



# The Rhine: Managing a European river



**Dr. Laura Gangi**  
**Dr. Tabea Stötter**

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

**24 May 2019**

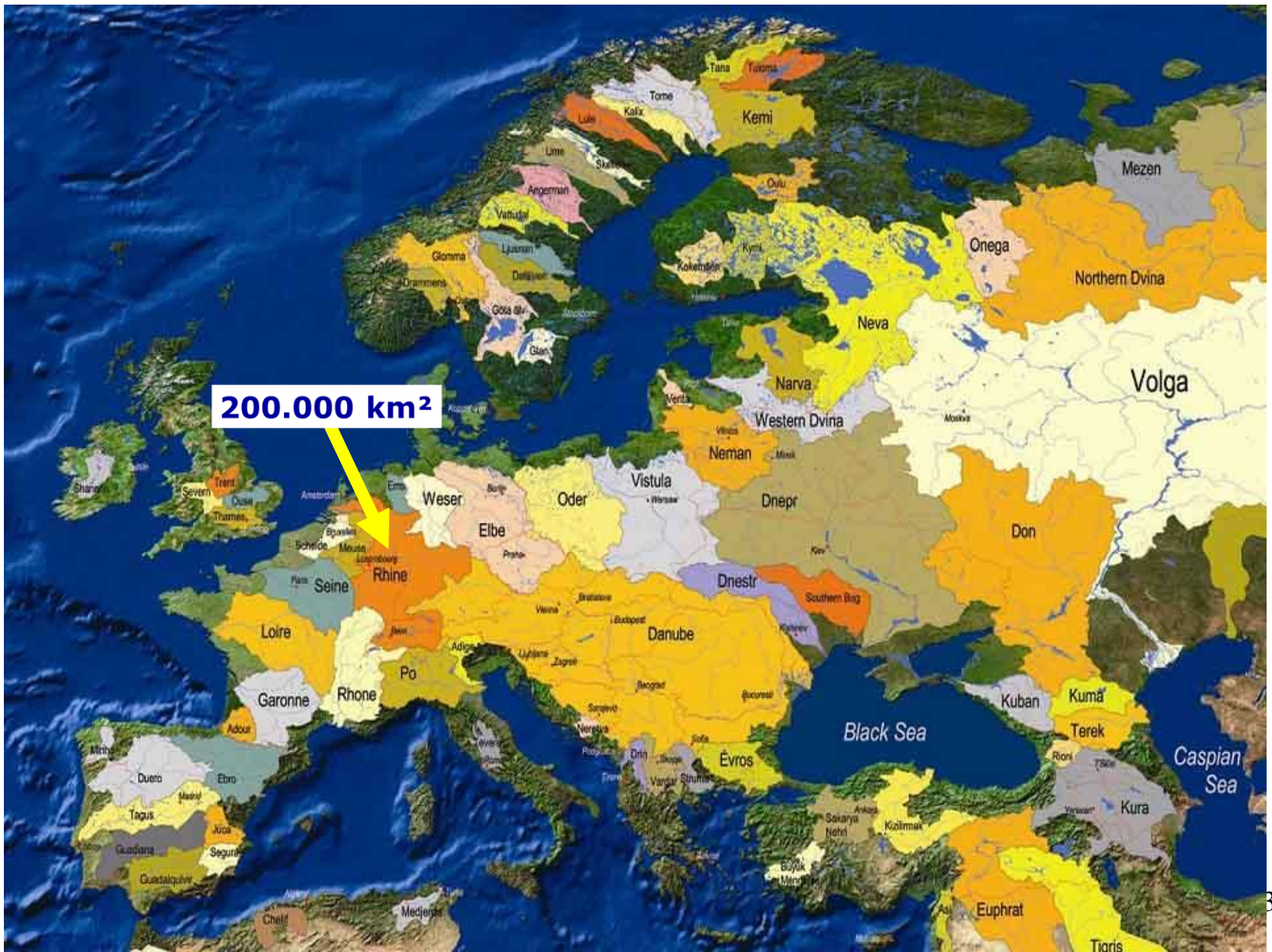
# Outline

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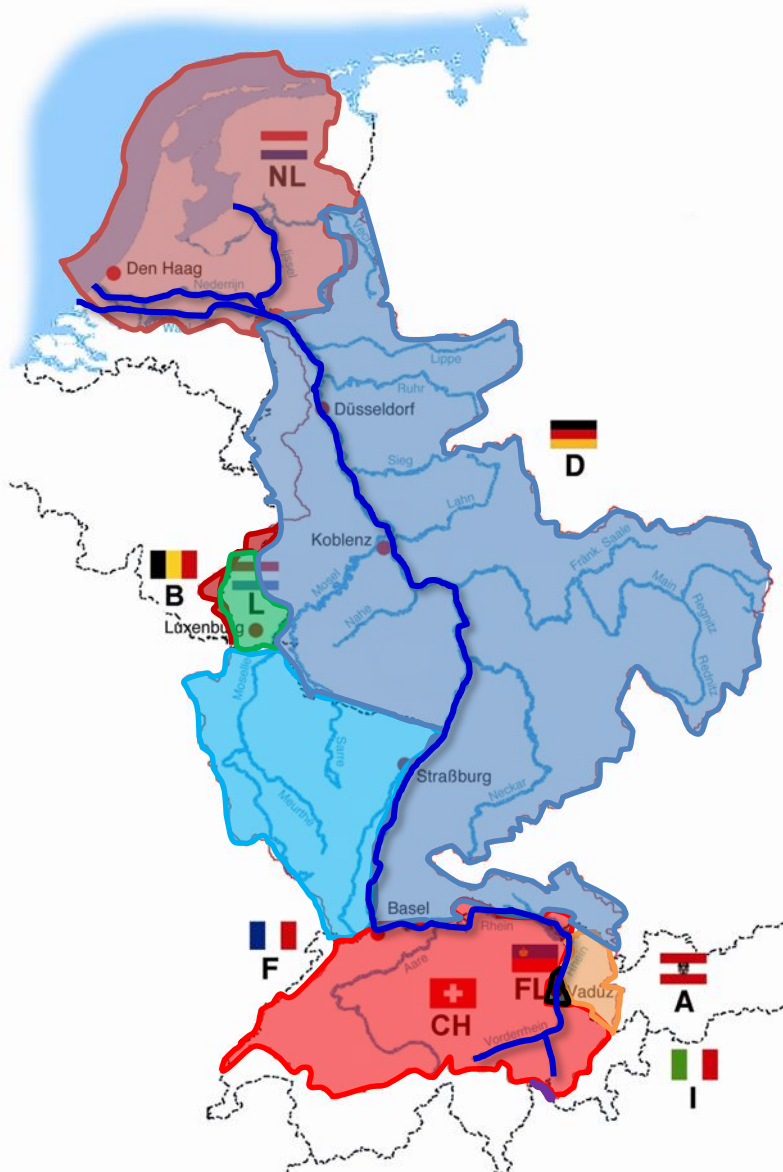


- The Rhine catchment
- Transboundary river basin management at ICPR
- ICPR landmarks and programmes
- Water quality and ecosystem improvement
- Transboundary flood management
- Climate change and other future challenges
- Conclusions

# River Rhine: a European river



# The Rhine and its catchment



- The Netherlands
- Germany
- France
- Luxembourg
- Belgium/Wallonia
- Switzerland
- Austria
- Liechtenstein
- Italy

# Some impressions



## Posterior Rhine



# Some impressions



## Alpine Rhine / Lake Constance



# Some impressions



## Rhine falls of Schaffhausen (CH)



# Some impressions



## High Rhine



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Schiffahrtsgesellschaft



# Some impressions



## Upper Rhine



Wikimedia cc

# Some impressions



## Middle Rhine



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# Some impressions



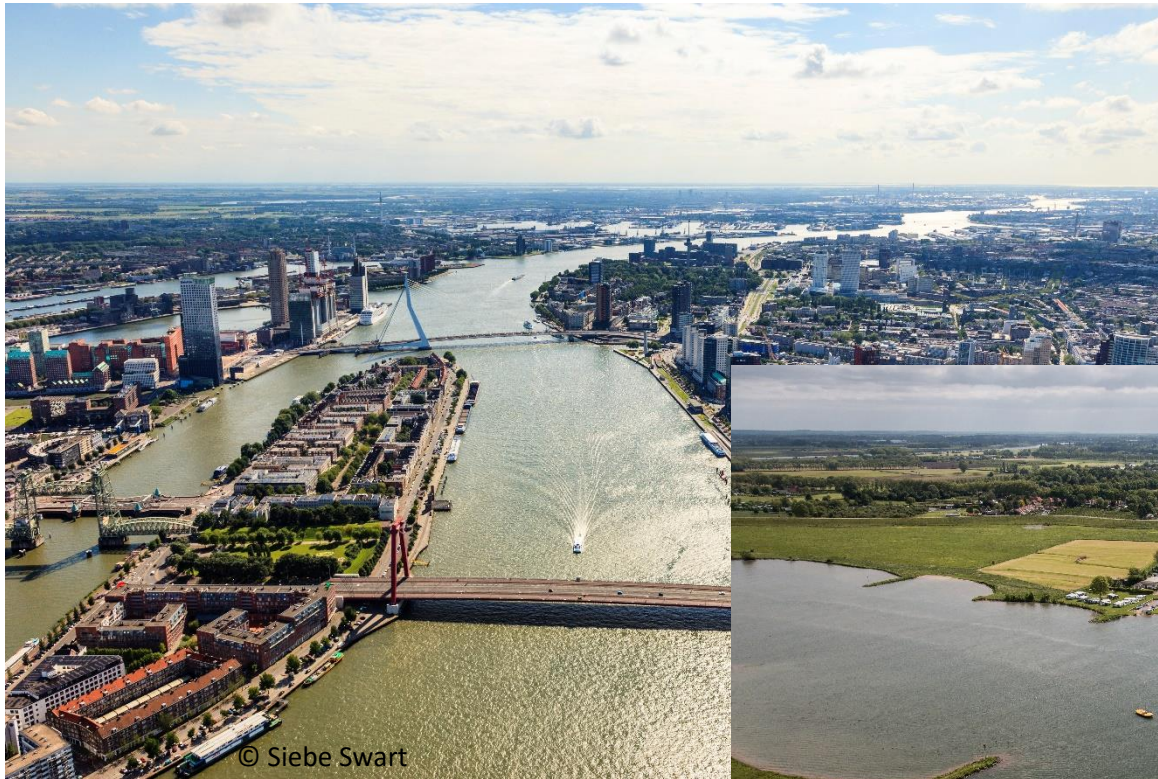
## Lower Rhine



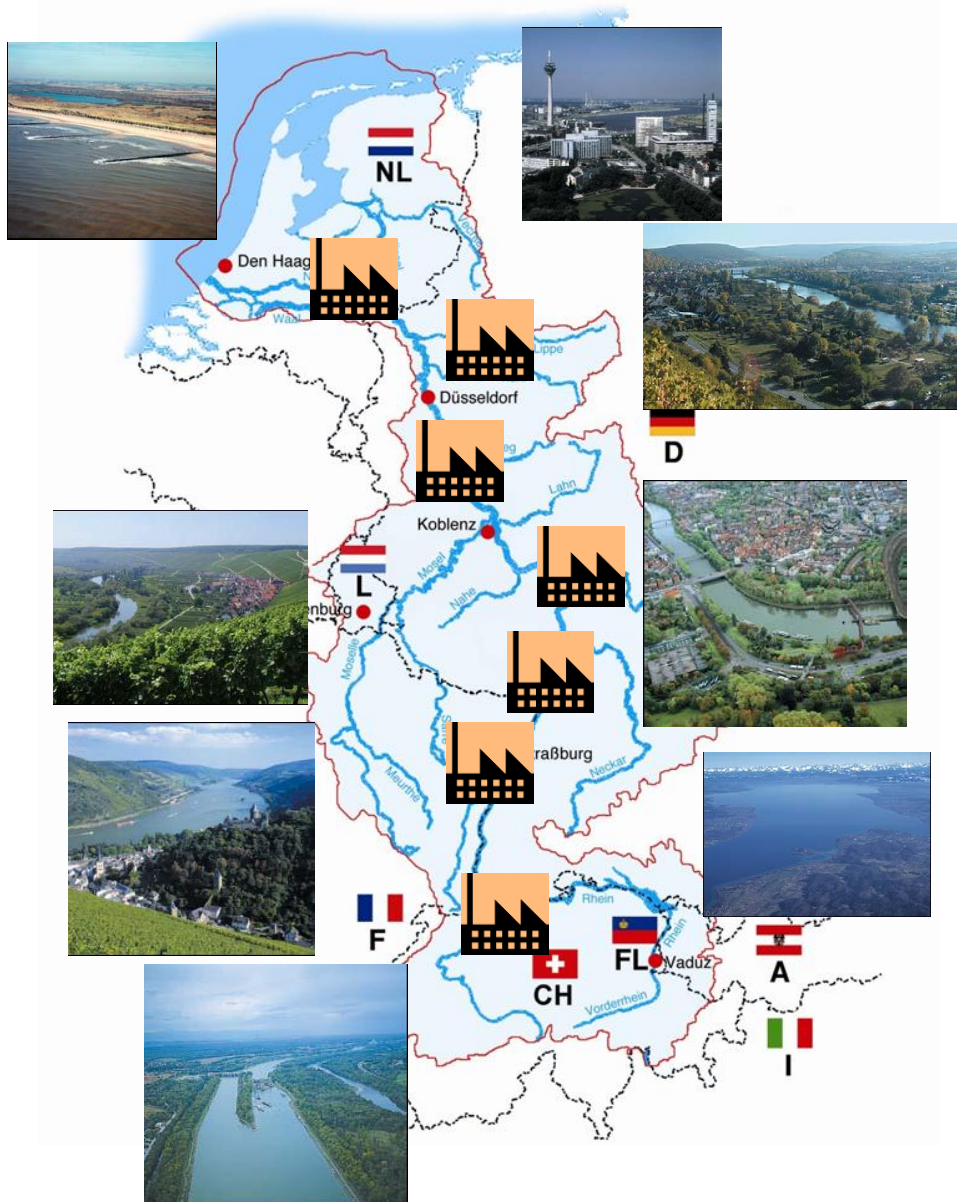
# Some impressions



## Delta Rhine



# 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)

# Outline



- The Rhine catchment
- **Transboundary river basin management at ICPR**
- ICPR landmarks and programmes
- Water quality and ecosystem improvement
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# International commission for the protection of the Rhine (since 1950)



- **Members** (~200 people)  
**Switzerland, France, Germany, Luxemburg, the Netherlands, European Community**

- **Observers**

States: Austria, Liechtenstein, Belgium/Wallonia, Italy

Intergovernmental Organisations:  
River Commissions ...

Non-Governmental Organisations (20)



# ICPR: How does cooperation work?

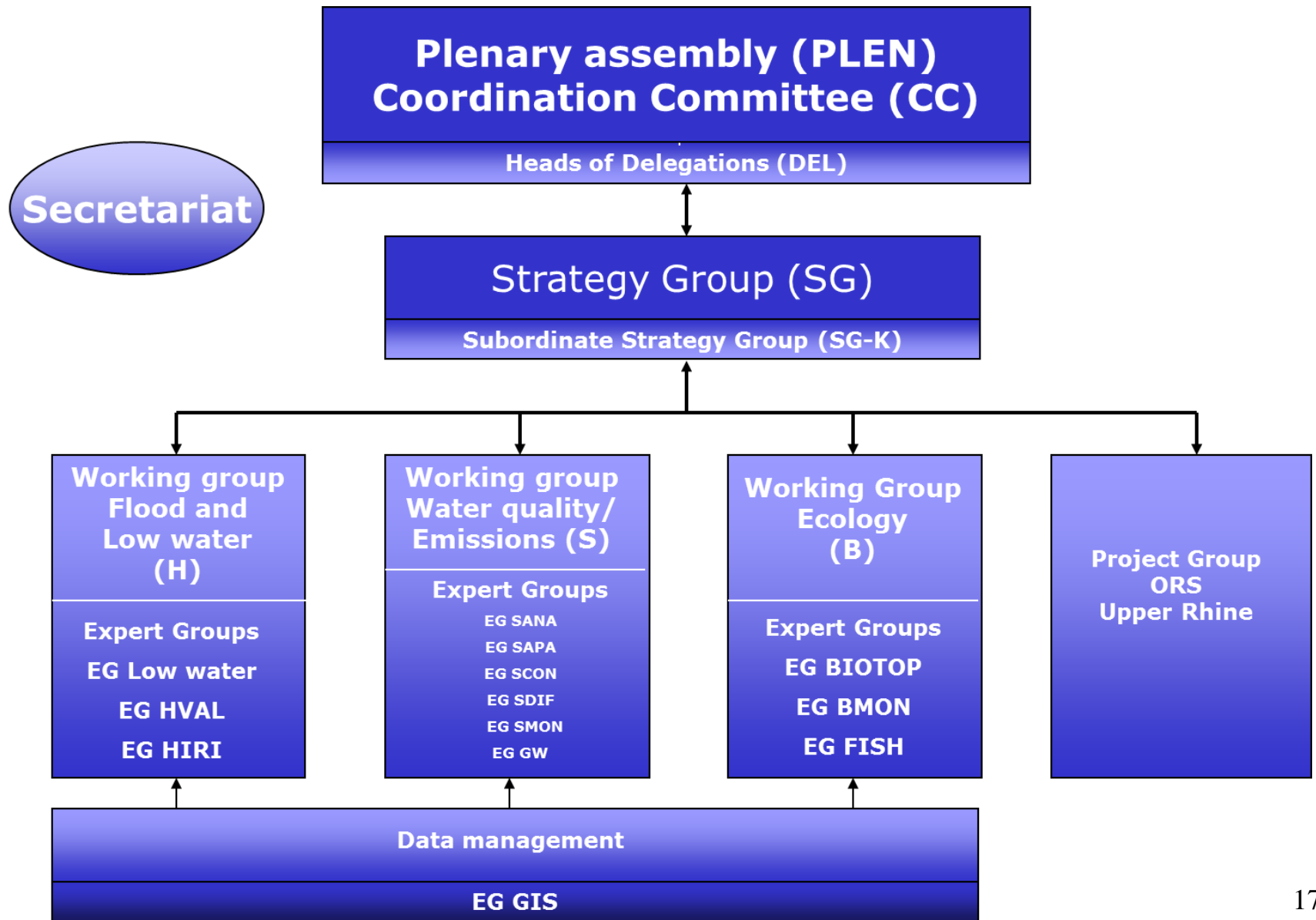


- **intergovernmental de-centralized organization**
- **cooperation based on legally binding conventions (Rhine Convention)**
- **Legal framework: EU Directives and national legislation**
- **Delegations**
  - work with a political mandate
  - do have the technical know how
  - provide the common budget (1.2 Mio €/a for secretariat only)
- **Decision making by consensus. Measures as recommendations to countries, no sanctions.**
- **Obligation to report on implementation of measures**
- **Small neutral secretariat with technical & scientific knowledge, 3 working languages & English**





# ICPR: How are we organized?



# Conference of ministers



- gives ambitious goals to the Commission
- takes place regularly
- political support for the work of the states in the Rhine basin



→ Next one: 13 February 2020, Amsterdam (NL)

2013

# Outline



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# ICPR: Landmarks



**First Phase 1950 – 1970/80:** Monitoring network (CH - > NL), building trust and mutual understanding; convincing society; wastewater treatment plants

➤ **1986 Accident at Sandoz (CH)**

➤ **1987 Rhine Action Program + „Salmon 2000“**

➤ **1993 + 1995 „Century floods“ on the Rhine**

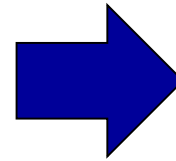
➤ **1998 Action Plan on Floods**

➤ **2000 - Program Rhine 2020**

➤ **2000 - EU Water Framework Directive**

➤ **2007 - EU Floods Directive**

# The turning point 1986: Fire at Sandoz, Basel (CH)



**„Rhine action  
program“  
(1987-2000)**

**„Salmon 2000“**



# Rhine Action Program 1987 - Goals



- **Guarantee drinking water production**
- **Reduce direct inputs of toxic substances by 50% - 70% (1985 - 1995)**
- **Reduce accidental spills for example by constructing collecting basins for fire extinction water**
- **Improve warning and alert systems**
- **Improve ecosystem: Reintroduce vanished fauna species (salmon)**

# Second ICPR Action Programme - Rhine 2020



- started 2000
- underpinned by European Union Water Framework Directive (2000)



## Goals

- Further reduction of emissions/discharges
- Water quality is required to be such that simple near-nature treatment is sufficient for the production of drinking water
- Restoration of biotope network and ecological continuity

*(New programme „Rhine 2040“ in preparation)*

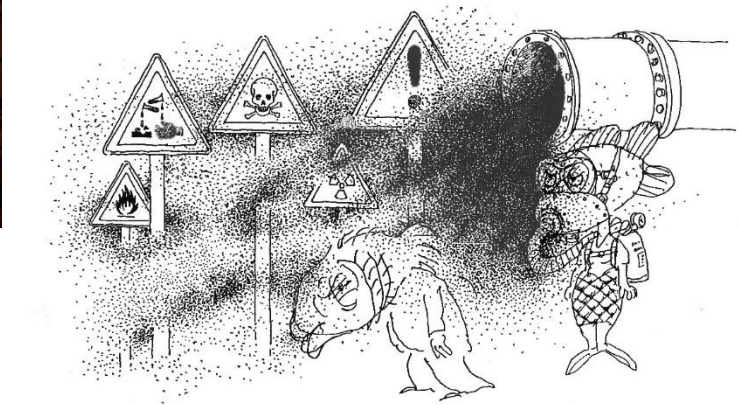
# Outline



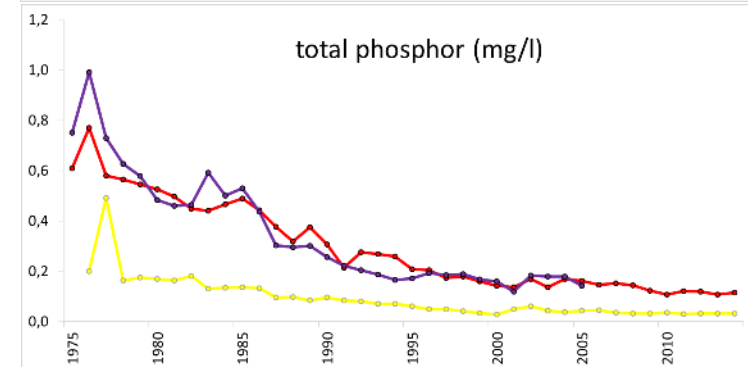
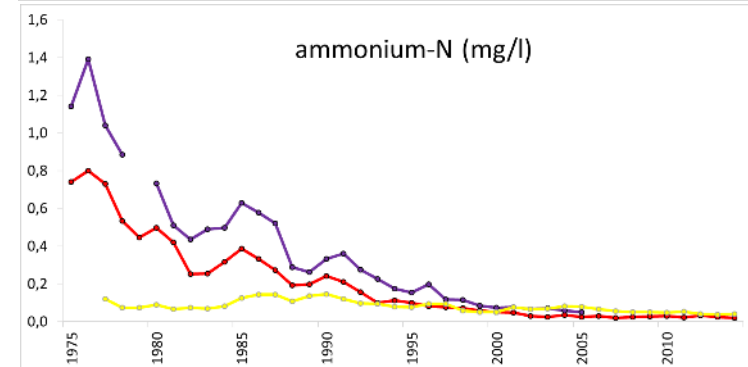
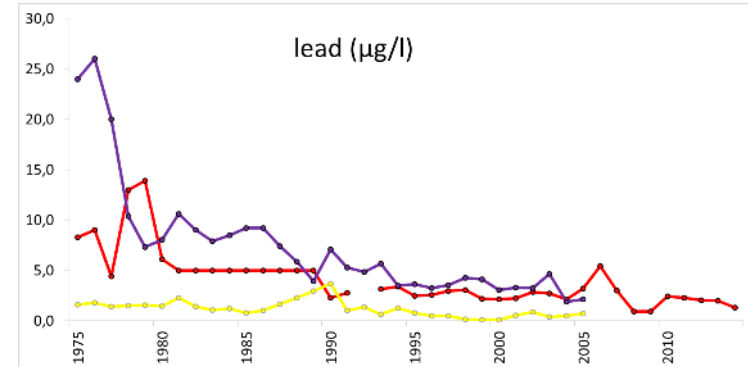
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# RIVER RHINE – 1970's SEWER OF EUROPE



# Water quality improvement



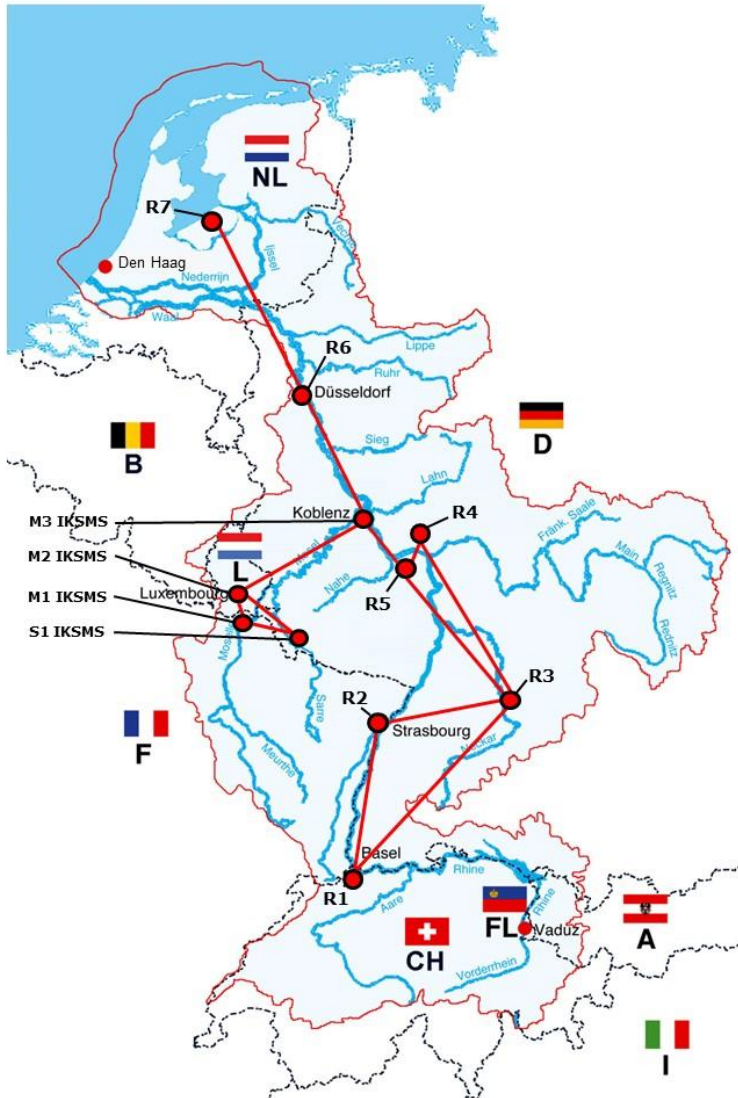
# Water quality improvement



- **Solidarity in water quality improvement**
- **Common efforts of**
  - ✓ **governments, administrations**
  - ✓ **industries**
  - ✓ **municipalities/population**
- **Since 1975, € 80 bn. invested in wastewater treatment plants within the Rhine catchment (today: 96 % of population connected)**



# Warning and alert plan



**Tanker accident (MV Waldhof)  
13th January 2011  
No navigation for 5 weeks**

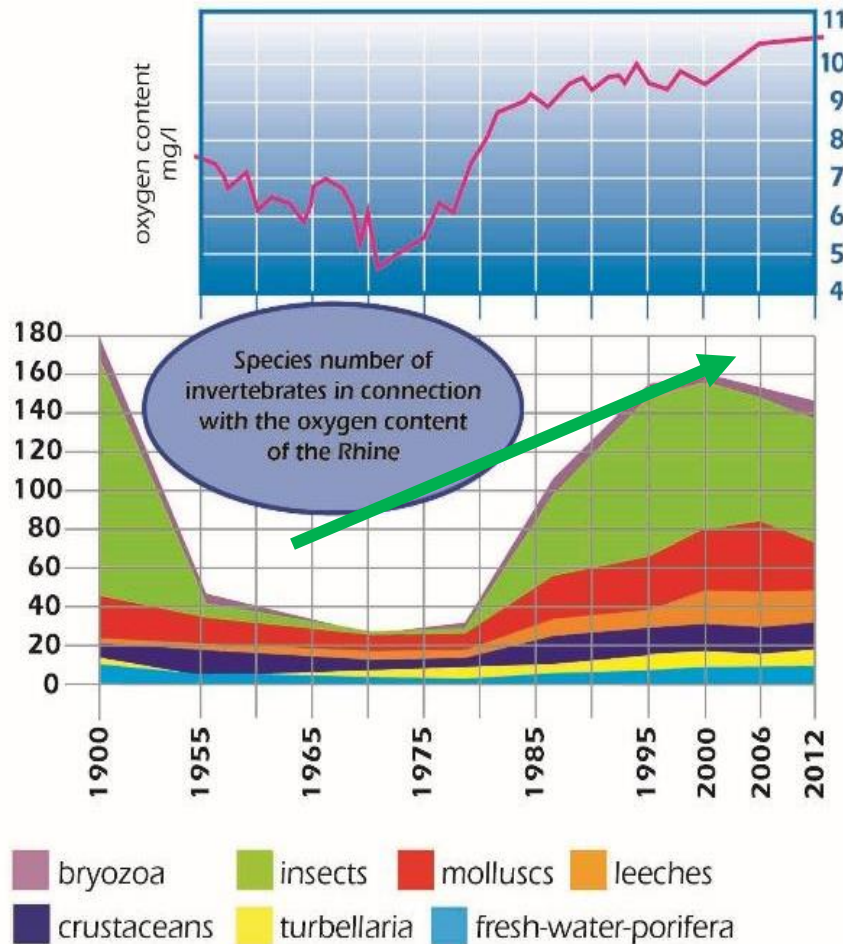


# Better water quality + hydromorphology = higher biodiversity

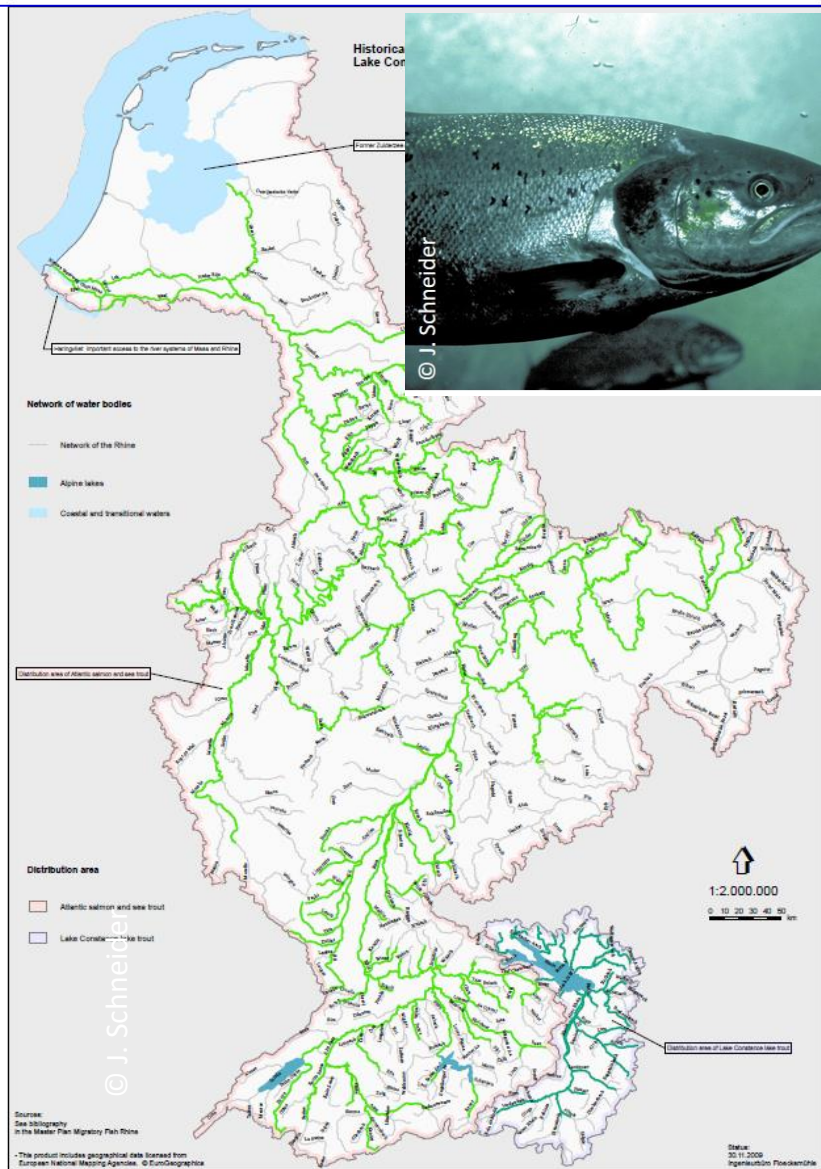


## Long-term trends

- Increased diversity of invertebrates
- 44 macrophyte species
- 64 fish species



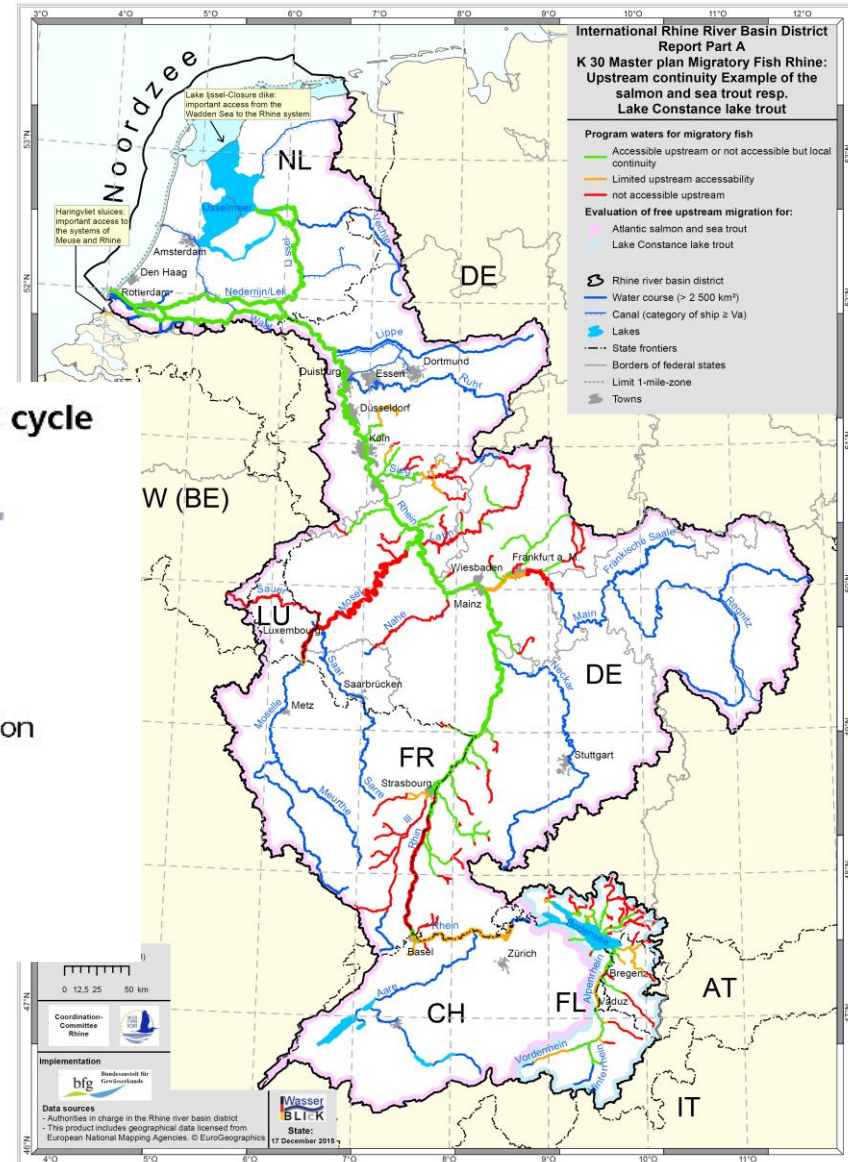
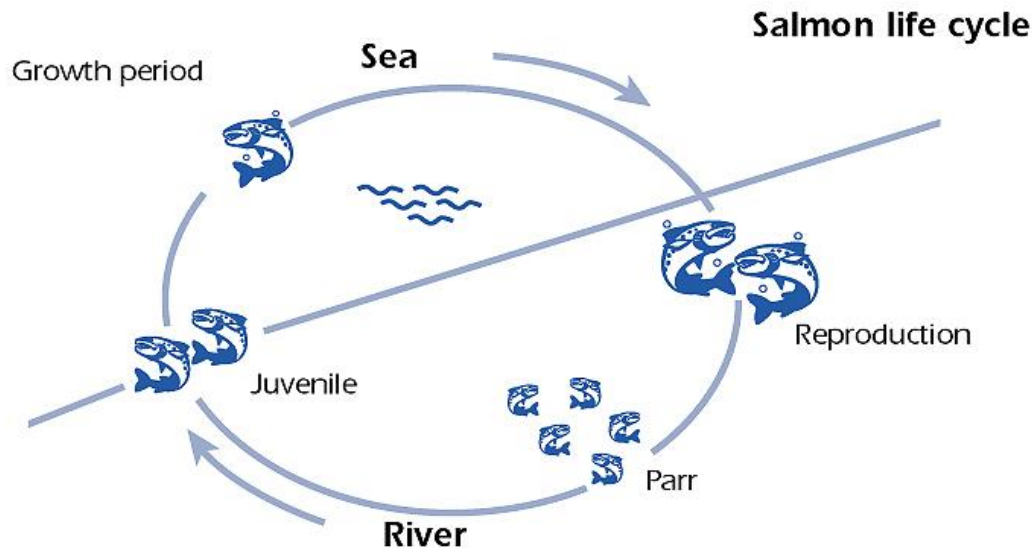
# Reintroducing an extinct species in the Rhine: An ambitious goal since 1987



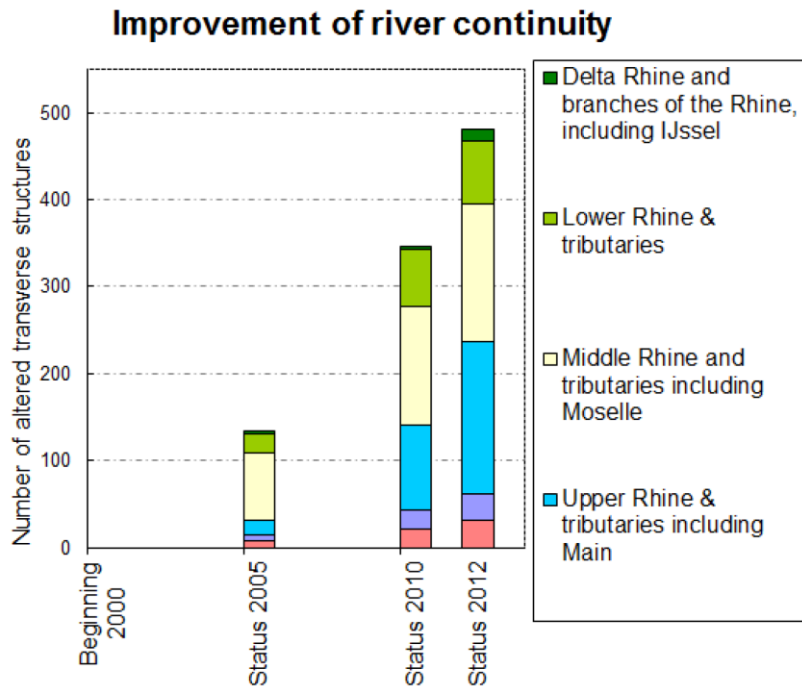
- Reintroduction of an **extinct and historically important** species
- Symbol for clean water, natural river beds and habitat connectivity

- Program Rhine 2000 / Salmon 2000
- Program Rhine 2020 / Salmon 2020
- Masterplan Migratory Fish Rhine (2009, 2018)

# Why is habitat connectivity so important ?



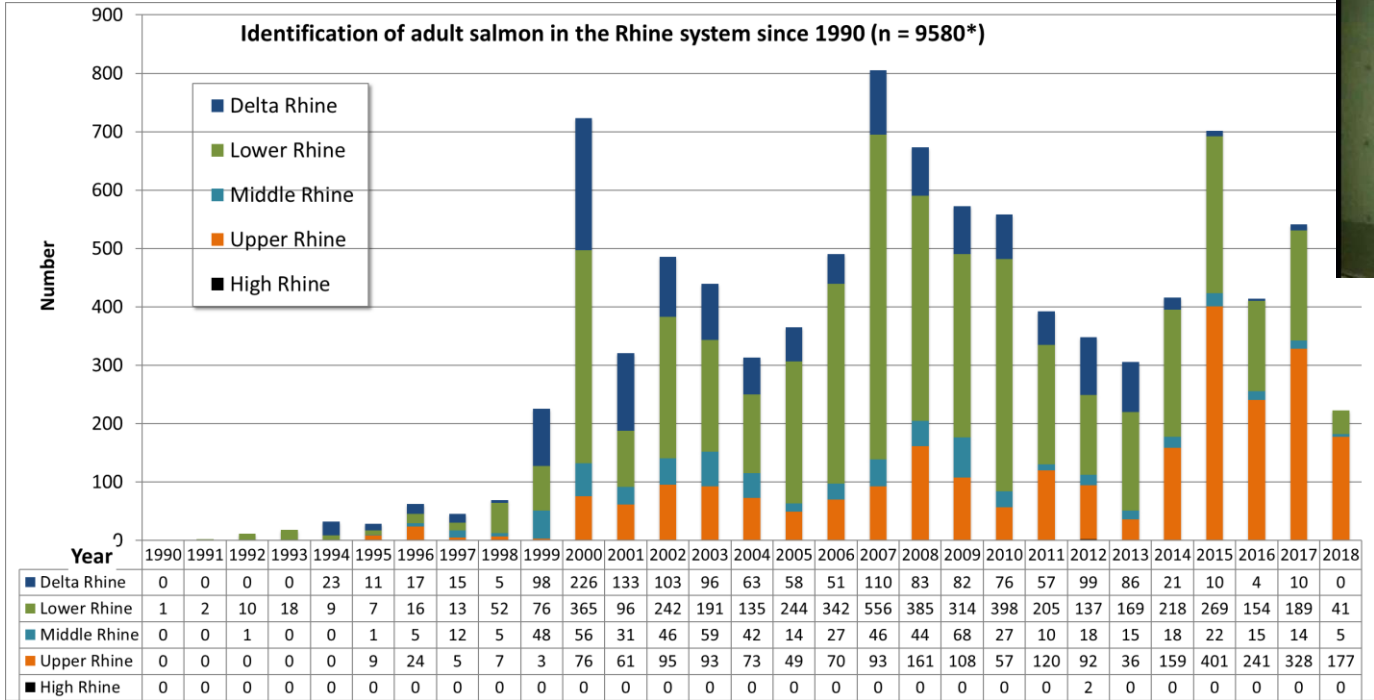
# Achievements: River continuity



→ almost 500 barriers were made passable



# Salmon is back!



# Outline



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- **Transboundary flood management**
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# Transboundary flood management- WHY?

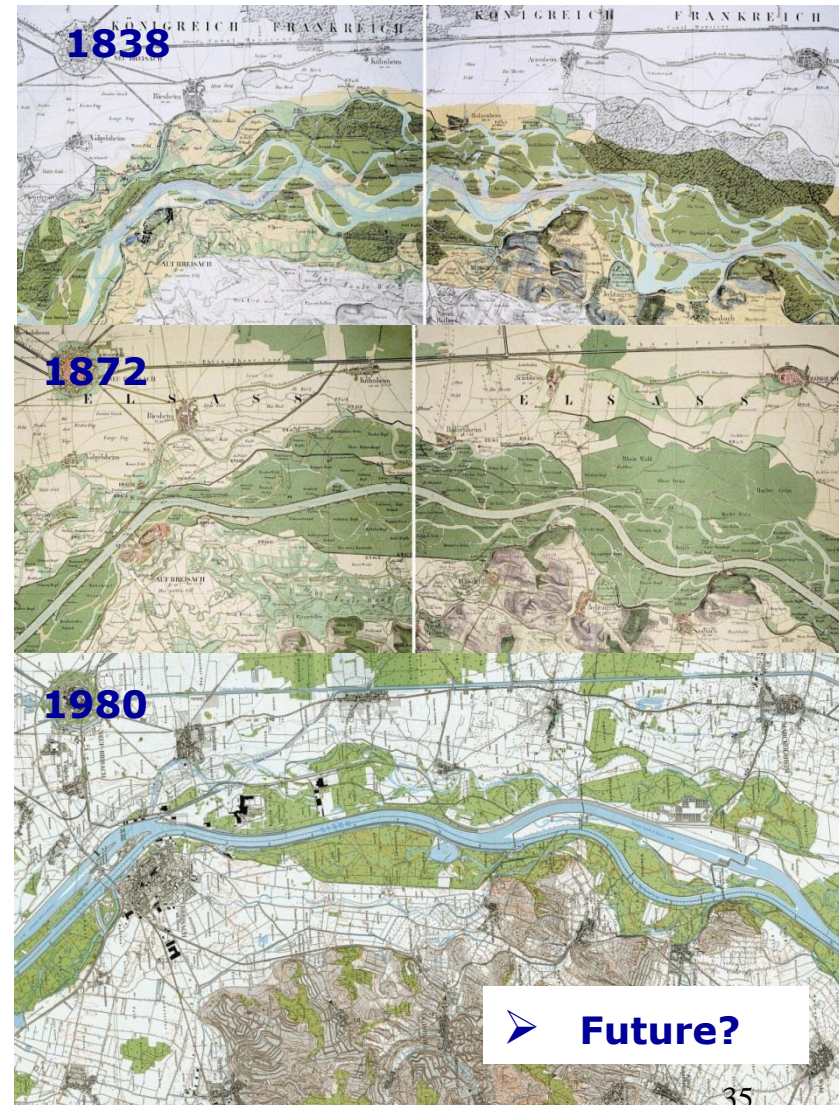


## Floods: not only natural reasons...

- Destruction of natural retention areas (floodplain)
- Straightening of rivers
- Building in the floodplain => sealing => less infiltration
- Climate change (natural + man-made influence)

Since 19th cent. loss of 85% floodplains on the Rhine  
=> Reactivation of floodplains  
since 2000: approx. 122 km<sup>2</sup>

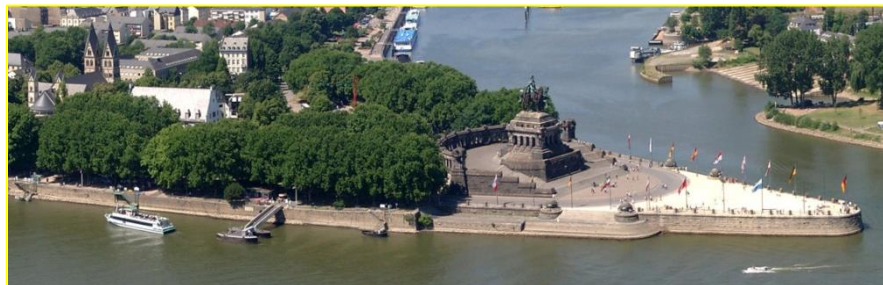
## *a part of the Upper Rhine*



# Transboundary flood management- WHY?



**Dec. 1993 and  
Jan./Feb. 1995  
Cities flooded in  
Germany and The  
Netherlands**



***normal situation***

# What has the ICPR done so far?



## Rhine Ministers' Conference

Jan. 1998 → **The Action Plan on Floods (1998-2020)**



### 4 ambitious objectives:

(1) Reduce flood damage risks by 25 % by 2020 **—**

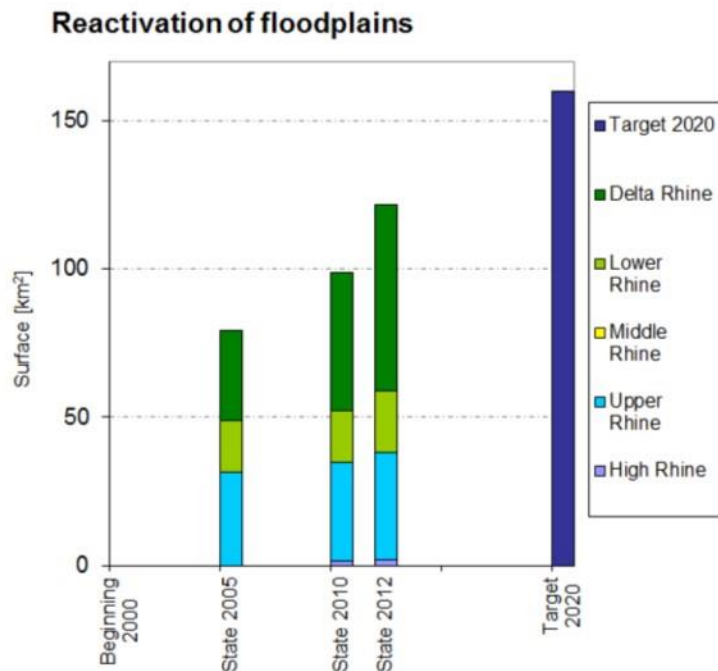
(2) Reduction of flood levels by up to 70 cm by 2020 **(V)**

(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**



# Reactivation of floodplains



*before*

**„Room for the river“**

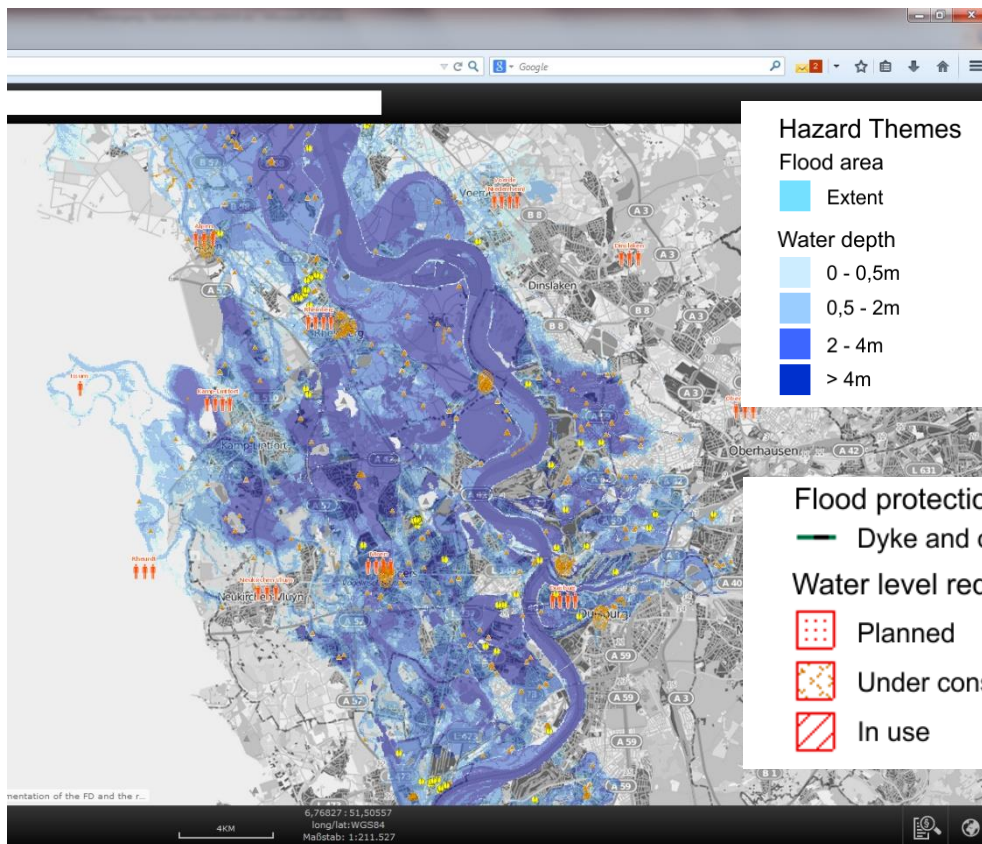


*after creating the by-pass, Lent-Nijmegen*

# Flood risk awareness

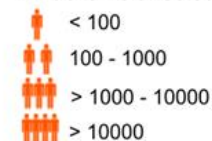


## ICPR Flood risk atlas

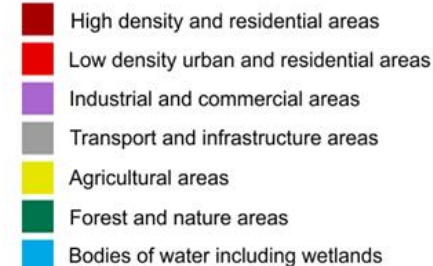


### Risk Themes

Inhabitants affected by flooding (per municipality)



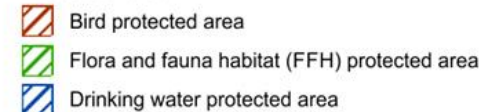
Type of economic activity and land use



Source of potential pollution



Protected area



Cultural heritage



[Available on www.iksr.org](http://www.iksr.org)

# Outline



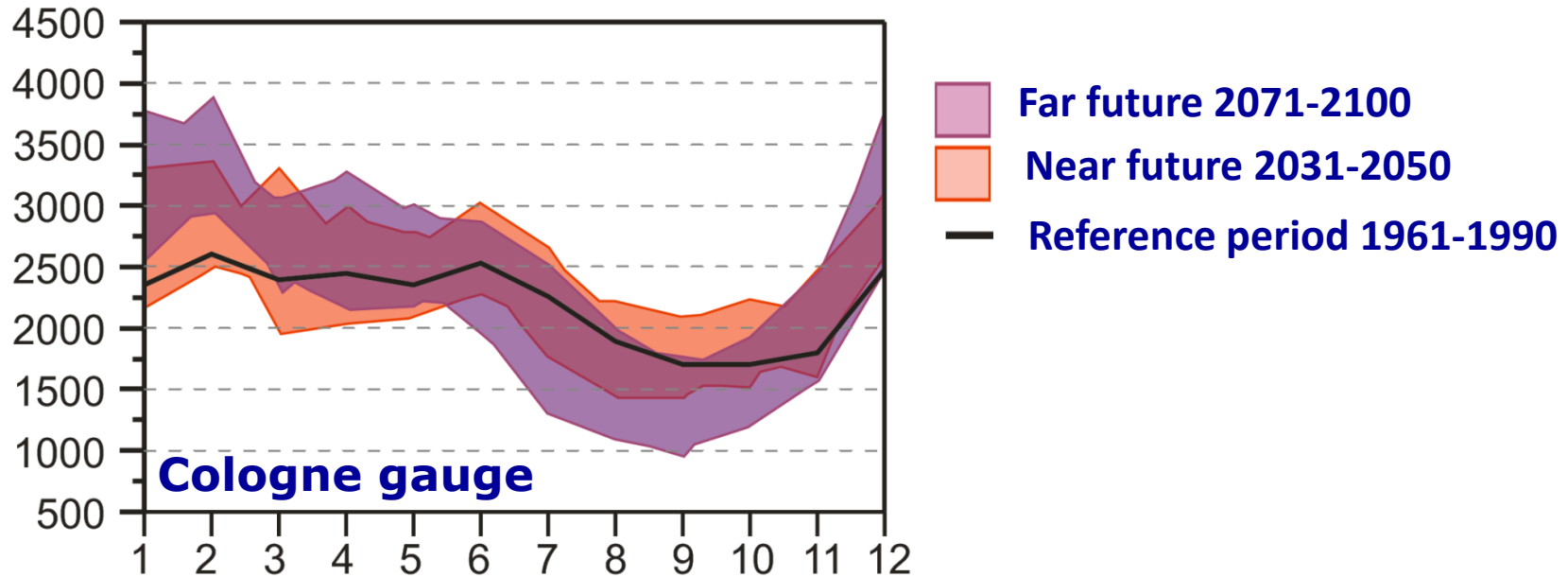
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# Possible effects of climate change on discharges



## Average monthly discharge [ $\text{m}^3/\text{s}$ ]



- **wetter winter, drier summer!**
- **higher water temperature (specially during summer and low water): impacts on water quality and ecology**

**→ Acting is needed!**

# Climate Change Adaptation Strategy 2015

## Approach – ICPR report No. 219

Identification of:

- **Direct effects** of CC on flow regime and water temperature (multi-model analysis, scenarios building)
  - **Indirect effect** thereof on
    - ecology
    - water quality
  - **Impact on different uses**
- **challenges**



# Dealing with “Low flows” at ICPR



## **15th** Conference of Rhine Ministers (Basel, Oct. 2013):

**“In the near future the ICPR will decide on further steps, eventually on an ICPR low water (management) plan”.**



**Issue treated since then by the ICPR working group “floods”**

**Establishment of an expert group “Low Water” (EG LW) in 2016**

# Micropollutants – mandate



## Conference of ministers October 2007:

„to develop a **joint and comprehensive strategy for reducing and avoiding micropollutant inputs** from urban wastewater and other sources into the Rhine and its tributaries by improving knowledge on emissions, eco-toxicological reactions in nature and to draft suitable treatment methods“

- Several Assessment reports published
- ICPR recommendations published (ICPR report No. 253)



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# Conclusions



- **The story of the river Rhine is a success story given the improvements achieved in its water quality and biodiversity.**
- **Nonetheless, new challenges are ever present such as effects of climate change and micropollutants.**
- **Success can be explained by**
  - **the institutional governmental framework for cooperation of states and involvement of stakeholders through ICPR**
  - **pressure/acceptance from the public**
  - **building common trust;**
  - **identifying common interests;**
  - **defining common goals, reinforced through a recognizable objective/symbol (Salmon)**
  - **open and transparent communication**

**and .....Patience.**

# Thanks for your attention! ... questions?



- Rhine
- Topics
- Uses
- International Cooperation
- Water Framework Directive
- Floods directive
- Events
- Documents/Archive
- Contact



Search bar with icons for accessibility (A), user profile, and print, followed by the text "Your key word" and a search icon.

## ICPR · International Commission for the Protection of the Rhine

- Home
- Sitemap
- For kids
- Imprint

Home

### Welcome

to the website of the International Commission for the Protection of the Rhine.

### ICPR in support of worldwide exchange of information on transboundary water cooperation

Together with the German Head of Delegation, Mrs. Heide Jekel, the President of the ICPR, Mr. Gustaaf Borchart, will be participating in a workshop on "Exchange of experience on transboundary water cooperation and regional water diplomacy" staged in Tehran 31 October and 1 November 2016.

Experience made along the Rhine and other great European rivers will be exchanged with participants from Iran. Based on examples, different manners of coordinating competing interests of uses and possible consensual solutions for conflicts concerning water resources will be indicated.

In May and September 2016, two workshops at Ministers' level have been staged in Brussels and Beijing within the CCICED (China Council for International Cooperation on Environment and Development), during which the President of the ICPR reported on experience made within the International Commission for the Protection of the Rhine existing since 1950. In particular, the step-by-step approach first improving water quality before then dealing with ecological issues and water management were met with great interest. Thus, integrated water management as precursor for European directives on water-related issues has been developed within the ICPR. The organisation and operation of ICPR cooperation were another focal point of the

**Updated pages**

- Brochures (16. 11. 2016)
- Home (11. 11. 2016)
- Further >>

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**Meetings/Documents**

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**The Rhine for Beginners**

[www.iksr.org](http://www.iksr.org)

[laura.gangi@iksr.de](mailto:laura.gangi@iksr.de), [tabea.stoetter@iksr.de](mailto:tabea.stoetter@iksr.de)