



## CASE STUDY

# Austria: Restoration of Mur River - ecological values and hydropower generation aligned

## Summary

The Upper Mur River is considered one of the most ecologically valuable rivers of Austria. Its systematic regulation began at the end of the 19th century to intensify agricultural land use. Restoration measures started in 1997 and various projects facilitated the renaturation of the river. The project highlights the importance to reconcile key needs for nature conservation with demands for renewable energy generation from small hydro power plants.

## Background

The Upper Mur River is considered as one of the ecologically most valuable rivers of Austria, especially because of the natural reproduction for the Danube salmon. The cross-border part of the Mur River with the second largest alluvial forest in Austria comprises one of Europe's most species-rich habitats. Located in the Alpine part of the Mur river valley, the area covers typical river floodplain habitats, such as running and standing water, inland marshes, and wet grassland and floodplain forests. Around 75% of the river can be classified as "typical riverine landscape" and holds strong ecological value in Austria. The systematic regulation of the river Mur began at the end of the 19th century, distributaries were cut off and large areas were drained in order to intensify agricultural land use. The alluvial forests were reduced and the channeled river bed led to a reduction of the river dynamic and to a loss of habitats. Also the construction of hydro power stations affected the river-continuum and the sediment transport. Due to river engineering measures (such as flood protection) and intensified farming around the river banks (including silage grassland production systems), parts of the river system show an obvious loss of structure. In such places, natural river dynamics are limited and only narrow strips of riparian vegetation connect the remaining floodplain forest complexes. Continuation of such habitat degradation is considered to threaten the ecological value of surviving riverine habitats.

## Actions taken

Financed by different programs of the EU, National and Regional funds, restoration measures have been started in 1997 in the area of the Upper Mur and the "Grenzmur". Since then various projects facilitated a renaturation of more than 22 km both in the upper course and the Slovenian border section of the river - lots of measures for passive flood protection and dynamic development have been set.

Several technical measures were taken to restore the ecological status of the Mur River. Obstacles to migrating fish were removed from the Mur river and its tributaries. Remnants of typical floodplain water bodies were re-connected to the river and new pools were proposed for amphibians. Habitats for amphibians have been restored by creating new ponds, artificial bank protections have been partially removed on a length of 4.7 km and the hydro power plant at Mur is now fish passable. Some 20.8 ha of alluvial forest have been protected and allochthonous trees were removed on 6.6 ha to foster the development of autochthonous forests.

The project was designed to be implemented by an innovative partnership between regional water and conservation authorities, a municipality, local angling bodies and landowners. An active and successful public awareness campaign included providing boat tours of the works for local landowners and other stakeholders to explain the LIFE project activities and gain support for the conservation measures. Other information events including school projects that involved high-ranking national and regional politicians.

## **Outcomes**

The individual restoration measures enabled the reconstruction of lost habitats in some areas, the reactivation of flooding areas, the stabilization of the bed-load balance and the growing of public awareness.

To overcome the conflict between hydropower expansion and nature protection or recreation/tourism, a management plan has been established for the River Mur. This plan has been aligned between energy providers and river experts. The core objective of this plan is to balance the interests of the energy sector and those of river protection and restoration, here mainly river-ecological aspects. It combines the requirements of the EU Water Framework Directive, the EU Flood Directive and the Renewable Energy Directive.

The management plan essentially contributes to the resolution of conflicting public interests (environmental, water management and energy-economic interests in the specific case) by encouraging the interaction between all stakeholders. The classification of river stretches (e.g. ecological priority zones, trade-off zones, zones of no particular designation) laid the foundations for Styria to comply with the mandatory energy targets for the expansion of hydropower as a renewable energy source, while maintaining/improving the ecological status and creating opportunities to improve the Mur-habitat. The management plan for the river Mur and the related designations are to become legally binding for ten years in form of a regional programme.

The awareness of the ecological importance of the Mur as a living-, leisure- and recreation space has been promoted by involving and informing the population in the affected areas.

## **Lessons Learned**

This project is a good example to demonstrate the new "river policy" in Austria that adopts "river restoration" approaches, rather than "river engineering" techniques.

Such methodologies and policy principles fit well with European Water Framework Directive and the beneficiary and participates applying similar holistic methods during future river

management works.

An important policy issue that was highlighted by the project is the need to reconcile key needs for nature conservation with demands for renewable energy generation from small hydro power plants.

**Contributing Authors**

Raderbauer, J.

**Corresponding Author**

Hornich, Rudolf

**Corresponding Author Contact**

rudolf.hornich@stmk.gv.at

**Organisation**

Water management in Austria, Freiland Civil Engineers

**Year**

2017

**Country**

Austria

**Keywords**

Energy Supply , Integrated Water Resources Management (IWRM) , Danube River Basin

**Thematic Tagging**

Climate , Ecosystems/Nature-based solutions , Gender , Private Sector , Transboundary , Urban , Water services , Youth  
Language English

**Supporting Materials**

Winner of European River Prize 2014

GWP Central and Eastern Europe

LIFE Projects in Austria

Austria: Restoration of Mur River - ecological values and hydropower generation aligned

**Related IWRM Tools**

Policies with Relation to Water Resources, Basin Management Plans, Basin Organisations, Ecosystem Assessment, Environmental Impact Assessment, Strategic Environmental Assessment

---

**Source URL:** <https://iwrmactionhub.org/case-study/austria-restoration-mur-river-ecological-values-and-hydropower-generation-aligned>