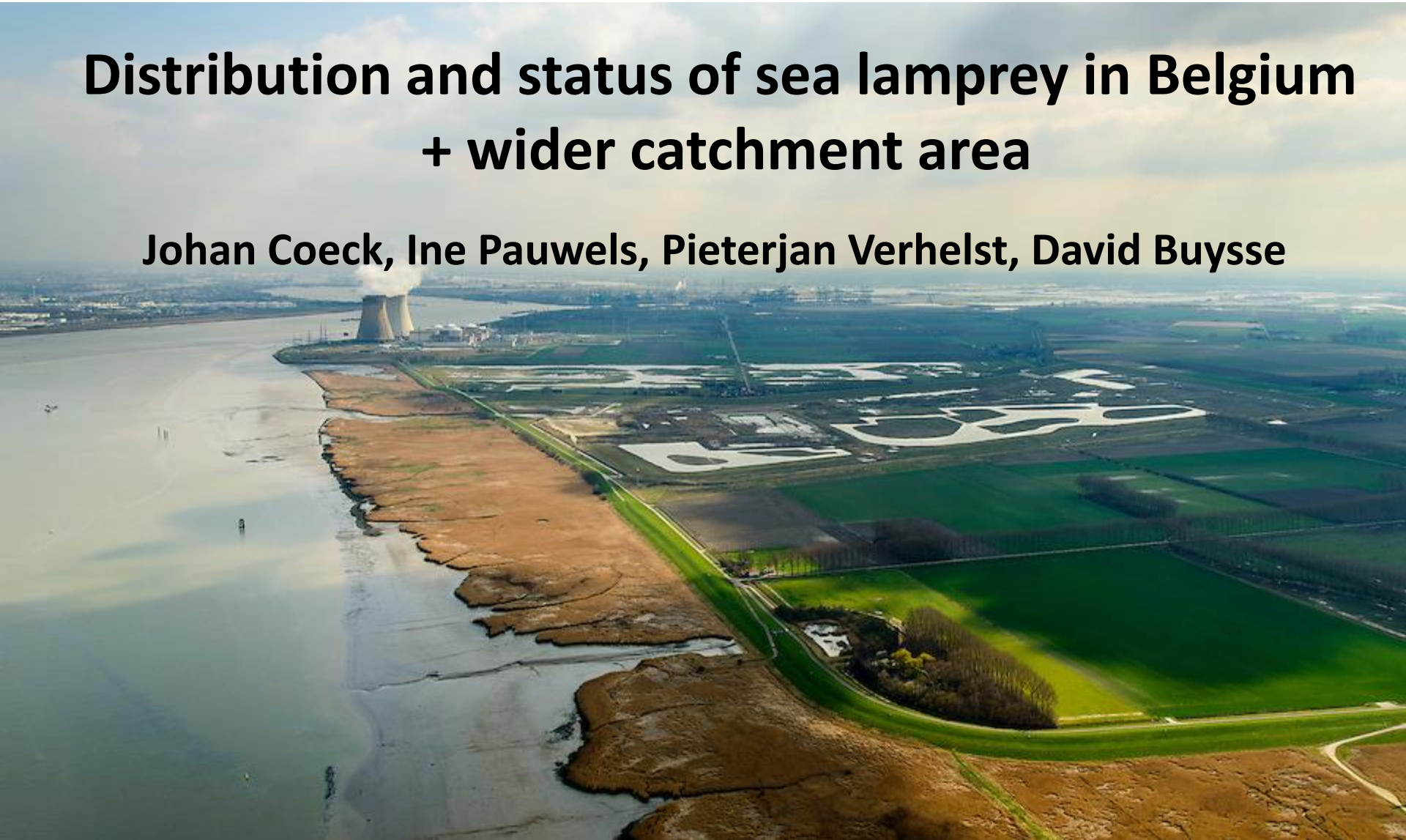
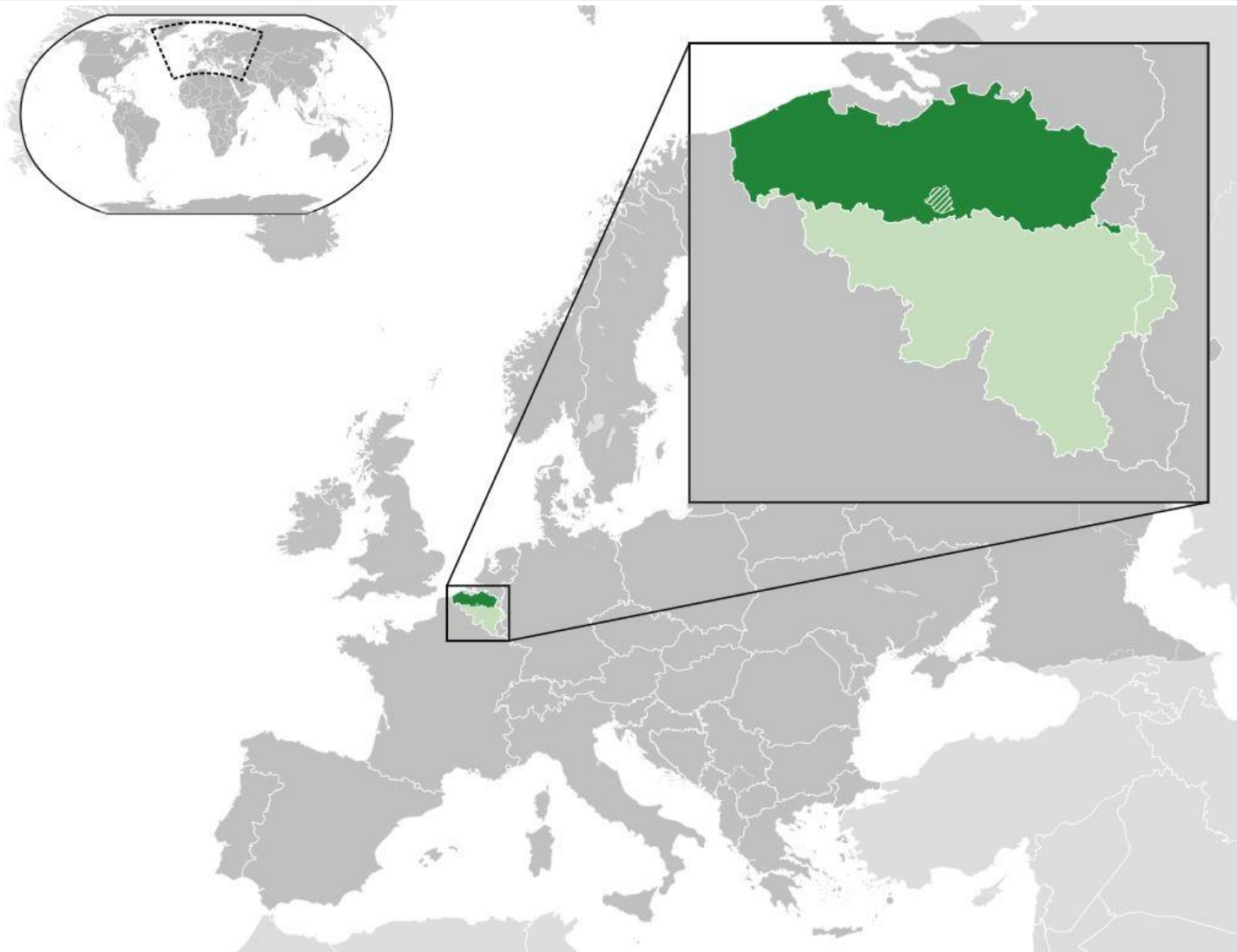


Distribution and status of sea lamprey in Belgium + wider catchment area

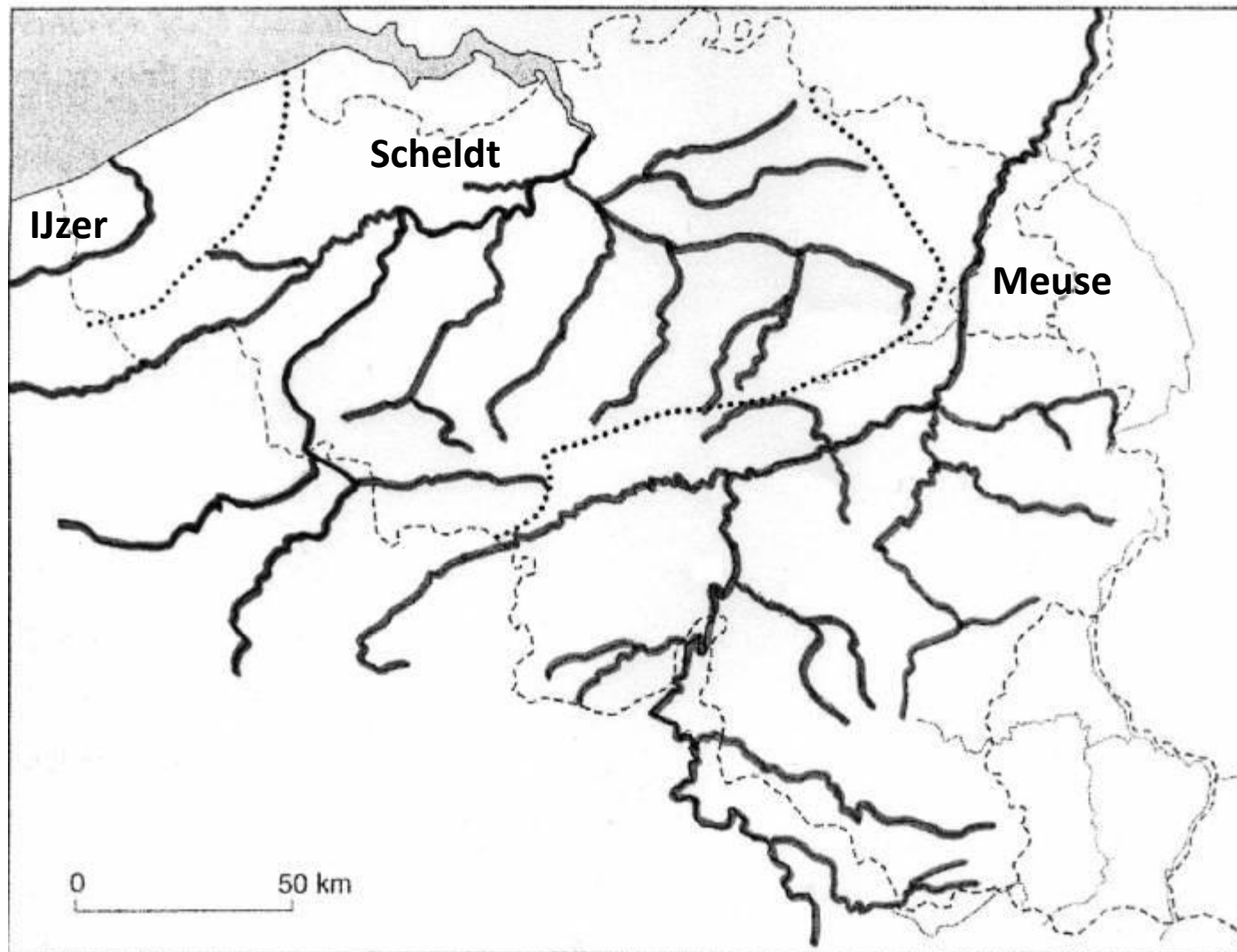
Johan Coeck, Ine Pauwels, Pieterjan Verhelst, David Buysse



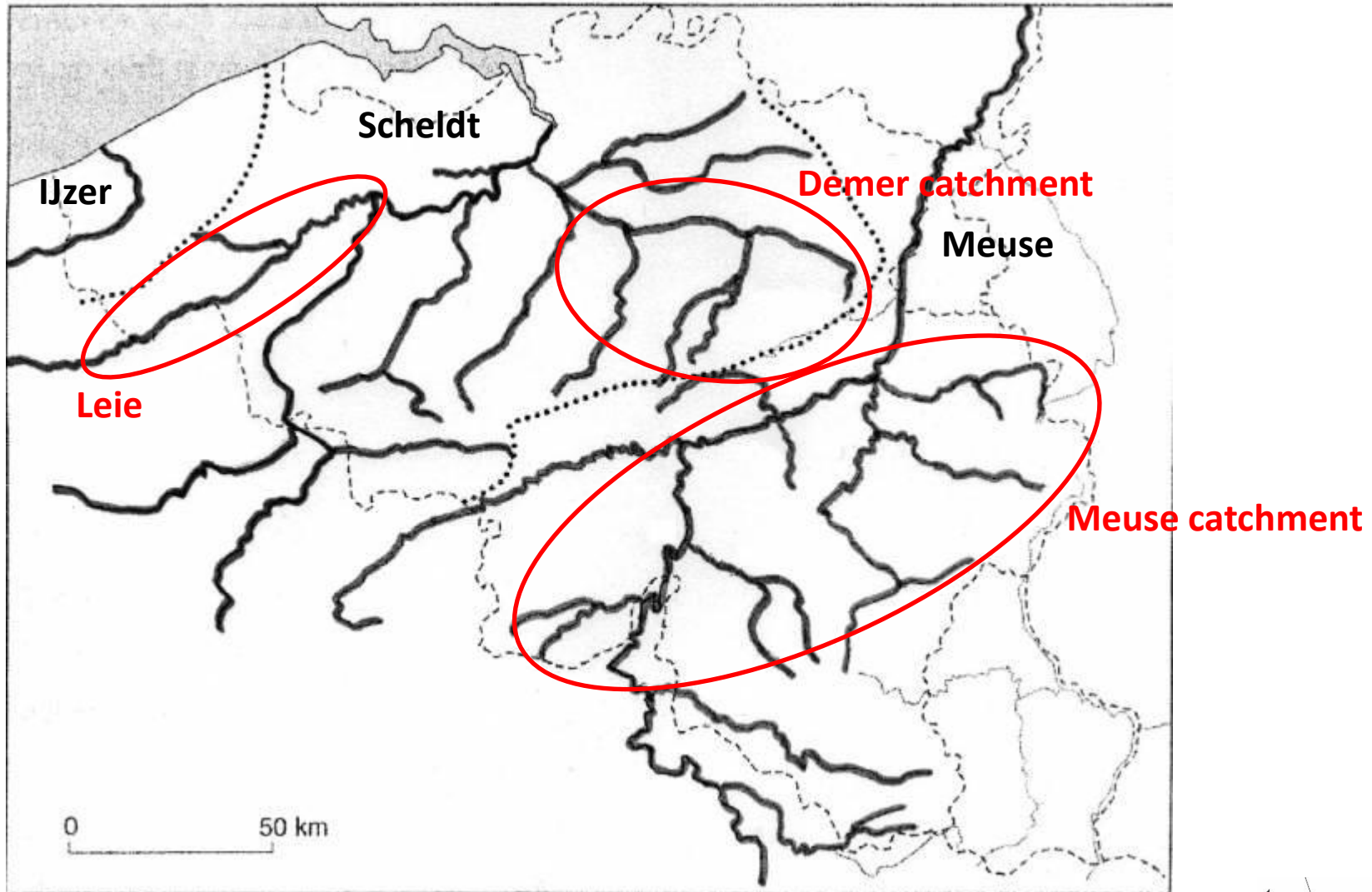
Study area: Flanders – Belgium – “lowland area”



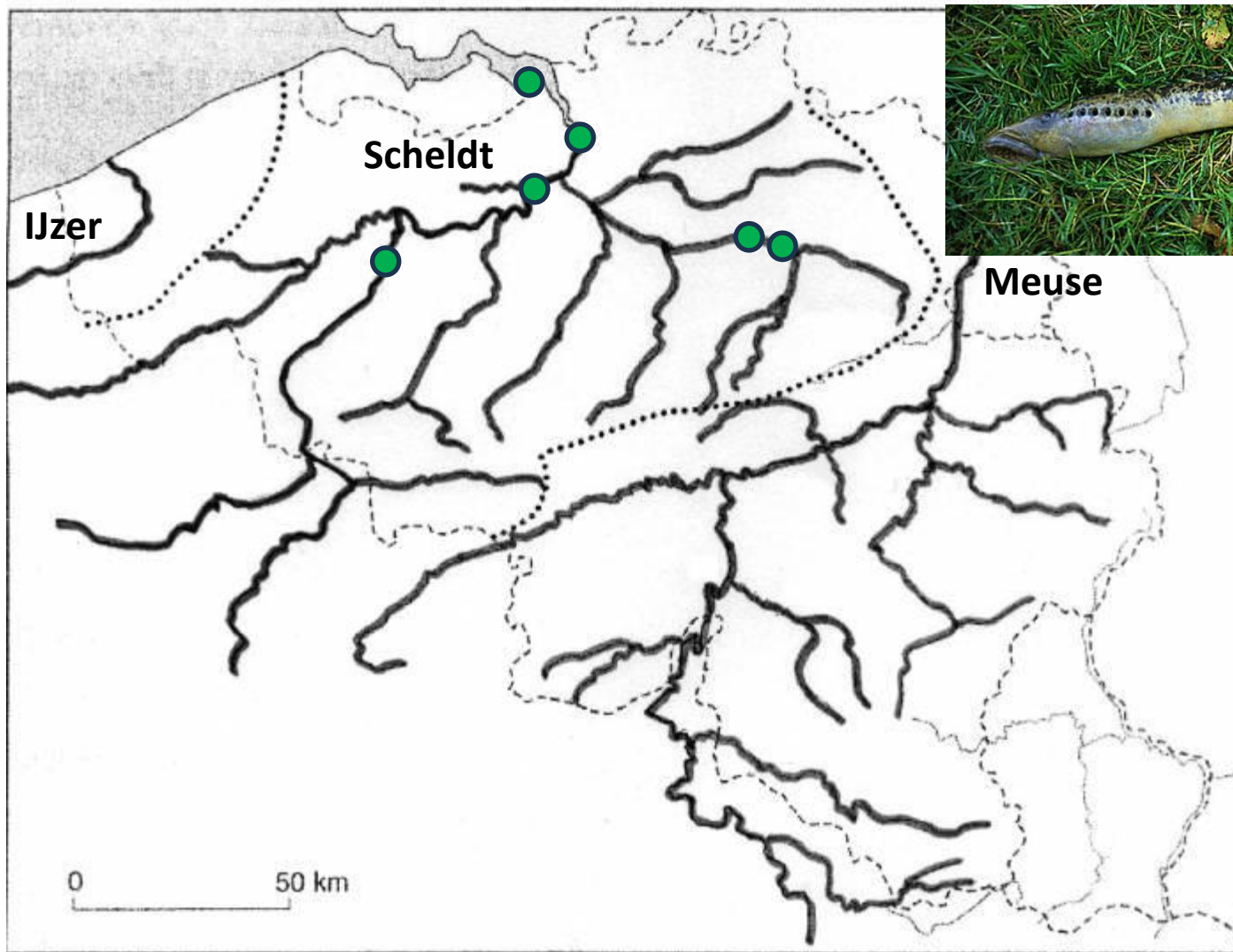
Study area: Flanders – Belgium – 3 catchments”



Historic distribution of sea lamprey (pre 1900)



Actual distribution of sea lamprey (since 2000)



**Adult sea lamprey
caught in spring**

Sea lamprey catches (lowland region in Flanders)



River Scheldt
Tidal river
160 km long estuary

Sea lamprey catches (lowland region in Flanders)

**Fish monitoring in the river Scheldt
with double fike nets at low tide
on mud flats along banks**



Sea lamprey catches (lowland region in Flanders)



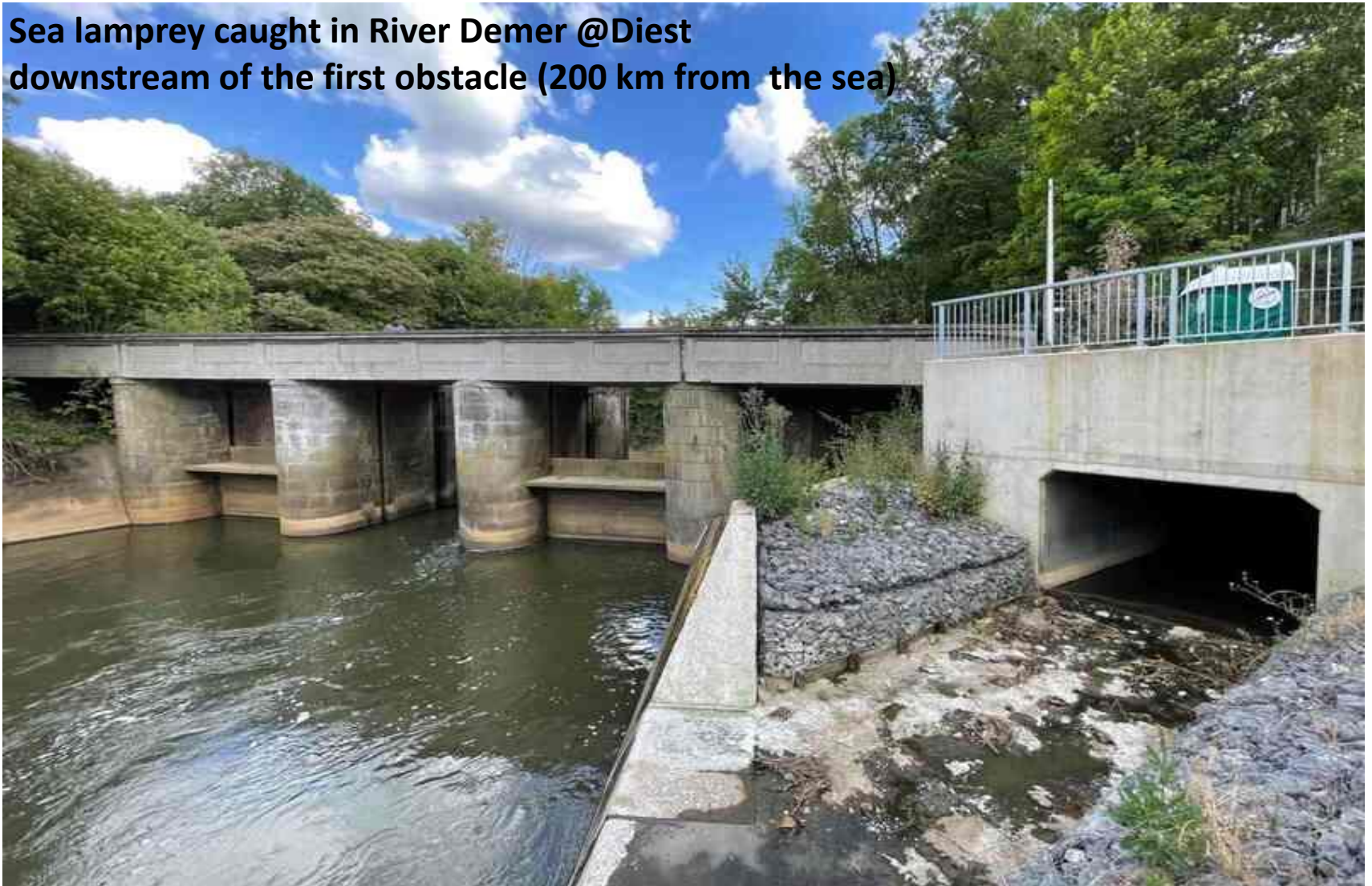
Sea lamprey catches (lowland region in Flanders)

Most afluents of River Scheldt are regulated (channelised)



Sea lamprey catches (lowland region in Flanders)

Sea lamprey caught in River Demer @Diest
downstream of the first obstacle (200 km from the sea)



Sea lamprey catches (lowland region in Flanders)



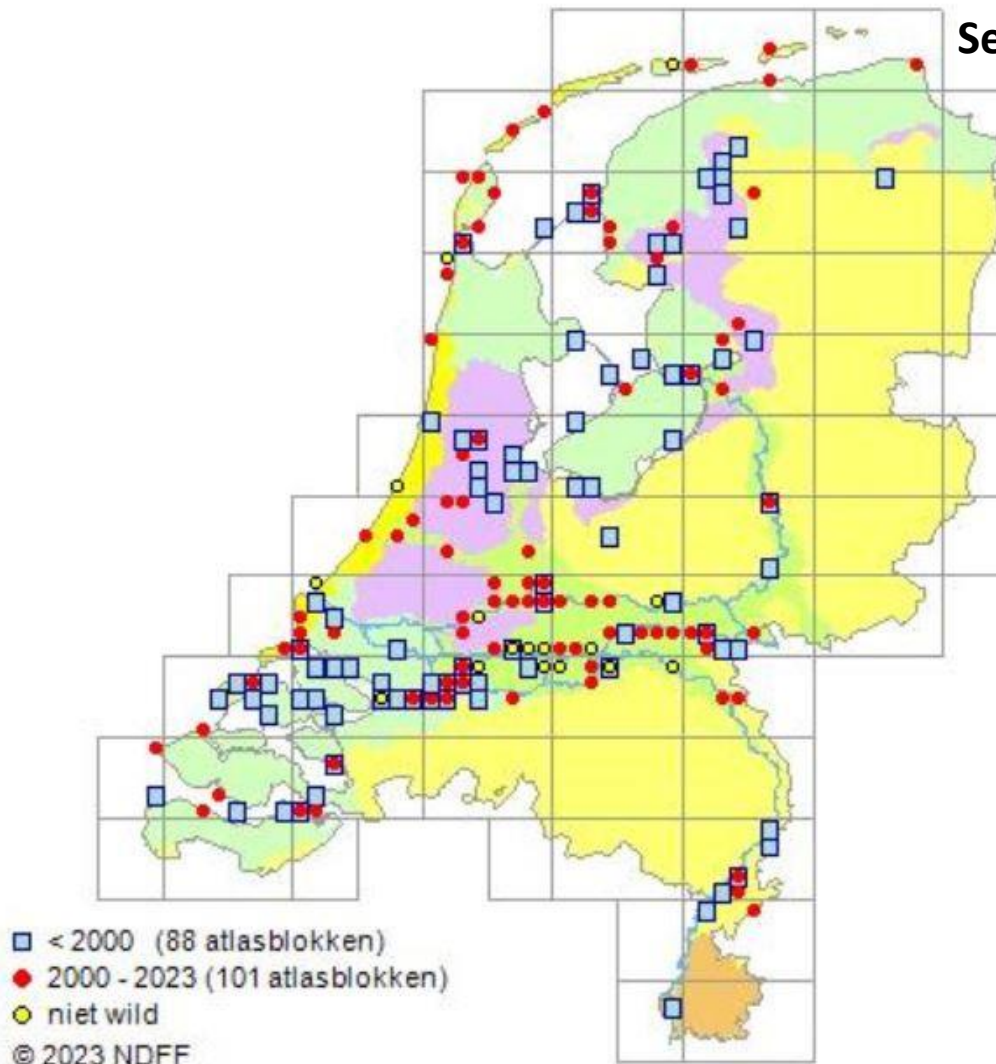
Sea lamprey caught in the fish by-pass river in the upstream River Scheldt @ Asper 180 km from sea

Sea lamprey catches (lowland region in Flanders)

2,5 m wide “fish pass fike nets” in the fish by-pass river

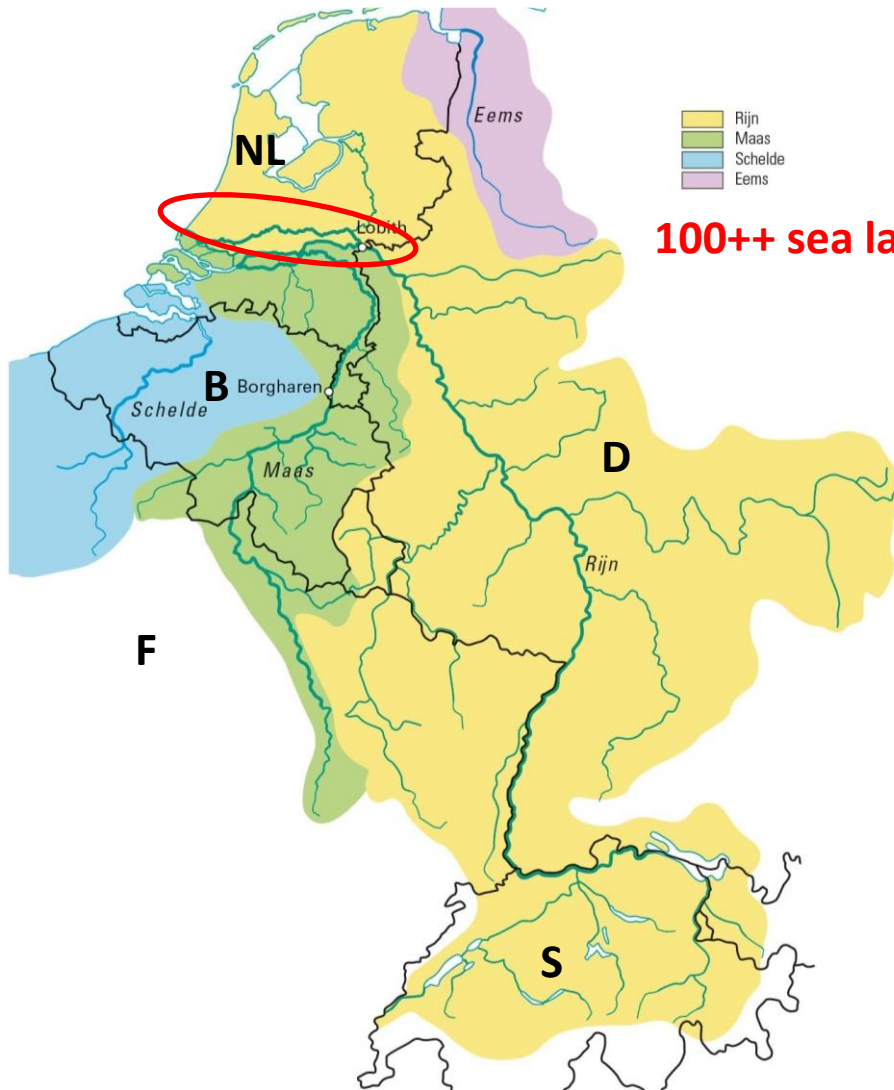


Sea lamprey distribution in the Netherlands



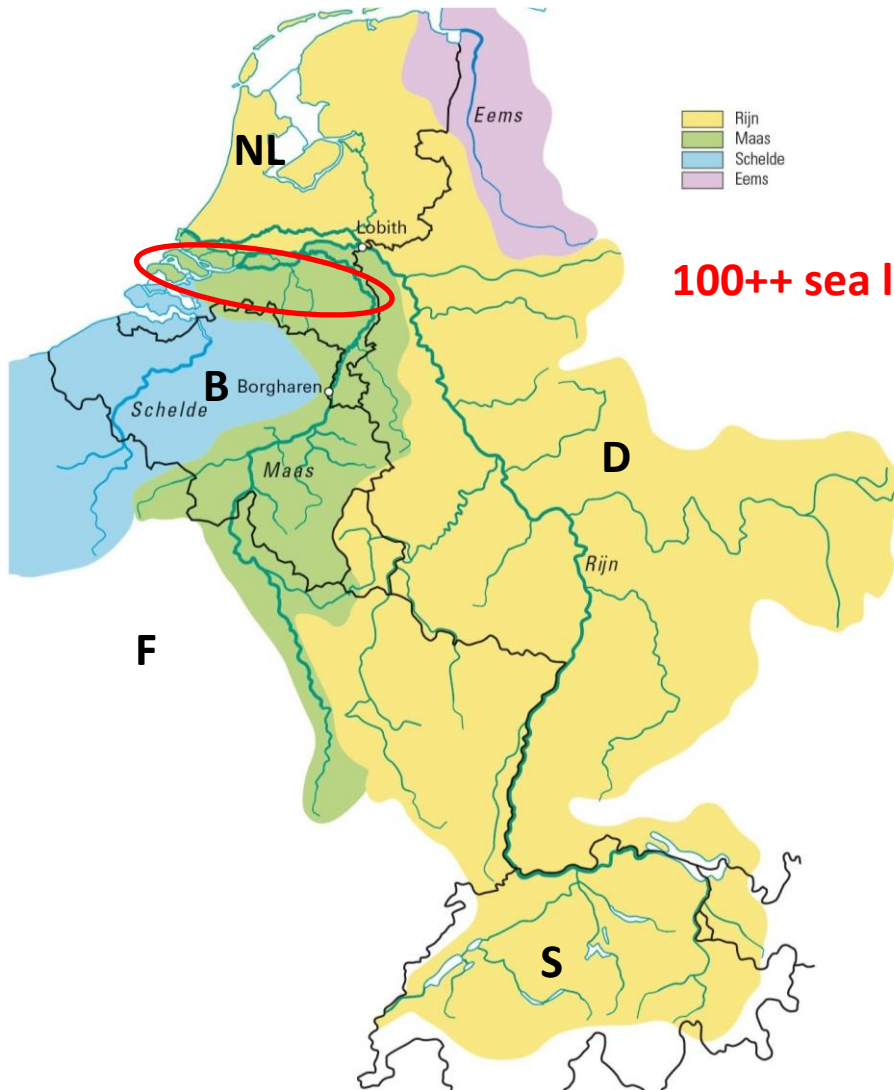
**Sea lamprey catches in The Netherlands:
downstream parts of the Belgian
catchments (Scheldt & Meuse)
& Rhine + Eems cathments**

Sea lamprey migraton in River Rhine (NL)



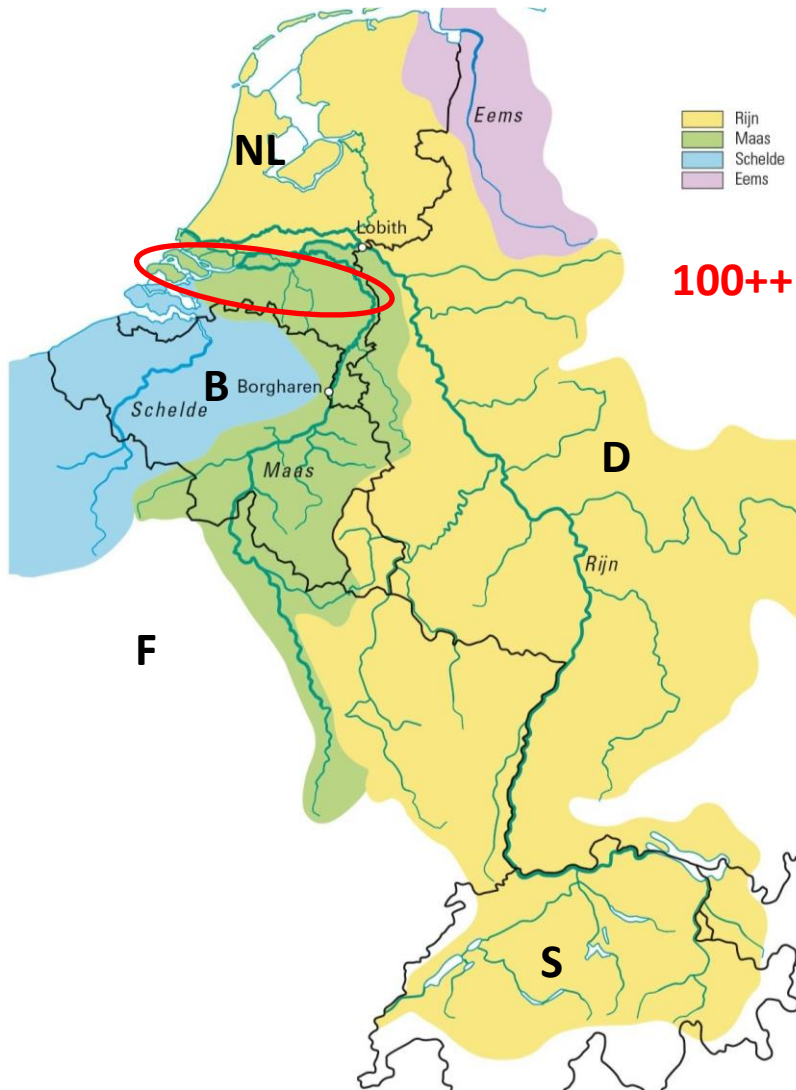
**100++ sea lamprey in the fish passes of lower Rhine (NL)
(Winter, 2006)**

Sea lamprey migration in River Meuse



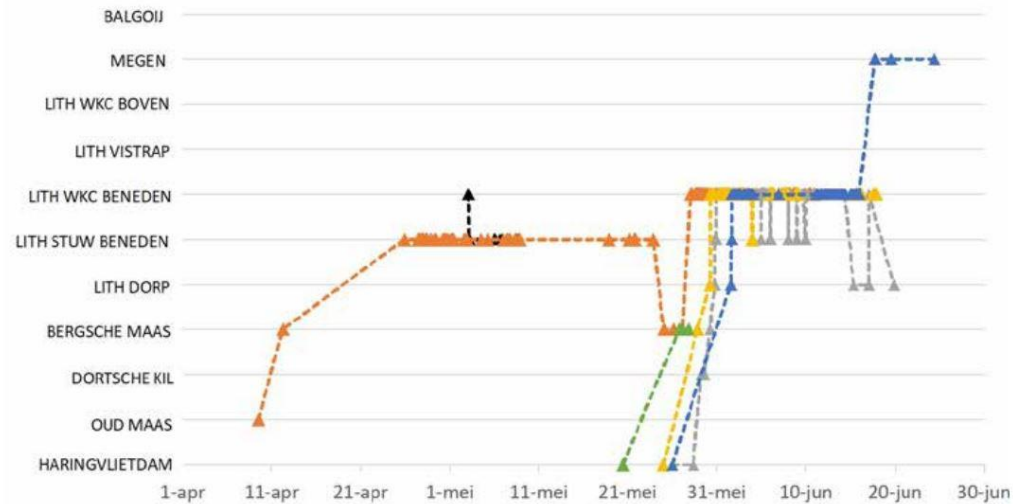
**100++ sea lamprey migrate into lower Meuse River (NL)
(van de Ven, 2020)**

Sea lamprey migration in River Meuse

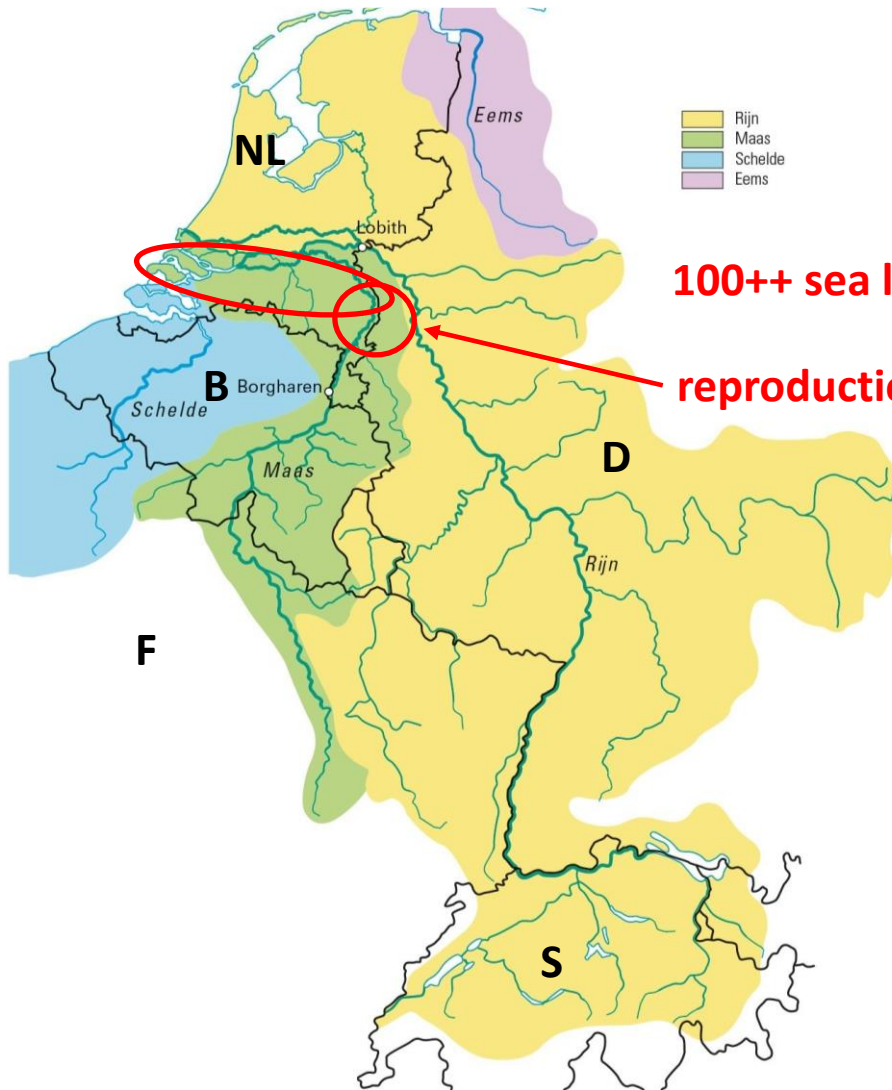


**100++ sea lamprey migrate into lower Meuse River (NL)
(van de Ven, 2020)**

Telemetry research shows most sea lamprey do not pass the first weir & hydropower station of Lith



Sea lamprey reproduction in River Meuse (NL)



100++ sea lamprey migrate into lower Meuse River (NL)
(van de Ven, 2020)
reproduction of sea lamprey in River Roer & River Niers
only reproduction sites in the Netherlands
(van Kessel, 2020)

Sea lamprey reproduction habitat



River Niers:

- 114 km long
- affluent of River Meuse
- spawning on gravel/sand bars
- ammocoetes & juveniles found!
- occurs together with brook & river lamprey
- confirmation by eDNA



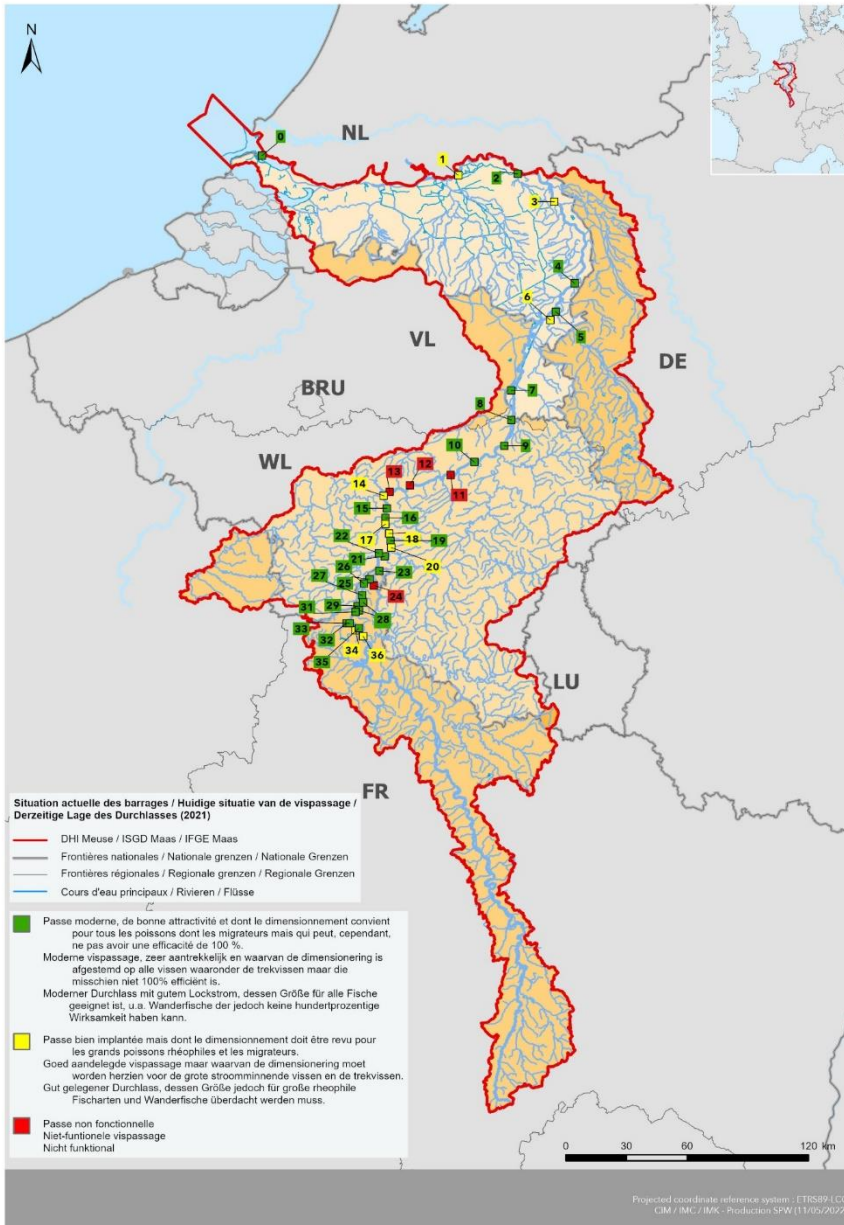
IUCN status sea lamprey in Scheldt-Meuse-Rhine

EX	(Extinct)		
EXW	(Extinct in the wild)		
RE	(Regionally extinct)	Belgium – Wallonia	
CE	(Critically endangered)	Belgium – Flanders	Germany - NRW
EN	(Endangered)		
VU	(Vulnerable)		
NT	(Near threatened)	The Netherlands	
LC	(Least concern)		
DD	(Data deficient)		
NA	(Not aplicable)		
NE	(Not evaluated)		

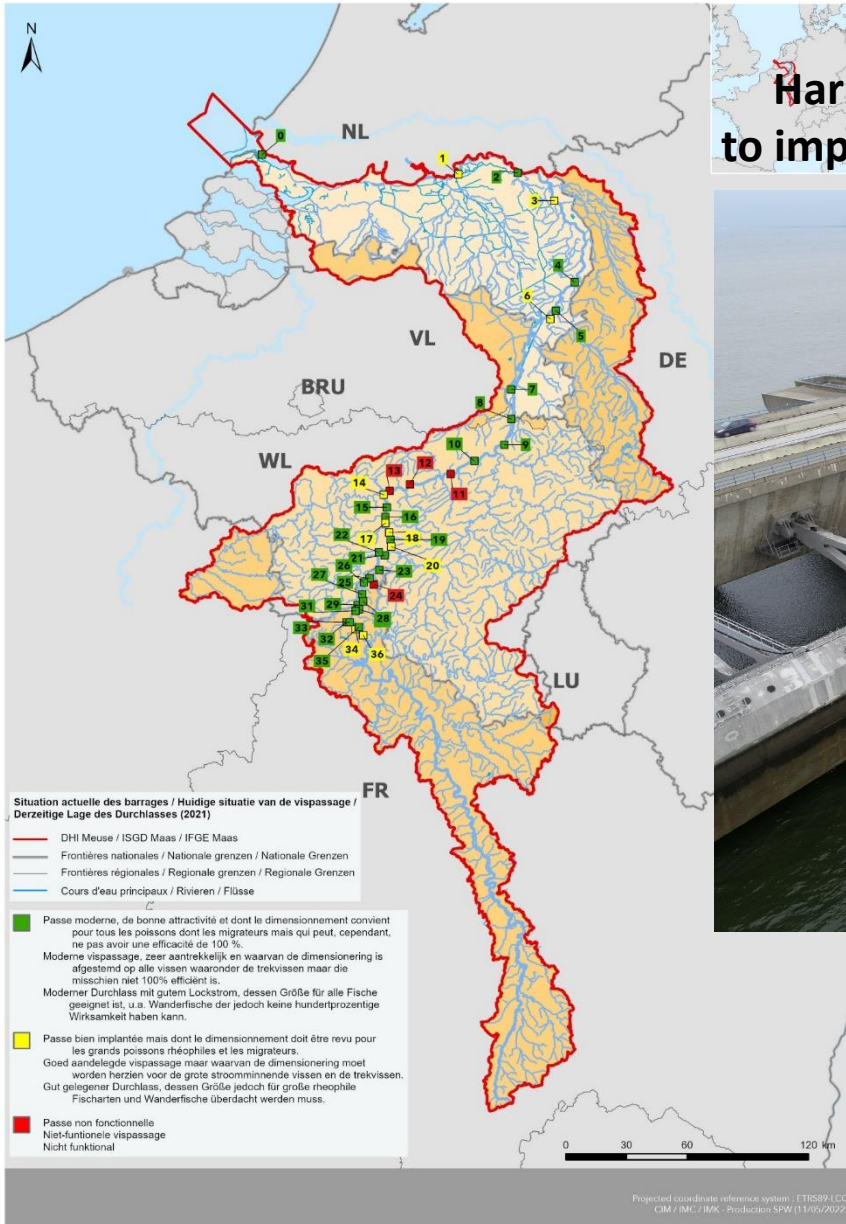
River continuity in the river Meuse

37 “obstacles” in the main river:

- Haringvliet sluice gates at sea
- 36 weirs with and without hydropower and with well (green) or less well (yellow) functioning fish passes and without (red) fish passes



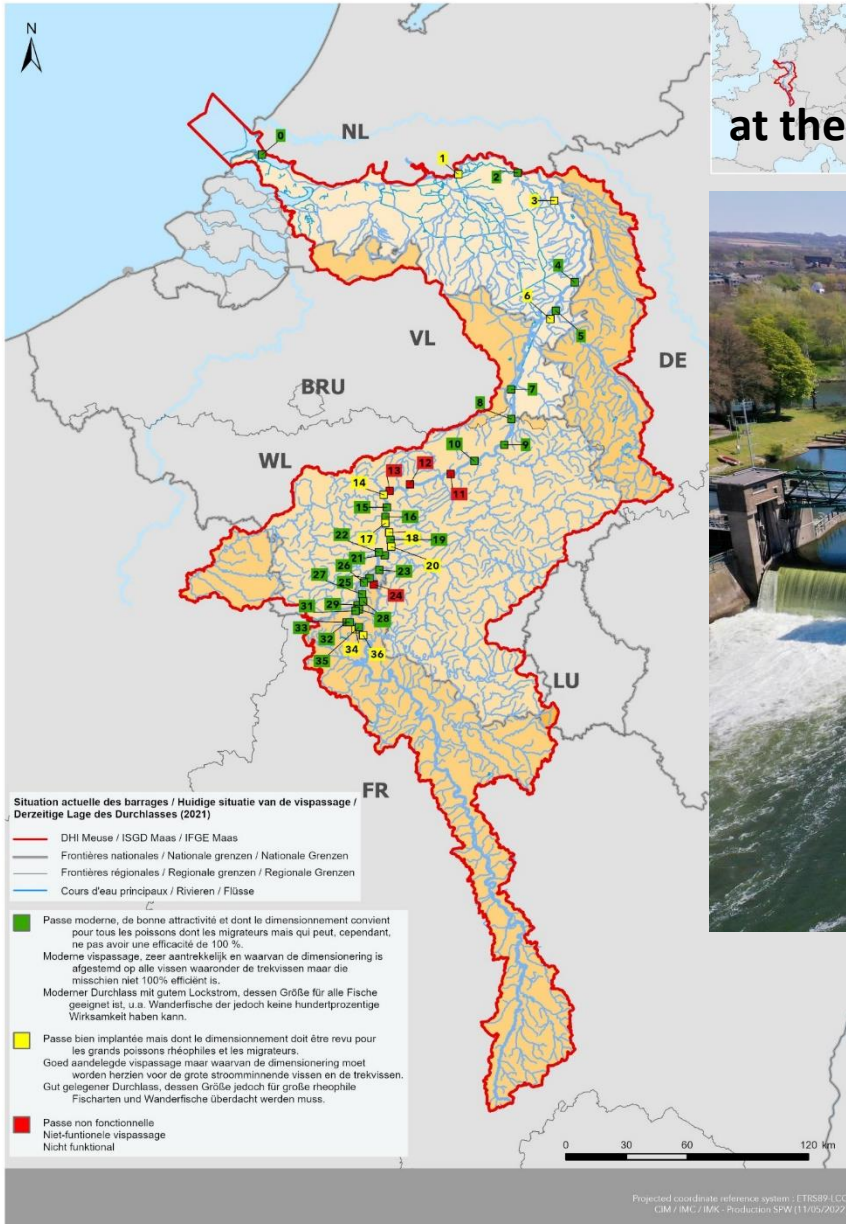
River continuity in the river Meuse



Haringvliet sluice gates with 1 gate temporary “ajar” to improve upstream fish migration at upcoming tide



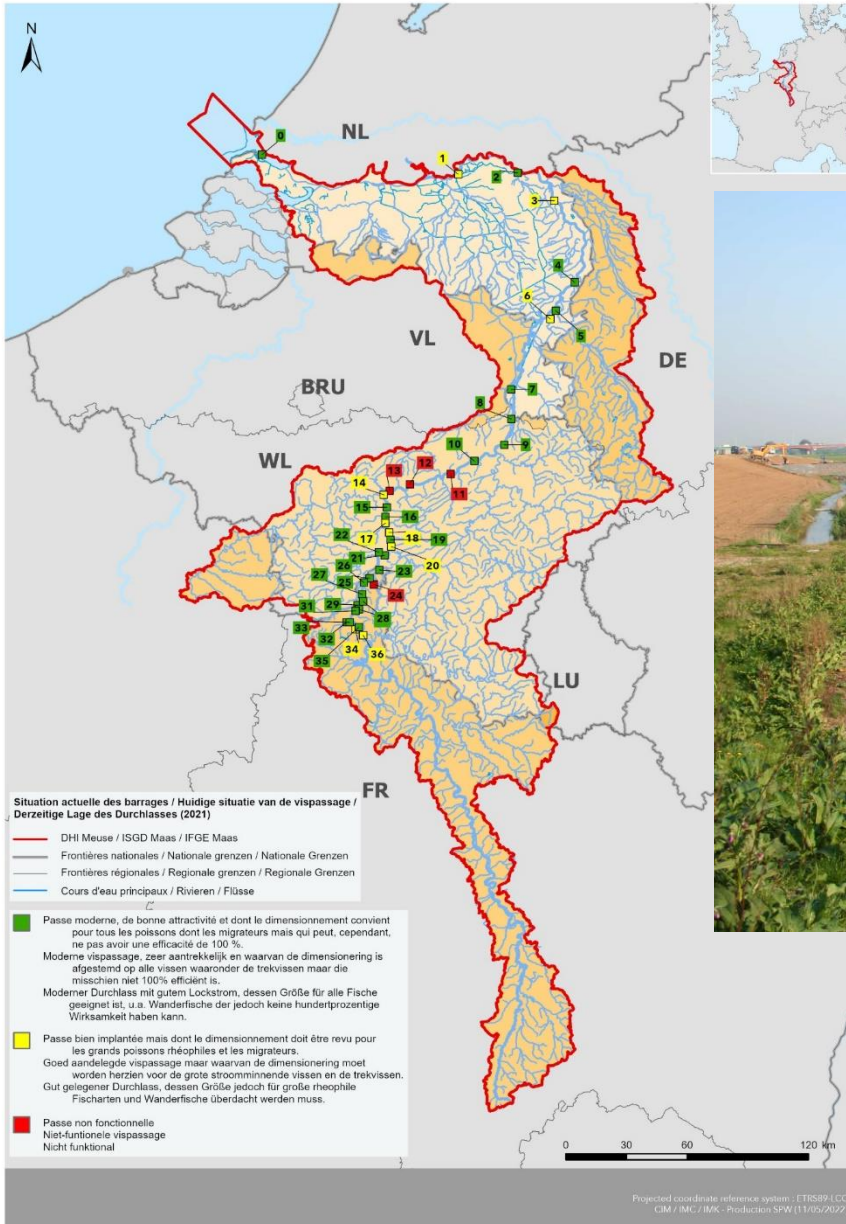
River continuity in the river Meuse



Weir number 7 (Borgharen) at the border between Belgium and The Netherlands



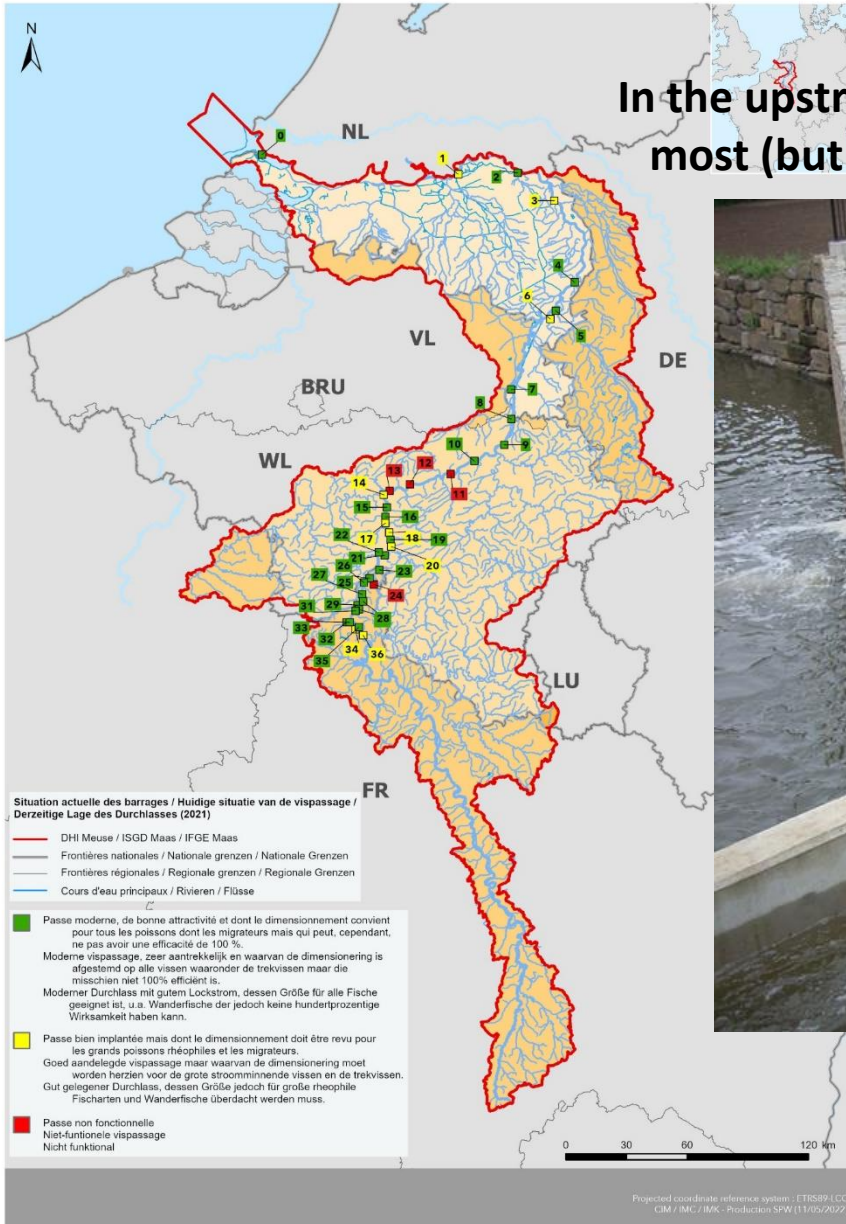
River continuity in the river Meuse



In the Netherlands, all (7) weirs in River Meuse have a nature-like pool-weir fish pass



River continuity in the river Meuse

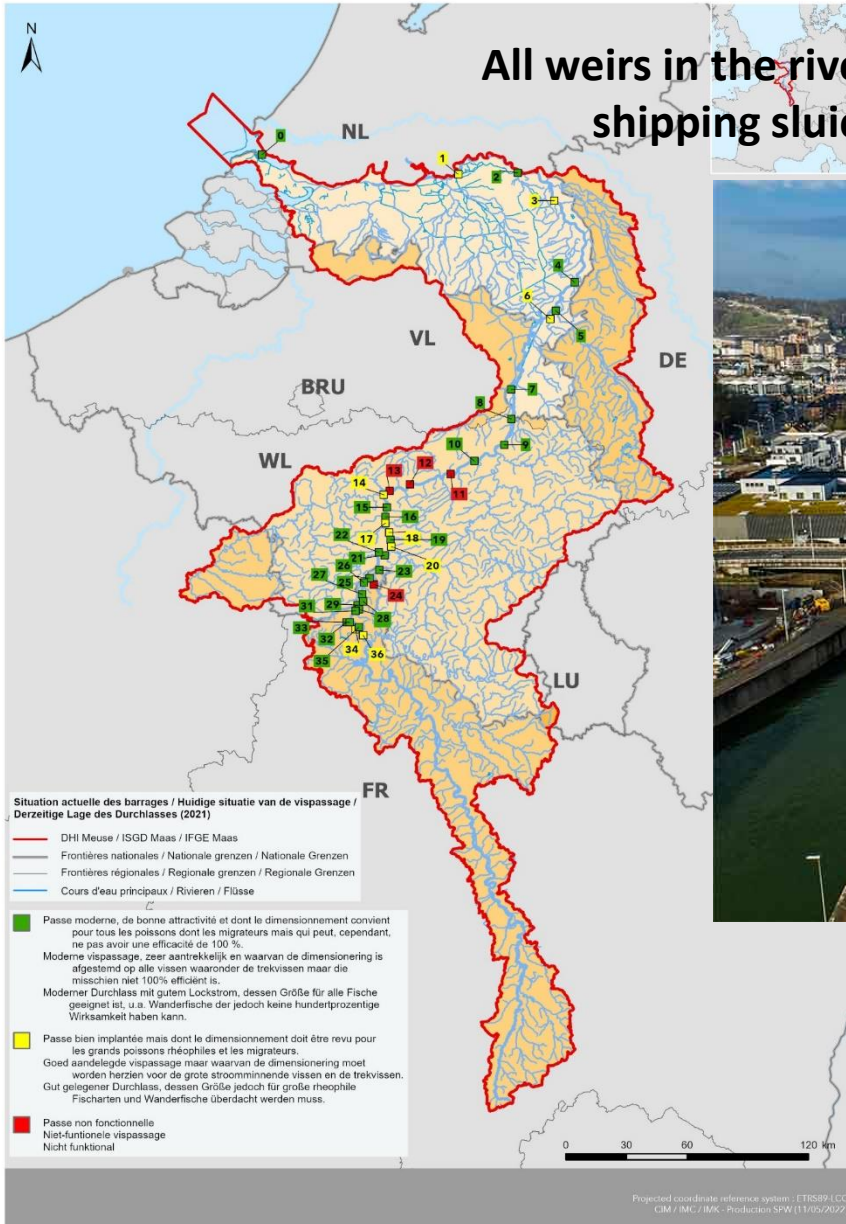


In the upstream part of the River Meuse (Belgium & France) most (but not all) of the weirs have a vertical slot fish pass



River continuity in the river Meuse

All weirs in the river Meuse in Belgium and the Netherlands have a shipping sluice; 22 of the 36 weirs have a hydropower station



To much for me, let's go to Sweden! Thank you!

