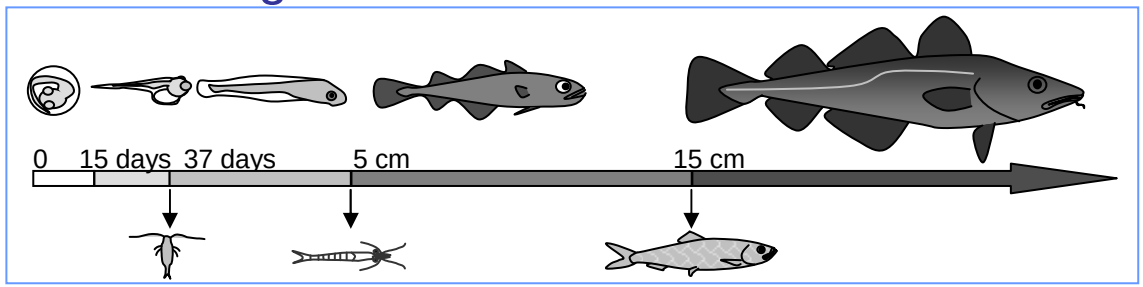
- Which species interactions can cause alternative stable states (i.e., enable sudden shifts in the fish community)?
- Investigate food web responses to alternative fishing scenarios (in a future climate)
- Basis for decision model assessing alternative management measures

Open sea food-web model

From individual processes to food-web dynamics



Food changes with size



Based on empirical research

- laboratory experiments
- cod stomach sampling
- sprat & herring survey samples
- zooplankton survey

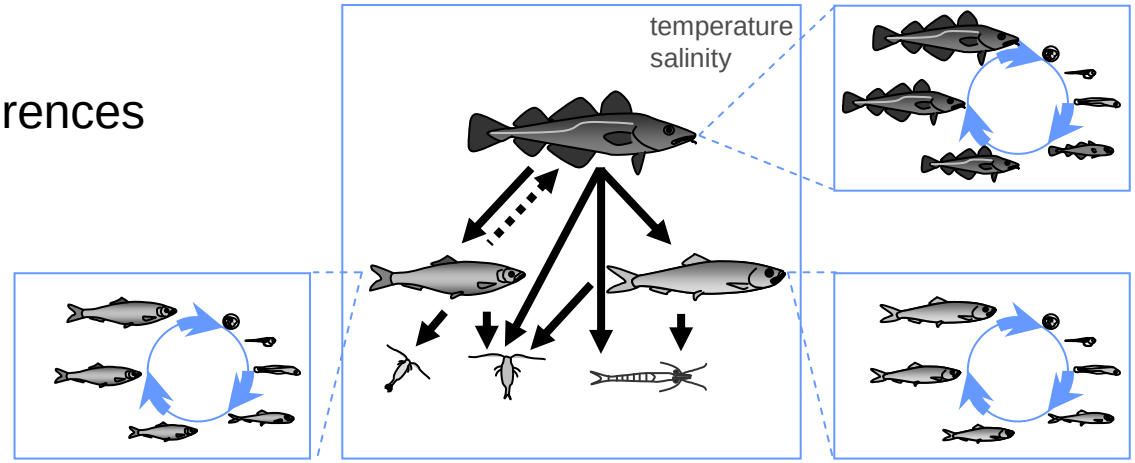
Model development & analyses 2009-2010

Parametrisation done

- for individual processes & preferences
- climate forcing remains

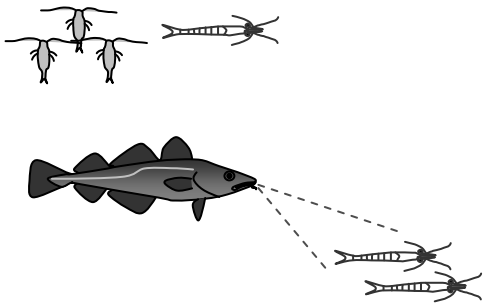
Analysing fish dynamics

- importance of relative resource productivity for fish interactions



- *affects cod diet composition → cod size structure & dynamics*

(a)



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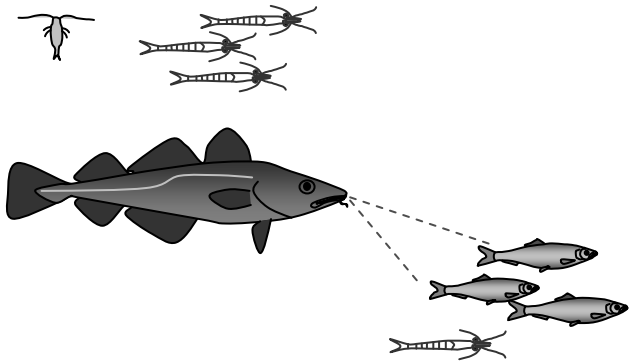

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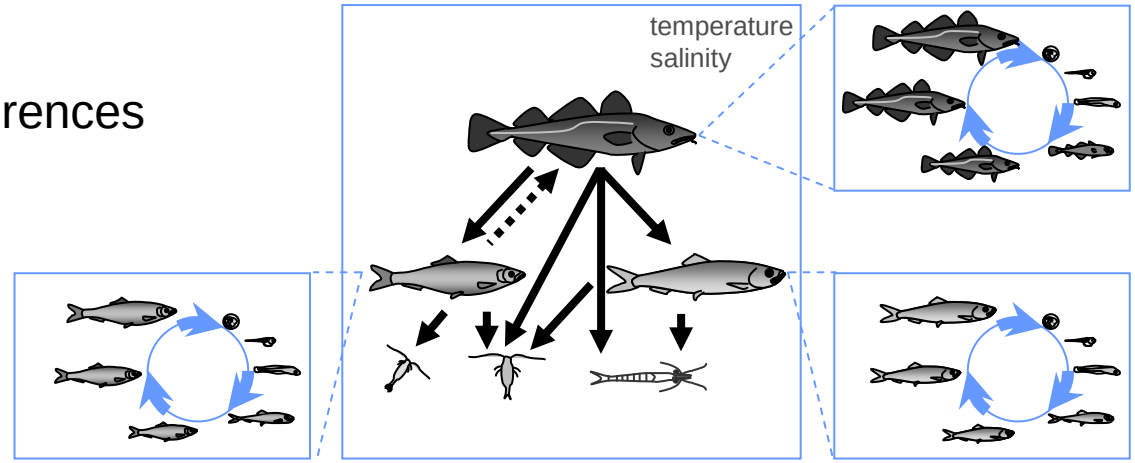

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Until October 2010

- food-web dynamics analyses (effect of species interactions, productivity, fishing)
- further development of climate forcing (probably no nutrient forcing)
- assess grey seal predation pattern