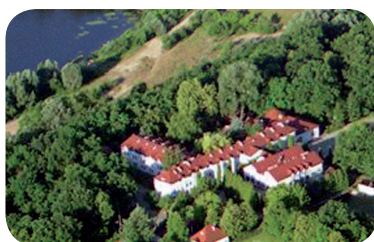# WISER news

WISER project midterm meeting in Debe, Poland, 6-9 September 2010

Draft agenda

- **06 Sep, Monday**
  Welcome, opening plenary and workpackage meetings
- **07 Sep, Tuesday**
  Workpackage meetings
- **08 Sep, Wednesday**
  Workpackage meetings, advisory board meeting, afternoon field trip and social dinner
- **09 Sep, Thursday**
  Module and summary meetings, closing plenary

The conference venue in Debe

The midterm project meeting is scheduled from 6-9 September 2010 and will take place in Debe, Poland. It will be hosted by our Polish partner, the Institute of Environmental Protection (Warsaw). The Debe Conference Centre is located about 40-45 km north of Warsaw and accessible via Warsaw Airport.

The 1st circular, including a detailed agenda and a form for online registration could be found on our website:

www.wiser.eu/news/ conference/

If you have any questions or if you need additional information, please contact:

- conference@wiser.eu

New WISER deliverables available

Deliverable 2.2-2

Guidelines for indicator development

The development of WFD-compliant assessment systems is a pivotal aim of WISER. Assessment systems (often referred to as "classification systems") translate biological information of a water body to an ecological status class ranging from high status to bad status. Within the WISER project assessment systems will be developed for different water types (lakes, transitional and coastal waters) and different Biological Quality Elements (BQEs). The development of assessment systems is part of Modules 3 (lakes; workpackages 3.1-3.4) and Module 4 (coastal and transitional waters; workpackages 4.1-4.4).

Phytoplankton, macrophytes, macroalgae and angiosperms, benthic invertebrates and fish are sampled with different methods and devices and the resulting data are thus differently structured; there are also differences in data generated for lakes and transitional and coastal waters. Some differences among assessment

systems developed in WISER are unavoidable owing to the individual requirements of the BQEs or water types.

However, certain features of the development process and, thus, of the resulting assessment systems should be similar and provide a harmonized WISER assessment methodology to be adopted. Wherever possible, the process for developing assessment systems, therefore, needs to be harmonized and applied in a similar way by the workpackages within Modules 3 and 4. All WISER assessment systems will be based on metrics, either as single metrics or as multimetric indices. A "metric" is defined as a measurable part or process of a biological system empirically shown to change in value along a gradient of human influence.

It reflects specific and predictable responses of the biological community to human activities, either to a single impact factor or to the cumulative effects of multiple human impairments within a catchment. Metrics address comparable ecological aspects of a community, regardless of the stressor they are responding to.

Another important aim of WISER is to support the intercalibration process. The guidelines for the second phase of the intercalibration process are now finalized, and they include a strict time plan. One of the first steps is to derive "common metrics", i.e. biological measures created for benchmarking and comparison of national assessment systems. The WISER workpackages 3.1 to 4.4 have agreed to support the development of common metrics and to suggest a first set of common metrics by spring 2010. As final and validated results are not available yet, the development of common metrics will, necessarily, be based on preliminary data evaluation and expert knowledge. Also the process of developing common

metrics needs to be harmonized among WISER workpackages. In this context it must be clearly stated that common metrics are not meant as pan-European assessment systems replacing national methods, which are usually much better adapted to the regional situations. Common metrics are a common yardstick for comparing national assessment systems and their classification of the ecological status.

Consequently, the aims of this guidance are twofold: (1) to guide and harmonize the rapid and preliminary development of common metrics; and (2) to guide and harmonize the development of assessment methodologies among the relevant WISER workpackages. The guidance is structured accordingly, with one chapter dealing with common metrics and one with assessment systems.

Each chapter covers criteria of the methods to be developed (e.g. applicability, statistical features), the development process (e.g. data sources and statistical methods to be used) and a brief description of the envisaged product. While the guidance strives for a harmonized approach it still allows for flexibility; it is generally difficult to transform biota and their response to stress into simple numbers and, therefore, different problems will appear for the individual BQEs and water types.

The two main chapters overlap considerably. They represent "cook books" for slightly different purposes and we strived for a complete description of each procedure within a single chapter, which can be applied without consulting other chapters or documents.

This guidance is mainly for internal use within the WISER project. After a practical test within the WISER consortium it might in future be extended by "best practise" examples and

be made available to the Geographical Intercalibration Groups (GIGs).

Lead contractor: University of Duisburg-Essen (UDE)

WISER deliverables can be downloaded as PDFs from:

www.wiser.eu/ results/deliverables/

Deliverable D4.1-1

Report on identification of type-specific phytoplankton assemblages for three ecoregions

To combat eutrophication and to manage a healthy marine environment, are some of the main objectives within different International Policies (e.g. HELCOM and OSPAR) and European Directives (e.g. Water Framework Directive, WFD (2000/60/EC); and Marine Strategy Framework Directive, MSFD (2008/56/EC)).

One of the key biological elements within these policies is the phytoplankton; however, the variability and complexity in terms of diversity and dynamics within the phytoplankton communities is very high. This fact is even more accentuated in estuarine and coastal waters (in comparison with offshore waters) because, apart from the environmental factors (e.g. hydrodynamics and nutrients availability) and the complex biological processes (e.g. grazing and competition) that affect the phytoplankton communities, the majority of the estuaries and coastal zones have been significantly influenced by anthropogenic factors worldwide. These anthropogenic factors consist mainly of: large

population settlements, disposal of nutrients from diffuse sources (e.g. agricultural fields and farms), effluents from wastewater treatment plants, disposal of toxic compounds (e.g. industry and navigation), hydromorphological changes (e.g. dredging, channels and ports), and fishing. These pressures impose two major problems in the assessment of the water quality based upon phytoplankton: on one hand, since the estuaries and coastal zones have supported the anthropogenic pressures historically, it is very difficult to find pristine zones with no or very minor human impact to establish reference conditions; on the other hand, the great variability due to the above-mentioned factors (environmental, biological and anthropogenic factors) makes the phytoplankton a difficult element to use for the assessment of the ecological status.

The WFD considers phytoplankton composition, abundance and biomass among the biological indicators for the classification of the ecological quality status. Also, frequency and intensity of phytoplankton blooms are mentioned in the normative definitions. However, although some investigators have proposed different potential indicators and different multimetric tools to assess it, nowadays there is not a regulatory process to assess the ecological status of the coastal and transitional water using the full phytoplankton quality element. Only 'chlorophyll a' as a proxy for phytoplankton biomass has been established as an accepted methodology to assess it between Member States.

In recent years, indicators capable of detecting changes in the community structure have attracted great attention, since shifts in species composition (e.g. shifts from diatoms to dinoflagellates, or from larger sizes to smaller ones) could indicate a change in the water quality. In addition, some authors have suggested shifts in the phytoplankton community as indicator of eutrophication. Due to the need of developing indicators of composition in order to fulfil the requirements of the WFD, this deliverable aims at describing type-specific phytoplankton assemblages for three different ecoregions, as a first step for the development of composition-based metrics. Therefore, the phytoplankton communities identified from two of the ecoregions covered in this report refer to waters at high ecological status, and they can be regarded as reference phytoplankton communities. For the third ecoregion, the Baltic Sea, phytoplankton communities representing good or high ecological status are described from "the best samples" collected during recent monitoring.

The following ecoregions and water body types have been addressed:

– The Baltic ecoregion: Finnish national types in the Bothnian Bay, the Quark, the Archipelago Sea and the Gulf of Finland.

– The Northeast Atlantic ecoregion: Eastern Cantabrian coast (Spanish national type).

– The Mediterranean Sea ecoregion: MA-15/CW-M3.

Regarding the Baltic ecoregion, the spatial variability of the summertime phytoplankton communities in Finnish coastal water types have been analysed.

As for the Northeast Atlantic ecoregion, the composition of the phytoplankton communities has been studied at a station located offshore on the Cantabrian shelf (southern Bay of Biscay). These offshore waters are near the Basque coastal waters, which are included within the common intercalibration type NEA1/26a.

The last ecoregion deals with pico-phytoplankton assemblages from the Mediterranean Sea. These have been studied in coastal waters of the Balearic Islands (Mallorca, Spain).

Lead contractor: AZTI-Tecnalia, Marine Research Division (AZTI)

BioFresh – a new EU-funded research project

BioFresh is an EU-funded international project that aims to build a global information platform for scientists and ecosystem managers with access to all available databases describing the distribution, status and trends of global freshwater biodiversity. BioFresh integrates the freshwater biodiversity competencies and expertise of 19 research institutions. WISER is closely cooperating with the BioFresh project.

A major challenge for Biofresh is to complement the existing databases on freshwater biodiversity and distribution patterns, along with strict quality controls, to consent the continuous integration of new data. Within BioFresh, these data will be linked with geographical and socio-economic information. By developing such a universally accessible information platform, BioFresh will foster the understanding of present freshwater biodiversity and changes expected for the future.

➲ www.freshwaterbiodiversity.eu

Database on assessment methods for lakes, rivers, coastal and transitional waters in Europe

EU Member States are monitoring the ecological status of their surface waters by the use of biological assessment methods. These methods address various Biological Quality Elements such as phytoplankton, benthic flora, benthic invertebrates and fish.

Most Member States have developed their own assessment methods, thus many different methods currently exist to monitor the ecological status.

To provide an overview of the different methods, the WISER project has collected detailed information by means of a questionnaire-based survey.

Data of more than 270 national methods were collected and have been stored in the "Methods-Database". All information is available via the project's website:
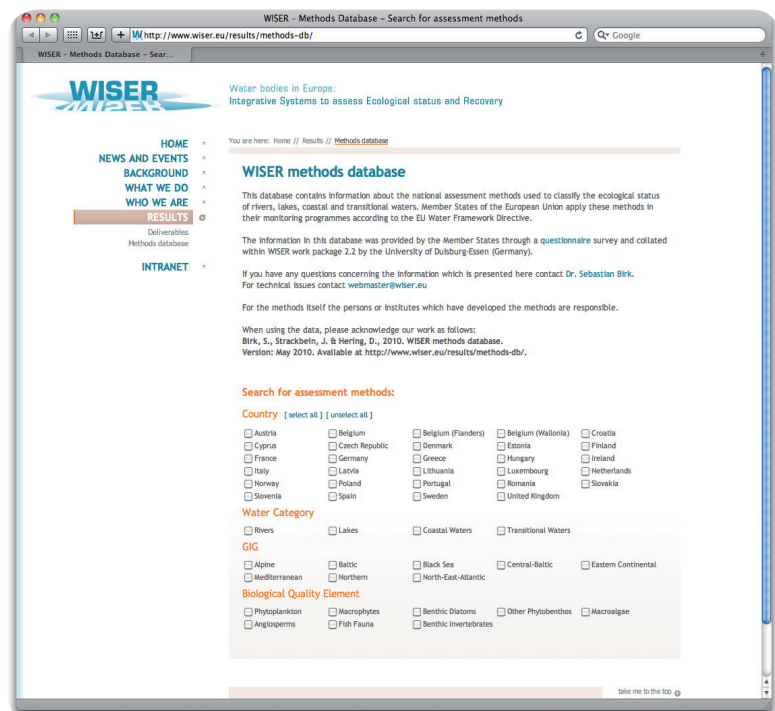
➲ www.wiser.eu/results/methods-db/

When using the data, please acknowledge our work as follows:

Birk, S., Strackbein, J. & Hering, D., 2010. WISER methods database, version: May 2010. Available at: www.wiser.eu/results/methods-db/.

Lead contractor: University of Duisburg-Essen (UDE)

The WISER methods database can be accessed via:

www.wiser.eu/results/methods-db/

Overview and search options

Detailed view of a method

Workpackage 3.3 – Lake Invertebrates Team Meeting, University of Rome, 1-3 March 2010

From March 1st to 3rd 2010 the WISER WP 3.3 lake invertebrate team met for their second meeting at the University of Rome. During the first day team members reported on the progress of respective sampling campaigns in Finland, Germany, Ireland, Italy, Scotland and Sweden.

Presentations comprised reports on lake selection, successful field campaigns as well as first evaluations of sample processing progress. Following this update the team discussed the time schedule for ongoing work involving field sampling trips and the very time and labour intensive processing of WISER invertebrate samples. Moreover, the scientists used the opportunity to discuss the support of the EU intercalibration progress by WP 3.3 and additional scientific initiatives supporting WP 3.3 on national levels. The very fruitful meeting ended with a field trip to two Italian lakes by a small delegation of the WISER lake invertebrates team and a demonstration of the implementation of the agreed common sampling protocol.
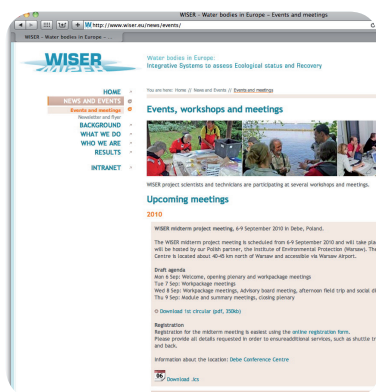
Gwendoline Porst (IGB)

The workpackage 3.3 team

Workpackage 3.3 in action

The WISER website: An interesting place for the latest information and project news

WISER web: „News and Event" section

The WISER website is visited by 4000-5000 users per month. Besides the information what the project is about, who we are and what we do, there is also a section where we inform about upcoming meetings, workshops and conferences in- and outside the project.

We are in close contact with the European Commission Joint Research Centre (JRC) and others to exchange dates and information.

For your convenience it is possible to download the dates as "ics" files for your favorite calendar application.

> Information events, workshops and meetings: wiser.eu/news/events/