Eco-hydromorphological restoration in the first River Basin Management Plans

About 56% of Europe's river water bodies with a total length of 630,000 km have not reached good ecological status or potential. Of these water bodies, 48% are affected byhydromorphological pressures and 43% contain altered habitats. An early task in workpackage 1 of REFORM was to comparatively analyse the Member States' River Basin Management Plans (RBMPs), the Programmes of Measures (PoMs), and already implemented hydromorphological restoration projects. The goal was to investigate the consistency of measures with pressures, preferences for measures based on existing knowledge, knowledge gaps, and potential ecological effects of the planned measures.

A previous assessment of the German PoMs revealed a reasonable selection of measures in accordance with the analysis of pressures and impacts (Kail & Wolter 2011). At the same time, it showed a general lack of knowledge on the effectiveness of restoration measures, especially to enhance the ecological status of lowland rivers and heavily modified water bodies (HMWB).

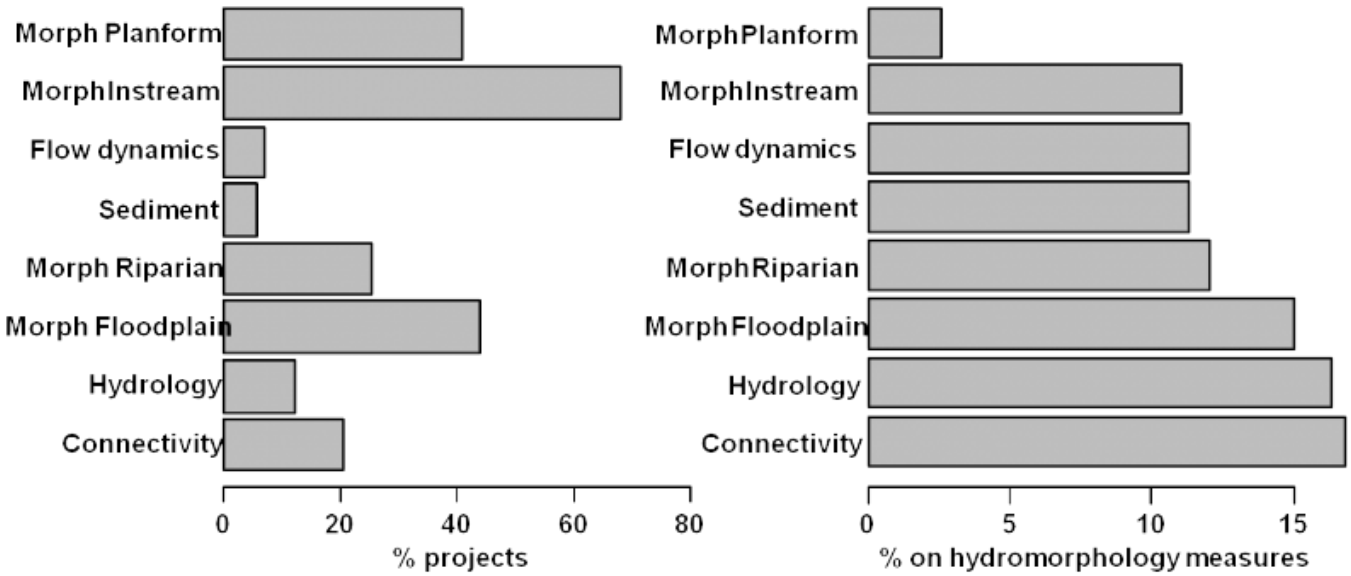
Therefore, the objectives of this task within REFORM were to analyse the RBMPs and PoMs at the European scale and to compare the planned measures with those that are already implemented to investigate whether:

1. traditional restoration measures for which more experiences exist are favoured in the PoM,
2. more measures are planned for well-known taxa, i.e., for fish,
3. regional differences in restoration measures reflect different main pressures and impacts, and
4. there is a tendency to plan investigating studies first in order to address a general lack of knowledge on ecologically efficient measures.

The RBMPs and PoMs of the Member States have been accessed through the Water Information System for Europe (WISE) (http://water.europa.eu). The supplementary measures to enhance ecological status have been translated and classified according to measure groups developed in the project FORECASTER (IWRM.NET, BMBF 02WM1031). In parallel, a restoration project database was compiled containing projects and measures targeting hydromorphological improvements of streams, rivers, and floodplains. Projects solely focusing on connectivity, i.e., fish passage facilities, or water quality have not been taken into consideration unless they were combined with measures to improve hydromorphology.

In total, 49,055 supplementary measures were listed for European river basin districts (17,341 for Continental Europe CE, i.e., excluding UK which had a more detailed list of measures than other Member States). Conceptual measures (e.g., investigations, stakeholder information, legislation) were the most frequently planned and accounted for 56% (CE) of all measures, followed by measures addressing hydromorphology (14%), and water quality (18%). The share of hydromorphological measures was dominated by floodplain rehabilitation (15%), instream habitat enhancement (11%), hydrology (16%), connectivity (17%), and riparian buffers (12%) (see Figure below, right side). The restoration project database contains 878 reports on 813 hydromorphological restoration projects (649 European and 164 non-European). Instream habitat enhancement was the dominating measure both in (68%) or outside (53%) Europe, whilst differences appeared in particular with the higher numbers of projects in Europe addressing floodplain morphology (42% *vs.* 11%) and river planform (40% *vs.* 19%).

REFORM has received funding from the European Union's Seventh Programme for Research, Technological Development and Demonstration under Grant Agreement no. 282656.



Proportion of measures targeting hydromorphological improvements in 649 implemented European restoration projects (left) and of 2,428 (Continental Europe without UK) supplementary hydromorphological measures planned for European river water bodies in the PoMs (right).

Although an analysis of pressures, ecological status, and partially measures in the European RBMPs have been performed already by the European Commission and the EEA (see EC 2012, EEA 2012, Fehér et al. 2012, Lyche-Solheim et al. 2012), our findings provide different viewpoints and new insights:

- While hydromorphological measures are planned for 96% of the designated 157 European river basin districts (EC 2012), only 14% of all planned supplementary measures address hydromorphology, despite the conclusion that hydromorphological modifications are among the most significant pressures identified throughout Europe (EEA 2012, Fehér et al. 2012).
- Further, a surprisingly low 11% of the planned hydromorphological measures address instream habitat enhancement, although this measure is implemented in 68% of European restoration projects in our database, implying that ample experience should be available.

This obvious discrepancy between implemented restoration projects and further planning of measures (in RBMPs and PoMs) raises questions on the reasons why instream measures still appeared less successful, whether they are no longer required or whether planning and implementation is hampered by other constraints which are important for successful river restoration. This discrepancy will be subjected to further research within REFORM.

References

EC – European Commission. 2012. Commission Staff Working Document. European Overview (2/2) accompanying the document report from the Commission to the European Parliament and the Council on the implementation of the Water Framework Directive (2000/60/EC) River Basin Management Plans. European Commission, Brussels, SWD(2012) 379 final.

EEA – European Environmental Agency. 2012. European waters – assessment of status and pressures. European Environmental Agency, Copenhagen, EEA Report No 8/2012.

Fehér J, Gáspár J, Szurdiné-Veres K, Kiss A, Kristensen P, Peterlin M, Globevnik L, Kirn T, Semerádová S, Künitzer A, Stein U, Austnes K, Spiteri C, Prins T, Laukkonen E, Heiskanen A-S. 2012. Hydromorphological alterations and pressures in European rivers, lakes, transitional and coastal waters. Thematic assessment for EEA Water 2012 Report. European Topic Centre on Inland, Coastal

REFORM has received funding from the European Union's Seventh Programme for Research, Technological Development and Demonstration under Grant Agreement no. 282656.

and Marine Waters, Prague, ETC/ICM Technical Report 2/2012.

Kail, J. & Wolter, C. (2011) Analysis and evaluation of large-scale river restoration planning in Germany to better link river research and management. River Research and Applications 27: 985-999.

Lyche-Solheim A, Austnes K, Kristensen P, Peterlin M, Kodeš V, Collins RP, Semerádová S, Künitzer A, Filippi R, Prchalová H, Spiteri C, Prins T. 2012. Ecological and chemical status and pressures in European waters. Thematic assessment for EEA Water 2012 Report. European Topic Centre on Inland, Coastal and Marine Waters, Prague, ETC/ICM Technical Report 1/2012.

All reported RBMPs are publicly available at www.circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/implementation_documents_1/submitted_rbmps&vm=detailed&sb=Title

WISE data are available at http://water.europa.eu and http://www.eea.europa.eu/themes/water/interactive/water-live-maps/wfd

For further information:

Christian Wolter, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin

Jochem Kail, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin

- Home
- Imprint

REFORM has received funding from the European Union's Seventh Programme for Research, Technological