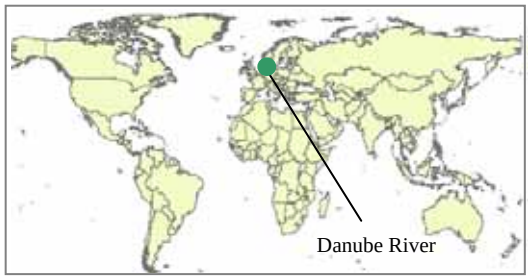
Restoration of Danube River (Austria)

The primary elements to decide the ecological environment of a large river and the neighboring floodplains are the scope, the period, and the dynamics of hydrologic connection between the river and the floodplains via the surface layer current and the groundwater. That hydrologic connection has been badly lost in all the large rivers in Europe, due to water channel improvement constructions and to dam constructions. For Danube River which flows along the jurisdiction of Austrian "alluvium area national park," as the first step of restoration strategy for freely-flowing river, a large-scaled pilot project has been in progress to restore the hydrologic and ecological completeness of the system between the river and its floodplains.

◆ Key to Restoration

- Danube River restoration project
- Restoration of ecosystem completeness between the river and its floodplains

◆ Overview of the River



Along Danube River, between 1895 km and 1905 km from the river mouth, there exists Regensburgner Aue (floodplain's forest) which forms a sound floodplain of 500 m by width on average. It consists of a 300-ha broadleaf forest that usually grows in floodplain, plus an 80-ha cutoff lake left along the old river course. Most parts of the forest consist of an improved variety of planted poplar trees. The gravel riversides and the sandy river cliffs used to be well observed, but such habitats are now scarcely left. Under these circumstances, this project area is a major area that has these kinds of habitats in Austria, and kingfishers breed quite well there.

◆ Project Efforts for Restoration

【Danube River restoration project】

Austrian Water Channel Administration Bureau sees to it, in cooperation with the Danube floodplain national park and with the planner of world wildlife funds, that the main stream of Danube River is connected with the cutoff lake along the old river course in the floodplains, so that more water flows into Regensburgner Aue. By creating five openings (which are as long as 160 m when combined) to the banks, the old river course of Regensburgner Aue and the main stream of Danube River were re-connected. As a result, water can reach the floodplains again.

Danube River and Vienna urban area seen from NeuerDanube

At around 1900 km from the river mouth, the main stream has been re-connected with the riverside cutoff lake, for the length of 10 km. At four points, for the length of 30 m, the height of banks was lowered to 1.5 m. Also the 10 m-wide water inflow points were established at three points. In Regensburgner Aue, five water inflow points were created to three bank protection works. As a result, those bank protection works that had blocked off the cutoff lakes were opened, and steady water flow was secured. At the same time, the moving path for those fish that need to move to and from the main stream and the lake was secured for the period of six months in one year.

【Restoration of ecosystem completeness between the river and its floodplains】

By extending the period that the floodplains take in water, a quantity of sediments deposited on the old river course over the years are washed off. Restored power of the river also creates gravel riversides, newly born high-pitched river cliffs, and grass-covered riverbanks.

The moving path for the fish is at least partially improved. For the period of over seven months, fish can move to and from the main stream and the lake. By re-opening the floodplains, other wildlife representing limnetic fauna will also be well restored.

Source: Case examples in "River Restoration." 2003.3. Supervised by Steering Committee on River Restoration.