

ADVANCES IN SUDOANG

Over the past 12 months, SUDOANG has continued to work at an intense pace despite the difficulties imposed by the pandemic. As we approach the end of the project, we see our efforts translate into results and products. In the last few months that we have until the end of the project, the objective will be to finalise the management and dialogue tools and make them known to managers and stakeholders in order to maximise their use and thus improve the state of conservation of the eel.

Mobility restrictions are a challenge to hold a big final event where we can show all the products obtained to the whole SUDOANG community; however, we will do our best to make it a milestone and make you feel proud of having participated.

What has been the progress in the last year?

1. Provide common management and evaluation tools to strengthen the capacity of managers to make decisions based on increased scientific evidence.

Preliminary recruitment results are available in the interactive web tool: The GEREM recruitment model has been implemented and preliminary

results of glass eel recruitment have been obtained at the basin, EMU (eel management unit), country and SUDOE area levels. The final version of the results must now be generated and can be made public from that moment on.

The abundance of yellow and silver eels has been estimated. After generating the eel database of the SUDOE area, which includes information on rivers, obstacles and eel population, a first implementation of the EDA model (Eel Density Analysis) has been carried out.

Thanks to this implementation, estimates of the abundance of yellow and silver eels have been obtained. The mortality generated by the hydroelectric power plants is currently being estimated and all the information will be transferred to the interactive web tool.

2. Design a strategy that allows for coordinated, long-term monitoring.

The calibration exercise of otolith readings in June 2019 in Cestas (France) showed the great disparity between otoliths from different origins, which makes a harmonised reading difficult.

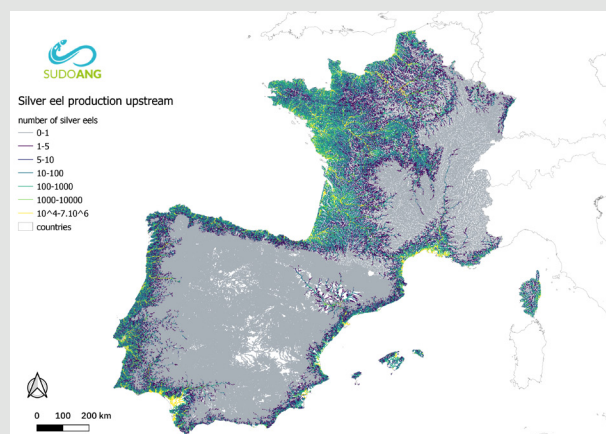
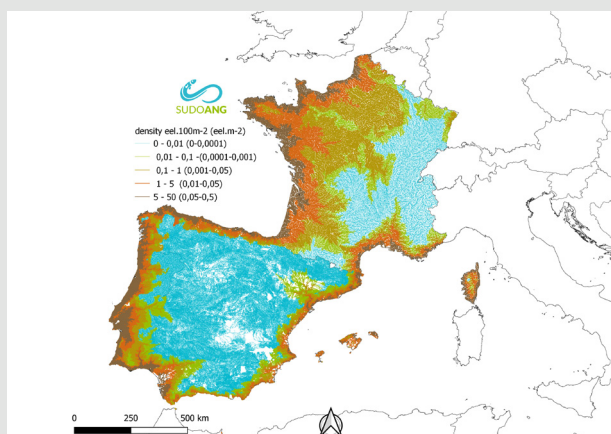


Figure 1. Abundance of eel (left) and silver eel (right) in Spain, France and Portugal estimated by the EDA model.

Further sampling in the pilot basins began in the autumn of 2019, but it was interrupted by the confinement resulting from the pandemic. A new reading calibration exercise is now underway that will equip the basin technicians with the protocols and expertise needed to move towards a joint population assessment.

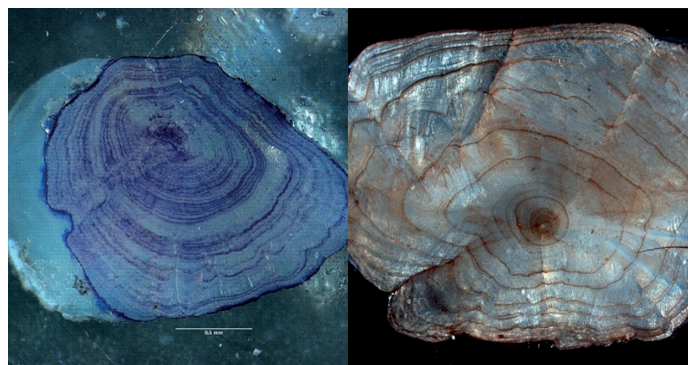


Photo 1. European eel otoliths sampled in a river in southern Spain (left), showing an irregular pattern of ring deposition, with several supernumerary rings, and in a lake in northern Sweden (right), where the pattern is more regular (Image H. Wikström and A. Asp, SLU-Aqua Sweden).

3. Reinforce the cooperation between the stakeholders involved in eel management

To encourage dialogue between the different stakeholders of eel management and conservation, a **video** and an explanatory infographic (figure 2) were created and have been disseminated in various online forums.

Another initiative to encourage dialogue has been the guide on How Eel Management is Organised in SUDOE Countries.

Participatory dialogue in several workshops showed that participants were not aware of how eel management works and is fragmented in the other countries. To help understand the complexity of the problem and to design a governance

platform that reflects the existing reality, this **guide** was developed.

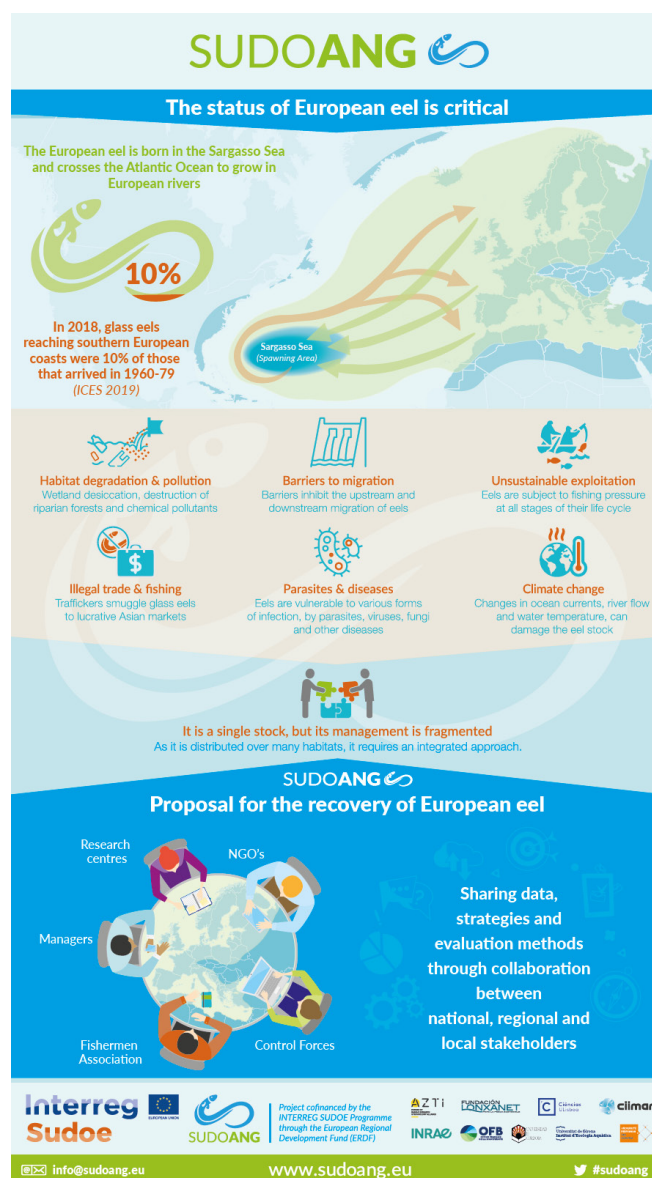


Figure 2. Explanatory infographic that relates the objectives of SUDOANG to the need for dialogue between all the actors involved.

Finally, a preliminary eel Governance Platform has been proposed. The platform is currently composed of the various partners and associated partners of the project; once it is operational, it aims to be recognised as a consultative body by the managers, which would encourage other stakeholders to participate in it.

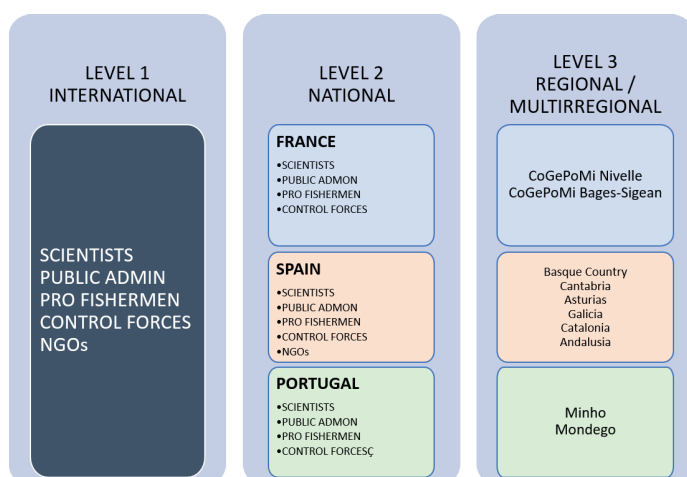


Figure 3. Structure of the Eel Governance Platform

RECENT EVENTS

PROGRESS WORKSHOP IN SUKARRIETA (SPAIN)

SUDOANG organised a workshop in Sukarrieta (Spain) on 2-3 December 2019 that brought together many of the actors involved in eel research, management and conservation in Portugal, Spain and France.

- >> A first implementation of the EDA model (Eel Density Analysis) was shown and information regarding obstacles and electric fishing for the correct implementation of the model was updated.
- >> The application of the model (GEREM) estimating exploitation and recruitment rates of eels was shown. The most interesting recruitment indicators were chosen to be included in the tools aimed at managers.
- >> The data on 1) mortality per hydroelectric plant and 2) escapement were defined. It was also decided which data will be shown in the Interactive Atlas, and at what level of spatial resolution.
- >> A preliminary structure of the Governance Platform was also proposed

WORKSHOP ON THE IMPLEMENTATION OF THE MODELS

One of the last steps in developing the interactive web application is to gather feedback on the implementation of the models. As it was not possible to organise a face-to-face workshop, interaction between the participants was organised through a series of explanatory videos.

In particular, the videos show how the **EDA** and **GEREM** models work and the estimates they have obtained from escapement and recruitment, respectively.

And thanks to surveys, members of the SUDOANG community provided contributions and comments on these results, which will be used to improve the models.

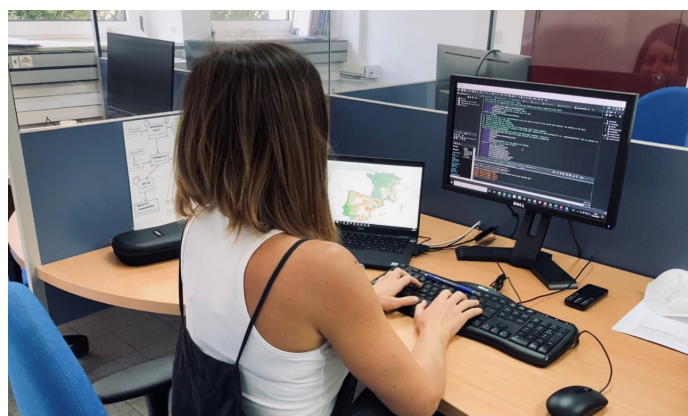


Photo 2. Working on EDA model

THE INTERACT COMPETITION

The Interact programme of INTERREG organises an annual competition that rewards the most innovative projects and in 2020 it promoted innovative communication of project results.

SUDOANG was selected to participate and invited to produce a video story that we entitled **Why does it matter to protect the European eel?**

Our video did not make it to the final, but we learned many interesting things about online communication.

TECHNICAL CONFERENCE ON EEL MONITORING

The French Biodiversity Office (OFB) organised the Technical Eel Monitoring Days (25-26 November 2020) dedicated to eel monitoring in France. The event was attended by the associations and people responsible for monitoring eels and María Mateo (AZTI) presented the talk “De Gibraltar à la côte méditerranéenne et atlantique de la France: évaluation de la population de l’anguille dans le cadre du projet SUDOANG”. An interesting debate then followed on the preliminary results of eel recruitment and escapement in the SUDOE area.

CONGRESS OF THE IBERIAN SOCIETY OF ICHTH-YOLOGY (SIBIC)

We contributed with the talk **“First assessment of silver eel biomass covering three countries”**.

In addition, the University of Perpignan organised an event at the Canet Lagoon and the coordinator Estíbaliz Díaz was interviewed for the radio programme Itsas Tantak explaining the objectives of SUDOANG.



ANNUAL CONFERENCE OF THE INSTITUTE OF FISHERIES MANAGEMENT

Coordinator Estíbaliz Díaz (AZTI) presented the talk **“From Gibraltar to the Mediterranean and the Atlantic coast of France: eel status assessment in the SUDOANG project”** at the **“Global Eel Science Conference”** (12 November 2020), a series of on-line talks on efforts to protect and increase eel stocks in various countries, an event organised by the Institute of Fisheries Management (IFM).

Photo 3. Introductory slide of the presentation to SIBIC

WORLD FISH MIGRATION DAY

Although the COVID prevented most of the planned face-to-face events from taking place, SUDOANG joined the global celebration of obstacle-free rivers on 24 October 2020 by means of a **video letter to the eel**.



Photo 4. Reading the letter to the eel on World Migratory Fish Day

ACKNOWLEDGMENTS

SUDOANG CHOSEN AS A FLAGSHIP PROJECT

In 2020, the INTERREG programme celebrated 30 years of promoting territorial cooperation between European regions. To celebrate this, it chose a flagship project for each month of 2020 and SUDOANG was selected as the March 2020 flagship project. Coordinator Estíbaliz Díaz was interviewed in the INTERREG-SUDOE newsletter. Congratulations SUDOANG!



Photo 5. The twelve INTERREG flagship projects.

SUDOANG IS USEFUL AGAINST ILLEGAL GLASS EEL TRADE

According to the French Control Forces, the annual meetings to which we have invited the various European control services have contributed to creating links between these services and therefore to the success of EUROPOL operations. Bravo SUDOANG!

NEW CORPORATE NAMES AND BRAND IN THE CONSORTIUM

The partner AFB (French Agency for Biodiversity) has merged with the National Hunting and Wildlife Office to form the **French Biodiversity Office (OFB)**.

AZTI joined the scientific and technological consortium Basque Research & Technology Alliance (BRTA).

The partners Irstea (Institut National de Recherche en Sciences et Technologies pour l'Environnement et l'Agriculture) and INRA (Institut National de la Recherche Agronomique) merged to form **INRAE (Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement)**.



SUDOANG EXTENDED UNTIL JUNE 2021

SUDOANG started in March 2018, so it is in an advanced stage of implementation. The planned closure date was 28 February 2021, but the COVID pandemic has caused delays and the impossibility of carrying out some activities, such as some on-site sampling and laboratory analyses. We have requested a 4-month extension which has been accepted by the SUDOE Programming Committee, so the project will end on 30 June 2021.

PROJECT FOR THE RECOVERY OF THE EUROPEAN EEL IN THE MEDITERRANEAN SEA

Nine Mediterranean countries (Albania, Algeria, Egypt, France, Greece, Italy, Spain, Tunisia, and Turkey) have joined forces with the General Fisheries Commission for the Mediterranean (GFCM) to launch the first research programme on the European eel in the Mediterranean Sea.

What are the objectives of this programme?

- >> To identify and evaluate management and protection measures for the recovery of the eel stock;
- >> To establish a common framework for monitoring the European eel;
- >> To collect and update data on eels and their habitat in the Mediterranean; and
- >> Establish a common framework for stock assessment.

The research programme started in June 2020 with an online launch event and will last 18 months.

IUCN AND ICES CONFIRM CRITICAL STATUS OF EUROPEAN EEL

The International Union for the Conservation of Nature (IUCN) updated the assessment of the European eel and confirmed that the stock remains Critically Endangered and that the population trend is “declining”.

Although there have been some improvements in glass eel numbers in recent years, these are not sufficient to make a difference in the assessment. The extent and/or quality of habitat, one of the main threats to the European eel, also continues to decline.

Despite the efforts made (in research and monitoring, in regional management plans, some international laws and trade controls) there is currently no framework of conservation measures that applies across its geographical distribution.

Similarly, the ICES (International Council for the Exploration of the Sea) has defined the status of the eel as critical, based on two historical eel recruitment series and one yellow eel series. In addition to the fact that recruitment has not increased significantly, there are no reliable estimates of catches or a good understanding of stock dynamics.

Transversal action: **TRAINING AND CAPACITY BUILDING**

Work Package 1
MANAGEMENT AND PROTECTION MEASURES FOR STOCK RECOVERY

Work Package 2
LONG-TERM MONITORING

Work Package 3
DATA COLLECTION

Work Package 4
STOCK ASSESSMENT

Work Package 5 **COORDINATION AND NETWORKING**

Figure 4. Organisation of the research programme on the European eel in the Mediterranean Sea.

ICES therefore recommends that any anthropogenic mortality (e.g. caused by commercial or recreational fishing, hydroelectric power stations, pumping stations or pollution) that decreases silver eel production and escapement to the sea should be kept as close to zero as possible in 2021.