

The River Mur in Austria/Styria

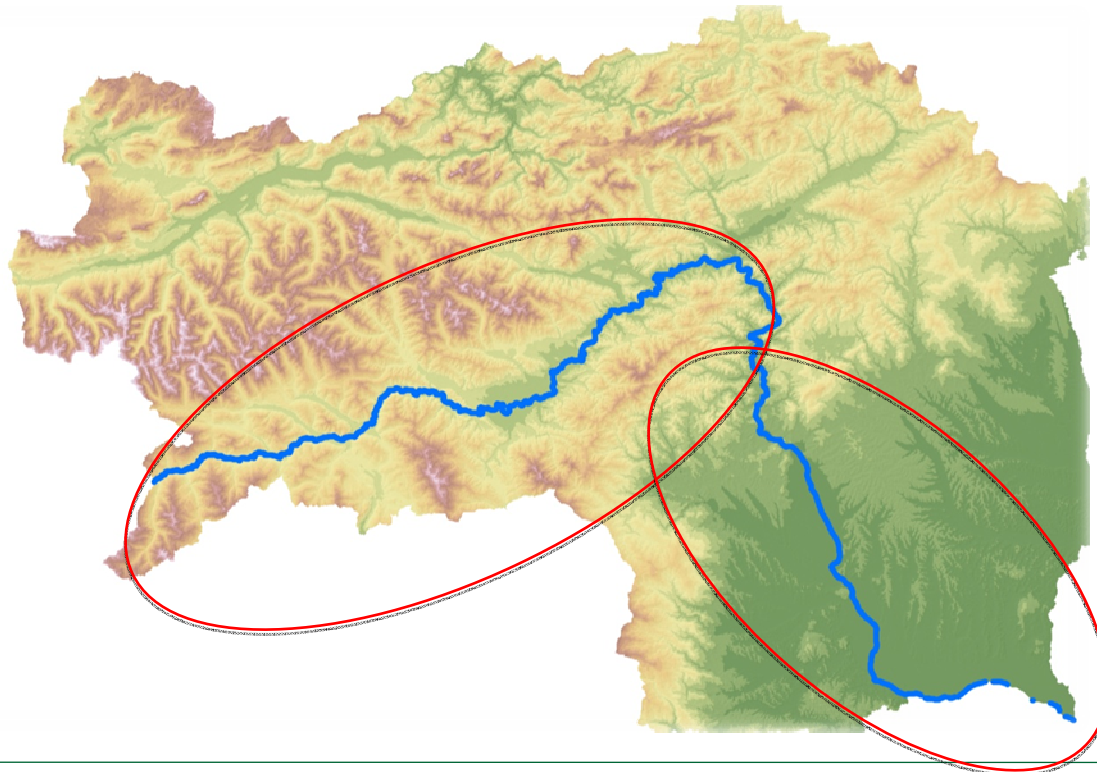


Winner 2014



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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

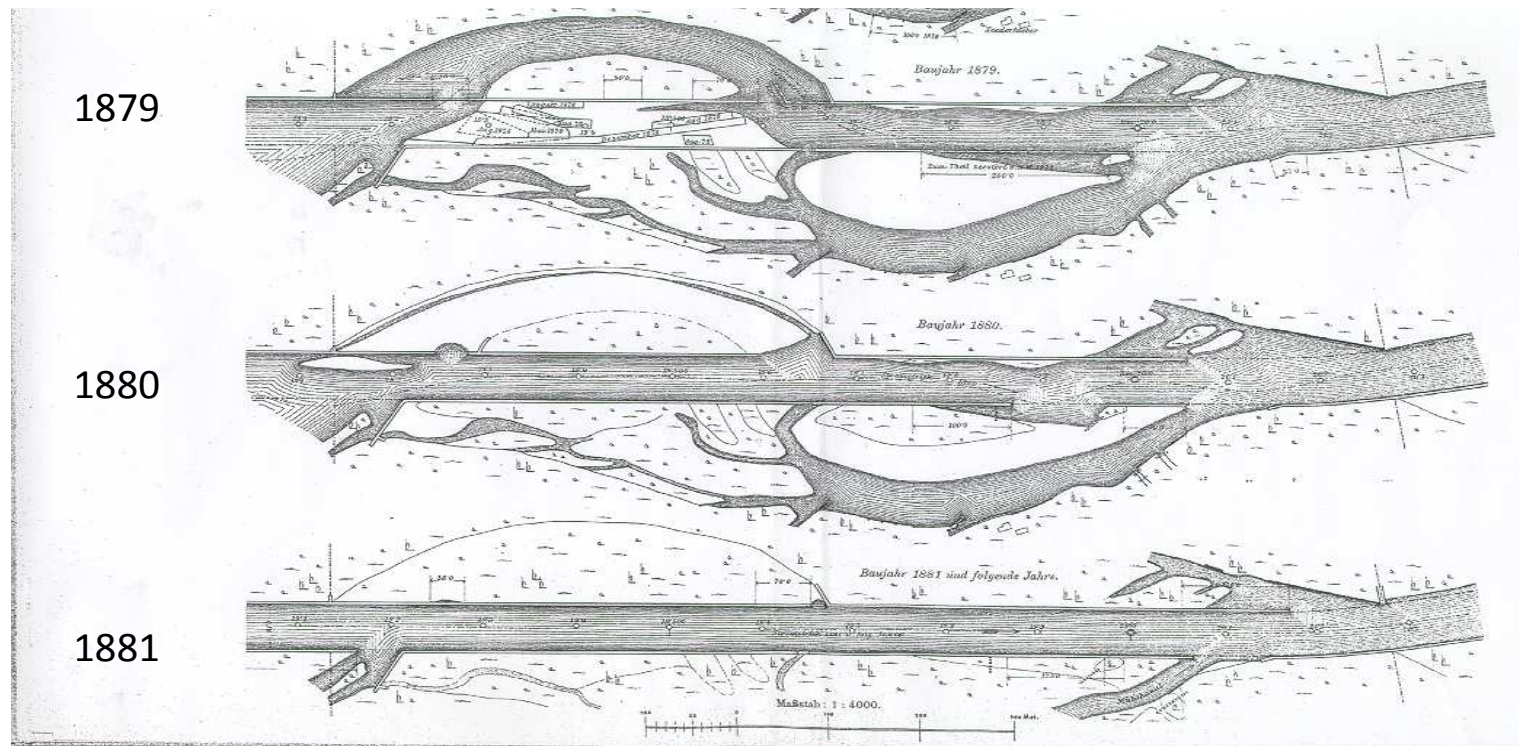
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River Mur - historically

19th century:

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



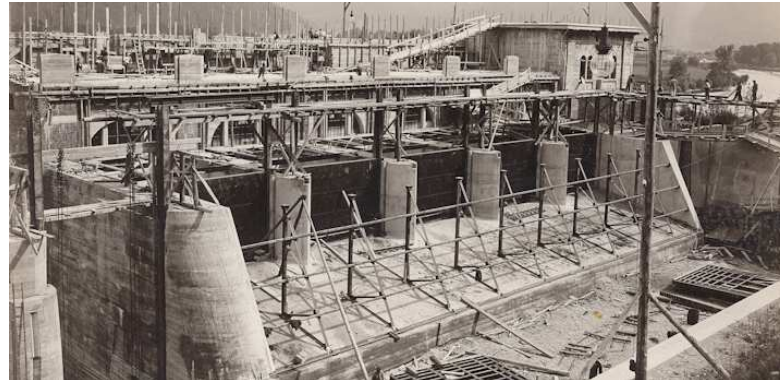
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River Mur - historically

20th century:

□ Expansion of hydropower plants



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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



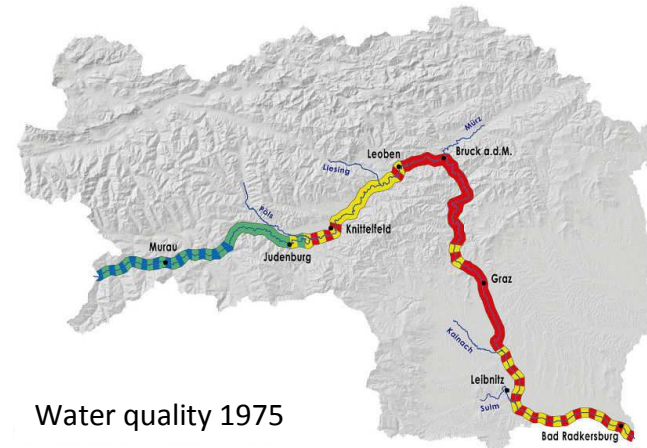
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River Mur – historically

Situation in the early 1980s:

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



What happened?

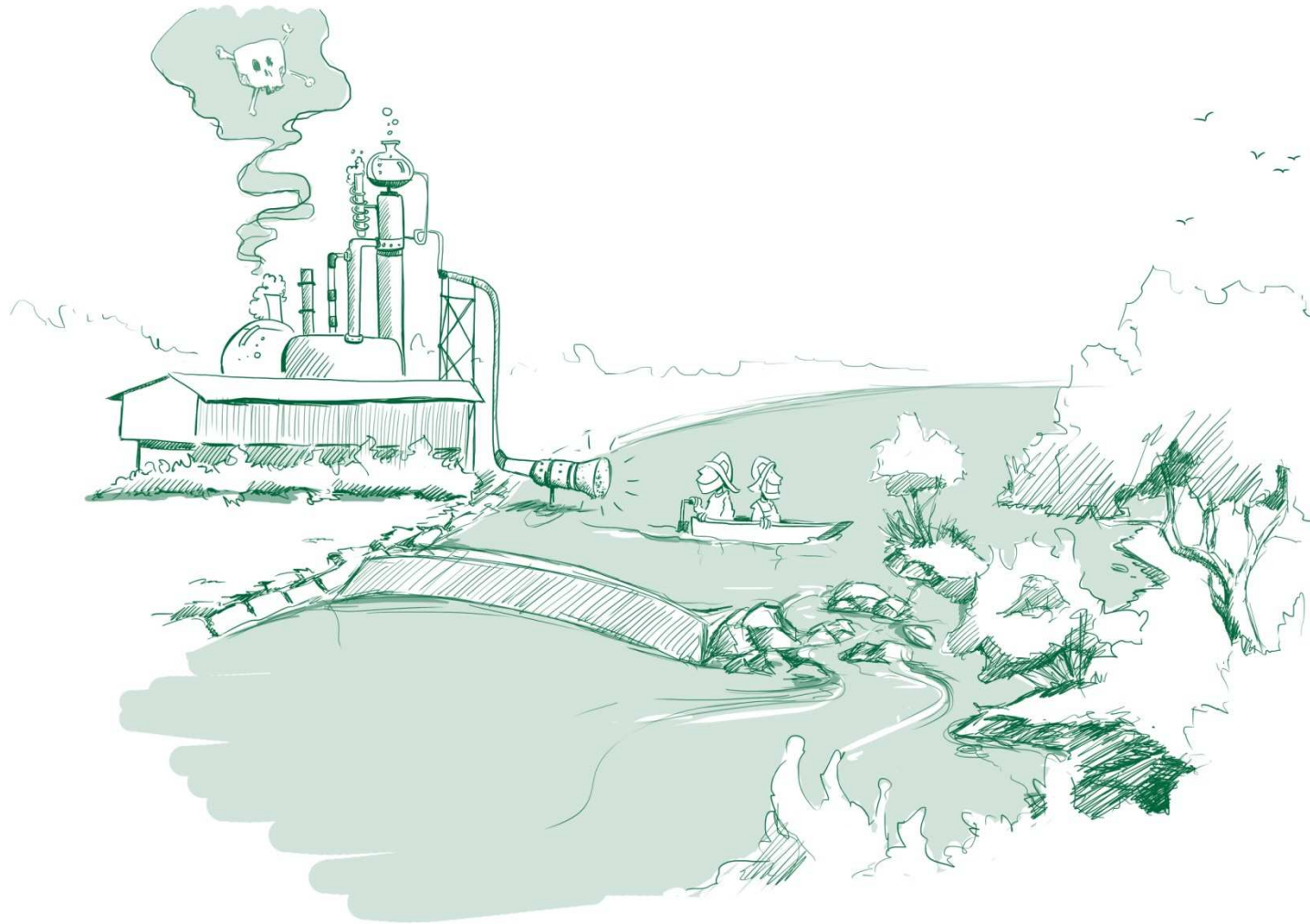
- ☐ High investment in wastewater disposal
- ☐ Programmes for ecological regeneration
- ☐ Measures aiming for public awareness
- ☐ First trends towards nature-orientated river engineering
- ☐ Cross-boarder communication



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River Mur – big chances, big challenges



heading for new shores

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River Mur – big chances, big challenges

Timeline of changes

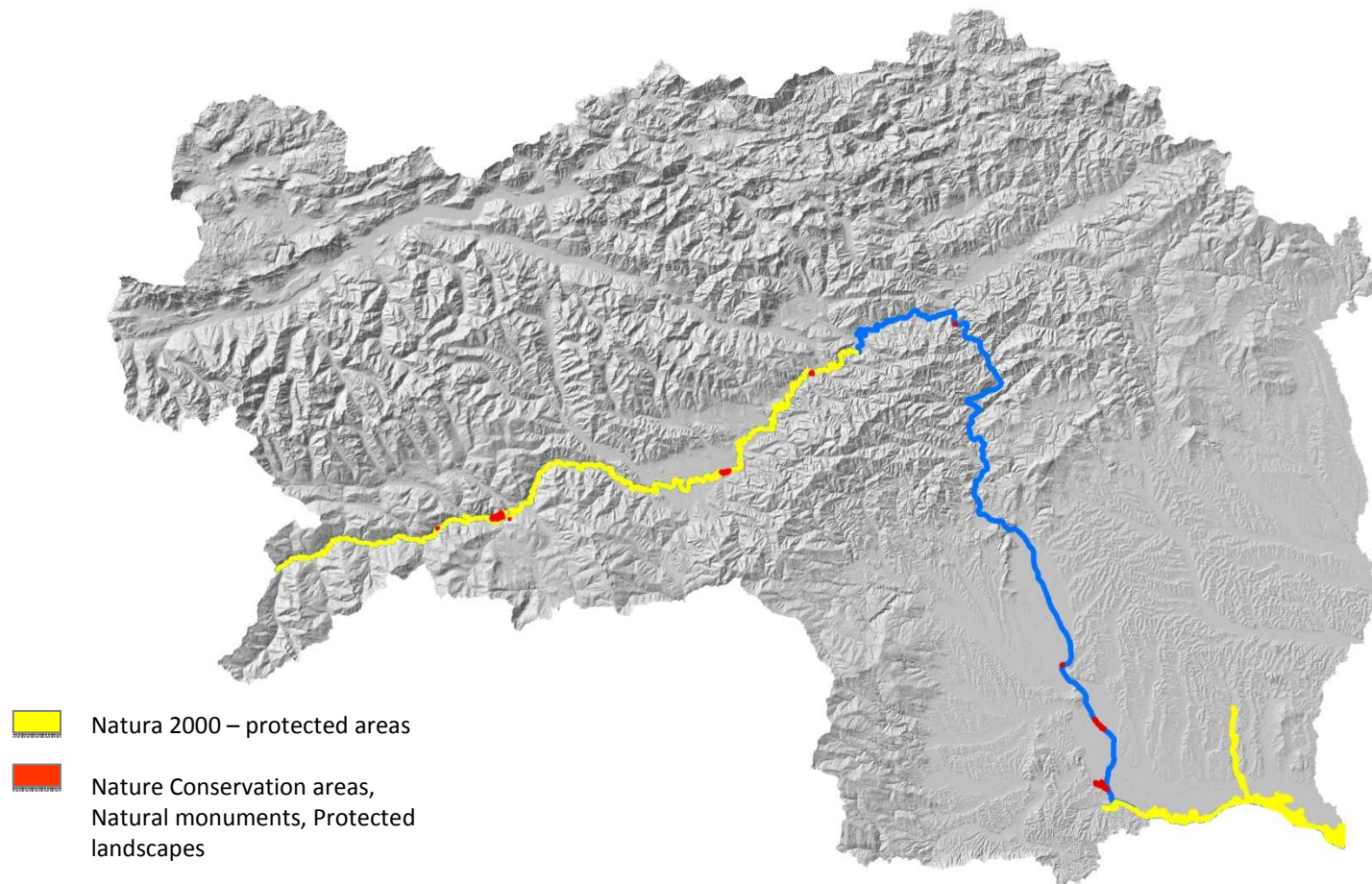
- ☐ 1983: Declaration of „Puxer Auwald“ to a **nature reserve**
- ☐ 1983: Declaration of „Murinsel Triebendorf“ to a **nature reserve**
- ☐ 1992: Establishment of the **Bilateral River Commission**
- ☐ 1998: Designation of the Upper Mur as **nationally significant river course** (WWF)
- ☐ 1998: Designation of the Upper Mur as **NATURA 2000** area
- ☐ 1995 – 1999: **Interreg IIA** „Maßnahmen Unteres Murtal“
- ☐ 2005: Designation of the Lower Mur as **NATURA 2000** area
- ☐ 2003 – 2007: **LIFE III** – Projekt „ Inner-Alpine river basin management – Upper River Mur“
- ☐ 2003 – 2008: **Interreg IIIa** Project "Maßnahmen Unteres Murtal"
- ☐ 2010 – 2015: **LIFE +** – Projekt „ Inner-Alpine river basin management – Upper River Mur
- ☐ 2014: Strategic river management for considerations in the power and water management sector in Styria/Austria

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River Mur – New prospects for ecology

Large scale designations as protective areas



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River Mur – New prospects for ecology

EU -funded river restoration projects

LIFE Natur „murerleben“
(2003-2007)

LIFE+ Natur „murerleben II“
(2010-2015)

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

Interreg IIIA „Maßnahmen
Unteres Murtal“ (2002-2008)

Interreg IIA
„Maßnahmen Unteres
Murtal“ (1995-1999)

90 km Upper Mur

32 km Grenzmur

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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



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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



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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*)



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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*)



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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*)



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River Mur – New prospects for ecology

Project „Weyern“ 2006



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River Mur – New prospects for ecology

Project „Lässer Au“ 2014



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River Mur – New prospects for ecology

Project „St. Peter“ 2006 and 2014/2015



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River Mur – New prospects for ecology

Project „Gosdorf“ 2006



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River Mur – New prospects for ecology

Project „Sicheldorf“ 2012

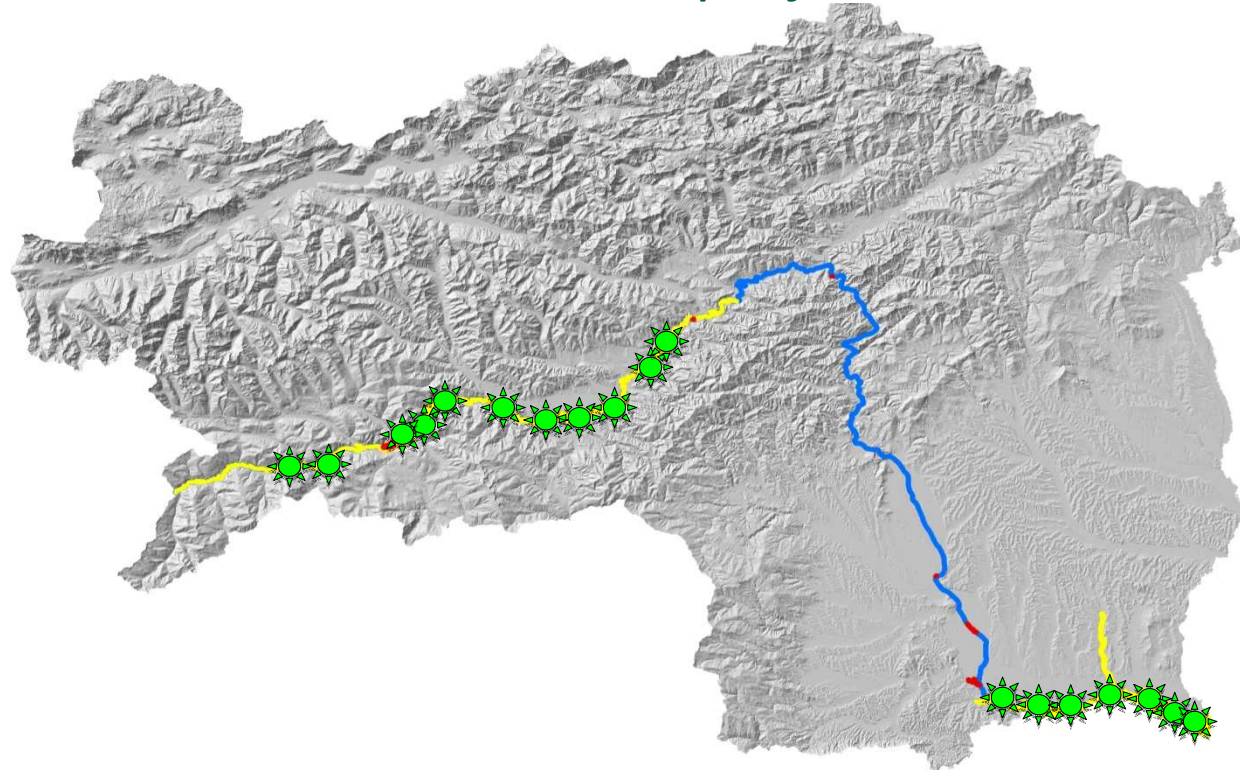


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River Mur – New prospects for ecology

EU -funded river restauration projects



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Summary of activities (Life, Life +, Interreg II & IIIa, ETZ Dramurci):

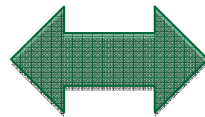
- ☐ 28 measures
- ☐ 21 km affected by restauration projects
- ☐ 12,5 mio. € total invesment sum

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)

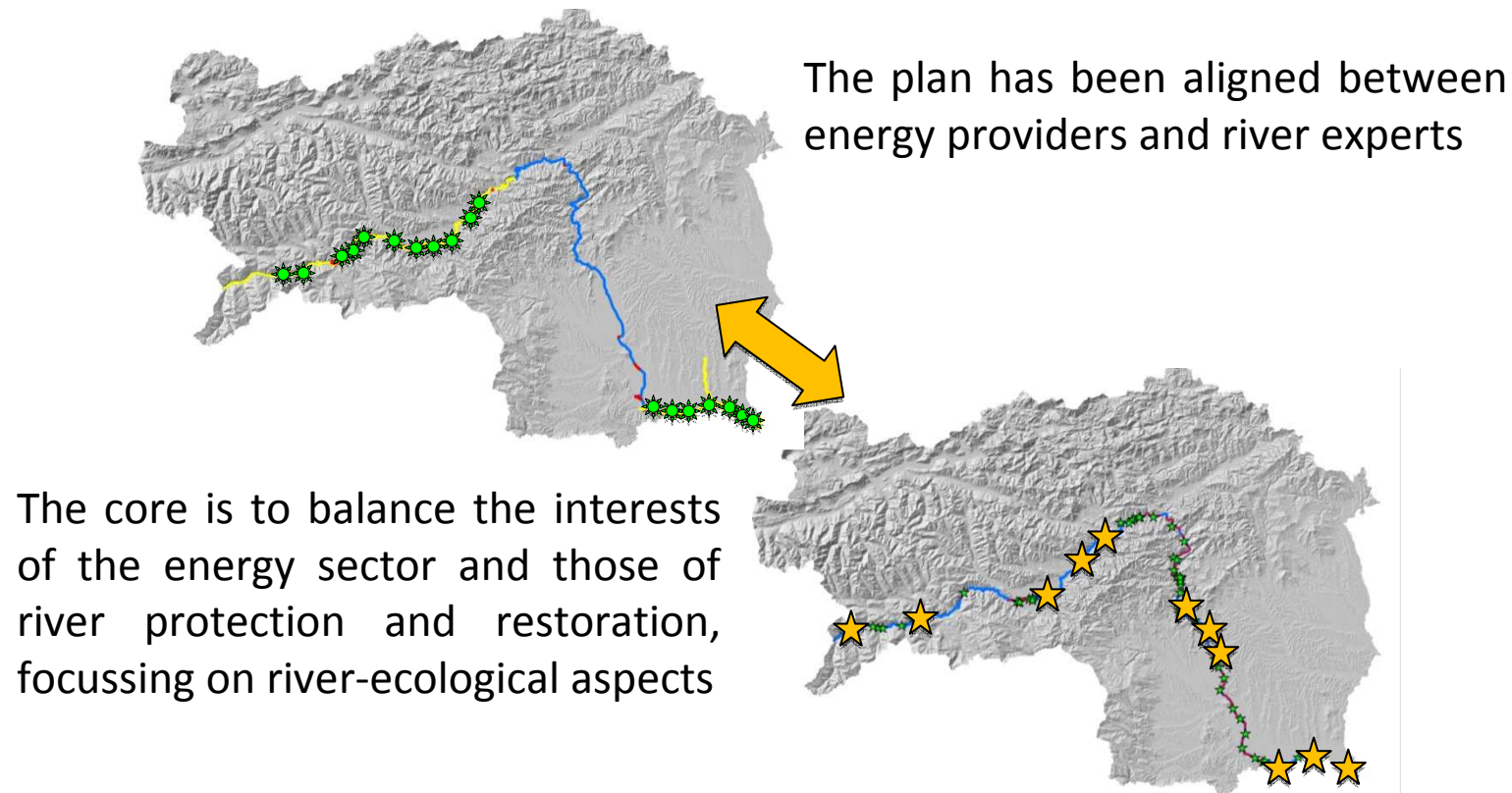


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River Mur – developing new management plans

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



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River Mur – developing new management plans

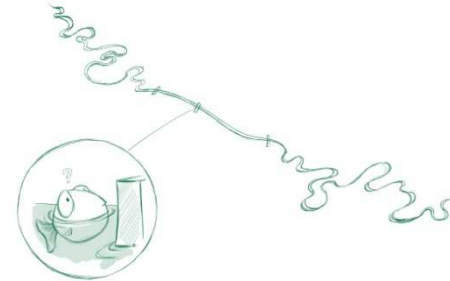


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River Mur – developing new management plans

Classification of river sections



Ecological priority zones	Trade-off zones	Zones of no particular designation
<ul style="list-style-type: none"> <input type="checkbox"/> Environmentally sensitive water bodies <input type="checkbox"/> Preservation and improvement of the ecological state has priority <input type="checkbox"/> No hydropower development 	<ul style="list-style-type: none"> <input type="checkbox"/> Stretches of good ecological value <input type="checkbox"/> High hydropower potential <input type="checkbox"/> Hydropower plants only possible if environmental compatible <input type="checkbox"/> Hydropower development only possible if no ecological deterioration is caused 	<ul style="list-style-type: none"> <input type="checkbox"/> No ecological sensitivity <input type="checkbox"/> Low hydropower potential <input type="checkbox"/> Mostly affecting river stretches already used for hydropower purposes (often “Heavily modified water bodies”)

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River Mur – developing new management plans



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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

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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

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River Mur – Public relations



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River Mur – Public relations



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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



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An aerial photograph of a wide river flowing through a dense, green forested landscape. A smaller tributary joins the main river from the left. The surrounding area includes patches of open fields and distant hills under a clear sky. The text "Thank you for your attention!" is overlaid in the center of the image.

Thank you
for your attention!

River Mur – Project partner

Project management team:



EU-funding:



Investition in Ihre Zukunft
Operation teilfinanziert von der Europäischen Union
Europäischer Fonds für regionale Entwicklung

Technical and scientific support:



University of Ljubljana



Verbund



MINISTERIUM
FÜR EIN
LEBENSWEERTES
ÖSTERREICH

and many more...

Further informations: www.murerleben.at www.dramurci.eu www.unteresmurtal.steiermark.at

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River Mur – developing new management plans

Background



EU Habitats directive



EU WFD

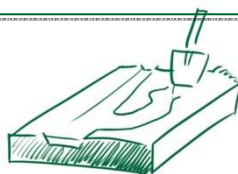


Nature protection laws

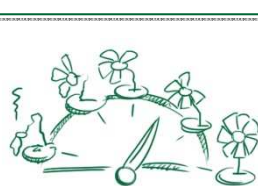


EU Renewable Energy directive

Criteria



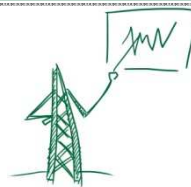
Ecological measures



Current state



Nature conservation area

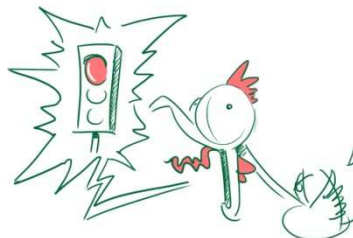


Hydropower potential



Energy aims

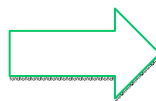
Sensitivity assessment



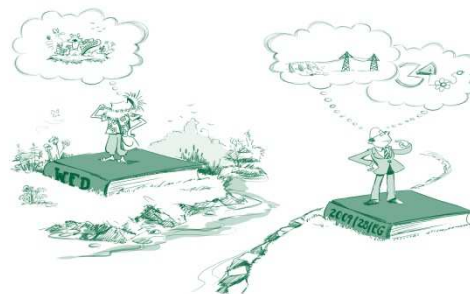
High sensitivity



Medium/low sensitivity



Negotiation Process



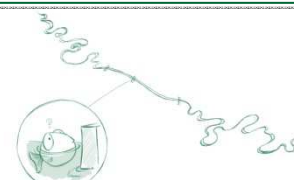
Results



Ecological priority zones



Trade-off zones



No particular designation

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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



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River Mur – Results of renaturation

Monitoring

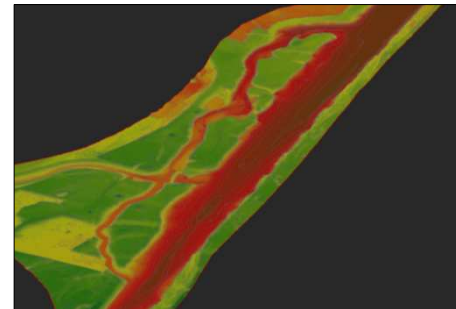
☐ Monitoring results - vegetation

- ☐ 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

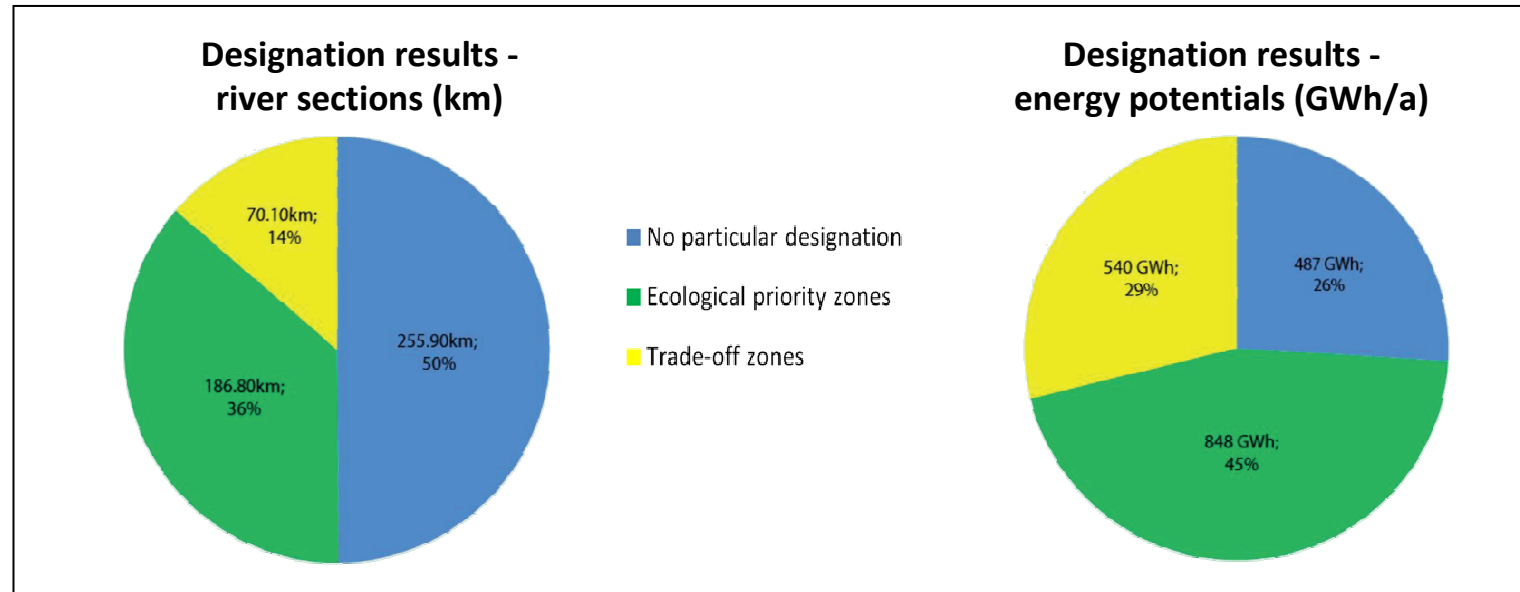
- ☐ The bed level within the restored reach has been raised
- ☐ the observed riverbank erosion indicates further widening



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River Mur – developing new management plans



- 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

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River Mur – Public relations

School projects, competitions and scientific classes



Press conferences, festivals and sporty activities



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