Interreg Atlantic Area
European Regional Development Fund

EUROPEAN UNION

DiadES

Kick-off Meeting Dublin
Monday 8th 17:30 – 17:45

# Case Study

# Ulla River

USC UNIVERSIDADE DE SANTIAGO DE COMPOSTELA
ESTACIÓN DE HIDROBIOLOXÍA "ENCORO DO CON"

By **Nachón, D. J.***, Vieira-Lanero, R. and Cobo, F.

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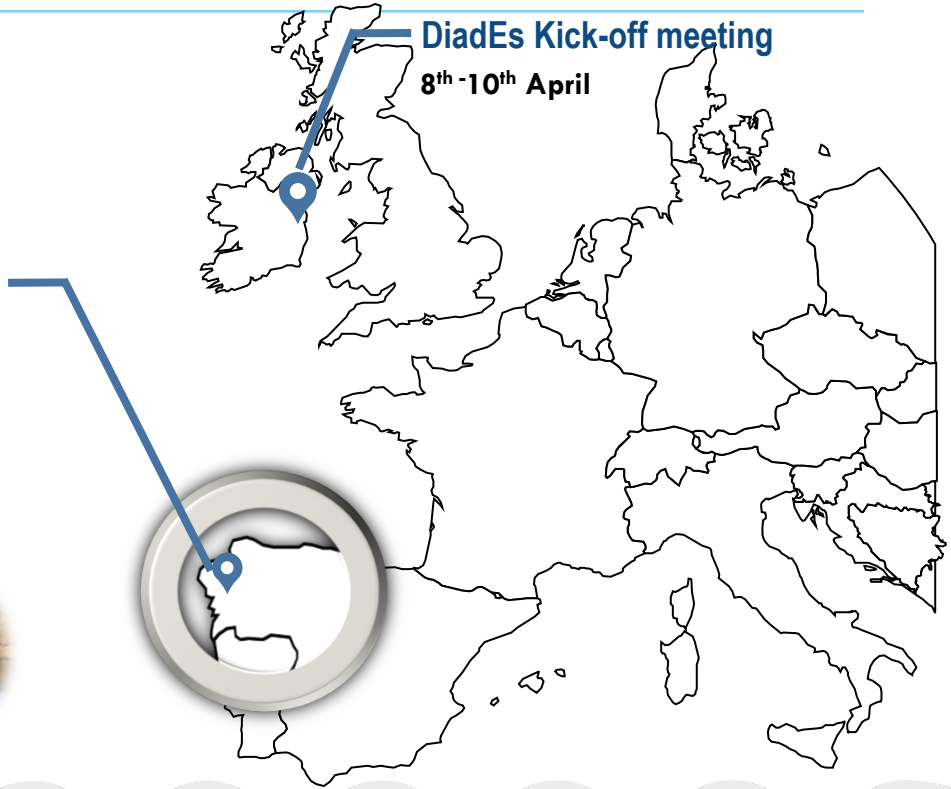
# Case-study overview: Ulla River

## Location in the Atlantic Area

Name of the case study:
**Ulla River (Galicia region)**

Partner in charge:
**Universidad de Santiago de Compostela (USC)/ Estación de Hidrobiología (EHEC)**
*University of Santiago de Compostela (USC)/Hydrobiology Station (EHEC)*



# Case-study overview: Ulla River

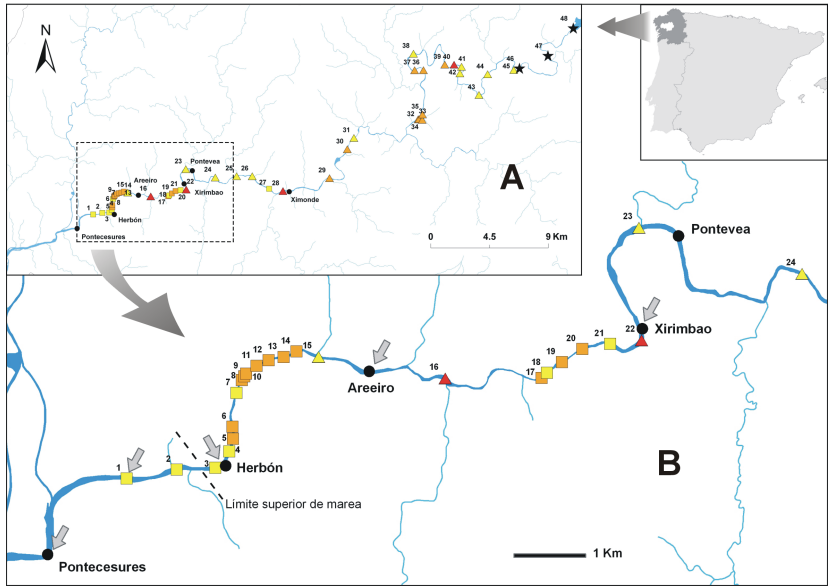
## Key features - *'naturality' of the watershed/areas*

- **River Ulla** : total length **132 km**, catchment area **2803 km²**, mean slope **0.48%**.

- **First impassable barrier** for diadromous species: **80 km length accessible** in the main channel of the river.

- There are also **45 low-head obstacles** of variable size, **20 of which are *pesqueiras*** – artificial obstructions constructed for lamprey fishing

- **Other kinds of environmental impacts**:
  - **chemical pollution** from **open-pit mining**,
  - **diffuse organic pollution from agriculture**
  - **urban spills**.



# Case-study overview: Ulla River

## Key features - *Main cities and population density*

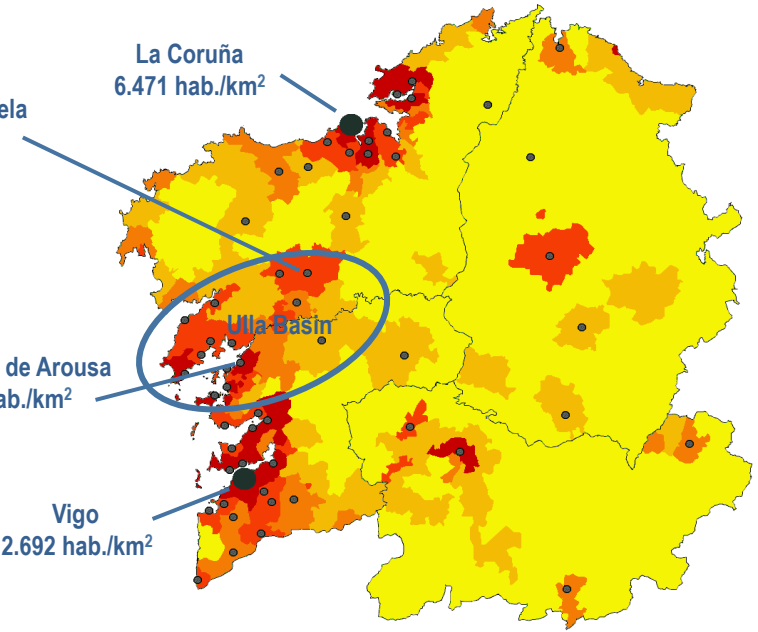
POPULATION DENSITY MAP
OF AUTONOMOUS COMMUNITY OF GALICIA

POPULATION DENSITY/KILOMETER SQUARE

- 0-50
- 50-100
- 100-200
- 200-500
- >600

MAIN TOWNS >240 000 INHABITANTS
BEING THE CORE OF A METROPOLITAN AREA

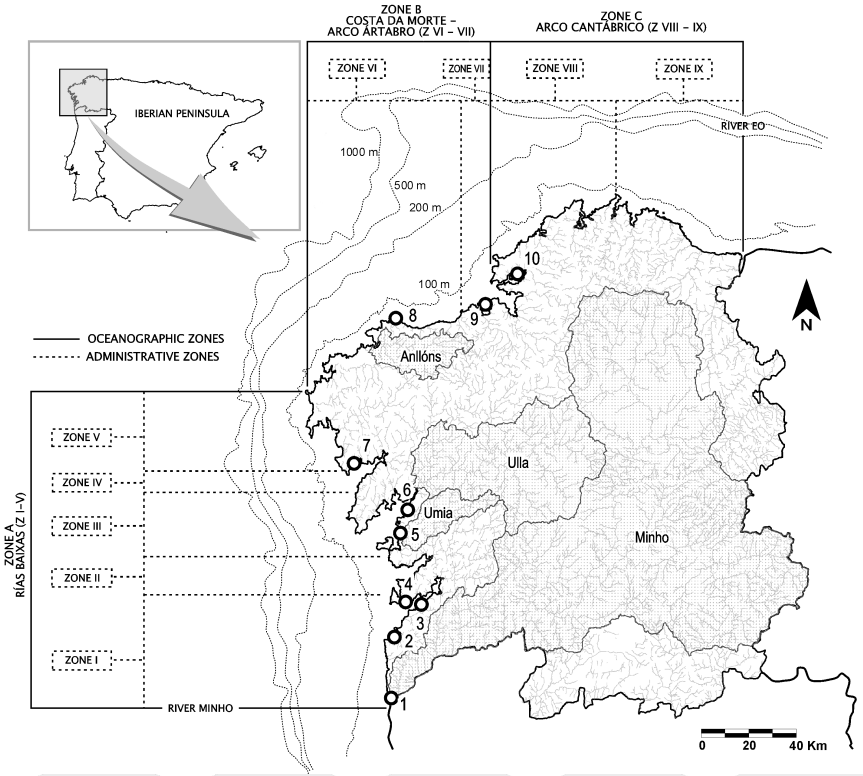
BUILT-UP AREAS WITH 10 000 OR
MORE INHABITANTS



# Case-study overview: Ulla River

## Key features – *Landing ports/harbors*

- **Galicia** is considered to **be the main fishing region of Spain and one of the largest in the European Union**
- **Most fishing vessels are coastal (93%)** and ,**85% are artisanal** owner-operated vessels (**usually ,12 m in length**)
- **Artisanal fisheries** are **organized** into **associations**, which are grouped into **three provincial federations**.
- Generally, **vessels operate in areas close to their home port**, within **nine administrative zones.**
- There are records of by-catches of migratory species in the **Official statistical data of marine landings (kg) http:// www.pescadegalicia.com**



# Case-study overview: Ulla River

## List of diadromous fishes + emblematic species for the case study

**Sea lamprey**
*Petromyzon marinus* Linnaeus, 1758

**European eel**
*Anguilla anguilla* (Linnaeus, 1758)

**Atlantic salmon**
*Salmo salar* Linnaeus, 1758

**Flounder**
*Platichys flesus* (Linnaeus, 1758)

**Sea trout**
*Salmo trutta* (Linnaeus, 1758)

**Twaite shad**
*Alosa fallax* (Lacépède, 1803)

**Golden grey mullet**
*Chelon auratus* (Risso, 1810)

# Case-study overview: Ulla River

## Linking ecosystem services with the socio-economic system

1. **List of goods and services provided** by diadromous species

- Linkage within aquatic ecosystems
- Linkage between aquatic and terrestrial ecosystems
- Transport of energy and nutrients
- Production of food
- Assessment of ecosystem stress
- Supply of recreational and professional activities

2. To identify the **list of human activities**

- **Degrading freshwater ecosystems where goods and services are provided**
  - Degradation of estuarine and freshwater ecosystems through dam and diffuse organic and chemical pollution
  - Exotic species introduction
- **Closely linked to the identified goods and services**
  - Professional and recreational fishing
  - Tourism, hotels and restoration

**3. Reasons** to identify and monetary assess the ecosystem goods and services

- The vulnerable conservation status of some of these species as well as the intense dependence and exploitation by coastal communities.
- To obtain a better knowledge of local resources and in consequence a better management of this resources.
- Increases the ability of ecological claim.

# Case-study overview: Ulla River

## Linking ecosystem services with the socio-economic system

4. **Literature/previous works** on **monetary assessment** of the Good and services identified

5. According to the previous literature, **which values are assessed?**

6. According to the previous literature, **which methodologies are implemented?**

# Stories illustrating the importance of Diadromous fishes in Ulla River

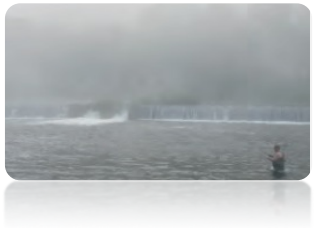
## 1st story: Atlantic Salmon

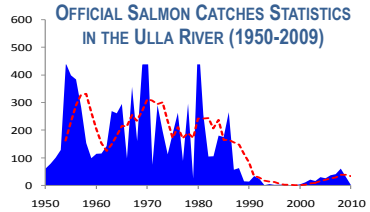
## 2nd story: Sea lamprey

# 1st story illustrating the importance of Diadromous fishes in Ulla River

## GREAT ECONOMIC IMPORTANCE

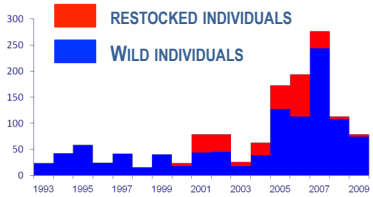
- The Ulla River is currently the second most important river in Galicia for salmon fishing.
- Clear decline in the '80s, with the historical minimum in the mid '90s.






## RECOVERY PROGRAMME (BEGINNING OF THE 1990S)

- A slight recovery in the 2000s → recovery programme based on the release of embryos and juveniles from Ulla River.
- High proportion of restocked individuals at the beginning **BUT** → progression of the natural reproduction.
- The construction in 2005 of a fish ladder tripled the number of salmon caught upstream.




**Paradoxically**

This has not been well received by fishermen, since it has drastically affected the catches of the best fishing area of the Ulla River.

→ optimizing the accessible area is the only viable way to harmonize the exploitation and conservation of this population.

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# 2nd story illustrating the importance of Diadromous fishes in Ulla River

## GREAT ECONOMIC AND SOCIO-CULTURAL IMPORTANCE

- *Economic (Cobo, 2009):*

**60 €/sea lamprey** at the start of the season.
**5 €/sea lamprey** at the end of the season.
**5-6 sea lampreys/restaurant (60-80 €/sea lamprey)** on **weekdays**.
**15 and even 60 sea lampreys/restaurant (60-80 €/sea lamprey)** on **weekends**.

- *Socio-cultural:*

Employs many people in the region: fishermen, restaurateurs, intermediaries, etc.
Since 1996: multitudinous celebration of exaltation of the *Lamprea* (Sea Lamprey).
*Pesqueiras*, constructions of stone dating back to the *Middle Ages.*


**Paradoxically**

**A recent study (Silva *et al.*, 2019) showed that *pesqueiras* severely impact upstream migration of sea lamprey**

**HOWEVER**

Owing to their high sociocultural and economic value → barrier removal is not an appropriate option → other solutions: bypasses or fishways.

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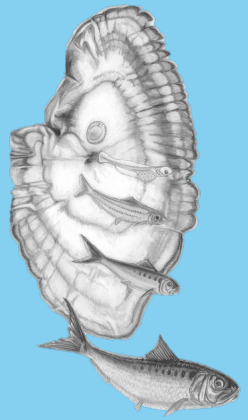

# Thank you very much for your attention


## ADDRESS

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