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**Dismantling 2 hydroelectric dams in the Sélune valley :  
gathering political momentum and financial capacities  
for ecological restoration**

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planification  
Seine-Normandie Water Agency*

LA ROCHE-QUI-BOIT

VEZINS

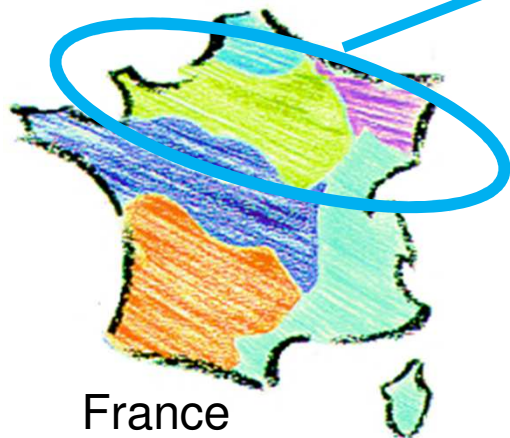
## Dismantling 2 hydroelectric dams in the Sélune Valley

- The Sélune water catchment area
- Financing water management: role of the Water Agency
- Restoring ecological continuity : a major issue for the Water district
- The long way leading to the dismantling
- Breaking news! A flavour of the on-going debate in France

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## The global organization of water resource management in France : a river basin management



Seine-Normandie water district



## The river Sélune basin – 2 dams on a gentle slope



Fresh water production  
for 20,000 inhabitants:  
7,000 cubic metres a day



Vezins dam (1933)

22 km from the sea

Spring at 70 km from the sea  
(184 m. above sea level)



La Roche-qui-Boit (1921)

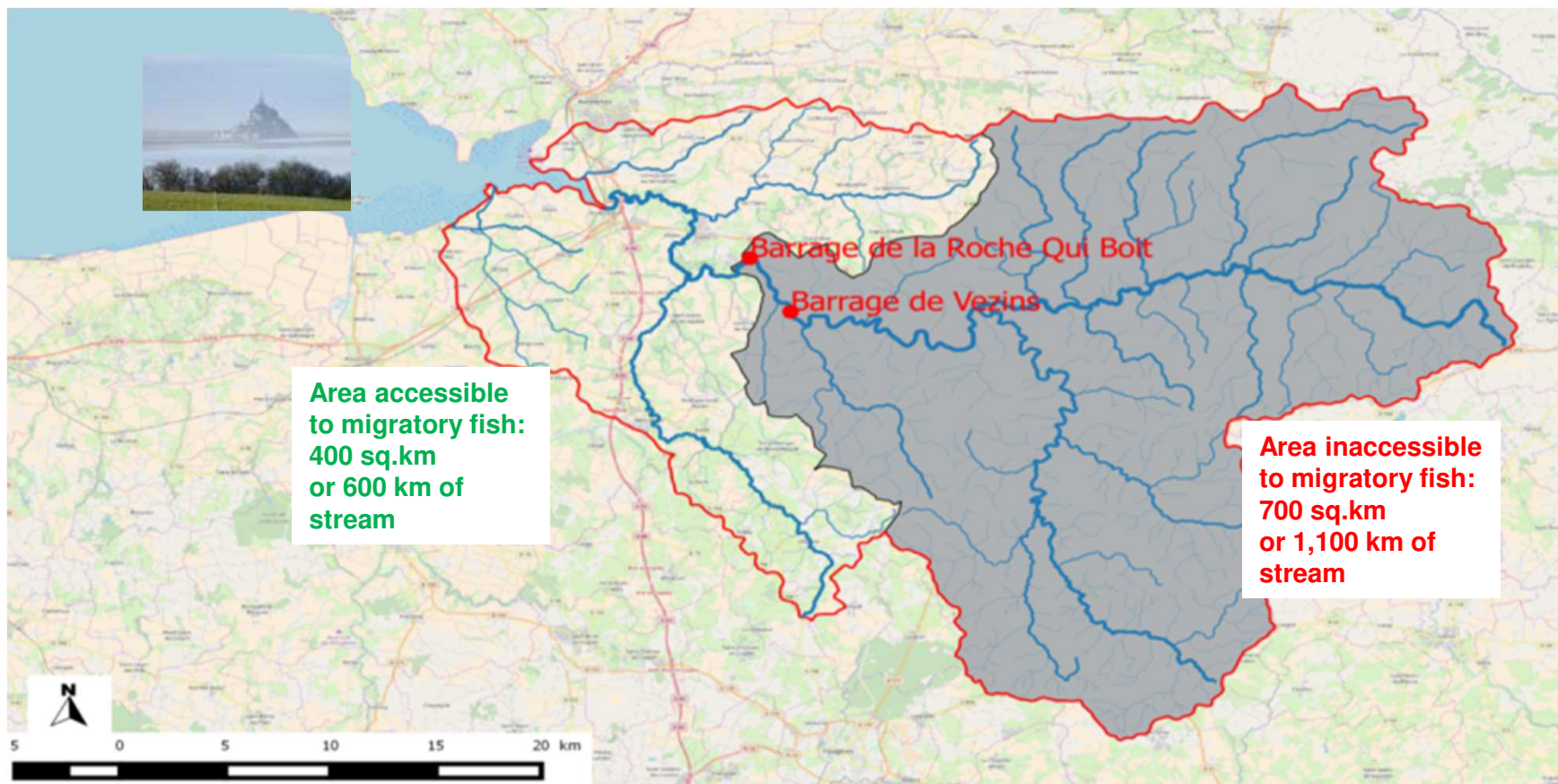
18 km from the sea

**Cumulated height for the 2 dams: 52 m**  
**2 reservoirs: 23 km long and 2.3 sq.km**  
**area**

Instant power delivered = 14.4 MW  
Power production = 18 Gwh per year



## 2/3 of the basin is inaccessible to migratory fish



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## An original financing system for water management

*“polluter pays principle”*

water taxes  
from users

Annual budget of the Seine-Normandie Water Agency  
dedicated to subsidies: 680 millions € (2020)

6 year programme of subsidies

Subsidies to projects  
aiming at protecting  
or restoring water  
resources and  
habitats





# An original financing system for water management

The water agency

**collects**

**taxes**

In compliance with the  
« polluter pays » principle

- ✓ Pollution released into rivers
- ✓ Water abstraction
- ✓ Others (fishing, pesticide sales, water storage)

The water agency

**pays**

**subsidies**

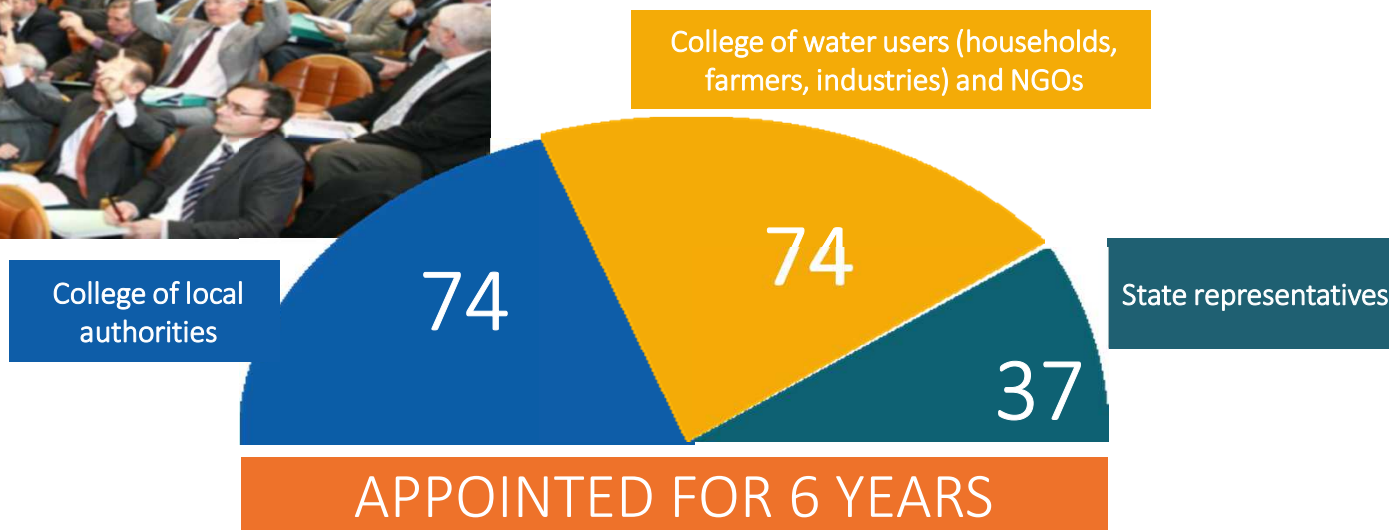
to basin stakeholders to:

- ✓ Fight against pollution
- ✓ Protect and manage water resources
- ✓ Enhance water resource knowledge

## The Seine-Normandie Basin Committee



185 members



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## Impact of climate change on the Seine-Normandie district

- ↑ Approx. 80cm of sea level rise
- ↑ Increase of around 2°C of surface water by 2100
- ↓ Reduction of rainfalls of around 12% by 2100
- ↑ Increase of evapotranspiration around 23% by 2100
- ↓ Reduction of groundwater recharge of 30% by 2100



Risks for SN  
territories  
and  
population

# Strategic responses adopted by the Basin Committee... (2016) 46 Actions

## 5 Objectives

1- Reducing water dependency

A : Facilitate infiltration into the ground and revegetate cities

2- Preserving water quality



3- Anticipating the consequences of coastal erosion and sea level rise

Declined in 46 actions and sub-actions and highlighting good practices already implemented on the river basin

B : Restore the connectivity and the morphology of watercourses and littoral environments

4- Preserving biodiversity and ecosystem services



C : Co-produce local knowledge on climate

D : Develop sustainable agricultural and forestry systems

5- Increasing infiltration to limit runoffs

E : Reduce pollutions at its source

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F, G, H, I J ...



## ...and confirmed in the project of River basin management plan 2022-2027

Objective of restoring 5,000 km of watercourse by 2027

Focus action on 800 priority obstacles, selected according to:

- Presence of migratory species
  - Connection to biological reservoirs
  - Risk of not reaching the environmental objectives as regards the water framework directive
-

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## Many reasons for not keeping these dams:

- Power production very low (0.04% of total national hydroelectric production): low river flow and gentle slope
- Financial loss of the power plants around 0.5 M€/yr
- Unbalanced nutrient composition of waters leading to cyanobacteria toxin blooms, threatening nautical activities as well as fresh water production
- Lack of respect of the law regarding ecological continuity
- Risk of not reaching the good status of water bodies as regards WFD
- Unsustainable infrastructures, unadapted to climate change (evaporation: 70l/s – still waters...)



In the case of river Sélune,  
power production and  
healthy biodiversity are not  
compatible

## The river Sélune, a local and national issue

1924	1986	1991	1993	1996	2004	2006	2007	2008	2009	2010
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Sélune is considered by the law as a river where fish pass is compulsory

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## The river Sélune, a local and national issue

**Convergent effects of regulation and also water stakeholders and NGOs actions will lead to the dismantling decision by the Minister of Environment**

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The periodical draining leads to extreme mortality rates: Min. of Environment raises questions about the exploitation of the dams

The RBMP calls for not renewing the authorization of operating the dams which are obstacles to migratory fish



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 BASIN COMMITTEE

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 Bassin de la Sélune

The local water assembly votes in favour of the end of operations by 2013.



SOS Loire Vivante



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★  
French Gov. validates the decision of local water assembly

★  
Judicial battle on this decision

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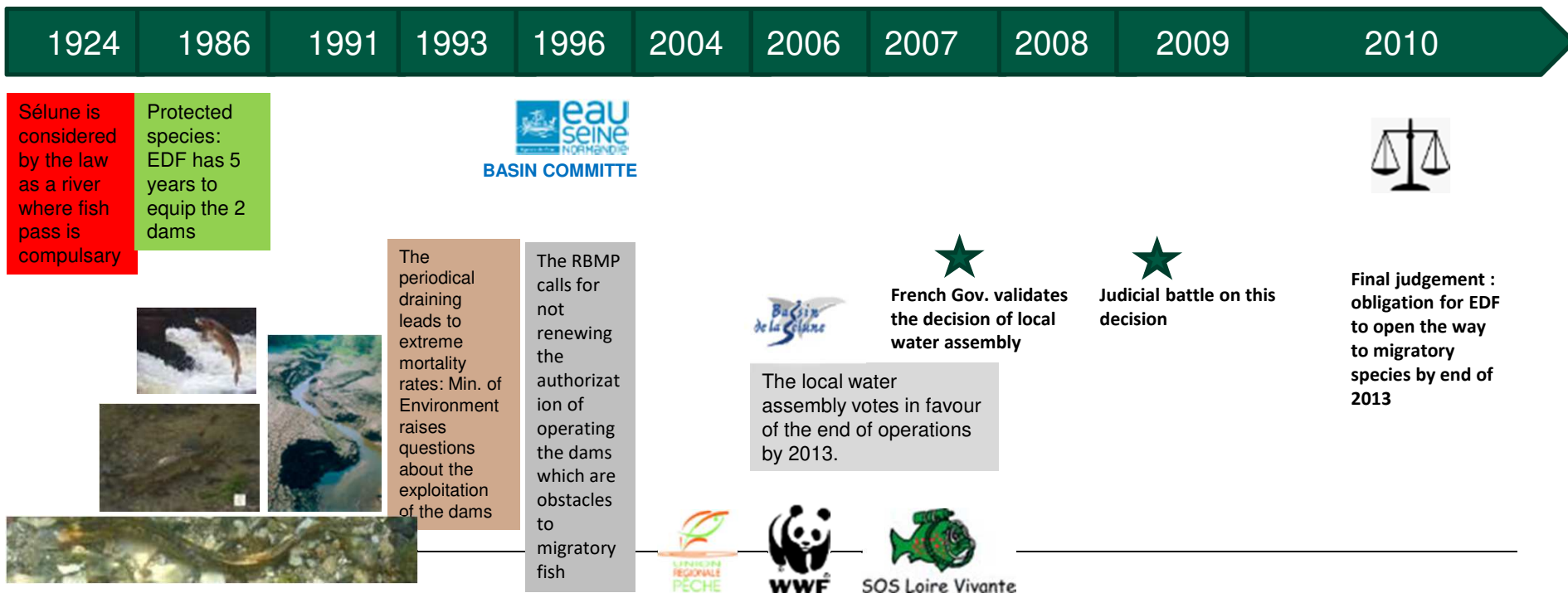


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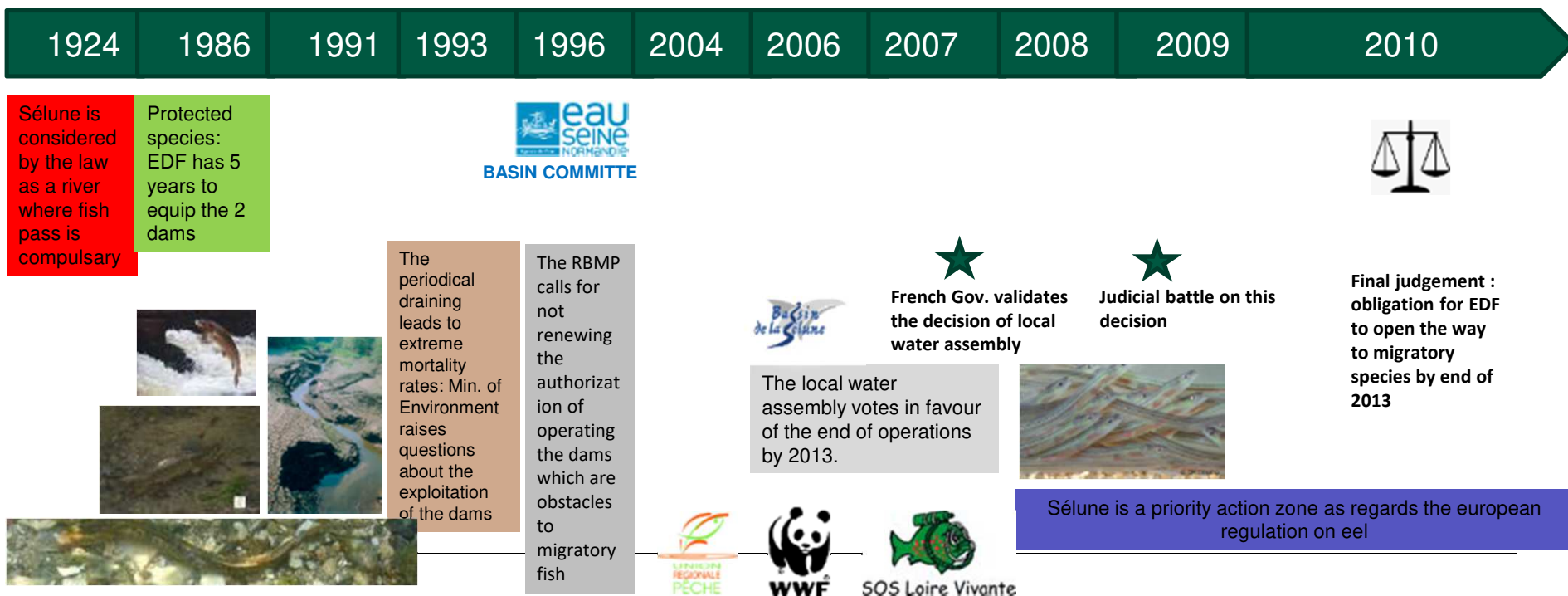
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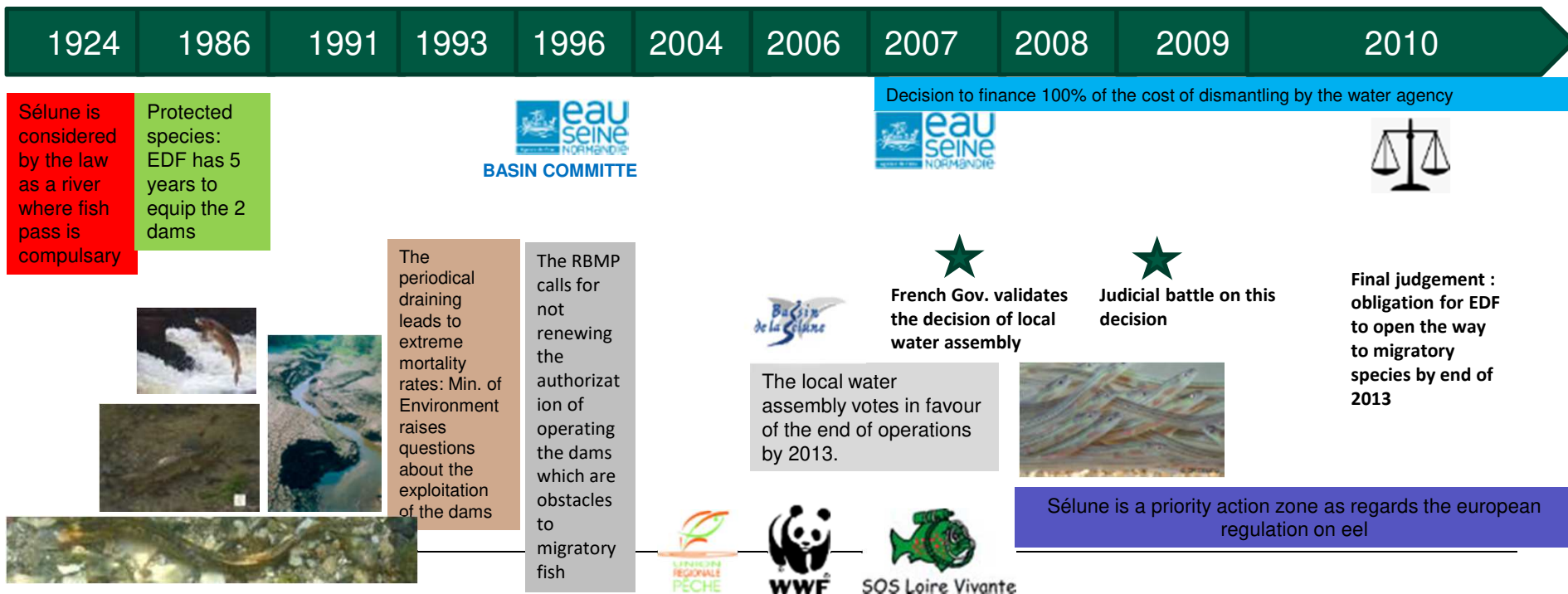
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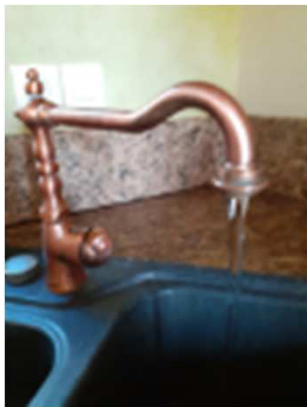


## 1<sup>st</sup> STEP (2012 – 2013)

### Adaptation of the freshwater production plant to changes in water composition



- Owner : **local community**
- Cost : **3.5 M€**
- Financed **100% by the water agency**



## 2<sup>nd</sup> step (2017 – 2018)

### Sediment management and draining of the Vezins reservoir

- Owner: **State**
- Cost : **21 M€**
- Financed **100% by the water agency**
- Lowering the reservoir level
- Mechanical dredging
- Decanting the sediments
- Draining the reservoir
- Retrieving the fish



#### LA PÊCHE DE RÉCUPÉRATION

Valorisation du produit de la pêche



■ Transformation en farine animale  
■ Utilité agricole  
■ Carpes d'écloserie ou consommation directe

Le pêcheur professionnel a récupéré 13,2 t de poissons : 23,5 % ont été capturés dans la retenue de Vezins (pêche au filet et à l'épuisette), 56 % l'ont été dans la pêcherie installée à l'aval immédiat du barrage et 20,5 % ont été récupérés dans la retenue de la Roche-qui-Boit. Ces poissons sont passés pendant les dernières heures de la vidange le 30 août au moment où la pêcherie s'est retrouvée saturée.

Le silure, espèce invasive introduite depuis la dernière vidange de 1953, représente à lui seul 50 % du tonnage collecté. Viennent ensuite les carpes (29 %), les sandres (12 %) et les brèmes (7,5 %). L'essentiel des espèces habituellement présentes sur ce type de retenues a été décimé par le silure.



Cette récupération dans la pêcherie aval



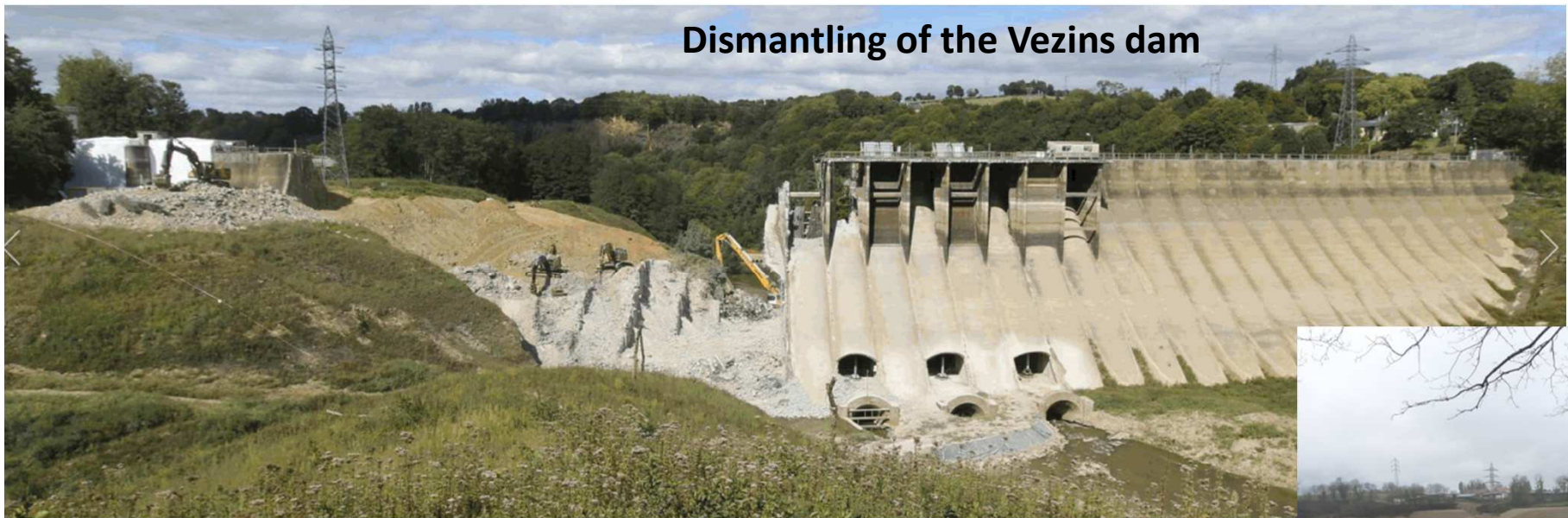
Le Silure, majoritairement présent dans la retenue de Vezins





### 3<sup>rd</sup> step (2017 – 2019)

## Dismantling of the Vezins dam



BEFORE

AFTER

- Owner : **State**
- Cost : **6.5 M€**
- Financed **100%** by





## 4<sup>th</sup> step (2020 – 2021)

### Sediment management and draining of the La Roche-Qui-Boit reservoir

- Lowering the reservoir level
- Pumping the sediments to the Vezins compartments
- Decanting the sediments in Geotubes
- Draining the reservoir
- Retrieving the fish



- Owner :  **edf**
- Cost : **9 M€**
- Financed **60%** by 

## 5<sup>th</sup> step (2021 – 2022)

### Dismantling of the La Roche-Qui-Boit dam

- Opening a breach: october 2021
- Dismantling: winter 2021-2022



- Owner :  **edf**
- Cost : **4.5 M€**
- Financed **60%** by 



## Last step (forthcoming)

### The renaturation of the Sélune Valley

A territory project still to be designed!



Yesterday



Saturday, March 10, 2018



In the future ?

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**Thank you for your attention !**

