

The Rhine: Managing a European river

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Internationale
Kommission zum
Schutz des Rheins

Commission
Internationale
pour la Protection
du Rhin

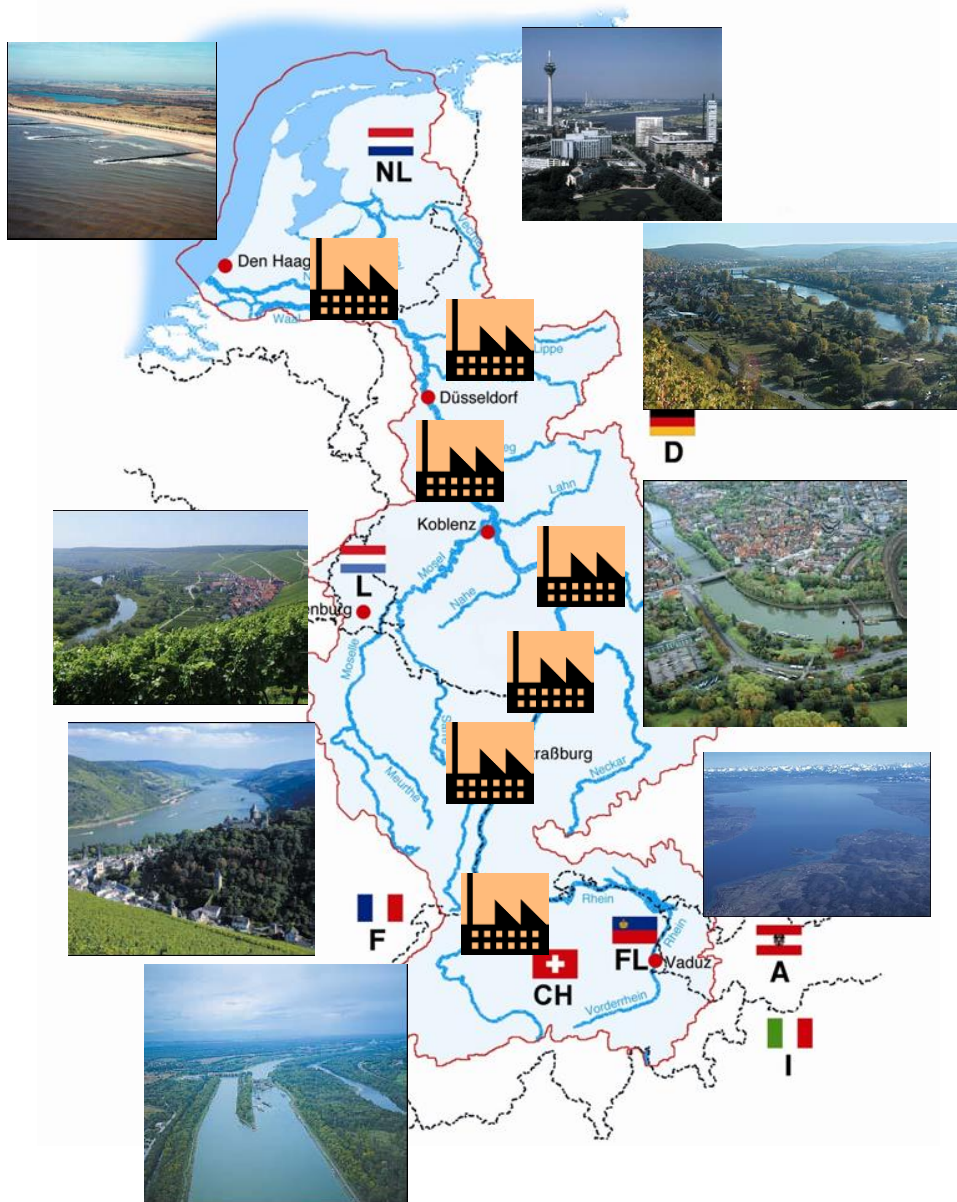
Internationale
Commissie ter
Bescherming
van de Rijn

International
Commission
for the Protection
of the Rhine

River Rhine: a European river



Rhine basin facts



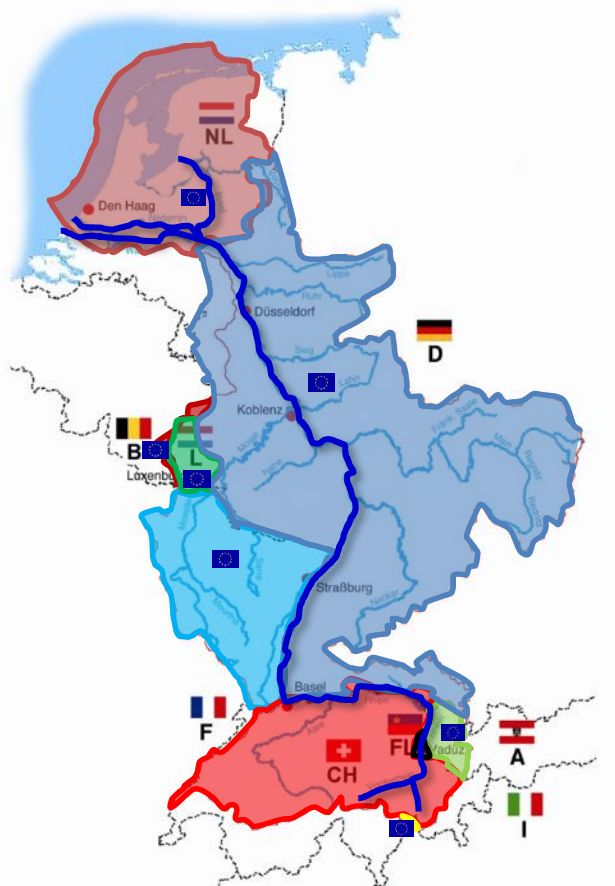
**Main stream
Length: 1233 km**

**60 million
inhabitants** in 9
countries

**Drinking water
supply** for 30 million
people

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

ICPR (founded in 1950)



The Netherlands

Germany

France

Luxembourg

Belgium/Wallonia

Switzerland

Austria

Liechtenstein

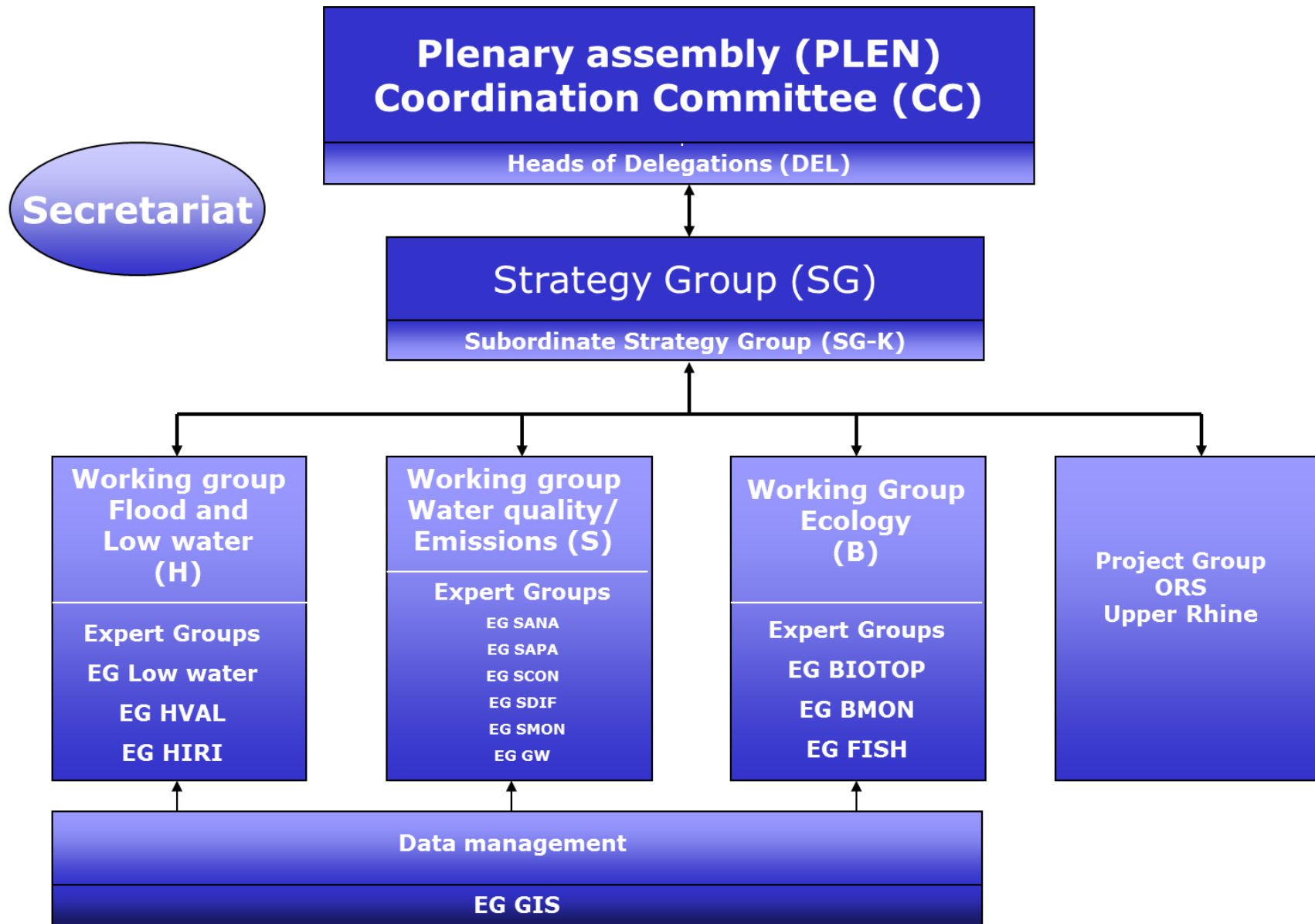
Italy

European Union

(Members of the ICPR are underlined)

- **Since 1995 Stakeholder involvement, IGOs and NGOs with observer status**

ICPR: How are we organized?



ICPR: How does cooperation work?



- **Intergovernmental organization**
- **Cooperation based on legally binding conventions**
- **Delegations**
 - political mandate
 - technical know how
 - provide 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**
- **Legal framework: EU Directives (WFD and FD) and national legislation**
- **Small neutral secretariat with technical & scientific knowledge, 3 working languages & English**



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**

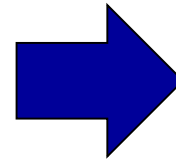
➤ **1998 Action Plan on Floods**

➤ **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 - Goals

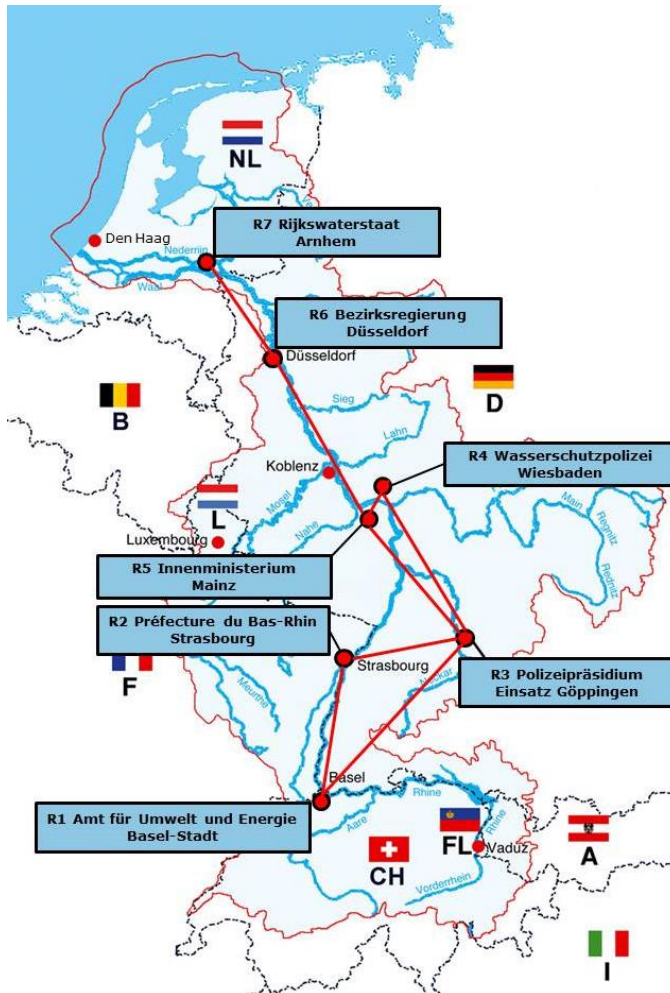


- Guarantee drinking water production
- Reduce direct inputs of toxic substances by 50% - 70% (1985 - 1995)
- Reduce accidental spills for example by constructing collecting basins for fire extinction water
- Improve warning and alert systems
- Improve ecosystem: Reintroduce vanished fauna species (salmon)

European Provisions, e.g.

- European Urban Wastewater Directive (91/271/EEC)
- European Nitrates Directive (91/676/EEC)
- Not valid for Switzerland

Warning and alert plan

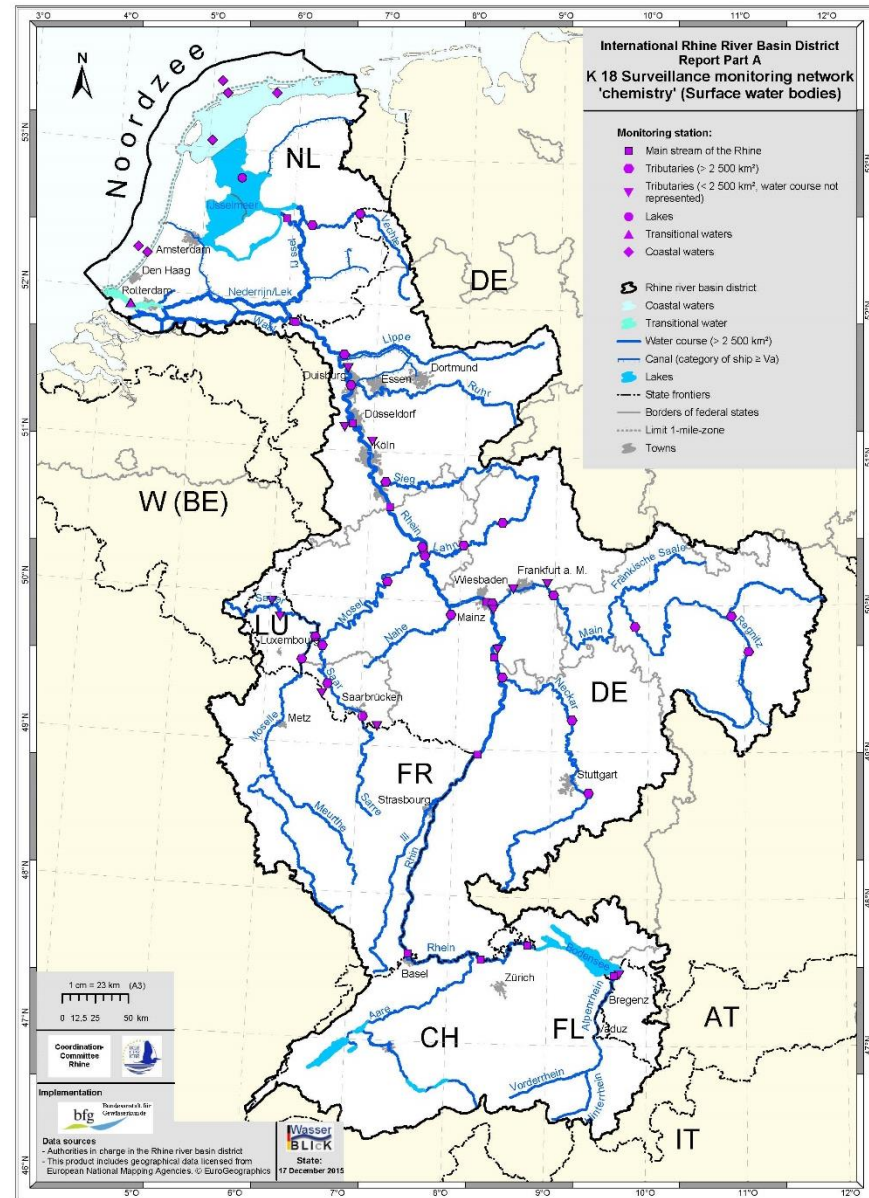
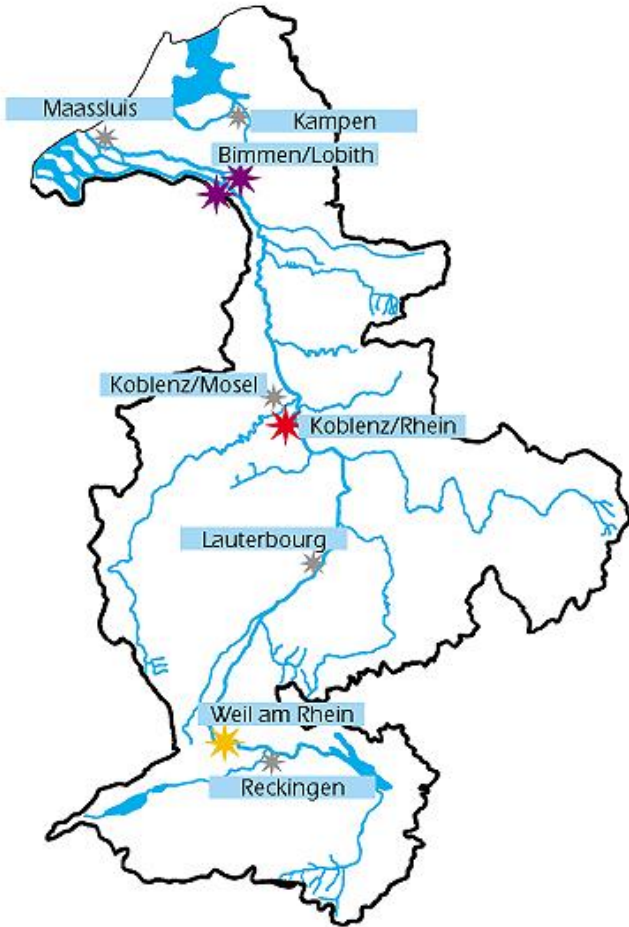


**Tanker accident (MV Waldhof)
13th January 2011
No navigation for 5 weeks**

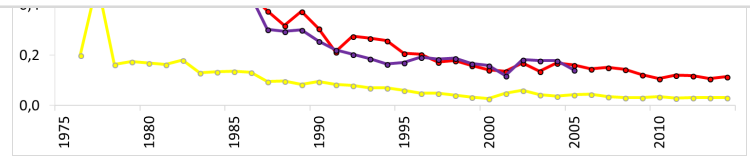
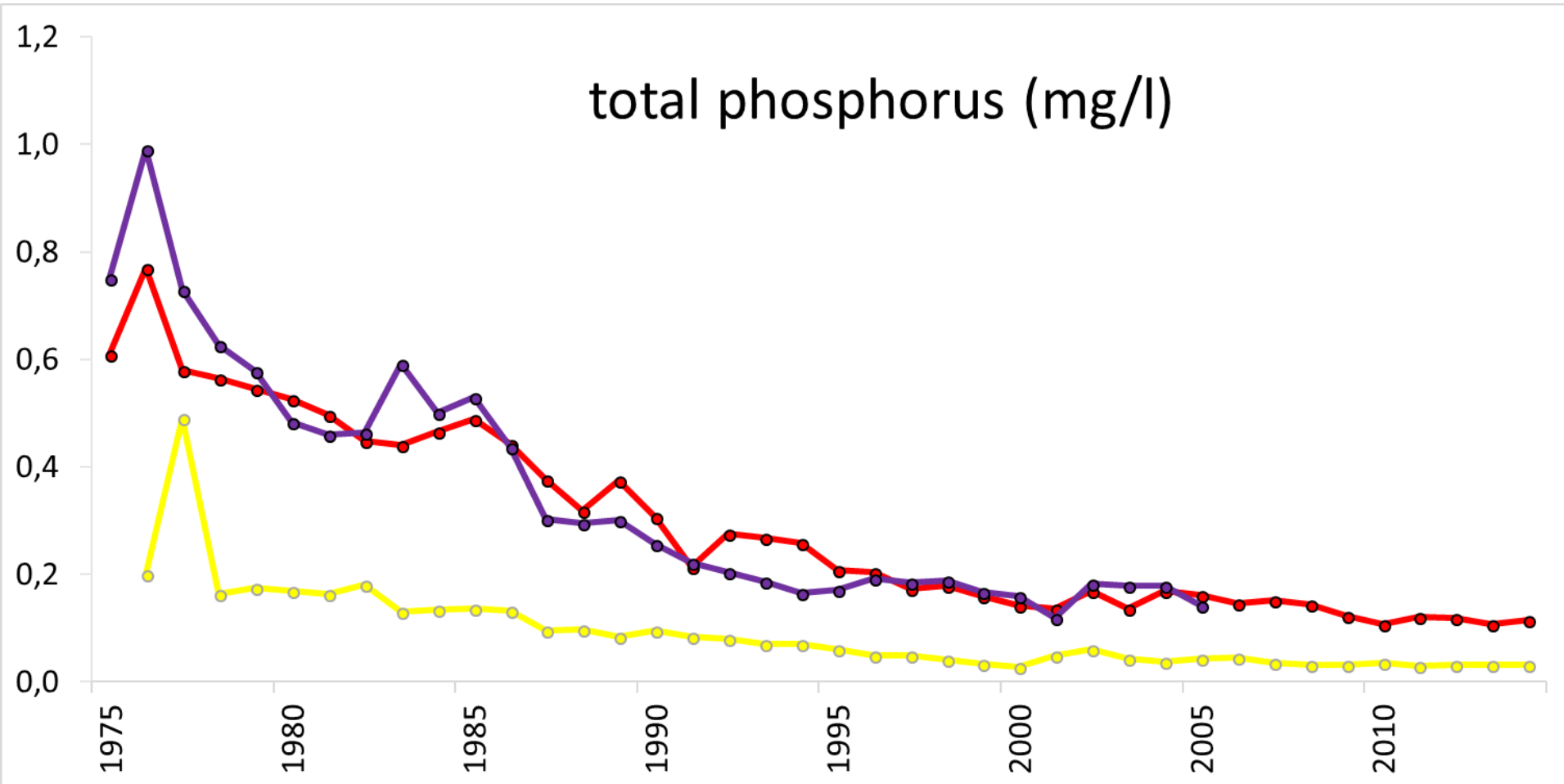


Foto: Holger Weinandt

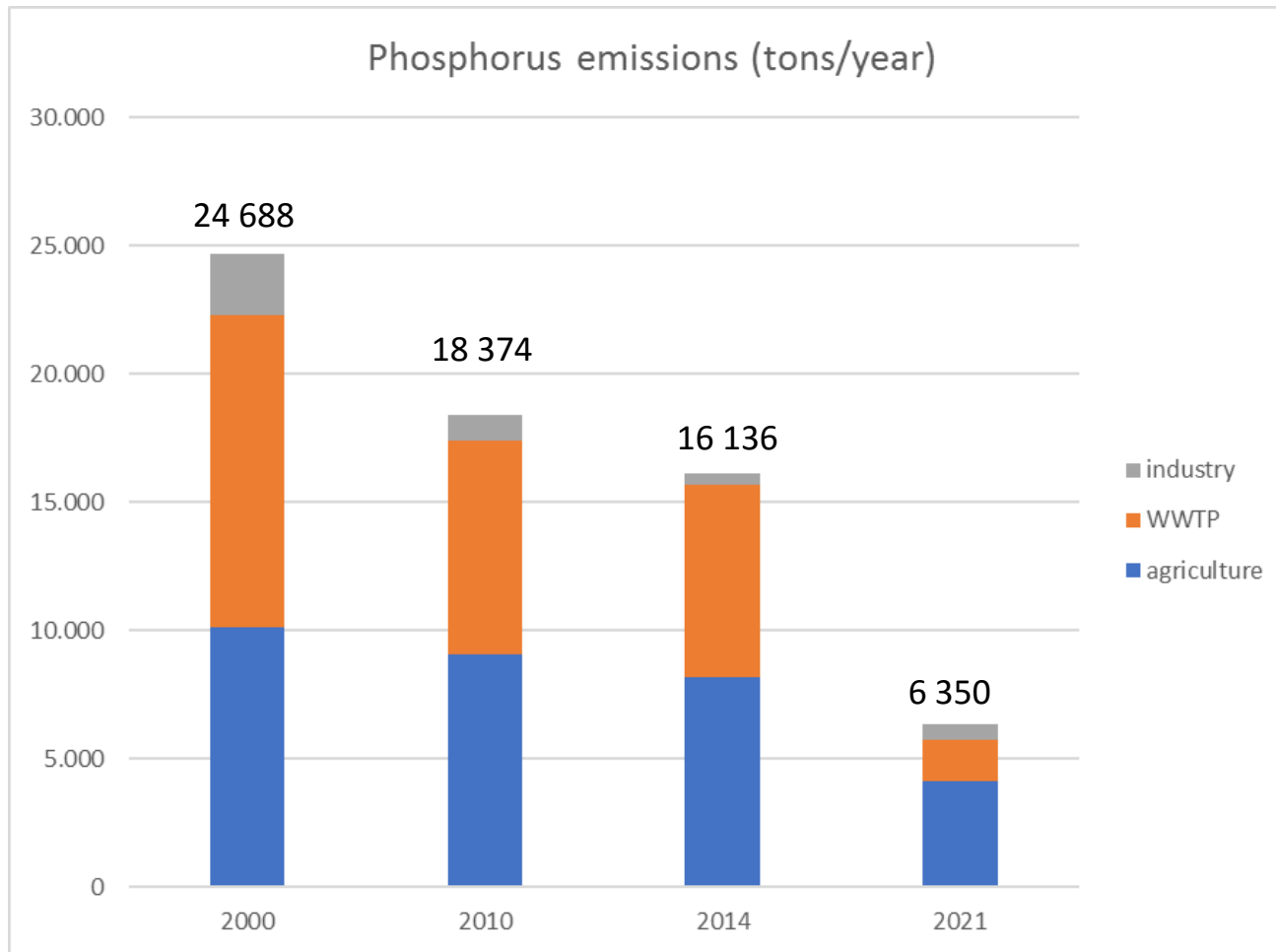
Water quality monitoring



Water quality improvement

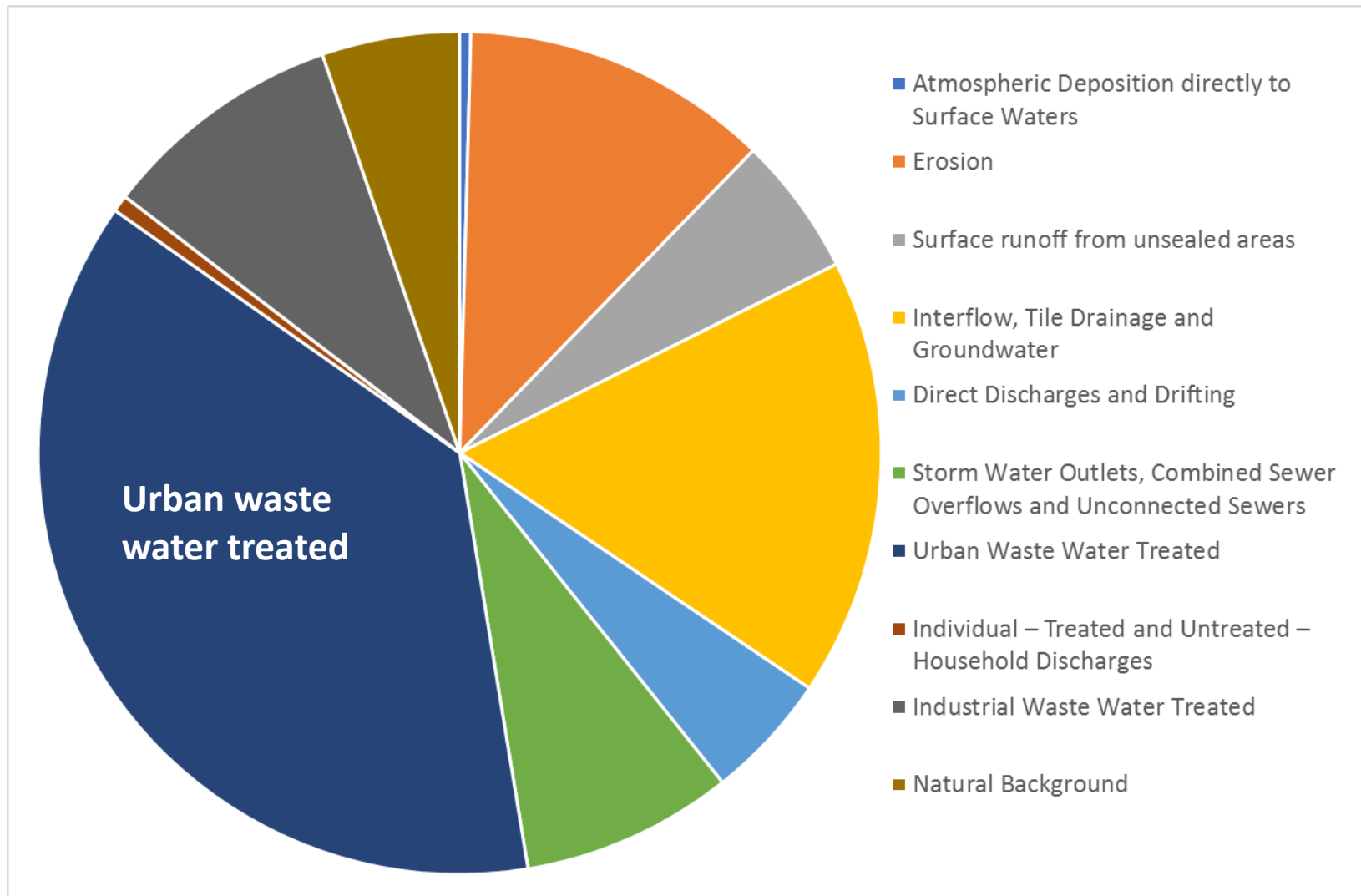


Phosphorus emissions



Based on data and projections of the countries (RBMP 2015)

Phosphorus emissions in 2000



Emission pathways in 2000 (ICPR report 134)

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 → 96% of population connected**

EU Water Framework Directive (WFD)



**Internationally Coordinated
Management Plan 2015
for the
International River Basin
District of the Rhine**

(Part A = Overriding Part)
December 2015



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**Target: „good status“
of rivers**

**→ 1st River basin
management plan
2009-2015**

**→ 2nd River basin
management plan
2016-2021**

Management plan 2015



Total phosphorus and ortho-phosphate-phosphorus

- Exceedance of national thresholds at certain monitoring stations of part A, as in many smaller waters in the catchment
- Reason: wastewater and diffuse inputs

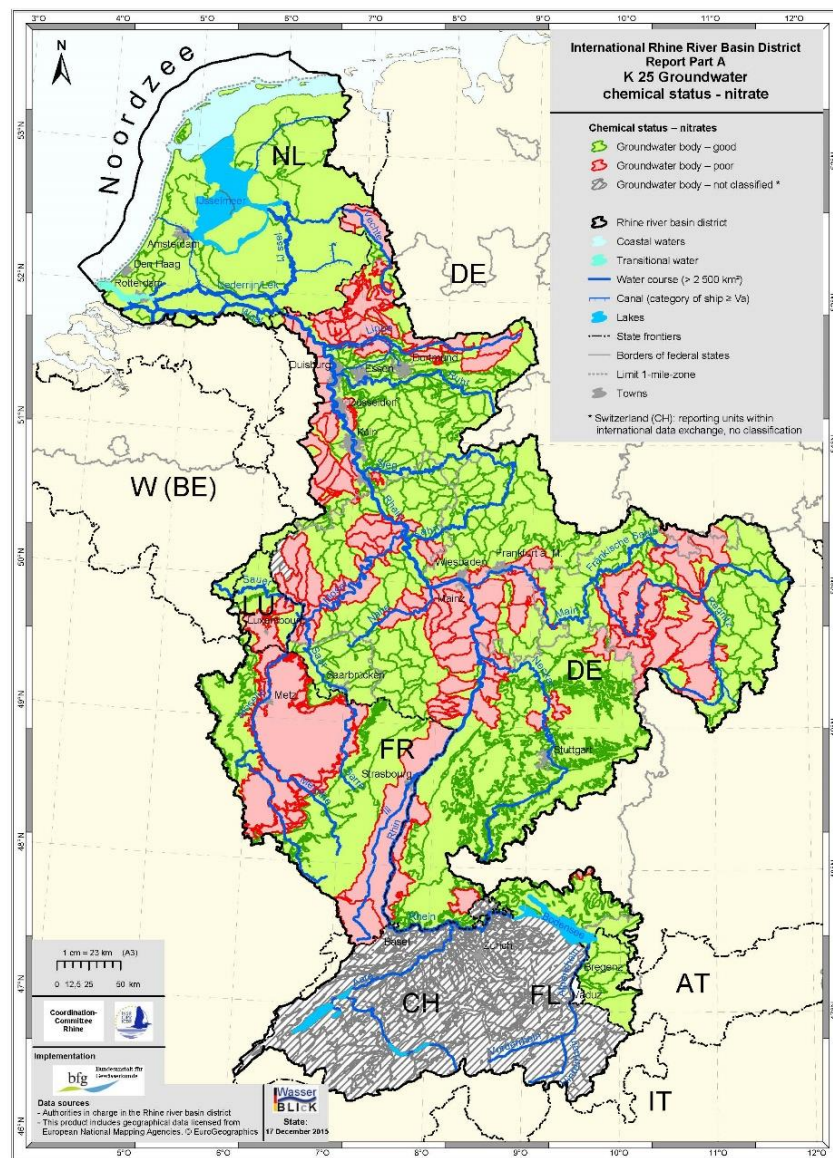
Physico-chemical parameters, (river-specific) substances relevant for the Rhine and substances of the List of Rhine substances					In excess of EQS/guidance value Lower than EQS/guidance value X no decision possible because of too high limit of determination - no measurements available * Coastal waters outside the 1-mile zone: No classification required No EQS determined as yet		Monitoring stations and inland surface waters		Monitoring stations at "other surface waters"																									
Substance	CAS No.	Value (WFD-Codelist)	Unit	Status WFD resp. list of Rhine substances (rhr)	River																													
					Name of the monitoring station																													
State: December 2015					Monitoring station no.																													
					Name of the monitoring station																													
					Ach near Bregel Rhine Neckar Weschnitz Schwarzbach Main Regnitz Kinzig Nidda Nahe Lah																													
					61 60 5 1 2 7 11 12 13 32 34 35 41 43 42 8 9 10 31 28 54 24 23 25 55 26 27 19 29 30																													
					Fussach Fussach/Alpine Rhine Ohningen Rekingen Weil am Rhein Karlsruhe/Lauterbourg Worms Mainz Koblenz Bad Honnef Düsseldorf-Flehe Blinmen Lobth Kampen Massthalis Deizsau Kochendorf Mannheim Biblis-Wattenheim Trebur-Astheim Hallstadt Erlabrunn Kahl a. Main Bischofsheim Hausen Hanau Nied Dietersheim Solms-Oberbiel Umburg																													
Physico-chemical parameters (supporting the assessment of the ecological state/potential) according to WFD, Annex V																																		
Dissolved oxygen	n.a.	321	mg/l	Annex V																														
Water temperature	n.a.	226	°C	Annex V																														
pH	n.a.	322		Annex V																														
Conductivity	n.a.	330	µS/cm	Annex V																														
Cl ⁻	n.a.	97	mg/l	Annex V																														
Total nitrogen	n.a.	2	mg/l	Annex V																														
Nitrate nitrogen	n.a.	228	mg/l	Annex V																														
Orthophosphate phosphorus	n.a.	227	mg/l	Annex V																														
Total phosphorus	n.a.	3	mg/l	Annex V																														
One or more national classification criteria out of limit																																		
Below all national classification criteria																																		

Management plan 2015



Nitrogen

- Important → source of **coastal water pollution** (Wadden Sea)
- ICPR agreement: 15 - 20 % reduction of nitrogen load (Rhine → North Sea + Wadden Sea) → achieved: **15 % reduction since 2000**
- Concentrations still above the Dutch guidance value
- **Groundwater**: nitrogen inputs of the upper main aquifer → most important problem
- diffuse inputs getting more important → further reduction only possible in cooperation with **agriculture**



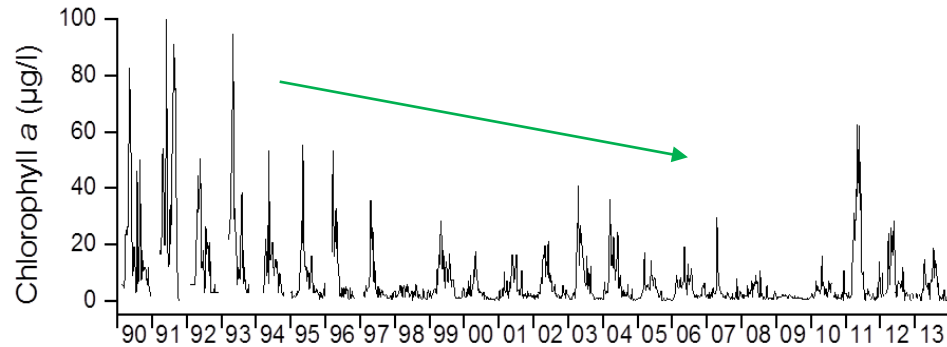
Management plan 2015



- Important instruments for the further reduction and avoidance of nutrient emissions: **nitrates directive** (91/676/EEC), **urban waste water directive** (91/271/EEC) and, IPPC directive on industrial emissions (2010/75/EG)
+ implementation of additional political programmes, such as the **Rhine Action Programme** and OSPAR recommendations
→ distinct reduction of phosphorus and nitrogen concentrations in the entire catchment area during the last decades

Results

Linking water quality and ecology



Long-term trends

- Increased diversity of invertebrates
- decrease of phytoplankton biomass
- 44 macrophyte species
- 64 fish species

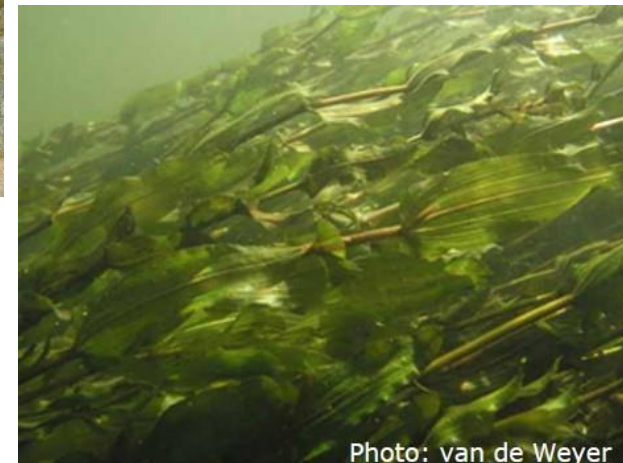
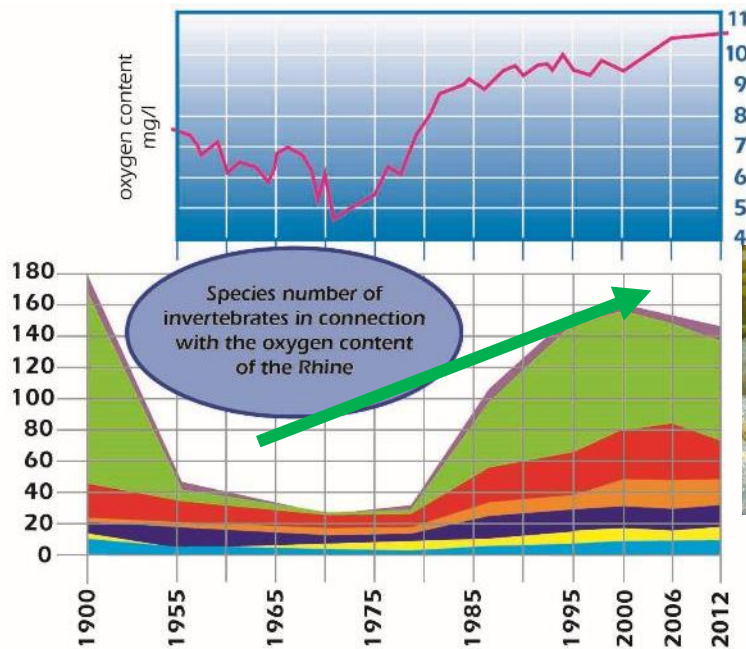


Photo: van de Weyer

bryozoa
 insects
 molluscs
 leeches
 crustaceans
 turbellaria
 fresh-water-porifera

Master Plan Migratory Fish Rhine (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)**

Costs 2000-2015: € 627 Mln

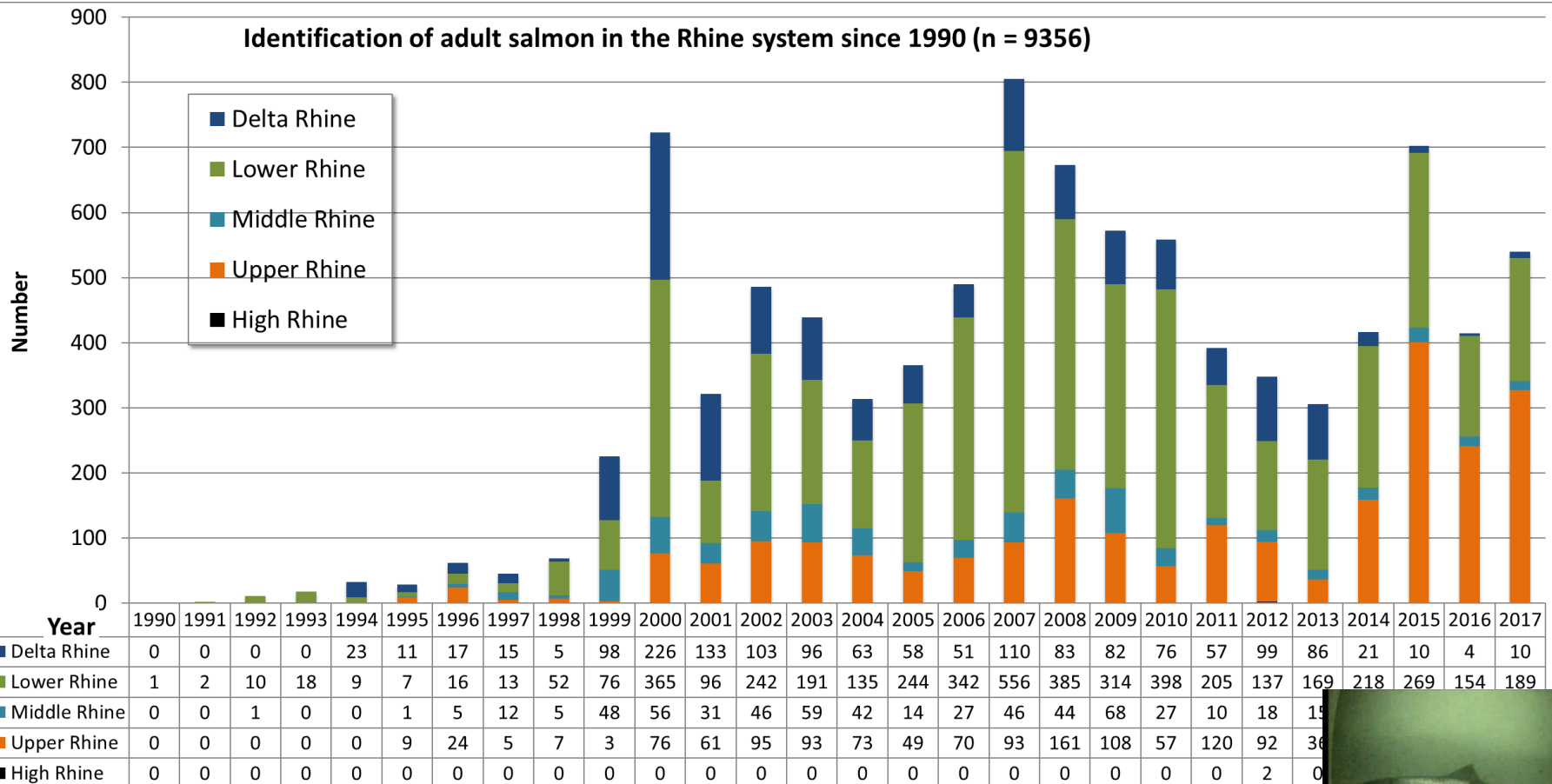


Salmon is back in the Rhine!



- Since 1990 more than 9000 salmon have been identified in the Rhine system!
- Salmon as symbol ... but other migratory fish (allis shad, houting) are on the rise as well

Identification of adult salmon in the Rhine system since 1990 (n = 9356)

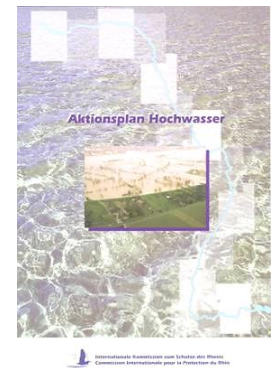


Transboundary flood risk management

Why?



- ✓ **Dec. 1993 and Jan./Feb. 1995: Cities flooded in Germany and The Netherlands**
- ✓ **Action Plan on Floods (1998)**
(4 action targets: reduce damage and water levels, improve flood forecast and risk awareness)
- ✓ **1st Flood Risk Management Plan (2015)**
(EU Floods Directive)



Future challenges



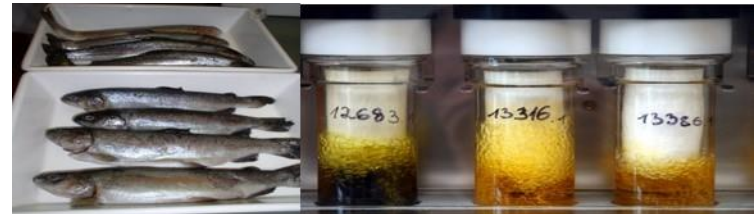
**Adaptation to climate changes
(changes in runoff and
temperature, storm rain)**



**Water quality: New
substances (micropollutants),
microplastics**



Contamination of fish



**Ecological continuity:
Migration of fish up- and
downstream**



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**

andPatience.

European Riverprize 2013, Vienna (Austria) & International Riverprize 2014, Canberra (Australia)



Thanks for your attention! ... questions?



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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

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The Rhine for Beginners

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