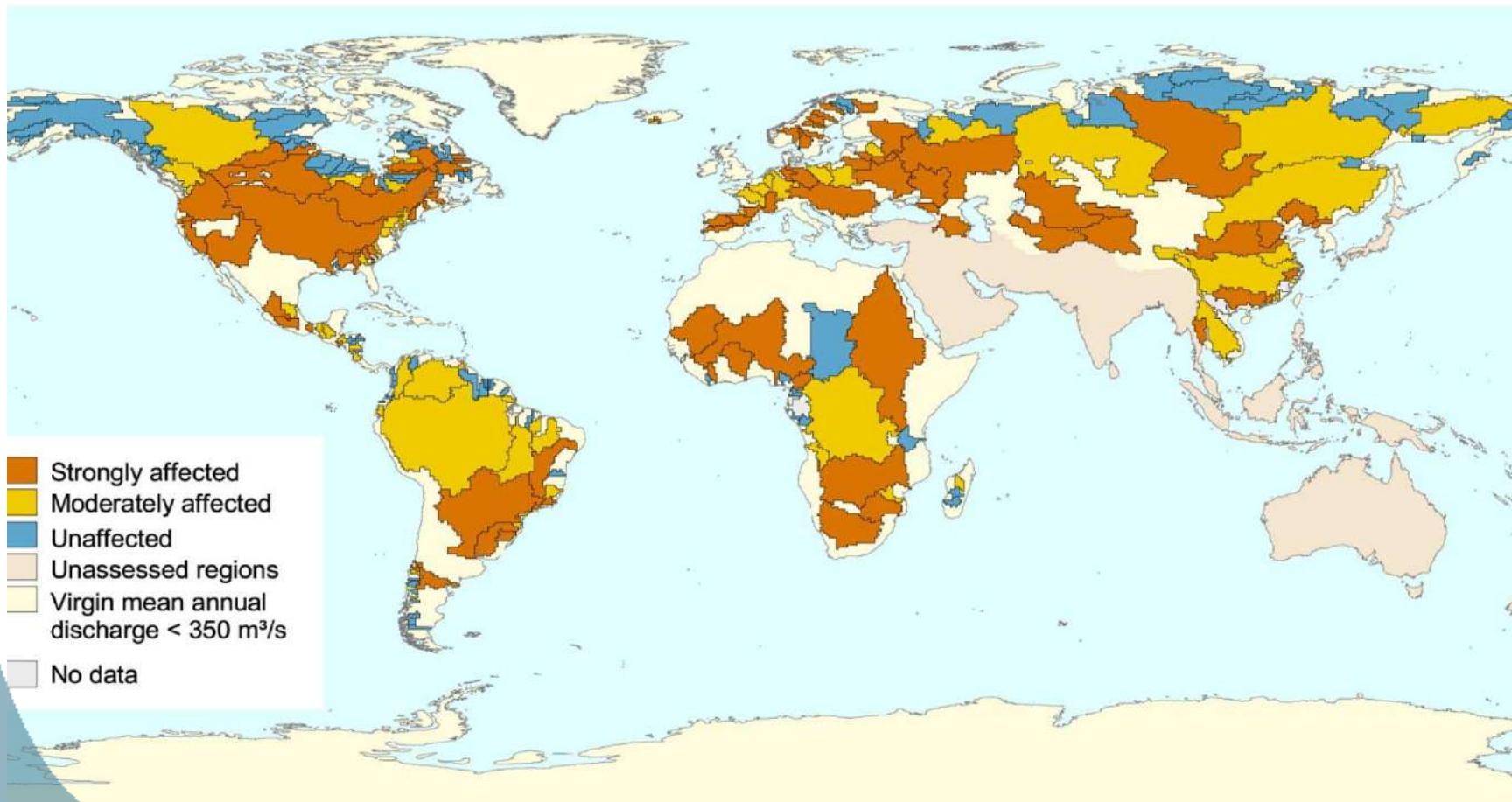


Map by ERN France, ©  
Roberto Epple

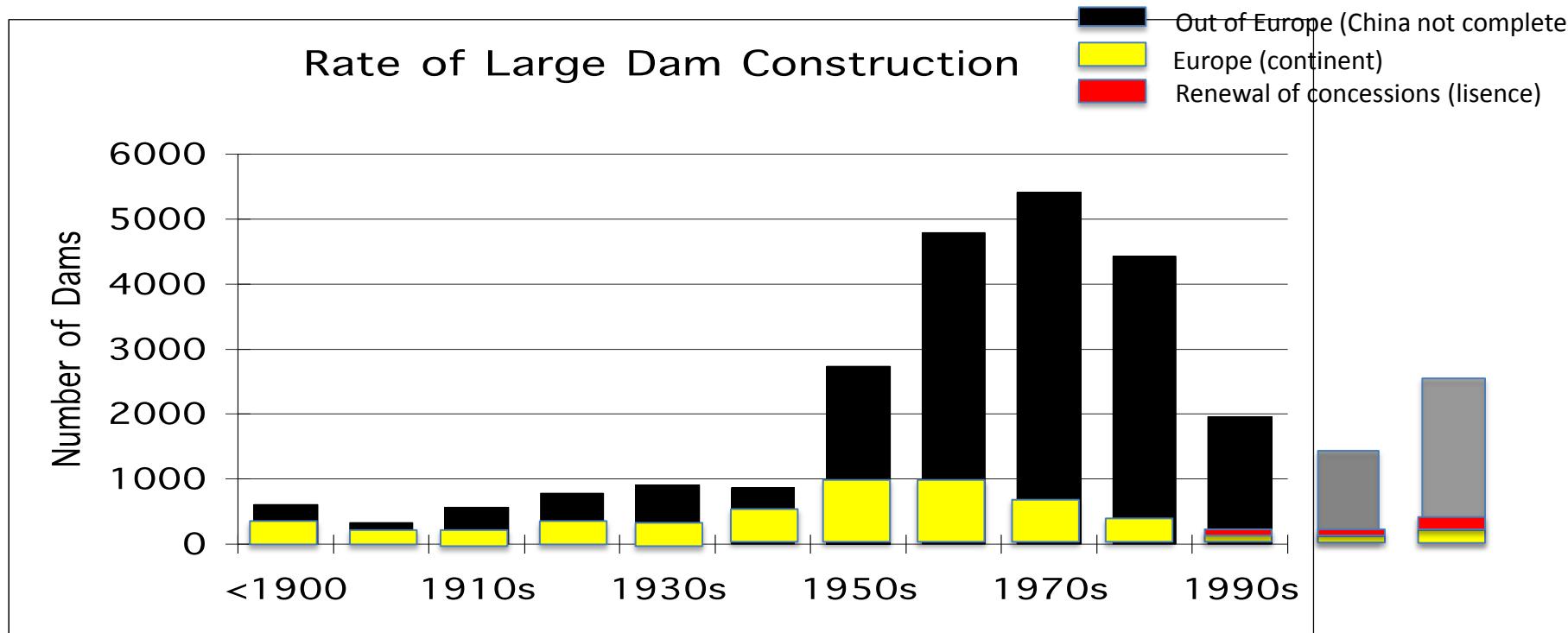


# Degree of river fragmentation & flow regulation



2019 : Worldwide more than 48 000 large dams (> 15 m high)

France 500 large Dams



## Dam removal history

### First Removals of large dams

#### 1996-98 France

- Kemansquillec dam, Léguer River, Bretagne (Côte d'Armor), 15 m
- Saint Etienne de Vigan Dam 17m (Loire Allier)
- Maison rouge dam 5 m, 200m long (Loire Vienne)

#### 1999 USA

**Edwards Dam, Kennebec River, Maine**

**Ward Paper Mill Dam, Prairie River, Wisconsin**

**All of them for Salmon restauration and safety reasons**





*j'ai le moral  
qui remonte...*

LA REMONTEE  
DU SAUMON

VIDOC



# Dam Removal history in France Part 1

1986. Loire Vivante / Living Loire campaign. First appearance of the river restoration idea in France.
- 1994 in the framework of the « Plan Loire Grandeur nature », The new approach to manage a riverbasin (1/5 of the size of France), after the 7 year long powerful « Loire vivante » campaign, the french government decided to stop the construction of large dams and to remove 3 larger dams

## 1996 - 1998 Removal of 3 large dams :

- **Kermansquillec dam:** First known large dam dismantling in Europe ?

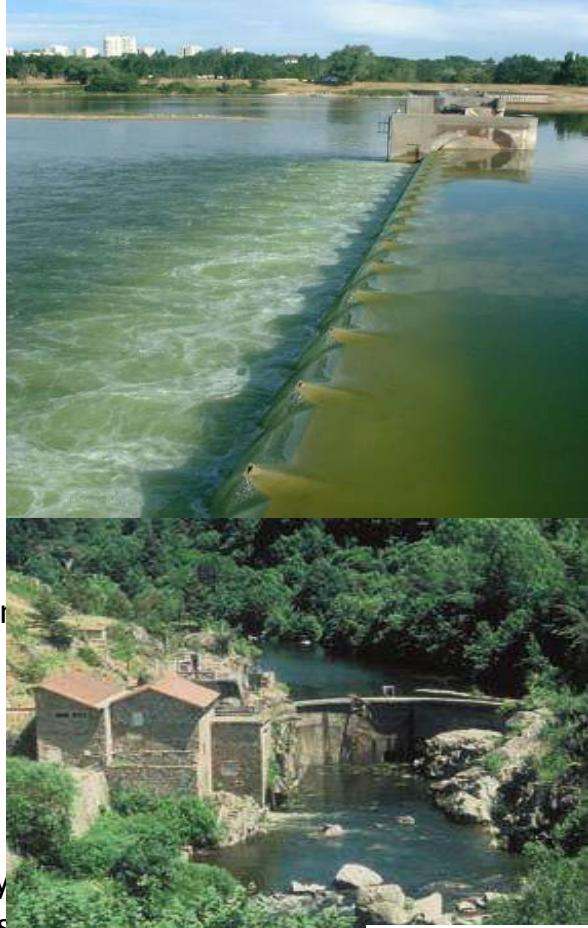
Built in 1920 on the Léguer river, energy for a paper mill. 15 meters high, 110 m long. 12 ha of the Léguer valley drowned. 200 000 tons of mud behind the dam.

7 ha now used for organic agriculture (cattle). Steady return of the Salmon.

- **Maison Rouge dam** 4m) and **St Etienne de Vigan dam** (20m):

- **the Maisons Rouges dam.** Vienne and Creuse confluence. 4m high. Built in 1923. 35 km of rivers up the dam freed for migration, habitats, reproduction. Remarkable recovery of the shad, lamprey populations. 30 000 tons of sediments behind the dam slowly going downrivers

- **the St Etienne du Vigan**, dam, Upper Allier 10 m. 2 GWh.



# A severe artificialisation of the French Rivers,



## Fragmented hydrosystems.

A national date base.

At least 80 000 structures, among them tens of thousands of small dams (mills), weirs and other works accross our watercourses.

10 % : economical use.

4% : devices (fisladders) for fish migration

2500 hydrodams. .

*Map by the Onema, Office National de l'Eau et des Milieux Aquatiques (National Agency for Water dans Aquatic Habitats):*

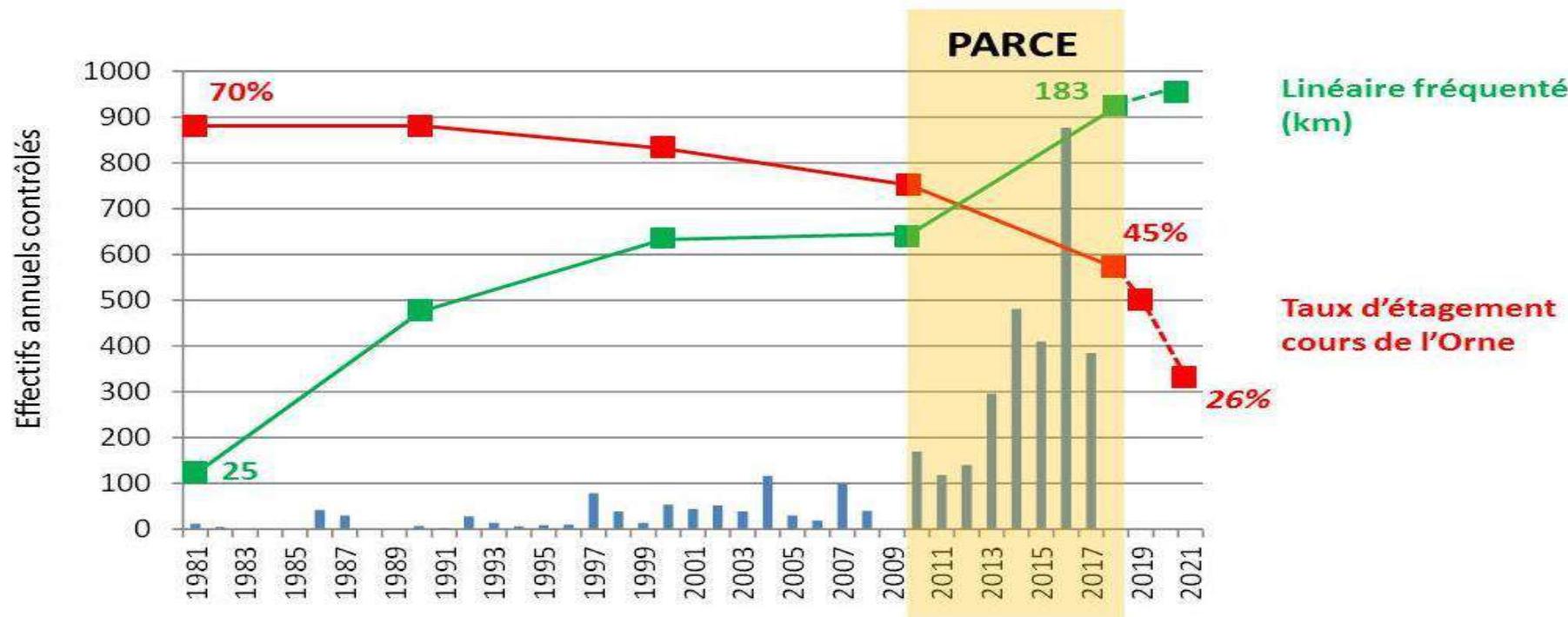
**Important biodiversity losses. E.g. migratory fishes. On the Loire basin, from 100 000 salmon on the Loire in the XVIII<sup>e</sup> century to 100 end of the eighties.**

# Dam Removal history in France Part 2

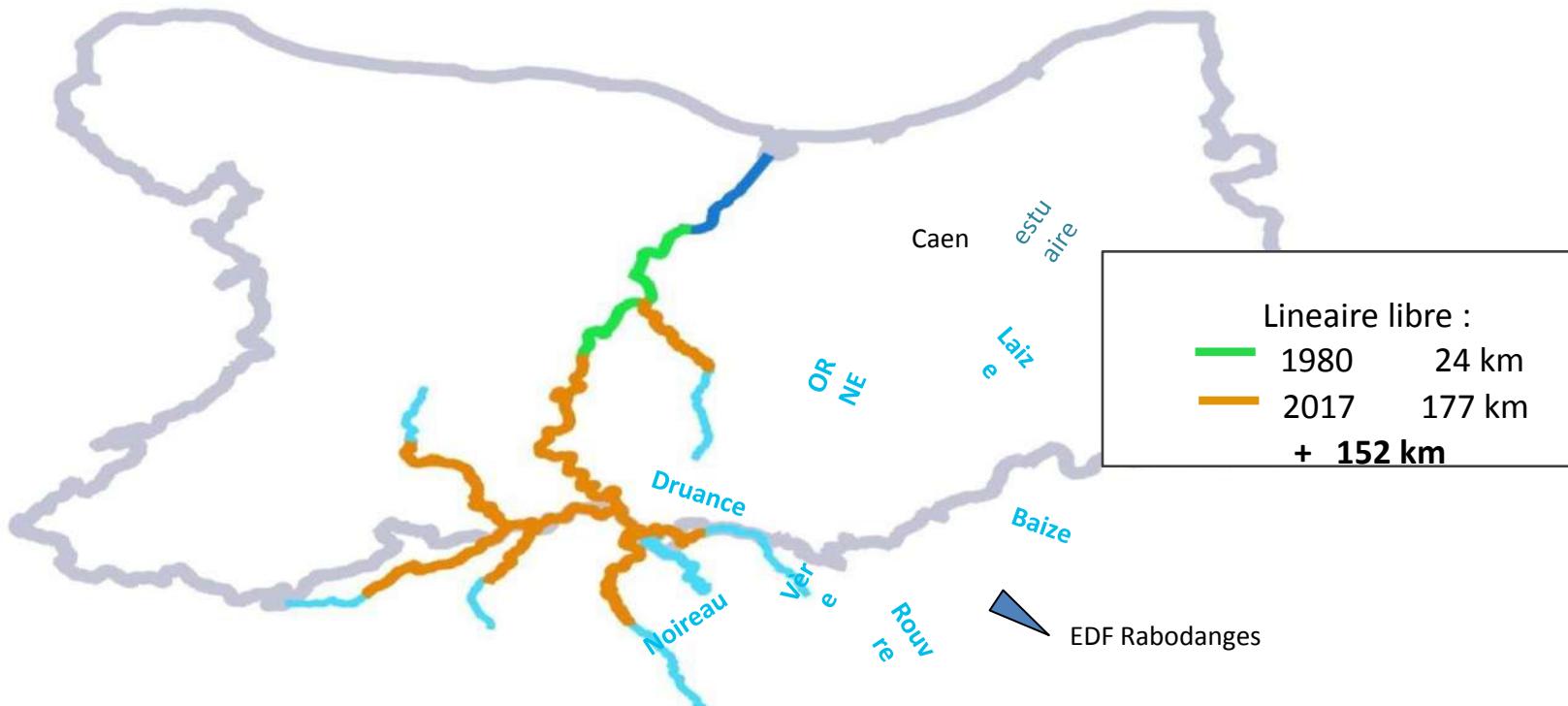
- 2009 Setup of a french policy to establish the ecological continuity  
(PARCE Project, first step: 1200 obstacles) including a legal and financial framework**
- 2009 Official decision to remove the large dams on the Sélune river (37 m)
- 2010 Signature of the 'Convention for sustainable Hydropower (inluding damremoval)
- 2012 Opposition against small dam removal starts to be organised
- 2015 ERN is Cofounding Dam Removal Europe
- 2017 Start of the partial removal of the Poutès dam (from 17 m dpwn to 3.8 m with fully removabel gates (open during 3 months/year)
- 2019 Removal of the 37 m high Vézin dam on the Sélune River (Normandie)

**Today** more then 2500 small and large obstacles has been removed in France

- Restauration de la continuité écologique sur le bassin de l'ORNE (début 2020 : 40 effacements)



- Restauration de la continuité écologique sur le bassin de l'ORNE (40 eff./ + 152 km )

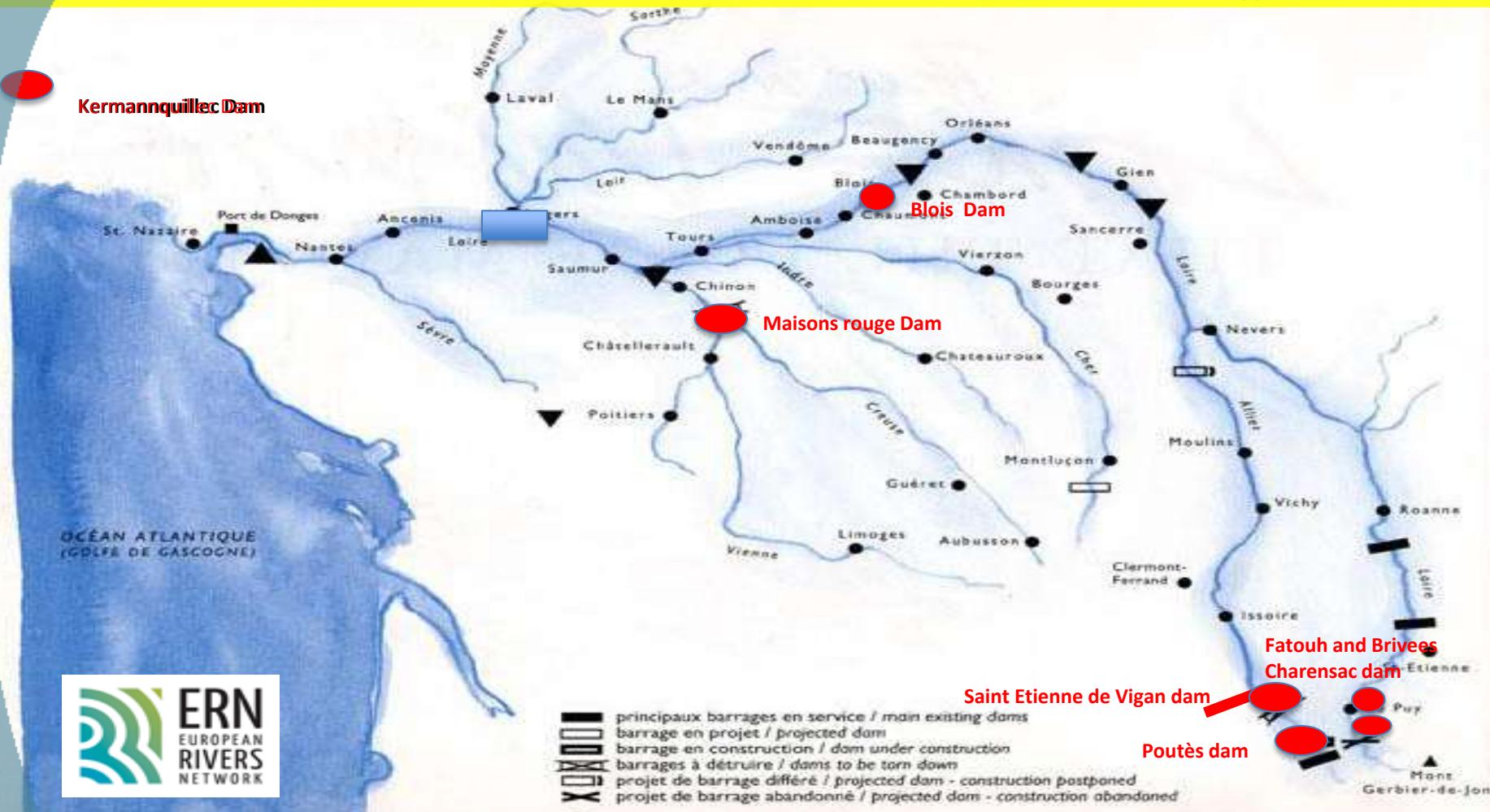


# Location of Removed large dams in the Loire river Basin 1996-2019

Wroclaw – March 2019

Roberto Epple ERN

## Kermannquillec Dam



# 1996, removal of the Kernansquellec dam, in Britany

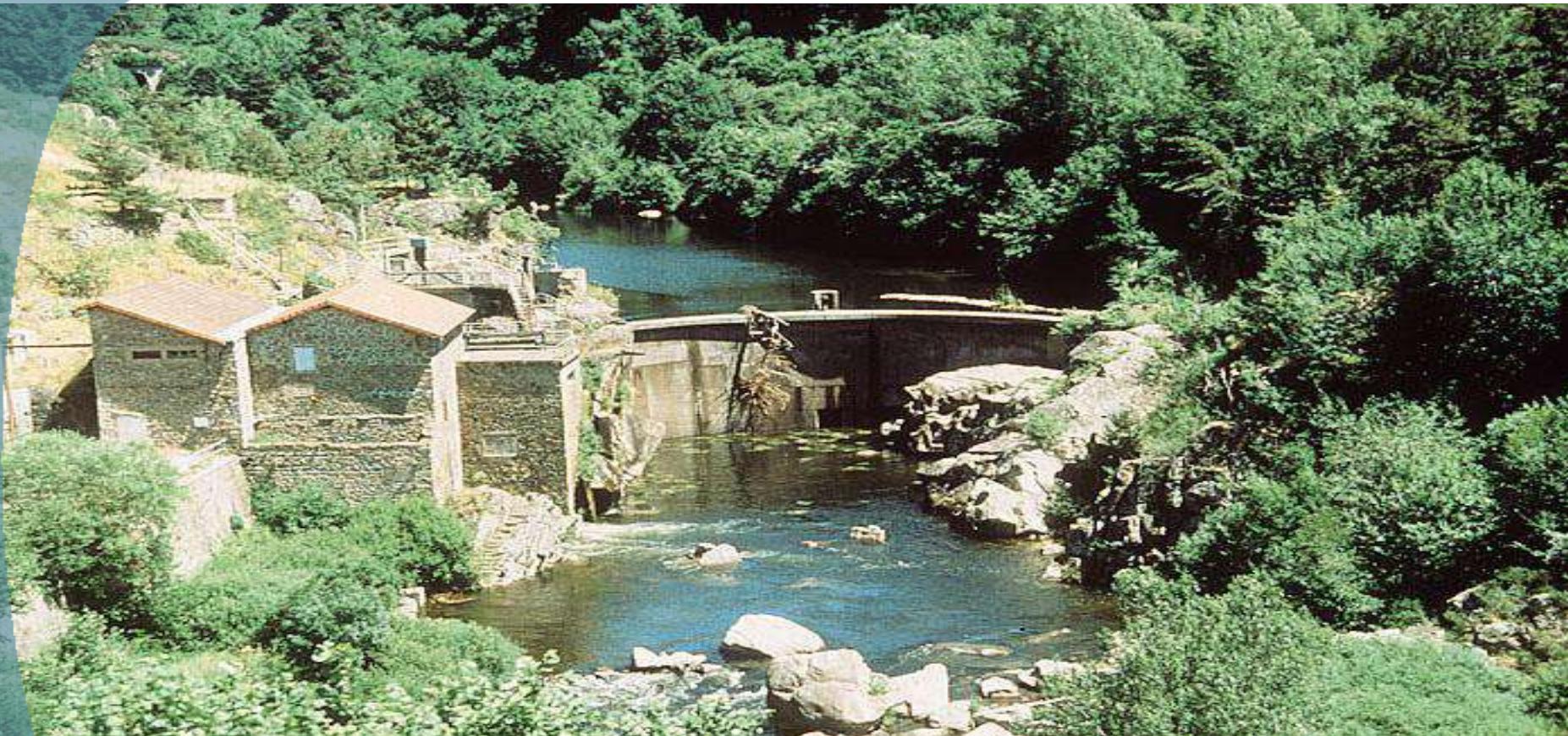


**La renaissance d'une vallée**

Démantèlement du barrage de Kernansquellec  
et réhabilitation du site

MINISTÈRE DE L'ÉCOLOGIE ET DU DÉVELOPPEMENT DURABLE





Saint Etienne de Vigan dam, Allier River (Loire tributary), Central Massif in France, 17 m

Copyright SOS Loire Vivante

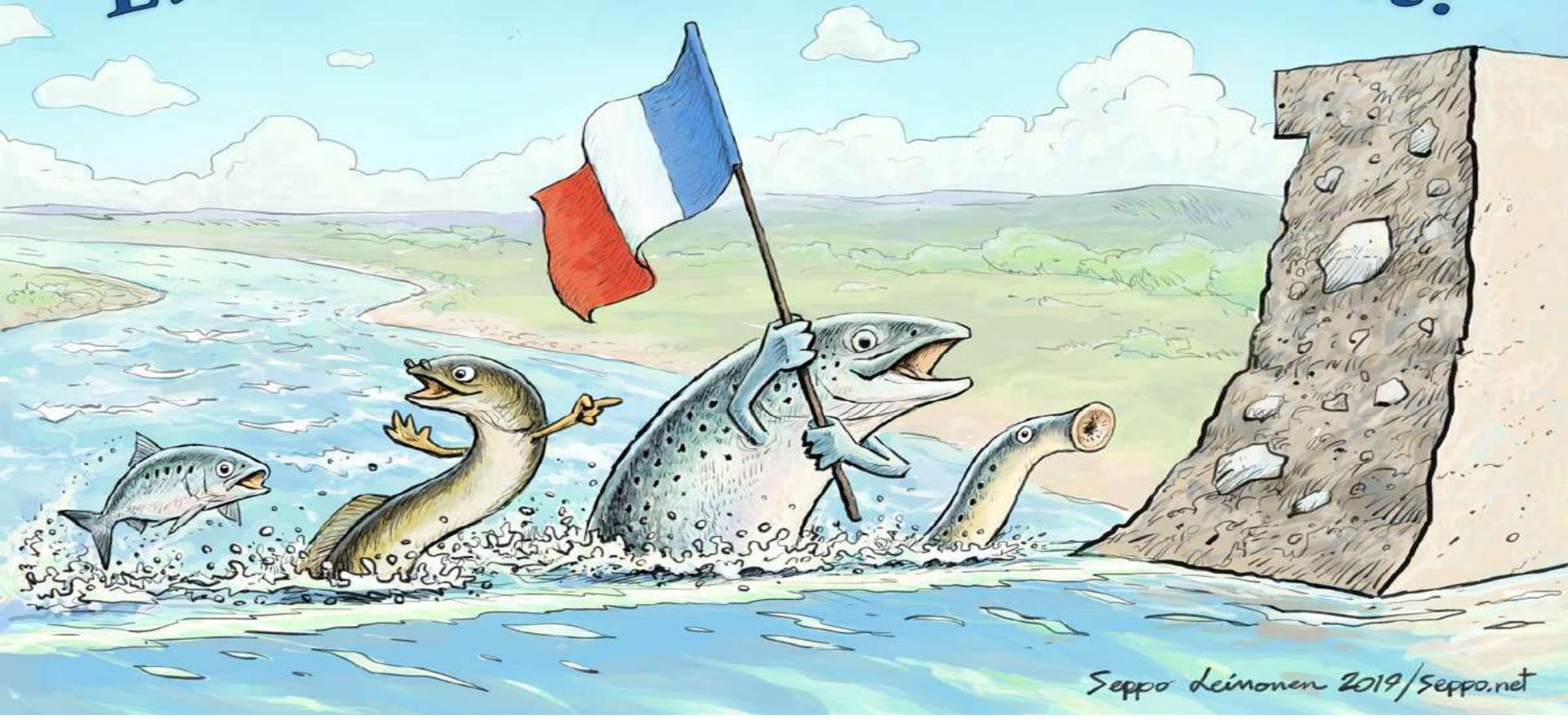
Saint Etienne de Vigan dam, 25 june 1997 17 h 00



6 months later



*Liberté, Egalité, Dam Removalalité!*



# Le projet Nouveau Poutès : une démarche collaborative

Un conflit de près de 20 ans, puis...

Post Grenelle de l'environnement, une concertation réussie entre l'État, les associations de protection de l'environnement, les élus locaux et EDF



Avec la  
participation de



pour un projet de reconfiguration qui concilie les enjeux environnementaux et la production d'hydroélectricité



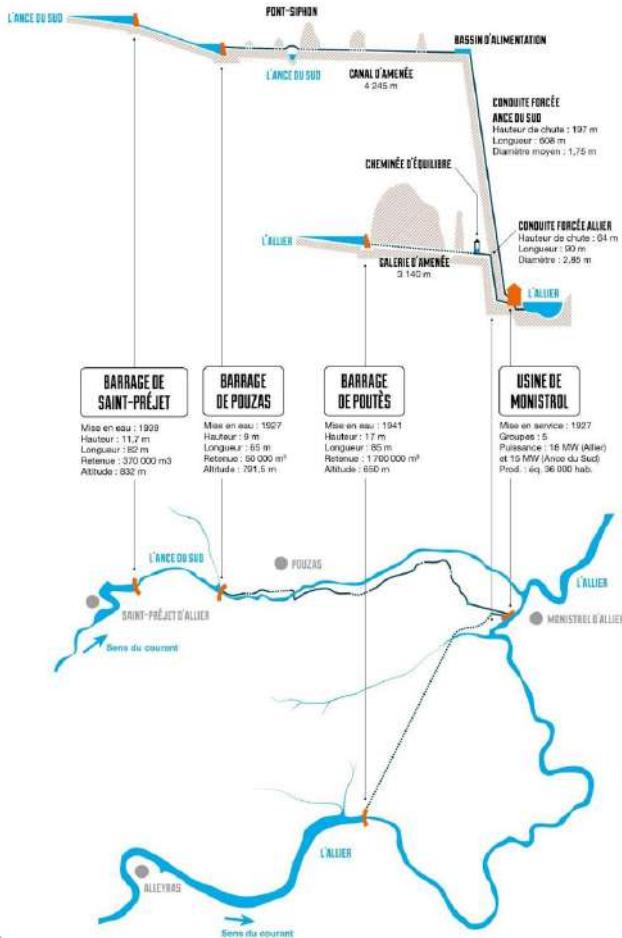
avant /  
après



# PROJET POUTES

Transparence

par effacement complet de l'ouvrage  
90 jours /an pour la montaison  
et en crue pour les sédiments



85% de production  
d'énergie préservée

Une retenue quasiment supprimée  
(vol. divisé par 25)

3 ans de travaux

Avec la  
participation de





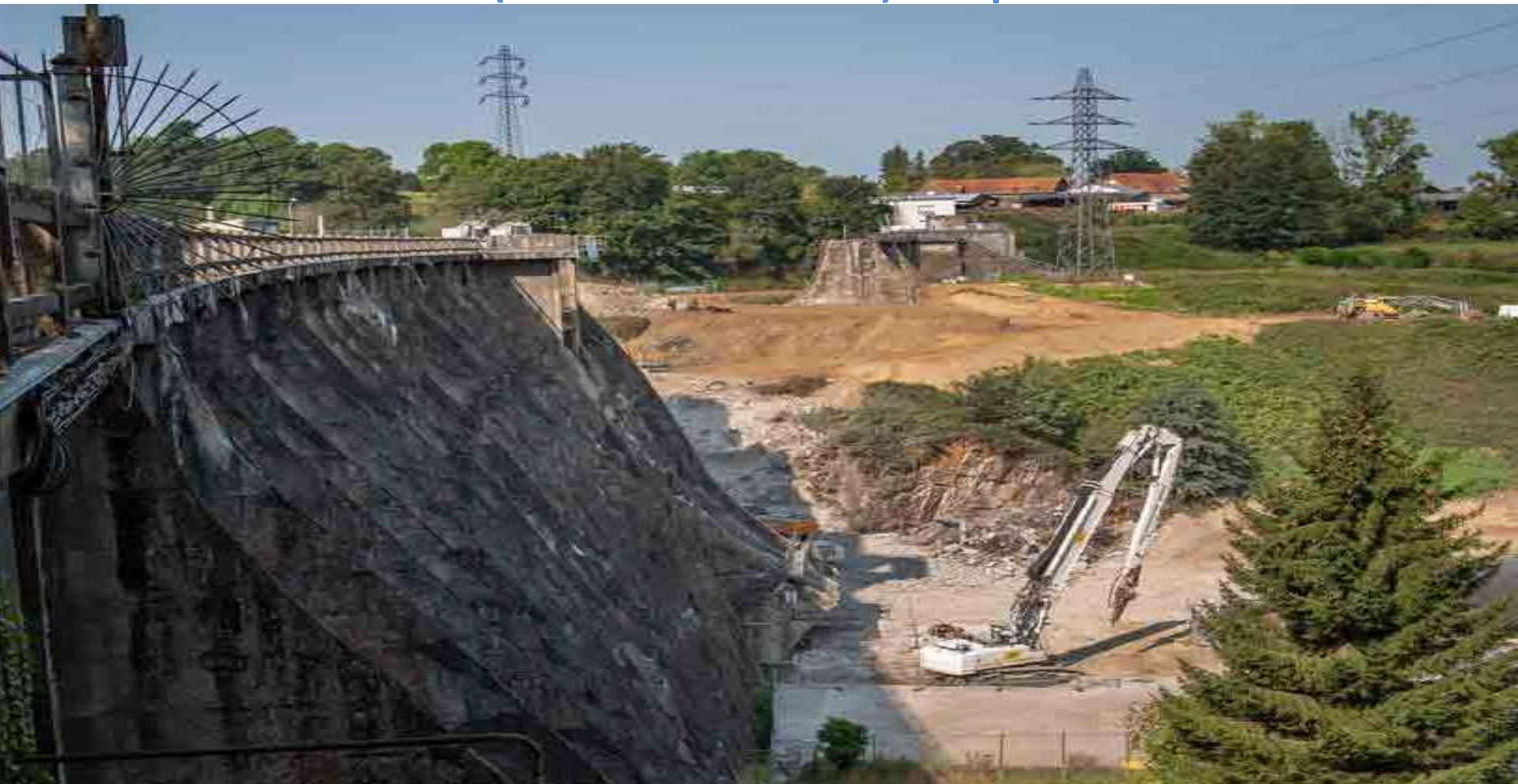
# Largest dam removal in Europe :

the 36 m high Vézin dam (2019), Sélune River, Normandy

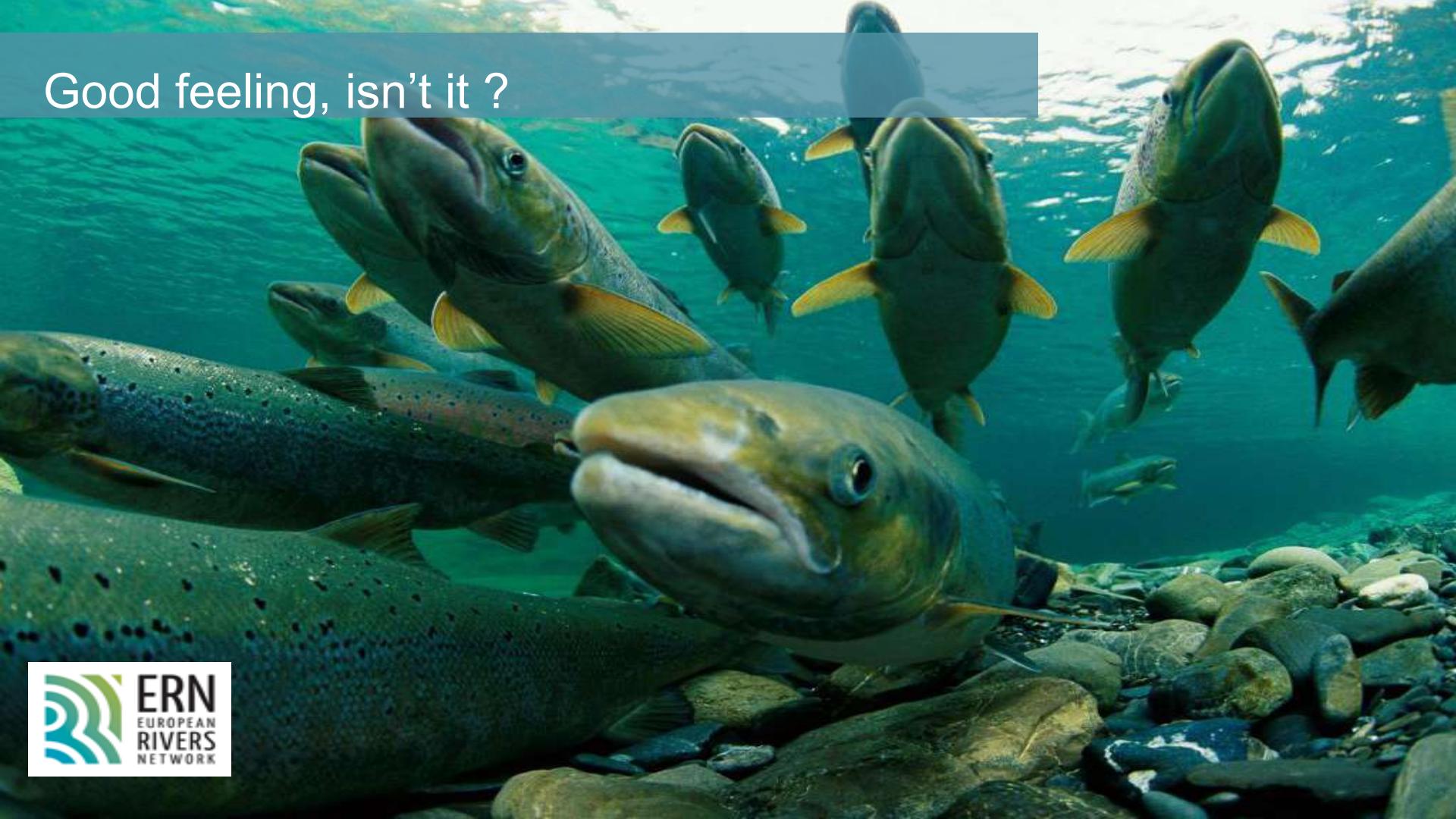


Vézins Dam (Sélune River, Normandie, France, to be dismantled (36m / 278 m)  
Copyright ERN

# Vezin dam (Sélune River) September 2019



Good feeling, isn't it ?



# Primary Reasons for Dam Removal

## 1) Ecological Restoration

- **Restoration of resident and migratory fish passage**
- Improved water quality (DO/temperature)
- **Natural sediment release and transport**
- Restoration of riverine vs. reservoir environment

## 2) Safety Concerns

- Eliminate threat of dam failure
- Eliminate potential loss of life

## 3) Economic Reasons

- Eliminate dam owner liability Cost-Effective

# **Five key ingredients for a successful dam removal**

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- 1) Legal trigger/leverage**
- 2) Ecological and/or social benefits**
- 3) Community support**
- 4) Funding**
- 5) Passion and perseverance**

