

# The newsletter of Indicang

Comparison of catchment areas  
Initial state

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Photo : Bernot - LAFOSSE



Photo : (CEMAGREF)

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## Editorial

On the 7th and 8th of October 2004 the first important meeting of the Steering committee of the INDICANG project (program INTERREGIII) took place in the Basque Country in San Sebastian. The event was hosted by the Deputacion Foral of Gipuzkoa.

On that occasion around 45 people representing nearly all the partners of the project took part in an exchange of information about available descriptors concerning the eel and the quality of its habitats as well as the main problems encountered locally by the species.

This first inventory showed a diversity of situations: fishing regulations and practice, equipments used, the quality of habitats, obstacles to colonization, the presence and the dispersion of the species throughout inland waters. This confirmed how complex the restoration of the species is and how necessary it is to adapt the various solutions recommended to the variety of situations encountered.

The presentations also showed that the species, its exploitation and its habitats are not consistently monitored from one catchment area to another. A debate followed. The idea was to propose a harmonisation of the approaches.

Also following an invitation by the University of La Rochelle, the Scientific and Technical committee issued a definition of indicators during its first meeting on 30 November and 1 December. Using the summaries from those workshops local teams are now applying the first recommendation in their areas.

The summary of the first year of the programme and the lessons learnt will be presented during a seminar held in Rochefort on 18 and 19 May 2005.

Iñigo Mendiola Gomez  
Head of forestry fauna department

Diputación Foral de Gipuzkoa  
SPAIN

# ■ The steering committee draws up the initial state on the catchment areas

*True operational launching of project INDICANG, this meeting organized in the Spanish Basque Country, paints a first picture of eel in each catchment area. the Master word of these days was searching for coherence, knowing the diversity of situations in catchment areas.*

The first meeting of the Steering committee of project INDICANG, at San Sebastian (Spain) the 7th and 8th October 2004, joined together more than 45 partners of different origins: organizations of research, structures technical, local authorities, administrations implied in the management of fishings and the environment, institutional structures, fishing professionals and amateurs.

After a polite welcome by Iñigo Mendiola, from Diputación Foral de Gipuzkoa, the coordinator (Patrick Prouzet) has presented the order of the meeting day.

The subject of the first development was administratives point taken within the framework of Indicang.

## **A need for harmonization of the presentations**

The partners immediately exposed the first states of the resource, its habitat and its exploitation on the catchments project:

- Catchment area of Minho (C. Antunes)
- catchment area of Nalon et de l'Esva (J Lobbon -Cervia) ;

- catchment area of l'Oria (I. Urrizalqui Oroz) ;
- catchment area of l'Adour (F.-X. Cuende et S. Marty) ;
- catchment area of Gironde-Garonne-Dordogne (N. Susperreguy et V. Lauronce) ;
- catchment area of de la Loire (A. Baisez) ;
- catchments area of Fowey et Slapton Ley (P. Bown, painted by E. Feunteun).

Each talk was followed by a discussion to harmonize the presentations and to supplement them according to a minimum framework, approved by the committee for publication, concerning the starting point of knowledge on each studied catchment area.

However, additional informations will be brought by the Ministry for the rural medium and the fishing of the Province of Asturias for the catchments of Nalon and Esva (L Garcia - Florez) so this presentation could be available on INDICANG website.



▲ Nalon estuary - Javier LOBON

thématique groups: glass eels, yellow eels, silver eels and environment.

This structure must establish a kind of user guide to allow the comparison of the collected indicators and the installation of the relevant descriptors of the resource and of its environment. The operating mode and the objectives of its committee were presented by Eric Feunteun.

The schedule of conditions of the thematic committees "Environment" was presented by Stéphanie Muchiut.

The other schedules of conditions will be exposed within the framework of the meeting of the scientific and technical committee. (see page 3).



▲ Adour estuary - CCI of Bayonne

## **Needing for a common framework in order to be better coordinated**

The second part of the Steering committee was devoted to the organization of the scientific and technical Committee of project INDICANG charged to coordinate

## **Indicang turns to the public**

Easer, the persons in charge for the publication and communication Committee (G Adam, O Audy and Mr. Rousseau) proposed the model of the first letter of INDICANG. Partly amended during the meeting the newsletter was then distributed.

The meeting was completed by a demonstration of the INDICANG website model which will be operational from the very start of April 2005 in four languages.

## ■ First reflections of the scientific and technical committee on the indicators

*During its first meeting in La Rochelle, the scientific committee of INDICANG focused on the definition of the indicators of abundance and the quality of habitats for each biological stage. This work was conducted to describe local situations and to enable comparisons from one catchment area to another across the whole of the Atlantic area.*

The first scientific and technical committee of INDICANG met at the University of La Rochelle on 30 November and 1 December 2004. There were approximately 30 people from 3 countries, representing various research or technical organisations involved in the survey of



▲ Technical committee of INDICANG  
Gilles ADAM

eels, their habitats and their exploitation in 7 catchments.

### **From current surveys to tomorrow's indicators**

The aim of the meeting was to issue definitions of indicators which will enable us to describe the state of the

eel stocks in each catchment and its evolution following management initiatives at local to European levels.

One must rely upon existing data, improve them, supplement them or even issue new ones. In addition, experiments are conducted to issue relevant indicators which can be monitored for a long period of time and to determine which are technically and economically justifiable.

### **Towards the implementation of informative and normative indicators**

*These indicators need to be sufficiently informative and normative to support operational and adaptive management on local and regional scales. These will soon be presented on the INDICANG website.*

- *Recruitment indicators aim at measuring the glass eels' arrivals in estuaries. They enable used to survey fishing mortalities and movement of glass eels towards upstream parts of the estua-*

*ries. They are based upon professional fishery and experimental fisheries surveys. If there is no professional fishery, recruitment is estimated from experimental fisheries surveys, fish pass surveys or population indicators.*

- *Population and colonisation indicators are developed to survey the eels' spatial range, demographic structure, the proportion of silver eels and abundance levels of sedentary eel populations at the scale of the river system. Methods need to be developed in order to provide abundance indices ranging from simple presence or absence, to the estimation of density or even the abundance of the stock.*

- *Escapement indicators are meant to analyse the evolution of the breeding biomass, the sex ratio and the quality of silver eels produced by the river systems. These indicators are based upon professional or experimental surveys, when possible. However in most cases, the only available information comes from the proportion of silver eels estimated by the indicators of the sedentary population.*

- *Environmental indicators aim at providing a synoptic description of a river system in terms of how big a population it can contain. This means identifying suitable and available habitats, assessing their accessibility through inventories and a mapping system of obstacles to eels' free movement upstream and downstream. Criteria for water quality remain to be agreed. These elements should enable us to monitor a catchment area and make comparisons from one catchment area to another.*



▲ Technical committee of INDICANG - Gilles ADAM

# What information do we have about eels in the catchment areas ?

known descriptor (enter the data, white color)	donnée
partially known descriptor	
unknown descriptor	

This grid is a summary which shows what knowledge is available about eels in the catchment areas of the INDICANG partners. This is not a direct presentation of the information but a colour code system to explain whether the information is available.

Several descriptors have been retained about the eels' environment, fishing, and the resource it represents. They are common descriptors. They do not appear of any use at this stage for the building of future descriptors.

STATE OF KNOWLEDGE PER CATCHMENT AREAS Descriptors		UK				France				Spain			Portugal	
		Slapton ley	Fowey	Tamar	Camel	Loire	Sèvre niortaise	Charente	Gironde Garonne Dordogne	Adour	Oria	Esva	Nalon	Minho
ENVIRONMENT	Catchment area (surface in km <sup>2</sup> )													
	Linear length of river (km)													
	Rate of flow of the catchment area (in cubic meter/s)													
	Numerical map of hydrographical system													
	Locations of dams and hydroelectric power stations													
	List (description) of upstream obstacles													
	List (description) of downstream obstacles													
	Analysis of the efficiency of upstream facilities													
	Analysis of the efficiency of downstream facilities													
	colonization area lost (%)													
	Data on water quality													
Data on deposit quality														
EXPLOITATION	Number of professionnall fishermen	glass eel												
		yellow eel												
		silver eel												
	Number of sport fishermen	glass eel												
		yellow eel												
		silver eel												
	Fishing gears used													
	Location of fishing areas	glass eel												
		yellow eel												
		silver eel												
	Fishing statistics ( seasonal activity)	glass eel												
		yellow eel												
		silver eel												
Characteristics of catches	glass eel													
	yellow eel													
	silver eel													
Historical series of catches (at least 30 years)	glass eel													
	yellow eel													
	silver eel													
RESOURCE	Location of area colonized or not													
	densities estimates													
	Map of the colonization areas (catchment area scale)													
	Study of eel migration through fish ladders	glass eel												
		silver eel												
	Study of the migratory run	glass eel												
		silver eel												
Biometric measurements (length, weight)														
Age (otolithometry)														
Health observations (parasitism, contamination)														

# Comparative summary of two river systems

Although there are physical differences between the two river systems, as far as the area or the number of inhabitants are concerned, the same problems are found in both areas with fisheries having an important impact. These problems are the deterioration of the habitats and obstacles to free movement, causing a decline in the eel population both in the Gironde Garonne and Dordogne river system as well as in the Oria catchment area.

## Important urban pressure in a small catchment area.

The Oria catchment area is situated in the North of the Iberian Peninsula and its water flows into the Cantabrian Sea in the Gulf of Bizkaia. The catchment area covers 882km<sup>2</sup>. There are 142 people per km<sup>2</sup>. The main river is 82 km long and the estuary covers an area of 2,296 km<sup>2</sup>.

Although water quality is improving thanks to a waste water treatment plan, water quality still rates as medium to low owing to urban and industrial waste and

the habitat is deeply modified following drainage work.

## Too many obstacles to upstream movement

A high number of dams represent obstacles to free movement and impede the distribution of the species throughout the river system. The species is confined to the lower parts of the river system. Those dams also prevent the colonization of the river's most important tributary, the Leitzarar, situated in its lower part.

## A traditional local activity.

The fishing season extends from 15 October to 15 March. These data only represent 40.34% of the total number of catches. There is no specific fishing targeting yellow or silver eels

## An effort to monitor the glass eel

AZTI's monitoring of glass eels is carried out starting from various sources of information.



## Catchment area of Oria



- Log books to record catches must be completed by fishermen during each fishing session and sent back to the Basque government. The books are compulsory when you purchase a fishing licence.
- Additional log books to record catches can be completed by fishermen on a voluntary basis and sent back to the Basque government.
- Samples are taken from the mouth of the river.
- A trap system for the species has been installed upstream from the fishing zones and is managed and maintained by the provincial council of Gipuzkoa (Diputación Foral de Gipuzkoa).

Yellow and silver eel populations are monitored through the water quality network and fish study of the provincial council of Gipuzkoa (Diputación Foral de Gipuzkoa), carried out by Ekolur S. L. L and the Superficial Water Surveillance Network of the Basque Government.

## A population in decline :

The licence system, the main source of fishing data, was started during the 2003/2004 season. Therefore there is not a long history of data. Nevertheless, it is a known fact that there has been a drop in the number of catches over the last 20 years.

Surveys obtained through electric

fishing show a decline in the eel population starting from Andoain (25 km upstream the estuary). Dams are the main explanation for scarce colonization in the catchment area. Eel population densities obtained on both sides of one of the dams in the Leitzarar river show a result of 2.406 eels per Ha downstream, and 214 eels per Ha upstream.

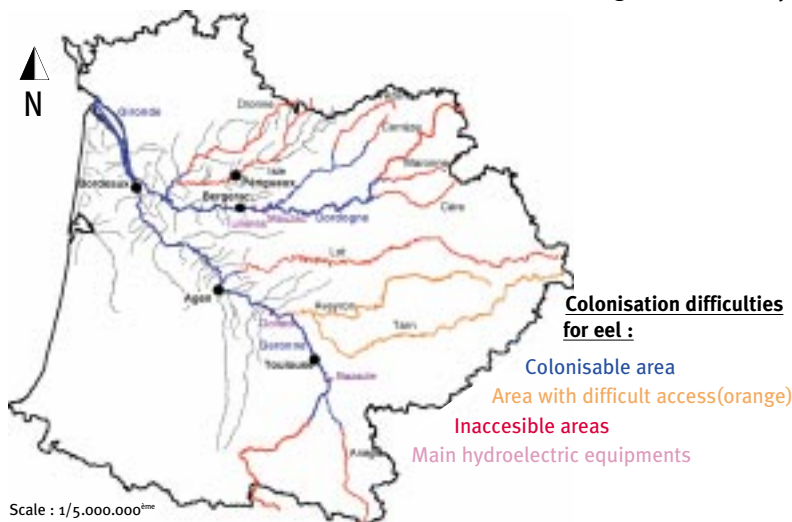
Number of licences for inland fishing (2003/2004)	188 (125,26 kg)
Number of licences for boat fishing (2003/2004)	45 (264,86 kg)

## A large catchment with a rural and agricultural vocation

The Garonne and the Dordogne rivers join to form the Gironde, the largest estuary in Europe with an area of 625 km<sup>2</sup> at high tide. The rivers cover an area of 80 000 km<sup>2</sup> and are 3.414 km long (including the main tributaries). The density of the population is approximately 50 people per km<sup>2</sup>. Important urban and industrial areas (Toulouse and Bordeaux in particular) can cause deterioration. In the catchment area there is a strong rural and agricultural vocation which causes pollution problems and a high demand for water in the summer for irrigation.

## A potential to be recolonised

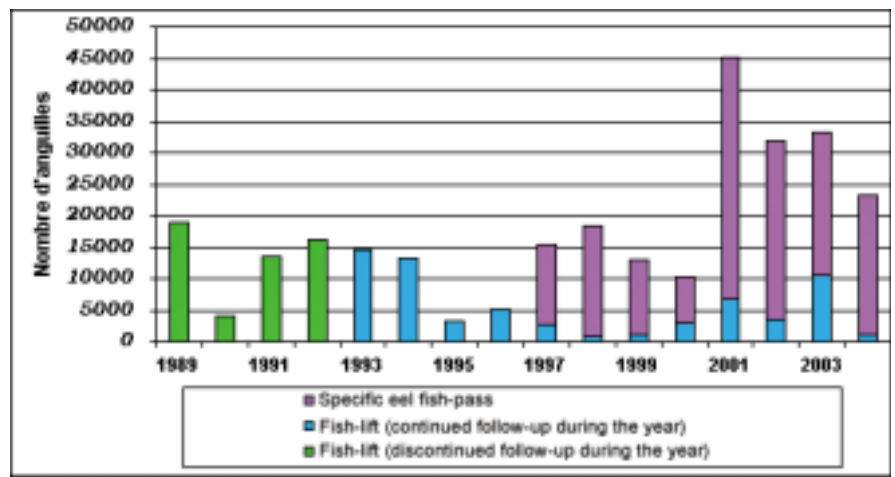
Presently, only 40% of the total length can be colonized owing to the presence of many obstacles to free movement.



## An effective and shared monitoring of the eel population and its exploitation

Many tools to monitor the population exist at various levels in the catchment area, for glass eels and yellow eels. For example:

- The analysis of the reports on catches which commercial fishermen and amateur fishermen have to fill in and send to the fishing agency every year (AADPPEDG).
- The monitoring of glass eel and yellow eel production since 1978 by a network of professional fishermen (CEMAGREF)
- Within the framework of the hydrological and piscicultural network



Eels travelling through the fishway at the monitoring station of Tuilière, Dordogne.

## A diversified fishery and its social and economic importance.

Professional glass eel fishermen use various techniques depending on the fishing area such as the "pibalour" net system in sea areas, the "drossage" net system or the "tamis" net system. Amateurs only use the "tamis" system. As for the yellow eels, fishing is essentially practised

with traps, stings or rods.

In 2000 commercial fishermen's turnover was estimated to more than 3 400.000<sup>€</sup> for glass eels and about 220.000<sup>€</sup> for yellow eels.

## Catchment area of Gironde-Garonne Dordogne



2000	Glass eels	Yellow eels
Number of Professional fishermen (production)	166 (25 t.)	83 (25 t.)
Number of Amateurs fishermen (production)	73 (0,33 t.)	765 * (1,4t)
* licences small fishery, 264 licences dedicated to eel		

(RHP), the collection of abundance indicators for yellow eels have been in place in the catchment area since 1994 (CSP)

- Since 1989 the quantification of the yellow eels movements through various control stations scattered across the catchment area (MIGADO) with continuous improvement of devices such as fish passes and counting procedures.

Conversely no statistics are presently available about the silver eel.

## Worrying signs

Generally, commercial glass eel fishery shows a strong decline in the total number of catches and in the catch per fishing effort (CPUE) since

the beginning of the 1980's.

The RHP shows a reduction of colonized areas. This phenomenon results from a drop in the number of eels leaving rivers and estuaries and from obstacles to free movement for this weakened colonizing species. The density range observed is 500 to 9 500 eels per ha downstream from the main obstacles, and less than 500 eels per ha in the upstream areas.

The studies carried out in the monitoring stations of Golfech and Tuilières, situated 200-300 km from the ocean show the current weakness of the upstream path (2 to 5 eels per km of the river system in the last years).

# Recent news

## The Slapton Ley catchment

Thanks to collaboration between the eel research group of Kings College London and the Field Studies Centre and National Nature Reserve, new information has been obtained about glass eel recruitment through catches in Slapton Ley. This collaboration must continue and should provide extra data about yellow and silver eels.

## The Adour catchment.

The migrating fish management committee in the Adour catchment is examining the issue concerning the deaths of eels travelling downstream through turbines of hydroelectric plants. A study group brings together departments, electricity producers, and experts. To prevent eels from dying, grids with bars separated by a limited space have been used upstream from powerhouses. This seems to be the best solution. With these grids downstream by-passes at the surface or at the bottom will have to be used. The current through the grid must not exceed 40 to 50 cm per second or a high number of deaths will result.

Eratum (the newsletter of INDICANG N°1 page 7) : Estibaliz DIAZ, from AZTI replace Araitz BILBAO as project partner in catchment of Oria, Gérard CASTELNAU, from CEMAGREF, is project partner of thematic group recruitment indices.

# In our next communication

We propose to elaborate :

- Works of thematic groups
- First synthesis of reflexions on bulding indicators for eel.



Photo : CEMAGREF

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