

Evaluation of eel restocking across Europe and recommendations for improvement

In conversation with European eel fisheries, traders and restocking authorities

SEG-Report:2018-2-V1



**Sustainable
Eel Group**



Wetlands
INTERNATIONAL

The report is written by the Sustainable Eel Group and Wetlands International – European Association. The research was part funded by the German Initiative zur Förderung des Europäischen Aals e.V. (IFEA) and supported by the European Commission through LIFE NGO funding. This publication reflects only the author's view. The contents of this report can in no way be taken to reflect the views of the European Commission.



Key messages

Based on a survey sent to glass eel fishers, traders and restocking authorities across Europe in spring 2017, we found that:

- The European Eel Regulation sets a level of 60 % of the annual catch of young eels to be reserved for restocking. In 2016 and 2017 respectively, only 21 % of the declared European catch were used for restocking measures;
- The demand for young eel in national Eel Management Plans has never been fulfilled. On average, only 51 % of the aggregated national targets were achieved between 2015 - 2017;
- Lack of supply and lack of funding has been cited as the principal cause of failure to meet the restocking targets;
- French quota and reported European catches exceed the demand in Europe, but the major share of the supply is illegally exported to Asia. In the absence of a Europe-wide traceability system, this illegal export is growing;
- Many survey-respondents stated that the tendering process is the main constraint to achieving their plans for restocking: European trade regulations take little account of the variations resulting from nature (especially availability and quality);
- The European Maritime Fisheries Fund (EMFF) presents both challenges and opportunities for restocking practices;
- Both eel quality (health and condition) and habitat suitability (water quality, connectivity) are important considerations when releasing eels for restocking.
- Fundamental reform of the process for restocking is urgently needed to be put in place for the coming 2018/2019 season.

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Suggested citation:

Anonymous (2018) Evaluation of eel restocking across Europe and recommendations for improvement. Sustainable Eel Group. SEG-Report:2018-2-V1

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1. Introduction and scope of the study

The European Eel (*Anguilla anguilla*) is subject to the European Eel Regulation (Council Regulation (EC) No 1100/2007¹) for establishing measures for the recovery of the stock of the European eel. Within the Regulation restocking is used as a ‘conservation measure’ and many country’s Eel Management Plans, as approved by the EU, are heavily dependent upon implementing this measure.

The practice of restocking pre-dates the Eel Regulation and is done to increase the number of adult silver eel, and their eventual escapement to sea for reproduction. This is done by capturing glass eels which arrive in relatively high numbers in certain coastal areas, and releasing them in favourable habitat inland. Since European waters are fragmented and migration routes are blocked by many migration barriers, restocking waters need to have free access to the sea

The Sustainable Eel Group (SEG) is increasingly concerned that the restocking measure is not being effectively implemented in line with the intention of the Regulation. In particular, this complex practice may not realise the anticipated and desired results for eel recovery. A plethora of methods have developed and contract processes evolved that may be unintentionally working against the stock recovery. In the last few years there have been restocking orders unfilled and quality levels not met. The target of 60% of eels less than 12cm (glass eels) caught annually to be reserved for restocking² has not been achieved. The impression is that the present framework for delivering this recovery measure, notably the tendering process, is not adequate for a live commodity such as the glass eel. The first step is to establish the facts, hence the motivation for this study. What exactly is happening in the principal countries, what is going wrong and why? What are the best practices and what recommendations would help redress the current situation?

Scope

In EU Member States where eel restocking takes place, governmental bodies or other structures involved in the restocking process were identified, from those involved in governance through to the final releasing of the eels. In total, the survey was sent to 83 contacts including representatives from fisheries, trade, aquaculture and restocking authorities from 18 Member States. In addition, information of the survey circulated around the SEG’s network. There was good geographic coverage in the replies. In Germany, where fishing legislation is managed at the regional level (16 Bundesländer), response rate was high, which makes German replies dominate the survey.

Reports from the EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), were used to complement the information on restocking targets.

The survey contained a list of 17 questions (Annex 1), and took place in the first quarter of 2017. This report compiles the results of questions 4 to 17. The information received on questions 1 to 3 was used for a separate report on market demand and trafficking in European eels. According to the report, about 50 % of the declared European catch was trafficked to Asia in 2016 and 2017³.

The findings are presented under 4 main headings, followed by section on recommendations:

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32007R1100>

² Article 7 of Council Regulation (EC) No 1100/2007

³ SEG-Report:2018-1-V1 „Quantifying the illegal trade in European glass eels (*Anguilla anguilla*): Evidences and Indicators” <http://www.sustainableeelgroup.org/wp-content/uploads/2018/02/SEG-Report-2018-1-V1-1.pdf>

- Current restocking practices
- Results in achieving restocking targets (2011 to 2017)
- Use of EMFF grants to fund restocking
- Tendering process for purchase of glass eel for restocking

Table 1. Response rate to survey

	Commercial	Restocking Institutions		Commercial	Restocking Institutions
Belgium		1	Latvia		1
Denmark	1	1	Lithuania		1
Estonia		1	Netherlands		1
France	1	1	Poland		1
Greece		1	Spain	1	
Germany	1	10	Sweden	1	
Italy		1	UK	1	
Total replies n= 27, (commercial 30%, restocking institutions 70%)					

Aim

To make practical recommendations as to how to make the restocking contracting and work practices of the European Eel more effective.

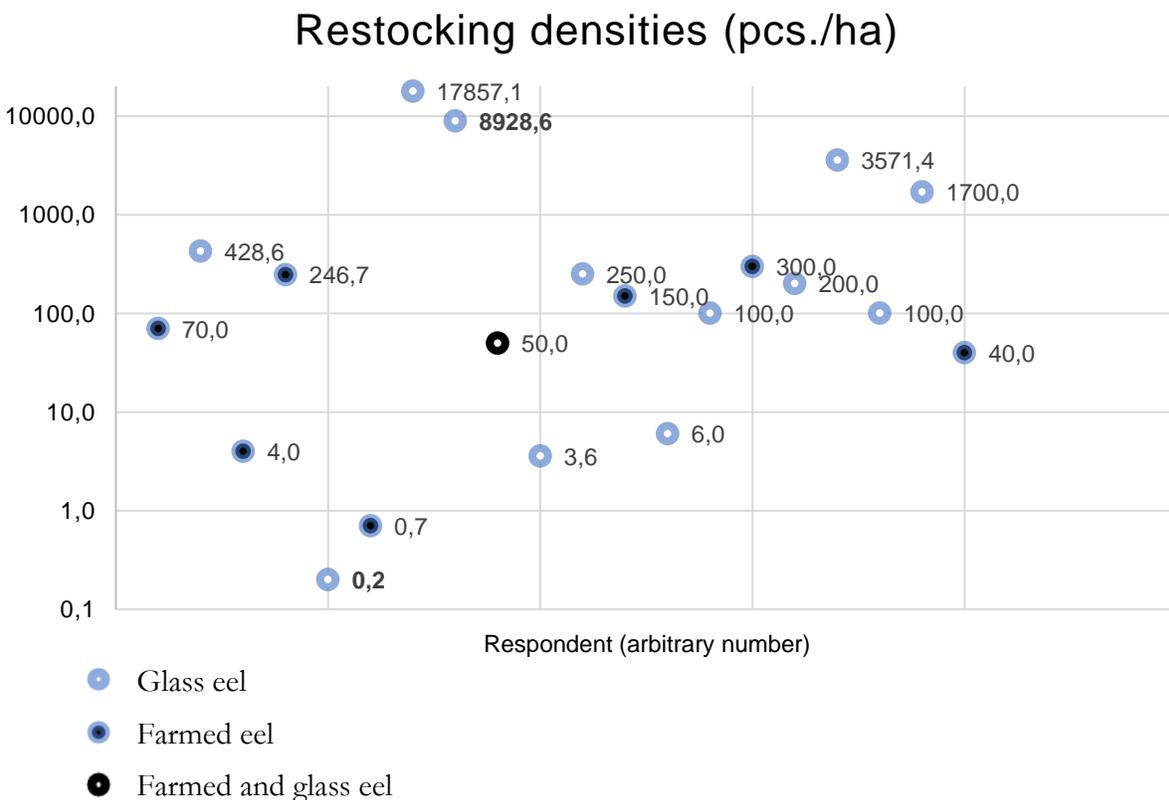
Objectives

1. To review and record the current contracting practices in selected EU Member States, and identify the problems and limitations of these methods.
2. To identify and recommend on the best method of contracting that can be practically adopted in the major restocking countries.
3. To review and record the current work practices adopted in the countries at objective one and identify the limitations
4. To make specific recommendations to improve the effectiveness of current restocking practices.

2. Current restocking practices

Within a year of the implementation of the Eel Regulation in 2009, the quantity of glass eel used for restocking rose from 1 tonne to over 4.3 tonnes (13 million glass eels). However, this amount used for restocking in 2010 was short of the estimated amount needed to meet the aggregated targets of the national Eel Management Plans (EMP). As shown in the following section on restocking targets, **in no year have the targets been met**. The amount of glass eels used for restocking increased up until 2014 due to favourable market prices allowed larger number of glass eels be purchased for restocking. However, in 2015, the glass eel suppliers had problems fulfilling glass eel orders placed by several countries, resulting in reduced restocking⁴.

Figure 1. Replies from questionnaire (question 4 - How many hectares will be stocked and with what densities?). Presented below as restocking densities on log scale



There was considerable variation in restocking densities of glass eel restocking, ranging from 0.2 pieces per hectare (pcs/ha) to almost 9,000 pcs/ha. The figure of 17,857 pcs/ha, is based on a limit for maximum restocking density in France of 5kg/ha. In France, the density of glass eels restocked must be less than 5 kg/ha, and less than 2.5 kg/ha when the area has been restocked before.

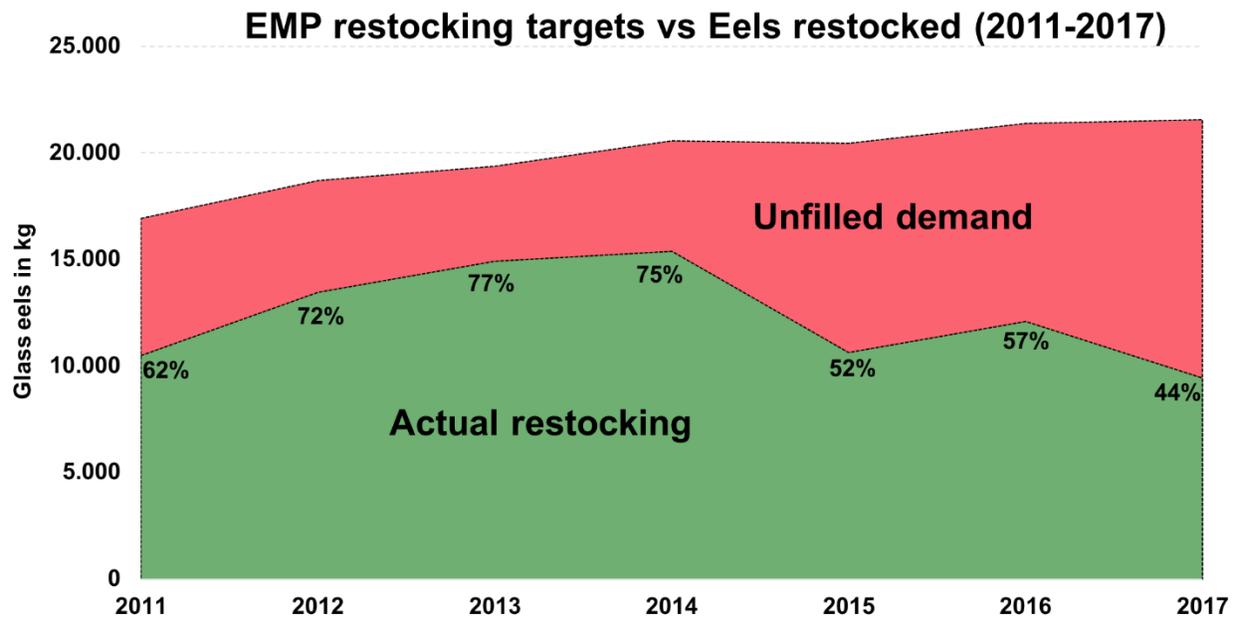
⁴ ICES. 2016. Report of the Working Group on Eels (WGEEL), 15–22 September 2016, Cordoba, Spain. ICES CM 2016/ACOM:19. 107 pp.

3. Restocking Targets

From the WGEEL reports 2011-2017⁵, and complementary by the SEG survey in 2017, at least 14 EU Member States carried out some restocking of glass eels and farmed eels (converted to glass eel equivalent). As highlighted above, in no year have the restocking targets been met, even though in some years, individual member states did meet their targets. For example in 2016, Sweden (115%), the Netherlands (207%) and France (100%) managed to achieve their restocking targets⁶. For information on individual countries per year see Annex 3 of this report. Note that Members of the WGEEL were consulted to review and correct available data.

In the WGEEL report 2016, it is stated that lack of supply and lack of funding were cited in both 2015 and 2016 as the principal cause of failure to meet the restocking targets.

Figure 2. The glass eel restocking targets in Eel Managements Plans and percentage of target reached. Source: WGEEL and SEG survey used for this report



As mentioned in the previous section, and elaborated further in section 5, the restocking targets are not being met and many responding to the survey stated that the tendering process presents constraints to achieving the restocking targets, due the unique nature of the commodity and the market (i.e. difficulty of applying a system developed for inert products which can be stored, to a fragile live commodity).

⁵ <http://ices.dk/community/groups/Pages/WGEEL.aspx>

⁶ ICES. 2016. Report of the Working Group on Eels (WGEEL), 15–22 September 2016, Cordoba, Spain. ICES CM 2016/ACOM:19. 107 pp.

4. EMFF Grants

As identified in the Eel Regulation, *‘the success of measures for the recovery of the European eel stock depends on close cooperation and coherent action at Community, Member State and local and regional level as well as on information, consultation and involvement of the public sectors involved. To this end support from the European Fisheries Fund may contribute to the effective implementation of Eel Management Plans’*. The European Fisheries Fund (EFF) has been replaced by the European Maritime Fisheries Fund (EMFF) from 2014.

Replies to the questions concerning the use of EMFF funds for restocking show the importance of EMFF for restocking activity. The majority of participants replied that funds are available for restocking and more than half of the study participants claim that they apply for EMFF funds. EMFF co-funding rates vary between members states and enable to increase the available fund for restocking supplementing the national funds. In contrast, temporal availability of funds does not always match with the availability of eels, especially glass eels. This is compounded by the fact that the average ‘shelf life’ of the glass eels is only around 10 days once caught. Since glass eels fishing in most catch countries is limited to certain national regulated fishing periods in the autumn and winter, availability after the end of the first quarter of the year and beyond is very unlikely. Taking into account that 5 out of 11 replies mentioned availability of funds in the second and third quarter, restocking with glass eels is therefore almost impossible. Alternatively, countries restock eels which were kept in aquaculture before restocking. In captivity, eels are raised to pigmentation stage and greater body size. Since they are kept in the farm until demanded, the buyer is quite independent from recruitment timing as well as temporal availability of funds. The price per farmed individual is significantly higher than for glass eels.

5. Tendering process

In the survey the issue of the market supply and tendering process⁷ was prominent in the feedback received. Many difficulties were reported.

There are at least three stages to the process. The fishermen catching and selling the eels to a collector/wholesaler who in turn sells them to a restocking authority. In many instances there is also an eel farm where the fish are grown on for between 10 weeks and a year.

Due to the necessary and lengthy administrative process, the restocking authorities prepare the tender several weeks in advance without prior knowledge of both availability timing and market price.

Once glass eels have been fished and become available on the market, the collector / wholesaler then has to negotiate to purchase them. When the river bank is low there is a chance of the process working. However, as the tender requires the lowest price bidder to win the restocking contract to supply the glass eels the situation often develops where the tender price is lower than the cost price on the river bank. The situation can develop where the supplier, having won a tender due to the offer of a low

⁷ When public authorities are procuring supplies or services, EU law sets minimum harmonized rules that apply to tenders above a certain threshold value (for public supply and service contracts, a threshold of € 209,000 applies, although for central government authorities the threshold €135,000)

price, can then not afford buy glass eels. Frequently the outcome is that suppliers are not able to fulfil the order for the tender.

The risks are further compounded for the wholesaler / collector when they fail to win the tender and become stuck with a batch of unsold live glass eel. If another potential buyer is not found quickly say within 10 days mortality starts to rise dramatically and the batch of eels can quickly be lost.

In France for example it is not theoretically possible to purchase glass eels from the restocking quota without proof of a restocking order, i.e. already having won the tender.

Solutions to the mismatch between a long administrative process and a commodity with short shelf life do exist, but are not widely applied. An example being in the Netherlands where a framework agreement process for tendering for glass/juvenile eel. This provides a longer-term planning, and shorter time frame for buying stocks.

The bureaucracy of the EMFF and availability of funds is also identified as a limiting factor (see previous section and following recommendations section).

6. Recommendations

- **Need to improve and synchronize restocking practices to assist the recovery of the European eel**

Both **eel quality** (disease, parasitic burdens, physical condition) and **habitat suitability** (water quality, connectivity) are important considerations when releasing eels for restocking.

In relation to restocking as a recovery measure, uncertainties in fishing and post-fishing glass eel mortalities are of high concern. Studies on glass eel mortality are available^{8 9}, but limited in geographic coverage. Further research and review of scientific and grey literature is required to draw further conclusions. In the replies to the questionnaire it was suggested that greater synchronized health certification/quarantine is necessary.

Equally a synchronized protocol to identify appropriate water bodies for restocking should be developed, in terms of habitat quality and connectivity to allow eels to complete their life cycle inland and ensure final escapement to sea.

It should also be considered if restocking is the most appropriate recovery measure (e.g. due to high mortalities and lack of habitat in the receiving waters).

- **The current hurdles to achieving restocking targets should be addressed as a matter of priority**

It is clear from the results presented in this report that restocking targets are not being met. This is of particular concern as it is one of the primary recovery measures in the Eel Management Plans of many Member States.

⁸ Briand C, Beaulaton L (2012) Push net fishing seems to be responsible for injuries and post fishing mortality in glass eel in the Vilaine estuary (France) in 2007. *Knowledge and Management of Aquatic Ecosystems* (2012) 404, 02.

⁹ Rigaud C, Beaulaton L, Briand C, Charrier F, Feunteun E, Mazel V, Pozet F, Prévost E, Tréguier A, Verreault G (2015) Le programme français de repeuplement en civelles. Bilan des trois premières années de transferts . Rapport d'expertise. GRISAM

While further investigation into the causes for failure is required, one suggestion that has been put forward is to ensure stable price conditions and predictable market opportunities for commercial fishermen selling glass eels for restocking.

- **Use of co-financing from the EMFF available to assist the restocking process**

From the available data (Figure 2 & Annex 3) the 2016/2017 restocking target amounts to approximately 21.5 tonnes of glass eel. Based on the mean price of the last 4 years (357 €/kg), a total fund of €7.7 M would be required. Given that the EMFF co-financing rates are determined on the basis of the amount of eligible public expenditure, the EC contribution would most likely range between 20% and 75%, but higher rates are available under certain conditions.

Monetary quantification of the total restocking targets defined in the EMP, on the basis of an EMFF co-funding rate of 50 % amounts to €3.8 M which is 0.46% of the annual EMFF fund allocations (€820 M).

Current conditions with fluctuating prices and uncertainty of availability of fish and funds impede proper and timely restocking management. Fixed, adequate prices would enable coherent planning for fishermen, traders and customers and therefore significantly lower the risk of illegal exports to Asia¹⁰. Such a system would need tight controls and full traceability to counter the emerging practice of eel farmers buying glass eel from the restocking quota (price advantage) and then eventually selling them into consumption.

Glass eel restocking is explicitly mentioned as an eligible measure in Council Regulation (EC) No 1100/2007 on which basis the national EMPs were approved by the European Commission (EC). Therefore, it should be in the EC's best interest to provide a framework that enables Member States to reach their restocking targets.

We suggest to establish an European management body, responsible to facilitate national restocking programs and its financing. In combination with extracting the required amount from the general EMFF fund, this would enable quick and less bureaucratic availability of funds for restocking purposes. Centralized management of European-wide eel restocking should furthermore include the establishment of national accountability and a fixed price per kilogram for live glass eels, destined for restocking purpose.

- **Adapt the tendering process and/or conditions to suit a commodity such as glass eel**

As the availability of glass eels and subsequent market price is unpredictable, the process of winning tenders and fulfilling orders can present serious difficulties for those supplying for restocking. Given the short shelf life of glass eels, a standard tendering process is not suitable due the length of the administrative process. This can be solved by using a framework agreement process for tendering for glass (or juvenile eel). This meets with rules on procurement and allows longer-term planning, plus providing security for both the buyer and supplier.

Eel quality should have a greater priority in the tendering process to maximise the effectiveness of restocking as recovery measure. If the batch is damaged or diseased then the benefits will be lost. Price should not be the primary criteria for awarding contracts. Tenders for restocking contracts should specify criteria to require that the eels supplied should be disease free, and sourced and handled in such a way that survival is maximised. In this respect, criteria outlined in the [SEG Standard](#)¹¹ in the components for glass eel fishing, trading and farming are recommended. To gain greater assurance

¹⁰ SEG-Report:2018-1-V1 „Quantifying the illegal trade in European glass eels (*Anguilla anguilla*): Evidences and Indicators”
<http://www.sustainableeelgroup.org/wp-content/uploads/2018/02/SEG-Report-2018-1-V1-1.pdf>

¹¹ <http://www.sustainableeelgroup.org/seg-standard-2/>

of meeting those criteria, tenders could specify that eels for restocking are from sources and suppliers that meet the SEG Standard.

- **Improve system of traceability**

The illegal export of European glass eels from Europe to Asia is a serious threat to species recovery efforts since it creates a shortage in availability for restocking measures. According to the SEG report on glass eel trafficking, at least 50 % of the declared European catch was trafficked to Asia in 2016 and 2017¹². Adding illegal catches (IUU fishing), the total of trafficked eels likely exceeds the legal European catches¹³. This must have a dramatic effect on the availability of glass eels for restocking.

Illegal exports of glass eels are enabled by the lack of real time traceability systems both within and between Member States as well as externally. Additionally, there are inadequate controls of fishermen and traders.

Existing traceability systems across the EU are not sufficiently implemented to fully trace all eel trade even though Member States have been obliged to introduce adequate traceability systems since 2007 through Article 12 of Council Regulation (EC) No 1100/2007:

*“No later than 1 July 2009, Member States shall: - take the measures necessary to identify the origin and ensure the traceability of **all live eels imported or exported** from their territory (...)”*

TRACES (Trade Control and Expert System) is obliged for glass eel trade in some Member States but since it is primarily created as veterinarian certification tool, it does not fully meet the requirements for glass eel trade in its current form. In the ‘Joint Declaration on strengthening the recovery for European eel’ from 13 December 2017¹⁴, the European Commission and Member States agreed to improve the control of eel fisheries and increase their efforts with respect to fighting against illegal eel fishing and illegal trade of eels. The declaration continues that this may include the use of existing appropriate IT tools to ensure the traceability of eels at all life stages and to the final trade destination of the eels, both when they are used for human consumption directly or after rearing in aquaculture and when they are used for restocking, assisted migration or trap and transport purposes.

In order to meet the requirements of Article 12 and therefore to ensure the full traceability of all eel trade, a European-wide, harmonised system and approach is urgently required.

¹² SEG-Report:2018-1-V1 „Quantifying the illegal trade in European glass eels (*Anguilla anguilla*): Evidences and Indicators”
<http://www.sustainableeelgroup.org/wp-content/uploads/2018/02/SEG-Report-2018-1-V1-1.pdf>

¹³ <https://www.euractiv.com/section/economy-jobs/news/mystery-of-the-eel-europes-own-ivory-trade/>

¹⁴ <http://data.consilium.europa.eu/doc/document/ST-15687-2017-INIT/en/pdf>

Annex 1 - Questionnaire



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Questionnaire: Identification of problems that hamper eel restocking across Europe

Name:

Institution:

Phone:

Email:

1. What is your expected glass/farmed eel demand in season 2016/2017?
Please type here
2. What is your expected commercial use including stocking for fishery use (numbers of individuals or weight*) in 2016/17?
Please type here
3. How many eels are you planning to use for restocking (recovery measure) (numbers of individuals or weight*) in 2016/17?
Please type here
4. How many hectares will be stocked and with what densities?
Please type here
5. Do you have specific rules for the water bodies that will be restocked (access to sea, limited fishing etc.)? If yes, please provide details and references.
Please type here
6. What is your EMP restocking target** (number of individuals or weight*)?
Please type here
7. Are EMFF grants available in your country that support restocking measures?
Please type here
8. Do you apply for EMFF grants to support restocking?
Please type here

9. When are EMFF grants usually available (mm/yy)?
Please type here
10. Do you have private restocking by fishermen? Please provide details on amounts and contact details.
Please type here
11. Do you have a system like ESF (www.esf.international) that enables funding or co-funding for restocking?
Please type here
12. Do you advertise your call for tender nationally or internationally?
Please type here
13. Do you have to consider specific national regulations when purchasing glass eels/farmed eels? If yes, please provide details and references.
Please type here
14. Were you able to purchase the required amounts of glass/farmed eels in the past years?
Please type here
15. Where do you see the highest risks in terms of purchasing the required amounts of glass/farmed eels?
Please type here
16. What are your recommendations to improve the situation?
Please type here
17. What is your demand in terms of “traceability of the eels”, e.g. how important is it for you to have proof where the eels were caught? (scale from 1-10)?
Please type here

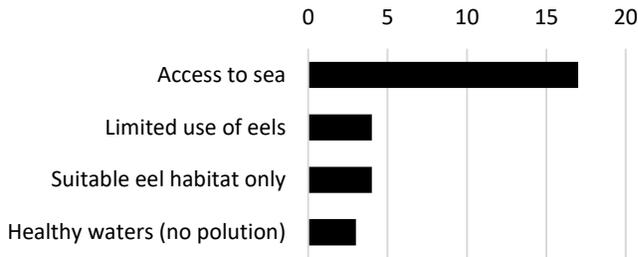
* if you use weight, please provide total weight and mean individual weight

** please specify if this is a national target or if you have targets per Eel Management Unit (EMU)

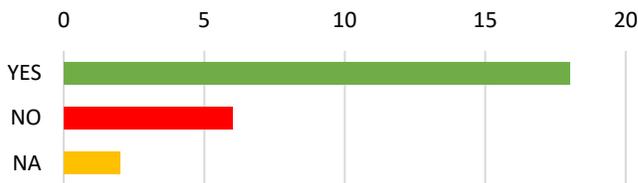
Annex 2 – Summary of replies to questionnaire:

Note that questions 1 to 3 are used for separate report, and questions 4 and 6 are detailed in the body of this report.

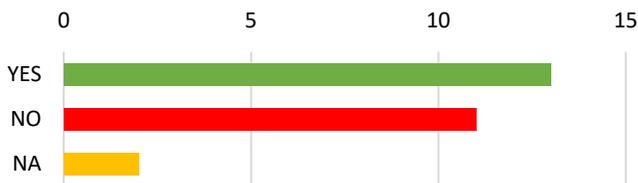
Question 5 - Do you have specific rules for the water bodies that will be restocked?



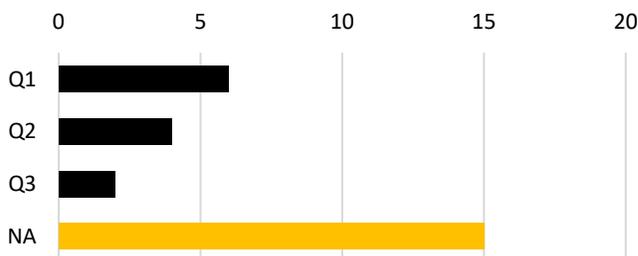
Question 7 - Are EMFF grants available in your county that support restocking?



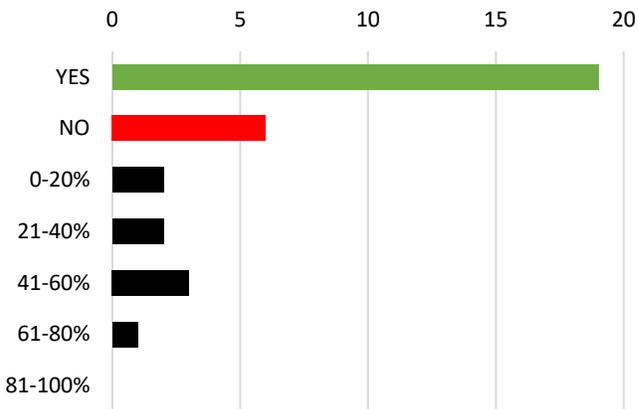
Question 8 - Do you apply for EMFF grants to support restocking?



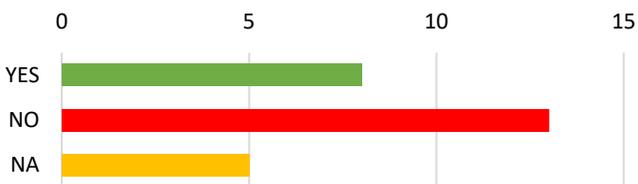
Question 9 - When are EMFF grants usually available during the year (Q1-Q4)?



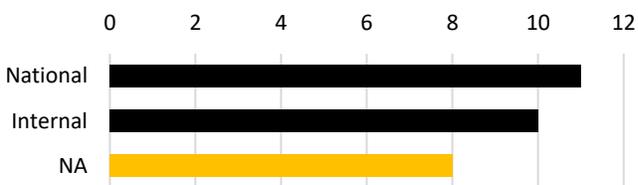
Question 10 - Do you private restocking by fishermen? Please provide details on amounts



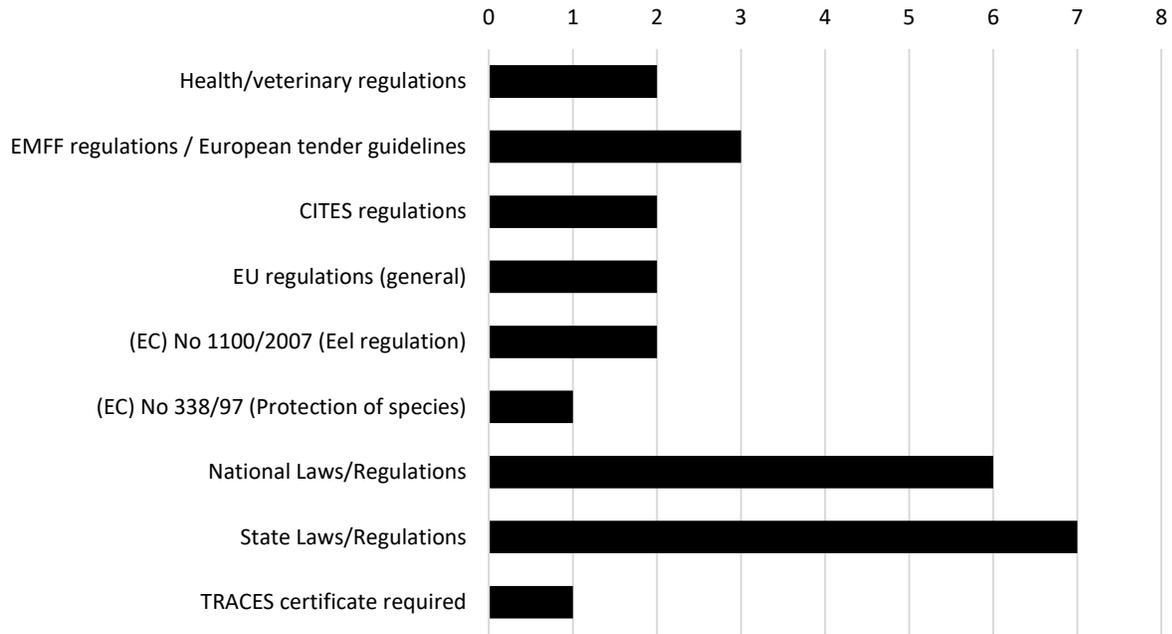
Question 11 - Do you have a system like ESF that enables funding or co-funding for restocking?



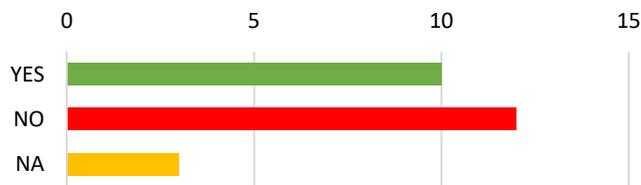
Question 12 - Do you advertise your call for tender nationally or internationally?



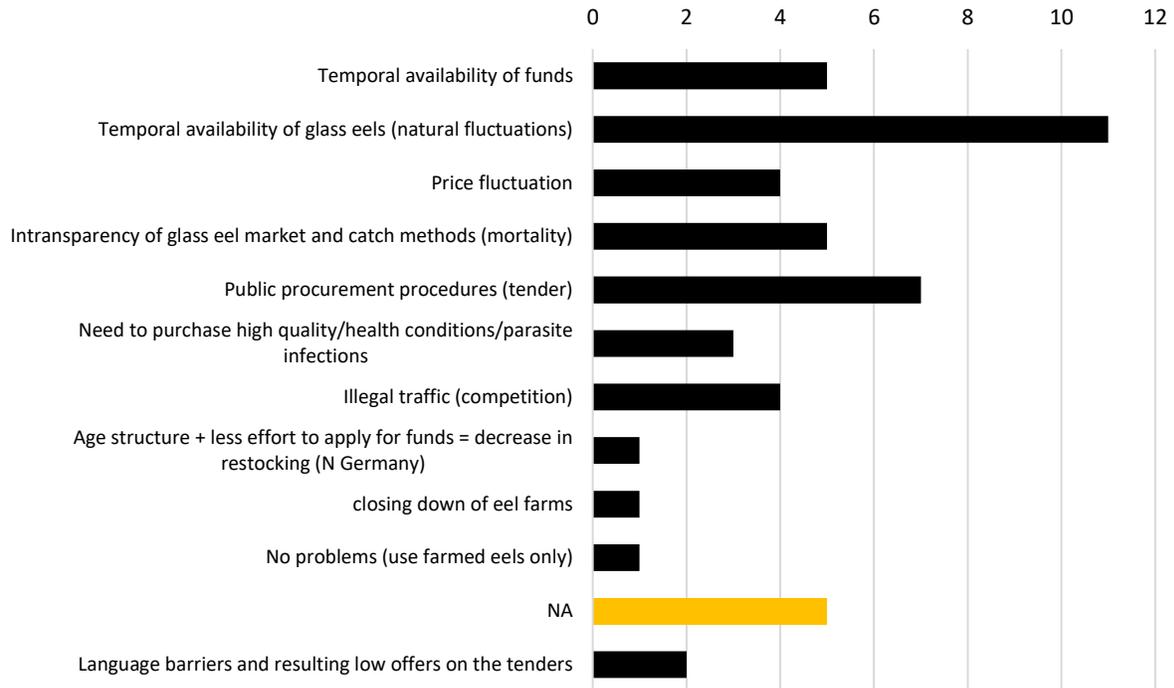
Question 13 - Do you have to consider specific national regulations when purchasing glass eels/farmed eels? If yes, please provide details and references



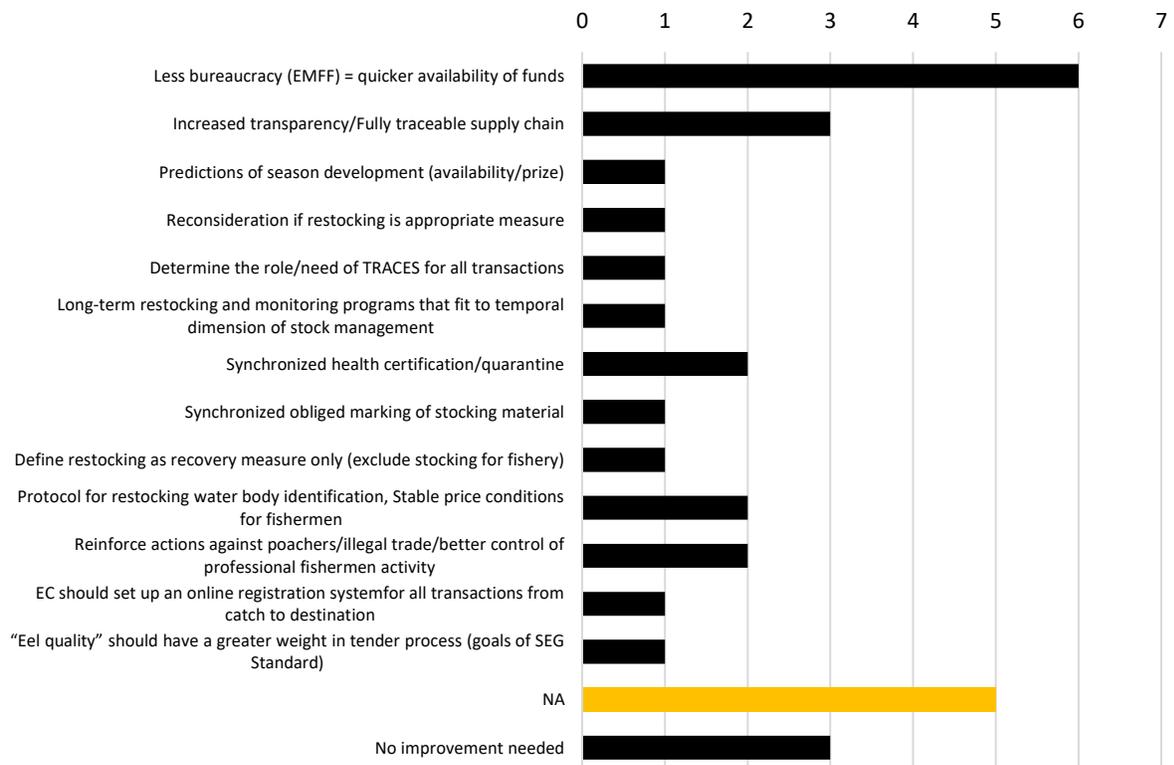
Question 14 - Were you able to purchase the required amounts of glass/farmed eels in the past years?



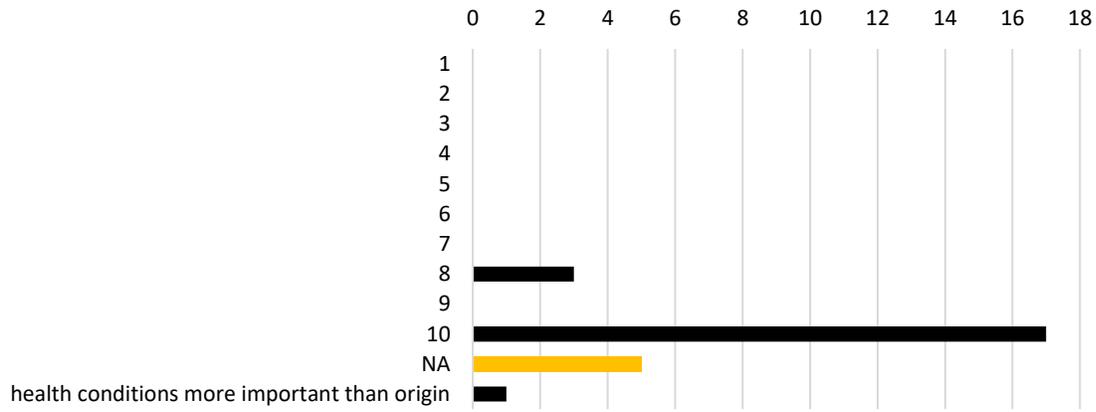
Question 15 - Where do you see the highest risks in terms of purchasing the required amounts of glass/farmed eels?



Question 16 – What are your recommendations to improve the situation?



Question 17 – What is your demand in terms of ‘traceability of the eels’, e.g. how important is it for you to have proof where the eels were caught (scale 1-10)



Annex 3 - Eel Managements Plan restocking targets and results 2011 to 2017

Country	2011		2012		2013		2014		2015		2016		2017	
	Stocked	Target	Stocked	Target										
	(kg)	(kg)	(kg)											
Austria	NA	NA	NA	NA	8	NA	NA	NA	NA	NA	8	NA	NA	NA
Belgium*	160	500	206	1 200	144	1 200	540	2 200	0	2 200	385	2 200	242	2 200
Bulgaria	NA	NA	NA											
Cyprus	NA	NA	NA											
Czec Rep.	30	NA	NA	NA										
Denmark* ¹	389	216	366	216	383	216	400	216	400	216	397	216	397	216
Estonia* ²	293	333	343	333	339	333	1 063	333	623	333	373	333	105	333
Finland*	306	500	177	500	197	500	147	500	102	1000	79	1000	121	1000
France* ³	758	1 739	3 086	1 713	2 925	1 681	5 679	1 721	1 155	1 504	3 449	2 319	2 329	2 302
Germany* ⁴	5 621	8 628	5 438	9 481	5 938	10 280	5448	10 280	5448	10 280	4 953	10 280	3 926	10 280
Greece* ⁵	NA	NA	NA	NA	134	NA	25	NA	369	NA	85	NA	50	NA
Hungary	NA	NA	NA											
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy* ⁶	86	6 538	0	6 753	?	6 763	0	6 803	?	7 093	?	7 143	?	1 230
Latvia*	87	87	294	343	0	250	380	380	0	0	0	98	294	294
Lithuania*	38	857	126	857	371	857	109	857	128	857	76	857	0	857
Luxembourg	NA	NA	NA											
Malta	NA	NA	NA											
Netherlands ⁷	213	550	766	550	630	550	0	550	591	550	1 140	550	980	550
Norway*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poland*	764	743	499	743	994	743	656	743	1 036	743	430	743	NA	743
Portugal	NA	NA	NA											
Romania	NA	NA	NA											
Slovakia	80	NA	NA	NA										
Slovenia	NA	NA	NA											
Spain* ⁸	136	NA	450	NA	98	NA	129	NA	47	NA	3	NA	116	NA
Sweden*	798	714	832	714	845	714	960	714	545	714	813	714	267	714
UK	1 046	2 054	1 320	2 054	2 151	2 054	0	2 054	605	2 054	0	2 054	771	2 054
Total**	10 473	16 921	13 453	18 704	14 917	19 378	15 382	20 548	10 633	20 451	12 095	21 364	9 432	21 543
Proportion of targets reached	62 %		72 %		77 %		75 %		52 %		57 %		44 %	

Notes (Annex 3 cont.):

Stocked = eels that were stocked as recovery measure;

Target = Restocking target as defined in National Eel Management Plan (EMP);

Data were collected from annual Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) reports 2011-2017 and complemented by SEG market survey 2017. Members of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) were consulted to review and correct available data. If data were not available in kilogram glass eel, data were converted to glass eel equivalent, based on information about individual mean weight (farmed eels). Numbers of glass eel per kilogram were considered from 3000 to 3500 individuals per kilogram, depending on available information about individual mean weight.;

*Members of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) reviewed and corrected available data;

** Numbers were only taken into account if EMP target is defined for specific years;

¹ target numbers are as defined in EMP, but for recovery DK considers a target of 5000kg;

² target defined as 1M glass eels or 0.3 M farmed eels;

³ target defined as 5-10% of annual catch, 5% is added here. Target matched if 5% reached, according to ARA France;

⁴ 2014, 2015: stocking data not available. Therefore, the mean proportion (53%) of years 2011-2013 and 2015-2016 was included;

⁵ target defined as 10% of imported biomass;

⁶ data on stocking and stocking targets unclear and therefore not considered in calculation;

⁷ DUPAN provided restocking data for the Netherlands which were not considered in the table: 2011-276 kg; 2012-781 kg; 2013-703 kg; 2014-2426 kg; 2015-496 kg; 2016-1815 kg; 2017-1170 kg

⁸ regional targets have characteristics of a recommendation rather than definite targets as recovery measure. In the different regions, targets include different life stages.