

The background of the slide is an aerial photograph of a river. The water is a deep blue, and there are numerous green, branching structures that look like submerged vegetation or algae, creating a complex, web-like pattern across the river's surface.

# **From an Open Sewer to a Living River Rhine**

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# Content

- **Rhine River: Uses and Conflicts**
- **Ecological problems**
- **Flood related problems**
- **International co-operation**
- **Management by Disasters**
- **Salmon 2000 - Salmon 2020**
- **Reflections**

# The Rhine, a European river





**Catchment**  
**200.000 km<sup>2</sup>**

**Main stream**  
**1320 km**

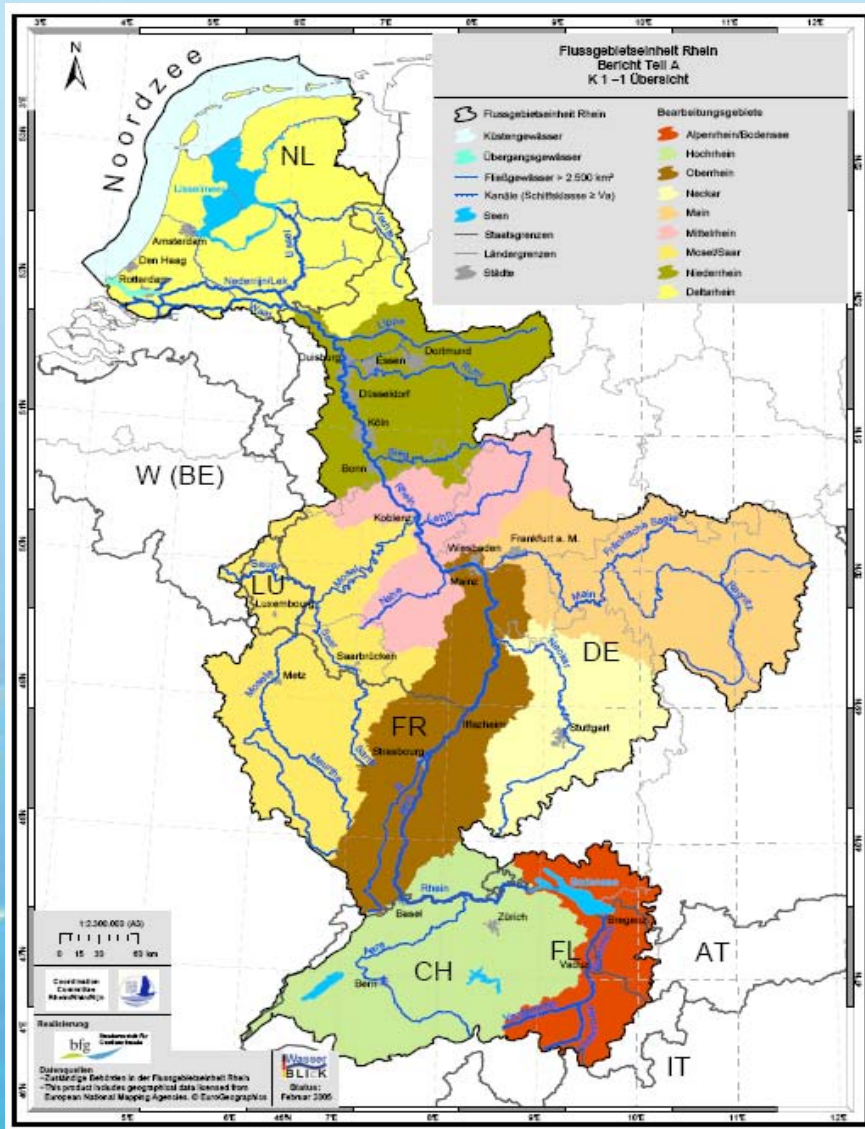
**Navigable**  
**length**  
**825 km**



**3rd biggest  
European river**

**9 countries**  
**Inhabitants**  
58 million

**Drinking water  
supply**  
30 million  
people

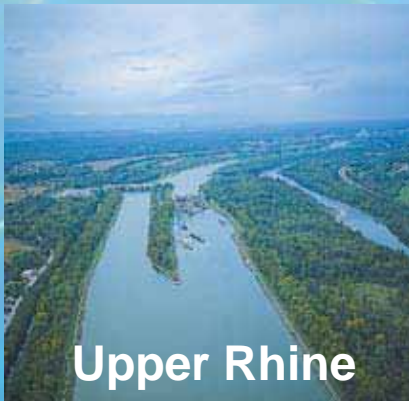
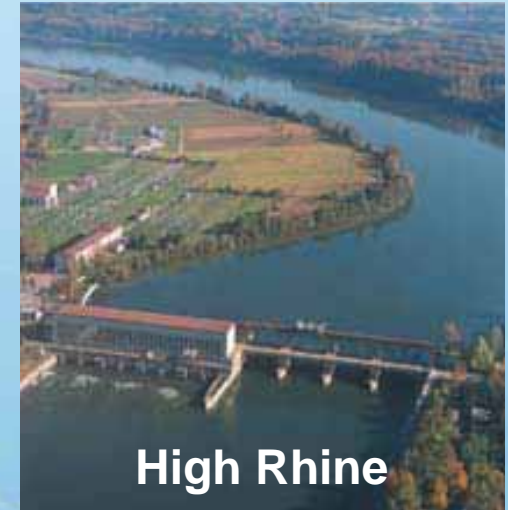


**Germany ~53%**

**Switzerland,  
France,  
Netherland  
(each ~13-18%)**

**Italy, Austria,  
Liechtenstein,  
Luxemburg,  
Belgium (~ 3%)**

# The Rhine from Source to Sea



# Changes during the centuries

1838

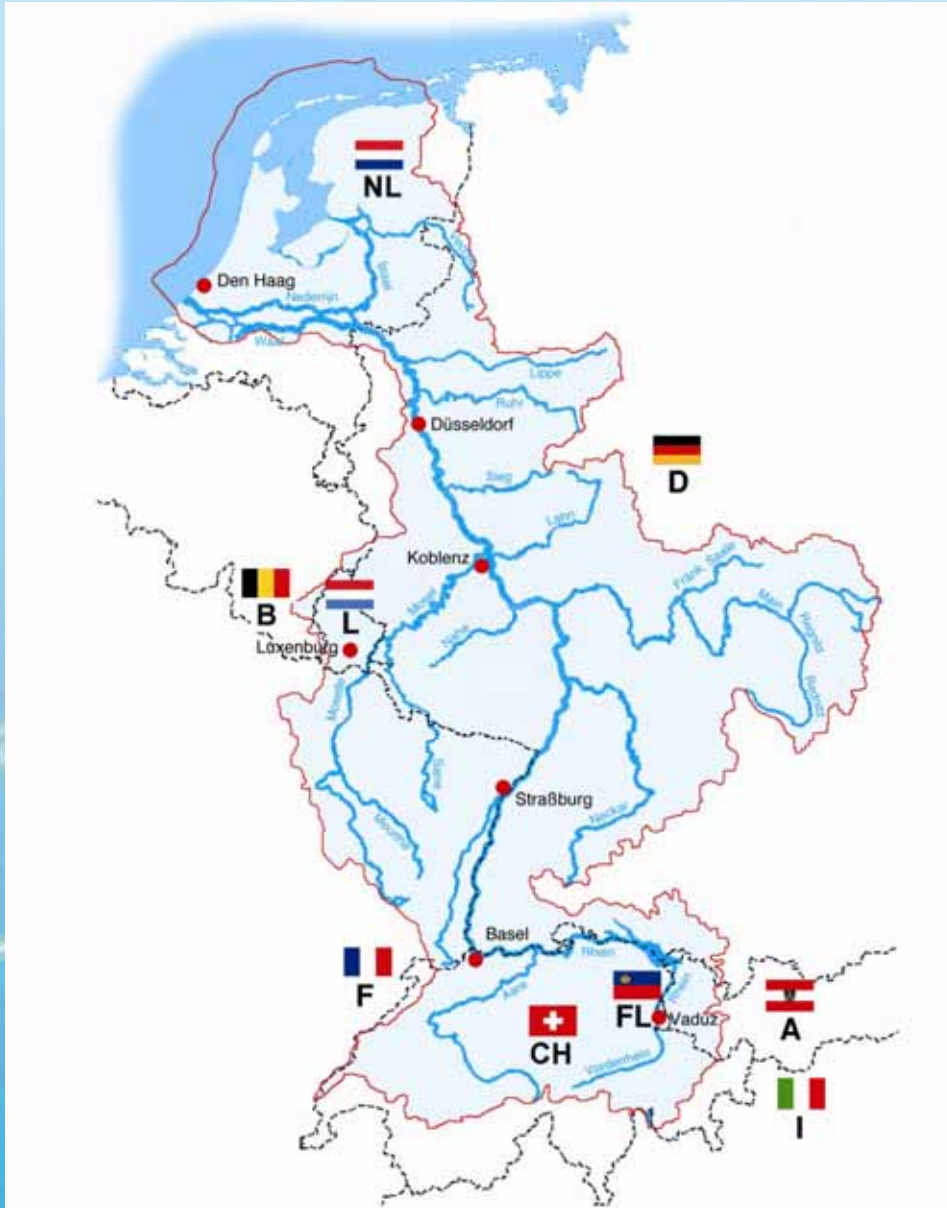


1872



1980





# ICPR

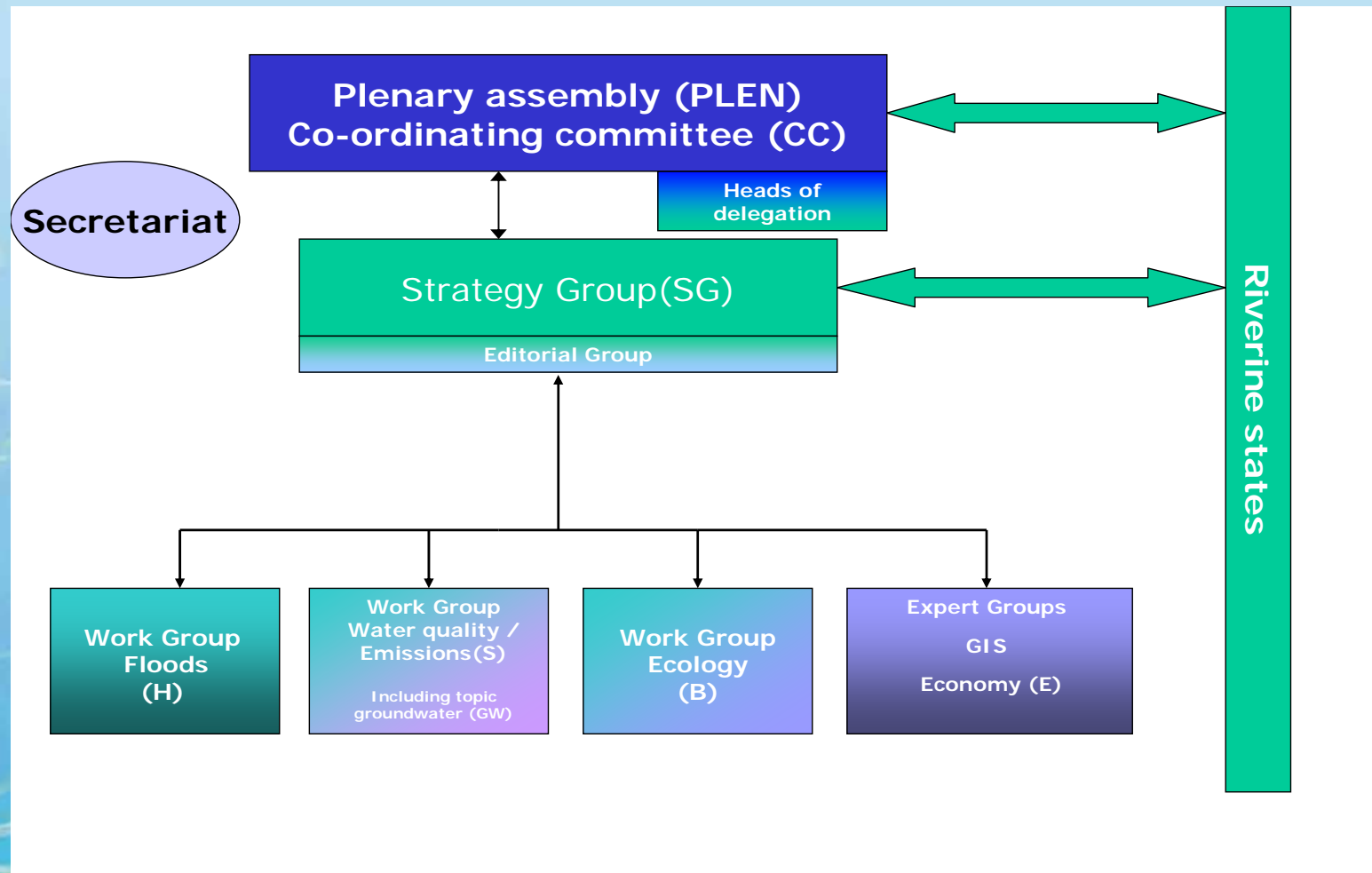
1950, 1963/1999

Members:

CH, F, D, L, NL & EU;

Since 2001 -  
Cooperation  
with A, FL, B

# Structure of the Co-operation



# ICPR - MILESTONES

- 1950 Foundation
- 1963 Treaty of Berne
- 1972 First Rhine Ministers Conference
- 1976 Rhine Chemical Convention
- 1976 Rhine Chloride Convention
- **1986 Accident at Sandoz (CH)**
- 1987 Rhine Action Program
- 1998 Action Plan on Floods
- 1999 Treaty of Berne (2000 – WFD)

# 1986: Fire at Sandoz, Basel



- 10-30 tons of highly toxic pesticides flowed into the river
- it caused the death of all aquatic life downstream (eels on 400 km)

# Rhine Action Program

- Improvement of the ecosystem
- Production of drinking water must be guaranteed now and for the future
- Reduce accidental spills and chronic pollution (water and sediments)
- Improvement of the ecological state of the North Sea

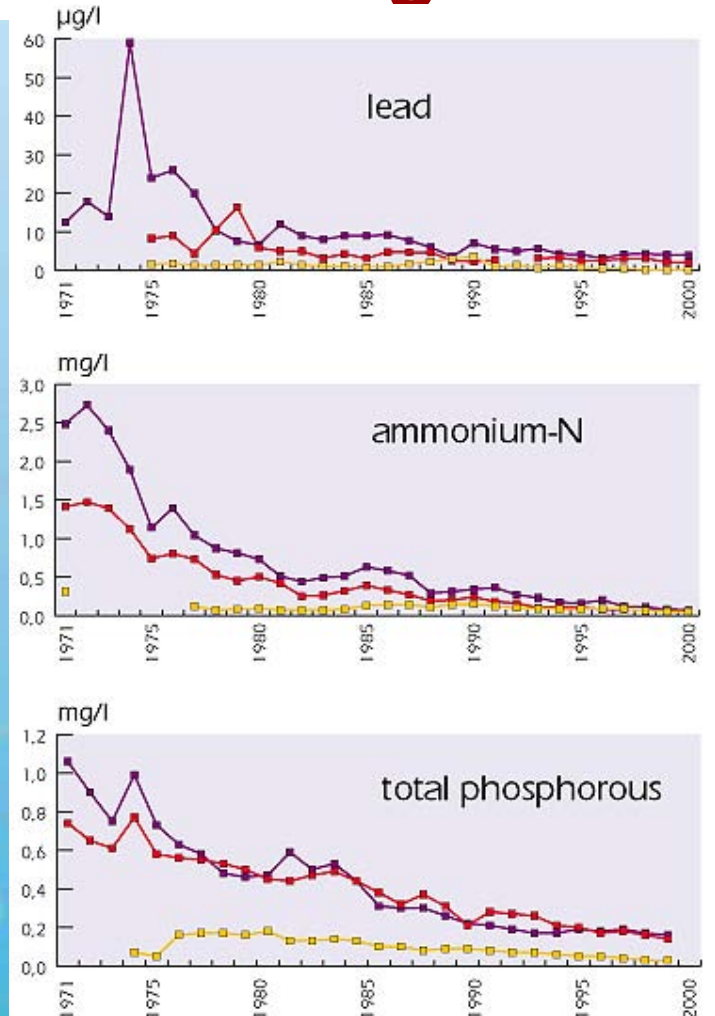
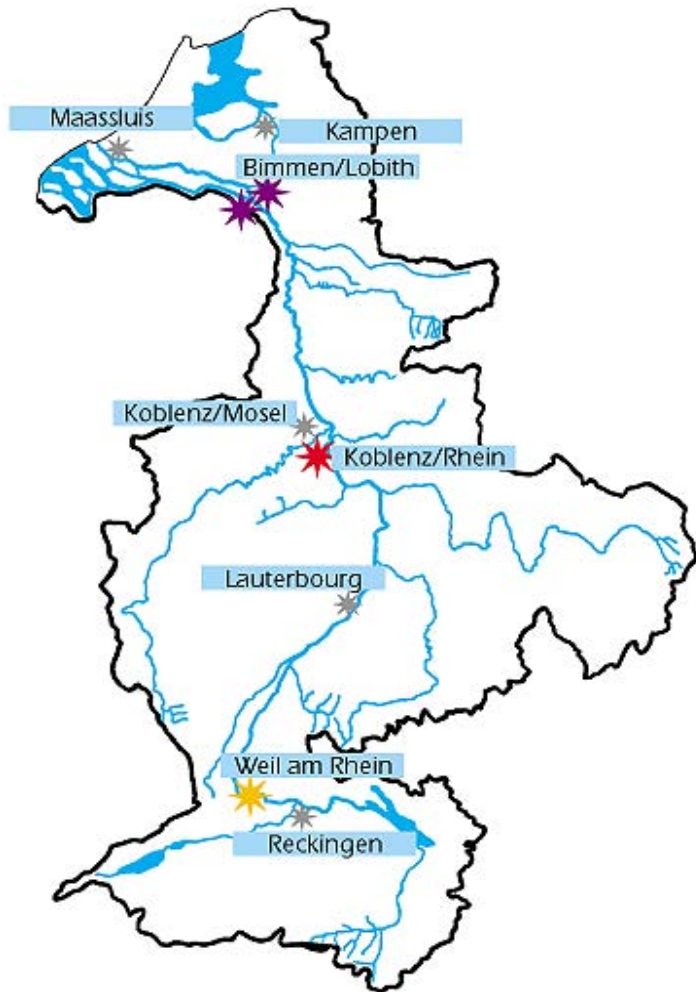
# Rhine Action Program

- Vanished fauna species should be reintroduced
- Reduction of point source inputs by 50% or 70 % (1985 - 1995)
- Reducing accidental spills (eg. construction of basins collecting fire extinction water, warning and alert systems)

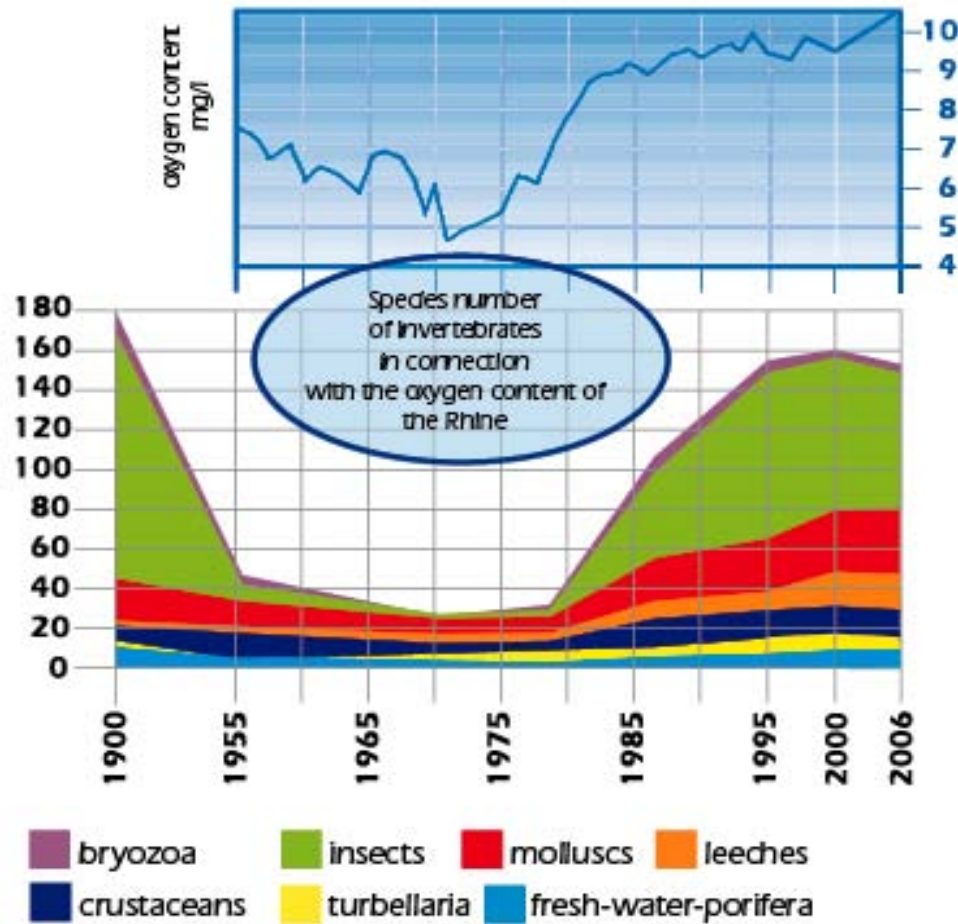
## Pollution reduction (1985- 2000)

| 30-49 %        | 50-69%                 | 70-100 %          | No discharges |
|----------------|------------------------|-------------------|---------------|
| Total nitrogen | HCH                    | ammonium          | dioxins       |
|                | 2-chlortoluene         | Total phosphorous | atrazine      |
|                | 4-chlortoluene         | lead              | dichlorvos    |
|                | Trichloro-benzenes     | cadmium           | DDT           |
|                | 1,1,1 tri-chloroethane | chromium          | simazine      |
|                |                        | mercury           | trifluraline  |

# Water Quality Monitoring



## Development of the communities of the Rhine and average oxygen content of the Rhine at Emmerich

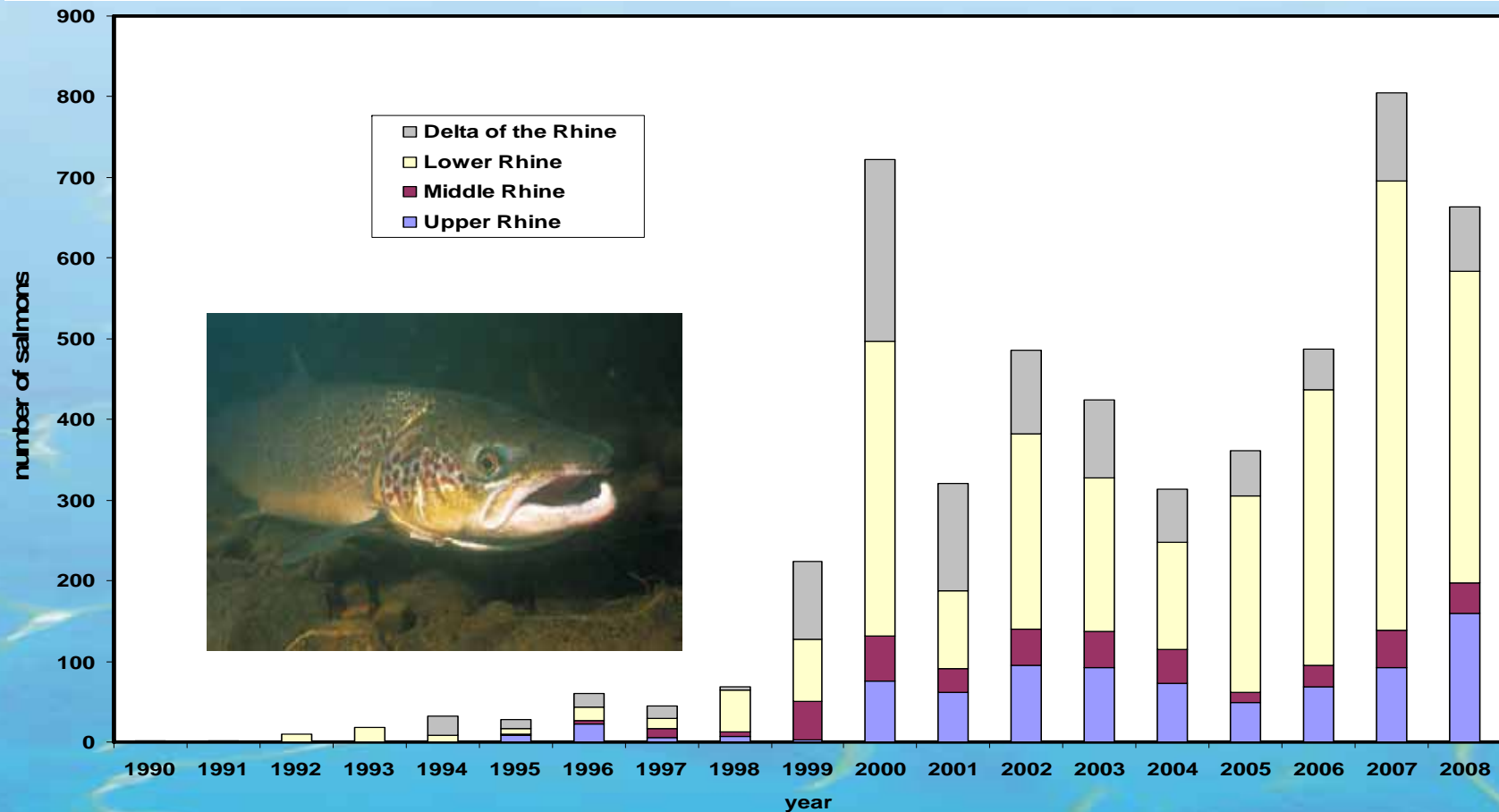


# Salmon Reintroduction



Internationale  
Kommission zum  
Schutz des Rheins  
Commission  
Internationale

# Salmons returning to the Rhine



# Salmon Reintroduction

**End 2008**

*more than 5.000 adult salmon  
returned to the Rhine basin for  
spawning*



**Careful estimation by the year 2020**  
*a population of some 7.000 – 21.000  
salmon will annually migrate upstream*



# Action Plan on Floods (1998)



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

**1995: two hundred  
thousand people  
evacuated**

# **Action Plan on Floods (1998)**

- **Reduce damage risks**
- **Reduce flood levels**
- **Increase awareness of floods**
- **Improvement of flood forecasting**

# Action Plan on Floods

affected  
by floods

**~11 Mio people**



# Action Plan on Floods

**Potential  
damage  
~ €165 billion**

**Implementation  
€12,3 billion**

**an economic  
imperative!**



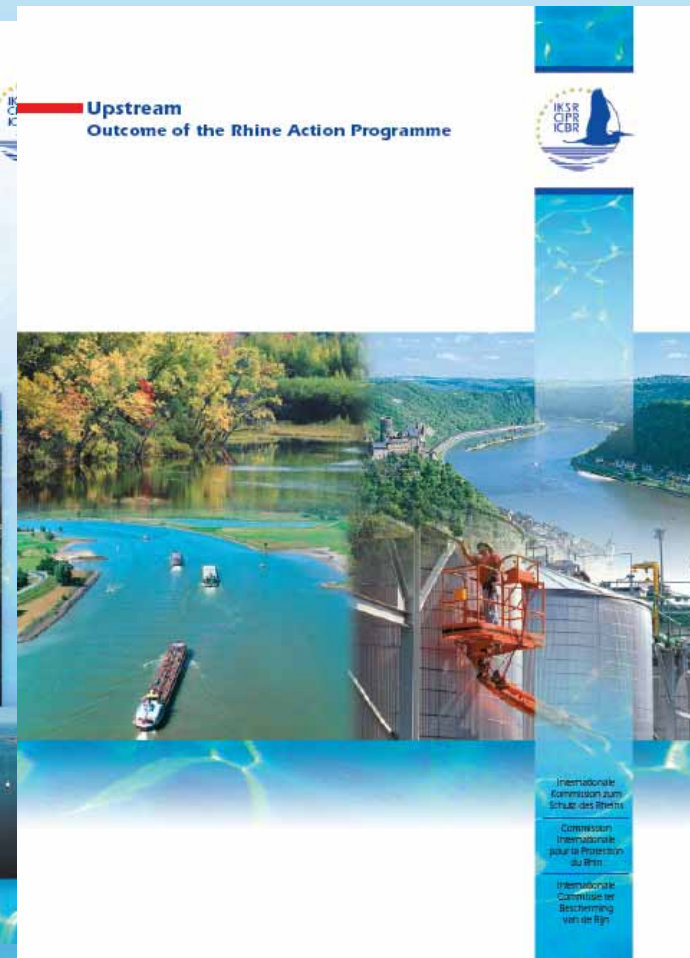
# Reflections

**The Work of the ICPR has triggered**

- **European Water Framework Directive (2000)**
- **European Directive on the Assessment and Management on Floods (2007)**

**WATER POLITICS  
IN THE EUROPEAN UNION**

# Publications of the ICPR



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

