

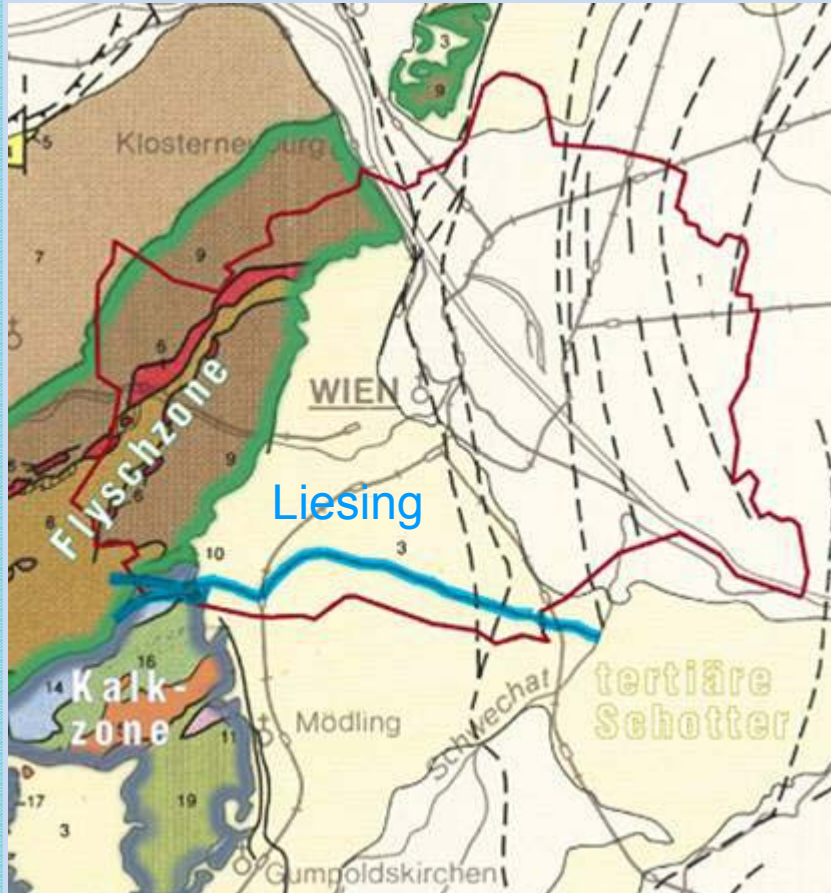
Living River Liesing

Is rehabilitation of a heavily modified waterbody in an urban environment possible?



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- **Length of the river:**
 - 30 km total length
 - 18 km in Vienna
- **Catchment basin:**
 - 115 km² in total
 - 52 km² in Vienna
- **Low water:** 0,07m³/sec
- **Mid water:** 0,51 m³/sec
- **HQ₁:** 9 m³/sec
- **HQ₁₀₀:** 85 m³/sec



- **Initial situation**
 - **poor water quality by discharge of waste-water**
 - **Heavily modified waterbody**



- **EC-Water Framework Directive**
- **Construction of a new sewer for the „Liesing area“**
- **Closing of the sewage plant „Blumental“**
- **Revitalisation of the river Liesing from the city limit of Vienna/Kledering to the sewage plant „Blumental“ (5,5 km)**





- **LIFE-Environment project LiRiLi:**
Renaturation of the river considering the flood protection (HQ₁₀₀ in the settlement area and HQ₃₀ in the agriculturally used land)
- **Total costs: EUR 40 Mio**
- **Costs for sewer: EUR 32 Mio**
- **Costs for re-naturalization: EUR 8 Mio (EUR 1.600/running meter)**
- **49,99% of innovative re-naturalisation financed by EC LIFE-Environment (EUR 640.000)**



- **Instead of high bed-drops small structured bed – sills were installed**
- **Aims:**
 - **Degradation of migration barriers for rheophilic fish species and macrozoobenthos**
 - **High diversity in flow velocity**
 - **Oxygen input**



- **Installation of biological engineering bank protection structures**

Aims:

- **Connectivity between river and riverside**
- **Nature-like bank protection with wooden crib, willow fascine, groyne made of willow fascines, etc.**
- **Shadowing the waterbody**



- **Instead of the concrete riverbed stones for hydraulic engineering and gravel were installed**

Aims:

- **Better the morphological conditions**
- **New habitats for macrozoobenthos**
- **Gravel transport**
- **Diversity in flow velocity**
- **Riverdynamic within determined borderlines (⇒ flood protection)**
- **Diversity in riverwidth and riverdepth**



- **Exemplary reconstruction of the old river flow**

Aims:

- **Extension of riverlength**
- **Reduction of flow-velocity**





- **Attractive recreation areas for the local inhabitants**

Aims:

- **10 km new pathways for biking, walking, jogging, etc**
- **attractive connections between infrastructure (eg. supermarket, school, doctor,..) and the neighborhood.**
- **Water playground for children**
- **Re-planting of trees and bushes which are typical for the location**

- **Ecological monitoring for 3 years to proof the development of the new ecosystem**

Indicators:

- **Vegetation**
- **Macrozoobenthos**
- **Fish ecology**
- **Dragonflies**
- **Carabidae (ground beetles)**
- **Ciliates**





- **Ameloration of the water quality from 4 to 2-3 (saprobic system)**

2 shall be achieved until end of 2007



- **River dynamic: deposition and erosion has already started**
- **Increase of fish individuals and species (appearance of sensitive species like *Barbus barbus* and *Phoxinus phoxinus*)
Reproduction has started. Already in winter 2005 appearance of a high quantity of juvenile fish**
- **Appearance of endangered species like *Nasturtium officinalis*, *Artemisia austriaca*, *Tulipa silvestris***





- **High biodiversity of dragonflies** ⇒ diversity in structures (sediments) and an improved connection between river and surrounding countryside
Appearance of Gomphus and Onychogomphus
Use of the re-naturalated river for breeding



- **Formation of a solid community of macrozoobenthos in the new structured sediments**
It still exists an increased organic load in the upstream river ⇒ biodiversity is restricted



- **Increase of the carabidae species from 36 to 96 within 3 years**
(17 species only at the area of meander)

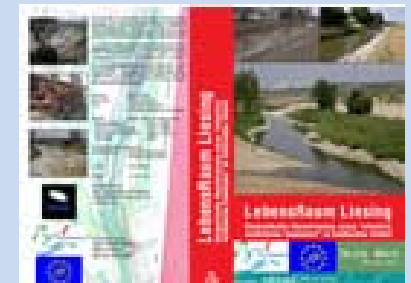
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In summer 2006 the first beaver arrived at the meander



- **Public relation activities for stakeholders began a year before the construction started**
 - Info Center
 - Information material
 - Guided tours, Bicycle tours
 - Cultural events
 - Videos
 - Special website [www. life-liesingbach.at](http://www.life-liesingbach.at)
 - International final Symposium





1999

2006
Much better
waterquality





1999

2006

**Better access to
the river**





1999

2006
High quality
recreation area in
front of the door





1999

2006

**Save footpaths
to shops and schools**





1999

2006

Higher quality of life





- **2007 installation of a management plan for the reconstructed river stretch**
- **Spring 2008 starts the reconstruction of the next 3.5 km of the river**
- **2015 the reconstruction of the whole river shall be finished (additional 10 km)**



**Thanks for Your
attention !**