



Case Study 3

Danube River Basin - Harmonising inland, coastal and marine ecosystem management to achieve aquatic biodiversity targets



Restoring river-floodplains to protect biodiversity:

The Danube's river biodiversity is threatened by changes to hydrology and geomorphology (so-called hydro-morphological alterations), such as disconnection of floodplains. Multiple human activities, including the construction of hydropower plants, expansion of agriculture, and large-scale river regulation measures to increase navigation and flood protection are resulting in an ongoing loss of habitat and biodiversity. Our aim: In this Case Study, we apply the AQUACROSS Assessment Framework to identify how management of river-floodplain systems along the Danube can be supported to jointly conserve and restore biodiversity and maximise the value that these ecosystems provide to human well-being.

What is the challenge?

Throughout the basin, hydro-morphological restoration of river-floodplain systems is important to conserve biodiversity and ensure that river stretches achieve "good status" according EU Water Framework Directive. Restoration also support other societal and policy objectives: flood protection, reducing pollution reaching the Black Sea marine environment, and climate adaptation. However, the complexity and variety of the environmental problems, lack of data, strong differences in socio-economic conditions, as well as heterogeneity in national interests along the Danube significantly hampers planning of restoration sites. Only a few countries of the Danube region have already implemented or planned restoration activities, which are due by 2021.

What was done?

We prioritised sections of the river-floodplain systems for restoration and conservation, using a novel integrative modelling approach that considered multiple targets, including

biodiversity protection as well as economic and human well-being. Unlike the current situation, where each country selects their own restoration sites based on national criteria, our method prioritizes sites along the length of the Danube independent from jurisdictional, administrative and political borders.

Local recommendations:

We identified ideal sites for restoration along the Danube partially supporting sites already designated as with high restoration potential. Others were identified in areas where no sites are yet designated. Our evaluation suggests that our ecosystem-based management approach can be more cost-effective than the current approach. Additionally, the methodology is transparent and flexible, so can balance the different objectives related to floodplain restoration.

General lessons learned for managing biodiversity:

Systematically linking social and ecological data and knowledge within one analysis helps decision-makers to pursue different objectives simultaneously, enabling "integrated planning". Independently considering the whole Danube River as one ecosystem supports coordination and cooperation across countries and therefore has potential to foster consensus on a shared vision for the future.

Local impact:

The proposed ecosystem-based management approach supports the joint selection of restoration sites including prioritisation of protected areas, and site selection for the next River Basin Management Plans or Flood Management Plans. Follow-up actions of the project will focus on the take-off of the project results, with the International Commission for the Protection of the Danube River (ICPDR) inviting the case study to present potential for take-off at their 21st Ordinary Meeting.



Find out more about Case Study 3 on the AQUACROSS Information Platform and aquacross.eu

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