



Rhine West River Basin

**Implementation of the WFD in
the lower Rhine delta**

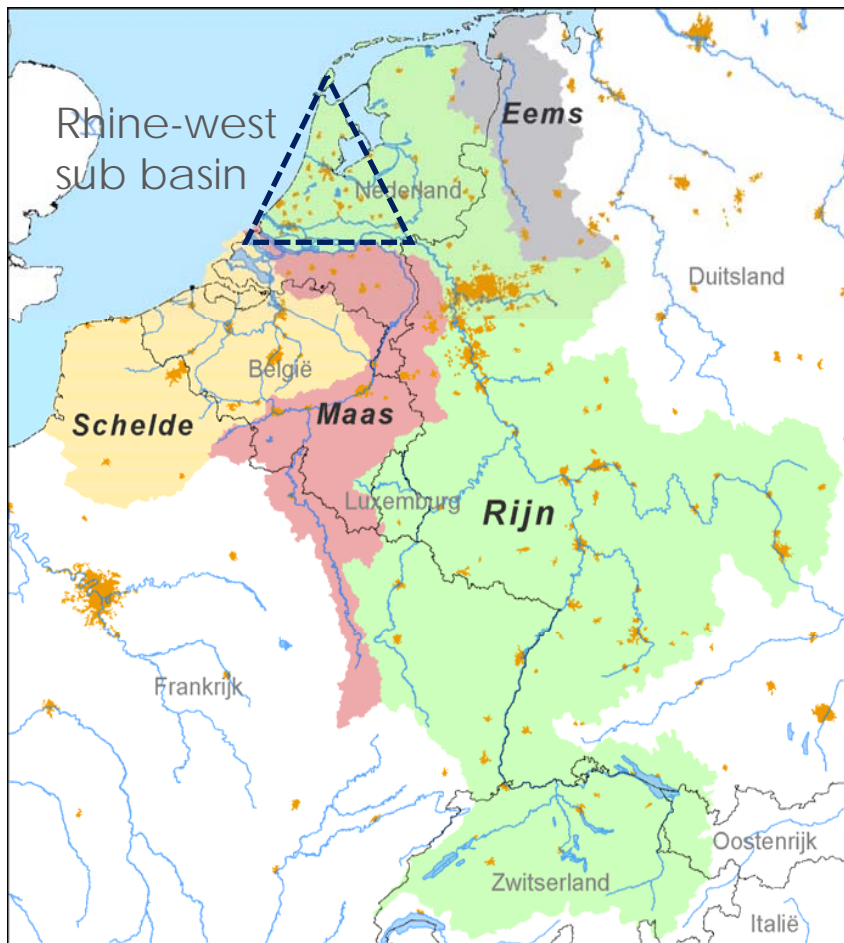
Steven Visser, M.Sc.
VISSER water management

&

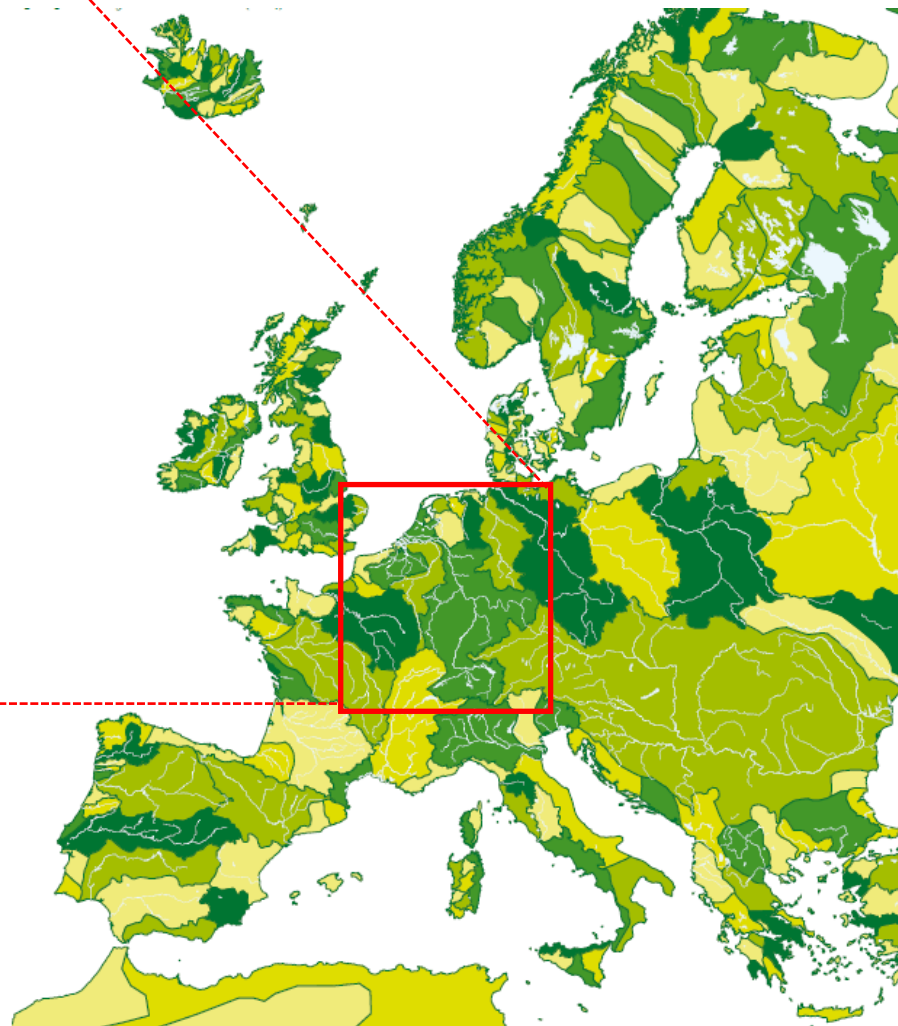
Peter Philippsen, M.Sc.
Nature at Work

*Roadmap for fish migration: successes of
our regional approach in the Rhine-West
sub basin, The Netherlands*

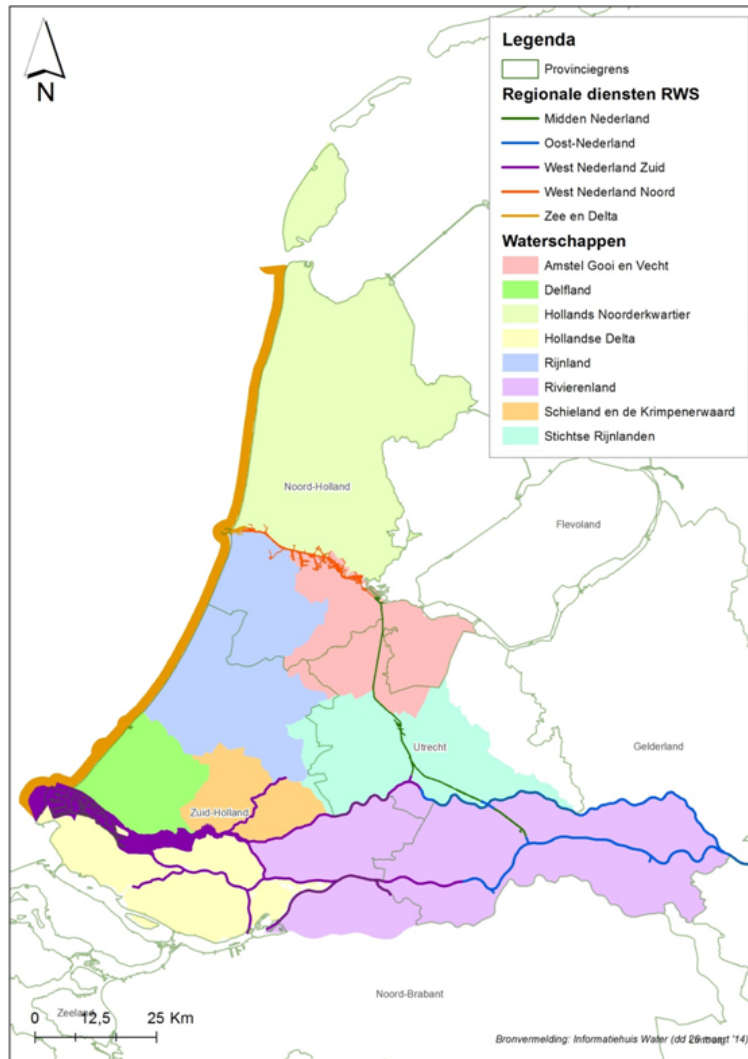




River basins in Europe



Rhine-West Regional Water Council




Rhine-West sub basin
water authorities:

- 2 ministries
- 4 provinces
- 8 water boards
- representatives of 170 municipalities



WFD: intensive multi-level cooperation ...





The Rhine-West Water Council and partners

0:04 / 12:06

THE ROAD TO HEALTHY WATER



ROADMAP FOR FISH MIGRATION IN THE DUTCH DELTA



Rhine-West Region

- Main gateway, economically and ecologically



ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA

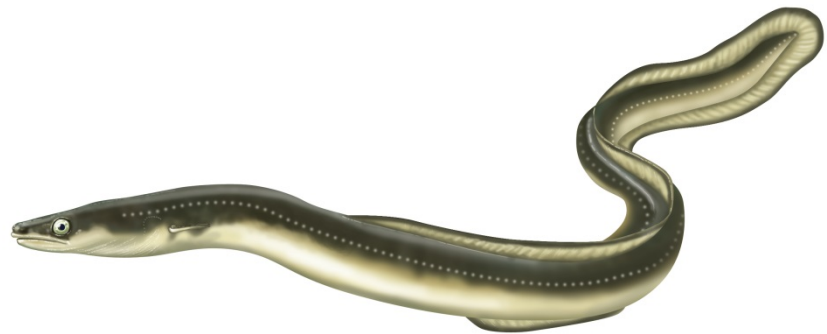
TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS
AND A ROBUST WATERWAY NETWORK FOR FISH

 The most important water for fish migration (highways)
A major collaboration for the Dutch-Flemish region to help fish migrate freely
Improved accessibility to our waterways (network of rivers, canals and lakes)

Programmeperiode 2014-2020
Binnenlandse Water- en Rijkswaterstaat

De Nederlandse Rijkswaterstaat en de Nederlandse Provincies zijn verantwoordelijk voor de realisatie van het programma. Het programma wordt gefinancierd door de Nederlandse Staat en de Nederlandse Provincies.

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Rhine-West Region

ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA



**TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS
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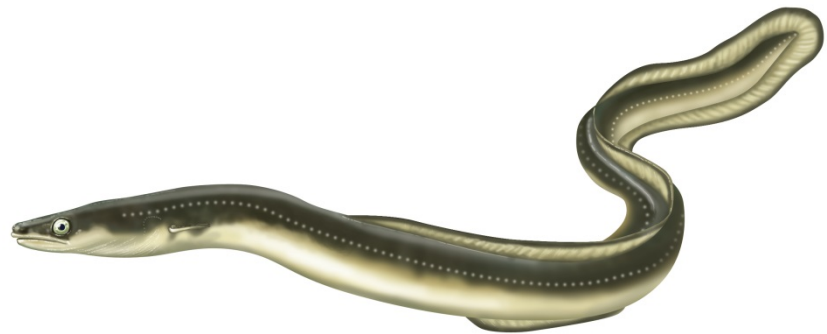
 The most important reason for fish migration (highways) is a robust waterway network for fish migration. This network is essential for the survival of fish in the Dutch Delta.

Key points:

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- This network is essential for the survival of fish in the Dutch Delta.
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- Main gateway, economically and ecologically
- **Habitat fragmentation: 520 barriers**



Rhine-West Region

ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA



TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS AND A ROBUST WATERWAY NETWORK FOR FISH



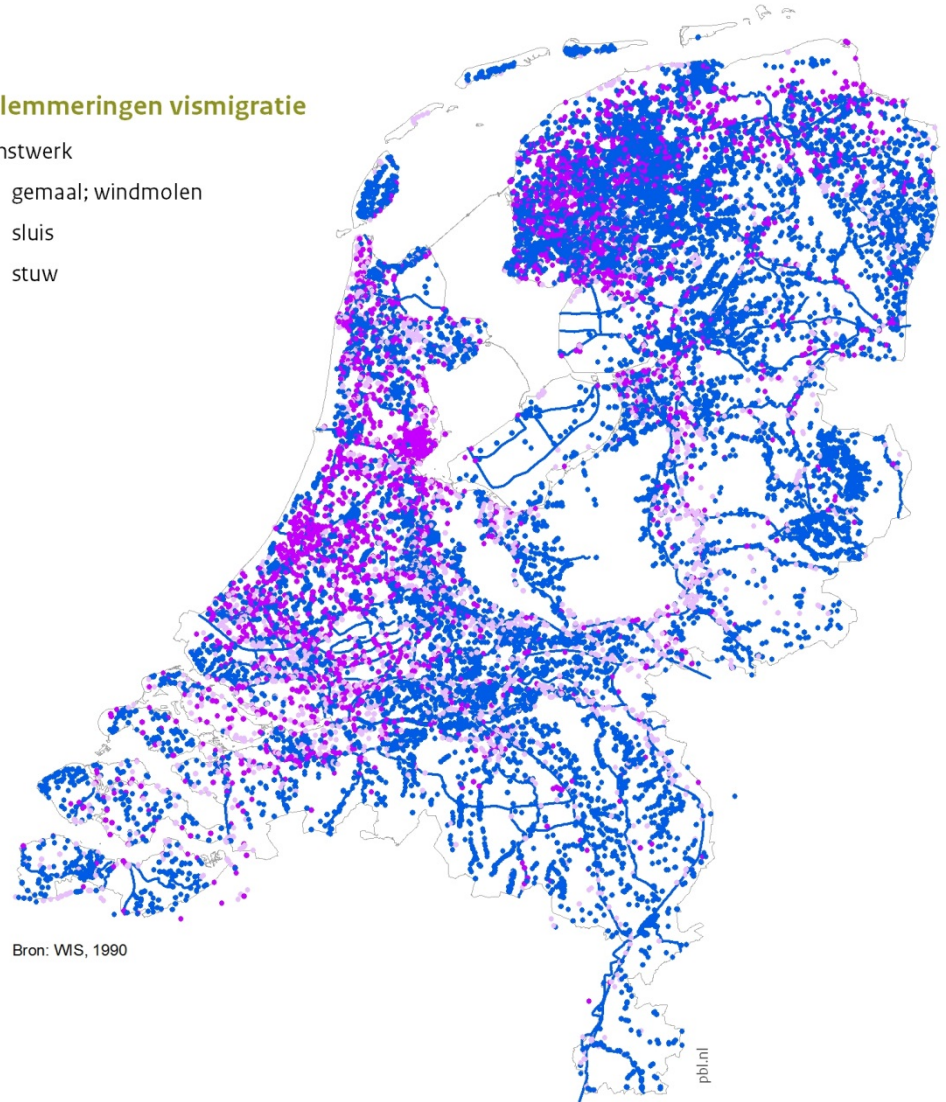
- The most important cause for fish migration (obstacles)
- A major collaboration in the Dutch Delta region to help fish migrate freely
- Targeted investment in waterways (network of rivers, canals and ditches)

Regional Authority Water
 Business Administration Water
 Rijkswaterstaat
 Provincie
 Gemeente
 Waterschap
 Landbouw
 Natuur
 Milieu
 Energie
 Economie
 Cultuur
 Sport
 Recreatie
 Openbaar Vervoer
 Bestuur

Belemmeringen vismigratie

Kunstwerk

- gemaal; windmolen
- sluis
- stuw



Rhine-West Region

ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA



TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS
AND A ROBUST WATERWAY NETWORK FOR FISH

 The most important reason for fish migration (highways) is a robust waterway network for fish migration. This network is essential for the survival of many fish species, including eel, salmon, and trout.

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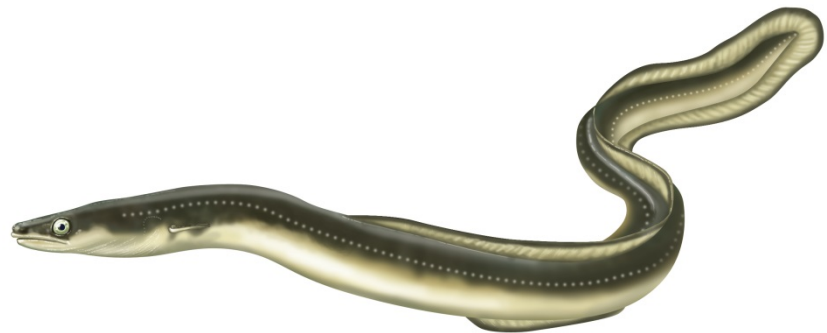
Legend:

- Green: Fish migration highways
- Red: Barriers to fish migration
- Blue: Waterways

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- Green: Fish migration highways
- Red: Barriers to fish migration
- Blue: Waterways

- Main gateway, economically and ecologically
- Habitat fragmentation: 520 barriers
- **Sharp decline in migratory fish stocks**



Rhine-West Region

ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA



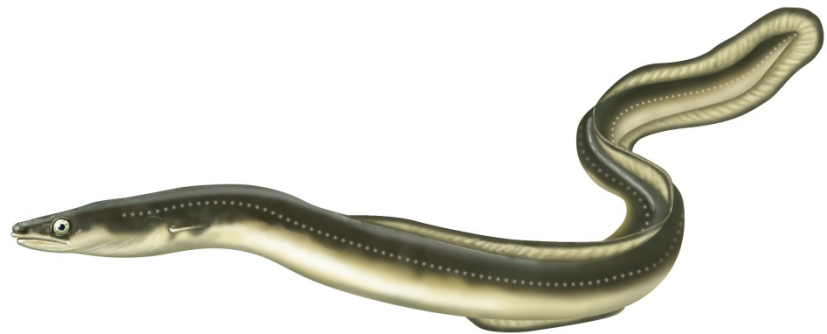
TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS
AND A ROBUST WATERWAY NETWORK FOR FISH

 The most important issue for fish migration (highways)
A major collaboration in the Rhine-West region to help fish migrate freely
Equipment is available to cut waterways (network of rivers, canals and ditches)

Regional Authority Delta
Business Authority Water

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- Main gateway, economically and ecologically
- Habitat fragmentation: 520 barriers
- Sharp decline in migratory fish stocks
- **Focus on opening up migration routes instead of lifting single barriers**



Rhine-West Region

ROADMAP
FOR FISH MIGRATION IN THE DUTCH DELTA



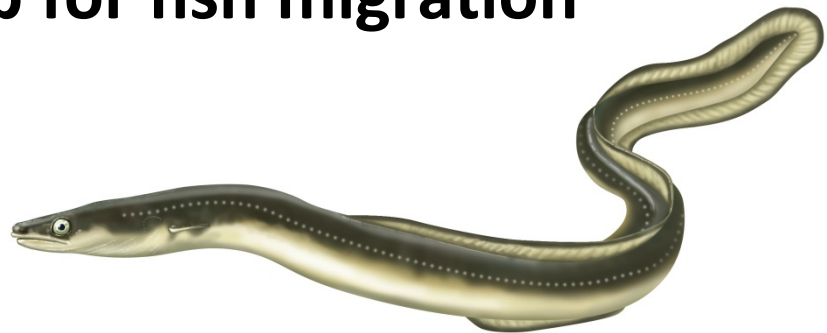
TOWARDS RESTORATION OF FISH MIGRATION HIGHWAYS
AND A ROBUST WATERWAY NETWORK FOR FISH



- The most important rivers for fish migration (highlighted)
- A colour code indicates the fish species that can be found in the river
- A network of rivers, canals and ditches

CLERMONT

- Main gateway, economically and ecologically
- Habitat fragmentation: 520 barriers
- Sharp decline in migratory fish stocks
- Focus on opening up migration routes instead of lifting single barriers
- Rhine-West successful **joint approach: Roadmap for fish migration**





Roadmap fish migration

Methods & Results:

- In workshops making good use of local knowledge fish experts ALL water authorities
- Analysis different individual fish migration approaches
- Joint vision on fish migration (ecological role of region within the river basin)



ROADMAP FOR FISH MIGRATION IN THE DUTCH DELTA



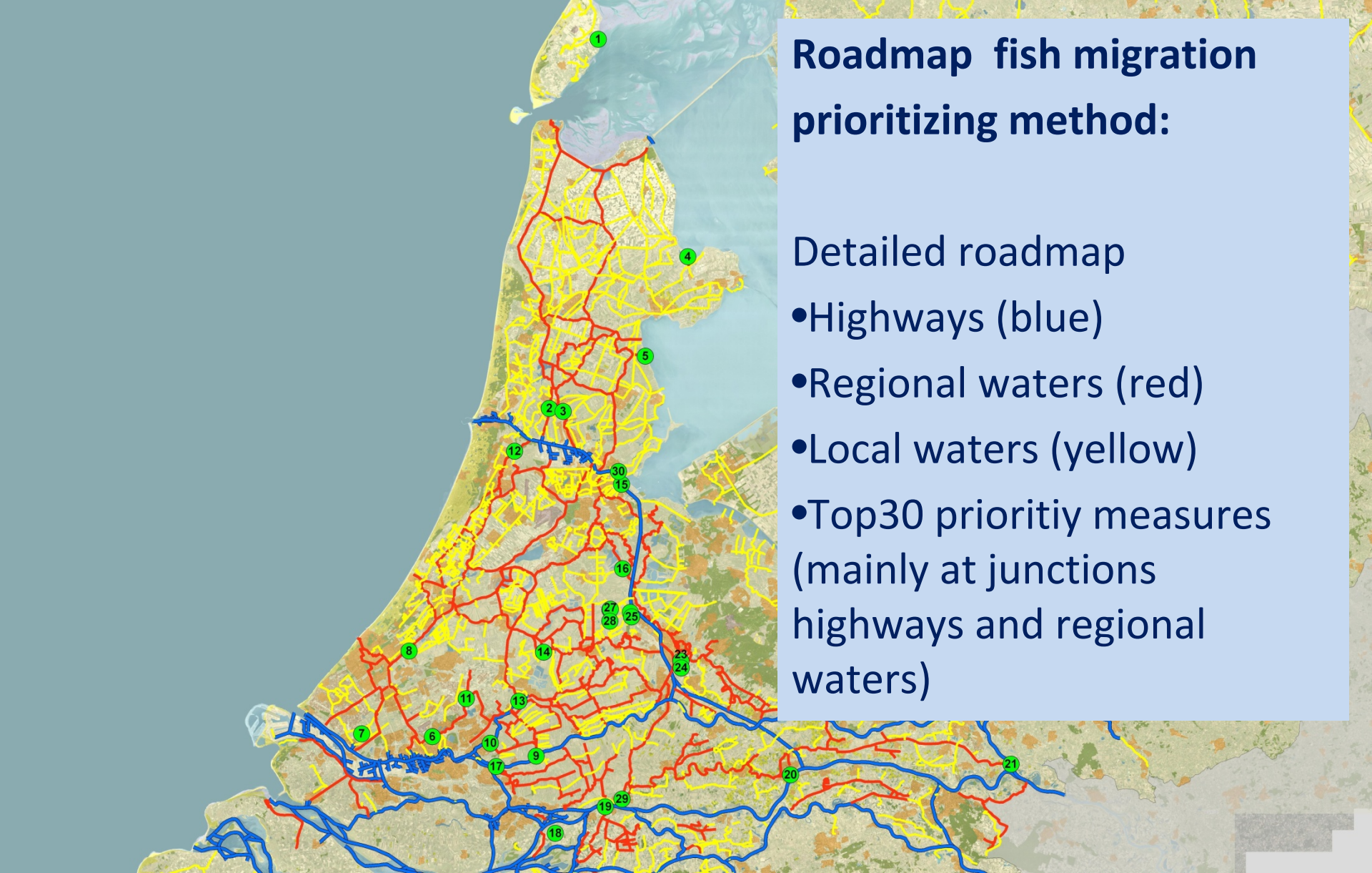
Pictures of successes in Rhine-west sub basin ...

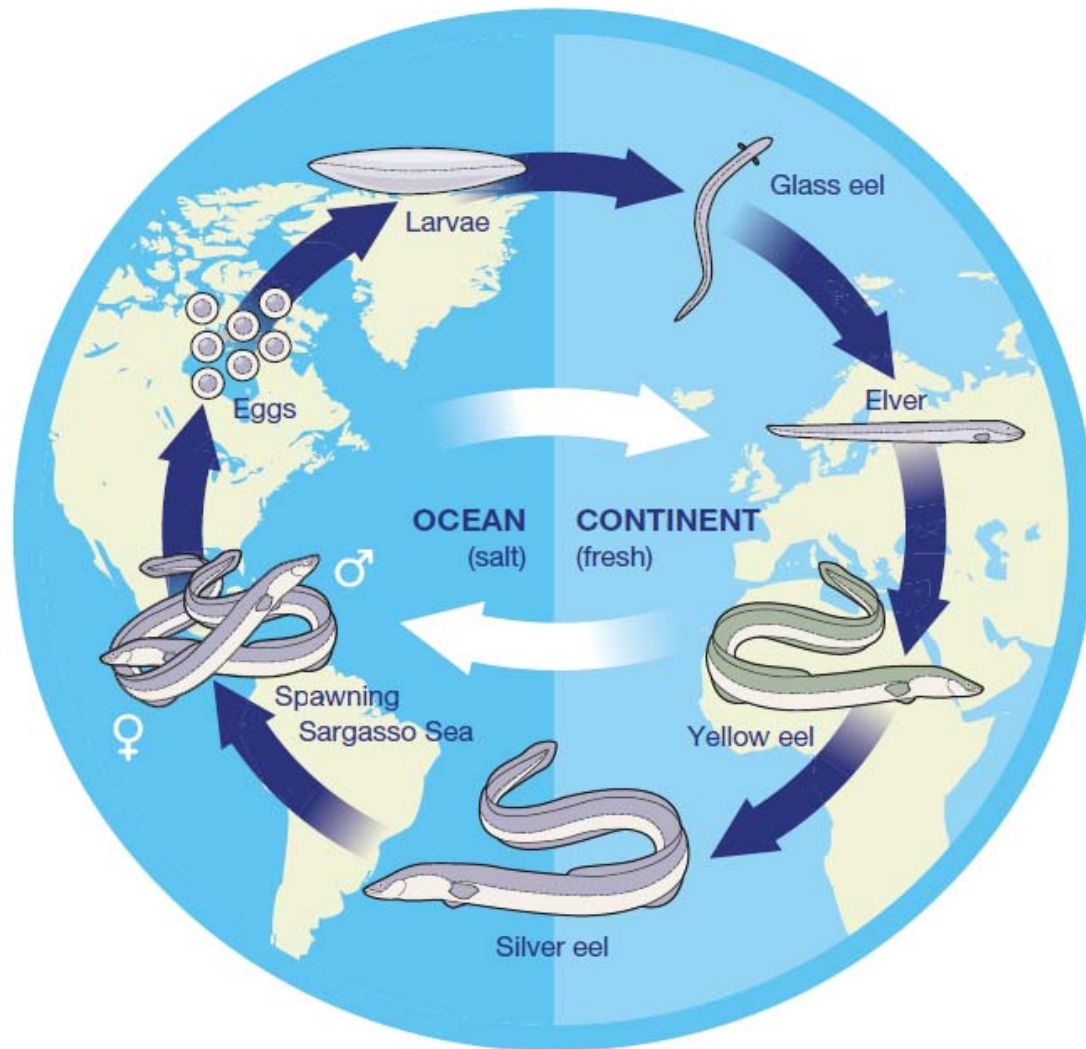


Roadmap fish migration prioritizing method:

Detailed roadmap

- Highways (blue)
- Regional waters (red)
- Local waters (yellow)
- Top30 priority measures (mainly at junctions highways and regional waters)





Roadmap fish migration research & monitoring:

- Routes rather than individual measures
- Quantitative effect Top30 measures on restoration of fish stocks, ie European Eel
- Good ecological status is indicated by healthy fish stocks, particularly migratory fish like Eel



From Regional Roadmap to River Basin approach



1. Regional approach **complements Masterplan ICPR**
2. **Making good use of regional fish expert knowledge**
3. Dissemination of Rhine-West Roadmap method
4. Compare with other North Sea deltas
5. **Joint Rhine River Basin Roadmap approach** on regional, national, international level

