

RIVER RESTORATION

SELECTED PROJECTS

Status of European Rivers

Rivers are essential to our daily lives, providing us not only with water for drinking, industry and irrigation, but also with some of our most valued landscapes. River networks provide diverse habitats for a variety of water and wetland wildlife.

With the onset of industrialization, however, more and more rivers and streams have been straightened, widened, deepened and dammed, mainly for urban and rural development, for energy generation, for transportation, to improve drainage, and to reduce the risk of flooding. Today rivers across Europe are extensively modified. As a result, river and bankside habitats have been affected and the variety of wildlife they support has declined.

Need for fish passage

Fish populations are highly dependent upon the characteristics of their habitats and the connectivity between them. At a larger scale, the populations' optimal use of resources, and the flow of genetic material within populations through the movement of individuals are essential for maintaining the fitness of the species and their adaptability to change. In many countries fish are also indicators of the quality of the freshwater and its ecological condition.

However, degradation of habitat and construction of hydraulic structures have resulted in a decline in freshwater fish populations. Numerous dams, weirs and waterway crossings interrupt or impede the continuity of rivers and their tributaries and therewith may delay, hinder or prevent fish from accessing suitable habitat.

If the migration obstacles cannot be dismantled, the upstream continuity can be restored with fish passes. Fish protection and bypass systems enable a safe passage downstream.



FISH PASS MÜHLRATHER MÜHLE

- Removal of fish migration barrier on the Schwalm River
- Design of the fish pass including hydraulic modeling, tendering and construction supervision
- Hydrological assessment
- Surveying
- Geotechnical survey



FISH PASS LÜTTELFORSTER MÜHLE

- Restoration of fish passage at an old water mill
- Design of the fish pass, tendering and construction supervision
- Site management



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Our areas of expertise include:

- Barrier inventories;
- Fish pass efficiency assessments,
- Dam and weir removal;
- Fish passes to ensure or restore upstream fish passage at impassable barriers (e.g. technical pool-type and nature-like fish passes, fish lifts, fish locks);
- Fish-friendly hydraulic structures such as waterway crossings or flood retention basins;
- Fish protection and bypass systems to avoid injury and ensure downstream migration at hydropower plants and water intake structures; and
- Alignment of proposals with water resources legislation, e.g. EU Water Framework Directive

Our multi-disciplinary team provides a complete suite of services including:

Engineering

- Scoping and feasibility studies
- Design, tendering and construction supervision
- Geotechnical and geoenvironmental services
- Hydraulic modeling and hydrological assessments

Consulting

- Development of policies and technical guidelines
- Economic and environmental assessments
- Specialist advice
- Lectures and trainings

Project management

- Project organization and coordination
- Risk management
- Public relations
- Quality assurance



PEER REVIEW

- International Expert project „Fish Migration River“ (The Netherlands)



TRAINING

- Professional Short Course “Technical & Nature-like Designs” at the Fish Passage 2015 International Conference in Groningen (The Netherlands)

