

> Typology of rivers in Switzerland

A basis for surface water assessment and water development projects

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> Summary

The heterogeneous topographical, geological and climatic conditions of Switzerland affect the country's surface waters. On a very small scale, a wide variety of rivers featuring different characteristics, can be found. The Waters Protection Ordinance takes account of this in Annex 1 and refers to the type of a surface water for defining ecological objectives. Consequently, the implementation of water protection requires a definition of river types and a characterisation of the typical biocoenoses associated with them.

In practice, experience in recent years demonstrated the need for type-specific surface water assessment methods in all aspects of hydraulic, renaturation and water development projects and explicitly in relation to implementation of the revised waters protection legislation of 2011. Typologies have already been developed for rivers at cantonal level (e.g. canton of Zurich) and for some aspects (e.g. runoff regimes, floodplains, zoning of fish habitats, temperature). Typologies of surface waters as a basis for evaluation of their ecological state and their development is also a central element of the European Union Water Framework Directive.

Until now, comprehensive characterisation of river types has not existed at national level in Switzerland. The typology for rivers closes this gap. With the individual river sections in the digital river network on a scale of 1:25,000 as the spatial reference and based on nationally available data, the great diversity of features of Swiss rivers has been grouped along five criteria with 2-5 classes each. The 54 most frequent and representative of the 188 combinations of features obtained, were defined as river types. Thus, a structured and manageable grouping of Swiss rivers by abiotic-geographic features was achieved. Other products in addition to this report are a dataset, maps and type portraits.

The typology describes the potentially undisturbed (natural) state of the river sections using abiotic criteria (target state). Man-made interventions and disturbances in water quality, river morphology and the runoff regime (according to the Guiding Principles for Swiss Watercourses) and biology are not accounted for. The information on target state provided by the typology is an essential basis for assessing the ecological state of rivers and a useful guidance for rehabilitation measures.

The typology of Swiss rivers shall now be used in the various fields of application. The 54 types with their classified features can be supplemented with suitable attributes, refined or aggregated for specific needs.