

Satellite monitoring as an instrument for river basin management: the showcase of the “Rhine Biotope Atlas”

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Internationale
Kommission
zum Schutz
des Rheins

Commission
Internationale
pour la
Protection du
Rhin

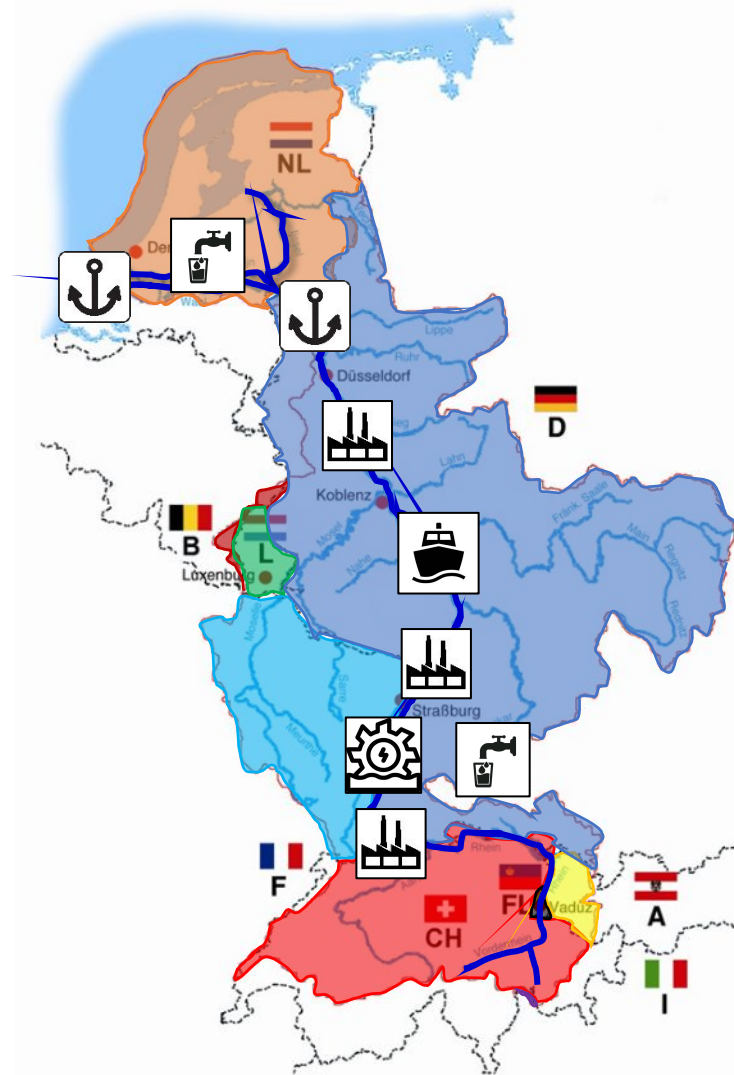
Internationale
Commissie ter
Bescherming
van de Rijn

International
Commission
for the
Protection of
the Rhine

The Rhine river basin



Rhine: 200.000 km², 1.200 km
Danube: 815.000 km², 2.800 km
Mekong: 800.000 km², 4.400 km



The Netherlands
Belgium/Wallonia
Luxembourg
France
Germany
Austria
Liechtenstein
Switzerland
+ European Union

Population: 60 mio.
Intensive use


The International Commission for the Protection of the Rhine (ICPR)



- Founded on 11 July 1950, international treaty
- States agree on **goals** (current programme "Rhine 2040")
- **Measures** implemented and financed by national states
- **Monitoring** by national states, but data gathered and interpreted in ICPR
- Expert groups (national experts + NGOs)
- 3 working languages (German, French, Dutch)



Tasks of the ICPR



Water quality
(since 1950)



Ecology
(since 1987)

**Climate change
adaptation**



**Flood risk
Management**
(since 1996)

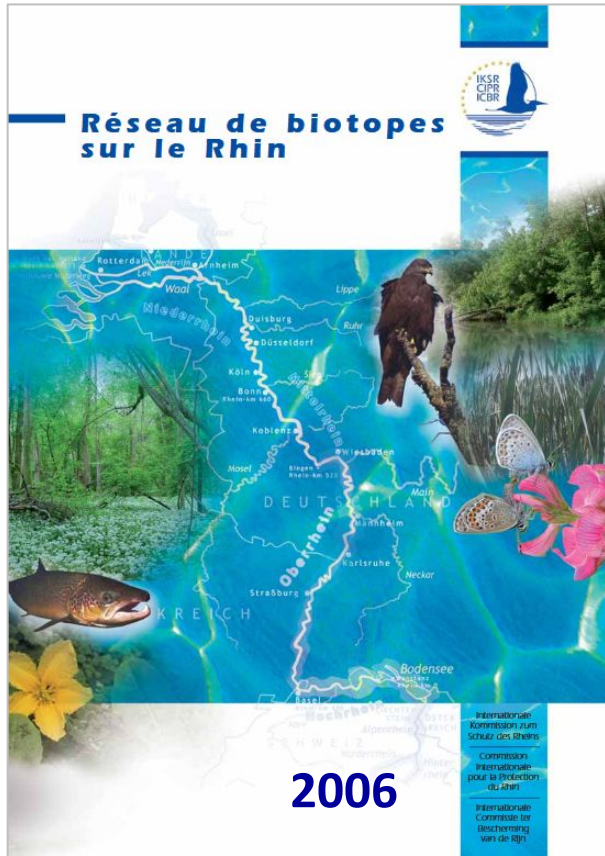


Low water
(since 2013)

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Monitoring of biotopes along the Rhine



- Since 2001
- Ecological connectivity ("stepping stones")

Rhine 2040 vision:

"Habitats typical of the Rhine have been preserved, protected or restored. The biotope network on the Rhine has improved significantly due to the expansion of core areas and the networking of suitable, sufficiently large steppingstone biotopes"

Rhine 2040 goals:

- restore 200 km² floodplains
- reconnect 100 oxbow lakes
- restore 400 km of riverbank



Rhine 2040 measures:

- *"Comprehensive evaluation of the implementation of the biotope network on the Rhine **using innovative investigation and monitoring methods (e.g. remote sensing data)**"*
- Round tables and partnerships (exchange of good practice)

Biotope Atlas 2020

Rheinabschnitt: 7

BTG = biotope type group:	
1	Aquatic and amphibious zone of flowing waters
2	Natural floodplain waters und near-natural artificial standing waters
3	Marshes, reeds, tall herbaceous vegetation
4	Grassland
5	Dry biotopes
6	Floodplain forests in the current floodplain
7	Native deciduous forests no longer subject to temporary or permanent flooding due to embankment (floodplain forest relicts)
8	Other biotope types important for species protection / biotope network
	Remaining areas that are currently not important for the biotope network

- ☐ kein BTG
- ☐ Nadelwald
- ☐ Ackerflächen
- ☐ Siedlung und Verkehr

Schwerpunkt- und Defiziträume

- Schwerpunkttraum mit sehr hoher Bedeutung für den Biotopverbund
- Schwerpunkttraum mit hoher Bedeutung für den Biotopverbund
- + Defizittraum mit sehr großen Auswirkungen auf den Biotopverbund
- + Defizittraum mit großen Auswirkungen auf den Biotopverbund

Maßnahmenempfehlung pro BTG

- ☒ Erhalt und ökologische Verbesserung
- ☐ Vergrößerung
- ☐ Neuschaffung

Infolayer

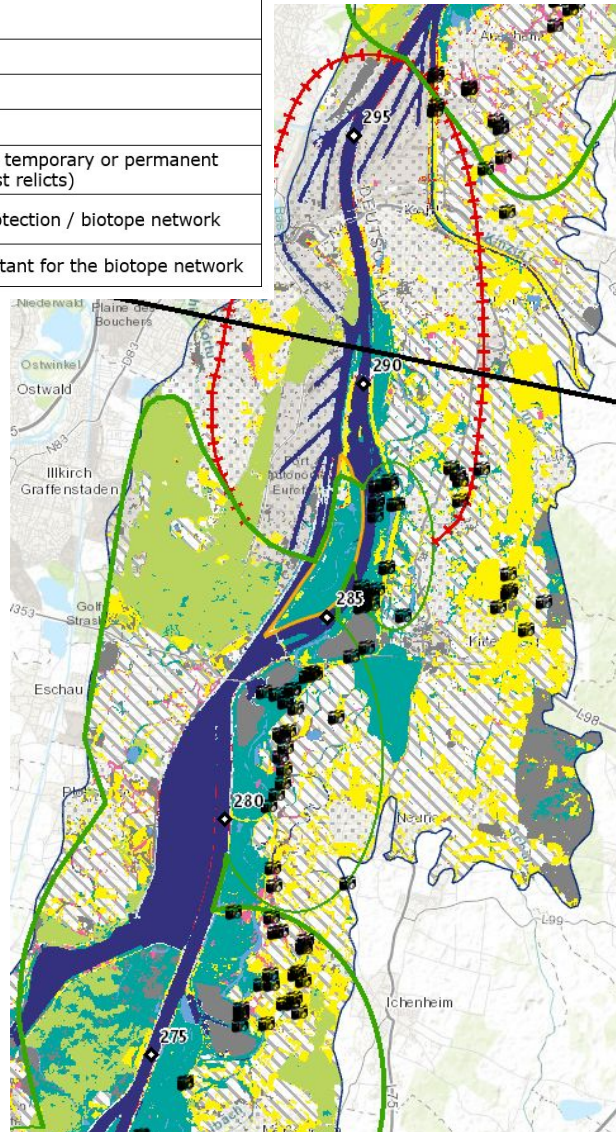
- Maßnahmen - Übersicht
- Maßnahmen - Detailansicht
- Totholz im Fluss - umgesetzt
- Totholz im Fluss - geplant; umzusetzen bis 2027
- Untersuchungsgebiet

Rheinabschnitte

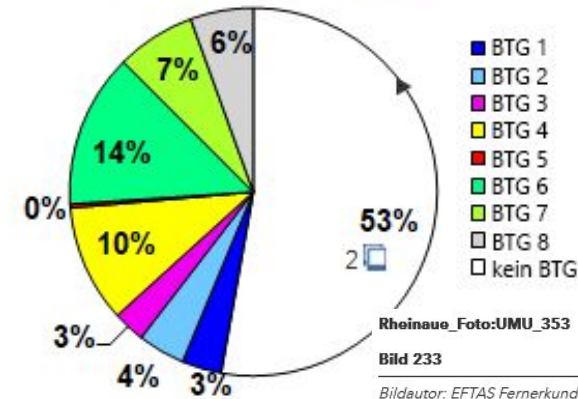
- Informationspunkt (BTG-Anteile pro Rheinabschnitt)
- Rheinabschnittsgrenze

Fotos

- Foto des Biotops



7 Iffezheim - Ludwigshafen BW/RP



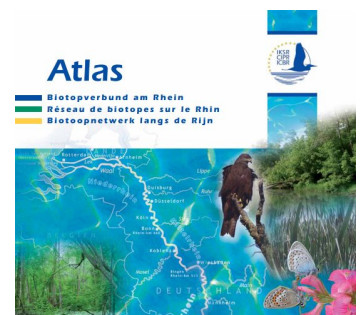
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Bildautor: EFTAS Fernerkundung Technologietransfer GmbH



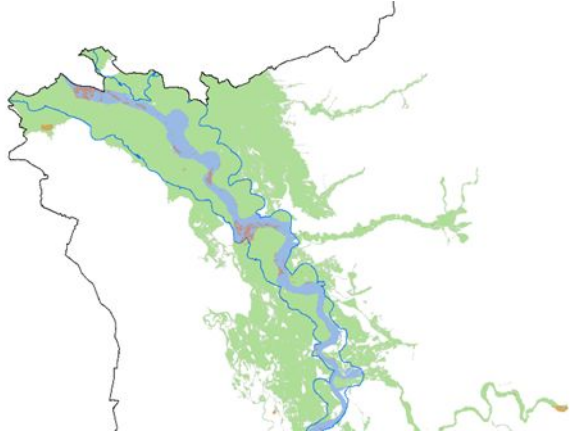
Maßnahme: Neue Lippe-Mündungsaue bei Wesel

Name: Neue Lippe-Mündungsaue bei Wesel
Maßnahmenart: EG-WRRRL
Kurzbeschreibung: Entwicklung einer überflutungsgeprägten Auenlandschaft im Mündungsbereich der Lippe in den Rhein mit einer freien Lauf- und Profilentwicklung sowie Bildung mündungsspezifischer Lebensgemeinschaften
Träger: Land NRW, Lippeverband
Link: [Weitere Informationen](#)



Predecessor product: Biotope Atlas 2006
Methodology: mapping in the field!
Only selected Rhine sections

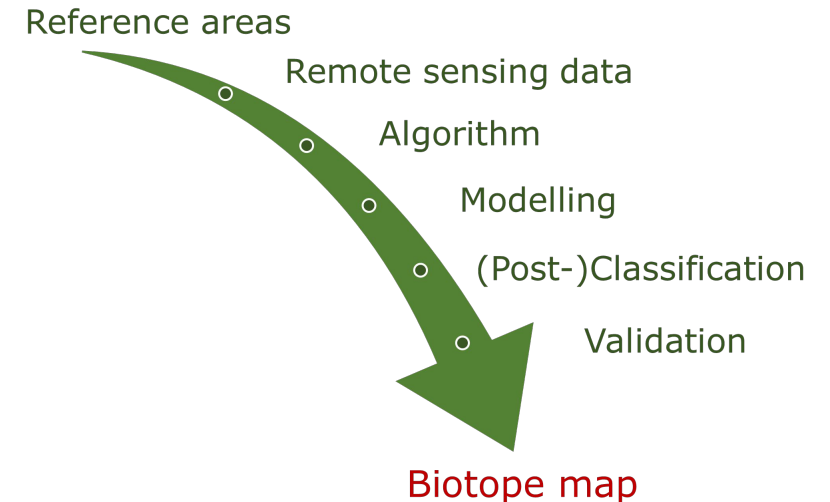
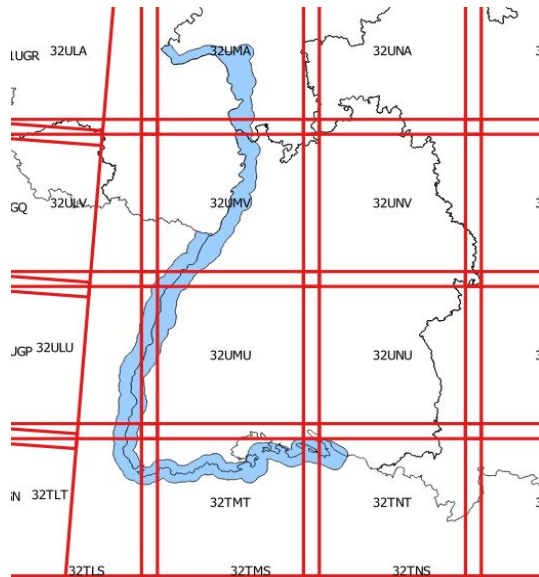
New Biotope Atlas 2020: methodology



- Based on Copernicus (Sentinel 2) data
- spatial resolution: 10 x 10 m
- Validation to guarantee comparability with 2006 Atlas
- Support by EFTAS
- Implementation Atlas as web mapping service:
German Federal Institute of Hydrology

<https://www.iksr.org/en/topics/ecology/habitat-patch-connectivity>

- large-scale (transboundary)
- semi-automated
- cost-effective
- more regular intervals





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Thanks for your interest!



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Description of methodology