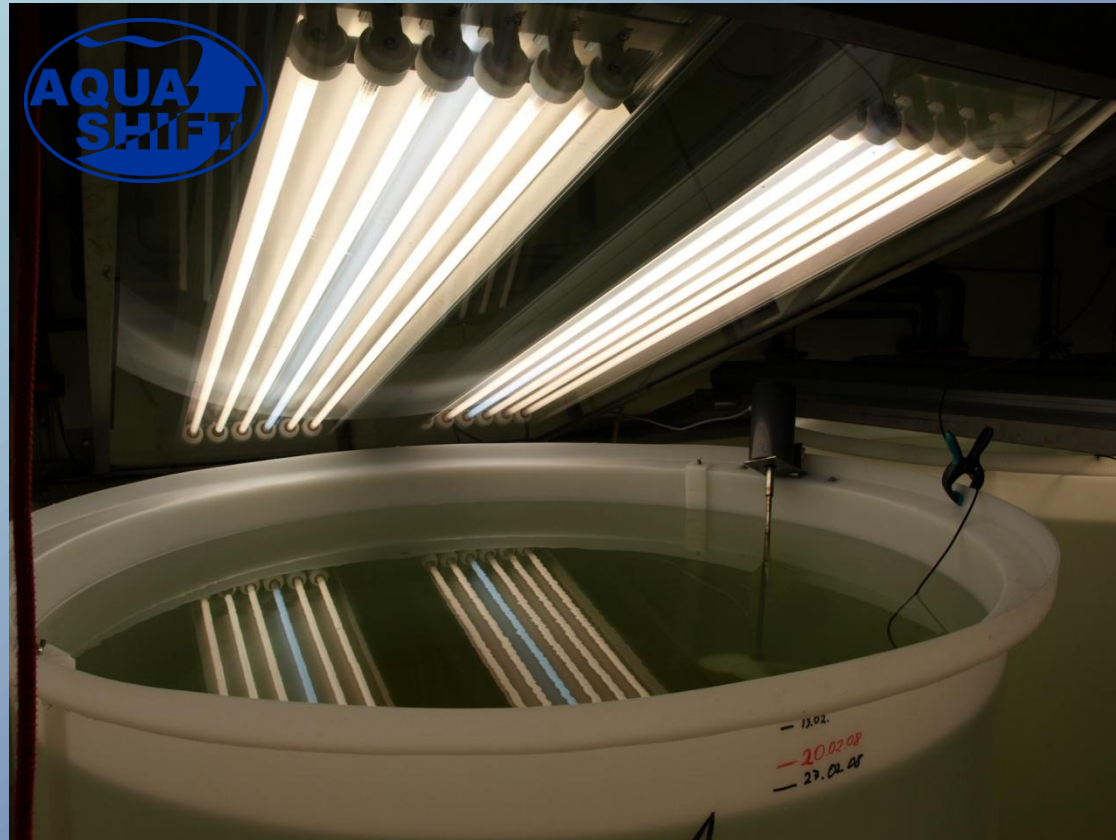




Kiel Indoor Mesocosms



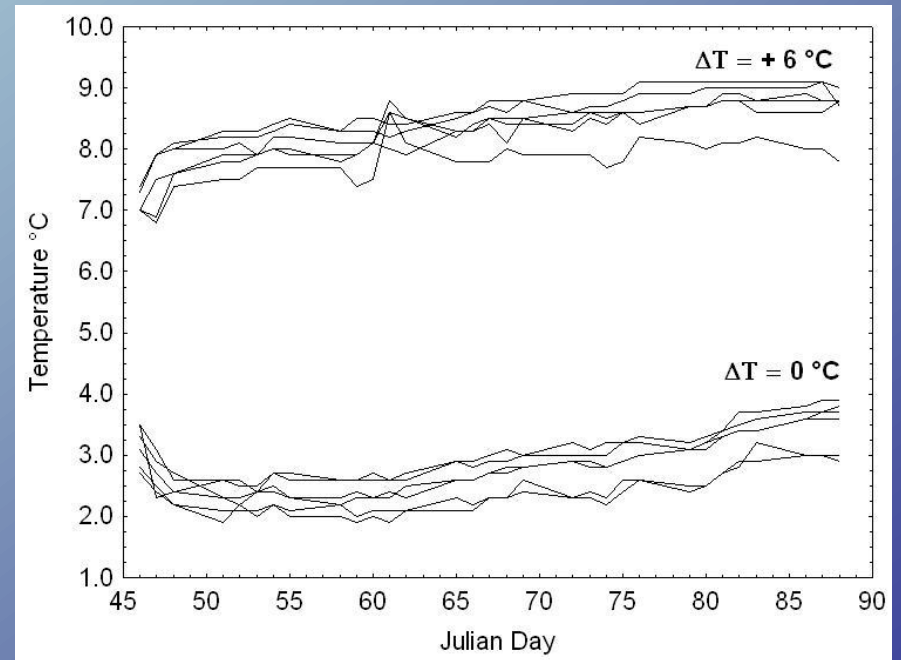
Facility

- 12 indoor mesocosms 1400 l volume filled with natural plankton community.
- 4 climate cabins with regulated temperature
- Separate light unit for each mesocosm



Temperature

- Range: 2 – 25°C
- Regime: model of sea surface temperature for Kiel Bight
- Computer controlled system



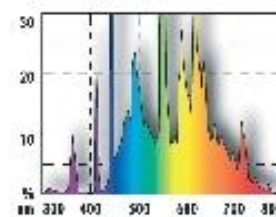
Light

- Characteristic: 12 light tubes with modulated illumination combined in 2 panels for each mesocosm
- Full sunlight spectrum: JBL solar tropic tubes complemented with JBL solar nature tubes
- Simulation of daily and seasonal changes of irradiance
- Computer controlled system

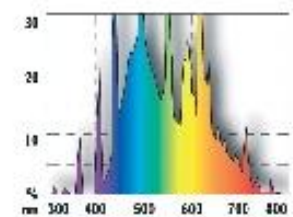


www.ghl-profilux.co.uk

JBL TROPIC



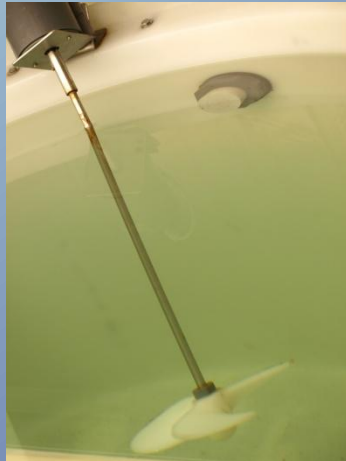
JBL NATURE



www.jbl.de

Mesocosms

- Volume: 1400 l
- Depth: 1 m
- Diameter: 150 cm
- Stirring mechanism
- Screens



Filling

Mesocosms are filled simultaneously using 12 hoses and preliminary tank with a splitter.

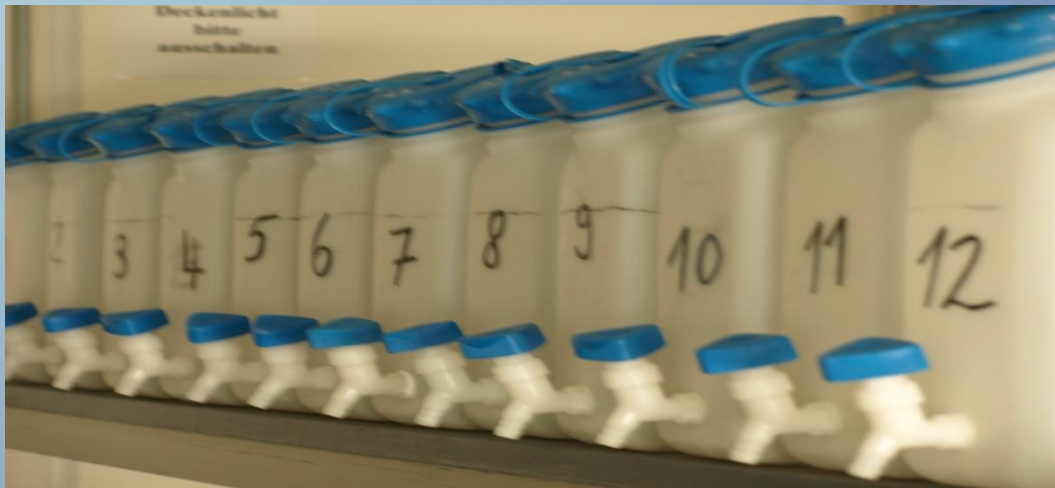
Sea water involves phytoplankton and small protozoa.

Mesozooplankton is added from the net catches (200 μ mesh size).



Sampling procedure

Samples are taken using a silicone hose and collected in canisters available for all users.

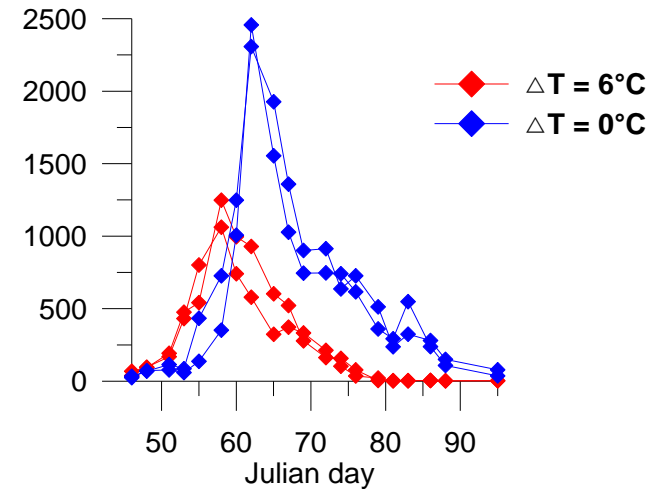
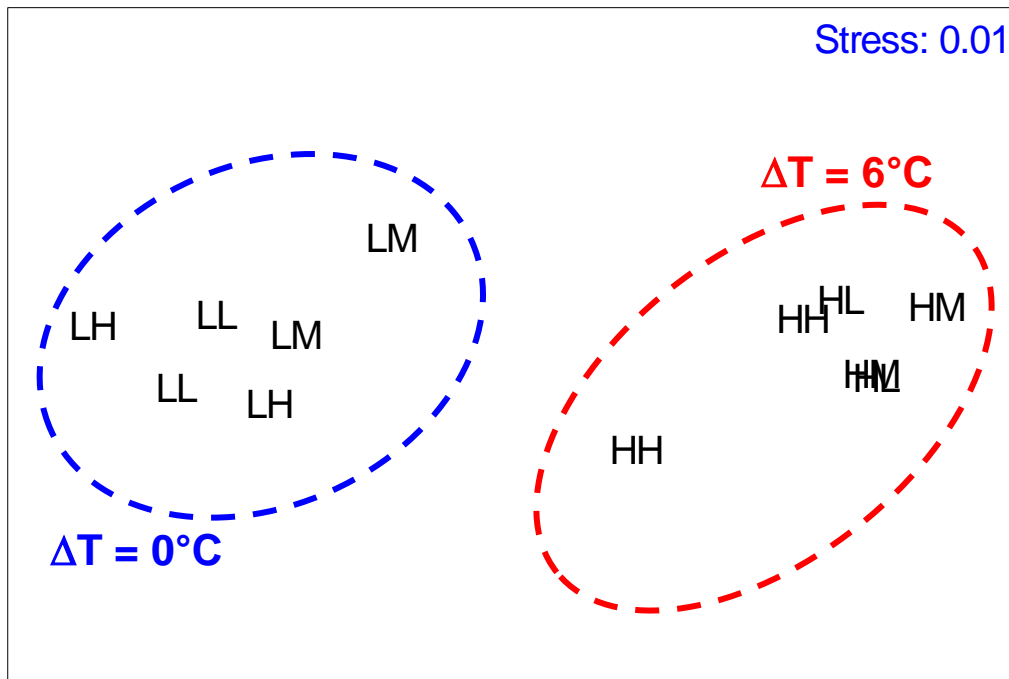


Measurements

- Major measurements
 - Phytoplankton counting (microscopy and flow cytometry)
 - Zooplankton counting (copepods and ciliates)
 - Primary production (^{14}C incorporation method)
 - Bacterial production
 - DIC, DOC, POC, PON etc.
- Control measurements
 - Fluorescence
 - pH, salinity, water temperature
 - Nutrients
- Other measurements
 - Pigments (HPLC)
 - Genetic analysis of bacteria (PCR)
 - Aggregates (TEP)
 - (...)

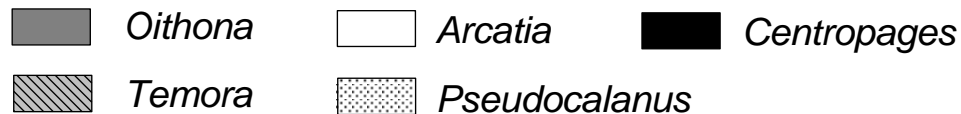
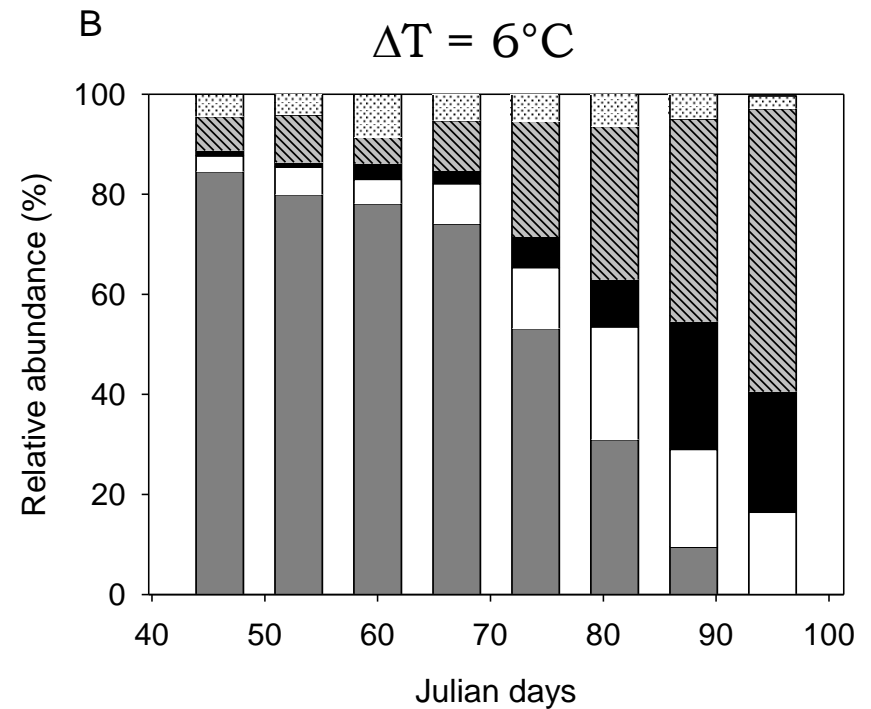
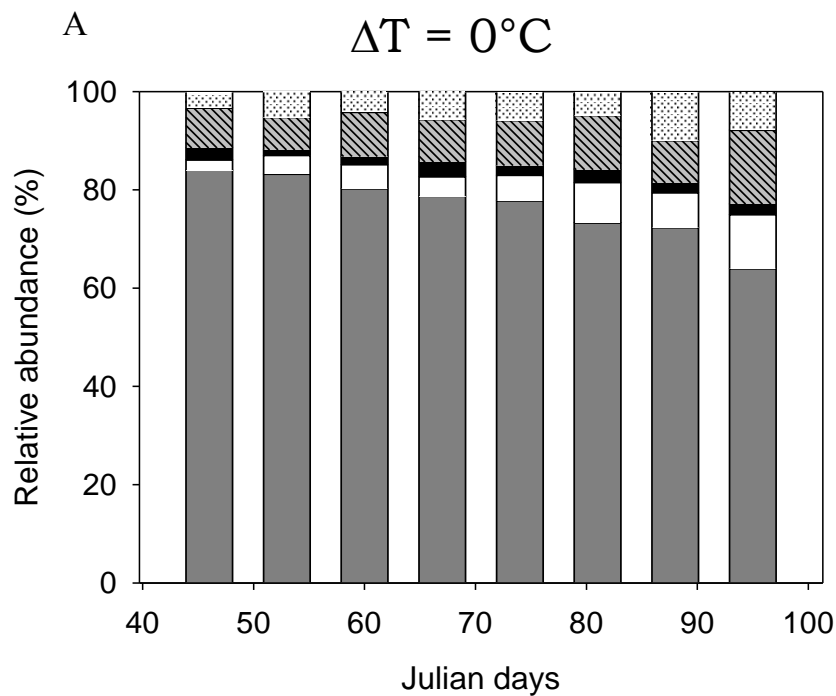
Results - Phytoplankton

Dissimilarity between mesocosms – MDS Plot



Total phytoplankton biomass
($\mu\text{g C l}^{-1}$)

Results - Zooplankton



How we deal with some problems?

- Wall growth
- Room effect
- Zooplankton mortality