

An aerial photograph of a wide river, likely the Danube, flowing through a dense forest. The river is blue and occupies the central part of the frame. On the left bank, there is a dam or weir structure. The surrounding landscape is a mix of green fields and dense forests with some autumn-colored trees. The sky is blue with some light clouds.

DREAM

Danube River REsearch And Management

Helmut Habersack

**Christian Doppler Laboratory for Advanced Methods
in River Monitoring, Modelling and Engineering,
Institute of Water Management, Hydrology and Hydraulic Engineering
Department of Water, Atmosphere and Environment
BOKU – University of Natural Resources and Life Sciences, Vienna, AT**

Content



**University of Natural Resources and
Life Sciences Vienna,**
Department of Water, Atmosphere
and Environment

1. Danube River – Examples for pressures and impacts
2. Danube River REsearch And Management – *DREAM*
3. Outlook



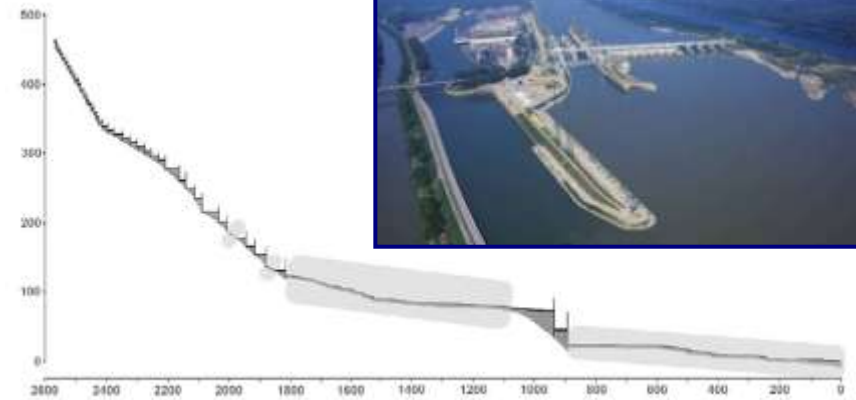
Danube River - Examples for Pressures and Impacts

Hydroelectric Energy



Danube River Basin – Hydropower

- 78 barriers along the Danube
- 5 free-flowing sections



International Waterway

Danube River Basin - Navigation

- 2411 km navigable (Sulina-Kelheim)
- Waterway transport in the Danube aims to be increased from 10 mio to 30 mio t / year (e.g. in Austria)



Flood Risk Management



Danube River Basin – Flood protection

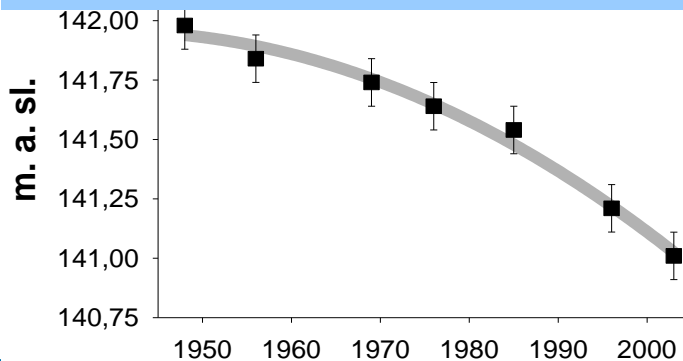


Loss of 80 % of
the original
floodplain area

University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment

River Bed Degradation

Danube River Basin – Bed erosion



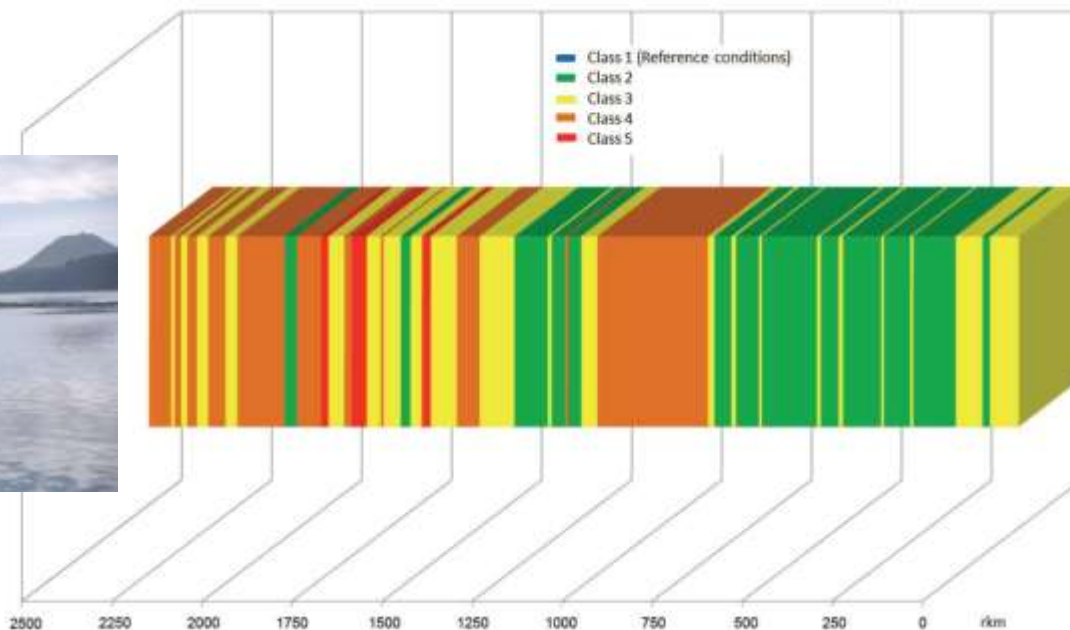
Danube bed degradation:
despite an artificial gravel
supply of up to 200.000 m³/year
river bed erosion of
2 cm/year East of Vienna

DonauConsult

River Morphology and Ecology

Hydromorphological conditions

1/3 good hydromorphological conditions, 1/3 strongly altered, Upper Danube - most affected by significant hydromorphological changes



ICPDR, JDS, 2008

IM Fluss



**University of Natural Resources and
Life Sciences Vienna,**
Department of Water, Atmosphere
and Environment

Danube River REsearch And Management *DREAM*

...from Basic Research to Knowledge Society

Description of Activities

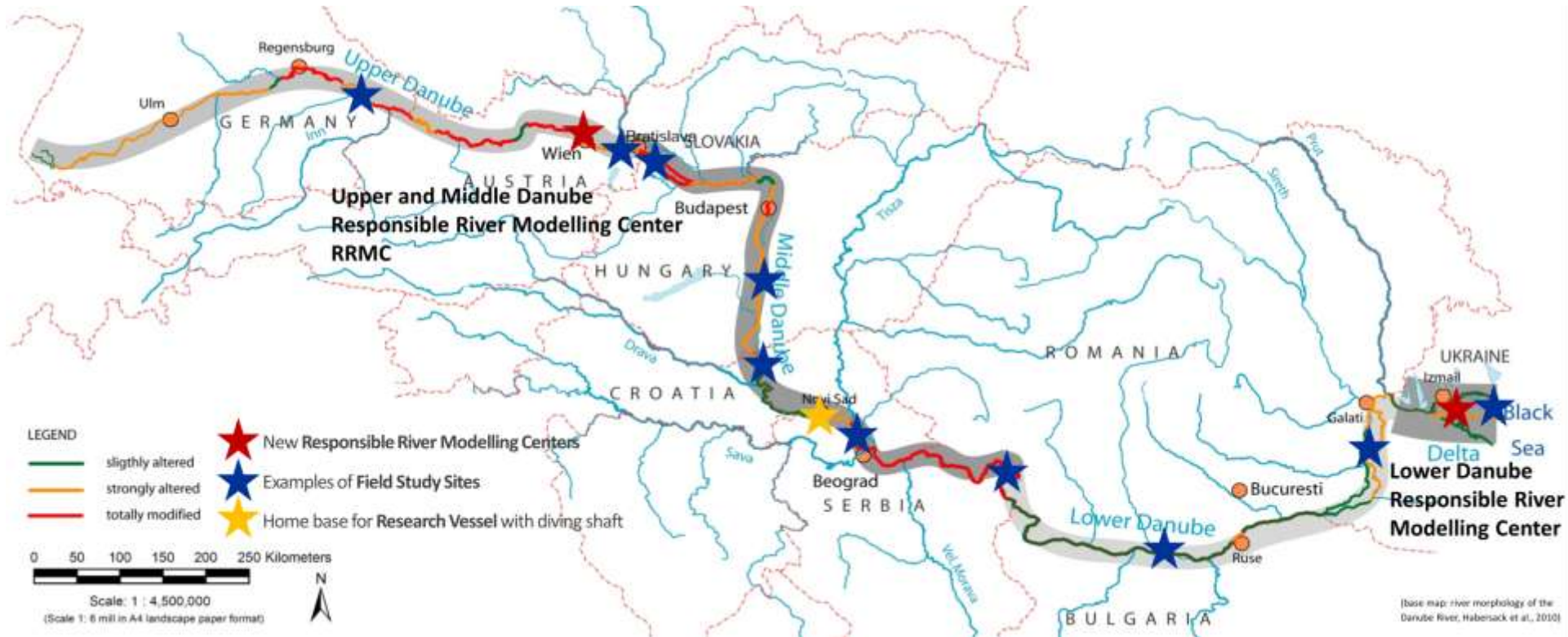


- (1) Construction of two large Responsible River Modelling Centers/hydraulic engineering laboratories (up to 10 m³/s)
- (2) Cooperation of existing hydraulic engineering laboratories
- (3) Formation of a cluster/network of river engineering simulation tools
- (4) Establishment of a network of field study sites along the Danube River and tributaries
- (5) Construction and operation of a research vessel with diving shaft for the whole Danube
- (6) Establishment of a network of existing and extended Danube River Research Institutions throughout all riparian countries

Implementation Ideas for Research Infrastructure



University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment





Partners



University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment

- All relevant **universities** and **research institutions** along the Danube River and tributaries are potential partners, in strong interrelation with **public and private sectors** (ministries, regions, hydroelectric companies, waterway administrations to NGOs)
- **Consortium leaders**: Austria, Romania, Serbia
- **Idea and lead partner**: BOKU, Austria
- **Partner countries**: Germany, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Moldova, Ukraine, Romania, Czech Republic

DREAM Update I

IM Fluss



- **February 20th/21st 2014:** DREAM partner meeting and visit of the harbour for the research vessel in Novi Sad, Serbia



- **March 3rd 2014:** start of the construction site of a research channel conveying up to 10m³/sec without pumping from the Danube to the Danube Canal in Vienna and to the future Responsible River Monitoring Center as part of DREAM (Danube River REsearch and Management). The works are co-financed within the SEDDON project by the „European Regional Development Fund"



University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment

DREAM Update II

IM Fluss



- **Responsible River Monitoring Center in Romania:** construction site and first drafts available, preliminary planning in progress
- **May 23rd 2014:** Meeting with Slovak project partners and program authorities to discuss the future DREAM project
- **June 26th/27th 2014:** DREAM at *3rd Annual Forum of the EU Strategy for the Danube Region* in Vienna (Speakers Corner on the 27th and visit of the construction site of the research channel on the 26th)



University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment



Outlook



University of Natural Resources and
Life Sciences Vienna,
Department of Water, Atmosphere
and Environment

- Next DREAM partner meeting in December 2014
- Detailed planning of individual actions (e.g. laboratories)
- Preparation of proposals (CBC programs, Danube Program,...)

→ Interactions between national and European funding bodies and the project applicant would be very important



Univ. Prof. DI Dr. Helmut Habersack

Christian Doppler Laboratory for Advanced Methods in River Monitoring,
Modelling and Engineering

<http://cdlabor-imfluss.boku.ac.at>

<http://www.boku.ac.at>

IWHW - Institute of Water Management, Hydrology and Hydraulic
Engineering,

WAU - Department of Water, Atmosphere and Environment

BOKU - University of Natural Resources and Life Sciences, Vienna

Muthgasse 107, 1190 Vienna, Austria

email: helmut.habersack@boku.ac.at

tel: 0043 1 3189900 101

fax: 0043 1 3189900 149