

Interreg
Sudoe



Workshop: How many eels in our rivers? Building the beta version of the EDA model

Laurent Beaulaton¹, Cédric Briand³, María Korta², María Mateo², Pierre Sagnes¹

¹Agence Française pour la Biodiversité

²AZTI Marine Research

³EPTB Vilaine



EDA MODEL



- Necessity to estimate silver eel numbers: 40 % pristine biomass target (EU CE 1100/2007)
- As we cannot estimate directly silver eel production



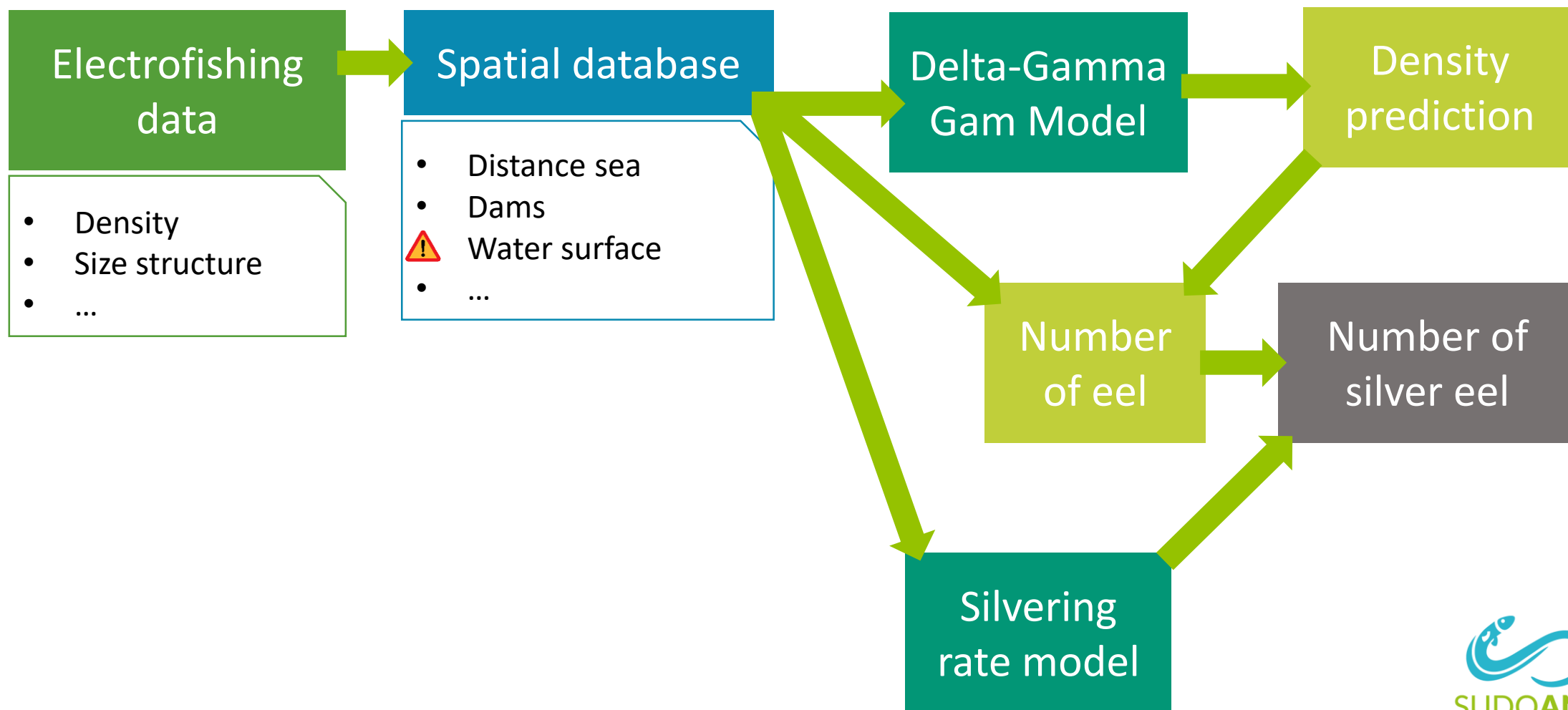
Prediction of yellow eel densities and **silver eel escapement**



Electrofishing survey



EDA model: principles



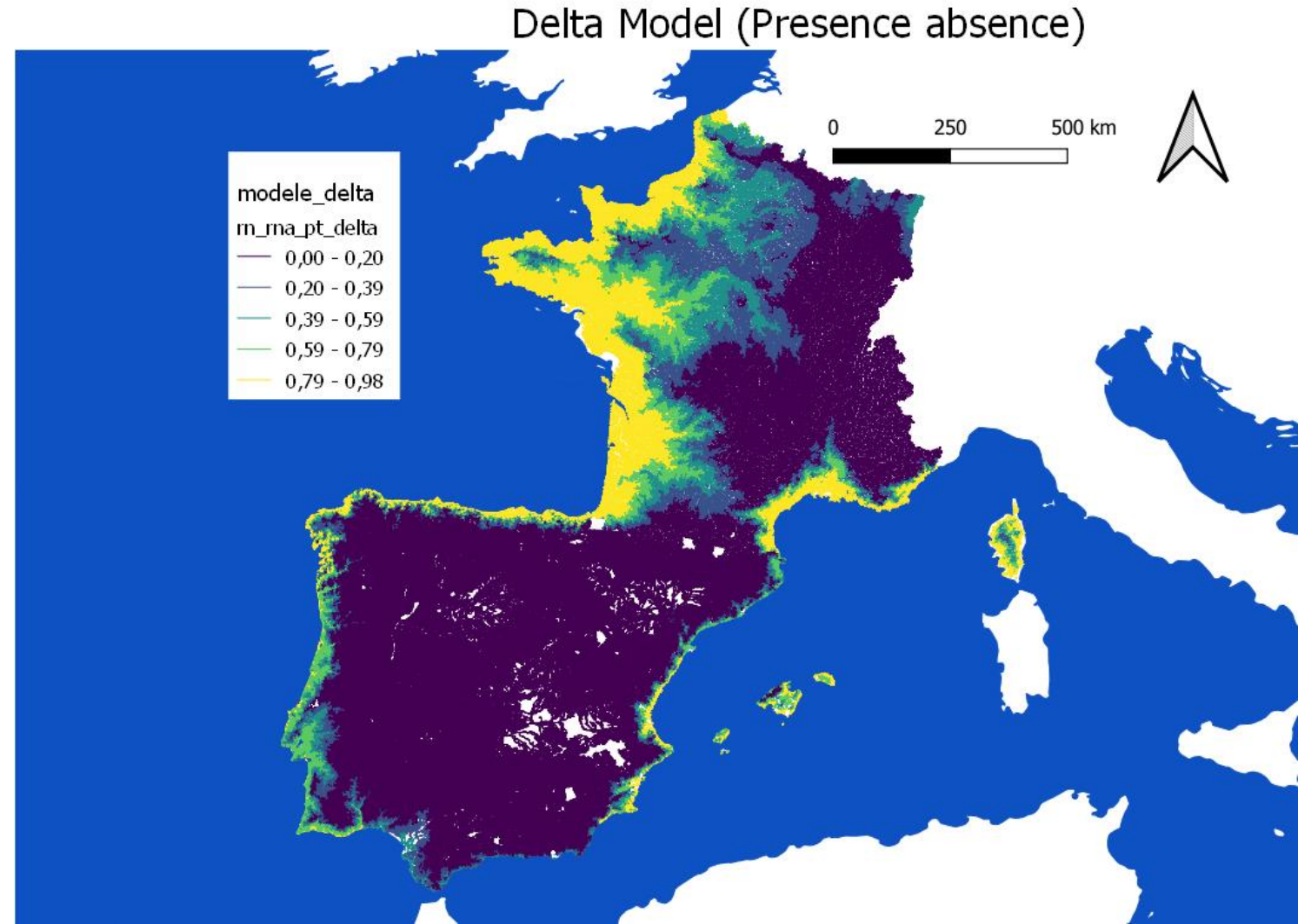
Results of beta version



DELTA-GAMMA MODEL (GAM model)

- **DELTA MODEL:** the probability of presence

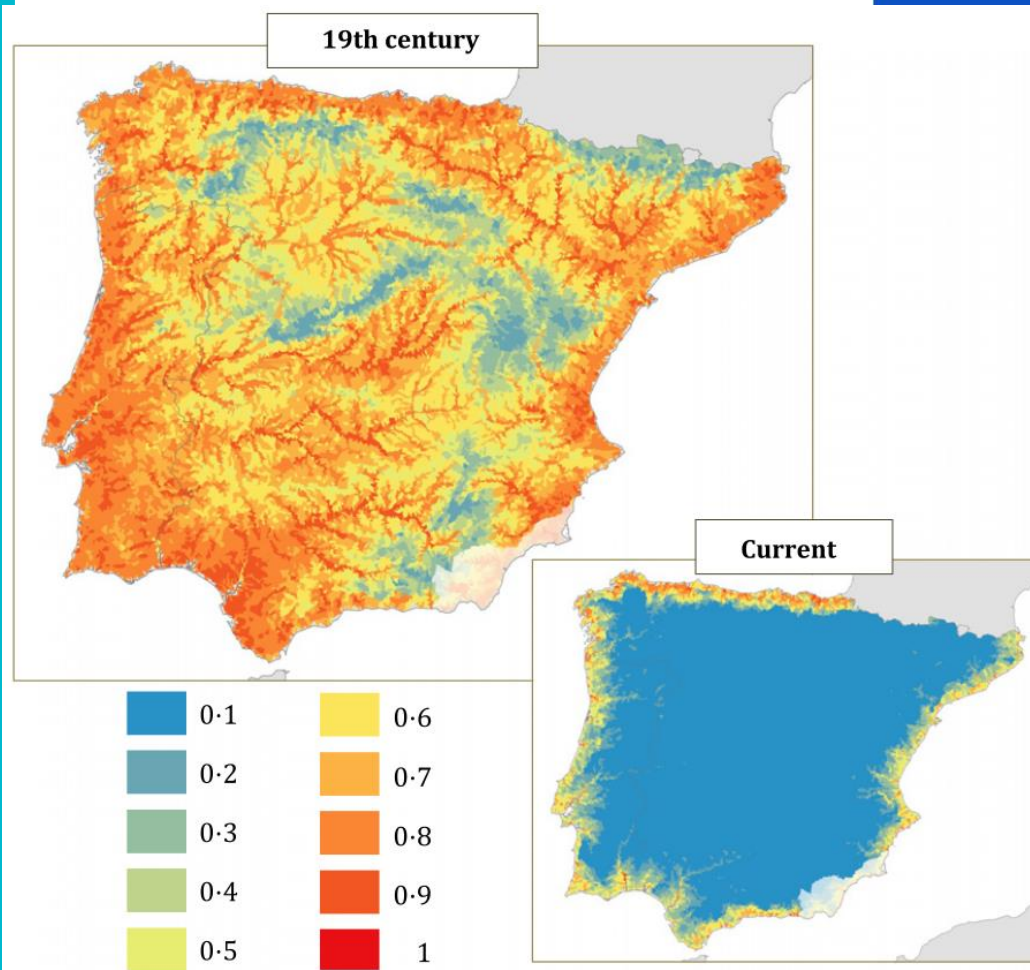
```
gam(densCS>0 ~ s(year, k = 6) +  
s(cumheightdam, by = country, k=3) +  
s(altitude, distancesea, k = 8) +  
emu + fishingmethod)
```



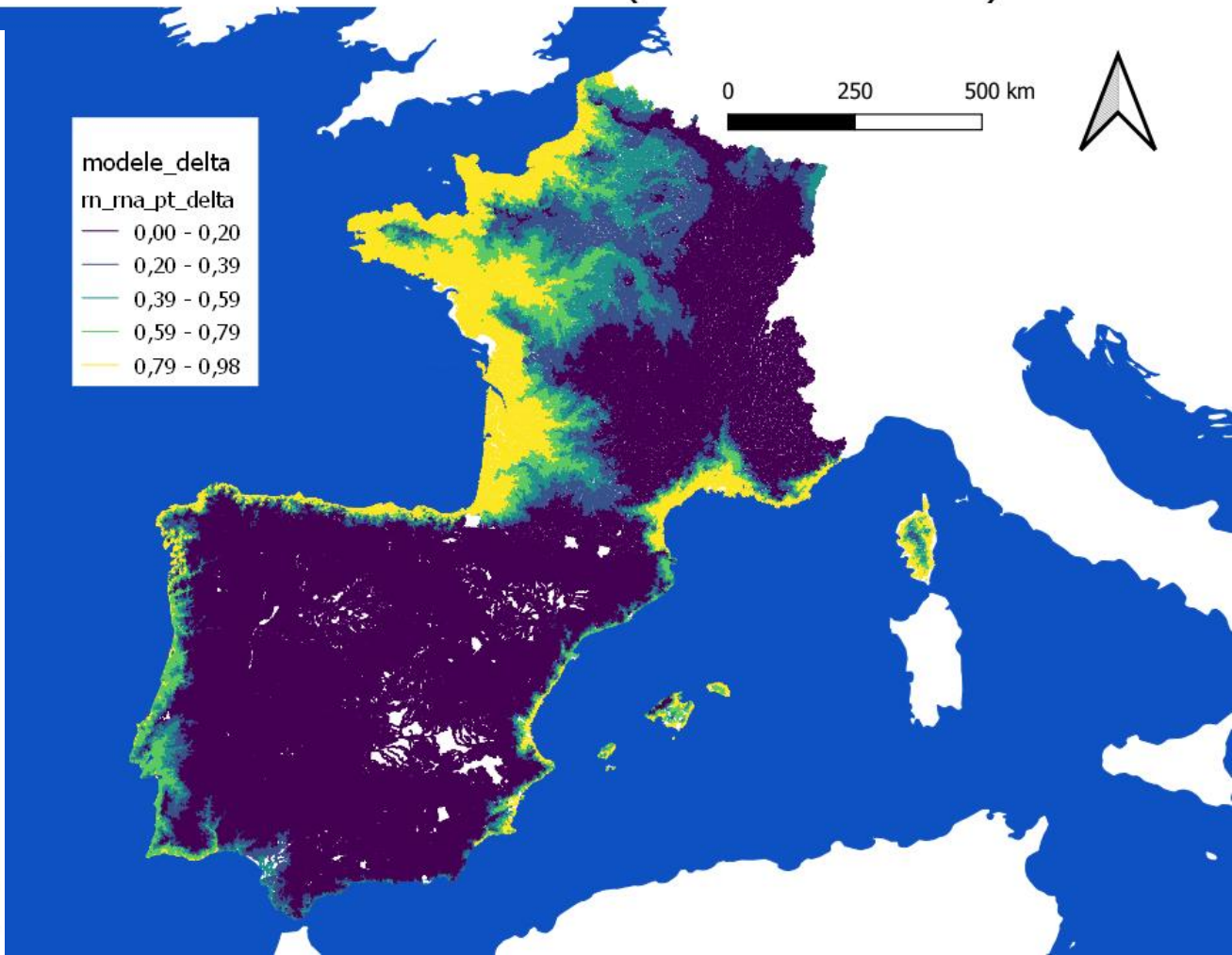
Results of beta version



Clavero M. and Hermoso V., 2015:



Delta Model (Presence absence)



Results of beta version

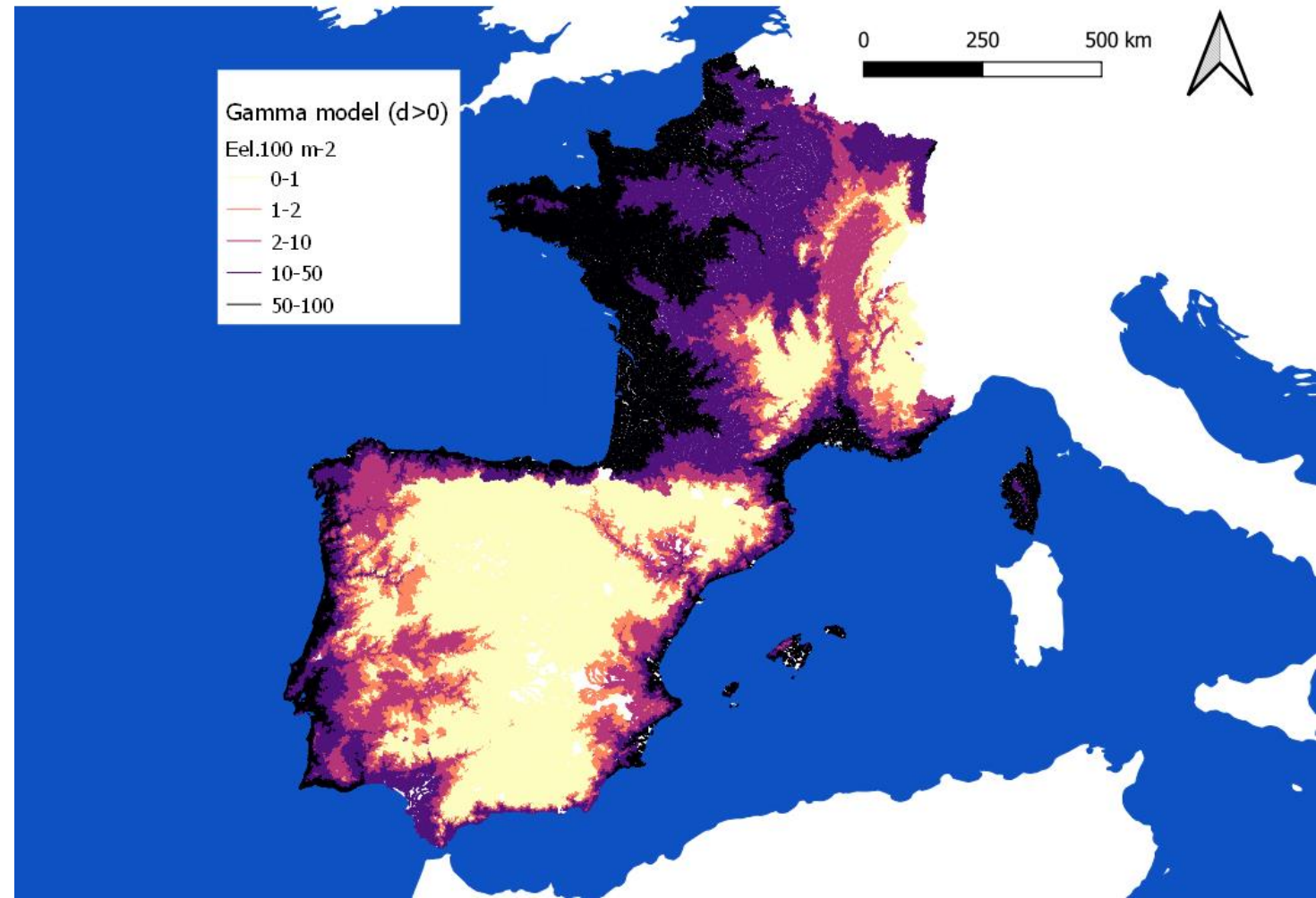


DELTA-GAMMA MODEL (GAM model)

- **GAMMA MODEL:** positive density

```
gam(densCS ~ s(year, k = 6) +  
s(cumheightdam, by = country, k=3) +  
s(altitude, distancesea, k = 8) +  
emu + fishingmethod
```

Gamma model

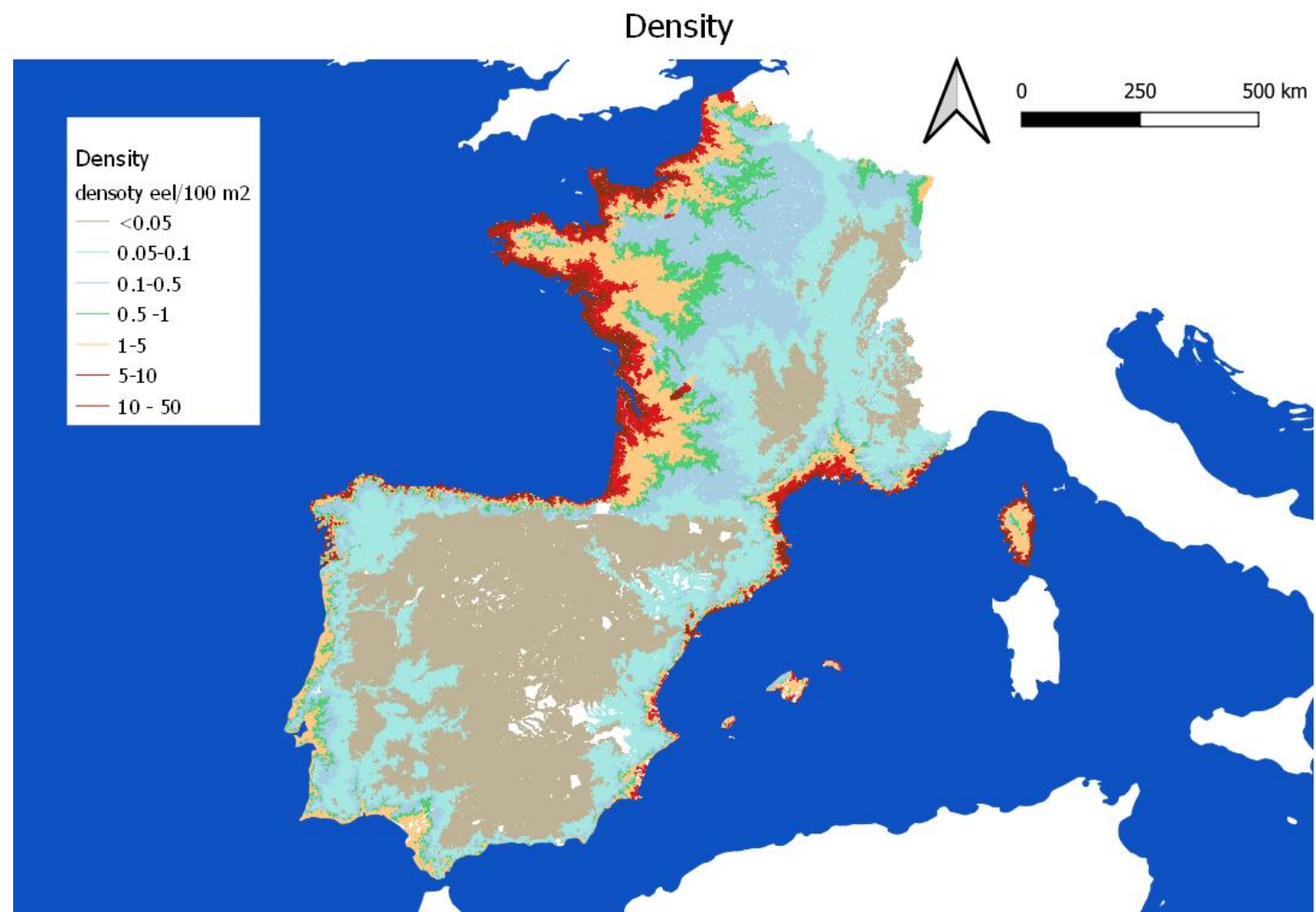


Results of beta version



DENSITY PREDICTION

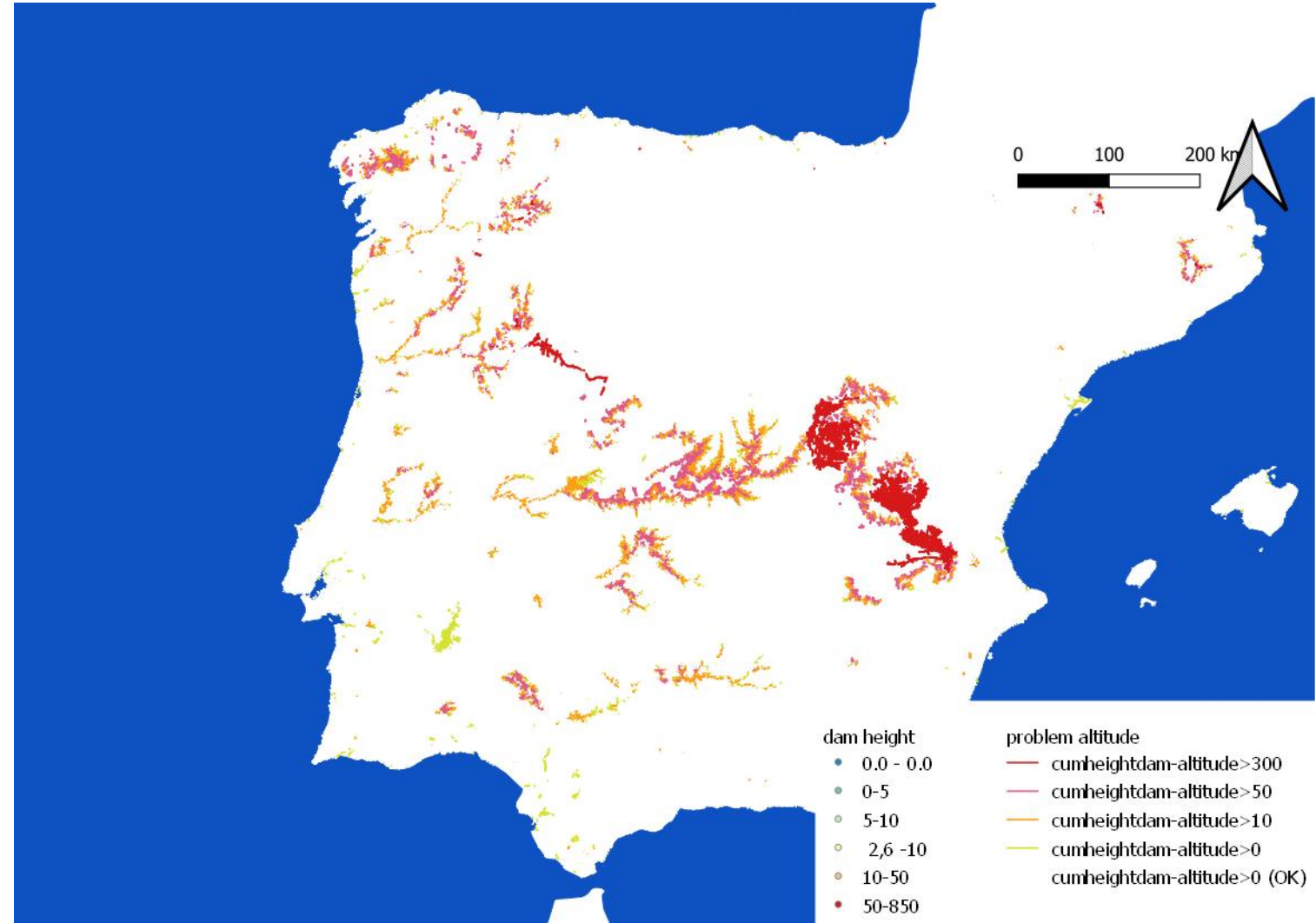
- Multiplication of DELTA and GAMMA models



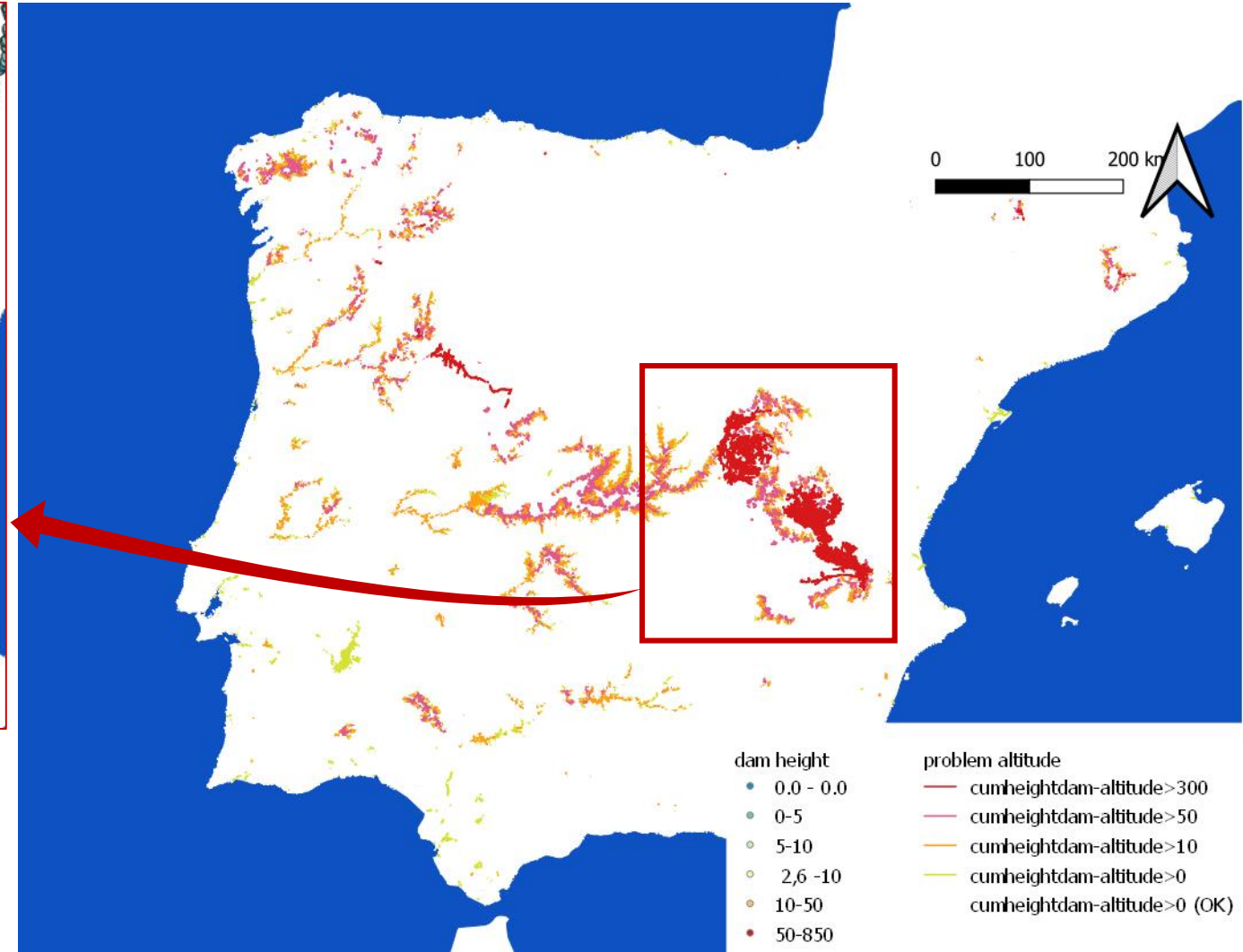
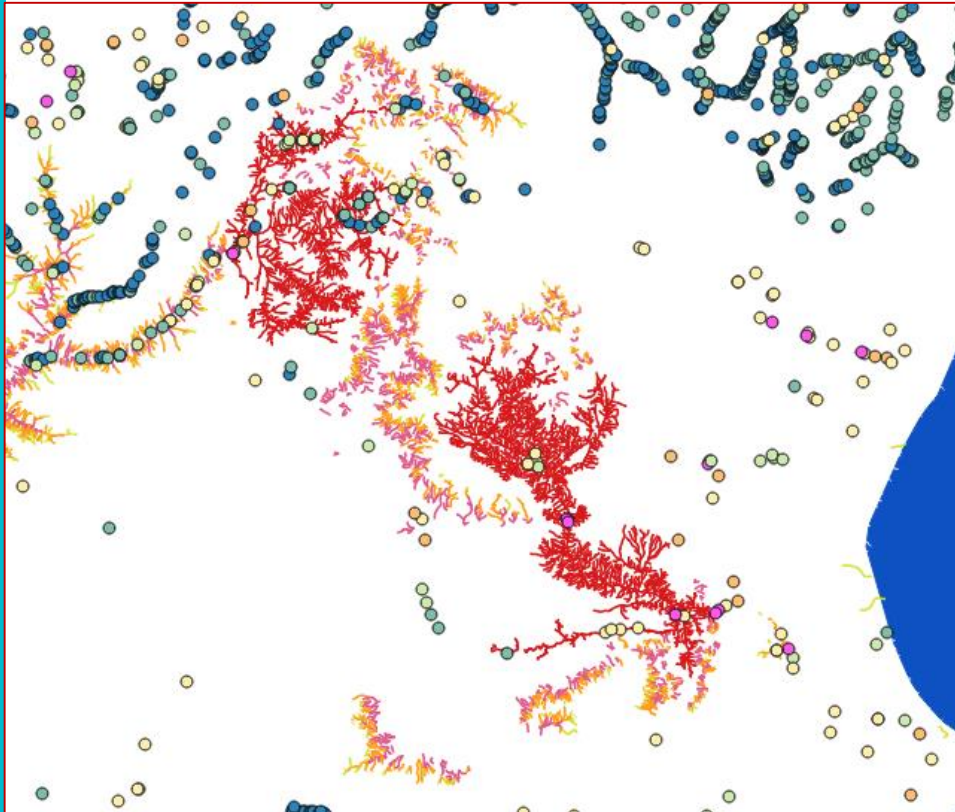
Problems of EDA



**THE CUMULATED
HEIGHT OF
OBSTACLES FROM
THE SEA**



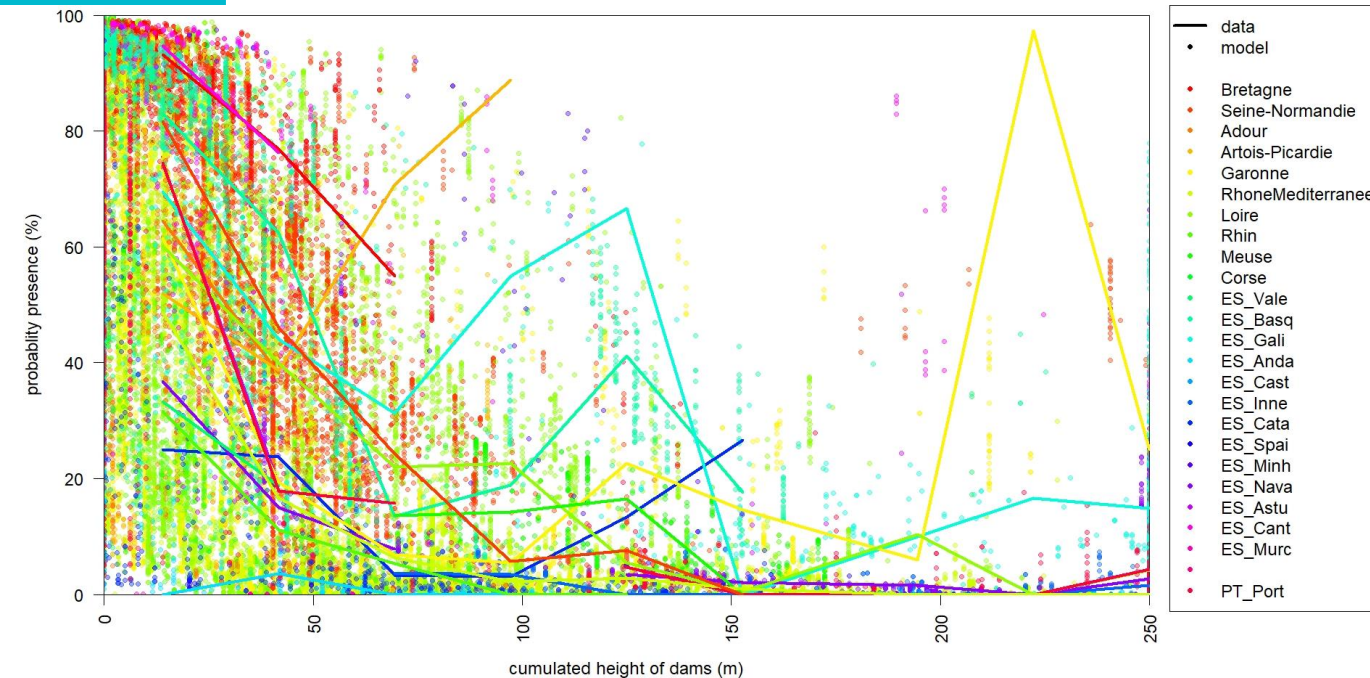
Problems of EDA



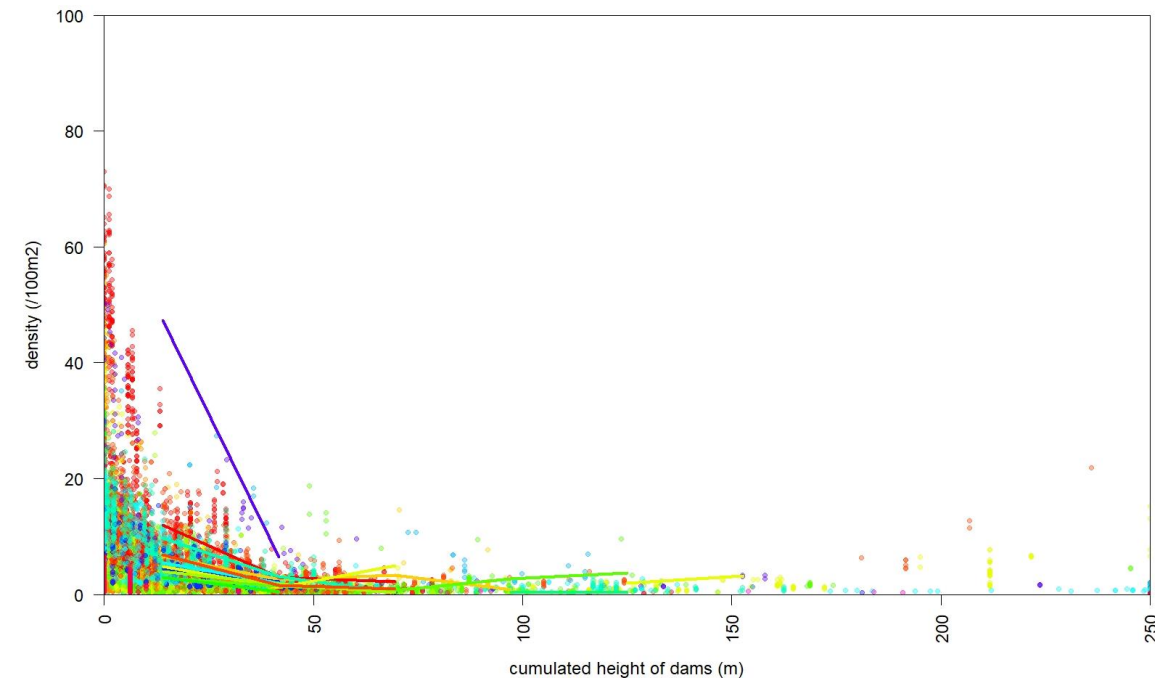
EDA validation



- **DELTA** model: The **probability of presence (%)** according to the **cumulated height of dams from the sea (m)**



- **GAMMA** model: The **density** predicted (per 100m²) according to the **cumulated height of dams from the sea (m)**

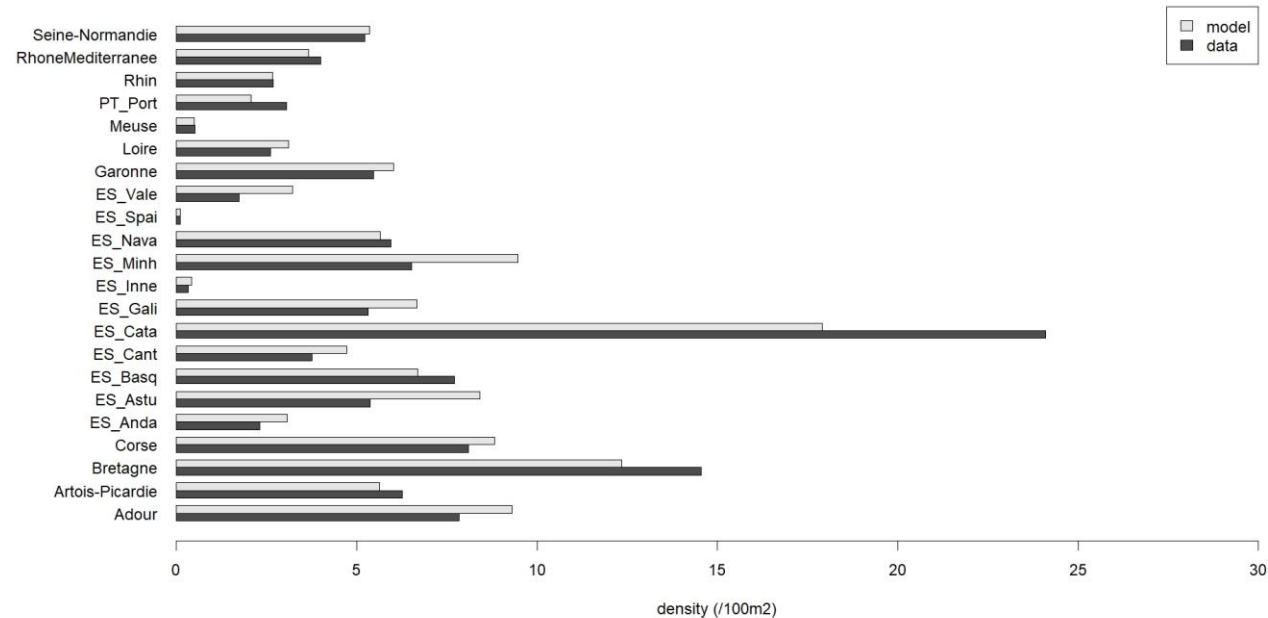
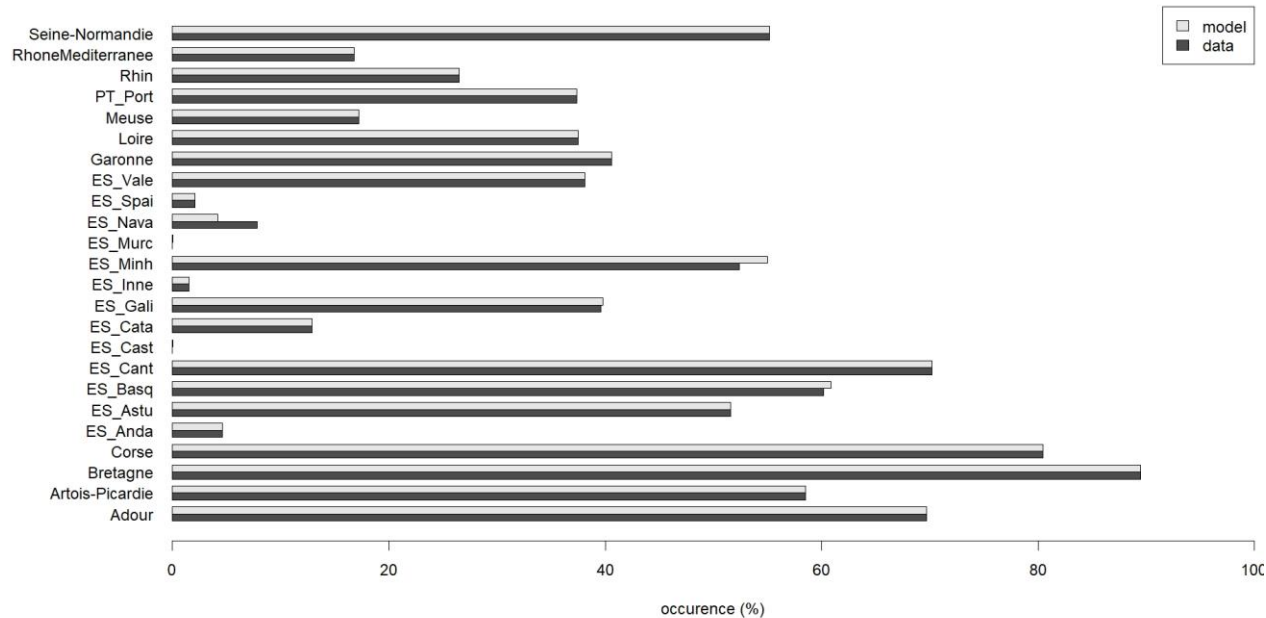


EDA validation

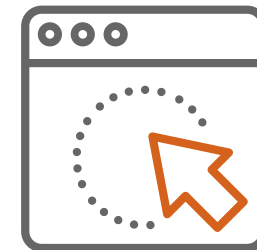


- **DELTA** model: The **probability** of **presence** (%) by EMU

- **GAMMA** model: The **density** predicted (per 100m²) by EMU



Product of GT6: SHINY



SUDOANG Shiny

Home

Readme

Map

SUDOANG

WELCOME

Welcome to SUDOANG Shiny dashboard. The primary objective of SUDONAG will provide managers with common tools and methods that contribute to the conservation of the European eel and its habitat in the SUDOE area (Spain, France and Portugal).The SUDOANG Project is currently being developed under the priority axis "Protecting the environment and promoting resource efficiency" of the Interreg SUDOE programme.

For more information visit the web pages: www.interreg-sudoe.eu and www.sudoang.eu

REGISTER

If you are not registered, you will not be able to access the SUDOANG shiny. Click on the signup button and enter the username and password you wish. They will be saved for the following sessions. Please remember your credentials. Later on, in further versions, the Shiny will provide a credentials retrieval function.

LOG-IN

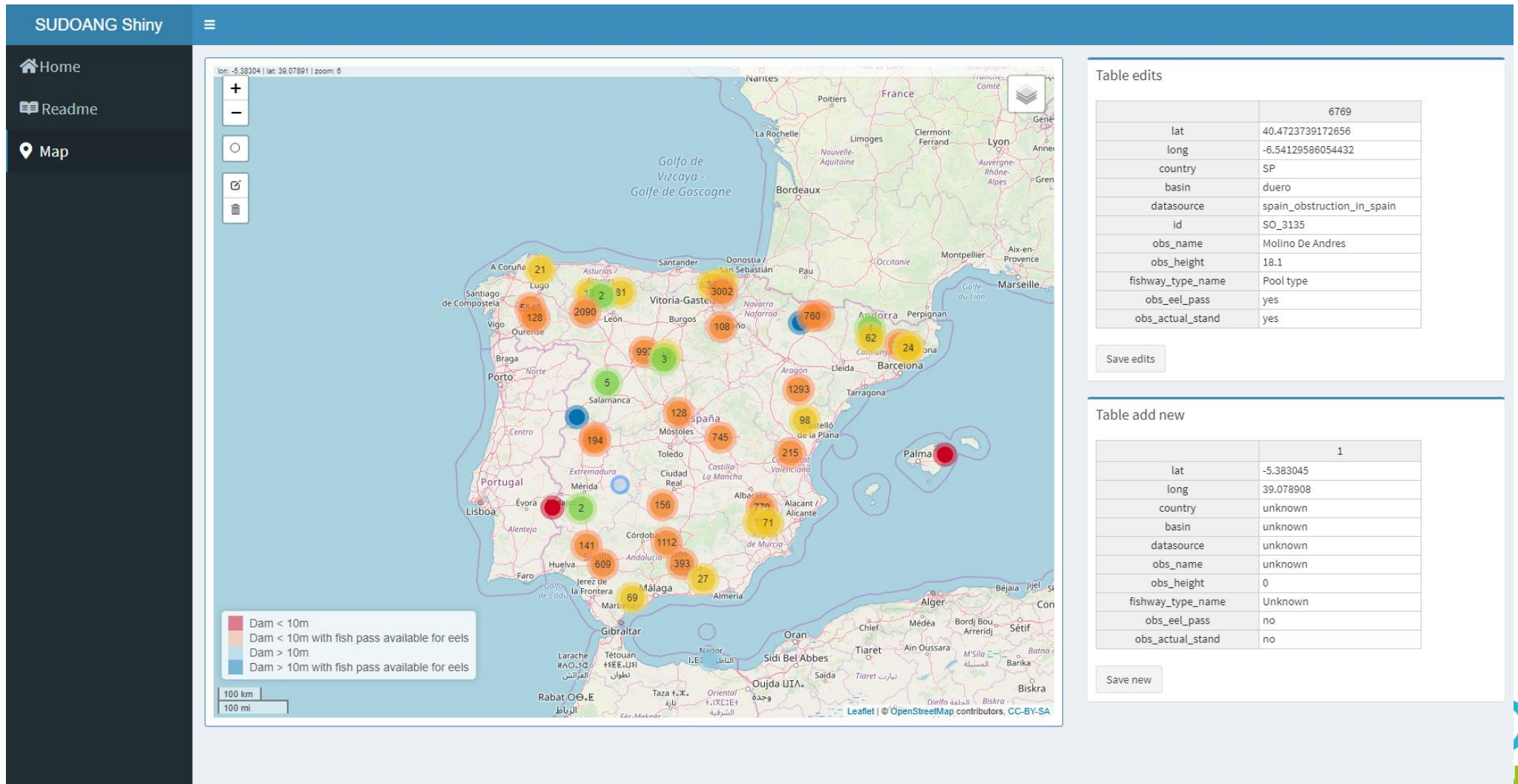
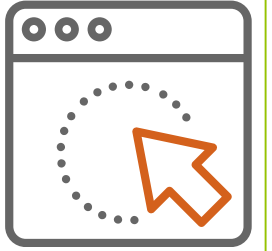
You will need to use the username defined when registering. Enter your password when prompted.

USE

Please note that this is a development version of the SUDOANG interface. The purpose is to obtain feedback on the updated information on the different types of dams in the SUDOE area.

To use the SUDOANG dashboard, you may click first on the "Readme" tab for help with the map itself and the edition of dams' information table. Then you may click on the Map tab to visualize the map with the dams' locations; an editable table will be displayed when clicking on a dam. A "Save edits" button is provided for you to submit the edits. Note that if you desire to include an additional dam you will need to use the map tools on the left for that. In this case again, an additional table will appear to enter the information related to the dam.

Obstacles validation in SHINY



...and now it's your turn!



Go to **www.menti.com** and use the code **XX XX XX**



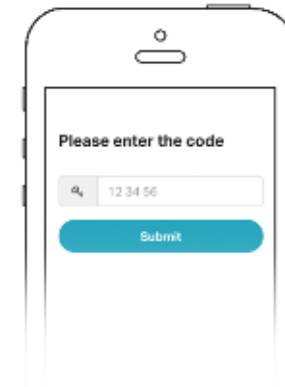
1

Grab your phone

www.menti.com

2

Go to **www.menti.com**



3

Enter the code **XX XX XX** and vote!



FISHWAYS

WHAT IS THE EFFECT OF A FISHWAY ON THE EEL PASSAGE?

↓

Site dependent

↓

No way to integrate this kind of information

↓

Some tests in the model

1



2



3



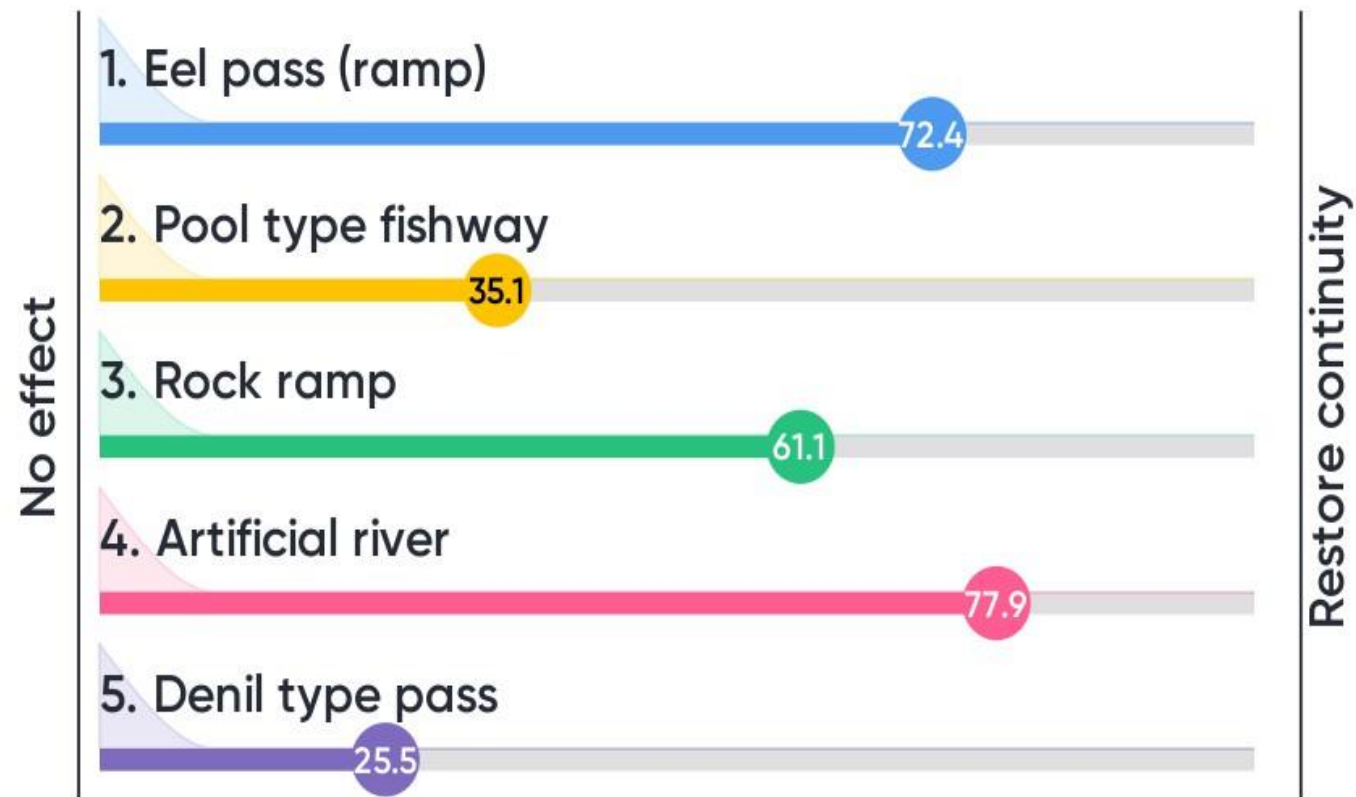
4



5



Provide an estimate of the efficiency of different types of fishways for eel (0 % not efficient, 100 % restore upstream migration)





EDA MODEL & GT2

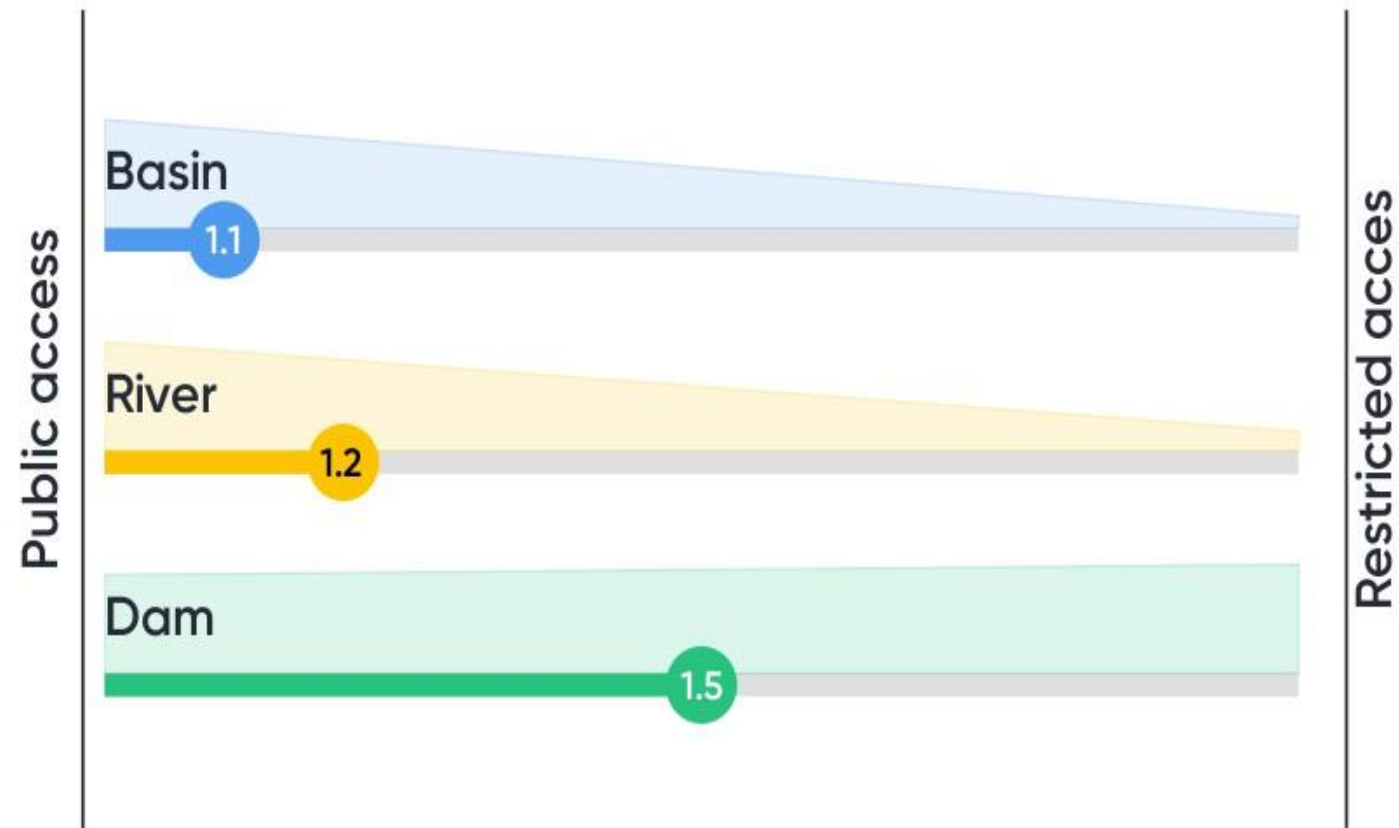
Transferring results about
**DOWNSTREAM MIGRATION
MORTALITY?**

**1. AT WHAT
SCALE SHOULD
WE DISPLAY
THE RESULTS**

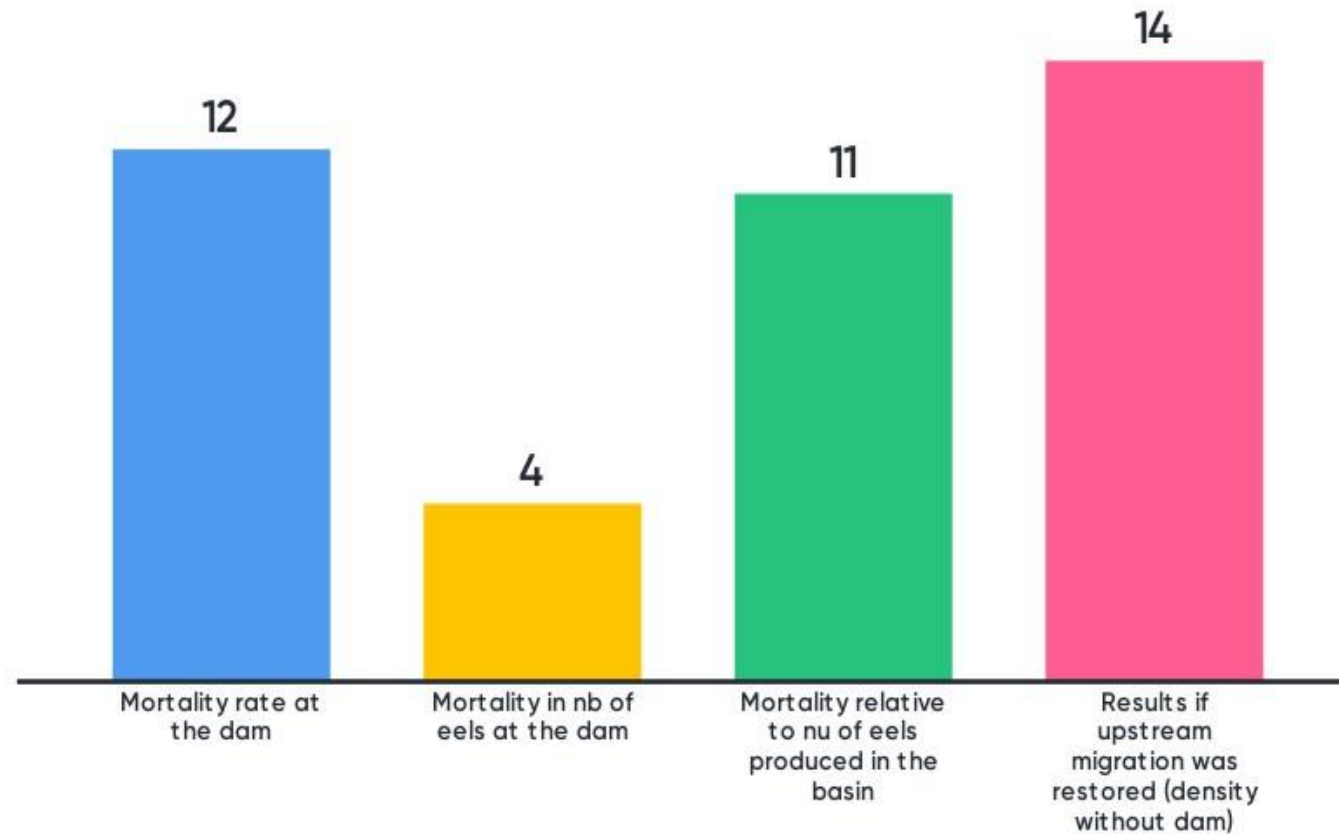
**2. IF A DAM,
WHAT KIND OF
RESULT
SHOULD BE
DISPLAYED**

**3. OPEN
DISCUSSION**

What status should we give for estimated downstream migration mortality?



In the case where the individual dam has been selected: what kind of result should we display?



Do you have additional ideas or comments?

Peut on proposer de limiter la montaison lorsque l'estimation de la mortalité à la devalaison dépasse un certain pourcentage?

The scale of reporting and the accessibility probably both depend on the purpose: reporting for EU is at the basin/ or emu level, or if the purpose is a management tool then the scale should be at the local obstacle or dam level.

Obligation de diffuser les données issues des analyses dans le cadre de la convention d'aarhus ?

< Salvador, eres un fenómeno!

los datos deben estar al mismo nivel, si unos son públicos deben serlo todos. el acceso restringido a la información no favorece las acciones para recuperar la especie. >

O desconhecimento é a pior ameaça para os recursos. Melhor estimar algo do que desconhecer completamente os impactos. Rigor na informação e responsabilização.

Si on veut faire évoluer les choses il faut que les propriétaires sache qu'elle est la mortalité qu'induisent par barrage.

Cuidado com os termos porque lidamos apenas em mortalidade relacionada com barragens e existem outras

Divulgação da existência de

Pause scroll



WATER SURFACE & WATER FLOW

NO DATA to calculate
RIVER WIDTH



Necessary to
calculate WATER
SURFACE

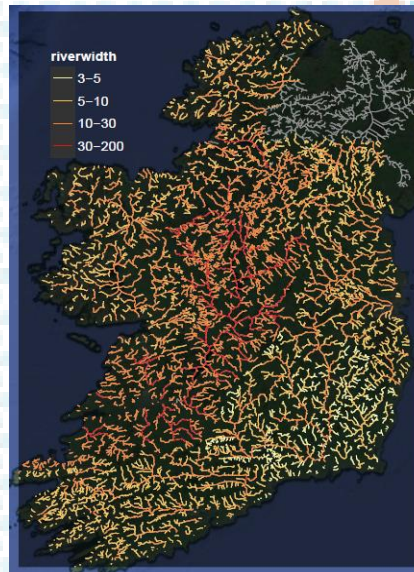
WATER FLOW AT
GAUGHING



GT2 Necessary for
mortality



River width (m)
predicted for
Ireland
(de Eyto *et al.*, 2016)



River width and river flow? what can you send us ?

Oria: flow, lenght, with...
Everything. Diputación
Gipuzkoa

<

Temos caudais de todo o país
que estão online é preciso ir
buscar ao site para As estacoes
que querem.

Ter River: width, river flow and
surface of sampling sites River
flow from automatic station (4
stations along the basin)

.....

Caudal de los rios medidos
mediante redes de oros.
Caudales ecológicos Oria
los mareas de agua y datos de
todo España extraidos del
modelo SIMPA (modelo Sester
de la UCA) para una
estimacion de los caudales en
régimen natural. Belén M

Anchuras de los rios extraidos
de los Planes de Gestión de
Riesgo de inundación

Possibilité d'estimer un débit
moyen et un débit max depuis
la CCM

Guadalquivir: anchuras in situ
de 1037 tramos representativos
de la red fluvial. Tramos
accesibles para la anguila en
Andalucia (bajo obstáculos):
anchuras por GIS e in situ.

cv

Pause scroll



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www.sudoang.eu