

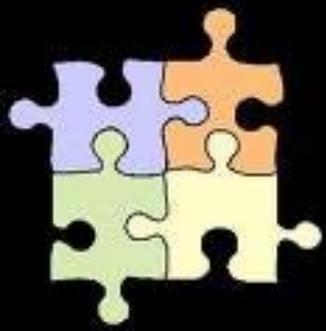


KEYS TO SUCCESS IN THE SUSTAINABLE MANAGEMENT OF THE RHINE RIVER : From an open sewer to a living river



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Structure of the presentation

- 1 – Key points for success in river basin management**
- 2 – How are these principles implemented within
the Rhine Commission ?**
- 3 – Main results : pollution reduced, water quality
improved and salmon reintroduced**
- 4 – Action plan on floods**
- 5 – Reflections**



1 – Key points for success in river basin management





River basin management (1/2)

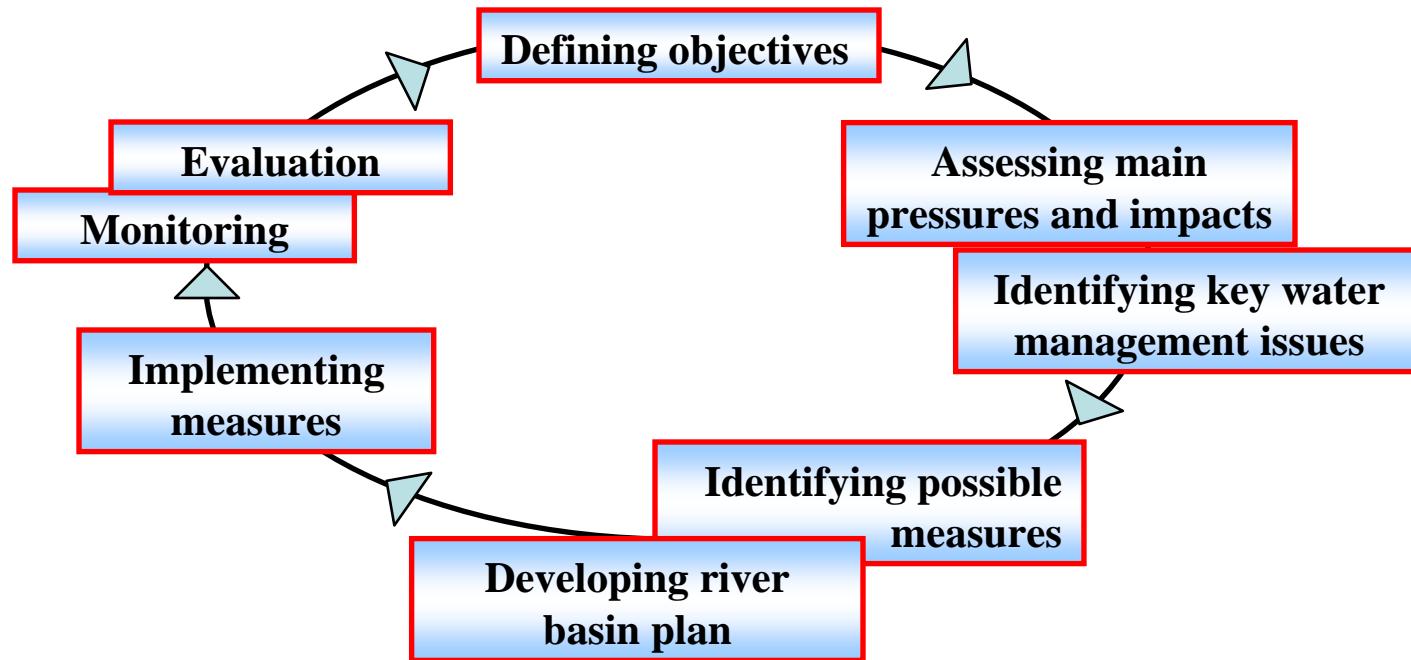
A process that happens in stages :

- Set objectives = what we want
- Identify the problems to be resolved = what are the key questions to be dealt with
- Elaborate strategies = action plan
- Implement
- Assess the results (revise the plan to make it more effective)





Keys points for River basin management (2/2)





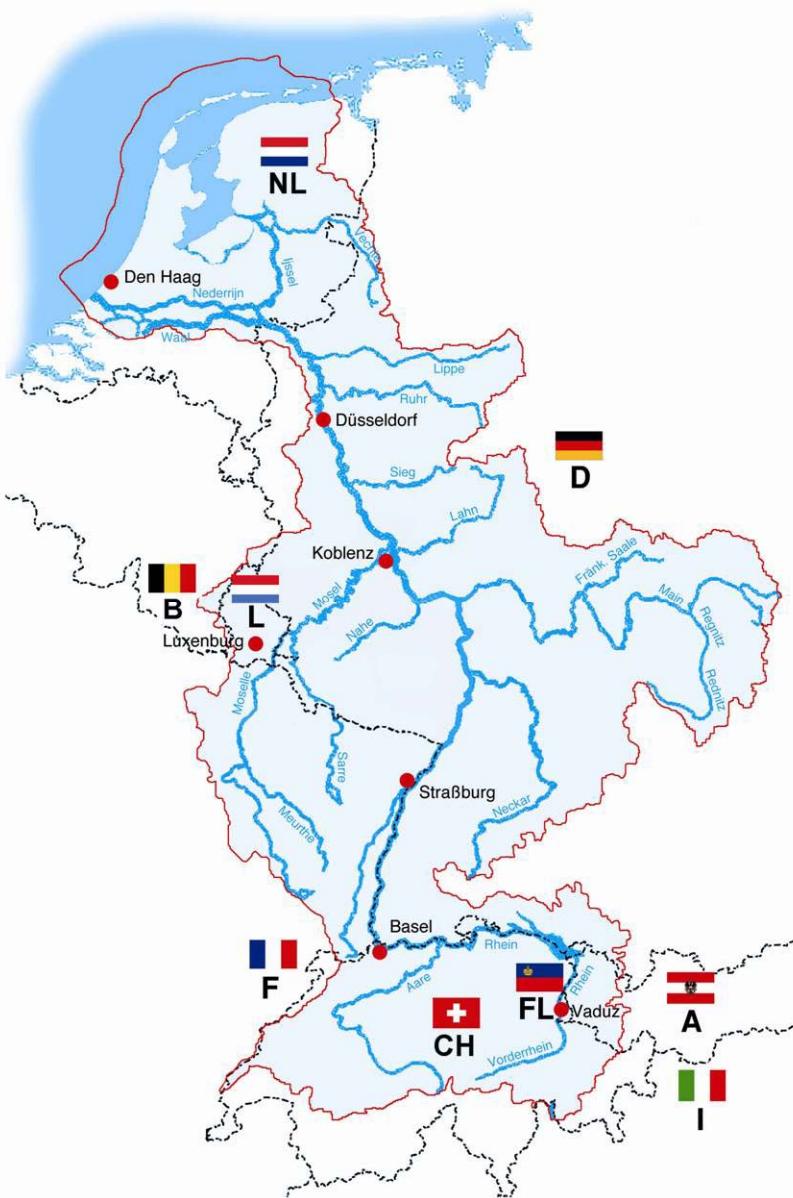
2- How are these principles implemented within the Rhine Commission ?



The Rhine, a European river



The Rhine, a European river



- **Catchment : 200.000 km²**
- **Main stream : 1320 km**
- **Navigable length : 825 km**
- **3rd biggest European river**
- **9 countries**
- **Inhabitants : 58 million**
- **Drinking water supply : 30 million people**



The Rhine from Source to Sea





The Rhine, a river with many uses and conflicts

- ▶ The major hydraulic developments undertaken in the middle of the 19th century have rendered the River completely artificial
- ▶ The pollution reached its height in the 1970s



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Changes during the centuries

1838



1872



1980





The development of international cooperation

- ▶ **1815** : Creation of the Central Commission for the navigation on the Rhine
- ▶ **1963** : First international convention creating the International Commission for the Protection of The Rhine in order to reduce pollution

Central Commission
for the Navigation
on the Rhine
- ▶ **1987** : Ministers from the bordering countries of the Rhine decided on a plan of action after the fire in the Sandoz chemical plant in 1986





The development of international cooperation

► 1998 : Action plan to prevent flooding



► 1999 : The Convention on the Rhine was renewed in BERNE

Convention on the Protection of the Rhine

The Governments of
the Federal Republic of Germany
the Swiss Confederation
the Grand Duchy of Luxembourg
the Kingdom of the Netherlands
the Kingdom of Belgium
and the European Community,
Desiring to work towards the sustainable development of the Rhine ecosystems on the basis of their intrinsic value, taking into consideration the natural wealth of the river, its banks and affluents and
Desiring to step up their cooperation on conserving and improving the Rhine ecosystem,
Referring to the Convention of 17 March 1902 on the protection and use of transboundary watercourses and international lakes and the Convention of 23 September 1902 on the protection and use of the Rhine, both concluded at Bern,
Taking into account the work carried out under the Agreement of 20 April 1963 concerning the International Commission for the Protection of the Rhine against Pollution between the Federal Republic of Germany and Switzerland,
Considering that efforts must be made to further the improvement in water quality achieved under the Convention of 2 December 1976 for the protection of the Rhine against chemical pollution and under the Rhine Action Programme of 30 September 1975,
Aware that the restoration of the Rhine is also necessary to conserve and improve the ecosystems of the North Sea,
Aware of the importance of the Rhine as a European waterway and of its various uses,
Have agreed as follows:

Article I Definitions
For the purposes of this Convention:
1. "Rhine" means the River from the source of Lake Uebersee and, in the Netherlands, the part of the River from the confluence of the Maas, Noord, Dommel, Nieuwe Maas, Lek, Waal, Boven-Merwede, Beneden-Merwede, Noord, Oude Maas, Nieuwe Maas and Scheldt and the North Sea Waterway as far as the head line as specified in Article 5 to section 1 of the Law on the Rhine and the North Sea Convention on the Law of the Sea, the Kiel Canal and the Jade Canal;

Bern, April 11th, 1999





How does the ICPR operate and act ?

- ▶ The ICPR is composed of delegations from the contracting parties (states + European Union)
- ▶ A rotating presidency
- ▶ The commission takes its decisions unanimously
- ▶ A permanent secretariat
- ▶ An annual budget of 1.1 million euro funded by the contracting parties
- ▶ A very active participation of NGOs





The States implement the decisions taken within the ICPR

- ▶ **Regulatory transcription**
- ▶ **Monitoring and control**
- ▶ **Raising of the necessary funding**





The major stages in the action of rehabilitating the Rhine

- ▶ **1950 – 1970** : information exchanges, development of monitoring programmes, releases inventory
- ▶ **1976 – 1986** : signature of international conventions in order to reduce **chemical pollution, thermal pollution and chloride pollution**





The major stages in the action of rehabilitating the Rhine River

- **December 1986** : a fire in the swiss chemical plant SANDOZ causes an important pollution and an important pressure from public opinion



- **1987 – 1999** : action takes an more political dimension : Ministers held regular meetings and decided on a **plan of action**
- **2000** : The European Framework Directive imposes a good status objective for all water and the drawing up of a unique management plan



3- Main results :

- ☞ pollution reduced,
- ☞ water quality improved,
- ☞ salmon reintroduced

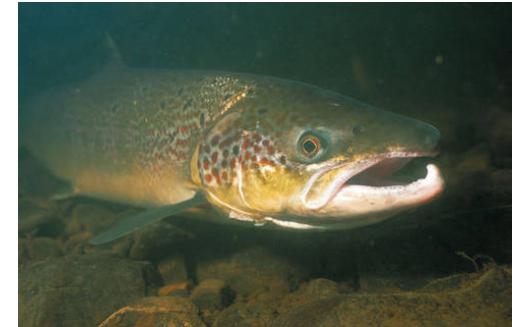


The Rhine Action Programme adopted in 1987 to save the Rhine River



Main elements and objectives

- Duration: 1987 – 2000
- The Salmon as symbol
- Reduction of discharges with 50-70% in the period till 1995
- Prevent accidents
- Water quality appropriate to produce drinking water



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RHIN-MEUSE



Main results

- Organic and nitrogenous pollution are under control
- Reduction from 80% to 50% of toxic pollution
- Rhine fauna has recovered
- Migratory fishes and especially the salmon are back



Pollution reduced

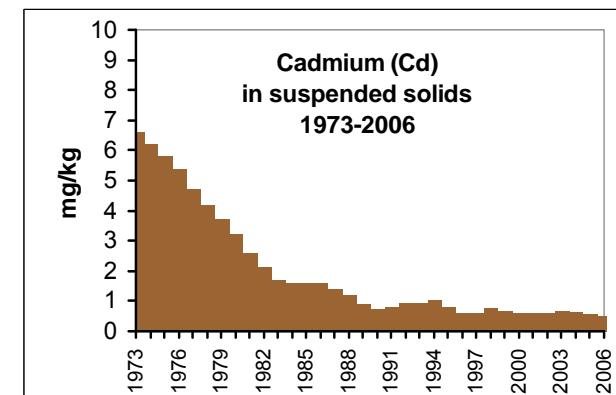
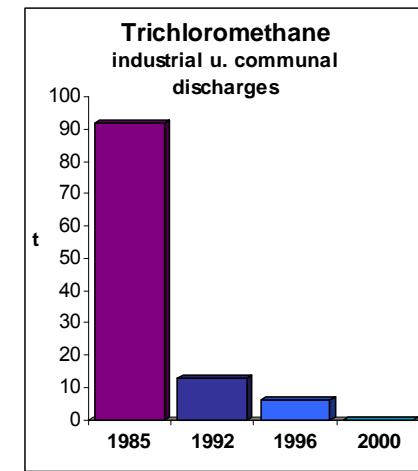
Expense of 40 Bill. € (20 Bill. communal, 20 Bill. industrial) in the river basin area for advanced waste water treatment between 1986 and 2000



→ The loads decreased



→ The concentrations decreased

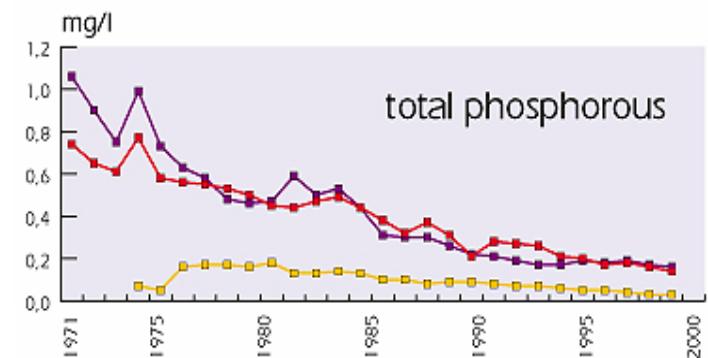
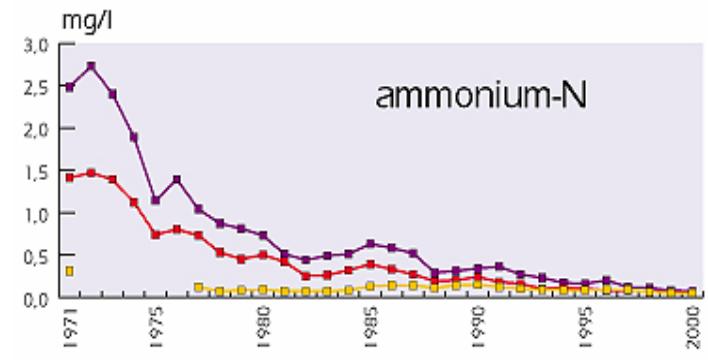
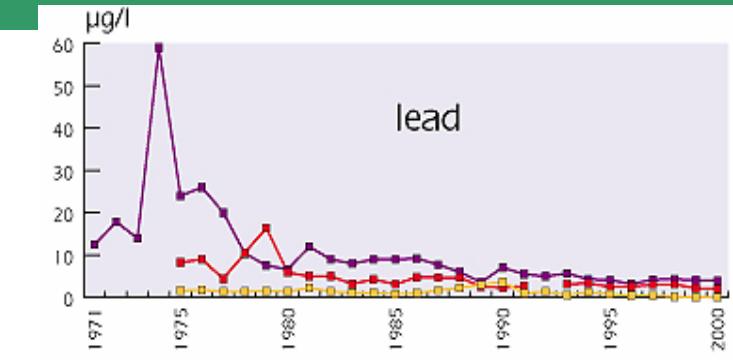


Pollution reduced (1985- 2000)

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

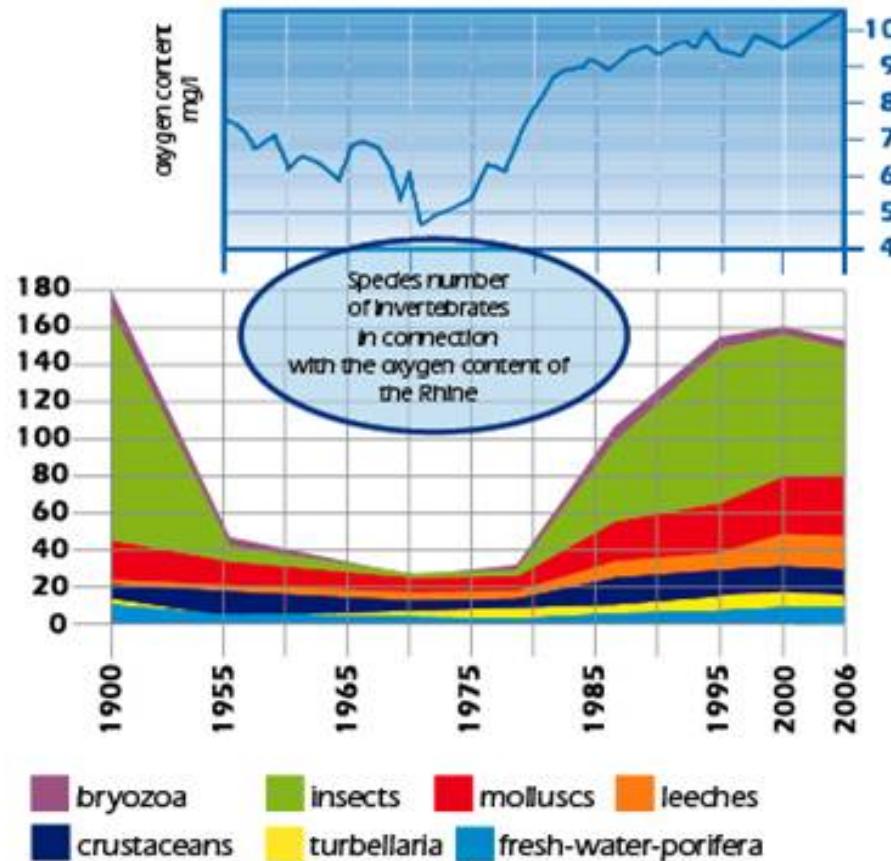


Water quality improved



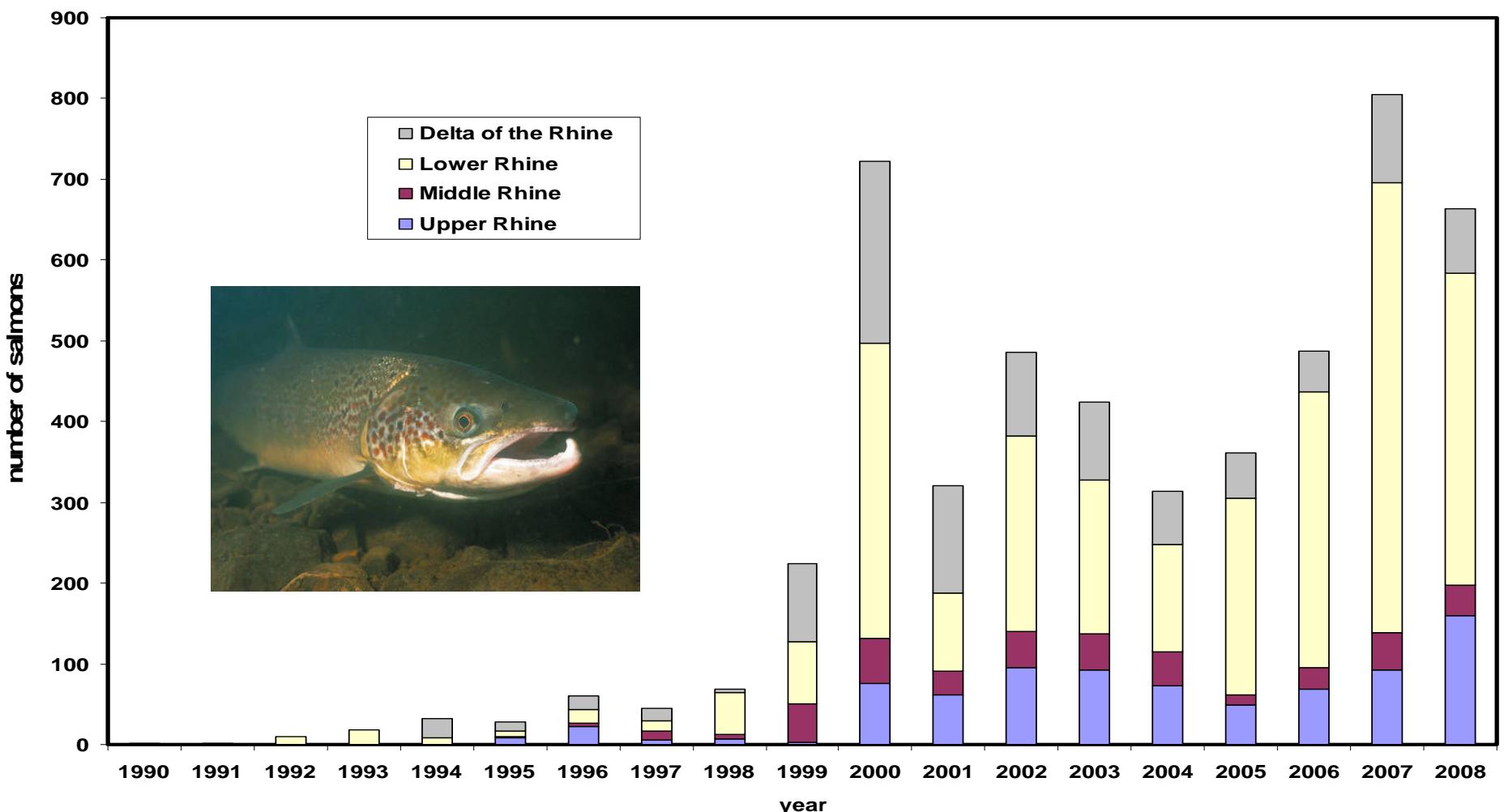
Water quality improved

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



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DE L'ÉNERGIE, DU DÉVELOPPEMENT DURABLE ET DE LA MER

Salmons returning to the Rhine





Salmon Reintroduction

End 2008 :

**More than 5.000 adult salmons
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**





4 – Action plan on floods



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**
- 👉 **affected by floods : ~11 Mio people**



Action Plan on Floods

- 👉 Potential damage
~ €165 billion
- 👉 Implementation
€12,3 billion
- 👉 an economic imperative!



5 – Reflections





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**

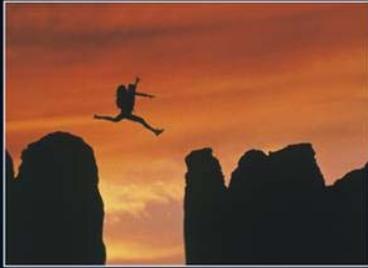


Conclusions

The action for the revitalization of the Rhine is enshrined in a dual framework :

- ▶ Governmental agreements
 - ▶ A shared political will
- Disaster management and public pressure help to create political decision





New challenges

- ▶ New pollutants (micropollutants, medicines, ...)
- ▶ Ecological continuity
- ▶ Climate change
- ▶ The public has to be involved



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Thank you for your attention

Muito grato pela vossa atenção



Internationale
Kommission zum
Schutz des Rheins

Commission
Internationale
pour la Protection
du Rhin

Internationale
Commissie ter
Bescherming
van de Rijn

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for the Protection
of the Rhine



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