

# National Report – Morocco

## *Fishing for American eel, *Anguilla rostrata**

Prepared for:

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# Current state of Anguillid eel management in Morocco

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## INTRODUCTION

Since the inclusion of the European eel (*Anguilla anguilla*) in Annex II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 2009, the Department of Water and Forests has set up a number of measures for the sustainable management of the eel. The status of the species as designated by CITES makes it possible to establish all the technical and regulatory provisions necessary to ensure sustainable exploitation in accordance with Morocco's commitments vis-à-vis international conventions and national legislation.

These measures, based on a precautionary approach, focused mainly on the principle of fishing quotas, the regulation of fishing activity with various specifications, the need to carry out glass eel aquaculture, the establishment of a restocking program, the establishment of a traceability system for fishery and aquaculture products, and enforcement measures against poaching and illegal trafficking.

### 1- The distribution area of eels in Morocco

Eel fishing takes place mainly in estuaries and lagoons.

On the Mediterranean coast, the main areas where eel is present are: the Moulouya river and the lagoon of Nador.

On the Atlantic coast, the eel's distribution area is concentrated mainly between Tangier and as far as El Jadida, with four main hydrological basins: Sebou, Bouregreg, Loukkos and Oum Rbia.

However, the Sebou and Loukkos rivers are where eel fishing is most concentrated.

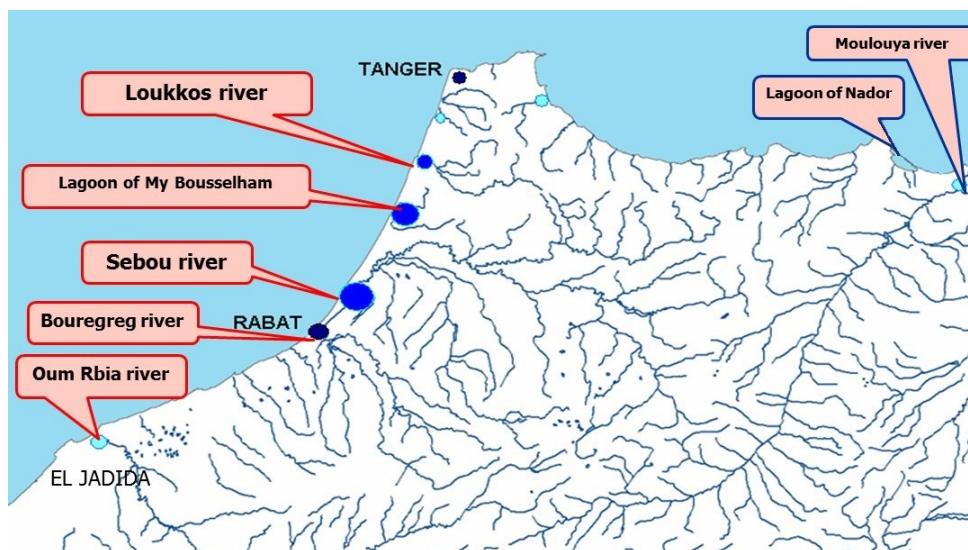


Figure 1. Map of the distribution area of the European eel in Morocco

## **2- GOVERNANCE, LAWS AND REGULATIONS**

### **2-1- At the institutional level:**

In Morocco, the Department of Water and Forests is in charge of eel management.

The management of eel stocks is based on the most relevant geographic, scientific, socio-economic, ecological and environmental data available. In addition, the scientific authority is represented, among others, by the Scientific Institute, a stakeholder in decision-making. The latter sits annually on the fisheries committee, which is an organ institutionalized by the law on inland fisheries and aquaculture, and whose mission is to rule on the arrangements to be made in terms of management of inland fish resources.

In the event that the scientific authority proposes measures or restrictions relating to the exploitation of the species, such as the reduction of the catch quota, the reduction of the fishing period, the setting aside of an aquatic area or the prohibition of the use of fishing gear, these measures will thus be set at the level of the fisheries committee, which regulates fishing activity and sits annually.

### **2-2- On the legal and regulatory level:**

Eel fishing is governed by the Dahir of April 11, 1922, as amended and supplemented by Law No. 130-12 on inland fisheries and aquaculture in 2015.

In Morocco, and in accordance with the provisions of this law, eel fishing can only be authorized within the framework of a leasing of fishing rights and according to the available quotas.

Eel operators must have an aquaculture station and are subject to specific rules applicable to eel fishing, particularly fishing conditions, traceability and restocking.

The main regulatory provisions governing the exploitation of eels are:

- The captured glass eels must be intended exclusively for breeding. Glass eel trade, whether alive or dead, is strictly prohibited.
- For the fishing exercise during the 2021-2022 season the fishing quota is set at 2,000 kg of glass eel and 7,000 kg of silver eel.
- For glass eels, fishing is open from January 2 to June 27, and for silver eels, fishing is permitted from April 4 to June 27, and from September 5 to December 26.

### **2.3- Concerning the eel trade:**

As part of the implementation of the provisions of CITES, particularly those relating to the obligation to have adequate national legislation allowing for better application of the convention and effective control of trade in species of wild flora and fauna, in 2011 Morocco adopted Law 29-05 relating to the protection of species of wild flora and fauna and the control of their trade, as well as its implementing decree in 2015.

According to this legislation, which classifies *A. anguilla* in category II, the collection of specimens of this species in the natural environment is subject to obtaining authorization issued by the Department of Water and Forest after consultation with the national fisheries committee, which brings together all the research institutions concerned with aquatic biodiversity.

Also, the export of specimens of this species is subject to obtaining an export permit issued by the Department of Water and Forests.

As a result, this legal arsenal and the procedures in force, guarantee full traceability of the exploitation and trade of glass eels. However, any attempt at illegal or unlawful intrusion of glass eels is repressed by strongly dissuasive sanctions (Large amounts ranging from 20,000 to 50,000 dirhams per specimen).

### **3- EEL CATCHES AND TRADE**

#### **3-1- Catch statistics**

Currently in Morocco, eel fishing is authorized for the benefit of two private operators for an annual quota of 2,000 kg of glass eel and 7,000 kg of silver eel.

These operators are subject to well-defined regulations which provide, among other things, for the prohibition of the trade and export of glass eel, the authorized fishing quotas per year for eels destined for aquaculture, the establishment of a traceability system for fishery and aquaculture products as well as participation in restocking programs.

The catches are made by local fishermen employed by those two operators and all the catches are declared and controlled in accordance with the traceability procedure implemented.

The table below reports the catch statistics for the last five years:

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Glass eel (kg)	1013	1512	481	1144	306	909
Silver eel (kg)	5000	2996	0	695	0	0

#### **3-2- Production**

Each of the two private operators has an aquaculture unit approved according to the regulations in force. The culture system adopted is an intensive recirculating aquaculture system, with a production capacity of 600 tons per year.



**Figure 2. Recirculating production system from the NouneMaroc Company**

*Source: NouneMaroc aquaculture*

### **3-3- Trade statistics**

Since the inclusion of the European eel in Appendix II of CITES, the export of specimens requires the prior issuance and presentation of CITES export permits. These permits are issued by the Management Authority in accordance with the provisions decreed by CITES on the issue of such permits. In particular the verification of evidence and documents justifying that the specimens were not obtained in contravention of national laws on the preservation of fauna and respecting the quotas of the withdrawals fixed for the two companies.

In this regard, applicants for CITES permits for the export of specimens are required to provide a certificate of provenance (see figure 1) providing information on the average size and weight of eel specimens. In addition, the origin of the quantity to be exported (from the breeding of glass eels either taken from the wild or aquaculture), references of documents justifying the dates and places of sampling of the original quantities must also be provided.

The analysis of the origin of the quantities of eel exported since 2013, as indicated in the table below, made it possible to determine that the majority of the quantities of eel specimens exported came from glass eel farming. The exported quantity of wild eel specimens remains minimal and represents only 0.3% of the quantity exported during the period 2013-2020.

<b>Year</b>	<b>Total quantity exported (kg)</b>	<b>Description</b>	<b>Quantity in kg</b>	<b>Source</b>
<b>2013</b>	<b>173 335</b>	Frozen eels	144 000	Aquaculture
		Live eels	27 447	Aquaculture
		Live eels	1 888	Wild
<b>2014</b>	<b>359 790</b>	Frozen eels	120 000	Aquaculture
		Live eels	239 790	Aquaculture
<b>2015</b>	<b>229 654</b>	Live eels	229 654	Aquaculture
<b>2016</b>	<b>248 417</b>	Frozen eels	48 180	Aquaculture
		Live eels	196 774	Aquaculture
		Live eels	3 462	Wild
<b>2017</b>	<b>177 417</b>	Frozen eels	40 775	Aquaculture
		Live eels	136 642	Aquaculture
<b>2018</b>	<b>201 680</b>	Frozen eels	25 000	Aquaculture
		Live eels	175 990	Aquaculture
		Live eels	690	Wild
<b>2019</b>	<b>273 559</b>	Frozen eels	50 000	Aquaculture
		Live eels	223 559	Aquaculture
<b>2020</b>	<b>271 528</b>	Frozen eels	50 640	Aquaculture
		Live eels	220 888	Aquaculture

Source: Department of water and forests

The average weight of farmed eels intended for trade is 200 g. Production is intended exclusively for export, mainly to Asian countries. The following tables illustrate the annual production of the two private operators and the nature of the exported products and the destination countries for the last three years.

2018

<b>Description</b>	<b>Total volume (kg)</b>	<b>Destination</b>	<b>Use</b>
Live eels	176 080	South Korea	Trade
Frozen eels	25 000	South Korea	Trade
Live eels	600	Vietnam	Trade

Source: Department of water and forests

2019

<b>Description</b>	<b>Total volume (kg)</b>	<b>Destination</b>	<b>Use</b>
Live eels	207 729	South Korea	Trade
Frozen eels	50 000	South Korea	Trade
Live eels	10 920	Japan	Trade
Scientific specimen	13	Germany	Scientific
Live eels	4897	Vietnam	Trade

Source: Department of water and forests

2020

<b>Description</b>	<b>Total volume (kg)</b>	<b>Destination</b>	<b>Use</b>
Live eels	215 760	South Korea	Trade
Frozen eels	50 640	South Korea	Trade
Live eels	2 100	Vietnam	Trade
Live eels	3 028	China	Trade

Source: Department of water and forests

#### **4- MANAGEMENT MEASURES**

The Department of Water and Forests adopted an action plan with the objective of rebuilding eel stocks and minimizing the main sources of mortality, particularly measures related to the exploitation of this species.

This action plan is structured around six areas of intervention, namely:

##### **Axis 1: Establishment of the principle of fishing quota:**

The term "fishing quota" means the maximum quantity of catches that can be made on a given site during a fishing season. The opening and closing dates of which are set by an annual decree.

Currently, the fishing quota is set at 2,000 kg of glass eel and 7,000 kg of silver eel. These catch quotas are divided into sub-quotas between two private operators in Sebou river.

##### **Axis 2: The framing of the activity of private operators:**

In accordance with the regulations in force, eel fishing can only be authorized within the framework of a leasing of fishing rights which is governed by specific measures and which requires the operators benefiting from this right to set up an aquaculture farm.

The implementation of such a project requires investments, in particular for the installation of recirculating aquaculture systems, the organization of artisanal fishing and the establishment of a traceability system.

##### **Axis 3: Apply a directive specification framing the sustainable exploitation of eel**

Eel fishing within the framework of a leasing of fishing rights is regulated according to the provisions of the specifications provided for by Law No. 130-12 on inland fishing and aquaculture. These specifications set out a number of restrictive measures to guarantee responsible fishing, in particular with regard to fishing gear and techniques.

These provisions relate to the following points:

- a- Glass eel fishing is only authorized for six months during the year;
- b- Only the sieve and the large landing net attached to the boats, or maneuvered by hand, are authorized for the practice of glass eel fishing. The dimensions of the sieves should be less than 1.50 m in diameter (if they are circular) and 2 m in length and 1 m in width (if they are rectangular). For the landing net, the diameter must be less than 0.60 m.
- c- Prohibition of trade and export of glass eel and eels not exceeding 12 cm. All the quantities of glass eels caught must be exclusively intended for aquaculture at the level of the operators' farms.
- d- Prohibition on the possession, trade, transport and export of dead glass eels;
- e- Fishing ban for one day per week, set by the annual fishing decree



- f- Private operators must register their boats according to the procedures in force.
- g- The operators must keep a register of entries and exits and make weekly declarations of the catches made.
- h- The operator is required to provide the administration with the list of names of the fishermen he employs in his service with an indication of their identity and domicile, their fishery as well as the planned addresses of the storage places.
- i- The operator is required to have a CITES permit for any export of his eel production.

#### Axis 4: Set up an annual restocking program

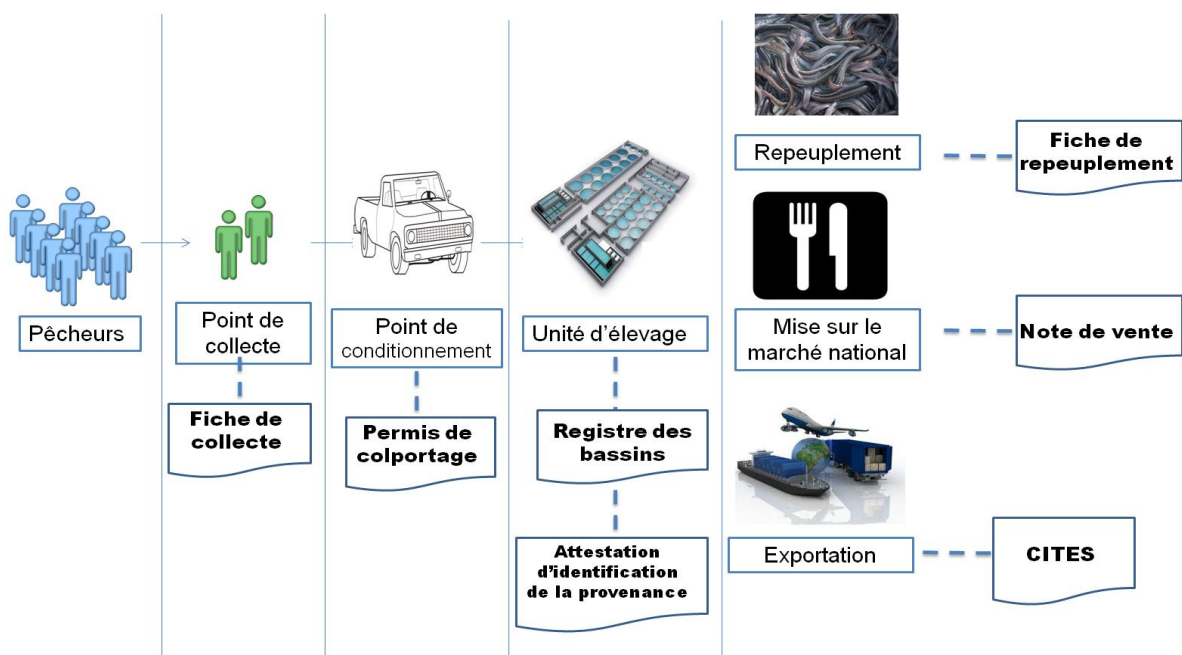
In accordance with the provisions of the specifications governing the eel fishing activity, it is planned that, for each operator, 10% of the catches of glass eels must be reserved each year for restocking purposes.

These operations are carried out annually under the supervision of the national center of hydrobiology and fish farming under the Department of Water and Forests, which is in charge of identifying and selecting the most favorable areas for restocking and of taking all the precautions, which apply to glass eels taken at aquaculture unit level.

#### Axis 5: Establish a traceability system for fishery and aquaculture products

In order to follow the traceability of fish caught and reared in aquaculture stations, a detailed procedure serving this purpose has been developed which allows operators to keep records ensuring exhaustive accounts of the entries and exits of all eel products raised or caught.

The following diagram illustrates the adopted traceability process:



**Eel traceability procedure**

Source: Department of water and forests

## **Axis 6: Procedures adopted against poaching and illicit trafficking**

The Department of Water and Forests has set up a specific preventive mechanism to control fishing and illegal trade in this species.

This system is based on the following points:

- Strengthening the legal arsenal through the development and implementation of Law 29-05 on the protection of species of wild fauna and flora and the control of their trade, which aims to ensure protection and conservation of species of wild flora and fauna listed in categories I, II, III, and IV, including the eel;
- Organization of fishermen and their integration into the eel aquaculture sector;
- Creation of a fishing brigade dedicated exclusively to the control of eel fishing and aquaculture activities;
- Coordination of the skills and resources of the State services concerned (Department of Water and Forests, provincial authorities, Royal Gendarmerie, Civil Protection, etc.) to strengthen control over rivers;
- The establishment of a control procedure for shipments from aquaculture companies involving customs agents and forestry agents to ensure the follow-up of the traceability of exported products;
- Organization of training for the benefit of State officials on techniques for controlling and combating illicit trafficking.

## **Conclusion**

Following the recommendations of the Animals Committee under the CITES Secretariat concerning the carrying out of scientific studies on the conservation status of the eel, the size of the population, the density and trends, the Department of Water and Forests is committed to carrying out a study on eel stocks in its fisheries. The aim is to estimate the existing stocks and update the authorized fishing quotas accordingly. The results of this study are expected by 2022.

In Morocco, the eel management plan is relatively different from the one developed at the level of the European Union or at the level of other countries of North Africa, given that glass eel trade is prohibited on the one hand, and that there is no consumption of this species at the national market level. Indeed, all the glass eels caught are destined for aquaculture, and all production is oriented towards export.

On the other hand, efforts must be maintained to deepen knowledge on population dynamics and scientific monitoring of this species, hence the importance of international cooperation.