

DEVELOPMENT CONCEPT RIVER ALPINE RHINE

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THE RIVER ALPINE RHINE

At Reichenau the Upper Rhine and Lower Rhine join and form the River Alpine Rhine (Fig. below). It mouths after 90 km into the Lake of Constance and drainages a catchment area of 6123 km², which is situated in Switzerland (Cantons Grisons, St. Gallen and Ticino), in Austria (State of Vorarlberg), in Principality of Liechtenstein and in Italy. At the mouth of the Lake of Constance the mean annual discharge lies at 230 m³/s. The 100-year flood amounts in this reach to 3'100 m³/s.

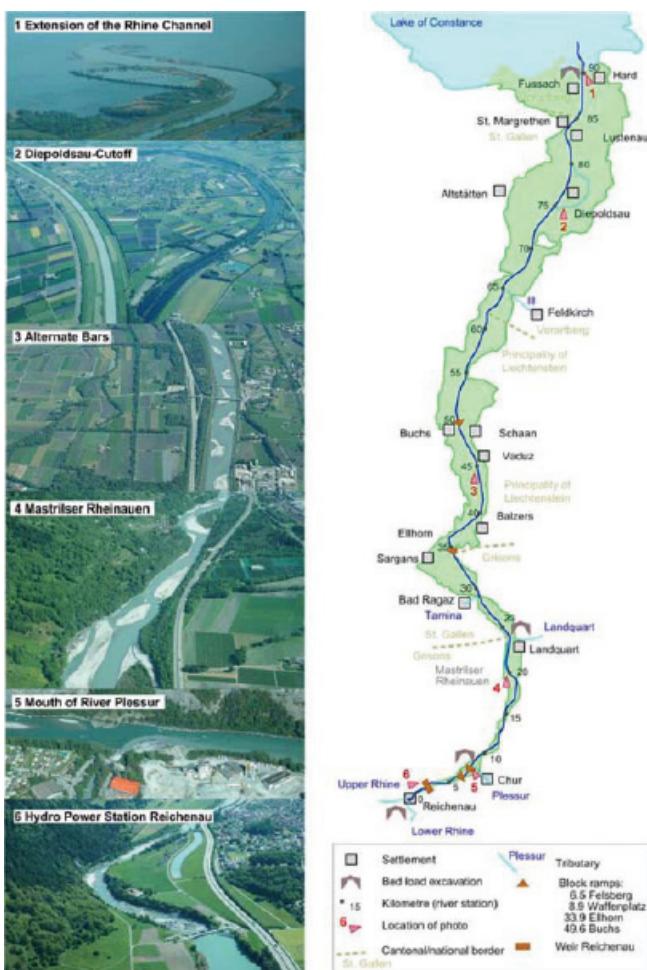


Fig.1: Overview over the River Alpine Rhine

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BASIC INVESTIGATION

Before the work for the Development Concept started, comprehensive investigations in different fields were carried out. The most important studies were about hydrology, morphology and sediment budget, damage risk at events higher than the design discharge, development of the River Rhine Valley, river and fish ecology, turbidity and daily discharge change due to hydro power and renaturation and hydro power.

DEVELOPMENT CONCEPT

The Development Concept was developed in a participatory planning process. The comparison of the actual state of the Alpine Rhine with the aims showed the need of action. An overview of the investigations of flood protection, river ecology, groundwater, and “live and work” was the basis. The Development Concept recommends a strategy and measures, which can summarised into six different measure types: river bed widening, improving fish wandering, reduction of the daily discharge change due to hydro power, hydro power, riverine zone, emergency release in case of events higher than the design discharge.

STRATEGY: MORE SPACE FOR THE RIVER ALPINE RHINE

The main strategy is: more space for the River Alpine Rhine, particularly for

- the increase of the discharge capacity between Diepoldsau and the Lake of Constance where the damage risk is extraordinary high
- the reduction of the sediment transport capacity especially in the long erosion zones upstream of Buchs
- the minimisation of the damage at extreme seldom events which are higher than the design discharge
- the increase of the variability of the morphology and the ecology
- the solution of the surge and sunk problematic, which is caused by the daily energy production through the hydro power plants in the catchment
- the recovery of the crosslinking in the Alpine Rhine itself and into its tributaries for fish wandering
- the conservation of the capability to use the groundwater and the hydro power

The realisation of all the measures proposed need a long time. Therefore, sufficient space along the Alpine Rhine has to be reserved with the help of land use planning. A riverine zone is propagated along the whole reach between Reichenau und the Lake of Constance to preserve for the coming generations room for manoeuvre.

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