



Governance in Water Resource Management: Example Germany



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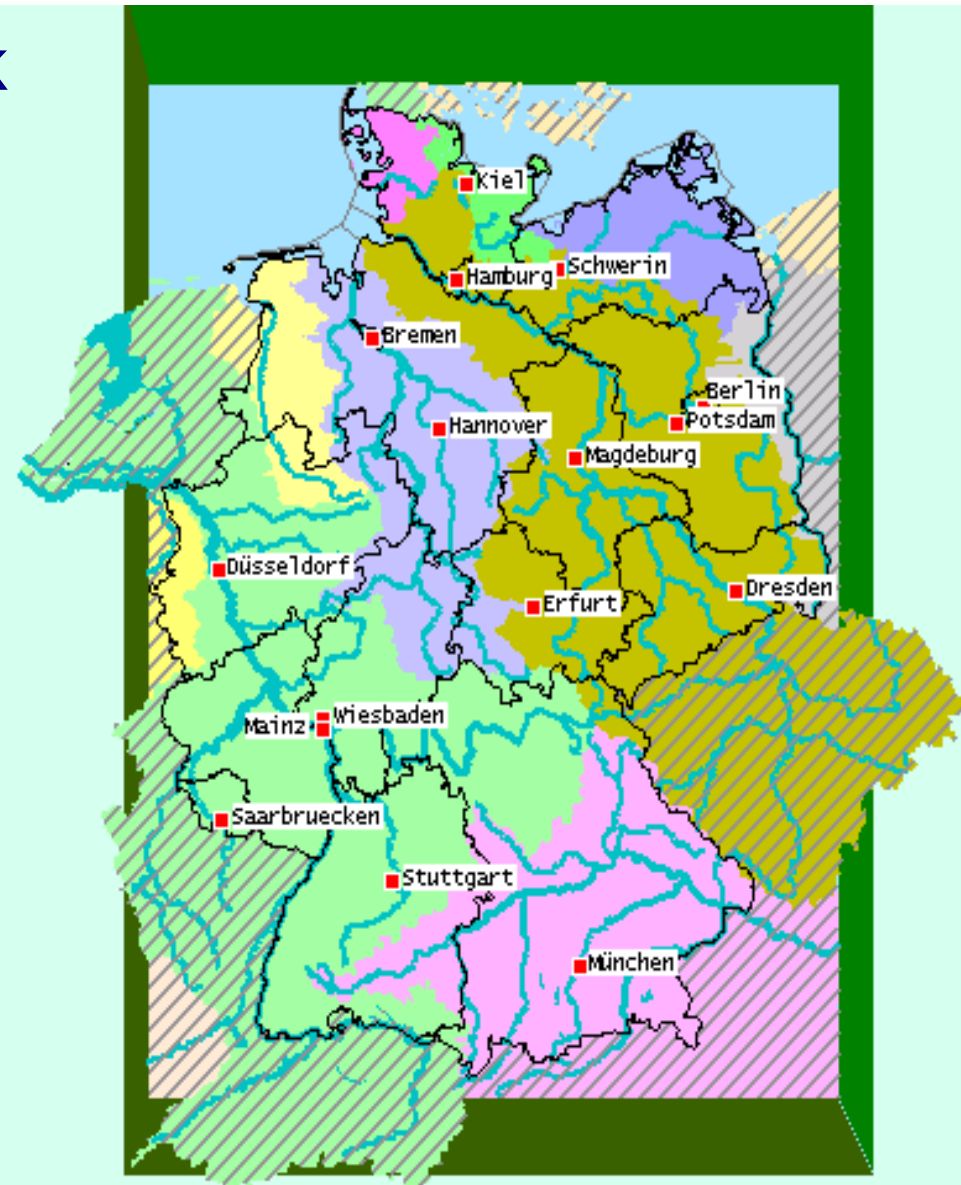


Administrative Framework Conditions

16 Federal States
responsible for water policy

4 international river basins

1 national river basin





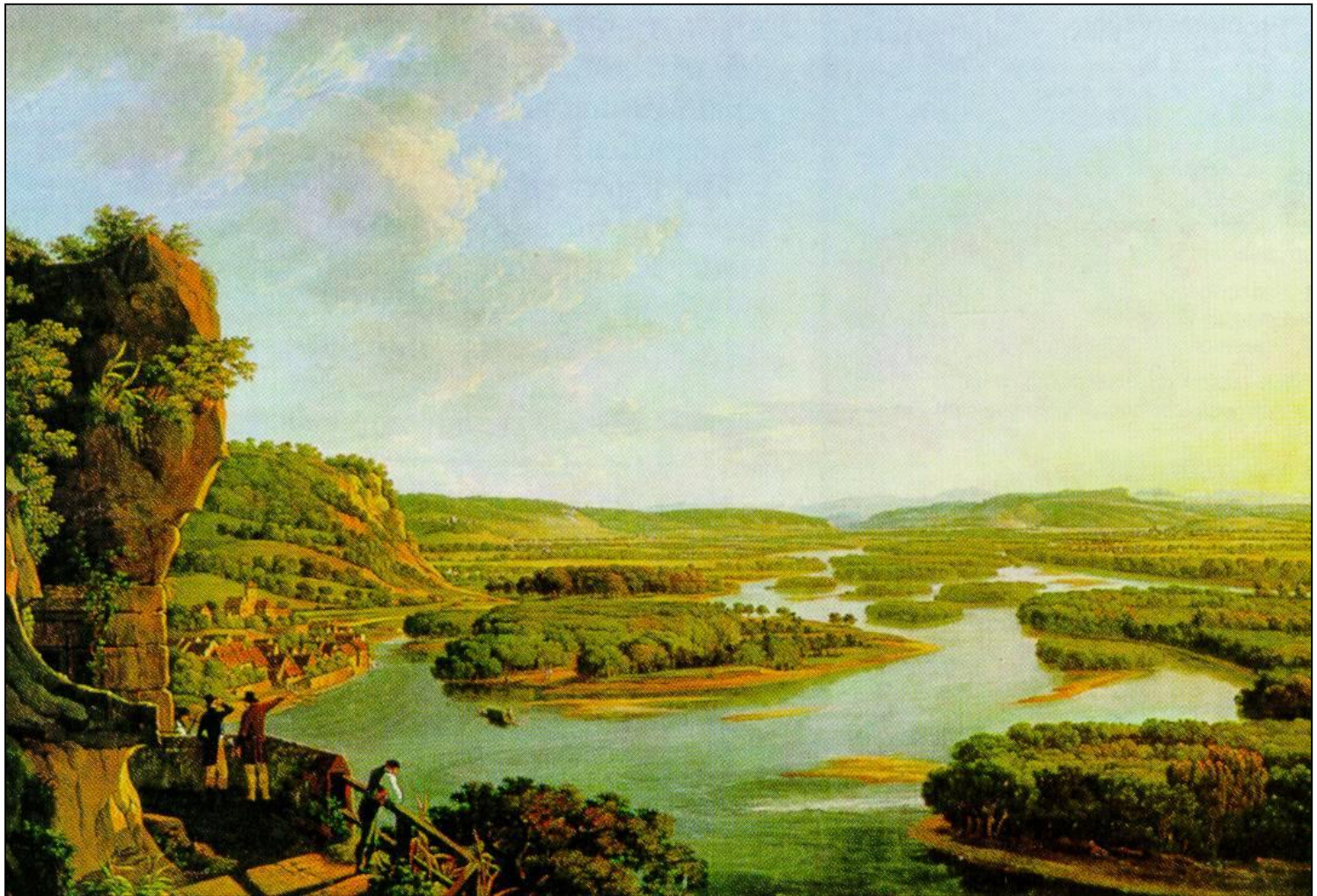
The Rhine Catchment



- 9 countries
- 58 million inhabitants
- drinking water supply for 30 million people
- 50% of EU chemical industry



Upper Rhine, 1880

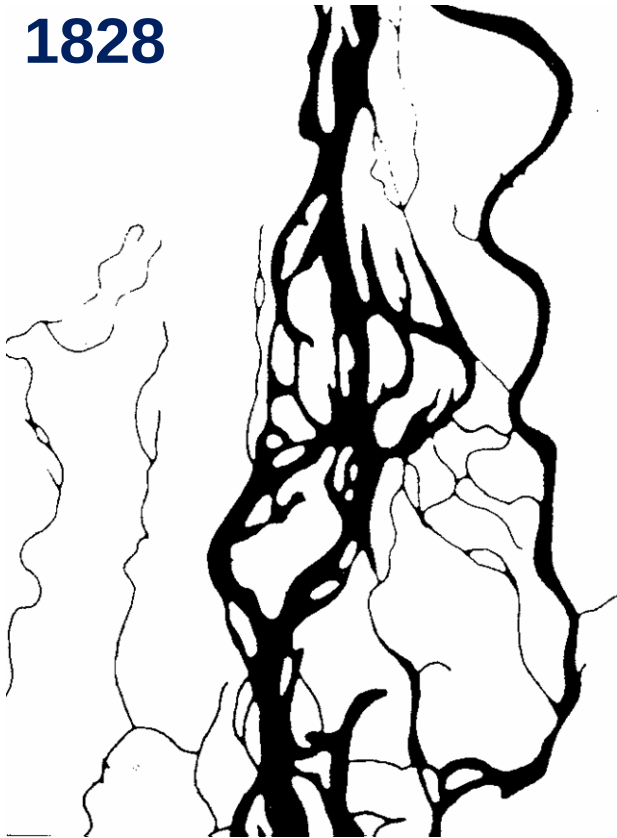


Peter Birrmann (1758 -1844): Der Oberrhein nördlich von Basel um 1800. Kunstmuseum Basel
Der Isteiner Klotz und eine durch Inseln und Wörthe gekennzeichnete Flusslandschaft.



Chanalization of the Upper Rhine

1828



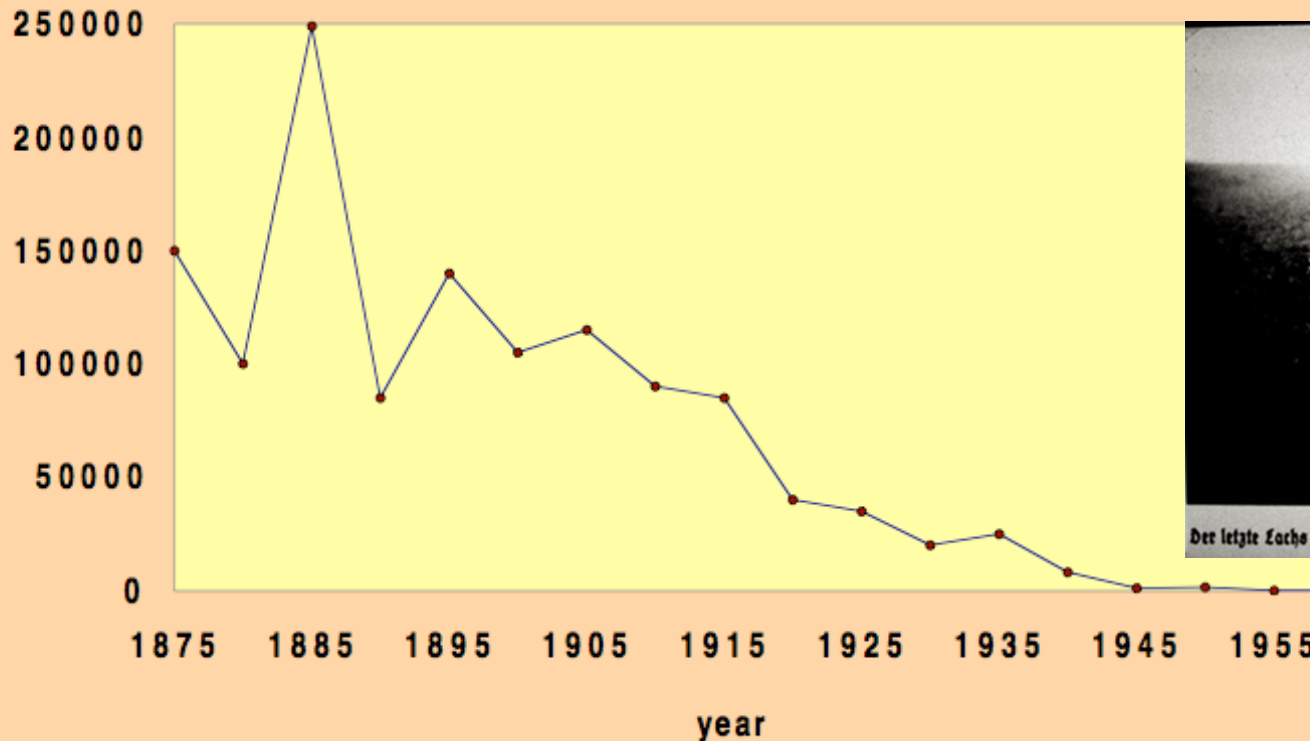
today

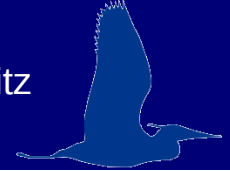


Graw und Borchardt 1998

Development of the Salmon Population in the Rhine

Total Salmon catch Germany and The Netherlands





International Commission for the Protection of the Rhine

- ▶ 1950 - Foundation
- ▶ 1963 - Treaty of Berne
- ▶ 1972 - 1st Rhine Ministers' Conference
- ▶ 1986 - Accident at Sandoz
- ▶ 1987 - Rhine Action Program
- ▶ 1993 and 1995 - Flooding
- ▶ 2000 - Programme Rhine 2020
- ▶ 2000 - EU Water Framework Directive



1986: Fire at Chemical Company Sandoz, CH



10-30 tons of highly toxic
pesticides flew into the river...

...causing the death of all aquatic life



eels 400 km downstream



UWWTP: Priority in the 1990 in Germany





Wastewater Treatment in Germany

- ❑ Population connected to biological treatment: 95 %
- ❑ Almost all UWWTP have a nutrient reduction
- ❑ Grade of reduction: 82 % nitrate, 91 % phosphate
- ❑ Investments: 4.6 Bill. € (56,40 €/person/year)
- ❑ Average price: 2,19 €/m³
- ❑ 115 € / person/year; 0,32 € / person/day

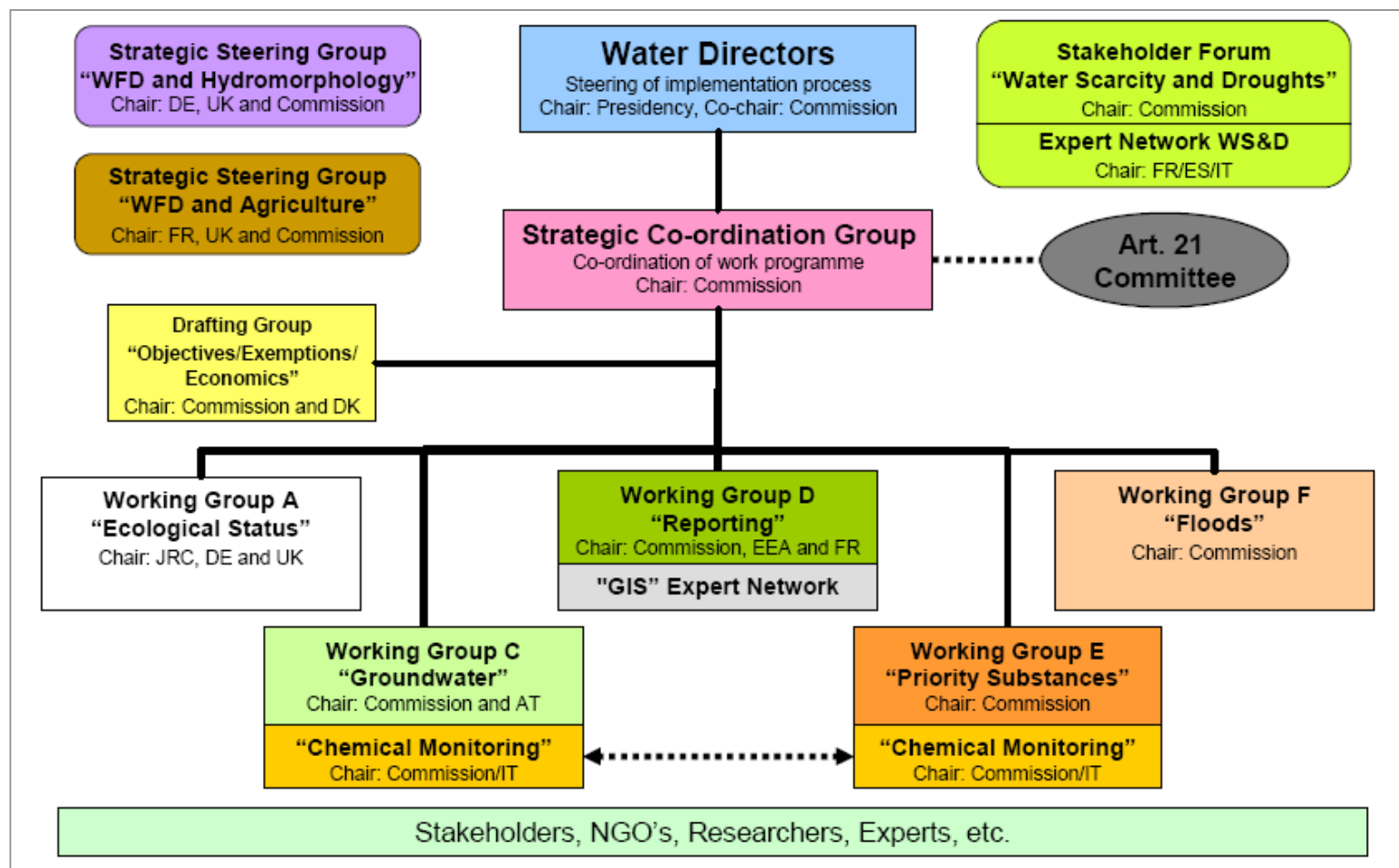


Water Framework Directive

- Many political sectors involved
- Different working levels
 - International level (OSPAR, HELCOM)
 - National /regional level
 - River basin district
- Stringent planning cycle with strict deadlines
- Public information and consultation



WFD Implementation





River Basins...

Rhein

Elbe

Oder

Donau

Weser

Ems



Flußgebietseinheiten in Deutschland nach der Wasserrahmenrichtlinie

Maßstab 1 : 4.000.000

Quelle: Umweltbundesamt, Februar 2000

- ...and
administrative
Responsibilities

Baden-Württemberg
Bayern
Berlin
Brandenburg
Bremen
Hamburg
Hessen
Mecklenburg-Vorp.
Niedersachsen
Nordrhein-Westfalen
Rheinland-Pfalz
Saarland
Sachsen
Sachsen-Anhalt
Schleswig-Holstein
Thüringen



Different Historical Background

- ☐ each country has its own approach, tradition, administrative culture ...
 - ☐ France: Centralistic state
 - ☐ Germany: Federal state
-
- ☐ Hungary: Separate water administration



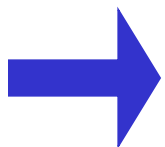
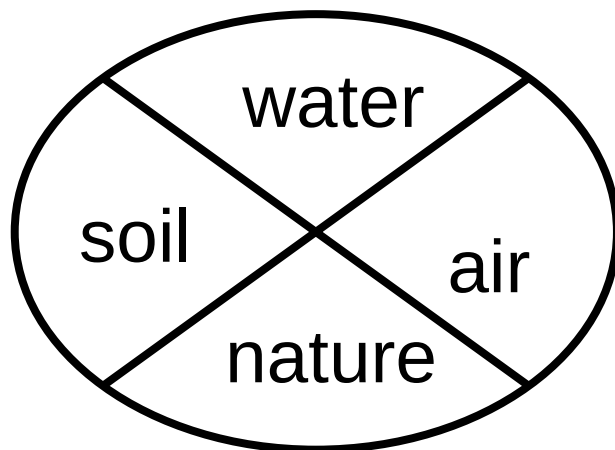
WFD and Administration

- ❑ EU refraining from detailed provisions about administration:
WFD: „...appropriate administrative arrangements,
including the identification of the competent authority...”
- ❑ International (roof) RBMP Rhine elaborated by the ICPR
- ❑ National RBMP developed by the Federal States
(competent authorities)



Cross-media Approach

- Problems should not be shifted from one sector to the other
- Administration should act integrated



Example: dealing with solid waste



Share of Tasks between different Organisation

National Level (LAWA)

- Nat. approaches and strategies

River Basin Organisation

- National/international coordination

Federal States

- Pressures and impact analysis
- Monitoring
- Objectives, exemptions
- Program of measures



Status Assessment

Typ: Lowland medium sized stream (reference)

Ecological status:

Macroinvertebrates: moderate

Fish: poor

Macrophytes: moderate

Phytobenthos: poor

Hydromorphology: poor



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Chemical status: bad

General chem. parameters: poor (nutrients)





Status Assessment

Typ: Lowland large permanent coastal streams

Ecological status:

Macroinvertebrates: good

Fish: good

Macrophytes: high-good

Phytobenthos: high-good

Hydromorphology: moderate

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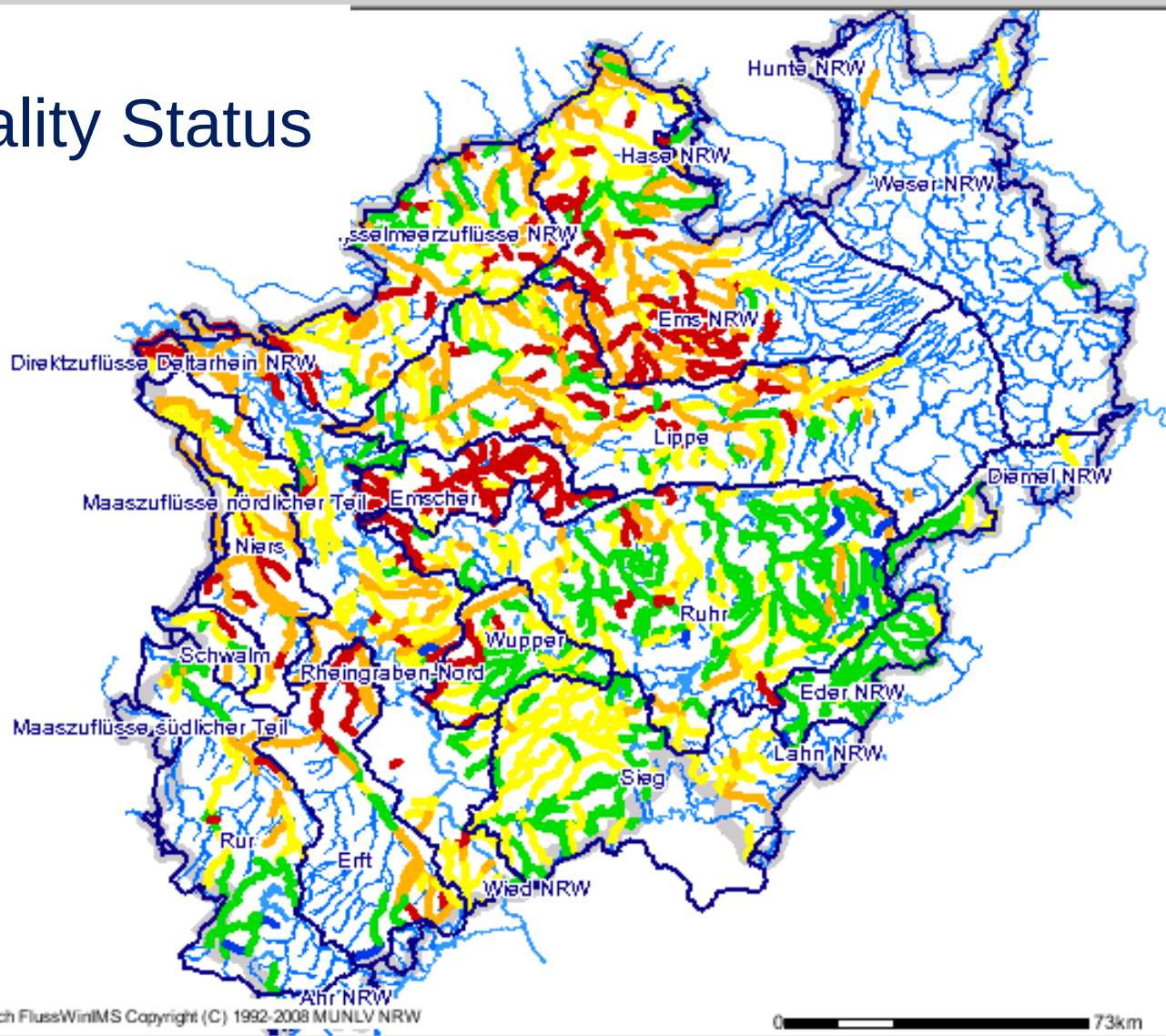
Chemical status: bad

General chem. parameters: good





Quality Status





Public Participation



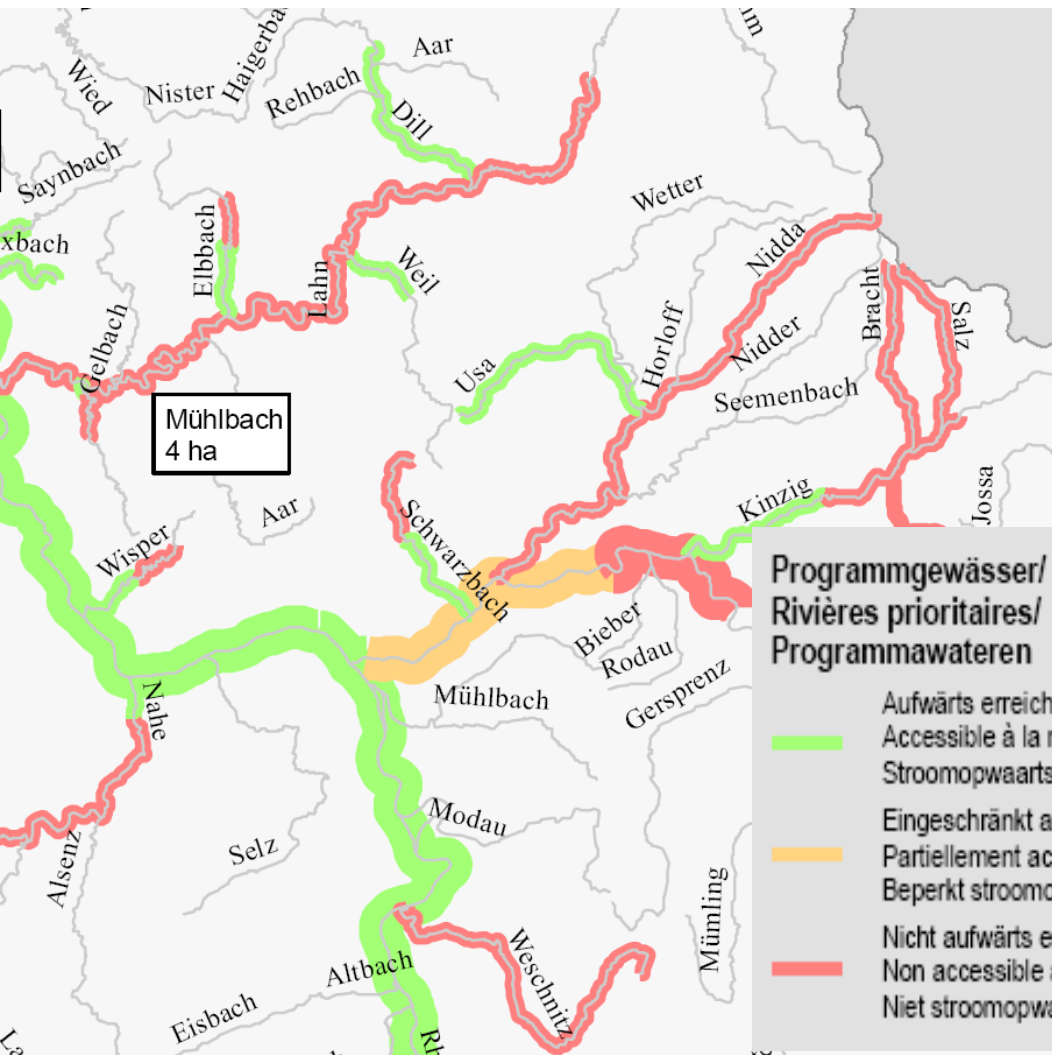


Programe of Measures





Re-establishment of Salmon Population

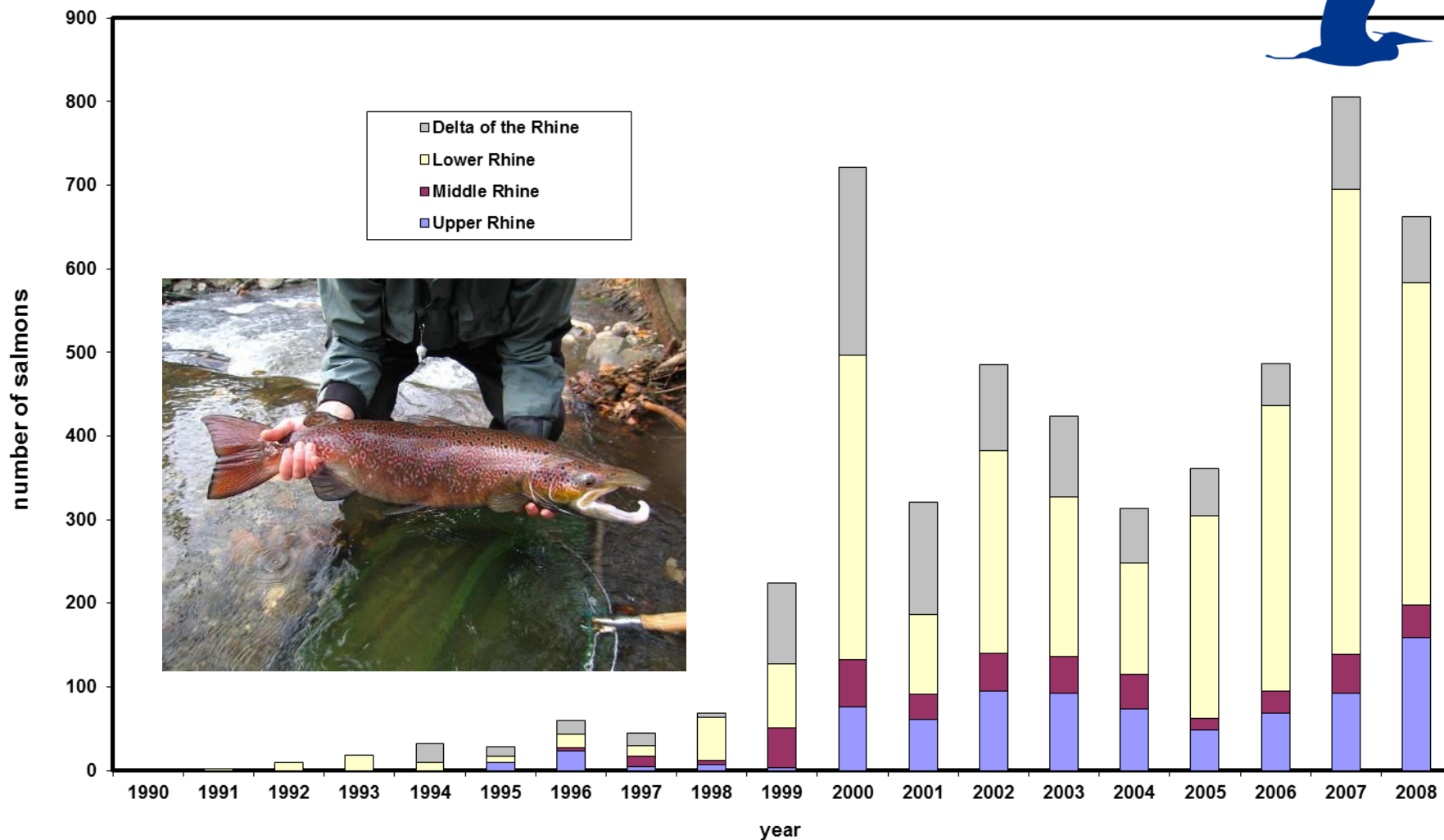


Programmgewässer/ Rivières prioritaires/ Programmawateren

- Aufwärts erreichbar oder nicht erreichbar, aber lokal durchgängig
Accessible à la montaison ou non accessible mais localement ouvert
Stroomopwaarts bereikbaar of niet bereikbaar maar lokaal passeerbaar
- Eingeschränkt aufwärts erreichbar
Partiellement accessible à la montaison
Beperkt stroomopwaarts bereikbaar
- Nicht aufwärts erreichbar
Non accessible à la montaison
Niet stroomopwaarts bereikbaar

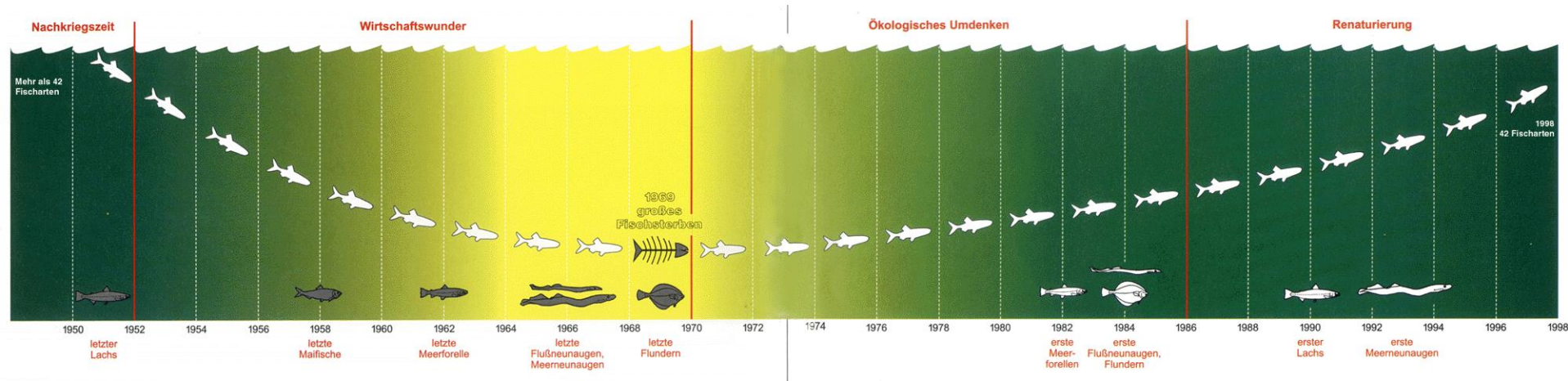


Salmons returning to the Rhine





Water Management: a long way to Recreation



1950

No UWWT

1970

With UWWT
and monitoring

2016

