

Restoring the lateral and longitudinal connectivity in the international Rhine basin



Laura Gangi
IKSR – CIPR – ICBR - ICPR

**World Fish Migration Day Seminar,
20 April 2018, Bratislava, Slovakia**



Internationale
Kommission zum
Schutz des Rheins

Commission
Internationale
pour la Protection
du Rhin

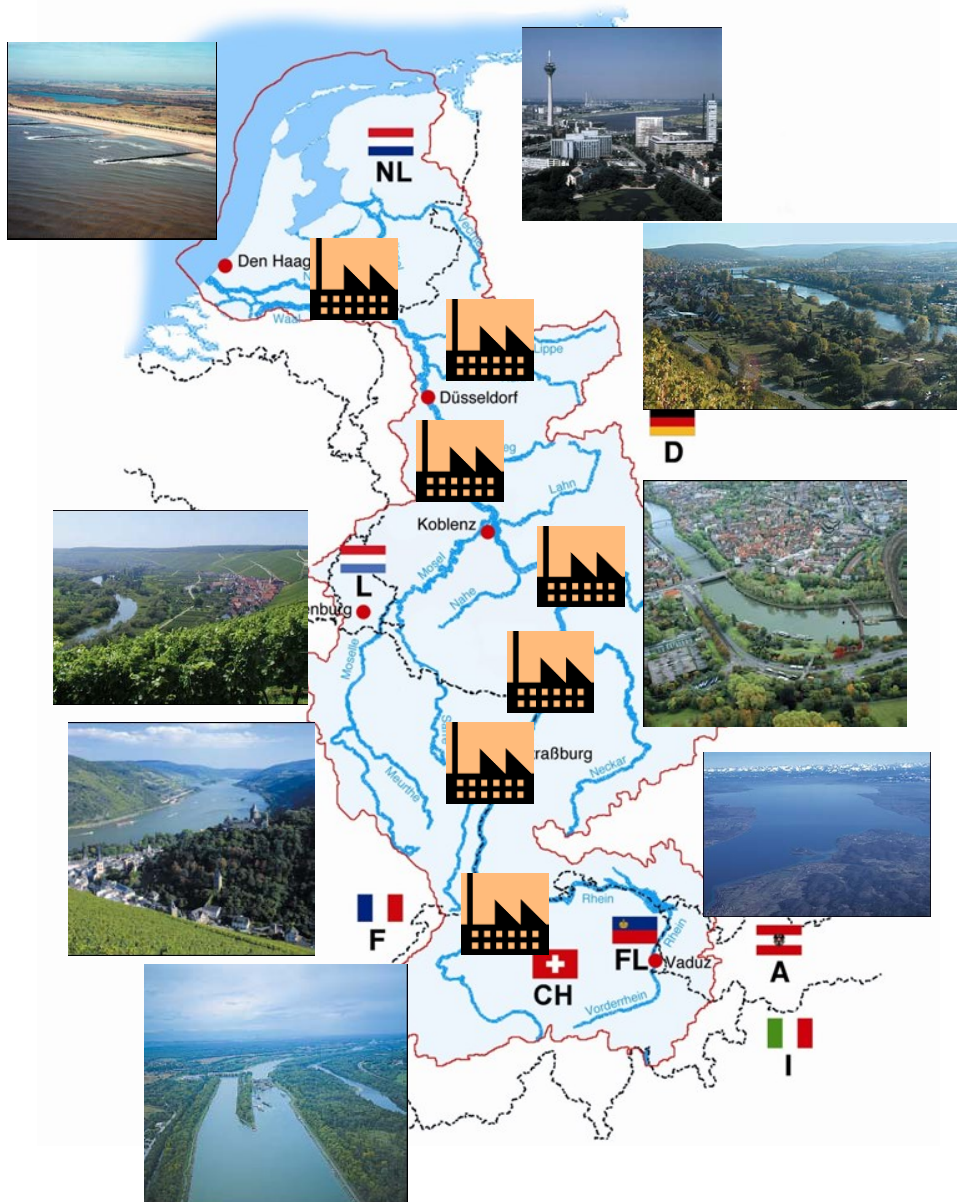
Internationale
Commissie ter
Bescherming
van de Rijn

**International
Commission
for the
Protection of
the Rhine**



- **Rhine basin**
- **Historical review**
- **ICPR Programme „Rhine 2020“**
- **ICPR Atlas biotope network**
- **ICPR Masterplan Migratory Fish**

Rhine basin facts



**Main stream
Length: 1233 km**

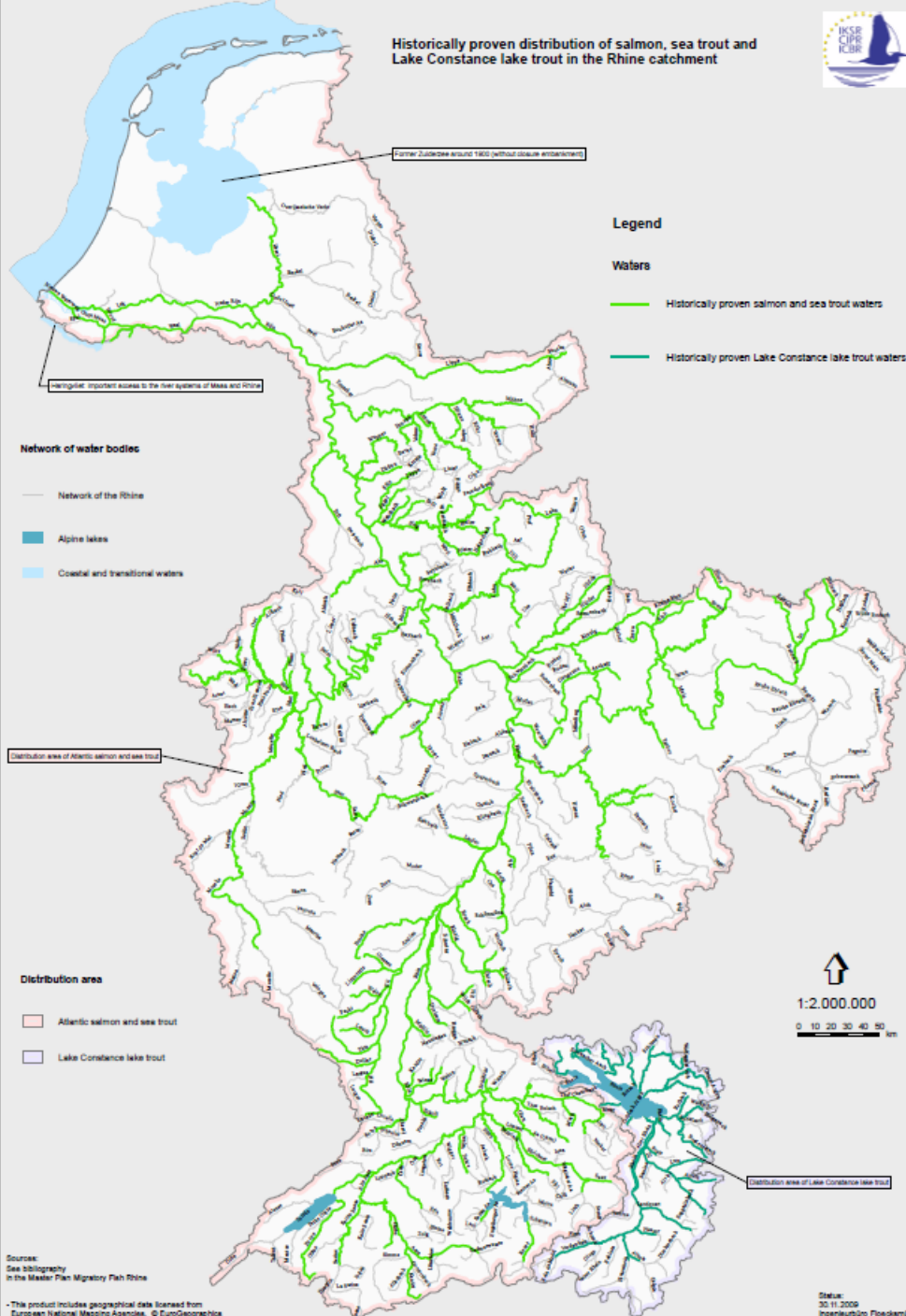
**60 million
inhabitants in 9
countries**

**Drinking water
supply for 30 million
people**

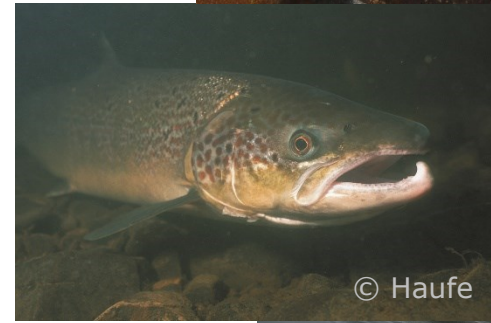
**Europe's most
important navigation
route (825 km)**



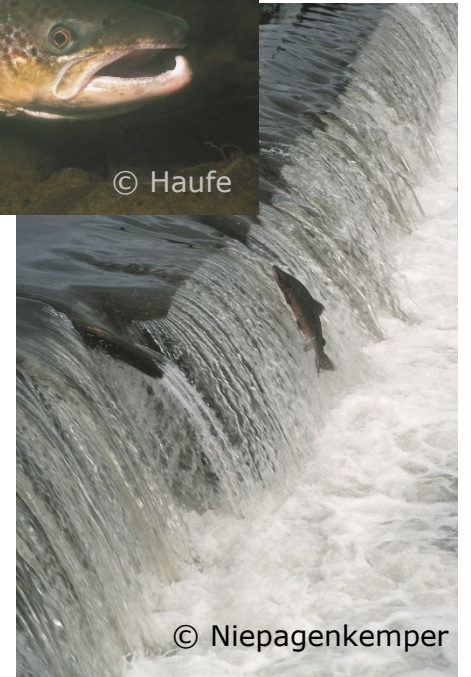
Historically proven distribution of salmon, sea trout and Lake Constance lake trout in the Rhine catchment



© Schneider

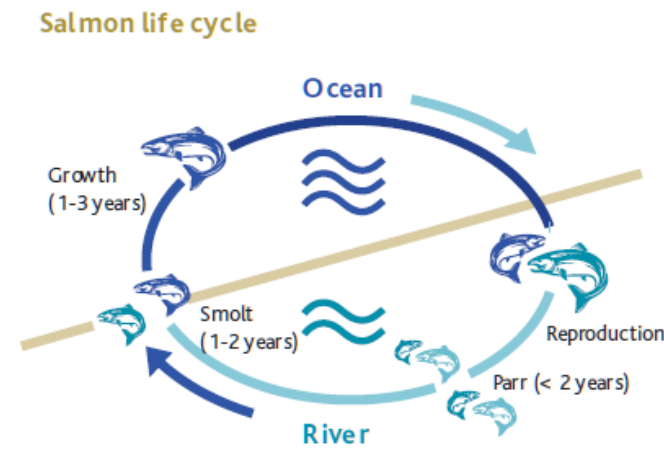
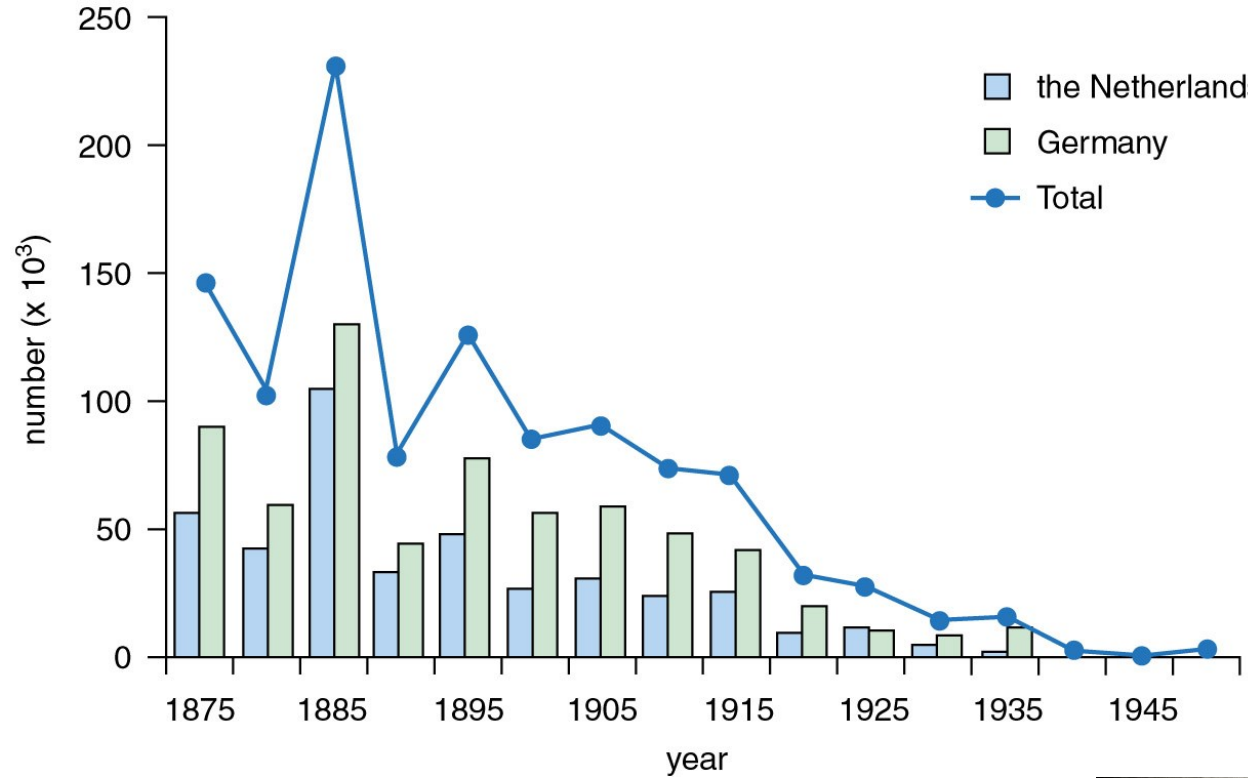


© Haufe



© Niepagenkemper

Decline of the salmon population



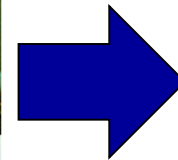
***Salmo salar* † 1958**



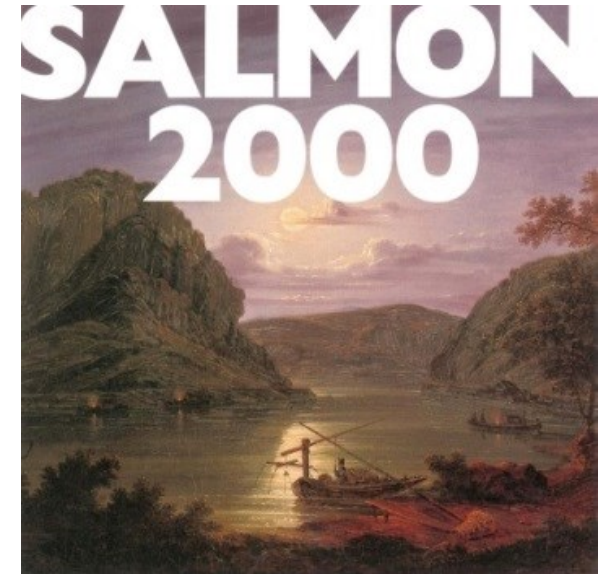
The Sandoz disaster – a turning point



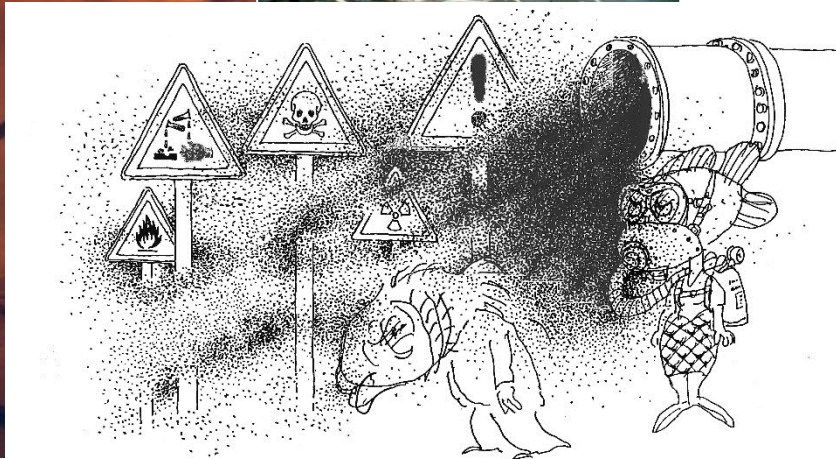
**Sandoz fire
1986**



**Rhine Action
Programme 1987**



**symbol
for a healthy Rhine**



Rhine 2020 (since 2001)



Clear targets for ecosystem improvement

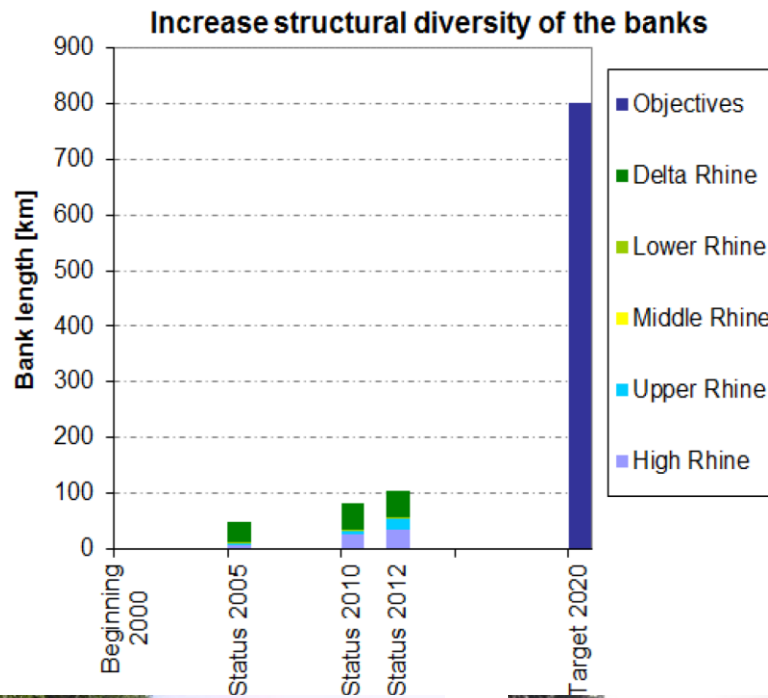
- Reactivate floodplains
- Protect and reconnect alluvial ecosystems
- Restoration of habitat connectivity
- Restoration of ecological continuity

(reinforced by ICPR Masterplan Migratory Fish, 2009)



→ Holistic approach: **integrate** measures related to water quality, flood prevention, ecosystem improvement

Rhine 2020 - Targets

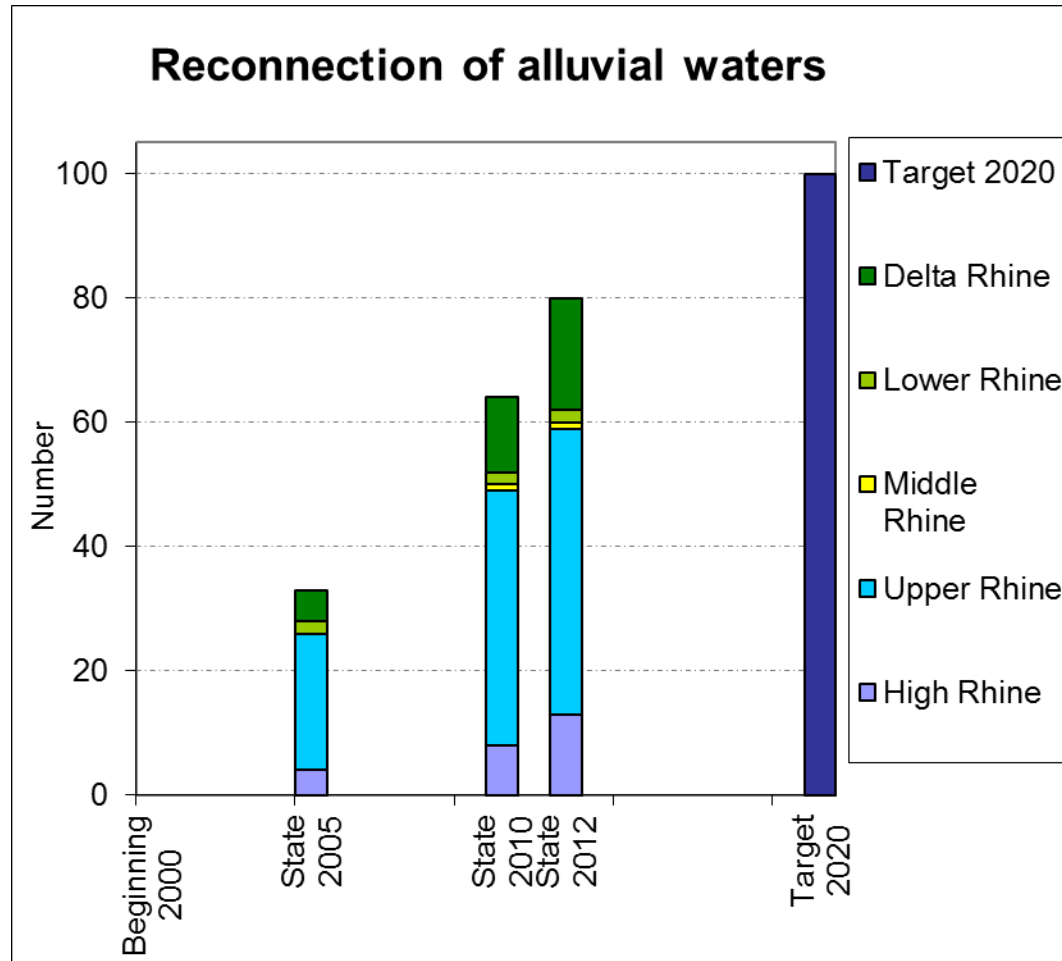


before

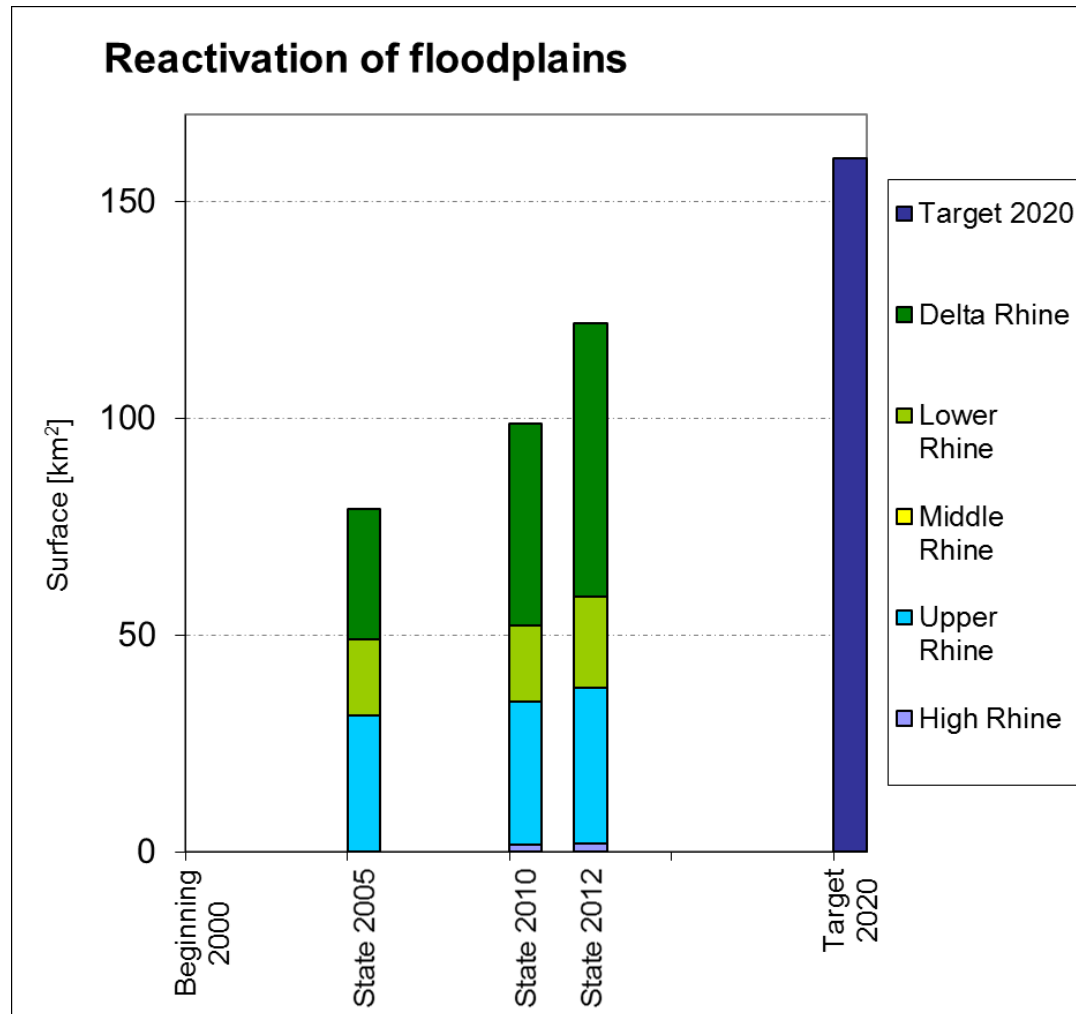


after structural improvements

Rhine 2020 - Targets



Rhine 2020 - Targets

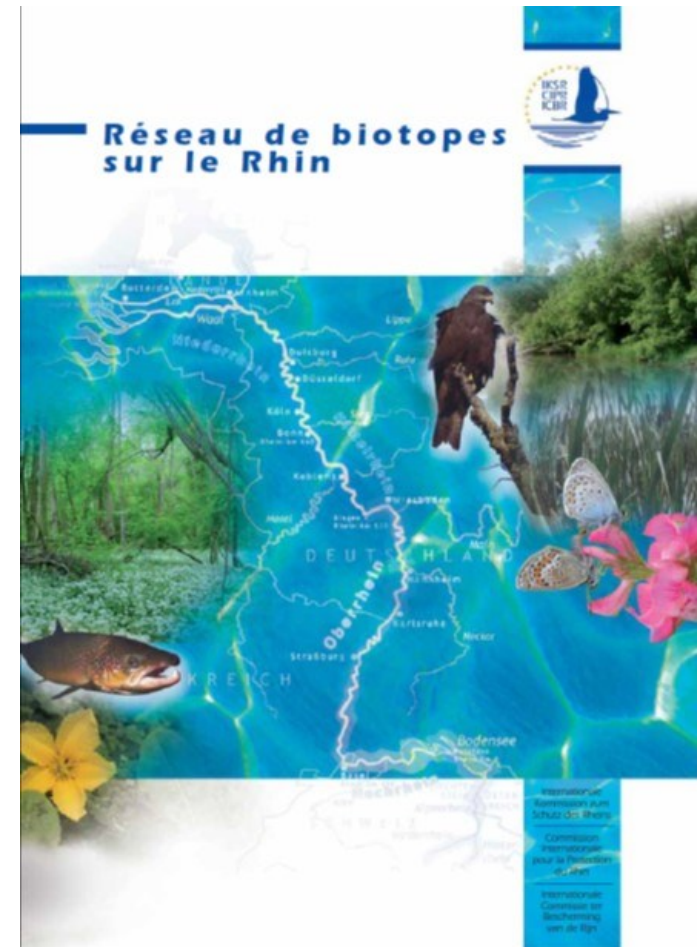


ICPR Atlas biotope network (2006)



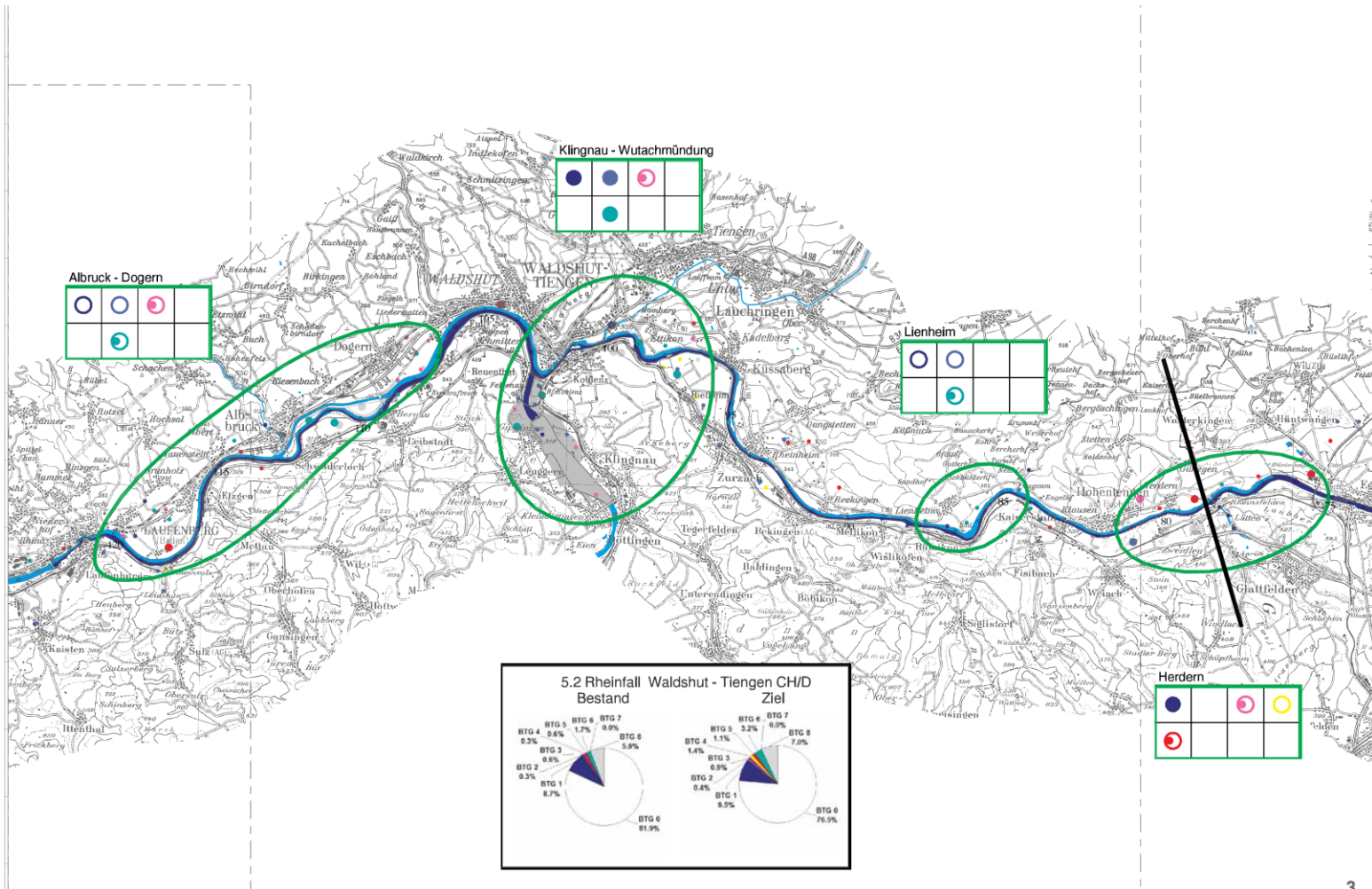
Concept for restoration of habitat connectivity along the Rhine

- preserve freely flowing river sections
- restore river dynamics
- (permit) a more varied design of the structure of river banks and bottom
- open old alluvial areas to the river
- change to more extensive agriculture in the floodplain
- remove obstacles to the migration of the river fauna
- reconnect old river branches and torrents



ICPR reports 154, 155

ICPR Atlas Biotope network (2006)



Definition of precise development goals and need for action for every section of the Rhine

8 types of habitats along the Rhine



1) Aquatic and amphibious part of the waters



2) Natural alluvial waters



3) Swamps, reeds and tall herbaceous vegetation



4) Greenland



8 types of habitats along the Rhine



5) Siccous biotopes



6) Alluvial woods in the present overbank area



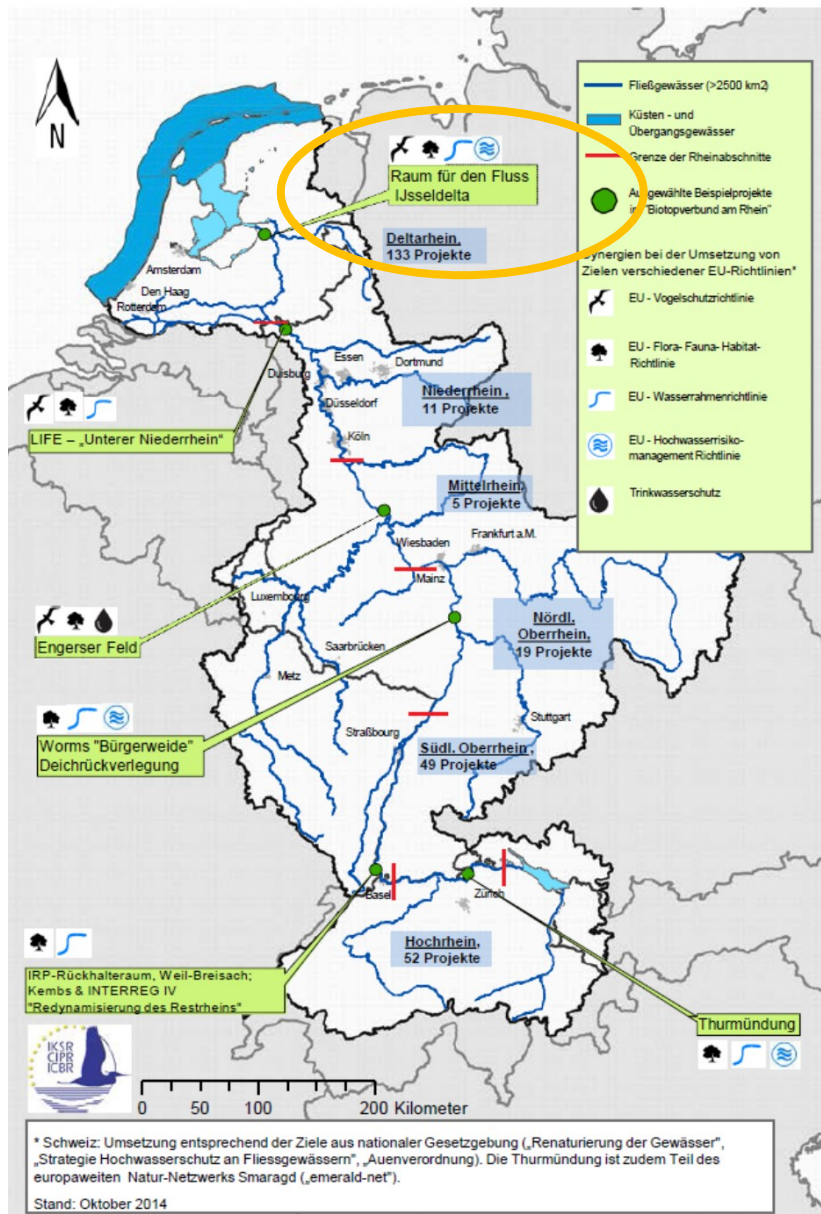
7) Forests in the former floodplain



8) Other habitats of importance for species protection



Reconnecting biotopes along the Rhine: Examples



- Last success control in 2015 (ICPR report 223)
- future success control based on remote sensing

Delta Rhine: Room for the River



<https://www.ruimtevoorderivier.nl/>

Room for the river Waal



© Ruimte voor de Waal

before



© Ruimte voor de Waal

after relocating the dike Lent-Nijmegen

Master Plan Migratory Fish Rhine (since 2009)

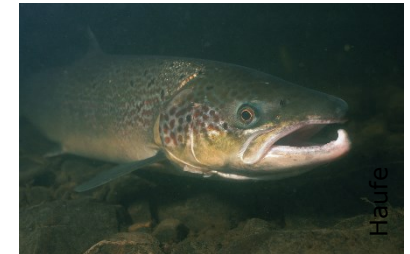


Goal: self sustaining, stable populations of migratory fish in the Rhine catchment as far as Basel (CH)



Measures:

- **River continuity in the program waters**
- **Restoration of habitats**
- **Stocking (i.a. salmon, allis shad)**



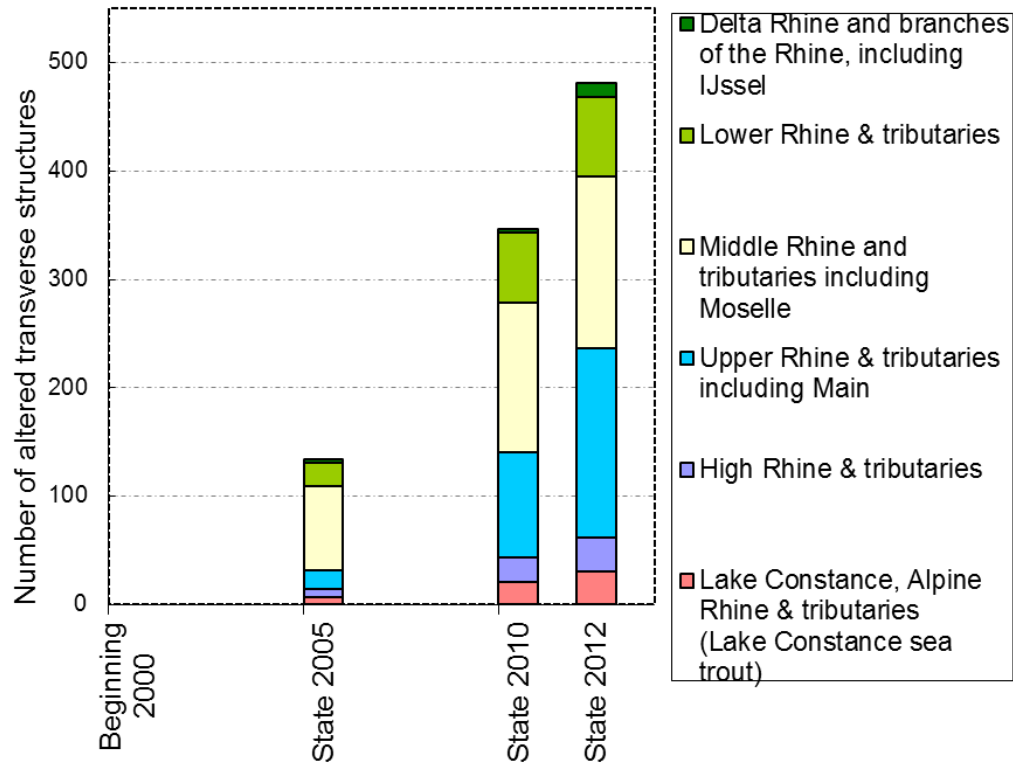
Total costs: € 627 Mln (data December 2015)



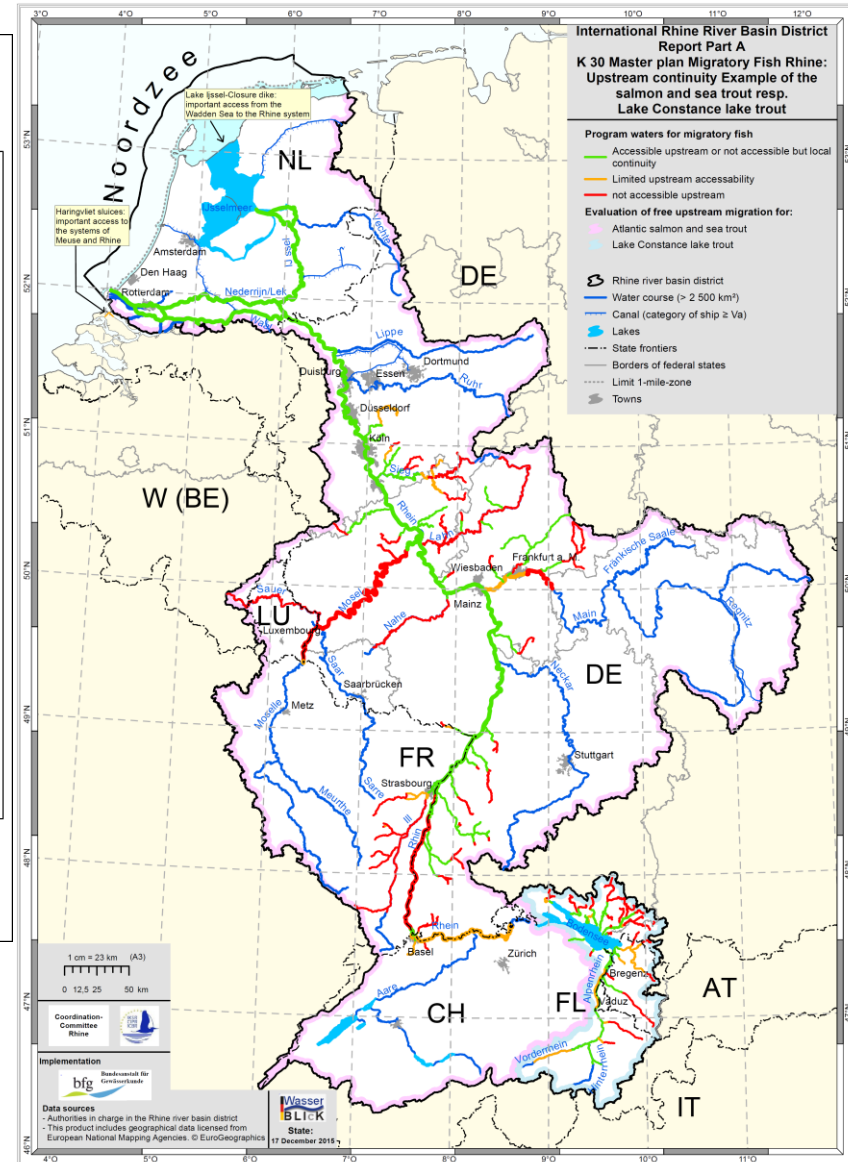
Restoration of river continuity



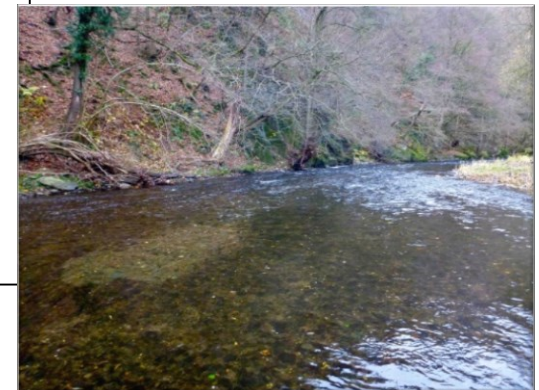
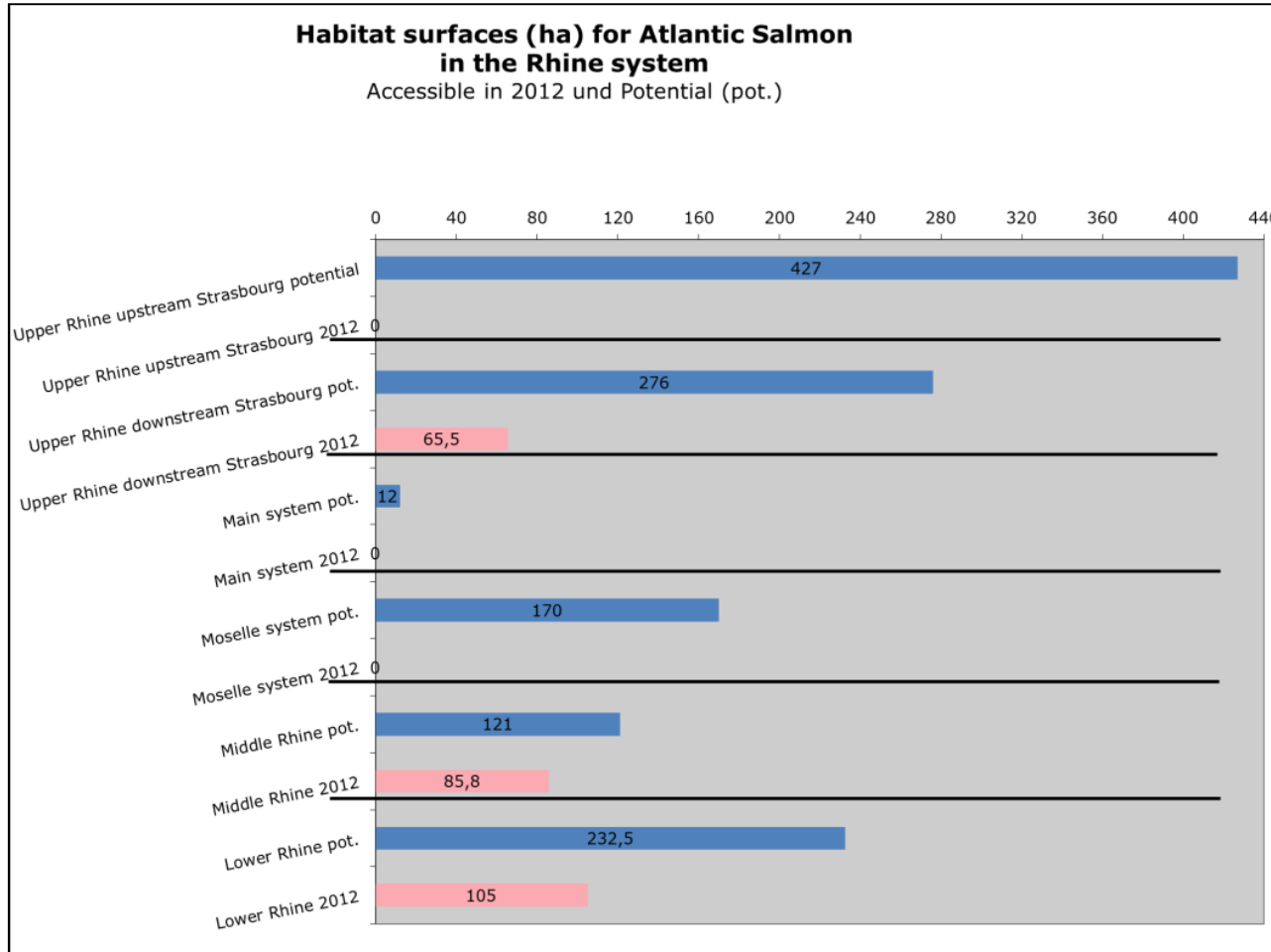
Improvement of river continuity



→ improvements at 500 sites

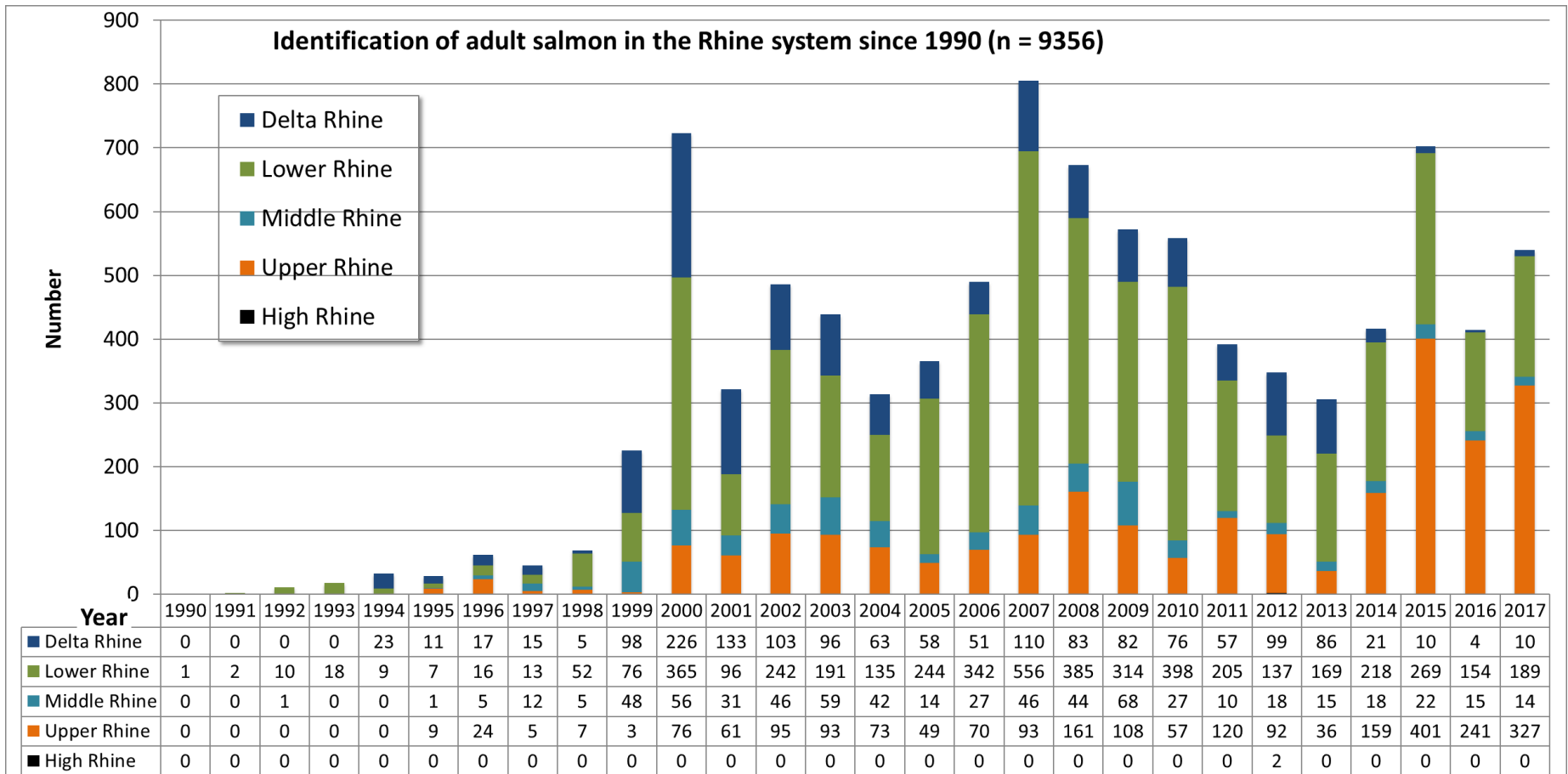


Habitat restoration



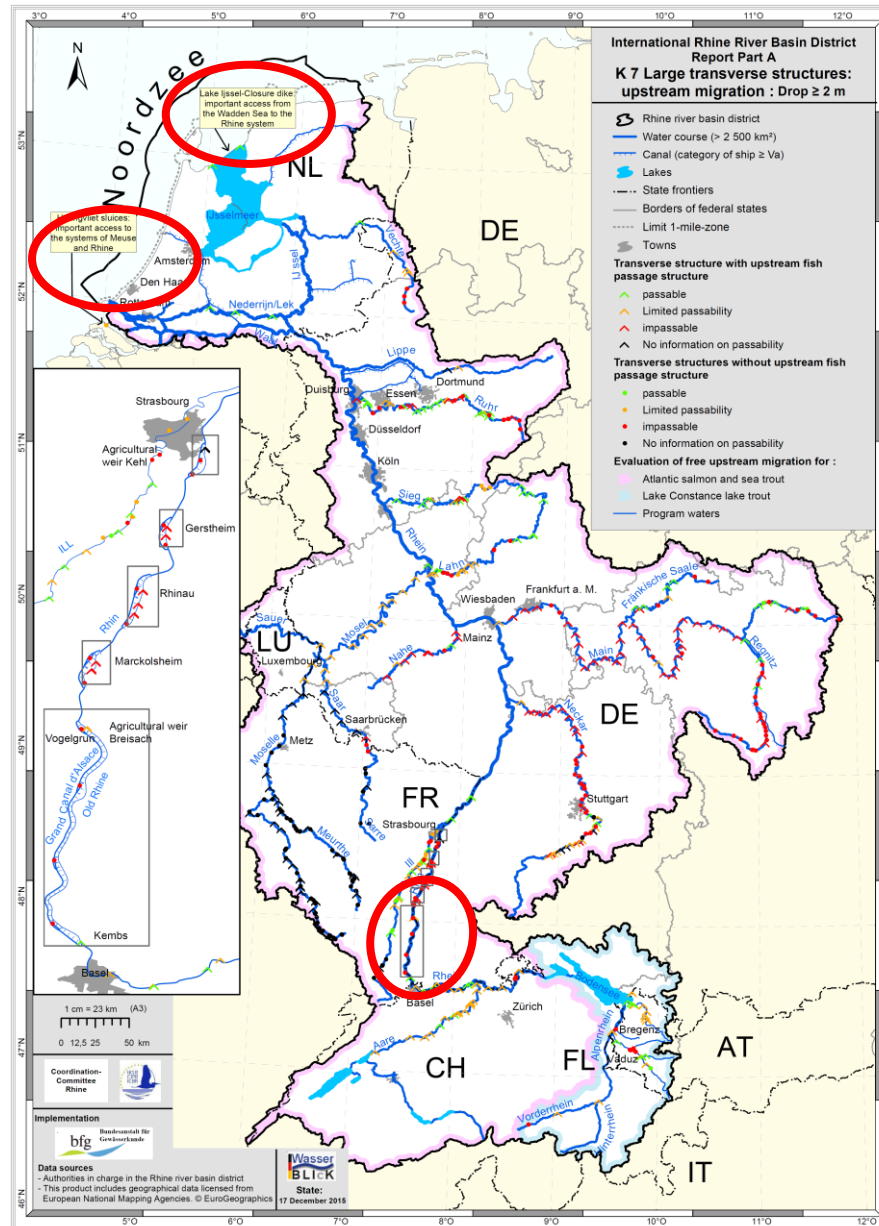
→ 21 % of the salmon habitats (1200 Ha) are accessible (state 2015)

The comeback of Salmon in the Rhine



- **Salmon is the symbol but other migratory fish (allis shad, houting) are on the rise as well**

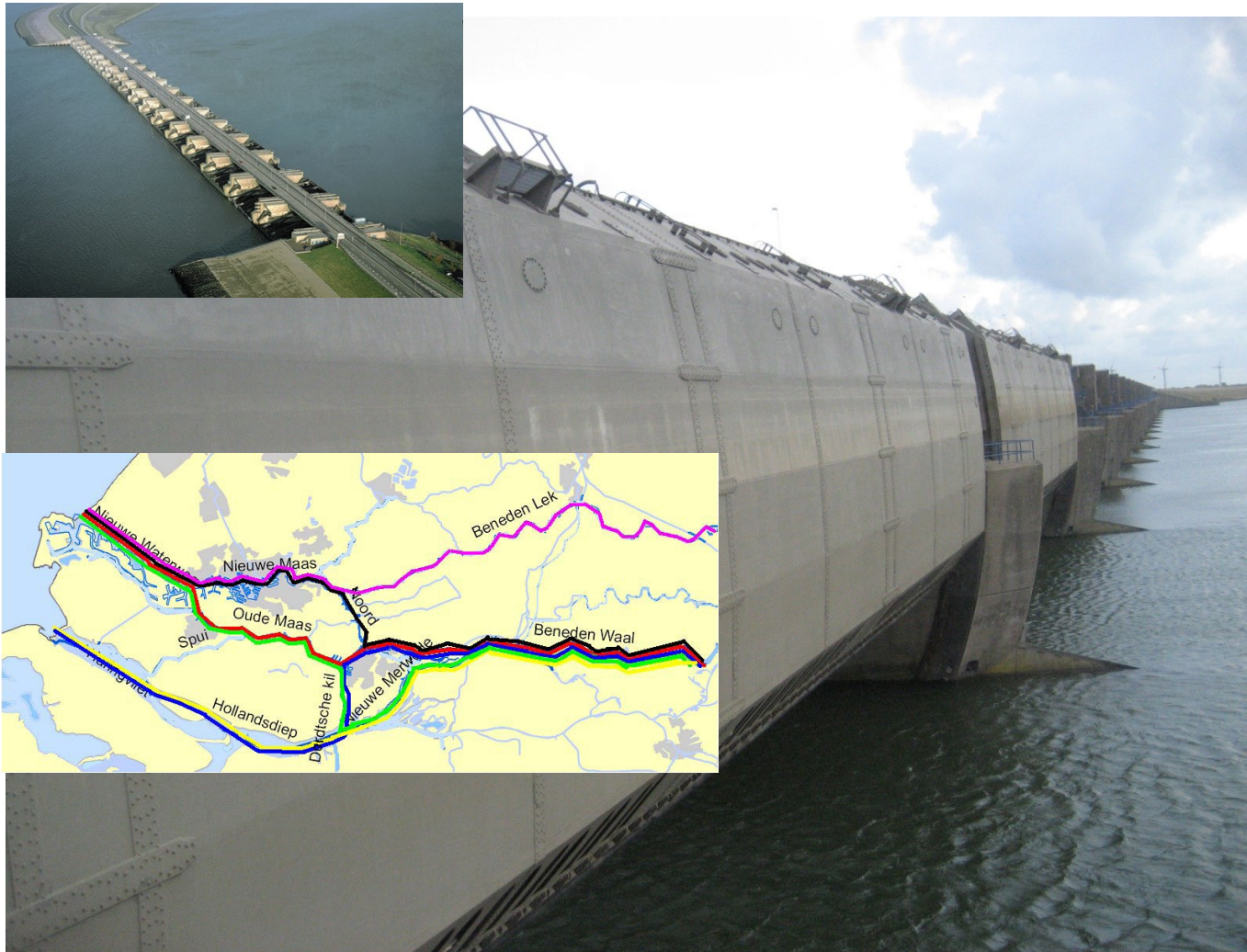
Outlook: River continuity



Outlook: Optimizing access to Rhine system



Partly opening of Haringvliet sluices in 2018



Outlook: Optimizing access to Rhine system



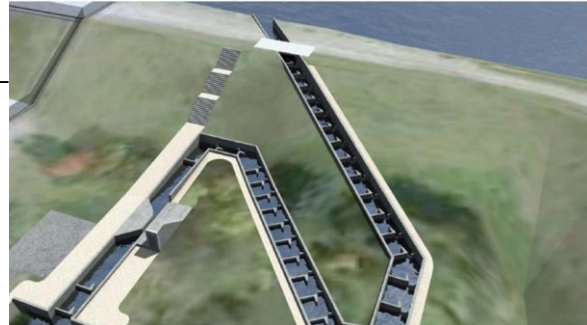
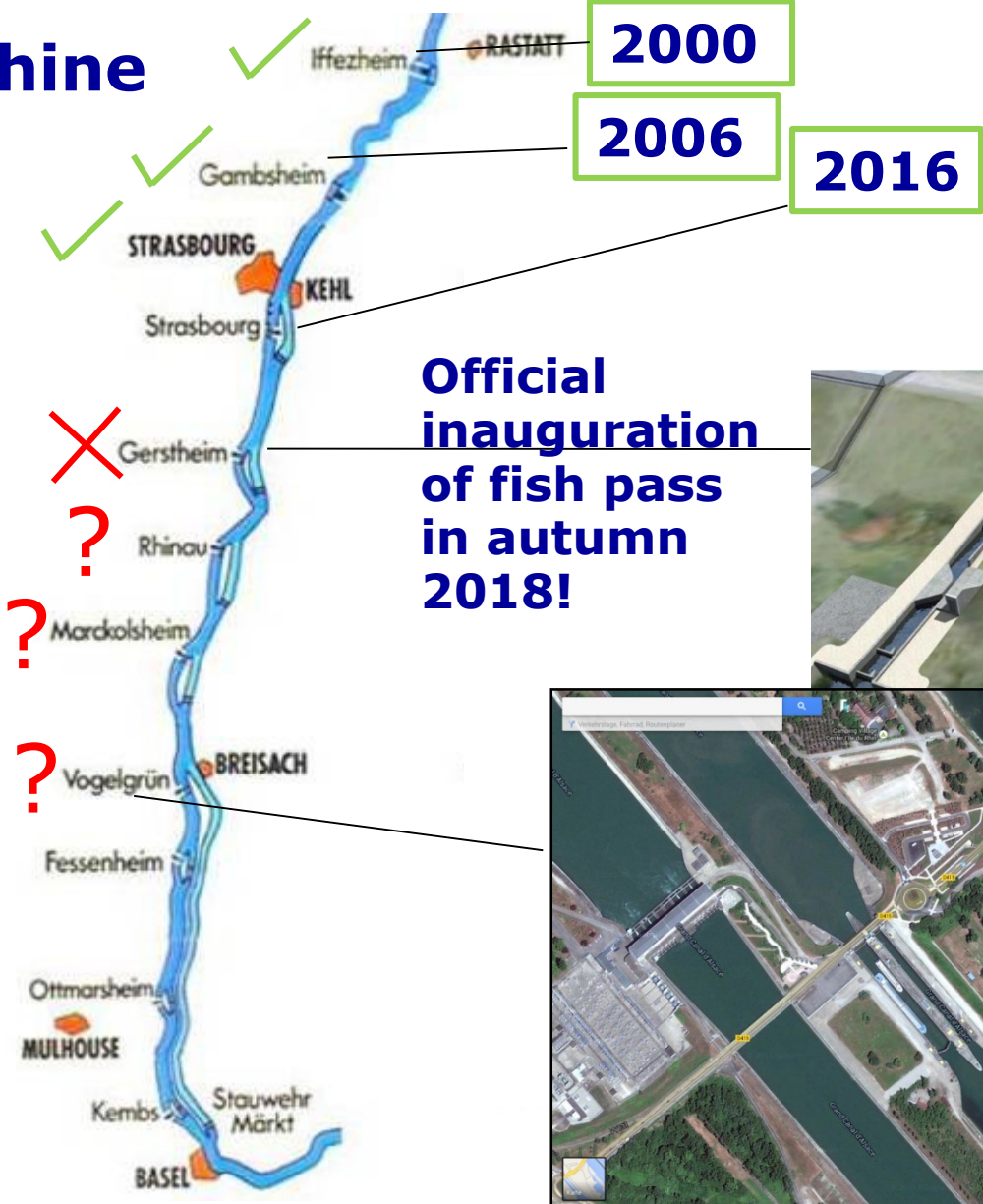
Fish migration river at closure embankment of IJsselmeer (starting 2018)



Outlook: Restoring river continuity



Upper Rhine



Outlook: Restoring river continuity also for downstream migrating fish



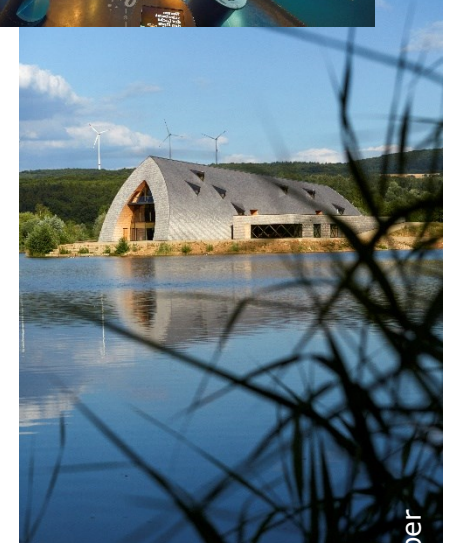
Connectivity is important!



IKSR
CIPR
ICBR

Focus
Rhine

What can be experienced and where?
Visitors' centres in the Rhine catchment



© Weber

Thank you for your attention!



www.iksr.org
laura.gangi@iksr.de