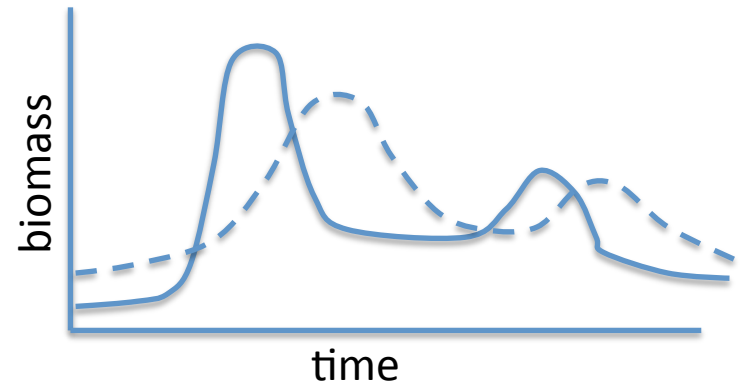
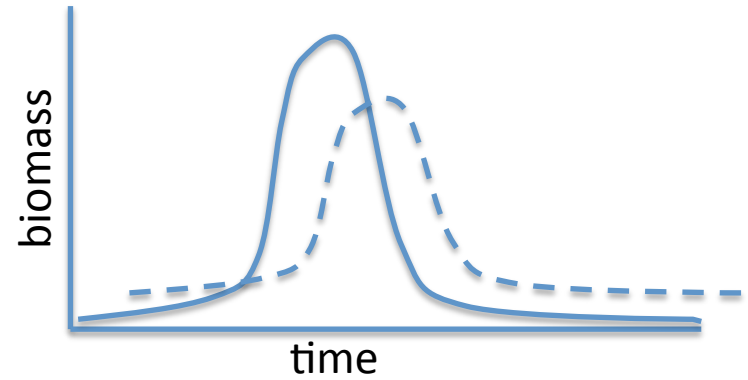
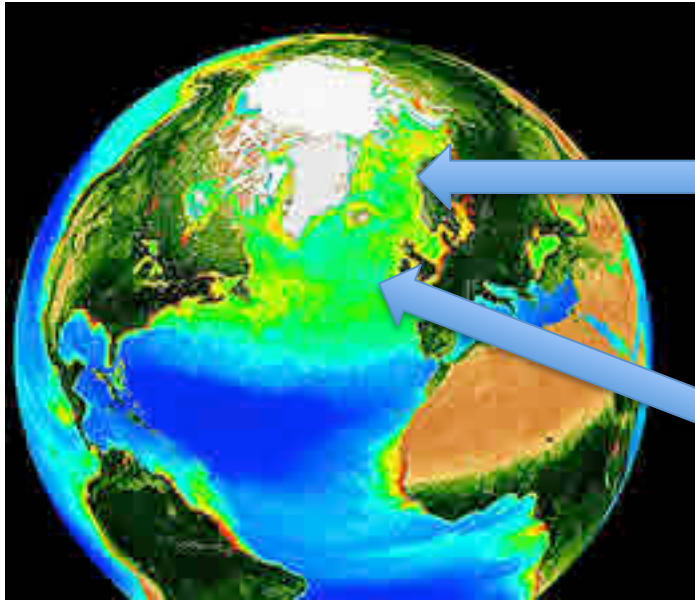


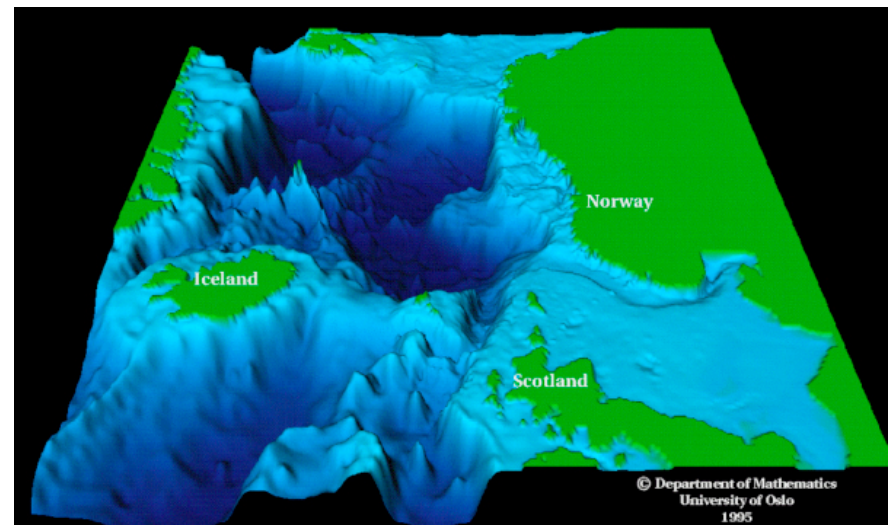
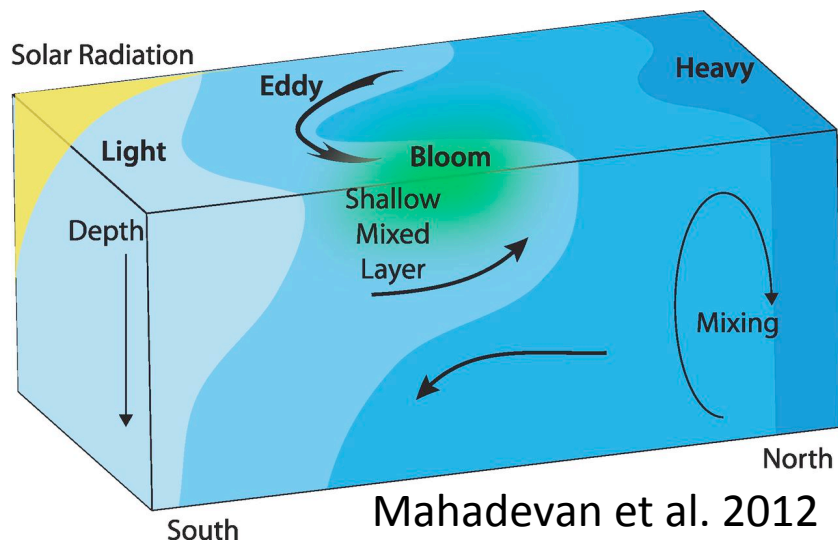
**Breakout 3: Food web dynamics and
community structure in the N. Atlantic
- Arctic system**

What controls the timing of 'events' in the highly seasonal annual cycle of the N. Atl/ Arctic system?



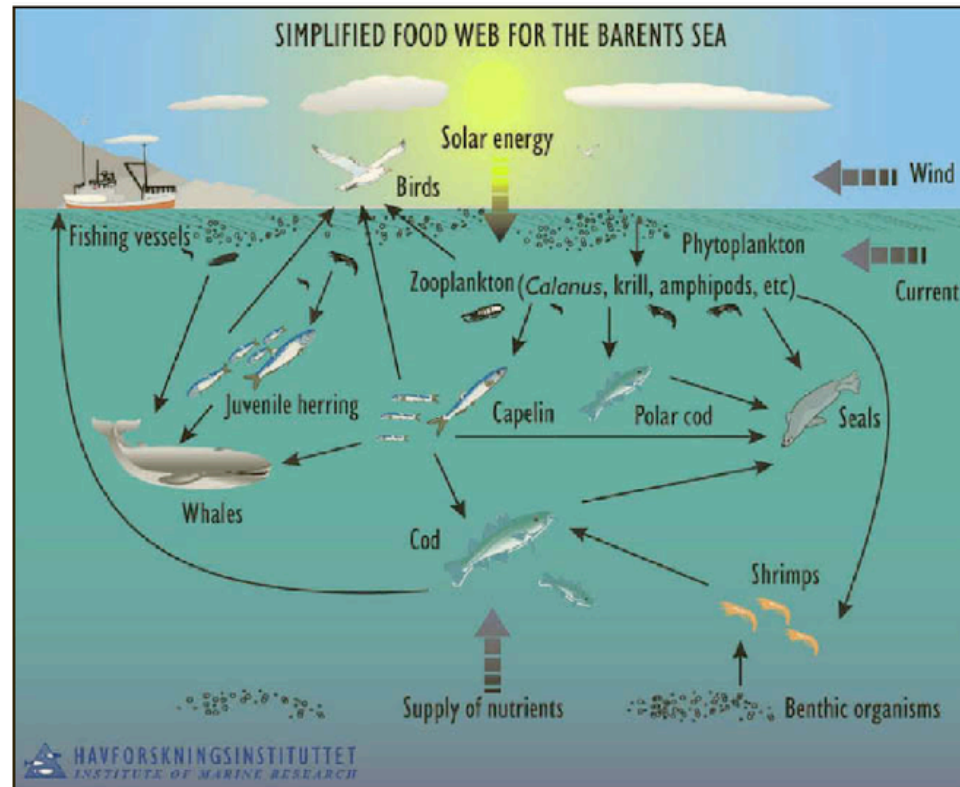
- What controls the timing of the initial diatom spring bloom and the emergence of *Calanus* from diapause?
- How do the controls on timing of events (blooms, export, species succession) vary geographically and with climate change?
- How could changes in the timing of events affect the ecosystem later in the annual cycle?

What are the effects of coupled multi-scale physical processes on the structure of N Atl/Arctic food webs?



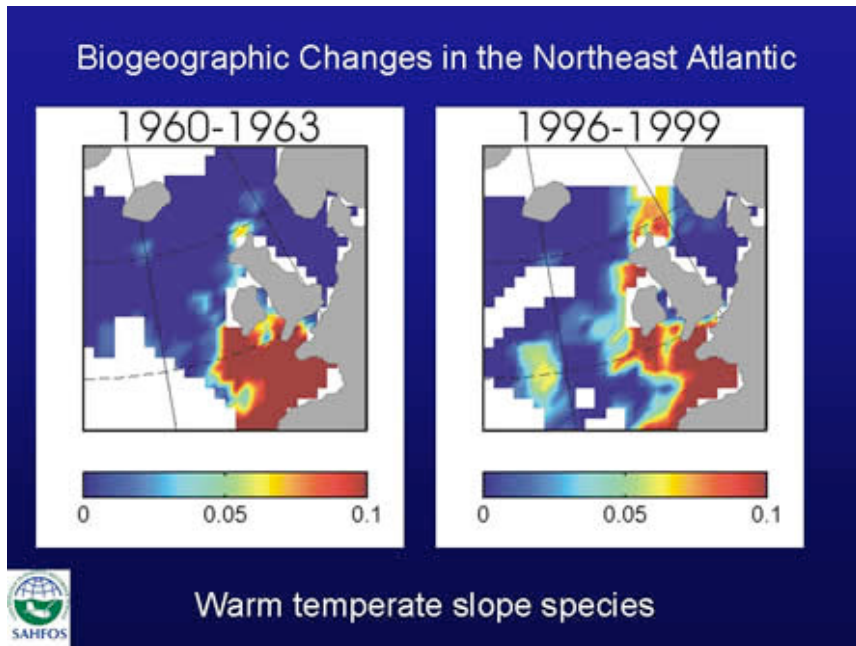
- What are the roles of meso- and submeso-scale patchiness in the food webs?
- How do riverine and shelf / ocean exchanges influence food webs?
- What is the relative importance of local vs. remote forcings?

What are the spatial and temporal variations in the magnitude of trophic linkages in the N. Atl/Arctic system?

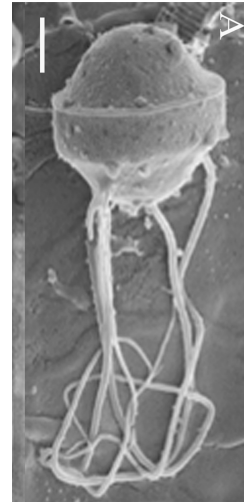


- What are the consequences of fishing pressure for carbon flux?
- What processes impact the flow of C to the meso-pelagic?
- How does plankton size structure influence trophic and elemental transfer?
- Roles of parasites & viruses? Size and magnitude of “arrows” in food web?

How will biogeography, life history and behavior be influenced by environmental change and impact food webs?



Beaugrand et al. 2002



- Do we understand these well enough to predict how they will be affected by climate change?
- How do different life-history strategies impact fitness? What is their "biogeography"?
- How does behavior shape community structure and carbon transfer?
- What are the implications for ecosystem services (e.g. carbon sequestration and the exploitation of marine resources)?

Breakout 3: Food web dynamics and community structure in the N. Atlantic - Arctic system

KEY QUESTIONS:

- **What controls the timing of ‘events’ in the highly seasonal annual cycle of the N. Atl/ Arctic system?**
- **What are the spatial and temporal variations in the magnitude of trophic linkages in the N. Atl/Arctic system?**
- **What are the effects of coupled multi-scale physical processes on the structure of N Atl/Arctic food webs?**
- **How will biogeography, life history and behavior be influenced by environmental change and impact food webs?**