

# River Basin Management of the Meuse

## The IMC Masterplan for Migratory Fish



**Willem L.M. Schreurs**  
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

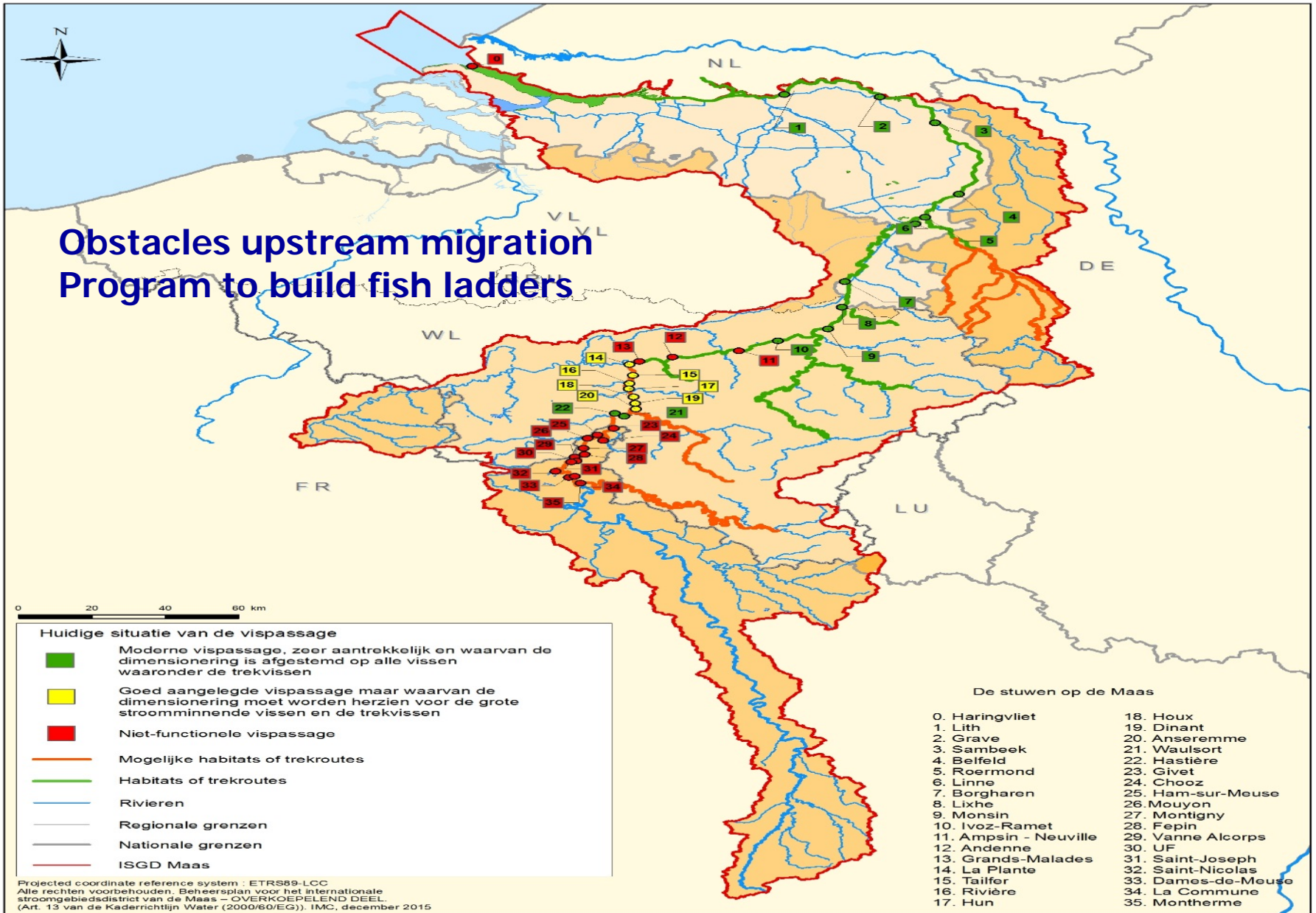
### ■ Inventory of existing obstacles

- 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

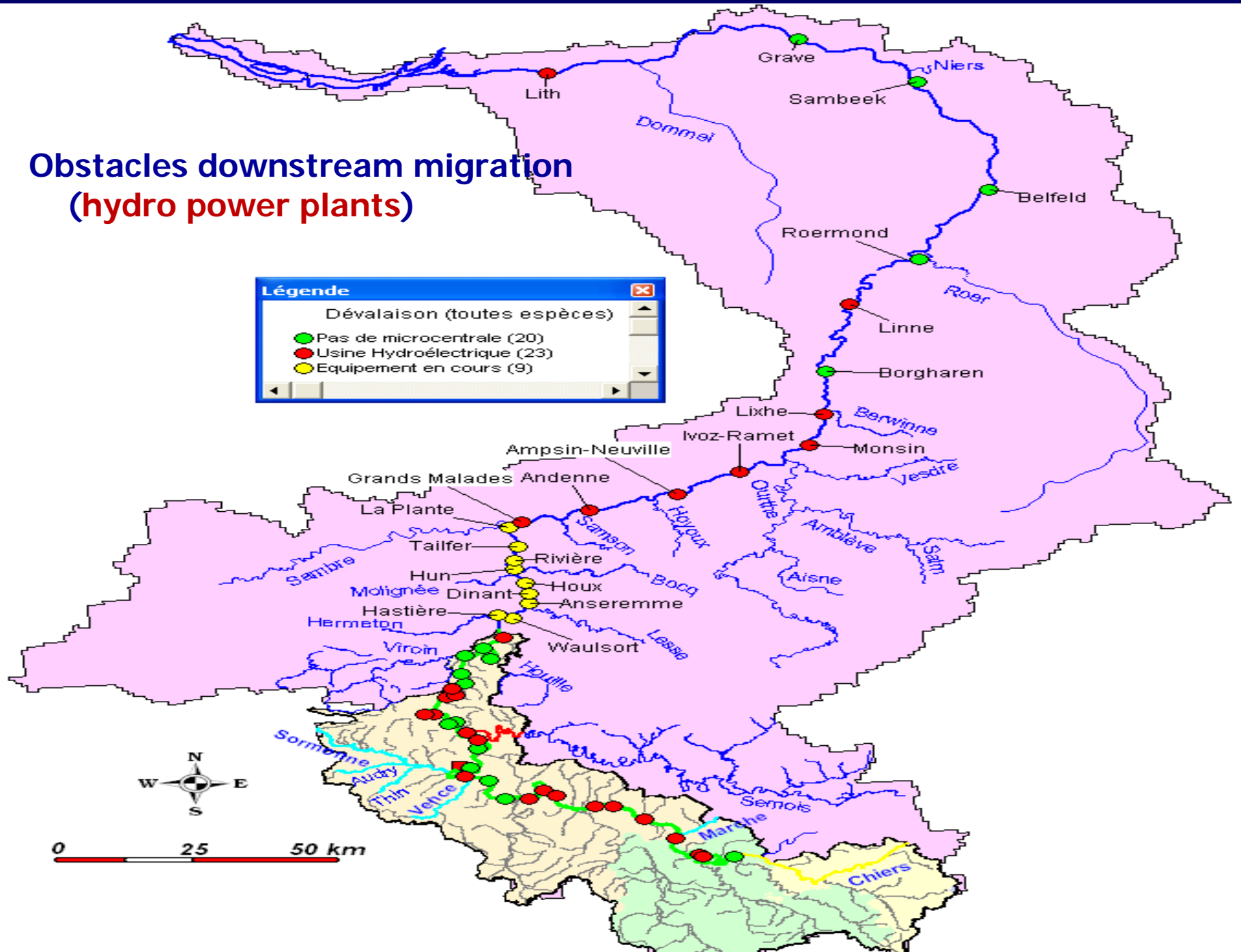


# Obstacles downstream migration (hydro power plants)

**Légende**

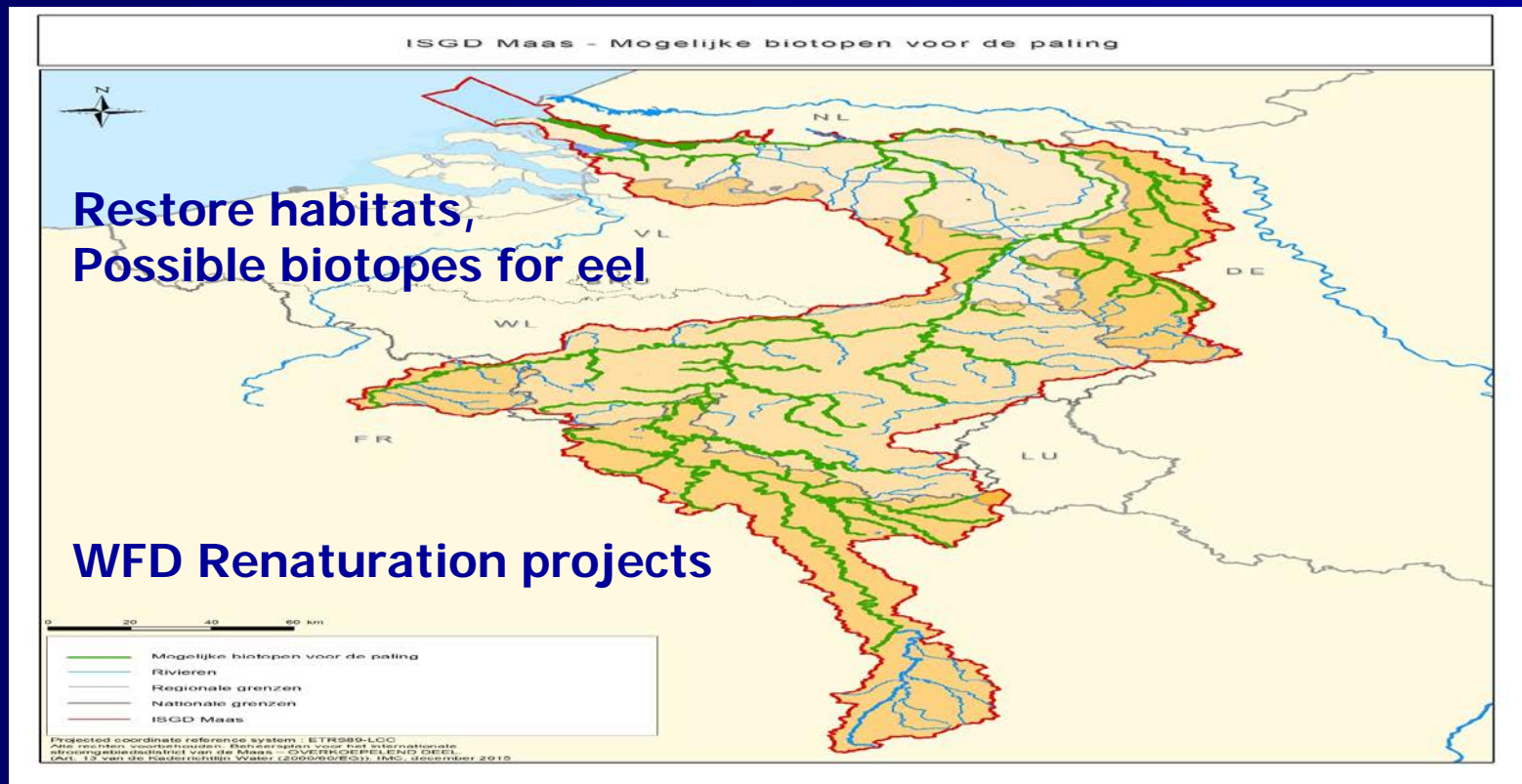
Dévalaison (toutes espèces)

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



# Masterplan for Migratory Fish

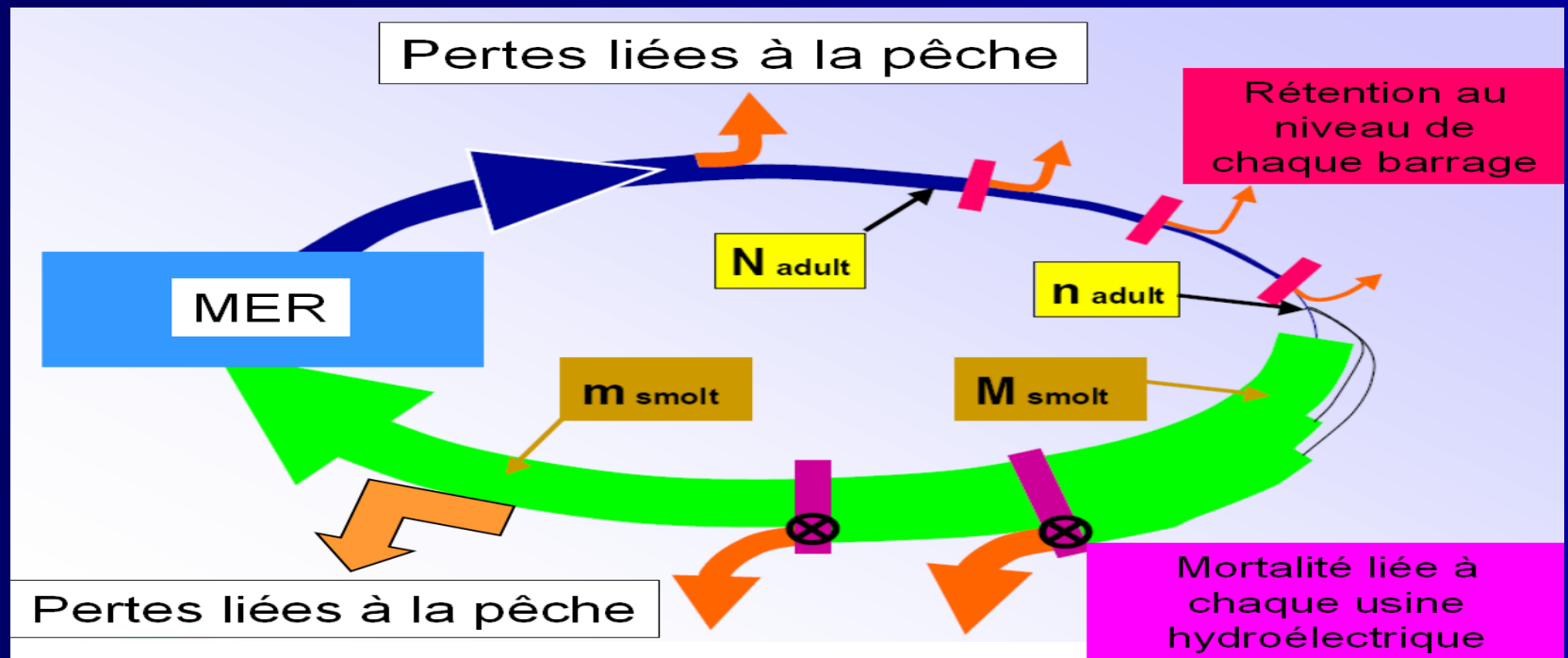
## Objective 2. Restore habitats



# Masterplan for Migratory Fish

## Objective 3.

Plant juvenile fish / monitor returns



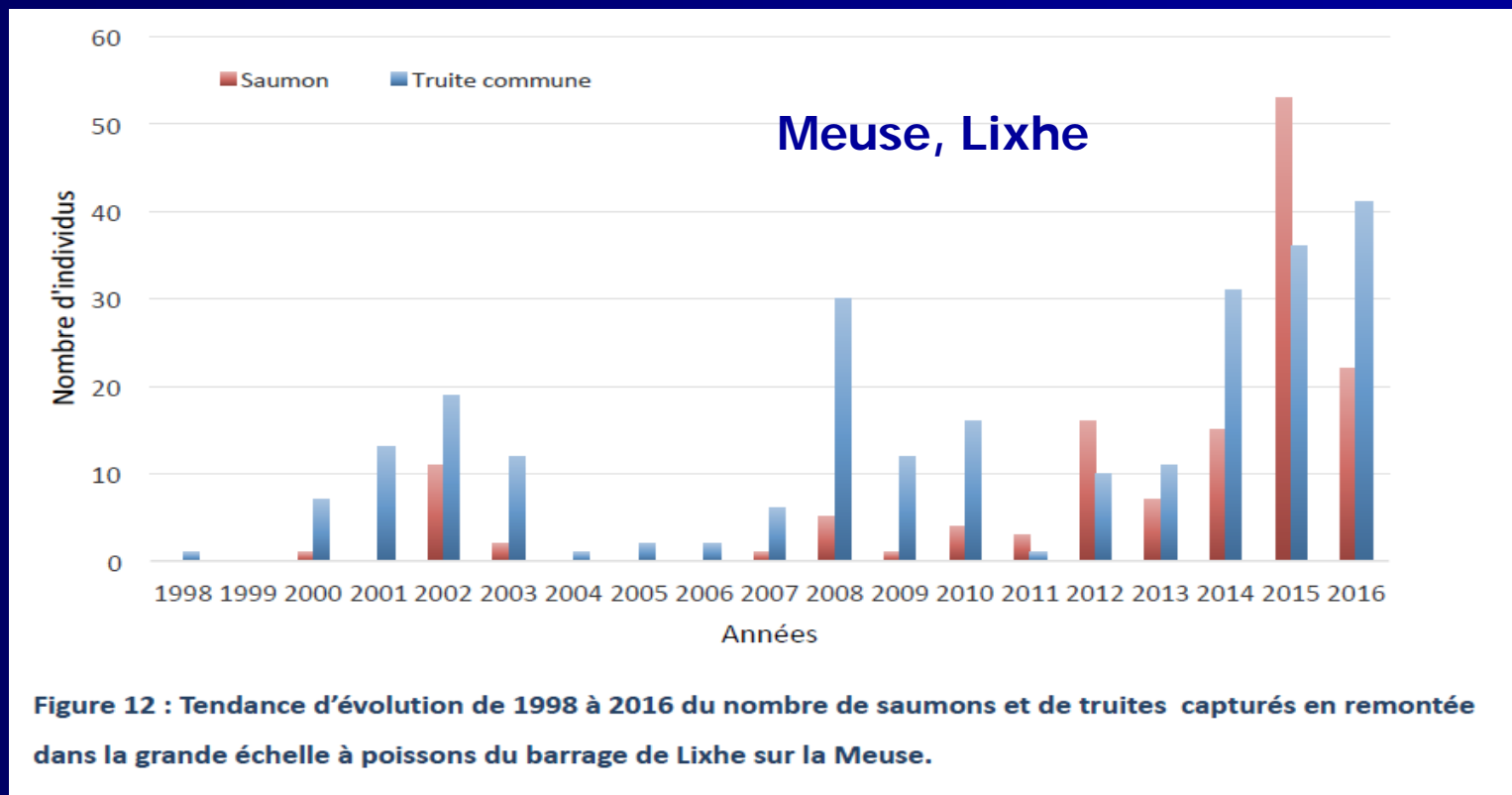
# Masterplan for Migratory Fish

## Objective 3. plant juvenile fish

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

# Masterplan for Migratory Fish

## Objective 3. monitor returns (Salmon, trout)



# Masterplan for Migratory Fish

## Objective 3. monitor returns

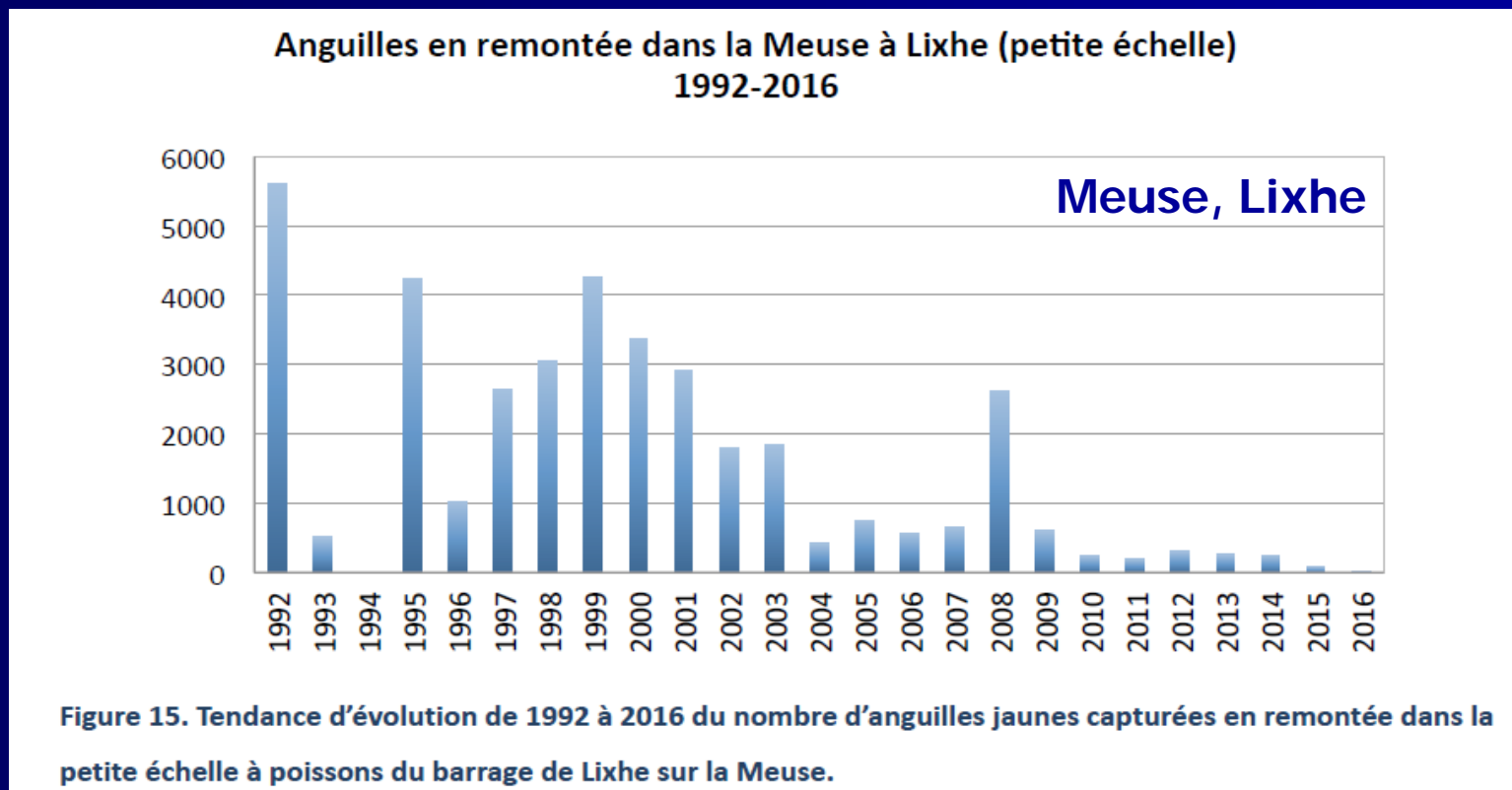


**Salmon - 101 cm, 7.3 kg - monitored in the Meuse near Liège!**



# Masterplan for Migratory Fish

## 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. The background shows the interior of the bucket and the water surface.

**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 - eel; 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.**



29-05-2017

**International Meuse Commission  
Willem Schreurs**