Ministry of the Environment and Conservation,
Agriculture and Consumer Protection of the State
of North Rhine-Westphalia

River restoration and bio-diversity under the water framework directive (WFD)

3rd International Scientific Meuse Symposium,
Liège, April 22 – 23, 2010

Structure

a. Actual situation in water management and bio-diversity in North Rhine Westphalia

b. Objectives for water management and biodiversity

c. Measures to reach the objectives

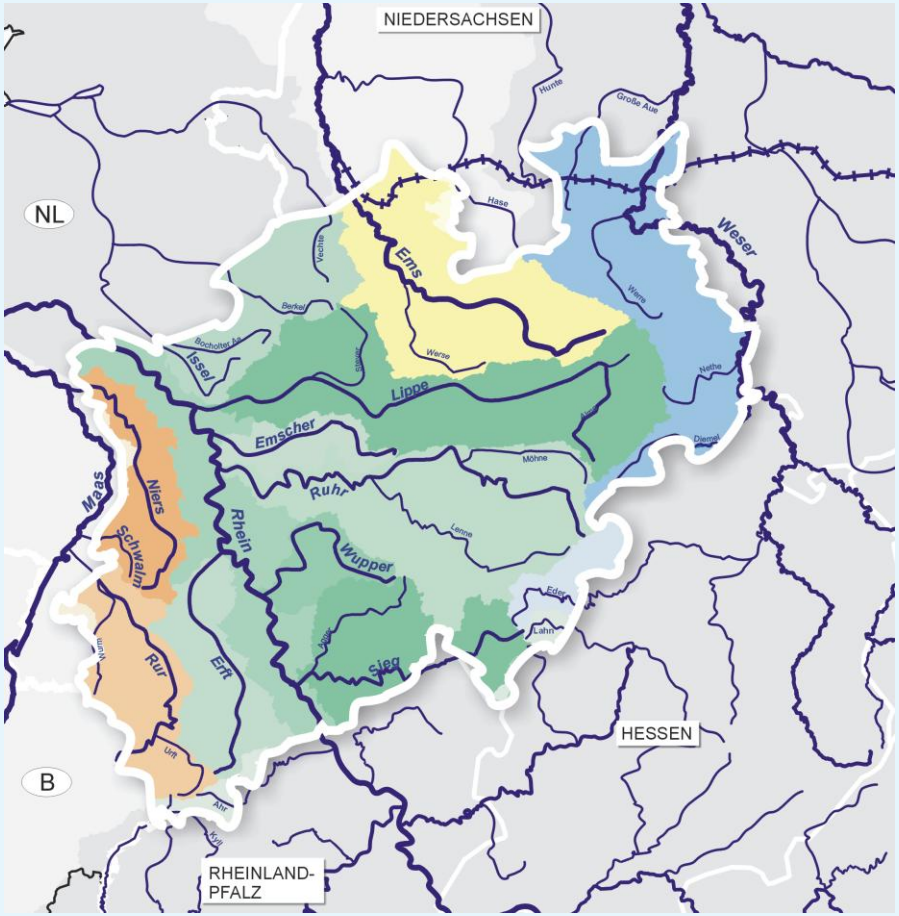
d. Conclusion

North Rhine - Westphalia:

4 river basin districts (RBDs)

Meuse, Ems, Weser, Rhine

Meuse basin covers appr. 3984 km² of North Rhine - Westphalia



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North Rhine - Westphalia:

surface: 34084 km²

inhabitants: 18.01 million

population density:

530 inhabitants/km²

Main drivers/uses:

- settlement (including waste water disposal)
- production of drinking water
- industry (mining, power generation, chemicals production, steel production)
- hydropower use
- navigation
- agriculture and forestry
- tourism

Bio-diversity

Map shows freshwater habitats classified under the habitats directive

Meuse basin

47 sites classified as freshwater habitats under the habitats directive (15994 ha), 1 site classified under the birds directive (7219 ha), 1 site classified as national park

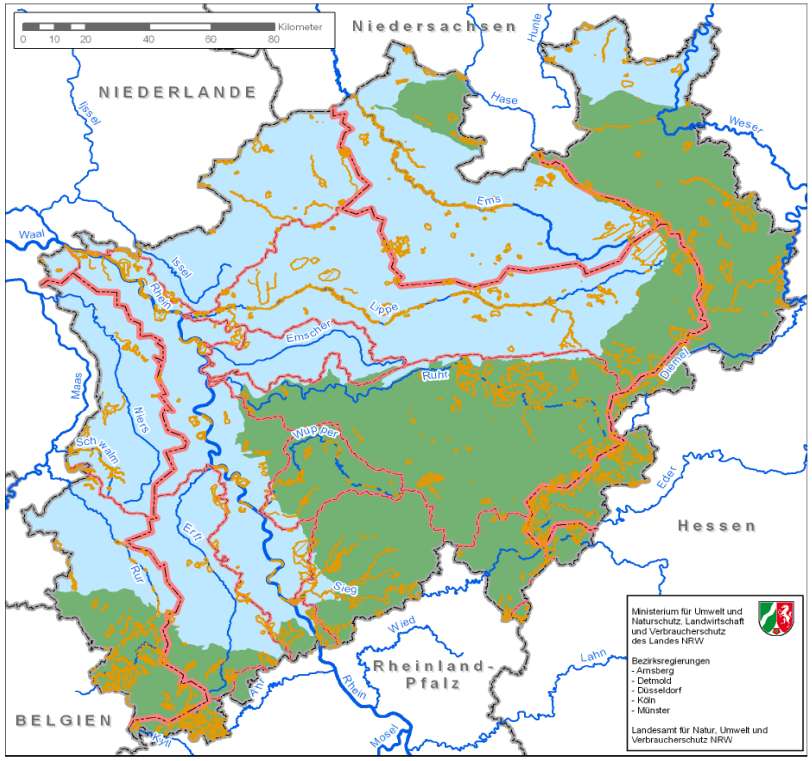
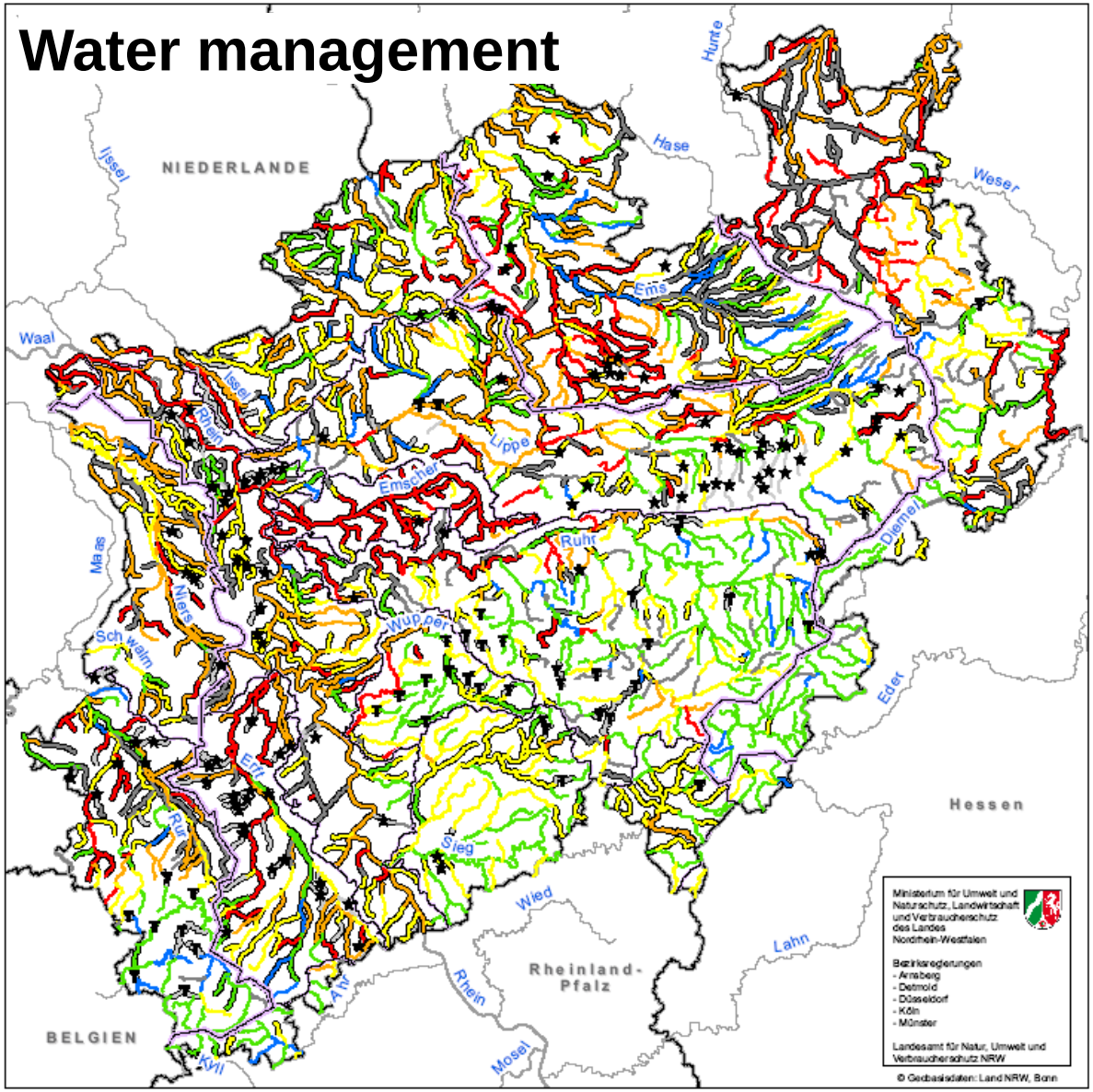


Abbildung 4-1: Biogeografische Regionen in Nordrhein-Westfalen

Water management



Ökologischer Zustand der Fließgewässer

Makrozoobenthos

Modul Allgemeine Degradation

Bewertung der Oberflächenwasserkörper

- sehr gut
- gut
- mäßig
- unbefriedigend
- schlecht
- nicht bewertbar (z.B. zeitweise trocken)
- keine Bewertung

- Oberflächenwasserkörper erheblich verändert oder künstlich
- Oberflächenwasserkörper zumindest zeitweise trocken
- Oberflächenwasserkörper Talsperre

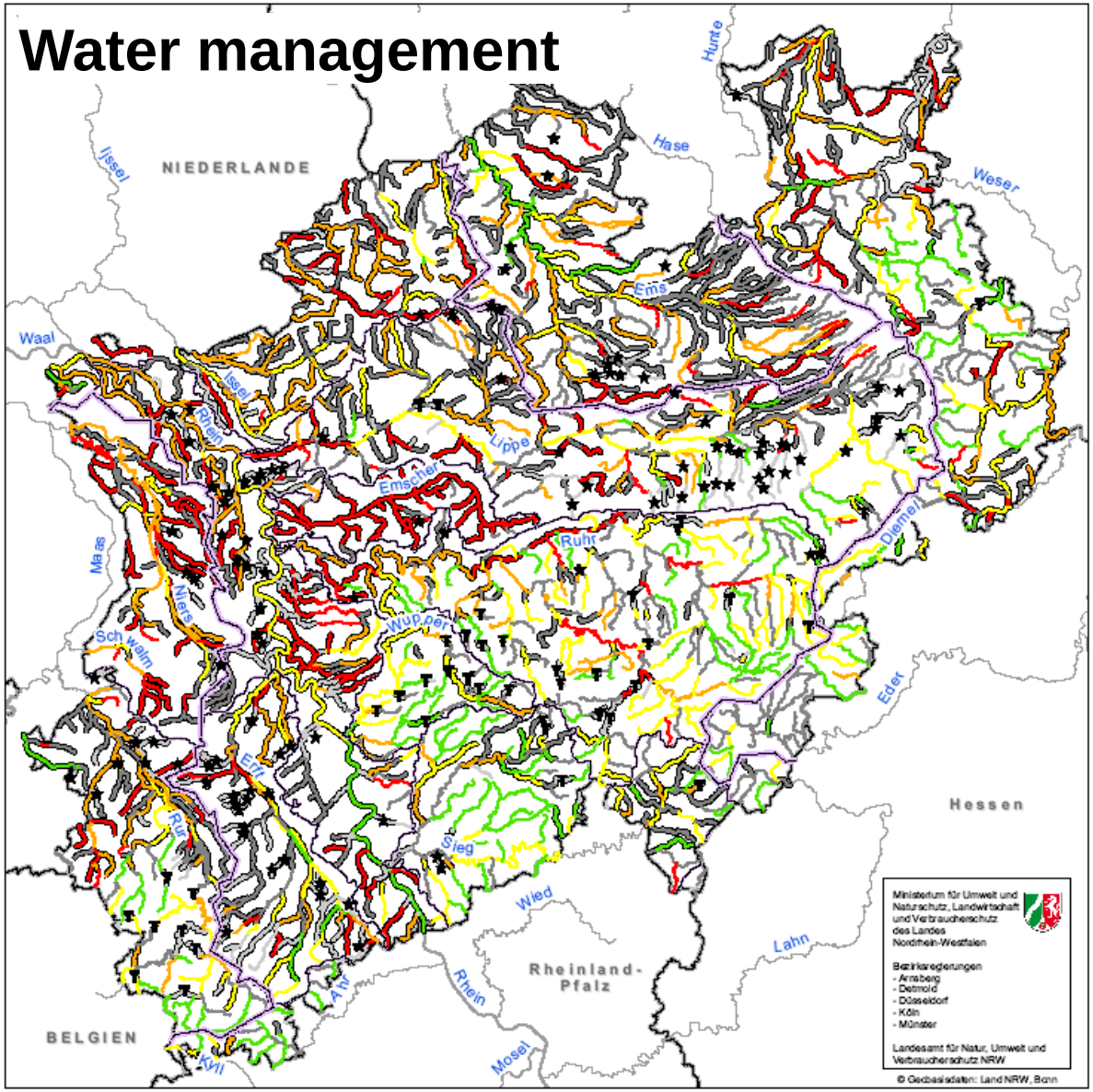
- Grenzen Flusgebiete NRW
- Grenzen Teileinzugsgebiete NRW
- Staats-, Landesgrenze

Status:

Macroinvertebrates („Allgemeine Degradation“)

Stand: 06.11.08

Water management



Ökologischer Zustand der Fließgewässer

Fischfauna

Fisch-basiertes Bewertungssystem (FiBS)

Bewertung der Oberflächenwasserkörper

- sehr gut
- gut
- mäßig
- unbefriedigend
- schlecht
- nicht bewertbar (z.B. zeitweise trocken)
- keine Bewertung

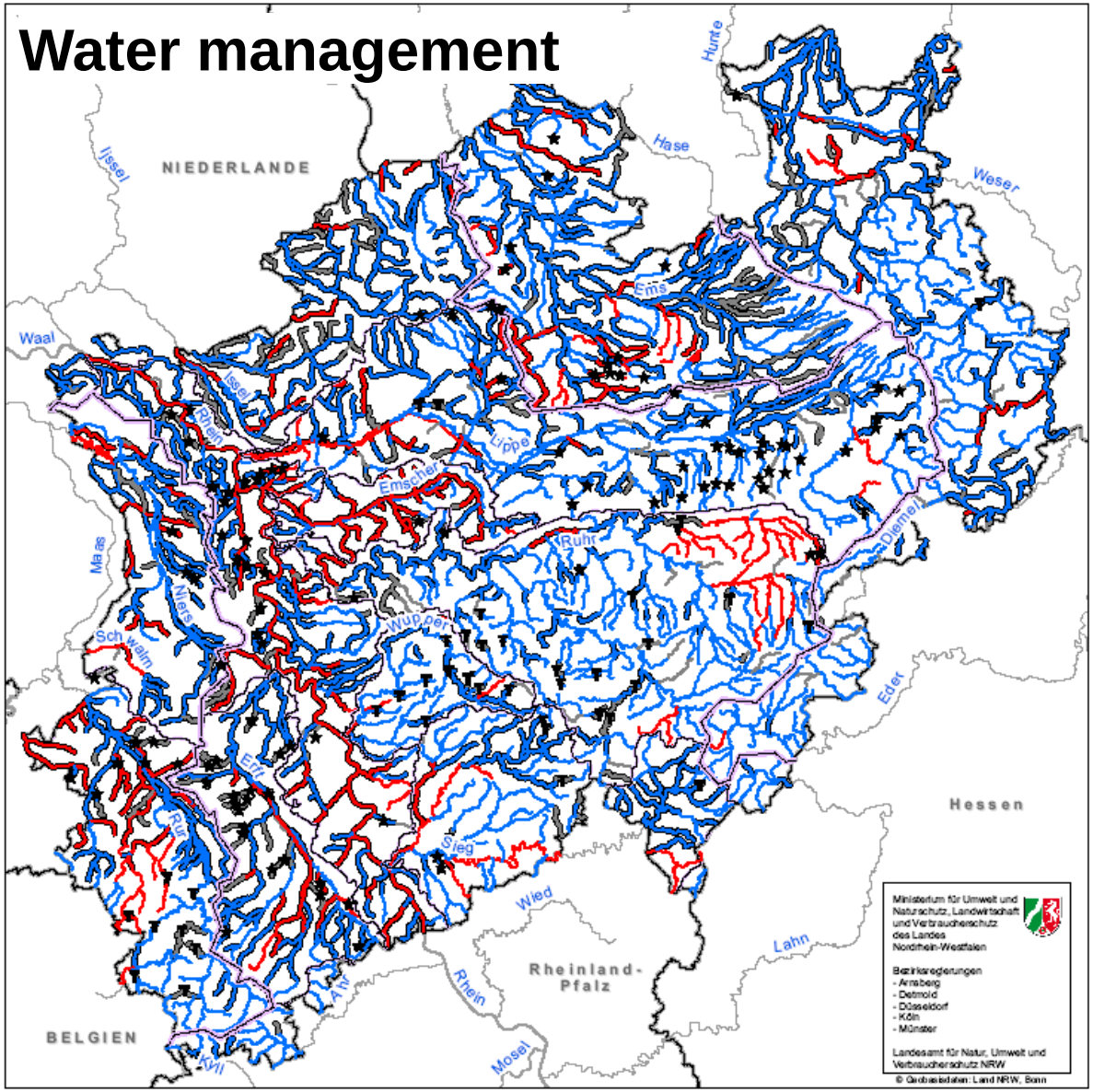
- Oberflächenwasserkörper erheblich verändert oder künstlich
- Oberflächenwasserkörper zumindest zeitweise trocken
- Oberflächenwasserkörper Talsperre

- Grenzen Flussgebiete NRW
- Grenzen Teileinzugsgebiete NRW
- Staats-, Landesgrenze

Status: Fish

Stand: 17.11.08

Water management



Chemischer Zustand der Fließgewässer

Gesamtbewertung

Bewertung der Oberflächenwasserkörper

- gut
- nicht gut
- keine Bewertung

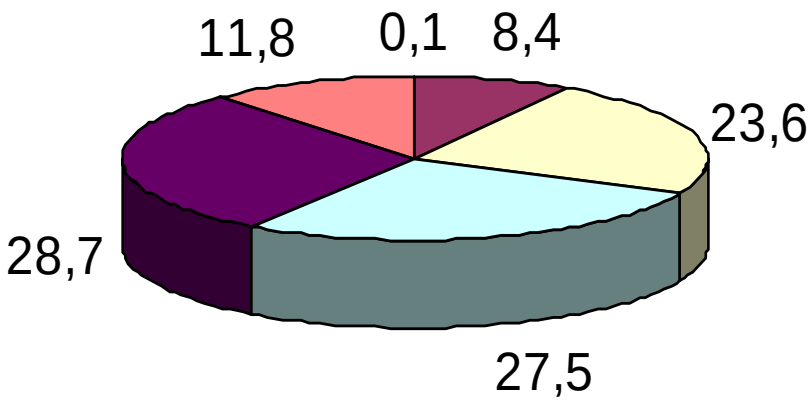
- Oberflächenwasserkörper erheblich verändert oder künstlich
- Oberflächenwasserkörper zumindest zeitweise trocken
- Oberflächenwasserkörper Talsperre

- Grenzen Flusgebiete NRW
- Grenzen Teileinzugsgebiete NRW
- Staats-, Landesgrenze

Chemical status of surface waters

Stand: 13.11.08

Ecological status of surface waters in North Rhine-Westphalia (2008)



Water management and biodiversity: legal framework

Birds directive: Directive 2009/147/EC of 30 November 2009
on the conservation of wild birds

Habitats directive: Directive 92/43/EEC of 21 May 1992
on the conservation of natural habitats and of wild fauna and flora

Eel management regulation: Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel

Water framework directive: Directive 2000/60/EC of 23 October 2000 establishing a framework for the Community action in the field of water policy

Water management and bio-diversity: objectives

To ensure bio-diversity classified species and natural habitat types need a special protection

Water bodies have reach a good status by 2027

All Natura 2000 sites disposing of water depending habitates or species are protected by the water framework directive

Objectives under birds directive, habitates directive and water framework directive are similar

Only for a few sites diverging objectives were identified

Synergies exist between the objectives of birds, habitates and water framework directive

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Restoration measures

poor ecological status

good ecological status

Ecological status depends on the quality of macroinvertebrates, fish, macrophythes (and phytobenthos) and phytoplancton

Future need for measures

Measures to ensure migration of fish

Restoration measures to improve hydromorphological conditions

Management plan North Rhine Westphalia: 2200 km of water courses to be restored by 2027, costs 2.1 billion EURO

Technical standards for restoration measures and for measures improving lateral conductivity for fish are published

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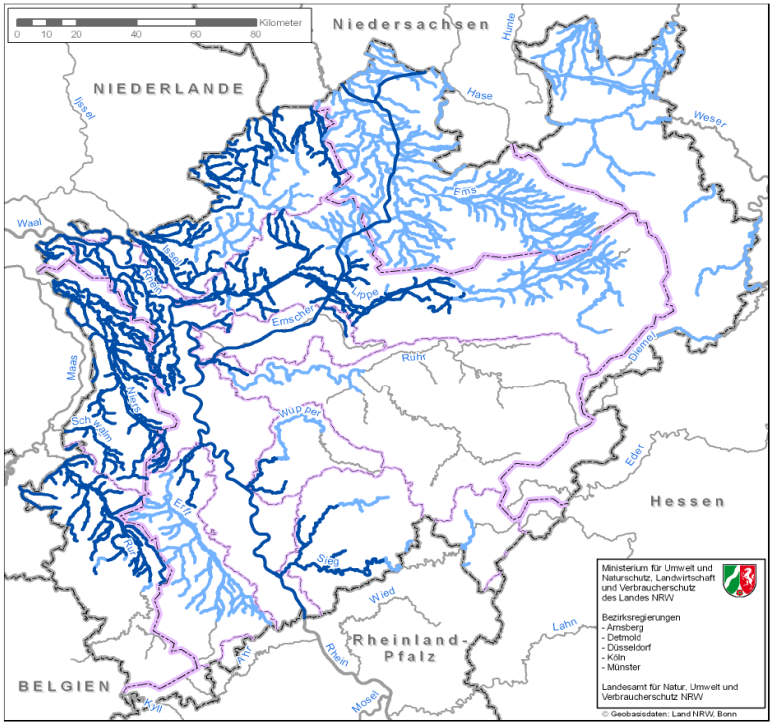


Stand: 16.07.09

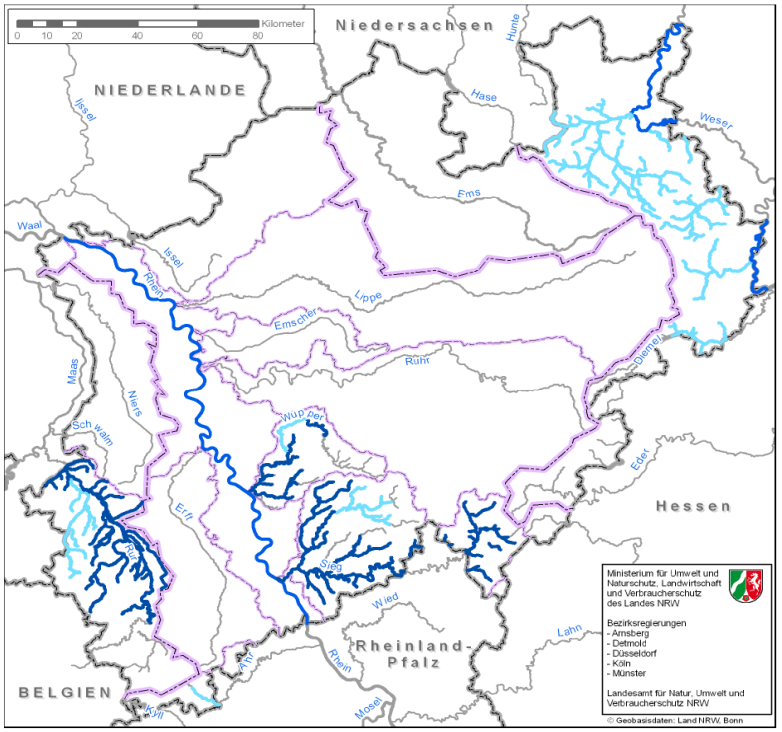
Gewässer mit Zielart Aal

Aalzielartengewässer

- Gewässer mit Zielart Aal
- Gewässer, für die ggf. nach weiterer Prüfung die Zielart Aal ausgewiesen wird

- Grenzen Flussgebiete NRW
- Grenzen Teileinzugsgebiete NRW

Abbildung 4-2 Gewässer mit Zielart Aal



Stand: 16.07.09

Gewässer mit Zielart Lachs

Lachszielartengewässer

- Wanderstrecken
- Gewässer mit Zielart Lachs
- Gewässer, für die ggf. nach weiterer Prüfung die Zielart Lachs ausgewiesen wird

- Grenzen Flussgebiete NRW
- Grenzen Teileinzugsgebiete NRW

Abbildung 4-3 Gewässer mit Zielart Lachs

Water courses classified for the protection of eel

Water courses classified for the protection of salmon

- Management plan determines a framework of action, concrete measures are identified by 2012
- Concrete measures will be prioritized according to cost effectiveness and feasibility
- Synergies between water management and bio-diversity are taken into account, they exist above all for freshwater habitates (moors, backwaters, lakes, alder forests on water banks, …often: property owner of protected sites is state administration)
- Idea of biotopes network is also applied for concrete water courses (stepping stones approach)

Organisation

General:

Water management: state administration on 3 levels

Implementation of WFD:

Final responsibility for implementing WFD lies with the state

Adoption of management plans/reporting: Ministry of the Environment

Drafting management plans/creating necessary data basis: local administrative bodies (regional governments)

Involved in drafting management plans: municipalities, industry, agriculture, NGOs, etc. (round tables, working groups, etc.)

Transboundary basins: cooperation with neighbouring countries is organised under the umbrella of basin commissions (for example: ICPR (International Commission for the protection of the Rhine))

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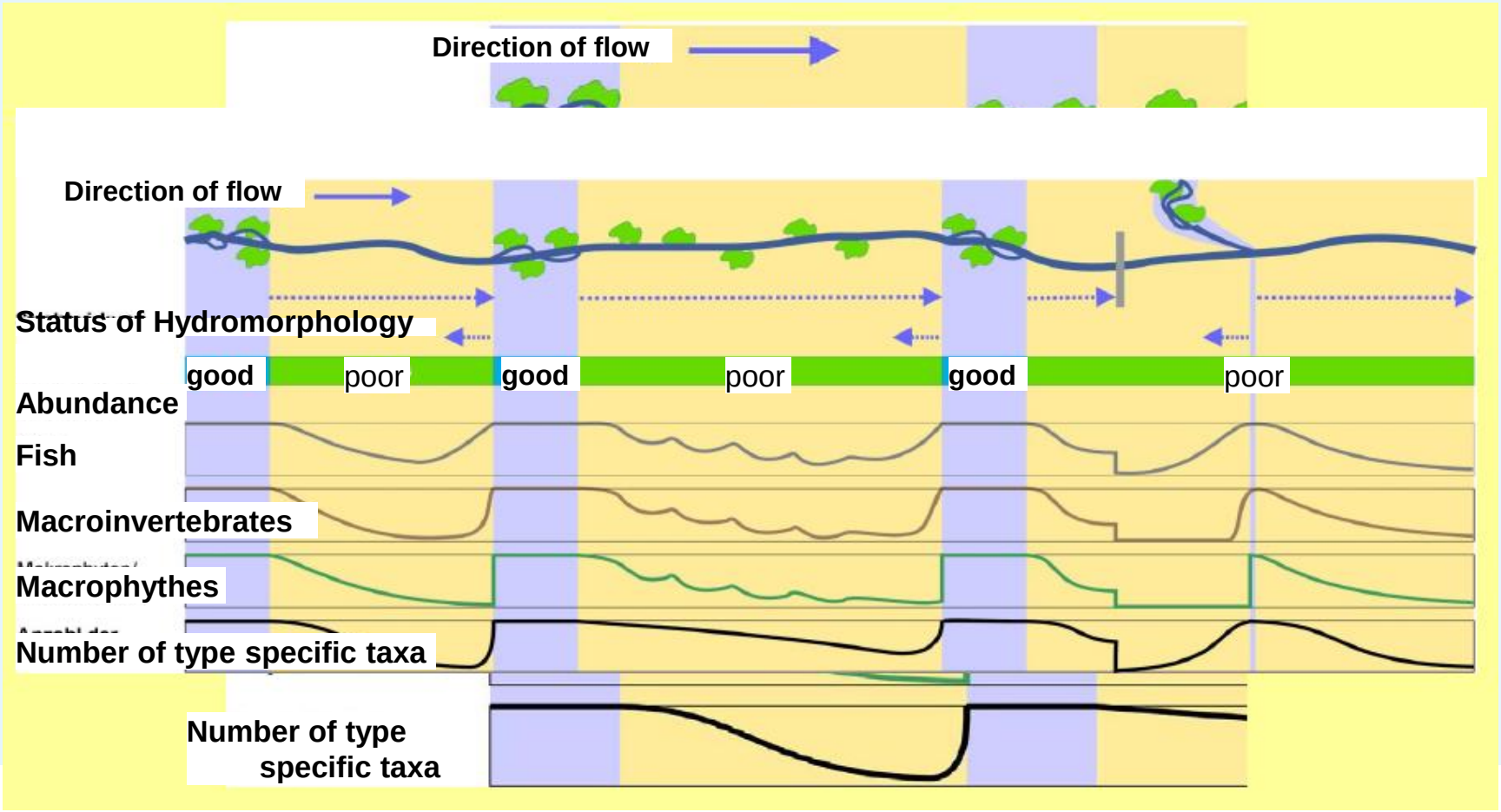
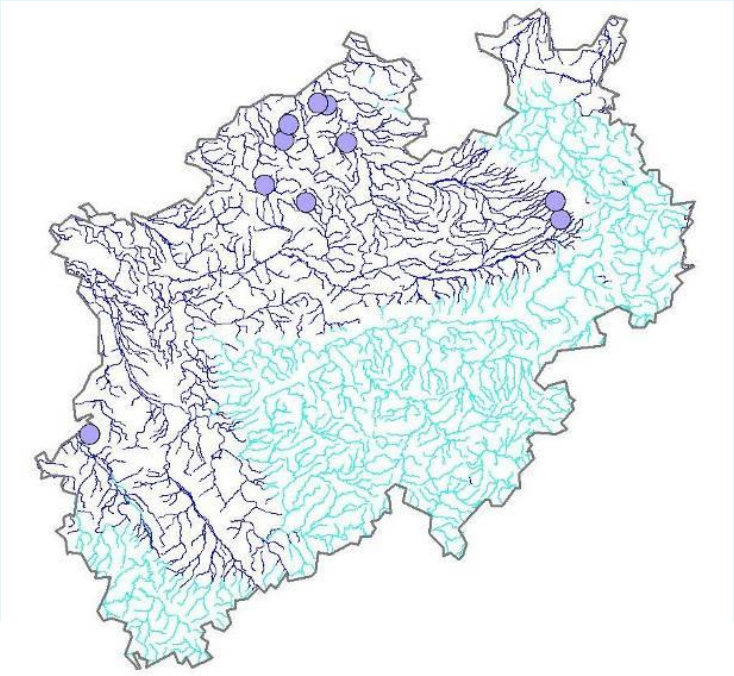
Network of biotopes/habitats: Stepping stones approach



R&D project on the stepping stones approach in water courses of the central plaines

- 10 water courses were examined
  (Felsbach, Furlbach, Gauxbach, Hagenbach, Haustenbach, Schaagbach, Temmingsmühlenbach, Vechte, Frischhofsbach, Wambach)
- water courses are not polluted by organic pollutants
- certain sections of the water courses have good hydromorphological status
- Upstream und downstream of these sections hydromorphological status is heavily detriorated



Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen

Examined sites: hydromorphological status

	upstream 2000	upstream 1000	upstream 500	upstream 200	SU	downstream 200	downstream 500	downstream 1000	downstream 2000	downstream 2500 / NG
Felsbach					3	5	5	6	4-5	
Furlbach					3-4	4-5	4-5	5	5-6	2-4
Gauxbach					3-4	5-6	5-6	5	6	
Hagenbach					4	5-6	5-6	5	5	
Haustenbach					3	5-6	6	6		4
Schaagbach					1-2	5-6	5-6	6	4-5	4
Temmings-mühlenbach	6	5-6	5	5	2-3	4-5	5-6	5-6	6	
Vechte	3-5	4-5	4-5	2-6	2-3	4-5	4-5	4-6	5	
Frischhofs-bach	5	3-4	3	3-4	2-3					
Wambach	6	5-7	6	6	5-6					

Conclusions of the R & D project

Macroinvertebrates:

Positive impact on ecological status is observed above all downstream of sections in very good hydromorphological status

Degree of positive impact on ecological status depends on quality and length of the section in good hydromorphological status

Fish:

Positive impact on ecological status is observed

Degree of positive impact on ecological status depends on quality and length of the section in good hydromorphological status, on lateral conductivity and on further caracteristics of the basin (land uses, etc.)

Positive impact is bigger concerning abundance than concerning ecological status

Conclusions of the R&D project

Positive impacts of river sections in good ecological and hydromorphological status exist on the ecological status of river sections which are in a bad hydromorphological status

Degree of those impacts depend on the quality and length of the „good“ section, on the basin caracteristics and on the quality and length of the „poor“ sections

Stepping stones approach can be used for managment planning in order to design restoration measures and to predict its impacts on the ecological status

Guidelines are currently worked out helping to design restoration measures according to the stepping stones approach

Conclusion

Due to high population density and intense land use the need for restoration measures is high in North Rhine Westphalia

Restoration measures will benefit from synergies concerning bio-diversity in freshwater habitates

Idea of a network of biotopes works not only in a european scale (Natura 2000) but also on the scale of each water course

Stepping stones approach will be used in North Rhine Westpalia to design restoration measures