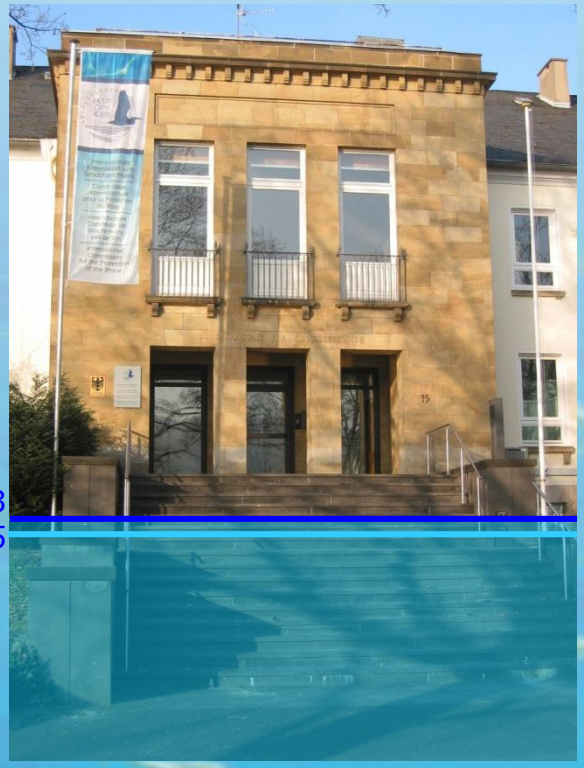
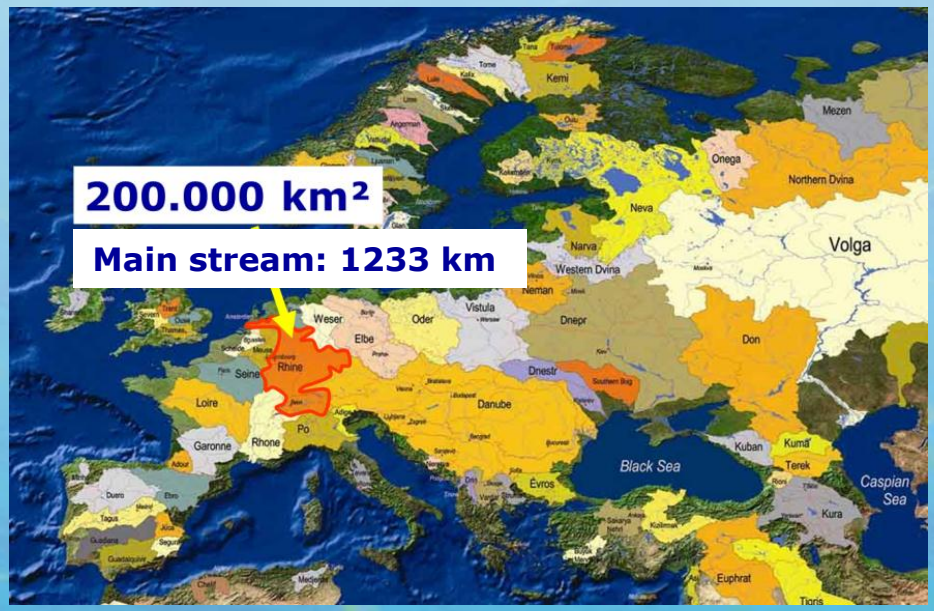
Session III: Environmental status of floodplains and trends

Case study: Flood action programme and role of floodplains in a large river basin





Adrian Schmid-Breton (ICPR – Coblence)
Scientific assistant

EEA Expert Workshop: "Environmental effect of floods and flood protection measures, 28-29 May 2015, Copenhagen

IKSR CIPR ICBR

Internationale Kommission zum Schutz des Rheins

Commission Internationale pour la Protection du Rhin

Internationale Commissie ter Bescherming van de Rijn

International Commission for the Protection of the Rhine

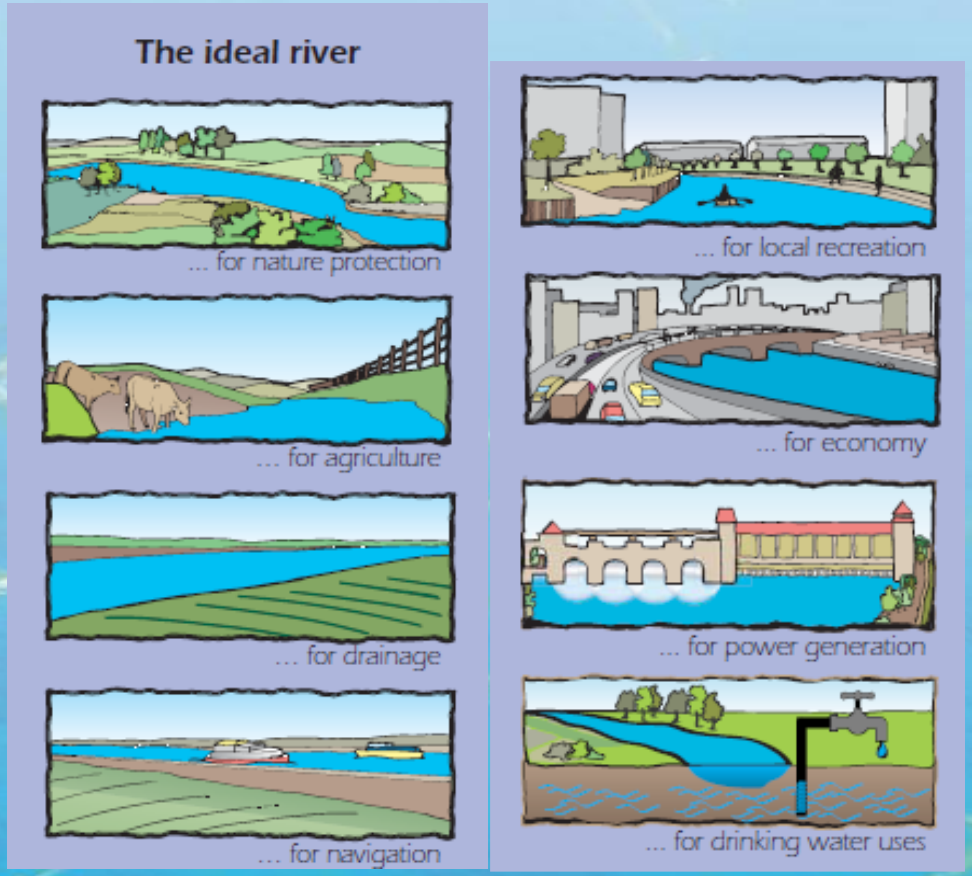
Facts about the Rhine basin

9 states
Italy, Austria, Liechtenstein, **Switzerland, France, Germany,** *Belgium,* **Luxemburg, the Netherlands**

Inhabitants
58 Mio. (5,5 million people in area with flood depth > 2 m)

The river Rhine basin (extreme flood areas)

Our vision: the ideal river and a balance between uses and protection



Co-ordinating functions!

Ongoing process:

- **Hydro-power and river continuity**
- **Flood protection and habitat development**
- **Navigation and more natural embankments**

The ICPR programme „Rhine 2020“:

→ Since 2000, general targets of **sustainable development along the Rhine**

→ **Focus:** improvement of the Rhine ecosystem, flood prevention and protection and chemical water quality (the River Basin Management Plans are prolonging this programme)

It **includes the Action Plan on Floods** since 1998 (the Flood risk management plan is prolonging this plan).

When it comes to **ecology**, these are the main aspects of the Programme Rhine 2020:

- Ecological Improvement
- Reactivation of floodplains
- Reconnection of oxbow lakes and backwaters of the Rhine
- Increase structural diversity on the banks of the Rhine and its branches
- Restoration of river continuity
- Alien plant and animal species in the Rhine

Alluvial areas are essential for the Rhine ecosystem, but also for man.

Different gains of alluvial areas/floodplains:

- Filtering and cleaning water,
- Recharging groundwater,
- Protection against lapping of waves and erosion,
- Water retention, reduction of water levels,
- Habitat connectivity
- Essential for biodiversity
- Reproduction aquatic species
- Recreation and economy (tourism, jobs, reduction damage …)
- Climate change mitigation

The status of floodplains along the Rhine

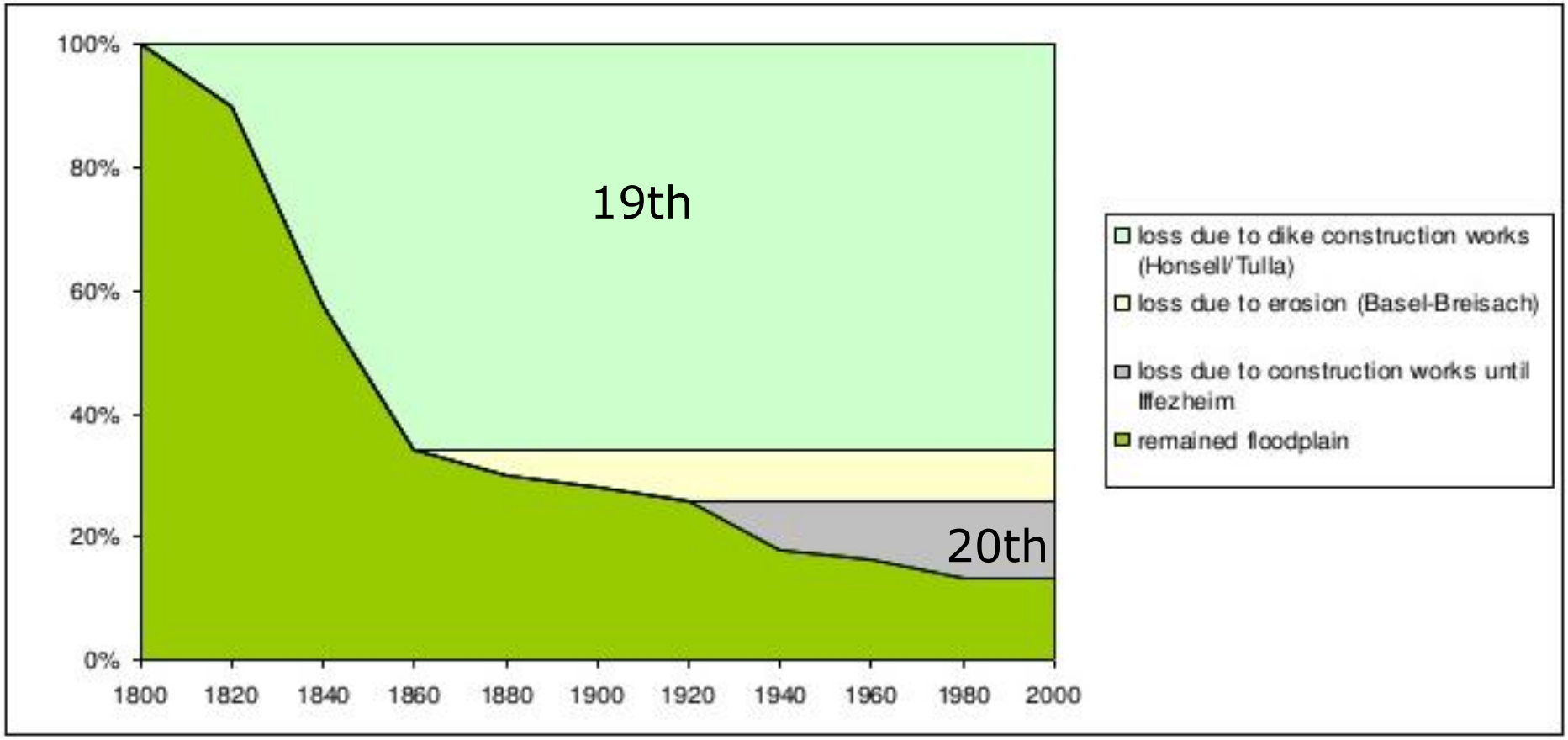
Man made flood risk increase/ecosystem degradation : The loss of flood plains

1838

1872

1980

Upper Rhine



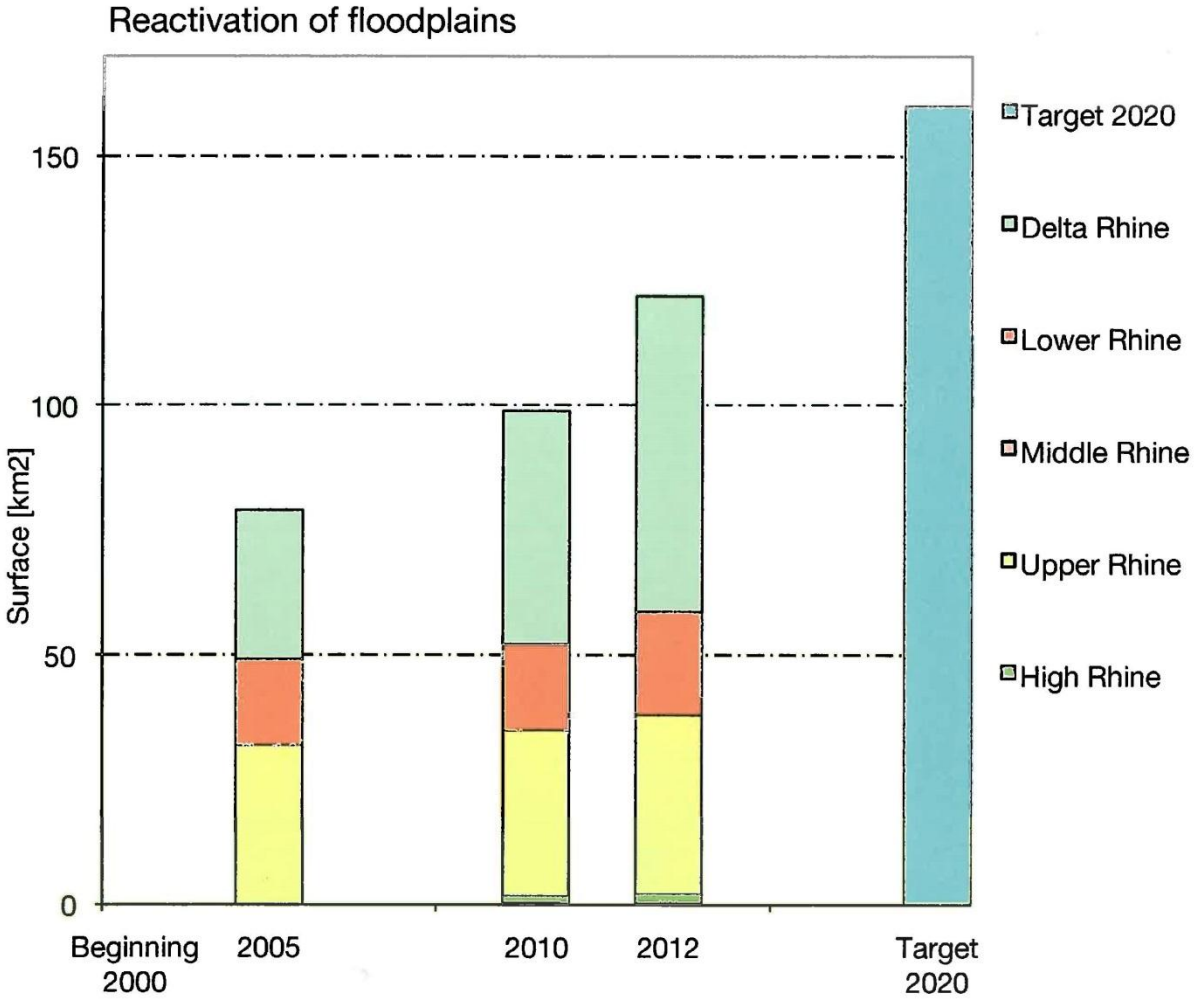
→ 85% lost on the formal 8000 km2 flood plains

Blick vom Isteiner Klotz rheinaufwärts gegen Basel (um 1820). Am südlichen Oberrhein hat sich der Fluss in zahlreiche Verästelungen aufgespalten (Furkationsaue).

Der gleiche Ort 200 Jahre später.

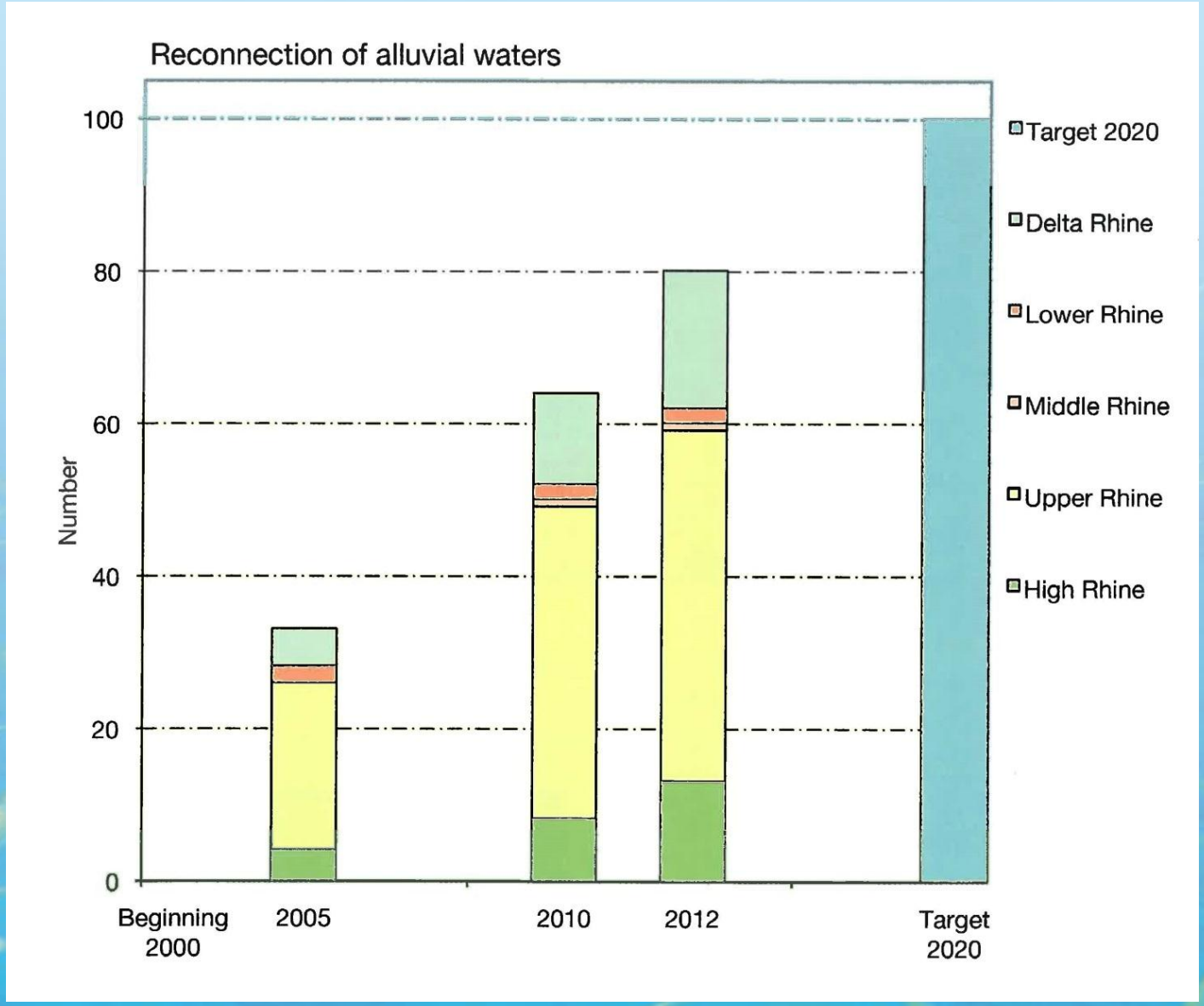
Implementation Rhine 2020 betw. 2000-2012

REACTIVATION OF FLOODPLAINS



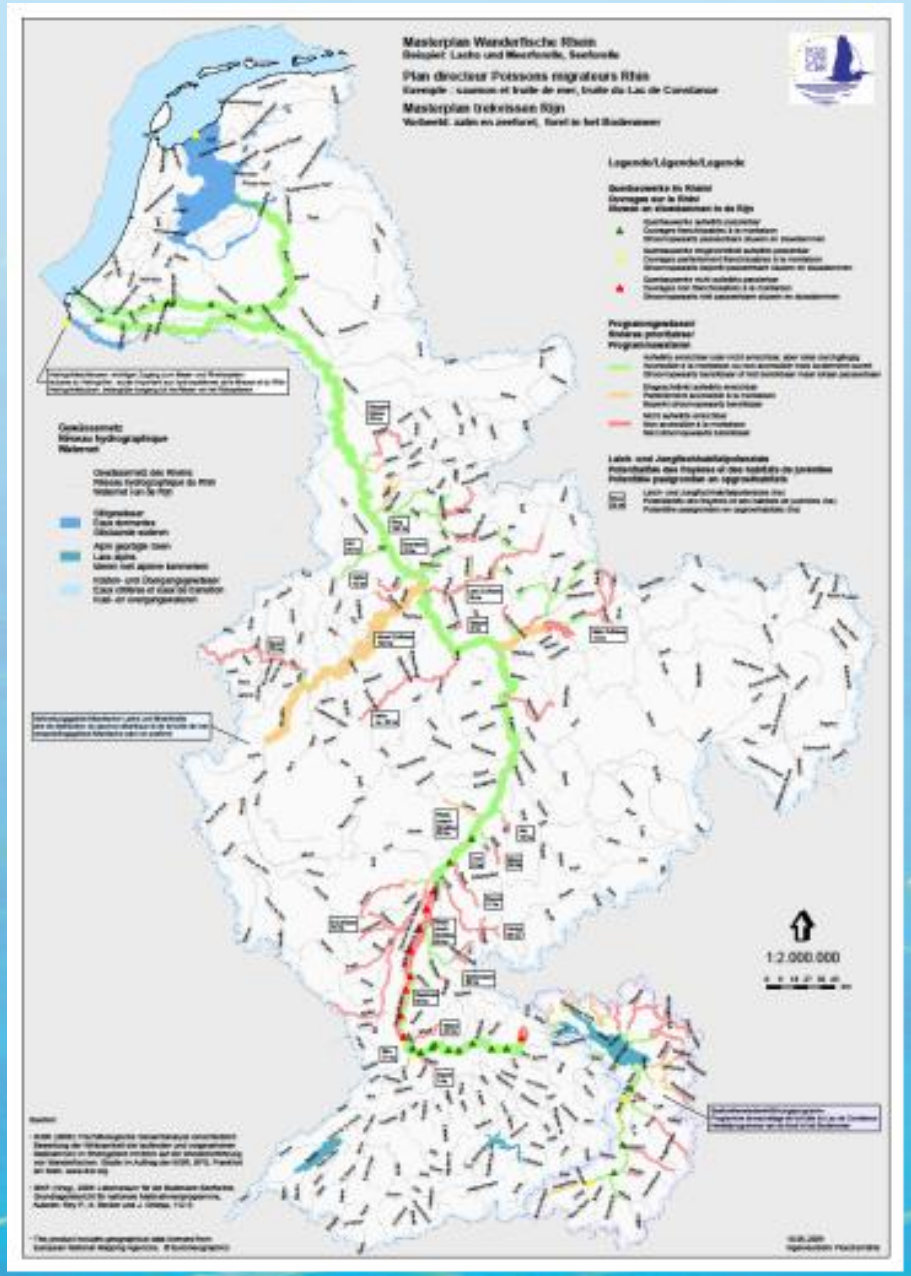
122 km² reactivated; target of **160 km² by 2020 may be achieved**

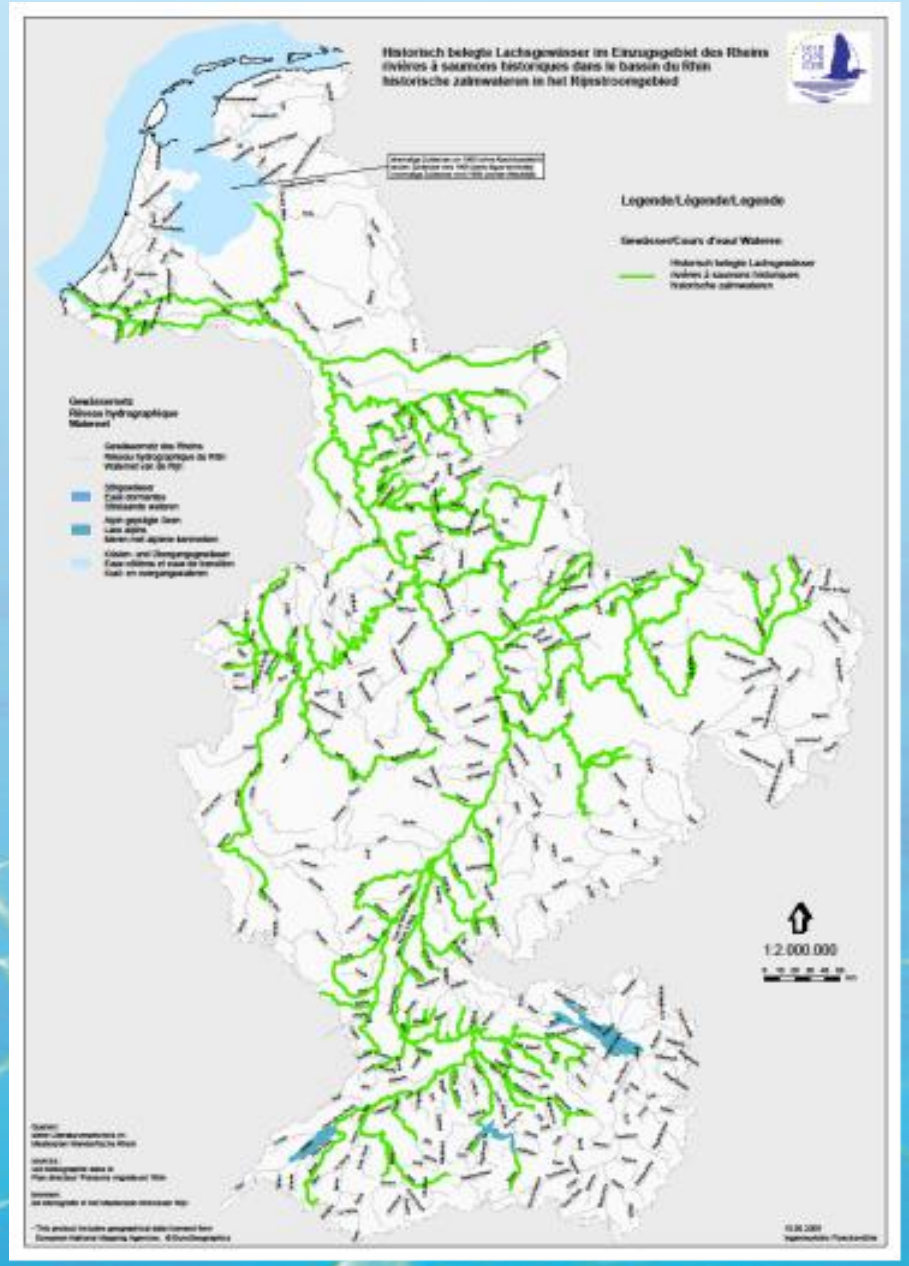
RECONNECTION OF ALLUVIAL WATERS



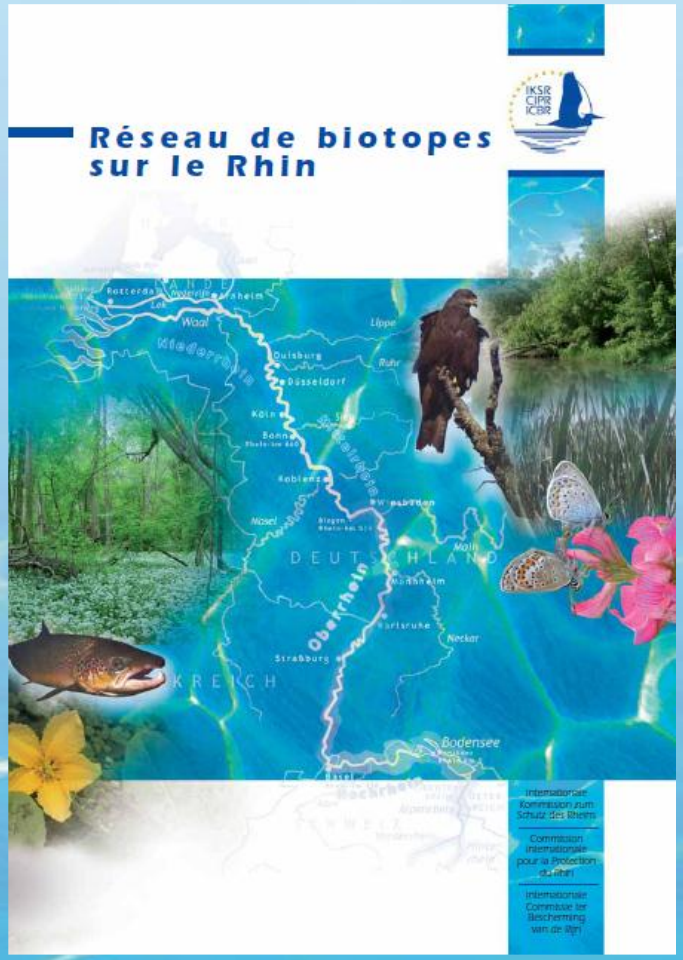
80 arms have been reconnected; target of 100 by 2020 may be achieved

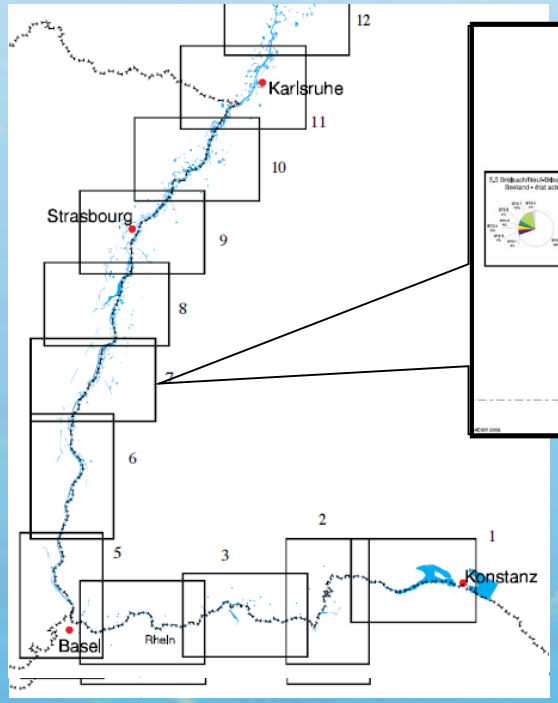
RIVER CONTINUITY

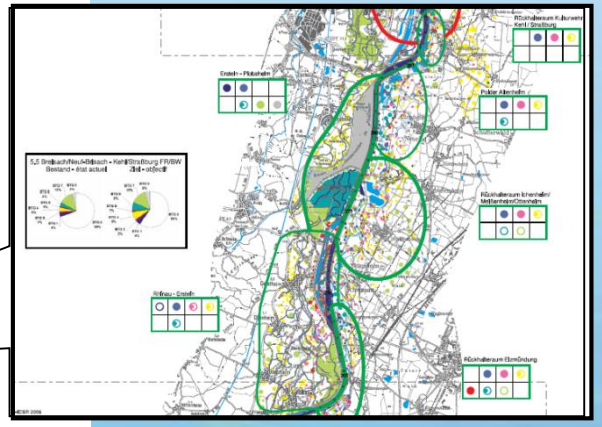




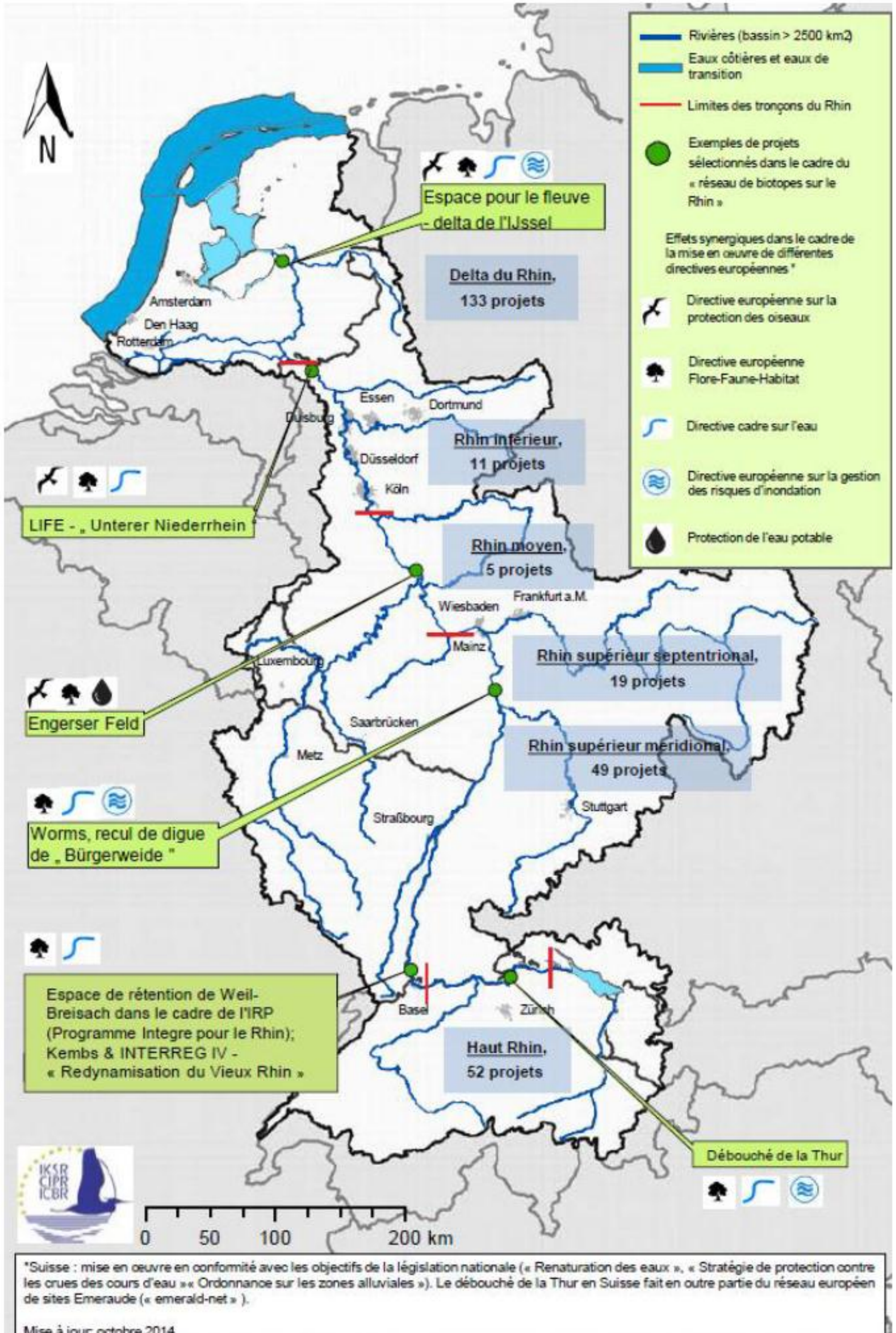
HABITAT PATCH NETWORK







A lot of (new) Birds and Habitat protected areas
A new methodolgy has to be developed to look at the connectivity


N
Rivières (bassin > 2500 km2)
Eaux côtières et eaux de transition
Limites des tronçons du Rhin
Exemples de projets sélectionnés dans le cadre du « réseau de biotopes sur le Rhin »
Effets synergiques dans le cadre de la mise en œuvre de différentes directives européennes *
Directive européenne sur la protection des oiseaux
Directive européenne Flore-Faune-Habitat
Directive cadre sur l'eau
Directive européenne sur la gestion des risques d'inondation
Protection de l'eau potable
Espace pour le fleuve - delta de l'IJssel
Delta du Rhin, 133 projets
Rhin inférieur, 11 projets
Rhin moyen, 5 projets
Rhin supérieur septentrional, 19 projets
Rhin supérieur méridional, 49 projets
Haut Rhin, 52 projets
LIFE - „ Unterer Niederrhein
Engerser Feld
Worms, recul de digue de „ Bürgerweide "
Espace de rétention de Weil-Breisach dans le cadre de l'IRP (Programme Integre pour le Rhin); Kembs & INTERREG IV - « Redynamisation du Vieux Rhin »
Débouché de la Thur
Amsterdam
Den Haag
Rotterdam
Duisburg
Essen
Dortmund
Düsseldorf
Köln
Wiesbaden
Frankfurt a.M.
Mainz
Luxembourg
Saarbrücken
Metz
Straßbourg
Stuttgart
Basel
Zürich
IKSR CIPR ICBR
0 50 100 200 km
*Suisse : mise en œuvre en conformité avec les objectifs de la législation nationale (« Renaturation des eaux », « Stratégie de protection contre les crues des cours d'eau »« Ordonnance sur les zones alluviales »). Le débouché de la Thur en Suisse fait en outre partie du réseau européen de sites Emeraude (« emerald-net »).
Mise à jour: octobre 2014


Room for the River: Nijmegen dike relocation, Netherlands
This example is one of many schemes being implemented through the national 'Room for the River' programme in the Netherlands. This particular measure involves setting back the dyke of the River Waal, and incorporating a new channel in to the expanded area of floodplain that can take additional flood flow from the Waal. The measures are also incorporated with a new area of urban development and will create an urban river park within the city of Nijmegen.
Deutschland
Germany
Polska
Poland
France
România
Romania
Беларусь
Belarus
Berlin
Warszawa
Paris
Hamburg
Bucureşti
Moldova
Chişinău
Firenze
Vilnius
Минск
Minsk
Google
Kartendaten
Nutzungsbedingungen
Fehler bei Google Maps melden


Polder management near Altenheim, Germany
Ecological flooding has been introduced in a polder area next to the Rhine, near Altenheim in Germany. This measure improved the ecological functionality of the area, and created at the same time valuable space for recreation. Issues of forest management, a rising groundwater level and an increased mosquito population had to be dealt with.
België
Belgique
Belgium
Köln
Frankfurt am Main
Mannheim
Nürnberg
Stuttgart
München
Česká republika
Czech Republic
Praha
Brno
Dijon
Lyon
Grenoble
Torino
Milano
Österreich
Lille
Google
Kartendaten
Nutzungsbedingungen
Fehler bei Google Maps

From the Flood Action Plan to the 1st Flood risk management plan for the International Rhine Basin District….

What has the ICPR done in the past?

Rhine Ministers' Conference
Jan. 1998 → The Action Plan on Floods (1998-2020)

4 ambitious objectives:

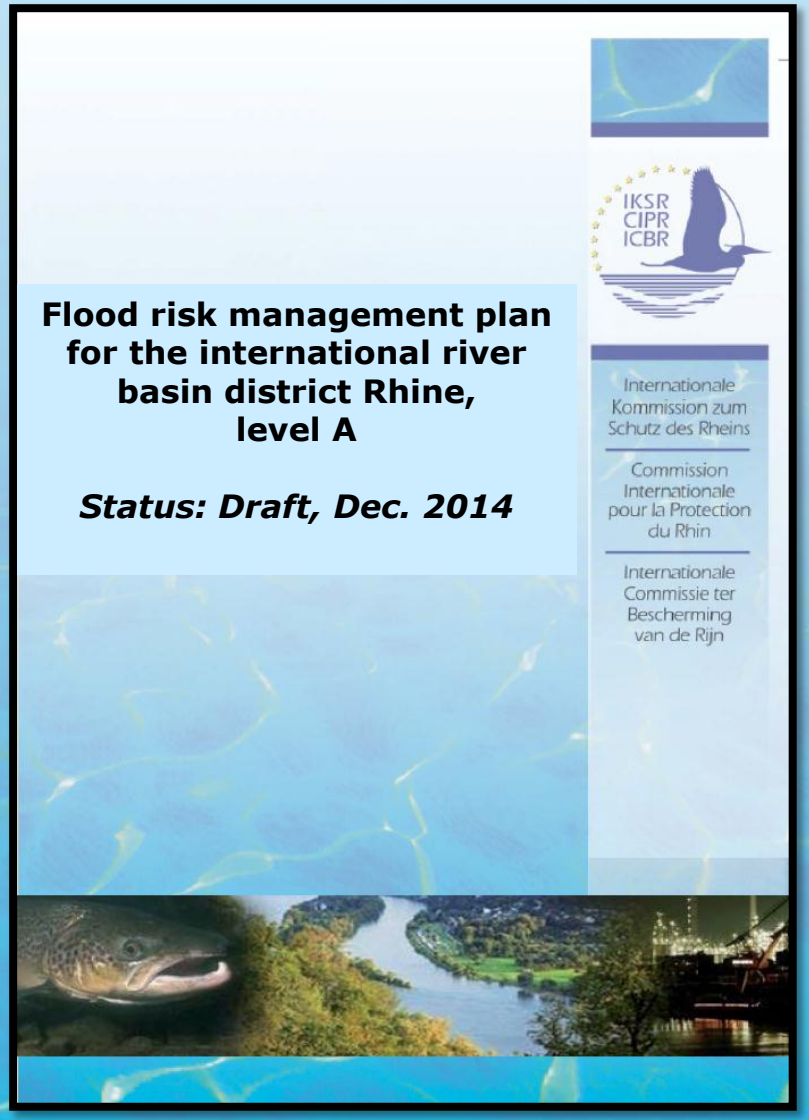
(1) Reduce flood damage risks by 25 % by 2020 -

(2) Reduction of flood levels by up to 70 cm by 2020 (V)

(3) Increasing flood awareness by drafting and spreading flood risk maps for 100 % of flood hazard areas V

(4) Improve the flood forecasting system - Prolong forecasting periods by 100 % by 2005 V

The new draft of the Flood risk management plan for the river Rhine basin



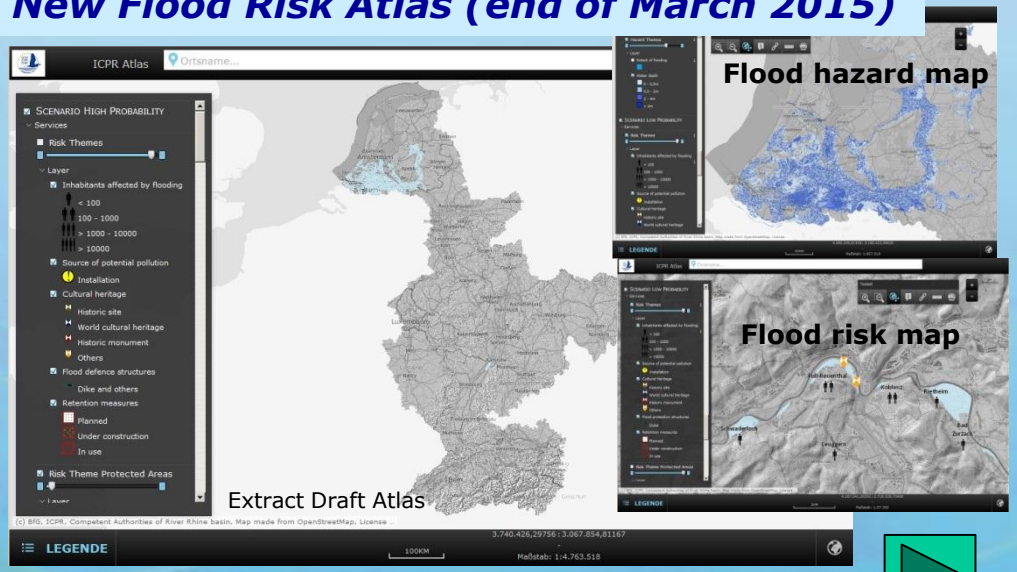
Since December 22th 2014: available for public information and consultation on www.iksr.org

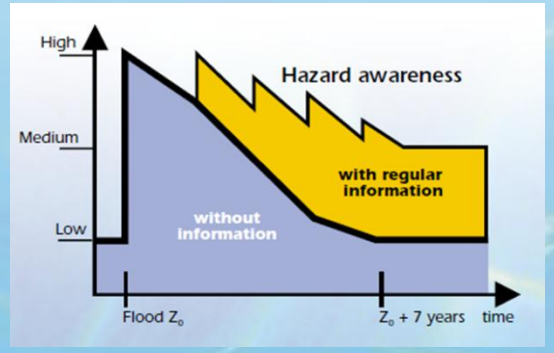
Finalized and available in English by **December 22th 2015**.

Common concrete measures: Improvement of information exchange and access

Risk knowledge and awareness

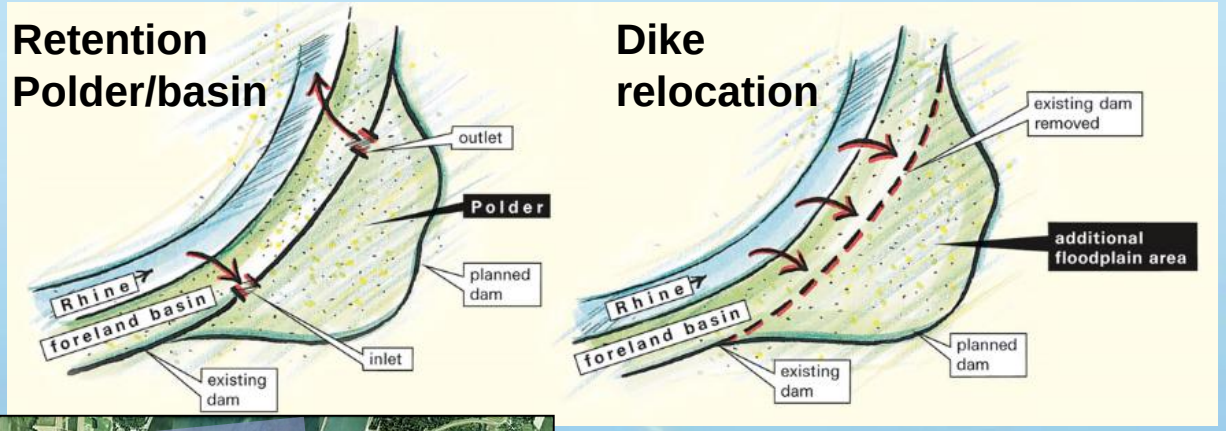
New Flood Risk Atlas (end of March 2015)

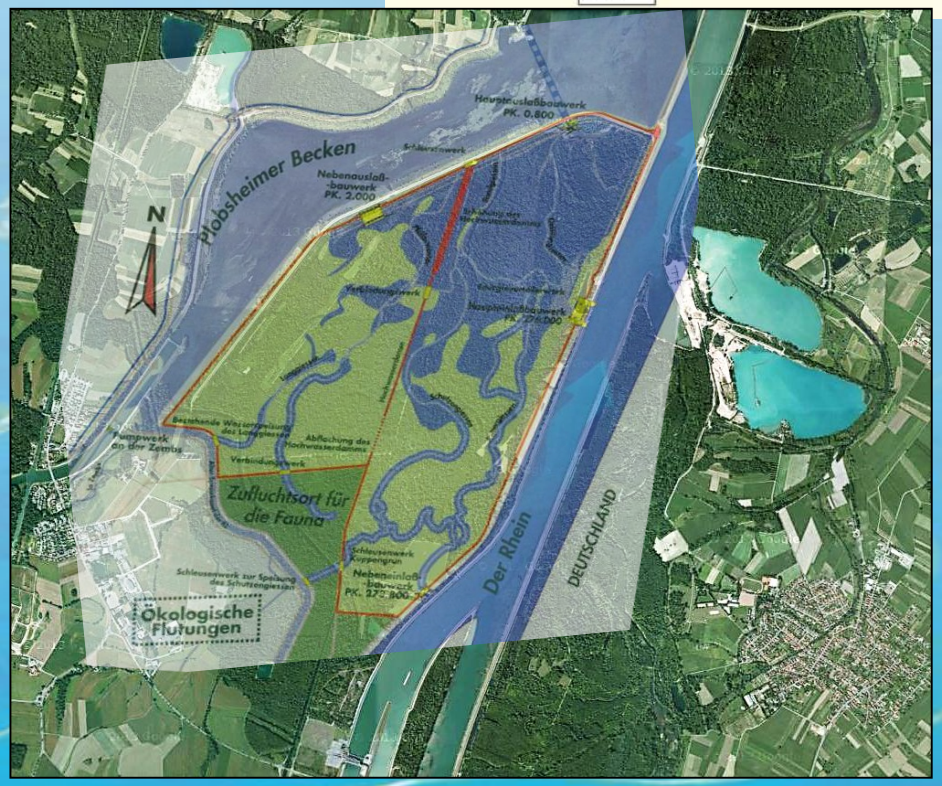




→ **The new atlas (soon available on www.iksr.org) is showing amongst flood levels the water related birds and habitat protected areas, the drinking water protected areas and the industrial installations (IPPC, SEVESO).**

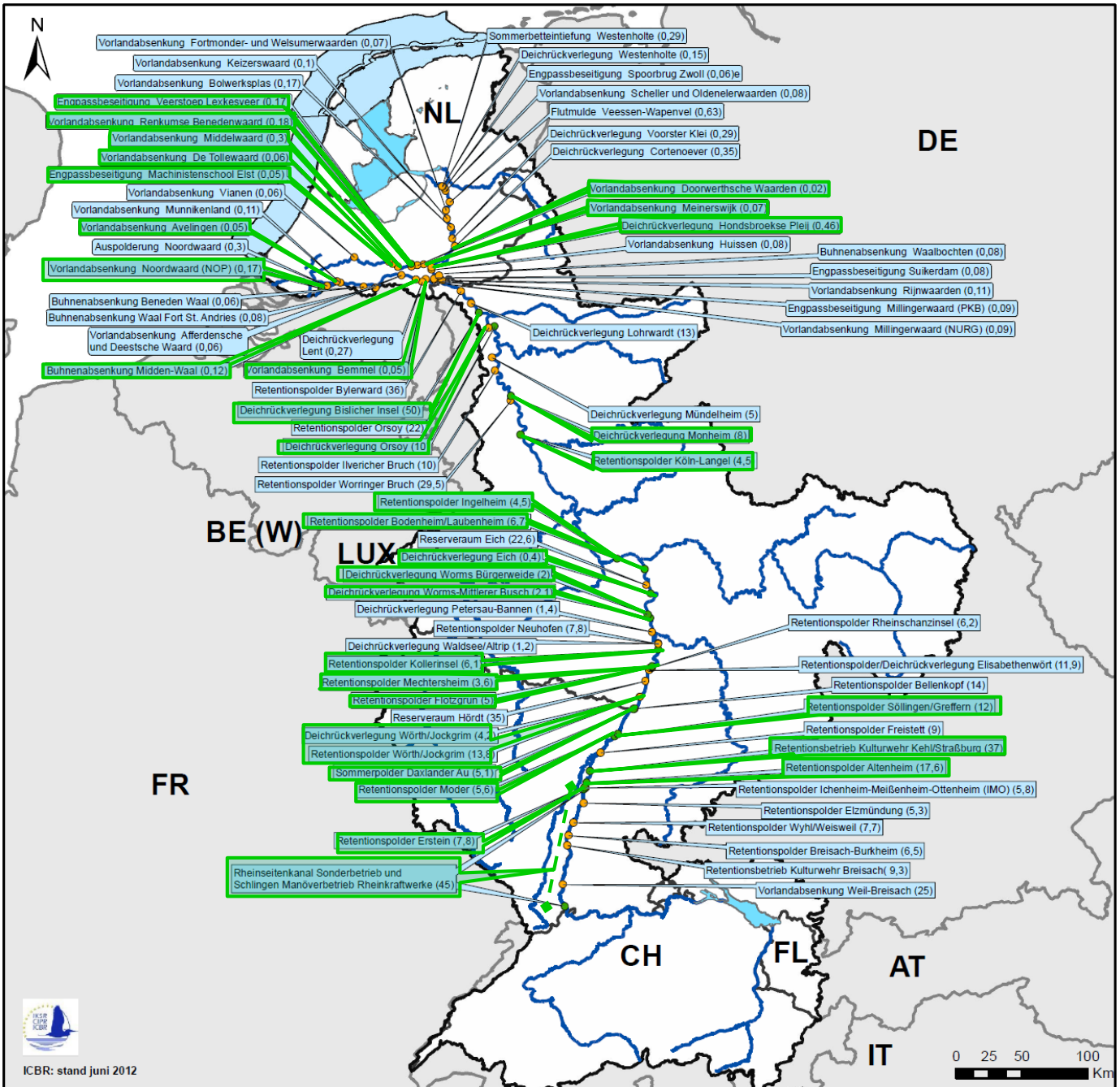
Common concrete measures: Realization of water level reduction measures





Retention basin Erstein

Realization of water level reduction measures



Maatregelen voor de retentie van hoogwater in de hoofdstroom van de Rijn

Stand van de uitvoering van de maatregelen

- Afgerond
- In uitvoering / in planning

Wateren

- Rivieren
- Kust- en overgangswateren

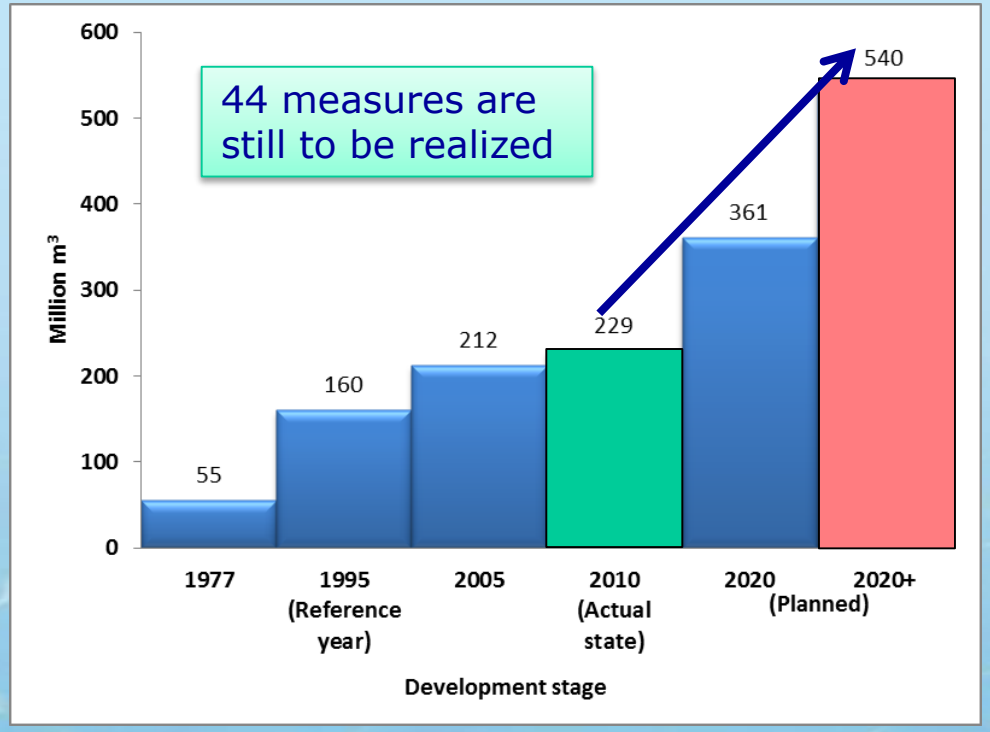
Toelichting bij de cijfers

Voor de waterstandverlagende maatregelen in de Rijndelta vanaf Lobith: verlaging van de waterstand in m

Voor de retentiemaatregelen tussen Bazel en Lobith: volumes in miljoen m³

Opmerking: De Franse of Nederlandse naam van de maatregelen is te vinden in de bijgevoegde tabellen.

32 from 76 measures are accomplished



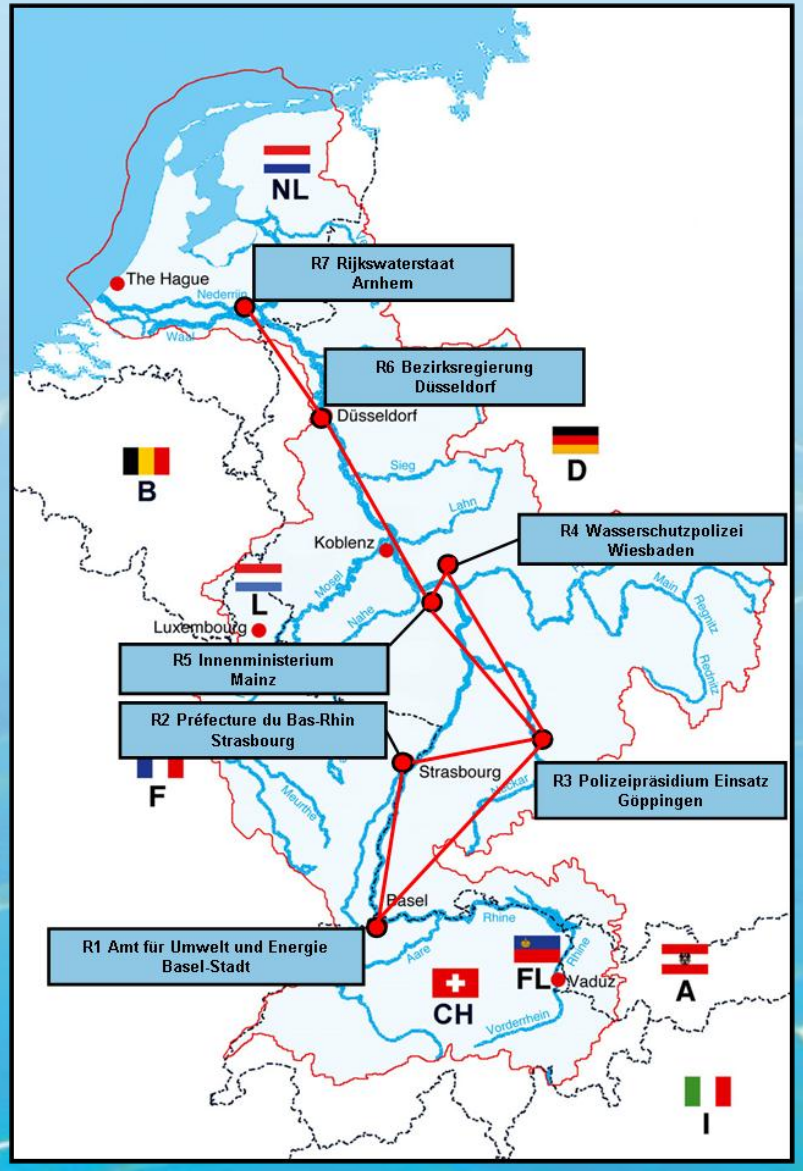
Reduction of flood water levels

(downstream of the impounded river stretch, state as 2020; 100years returning period)

Upper Rhine	**10-23 cm (max. 44 cm)**
Middle Rhine	**16-29 cm (max. 50 cm)**
Lower Rhine	**4-14 cm (max. 25 cm)**
Rhine delta	**10-45 cm (max. 57 cm)**

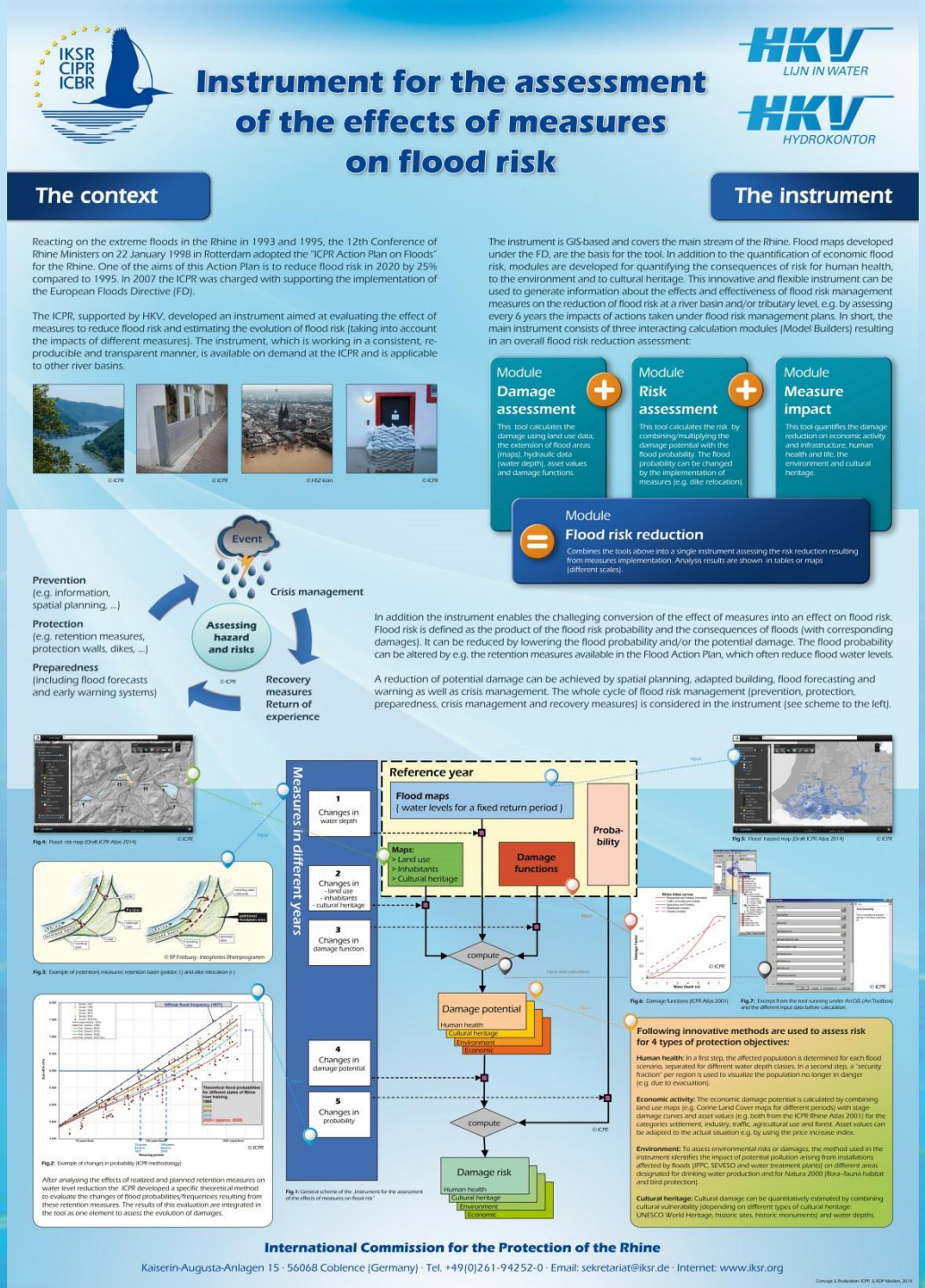
Some related ICPR works

Warn and Alarm Plan
(in case of accidental pollution)



Macroscopic risk analysis and development of a GIS-instrument

To assess **environmental risks** or damages, the method used in the instrument identifies the impact of potential pollution arising from installations affected by floods (IPPC, SEVESO and water treatment plants) on different areas designated for drinking water production and for Natura 2000 (flora–fauna habitat and bird protection).



Internet: www.iksr.org
Phone: 0049-(0)261-94252-22

Email: adrian.schmid-breton@iksr.de