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Trans-European Transport Network (TEN-T)

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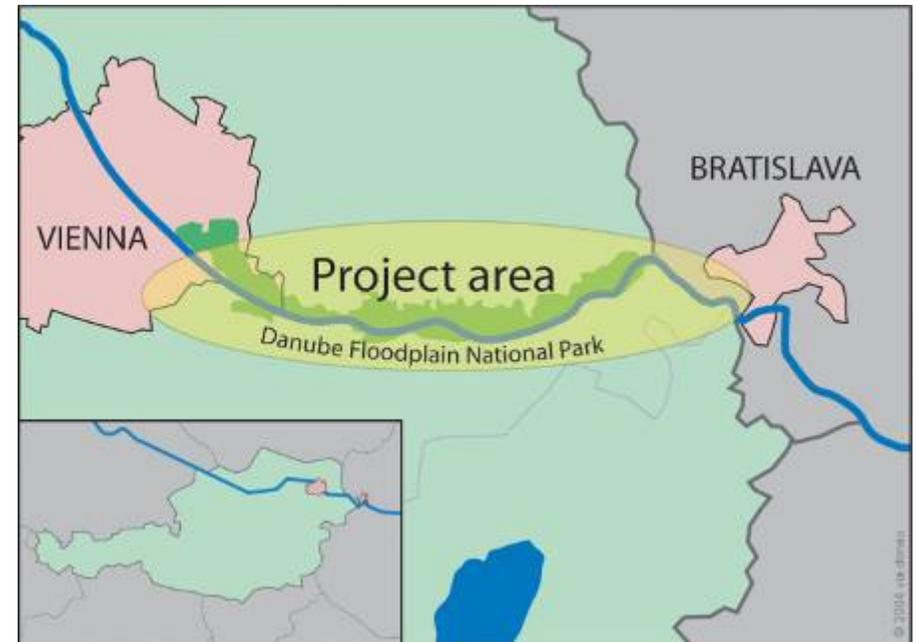
Integrated River Engineering Project Danube East of Vienna

Vienna, April 5th, 2011

www.via-donau.org

Integrated River Engineering Project on the Danube East of Vienna

- is a project of via donau, realized on behalf of the Austrian Ministry of Transport, Innovation and Technology.
- is a priority project of the European Commission (Trans-European Transport Network, PP18).
- With this project via donau is fulfilling the statutory mandate to provide for better environmental and navigational conditions.



Project area: river-km 1.921,0 - 1.872,7
from the Freudenu Power Plant to
the Austrian-Slovak border

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Ecological Deficits (1)

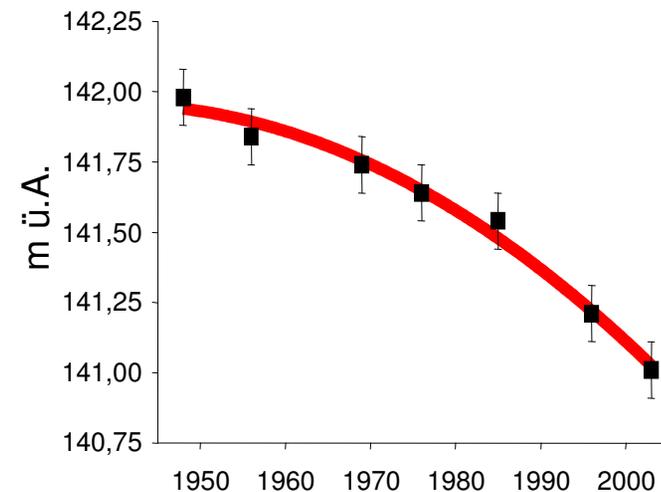
Deficits caused by river bed degradation

the most demanding task is the minimization of the continuous river bed degradation (2 - 3,5 cm per year)

The river bed degradation leads to:

- decoupling of river and floodplains
- falling groundwater levels

Aim: sustainable stabilization of the mean bed level maintaining the character of a free flowing river



Source: Donau Consult

Today's river bed is approx. 1 m lower than 50 years ago!

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Ecological Deficits (2)

Heavily regulated river in a National Park region

- **Sidearms are cutted-off** or have discharge only for a few days a year and slowly fall dry
- **heavily protected river banks**

→ the habitats of typical local fauna and flora are at risk

Aim: Improvement of ecological functions of the river, the river banks and the floodplain



Deficits for Inland Navigation

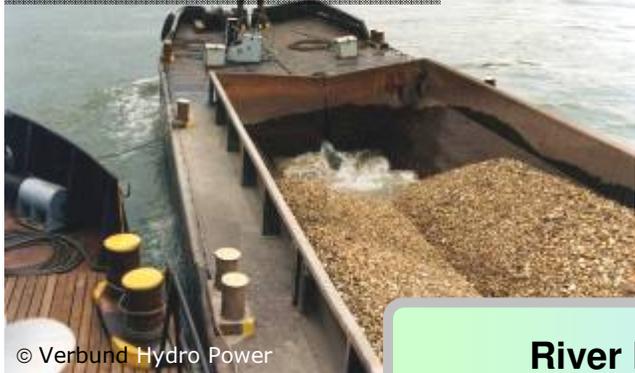
- **Inadequate water depth** - during low-water periods the Danube river is too shallow for navigation;
 - average utilization of ship capacity of only approx. 60%
- limited competitiveness of inland navigation
- **high maintenance costs**

Aims: Better minimum fairway depths during low-water periods;
reduction of maintenance costs



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Granulometric
River Bed Improvement



© Verbund Hydro Power

River Bank Restoration



„Hinterrinner“ /
Creating Islands

River bed
stability

Improvement
ecological conditions

AIMS

Optimisation Low
Water Regulation



Improvement
nautical conditions



River Bed Adjustments
(dredging & dumping)



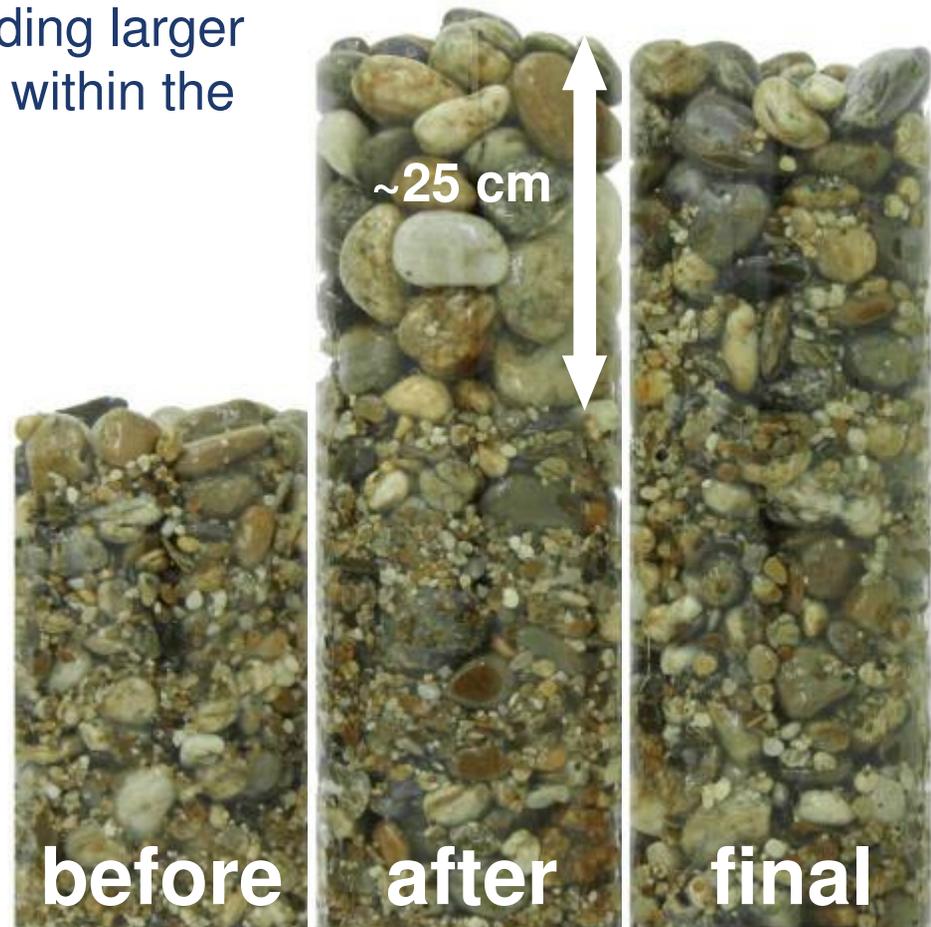
© Kovacs

Side Arm
Reconnection

Granulometric River Bed Improvement

Reduce river bed erosion by adding larger gravel sizes approx. 40 – 70 mm) within the natural grain size spectrum.

Reducing bed load transport capacity from
300.000 to 400.000 m³/a
to 30.000 to 50.000 m³/a



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Status Global Project / Main Works

- ✓ Establishment of an interdisciplinary **steering committee**: 2002
- ✓ Examination of **alternative** and **variant solutions**: 2002 – 2004
- ✓ **Moderation procedure** to ensure public participation: 2003 –2004
- ✓ **Model testing**: 2004 – 2008
 - **Pilot Projects**: 1996 – 2009: 5 projects east of Vienna finalized, 6th project in preparation
 - **Environmental Impact Assessment** (EIA General Authorization):
 - ✓ Submission of the EIS: March 2006
 - ✓ Public edition of the EIS: December 2007 – January 2008
 - ✓ Public hearing: October 2008
 - ✓ Summarizing Assessment of the experts of the authorities : June 2009
 - **Main works**: start of construction works after the EIA procedure (general and detail authorization). construction period: 8-9 years
Results of the pilot projects will be implemented

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Pilot Project Witzelsdorf

Pilot Project Witzelsdorf

Project Area

- approx. 1,7 km long stretch (stream-km 1893.4 to 1891.7, left river bank)

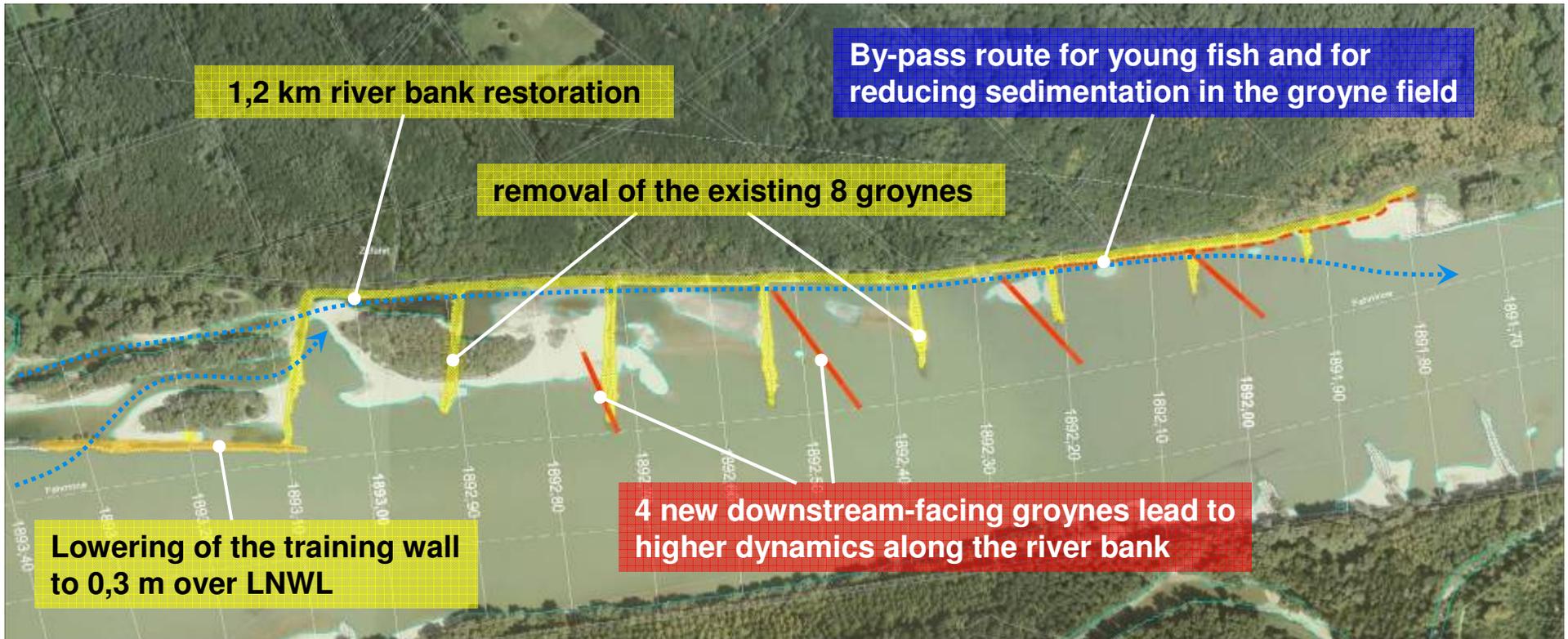
Aims

- testing innovative groynes
- increasing dynamics at the riverbank
- gaining experience for the Integrated River Engineering Project

Status

- ✓ construction works: late 2007 to mid 2009
- post-monitoring ongoing

Pilot Project Witzelsdorf Measures



innovative groyne shapes –
advantages for ecology and navigation
by interdisciplinary planning

- Removal of old groynes and river bank restoration
- Construction of new groynes

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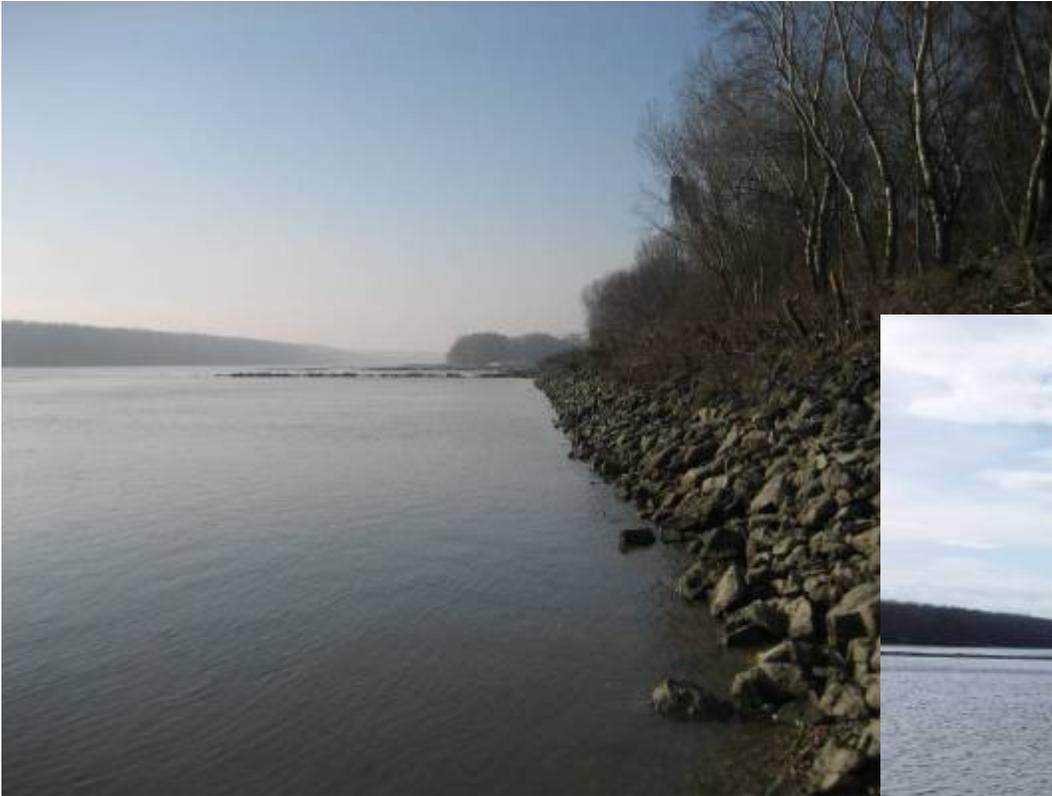
Pilot Project Witzelsdorf

Reconstruction of Groynes



Pilot Project Witzelsdorf

River Bank Restoration



after MW+1,15

Pilot Project Witzelsdorf

Gravel bank, flat water zone and steep face



September 2009

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Pilot Project Witzelsdorf

Island and protected side channel



September 2009

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Pilot Project Witzelsdorf

Natural river bank



November 2010

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Pilot Project Bad Deutsch-Altenburg

Pilot Project Bad Deutsch-Altenburg

Project Area

- approx. 3 km long stretch (stream-km 1887.5 – 1884.5)

Aims

- testing the Granulometric River Bed Improvement to counteract river bed degradation
- realizing all measures foreseen in the Integrated River Engineering Project in one stretch for the first time
- gaining experience and reducing technical and economical risks for the Integrated River Engineering Project

Pilot Project Bad Deutsch-Altenburg Measures

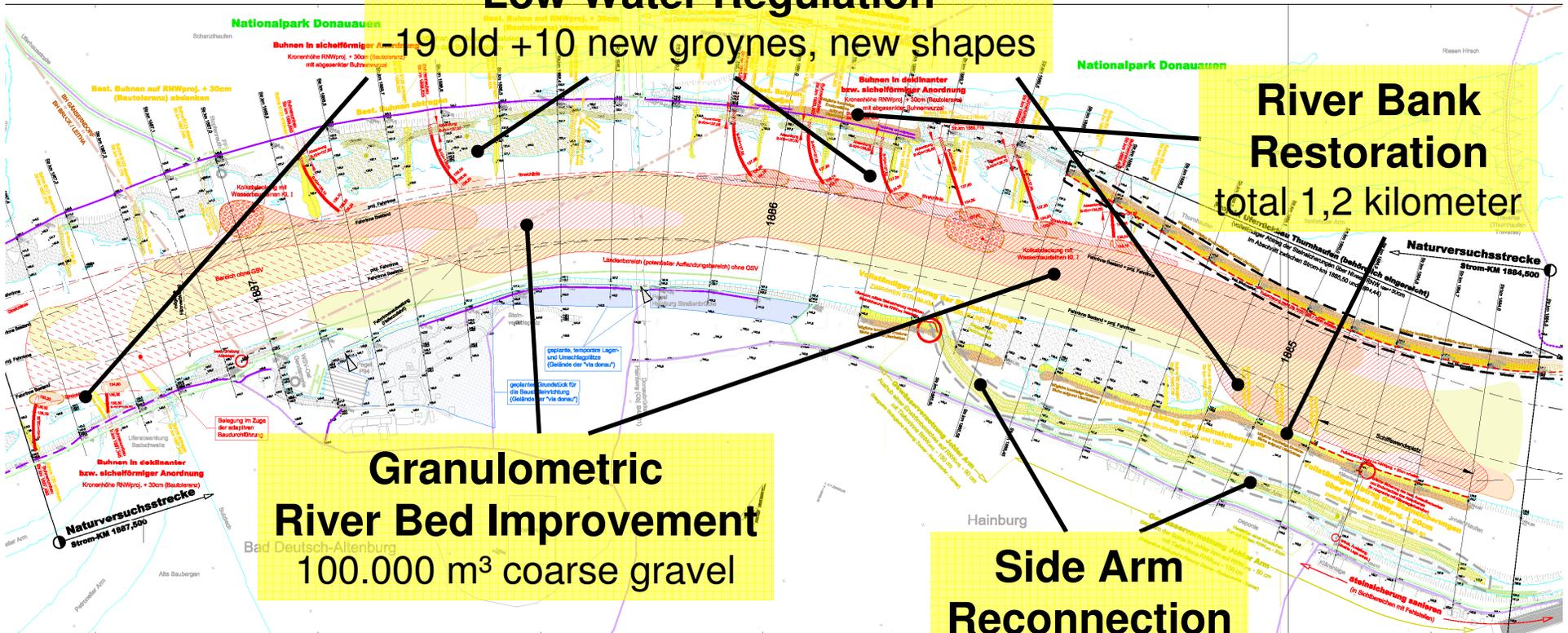
Optimisation of Low Water Regulation

-19 old +10 new groynes, new shapes

River Bank Restoration
total 1,2 kilometer

Granulometric River Bed Improvement
100.000 m³ coarse gravel

Side Arm Reconnection
Johler Side Arm

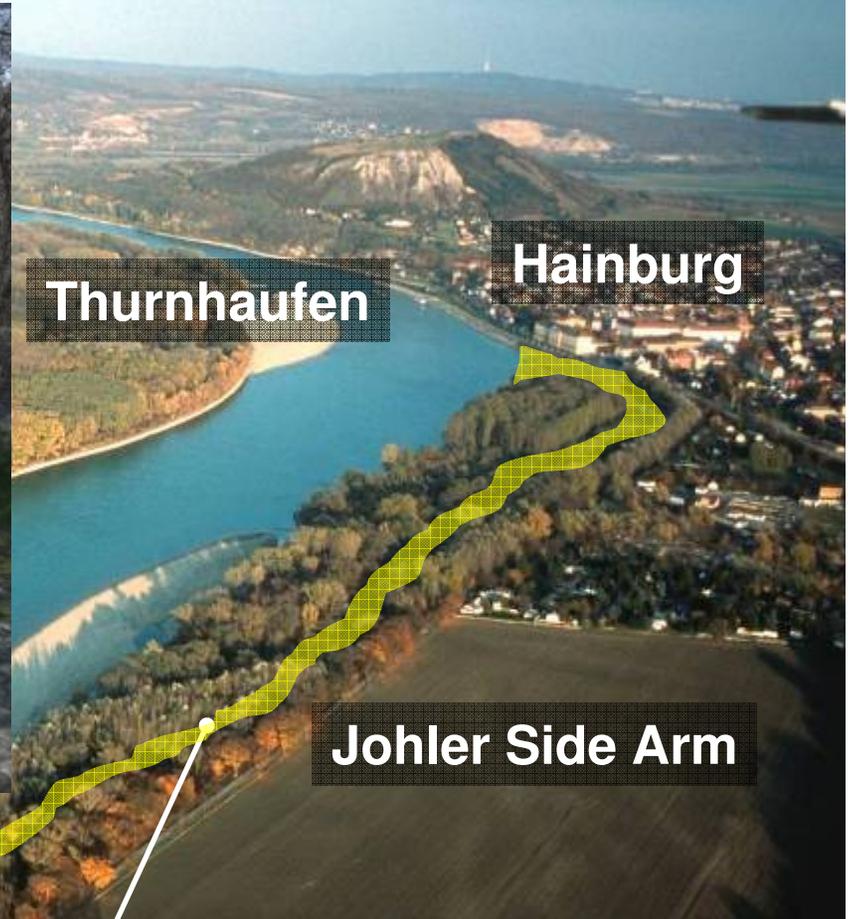


River Bed Adjustments

- Removal of old groynes and river bank restoration
- Construction of new groynes



Pilot Project Bad Deutsch-Altenburg



The approx. 1,4 km long Johler side arm will be the first permanently reconnected side arm in the National Park. Planned discharge: approx. 10 m³/s at low water level

Pilot Project Bad Deutsch-Altenburg

Project Status

Approval process

- ✓ Environmental Impact Assessment – not necessary
- ✓ Natura 2000 – 2 assessments finalised: no significant negative impact on protected natural habitats, fauna and flora
- ✓ already approved after water law, navigation law, national park law (nature conservation law) and forestry law
- The enlargement of reconstruction works (hidden stone armouring was found) forces to adapt allowances - ongoing

Monitoring

- Interdisciplinary monitoring since 2005

Construction works

- ✓ preparation works finalised
- ✓ tender procedure for the main works finalised
- start of the main works is foreseen in low water season 2011/2012
- construction period: approx. 2 low water seasons

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Mag. Robert Tögel

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