



Norwegian Cooperation Program on
Research and Higher Education with
the countries on the Western Balkans
(CPWB)

Project: *Marine science and coastal management in the Adriatic, Western Balkan. An education and research network (yrs. 2006-2010)*

Final conference


Cavtat, Dubrovnik, Croatia, Croatia

24 - 28 May 2010

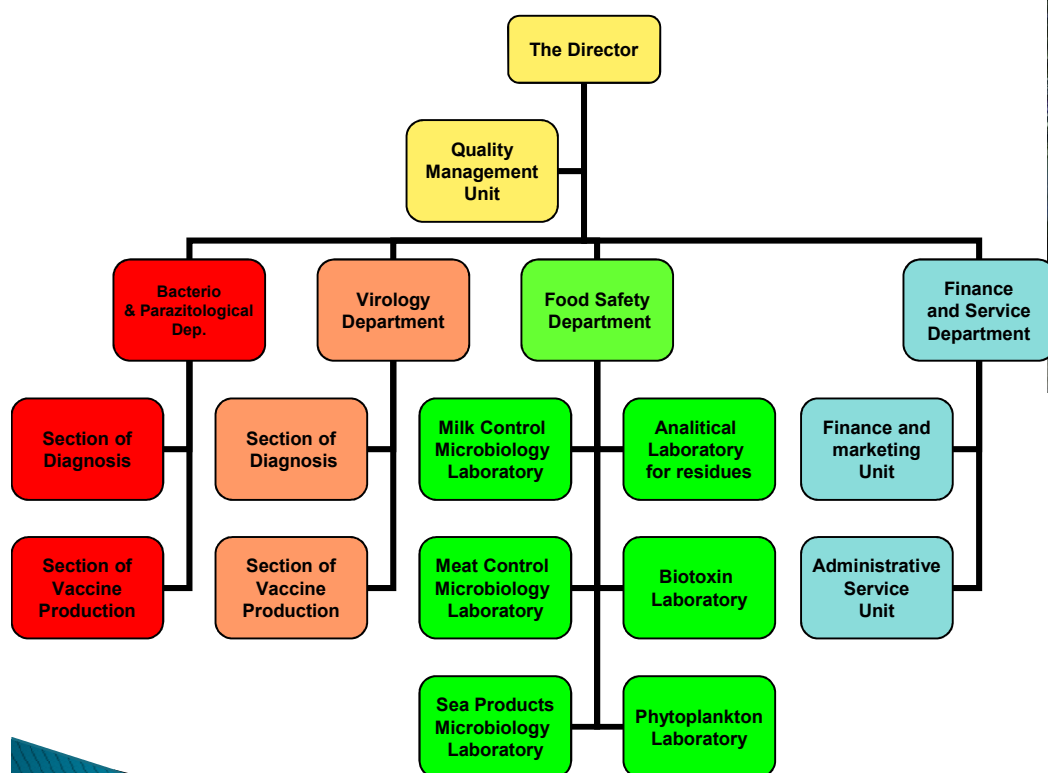
PRELIMINARY PHYTOPLANKTON DATA FROM SHKODRA LAKE & BUNA RIVER (Albanian part)

E. Koni, M. Bushati

Outline

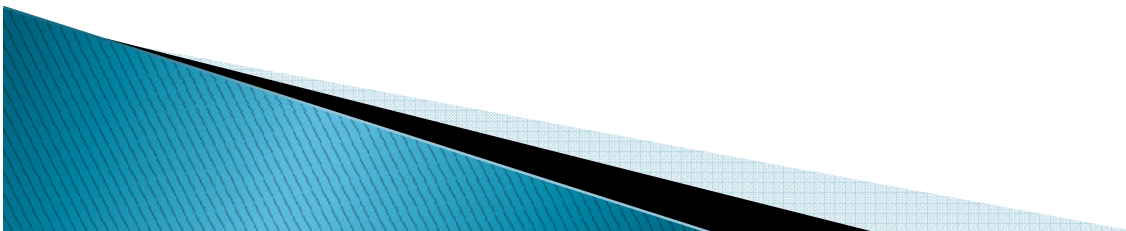
- ▶ Introduction of Food Safety and Veterinary Institute
 - ▶ Preliminary phytoplankton data of Buna river and Shkodra lake
 - ▶ Activities performed on the frame of the CPWB project
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Food Safety and Veterinary Institute

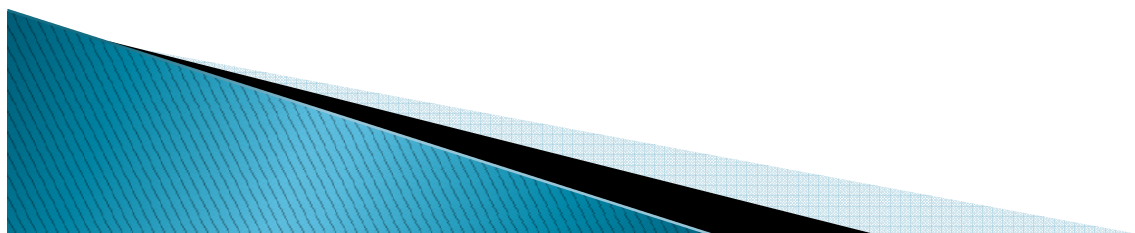


DEPARTMENT FOOD SAFETY:

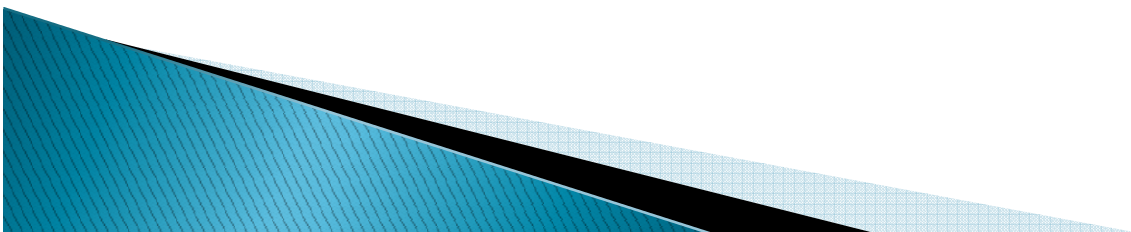
1. *Lab. Microbiology* (milk & products, meat & products, fish & mollusks: E.Coli, Salmonella spp., Fecal coliforme)
2. *Lab. Chemistry* (meat, egg, mollusks: heavy metals, pesticide)
3. *Lab. Biotoxicology* (biotoxins in bivalve mollusks. PSP (Paralytic Shellfish Poisoning) DSP (Diarrhoeic Shellfish Poisoning) and ASP (Amnesic Shellfish Poisoning))
4. *Lab. Phytoplankton* (qualitative and quantitative studies on phytoplankton populations on lagoon waters)



- ▶ December 2009-PhD student in Conservation Biology (profile Plant biology) beside Department of Biology, Faculty of Natural Sciences, University of Tirana.
- ▶ The PhD is focused in the Evaluation of Water Quality in Bovilla Reservoir, the main drinking water supplier for Tirana capital, based on Microscopic Algae (phytoplankton).
- ▶ Here I will present some preliminary data about the phytoplankton of Buna river and Shkodra lake, assessed during yr. 2008



In the frame of the project "*Interdisciplinary assessment of water resources management in two transboundary lakes in South Eastern Europe*"; DRIMON (yrs. 2006-2009), funded by the Norwegian Council for Research, despite other studies, was carried out phytoplankton composition of Buna river and Shkodra lake.

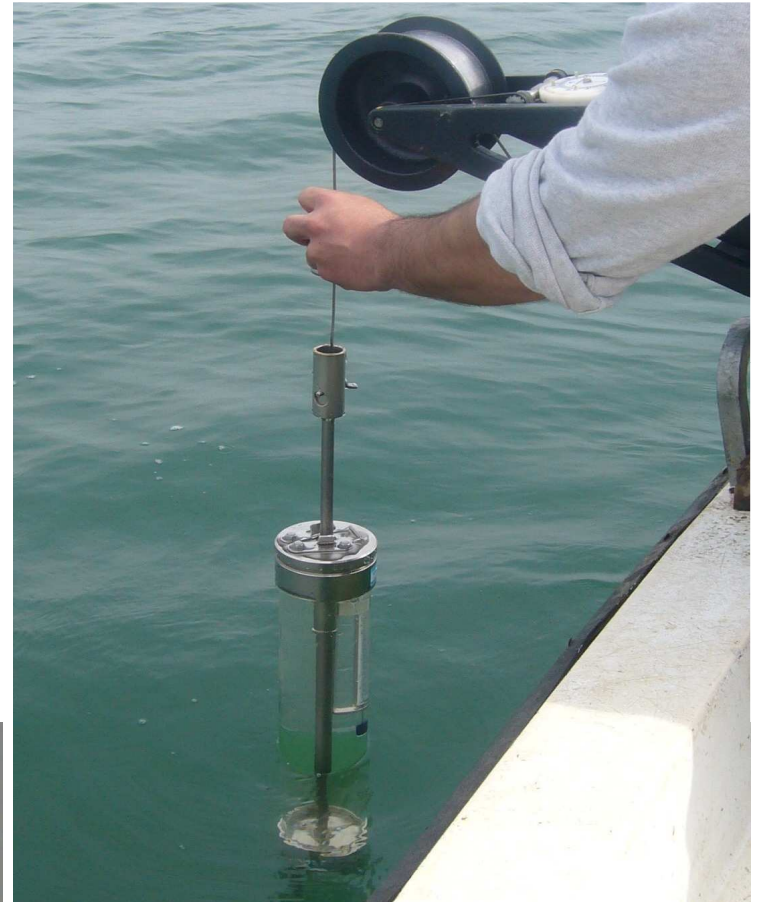


Method and Material

- ▶ Phytoplankton samples were collected once per month during March-June 2008, in two stations: Buna River and Shiroka (western part of Shkodra Lake);
- ▶ Samples were collected at 2m depth using a Niskin bottle;



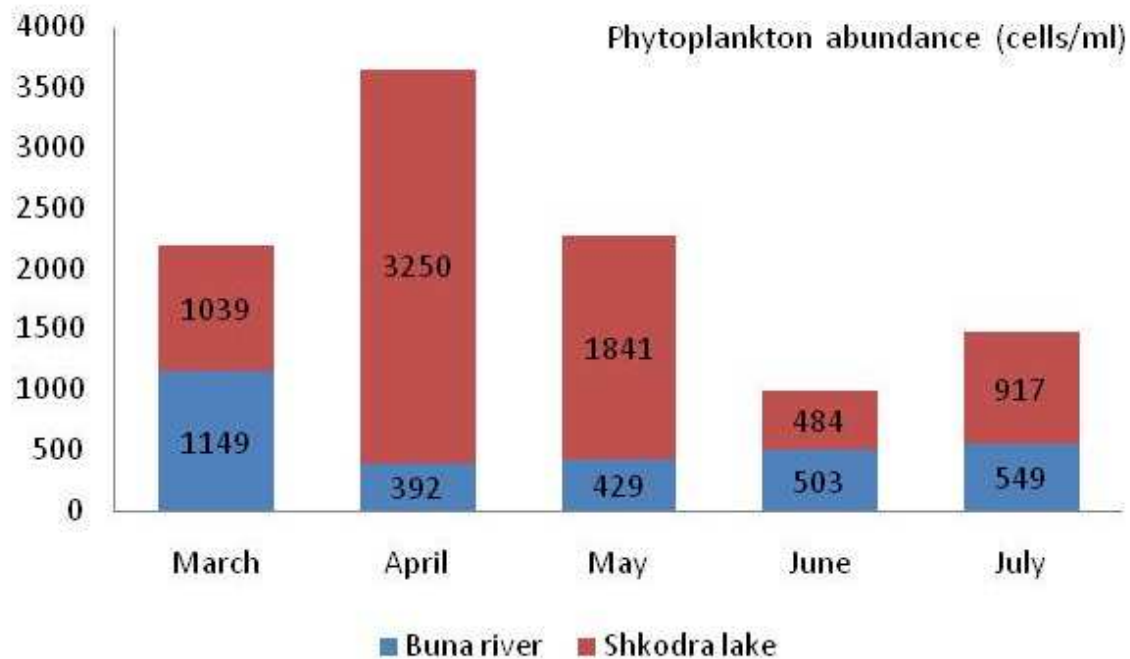
- Micro phytoplankton has been identified using the keys of Krammer K., Lange-Bertalot H. (1986-2001);
- The counting is done using inverted microscope method of Utermöhl (Standard EN 15204:2006) and the appropriate settling chambers.



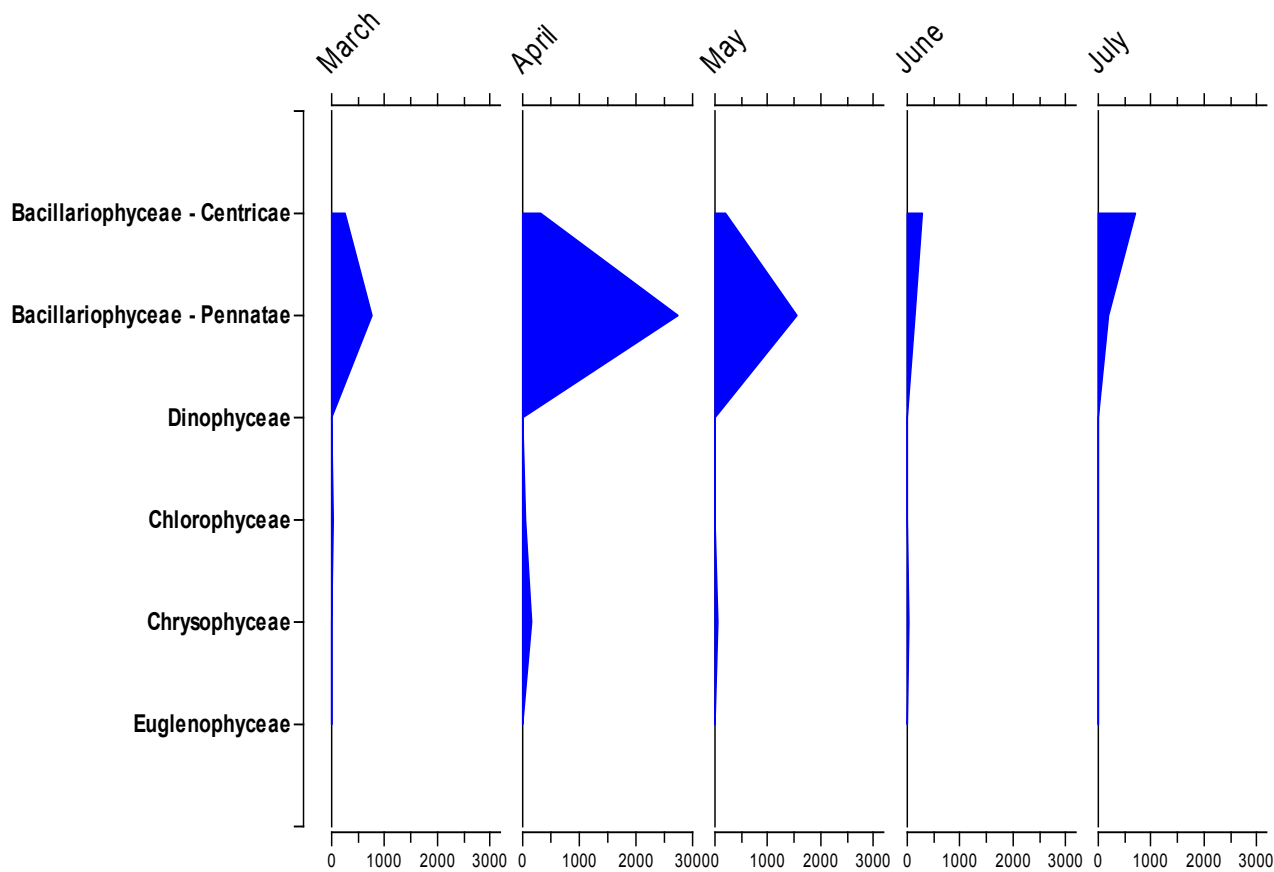
Niskin bottle

Result and Discussion

More than 30 species were found that belong to Bacillariophyceae (Centricae - Pennatae), Dinophyceae, Chlorophyceae, Crysophyceae. Bacillariophyceae and Chlorophyceae showed higher values of phytoplankton abundance than other groups. Phytoplankton values oscillate from 392 cells/ml to 3250 cells/ml, were the highest was observed during April - May.



Phytoplankton abundance (cells/ml) of monitoring stations during months

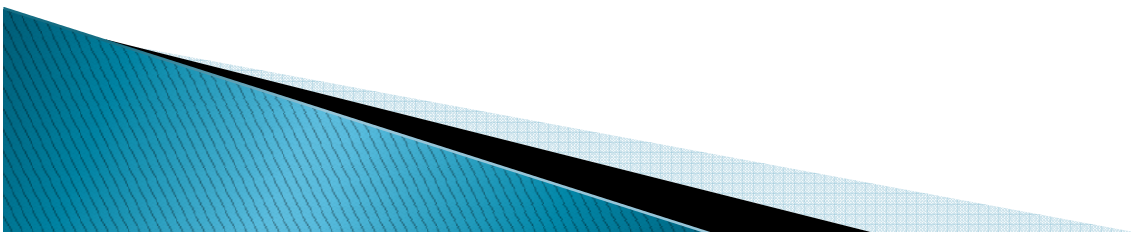


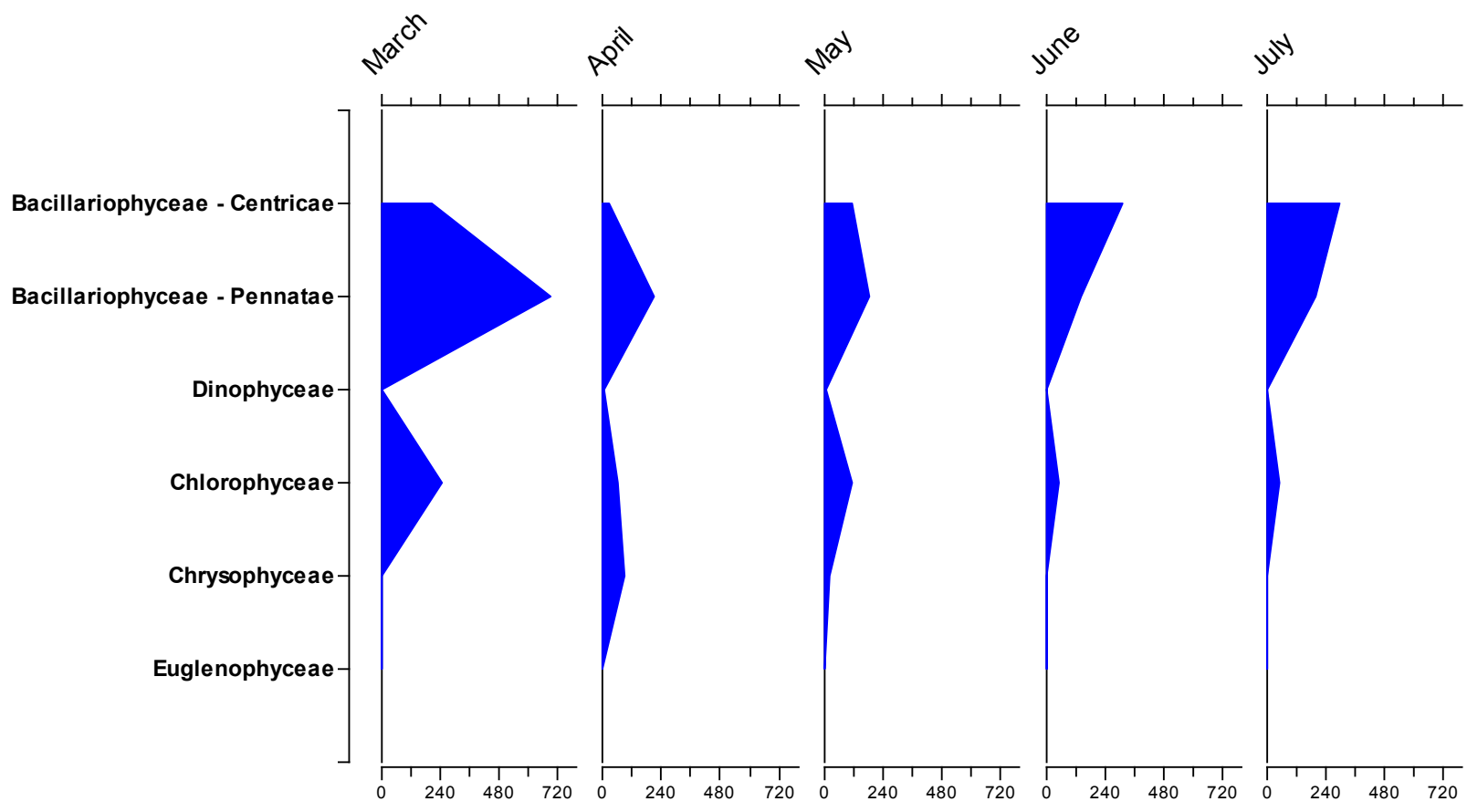
Phytoplankton growth (cel/ml) during month in Shkodra lake

❖ Pennatae diatoms represent the most abundant group of phytoplankton, where the highest values were reached during April and May

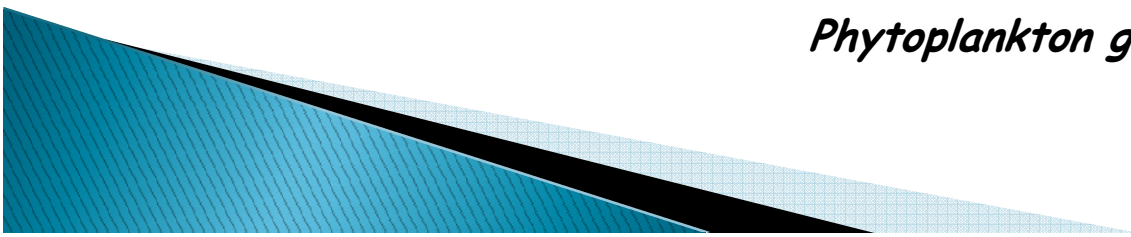
❖ Also during these months we have an increase of phytoplankton growth for other groups like: Chlorophyceae and Chrysophyceae.

❖ During June and July the phytoplankton growth is low.

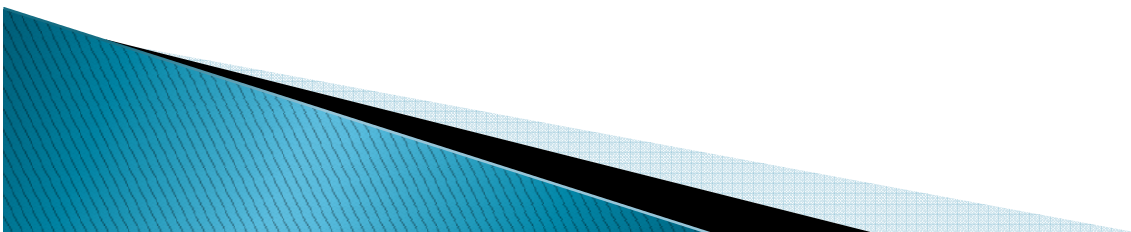




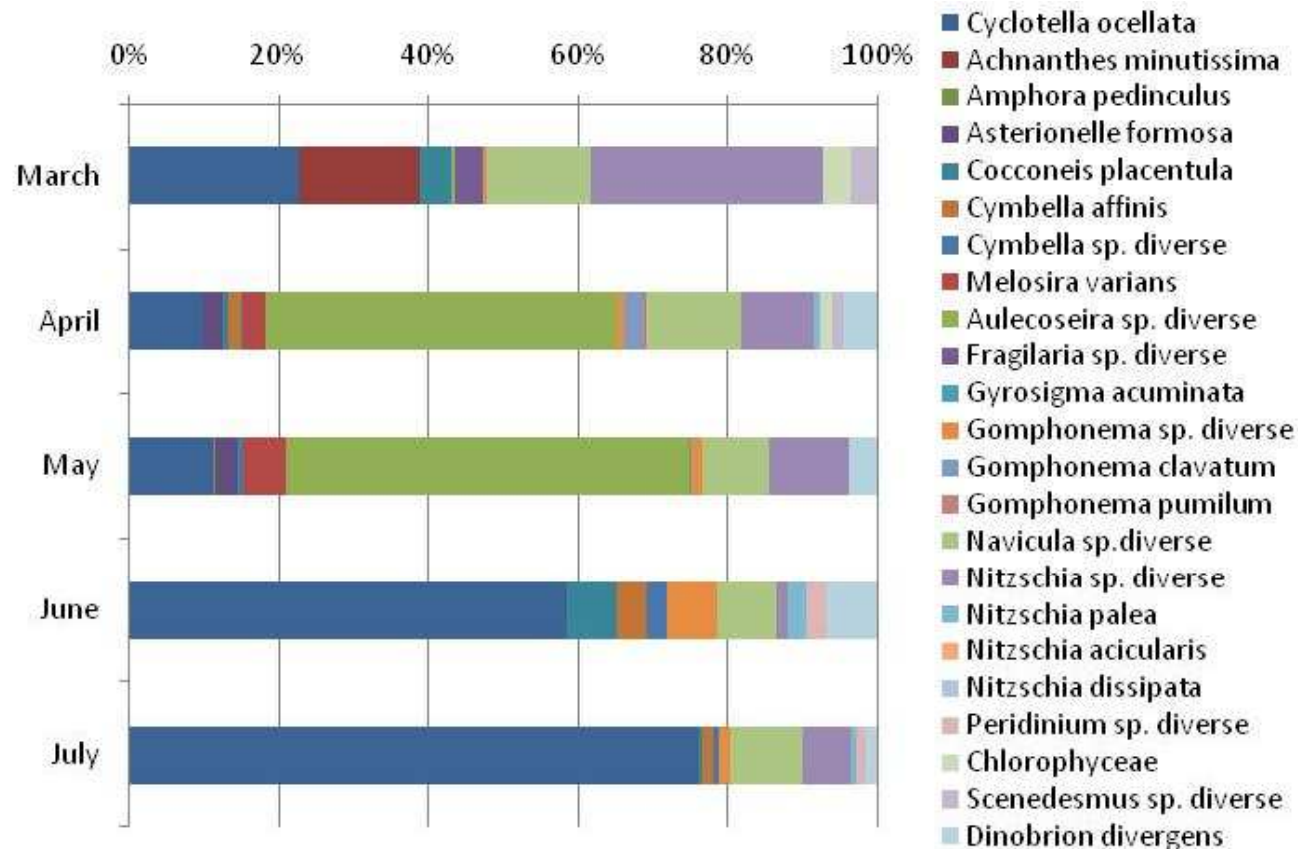
Phytoplankton growth (cel/ml) during month in Buna river



- ✓ Highest phytoplankton abundance was reached during March with pennatae diatoms. This continue till in June after that decreased.
- ✓ Chlorophyceae are present in all the monitoring period with highest values in March.
- ✓ Chrysophyceae have the higher abundance during April.



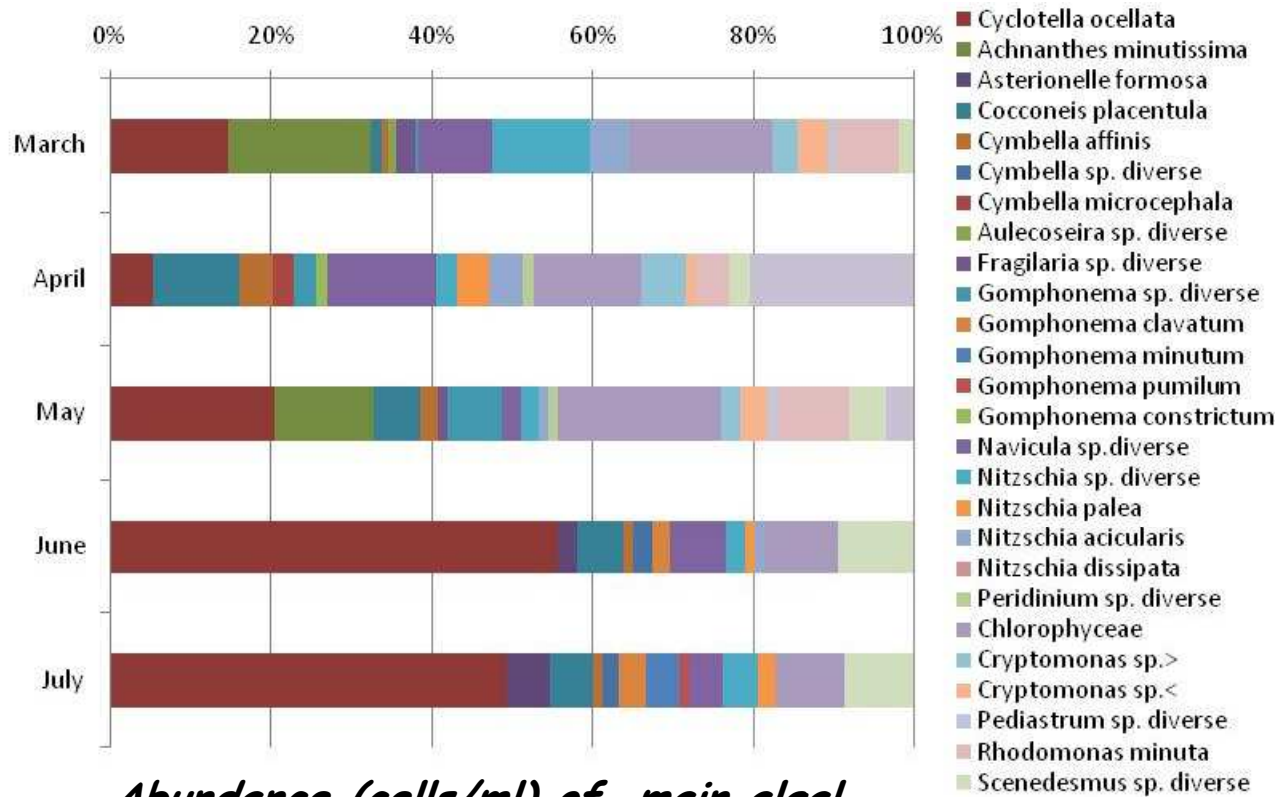
Main algal species in Shkodra lake (Shiroka)



Abundance (cells/ml) of main algal species in Shkodra lake

In Shkodra lake the species *Cyclotella ocellata* have higher abundance than other species. The highest values of *Cyclotella ocellata* are during June and July. During April and May *Amphora pediculus* have higher abundance than other species. Species like *Achnanthes minutissima*, *Asterionella formosa*, *Aulacoseria sp. diverse*, *Melosira varians* show lower abundance.

Main algal species in Buna river

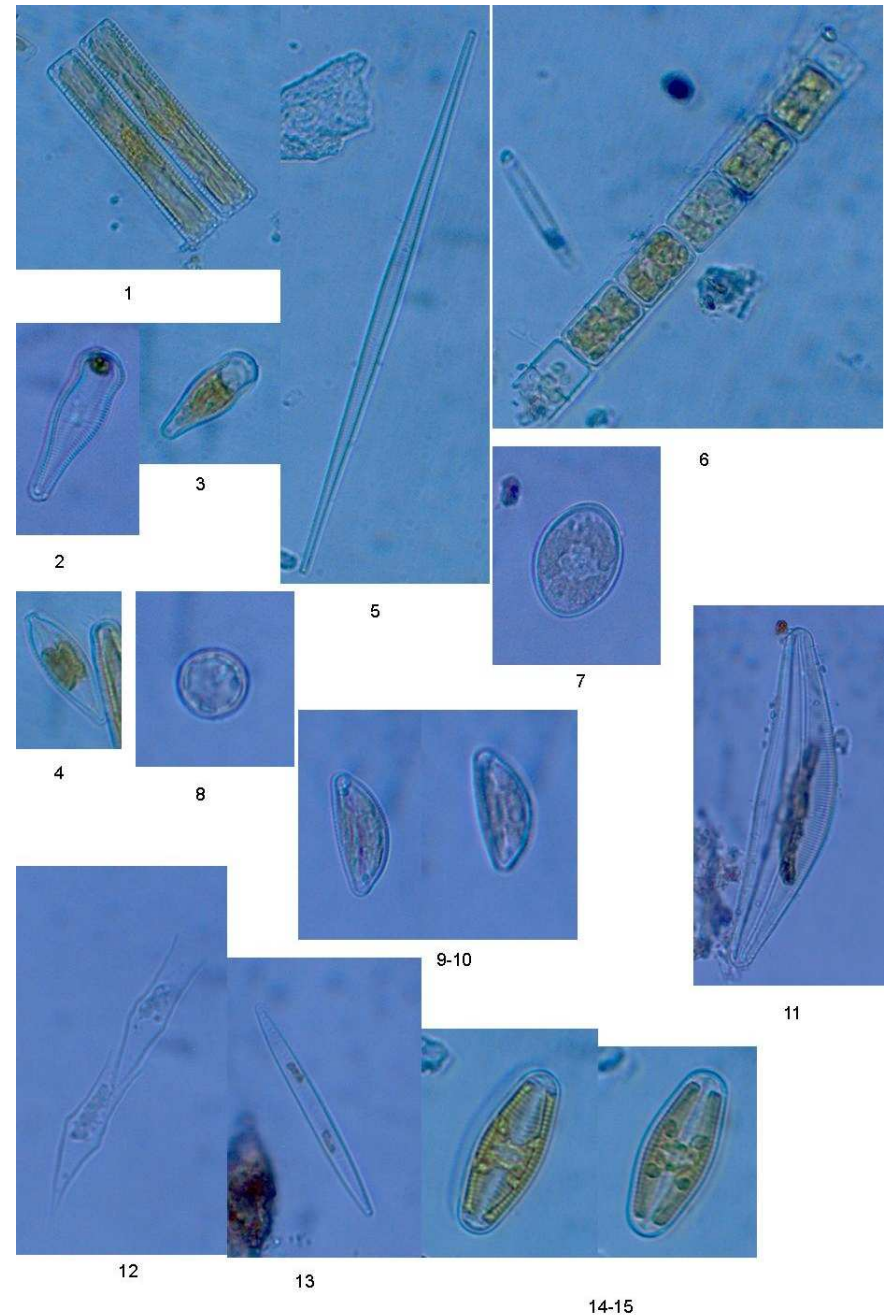


Abundance (cells/ml) of main algal species in Buna river

Quite the same situation we found for Buna river, when species like *Cyclotella ocellata*, *Achnantes minutissima*, showed higher abundance than other species.

Plate 1

1. *Diatoma vulgaris* Grun;
- 2–3. *Gomphonema truncatum* Ehr;
4. *Gomphonema cf. parvulum* Küt.;
5. *Fragilaria crotonensis* Kit;
6. *Melosira varians* Ag.;
7. *Cocconeis placentula* Ehr;
8. *Cyclotella ocellata* Pla;
- 9–10. *Cymbella affinis* Küt ;
11. *Cymbella lanceolata* Ehr.;
12. *Dinobryon divergens*
13. *Nitzschia palea* Küt.;
- 14–15. *Navicula cf. reinhardtii* Gru;



Conclusions

- ▶ Phytoplankton abundance was higher in the period April-May
- ▶ *Bacillariophyceae* and *Chlorophyceae* represent the highest values of phytoplankton abundance than other groups; while the *Chrysophyceae* showed the highest quantity during April. *Cyclotella ocellata* was the most common species in the two stations, in the lake and river Buna



Acknowledgments



Norwegian Cooperation Program on Research and Higher Education with the countries on the Western Balkans (CPWB)

- That gave me the opportunity and the possibility to follow up 2 courses Marine Ecology and Marine Chemistry;
- That gave the possibility to follow up a training course in University of Zagreb, Department of Biology, Laboratory of Algology, beside Prof. Damir Vilicic, to whom I express also my gratitude, as well as to his other colleagues;
- Opportunity to know new colleagues who can help me in my research work and with who I can exchange information.