



Figure 3: River Elbe, 1992-2007: Relative abundance (%) of neozoa in the whole biocoenosis, mean species density and PTI values. Class boundaries of ecological status: PTI "high": 1 – 1.9, "good": 1.91 – 2.6; "moderate": 2.61 – 3.4; "poor": 3.41 – 4.1; "bad": 4.11 – 5

Central European rivers are rated for their potamal-linkage in five classes, ranging from (1) = weak linkage on the potamal (euryocious species) to (5) = strong linkage on the potamal (stenoceous species). Neozoa are included and are mostly rated as euryocious species. (Full particulars of computing the PTI are given in Schöll et al. 2005).

Long-term investigation of the ecological status

The results of the ecological evaluation of long-term investigation of the River Elbe are given in Figure 3. Due to the rising oxygen content in the River Elbe induced by wastewater treatment plants constructed in the catchment after 1990, the ecological status improved from "moderate" (1992) to "good" (1999). The mean species numbers increased, too. Single species were considered extinct in the River Elbe for decades; however, some species re-established themselves such as

In brief information

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The 37th IAD Conference was entitled "The Danube River Basin in a Changing World". This is true in many respects. Global climate change and global political change provide the scientific and real background of our work and problems. However, IAD as the oldest Danubian NGO is also affected on a smaller scale. For the first time in the 52 years long history of IAD we met in Moldova. And for the first time, the conference was not organized by local IAD or associated organisations, but as a joint effort of IAD General Secretariat, National Committee of IAD Serbia, IAD/ENVIRES Romania and Free International University of Moldova, co-ordinated by co-chairpersons of the Organizing Committee – Ivana Teodorovic, President of IAD and Dumitru Drumea, Country Representative of Moldova in IAD. The following persons in-

the mayflies *Oligoneuriella rhenana* and *Potamanthus luteus*. Since 2001, the increasing immigration of neozoa (*D. villosus*, *Jaera sarsi*, *Chaetogammarus trichiatus*, *Corbicula fluminea*) has diminished the average number of species, and the ecological status has impaired from "good" to "moderate". In the Rivers Rhine and Danube we can notice similar effects (not shown here). It is a fact that the assessment tool for large rivers, the PTI, was successful to detect the impacts caused by alien species.

Conclusions

In certain types of waters and for certain biological quality elements neobiota have a major impact on the ecological assessment according to the WFD. Neobiota can lead to the assignment of a lower ecological status, regardless of anthropogenic interference. To visualize the influence of neobiota in the ecological assessment, neobiota-dominated waters should therefore be particularly marked. We propose to assign such a mark for the macrozoobenthos in large rivers of more than 30 % neozoa-dominance in the whole biocoenosis (calculated after abundance-classes).

References

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The actual focus of IAD research was presented in several keynote lectures. They encompassed, together with oral and poster presentations, the major research topics of IAD such as hydromorphology and floodplains, sturgeons (and other fishes), potamoplankton and macrophytes, biomonitoring (ecotoxicology), and last but not least the applied side with sustainable development and implementation of measures to achieve and fulfill „good ecological status of surface waters“ in the context of the EU Water Framework Directive (WFD).



Figure: The conference participants during the conference excursion, which lead to the cave Monastery Butuceni (15th century) carved into the high cliffs of the meandering River Răut (Photo: Harald Kutzenberger)

In the view-point of IAD, one of the main tasks in the Danube River Basin, at present, is the implementation of the Sturgeon Action Plan (SAP 2006) by the urgent reopening of the Iron Gate Dams for migrating sturgeons (and other fishes) and mitigating the impact of navigation (*Bloesch et al.*). The latter is supporting the ISPA 1 and ISPA 2 projects along the Green Corridor in the framework of the European TEN-T Programme that promotes transport by navigation across Europe. The conflict of interest focuses on the “bottlenecks” and floodplains that are hotspots of biodiversity. The basic plan of hydro-engineers to regulate main flow by damming side arms and to conduct local dredging and bank enforcement in order to allow the passage of larger vessels is in sharp contrast to ecosystem function such as sturgeon migration and floodplain connectivity and dynamics, and hence the overall demands of the WFD. Together with WWF and other NGOs, IAD is trying hard to achieve at least a sound Environmental Impact Assessment (EIA) to keep morphological river alteration at minimum.

The plants are also dependent on the river continuum and river modification. Phytoplankton biomass and production are mostly limited by light and reduced by large tributary influence (with high turbidity), and show a remarkable peak in the stretch of the Hungarian plain (*Dokulil & Kaiblinger*). Macrophytes react to flow and are most abundant in lentic environments such as backwaters and oxbows of the Tisza River disconnected by man-made river regulation in the 19th century (*Janauer*). Reconnecting these oxbows to the main river in the framework of river restoration would mean, therefore, a drastic decrease and loss of macrophytes due to increasing flow. Other examples of changes along the river corridor were presented for habitats and hydromorphology (*Schwarz & Krainer*), fish (*Wiesner et al.*), and radionuclides (*Rank & Papesch*) in the framework of the Joint Danube Survey (JDS) 2 organized by the ICPDR during 2007. Although such investigations provide only a short portion of the hydrological year, it gives insight to various impacts disturbing the longitudinal riverine processes and features.

A glance into the future was provided by *Teodorovic* in her overview about ecotoxicology. The big step forward from traditional toxicity tests with various test animals investigat-

ing survival rates and reproduction (LC/EC 50) was made by application of various histological, biochemical and physiological biomarkers (e.g., tissues damage, enzymes and hormone effects). Nowadays, gene technologies are used as a promising tool for understanding modes of action of single toxicants and mixtures. Ecotoxicogenomics is the magic word of the scientific community. The mortality of aquatic organisms such as fish kills is usually a matter of accidental spills (such as Baia Mare and Baia Borsa in the Tisza River, 2000). However, the chemical cocktails (hormone active, toxic and priority substances) presently polluting our waters have sublethal effects that must be considered also with regard to human health as we are end-users by eating fish. Hence, bio-availability, bio-accumulation and community/ecosystem response are a hot scientific topic not only in the Danube River Basin.

Basic and applied research will always be a prerequisite of political decisions for environmental protection and development. *Kutzenberger* provided an overview on “sustainable development” and interdisciplinary approaches to find optimal win-win solutions, such as in the ISPA conflict. The transdisciplinary aspect was even more stressed by presentations on “nature and landscapes - important for cyclists?” by *Miglbauer*, “environmental history in view of long-term socio-ecological research” by *Schmid & Haidvogel*, and “ecological education” by *Radu*.

The Conference hosted about 70 participants presenting 26 talks and some 30 posters. The Book of Abstracts (47 pp.) contains 70 short abstracts of all presentations accepted for the conference (available as booklet and CD). The Limnological Reports 37 (259 pp., ISBN 978-86-911997-0-8) with 46 papers (extended abstracts) is available in CD form and will be printed as a book by the end of 2008. It must be emphasized that the reviewing procedure within IAD, introduced eight years ago, is now widely accepted and has gradually improved the scientific quality of papers. The prompt and excellent reviews of the Scientific Committee and the positive responsiveness of most authors to the reviews are appreciated. The Proceedings containing more detailed information about the abovementioned topics can be ordered at the IAD General Secretary (address, see last page).