The River Mur in Austria/Styria

Winner 2014

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Orientation

River Mur:
Length:
453 km total,
298 km in Styria

Catchment area:
13.824 km² total
10.285 km² in Styria
River Mur - historically

19th century:

- Systematic regulation
- Distributaries cut off in order to intensify agricultural use
- Reuction of alluvial forest and dynamic processes, loss of habitats

1879

1880

1881
River Mur - historically

20th century:

- Expansion of hydropower plants
River Mur - historically

1960s and 1970s:

- Chemical contamination: wastewater of industrial plants and communes
- River Mur considered as one of the dirtiest rivers in Europe
River Mur – historically

Situation in the early 1980s:

- People were driven away from the river
- Situation became unbearable

What happened?

- High investment in wastewater disposal
- Programmes for ecological regeneration
- Measures aiming for public awareness
- First trends towards nature-orientated river engineering
- Cross-boarder communication

Water quality 1975

Water quality 2005
River Mur – big chances, big challenges

heading for new shores
River Mur – big chances, big challenges

Timeline of changes

- 1983: Declaration of „Puxer Auwald“ to a nature reserve
- 1983: Declaration of „Murinsel Triebendorf“ to a nature reserve
- 1992: Establishment of the Bilateral River Commission
- 1998: Designation of the Upper Mur as nationally significant river course (WWF)
- 1998: Designation of the Upper Mur as NATURA 2000 area
- 2005: Designation of the Lower Mur as NATURA 2000 area
- 2003 – 2008: Interreg IIIa Project "Maßnahmen Unteres Murtal"
- 2014: Strategic river management for considerations in the power and water management sector in Styria/Austria
River Mur – New prospects for ecology
Large scale designations as protective areas

Natura 2000 – protected areas
Nature Conservation areas, Natural monuments, Protected landscapes
River Mur – New prospects for ecology

EU-funded river restoration projects

- ETZ Dra-Mur-Ci Grenzmur (2009-2013)

90 km Upper Mur
32 km Grenzmur
River Mur – New prospects for ecology
New targets of renaturation

- Restoration of typical hydromorphological structures
- Initiation of dynamic processes
- Creation of space for flooding areas
- Stabilization of the river bed
- Improvement of the bed-load balance
- Restoration and improvement of a variety of aquatic and terrestrial habitats
- Protection and initiation of alluvial forests
- Growing public awareness for environmental aspects
River Mur – New prospects for ecology
Involvement of Stakeholder

Close cooperation with the stakeholders
☐ economic water usage
☐ energy sector
☐ nature conservation
☐ mountain torrent and avalanche control
☐ Municipalities
☐ owner of fishingrights
☐ the public

Technical and scientific support
☐ various planners
☐ Universities

Cross-border cooperation
☐ coordinated in a bilateral river commission
River Mur - New prospects for ecology
Management indicator habitats

Alder-Ashes-Floodplain forest (Alnus glutinosa and Fraxinus excelsior)

Alpine rivers and their ligneous vegetation with bitter willows (Salix elaeagnos)
River Mur - New prospects for ecology
Management indicator habitats

Italian crested newt, yellow-bellied toad, river mussels
(Triturus cristatus), (Bombina variegata), (Unionidae)

Ukrainian brook lamprey, bullhead, Danube salmon
(Eudontomyzon mariae), (Cottus gobio), (hucho hucho)
River Mur - New prospects for ecology
Management indicator habitats

Common Kingfisher, Grey-headed Woodpecker, Little Crake
(Alcedo atthis), (Picus canus), (Porzana parva)

Black Stork, Common Sandpiper, Little Ringed Plover
(Ciconia nigra), (Actitis hypoleucos), (Charadrius dubius)
River Mur – New prospects for ecology
Project „Weyern“ 2006
River Mur – New prospects for ecology
Project „Lässer Au“ 2014
River Mur – New prospects for ecology
Project „St. Peter“ 2006 and 2014/2015
River Mur – New prospects for ecology
Project „Gosdorf“ 2006
River Mur – New prospects for ecology
Project „Sicheldorf“ 2012
River Mur – New prospects for ecology
EU-funded river restauration projects

Summary of activities (Life, Life +, Interreg II & IIIa, ETZ Dramurci):
- 28 measures
- 21 km affected by restauration projects
- 12,5 mio. € total investment sum
River Mur –
developing new management plans

New challenges

Need for more ecological improvement

(EU Water Framework Directive, National laws)

New hydropower plants necessary to increase renewable energy production

(EU Renewable Energy Directive, National laws)
River Mur –
developing new management plans

To overcome the conflict between hydropower expansion and nature protection, a management plan has been established for the River Mur:

The plan has been aligned between energy providers and river experts

The core is to balance the interests of the energy sector and those of river protection and restoration, focussing on river-ecological aspects
River Mur –
developing new management plans
**River Mur – developing new management plans**

Classification of river sections

<table>
<thead>
<tr>
<th>Ecological priority zones</th>
<th>Trade-off zones</th>
<th>Zones of no particular designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally sensitive water bodies</td>
<td>Stretches of good ecological value</td>
<td>No ecological sensitivity</td>
</tr>
<tr>
<td>Preservation and improvement of the ecological state has priority</td>
<td>High hydropower potential</td>
<td>Low hydropower potential</td>
</tr>
<tr>
<td>No hydropower development</td>
<td>Hydropower plants only possible if environmental compatible</td>
<td>Mostly affecting river stretches already used for hydropower purposes (often “Heavily modified water bodies”)</td>
</tr>
</tbody>
</table>
River Mur – developing new management plans
River Mur –
Conclusion and Outlook

☐ The individual restoration measures enabled
  ☐ the reconstruction of lost habitats in some areas
  ☐ the reactivation of retention areas for flood drainage
  ☐ the ensuring of the ecological status

☐ The management plan enabled
  ☐ the unification of different interests of the EU Water Framework Directive, the EU Flood Directive and the EU Renewable Energy Directive
  ☐ the foundations to comply with the mandatory energy targets, while maintaining/improving the ecological status

⇒ valid until 2022
River Mur –
Conclusion and Outlook

Implementation of measures is most successful, if there is a well planned information basis provided for the public

- to make decisions understandable and transparent
- to shorten approval and implementation of projects
- to create environmental awareness
- to bring the population back to nature
- to invite the population to use nature as a living-, leisure- and recreation space
River Mur – Public relations
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River Mur – Investing of the PrizeMoney

The main vision is
- to invest in public information provision and
  the participatory planning processes

Further projects in order to engage public participation could be:
- the initiation of annual public workshops in the communes - here new projects and ideas could be presented and discussed with local population
- the expansion of the visitor guidance
- a campaign for improving the public sensitivity towards Natura 2000
- the complementation of the already implemented stepping stones
Thank you for your attention!
River Mur – Project partner

Project management team:

EU-funding:

Technical and scientific support:

and many more...

Further informations:  www.murerleben.at  www.dramurci.eu  www.unteresmurtal.steiermark.at
River Mur – developing new management plans

Background

- EU Habitats directive
- EU WFD
- Nature protection laws
- EU Renewable Energy directive

Criteria

- Ecological measures
- Current state
- Nature conservation area
- Hydropower potential
- Energy aims

Sensitivity assessment

- High sensitivity
- Medium/low sensitivity

Negotiation Process

Results

- Ecological priority zones
- Trade-off zones
- No particular designation
River Mur – Results of renaturation
Monitoring

- Monitoring results - fish ecology
  - the newly created habitats are accepted by many juvenile fish and there are even more demanding species
  - high ecological potential is still there

- Monitoring results – amphibians
  - Measures are rated very positively for the development of the amphibian fauna
  - it can be assumed with a high degree of probability that they will serve as spawning grounds and even permanent habitat for amphibians
River Mur – Results of renaturation Monitoring

- Monitoring results - vegetation
  - the hydrologic regime in the floodplains was improved and directed towards the original state
  - suitable conditions for rejuvenation for the riparian vegetation
  - invasive species - management

- Monitoring results – bed load
  - The bed level within the restored reach has been raised
  - the observed riverbank erosion indicates further widening
River Mur – developing new management plans

<table>
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<th>Designation results - river sections (km)</th>
<th>Designation results - energy potentials (GWh/a)</th>
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<tr>
<td>73.10 km; 14%</td>
<td>543 GWh; 29%</td>
</tr>
<tr>
<td>255.90 km; 46%</td>
<td>467 GWh; 26%</td>
</tr>
<tr>
<td>486.90 km; 36%</td>
<td>848 GWh; 47%</td>
</tr>
</tbody>
</table>

- Trade-off zones and ecological priority zones have high energy potentials (74%), but make up only 50% in terms of length

- 50% of the Mur protected from ecological deterioration to an inferior state class

- Future plans for hydropower plants most likely to happen in trade-off zones (highest energy potential), but planning has to be environmentally compatible

- Legal basis for the designations: Regional programmes - valid until 2022
River Mur – Public relations

School projects, competitions and scientific classes

Press conferences, festivals and sporty activities