

“Water is one of the most important resources and its significance is increasing. According to several forecasts, it will become not only one of the most important resources but the most important resource for humankind in the future.”

***European Quality Standards in Limnology Education
(QUALI)***

CD_JEP - 41121 - 2006 (HR)

The project is linked to

- 1) Enhancing basic and applied limnological knowledge in the Partner Country with special attention to the, EC-Water Framework Directive (WFD).
- 2) This goal is aimed to reach through the 3-level principle of the Bologna process
 - provides overall view on the WFD with some practical skills
 - introduces the students to theoretical problems that may help to plan target research to understand and, implement better the WFD that concerns
 - improves the competitiveness of the target county in composing project proposals, writing scientific papers at, international level and disseminate the gained knowledge to the public and the decision makers.

To fulfill the above objectives a consortium of 7 universities (from 6 EC and one non-EC countries) was collected



Education and Culture
TEMPUS

University of Pannonia, Veszprém (HU)
Mälardalen University, Västerås (SE)
Universidad de Girona, Girona (ES)
University of Helsinki, Helsinki (FI)
University of Uppsala, Uppsala (SE)
University of Zagreb, Zagreb (HR)
Universität Potsdam, Potsdam (DE)



established in 1992

Ecology of wetlands and lagoons

- ↗ Ecological functioning and the community structure of wetlands and shallow waters found in different climatic regions
- ↗ Differences among wetlands caused by differences in flooding patterns
- ↗ Collecting data of the different zones

Functional stream ecology

- ↗ Development and preparation of a virtual manual including field (geomorphological, hydrological and biological applications in the field) and laboratory methods (primary productivity, enzyme analyses, etc) and calculation methods

BQEs of the WFD: Fishes

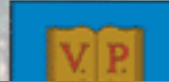
- ↗ Development and preparation of a virtual manual about field methods (sampling and processing fish in the field) and statistical analysis



founded in 1992

Theoretical concepts in aquatic ecology

⇒ Selecting and testing programmes and software packages suitable to illustrate and discuss a large variety of ecological concepts which are relevant in basic and applied limnology comprising the individual, population and community level



Advanced analytical methods in water chemistry

- ⇒ Advanced speciation methods of aqueous species, as well as advanced methods of characterization of equilibria and interactions in natural water bodies
- ⇒ Development and preparation of a course book and laboratory course

Functional properties of lake ecosystems

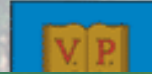
- ⇒ Development and preparation of a course material that will integrate the basic physical and chemical properties of lake environment in context with temporal and spatial scale dependence of basic processes

Aquatic Ecotoxicology

- ⇒ Development and preparation of an e-learning book. The interactive coursebook will integrate virtual laboratory/field methods
- ⇒ Practical aspects of ecotoxicology such as how to perform toxicity tests

The EC-WFD on European and country scale

- ⇒ Steps of implementation of WFD focusing on typology of water bodies, setting of reference conditions and ecological status assessment schemes
- ⇒ Principal Obligations of the Directive, Implementation of the Directive, River Basin Characteristics, Environmental Objectives, Programme of Measures, River Basin Plans, Waters Requiring Special Protection, Priority Substances, Ecological status monitoring, assessment and reporting, role of Water Framework Directive in lake management



BQEs of the WFD: Phytoplankton

- ⇒ Development and preparation of manual summarizing basic ecological features of phytoplankton; with special attention to assemblage concept
- ⇒ Methods used in different EC countries to use phytoplankton to assess ecological status

BQEs of the WFD: Phytobenthos

- ⇒ Development and preparation of manual summarizing basics of diatom identification and indices used throughout the EC for diatom based ecological status assessment both in rivers and lakes
- ⇒ Introduction to use the OMNIDIA software

BQEs of the WFD: Macrozoobenthos

- ⇒ Development and preparation of manual and an e-learning material summarizing basics features of macrozoobenthos taxonomy, quantitative and qualitative sampling methods (sampling protocols) used in EC
- ⇒ General summarization of their ecology and distribution

BQEs of the WFD: Macrophytes

- ⇒ Development and preparation of manual summarizing basics of macrophyte identification, main communities and indices used for macrophyte based ecological status assessment both in rivers and lakes

Scientific communication

- ⇒ Summarize the diagnostic features of scientific communication in contrast to the common communication and reporting, le of Water Framework Directive in lake management



Climate change

- ⇒ Simulations of different climate models to illustrate the dynamic of the climate system
- ⇒ Potential changes in water quality and the consequences for the European water framework directive

Basic water chemistry analyses

- ⇒ The interactive and online available text book will integrate methods of different basic water chemistry analysis

Field sampling and Monitoring

- ⇒ The interactive and online available text book will integrate methods of manual and automatic monitoring systems.

Teaching knowledge, didactics

- ⇒ The interactive and online available text book will present several teaching techniques for a different audience
- ⇒ Different teaching techniques can be applied to different groups and teaching different subjects in limnology

January 2009

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July 2009

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University of Girona January 24th- February 21st



University of Potsdam February 28th - March 18th



University of Pannonia March 21st - May 21st



University of Uppsala June 13th - July 18th



Website development and maintenance

Knowledge implementation, public relationships

New teaching environment in QUALI courses
and retraining of young teaching staff

PARTICIPATING INSTITUTIONS

- University of Pančevo, Vojvodina
- Metropolitan University, Vukovar
- Universidad de Cádiz, Cádiz
- University of Helsinki, Helsinki
- University of Uppsala, Uppsala
- University of Zagreb, Zagreb
- Universität Potsdam, Potsdam



European Quality Standards in Limnology Education (QUALI)
EQ_QUALI-11121-2886 (HR)

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ABOUT PROJECT

Water is one of the most important resources and its significance is increasing. According to several forecasts, it will become not only ONE OF the most important resources but THE most important resource for humankind in the future. The scientific discipline dealing with continental waters is LIMNOLOGY. Limnology, as science, was born in the end of the 19th century and is now defined as the science dealing with complex physical, chemical and biological interactions determining basic features of aquatic ecosystems. Its interdisciplinary feature is apparent. The need for deep limnological knowledge is increasing worldwide. One of the indications is issuing the EC-Water Framework Directive (hereafter: WFD; EC Parliament and Council, 2000, Directive of the European Parliament and of the Council 2000/60/EC establishing a framework for community action in the field of water policy, European Commission PE-CONG 3639/1/00 Rev 1, Luxembourg) that aims to establish good ecological quality of Europe's surface (and subsurface) waters by 2015. The aim needs cooperation of governments and monitoring agencies of the individual member countries and the target cannot be reached without well and coherently trained experts. Present experience says that the European job market has an increasing demand for well trained limnologists. Despite limnology is not a well established science, its inclusion in higher education is sporadic and badly defined. In most of European universities limnology of environmental sciences (alternatively in biology, geology, and environmental sciences) were limited to only one or two courses. The point of the project proposal is to improve the quality of limnology education in all EC member states. The project will be implemented in 6 EC member states (Croatia, Hungary, Slovenia, Poland, Czech Republic and Romania) and one non-EC member state (Ukraine). The project is funded by the TEMPUS programme of the European Commission.

There are a number of ongoing activities in the EC concerning higher education, research and environmental monitoring for improvement ecological quality of Europe's ecosystems. This project integrates these approaches, focusing on fields of limnology and targeting development of the related competences in Croatia. The project is, linked to 1) Enhancing basic and applied limnological knowledge in the Partner Country with special attention to the EC-Water Framework Directive (WFD). 2) This goal is aimed to reach through the 4-level principle of the Bologna process, namely it: – provides overall view on the WFD with some practical skills that can be appropriate at BSc level can also be, – introduces the students to theoretical problems that may help to plan target research to understand and, implement better the WFD that concerns MSc students and, – improves the competitiveness of the target county in composing project proposals, writing scientific papers at, international level and disseminate the gained knowledge to the public and the decision makers. This competence is mostly relevant at PhD level. To fulfil the above objectives a consortium of 7 universities (from 6 EC and one non-EC countries) was collected, and knowledge of some external experts from the central EC institutions, universities not involved in the, consortium, governmental and private companies were also involved.



Black river, NP Plitvice Lakes, Croatia



NP Erka, Croatia



Prose Lake, NP Plitvice Lakes, Croatia



Erka River, NP Erka, Croatia



Euhljerovalo Lake, NP Plitvice Lakes, Croatia



Eupa River, Croatia

www.quali-limn.org



PARTICIPATING INSTITUTIONS

- University of Pannonia, Veszprem
- Mälardalen University, Västerås
- Universidad de Girona, Girona
- University of Helsinki, Helsinki
- University of Uppsala, Uppsala
- University of Zagreb, Zagreb
- Universität Potsdam, Potsdam



2008

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NEWS

ACTIVITIES

COURSES

OPEN COMPETITION

for participation in student mobility program

Please note: At this time it is possible to apply for the summer semester of the academic year 2008/2009

How to apply

Student Mobility Application Form in both Acrobat Reader and Word format can be downloaded here:

Application_Form_eng

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CD_JEP-41121-2006 (HR)

STUDENT MOBILITY PROGRAMME

APPLICATION FORM 2008

*Please fill in all the details of the form and return it in
electronical **and** printed and signed form to coordinator
institution*

European Quality Standards in Limnology Education (QUALI)
CD_JEP-41121-2006 (HR)

STUDENT MOBILITY PROGRAMME

APPLICATION FORM 2008

*Please fill in all the details of the form and return it in **electronical and printed** and signed form to coordinator institution*

The following is to be completed by the student mentor:

The student may fully include in QUALI

Date and place:

Signature:

Name in print:

Title:

Student's signature:

Name in print:

Date and place:

- A candidate should also enclose the following documents:
- copies of confirmation of finishing the VIII semester (from index)
 - professor and/or assistant letter of recommendation (in English)
 - student motivation letter
 - CV, in Croatian and in English language
 - copy of passport (passport should be valid at least until August 1st, 2009)



The deadline for application is March, 14th 2008

The application must be submitted electronically to the e-mail: aplenk@zg.biol.pmf.hr and in printed form to the following postal address: dr. Anđelka Plenković-Moraj, Biološki odsjek PMFa, Rooseveltov trg 6, 10000 Zagreb

The selection criteria for students will be based on:

1. Average mark during the studies
2. Duration of study
3. Sufficient English
4. Personal interview

Commission will not consider or process:

- ⇒ incomplete application
- ⇒ late application
- ⇒ electronic application without supporting printed application in paper format



We are looking forward to see you soon
and
thank you for your attention