JASPERS
Networking and Competence Centre

Supporting Project Compliance with the EU Water Framework Directive

JASPERS Checklist Tool

Implementation of the Water Framework Directive on the Danube River - navigation sector and river works

Budapest, 11 April 2019: **James HUNT**

European Investment Bank The EU bank

Jaspers Joint Assistance to Support Projects in European Regions

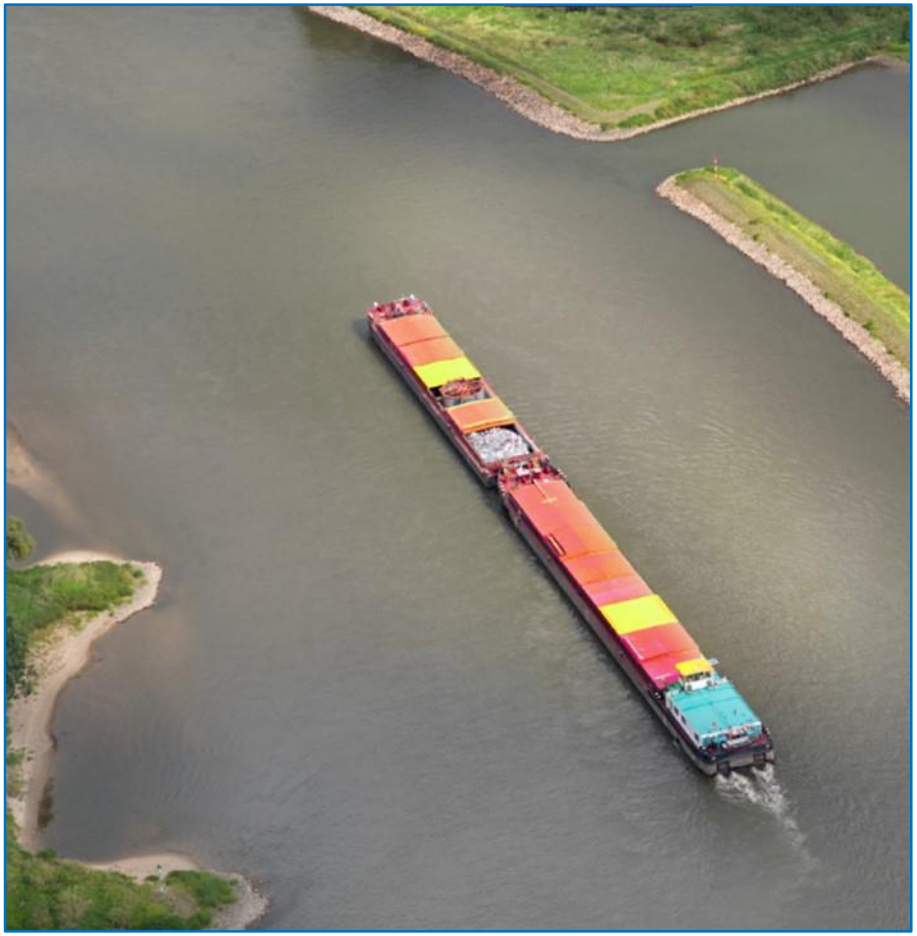
European Commission

Existing Situation
Largely (~90%) navigable river

Several water bodies: average length ~80 km - some impediments to navigation as a result of groyne deterioration leading to sedimentation in main channel

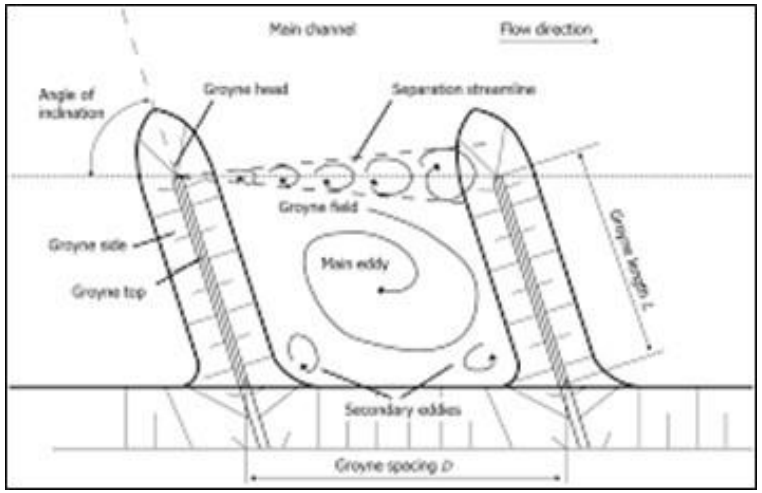
Project Objectives

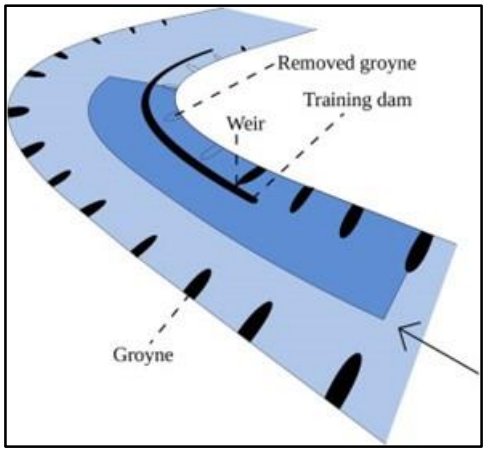
- Navigability to 100%
  - Class III (entire length)
  - 1.8 m draught
- Flood Risk Reduction
  - Ice breaking
  - Most cost-effective means

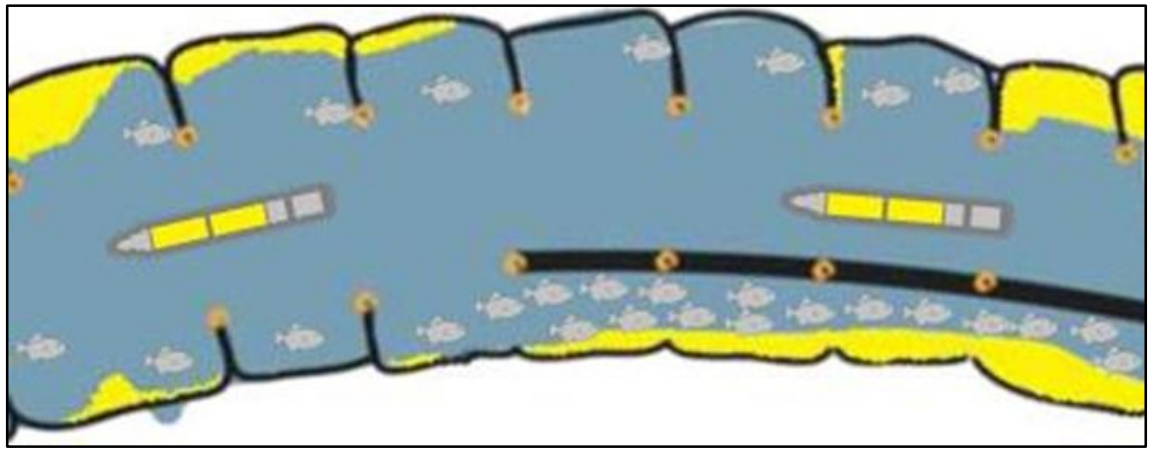


Project Investments

- Groynes:
  - Reconstruction
  - Removal
- Lateral Training Dams
  - In place of groynes
- Embankment reconstruction
- Cost: "€ Tens of millions"

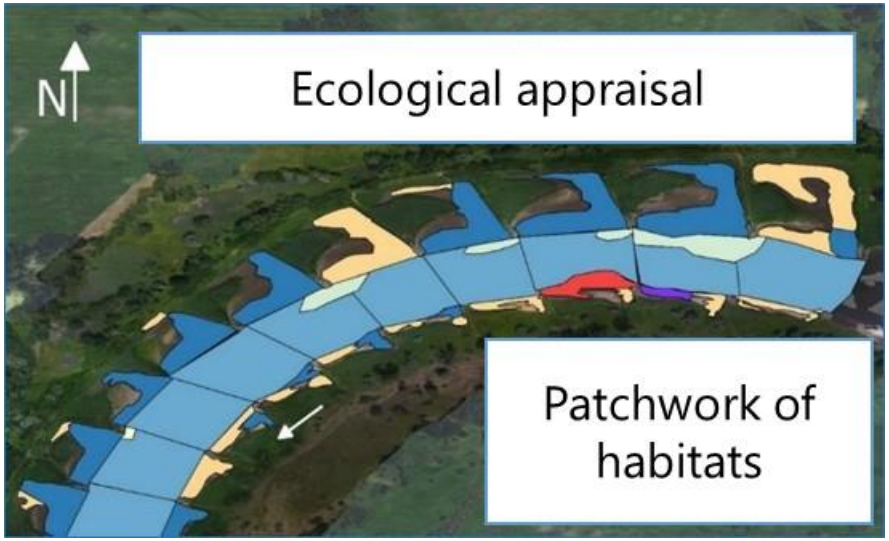






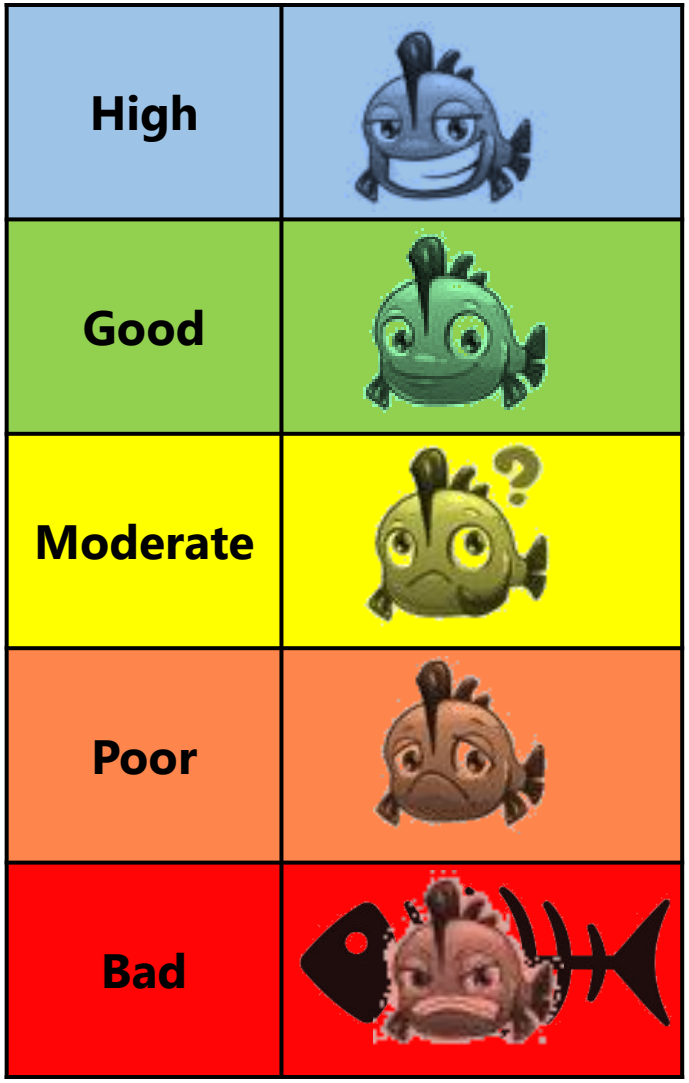
Water Framework Directive

- Long Water Bodies
- Heavily Modified
- Environmental Status
  - Good Ecological Potential
  - Not being met
  - Combination of factors:
    - Pollution
    - Hydromorphology
    - Flow
  - Re-naturalization in places
  - Ecological patchwork
- Difficult to resolve in step 1:
  - Step 2: data collection; research
  - Step 3: same question, more info'



Good Ecological Potential

- "Slight" deviation from High
  - Biology: Nearest natural comparator
    - Phytoplankton
    - Macrophytes & Phytobenthos
    - Benthic invertebrate fauna
    - Fish fauna
  - Physico-chemical: "near natural"
  - Hydromorphology
    - Only impacts of "required" modifications
  - Fish Index (cf. Macroinvertebrates)
    - Species List
    - Scores per species
    - Abundance rating
    - Mathematical algorithm
  - Links between indices (elements)



4.7: Predict Impact of Project

- "Possible Logic" of Step 2 research
- IF other pressures diminish (i.e. pollution reduced)
  - Predicted state ; status <> Good Ecological Potential ?
- Then, IF project measures applied
  - Predicted state ; status <> Good Ecological Potential ?
- Key predictive capacity – biological elements
  - Capacity to predict fish populations and hence indices
- Cause – effect relationships
  - "Conditions consistent with the achievement of the values specified above for the biological quality elements."
  - Heavily reliant on the fish as main monitoring indicator: reflect overall ecology better than other elements

Key Factor: GEP Definition

- Heavily Modified: Article 4.3, Annex V: Designation Criteria
- Measures to achieve good status (removal or alteration of physical modifications) would have significant adverse impacts on:
  - Beneficial objectives served by the modifications
    - Navigation
    - Flood protection
    - …
- Navigation
  - Requires continuity over long distances (boats can't jump!)
  - How navigable? Class III – or …? Justification required
  - Groynes and Lateral Training Dams
    - Better environmental option than canalization
  - Good Ecological Potential for navigable river - definition
    - To what extent does GEP take into account areas of renaturalisation?
    - Practicable mitigation of negative impacts

Step 3 – Analysis (with data from 2)

- Impact of measures
  - Removal of some habitats: lower diversity
  - Lateral Training Dams: new ecological niches
  - Long water body: proportional impact low
  - Fish index may drop: across class boundary?
  - Ecological response: impact of other factors
- Conclusion (in this case)
  - Change in habitats will have minor impact
  - Fish Index more profoundly impacted by pollution
  - Unlikely measures will result in significant deterioration
  - Step 4 not required in this case
  - …

However …
IF Step 4 had been required

- How could it have been addressed?
  - Some "public interest" arguments, but economic appraisal preferable
  - Assessment of costs and benefits
  - Navigation context: water body scale (?) not appropriate
  - Best Scale
    - River Basin approach (there's a Directive about that), or …
    - Delineated by navigation needs (e.g. port to port)
  - Navigation strategy – full costs & benefits: prove the case
  - Project level – refers back to strategic level: other measures in future:
    - More works on ensuring navigability
    - Further works proposed for water retention
  - Recommendations
    - **Strategic approach to appraisal of costs and benefits**
    - **Establish Good Ecological Potential appropriately (in advance)**
    - Develop / enhance protocols for projection of ecological status

More Information

For info or further questions on this presentation please contact the JASPERS Networking and Competence Centre:

jaspersnetwork@eib.org

JASPERS Networking Platform: www.jaspersnetwork.org

JASPERS Website: jaspers.eib.org