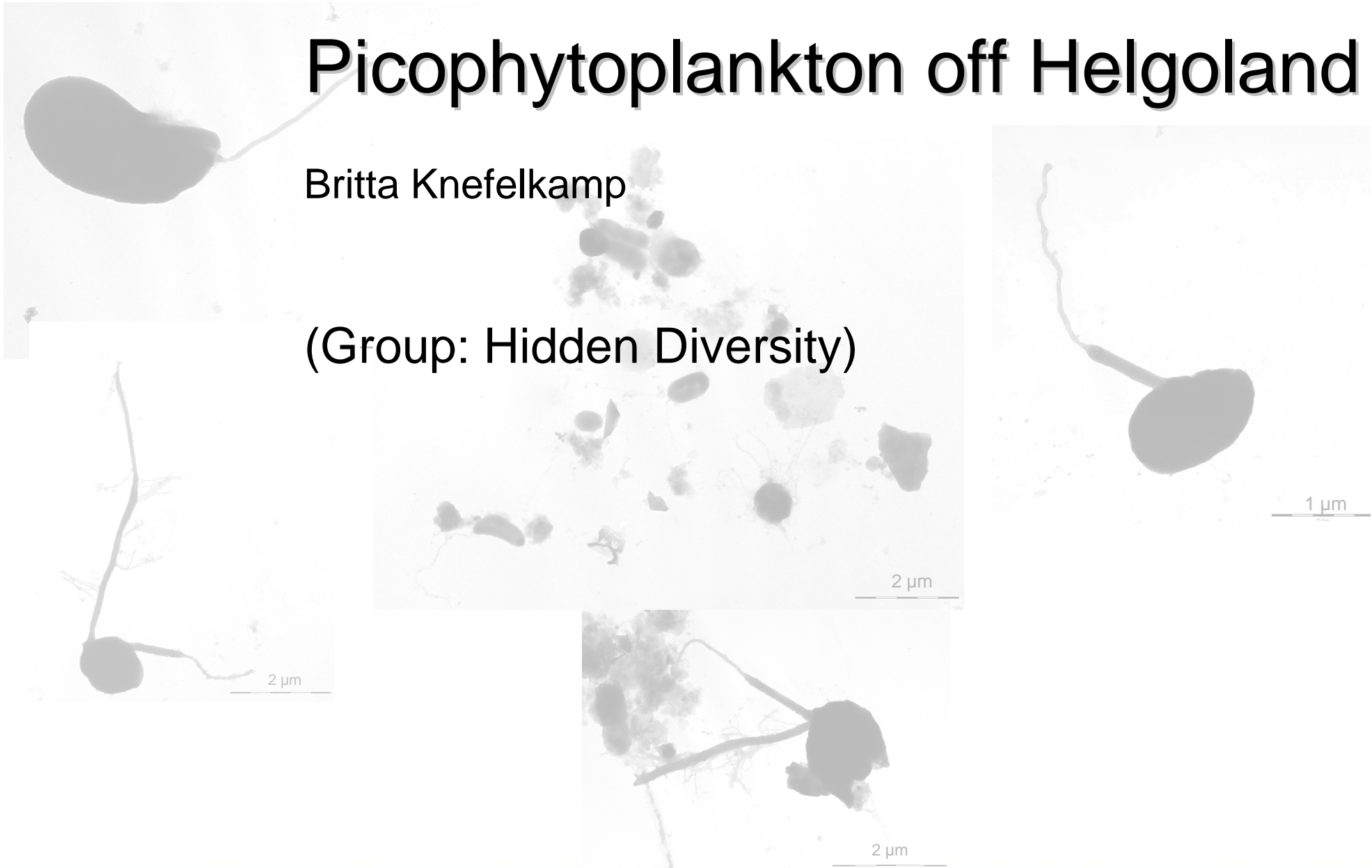


Picophytoplankton off Helgoland

Britta Knefelkamp

(Group: Hidden Diversity)



Co-operations



MAX-PLANCK-GESELLSCHAFT

Oslo

Helgoland,
Bremen,
Bremerhaven

Roscoff

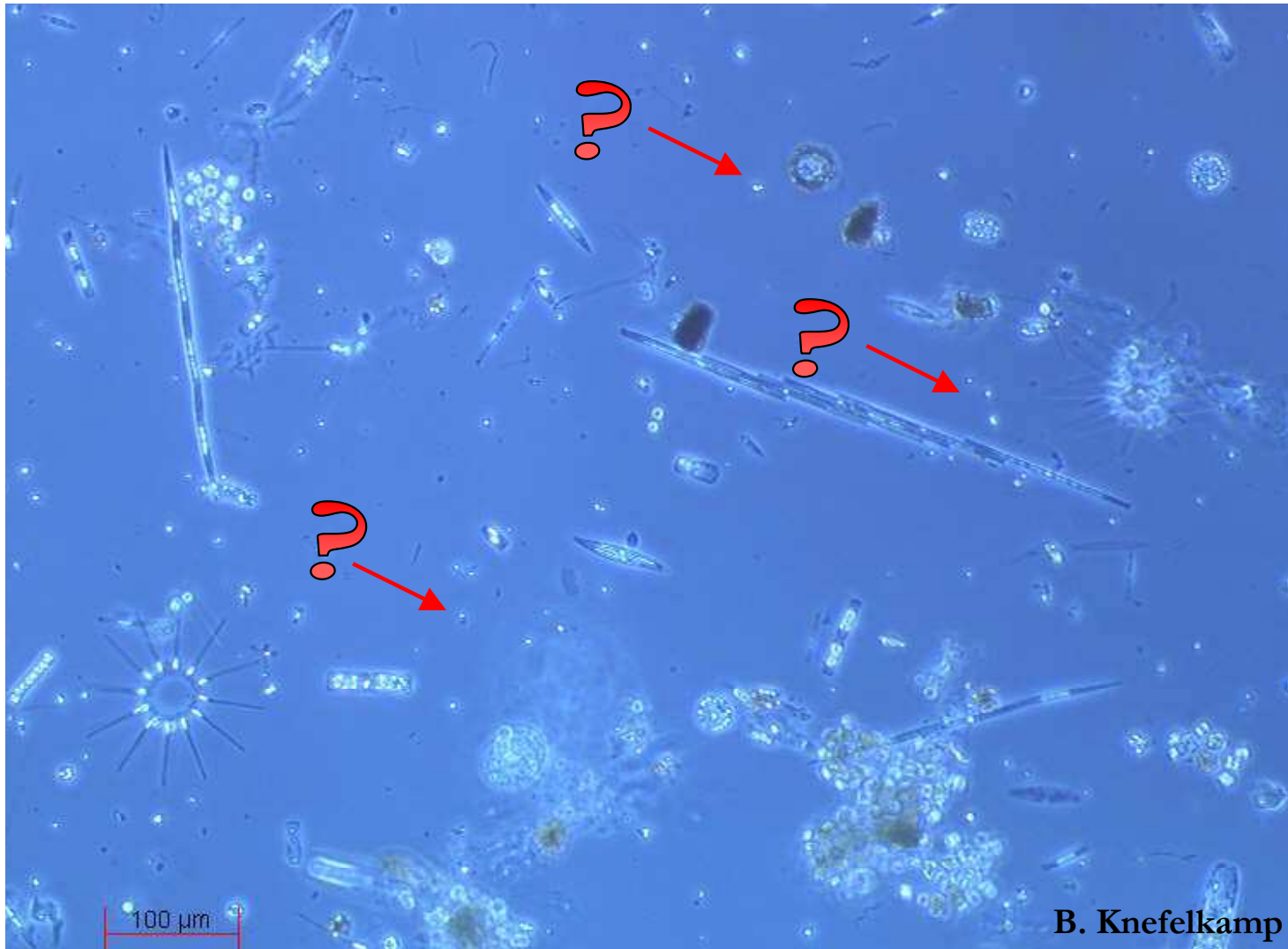


UNIVERSITY
OF OSLO



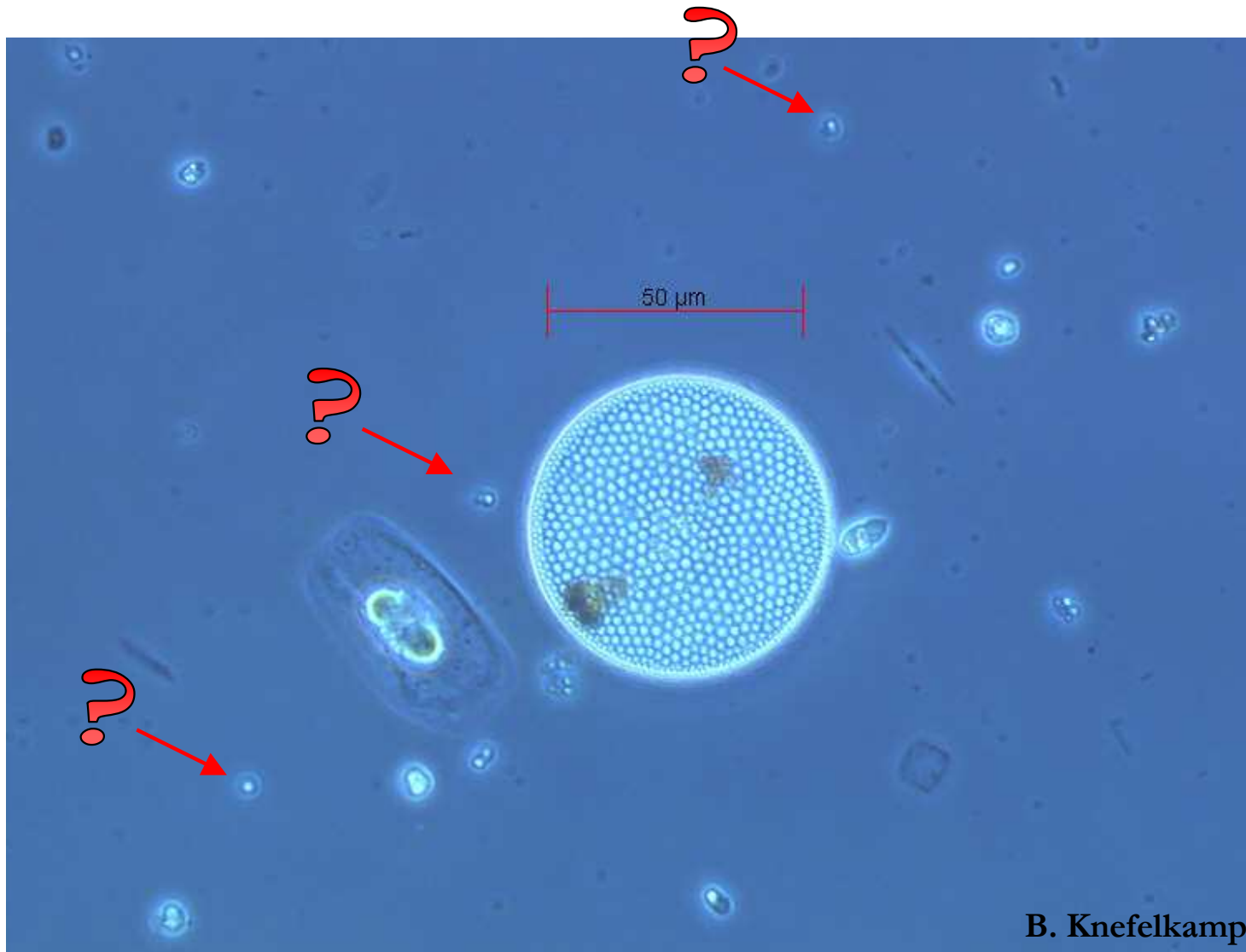
Station Biologique
de Roscoff

Picophytoplankton - Introduction



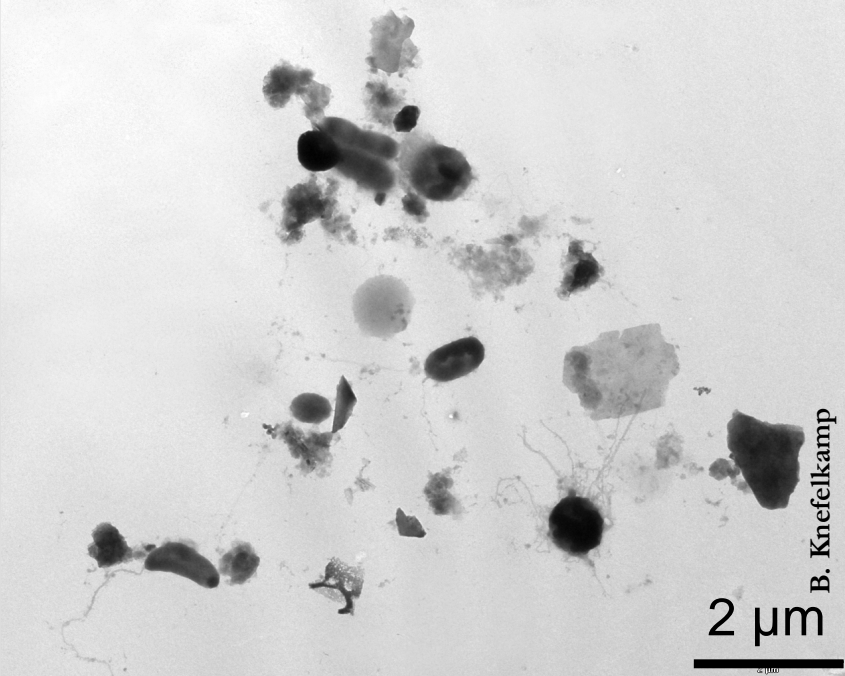
Mauritanian upwelling

Picophytoplankton - Introduction

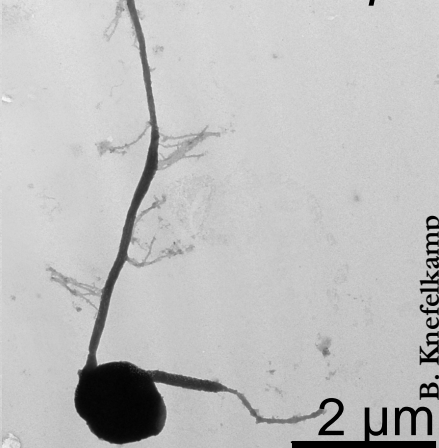


Mauritanian upwelling

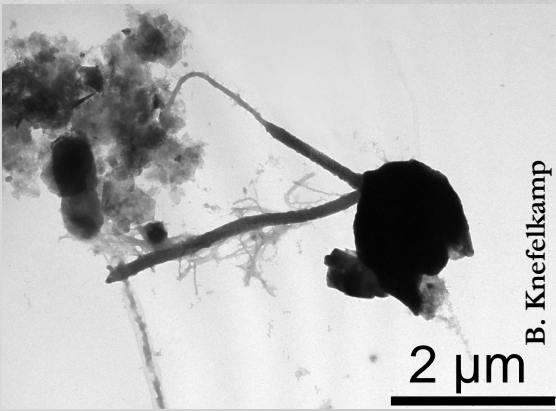
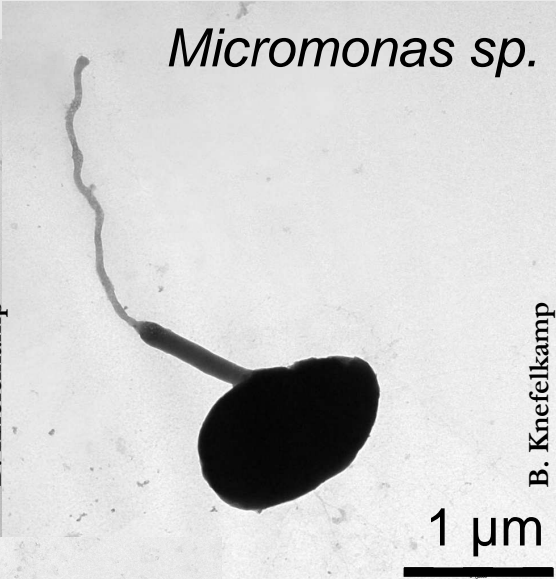
Picophytoplankton - Introduction



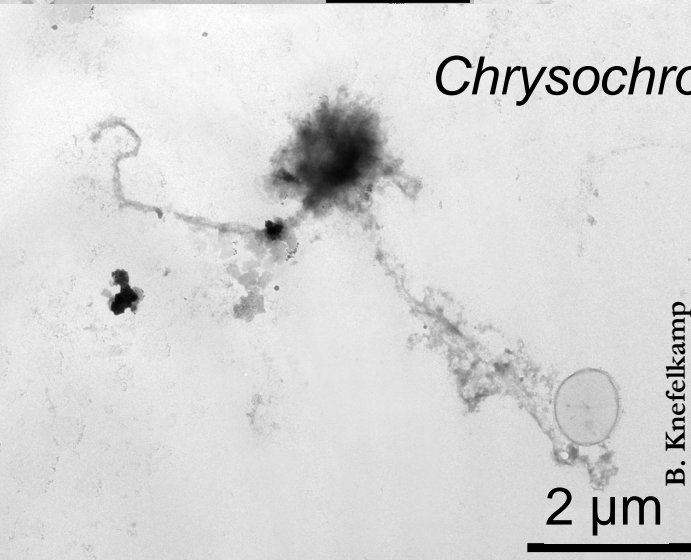
Bolidomonas sp.



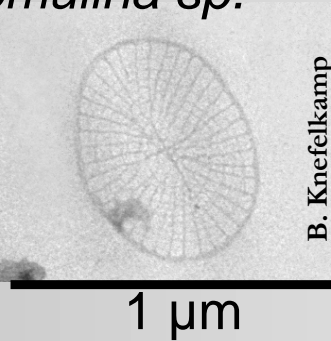
Micromonas sp.



Bolidomonas sp.

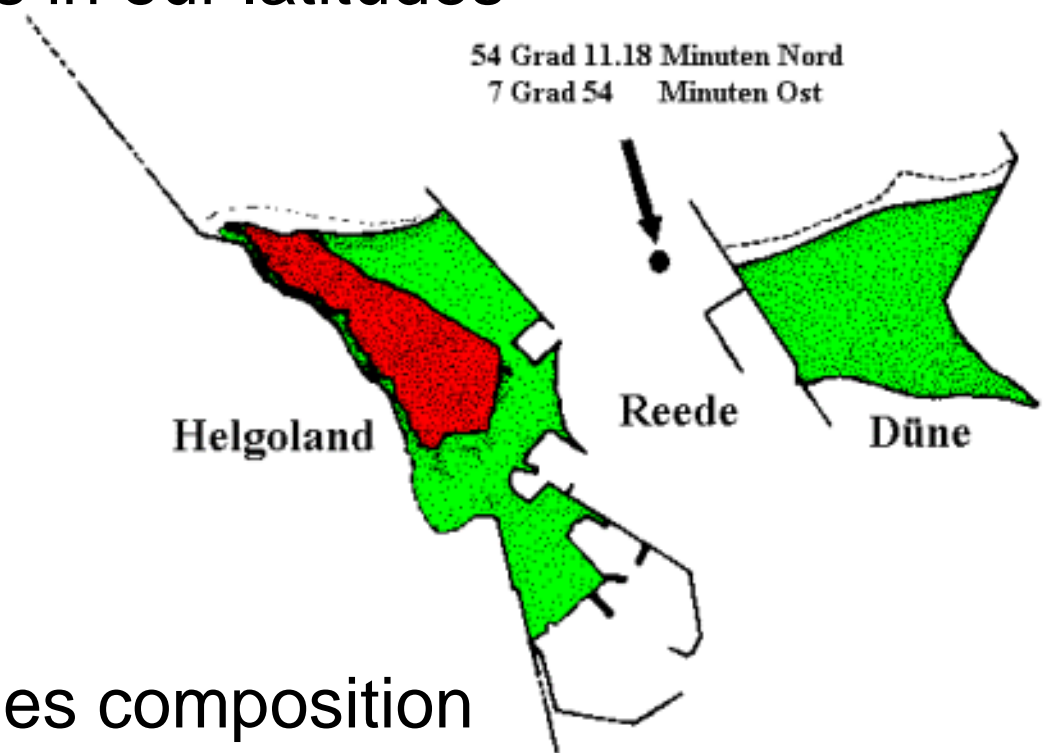


Chrysochromulina sp.



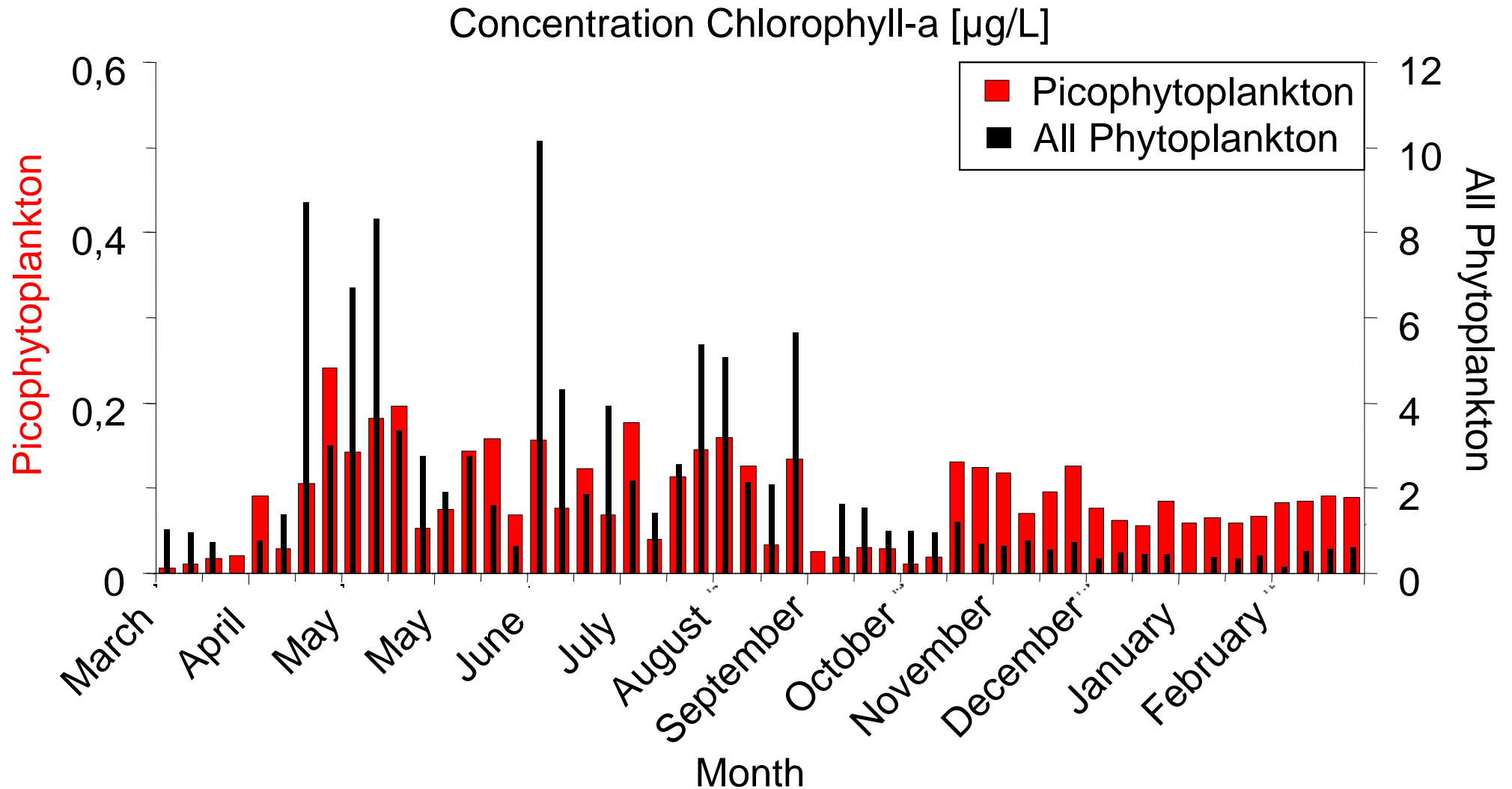
Picophytoplankton - Introduction

- Basic in marine ecosystem
- Dominating biomass, production, metabolic activity
- Food source for Mikrozooplankton in food web
- In general few investigations in our latitudes



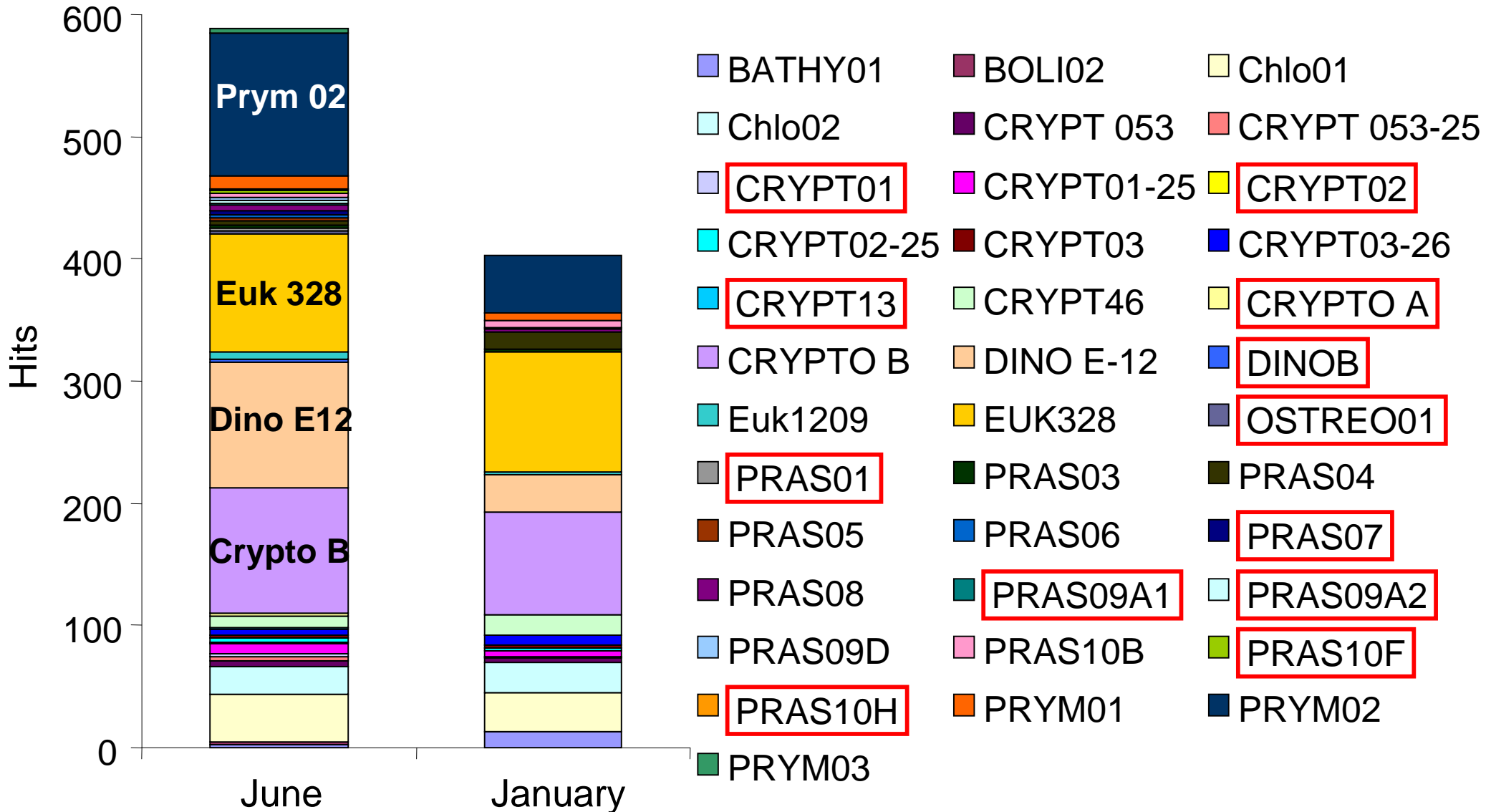
- Seasonality, diversity, species composition
- Annual cycle at Helgoland Roads: 03.2005 - 03.2006

Biomass - HPLC



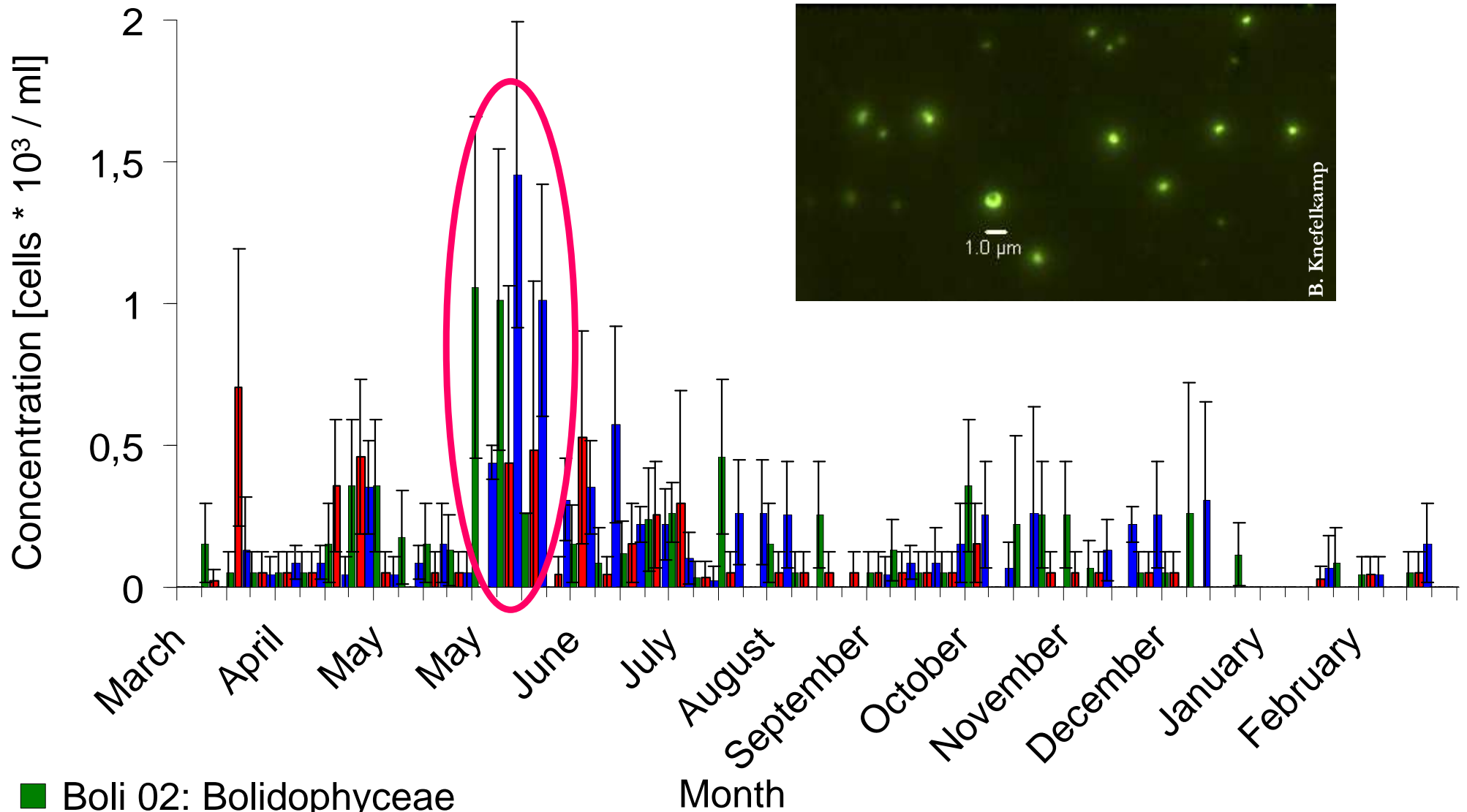
- Concentration increases when larger phytoplankton decreases
- Higher percentage in winter

Microarray - Variability



Not in January

FISH – Seasonality of classes

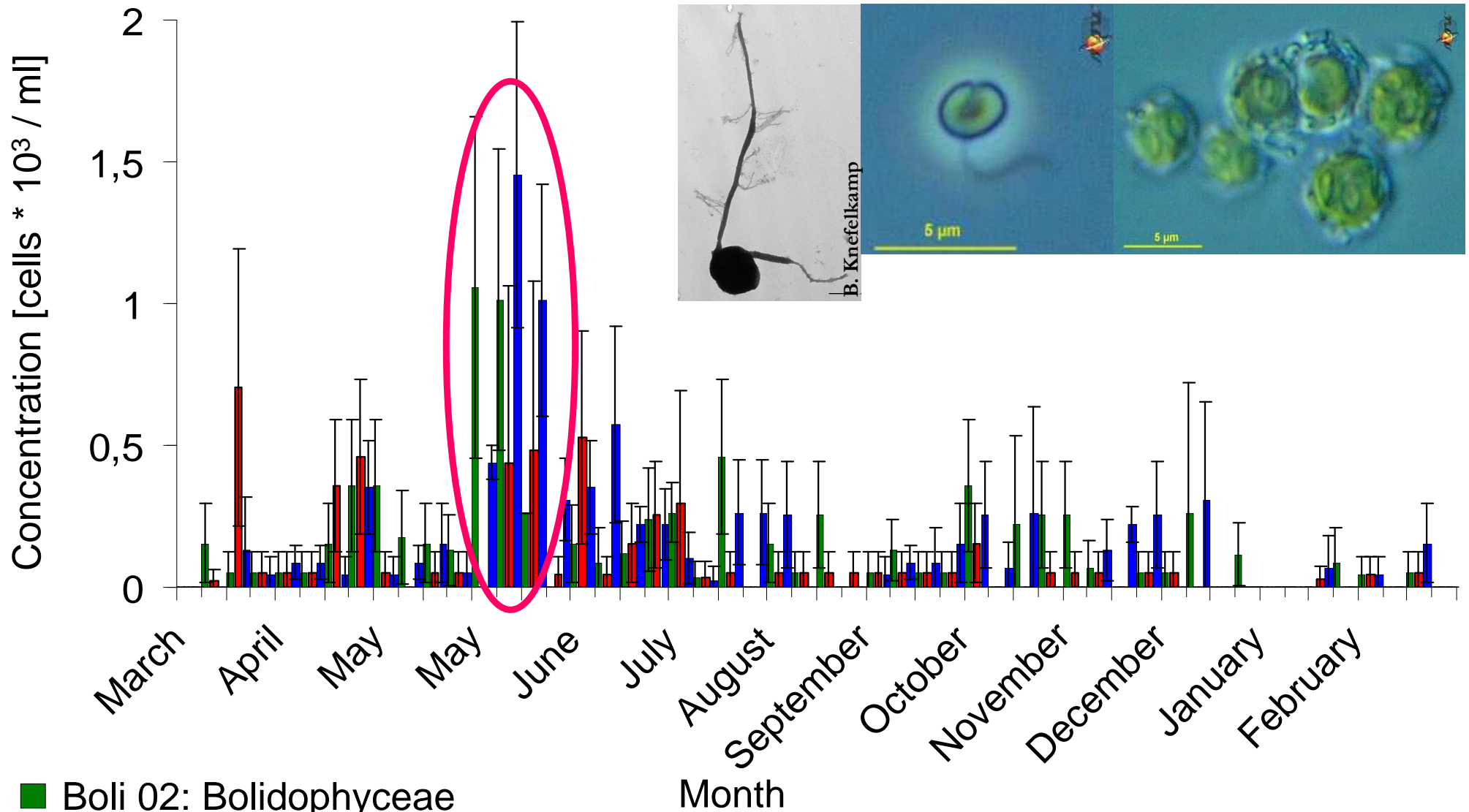


■ Boli 02: Bolidophyceae

■ Pela 01: Pelagophyceae (*Pelagomonas calceolata*, *Aureoumbra lagunensis*)

■ Prym 02: Haptophyta/Prymnesiophyceae (*Emiliana huxleyi*, *Imantonia rotunda*), Pavlovophyceae (*Pavlova lutheri*)

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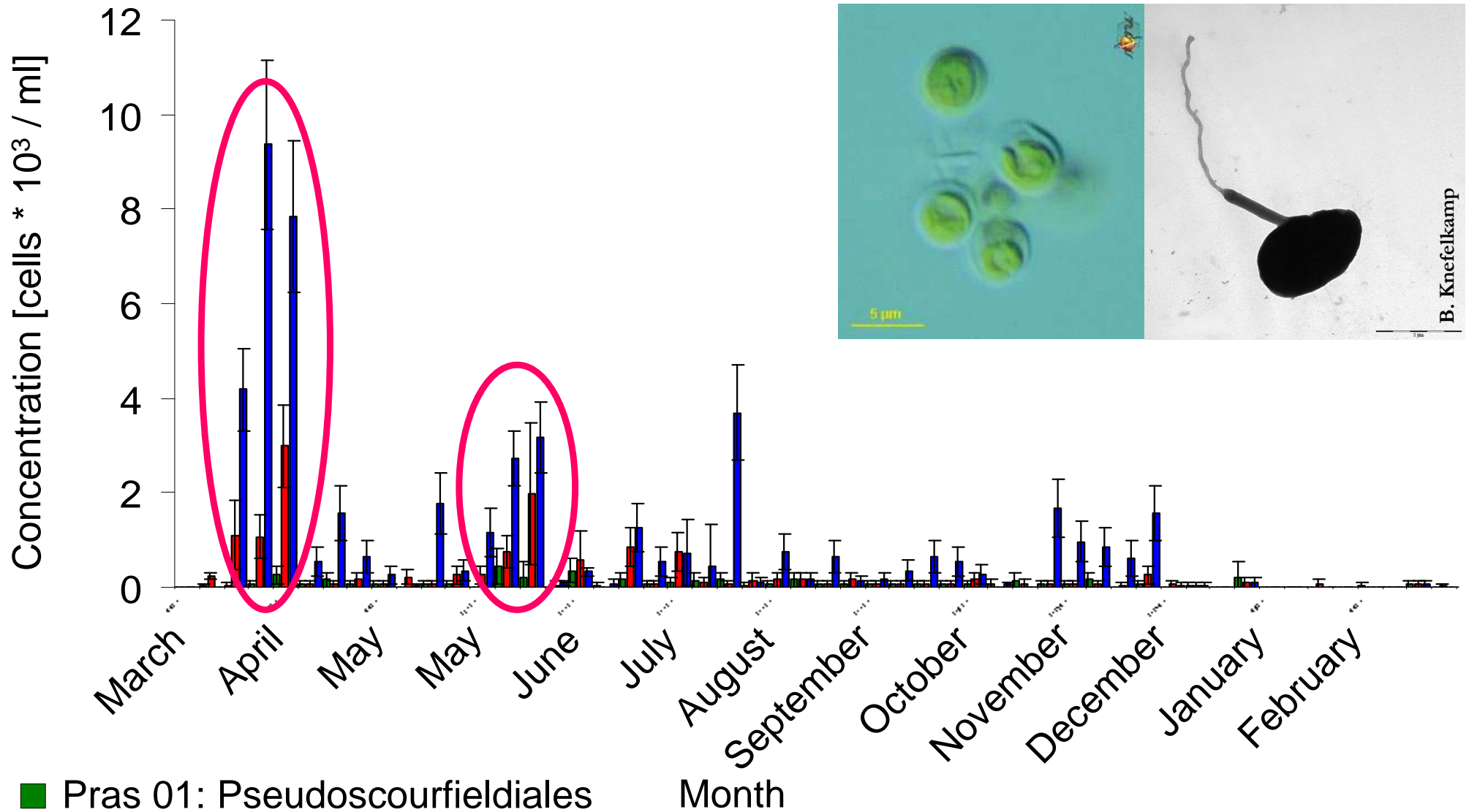


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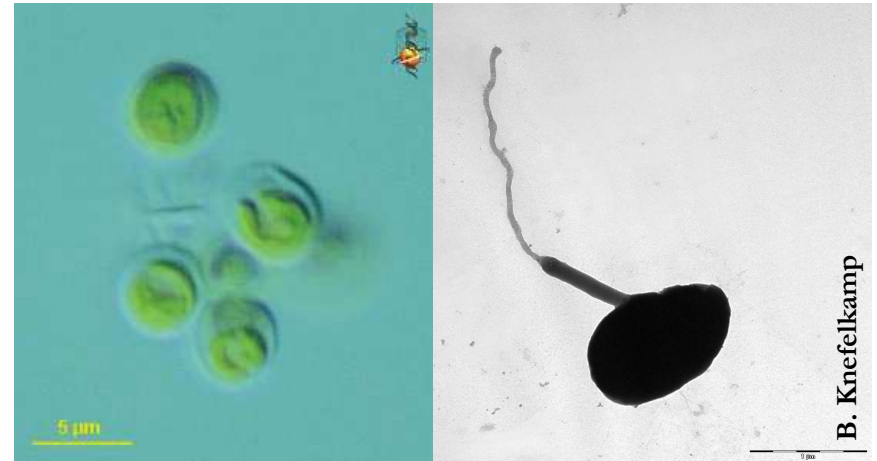
FISH – Seasonality of classes



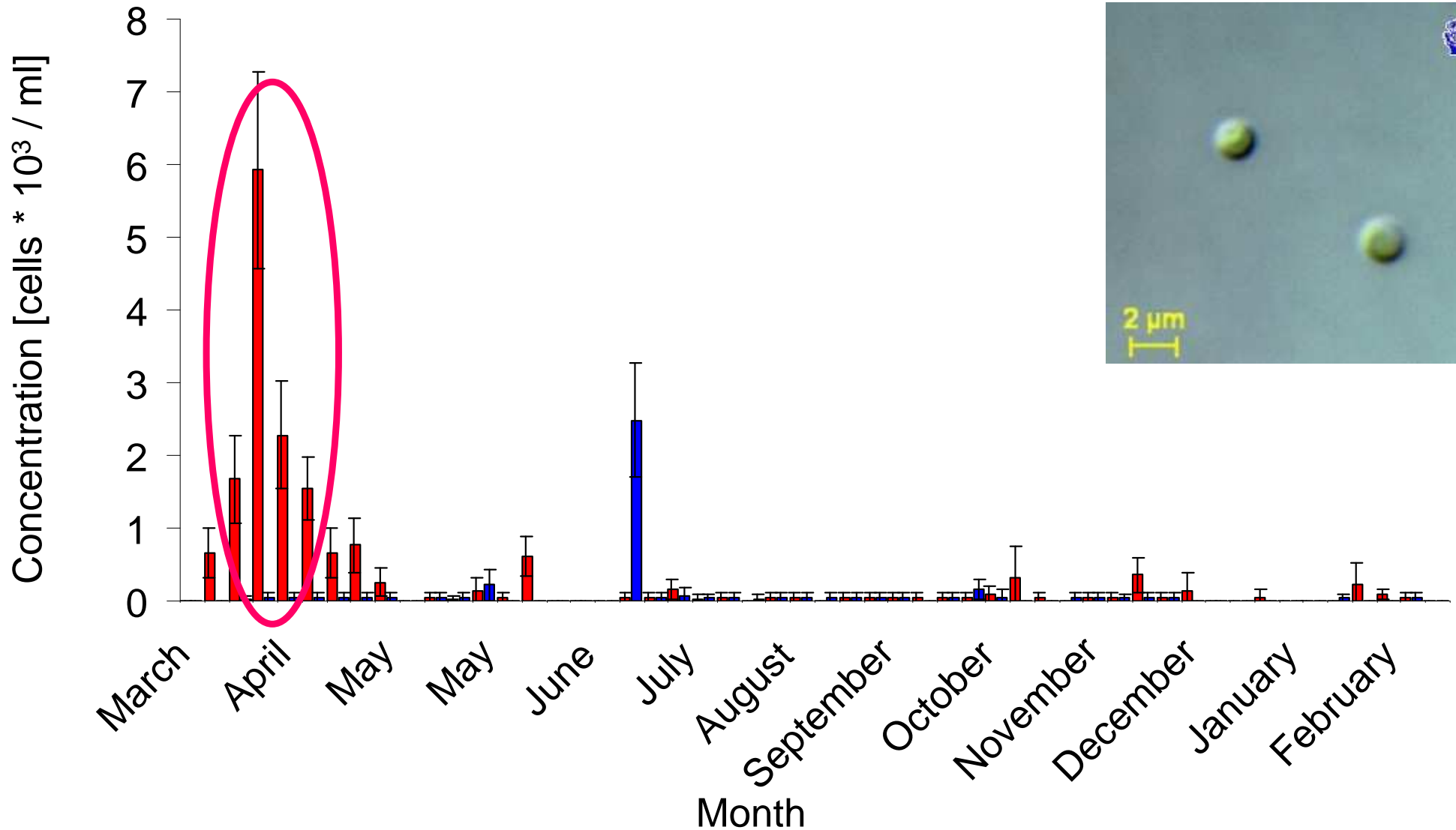
■ Pras 01: Pseudoscourfieldiales

■ Pras 03: Prasinococcales

■ Pras 04: Prasinophyceae (Mamiellales (Micromonas, Ostreococcus tauri))



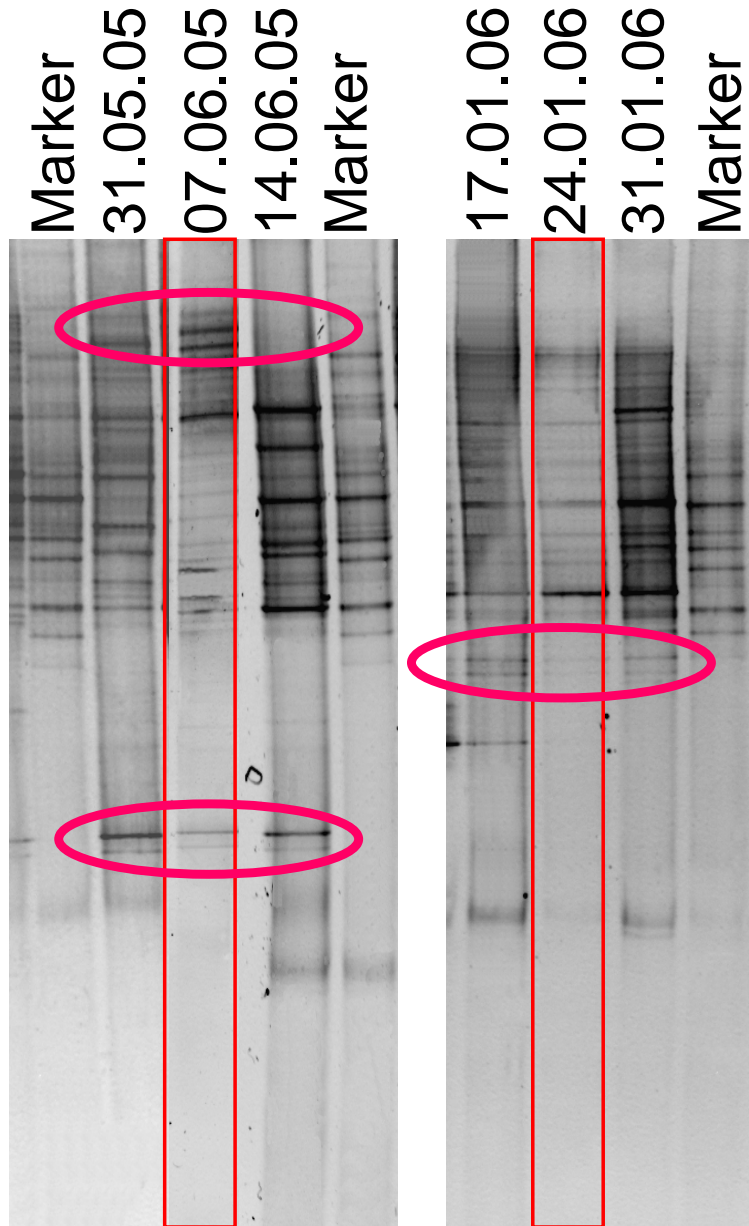
FISH – Seasonality of species



- Bathy 01: Bathycoccus prasinus (Prasinophyceae)
- Ostreo 01: Ostreococcus (Prasinophyceae)



DGGE – Diversity in Phylotypes



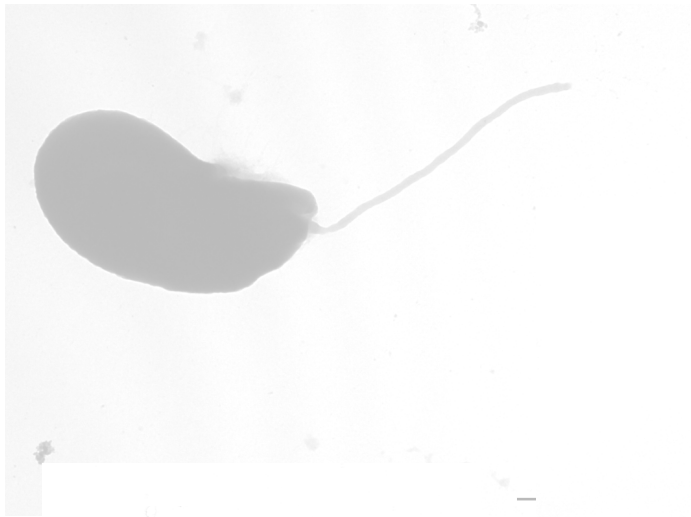
- Around 10 phylotypes more in June than in January
- Differences in the occurring phylotypes

Picophytoplankton - Summary

- Concentration increases when larger phytoplankton decreases
- High percentage in winter, low in summer
- Prasinophyceae (Bathycoccus) in spring
- Bolido-, Pelago-, Prymnesiophyceae in early summer
- Higher variability in early summer

Outlook:

- Defining species by sequencing
- Ecological classification



Thanks for your attention !!

