

River Basin Management of the Meuse

The IMC Masterplan for Migratory Fish



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Secretary General

River Basin Management of the Meuse

UN Water Convention 1992

IMC --> Meuse Treaty 1994

Water Framework Directive 2000

Meuse Treaty 2002

River Basin Management of the Meuse



River Basin Management of the Meuse

Water Framework Directive (WFD) =

Towards Good Ecological Status =

Chemical status + Ecological status

**living organisms and living conditions
vital part of the water system**

Water Framework Directive

**Coordinated Implementation WFD
Based on Common Management Issues**

A.O. Hydro morphological changes

- Restore ecological continuity
- Improve free migration of migratory fish
- **Combine hydro power with the protection of the aquatic environment**

Masterplan for Migratory Fish

WFD + EU Eel regulations (2007) =
Masterplan for Migratory Fish (2011)

Guiding species: salmon and eel

Salmon : land --> sea --> land

Eel : sea --> land --> sea

Masterplan for Migratory Fish

Problems :

- **Obstacles for free migration**
- **Water quality**
- **Destruction of habitats**
- **Conflicting user functions
(cooling, hydro power)**
- **Illegal Fisheries**

Masterplan for Migratory Fish

Objectives :

- **Restore ecological continuity**
 - Upstream migration
 - Downstream migration
- **Restore habitats (spawning and nursery)**
- **Stock juvenile fish / monitor returns**
- **Prevent illegal fishery**
- **International cooperation (basin level)**

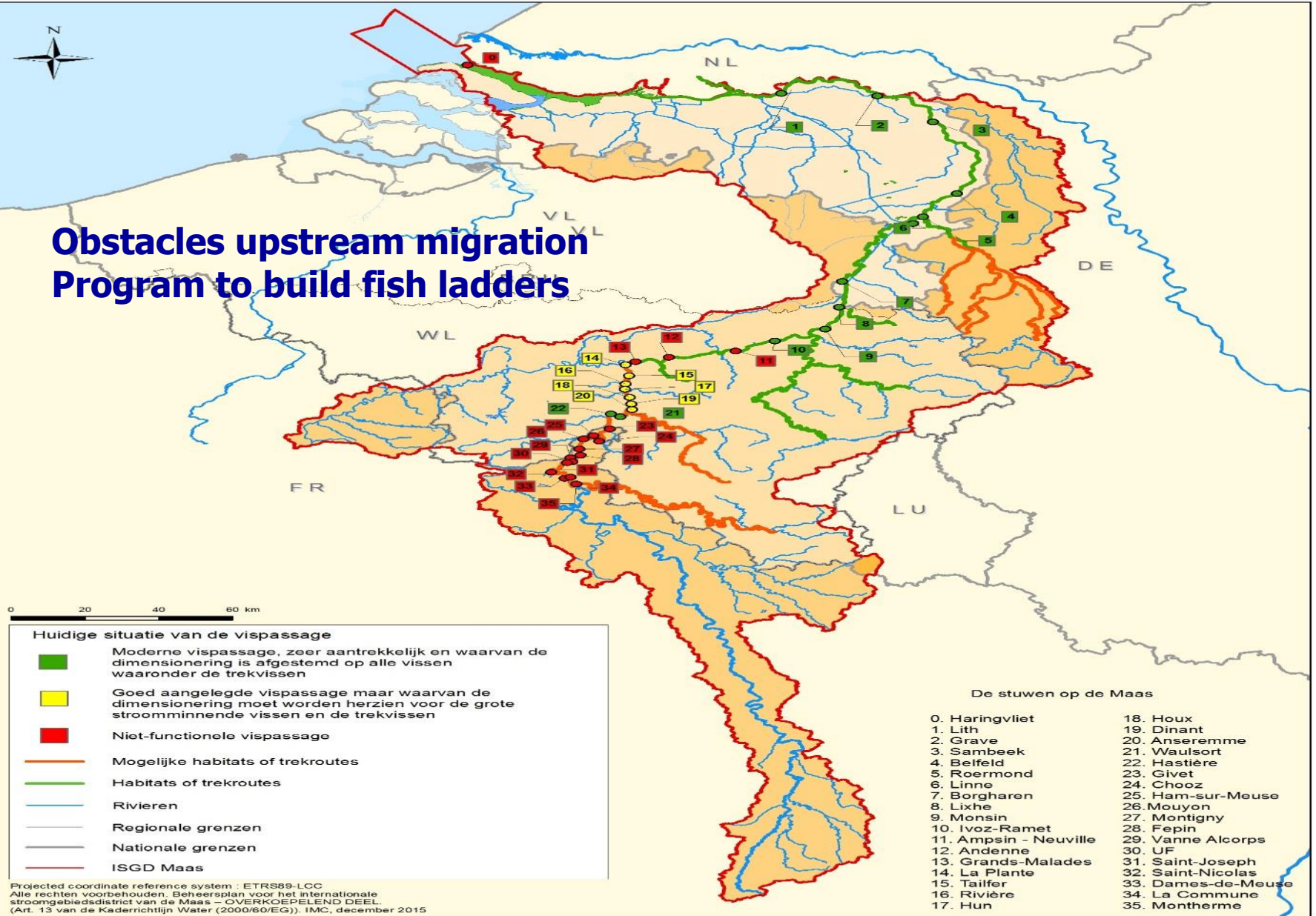
Masterplan for Migratory Fish

Objective 1. Restore ecological continuity

- **Inventory of existing obstacles**
 - Upstream barriers (dams, sluices)
 - Downstream obstacles
 - Dams including hydro power plants
 - Meuse – Albert Canal interaction (fish get lost into the canal)
- **Programs of restoration measures**
 - program to build fish ladders
 - Information exchange on downstream obstacles

ISGD Maas - Trekroutes en mogelijke biotopen voor de zalm

Obstacles upstream migration Program to build fish ladders

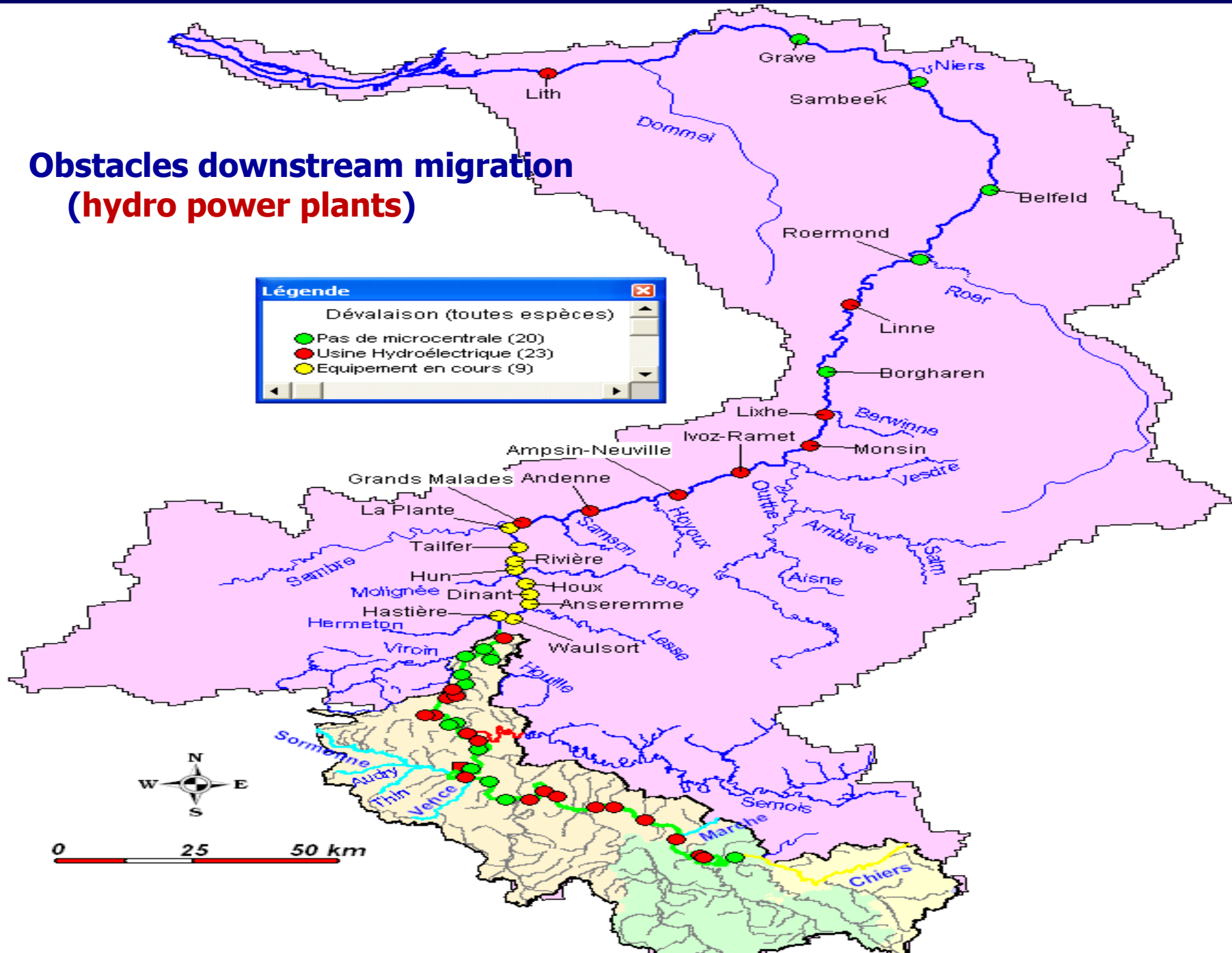


Obstacles downstream migration (hydro power plants)

Légende

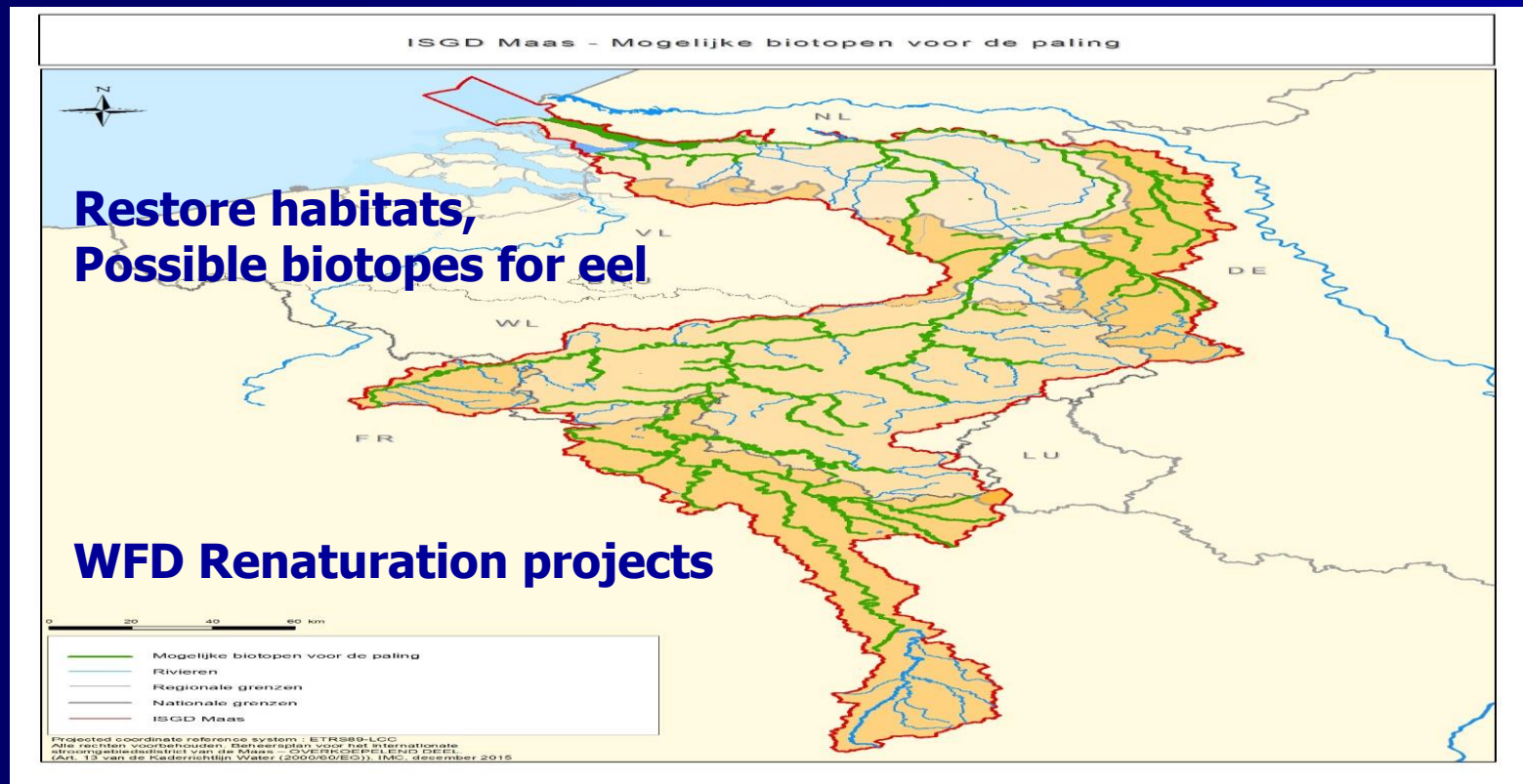
Dévalaison (toutes espèces)

- Pas de microcentrale (20)
- Usine Hydroélectrique (23)
- Equipement en cours (9)



Masterplan for Migratory Fish

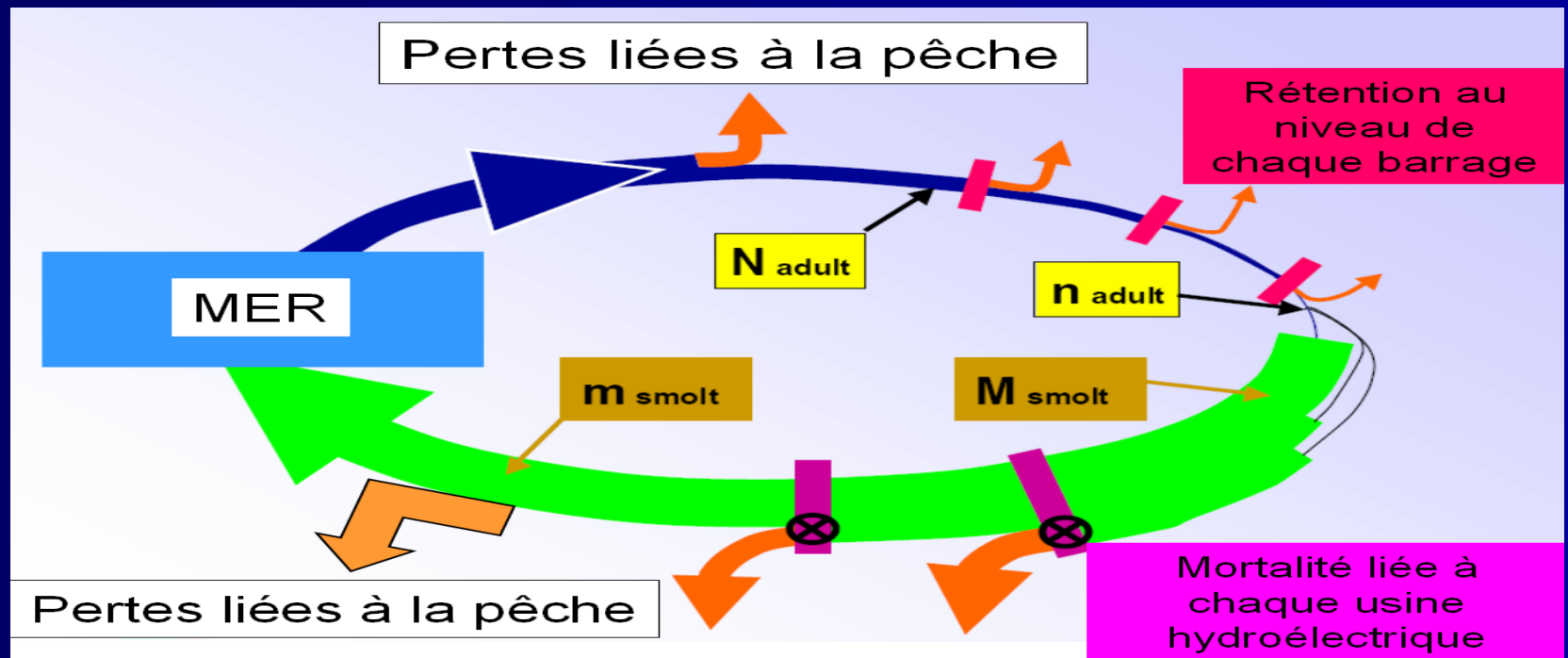
Objective 2. Restore habitats



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Objective 3.

Plant juvenile fish / monitor returns



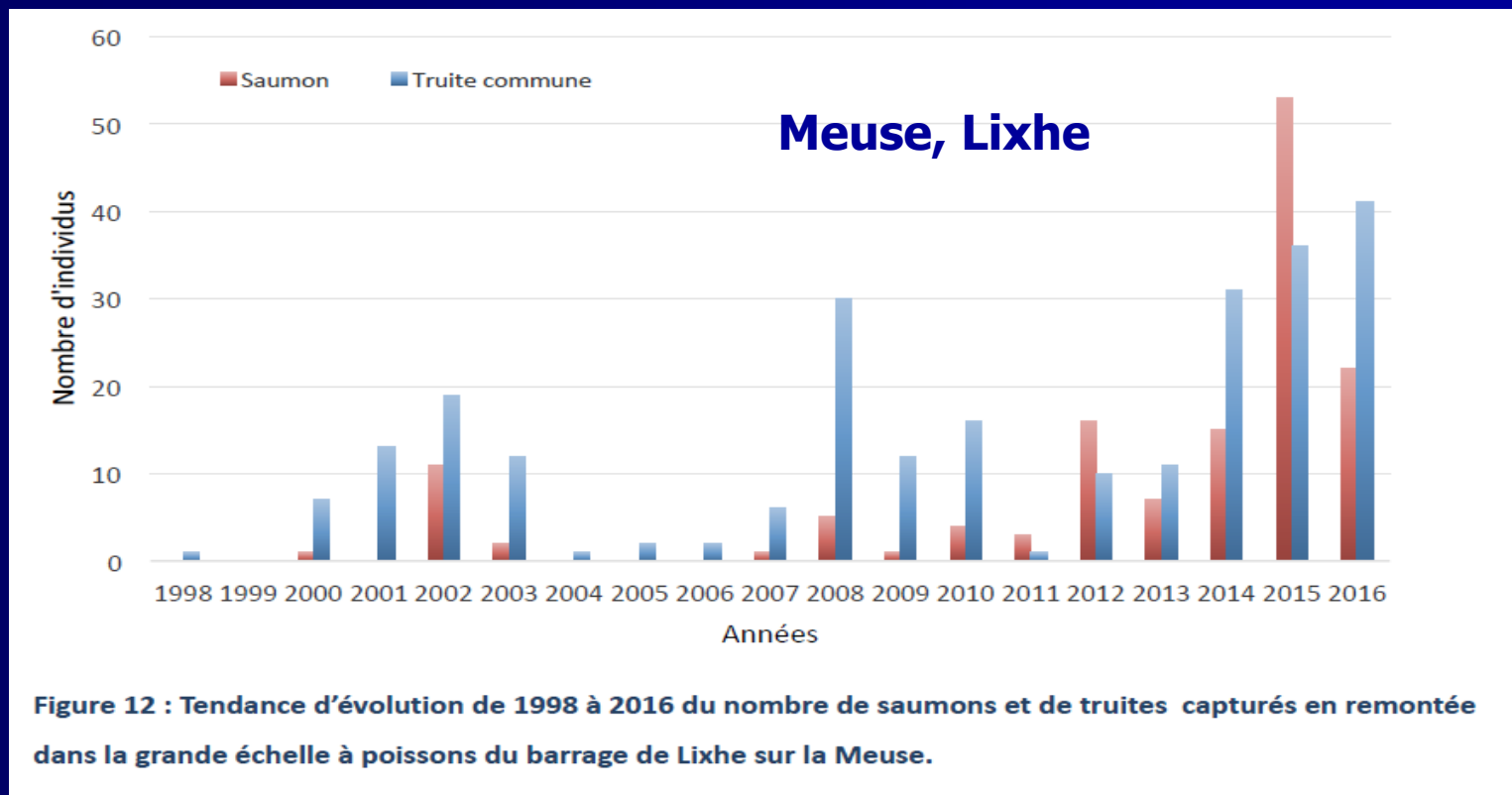
Masterplan for Migratory Fish

Objective 3. plant juvenile fish

- Erezée (Wallonia) fish reproduction centre
- Each year 10 thousands of juvenile fish released in Meuse tributaries upstream

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Objective 3. monitor returns (Salmon, trout)



Masterplan for Migratory Fish

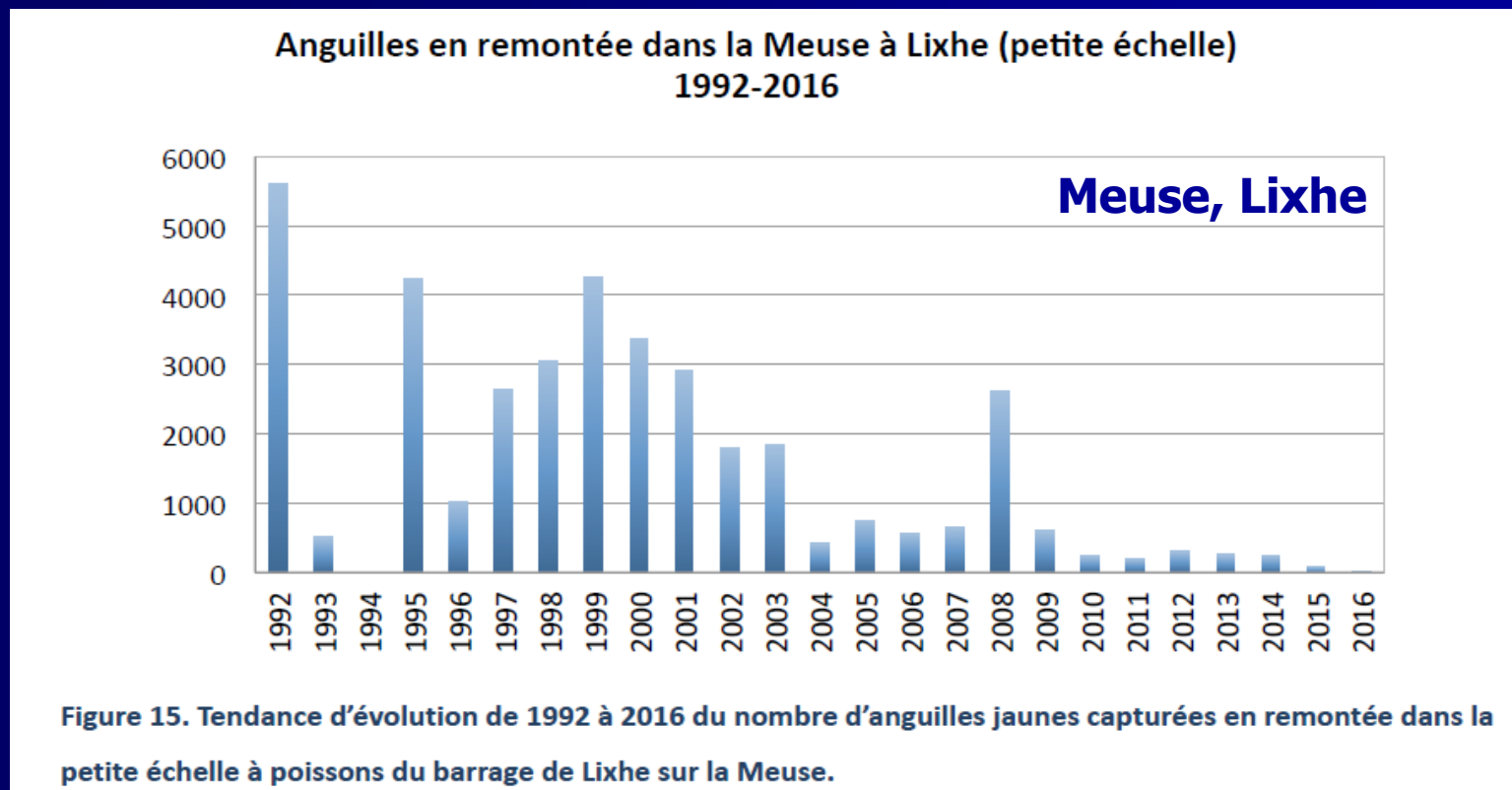
Objective 3. monitor returns



Salmon - 101 cm, 7.3 kg - monitored in the Meuse near Liège!

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Objective 3. upstream migration (Eel)



A large white bucket is tilted, pouring a thick stream of small, dark, slender juvenile eels into a body of water. The eels are densely packed and appear to be falling from the bucket. The water in the foreground is turbulent and white with foam, while the water further back is a murky brown color. The background is a plain, light-colored wall.

Plant juvenile fish

**Fish reproduction centre
in Érezée, Wallonia**

**In a 4 - year scientific project of the
Liège University to bring back the eel
in the Meuse, ten thousands of
juvenile eels have been released
upstream in the Meuse basin (rivers
Geul, Berwinne, Ourthe, Amblève).**

Conclusions

- **Migratory fish (interaction sea < -- > rivers) essential element in water management;**
- **Masterplan Meuse : coordinated strategy**
 - **Restore free migration upstream + downstream**
 - **restore habitats**
 - **plant (feed the system with) juvenile fish**
- **Downstream migration = underestimated phenomenon**
- **Upstream and downstream migration : '2 of a kind'**
- **Fish migration incompatible with hydro-electric plants**
- **Need for alternative energy (wind, water)**
- **Government : reserved attitude ; precautionary principle**
- **Practices : Standards for cumulative mortality**
(Salmon; max. 10% Dutch Meuse)

Recommendations

- **Further coordination of policies at river basin level (e.g. just distribution of damage / mortality)**
- **Stimuli for innovative solutions Hydro-electric Power;**
 - **Fish friendly Hydro-electric Power Plants (Life for Fish)**
 - **Fish friendly use of HEPP (stop during migration period)**
 - **Early warning systems // fish guiding systems**
- **Energy sector take the lead !**
- **Bigger is better ?**
- **Stay away from tributaries (capillary system) of the Meuse**
- **Exchange of knowledge - information at international level (community of practice)**

Thank you.



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**International Meuse Commission
Willem Schreurs**