State Office for Water Management
Munich

The Isar -Plan Project in Munich
Great (Un) expectations.

European River Restoration Conference

Session 5- Enhancement of Multi-Use Landscapes

11-13 September 2013

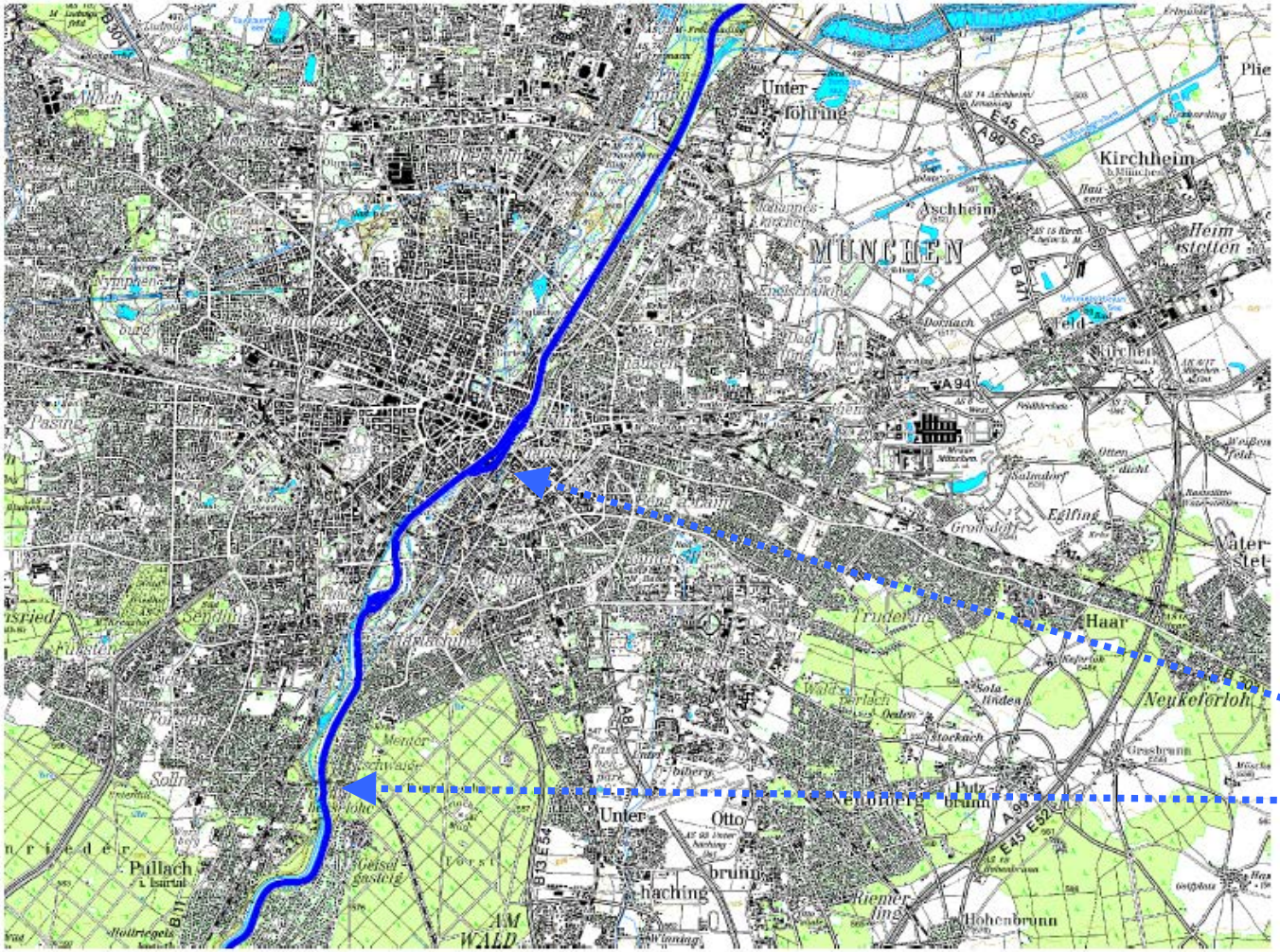
The Isar-Plan Project: Basic Facts

- Approximate length of the project= 8 km
- Planning start 1995
- Construction start 2000
- Project completed 2011
- Successful cooperation between the Free State of Bavaria and the City of Munich
- Approximate costs= 35 Mio. €
- High public acceptance and (ab)use

Content of this Presentation

- Highlights of the Isar-Plan Project
- Diversity of land use
- Multiple uses of the Isar through the Isar-Plan
- Unexpected issues encountered during the project

The River Isar in Munich



The project area= 8km.

Total area of the river in the city= 14Km

Isar River Sections

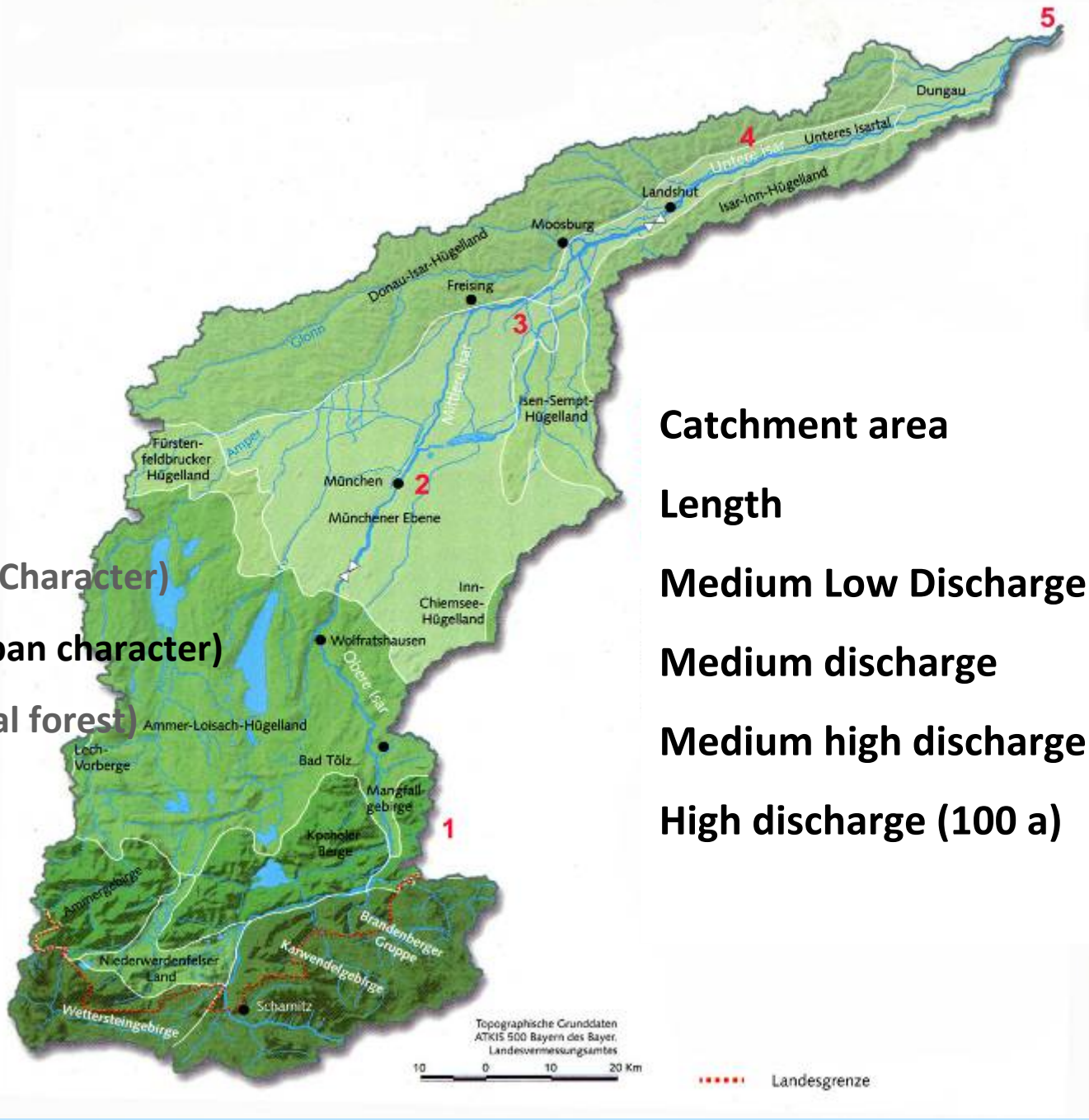
1 Upper Isar (alpine Character)

2 Isar in Munich (urban character)

3 Middle Isar (alluvial forest)

4 Lower Isar

5 Danube



Catchment area	**9000 km²**
Length	**270 km**
Medium Low Discharge	**40 m³/s**
Medium discharge	**90 m³/s**
Medium high discharge	**420 m³/s**
High discharge (100 a)	**1.100 m³/s**

Highlights of the Project

- Improving dyke security without affecting tree stands
- Modelling of a river section in a 1:20 model scale
- Landscape architecture competition
- UV treatment of water from sewage treatment plants
- Special method (hydrosaat) for planting saplings
- Removal of barriers for fish (weir replacement)
- Follow-up monitoring of ecological revitalistion
- Stakeholder Involvement and consultation
- Information system for the public

Multiple uses of the Isar through the Isar- Plan

- Ecological protection zones & monitoring
- Recreation & tourist attraction
- Hydropower
- Cooling of power plant
- Improvement of micro-climate
- Stormwater drainage
- Canalisation
- Flood retention
- Social impacts

Issues with diversity of land-use

- Adaptation of land-use to land demand (for example for recreation, ecological value, public needs)
- Historical and cultural value preservation
- Urban use versus ecological protection
- Management of different interest groups

Unexpected Issues with the Isar-Plan Project

- Conflicting objectives of various stakeholders
- Contractual deals
- Timing of public participation
- Liability issues in case of standing surf wave and potential accidents
- Land and water ownership
- Free and public goods are not valued
- Rule enforcement
- Awareness is lacking (eg. waste management)
- Cultural and commercial activities are becoming more popular which potentially affect biodiversity

Thank you for your attention !

Website:

http://www.wwa-m.bayern.de/index.htm

Extra Slides- if needed

Historical Floods in Munich

(above) - Destruction of the Ludwigsbrücke in 1813

(right)- Floods of August 2005

Historical Events

- HQ 1940 = 1.440 m³/s
- HQ 1999 = 854 m³/s
- HQ 2005 = 1050 m³/s

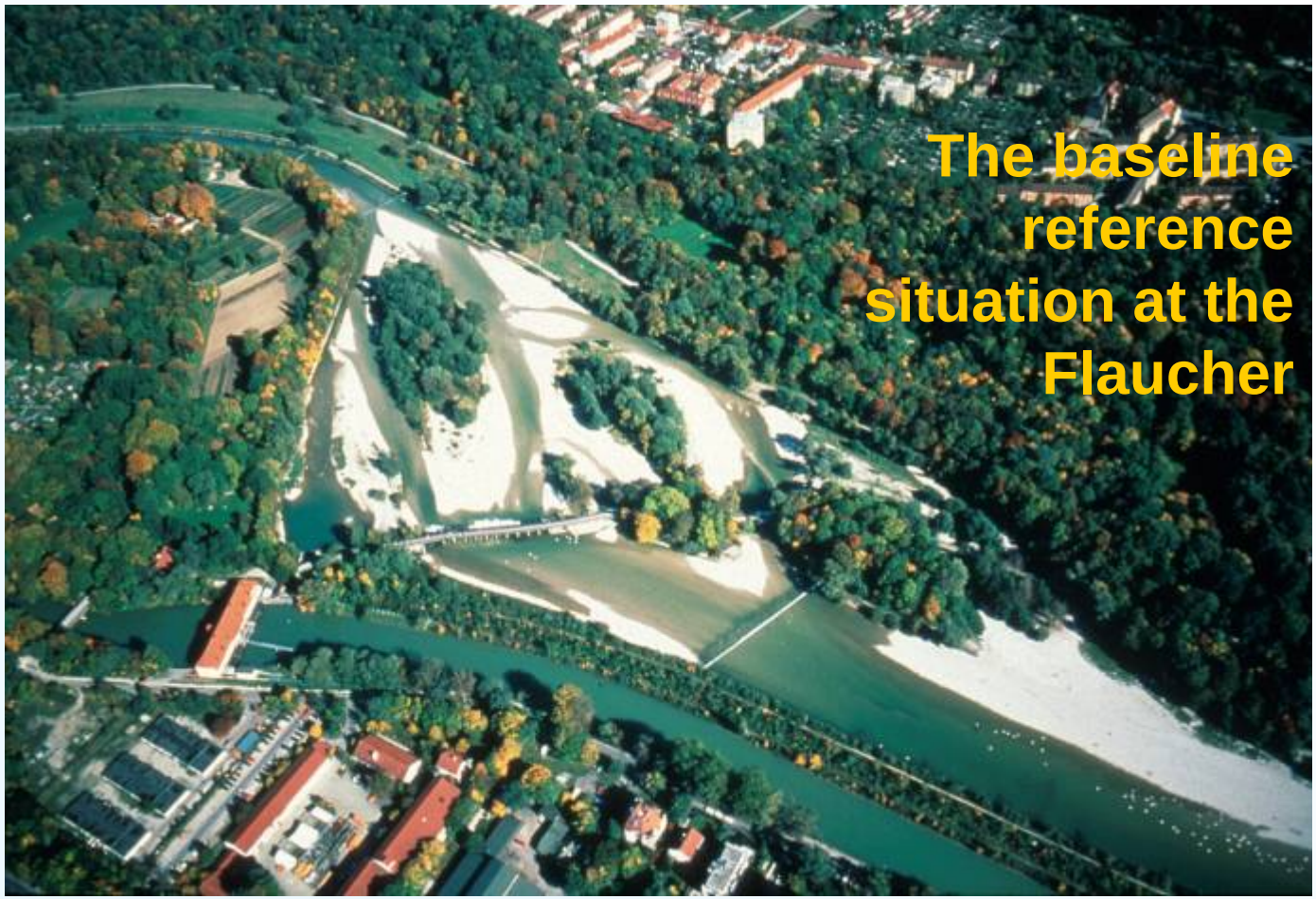
The Isar in Munich in 1905- an Artists Impression

The Isar at the same location in 1930

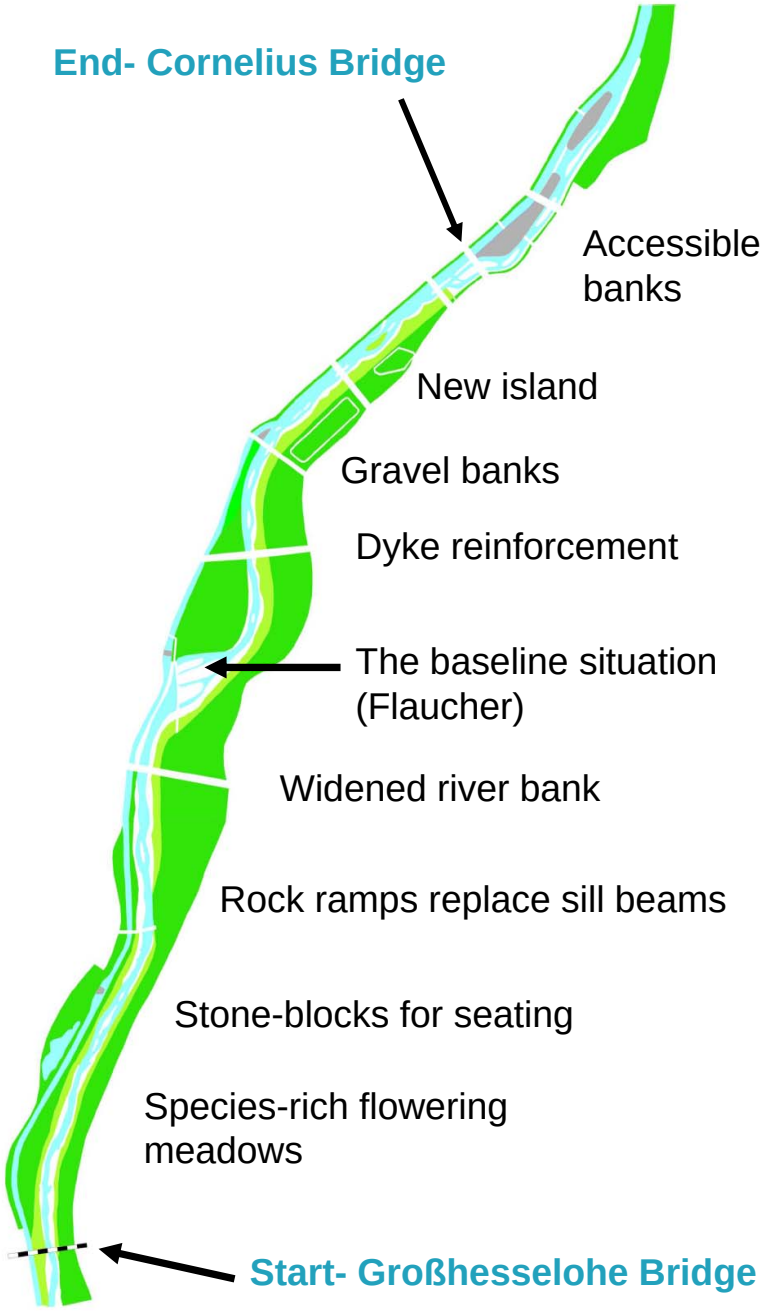
The Isar in November 2001

A Balancing Act of the 3 Main Project Goals

- Flood protection
- Near-natural ecological restoration
- Recreation & leisure



The Isar-Plan Project



Two spatial zones of the Isar-Plan: Urban and Semi-urban

The Semi-Urban River Character

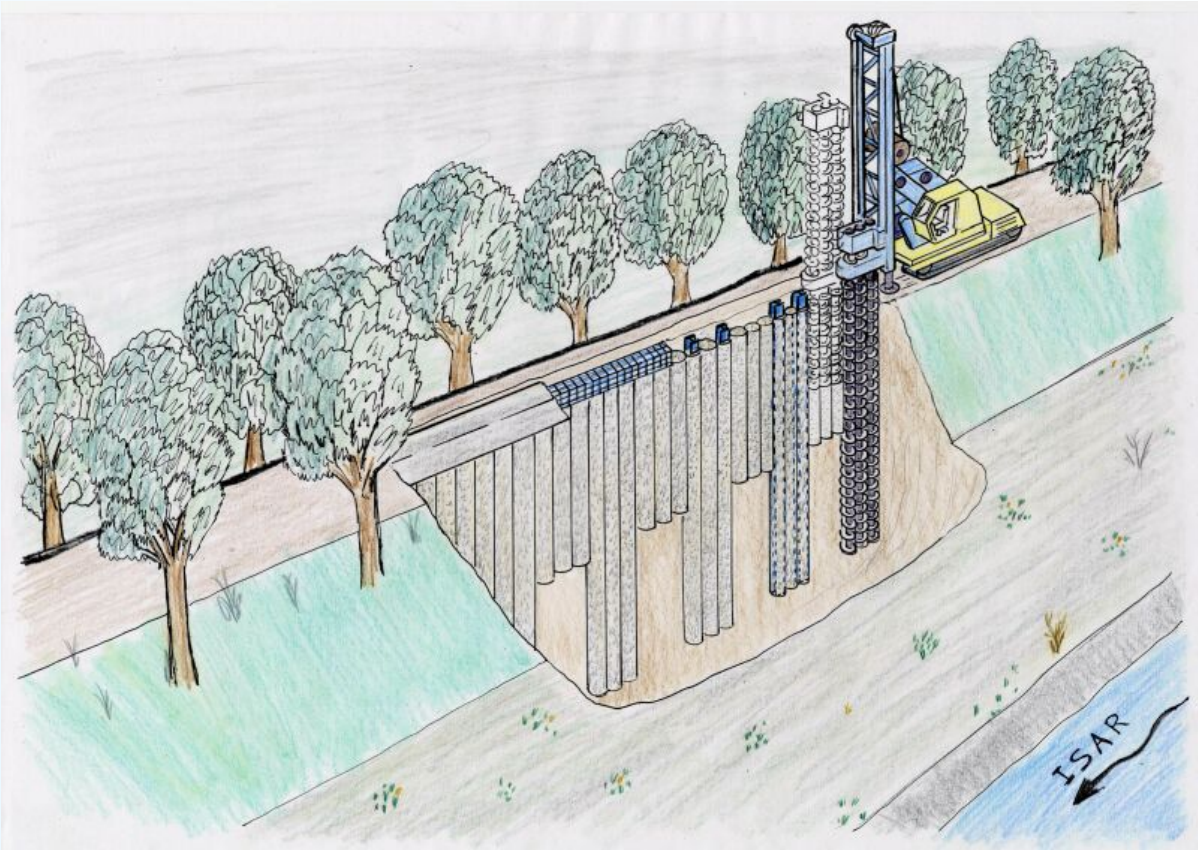
- Focus on biodiversity and rare species
- Flood protection
- Wide bed and gravel banks
- Optimising land-use

Two spatial zones of the Isar-Plan: Urban and Semi-urban

The Urban River Character

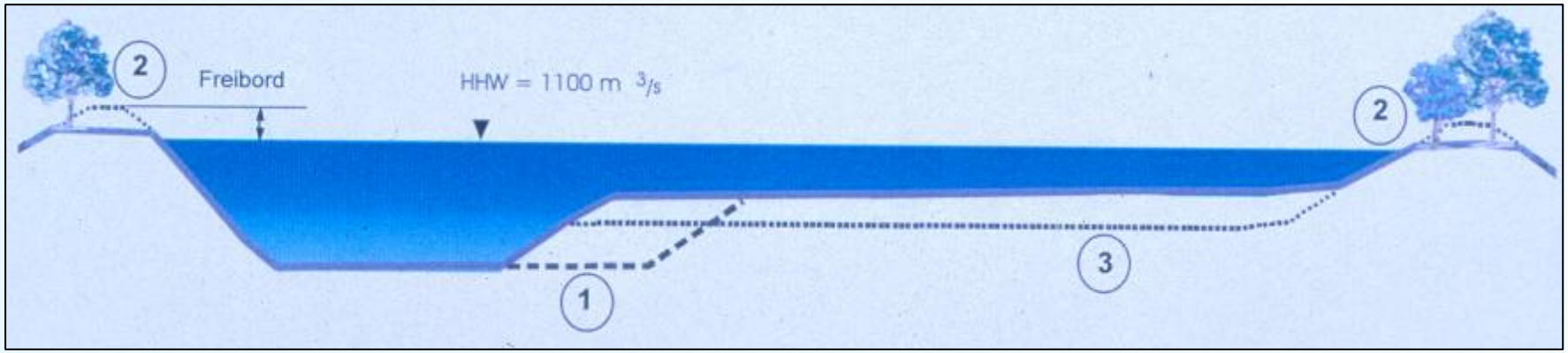
- Optimising land-use for recreation purposes
- Flood protection for densely urbanised areas
- Improving attractiveness for visitors

Dyke Reinforcement



Flood Protection Measures

1) Widening the river bed from 50m- 90m
2) Increase in dyke height (freeboard)
3) Silt deposition removed to the flood meadows
4) Near natural design of the banks



Model Simulation at the TU

Stakeholder Involvement

- Prior to 1990 Isar restoration planning was largely isolated;
- Interesting cooperation between government and city/municipal planners and NGO‘s and public groups;
- Mediation process to assist identification of the optimal solution for the last 1.5 km of the urban Isar

Sill beams on the river bed pose a barrier for fish

Before

After

Before

Sloping concrete river banks

Flattened stony river banks

After


Before: Monotonous River Landscape

After : Diversified Bank Structures

Before-
A concrete channelized water course

After- more structural variety and diversity

Recreation and Leisure at the Isar River