

EWENT



viadonau

via donau – Österreichische Wasserstraßen-Gesellschaft mbH

Waterway infrastructure adaptation

Nina Siedl

International Conference on Adaptation of Transport Networks to Climate Change



Contents

- Weather related effects on infrastructure
- Infrastructure adaptation measures
- Particular examples related to infrastructure adaptation
- Conclusions

The Rhine/Meuse-Main-Danube waterway as TEN-T axis

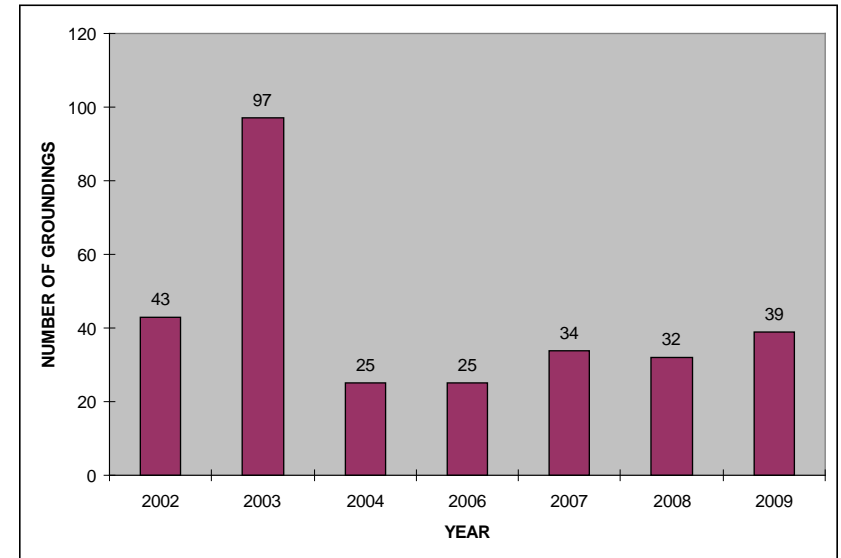
- Priority Project 18: "Rhine/Meuse-Main-Danube,,
- Pan-European Transport Corridor VII



Weather related effects on inland navigation (1)

Drought – low water levels

- insufficient navigation conditions
- increase in accidents (grounding)
- increased fuel consumption related to tkm
- low flow velocities => little sedimentation
- recent examples for drought: 2003, 2011

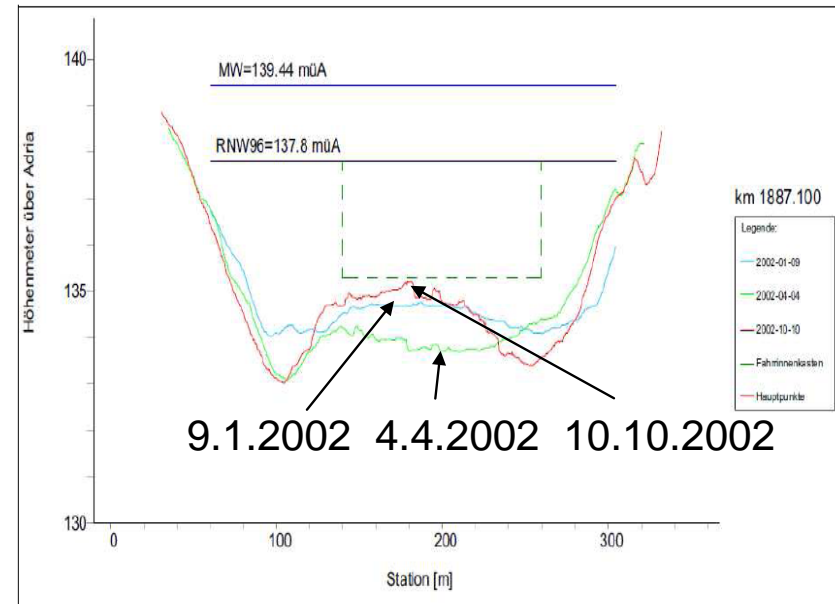


Development of grounding events on the Upper and Central Rhine within 2002 and 2009. Based on WSD Südwest.

Weather related effects on inland navigation (2)

High water and floods

- Suspension of navigation
- often short lasting phenomenon
- Changes in river morphology
- Sedimentation
- Aggradation
- Damage of towpaths
- Damage of banks and flood protection installations



Changes in the river cross-section geometry of the Danube at river kilometre 1887.1 in 2002, being partly caused by the flood in August.

Weather related effects on inland navigation (3)

Ice

- Suspension of navigation
- Prevented operation of locks
- Damage of navigation signs



Ice occurrence in locks on the Danube preventing their operation. Source: via donau.



Integrative waterway planning and management

Economy



Environment

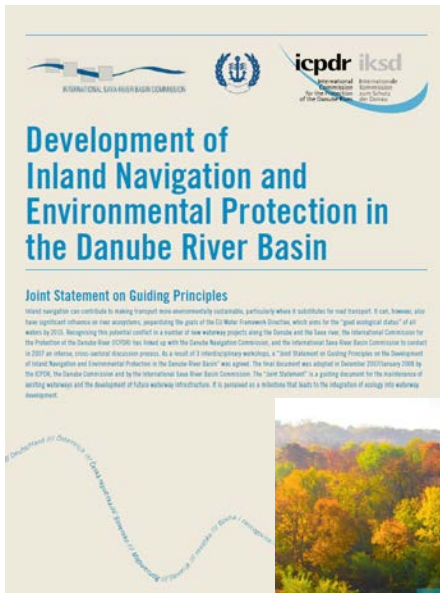


Safety



Integrative approach required!

Integrative waterway planning

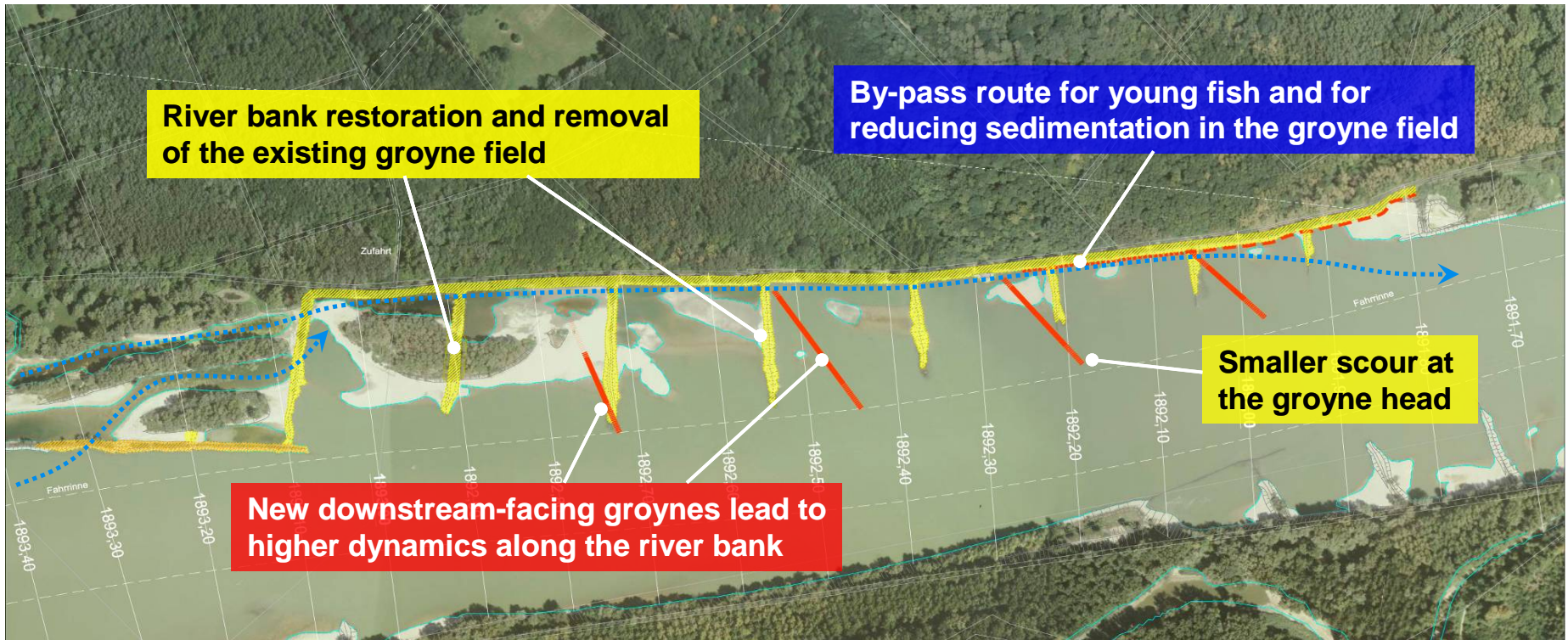


- Joint understanding on the future infrastructure development of the Danube waterway
- Definition of integrative planning principles, involving all relevant experts (ecology, economy, navigation, river engineering)



- Concrete instructions for action for the implementation of integrative planning principles with regard to waterway infrastructure projects
- Information on existing good practices

Example infrastructure adaptation pilot project Witzelsdorf (1)



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

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

Example infrastructure adaptation pilot project Witzelsdorf (2)



viadonau

Integrated waterway management – Fairway maintenance cycle



- Regular Surveying with high-tech equipment and data processing
- Dredging in time and in line with nature (breeding times, no removal of gravel from the river)
- Up to date on-line information for users of the waterway

Fairway maintenance - Information



Improved fairway information. Source: via donau.

Conclusions

waterway infrastructure adaptation (1)

Climate Change effects on inland navigation

- only minor changes in water levels may be expected till 2050
- performance of inland waterway transport is not expected to be affected significantly

Integrative waterway planning and management

- Provision of fairway conditions in accordance with the internationally agreed fairway parameters
- Implementation of TEN-T priority projects in EU
- Integrative approach recommended (e.g. Joint Statement)

Conclusions

waterway infrastructure adaptation (2)

Strategies for short term adaptation

- integrative infrastructure maintenance
- economical usage of the current fleet as well as the proper design of the future fleet
- potential for improvement related to waterway management and usage of ICT

Strategies for medium/long term adaptation

- structural infrastructure measures (e.g. groynes)

Nina Siedl

Environmental Management Officer

via donau – Österreichische Wasserstraßen-Gesellschaft mbH

Donau-City-Strasse 1, 1220 Vienna, Austria

Phone +43 5 04321-1104

nina.siedl@via-donau.org

www.via-donau.org



viadonau