European Commission

Evaluation of the Eel Regulation

Final Report

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ACRONYMS / ABBREVIATIONS

Acronyms / Abbreviations	Definition
B_0	The amount of silver eel biomass that would have existed if no anthropogenic influences had impacted the stock
B_{best}	The amount of silver eel biomass that would have existed if no anthropogenic influences had impacted the current stock, hence only natural mortality operating on stock, i.e. excluding restocking practices
$B_{current}$	The amount of silver eel biomass that currently escapes to the sea to spawn
CDT	Catch documentation and traceability
CFP	Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CMS	The Convention on the Conservation of Migratory Species of Wild Animals
CR	Critically Endangered
DG MARE	Directorate-General for Maritime Affairs and Fisheries
EFCA	European Fisheries Control Agency
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission
EMFF	European Maritime Fisheries Fund
EMP	Eel Management Plan
EQ	Evaluation Question
EQM	Evaluation Questions Matrix
EQR	Environmental Quality Ratio
EU	European Union
GES	Good Environmental Status
GFCM	General Fisheries Commission for the Mediterranean
HEMP	Hellenic Eel Management Plan
ICES	International Council for the Exploration of the Sea
ITC	Internal Trade Certificates
IUCN	International Union for the Conservation of Nature
IUU	Illegal, Unreported and Unregulated
JC	Judgement Criterion
MS	Member State
MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
NDF	Non-Detriment Finding
PC	Public Consultation
PGA	Plans de Gestion des Anguilles (French: EMP)
PGI	Protected Geographical Indication
RBD	River Basin District
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SCIPs	Specific Control and Inspection Programmes

Acronyms / Abbreviations	Definition
Sigma ΣA	The sum of anthropogenic mortalities, i.e. sigma A = sigma F + sigma H. It refers to mortalities summed over the age groups in the stock
Sigma ΣF	The fishing mortality rate, summed over the age groups in the stock
Sigma ΣH	Anthropogenic mortality rate outside the fishery, summed over the age groups in the stock
SMEF	Sustainable Management of the External Fishing fleets
SPA	Special Protection Area
SRG	Scientific Review Group
ToR	Terms of Reference
VMS	Vessel monitoring System
WFD	Water Framework Directive
WGEEL	Joint EIFAAC/ICES/GFCM Working Group on Eels
WKEELCITES	Workshop on Eel and CITES
WKEMP	Workshop for the Review of Eel Management Plan Progress Reports
WKSTOCKEEL	Workshop on Eel Stocking

Country codes			
Country Code	Country Name	Country Code	Country Name
AT	Austria	IT	Italy
BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxembourg
CY	Cyprus	LV	Latvia
CZ	Czech Republic	MT	Malta
DE	Germany	NL	Netherlands
DK	Denmark	NO	Norway
EE	Estonia	PL	Poland
EL / GR	Greece	PT	Portugal
ES	Spain	RO	Romania
FI	Finland	SE	Sweden
FR	France	SI	Slovenia
HR	Croatia	SK	Slovakia
HU	Hungary	TN	Tunisia
IE	Ireland	TR	Turkey
		UK / GB	United Kingdom

GLOSSARY OF KEY TERMS USED IN THIS EVALUATION

Where applicable, definitions from the ICES WGEEL reports and Hanel (2019) were used.

Term	Meaning or Definition
Anthropogenic Mortality Rate (Sigma ΣH)	The anthropogenic mortality rate outside the fishery, summed over the age groups in the stock.
Current biomass ($B_{current}$)	The amount of silver eel biomass that currently escapes to the sea to spawn.
Eel Management Unit (EMU)	"*Member States shall identify and define the individual river basins lying within their national territory that constitute natural habitats for the European eel (eel river basins) which may include maritime waters. If appropriate justification is provided, a Member State may designate the whole of its national territory or an existing regional administrative unit as one eel river basin. In defining eel river basins, Member States shall have the maximum possible regard for the administrative arrangements referred to in Article 3 of Directive 2000/60/EC [i.e. River Basin Districts of the Water Framework Directive].*" EC No. 1100/2007.
Elver	Young eel, in its first year following recruitment from the ocean. The elver stage is sometimes considered to exclude the glass eel stage, but not by everyone. To avoid confusion, pigmented 0+ cohort age eels are included in the glass eel term.
Escapement	The amount of silver eel that leaves (escapes) a water body, after taking account of all natural and anthropogenic losses.
Fishing Mortality Rate (Sigma ΣF)	The fishing mortality rate, summed over the age groups in the stock.
Glass eel	Young, unpigmented eel, recruiting from the sea into continental waters. WGEEL consider the glass eel term to include all recruits of the 0+ cohort age. In some cases, however, also includes the early pigmented stages.
Pristine biomass (B0)	The amount of silver eel biomass that would have existed if no anthropo-genic influences had impacted the stock.
Silver eel	Migratory phase following the yellow eel phase. Eel in this phase are characterized by darkened back, silvery belly with a clearly contrasting black lateral line, enlarged eyes. Silver eel undertake downstream migration towards the sea, and subsequently westwards. This phase mainly occurs in the second half of calendar years, although some are observed throughout winter and following spring.
Stocking / Restocking	Stocking is the practice of adding fish to a waterbody from another source, to supplement existing populations or to create a population where none exists. Since eels cannot be artificially reproduced, stocking material is always wild caught.
Translocation	Removal of eels from one place (e.g. the coast of arrival) to another (e.g. river or lake) to increase local population numbers.
Yellow eel	Life-stage resident in continental waters. Often defined as a sedentary phase, but migration within and between rivers, and to and from coastal waters occurs and therefore includes young

	pigmented eels ('elvers' and bootlace). Sometimes yellow eel is also called 'brown eel'.

Abstract / Résumé / Abstrakt

EN: The EU Eel Regulation (2007) required Member States (MS) to establish eel management plans (EMPs) for their river basins that constitute significant eel habitats. To date nineteen MSs have produced EMPs, six have been exempted, with only Croatia, Bulgaria and Slovenia not submitting a plan. The main measures included reducing fishing mortality and improved eel escapement, principally through improving river corridor connectivity. This evaluation examines whether changes need to be made to the Regulation and / or its implementation.

At first glance progress since 2007 has been limited to date. Overall biomass and escapement levels have not yet significantly improved. The recovery of the eel stock is, however, recognised to be a long-term process and the Regulation is considered to remain both relevant and likely to be effective over time. There have been notable successes in terms of reducing fishing mortality, improving river connectivity and improving the traceability of the eel supply chain within the EU.

Whilst the Regulation is still relevant, its implementation needs considerable improvement, especially when addressing non-fisheries related anthropogenic mortality. There needs to be an increased focus on working at the eel management unit level in order to address their particular challenges. Finally it is suggested that the European eel stock could come under a stock-wide regional fisheries management approach, with the EU role underpinned by the Regulation.

FR: Le règlement sur l'anguille européenne (2007) requiert des États membres qu'ils établissent des plans de gestion des anguilles (PGA) dans les bassins hydrographiques qui constituent un stock d'anguilles significatif. À l'exclusion de la Croatie, la Bulgarie et la Slovénie, 19 États membres ont mis en place un PGA à ce jour. Six États membres ont été exemptés de cette obligation. Les principales mesures adoptées portent sur la réduction de la mortalité des anguilles lors des activités de pêche ainsi que l'amélioration des taux d'échappement des anguilles, notamment par l'adoption de mesures structurelles visant à permettre le franchissement des rivières. Cette évaluation considère si des modifications sont nécessaires afin d'améliorer le règlement et sa mise en œuvre.

À première vue, les progrès depuis 2007 apparaissent limités. Pour l'instant, la biomasse et le taux d'échappement des anguilles n'ont pas augmenté de manière significative. Cependant, l'accroissement du stock d'anguilles est reconnu comme un processus de long terme pour lequel le règlement européen reste pertinent. Le règlement est aussi considéré comme potentiellement efficace à l'atteinte de ses objectifs au fil du temps. Il a déjà donné lieu à quelques succès notables concernant la réduction du taux de mortalité, l'amélioration de la connectivité des rivières et la traçabilité des anguilles dans la chaîne de traitement en Europe.

Bien que le règlement soit toujours pertinent, l'évaluation détermine que sa mise en œuvre doit être améliorée notamment en ce qui concerne le taux de mortalité anthropique des anguilles non lié aux activités de pêche. L'évaluation conclut également qu'il est nécessaire de se concentrer davantage au niveau des unités de gestion de l'anguille (UGA) afin de résoudre les difficultés propres à chacune d'elles. Pour finir, l'évaluation recommande que le stock européen d'anguilles soit organisé en plans de gestion régionaux, avec un rôle de l'UE encadré par le règlement.

DE: Die EU-Aalverordnung (2007) forderte die Mitgliedstaaten auf, Aalbewirtschaftungspläne (EMPs) für ihre Flusseinzugsgebiete aufzustellen, die wichtige Aallebensräume darstellen. Bislang haben neunzehn Mitgliedsstaaten diese EMPs aufgestellt, sechs Mitgliedsstaaten wurden ausgenommen, und nur Kroatien, Bulgarien und Slowenien haben keine EMPs vorgelegt. Zu den wichtigsten Maßnahmen gehörten die Verringerung der Fischsterblichkeit und die Verbesserung der Aalflucht, hauptsächlich durch die Verbesserung der Konnektivität der Flusskorridore. Bei dieser Bewertung wird geprüft, ob Änderungen an der Verordnung und / oder ihrer Umsetzung erforderlich sind.

Auf den ersten Blick sind die Fortschritte seit 2007 bislang begrenzt. Das Gesamtbiomasse- und Rückwanderungsniveau hat sich noch nicht wesentlich verbessert. Es wird jedoch anerkannt, dass die Wiederauffüllung des Aalbestands ein langfristiger Prozess ist, und es wird davon ausgegangen, dass die Verordnung sowohl relevant bleibt als auch voraussichtlich im Laufe der Zeit wirksam wird. Es gab bemerkenswerte Erfolge bei der Verringerung der fischereilichen Sterblichkeit, der Verbesserung der Flussanbindung und der Verbesserung der Rückverfolgbarkeit der Lieferkette für Aale in der EU.

Obwohl die Verordnung immer noch relevant ist, muss ihre Umsetzung erheblich verbessert werden, insbesondere im Hinblick auf die anthropogene Mortalität, die nicht mit der Fischerei zusammenhängt. Der Schwerpunkt muss verstärkt auf der Ebene der Aalbewirtschaftungseinheiten liegen, um ihre besonderen Herausforderungen zu bewältigen. Schlussendlich wird empfohlen, dass der europäische Aalbestand einem regionalen Bestandsbewirtschaftungsansatz unterliegt, dessen Rolle durch die Verordnung untermauert wird.

EXECUTIVE SUMMARY

Introduction

Following multi-decadal decline of the European eel stock across Europe, in 2003 the European Commission (hereinafter referred to as "Commission") proposed the development of a 'Community Action Plan for the management of European Eel'[1] and in 2007 the Council of the European Union (hereinafter referred to as "Council") adopted a regulation to put in place measures for the protection and recovery of this complex species[2] (hereinafter referred to as "Eel Regulation"). This Eel Regulation required Member States (MSs) to establish eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation from 2009 onwards.

The objective of this evaluation study is to assist DG MARE's evaluation of current measures for the recovery of European eel stock under the Eel Regulation by examining their effectiveness, efficiency, relevance, coherence, EU added value and sustainability. The Commission first attempted an assessment of the outcome of the implementation of the Eel Management Plans in 2014 on the basis of the first progress reports by Member States, but the results of this first assessment were largely inconclusive due to the delays in the preparation and approval of the national Eel Management Plans and the delays in the implementation of non-fisheries related measures.

This particular evaluation study covers the management, implementation and enforcement issues, including trade aspects. It looks in particular into the content and implementation of the EMPs and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock, with a special emphasis to the design and implementation of restocking measures and the management of glass eel fisheries. It also covers the enforcement and monitoring issues, both in marine and in inland waters. The evaluation also looks into the articulation and coherence between the Eel Regulation and other EU rules in place such as the Common Fisheries Policy, the fisheries control regulation and environmental legislation, in particular the Water Framework and Habitats Directives. It looks as well into the articulation and coherence with international instruments that cover eels, such as the General Fisheries Council of the Mediterranean (GFCM) recommendations, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Based on its outcome, the results of this evaluation study may be used to inform the decision whether the Eel regulation needs to be reviewed or whether its implementation needs to be improved.

Background to the Intervention

The European eel (*Anguilla anguilla*) stock is in decline, recruitment at an all-time low, and exploitation of the stock is currently unsustainable. The most recent ICES stock advice published in November 2018 (2018a) confirms that the status of eel remains 'critical' and that recruitment remains low and the decline in recruitment is mirrored by a long-term decline in commercial and recreational fishery catch per unit effort, despite significant re-stocking efforts.

The Eel Regulation required MSs to establish eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation in 2009. Under the Eel Regulation, concerned MSs are obliged to monitor the eel stock, evaluate current silver eel escapement (against a 40% target) and post-evaluate implemented management actions aimed at reducing eel mortality and increasing silver eel escapement. Under the Regulation, each MS should report to the Commission initially every third year until 2018 and subsequently every six years on the monitoring, effectiveness and outcomes of EMPs.

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[1] COM(2003)573 final Communication from the Commission to the Council and the European Parliament - Development of a Community Action Plan for the management of European Eel

[2] Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel

In addition to the Eel Regulation, the EU has a number of mechanisms to control fisheries and manage the aquatic environment. These include the Control Regulation, technical rules on eel fishing under the annual TAC and quota Regulations, the EU CITES Regulation and the Water Framework Directive with its River Basin Management Plans relevant for migratory fish species.

Implementation / State of Play

Nineteen MSs [3] have developed and implemented national EMPs covering almost 90 Eel Management Units. MSs with only river basins flowing into the Black Sea (Hungary and Romania) were exempted as they do not constitute a natural habitat for European eel according to the purpose of the Eel Regulation. In addition Cyprus, Malta, Austria, and Slovakia were exempted from preparing EMPs in 2009 as their river basins or maritime waters concerned cannot be identified and defined as constituting natural habitats for the European eel. Croatia, Slovenia and Bulgaria are not formally exempted but have decided not to submit EMPs as they consider eel catches (outside the Black Sea in the case of Bulgaria) to be minimal. As Member States who have not established EMPs, they are required to implement a 50% reduction in eel fisheries. Only one EMP has been developed at cross-border level e.g. the ES / PT Transboundary Plan for Mihno River.

In 2012, MSs first reported on the actions taken under the EMPs, the reduction in anthropogenic mortalities achieved, and the state of their stock relative to their targets. In 2013, ICES evaluated these progress reports in terms of the technical implementation of actions (ICES, 2013); they reported that a total of 756 management actions (e.g. easement of barriers, restocking, restrictions on fishing) proposed in the EMPs had been implemented fully, 259 partially and 107 declared as not implemented at all. ICES noted that many MSs did not completely report stock indicators, and that where they were reported, different approaches to their calculation had been taken.

In 2014, the European Commission (EC, 2014) reported to the European Parliament and the Council with a statistical and scientific outcome evaluation of EMP implementation. The results of this first assessment were largely inconclusive due to the delays in the preparation and approval of the national Eel Management Plans and the delays in the implementation of non-fisheries related measures. Member States again reported on progress with implementing their EMPs in 2015. 18 Member States have reported on progress in 2018.

On the basis of the critical condition of the eel stock and inconclusive outcomes of existing management measures under the Eel Regulation, at a meeting in December 2017 the European Commission and Member States agreed to step up their efforts to protect the stock (Council of the European Union, 2018); this includes carrying out this evaluation of the Eel Regulation.

Methodology

This evaluation has been undertaken over a seven and half month period, with the Final Report being submitted mid-May 2019. It has been implemented over four distinct stages, which are shown in the figure overleaf and described briefly below.

1. **Inception Phase**: ran over the first four weeks of the project, following contact signature on 21 October 2018. It included a project kick-off meeting, the development of the Intervention Logic and a preliminary Evaluation Question Matrix and resulted in the delivery of an Inception Report (on 02 November 2018).
2. **Desk-based data collection**: aimed at collecting evidence to answer the evaluation questions. During this phase, we submitted two project progress reports and the phase culminated with the submission of the Interim Report on 18 January 2019.
3. **Stakeholder consultations**: this third phase of the project ran largely concurrent with Phase 2 to start collecting evidence for the evaluation and was thus reported in the Interim Report and was composed of both a Public Consultation (PC) and targeted consultations. With assistance from the consultants in drafting the questions, the Commission launched

[3] BE, CZ, DK, EE, FI, FR, DE, EL, IE, IT, LV, LT, LU, NL, PL, PT, ES, SE, UK

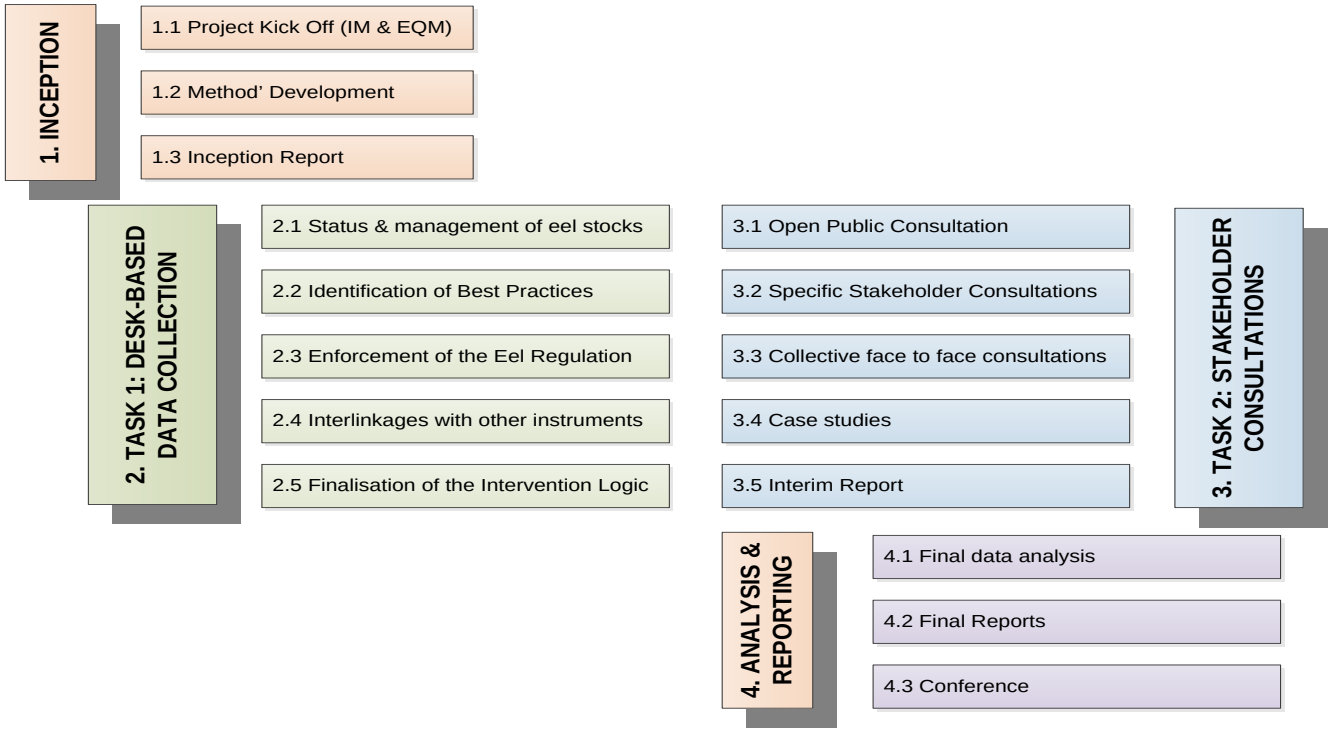
the PC on 14 December 2018 and it was closed on 8 March 2019. In addition we conducted specific consultations with key stakeholder groups across all relevant MSs that are directly impacted by the Eel Regulation (e.g. state agencies, fishers and farmers, and those involved in eel restocking and trade), have an interest in the implementation of the Eel Regulation (e.g. international organisations such as bodies implementing CITES and the CMS, NGOs), or may be under-represented in the public consultation (e.g. research bodies). Overall 174 questionnaire were produced and 80 responses were received and analysed. We also held 11 face-to-face and over 12 telephone interviews with key stakeholders. This process was assisted by case studies in France, Denmark and Italy.

4. **Analysis and Presentation**: during this final phase of the evaluation, we processed and analysed the data collected in the previous phases to synthesise and triangulate them to answer the evaluation questions. On the basis of these, we draw evidence-based conclusions and propose recommendations where appropriate.

Over the duration of the contract, the evaluation team provided DG Mare with monthly **Progress Reports**. At the end of the contract the evaluation team leader gave a 40 minutes presentation of the evaluation results to a **lunchtime conference**, hosted by DG Mare on 29 April 2019. This attracted around 40 participants from DG Mare, DG Env and the Secretariat-General and generated a further 45 minutes of clarifications and discussions.

Given the large PC (174) and targeted consultation (80) responses, together with the extensive EMP progress report evaluations by the ICES WKEMP in late 2018, we consider the evaluation to be robust and well informed.

Overview of the Evaluation Steps



Analysis and answers to the Evaluation Questions

Relevance: landings of European eels have dropped from around 10,000 t in the early 1990's to level out at around 2,500 t since 2010, but escapement levels are still well below the general objective of the EU recovery plan of at least 40% of the silver eel biomass that would have existed if no anthropogenic influence had impacted the stock. It is now recognised that a key source of eel mortality is non-fisheries related anthropogenic activities, e.g. through the impact of hydroelectric turbines and dams on migration and escapement and that the recovery of the European eel is a long-term process that will take decades rather than years to progress given the long life-span of the species (e.g. 20 years). Therefore, in terms of stock recovery – both from direct fishing as well as from other anthropogenic source of mortality, the specific objectives of the Eel Regulation are still highly relevant.

The Common Fisheries Policy is mainly focused on the conservation of marine biological resources with its freshwater scope limited to market and financial measures. The Eel Regulation (2007), which precedes the reformed CFP (2013) widens the scope of the EU's mandate to include the management of the European eels in freshwaters and has its primary focus on managing the fisheries-related anthropogenic mortality, mainly through increasing escapement rates and reducing fishing mortality. It also requires Member States to implement measures to reduce the eel mortality caused by factors outside the fishery and explicitly recognises the Habitats Directive and the Water Framework Directive as key precursors and supporting legislation.

Effectiveness: in terms of process, 19 EU Member States with significant eel habitats have produced national eel management plans, although the fact that only five have EMPs that operate at eel management unit (EMU) level is a concern. However, as suggested above, it will take considerable more time to achieve their EMP targets. The eel stock has not recovered to any degree, non-fisheries related anthropogenic mortality has not declined significantly over the last decade and the 40% escapement target has not been achieved. Whilst restocking is a measure that features in many EMPs, only six achieved their EMP stocking target. Whilst in 2013 a lack of funding constrained restocking, the increasing cost of glass eel is a more recent issue. The target of reducing fishing effort by at least 50% has met some success. Fishing effort has declined in Sweden (by over 90%), Italy (just over 50%), Denmark and France (by almost 50%) and Germany (by 25%). However, effort appears to have risen to 135% of 2008 levels in the UK and 180% of the 2012 level in Poland.

Traceability of eels remains a key issue, in particular for live glass eels. Intra-EU movement traceability is hindered by some shortcomings of EU control system in relation to control of activities of vessels of less than 10 m. However, it has been increasingly recognised that this is key to controlling illegal exports from the EU, and a number of Member States are now implementing traceability schemes based on the EU CITES Regulation, supported by private sector initiatives such as the Sustainable Eel Group Standard. Nonetheless, weak eel traceability from "net to plate" appear to be a significant risk factor. The EU Control Regulation requires traceability for all species (incl. eel), but this is still far from an effective system that needs considerable improvement in its implementation by Member States. The proposed revision of the EU control system is likely to improve dramatically the monitoring and control of eel fisheries.

The European eel fishing industry strongly believes that a limited and transparent capture fisheries is both sustainable and desirable, especially when based on small, traditional operations. This position is supported by the PC results, which highlighted external factors, such as inability to reduce hydropower mortality or poaching, and insufficient implementation of the policy at the national level, rather than issues with the legislation itself.

Sustainability: There is no 'end date' for the Eel Regulation, so it is considered indefinite, at least until the European eel stock has fully recovered. As frequently mentioned in this evaluation, the recovery of the European eel population is a long-term process, with some Member States considering 2050 as a reasonable point by which the Regulation's target of 40% escapement across the EU might be reached. Reducing commercial fishing activity may have a long-term impact on fishing mortality but the risk is that IUU fishing – driven by the high price paid in Asia for European glass eels, may sustain some level of fishing mortality that is both difficult to assess and may have implications for stock recover, thus threatening the sustainability of the initiative. Restocking is a short to medium term measure that should be phased out as natural recruitment and water course connectivity improves. Structural measures to make rivers passable and improve river habitats, together with other environmental measures have the potential to make the most profound, long-term impacts on eel stocks. Once the European eel stock has fully recovered, at that point the regulation could be reconsidered, and a sustainable management plan put in place. In the meantime the regular progress reports as required in the Regulation should be continued.

Efficiency: A monetarised analysis of the cost-benefits of the Eel Regulation is impossible to quantify at this stage, as Member States do not quantify the direct costs of implementing the Regulation, the responsibility for which is often spread across a number of different government departments. The direct environmental benefits of the EMP actions (e.g. eel stock recovery

through reduced fishing mortality and increased spawner escapement) and the indirect environmental benefits (reconnected coastal, estuarine & riverine ecosystems) are long-term in nature, still nascent and yet to be fully quantified in terms of their environmental benefits. The direct environmental benefits of the EMP actions (e.g. eel stock recovery through reduced fishing mortality and increased spawner escapement) and the indirect environmental benefits (reconnected coastal, estuarine and riverine ecosystems) are long-term in nature, still nascent and yet to be fully quantified in terms of their environmental benefits. This said, the Regulation is essentially sound and most Member State respondents indicated that alternative approaches have not been considered. However, it is recognised that the implementation of many of the measures is a long-term process, and that many aspects are still yet to be fully realised. Another area that needs improvement is progress reporting, which needs to be more harmonised and robust. At present EU Member States are not considering any policy alternatives to the Eel Regulation as it is considered relevant and effective, albeit over the long-term.

Coherence: as mentioned above, the Eel Regulation is essentially coherent with the CFP and environmental regulations such as the WFD and Habitats Directive. There is scope to improve connectivity between River Basin Management Plans and EMPs, and the authorities tasked with their delivery, including harmonisation and prioritisation of measures, specifically around hydro-morphological pressures. In recent years the GFCM has recognised the need for eel management in the Mediterranean. It also benefits from restrictions in the trade of European eels outside of the EU through CITES, and there is considerable scope to expand the role of the CMS in eel conservation worldwide.

EU added value: the Eel Regulation has catalysed the development of eel conservation and management legislation in Member States. It has also brought managers in together from different regions and organisations within Member States to develop the plans and associated measures. The Eel Regulation has also stimulated other EU-funded actions to support the recovery of the European eel, such as the recently started SUDOANG project in South West Europe. The Regulation has raised awareness of the need for conserving and managing European eels throughout its range.

Conclusions and recommendations

The adoption of the Eel Regulation is recognised to have been an important milestone in the long process to allow the recovery of the European eel. Its basic premise is still sound, and the Regulation remains as relevant now as it was in 2009. Despite notable progress in reducing fishing effort and a concerted attempt to develop a pan-EU management framework, ICES still consider that the status of the eel remains critical.

This is not saying that the Regulation is not working. The core reasons why eel migration and escapement has been hindered still exist and it will take many years, decades even, for a significant recovery of the European eel population. Most stakeholders agree that the character of the Regulation is solid, but its implementation needs considerable improvement, especially when addressing non-fisheries related anthropogenic mortality. In addition, the current high-level national approach to eel management used by some Member States needs to be taken down to watershed level, with a focus on the Eel Management Units and their individual challenges. Some also question the current focus on increasing eel biomass and abundance, and that setting mortality targets in line with the long-term objective of 40% silver eel biomass, on a geographically partitioned basis (e.g. at the EMU level) may be a more efficient harvest strategy.

There has been some notable progress made at Member State level that also suggest that the Regulation will, over time, be a critical factor in the European eel's recovery. Italy has shown how multi-stakeholder platforms can assist make regional EMPs adaptive to the nature and circumstances of local eel management needs. Best practices for making in-river structures 'eel-friendly' and protecting them from hydro-power intakes have been developed and published in France and in the United Kingdom. There have also been attempts to start opening up migration routes and developing hydrological regimes that favour eel movement, particularly in France and Italy. There have also been significant developments in the third party certification of sustainable eel fisheries. Of particular note is the development of CITES-based traceability schemes in Greece and Italy that could contribute to the issue of tracking intra-EU eel trade and reducing the risk of

illegal exports to the outside of the EU. Joint operations, such as Europol-supported Spanish / Portuguese 'Operations Elvers' that saw the seizure of 350 kg of glass eels destined for China, also demonstrate how multi-national, cross-jurisdictional control operations can work.

Based on the evaluation a number of recommendations can be made to make the Regulation more effective, both through its direct implementation as well as via other avenues that are catalysed by this EU action.

Direct Eel Regulation implementation issues

- A proportionate focus on Member States with significant glass eel (FR, UK, ES & PT) and yellow and silver eel (FR, UK, DK, SE, IT, PL, NL, ES & EL) production for fisheries measures, with a less rigorous approach to Member States with no or very little productivity.
- EMPs are developed at EMU-level in all Member States unless credible evidence exists that multiple-EMU plans are justified. Greater emphasis on transboundary collaboration, both within and adjacent to the EU.
- EMPs need to provide greater focus on non-fisheries related measures such as (i) structural measures to make rivers passable and improve river habitats, together with other environmental measures and (ii) the temporary switching-off of hydro-electric power turbines. Where necessary, the design of these measures should be conducted jointly with those authorities mandated to implement the associated actions.
- Greater pressure on Member States to fulfil the Regulation in its entirety. As the EMPs vary in quality and fitness for purpose, this has resulted in the partial rates in implementation to date and the variability in responses to progress reporting requirements and data calls (both by the EU and ICES).
- More specific timelines and interim targets across the Regulation. Whilst recognised as a long-term approach, the Regulation is not time-bound. There are good reasons for this, but many stakeholders have asked that interim targets are developed and the progress towards this is monitored. It is important that such interim targets not only cover fisheries-related mortality, but also non-fisheries related mortality and proxy indicators (e.g. improved connectivity of rivers). This may require re-focusing all protective actions, assessments, evaluations and advice on anthropogenic mortality goals and indicators- considering each of the management areas (countries) individually.
- EMPs should be regularly reviewed to ensure that they remain robust, relevant and effective. This will require ongoing research, as well as monitoring of environmental conditions, river connectivity and catch, documentation and traceability (CDT) effectiveness. Review of the EMPs needs to be continued on a three-yearly basis for the time being.
- The evaluation identified a possible source of legal misinterpretation of Art. 7.1 of the Eel Regulation in relation to restocking suggesting that 60% of glass eels caught each year may not be marketed for this purpose. As a result, control authorities cannot enforce this prescription. Article 7.1 of the Eel Regulation may need to be reconsidered taking into account the continued relevance of other prescriptions on restocking.
- A more cohesive funding approach for EMP and associated measures is required. Few MS provide budgets for implementing their EMPs to cover such aspects as restocking costs and habitat improvement projects. This should include the role of the EMFF and other EU public funding, the role of the private sector and possibly development of specialist Financial Instruments to fund long-term eel conservation and management. This suggests that the Eel Regulation and its measures should be specifically reflected in MS EMFF operational programmes for the next funding period (2021 - 2027). In particular glass eel stocking, esp. that was supported by EMFF and other public funds, needs to be better justified in terms of its net benefit to silver eel escapement. The Commission's EMFF Impact Assessment SWD also suggests that the "*Member States will be required to strengthen national management plans in order to protect eels in the inland waters*" (EC, 2018).

Wider governance and eel management issues

- There is a need for a central coordinating body for the recovery of the European Eel. The Eel Regulation provides a united approach across the EU, but the core issue of stock recovery needs a stock range wide approach. One stakeholder mentioned the North Atlantic Salmon Conservation Organisation (NASCO) as a possible model.
- The current poor status of the European eel needs to be better publicised so that greater public pressure can be applied to improve eel management and water basin conditions.
- Internationally coordinated research is required to determine any net benefit of restocking on the overall population, including carrying capacity estimates of glass eel source estuaries, detailed mortality estimates at each step of the stocking process, and performance estimates of stocked vs. non-stocked eels.
- Coordinated research into eel aquaculture techniques in order to develop commercially viable artificial European eel glass eel production.
- Development of parallel management actions in non-EU countries, including development of comprehensive eel management plans (at transboundary level, both with the EU and third countries), coordinated research.
- Encourage Member States to make full use of CITES obligations to strengthen control of the legality of eels detained or offered for sale in their national territories.
- Further action needs to be undertaken to take advantage of Convention on Migratory Species (CMS) and to ensure it contributes to improving the conservation status of the European eel and its management. In practical terms this means the development of an appropriate instrument, whether in the form of a legally binding agreement or in the form of any other solution already in existence among the large of CMS family of instruments.

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SYNTHESE

Introduction

À la suite du déclin multi-décennal du stock d'anguilles à travers l'Europe, la Commission européenne a proposé en 2003 un plan d'action de l'UE pour la gestion des anguilles en Europe[4]. En 2007, le Conseil de l'Union Européenne a adopté un règlement afin de mettre en place des mesures de protection et de repeuplement de l'espèce[5]. Le règlement européen sur l'anguille requiert des Etats membres qu'ils établissent des plans de gestion de l'anguille dans les bassins hydrographiques qui constituent un stock d'anguilles significatif, et cela, à partir de 2009.

L'objectif de cette évaluation est d'assister la Direction Générale des Affaires maritimes et pêche (DG MARE) dans son appréciation des mesures en vigueur pour la reconstitution du stock d'anguilles européen définies par le règlement, en examinant leur efficacité, efficience, pertinence, cohérence, valeur ajoutée européenne et durabilité. En 2014, la Commission avait déjà tenté d'évaluer les résultats des PGA en se basant sur les premiers rapports de progrès des États membres. Cependant, les résultats de cette première évaluation ont été peu concluants en raison des délais encourus lors de la préparation et l'approbation des plans de gestion nationaux, ainsi que le retard dans l'adoption de mesures non liées aux activités de pêche.

L'évaluation présente porte sur les difficultés liées à la gestion, la mise en œuvre et l'application, ainsi que sur certains aspects commerciaux du règlement européen sur l'anguille. En particulier, l'évaluation examine le contenu et la mise en œuvre des PGA et des systèmes de notification des États membres dans le cadre du règlement, afin de déterminer s'ils ont adéquatement abordé tous les facteurs pertinents à la mortalité des anguilles, notamment par l'élaboration et la mise en place de mesures de repeuplement, ainsi que la gestion de la pêche à la civelle de l'anguille d'Europe. L'évaluation porte également sur les problèmes d'application et de contrôle des eaux marines et intérieures. L'articulation et la cohérence entre le règlement sur l'anguille et les autres réglementations européennes pertinentes en place, telles que la Politique Commune de la Pêche, le règlement sur le régime européen de contrôle de la pêche et la législation environnementale (notamment la directive-cadre sur l'eau et la directive habitats) sont considérées avec un intérêt particulier. L'évaluation s'intéresse également à l'articulation et la cohérence du règlement avec les instruments de droit international traitant de la conservation des anguilles, tels que les recommandations de la Commission Générale des Pêches pour la Méditerranée (CGPM), la Convention sur le commerce international des espèces de faune et de flore sauvage menacées d'extinction (CITES) et la Convention sur la conservation des espèces migratrices appartenant à la faune sauvage (CMS).

Les conclusions de la présente évaluation pourront être mises à contribution dans le processus de décision visant à revoir le règlement sur l'anguille européenne ou à améliorer sa mise en œuvre.

Contexte de l'intervention

Le stock d'anguille européenne (*Anguilla anguilla*) est en déclin et n'est pas exploité de manière durable, les taux de recrutement étant au plus bas. En novembre 2018, le Conseil International pour l'Exploration de la Mer (CIEM) a publié un rapport sur l'état des stocks confirmant le statut « critique » de l'anguille ainsi qu'une baisse du recrutement reflétée par le déclin au long terme des captures de pêche commerciale et récréative, malgré les efforts considérables de repeuplement.

Le règlement requiert des États membres qu'ils établissent à partir de 2009 des PGA dans leurs bassins hydrographiques qui constituent un stock significatif de l'espèce. Les États membres doivent également contrôler les stocks d'anguilles, calculer les taux actuels d'échappement des anguilles argentées (par rapport à l'objectif fixé à 40 %) ainsi qu'évaluer rétroactivement les

[4] Communication finale de la Commission au Conseil et au Parlement européen pour le développement d'un plan d'action communautaire sur la gestion de l'anguille européenne ; COM (2003) 573.

[5] Règlement (CE) n°1100/2007 du Conseil du 18 septembre 2007 instituant des mesures de reconstitution du stock d'anguilles européennes ; JO L 248 du 22.9.2007, p. 17–23.

mesures de gestion mises en œuvre visant à réduire le taux de mortalité et d'échappement. Le règlement dispose que chaque État membre doit faire notification à la Commission sur la surveillance, l'efficacité et les résultats du PGA adopté, initialement tous les trois ans jusqu'en 2018, puis tous les six ans.

De nombreux autres mécanismes de contrôle de la pêche et des environnements aquatiques complètent le règlement sur l'anguille au niveau de l'UE. Il s'agit notamment du régime européen de contrôle de la pêche, du cadre technique établi par les règles sur les Totaux Admissibles de Captures (TAC) et quotas se rapportant à la pêche aux anguilles, la CITES et la directive-cadre sur l'eau, qui établit des plans de gestion des masses d'eau pertinents aux espèces de poissons migrateurs.

Mise en œuvre / Etat d'avancement

À ce jour, 19 États membres[6] ont développé et mis en œuvre des plans de gestion, correspondant à près de 90 UGA en Europe. Les États membres ayant uniquement des bassins hydrographiques coulant vers la Mer Noire (la Hongrie et la Roumanie) ont été exemptés de cette obligation, car ceux-ci ne constituent pas un habitat naturel de l'anguille selon le règlement européen. Chypre, Malte, l'Autriche et la Slovaquie ont également été exemptés de la mise en place de plans de gestion de l'anguille en 2009, car leurs bassins hydrographiques et eaux maritimes ne peuvent être qualifiés d'habitats naturels de l'anguille européenne. La Croatie, la Slovénie et la Bulgarie ne sont pas officiellement exemptées de l'obligation de soumettre un PGA, mais ont décidé de ne pas en proposer en raison du niveau insignifiant de capture de l'anguille dans leurs bassins hydrographiques et eaux maritimes (en dehors de la mer Noire dans le cas de la Bulgarie). Les États membres qui ne mettent pas en place de PGA doivent cependant s'engager à réduire de 50 % la pêche à l'anguille. Un seul PGA transfrontalier a été développé et porte sur la rivière Mihno entre l'Espagne et le Portugal.

En 2012, les États membres ont soumis leur premier rapport de progrès sur les actions mises en place dans le cadre de leurs plans de gestion, sur la réduction de la mortalité anthropique et l'état des stocks d'anguille par rapport aux objectifs fixés. L'année suivante, grâce à ces rapports d'activité, le CIEM a évalué la mise en œuvre technique de ces actions (CIEM, 2013). Elle a en a conclu qu'un total de 756 actions (par ex. l'allégement des barrières, le repeuplement, la restriction de la pêche) proposées dans les plans de gestion ont été pleinement mises en œuvre, 259 seulement partiellement et 107 ne l'ont pas été du tout. Le CIEM a constaté que plusieurs États membres n'avaient pas rempli les indicateurs de stocks et que, lorsque le rapport avait effectivement été rempli, les méthodes de calcul étaient très approximatives.

En 2014, la Commission européenne (CE, 2014) a soumis un rapport d'évaluation statistique et scientifique des résultats de la mise en œuvre des PGA au Parlement Européen et du Conseil. Les résultats de ce premier exercice ont été peu concluants à cause des retards de mise en œuvre et autres mesures non liées aux activités de la pêche. Les États membres ont à nouveau notifié la Commission de l'avancement des PGA en 2015. En 2018, les États membres étaient 18 à faire un rapport de progrès.

À l'occasion d'une réunion en 2017, convoquée en réponse à l'état critique du stock d'anguilles et aux résultats peu concluants des PGA en place, la Commission et les États membres ont décidé de redoubler d'efforts pour protéger le stock d'anguilles (CUE, 2018), notamment par le biais de la présente évaluation du règlement sur l'anguille européenne.

[6] BE, CZ, DK, EE, FI, FR, DE, EL, IE, IT, LV, LT, LU, NL, PL, PT, ES, SE, GB

Méthodologie

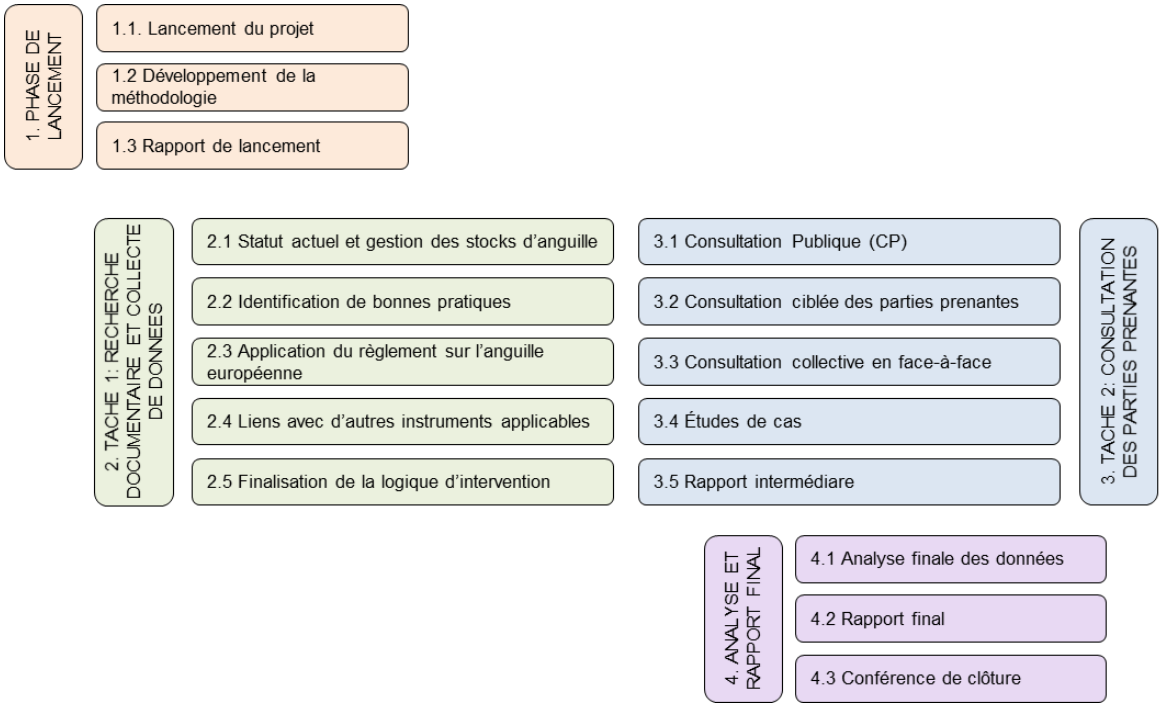
L'évaluation a duré sept mois et demi, le rapport final ayant été soumis à la mi-mai 2019, et a été articulée dans quatre phases décrites en détail ci-dessous :

1. **Phase de lancement** : Cette phase a compris les quatre premières semaines du projet, à compter de la signature du contrat le 21 octobre 2018. Elle a inclu une réunion de lancement, le développement d'une matrice comprenant les questions d'évaluation et s'est terminée par la rédaction d'un rapport de lancement, soumis le 2 novembre 2018.
2. **Recherche documentaire et collecte de données :** Durant cette phase a été effectuée la collecte de données, qui ont servi de base à la formulation de réponses aux questions d'évaluation. Deux rapports de progrès ont été présentés, puis un rapport intérimaire a été soumis le 18 janvier 2019.
3. **Consultation des parties prenantes** : La troisième phase du projet s'est déroulée en parallèle de la seconde afin d'initier la collecte de données à travers les différentes méthodes de consultation prévues. Les fruits de la consultation ont donc été inclus dans le rapport intérimaire à la Commission sur l'avancement de l'évaluation. Cette phase s'est composée d'une Consultation Publique (CP) et de consultations plus ciblées. L'équipe d'évaluation a soutenu la Commission dans les travaux préparatoires et le lancement de la CP le 14 décembre 2018, puis celle-ci fut clôturée le 8 mars 2019. En outre, l'équipe a consulté les parties prenantes directement touchées par le règlement sur l'anguille européenne dans tous les États membres concernés (par ex. organismes publics, pêcheurs et agriculteurs, et ainsi que les individus et organismes impliqués dans la politique de repeuplement et le commerce), ainsi que celles ayant un intérêt spécifique pour la mise en œuvre du règlement (par ex. organisations internationales responsables de l'application de la CITES et de la CMS ou ONG). Enfin, certains acteurs sous-représentés dans la CP (par ex. organismes de recherche) ont aussi été consultés séparément. En tout, 174 questionnaires ont été envoyés et 80 réponses reçues et analysées. De plus, l'équipe d'évaluation a également organisé et mené onze entretiens face-à-face et réalisé douze entretiens par téléphone. Le processus de consultation décrit ci-dessus a été complété par des études de cas en France, au Danemark et en Italie.
4. **Analyse et Rapport** : L'étape finale de l'évaluation a compris le traitement et l'analyse des données collectées dans le but de répondre aux questions d'évaluation. Les résultats ainsi obtenus ont ensuite permis d'émettre des conclusions objectives, fondées sur les données disponibles, et de proposer des recommandations le cas échéant.

Tout au long de la durée du contrat, l'équipe d'évaluation a soumis des rapports de progrès mensuels à la DG MARE. Les résultats de l'évaluation ont été présentés lors d'une conférence organisée par la DG MARE le 29 avril 2019. Cette conférence a réuni environ 40 participants de la DG MARE, la DG Environnement et du Secrétariat-Général et s'est conclue par 45 minutes de discussion et autres clarifications.

Ayant égard du nombre considérable de réponses obtenues lors de la consultation publique (174) et consultations ciblées (80), ainsi que l'évaluation exhaustive des rapports de progrès des Etats Membres sur les PGA par le CIEM à l'occasion d'un groupe de travail consacré à l'analyse des PGA (Workshop for the Review of Eel Management Plan Progress Reports (WKEMP)) à la fin 2018, nous considérons cette évaluation robuste et adéquatement fondée.

Vue d'ensemble des étapes de l'évaluation



Analyse et réponses aux questions d'évaluation

Pertinence: Depuis le début des années 1990, les débarquements d'anguilles européennes ont chuté d'environ 10 000 tonnes à environ 2 500 tonnes en 2010. Cependant les niveaux d'échappement restent considérablement en dessous de l'objectif général du plan de repeuplement, à savoir au moins 40% de la biomasse d'anguilles argentées qui aurait existé si aucune influence anthropique n'avait eu d'impact sur le stock. Les activités anthropiques telles que l'impact des turbines hydrauliques et barrages sur la migration et l'échappement, ainsi que le fait que le repeuplement des stocks d'anguilles est un processus de long terme étant donné la longévité de l'espèce (20 ans), sont aujourd'hui reconnues comme les sources primaires de mortalité des anguilles. Par conséquent, la problématique de la reconstitution du stock d'anguilles en réponse aux activités de pêche et autres sources de mortalité d'origine anthropique illustre la pertinence des objectifs spécifiques du règlement sur l'anguille européenne.

La Politique Commune de la Pêche porte principalement sur la conservation des ressources marines, par conséquent ses aspects sur la pêche en eau douce restent limités aux mesures financières et liées au commerce. Le règlement sur l'anguille européenne précède la réforme de la Politique Commune de 2013 et élargit la portée du mandat européen en y incluant la gestion de l'anguille européenne en eaux douces. Le règlement met notamment l'accent sur la diminution de la mortalité d'origine anthropique, par le biais d'une augmentation des taux d'échappement, ainsi qu'une réduction de la mortalité due aux activités de pêche. Le règlement requiert également des États membres qu'ils introduisent des mesures de réduction de la mortalité des anguilles liée aux activités autres que la pêche. Enfin, le règlement réitère l'importance de la directive habitats et de la directive-cadre sur l'eau.

Efficacité: Selon les dispositions du règlement, 19 États membres ayant des bassins hydrographiques significatifs pour l'anguille ont mis en place des PGA nationaux. Cependant, il est préoccupant de constater que seulement cinq plans sont opérés au niveau des UGA. En outre, comme mentionné ci-dessus, un temps additionnel considérable sera nécessaire pour atteindre les objectifs des PGA. L'évaluation a déterminé que le stock d'anguilles n'a pas été suffisamment reconstitué et que la mortalité due aux activités anthropiques autres que la pêche n'a pas baissé de façon significative durant cette décennie. Enfin, l'objectif d'un taux d'échappement à 40 % de la biomasse n'a pas été atteint. Alors que le repeuplement des stocks est une mesure comprise dans la plupart des PGA, seul six ont atteint leurs objectifs. L'évaluation note que l'absence de financement a affecté le repeuplement en 2013, alors qu'aujourd'hui la hausse du prix de la civelle de l'anguille européenne constitue le problème majeur du secteur. L'objectif de réduire les

activités de pêche d'au moins 50 % est quant à lui plus abouti à ce stade. Une réduction considérable des activités de pêche a été observée en Suède (de plus de 90 %), en Italie (plus de 50 %), au Danemark et en France (presque 50 %), ainsi qu'en Allemagne (25 %). Cependant, il apparait que les activités de pêche ont augmenté de 135% depuis 2008 au Royaume Unis et de 180 % en Pologne depuis 2012.

Un problème qui reste central au contexte du règlement est la traçabilité des anguilles, en particulier celle de la civelle de l'anguille européenne. La traçabilité des mouvements intra-européens est limitée par les lacunes du système européen en vigueur pour le contrôle des navires de moins de 10 mètres. L'amélioration de ce système de contrôle est considérée d'une importance clé pour le contrôle des exports illégaux depuis l'UE. À cet effet, les États membres ont mis en place des mesures de traçabilité, basées sur le règlement européen relatif à la protection des espèces de faune et de flore sauvages par le contrôle de leur commerce qui met en œuvre les dispositions de la CITES et soutenues par des initiatives du secteur privé, tel que le Standard de Développement Durable de l'Anguille du *Sustainable Eel Group*. Néanmoins, le faible niveau de traçabilité de l'anguille européenne « du filet à l'assiette » est un facteur de risque significatif. En effet, le règlement sur le régime européen de contrôle de la pêche exige la traçabilité de toutes les espèces (dont l'anguille), or en réalité ce système est loin d'être efficace et nécessite des ajustements dans son application par les États membres. La révision proposée du régime européen de contrôle de la pêche devrait permettre une nette amélioration du système de surveillance, ainsi que du contrôle de la pêche à l'anguille.

Les acteurs de l'industrie européenne de la pêche à l'anguille s'accordent à dire que des activités de pêche de nature limitée et transparente sont à la fois désirables et durables, surtout en ce qui concerne la pêche traditionnelle et de petite envergure. Cette position est confirmée par les résultats de la CP, qui ont mis en exergue les facteurs externes tels que l'inaptitude à réduire la mortalité due aux turbines ou au braconnage, ainsi que l'application insuffisante des législations nationales, plutôt que les lacunes de la législation elle-même.

Durabilité: L'application du règlement sur l'anguille européenne dans le temps est indéfinie, car il ne dispose pas d'une date limite d'application. Il est donc applicable au moins jusqu'à ce que le stock européen soit suffisamment reconstitué. Ainsi qu'il a été mentionné à plusieurs reprises, la reconstitution de la population d'anguilles européennes est un processus de long terme. À cette fin, on considère 2050 comme une raisonnable date-butoir pour atteindre un taux d'échappement à 40 % à travers l'Europe. La réduction de la pêche commerciale a beau avoir un impact positif sur le taux de mortalité, les risques de pêche illicite, non déclarée et non réglementée (notamment à cause du prix de vente élevé de la civelle de l'anguille européenne en Asie) sont difficiles à mesurer et pourraient bien avoir des répercussions sur la reconstitution des stocks et par conséquent, sur la pérennité de cette initiative. Le repeuplement est une solution de court à moyen terme, qui devrait être remplacée par le renouvellement naturel du stock à mesure que le recrutement naturel et la connectivité des cours d'eau s'améliorent. Les mesures structurelles pour rendre les rivières plus connectées et améliorer l'environnement aquatique, ainsi que d'autres mesures environnementales, peuvent aussi avoir un impact de long terme sur les stocks de l'anguille européenne. Lorsque le stock européen sera pleinement reconstitué, les dispositions du règlement pourraient être reconsidérées et un plan de gestion durable pourrait être mis en place. En attendant, les rapports de progrès réguliers exigés des États membres par le règlement restent nécessaires.

Efficience: Une analyse monétarisée des coûts-avantages du règlement sur l'anguille est impossible à ce stade, car les États membres ne quantifient pas les coûts directs de la mise en œuvre du règlement de façon satisfaisante, la responsabilité étant souvent répartie entre plusieurs services gouvernementaux. L'évaluation a constaté que les avantages environnementaux qui découlent directement des mesures adoptées dans les PGA (par ex. la reconstitution du stock d'anguilles grâce à une réduction de la mortalité due aux activités de pêche et à l'augmentation du nombre d'échappements de géniteurs), ainsi que les avantages environnementaux indirects (par ex. la reconnexion des écosystèmes côtiers, estuariens et riverains), bien qu'émergents à ce stade, sont de nature durable et restent à être pleinement

quantifiés. Néanmoins, le règlement doit être considéré comme fondamentalement adéquat et la plupart des répondants des États membres s'accordent à dire qu'il n'existe pas d'approche alternative qui soit meilleure. Toutefois, il faut reconnaître que la mise en œuvre de nombreuses mesures du règlement est un processus à long terme et que plusieurs de ses aspects demeurent toujours à réaliser pleinement. Les rapports de progrès des États membres doivent également être améliorés afin de devenir plus harmonieux et robustes. À l'heure actuelle, les États membres de l'UE ne proposent pas d'alternative au règlement sur l'anguille, car celui-ci est considéré comme pertinent et efficace, même si ce n'est qu'à long terme.

Cohérence: Ainsi qu'il a été noté précédemment, le règlement est cohérent avec la Politique Commune de la Pêche et les réglementations environnementales pertinentes, telle que la directive habitats et la directive-cadre sur l'eau. Il est cependant encore nécessaire d'améliorer le lien entre les plans de gestion des rivières et des PGA, ainsi qu'avec les autorités en charge de leur application respective, notamment par l'harmonisation et hiérarchisation des mesures, particulièrement en matière de pression hydromorphologique. Ces dernières années, la CGPM a reconnu la nécessité d'établir un PGA en mer Méditerranée. Des effets positifs émanent aussi des restrictions aux commerce européen à l'anguille vers des pays tiers découlant de l'application de la CITES et de la possibilité d'élargir le rôle de la CMS dans la préservation de l'anguille dans le monde.

Valeur ajoutée européenne: Le règlement sur l'anguille européenne a cristallisé l'intégration d'obligations sur la conservation et la gestion de l'anguille dans les législations nationales des États membres. Le règlement a aussi facilité la coordination des autorités des différentes régions et organisations des états membres pour le développement des PGA et mesures qui y sont associées. Le règlement a aussi stimulé la création d'autres actions européennes en soutien à la reconstitution du stock d'anguilles, telles que le projet SUDOANG, un volet de la coopération territoriale européenne Interreg en Europe du Sud-Ouest. Par conséquent, le règlement a concrètement sensibilisé sur le besoin de conserver et de mieux gérer le stock d'anguilles en Europe.

Conclusions et recommandations

L'adoption du règlement sur l'anguille constitue une étape importante dans le processus de repeuplement de l'anguille européenne. L'évaluation a conclu que son principe de base est toujours valable et que le règlement reste aussi pertinent qu'il l'était à ses débuts en 2009. Cependant, malgré les progrès notables en termes de réduction des activités de pêche et les tentatives de développer un cadre pour la gestion de l'anguille au niveau européen, la CIEM considère toujours les stocks de l'anguille européenne en situation critique.

Cela étant dit, ces constatations ne suggèrent pas que le règlement est dénué de toute efficacité. En effet, les entraves à la migration et à l'échappement des anguilles existent toujours et ne peuvent être éliminées au court terme. On estime qu'il faudrait attendre plusieurs dizaines d'années avant de pouvoir observer un taux satisfaisant de reconstitution du stock de l'anguille européenne. La majorité des parties prenantes considère le règlement comme adéquat, mais s'accorde à dire qu'il est nécessaire d'améliorer sa mise en œuvre, en particulier en ce qui concerne la mortalité d'origine anthropique non liée à la pêche. De plus, l'évaluation a constaté que certains États membres privilégient une approche de la gestion de l'anguille au niveau national qui devrait être abaissée au niveau des bassins versants ayant égard des UGA et de leurs spécificités. Certaines parties prenantes s'interrogent sur l'opportunité du choix du règlement de mettre l'accent sur l'augmentation de la biomasse et l'abondance d'anguilles, au lieu de fixer un objectif au long terme de 40 % pour la biomasse d'anguilles argentées repartie en zones géographiques (par ex. au niveau des UGA), qui paraît être une approche plus efficace.

Des progrès notables ont été atteints au niveau des États membres, ce qui indique le potentiel du règlement pour la reconstitution du stock de l'anguille européenne au long terme. L'exemple de l'Italie a démontré que les plateformes multi-acteurs permettent de rendre les PGA adoptés au niveau régional plus appropriés aux besoins locaux de gestion de l'anguille. La France et le Royaume-Uni ont développé de bonnes pratiques visant à rendre les ouvrages en rivière plus

respecteux de l'habitat des anguilles, tout en les protégeant des turbines hydrauliques. En outre, il convient de noter les tentatives, notamment en France et Italie, d'ouvrir des routes de migration et de développer des systèmes hydrologiques favorisant le mouvement des anguilles. Enfin, des avancées significatives ont eu lieu en ce qui concerne les certifications indépendantes de la pêche durable à l'anguille. L'initiative notable dans ce domaine est le développement de systèmes de traçabilité en Grèce et en Italie, basés sur la CITES et le règlement d'application européen. Cette dernière pourrait contribuer à améliorer la traçabilité de l'anguille sur le marché européen, ainsi qu'à réduire les risques d'exports illégaux en dehors de l'UE. Des opérations conjointes, telle que le projet hispano-portugais 'Opération Civelle' soutenu par Europol et qui a permis de saisir 350 kg de civelle de l'anguille européenne destinés au commerce en Chine, illustrent à quel point le contrôle de la pêche à l'anguille peut revêtir un caractère transfrontalier et inter-juridictionnel.

L'évaluation a permis de formuler un certain nombre de recommandations ayant pour objectif de rendre le règlement plus efficace, à la fois dans sa mise en œuvre directe et par d'autres voies catalysées par cette action de l'UE.

Difficultés portant sur la mise en œuvre directe du règlement sur l'anguille européenne

- Lors de l'adoption de mesures relatives à la pêche a l'anguille, l'accent doit être mis de façon proportionnelle sur les États membres ayant une production significative de civelle (la France, le Royaume-Uni, l'Espagne et le Portugal) et d'anguille jaune et argentée (la France, le Royaume-Uni, le Danemark, la Suède, l'Italie, la Pologne, les Pays-Bas, l'Espagne et le Grèce). Une approche moins rigoureuse doit être adoptée à l'égard des États membres avec une production moindre ou non-existante.
- Les PGA doivent être mis en place au niveau de chaque UGA dans tous les États membres, sauf si l'opportunité d'adopter un PGA couvrant plusieurs UGA à la fois est justifiée par l'existence d'éléments pertinents à cet effet. L'accent doit davantage être mis sur la collaboration transfrontalière, à la fois au sein de l'UE et ses pays voisins.
- Les PGA doivent porter davantage sur les mesures non liées aux activités de pêche comme (i) des mesures structurelles et environnementales pour rendre les rivières plus accessibles et améliorer la qualité de l'environnement aquatique, ainsi que d'autres mesures à caractère environnemental et (ii) l'arrêt temporaire des turbines des centrales hydroélectriques. Au besoin, ces mesures devront être faites conjointement entre les autorités avec un mandat réciproque.
- Plus de contrainte doit être exercée sur les États membres pour qu'ils appliquent le règlement dans son intégralité. La qualité et la pertinence des PGA étant variables, le taux de mise en œuvre à ce jour n'est que partiel. L'adhérence des États membres à leur obligations de notification de progrès et leur réponses aux demandes de soumettre de données (de la part de l'UE et du CIEM) sont aussi variables.
- Un calendrier et des objectifs intermédiaires plus précis concernant l'application du règlement doivent être introduits. Bien qu'il soit reconnu comme ayant une approche de long terme, la date-butoir du règlement n'est pas définie. Cette approche est justifiée, cependant beaucoup de parties prenantes ont demandé que des objectifs intermédiaires soient fixés et les progrès vers ceux-ci plus suivis. Il est important que ces objectifs couvrent la mortalité liée aux activités de pêche, mais aussi les activités non liées à la pêche, ainsi que les indicateurs indirects (par ex. la meilleure connectivité des rivières). Cela nécessitera peut-être de revoir les activités de protection, de contrôle et d'évaluation, mais aussi de considérer comment les taux fixés et indicateurs de mortalité anthropique peuvent être améliorés, et cela, en fonction des zones de gestion.
- Les PGA doivent être régulièrement revus afin de s'assurer qu'ils restent adéquats, pertinents et efficaces. Ceci nécessitera des activités de recherche continues afin de documenter et contrôler les conditions environnementales, la connectivité des rivières, les captures et l'efficacité des mécanismes de traçabilité. Pour le moment, il faut poursuivre avec le régime de revue des PGA actuel, qui a lieu tous les trois ans.

- L'évaluation a mis en exergue une possible source d'erreur d'interprétation de l'article 7.1 du règlement sur l'anguille européenne concernant le repeuplement des stocks, qui suggère que 60 % des civelles capturées chaque année ne peuvent pas être commercialisées à cette fin. Par conséquent, les autorités de contrôle ne peuvent pas appliquer cette règle. L'article 7.1 du règlement sur l'anguille devra peut-être être revu en tenant compte de la pertinence d'autres dispositions sur le repeuplement.
- Le financement des PGA et mesures associées doit être avec plus de cohésion. Peu d'États membres soumettent des budgets sur la mise en œuvre de leurs plans de gestion, couvrant les coûts de mesures telles que le repeuplement et les projets d'amélioration de l'habitat des anguilles. Ceux-ci devraient inclure le rôle du FEAMP et des autres financements publics de l'UE, le rôle du secteur privé et éventuellement le développement d'instruments financiers spécialisés pour financer la conservation et la gestion à long terme de l'anguille. Le règlement sur l'anguille et ses mesures devraient être reflétés dans les programmes opérationnels FEAMP des États Membres pour la prochaine période de financement (2021 - 2027). En particulier, le repeuplement de la civelle, une mesure soutenue par le FEAMP et d'autres fonds publics, doit être mieux justifiée en termes de ses bénéfices nets à l'échappement de l'anguille argentée. Le document de travail des services de la Commission sur l'évaluation de l'impact du FEAMP suggère également que « les États membres seront tenus de renforcer les plans de gestion nationaux afin de protéger les anguilles dans les eaux intérieures » (CE, 2018).

Difficultés portant sur la gouvernance générale et la gestion de l'anguille

- Un organe central de coordination pour la reconstitution du stock d'anguilles européennes est nécessaire. Le règlement offre une approche commune à l'ensemble de l'UE, mais la question fondamentale de la reconstitution des stocks nécessite une approche plus globale. Une des parties prenantes a mentionné l'Organisation de conservation du saumon de l'Atlantique Nord (NASCO) comme modèle possible pour la création d'un tel organe.
- Plus de sensibilisation à l'état actuel critique de l'anguille européenne doit être faite, afin d'accroitre la pression sur les autorités publiques pour améliorer la gestion de l'anguille et les conditions des bassins hydrographiques.
- Des activités de recherche coordonnées au niveau international sont nécessaires pour déterminer les possibles bénéfices du repeuplement de la population globale d'anguilles. Un tel effort nécessiterait aussi des estimations de la capacité de contenance des estuaires qui abritent la civelle de l'anguille européenne, des estimations détaillées de la mortalité à chaque étape du processus de stockage et des estimations de rendement des anguilles stockées par rapport à celles qui ne le sont pas.
- Les activités de recherche sur les techniques d'aquaculture de l'anguille doivent être coordonnées, afin de développer une production artificielle de civelles qui soit commercialement viable.
- L'élaboration de mesures de gestion et des efforts de recherches coordonnés en parallèle dans les pays tiers sont nécessaires, notamment pour le développement de plans globaux de gestion de l'anguille (au niveau transfrontalier, à la fois avec l'UE et les pays tiers).
- Les États membres doivent être encouragés à utiliser pleinement les obligations découlant de la CITES, afin de renforcer le contrôle sur la légalité des anguilles en stock ou en vente sur leur territoire national.
- Des mesures supplémentaires doivent être prises pour tirer parti de la CMS et veiller à ce qu'elle contribue à l'amélioration de l'état de conservation et la gestion de l'anguille européenne. Concrètement, ceci demande l'élaboration d'un instrument approprié, que ce soit sous la forme d'un accord juridiquement contraignant ou sous la forme d'une autre solution déjà existante parmi les nombreux instruments rattachés à la CMS.

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ZUSAMMENFASSUNG

Einführung

Nach dem jahrzehntelangen Rückgang des europäischen Aalbestands in ganz Europa schlug die Europäische Kommission (im Folgenden als „Kommission“ bezeichnet) im Jahr 2003 vor, einen „Aktionsplan der Gemeinschaft zur Bewirtschaftung des Europäischen Aals“ auszuarbeiten, und im Jahr 2007 erließ der Rat der Europäischen Union (im Folgenden als „Rat“ bezeichnet) eine Verordnung, um Maßnahmen zum Schutz und zur Erholung dieser komplexen Gattung einzuführen (im Folgenden als „Aalverordnung“ bezeichnet). Laut dieser Aalverordnung müssen Mitgliedstaaten Aalbewirtschaftungspläne (EMPs) für ihre Flusseinzugsgebiete, die ab 2009 wichtige Aalhabitate darstellen, aufstellen.

Diese Bewertungsstudie hat zum Ziel, die GD MARE bei der Bewertung der aktuellen Maßnahmen zur Wiederherstellung des europäischen Aalbestands gemäß der Aalverordnung zu unterstützen, und untersucht die Wirksamkeit, Effizienz, Relevanz, Kohärenz, EU-Mehrwert und Nachhaltigkeit dieser Maßnahmen. Die Kommission versuchte bereits zuvor das Ergebnis der Umsetzung der Aalbewirtschaftungspläne im Jahr 2014 auf der Grundlage der ersten Fortschrittsberichte der Mitgliedstaaten zu bewerten, doch die Ergebnisse dieser ersten Bewertung waren aufgrund von Verzögerungen in der Vorbereitung und Genehmigung der nationalen Aalbewirtschaftungspläne, wie auch wegen Verzögerung bei der Durchführung von nichtfischereibezogenen Maßnahmen, nicht schlüssig.

Diese Bewertungssstudie befasst sich mit Management-, Implementierungs- und Durchsetzungsfragen, einschließlich Handelsaspekten. Sie untersucht insbesondere den Inhalt und die Umsetzung der EMPs, wie auch Berichte, die Mitgliedsstaaten gemäß der Aalverordnung erstatten, um zu bewerten, ob sie alle Sterblichkeitsfaktoren, die den Aalbestand betreffen, angemessen berücksichtigt haben. Ein besonderer Schwerpunkt dieser Studie liegt auf der Formulierung und Durchführung der Wiederauffüllungsmaßnahmen und Bewirtschaftung von Glasaalfischerei. Die Studie befasst sich auch mit Fragen der Durchsetzung und Kontrolle in Meeres- und Binnengewässern. Bei der Bewertung wird auch untersucht, inwieweit die Aalverordnung mit anderen geltenden EU-Vorschriften, wie der Gemeinsamen Fischereipolitik, der Fischereikontrollverordnung und den Umweltvorschriften, insbesondere der Wasserrahmenrichtlinie und der Habitatrichtlinie, in Einklang steht. Sie befasst sich auch mit der Artikulation und Kohärenz mit internationalen Instrumenten, die Aale betreffen, wie den Empfehlungen des Allgemeinen Fischereirats für den Mittelmeerraum (GFCM), dem Übereinkommen über den internationalen Handel mit gefährdeten Arten wildlebender Tiere und Pflanzen (CITES), und dem Übereinkommen über die Erhaltung wandernder Wildtierarten (CMS).

Basierend auf den Ergebnissen dieser Bewertungsstudie kann entschieden werden, ob die Aalverordnung überarbeitet oder ihre Umsetzung verbessert werden muss.

Hintergrund der Intervention

Der europäische Aalbestand (Anguilla anguilla) ist rückläufig, die Anzahl ist auf einem historischen Tief und die Ausbeutung des Bestands ist derzeit nicht nachhaltig. Die jüngste ICES-Bestandsaufnahme, die im November 2018 (2018a) veröffentlicht wurde, bestätigt, dass der Status des Aals nach wie vor „kritisch“ ist, und dass seine Anzahl niedrig bleibt. Der Rückgang der Anzahl spiegelt sich in einem langfristigen Rückgang der gewerblichen Fischerfänge und Freizeitfischereifänge wider, trotz erheblicher Auffüllungsbemühungen.

Gemäß der Aalverordnung mussten die Mitgliedstaaten Aalbewirtschaftungspläne (EMPs) für ihre Flusseinzugsgebiete aufstellen, die wichtige Aallebensräume darstellen, für die Umsetzung im Jahr 2009. Gemäß der Aalverordnung sind die betroffenen Mitgliedstaaten verpflichtet, den Aalbestand zu überwachen, die derzeitige Silberaalflucht (gegen ein 40% -Ziel) zu bewerten und die durchgeführten Bewirtschaftungsmaßnahmen zur Verringerung der Aalsterblichkeit und Erhöhung der Silberaalflucht nachzubewerten. Gemäß der Verordnung sollte jeder Mitgliedstaat der Kommission, zunächst alle drei Jahre bis 2018 und anschließend alle sechs Jahre, einen Bericht über die Kontrolle, Wirksamkeit und Ergebnisse der EMPs erstatten.

Neben der Aalverordnung verfügt die EU über eine Reihe von Mechanismen zur Kontrolle der Fischerei und zur Bewirtschaftung der Wasserumwelt. Dazu gehören die Kontrollverordnung, technische Vorschriften für den Aalfang gemäß den jährlichen TAC- und Quotenverordnungen, die EU-CITES-Verordnung und die Wasserrahmenrichtlinie mit ihren für wandernde Fischarten relevanten Bewirtschaftungsplänen für die Einzugsgebiete.

Umsetzung / Stand der Sache

Neunzehn MS[7] haben nationale EMPs für fast 90 Aalbewirtschaftungseinheiten aufgetellt und umgesetzt. Ausgenommen sind Mitgliedstaaten, in denen nur Flusseinzugsgebiete in das Schwarze Meer münden (Ungarn und Rumänien), da sie im Sinne der Aalverordnung keinen natürlichen Lebensraum für europäischen Aal darstellen. Darüber hinaus waren Zypern, Malta, Österreich und die Slowakei in 2009 von der Ausarbeitung von EMPs befreit, da die betreffenden Flusseinzugsgebiete oder Meeresgewässer nicht als natürliche Lebensräume für den Europäischen Aal identifiziert und definiert werden können. Kroatien, Slowenien und Bulgarien sind formal nicht freigestellt, haben jedoch beschlossen, keine EMPs einzureichen, da sie Aalfänge (außerhalb des Schwarzen Meeres im Falle Bulgariens) für minimal halten. Als Mitgliedstaaten, die keine EMPs eingerichtet haben, müssen sie die Aalfischerei um 50% reduzieren. Auf grenzüberschreitender Ebene wurde nur ein EMP entwickelt, nämlich der grenzüberschreitende ES/PT-Plan für den Mihno-Fluss.

Im Jahre 2012 haben die Mitgliedstaaten erstmals über die im Rahmen der EMPs ergriffenen Maßnahmen, die erzielte Verringerung der anthropogenen Sterblichkeit und den Stand ihres Bestands im Verhältnis zu ihren Zielen, berichtet. Im Jahr 2013 hat der ICES diese Fortschrittsberichte im Hinblick auf die technische Umsetzung der Maßnahmen (ICES, 2013) bewertet. Sie gaben an, dass insgesamt 756 Bewirtschaftungsmaßnahmen (z.B. Abbau von Rückwanderung, Wiederaufstockung, Fangbeschränkungen), die in den EMPs vorgeschlagen wurden, vollständig umgesetzt worden waren, 259 nur teilweise und 107 überhaupt nicht. Der ICES stellte fest, dass viele Mitgliedstaaten über ihre Bestandsindikatoren nicht vollständig berichtet haben, und dass dort, wo sie berichtet wurden, unterschiedliche Ansätze für ihre Berechnung angenommen wurden.

2014 hat die Europäische Kommission (EC, 2014) dem Europäischen Parlament und dem Rat einen Bericht mit einer statistischen und wissenschaftlichen Bewertung der EMP-Umsetzung vorgelegt. Die Ergebnisse dieser ersten Bewertung waren aufgrund von Verzögerungen bei der Ausarbeitung und Genehmigung der nationalen Aalbewirtschaftungspläne und Verzögerungen bei der Durchführung von nichtfischereibezogenen Maßnahmen weitgehend nicht schlüssig. Die Mitgliedstaaten haben erneut über Fortschritte bei der Umsetzung ihrer EMPs im Jahr 2015 berichtet. 18 Mitgliedstaaten haben über Fortschritte im Jahr 2018 berichtet.

Aufgrund des kritischen Zustands des Aalbestands und der nicht schlüssigen Ergebnisse bestehender Bewirtschaftungsmaßnahmen im Rahmen der Aalverordnung haben die Europäische Kommission und die Mitgliedstaaten auf einer Tagung im Dezember 2017 vereinbart, ihre Anstrengungen zum Schutz des Bestands zu verstärken (Rat der Europäischen Union, 2018); dies umfasst auch die Durchführung dieser Bewertungsstudie über die Aalverordnung.

[7] BE, CZ, DK, EE, FI, FR, DE, EL, IE, IT, LV, LT, LU, NL, PL, PT, ES, SE, UK

Methodologie

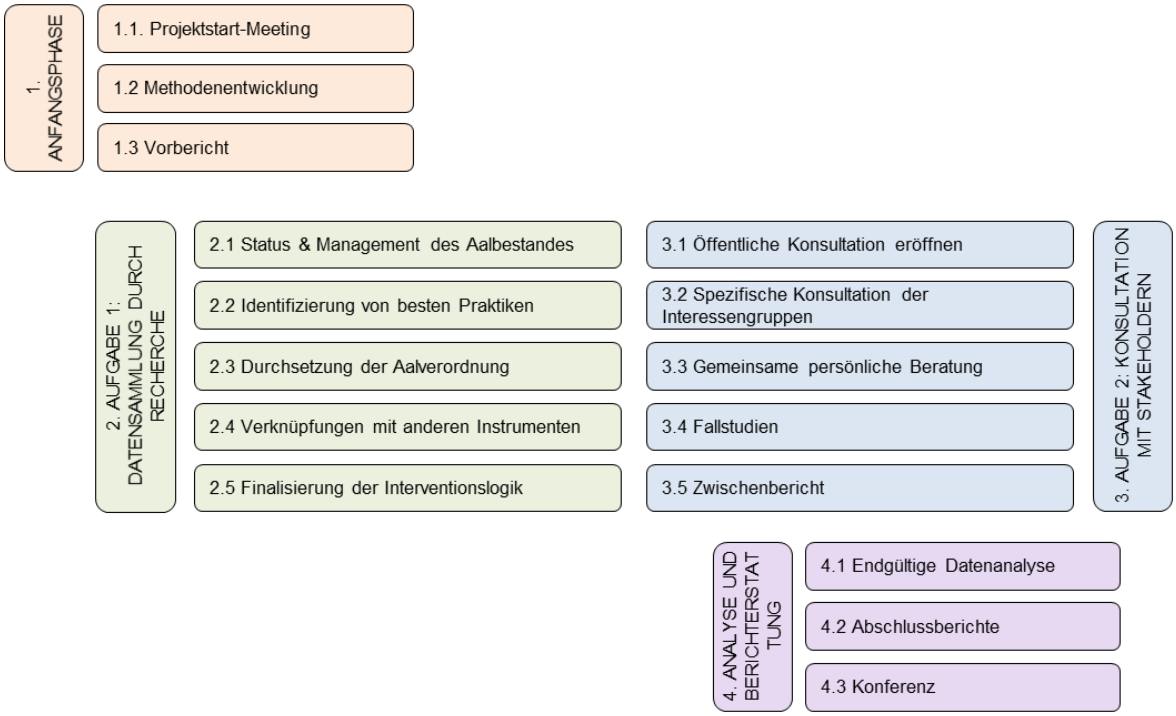
Diese Studie wurde über einen Zeitraum von siebeneinhalb Monaten durchgeführt, wobei der Abschlussbericht Mitte Mai 2019 vorgelegt wurde. Sie wurde in vier verschiedenen Phasen durchgeführt, die in der Abbildung auf der Rückseite dargestellt sind und nachstehend kurz beschrieben werden.

1. **Anfangsphase**: lief über die ersten vier Wochen des Projekts nach der Vertragsunterzeichnung am 21. Oktober 2018. Sie umfasste ein Projektstart-Meeting, die Entwicklung der Interventionslogik und einer vorläufigen Matrix von Bewertungsfragen, und führte zur Einreichung von einem Vorbericht (am 2. November 2018).
2. **Datenerfassung durch Recherche**: Erhebung von Evidenz zur Beantwortung der Bewertungsfragen. In dieser Phase haben wir zwei Projektfortschrittsberichte eingereicht und die Phase endete mit der Abgabe des Zwischenberichts am 18. Januar 2019.
3. **Konsultationen mit den Interessengruppen**: Diese dritte Phase des Projekts verlief weitgehend parallel zu Phase 2, damit mit der Erhebung von Evidenz für die Bewertung begonnen werden konnte. Sie wurde daher im Zwischenbericht aufgeführt und bestand sowohl aus einer öffentlichen Konsultation (OPC) als auch aus gezielten Konsultationen. Mit Unterstützung der Berater bei der Ausarbeitung der Fragen hat die Kommission am 14. Dezember 2018 die OPC gestartet und am 8. März 2019 abgeschlossen. Darüber hinaus haben wir spezielle Konsultationen mit wichtigen Interessengruppen in allen relevanten Mitgliedsstaaten durchgeführt, die direkt von der Aalverordnung betroffen sind (z.B. staatliche Behörden, Fischer und Landwirte sowie diejenigen, die sich mit der Wiederauffüllung und dem Handel von Aalen befassen), ein Interesse an der Umsetzung der Aalverordnung haben (z.B. internationale Organisationen wie Organe, die CITES und das CMS durchführen, NROs) oder in der öffentlichen Konsultation vertreten sind (z.B. Forschungseinrichtungen). Insgesamt wurden 174 Fragebögen erstellt und 80 Antworten empfangen und analysiert. Darüber hinaus führten wir elf persönliche und zwölf telefonische Interviews mit wichtigen Interessengruppen durch. Dieser Prozess wurde durch Fallstudien in Frankreich, Dänemark und Italien unterstützt.
4. **Analyse und Präsentation**: In dieser letzten Phase der Evaluierung haben wir die in den vorherigen Phasen gesammelten Daten verarbeitet und analysiert, um sie zu synthetisieren und zu triangulieren und die Bewertungsfragen zu beantworten. Auf dieser Grundlage ziehen wir evidenzbasierte Schlussfolgerungen und schlagen gegebenenfalls Empfehlungen vor.

Während der Vertragsdauer übermittelte das Bewertungsteam der GD Mare monatliche Fortschrittsberichte. Am Ende des Vertrags hielt der Leiter des Bewertungsteams eine 40-minütige Präsentation der Bewertungsergebnisse auf einer Mittagskonferenz ab, die von der GD Mare am 29. April 2019 veranstaltet wurde. Daran nahmen rund 40 Teilnehmer aus der GD Mare, der GD Umwelt und dem Generalsekretariat teil und weitere 45 Minuten wurden für Klarstellungen und Diskussionen generiert.

In Anbetracht der umfangreichen OPC-Antworten (174) und der gezielten Konsultation (80) sowie der umfangreichen Evaluierungen der EMP-Fortschrittsberichte durch das ICES-WKEMP Ende 2018 sind wir der Meinung, dass die Bewertung robust und wohlunterrichtet ist.

Übersicht der Bewertungsschritte



Analyse und Antworten auf die Bewertungsfragen

Relevanz: Die Anlandungen von europäischem Aal sind von rund 10.000 Tonnen Anfang der 90er Jahre auf rund 2.500 Tonnen seit 2010 zurückgegangen, doch die Rückwanderungswerte liegen immer noch weit unter dem allgemeinen Ziel des EU-Wiederauffüllungsplans von mindestens 40% der Silberaal- Biomasse, die existiert hätte, wenn sich kein anthropogener Einfluss auf den Bestand ausgewirkt hätte. Es ist jetzt anerkannt, dass eine Schlüsselquelle für die Aalsterblichkeit nichtfischereibezogene anthropogene Aktivitäten sind, z.B. die Auswirkungen von Wasserkraftturbinen und Staudämmen auf Migration und Rückwanderung und die Tatsache, dass die Erholung des europäischen Aals ein langfristiger Prozess ist, der angesichts der langen Lebensdauer der Art (z.B. 20 Jahre) Jahrzehnte, nicht Jahre, dauern wird. In Bezug auf die Wiederauffüllung des Bestands - sowohl aus der direkten Fischerei als auch aus anderen anthropogenen Sterblichkeitsquellen - sind die spezifischen Ziele der Aalverordnung daher nach wie vor von hoher Relevanz.

Die Gemeinsame Fischereipolitik konzentriert sich hauptsächlich auf die Erhaltung der biologischen Meeresschätze, wobei der Süßwasserbereich auf Markt- und Finanzmaßnahmen beschränkt ist. Die Aalverordnung (2007), die der reformierten GFP (2013) vorausgeht, erweitert den Geltungsbereich des EU-Mandats auf die Bewirtschaftung des europäischen Aals in Süßwasser und konzentriert sich in erster Linie auf die Bewältigung der fischereibezogenen anthropogenen Sterblichkeit. Dies geschieht vor allem durch zunehmende Flucht und Verringerung der fischereilichen Sterblichkeit. Außerdem müssen die Mitgliedstaaten Maßnahmen ergreifen, um die durch Faktoren außerhalb der Fischerei verursachte Aalsterblichkeit zu verringern, und die Habitatrichtlinie und die Wasserrahmenrichtlinie werden ausdrücklich als wichtige Vorläufer und unterstützende Rechtsvorschriften anerkannt.

Wirksamkeit: In Bezug auf den Prozess haben 19 EU-Mitgliedstaaten mit bedeutenden Aalhabitaten nationale Aalbewirtschaftungspläne erstellt, obwohl die Tatsache, dass nur fünf EMPs auf der Ebene der Aalbewirtschaftungseinheiten (EWU) tätig sind, Anlass zur Sorge gibt. Jedoch, wie oben angedeutet, wird es erheblich länger dauern, bis die EMP-Ziele erreicht sind. Der Aalbestand hat sich in keinem Maße erholt, die anthropogene Sterblichkeit außerhalb der Fischerei ist im letzten Jahrzehnt nicht signifikant zurückgegangen und das 40%-Ziel für die Rückwanderung wurde nicht erreicht. Während die Wiederauffüllung eine Maßnahme ist, die in vielen EMPs vorkommt, haben nur sechs ihr EMP-Besatzziel erreicht. Während im Jahr 2013 mangelnde Finanzierung die Wiederauffüllung der Bestände einschränkte, sind die steigenden

Kosten für Glasaal ein neueres Problem. Das Ziel, den Fischereiaufwand um mindestens 50% zu senken, hat einige Erfolgreiche gebracht. Der Fischereiaufwand ist in Schweden (um über 90%), Italien (etwas mehr als 50%), Dänemark und Frankreich (um fast 50%) und Deutschland (um 25%) zurückgegangen. Die Anstrengungen scheinen jedoch in Großbritannien auf 135% des Niveaus von 2008 und in Polen auf 180% des Niveaus von 2012 angestiegen zu sein.

Die Rückverfolgbarkeit von Aalen ist nach wie vor ein zentrales Thema, insbesondere bei lebenden Glasaalen. Die Rückverfolgbarkeit innerhalb der EU wird durch einige Mängel des EU-Kontrollsystems im Zusammenhang mit der Kontrolle der Tätigkeiten von Schiffen mit einer Länge von weniger als 10 m behindert. Es wurde jedoch zunehmend anerkannt, dass dies der Schlüssel zur Kontrolle illegaler Exporte aus der EU ist, und eine Reihe von Mitgliedstaaten implementieren derzeit Rückverfolgbarkeitssysteme auf der Grundlage der EU-CITES-Verordnung, die von Initiativen des Privatsektors wie der Sustainable Eel Group unterstützt werden. Dennoch scheint die schwache Rückverfolgbarkeit des Aals „vom Netz bis zum Teller“ ein wesentlicher Risikofaktor zu sein. Die EU-Kontrollverordnung schreibt eine Rückverfolgbarkeit für alle Arten (einschließlich Aal) vor. Dies ist jedoch noch weit von einem wirksamen System entfernt, dessen Umsetzung durch die Mitgliedstaaten erheblich verbessert werden muss. Die vorgeschlagene Überarbeitung des EU-Kontrollsystems dürfte die Überwachung und Kontrolle der Aalfischerei dramatisch verbessern.

Die europäische Aalfischerei ist der festen Überzeugung, dass eine begrenzte und transparente Fangfischerei sowohl nachhaltig als auch wünschenswert ist, insbesondere wenn sie auf kleinen traditionellen Betrieben beruht. Diese Meinung stützt sich auf Ergebnissen der OPC, die eher externe Faktoren und nicht Probleme mit der Gesetzgebung selbst hervorheben, wie die Unfähigkeit Wasserkraftsterblichkeit oder Wilderei zu reduzieren, und die nicht ausreichende Implementierung von Regelungen auf nationaler Ebene.

Nachhaltigkeit: Es gibt kein „Enddatum“ für die Aalverordnung, daher gilt diese als unbefristet, zumindest bis sich der europäische Aalbestand vollständig erholt hat. Wie in dieser Bewertung häufig erwähnt, handelt es sich bei der Erholung der europäischen Aalpopulation um einen langfristigen Prozess. Einige Mitgliedstaaten halten 2050 für einen vernünftigen Zeitpunkt, an dem das in der Verordnung festgelegte Ziel einer EU-weiten Rückwanderung von 40% erreicht werden könnte. Die Reduzierung der kommerziellen Fischereitätigkeit kann sich langfristig auf die fischereiliche Sterblichkeit auswirken, es besteht jedoch die Gefahr, dass die IUU-Fischerei - getrieben durch den in Asien für europäische Glasaale gezahlten hohen Preis - ein gewisses Maß an fischereilicher Sterblichkeit aufrechterhält, das sowohl schwer einzuschätzen ist, als auch mögliche Auswirkungen auf die Erholung der Bestände haben kann, und somit die Nachhaltigkeit der Initiative gefährdet. Das Wiederauffüllen von Lagerbeständen ist eine kurz- bis mittelfristige Maßnahme, die schrittweise eingestellt werden sollte, da die natürliche Rekrutierung und die Konnektivität der Wasserläufe verbessert werden müssen. Strukturelle Maßnahmen zur Durchgängigkeit von Flüssen und zur Verbesserung der Lebensräume von Flüssen können sich zusammen mit anderen Umweltmaßnahmen auf Aalbestände langfristig am stärksten auswirken. Sobald sich der europäische Aalbestand vollständig erholt hat, könnte zu diesem Zeitpunkt die Regulierung überdacht und ein Plan für eine nachhaltige Bewirtschaftung aufgestellt werden. In der Zwischenzeit sollten die in der Verordnung vorgeschriebenen regelmäßigen Fortschrittsberichte fortgesetzt werden.

Effizienz: Eine monetarisierte Analyse des Kosten-Nutzen-Verhältnisses der Aalverordnung ist zum gegenwärtigen Zeitpunkt nicht quantifizierbar, da die Mitgliedstaaten die direkten Kosten für die Umsetzung der Verordnung nicht messen, da ihre Zuständigkeit häufig auf mehrere Regierungsstellen verteilt ist. Die direkten Umweltvorteile der EMP-Maßnahmen (z.B. Wiederauffüllung des Aalbestands durch verringerte fischereiliche Sterblichkeit und erhöhte Rückwanderung in Laichbereiche) und die indirekten Umweltvorteile (wiederverbundene Küsten-, Mündungs- und Flussökosysteme) sind langfristiger Natur, noch im Entstehen begriffen und müssen erst je nach ihren Umweltvorteilen gemessen werden. Dennoch ist die Verordnung im Wesentlichen solide, und die meisten Befragten in den Mitgliedstaaten gaben an, dass alternative Ansätze nicht in Betracht gezogen wurden. Es wird jedoch anerkannt, dass die Umsetzung vieler Maßnahmen ein langfristiger Prozess ist, und dass viele Aspekte noch nicht vollständig verwirklicht sind. Ein weiterer Bereich, der verbessert werden muss, ist die Fortschrittsberichterstattung, die

harmonisierter und robuster sein muss. Gegenwärtig erwägen die EU-Mitgliedstaaten keine politischen Alternativen zur Aalverordnung, da diese langfristig als relevant und wirksam erachtet wird.

Kohärenz: Wie bereits erwähnt, steht die Aalverordnung im Wesentlichen im Einklang mit den GFP- und Umweltvorschriften wie der WRRL und der Habitatrichtlinie. Es besteht Spielraum für eine Verbesserung der Konnektivität zwischen Bewirtschaftungsplänen für Flusseinzugsgebiete und den EMPs, sowie den mit deren Umsetzung beauftragten Behörden, einschließlich der Harmonisierung und Priorisierung von Maßnahmen, insbesondere im Hinblick auf den hydromorphologischen Druck. In den letzten Jahren hat die GFCM die Notwendigkeit für Aalmanagement im Mittelmeerraum erkannt. Es profitiert auch von Beschränkungen im Handel mit europäischem Aal außerhalb der EU durch CITES, und es besteht erheblicher Spielraum, die Rolle des CMS beim weltweiten Aalschutz auszubauen.

EU-Mehrwert: Die Aalverordnung hat die Entwicklung von Rechtsvorschriften zum Schutz und zur Bewirtschaftung von Aalen in den Mitgliedstaaten vorangetrieben. Es hat auch Manager aus verschiedenen Regionen und Organisationen in den Mitgliedstaaten zusammengebracht, um die Pläne und damit verbundenen Maßnahmen zu entwickeln. Die Aalverordnung hat auch andere EU-finanzierte Maßnahmen zur Unterstützung der Erholung des europäischen Aals angeregt, wie beispielsweise das kürzlich gestartete SUDOANG-Projekt in Südwesteuropa. Die Verordnung hat das Bewusstsein für die Notwendigkeit geschärft, den europäischen Aal in seinem gesamten Verbreitungsgebiet zu erhalten und zu bewirtschaften.

Schlussfolgerungen und Empfehlungen

Die Verabschiedung der Aalverordnung gilt als ein wichtiger Meilenstein in dem langen Prozess, der die Erholung des Europäischen Aals ermöglicht. Die grundlegende Prämisse ist nach wie vor solide, und die Verordnung ist nach wie vor genauso relevant wie im Jahr 2009. Trotz bemerkenswerter Fortschritte bei der Reduzierung des Fischereiaufwands und des konzertierten Versuchs, einen EU-weiten Bewirtschaftungsrahmen zu entwickeln, ist der ICES der Ansicht, dass der Status des Aals kritisch bleibt.

Dies bedeutet nicht, dass die Verordnung nicht funktioniert. Die Hauptgründe, warum die Aalwanderung und -rückwanderung behindert wurde, bestehen nach wie vor und es wird viele Jahre, sogar Jahrzehnte dauern, bis sich die europäische Aalpopulation signifikant erholt hat. Die meisten Interessenträger sind sich einig, dass die Verordnung solide ist, ihre Umsetzung muss jedoch erheblich verbessert werden, insbesondere im Hinblick auf die anthropogene Sterblichkeit außerhalb des Fischereisektors. Darüber hinaus muss der derzeitige hochrangige nationale Ansatz für das Aalmanagement, der von einigen Mitgliedstaaten verwendet wird, auf die Ebene der Wasserscheide reduziert werden, wobei der Schwerpunkt auf den Aalmanagementeinheiten und ihren individuellen Herausforderungen liegt. Einige stellen auch die derzeitige Ausrichtung auf die Steigerung der Biomasse und des Vorkommens von Aalen in Frage, und ob die Festlegung von Sterblichkeitszielen im Einklang mit dem langfristigen Ziel von 40% Biomasse aus Silberaal auf geografisch verteilter Basis (z. B. auf der Ebene der WWU) nicht eine effizientere Befischungsstrategie wäre.

Auf der Ebene der Mitgliedstaaten wurden einige bemerkenswerte Fortschritte erzielt, die auch darauf hindeuten, dass die Verordnung im Laufe der Zeit ein entscheidender Faktor für die Erholung des Europäischen Aals sein wird. Italien hat gezeigt, wie Multi-Interessengruppen-Plattformen dazu beitragen können, regionale EMPs an die Art und die Umstände der lokalen Aalbewirtschaftungsbedürfnisse anzupassen. In Frankreich und im Vereinigten Königreich wurden bewährte Verfahren entwickelt und veröffentlicht, um die Flussbauten „aalfreundlich“ zu gestalten und vor Wasserkrafteinleitungen zu schützen. Es gab auch Versuche, Migrationsrouten zu öffnen und hydrologische Systeme zu entwickeln, die die Aalbewegung begünstigen, insbesondere in Frankreich und Italien. Signifikante Entwicklungen gab es auch bei der Zertifizierung nachhaltiger Aalfischerei durch Dritte. Besonders hervorzuheben ist die Entwicklung von CITES-basierten Rückverfolgbarkeitssystemen in Griechenland und Italien, die dazu beitragen könnten, den Handel mit Aalen innerhalb der EU zu verfolgen und das Risiko illegaler Ausfuhren nach außerhalb der EU zu verringern. Gemeinsame Operationen, wie die von Europol unterstützten spanisch-

portugiesischen „Operations Elvers“, bei denen 350 kg Glasaal für China beschlagnahmt wurden, zeigen auch, wie multinationale grenzüberschreitende Kontrolloperationen funktionieren können.

Auf der Grundlage der Bewertung kann eine Reihe von Empfehlungen formuliert werden, um die Wirksamkeit der Verordnung sowohl durch ihre direkte Umsetzung als auch über andere Wege, die durch diese EU-Maßnahmen angeregt werden, zu verbessern.

Direkte Probleme bei der Umsetzung der Aalverordnung

- Ein angemessener Schwerpunkt auf Mitgliedstaaten mit einer bedeutenden Produktion von Glasaal (FR, UK, ES & PT) und Gelb- und Silberaal (FR, UK, DK, SE, IT, PL, NL, ES & EL) für Fischereimaßnahmen mit einem weniger strengen Ansatz gegenüber Mitgliedstaaten mit keiner oder sehr geringer Produktivität.
- EMPs werden in allen Mitgliedstaaten auf WWU-Ebene entwickelt, es sei denn, es gibt glaubwürdige Beweise dafür, dass Pläne für mehrere WWU gerechtfertigt sind. Stärkere Betonung der grenzüberschreitenden Zusammenarbeit innerhalb der EU und an ihren Grenzen.
- Die EMPs müssen sich stärker auf nichtfischereibezogene Maßnahmen konzentrieren, z. B. (i) strukturelle Maßnahmen zur Durchgängigkeit von Flüssen und zur Verbesserung der Flusslebensräume sowie andere Umweltmaßnahmen und (ii) das vorübergehende Abschalten von Wasserkraftturbinen. Erforderlichenfalls sollte die Entwicklung dieser Maßnahmen gemeinsam mit den Behörden durchgeführt werden, die mit der Durchführung der damit verbundenen Maßnahmen beauftragt sind.
- Größerer Druck auf die Mitgliedstaaten, die Verordnung in vollem Umfang zu erfüllen. Da sich die EMPs in Bezug auf Qualität und Gebrauchseignung unterscheiden, hat dies zu den bisherigen Teilquoten bei der Umsetzung und zu den unterschiedlichen Reaktionen auf Fortschrittsberichtsanforderungen und Datenabrufe (sowohl von der EU als auch vom ICES) geführt.
- Mehr spezifische Fristen und Zwischenziele in der Verordnung. Obwohl die Verordnung als langfristiger Ansatz anerkannt ist, ist sie nicht zeitgebunden. Es gibt dafür gute Gründe, aber viele Interessengruppen haben darum gebeten, Zwischenziele zu entwickeln und die Fortschritte auf diesem Weg zu überwachen. Es ist wichtig, dass solche Zwischenziele nicht nur die fischereibezogene Sterblichkeit, sondern auch die nichtfischereibezogene Sterblichkeit und Proxy-Indikatoren (z. B. verbesserte Konnektivität von Flüssen) abdecken. Dies erfordert möglicherweise eine Neuausrichtung aller Schutzmaßnahmen, Bewertungen, Bewertungen und Empfehlungen zu Zielen und Indikatoren für die anthropogene Mortalität, wobei die einzelnen Bewirtschaftungsbereiche (Länder) einzeln zu berücksichtigen sind.
- EMPs sollten regelmäßig überprüft werden, um sicherzustellen, dass sie robust, relevant und effektiv bleiben. Dies erfordert laufende Forschung sowie die Überwachung der Umweltbedingungen, der Konnektivität und der Fangmöglichkeiten, der Dokumentation und der Rückverfolgbarkeit (CDT). Die Überprüfung der EMPs muss vorerst alle drei Jahre fortgesetzt werden.
- Die Bewertung ergab eine mögliche Ursache für eine rechtliche Fehlinterpretation von Art. 7.1 der Aalverordnung in Bezug auf die Wiederauffüllung, wonach 60% der jährlich gefangenen Glasaale nicht für diesen Zweck vermarktet werden dürfen. Infolgedessen können die Kontrollbehörden diese Vorschrift nicht durchsetzen. Artikel 7.1 der Aalverordnung muss möglicherweise unter Berücksichtigung der anhaltenden Relevanz anderer Vorschriften für die Wiederauffüllung überarbeitet werden.
- Ein kohärenterer Finanzierungsansatz für EMPs und damit verbundene Maßnahmen sind erforderlich. Nur wenige Mitgliedstaaten stellen Haushalte für die Umsetzung ihrer EMPs bereit, um solche Aspekte wie Wiederauffüllungskosten und Projekte zur Verbesserung des Lebensraums abzudecken. Dies sollte die Rolle des EMFF und anderer öffentlicher Mittel der EU, die Rolle des Privatsektors und möglicherweise die Entwicklung spezieller Finanzinstrumente zur Finanzierung des langfristigen Aalschutzes und -managements einschließen. Dies legt nahe, dass die Aalverordnung und ihre Maßnahmen speziell in den operationellen Programmen des EMFF für den nächsten Finanzierungszeitraum

(2021 - 2027) berücksichtigt werden sollten. Insbesondere die Auffüllung von Glasaal, die vom EMFF und anderen öffentlichen Fonds unterstützt wurden, muss im Hinblick auf den Nettonutzen für die Silberaal-Rückwanderung besser gerechtfertigt werden. In der Folgenabschätzung der Kommission zu den Auswirkungen des EMFF (SWD) heißt es auch, dass *die Mitgliedstaaten die nationalen Bewirtschaftungspläne zum Schutz der Aale in den Binnengewässern stärken müssen (EC, 2018).*

Weiterreichender Governance und Aalmanagement Probleme

- Für die Erholung des Europäischen Aals ist eine zentrale Koordinierungsstelle erforderlich. Die Aalverordnung sieht einen einheitlichen Ansatz in der gesamten EU vor, das Kernthema der Bestandserholung erfordert jedoch einen umfassenden Ansatz. Eine Interessengruppe nannte die North Atlantic Salmon Conservation Organization (NASCO) als mögliches Modell.
- Der derzeitige schlechte Zustand des europäischen Aals muss besser bekannt gemacht werden, damit ein größerer öffentlicher Druck ausgeübt werden kann, um das Aalmanagement und die Bedingungen in den Wasserbecken zu verbessern.
- Es sind international koordinierte Forschungsarbeiten erforderlich, um den Nettonutzen einer Wiederauffüllung der Gesamtpopulation zu bestimmen, einschließlich Tragfähigkeitsschätzungen der Flussmündungen von Glasaalquellen, detaillierter Sterblichkeitsschätzungen bei jedem Schritt des Auffüllungsprozesses und Leistungsschätzungen von eingesetzten vs. nicht eingesetzten Aalen.
- Koordinierte Erforschung der Aquakulturtechniken für Aale, um eine kommerziell tragfähige künstliche europäische Glasaalproduktion zu entwickeln.
- Entwicklung paralleler Managementmaßnahmen in Nicht-EU-Ländern, einschließlich der Entwicklung umfassender Aalmanagementpläne (auf grenzüberschreitender Ebene, sowohl mit der EU als auch mit Drittländern), koordinierte Forschung.
- Förderung von Mitgliedstaaten, die CITES-Verpflichtungen in vollem Umfang zu nutzen, um die Kontrolle der Rechtmäßigkeit der in ihrem Hoheitsgebiet festgehaltenen oder zum Verkauf angebotenen Aale zu stärken.
- Es sind weitere Maßnahmen erforderlich, um das Übereinkommen über wandernde Arten (CMS) zu nutzen und um sicherzustellen, dass es zur Verbesserung des Erhaltungszustands des Europäischen Aals und seiner Bewirtschaftung beiträgt. In der Praxis bedeutet dies die Entwicklung eines geeigneten Instruments, sei es in Form einer rechtsverbindlichen Vereinbarung oder in Form einer anderen Lösung, die in der großen CMS-Mittelfamilie bereits existiert.

Referenzen in der Zusammenfassung

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1.0 INTRODUCTION

1.1 BACKGROUND

Following multi-decadal decline of the European eel stock across Europe, in 2002 the International Council for the Exploration of the Sea (ICES) recommended that a recovery plan for European eel was urgently needed (ICES, 2002) and subsequently in 2003 the European Commission proposed the development of a 'Community Action Plan for the management of European Eel' (EC, 2003). Following this, the Council of the European Union adopted a regulation to put in place measures for the protection and recovery of this complex species in 2007. The Council Regulation 1100/2007 for the recovery of the eel stock (hereafter the 'Eel Regulation') required MSs to establish eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation in 2009.

According to recurrent scientific advice, "the European eel stock is in critical condition and urgent action is needed" to ensure its recovery. On this basis, during the December 2017 Council meeting, in the context of the negotiations of the Regulation for the 2018 Fishing opportunities, the European Commission and Member States agreed to step up their efforts to protect the stock. This includes also carrying out the evaluation of the Eel Regulation, for which a roadmap (EC, 2018b) was open to consultation over the second quarter of 2018.

The evaluation aims at assessing the measures for the recovery of the stock of the European eel under the Eel Regulation, and in particular the contribution of the national Eel Management Plans established and implemented under this Regulation. These Plans include measures to ensure in the long-term the escapement to the sea of at least 40% of adult eels relative to the escapement levels that would have existed in the absence of human influences, such as limiting (professional and recreational) fisheries; making it easier for fish to migrate through the rivers; restocking suitable inland waters with young eel.

The Commission attempted a first assessment of the outcome of the implementation of the Eel Management Plans in 2014, on the basis of the first progress reports submitted by Member States in line with Article 9 of the Eel Regulation and reported to the European Parliament and to the Council (EC, 2014a). The results of this first assessment were largely inconclusive due to the delays in the preparation and approval of the national Eel Management Plans and the delays in the implementation of non-fisheries related measures.

1.2 PURPOSE OF THIS EVALUATION

The objective of this evaluation study was to assist DG MARE's evaluation of the currently applicable measures for the recovery of European eel stock under the Eel Regulation by examining their effectiveness, efficiency, relevance, coherence, EU added value and sustainability.

This was done with the purpose to:

- support the implementation of the current Eel Regulation;
- enhance transparency and accountability, and
- improve the application of this policy.

The evaluation assesses to what extent the measures under the Eel Regulation are fit for purpose. In accordance with the Better Regulation requirements, the evaluation will help to assess the coherence between the various pieces of legislation drafted at different times as well as to identify potential for simplification.

Based on its outcome, the results of this evaluation study may be used to inform the decision whether the Eel regulation needs to be reviewed and/or whether its implementation needs to be improved. It also aims to provide evidence for a possible future impact assessment and/or guide the Commission in improving the implementation of the Regulation.

In addition to the Commission, the results may also be used by Member States and their national authorities, other EU institutions, international organisations and other stakeholders.

1.3 SCOPE OF THIS EVALUATION

This evaluation study covers the management, implementation and enforcement issues, including trade aspects. This evaluation looks in particular into the content and implementation of the Eel management plans and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock, with a special emphasis to the design and implementation of restocking measures and the management of glass eel fisheries. It also covers the enforcement and monitoring issues, both in marine and in inland waters. The evaluation also looks into the articulation and coherence between the Eel Regulation and other EU rules in place such as the Common Fisheries Policy (European Parliament & the Council of the European Union, 2013), the fisheries control regulation (Council of the European Union, 2009) and environmental legislation, in particular the Water Framework Directive (European Parliament & the Council of the European Union, 2000) and information on eel habitats derived from the implementation of the Habitats Directive (Council of the European Union, 1992). It looks as well into the articulation and coherence with international instruments that cover eels, such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[8] and the Convention on the Conservation of Migratory Species of Wild Animals (CMS)[9].

The measures established under the Eel Regulation are analysed as a set of tools, with their strengths and weaknesses. The individual measures taken by the Member States have been investigated as examples for testing the extent to which provisions are fit for purpose. The evaluation also assesses the overall functioning of the Eel Regulation as one instrument, with its own objectives, delivery and control methods.

As the eels is a panmictic[10] stock, the evaluation study looks into the state of the stock in all its range of natural distribution. The evaluation study considers how 'fit for purpose' the existing measures for the recovery of the eel stock are and how they interact with other EU rules in place. It examines what progress has been made since the Eel Regulation came into force in 2007.

The analysis took into account other contextual elements such as:

- The literature review, reports, scientific advice on eels (in particular annual ICES advice on the state of the Eel stock;
- Member States' reports on the implementation of the Eel Regulation and ICES technical analysis of these reports;
- The results of inspections carried out on eel fishing activities;
- Commission's analysis of the use of the European Maritime and Fisheries Fund for the implementation of the Eel Regulation (contracted with FAME - Fisheries and Aquaculture Monitoring and Evaluation under the European Maritime and Fisheries Fund);
- The findings of the 2007-2012 Habitats Directive Article 17 reports on the conservation status of the most important Annex I habitats types for the European Eel[11]
- The existence of other measures established for the recovery of European eel (either at international level or regionally established).

It evaluated the effectiveness, the relevance and coherence of the existing provisions and assessed their efficiency. The evaluation also considered the EU added value of the measures, unintended effects and administrative burden created by the measures under the Eel Regulation, as well as the sustainability of the measures. Finally, the evaluation also assessed if there is room for simplification of the applicable legal framework.

[8] https://www.cites.org/
[9] http://www.cms.int/
[10] In a population genetics context, if a species is a panmictic stock there is no genetic evidence of population structure throughout its range. For example, European eels are catadromous fish found from Scandinavia to the southern Mediterranean. However, they all migrate to breed in the same location in the Sargasso Sea so genetic samples from throughout their European distribution range show a complete lack of genetic differentiation, or complete panmixia.
[11] http://art17.eionet.europa.eu/article17/reports2012/habitat/summary/

2.0 BACKGROUND TO THE EEL REGULATION

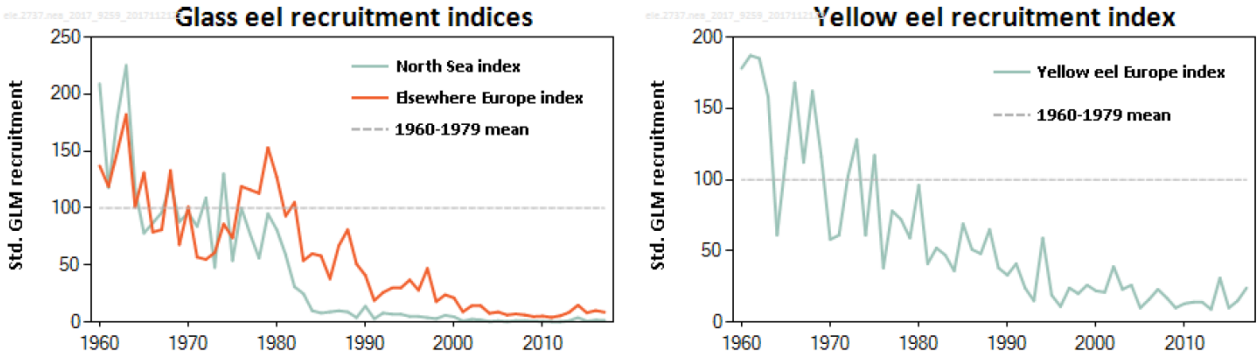
The following section introduces the subject matter and policy landscape relevant to eel management in the EU. We also present our understanding of the origins, purpose and current implementation of the Council Regulation (EC) No 1100/2007 of 18 September 2007, henceforth the 'Eel Regulation'. This section takes into account the recent 2018 ICES WGEEL meeting (ICES, 2018c) and Report of the Workshop for the Review of Eel Management Plan Progress Reports (WKEMP) (ICES, 2018d).

2.1 EUROPEAN EEL STATUS

The European eel (*Anguilla anguilla*) stock is in decline, recruitment is at an all-time low, and exploitation of the stock is currently unsustainable. The European eel is listed in the IUCN Red List of Threatened Species as a critically endangered species (based on 2008, 2010 and 2014 IUCN assessments), although the most recent assessment [12] notes that the critically endangered classification for European eel is borderline, and that if the "*recently observed increase in recruitment continues, management actions relating to anthropogenic threats prove effective, and/or there are positive effects of natural influences on the various life stages of this species, a listing of Endangered would be achievable*" (Jacoby & Gollock, 2014).

ICES have advised for about 20 years on a precautionary basis that all anthropogenic mortality affecting production and escapement of eels should be reduced to as close to zero as possible. The most recent ICES stock advice published in November 2018 confirms that the status of eel remains 'critical' and that recruitment remains low (see Figure 1 below), and the decline in recruitment is mirrored by a long-term decline in commercial (Figure 2 overleaf) and recreational fishery landings despite significant re-stocking efforts.

Figure 1: Eel recruitment indices



Source: ICES, 2018a

This decline in eel is attributed to multiple causes, with the focus of concern on anthropogenic mortality inflicted by fisheries (commercial and recreational, which exploit all eel life stages) and other human activities.

According to ICES estimates, in 2017 the EU harvested around 2,300 tonnes of eels (ICES, 2018c) with France, the United Kingdom, Denmark and Sweden taking around two-thirds of the EU wild catch between them. Tunisia (149 t), Turkey (38 t) and Norway (10 t) are the main non-EU producers of yellow and silver eels. This is less than a quarter of the 1990 landings of around 10,000 t (see Figure 2 overleaf) and since 2011 glass or yellow / silver eel wild production has stabilised at historically low levels (see **Figure 3** overleaf). Recreational landings, mainly of yellow and silver eels which during the 1980's exceeded over 1,000 t in France alone, are now around 161 t, mostly from Denmark, but Member States (MSs) reporting is now limited. There is no doubt that additional unaccounted catches from IUU glass and silver eel fisheries exist (SEG, 2018).

[12] The Red List assessments of all Anguillid eels are due to be reviewed by IUCN imminently

Fisheries impact local eel populations and spawner escapement in 15 out of 20 countries reporting to the WGEEL (ICES 2017b). In total, fisheries make up for more than 50% of anthropogenic mortality in 29 of 62 EMUs, where data for fishing and hydropower mortality was reported.

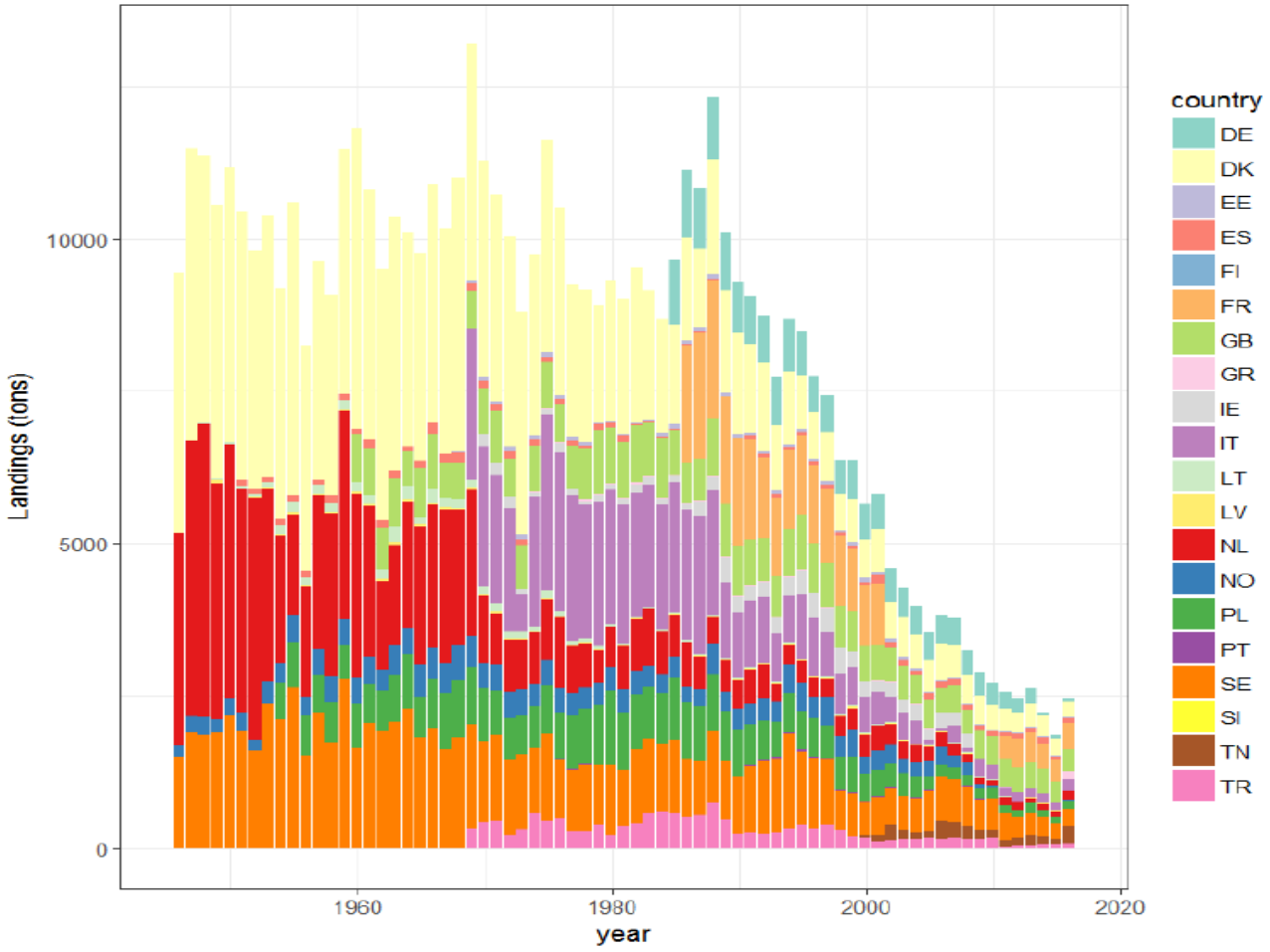


Figure 2: Time-series of yellow and silver eel fishery landings by country

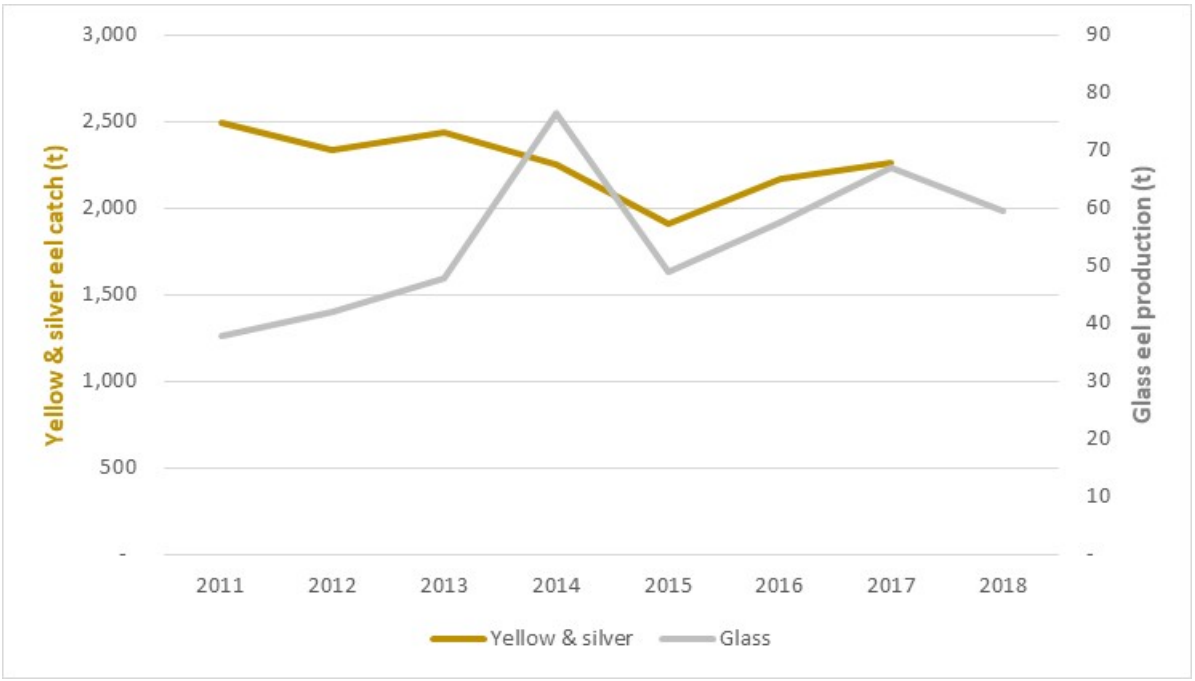


Figure 3: EU wild eel fishery production (2011 - 2016)

Source: ICES Working Group on Eels (ICES, 2018c)

Aquaculture production of eels increased until the end of the 1990s. It started to decline since the mid-2000s from 8,000–9,000 tonnes to approximately 5,000–6,000 tonnes now, mainly reflecting a reduced demand from multiple-retailers who have responded to pressure from environmental NGOs to stop using wild glass eel-based aquaculture products (Kirkegaard *et al*, 2010). Most eel farms now use recirculation aquaculture systems (RAS), especially in the Netherlands and Germany where the majority of farmed eels are produced. It should be noted that eel aquaculture is based on wild recruits, and some of them are subsequently released as on-grown eel for stocking (around 10 million eels, making a mean weight of 20 g to the overall 200 t of wild catch, ICES, 2018c). Although it is now possible to close the cycle of Japanese eel (*Anguilla japonica*) production, so far it has not been possible to spawn and then wean European eels in any significant quantities.

Apart from fishing, other major anthropogenic influences include: hydropower turbines/pumps and other physical obstacles to eel migration; pollution, diseases and parasites; and, habitat modification, all of which are thought to have contributed to the decline in eel escapement rates and associated recruitment (Jacoby *et al*, 2015). Concern has also been expressed around the effects on species status of illegal, unreported and unregulated (IUU) fishing and the illegal trade in glass eels (SEG, 2018, Crook, 2010). Estimations of MS suggest, that hydropower mortality accounts for more than 50% of anthropogenic mortality in 33 of 62 EMUs, where data for fishing and hydropower mortality was reported (ICES 2017b).

2.2 EEL MANAGEMENT FRAMEWORK

2.2.1 The Eel Regulation

Historically eel fisheries throughout Europe have been managed as coastal, estuarine and freshwater fisheries on a local geographical scale. Local management actions were aimed at improving the commercial return from the fisheries and included minimum legal sizes, closed seasons, restocking, restricted licensing, and gear restrictions.

Following multi-decadal decline of the European eel stock across Europe, in 1999 ICES recommended that a recovery plan for European eel was urgently needed and in 2003 the EC proposed the development of a 'Community Action Plan for the management of European Eel' (EC, 2003). Following this, the EU adopted a regulation to put in place measures for the protection and recovery of this complex species in 2007. The Eel Regulation required MSs to establish eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation in 2009. The Intervention Logic for development of the Eel Regulation is represented in **Annex 1A: Intervention Logic** on page 87 and demonstrates the hierarchy between the inputs (e.g. Eel management Plans, EMFF funding and various other mechanisms), activities e.g. setting escapement targets, restricting fishing mortality, etc), operational objectives , specific objectives and the General Objective of the "protection and sustainable use of the stock of European Eel in Community waters, reflecting the needs of thee 2003 Community Action Plan.

In accordance with Article 2.4 of this Regulation, the EMPs should set objectives to "*reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40% of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock"*. The 40% escapement target applies uniformly to all management units. Each EMP constitutes a management plan adopted at national level within the framework of a Community conservation measure.

Under the Eel Regulation, MSs are obliged to monitor the eel stock, evaluate current silver eel escapement and post-evaluate implemented management actions aimed at reducing eel mortality and increasing silver eel escapement. Under the Regulation, each MS should report to the Commission initially every third year until 2018 and subsequently every six years on the monitoring, effectiveness and outcomes of EMPs, including:

- The proportion of silver eel biomass that escapes to the sea to spawn, or leaves the national territory, relative to the target level of escapement;
- The level of fishing effort that catches eel each year;

- The level of anthropogenic mortality factors outside the fishery; and,
- The amount of eel < 12 cm in length caught and the proportion used for different purposes.

These reporting requirements were further developed by the Commission in 2018[13]. This guidance added the opportunity to report fishing catches (as well as effort), and provides explanations of the various biomass, mortality rates and stocking metrics required for international assessment and post-evaluation through Excel templates.

It is noted that the Regulation refers to achieving its aim in 'the long term' but provides no explicit timeline for the achievement of 40% biomass limit, nor sets short term mortality limits.

2.2.2 Other supporting measures

In addition to requirements under the Eel Regulation, a joint declaration on strengthening the recovery for European eel (Council of the European Union, 2018a) was agreed in December 2017, committing Member States to step up their management actions as set out in EMPs, including a review of current restocking practices and fighting illegal fishing and trade. In the context of the fishing opportunities for 2018, a 3-month ban on commercial fishing for European eel of 12 cm or more in marine waters of ICES area (e.g. SE, DK & DE) was to be implemented by each Member State between 1 September 2018 and 31 January 2019, when eels are migrating and therefore most vulnerable (Council of the European Union, 2018b). For the 2019 the scope of the 3-month ban was extended to the Mediterranean, eel at all live stages, recreational fishing and transitional waters. In the ICES area the ban is to be implemented by each Member State between 1 August 2019 and 28 February 2020, in the Mediterranean at a period consistent with the eel's temporal migration pattern.

In the Mediterranean, the General Fisheries Commission for the Mediterranean (GFCM) has established a multi-annual management plan for catching European eels in the Mediterranean Sea (GFCM, 2018). This included targeted, incidental and recreational catches, as well as taking into account in their management measures "*other anthropogenic mortalities factors in order to reduce their impact on eels and increase their probability of the escapement to the sea, as well as including restocking or translocation practices*" through both short-term transitional precautionary management measures as well as long-term measures. The GFCM will launch a research programme in 2019 aiming at providing a comprehensive state of play of the status of the stock in the Mediterranean, reviewing the national management measures adopted by the riparian countries and propose long-term management measures. A working group was established to examine the results of the research programme and propose additional long-term management measures for eel in the Mediterranean.

In addition to the Eel Regulation, the EU has a number of mechanisms to control fisheries and manage the aquatic environment. These include the Control Regulation (Council Regulation (EC) No 1224/2009), rules on eel fishing ban under the CFP and the Water Framework Directive with its River Basin Management Plans relevant for migratory fish species. These are examined further in Section 2.2.4 below and analysed in Section 4.6.

Parallel to the above, in 2007, the European eel was listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which came into force on 13 March 2009 (CITES 2007), and the equivalent Annex (B) of the EU Wildlife Trade Regulations. In December 2010, the EU's Scientific Review Group (SRG) concluded that at the time it was not possible to perform a Non-Detriment Finding (NDF) for the export[14] of *A. anguilla*, and subsequently a zero-import/export policy was set for the EU (EC, 2010). On that basis, EU CITES Management Authorities were not able to allow export of *A. anguilla* from the EU and commercial trade in all commodities of *A. anguilla* to and from the EU was banned from 3 December 2010 (EC, 2010; TRAFFIC, 2015).

[13] Request from the Commission "Subject: Member States' reports under Regulation (EC) no 1100/2007 (the "Eel regulation")" Ares(2018)1830726 -05/04/2018) and "Background Document on the voluntary templates for the preparation Member States reports under Article 9 of Regulation 1100/2007 (the "Eel regulation")" (Ref. Ares(2018)504014 -29/01/2018Ref).

[14] In this report we use the term 'export' exclusively for trade out of and into the EU to and from third countries. Movement of eels within the EU Member States is referred to as 'inter-EU' trade.

At its meeting in December 2018, the SRG reviewed again the situation of European eels and concluded once again that there was no sufficient scientific evidence demonstrating a recovery of the stock and that it would therefore not be possible for the scientific authorities in the EU to deliver a non-detriment finding for any export from or import into the EU of European eels until the end of 2019. On the basis of this and in accordance with the EU Wildlife Trade Regulations (Regulation (EC) No 338/97), EU Member States are not in a position to deliver permits allowing export or import of European eels until the end of 2019 and have decided on a "zero export quota" until the end of 2019 for European eels. In operational terms, the consequences of this situation are that export from and import into the EU of European eels will not be authorised until the end of 2019.

2.2.3 Implementation and Evaluation of the Eel Regulation

Nineteen MSs[15] have developed and implemented national EMPs covering almost 90 Eel Management Units (see **Table 3** on page 19 for more detail). MSs with only river basins flowing into the Black Sea (Hungary & Romania) were exempted as they do not constitute a natural habitat for European eel according to the purpose of the Eel Regulation (clarified in 2008/292/EC, see EC, 2008). In addition Cyprus, Malta, Austria and Slovakia were also exempted from preparing EMPs in 2009 as their river basins or maritime waters concerned cannot be identified and defined as constituting natural habitats for the European eel (clarified in 2009/310/EC, see EC, 2009). Croatia, Slovenia and Bulgaria are not formally exempted but have decided not to submit EMPs as they consider eel catches (outside the Black Sea in the case of Bulgaria) to be minimal. As Member States who have not established EMPs, they are required to implement a 50% reduction in eel fisheries. Some EMPs have been developed at river basin, rather than national level e.g. the ES/PT Transboundary Plan for Mihno River and the UK.

In 2012, MSs first reported on the actions taken under the EMPs, the reduction in anthropogenic mortalities achieved, and the state of their stock relative to their targets. In 2013, ICES evaluated these progress reports in terms of the technical implementation of actions (ICES, 2013a); they reported that a total of 756 management actions (e.g. easement of barriers, restocking, restrictions on fishing) proposed in the EMPs had been implemented fully, 259 partially and 107 declared as not implemented at all. ICES noted that many MSs did not completely report stock indicators, and that where they were reported, different approaches to their calculation had been taken.

In 2014, the European Commission reported to the European Parliament and the Council with a statistical and scientific evaluation of the outcome of the implementation of the EMPs (EC, 2014a). The results of this first assessment were largely inconclusive due to the delays in the preparation and approval of the national Eel Management Plans and the delays in the implementation of non-fisheries related measures. Member States again reported on progress with implementing their EMPs in 2015.

In 2016, as part of their annual review of eel stocks, ICES indicated that hardly any improvement in the status of the stock had been achieved, and that—on average—mortality had not been reduced any further since 2012 (ICES, 2016). To date, 18 Member States have reported on progress in 2018.

On the basis of the critical condition of the eel stock and inconclusive outcomes of existing management measures under the Eel Regulation, at a meeting in December 2017 the European Commission and Member States agreed to step up their efforts to protect the stock (Council of the European Union, 2018a); this includes **carrying out an evaluation of the Eel Regulation**.

[15] BE, CZ, DK, EE, FI, FR, DE, EL, IE, IT, LV, LT, LU, NL, PL, PT, ES, SE, UK

Online feedback on the Roadmap on the evaluation of the Eel Regulation[16] run by the European Commission in April-May 2018. Published responses repeatedly highlight some of the perceived key issues that evaluation of the Eel Regulation will need to consider, including:

- Mixed opinion on whether the 40% silver eel escapement target is achievable;
- Incomplete or inconsistent reporting by MSs;
- Use of metrics that are challenging to measure and report against;
- A perceived lack of clarity about short-term and long-term targets;
- The scale and effects on management of the illegal trade in eels from Europe to Asia;
- The lack of evidence on the effectiveness of restrictions on fishing and restocking on the status of the eel stock;
- The absence of an internationally coordinated management plan for the whole stock area; and
- The coherence of the Eel Regulation with other international and European instruments.

2.2.4 Other Management Instruments and Drivers

A number of other instruments or drivers, many of which have come into force after the Eel Regulation, have the potential to impact, or interact with, measures for the recovery of the European eel stock under the Eel Regulation. Examples of these instruments include:

- The CITES Convention - The European eel became listed on Appendix II of the CITES convention in 2009; at the end of 2010 the Scientific Authorities of the EU Member States confirmed that they would not be able to issue a non-detriment finding for the export and import of *A. anguilla* specimens, as required under the Convention. This decision has been confirmed for every year since, and until the end of 2019. Therefore EU Member States have not issued permits for the export or import of *A. anguilla* specimens out of or into the EU. This decision is relevant to managing illegal trade and 'lost glass eels'.
- The EU Water Framework Directive (WFD) – Commits MSs to achieving good ecological status for all water bodies and assists in defining river basin districts for which management plans are prepared and which in many cases tally with the geographical units covered by EMPs. It could be anticipated that the WFD may result in improvements to water bodies and to river continuity that would in turn have a positive effect on the reproductive potential of silver eel.
- The EU Marine Strategy Framework Directive (MSFD) – The MSFD aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and includes a specific regulatory objective that "biodiversity is maintained". In some MSs, eels are specifically listed in their national MSFD reports. MSs shall provide an initial assessment, determine what good environmental status means, set targets and identify the measures (if necessary) which need to be taken to achieve or maintain Good environmental status in respect of each marine region or subregion concerned.
- Natura 2000 – designation of habitats and species in Special Area of Conservation (SACs) designated under the EU Habitats Directive and (as well as in Special Protected Areas (SPAs) under the EU Birds Directive). Covers marine, coastal and riverine environments, their inhabitants and ecosystems.

[16] https://ec.europa.eu/info/law/better-regulation/initiative/1696/publication/223664/attachment/090166e5b9f25648_en

- The Common Fisheries Policy (CFP) – The reform of the CFP resulted in a commitment to restoring the biomass of all harvested fish stocks above levels capable of producing Maximum Sustainable Yield (MSY). MSY is also used as a key proxy criterion to assess Good Environmental Status under the MSFD[17]. European aquaculture is supported through the Open Method of Coordination (OMC). The European Maritime and Fisheries Fund (EMFF) is the current mechanism for providing EU public funds to support the CFP and aquaculture in the EU, with Art. 11(f) permitting assistance to direct re-stocking of eels as they are under a conservation measure.
- The Convention on the Conservation of Migratory Species of Wild Animals (abbreviated as The Convention on Migratory Species, CMS) – In 2014 the European eel was added to Appendix II of the CMS, whereby Parties to the Convention (covering most of the range of distribution of the European eel) cooperate in their endeavours to develop conservation actions (extending beyond the EU and the scope of the Eel Regulation).

Whilst the majority of these instruments should theoretically complement the Eel Regulation, their objectives may not always be aligned with those resulting from measures under the Eel Regulation, and multiple and varying management objectives and measures of stock status add to the complexity of eel management. Furthermore, whilst the legislative toolbox may be deemed to be "well developed", there may be issues around a lack of implementation and enforcement.

These other instruments are discussed in more detail in Sections 4.6 (EU) and 4.7 (non-EU).

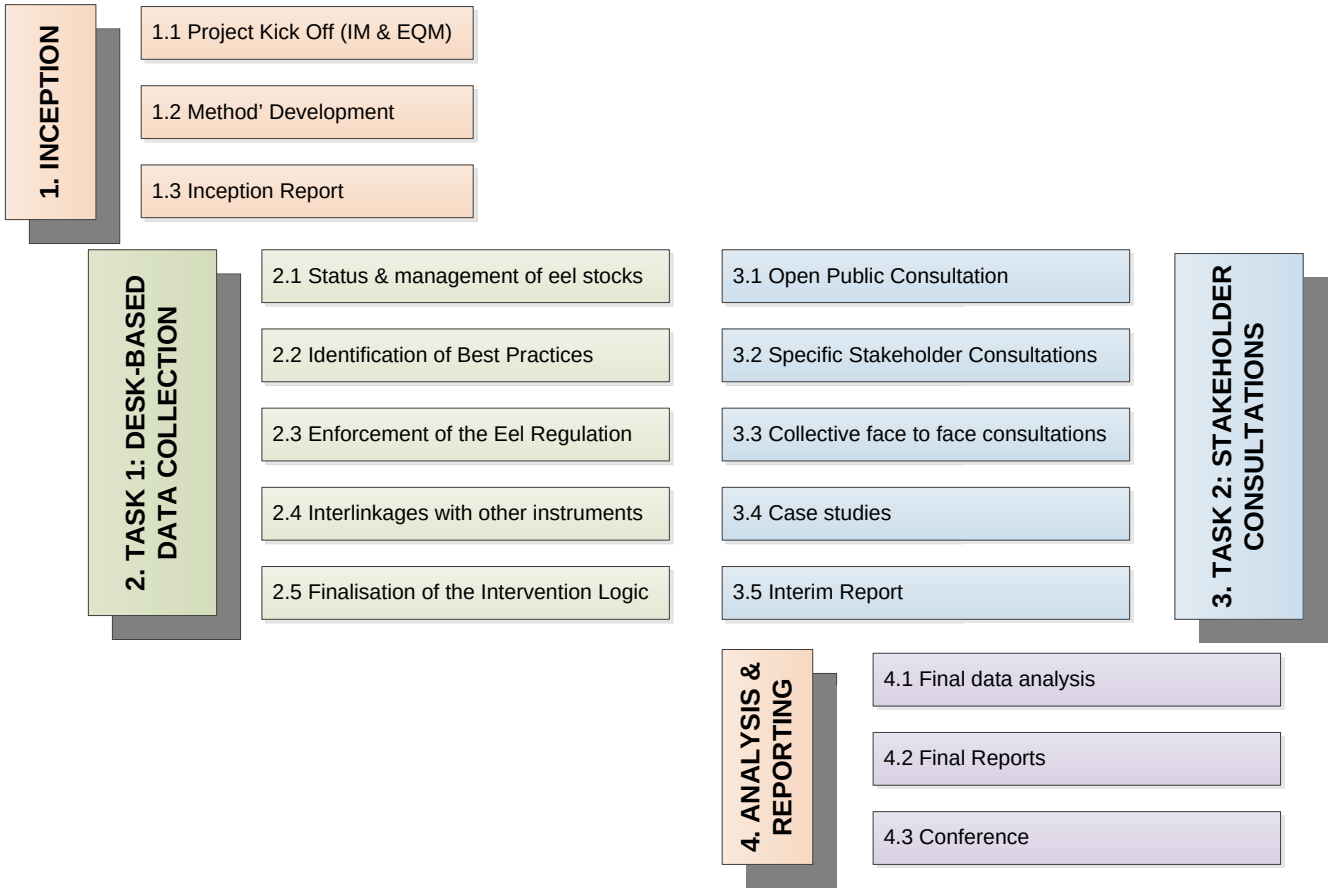
[17] MSFD Descriptor 3: Commercial Fish and shellfish "*Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock*." In scientific terms, Descriptor 3 has various implications. Stocks should be, (1) exploited sustainably consistent with high long-term yields, (2) have full reproductive capacity in order to maintain stock biomass, and (3) the proportion of older and larger fish/shellfish should be maintained (or increased) being an indicator of a healthy stock. GES is achieved for a particular stock only if all of the three attributes are fulfilled. This implies that all commercially exploited stocks should be in a healthy state and that exploitation should be sustainable, yielding MSY. MSY is the maximum annual catch, which can be taken year after year without reducing the productivity of the fish stock. See http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-3/index_en.htm

3.0 METHODOLOGY

3.1 OVERVIEW

Figure 4 below provides an overview of the methodology and tools used to carry out the evaluation. Explanatory text on the methodology for each numbered task shown in Figure 4 is provided in sub-sections further below.

Figure 4: Overview of the Evaluation Steps



3.2 PHASE 1: INCEPTION PHASE

The inception phase ran over the first four weeks of the project, following signing of the contract on 21st October 2018. It has included the following activities:

- Project kick-off and preparatory work, including development of Intervention Logic (see Annex 1A) and a preliminary Evaluation Question Matrix (see Annex 1B);
- Refinement of evaluation approach and methodology; and
- Delivery of an Inception Report (submitted on 2nd November 2018).

3.3 PHASE 2: DESK-BASED DATA COLLECTION

This second phase of the evaluation was aimed at collecting evidence to answer the evaluation questions. During this phase, we submitted two project progress reports and the phase culminated with the submission of the Interim Report on 18 January 2019. The main sources of information were in the table overleaf.

Table 1: Main information sources

Topic	Source and Summary of Information
EMPs and Progress Reporting	Eel Management Plans, Progress Reports (as supplied by DG MARE and summarised in Table 2 of the Inception Report) Reports on the outcome of the implementation of EMPs (e.g. European Commission 2014 Report and WKEMP 2013, WKEMP 2018) ICES advices Results of online feedback to the Roadmap on the evaluation of the Eel Regulation run by the EC (available online) Other reviews of eel management (e.g. journal articles and outputs of relevant workshops; e.g. CMS and Sargasso Sea Commission Workshop 2016)
Fisheries and Aquaculture Production and Other Information on Stock Status	Advice (available up to 2018), including information on stock status and recruitment indices WGEEL Reports (available up to 2018) and outputs of other meetings supporting WGEEL (e.g. RGMAREEL 2017) ICES eel production (wild fisheries and aquaculture) data and advice Other analyses of population data (e.g. journal articles such as Jacoby *et al*. 2015. Synergistic patterns of threat and the challenges facing global anguillid eel conservation. In Global Ecology and Conservation, and outputs of relevant workshops; e.g. HELCOM Workshop on Eel and the Baltic Sea 2017)
Habitat / Water Quality and Management	River Basin Management Plans and Marine Strategies (focusing particularly on trends in Good Environmental Status) Natura 2000 site/feature status reports
Trade	Glass Eel Price Reports (as supplied by DG MARE and summarised in Table 2 of the Inception Report) TRAFFIC Reports and Bulletins Sustainable Eel Group 2018 report on quantifying illegal eel trade ICES WKEELCITES Report 2015 (ICES, 2015b) Other reviews of eel management (e.g. journal articles and outputs of relevant workshops; e.g. CITES international technical workshop in 2018)
Control	Results of the 2018 survey on the control of eel fisheries (supplied via DG MARE)
Restocking	Sustainable Eel Group 2018 evaluation of restocking and recommendations for improvement ICES WKSTOCKEEL Report 2016 (ICES, 2016c) Other relevant analysis (e.g. Dekker and Beaulaton, 2016.
Funding	EMFF & EFF funding records (FAME Support Unit reports, Member State Annual Implementation Reports)

3.4 PHASE 3: CONSULTATIONS

This third phase of the project ran largely concurrent with Phase 2 and was thus reported in the Interim Report. This phase was aimed at collecting evidence to answer the evaluation questions and was composed of both a public consultation (PC), specific and targeted consultations. We have also examined the results of the 'roadmap' consultations undertaken by the Commission in the first half of 2018.

3.4.1 Public Consultation (PC)

The PC was launched on 14 December 2018 and closed on 8 March 2019. The questionnaire was produced in English, then translated into all other EU languages by the Commission services. The PC questionnaire used is provided in **Annex 3**.

3.4.2 Specific Consultations

We conducted specific consultations with key stakeholder groups across all relevant MSs that are directly impacted by the Eel Regulation (e.g. state agencies responsible for developing, implementing and monitoring against EMPs, fishers and farmers, and those involved in eel restocking and trade), have an interest in the implementation of the Eel Regulation (e.g. international organisations such as bodies implementing CITES and the CMS, NGOs), or may be under-represented in the public consultation (e.g. research bodies).

Over the inception phase around 200 potential stakeholder organisations were identified (see Annex 4A). Based on this 174 questionnaires – both for the national authorities (see Annex 4B) and other stakeholder (see Annex 4E) were distributed and around 80 responses received. Consultations based on the questionnaires were conducted mainly via email and telephone, supported by an official Commission introduction letter to encourage cooperation.

In addition a separate consultation exercise was conducted with the Member States control authorities to understand the success or otherwise of eel conservation related control systems in the EU and to identify the main challenges faced. A detailed (see Annex 4C) and a simplified (see Annex 4D) standalone 'control' questionnaire were developed for Member States depending upon the level of information available in a recent internal DG Mare information call.

Information in support of the evaluation of enforcement strategies of measures of the Eel Regulation by the Member States has been obtained according to two main sources:

- Information reported by Member States in response to a dedicated control questionnaire submitted by DG MARE under its own initiative in 2017 and 2018. The following Member States responded to DG MARE : DE, ES, FR, GR, IT, NL, PL, SE and UK. Some Member States (e.g. HR and PT) did not respond to DG MARE questionnaire. DG MARE shared Member States responses with the expert team.
- Information reported by Member States in response to a dedicated control questionnaire prepared by the expert team. In view of the above, two different questionnaires have been prepared for Member States having submitted an EMP: a simplified questionnaire (Annex 4D) for those Member States who responded to the DG MARE questionnaire to avoid repetition of efforts, and a full questionnaire (Annex 4C) for those Member States who have not been consulted by DG MARE or who did not respond to DG MARE. Both versions of the questionnaire are in Annex. Own questionnaires have been submitted to Member States authorities identified as focal points of DG MARE for CFP matters in early December 2018, with last replies received by the end of February 2019.

At the time of writing of this evaluation, 11 Member States responded to our questionnaire, and 11 did not respond. Details are shown in the table overleaf. Among the 11 who did not respond, information on control is nevertheless available from the questionnaire received by DG MARE (ES, NL and SI). Note that the 6 Member States that have been exempted from submitting an EMP have not been consulted.

3.4.3 Collective Consultations

Further targeted, face-to-face and telephone interviews have been held with relevant stakeholder groups. These were mainly in the three case study counties (Denmark, France and Italy) but also included other key stakeholders both within and outside the EU. 23 stakeholders were consulted and their responses used to fill in gaps and validate the evidence from the desk review of EMPs, the progress reports and the specific consultations.

Table 2: Summary of responses from the control questionnaires

Questionnaire received	No response to questionnaire	Exempted from EMP
BE	BG	AT
CZ	DK	CY
DE*	EE	HU
FR*	ES*	MT
GR*	FI	RO
IT*	HR	SK
LT	IE	
LV	LU	
PL*	NL*	
SE*	PT	
UK*	SI*	
11	**11**	**6**

*Note : * denotes Member States having replied to DG MARE questionnaire in 2017 and 2018.*

A synthesis of the results of the public, roadmap, and other stakeholder consultations can be found in Annex 5.

3.4.4 Case Studies

Three country case studies were implemented to provide more detailed insight into the implementation of the Eel Regulation at national, regional and local levels. Case study work includes interviews (face-to-face where possible) with a sample of representatives of administrations and professionals in three Member States. The case studies covered the following three Member States:

- **France**: In 2016 France was the top producer of wild caught glass eels. According to WG Eel (2017), eel aquaculture does not take place in France. In 2016 France was the main EU nation restocking glass eels (11.5 million in 2016).
- **Denmark**: a major producer of commercially and recreationally caught eels in the EU. Also a major aquaculture producer, mainly employing indoor heated farming systems. Glass eels for aquaculture are imported from France, Portugal and the UK.
- **Italy**: Eel (exploitation in Italy has a long-standing tradition, and is still important, despite a progressive and increased loss of interest towards this species. Commercial fisheries produced around 89 t in 2016, with an additional 36 t from recreational fisheries. The intensive aquaculture of eel, which played a major role within the national and European context up to some years ago (over 1,200 t in 2004) is strongly reduced today (<500 t).

The results of each case study have been written up in a concise self-standing report. These highlight the key findings with regard to the real/expected impacts of national measures announced, adopted and/or implemented following the EMPs. They also signal any significant challenges or difficulties encountered by Member States and how these were / are being addressed and identify lessons learned that could be applied more widely.

The three case studies can be found in **Annex 7**.

3.5 PHASE 4: ANALYSIS AND PRESENTATION

During this final phase of the evaluation, we processed and analysed the data collected in the previous phases to synthesise and triangulate them to answer the evaluation questions posed in the Evaluation Question Matrix . Based on the answers, we drafted the overarching conclusions and recommendations covering both the progress in improving European eel stocks as well as related issues such as increasing eel trade transparency and traceability and the successes or otherwise in controlling the trade of glass and other eel life stages through the supply chain.

4.0 CURRENT SITUATION OF MEASURES FOR THE RECOVERY OF THE EUROPEAN EEL STOCK UNDER THE EEL REGULATION

4.1 OVERVIEW OF MEASURES FOR THE RECOVERY OF EUROPEAN EEL IN THE EEL MANAGEMENT PLANS

4.1.1 Introduction

A management framework for eel within the EU was established in 2007 through the Eel Regulation (EU, 2007). The objective of the regulation is the protection and recovery of the European eel stock. To achieve the objective, EU Member States were required to develop Eel Management Plans (EMPs) for their river basin districts, designed to reduce eel mortality. The EMPs set out various management measures aimed at supporting achievement of the objective. In addition to the original EMPs, EU Member States have also been required to produce progress reports in 2012, 2015 and 2018, which describe the extent to which management measures have been implemented.

The original EMPs and associated progress reports have been subject to prior detailed analysis, led primarily by ICES, whose various working groups have evaluated both the conformity of the national EMPs with the Eel Regulation (ICES, 2009, 2010a) and progress in implementing EMP management measures (ICES, 2013a, 2013c, 2018c). Evaluations of conformity with the Eel Regulation have proved challenging for a number of reasons. In 2012 many EU Member States did not completely report stock indicators (22 of 81 EMPs did not report all biomass indicators, and 38 did not report all mortality indicators), and there were differences in the approaches used to calculate reported stock indicators. In 2015, EU Member States post-evaluated the implementation of their EMPs and provided estimates of national stock indicators. The information in the 2015 Progress Reports was not always complete, and the quality of the national data and assessment were difficult to evaluate (ICES, 2016). The 2018 progress reports (and a data call initiated by WGEEL)have been evaluated, (ICES, 2018d) though significant complexities are involved, for example as a result of the continued lack of standardisation in approaches being taken by Member States to modelling and calculation of stock indicators.

An overview of the targets and management measures set out in EMPs and the extent to which they are known to have been implemented is presented below. This overview does not attempt to duplicate the extensive analysis already undertaken and presented in the referenced ICES reports.

4.1.2 EMP Coverage

To inform the evaluation of the Eel Regulation, EMPs from 19 Member States have been reviewed, in addition to the three tri-annual progress reports prepared by each Member State. Some Member States have prepared multiple EMPs to cover individual Eel Management Units, which typically relate to River Basin Districts as defined under the Water Framework Directive, resulting in the preparation of over 60 EMPs across the 19 Member States, including one transboundary EMP.

EMPs variously consider freshwater, transitional, coastal and open marine waters. There exists limited evidence of transboundary cooperation in the development of EMPs, despite water bodies often crossing the territory of multiple Member States.

In many cases, multiple parties (managing authorities, state agencies and academic advisors) have been involved in the development and implementation of EMPs, reflecting their wide geographical coverage, the need to consider both marine and freshwater environments, and the broad scope of proposed management measures.

4.1.3 EMP Targets

In line with the requirements of the Eel Regulation, all EMPs should aim to achieve an escapement of silver eel to the spawning population that equals or exceeds a target set at 40% of the potential biomass that would be produced under conditions with no anthropogenic disturbance. Via the EMPs and Progress Reports, each Member State is required to:

1. Set management targets based on an assessment of potential silver eel production under conditions of no anthropogenic mortality and high levels of recruitment.
2. Estimate the present-day silver eel production in relation to this target (i.e. estimate compliance with the management target).
3. Develop and take the management actions that are necessary to achieve or maintain compliance.
4. Collect data sufficient to support steps 1 to 3 above, and to demonstrate whether compliance will be achieved in the future, i.e. that the actions identified in the EMP will lead to the recovery of the eel population.

Whilst all EMPs share a common target, the approach to achievement of that target varies across Member States. Section 3.1.1.4 below summarises the key management measures that have been proposed across all EMPs. As discussed later in this evaluation, there is no timeline for achieving the objectives of the Regulation, nor are any interim targets established.

4.1.4 EMP Management Measures

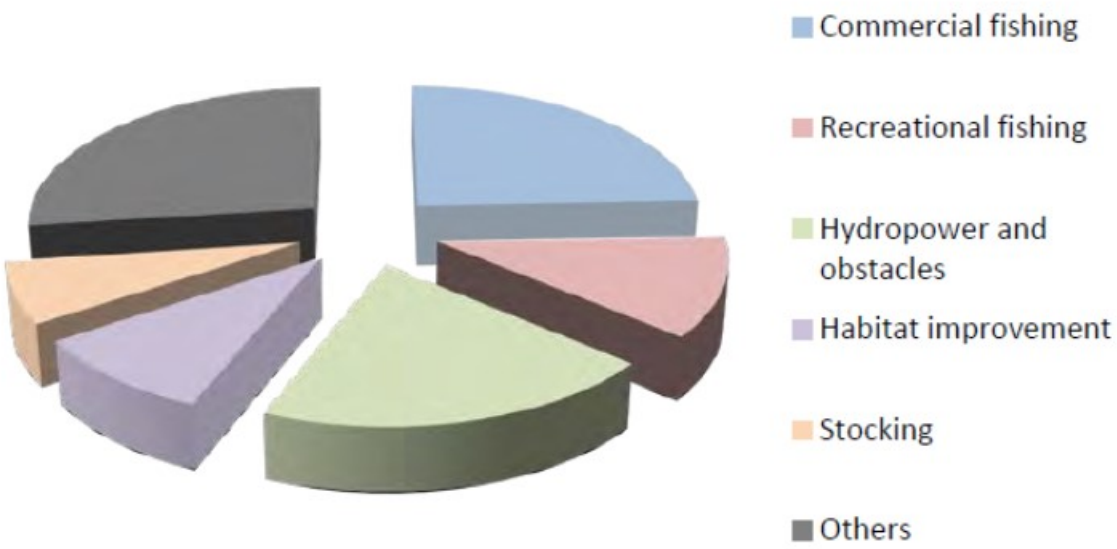
During the creation of the Eel Regulation in 2007 the Council of the European Union noted that in relation to eel there are diverse conditions and needs throughout the Community which will require different specific solutions. That diversity was to be reflected in the planning and execution of management measures to ensure protection and sustainable use of the eel population. In order to ensure that their eel recovery measures were effective and equitable, it was necessary that Member States identified the measures they intended to take and the areas to be covered within their EMPs.

The Eel Regulation states that an EMP may contain, but is not limited to, the following measures:

- Reducing commercial fishing activity.
- Restricting recreational fishing.
- Restocking measures.
- Structural measures to make rivers passable and improve river habitats, together with other environmental measures.
- Transportation of silver eel from inland waters to waters from which they can escape freely to the Sargasso Sea.
- Combating predators.
- Measures related to aquaculture.

In the ICES evaluation of the 2012 progress reports (ICES, 2013a), it was noted that a total of 1,362 individual management actions were reported from the 81 Eel Management Units established by Member States. Since listing of these individually was not practical, management measures were classified into categories and it was found that those aimed at control of commercial and/or recreational fisheries were the most commonly adopted, with slightly fewer measures addressing hydropower and obstacles to eel movements, and fewer still implementing habitat improvement or stocking measures (see **Figure 5** overleaf). EMP Progress Reports indicate that management measures set out in original EMPs have not changed significantly over time. Broadly, it appears that the focus has moved even further towards fishing restrictions and away from non-fisheries measures.

Figure 5: Proportion of management measures by category



Source: ICES (2014a). Note: management of predators was not considered in ICES 2014, as their evaluation related only to management of anthropogenic impacts)

Commercial fishing: a variety of measures are proposed in EMPs to reduce the impact of commercial fishing on the eel stock. They are typically focused on reducing fishing effort (ranging from prohibition of certain gears in specific areas through to total bans on commercial eel fisheries) and introducing or extending closed seasons. Measures are also aimed at improving fishery administration systems (e.g. implementing national catch registers).

Recreational fishing: A variety of measures are proposed in EMPs to reduce the impact of recreational fishing on the eel stock. Management measures include bans on targeting or capturing eel, closed seasons, introduction of quota, increase in minimal size limit, and development of systems to report catches.

Hydropower and other connectivity obstacles: Within some EMPs, measures aim to mitigate against the effects of physical obstacles to migration in water courses. Measures are focused on removal of barriers, or the installation of eel pass structures. In some cases, management measures involve trapping of silver eels upstream of obstacles and releasing them downstream of the obstacle.

Habitat improvement: Management measures relating to habitat improvement are harder to define. Measures include increasing habitat connectivity, improving water quality, and establishing protected areas.

Restocking: Restocking is a management measure that features in the majority of EMPs. Concerns about the effects of eel stocking practices (e.g. spread of disease, illegal trade) and its effectiveness in contributing to increased silver eel production have been raised. ICES reviews of restocking as a management measure (ICES 2010b and 2013c) concluded that there is evidence that translocated and stocked eel can contribute to yellow and silver eel production in recipient waters, but that evidence of further contribution to actual spawning and the overall biomass increase of the stock is limited.

Other: Other management measures listed in EMPs tend to consider enhancement of fisheries management frameworks (e.g. setting up fisheries reporting systems and improvement of fisheries and illegal fishery control) or monitoring and research programmes (e.g. expanding catchment fish surveys and progressing research on fish health and development of models to assess stock indicators), rather than strictly looking at addressing anthropogenic impacts. In some cases, measures also target predator control, focused particularly on the control of cormorant populations.

4.1.5 Implementation of EMP Targets and Management Measures

Table 3 on page 19 provides a summary of the high-level review of EMPs and Progress Reports undertaken to inform the evaluation of the Eel Regulation. Analysis of 2012 and 2015 Progress Reports by ICES reported mixed results in terms of progress towards EMP targets; of 59 Eel Management Units analysed, 29 reported a rise in silver eel escapement and 30 reported a decline (ICES, 2016a). The review undertaken to inform this report has found that five Member States report full or partial (i.e. within some, but not all, Eel Management Units) achievement of the 40% escapement target, though in some cases there is significant uncertainty associated with escapement calculations. The remaining 14 Member States mostly report that the escapement target has not been achieved, and in some cases, there is insufficient data to judge whether the target has been achieved. Only in some cases do Progress Reports analyse the causes of failure to achieve the Eel Regulation target; where they do, they identify the need for higher levels of inter-agency cooperation at Member State level to implement management measures, a lack of/poor data on which to base management measures and monitor progress, concerns about the uncertainty around management measures influencing spawning and ultimately stock status (i.e. more fish doesn't necessarily equate to increased spawning), and a lack of funding to implement management measures.

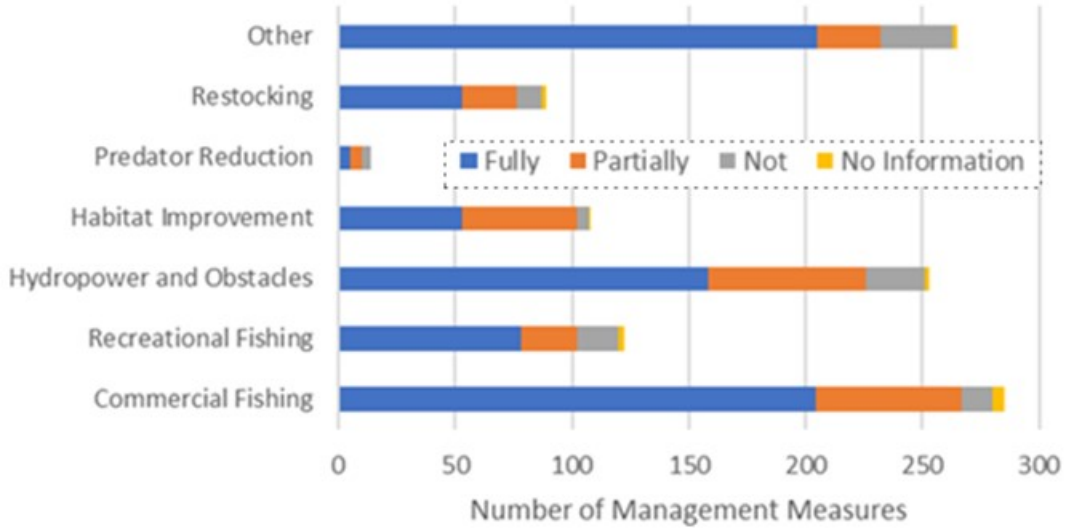
The extent to which management measures as detailed in EMPs have been implemented has also been previously analysed (see Figure 6 below). Analysis by ICES of the 2012 Progress Reports found that 1,188 management actions were documented; 1,140 of these measures had been planned in the original EMPs and the remaining 48 were new, additional measures. It was further noted that of the actions planned in the EMPs, 756 were implemented fully, 259 partially and 107 were not implemented at all. Information for the remaining 18 measures was missing (ICES, 2013c). Further analysis in 2014 by ICES gave an updated view of the implementation of eel management measures (ICES, 2014); in this case a total of 1,362 individual measures were identified. Overall, the 2013 and 2014 reports found that about two-thirds of the planned measures were related to fisheries (commercial and recreational), improved passage at hydropower installations and other obstacles and habitat improvement in general.

The most recent information on measures implemented for eel can be found in Country Reports provided to the ICES Working Group on Eel in 2018 (ICES, 2018e). According to these reports, there are no major changes in management practices for eel throughout Europe in the recent years. In 2018, ICES organized a new workshop (WKEMP) for the review of the 2018 Progress Reports. This workshop focused on the methods and results for biomass and mortality estimates in single Eel Management Units and discussed reporting requirements for international stock assessment. The effects and effectiveness of management measures were not evaluated (Hanel, 2019), and the way in which Progress Reports presented information on management measures does not enable the extent of their implementation against targets to be analysed. **Figure 6** overleaf provides information on the implementation of management measures in each Member State.

The extent to which management measures as detailed in EMPs have been implemented has also been previously analysed (see **Figure 6** below). There exists disparity amongst Member States regarding the extent to which management measures have been implemented; some have implemented measures according to their stated schedule whilst others have lagged behind. Despite a significant proportion of measures being fully implemented, there is no evidence to suggest that these have enabled significant progress towards the escapement target.

As indicated earlier in this report, previous evaluations of EMPs and Progress Reports have encountered difficulties in analyses due to incomplete national datasets, queries over the quality of national data and assessments, and the differing approaches taken across Member States to measuring stock indicators. This suggests that both comparative analyses of progress across the Member States, as well as a cumulative analysis for the entire EU, is currently not achievable.

Figure 6: Evaluation of implementation of management measures in EMPs, as reported in 2012 progress reports, summarised by category



Source: Reproduced from ICES, 2018d

4.1.6 Summary

Whilst the EMPs and progress reports indicate that substantial effort has been made by EU Member States to develop and implement (to varying degrees) management measures, the extent to which these measures are positively (directly or indirectly) impacting eel status has not been demonstrated, though it is recognised that any significant signs of recovery will take 2-3 eel generations (i.e. at least 10-20 years depending on the region) to emerge. ICES advice has remained unchanged since 1999 and reads 'all anthropogenic impacts (e.g. recreational and commercial fishing on all stages, hydropower, pumping stations, and pollution) that decrease the production and escapement of silver eels should be reduced to - or kept as close to - zero as possible' and the 'status of eel remains critical' (ICES, 2018a).

Table 3: Scope and availability of Member State EMPs and Progress Reports

Member State	EMP Scope				Availability of EMPs and Progress Reports			
	Eel Management Units (No.)	Number of EMPs	Transboundary Considerations	Habitat Coverage	EMP	1st Progress Report	2nd Progress Report	3rd Progress Report (2018)
Belgium	Scheldt, Meuse (2)	1		Freshwater	Y	Y	Y	N (tables only)
Czech Republic	Odra, Labe (2)	1		Freshwater	Y	Y	N	Y (no data tables)
Germany	Ems, Weser, Eider, Schlei/Trave, Maas, Rhein, Warnow/Peene, Elbe, Oder (9)	9		Freshwater Transitional Coastal	Y	Y	Y	Y
Denmark	Denmark inland (1)	1	EMP excludes trans-boundary river basins shared with Germany.		Y	Y	Y	Y
Estonia	Narva River, West Estonia (2)	1	Narva River shared with Russia; extent of collaboration not clear.	Not confirmed	Y	Y	N	Y
Spain	Galicia, Asturias, Cantabria, Basque Country, Murcia, Navarra, Cataluña, Cuenca del Ebro, Valenciana, Castilla La ManchaIslas, Baleares, Andalucía (12)	1 national EMP and 12 specific EMPs	The Minho International River Plan was developed with Portugal.		Y	Y	N	Y
Finland	Entire Finland (1)	1		Not confirmed	Y	N	Y	Y (no data tables)
France	Rhône – Méditerranée, Adour, Garonne, Loire, Bretagne, Seine-Normandie, Artois-Picardie, Rhin-Meuse, Corse (9)	1		Freshwater Transitional Coastal	Y	Y	Y	Y (missed tables 3 & 7)
Greece	North-Western Greece, Western Peloponnesos, East Macedonia – Thrace, Central Greece - Aegean Islands (4)	1		Freshwater Transitional	Y	Y	Y	Y
Ireland	Eastern, North-Western, Western, Shannon, South Western, South-Eastern (6)	6	Transboundary agreements in place with the United Kingdom for the Neagh Bann EMU.		Y	Y	Y	Y (no data tables)

Member State	EMP Scope				Availability of EMPs and Progress Reports			
	Eel Management Units (No.)	Number of EMPs	Transboundary Considerations	Habitat Coverage	EMP	1st Progress Report	2nd Progress Report	3rd Progress Report (2018)
Italy	All 20 Italian Regions (note there is no eel fishing in 11 of these)	Of 20 EMUs, nine have prepared EMPs: Sadegna, Puglia, Lazio, Umbria, Toscana, Emilia-Romagna, Veneto, Friuli Lombardia		Freshwater Transitional	Y	Y	Y	Y
Lithuania	Lithuania (1)	1			Y	Y	Y	Y
Luxembourg	Maas, Rhein (2)	1		Not confirmed	Y	Y	N	N
Latvia	Latvia (1)	1		Freshwater Transitional Coastal	Y	Y	N	Y
Nether-lands	Netherlands (1)	1		Freshwater	Y	Y	Y	Y
Poland	Oder, Vistula (2)	1			Y	Y	Y	Y
Portugal	Minho and Lima, Cávado, Ave & Leça, Douro, Vouga, Mondego, Lis & Ribeiras do Oeste, Tejo, Sado & Mira, Guadiana, Ribeiras do Algarve (8)	2 (one national EMP and one transboundary EMP)	The Minho International River Plan was developed with Spain.		Y	Y	Y	N
Sweden	Single unit, but reporting distinguishes between Inland Waters, Eastern region and Western region	1		Transitional Coastal Open Marine	Y	Y	Y	N (tables only)
United Kingdom	Northumbria, Humber, Anglian, Thames, South-East, South-West. Severn, West Wales, Dee, North-West, Solway, Tweed, Neagh Bann, North-East Northern Ireland, North-West Northern Ireland, Scotland (17)	14		Freshwater, TransitionalCoastal	Y	Y	Y	Y

Source: Consultant review of EMPs and Progress Reports

Table 4: Member State Progress in implementing their EMPs

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
Belgium	Commercial fisheries: Prohibiting fishing	2018 Progress Report states that since 2007 all commercial fisheries in inland waters in Flanders are prohibited. In Wallonia, commercial eel fisheries have been prohibited since (at least) 1954. Report indicates decrease in commercial fisheries catches.	No
	Commercial fisheries: Controlling poaching	Country Report indicates specific action taken since 2014 to seize illegal fishing equipment and suggests this has resulted in decreased offence rates.	
	Recreational fishing: Gear restrictions	2018 Progress Report states that since 2009 recreational fisheries with fykes in the Scheldt river in Flanders are prohibited. This resulted in a decrease of catches. In Wallonia fishing for eel was still possible between 2006 and 2016, but there was a release obligation during that period. Since 2017, eel fishing is prohibited in Wallonia.	
	Recreational fishing: Closed season	2018 Progress Report states that since 2010 there is an obligation for recreational fishermen to release every fish caught during the night (whole year), and in the period from the 16th of April till the 31st of May (day and night), and this is estimated to have resulted in decreased catches.	
	Recreational fishing: Minimum landing size	2018 Progress Report states that in 2013 MLS was raised to 300mm (relevant to Flanders only).	
	Installation of fish passes	2018 Progress Report shows continued increase in installation of passes (from 71 in 2008 to 198 in 2017).	
	Restocking	2018 Progress Report states that glass eels are stocked in March-April immediately after delivery (no quarantine period). The length at stocking is approximately 7 cm. Annual restocking varies between ~120 and ~550 kg glass eels, sourced from the UK or France.	
	Other: Monitoring; Water and Habitat Quality	Country Report indicates other management measures have been implemented, but these are not reported on in the 2018 Progress Report. Extent of implementation not clear. Examples in Country Report include monitoring of eel contaminant levels for Water Framework Directive monitoring, and monitoring of eel mortality at pumping stations.	
Czech Republic	Commercial fisheries: Prohibited	2018 Progress Report (technical report; no tables provided) indicates decrease in fisheries by 50% from 2004-2006 to 2014-2016.	Not clear
	Recreational fisheries: Closed season in autumn	2018 Progress Report (technical report; no tables provided) states there is limited data on recreational fishing. Regulations have been enacted to ensure these measures are implemented.	
	Recreational fisheries: Reduction in maximum catch to 2 specimens		
	Recreational fisheries: Minimum landing size		
	Monitoring: Mortality at hydropower plants; presence of parasitic nematodes	2018 Progress Report (technical report; no tables provided) describes studies, but not clear to what extent measures put in place to address observed mortality factors. Notes likely increase in number of hydropower plants.	
	Restocking	2018 Progress Report (technical report; no tables provided) reports 8 million individuals released in the EMP area 2010-2016.	
Germany **(Note management measures**	Commercial and recreational fisheries Closed season	2018 Progress Report indicates that this measure has been fully implemented in two EMUs. Within 33 % of the German eel river basin, a closed season has been introduced for eel. Data indicates that fishing effort has decreased from 2008 across all EMUs.	Variable; yes within some EMUs, no within others.

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
vary by EMU; i.e. not all measures are implemented in all EMUs)	Commercial and recreational fisheries: Minimum landing size	2018 Progress Report indicates measure has been fully or partially implemented across all EMUs. Within about 96 % of the total German eel river basin area, the minimum size valid for commercial fishermen and anglers for catching eels was increased to 45 or 50 cm; for 4 % of the water area the legislative implementation procedure is still in progress. Data indicates that fishing effort has decreased from 2008 across all EMUs.	
	Commercial and recreational fisheries: Restriction in coastal waters	2018 Progress Report indicates that this measures has been fully or partially implemented across all EMUs where restocking is applicable. In some EMUs a ban on trawling has been in place since 2006; in others fishing has been completely prohibited since 2009, and across all EMUs there is very little commercial fishing for eel. Data indicates that fishing effort has decreased from 2008 across all EMUs.	
	Restoration of river continuity	2018 Progress Report indicates partial implementation in applicable EMUs. A reduction in mortality caused by hydroelectric installations to near zero has so far not been achieved.	
	Reduction in eel traps	2018 Progress Report indicates partial implementation in applicable EMUs.	
	Trap and transport	2018 Progress Report indicates failure to implement in one EMU, and full or partial implementation in other applicable EMUs. The number of silver eels carried to areas without appreciable anthropogenic mortality has risen since 2008 and in the period 2013-16, at about 12.4 tonnes per year, more than doubled. In the EMU Weser, silver eels were transported right to the North Sea in 2013, as an experiment. In 2017, further Catch & Carry operations took place, which are to be continued in 2018 and beyond.	
	Restocking	2018 Progress Report indicates restocking plans have been fully or partially implemented across all EMUs where restocking is applicable. Overall, during the period 2014-2016 considered here, about 32.3 million glass eels, 15.6 million advanced farm eels and 0.2 million bootlaces were restocked; less than planned in the EMP. Regulations promote restocking in some EMUs, and in some EMUs targets for restocking have been raised from 2019.	
	Monitoring	2018 Progress Report indicates studies undertaken, focusing on quality of eel restocking material, elver monitoring, yellow eel stock status and silver eel monitoring. Studies are considered to have considerably improved the data situation on the eel stock and its dynamics in German inland and coastal waters.	
	Predator control: Cormorants	2018 Progress Report indicates full or partial implementation across applicable EMUs. Regulations prevent significant damage by cormorants to fish stocks, including the eel stock, but there is limited evidence of any actions taken to control the cormorant population.	
Denmark	Commercial fisheries: Gear controls	2018 Progress Report notes reduction in fishing effort and catches.	No (anthropogenic mortality target achieved, but not escapement target)
	Recreational fisheries: Closed period October to July, and gear controls	2018 Progress Report notes reduction in fishing effort and catches.	
	Commercial and recreational fisheries: Minimum Landing Size	2018 Progress Report notes increase from 360mm in 2009 to 400mm from 2013 onwards.	
	Removing migration barriers	2018 Progress Report indicates high number of migration obstacles removed, including two major hydropower stations and close to 100 smaller dams and weirs.	
	Predator control: Cormorants	2018 Progress Report indicates reduction in breeding pairs of cormorants in line with the National Management Plan for Cormorants. Notes no research has been undertaken to evaluate the effect of this on the local eel population.	
	Restocking	2018 Progress Report indicates restocking has been fully implemented in line with EMP targets. The Danish EMP proposed	

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
		annual restocking of 0.8 million eels; the actual amount of restocked eel was 1.2-1.4 million per year from 2010 to 2017.	
Estonia	Restocking	2018 Progress Report indicates restocking undertaken annually since 2011. Eels are restocked only into the waterbodies of Narva River Basin District, sourced from France or the Netherlands. Stocking is funded partly by the Environmental Investment Centre and partly by fishermen.	Yes, though high level of uncertainty in some calculations and most likely this is an overestimate
Spain **(Note management measures vary by EMU; i.e. not all measures are implemented in all EMUs)**	Commercial fisheries: Closure of fisheries / reduce fishing effort	In some EMUs fishing days have been reduced, and in others eel fishery licensing has ceased, and in some cases fisheries have been totally closed.	Variable; yes within some EMUs, no within others
	Commercial fisheries: Minimum Landing Size	No information available.	
	Recreational fisheries: Closure of fisheries / reduce fishing effort	Fishing seasons have been reduced and then further reduced in some cases in 2018-2019, fisheries have been closed (e.g. through designation of protected rivers and no further issue of fishing licences), and quotas (e.g. 4 eels or 1kg per day) have been introduced variously across EMUs.	
	Predator control: Cormorants and mink	Programmes exist in some EMUs to manage cormorants and American mink.	
	Trap and transport	In some EMUs, hydropower companies have been obliged to trap and transport eels.	
	Removing migration barriers	Obstacles have been demolished and eel passes introduced variously across EMUs. In some cases, turbines have been temporarily disconnected to enable migration.	
	Improve water quality	To be delivered via Water Framework Directive.	
	Implement scientific studies	Studies have, for example, investigated the potential impacts of hydropower turbines on eel.	
	Restocking	In some EMUs, caught eel is reserved for stocking.	
Finland	Restocking	2018 Progress Report indicates 'official' restocking undertaken since 2011 (~200,000 individuals per year), though suggestion it has been occurring since the late 1800s. On average, since 2010 around 58 % of all restocking operations have been targeted at sea areas. The restocking target of 0.5 million glass eels set out in the Eel Management Plan has not been achieved.	Not clear
France **(Note management measures vary by EMU; i.e. not all measures are implemented in all EMUs)**	Commercial fisheries: Fishing ban / Reduction in fishing effort	Eel fishing ban is present across some EMUs, for various eel life stages. 2018 Progress Report indicates number of fishing authorisations has generally decreased across EMUs from 2009 onwards.	Not clear; likely to be below target
	Commercial fisheries: Quotas	2018 Progress Report indicates eel fishing quota varies from 2010 onwards across EMUs; no obvious trend.	
	Commercial fisheries: Closed seasons	2018 Progress Report indicates fishery closures in place across all EMUs; duration of closures varies across EMUs and across marine and freshwaters. In some EMUs if the eel quota by type of fishing is reached, the fishing season is closed for that type of fishing.	
	Recreational fisheries: Fishing ban	2018 Progress Report indicates that recreational fishing for silver eel and glass eel is forbidden. Yellow eel fishing deemed insignificant and recreational yellow eel fishing at night is banned.	
	Restocking	2018 Progress Report indicates variable annual restocking of glass eels from 2010 onwards. Restocking effort varies significantly across EMUs. A proportion of eel catches are kept for restocking.	
Greece	Commercial fisheries: Prohibition of fyke nets in lagoons	The use of fyke nets, the traditional eel static fishing gear in Greece called "volkos" is totally prohibited in all lagoons and in the leased seaports in the Amvrakikos Bay.	Not clear

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
	Commercial fisheries: Minimum landing size	Fishing of small eel below 30 centimetres, for commercial exploitation, is banned throughout the country	
	Commercial fisheries: Closed season	Eel fishing is totally prohibited in rivers and rivers delta in an area 3 nautical miles from the estuaries from 1st November to the end of January every year. Additional closures in some EMUs.	
	Recreational fisheries: Fishing ban	Recreational eel fishing is totally prohibited in Greece	
	Restocking	Intensive aquaculture producers are obliged to give 10% (of the glass eel they buy as fries for their business) for restocking. Authorized lagoon extensive aquaculture operators are obliged to give 30% of the eel they harvest, for restocking. 2018 Progress Report indicates variable annual restocking of glass, silver and yellow eels from 2012 onwards,	
Ireland	Commercial and recreational fisheries: Closure / catch and return	All management regions confirmed total closure of the eel fishery for the period 2009 to 2014 with no commercial or recreational licences issued. All commercial fisheries remained closed in 2016 and recreational fisheries, confined to angling, were obliged by law to release all eels caught. Despite the closure of commercial eel fishing in Ireland, a number of instances occurred whereby eel transport lorries were detected transferring eels apparently from N. Ireland (L. Neagh fishery) to Britain or mainland Europe. Continued closure of the eel fishery in Ireland will be subject to review of eel stocks in relation to the EU Council regulation and consequent recovery of European eel stocks.	Yes, in all but one EMU.
	Trap and transport programme (and other measures) to reduce migration barriers	Extensive trap and truck programmes on the Shannon, Erne and Lee river systems. 2015 Progress Report indicates annual silver eel trap and truck efforts.	
	Improve water quality	Implemented via the Water Framework Directive.	
Italy **(Note management measures vary by EMU; i.e. not all measures are implemented in all EMUs)**	Commercial fisheries: Closed seasons	2018 Progress Report provides evidence of closed seasons of varying lengths across all EMUs. Evidence of reduced fishing effort.	No (anthropogenic mortality target achieved in some EMUs, but not escapement target). Reduced fishing effort.
	Commercial and recreational fisheries: Minimum landing size	2018 Progress Report indicates minimum size increased from 300mm to 500mm in 2014.	
	Recreational fisheries: Quotas	2018 Progress Report indicates quotas in place in some EMUs (e.g. 5 silver eel per fisherman reduced to 2 silver eel per fisherman in 2011).	
	Predator control: Perch	2018 Progress Report provides evidence of perch control in some EMUs.	
	Installation of eel passes	2018 Progress Report provides evidence of eel passes being installed in some EMUs.	
	Restocking	2018 Progress Report provides evidence of glass eel restocking, which varies in quantity across EMUs, and which in most EMUs has not been undertaken annually, but sporadically since the EMPs were prepared. Proportion of caught eels required to be retained for restocking. Restocking has typically not met targets and restocking has in most EMUs been with eels larger than 12cm.	
Lithuania	Commercial fisheries: Reduction in trap numbers	2018 Progress Report provides evidence of implementation; in 2008 gear quota for Lagoon fyke nets in the Curonian Lagoon was 413 and from 2009 onwards this has been limited at 223.	No
	Commercial and recreational fisheries: Closures	2018 Progress Report provides evidence of implementation; yellow eel fishery in the inland has been closed from 2015. Specialised fishery for eels in coastal waters is banned.	

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
	Recreational fisheries: Quota	2018 Progress Report provides evidence of implementation annually since 2009; reduction in daily bag limit to 3 specimens; before 2009 this was 5.	
	Removing migration barriers	No evidence of implementation	
	Predator control by reduction in cormorant	No evidence of implementation	
	Restocking	2018 Progress Report provides evidence of implementation annually since 2011 (peaked in 2013 and declined since)	
Luxembourg	Removal of migration barriers	No evidence of implementation; not covered in 2016/17 Country Reports or 2018 Progress Reports	No
Latvia	Commercial and recreational fisheries: Minimum landing size	2018 Progress Report provides evidence of implementation annually since 2016 with introduction of 500mm limit.	No
	Recreational fisheries: Quota	2018 Progress Report provides evidence of implementation annually since 2016 with introduction of bag limit to 3 specimens.	
	Removal of migration barriers	No evidence of implementation	
	Restocking	2018 Progress Report provides evidence of implementation annually since 2011, with sporadic restocking of up to ~270kg glass eel per year.	
Netherlands	Commercial fisheries: Closed season	2018 Progress Report provides evidence of implementation annually since 2009 with closed fishing season running from September to December. Any changes in fishing effort not reported.	No
	Commercial fisheries: Minimum landing size	2018 Progress Report provides evidence of implementation with minimum size of 280mm.	
	Commercial fisheries: Closed areas	2018 Progress Report provides evidence of implementation annually since 2009 with the closure of eel fisheries in contaminated areas.	
	Recreational fisheries: Catch and release	2018 Progress Report provides evidence of implementation since 2009.	
	Reduction in barriers to migrations	2018 Progress Report indicates intention to reduce mortality at hydroelectric/pumping stations, but no evidence of implementation provided.	
	Restocking	2018 Progress Report indicates implementation with records of glass and yellow eel restocking since 1946, Average restocking of glass eel ~800kg per year between 2009 and 2017 (4,300kg average for yellow eel per year over same period).	
Poland	Commercial and recreational fisheries: Closed season	2018 Progress Report provides evidence of implementation annually since 2010 with closed fishing season running from December to March. Closed season expanded from 30 days to 120 days in 2016.	No
	Commercial and recreational fisheries: Minimum landing size	2018 Progress Report provides evidence of implementation annually since 2010, with minimum size of 500mm.	
	Commercial fisheries: More selective gears	Gear selectivity requirement adopted in 2016; minimum mesh bar length set for fishing nets/sieves (20mm).	
	Commercial fisheries: Limiting poaching	No evidence of implementation.	
	Recreational fisheries: Daily catch limits	2018 Progress Report provides evidence of implementation annually since 2010, with limit of 2 specimens per day 9from 4 previously).	

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
	Eel passes and other measures to reduce migration barriers	No evidence of implementation, though areas selected within National Parks to develop unobstructed spawning migration routes for silver eel and information regarding migration obstacles has been gathered.	
	Predator control by reduction in cormorant	No evidence of implementation	
	Restocking	No restocking data provided in 2018 Progress Report, though 2016/17 Country Reports indicate restocking in 2010.	
Portugal	Commercial fisheries: Prohibit fishery outside of certain areas	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	Not clear
	Commercial fisheries: Gear restrictions	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	
	Commercial fisheries: Catch reporting required to obtain new annual licence	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	
	Commercial fisheries: Closed season (October – December)	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	
	Commercial fisheries: Reduce number of licences	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	
	Recreational fisheries: Prohibited	No 2018 Progress Report available; 2016/17 Country Report suggests fully implemented in marine waters and partially implemented in freshwater.	
	Mitigate impact of existing migration obstacles	No 2018 Progress Report available; 2016/17 Country Report suggests partially implemented.	
	Monitoring: Monitoring and control of glass eel poaching	No 2018 Progress Report available; 2016/17 Country Report suggests implemented.	
	Monitoring: Stock studies	No 2018 Progress Report available; 2016/17 Country Report suggests partially implemented.	
Sweden **(Note management measures vary by EMU; i.e. not all measures are implemented in all EMUs)**	Commercial fisheries: Closed seasons and areas	From 2007, licence is required to fish and this was followed by additional restrictions. Since 2012, closed seasons introduced. Fishing along west coast prohibited. 2018 Progress Report provides evidence of reductions in fishing effort.	No
	Recreational fisheries: Ban	2018 Progress Report indicates implementation of ban since 2007 (with some exempted locations).	
	Trap and transport programme	2018 Progress Report provides evidence of implementation. Hydropower companies have performed stocking of quarantined glass eel at the Swedish west coast as a voluntary measure, and in some cases infrastructure has been remodelled to enable migration. Country Report indicates trap and transport programme saw movement of 47,000 silver eels between 2011 and 2014 and that programme continued to at least 2017.	
	Restocking of glass eel	2018 Progress Report provides evidence of implementation annually since 2010. Country Report indicates target for restocking was 2.5 million individuals annually and that this target has typically been reached with an exception in 2015.	
United Kingdom	Commercial fisheries: Fishery ban / quota	2018 Progress Report provides evidence of implementation, with effective eel fishery bans or zero quota measures in place in some EMUs.	Variable; yes within some EMUs, no within others.

Member State	Management Measures Overview	Implementation of Management Measures (based on ICES 2013a, ICES 2017b and Progress Reports)	Achievement of escapement target?
(Note management measures vary by EMU; i.e. not all measures are implemented in all EMUs)	Commercial fisheries: Closed seasons	2018 Progress Report provides evidence of implementation with closed seasons for next and trap fishing since 2010.	
	Commercial fisheries: Gear restrictions	2018 Progress Report indicates limitations on some gear types in some EMUs (e.g. removal of fyke net as a legal fishing means in Northern Ireland).	
	Commercial fisheries: Minimum landing size	2018 Progress Report provides evidence of implementation, with MLS raised to 400mm in some EMUs.	
	Recreational fisheries: Fishery ban / catch and release	2018 Progress Report provides evidence of implementation, with either effective fishery bans or 100% catch and release measures in place since 2009.	
	Measures to prevent eel entrainment in river structures, including fish recovery and return systems	2018 Progress Report provides evidence of implementation; significant number of eel passes installed and refurbished, and screens installed at water intakes.	
	Monitoring	2018 Progress Report provides evidence of implementation with creation of glass eel monitoring sites; monitoring distribution of parasitic worm *A. crassus*; various other funded studies.	
	Improvement of eel habitat	2018 Progress Report provides evidence of implementation with wetted area assessments for migration barrier impacts	
	Restocking	2018 Progress Report provides evidence of implementation, though restocking is limited and most significant in Neagh/Bann EMU (up to ~2700kg) – here restocking targets have rarely been reached (only in 2014 over the past decade).	

4.2 SOME GOOD PRACTISES IN EEL CONSERVATION MANAGEMENT

There have been a number of successes and examples of best practise as a direct result of the Eel Regulation.

4.2.1 Fisheries

1. In Italy the **development of multi-stakeholder platforms in the preparation of regional EMPs** is considered a particular success. The process involved all relevant operators, including fishers, vallicoltura[18] farmers and aquaculture operators and has been beneficial in: (i) raising awareness of the danger to the eel stock among local fishers; and (ii) tailoring the measures to the local conditions and habitats (e.g. in deciding when the rest period could be more effective while taking into account also the interests of local fishers, or where restocking would have higher success rates).

1. In the UK a series of **best practice guidance** has been produced, including the 'Eel Manual' that has four components covering (i) eel and elver passes, (ii) screening at intakes and outfalls: measures to protect eel, (iii) stocking European eels and (iv) monitoring elver and eel populations (Environment Agency, 2011). This document was developed from recommendations made at a workshop of experienced practitioners, bringing together expertise, shared practical experiences and lessons that have been learnt so far. The Spanish have also produced a guidance manual around five thematic lines (Management Plans, Eel Monitoring and Management Methods, Aquaculture and Marketing, Fisheries, Research and Management Measures) as a result of a series of national conferences (AZTI, 2013)

2. **Granting restocking financial support through a State Aid scheme rather than through EMFF : EMFF rules** prevent release of advance payments to beneficiaries, and this was seen as a major impediment for the attractiveness of the measure. Given this, in France authorities preferred not to open the relevant EMFF measure, and to implement financial aid for restocking through a State Aid Scheme that allows releases of advanced payments to beneficiaries. The French authorities applied a similar approach to support silver eel release in the Mediterranean with aids granted under the scope of the *de minimis* Commission's rules. These measures contributed to improve implementation of eel stock enhancement measures by professional organisations.

4.2.2 Non-fisheries

1. There have been some local successes in terms of **habitat restoration and improved spawner connectivity**. In Italy's Emilia Romagna region fish ladders have been opened on the rivers Po and Reno and are planned on the Savio. In the Reno ladder, eel passage has already been observed; in the Po river, a dedicated monitoring tool for eels is soon to be installed. The intervention on the Po River is expected to allow eels to return to a very large hydrographic basin, including Italian Northern lakes, such as Garda. Italy considers the target of 60% escapement could be achieved by 2050, and their intermediate target of 17.5% escapement by 2020 has already been achieved (see Italy Case Study in Annexes). In Italy, attempts to focus restocking efforts into protected waters, often using glass eels from the same watershed, to increase potential spawner numbers.

2. In France *Agence Française de la Biodiversité* (*eaufrance)* have conducted a **national census of all obstacles across rivers** which did not exist prior to the adoption of the FR EMP. Although relevant information was only available for certain areas in some EMUs, and not harmonised, the result is the ROE online database (*Référentiel des Obstacles à l'Écoulement)* which is maintained and updated.

[18] Traditional rearing, usually of wild stocked juveniles, in lagoons, mainly in Italy

3. **Modelling periods for temporary switch-off of electric turbines**: in the Loire area a scientific model (Acou et al. 2009) has been developed and further refined to identify the best periods for temporarily switching-off of electric turbines with a reasonable accuracy. This supported implementation of the measure, which from operators perspective, must be implemented only when necessary due to the high associated foregone revenues. Similar models are yet to be developed or refined for other EMUs.

4.2.3 Traceability and control

4. **Improved batch traceability in Greece has been achieved through their 'simple permitting scheme'.** A national system for controlling intra-EU trade in European eel is implemented by issuing 'simple permits'. With these simple permits from/to other European countries, after checking all the relevant documents, imports / exports are certified preventing any illegal and non-conforming export (in other EU MS) of such specimens. This mechanism is implemented by the Greek Regional Management Authorities after consultation with the relevant Regional Fisheries Authorities according to the following procedure:
   - A three-member regional committee is present during all harvests. For each harvest batch this committee issues a Certificate of Restocking only after the free release of 30% of the batch for restocking purposes.
   - The committee issues a written Certificate of Legality for each eel batch, certifying that this is produced in accordance with National and Community legislation, including cohesion with the National Eel Management Plan. So the batch is legal for trade in Greece.
   - The Greek Regional Management Authorities of the CITES Convention issue the so-called 'simple permits' so the batch is permissible for intra-EU trade.
5. **Increased monitoring of eel catches by an e-declaration system.** The Telecapêche electronic reporting and data processing platform was developed by professional fishermen and has now been used for over five years, mainly in France but more recently on the River Parret in the UK. It allows the professional fishing organisations to submit real-time catch declarations (via SMS) and to have access to total catches landed.

4.3 OVERLAP AND CONFLICT IN MS MEASURES

No major overlaps or conflicts exist between measures established under the Regulation and other conservation measures being implemented by Member States. This said, some issues were raised by stakeholders as follows:

- Some researchers argue that the translocation and restocking of eels is expensive and its effectiveness unproven, especially when into receiving waters where spawner escapement has been restricted (see JC 5.1 in **Section 5.3**). **One possible conflict is risks of translocation from diseases** (2 of 4 glass eel batches from France to Sweden in 2017 destroyed due to the presence of a virus) and parasites (Pawson, 2012). Although panmictic in nature, there may also be genetic implications of stocking across watersheds, although ICES has previously (ICES, 2007) recommended that eels should not be translocated between river basins for stocking purposes or, if seen as indispensable to avoid an imminent collapse of specific river stocks, any stocking should be done within geographically proximate areas e.g. within the Mediterranean basin, the North Sea region, or the Baltic Sea. In this context, there appears to have been no formal risk assessment carried out for stocking with eels, which should attempt to balance any potential detrimental effects (disease or parasite transmission, genetic disruption, chemical contamination, behavioural traits and skewed population dynamics, of native and cultured stock fish) against the benefits of stocking in relation to the objectives of the Eel Regulation (Pawson, 2012).
- A number of environmental NGOs commented on the contradiction of a Regulation that **supports the continued fishing of a critically endangered species**[19]. They quote the current ICES advice that "*when the precautionary approach is applied for European eel, all*

[19] IUCN 'Red List' rating – see Jacoby, D. & Gollock, M. (2014)

anthropogenic impacts (e.g. caused by recreational and commercial fishing on all stages, hydropower, pumping stations, and pollution) that decrease production and escapement of silver eels should be reduced to – or kept as close to – zero as possible in 2019" (ICES, 2018a). The Common Fisheries Policy (CFP) does support the preservation of traditional fisheries such as those for European eel, esp. in coastal or inland waters (European Parliament & the Council of the European Union, 2013). A critical review of the Swedish EMP in 2012 (Svedäng & Gipperth, 2012) suggested that '*the conflict between the objectives of species and fishery preservation has not been clarified nor is the prioritisation clear*' and that '*management is therefore directed towards mitigating the negative effects of fishing and other human activities rather than realising the conservation objective'*.

- The exclusion of EU operators from access to the lucrative Asia market which pays as much as EUR 3,000 EUR / kg for live glass eels has **triggered increased interest from illegal organisations** that catch glass eel in the wild, keep them alive and smuggle them out of the EU by plane. Although efforts to combat this illegal trade have intensified in recent years, its level remains sufficiently high and of concern to involve high-level trans-national cooperation through EUROPOL.

4.4 INSPECTION AND CONTROL ACTIVITIES ON EEL FISHING AND AQUACULTURE ACROSS THE EU

4.4.1 The EU legal background for control and enforcement of eel measures

Activities covered by the Common Fisheries Policy (i.e. fishing, aquaculture and marketing of eels)

For fishing and aquaculture activities, control and enforcement of eel conservation measures are part of the measures considered under the EU fisheries control system which is based on four regulations: the Control Regulation[20], the IUU Regulation[21], the EFCA Founding Regulation[22] and the SMEF Regulation[23] for activities of the EU external fleet.

The Control Regulation is the main piece of EU legislation applicable in the case of the eel fisheries. The Control Regulation applies primarily to activities covered by the CFP carried out on the territory of Member States or in Union waters or by Union fishing vessels, the latter being defined by the CFP Regulation as any vessel equipped for commercial exploitation of marine biological resources.

For access to the resource, the Control Regulation mandates fishing vessels to hold valid licences delivered by their Member States to engage in commercial fishing (in marine waters). When applicable, fishing vessels must also have fishing authorisations to carry out specific activities concerned. However, fishing vessels of less than 10 m fishing in territorial waters may be exempted from fishing

[20] Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006. OJ L 343, 22.12.2009, p. 1–50

[21] Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999. OJ L 286, 29.10.2008, p. 1–32

[22] Council Regulation (EC) No 768/2005 of 26 April 2005 establishing a Community Fisheries Control Agency and amending Regulation (EEC) No 2847/93 establishing a control system applicable to the common fisheries policy. OJ L 128, 21.5.2005, p. 1–14

[23] Regulation (EU) 2017/2403 of the European Parliament and of the Council of 12 December 2017 on the sustainable management of external fishing fleets, and repealing Council Regulation (EC) No 1006/2008. OJ L 347, 28.12.2017, p. 81–104

authorisation schemes[24]. The partial coverage of the Control Regulation in terms of fishing authorisations (potentially applicable only to vessels of more than 10 m fishing in marine waters in the case of eel fisheries) is compensated by Art. 11 of the Eel Regulation which requires Member States to establish lists of vessels authorised to fish eels in marine waters irrespective of their length, lists of fishing vessels, commercial entities or fishermen authorised to fish eels in designated EMUs, and list of entities authorised to undertake the marketing of eels.

The obligations set out by the Control Regulation for control of fisheries (Title IV, Art. 14 to Art. 55) apply basically to fishing activities conducted from a vessel in marine waters. However, the Eel Regulation provides that MS shall establish a control system adapted to circumstances and to the legal framework already applicable to their inland fisheries, which shall be consistent with relevant provisions set out in the Control Regulation (Art. 10 of the Eel Regulation). For small scale vessels of less than 10 m that form the bulk of the fishing fleet targeting eels (often glass eels), the Control Regulation includes numerous exemptions in relation to monitoring (logbooks, prior notifications, VMS), and leave to the MS to monitor the fisheries on the basis of sampling plans or alternative measures as appropriate. Concerning recreational fisheries, the Control Regulation mandates Member States to monitor eel catches by vessels (excluding fishing from shore) on the basis of sampling plans under an overarching objective of ensuring that recreational fisheries are conducted in a manner compatible with the CFP. However, Art. 11 of the Eel Regulation includes requirements for Member States to establish on a regular basis estimate of the number of recreational fishermen and their catches of eels, which is rather vague (“regular basis”, “estimate”).

Concerning control of marketing (Title V), the Control Regulation applies to marketing of fisheries and aquaculture products, from first sale to retail, including transport. The Control Regulation imposes traceability from net to plate (art. 58) that do not apply to products (incl. eels) caught or farmed in freshwater. However, the Regulation on the common organisation of the markets in fishery and aquaculture products (Regulation (EU) No 1379/2013) applies to those products. Eels caught by professional fishermen are subject to submission of sales notes by registered buyers, mandatory weighing and take-over declarations if the products are intended for sale at later stages, which may be the case of eels stocked alive. However, according to the Control Regulation, vessels of less than 10 m can be exempted from these obligations. Sales notes and take-over declarations must be submitted electronically for buyers with annual turnover of more than 200,000 EUR. In the event eels are transported before first sale more than 20 km away from landing site, a transport document is required. The transport document must be submitted by the transporter on paper no later than 48h after loading.

Note that all post-landing documentation required by the Control Regulation (i.e. sales notes, take-over declaration and transport documents) do not specify the use of the products which in the case of eels may include consumption, possibly after ranching, or restocking, also possibly after ranching.

Until 2018, eel fisheries were not included in the scope of the Specific Control and Inspection Programmes (SCIPs) adopted by the Commission as foreseen by Art. 95 of the Control Regulation. The situation changed recently with the adoption of Commission Implementing Decision (EU) 2018/1986 applying as from 2019 which included fisheries exploiting eels in Union waters of the Mediterranean, of the Baltic Sea, of the North Sea and ICES division IIa, and of Western Waters (ICES areas VI, VII, VIII and IX). SCIPs trigger cooperation and pooling of inspection resources between Member States with the EFCA assuring operational coordination of joint inspection activities in this frame. SCIPs ensure that target benchmarks for inspection established on the basis of risk-assessments are met.

[24] Commission Implementing Regulation (EU) No 404/2011 of 8 April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. OJ L 112, 30.4.2011, p. 1–153

The CITES Regulation and external trade of eels

Import and export refer to movements of eels of any stage between the EU and third countries.

Eels are in Annex B of Council Regulation (EC) N°338/97. A zero-quota applied since 2010 until now, meaning that import and export of eels is prohibited (see Section 2.2.4). Therefore, up until now, prescriptions of Article 12 of the Eel Regulation for control and enforcement concerning import and export of eel could not apply. Member States had to ensure that the import / export prohibition was effectively enforced. Import and export considered by the Eel Regulation do not refer to movements of eels between EU Member States which are based on the principle of free circulation of goods, one of the pillars of the EU single market. Therefore, intra-EU trade of eels is fully legal.

However, Council Regulation (EC) N°338/97 provides in its Article 8.5 that detaining eels or offering eels for sale is prohibited except when it can be proved that the specimens were acquired in accordance with legislation in force for the conservation of wild fauna and flora. This could be interpreted as a requirement for operators to prove to the satisfaction of MS competent authorities that eels have been obtained in compliance with all conservation applicable rules, rules enacted by the Eel Regulation and by the CFP Regulation.

In the event import / export of eels was authorised (which was not the case up until now), the catch certification scheme implemented by the IUU Regulation would have applied only for eels caught in marine waters (see DG MARE information note for anadromous species[25]), and not for eels caught in freshwaters. Concerning eels from aquaculture farms, lots subject to external trade would be subject to a catch certificate only for products gained from (glass or yellow) eels caught in marine waters.

Eel stock enhancement through restocking

The single EU obligation stems from Art. 7.3 of the Eel Regulation that prescribes that Member States must establish an appropriate reporting system to ensure that the 60% glass eels reserved for restocking are used for this purpose. Arguably, Member States can only implement such reporting systems for activities under their competence (i.e. for glass eels caught in their territory and by their vessels used for restocking operations in their territories). For glass eels caught in its territory but used for restocking in another Member State, the monitoring system implemented by the Member State at the origin of the glass eel catch can only cover the lots up to the borders, but not beyond.

4.4.2 Control and enforcement of eel conservation measures in the Member States

Main risks identified

Most Member States consulted indicated that eel fisheries have been subject to a risk-assessment analysis to identify priorities. For BE, DE, DK, LV NL, PL, SE and UK, the main risk identified is the use of illegal traps in freshwater bodies (rivers and lakes) by unregistered fishermen to catch yellow and silver eels. For ES and FR, the main risk is catches of glass eels in river mouths by unregistered fishermen, and subsequent export to Asia. SE mentioned risks stemming from illegal trade of glass eels in the aquaculture sector and misreporting of eel catches by professional fishermen. From the GR perspective where there are virtually no eel fisheries, the main risks stem from non-compliance with national rules concerning restocking[26].

Monitoring of eel fisheries

All Member States consulted have a registration system of professional fishermen and eel buyers for catches in marine waters or freshwater as considered by Article 10 of the Eel Regulation. Concerning registration of recreational fishermen, only DK, FR and UK reported having implemented a specific registration scheme for recreational fishermen targeting eels. In FR, the licencing scheme apply only to recreational fishermen using fishing gears other than rod and line (e.g. traps, nets). In the other Member States where recreational fishing for eel is allowed (BE, DE, FR, LT and PL), there is no specific

[25] https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pacific_salmon_en.pdf

[26] In GR, intensive aquaculture producers must give 10% of glass eels they buy, and extensive aquaculture producers 30% of eels they harvest for restocking without a financial compensation.

registration systems. Recreational fishermen may need a licence, but the licence is not specific for eel fishing.

Catch declarations by professional fishermen (for both marine and fresh water environments) are mandatory as foreseen by Article 10 of the Eel Regulation. All details have not been provided but professional fishermen usually have to submit catch declaration on a weekly (NL), monthly (SE, FR for yellow and silver eels) or annual basis (UK). In the case of FR, glass eel catches have to be reported every two days for any catch of more than 100 g. From information obtained, catches are submitted electronically only in NL and in DK, with in this later case, sales notes submitted electronically by buyers replacing catch declarations. In the case of FR, fishermen unilaterally implemented an electronic catch declaration system to support monitoring of quota uptake, but the system does not have a legal basis with paper declarations still mandated.

Concerning catch declarations by recreational fishermen, only FR reported having mandated a declaration system based on paper forms. In DK and NL, there is no catch declaration system implemented, but recreational catches are estimated on a biennial basis through specific surveys using in the case of DK internet surveys of registered recreational fishermen. Note that for several member states, recreational fishing for eels is either prohibited (e.g. GR, LT, SE) or limited to catch and release game fishing (BE, UK), meaning that catch declarations are irrelevant.

As regards sales notes, DK, FR and NL specified that buyers of eels are mandated to declare electronically purchases of eels from fishermen in real time (marine and fresh water eels). In the UK, buyers are requested to declare purchases of eels “periodically”. Other MS did not specify information in this respect.

Eel traceability

According to Member States consulted, full traceability of eels is not readily available. The paper-based traceability system enforced by the Control Regulation (Article 58) that concern eel caught in marine waters (eels caught or farmed in freshwater are not excluded from the scope of the Control Regulation) is not yet fully implemented by most Member States as established by the Commission own evaluation of the EU Control System[27]. According to MS feedback from our survey, DK has implemented a “net to plate” electronic traceability system (the SIF solution) but limited to marine species. SE reported implementing a national electronic traceability system as from this year, with reflexions to extend it to freshwater products in a near future. ES was expected to implement the TRAZAPES solution as from 2018, but it is unclear whether this has been done according to plans. All other Member States acknowledged that there is no real full traceability system implemented as yet, with operators only having to show evidences of the immediate supplier and of the immediate buyer (one up - one down) based on available documentation, as also provided for by the EU Food Law[28].

Traceability is particularly an issue for live glass eels traded between Member States to supply aquaculture farms, for direct consumption or for restocking operations. According to the EU Control Regulation, live glass eel shipments not sold upon landing may be transported from a Member State to another with the transport document provided for under Art. 68 of the EU Control Regulation (or its equivalent), in addition to other obligatory documents (invoices, health certificate). As detailed in a previous section, transport documents are established under the responsibility of the transporter and must be submitted on paper no later than 48 hours after the load to competent authorities of the Member State of landing with copy to the competent authority of the Member State in whose territory the first marketing is declared to take place. Arguably, Member State authorities inspecting lorries may encounter difficulties to ascertain the validity of the document presented in case of control.

[27] Report from the Commission to the European Parliament and the Council Implementation and evaluation of Regulation (EC) 1224/2009 establishing a Union control system for ensuring compliance with the rules of the common fisheries policy as required under Article 118 REFIT Evaluation of the impact of the fisheries regulation. COM/2017/0192 final

[28] Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. OJ L 31, 1.2.2002, p. 1–24

Additionally, the transport document is insufficient to establish within a reasonable delay if the catches have been obtained in compliance with applicable conservation measures.

IT and PL reported relying also on TRACES documentation to verify the legality of the shipments. However, TRACES is designed to exchange information on health certificates, and cannot be used to ascertain the legality of the catches. This is precisely why the catch certification scheme of the IUU regulation has been implemented in parallel to TRACES.

Some Member States indicated relying (or having relied) on CITES rules for controlling the legality of eels transported to another Member States. GR reports having implement a CITES based 'simple permit' scheme probably based on Article 8.5 of Council Regulation (EC) N°338/97 by which any transport in and out the Greek territory is subject to verification of the legality of the shipment by relevant managing authorities of the CITES convention. While it can be understood that Greece has competence and tools to verify the legality of eels produced in the Member State (basically only from aquaculture), how legality of eels introduced in Greece is verified is unclear[29]. IT and SE also use this legal basis to force economic operators detaining live eels to keep a CITES registry with details of purchases and sales, but like for GR, it remains unclear how legality of catches originating in another Member States can be verified. Additional information provided by IT suggest that in this case, CITES management authority require that eels have been legally acquired through submission of an invoice identifying the supplier and the health certificate.

FR reported having used EU Internal Trade Certificates (ITC) during the 2009-2010 fishing season on the basis of Art. 5.2 of Reg (EC) 338/97 when it could be envisaged that glass eels caught in FR could be exported from another Member State[30]. Although a zero-quota was enforced end of 2010, FR maintained the ITC scheme during the two next fishing seasons (2010-2011 and 2011-2012) as France was hoping the reopening of an export quota for eels. When it became clear that the export quota would not be reopened in a foreseeable future, FR abandoned the ITC scheme on the ground that it had not legal utility, and also because the ITC scheme proved to generate an administrative burden perceived as disproportionate for the authorities in charge[31].

In the UK, eel fishermen in Northern Ireland obtained a Protected Geographical Indication (PGI) label for yellow and silver eels caught in Lough Neagh ecosystem. The Lough Neagh PGI scheme includes full traceability of eels along the supply chain among other measures. The PGI is underpinned by the high ecological quality of the environment and the desire of the local community to valorise a cultural heritage. The Sustainable Eel Group (SEG) endeavours to implement a European glass eel traceability system based on certification of responsible operators. However, the SEG certification scheme is on a voluntary basis, with for example no ES operators certified so far. In addition, SEG warns that certification to SEG standards does not necessarily mean that 100% of the eel stocks traded by certified operators is of legal origin.

Surveillance and control activities

All Member States consulted reported that eel control measures fall under the responsibility of different Ministries with typically a Ministry responsible for exploitation of eels during their marine phase, aquaculture and sanitary certification of products (e.g. Ministry responsible for agriculture and fisheries), a Ministry responsible for exploitation of eels during their fresh water and for CITES implementation (e.g. Ministry responsible for environment) and a Ministry responsible for finances (i.e. customs). Within Ministries, responsibilities may be allocated to different technical Directorates. Surveillance activities also fall under the mandate of police and military forces. All Member States reported having implemented cooperation mechanisms between the different entities in charge of control through dedicated steering platforms, but no further details have been made available except in the case of FR and SE. In FR, a dedicated inter-ministerial task force has been created (OCLASEP – *Office Central de Lutte contre l'Environnement et la Santé Publique*) under Gendarmerie coordination

[29] Greece was asked precisions in this respect, but did not reply as yet.
[30] As the Member State authorities where export take place could not verify the legality of catches by themselves to authorise exports, the FR-issued ITC provided them with the relevant information
[31] According to the FR CITES authority, management of ITC entailed 5 agents full-time during the 4 months of the glass eel fishing season

to coordinate investigations on environmental crimes (incl. eel poaching) and act as focal point of international police networks (Interpol, Europol). In SE, coordination and cooperation between concerned authorities has been improved through exchange of information, common risk assessment and clarification of responsibilities of the different agencies involved.

Surveillance activities are reported to be organised according to priorities identified through risk-assessment analysis at National level. However, Member States did not specify inspection deployment strategies (for example prioritising inspection/verification of transport and sales channels over traditional inspection of landings to tackle IUU/smuggling). For Member States subject to high risks of live glass eel trafficking by organised crime (ES, FR), surveillance activities typically involve close cooperation and joint patrolling by all concerned enforcement entities, with in the case of France involvement of OCLASEP (see above) and *Guardia Civil* in Spain.

All Member States reported to organise control on an ongoing basis mostly through cross-checking of catch declarations and sales notes, plus regular checks of vessels upon landings and in eel buyers and sellers premises to verify documentation.

For detection of illegal fishing in river mouths or fresh water bodies, inspection bodies reported use of modern technologies such as drones to detect illegal activities (DK, EE, LT, LV, PL, SE), side scan sonars to detect illegal gears anchored on the bottom (DE, LV and UK) or heat detectors and night binoculars during night patrols (DK, FR and UK).

Some Member States mentioned having encouraged support from citizens to detect illegal activities. DK and SE have implemented internet web site to facilitate reports from citizens which according to DK, could register 820 citizen reports of illegal fishing in 2016 (presumably not all related to eel poaching). PL is in the process of implementing a similar website (STOP KŁUSOLOM – stop poaching) in cooperation with national federations of recreational fishermen. In the UK, a telephone hot line is available to report suspected infringements.

Cooperation for the fight against illegal eel trafficking is supported by EUROPOL under the EMPACT ENVICRIME initiative (2017-2021). SE also mentioned the set up for the next 3 years of the North Atlantic Fisheries Intelligence Group (NA-FIG) which will address eel fisheries among seven themes covered by the initiative.

As detailed in the first section, cooperation between Member States and harmonisation of approaches to control will be further encouraged by the organisation of Joint Deployment Plans involving the EFCA.

Control of restocking obligations

Feedback from Member States tends to indicate that the obligations set out in Article 7 of the Eel Regulation are applied differently.

In FR, the 60% reserved for restocking are accounted for in the national glass eel quota implemented each year based on scientific advice, meaning that quantities sold for consumption cannot exceed 40% of the annual quota. Monitoring of restocking and consumption sub-quotas is supported by verification of sales notes, which in the case of glass eels have been modified to allow specification of the destination of the glass eel catches as foreseen by art. 7.3 of the Eel Regulation. However, FR authorities have no competence to monitor the fate of glass eels intended for restocking in another Member States. A monitoring system is in place to ensure that glass eels intended for restocking in the national territory is used for this purpose (restocking operations are supervised by authorities), but this concerns only between 5 and 10% of glass eel caught.

In the case of ES and UK where there is no similar catch quota for glass eels, the restocking obligation appears to be unenforceable according to the authorities consulted. Whilst the Eel Regulation mandates that 60% of glass eel catches must be *reserved* (emphasis added) for restocking, concerned Member States mentioned that operators report having reserved the glass eels as prescribed, but eventually sold the glass eel so reserved for consumption in the absence of orders of glass eels from entities wishing to use them for restocking. In other words, the reservation obligation is not seen as an obligation to use the eels subject to reservation for restocking. Given this interpretation, provisions of art. 7.3 of the Eel Regulation do not appear to have been implemented in this Member States as they would appear irrelevant.

4.4.3 Identification of problems

The EU fisheries control system, and in particular the Control Regulation has many shortcomings in relation to the monitoring and control tools for fishing vessels of less than 10 m which form the overwhelming majority of fishing fleets exploiting eels. The shortcomings are extensively described in the Commission's own evaluation of the EU control system and triggered a proposal for amendments.

The main weakness of the EU Control Regulation is that it provides for numerous derogations in relation to catch and landing declarations for such vessels, with Member States having discretionary powers for monitoring catches of this fleet segment based on sampling plans or substitution by sales notes which prevents cross-checking. There are few evidences of implementation of electronic catch reporting systems for vessels of less than 10 m targeting eels. In addition, the EU Control Regulation provides exemptions for declarations of catches below 50 kg per fishing trip, a threshold set too high in the context of eel fisheries as a reasonable catch of glass eel lies between 1 and 2 kg per fishing trip[32]. As a result of these shortcomings, catches of eels by professional fishermen may not be adequately monitored, with risks of misreporting. In fact, ICES (2018) noted that eel data sourced from landing statistics remains incomplete and the level of reporting between Member States is inconsistent.

Monitoring and control of recreational eel fisheries appear also to be largely incomplete. The EU Control Regulation does not lay down provisions for authorisations, catch reporting and vessels tracking applicable to recreational vessels and excludes recreational fishing without a vessel from its scope. Furthermore, the Eel Regulation (Art. 11.2) is limited to "estimate" on a "regular basis" of the number of recreational fishermen and of their catches of eels. According to

Figure 16 on page 67, recreational catches of eels can be significant (≈ 500 tonnes per year) in certain Member States (e.g. DE, DK, FR, IT, PL) that did not prohibit recreational fishing for eels at certain stages, or at any stage.

Traceability of eels along the supply chain is a concern. While sales note requirements appear to be adequately implemented by Member States through buyers, post landing documentation required in the event eels are intended for sale at later stage (take-over declarations, transport documents if transported more than 20 km away) do not provide evidences of the legality of catches. Transport documents in particular are inadequate since they are paper based with submission no later than 48h after the load and established under the responsibility of the transporter who is generally not fully aware of the nature of the cargo. Exchanges of live glass eels between Member States are relatively common. The Eel Regulation encourages transport from producing Member States (e.g. ES, FR, PT, UK) to Member States in need of glass eels (e.g. BE, DE, DK, NL, SE) for restocking. Exchanges are also underpinned by aquaculture development as producing units in some Member States (e.g. GR, IT, NL) rely on supply of glass eels caught in the wild in other Member States territories to constitute their livestock. Shortcomings of the EU Control Regulation in this area suggest that transport may be an ideal vehicle for covering fraudulent practices and for misreporting catch data. Traceability is further hindered by the fact that post-landing documentation established by the EU Control Regulation does not consider the destination of glass eels which may include consumption, possibly after ranching, or restocking, also possibly after ranching. Traceability is further undermined by the relative inertia of the one up / one down paper-based system mandated by Art. 58 of the EU Control Regulation, and the exclusion of eels caught or farmed in freshwater from its scope.

Prescriptions of the Eel Regulation for restocking (Art. 7.1) have been reported as unenforceable by some Member States (e.g. ES, UK) on the ground that the word "reservation" may not be interpreted as an obligation to use the eels so reserved for restocking by concerned operators. In addition, a glass eel producing Member State (e.g. FR may ensure that part of the 60% reserved for restocking on its territory is used for this purpose but does not have competence to ensure that the remaining % are used for this purpose in the territory of another Member State. In this respect, Art. 7.3 cannot be fully complied with in the absence of transnational traceability system.

[32] Source : professional glass eel fisherman

Member States did not report specific problems in relation to fight against illegal fishing of eels in their territory but suggested that inspection strategies must take into account extensive territory and fishing practices that are not readily detectable, in particular when immersed illegal gears (e.g. traps) are used to catch yellow or silver eels. However, the lack of information provided by Member States on resources deployed for control prevented any further analysis. Problems are reported to occur for the control of eels, live glass eels in particular, that may be transported from other Member States due to the absence of evidences (i.e. traceability) to ensure that eels have been obtained legally.

4.4.4 Some good practices in control

The survey supported identification of best practices, i.e. practices implemented at national level in the field of control that go beyond minimum EU requirements. Best practices may be a source of inspiration for other Member States for strengthening the control framework of eel fisheries under their competence under the current EU regulatory framework. However, best practices must be evaluated in the context of the eel fisheries in the Member States. For example, best practices implemented for monitoring glass eel fisheries in certain Member States are irrelevant for Member States having prohibited glass eel fishing.

Catch declaration by professional fishermen

- FR mandates professional fishermen targeting glass eels to declare catches every two days with a reporting threshold set at 100 g, noting that this system is underpinned by the need to monitor uptake from a glass eel catch quota. However, the catch declaration system remains paper-based. FR fishermen and River Parret UK have unilaterally implemented an e-reporting system to support their own monitoring of the fisheries but the e-reporting system does not have legal basis.
- NL implemented an electronic weekly catch registration system for yellow and silver eel fisheries. However, the system does not allow specification of the maturity stage of eel caught (yellow or silver).

Monitoring of recreational fisheries

- FR implemented a specific registration system for recreational fishermen using fishing gears other than rod and line. A catch declaration system has been mandated but based on paper reporting with reportedly insufficient resources to computerise them.

Traceability of eels

- GR, IT and SE seemingly[33] used the opportunities offered by Article 8.5 of Council Regulation (EC) N°338/97 to involve their CITES management authorities in the control of eel movements in their territories. The national mechanisms implemented aim at ensuring that eels detained by national operators or subject to intra-EU movements have been legally acquired. Whilst verifying the eels entering their territory have been obtained in compliance with conservation rules may be challenging in the absence of uniform traceability solutions at EU level, the verification of the legality of eels detained by national operators or transported out of their territories may be realistically implemented by measures under national competence. The involvement of CITES management authorities has also the advantage of providing a legal basis for the involvement of the concerned CITES management authorities in the national eel control system.
- Some Member States have implemented electronic “net to plate” traceability systems (e.g. DK, ES, SE). SE is considering extending the scope of the national traceability system to freshwater products which will unambiguously cover eels at all stages irrespective of the nature of the ecosystem from where they originate.

[33] This is our own assumption. We asked the concerned Member States to clarify the legal basis, but no response received so far.

Restocking obligations

- FR implemented a national glass eel catch quota further broken down in two sub-quotas: a sub-quota for consumption (40%) and a sub-quota for restocking (60%). The restocking sub-quota ensures reservation of part of the catch potential for this purpose. The measure is further supported by a modification of the sales notes format which has to specify the destination of the concerned catches.

Inspections

- Several Member States reported utilisation of modern technologies to detect illegal gears deployed to catch yellow and silver eels. Modern technologies include drones (i.e. DK, EE, LT, LV, PL, SE) and side scan sonars (i.e. DE, LV and UK). Detection of illegal fishing activities targeting glass eels, which take place mostly during night hours, is supported by utilisation of heat detectors and night binoculars (DK, FR and UK).
- In Member States where illegal trafficking of live glass eels is suspected to occur, control burden is shared by the different national police authorities, with main national police corpses in charge of intelligence and coordination (i.e. *Gendarmerie* in FR, *Guardia Civil* in ES).
- DK, SE, UK, and PL in a near future, have implemented systems to facilitate reporting to Authorities of suspected infringements to fishing rules by citizens. Systems implemented include dedicated websites (DK, SE and PL) or telephone hotlines (UK).

4.4.5 What can be done at EU level?

In view of the identified shortcomings of the EU Control System, the Commission tabled a proposal[34] in May 2018. The proposal is now being discussed by the co-legislators. As outlined in the table in **Annex 6**, the measures proposed by the Commission addresses most of the problems stemming from the numerous exemptions foreseen in the current EU Control Regulation for monitoring fishing activities deployed by vessels of less than 10 m, monitoring of recreational fisheries, post-landing documentation and traceability along the supply chain. All proposed amendments to the Control Regulation will help Member States and the Commission to strengthen the EU fisheries control system. If only three main initiatives tabled in Commission's proposal were to be distinguished, it would be i) the mandatory electronic catch declaration of all vessels irrespective of their sizes, ii) more stringent requirements for monitoring and control of recreational fishing and ii) the streamlining and improvement of post-landing documentation scheme, with in particular, a comprehensive reform of the transport document as glass eel movements between Member States appear to be critical in relation to control. The development over time of electronic "from net to plate" traceability systems will support verification of the legality of eel batches along the supply chain.

However, there are a few dispositions in the Commission's proposal for a reformed EU Control System that may not be fully appropriate in the case of eel fisheries due to its specificities (i.e. catches of a few kilograms of glass eels per fishing trip), although fully proportionate in the broader context of EU fisheries. This include:

- The tolerance margin (20%) proposed for accuracy of catch declaration in case catches weight less than 50 kg, which appears far too high in the case of eels, in particular glass eels for which catches normally range between 1 and 2 kg
- The exemptions provided for post-harvest documentation for catches of less than 5 kg deemed to be sold direct to consumers, which appear very generous in the case of eels
- Commission's proposal does not specify if the reformed EU Control System will have a capacity to manage products according to their destination (i.e. restocking or consumption in the case of eels). However, this is something that will be probably addressed in a revised implementing Regulation

[34] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control. COM/2018/368 final

- The scope of the "net to plate" traceability system will be probably defined in a revised implementing Regulation. It will need to specify how diadromous species should be treated for both fisheries and aquaculture. In the past, the Commission had to formulate an interpretation on how catadromous species should be considered under the IUU Regulation.

Concerning CITES, Article 8.5 of Council Regulation (EC) N°338/97 provides a legal basis for implication of the national CITES management authorities in the control of the legality of eels detained or offered for sale by operators in their territory independently from the availability of an export quota. The extent to which Member States have involved their CITES management authorities in the control process is unclear[35], except in a few cases (GR, IT and SE). The Commission may find appropriate to remind this legal obligation to Member States and follow up on the national measures implemented.

The evaluation identified a possible source of legal misinterpretation of Article 7.1 of the Eel Regulation in relation to restocking suggesting that 60% of glass eels caught each year may not be marketed for this purpose as expected. As a result, control authorities cannot enforce this prescription. Article 7.1 of the Eel Regulation may need to be reconsidered taking into account the continued relevance of other prescriptions on restocking. There is no immediate solution to propose, as it depends to some extent on what the legislator had in mind for introducing the concept of reservation in the Eel Regulation.

Some Member States (e.g. BE, DE, IT and SE) suggested to the evaluation team that the EU should deploy a dedicated EU traceability system for glass eels based on the models developed by ICCAT for bluefin tuna or by CCAMLR for toothfish. These two specific traceability systems have been developed by the RFMOs, implemented through binding instruments and are operated and managed centrally by them. They provide a full electronic traceability solution for the species concerned, from catch to final sale, on which concerned authorities can rely to verify the legality of shipments across borders and in their territories. Arguably, a similar system would provide to Member States an adequate solution to verify the legality of eel batches under their competence. However, the relevance of an EU investment in a dedicated traceability system for glass eel must be further investigated. The ICCAT and CCAMLR catch documentation scheme are justified by the involvement of non-EU countries in these respective fisheries, each having its own regulatory framework, which is not the case for EU Member States. Also, the development of an EU centralised system just for intra-EU trade of glass eel may not be seen as fully proportionate in the broader context of EU fisheries. Finally, an EU traceability system for eels may be redundant with the provisions of an improved EU Control System if it successfully strengthens traceability requirements as it is the intention of the Commission's proposal.

[35] We do not have information from Member States who did not respond to our questionnaire, and among those who responded, use of CITES instruments may have been overlooked.

4.5 EVOLUTION OF MARKET PRICES FOR EELS < 12 CM

Eels less than (<) 12 cm in length are mainly composed of glass eels (min. 5.4, max 9.2 cm) and smaller yellow eels (e.g. from 6.9 cm upwards (to 133 cm)) (Dekker, Van Os & Van Willigen, 1998). Reported glass eel production has increased from just under 40 t per annum in 2011 to around 60 t in 2018. France remains the predominant glass eel producer and is the only country to set quotas (currently 64.75 t, of which 38.75 t are reserved for restocking). Spain's glass eel production over this period (minimum 1 t in 2018 and maximum 16 t in 2017) is mainly for local use in a small area of the Basque region, a traditional practise that is now being replaced with an artificial substitute.

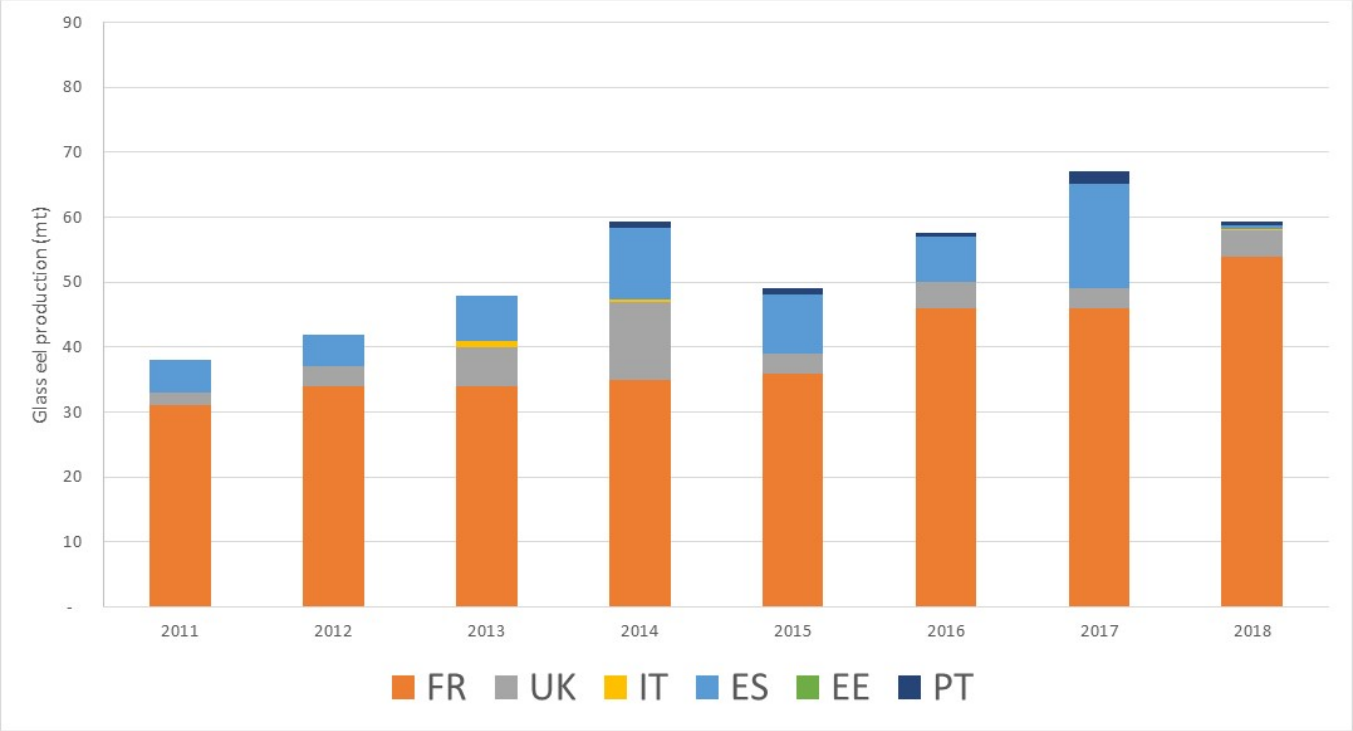


Figure 7: EU glass eel production (2011 - 2018)

Source: Compiled from ICES (2018c)

According to Article 7(6) of the Eel Regulation, when market prices of glass eel used for restocking suffer a significant decline compared to the price of glass eels used for other purposes, based on price information submitted by the Member States, the Commission is required to take appropriate measures to address the situation. These measures may include a reduction in the percentage of glass eels to be reserved for restocking as set out in Article 7(2) of the regulation. No such measures have been adopted so far (DG Mare, pers. comm., 11 January 2019).

The Eel Regulation requires Member States to monitor the market prices for eels annually, and for the Commission to report these to the Council, also on an annual basis. However, the level and quality of glass eel price reporting is highly variable between Member States and as a result, the Commission has been unable to fulfil this annual reporting requirement. According to the 2014 evaluation report only nine complete glass eel reports were received by July 2012. Since then, no national reports on glass eel prices have been submitted, although Belgium, Denmark, Estonia and the UK have provided some price data in their recent 2018 Annual Progress Reports. This represents a major failure in the Regulation's monitoring requirement. As mentioned above, these prices are linked to the glass eel harvest strategy in terms of managing the proportion of eels <12 cm reserved for stocking.

Based on the limited data available, the EU market prices of eels <12 cm that are predominantly used for restocking (there is some limited traditional direct consumption) remained fairly constant at around €470 / kg over the five year period 2009 – 2013 before collapsing to €128 in 2014 (presumably in response to the abovementioned spike in production that year) and recovering slowly to the 2018 average of €274 (see Figure 8 overleaf). These figures conform with confidential tender prices provided to the consultant by glass eel traders over 2016 – 2018.

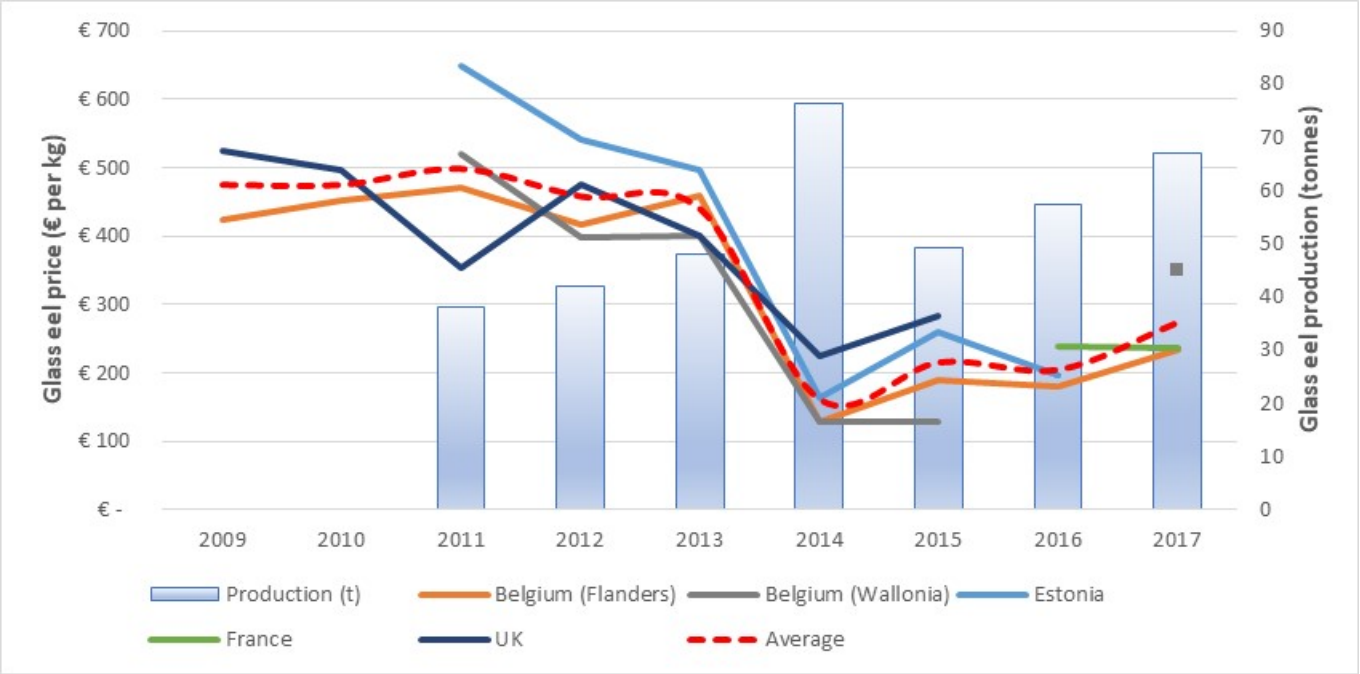


Figure 8: Average prices for glass eels <12 cm (2009-2017) used for restocking, showing production (t, 2011-2017)

Source: Prices 2018 Country Progress Reports (BE, EE, FR & UK); production ICES 2018a

Nineteen EU countries sold live eels over the last decades. This trade includes re-selling of glass eels from one country to another, e.g. in case eel been sold from Spain to Germany and afterwards continued its journey to e.g. Poland for stocking the eel sales would be double counted as sales from Spain and sales from Germany. A comparison between sales and buyer statistics reveals that potentially 50% of the total sales could be double counted in this way and that for several countries the percentage of re-sales could be as large as 100%. As most of the countries in the above graph do not produce any glass eel, presumably these prices are re-exports. Therefore the total sales values should be regarded with caution (Motova, 2014).

Focusing on the trade in glass eels, the reported EU catch of glass eels is around 60 t per annum (see Figure 7 above). In fishing season 2016/2017, 64 t of glass eel catches were declared to national authorities in France, Spain, Portugal and UK and 59 t in the season 2017/2018. The market for glass eels within the EU for aquaculture is around 15 – 20 t and restocking is about 36 tonnes (60% of reported catches must be used for restocking). There may be an additional 10 tonnes for direct consumption in Spain, so the total EU market is around than 50 to 55 tonnes. Questions have been raised about the fate of the other 5-10 tonnes of glass eels. The Sustainable Eel Group (SEG) suggest that around 30 t of glass eel production over 2016 and 2017 is unaccounted for (SEG, 2018), and EUROPOL have suggested that this might be as much as 100 t[36]. SEG speculate that this unaccounted proportion of the legal catch, as well as possibly production from unlicensed fisheries is used to supply the lucrative market for glass eels in Asia, where prices can reach €1,500 – 2,500 per kg in Hong Kong. Much of this is on-grown in China, but some may be exported to Japan, also for aquaculture (MRAG, 2017; Sanada, 2018).

36 https://www.europol.europa.eu/newsroom/news/glass-eel-traffickers-earned-more-eur-37-million-illegal-exports-to-asia

4.6 ANALYSIS OF THE INTERLINKAGES BETWEEN THE EEL REGULATION AND OTHER EU RULES

4.6.1 Common Fisheries Policy

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy (CFP) sets out a collaborative approach to managing the EU's shared seas and fisheries. The CFP aims to ensure high long-term fishing yields, with the objective to restore and maintain populations of harvested species above levels which can produce the maximum sustainable yield (MSY) by 2015 where possible, and no later than 2020.

In Art. 4 of Regulation No 1380/2013 the CFP defines 'marine biological resources' as available and accessible living marine aquatic species, including anadromous and catadromous species during their marine life. Therefore, the CFP and its MSY objective is applicable at certain stages in its life cycle to the European eel[37]. Indeed the original Community Action Plan for the management of European Eel (EC, 2003) stated that "*that the spirit of Council Regulation 2371/2002 is clearly to bring all living aquatic resources, including catadromous species, under the scope of Community action when and where necessary. From that point of view, the Commission believes that Council Regulation 2371/2002 does not constitute a barrier to the management of eels, including during their freshwater life, at Community level*".

Under the CFP, EU fisheries management covers a suite of measures including:

- Total Allowable Catches (TACs) and quotas;
- Technical measures, including fishing gear specifications and gear usage;
- Fishing effort controls, e.g. limit on number of days at sea;
- Access to waters, e.g. limitations / control on which vessels can fish which areas;
- The Landing Obligation, which reduces unwanted catches and discarding, and;
- Multi-Annual Plans (MAPs) which combine management tools for specific species, fisheries and marine regions.

Council Regulation (EU) 2018/120 of 23 January 2018 fixing for 2018 the fish**ing opportunities for certain fish stocks and groups of fish stocks** (Council of the European Union, 2018a), applicable in Union waters and, for Union fishing vessels, in certain non-Union waters, sets species-specific TACs and quotas. Article 10 of EU 2018/120 prohibits EU fishing vessels to fish European eel in marine waters of an overall length of 12cm or longer in EU waters of the ICES area for a consecutive three-month period to protect spawners during their migrations. The three-month time period is determined by each Member State and will occur sometime between 1 September 2018 and 31 January 2019.

Council Regulation (EU) 2019/124 (Council of the European Union, 2019) extends this approach (EC, 2018a) by creating a consecutive three- month closure period for all fisheries of European eel at all life stages in relevant Union waters (including brackish waters such as estuaries, coastal lagoons and transitional waters). It is designed to be consistent with the conservation objectives set out in the Eel Regulation and with the temporal migration patterns of European eel and will be applied over the period between 1 August 2019 and 29 February 2020 for ICES waters, and at a period to be determined by each Member States in the Mediterranean. It hence transposes into EU law the recent GFCM Recommendation GFCM/42/2018/1 establishing management measures for European eel in the Mediterranean Sea (GFCM, 2018).

Regulation (EU) 508/2014 of the European Parliament and of the Council of 15 May 2014 (European Parliament & the Council of the European Union, 2014) establishes the **European Maritime and Fisheries Fund** (EMFF). The EMFF does not refer specifically to eel recovery or the Eel Regulation but initiatives for implementing the Eel Regulation can be supported (e.g. via Art.37.2 on *direct restocking* and Art. 54 on *aquaculture providing environmental services*). The Fisheries and Aquaculture Monitoring and Evaluation (FAME) Support Unit (SU) reported that by the end of 2017, 87 operations were funded though the EMFF with total eligible costs of EUR 18.6 million and an EMFF

[37] The Community Action Plan for Eel Management (EC, 2003) suggested that the expression "during their marine life" in Regulation 2371/2002 (EC, 2003) might be removed for catadromous species

allocation of EUR 11.1 m (EC, 2018a). Germany alone approved 71 operations with an EMFF budget of EUR 5.2 m., with the Czech Republic approving nine operations. Overall, eight MS implemented related operations, dedicating 1.8 % of their EMFF to this area. Six MS indicated that eel recovery is a priority of the EMFF programme (CZ, DE, DK, NL, PL, SE). The Managing Authorities (MAs) support different types of operations: restocking, habitat recovery, data collection, studies and temporary cessation of fishing activities. Some MS indicated that they also intend to support eel-related operations in the future; they also stressed that this depends on the interest of beneficiaries, the EMFF being a demand-driven programme. FAME noted that (i) the EMPs and the tri-annual reports give little attention to the budgetary implications of the proposed plans, with only a few MS refer specifically to the use of EU structural funds and (ii) whilst some EMFF Operational Programmes (OPs) mention eel, either in relation to EMP or to data collection, many OPs do not mention eel at all. In the previous **European Fisheries Fund** (EFF) funding related to eel management represented well below 1% of the total EFF OP allocation, with most commonly applied eel-specific measures contributing to the implementation of the Eel Regulation being permanent and temporary cessation as well as restocking (EC, 2019a). A review of the EFF Annual Implementation Reports (AIR) showed that only FR, IT, ES and DE have provided financial information on eel-related measures.

Regulation (EU) 2017/1004 (European Parliament & the Council of the European Union, 2017c) of the European Parliament and of the Council of 17 May 2017 establishes an **EU framework for the collection, management and use of data in the fisheries sector** and support for scientific advice regarding the common fisheries policy. This EU data collection framework (DCF) is applicable to eels and covers inland waters, specifically establishing a programme for the collection of biological data on all stocks caught or by-caught in EU commercial and, where appropriate, recreational fisheries in and outside EU waters, including eels.

Regulation (EC) No 1224/2009 of 20 November 2009 (the **Control Regulation,** Council of the European Union, 2009) establishes a Union control system for ensuring compliance with the CFP. The Control Regulation defines a number of rules that apply to monitoring, control and surveillance of fisheries targeting diadromous species during their marine phase, and to fresh water fisheries, aquaculture, processing and marketing of diadromous species in relation to market and financial measures supported by the CFP. The European Commission has published its evaluation of the fisheries control regulation in April 2017 (EC, 2017) and subsequently tabled a proposal to revise the fisheries control system (European Parliament & the Council of the European Union, 2018), including the Control Regulation.

Data on eels from the EU DCF may be useful for stock assessment purposes but does not cover fishery independent sampling or non-fisheries related eel mortality. ICES (2018) noted that eel data sourced from landing statistics has improved in 2017 and 2018 but remains incomplete and the level of reporting between Member States is inconsistent.

4.6.2 Water Framework Directive

Background

Directive 2000/60/EC (European Parliament & the Council of the European Union, 2000) of the European Parliament and of the Council of 23 October 2000 establishes a framework for Community action in the field of water policy, known as the Water Framework Directive (WFD).

The WFD covers protection of ground water and surface waters, including inland surface waters (rivers and lakes), transitional waters (estuaries) and coastal waters and is therefore highly relevant to eel habitats. Member States are required to monitor these water bodies, characterise river basins, establish river basin management plans (RBMP) and assess water quality against ecological status and chemical status classifications.

The key objective of the WFD is to achieve 'good status' for all aquatic ecosystems, including 111,000 surface waters (e.g. rivers, lakes, coastal waters), with regard to their water needs, terrestrial ecosystems and wetlands, to meet 'good status' by 2015. The WFD, however, allows for extensions to the 2015 deadline, provided that no further deterioration occurs and that they are limited to at most 2 further cycles (i.e. the present 2015- 2021 period, and the next 2021-2027 one) (EC, 2019b).

For surface waters there are two elements: good ecological status and good chemical status:

- Good ecological status is defined in Annex V of the WFD, in terms of the quality of the biological community, the hydrological characteristics and the chemical characteristics.
- Good chemical status is defined in Annex IX and Article 16(7) of the WFD, in terms of compliance with all the quality standards established for chemical substances at European level.

Interestingly, European eel has been proposed as an appropriate Ecological Quality Ratio (EQR) indicator for determining a water body's chemical status. This is based on bioaccumulation of contaminants within eel muscle providing an accurate reflection of the contaminants within their habitat. However, based on WFD Technical Guidance, together with the protected status of eels, they are only used for existing trend monitoring programmes, and not captured specifically to monitor chemical status of water bodies. The European eel was also proposed as an indicator of ecological status, but turned down due to its declining abundance, a decision questioned by some.

In terms of WFD timeline, the first management cycle of the WFD ended in 2015, the second management cycle ends in 2021 and the third ends in 2027, which is also the final deadline for meeting WFD objectives under Article 4 (Environmental Objectives) and Article 13 (River Basin Management Plans).

In relation to eels, the WFD is specifically important in protecting and improving water quality of key eel habitats, including rivers, estuaries and coastal waters; it is also important in improving river continuity. Environmental impacts in marine, transitional, and fresh waters, which include habitat alteration, barriers to eel passage, deterioration in water quality, all contribute to the anthropogenic stresses and mortality on eels, and also affect their reproductive success (ICES, 2018). ICES anticipate that the implementation of the WFD may result in improvements to the continental environment, and that this may have a positive effect on the reproductive potential of silver eel (ICES, 2018).

WFD improvements benefiting eels

Eel Management Units as defined by EU Member States, often follow the spatial management model of River Basin Districts (RBD), as introduced by the WFD. This alignment of spatial EMUs and RBDs provides opportunity for clear interlinkages between the management measures required to improve eel stocks and ecological status within water bodies. Several European river basins have master plans or conservation plans for restoring the population of threatened fish species (salmon, sturgeon, eel etc.) as well as improving river continuity as part of the WFD. River Basin Management Plans (RBMPs) were introduced for RBDs in 2009.

A report by WWF, European Environmental Bureau, the European Anglers Alliance and European Rivers Network (2018) highlights that the WFD provides an effective framework for addressing the main pressures facing rivers, lakes, wetlands, streams and groundwater. However, to "*achieve these goals, efforts and resources for better implementation and enforcement of the WFD will have to be significantly stepped up*".

The European Environment Agency (EEA, 2018) recently compared the status of European waters between the introduction of the first (2009) and second (2015) RBMP cycles.

In relation to ecological status / potential of water bodies EEA (2018) concluded:

- Only 40% of surface waters are in good ecological status or potential ('potential' relates to status of a heavily modified or artificial water body)
- There are less 'unknown status' classifications i.e. more water bodies are assessed, and the confidence in assessments have improved, together with the intercalibration of methodology.
- The overall ecological status / potential of all water bodies has not improved.
- There has been some reduction in proportion of water bodies that are in good or better ecological status; and there has been some (20%, equating to 16,000 water bodies) that have improved in status.

The main pressures on surface water bodies are hydro-morphological physical alterations (i.e. that cause continuity interruptions), diffuse source pollution (agriculture and atmospheric deposition), point source pollution (wastewater treatment and industrial plants & storm overflow) and water abstraction. Hydro-morphological pressures affect around 40% of surface water bodies, notably due to physical alterations in the channel, bed, riparian zone or shore as well as structural barriers including dams and locks.

On existing physical modifications of water bodies, most Member States have reported measures (fish ladders, removal of structures, etc.) aimed at reducing the negative hydro-morphological pressures (EC, 2019b). The most common measures applied include fish passes for upstream migration, removing barriers, establishing ecological flow, re-meandering, reconnecting backwaters, restoring bank structure, instream structures (large pieces of wood, boulders) and sediment transport management (EEA, 2018). Recent implementation of some of these key measures in European countries are outlined in **Table 5** overleaf.

Restoring river connectivity under the WFD should benefit eel migration, however, 40% of surface water bodies remain affected by hydro-morphological pressures and therefore significant effort is required to fully restore river continuity.

The EEA (2018) report concludes that only 38% of surface waters are in good chemical status. In relation to changes in chemical status of water bodies between the first and second RBMPs, the number of 'unknown status' classifications has dropped significantly, making it difficult to compare across different water body types. Overall, the total number of surface water bodies with good chemical status has remained the same, while the number failing to achieve good status has increased. However, it is noted that certain Member States are making significant progress in tackling certain individual priority substances (e.g. isoproturon, diuron, DDT), while other substances are cause for failure across a significant proportion of water bodies, particularly mercury (which fails to meet good status in 41% of water bodies).

Table 5: Examples of measures to address hydro-morphological pressures by country or river basin district (RBD) / international RBD (iRBD)

Country or River Basin District (RBD)	Measures
Examples of measures to make barriers passable	
Rhine iRBD	480 measures aimed at improving river continuity were implemented from 2000 to 2012 (ICPR, 2015)
Danube iRBD	From 2009 to 2015, more than 120 fish migration aids were constructed, and 667 barriers remained unpassable out of a total of 1030 (ICPDR, 2015)
Elbe iRBD	Measures to improve continuity were completed in 60 locations and planned in 88 locations in the International RBD priority network from 2009 to 2015 (ICPE, 2015)
France, Rhône RBD	208 out of 788 priority barriers were made passable from 2010 to 2015 (Rhône-Mediterranée district, 2016)
France, Seine RBD	For 254 out of 5474 barriers, measures were implemented to improve river continuity from 2013 to 2015 (Seine RBD, 2016)
Austria	More than 1 000 barriers were made passable for fish from 2009 to 2015 (BMLFUW, 2017)
Netherlands	Around 600 barriers were made passable from 2008 to 2015 (Kroes et al., 2015)
UK: England and Wales	229 obstructions across England and Wales were made passable from 2009 to 2014 (NASCO, 2015)
UK: Scotland RBD	Access for fish to 70 water bodies (out of 306 water bodies affected by migration barriers) was secured by the removal of barriers to fish migration from 2009 to 2015 (SEPA, 2015)

Examples of measures addressing other hydro-morphological pressures	
Rhine iRBD	Reactivation of floodplains from c. 80 km2 in 2005 to c. 125 km2 in 2012. Increase in structural diversity of banks from c. 50 km bank length in 2005 to c. 100 km bank length in 2012. Reconnection of alluvial areas from c. 35 areas reconnected in 2005 to 80 alluvial areas reconnected in 2012 (ICPR, 2015)
Danube iRBD	More than 50 000 ha of wetlands/floodplains have been partly or totally reconnected, and their hydrological regime improved, 2009-2015 (ICPDR, 2015)
Austria	Approximately 250 water body restructuring activities were carried out to improve hydro-morphological conditions in the largest waters of the so-called priority restoration zones, 2009-2015 (BMLFUW, 2017)
France, Rhône RBD	Morphological restoration works carried out on more than 160 km of rivers. Wetland restoration increased from 7 332 ha restored in 2010 to 16 069 ha restored in 2015 (Rhône-Mediterranée district, 2016)
UK: Scotland RBD	Physical conditions of 36 water bodies improved out of 255 water bodies affected by modifications to their beds, banks or shores, 2009-2015 (SEPA, 2015)

Source: EEA, 2018

The comparison between the 2009-2015 cycles, indicate that only a limited number of water bodies have improved in status (EC, 2019b). This may be due to late identification of pressures, the longer time required to design effective policy measures, the slow introduction of measures, and the response time of nature before measures take effect (EC, 2019b).

While interlinkages between EMPs and WFD are clear, the authorities responsible for the EMP are not necessarily involved in the implementation of River Basin Management Plans. Hanel (2019) highlighted that the legal situation may be difficult or unclear e.g. authorities responsible for the EMPs have no or restricted legal competence for hydropower issues making implementation of change/measures to reduce eel mortality challenging. Hanel (2019) also noted that implementation of many proposed measures can often be delayed, likely due to the high costs associated with actions in this field.

Furthermore, only a few Member State EMPs/ Progress Reports make reference to the importance of the WFD in improving water quality and connectivity (e.g. Belgium, Spain, Ireland), and where this does occur, targets for improvement and expected benefits to eels are not defined. There are clear linkages in the objectives of WFD / RBMPs and EMPs (i.e. improve river continuity and restore eel populations), but not in the delivery and implementation of measures or monitoring of outcomes. It is not clear whether the effects of measures to improve river continuity are monitored at all, let alone linked to eel stocks. Indeed, Hanel (2019) recommends that given the unknown efficiency of such measures at barriers, the transport and stocking programmes of eels to areas upstream of obstacles should be ceased, with all efforts focused on fully restoring river continuity.

4.6.3 Marine Strategy Framework Directive

Directive 2008/56/EC of 17 June 2008 establishes a framework for community action in the field of marine environmental policy (European Parliament & the Council of the European Union, 2008), known as the Marine Strategy Framework Directive (MSFD). The key objectives of the MSFD are to achieve or maintain good environmental status of marine waters by 2020; by adopting an ecosystem-based approach to management that is implemented through a common regional approach.

The Good Environmental Status (GES) descriptors are as follows (Annex I of MSFD):

1. Biodiversity is maintained
2. Non-indigenous species do not adversely alter the ecosystem
3. The populations of commercial fish species are healthy
4. Elements of food webs ensure long-term abundance and reproduction
5. Eutrophication is minimised

6. Sea floor integrity ensures the functioning of the ecosystem
7. Permanent alteration of hydrographical conditions does not adversely affect the ecosystem
8. Concentrations of contaminants have no effects
9. Contaminants in seafood are within safe levels
10. Marine litter does not cause harm
11. Introduction of energy (including underwater noise) does not adversely affect the ecosystem

Based on these descriptors, Member States have developed GES definitions and targets that are of relevance to their marine environment. In relation to eels, the MSFD is important to reaching and maintaining good environmental status of the marine environment, which (as with the WFD), may have a positive effect on the reproductive potential of silver eel (ICES, 2018).

4.6.4 Habitats Directive

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive, was adopted by EU governments to ensure the protection of endangered and/or vulnerable animals, plants and characteristic habitats.

Over 1,000 animal and plant species, and 200 habitat types are listed in the Directive under its Annexes I to VI. European eel, *A. anguilla*, is not listed in the Habitats Directive under any of the species Annexes, including II, IV or V. Habitats that are important to eels, including estuaries and coastal lagoons are listed in the Habitats Directive, and protected through the designation of Special Areas of Conservation (SACs).

Estuaries are widespread throughout the Atlantic coasts of Europe; there are 360 SACs designated due to the presence of an estuary (Figure 9). Coastal lagoons are considered a priority habitat under Annex I of the Habitats Directive, with 772 current sites designated as SACs.

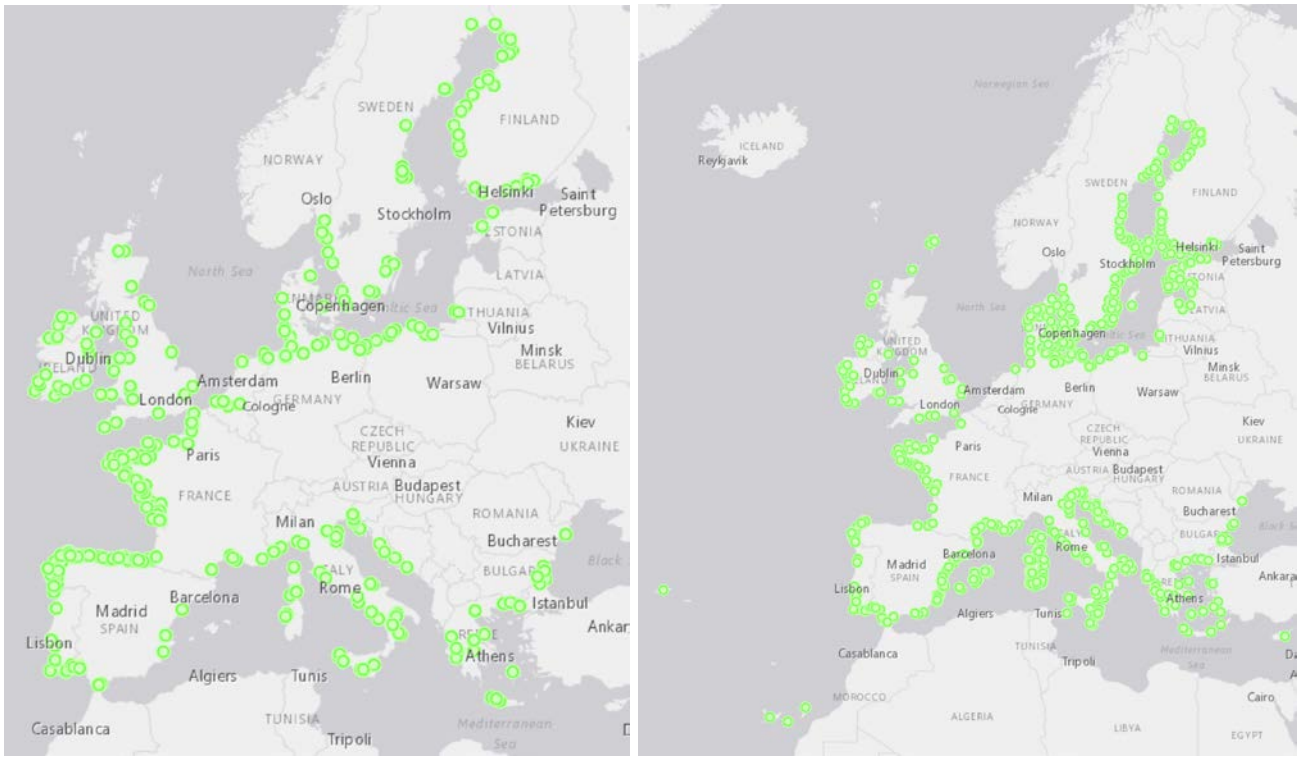


Figure 9: Natura 2000 designations for estuaries (left) and coastal lagoons (right)

Source: Natura 2000 Network Viewer, European Environment Agency, 2017

The estuaries and coastal lagoons SAC designations require Member States to establish conservation measures which correspond to the ecological requirements of these Annex I habitats and to take appropriate steps to avoid their deterioration.

A summary of the EU regulations and rules relevant to eels is provided in **Figure 10** on page **49.**

4.7 ANALYSIS OF THE INTERLINKAGES WITH INTERNATIONAL INSTRUMENTS THAT COVER EELS

4.7.1 United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS, 1982), Article 67 relates to catadromous species (including European eel) with the following rules applicable to UN member states, including EU:

- Coastal states/countries are responsible for management, but also states through the territory of which the species migrate are responsible for binding agreements concerning management measures.
- Fishing at sea is allowed within the EEZ but prohibited in the high seas.
- Management must include provisions for secured immigration and emigration of the species.

4.7.2 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement between governments, which ensures that international trade in specimens of wild animals and plants does not threaten their survival.

The European eel was listed on CITES Appendix II in 2007 (which came into force in 2009), which recognises it as a species that is not necessarily now threatened with extinction, but that may become so unless trade is closely controlled. CITES Appendix II stipulates that in relation to species:

- An export permit or re-export certificate issued by the Management Authority of the State of export or re-export is required.
    - An export permit may be issued only if the specimen was legally obtained and if the export will not be detrimental to the survival of the species.
    - A re-export certificate may be issued only if the specimen was imported in accordance with the Convention.
- In the case of a live animal or plant, it must be prepared and shipped to minimise any risk of injury, damage to health or cruel treatment.
- No import permit is needed unless required by national law. However it should be noted that the EU does indeed have such stricter domestic measures and requires import permits for Appendix II species.

The EU implementation of CITES rules is via Council Regulation (EC) No 338/97 Wildlife Trade Regulation and its implementing regulations. In 2010, and every year since then, the relevant EU scientific body decided that it was not possible to issue a “non-detriment finding”. Hence it has not been allowed to issue import and export permits for European eel to and from the EU since 2011 (ICES, 2018a).

4.7.3 Convention on the Conservation of Migratory Species of Wild Animals

In 2014, the European eel was added to Appendix II of the Convention on Migratory Species (CMS), also known as the Bonn Convention. According to Article IV of CMS, Parties are encouraged to take action with a view to concluding agreements concerning these species. Such international cooperation would be beneficial for the conservation status of those species. Not all species listed in Appendix II are necessarily covered by agreements. There are also other possibilities such as non-legally binding memoranda of understanding, species action plans, and cooperative actions. It is to be noted that for the European Eel the CMS Parties cover almost the entire distribution of European eel Range States

Therefore an Appendix II listing under CMS does not require individual Parties to undertake any specified conservation activities on their own, even though the scope of CMS allows them to address habitat, trade, and other threats. Appendix II species fully benefit from the CMS listing when an agreement or other form of international cooperation follows (Wold, 2018).

In 2016 the first Range States Workshop on European eel was held to review conservation status and existing management measures[38]. A second workshop was held in 2018 with the participation on many range states and relevant organizations. This workshop identified key areas for future cooperation, including the role of the CMS in establishing a link between conservation activities in the Sargasso Sea and in Europe and North Africa[39].

A summary of the above international linkages relevant to eels is provided in **Figure 10**.

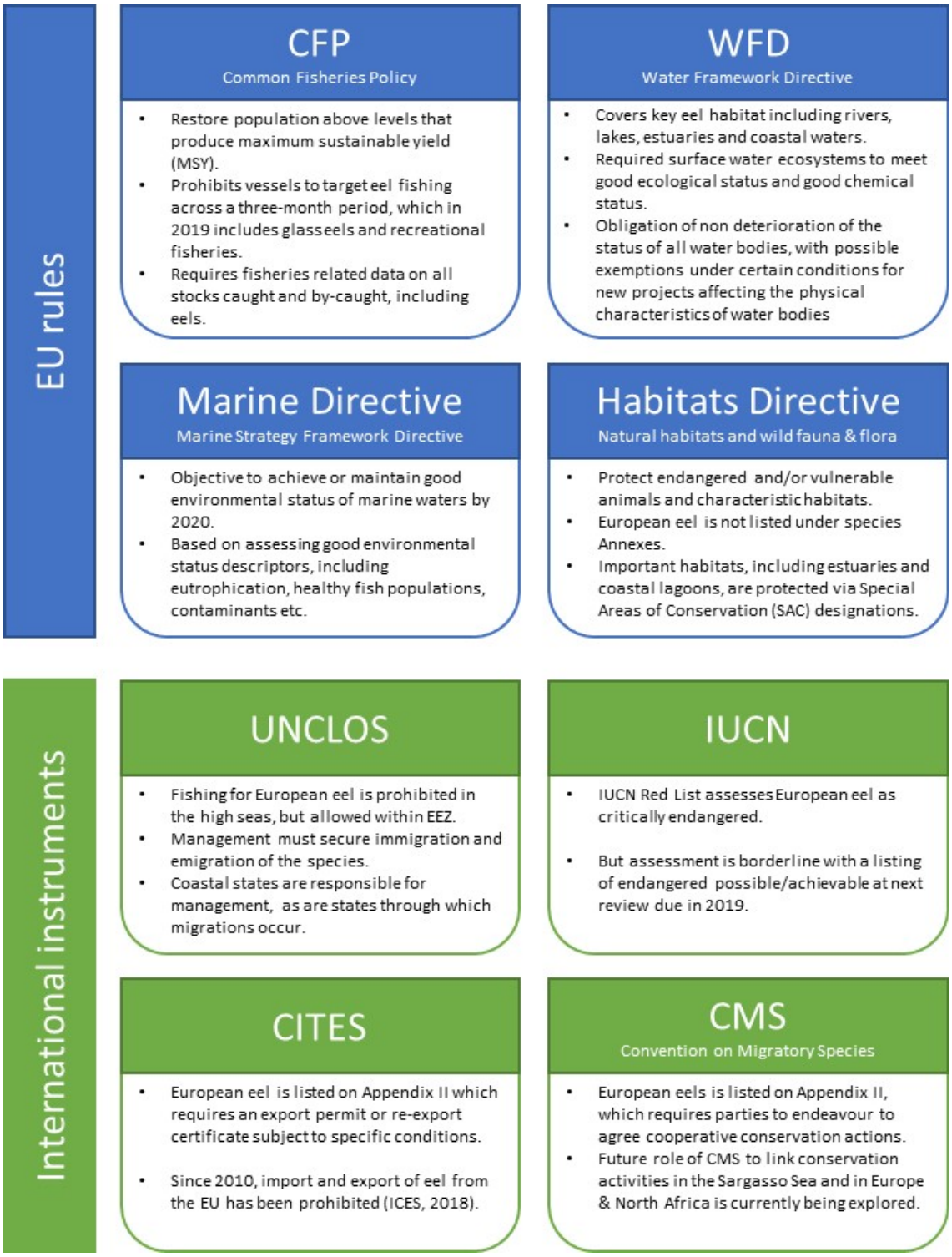


Figure 10: Summary of EU and international linkages applicable to European eel

[38] https://www.cms.int/en/meeting/first-range-state-workshop-european-eel
[39] https://www.cms.int/en/meeting/2nd-meeting-range-states-european-eel

4.7.4 International Union for the Conservation of Nature

The International Union for the Conservation of Nature (IUCN) was created in 19048 as a 'membership Union' composed of both government and civil society organisations. It comprises six commissions that leverage volunteer experts to assess the state of the world's natural resources and provide IUCN with information and policy advice on conservation issues. A key tool produced by IUCN is the IUCN 'Red List of Threatened Species'[40] (known widely as the 'Red List'. Established in 1964, this is a widely respected database that provides information on species populations and their trends, their habitats and ecology and the main threats to their survival.

The European eel was last assessed by the IUCN SSC Anguillid Eel Specialist Group for updating the Red List in 2013 (Jacoby & Gollock, 2014). At that point it was considered to be 'critically endangered'. Ideally the IUCN Red List criteria would be applied to mature eels at their spawning grounds, and in the absence of such data, the criteria would be applied to silver eels starting their spawning migration (in the case of European eels, leaving 'continental' waters), as these represent the maximum estimate of spawning stock biomass, but data sets for this are very rare. The majority of available data relates to glass eels and yellow eels but the relationships between recruitment, yellow eel populations, silver eel escapement, and spawner stock biomass are poorly understood. As such, the IUCN Red List criteria have to be applied to an amalgamation of multiple life stages, which may not exactly mirror the mature spawning stock but are used by IUCN as the current best estimate.

Although the relationship between life-stages is poorly understood, but it was generally agreed at the 2013 assessment that it is very likely that the low recruitment will ultimately translate, though not linearly, to reduced future escapement for, at best, one generation length (15 years). Further, low recruitment has been proposed to be indicative of low historical breeding stock due to the relatively short time period (~2 years) between spawning and subsequent glass eel abundance. On this basis, although the mean decline in silver eel escapement is estimated to be 50-60% over the period of three generations (45 years, just placing them in the 'Endangered' category), the IUCN SSC Anguillid Eel Specialist Group continued the 'Critically Endangered' listing. However this listing will be reviewed in 2019 at the next IUCN assessment of the European eel.

4.7.5 RAMSAR Convention

The Ramsar Convention on Wetlands of International Importance is an international treaty for the conservation and sustainable use of wetlands. Also known as the Convention on Wetlands, it is named after the city of Ramsar in Iran, where the Convention was signed in 1971. Most EU Member States are Contracting Parties[41]. The overarching objectives of the Convention are to stem the loss and progressive encroachment on wetlands - a key European eel habitat - now and in the future.

[40] See https://www.iucnredlist.org/

[41] See https://www.ramsar.org/sites/default/files/documents/library/annotated_contracting_parties_list_e.pdf

5.0 ANALYSIS AND ANSWERS TO THE EVALUATION QUESTIONS

The following section provides an analysis of the evaluation questions, based upon the Evaluations Question Matrix (see **Annex 1B**). It is structured around the six *Evaluation Criteria* (Relevance, Effectiveness, Sustainability, Efficiency, Coherence and EU Added value) and the *Judgement Criteria* (JC) used to interpret each *Evaluation Question* (EQ).

5.1 RELEVANCE

Relevance - Evaluation Question 1
To what extent are the **existing measures for the recovery of European eel stock under the Eel Regulation still relevant**?
Data sources ICES, EUROSTAT & GFCM data, Progress reports, scientific reports, stakeholder consultations, case studies; RBMP reports (key selected river basins only); Desk study; PC; Stakeholder consultations; & project case studies

JC 1.1: The extent to which eel landings, escapement levels and river basin conditions have recovered sufficiently to warrant the measures being continued

The Joint EIFAAC/ICES/GFCM Working Group on Eel (WGEEL) documents the ongoing process of describing the stock of the European eel, and associated fisheries and other anthropogenic impacts, and developing a methodology for giving scientific advice on management to facilitate a recovery in the international, panmictic European eel stock ICES conducts an assessment of the status of the eel stock every year. As recruitment and landings data are reported to the working group every year, these form the basis of the annual trend monitoring. New national biomass and anthropogenic mortality stock indicators are scheduled to be available in 2015, 2018 and every six years thereafter. A Stock Annex for the European eel was accepted by the WGEEL 2015 meeting (see ICES, 2016b) and updated in 2018 (ICES, 2018a).

Eel landings: European eel landings are described in **Section 2.1**. Wild fisheries landings varied between 8,000 and 10,000 t until the early 1990's when they declined to the current levels of around 2,500 t since 2010 onwards (see Figure 2 and Figure 3 on page 4) where they are now broadly stable. Eel recruitment indices show a similar pattern, having strongly declined from 1980 to about 2010, and have remained at a low level since. The annual recruitment of glass eel to European waters in 2018 is 2.1% of the 1960–1979 level in the 'North Sea' series and 10.1% in the "Elsewhere Europe" series. The annual recruitment of young yellow eel to European waters in 2018 as 29% of the 1960–1979 level (ICES, 2018a). This suggests that, in terms of landings and stock recruitment, whilst the situation is no longer declining, it is still critical.

Escapement levels. Eel Management Plans (EMPs) for river basin districts are designed to reduce mortality to a level (B_{lim}) that allows at least 40% of the silver eel biomass to escape to the sea with high probability, relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock (e.g. when the stock was at B_0, as opposed to the current silver eel biomass escapement biomass, $B_{current}$). This 40% escapement level is essentially a *proxy* $B_{trigger}$ for the trigger reference point for biomass at maximum sustainable yield ($B_{MSY\text{-}trigger}$).

Figure 11 overleaf presents the status of the stock (horizontal, spawner escapement ($B_{current}$) expressed as a percentage of the pristine (B_0) escapement) and the anthropogenic impacts. These results suggest that in 2017 the spawner (silver eel) escapement from the majority of EMUs was below the 40% target (ICES, 2018c). This serves to emphasise that silver eel escapement levels from the majority of EMUs is below the 40% escapement reference point (shown on the horizontal axis). It is strongly noted by ICES that the results presented here are preliminary, and data quality processing and further analyses need to continue.

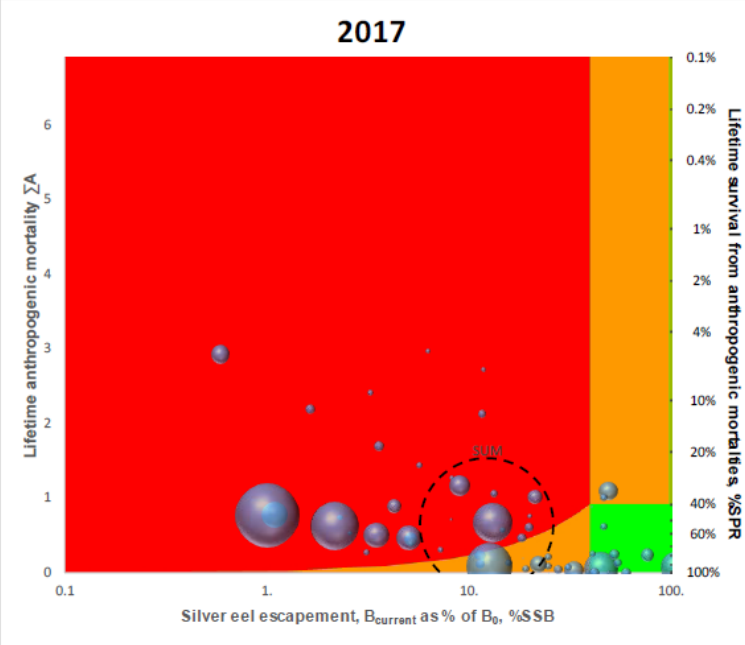


Figure 11: Modified Precautionary Diagram for Eel Management Units

Source: ICES (2018c). Data from the 2018 Data call or from Country Reports provided to WGEEL. Note that all indicators have been used as reported, despite some inconsistencies and errors.

River basin conditions: A key source of eel mortality is anthropogenic activities and impacts outside the fisheries, e.g. through the impact of hydro dams on migration and escapement. This factor, which is included in the reporting regime developed by the Commission for the Eel Regulation, is referenced as Sigma H (ΣH) and described as the anthropogenic mortality rate outside the fishery, summed over the age groups in the stock.

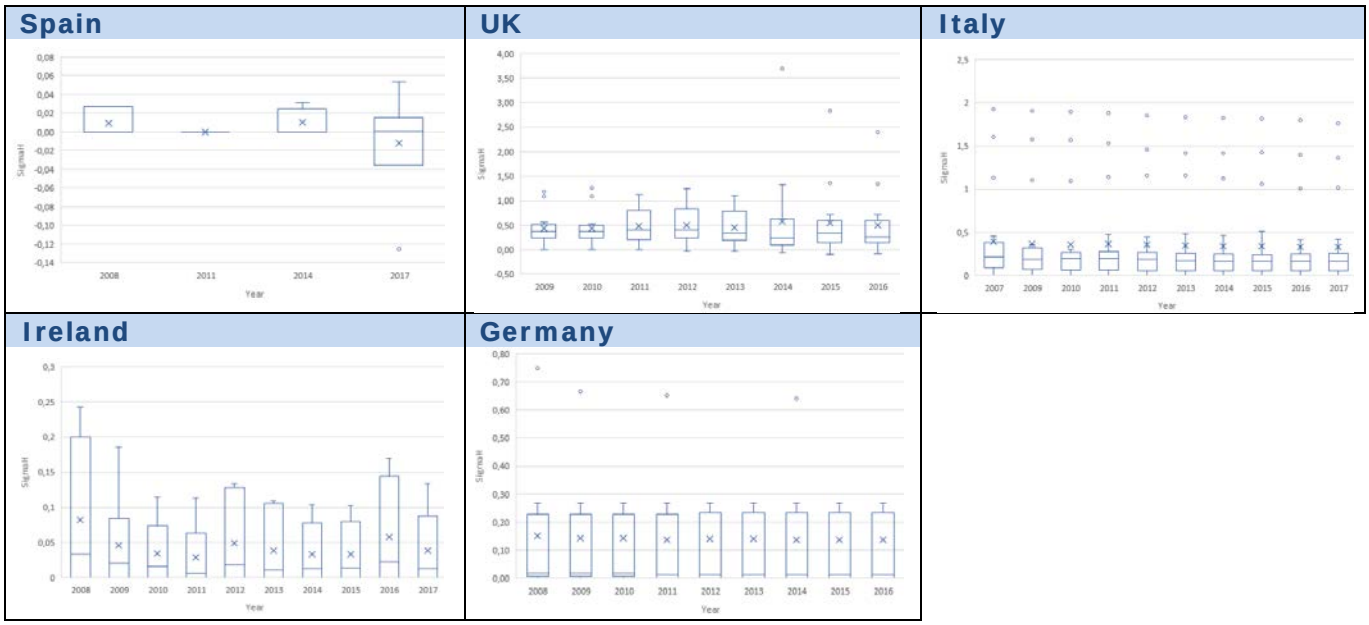


Figure 12: Box plots showing anthropogenic (non-fisheries) mortality ΣH

Source: ICES (2018c)

These data suggest that whilst variable (ΣH can depend upon environmental conditions (flooding vs. drought) at the time of the down-stream migration) has not declined significantly over the past decade.

In summary it is clear that the recovery of the European eel is a long-term process that will take decades rather than years to progress. Therefore in terms of stock recovery – both from direct fishing as well as from other anthropogenic source of mortality, the objectives of the Eel Regulation are still highly relevant.

JC 1.2: Extent to which the Regulation's objectives and measures remain relevant following CFP reform, the introduction of new environmental policies and measures, and EU reporting and evaluation approaches

The reformed CFP and other relevant EU initiatives and their relevance to the Eel Regulation is described in **Section 4.6**.

It is noted that the CFP is essentially focused on the conservation of marine biological resources and the management of fisheries targeting them, with its freshwater scope limited to market and financial measures (see point (2) on page of the preamble (European Parliament & the Council of the European Union, 2013). The Eel Regulation (2007), which precedes the reformed CFP (2013) widens the scope of the EU's mandate to include the management of the European eels in freshwaters.

The Eel Regulation has its primary focus on managing the fisheries-related anthropogenic mortality, mainly through increasing escapement rates and reducing fishing mortality. It does, however, fully recognise the role of Member States in implementing measures "*as soon as possible to reduce the eel mortality caused by factors outside the fishery, including hydroelectric turbines, pumps or predators*" (Art. 2 (10)). This immediately introduced the need for coherence with other EU policies and regulations (see **Section 5.5** below). Indeed the Eel Regulation specifically mentions the Habitats Directive[42] and the Water Framework Directive[43] as key precursors.

The Marine Strategy Framework Directive[44] (2008) came into force a year after the Eel Directive (2007). The Marine Directive is important to reaching and maintaining good environmental status of the marine environment, which (as with the WFD), may have a positive effect on the reproductive potential of silver eel (ICES, 2018).

JC 1.3: The extent to which EU citizens are aware and possibly affected by the status of European eel populations and the role of the Regulation in addressing this

The Public Consultation (PC) results indicate some limited interest in the conservation status of the eel. Of the 160 respondents to the PC survey, only eight (5%) completed the section for non-specialised respondents. Of eight respondents who participated in the survey, only one indicated that they had never heard about the problem of the decreasing European eel population, compared to seven respondents who had.

All eight respondents indicated that they "rather agreed" that they supported action by the EU to regulate eel fishing to ensure the recovery of the species.

With regards to specific measures to recover the population of eel in Europe, all eight respondents supported facilitating fish migration through rivers; seven out of eight respondents supported limiting professional eel fisheries in the sea and in freshwater, and limiting recreational eel fishing in freshwater, whereas six respondents supported restocking waters with young fish. Five out of eight respondents supported limiting recreational eel fishing in the sea.

In summary, based upon the very limited non-specialist response, it is difficult to conclude the extent to which laypersons are aware and concerned about the status of European eel populations. Indeed, the low response level may be an indicator in itself.

[42] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
[43] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
[44] Directive 2008/56/EC of 17 June 2008

Box 1: Public and Roadmap Consultation Results – Relevance

To what extent are the existing measures for the recovery of European eel stock under the Eel Regulation still relevant?

The PC results confirm that the objectives of the Eel Regulation are still highly relevant. More than nine in ten respondents agreed that there remains a need to ensure that anthropogenic mortalities are reduced, for a European recovery plan for the European eel, and for Member States to implement Eel Management Plans. Between eight and nine in ten respondents agreed that there remains a need to:

- ensure that control and enforcement activities take place in EU waters at all stages of the eel supply chain;
- ensure that the origin and traceability of all live eels imported to and exported from MS;
- and regulate fishing effort and catches.

Despite restocking being questioned as a key long-term measure, three quarters of PC respondents indicated that it remains appropriate to regulate the supply of glass eels for restocking operations. Two thirds agreed that there remains a need to ensure the 40% target of eel escapement to the sea. On the other hand, respondents were much less convinced that the overall aim of achieving the 40% target is achievable and many respondents also criticised this target from different perspectives. The least supported measure, but still accepted by the majority of respondents (57.9%), was to seek reduction in catching of eels to at least 50% of 2006 levels.

The measures to recover the population of eel in Europe were widely supported by respondents. The vast majority supported all forms of limiting eel fishing (recreational and professional, in freshwater and the sea) and facilitating eel migration through rivers, and a small majority also supported restocking. However, the results also suggest that the regulation should be amended or simplified (supported by two thirds of respondents) and that it needs alternative targets to ensure it delivers on its objectives (supported by three quarters of respondents).

Suggestions for amendments included:

- further restrictions of fishing and trade; generally reinforcing the regulation;
- setting targets related to reducing migration barriers, limiting hydropower mortality and recovery of migration routes and habitats; and
- the need of better understanding the problem (scientific research and monitoring).

Setting alternative targets to reduce anthropogenic (but not related to fishing) mortality were also proposed in feedback received to the evaluation roadmap (submitted before the evaluation). These included: temporary shutdown of hydropower turbines, restoration of habitats, etc[45].

How relevant is the need for eel conservation and management to EU citizens?

We received only eight contributions to the general survey of the PC, addressed to non-specialised respondents.[46] This suggests that the awareness of and interest in the critical situation of the eel population is limited or the topic is simply too technical for the general public. We can hardly draw conclusions on the basis of eight contributions, but nonetheless all eight respondents supported actions by the EU to regulate eel fishing to ensure the recovery as well as most of the measures used, including facilitating migration, limiting fishing, and restocking.

[45] Feedback received on: Evaluation of the Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/feedback_en?p_id=223664.

[46] The PC was divided into two separate sections: a survey for experts and a survey for non-specialised respondents. The vast majority of respondents contributed to the experts' survey (152 contributions, 95%), compared to just eight (5%) for the general survey.

5.2 EFFECTIVENESS

Effectiveness - Evaluation Question 2
To what extent have the current measures for the recovery of European eel stock under the Eel Regulation **met its objectives**?
Data sources Analysis of Progress Reports; ICES reports; stakeholder consultations, case studies; EUROSTAT, CITES and other trade data; & EU and Member State control reports.

JC 2.1: EMPs implemented and specific targets achieved

Nineteen MSs have developed and implemented national EMPs, in addition to a joint plan for the Minho River, covering almost 90 Eel Management Units (EC, 2014a). Six Member States[47] were exempted from the obligation to establish EMPs as their territory was deemed not to constitute significant eel habitat (Article 3). Slovenia[48], Croatia and Bulgaria have not yet prepared an EMP (EC, 2008a). Some EMPs have been developed at river basin, rather than national level e.g. the Spain / Portugal Transboundary Plan for Minho River and the UK. It is noted, however, that only one transboundary EMP has been delivered to date, despite this requirement in Art. 6 of the Regulation.

In 2018 the ICES Workshop on Evaluating Progress with Eel Management Plans (WKEMP) collated the data and information reported to EU as per the request from the Commission sent to MS on 5th April 2018. Reporting by MS was not 100%: of those MS with EMPs; Luxembourg and Portugal did not report at all, the Czech Republic, Finland and Ireland provided a description but no data tables, and France and Poland did not provide all seven data tables; the Czech Republic, Finland, Greece, Ireland, Latvia, Poland and Spain reported after the deadline.

Progress in achieving implementation of management measures can be found in Table 3 (page 19) as well as in the earlier Relevance section.

JC 2.2: European eel stock has not recovered

Based upon the ICES Stock Annex (ICES, 2016) and the most recent Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL) analyses (ICES, 2018) the European eel stock has not recovered to any significant degree since 2010, although the previous decline in recruitment and landings seem to have levelled out, albeit at historically low levels for the former. As noted previously, it is clear that the recovery of the European eel is a long-term process that will take decades rather than years to progress

JC 2.3: Non-fisheries anthropogenic mortalities have not been reduced

Likewise, with fisheries mortality (see JC 2.2 above), non-fisheries related anthropogenic mortality has not been reduced significantly over the last decade (see Figure 12 and accompanying text for more details). The Eel Regulation sets an ultimate goal (40% of B_0), which translates into a limit mortality level ΣA_{lim} (=0.92, i.e. 40% survival), with lower limits when $B_{current} < 40\%\ B_0$[49]. ICES still focus on biomass and recruit abundance, whilst focusing on mortality may be more appropriate. Dekker (pers. comm., 18 January 2019) argues that ICES could have set a definite mortality limit, a sentiment echoed by the recent report to the European Parliament (Hanel, 2019). Hanel states that by introducing a mortality target "*general problems of a biomass-based approach like setting a uniform and proper baseline B_0 or the common practice of meeting regional biomass targets solely by stocking eels caught elsewhere, while sustaining or even increasing anthropogenic mortalities (through*

[47] Austria, Slovakia, Hungary, Romania, Cyprus, Malta
[48] Slovenia submitted a brief Progress Report in 2018 stating that because the European eel has been a protected species since 2004, the country should be exempt from the Eel Regulation.
[49] That is the line between orange and red in Figure 11: Modified Precautionary Diagram for Eel Management Units

hydropower and fisheries or by stocking in waters not suitable for eels (due to high pollution status, etc.) would be obsolete". This is further discussed overleaf in relation to the current 40% escapement target.

Anthropogenic mortalities can be reduced through various different approaches e.g. improving upstream and downstream migration through the removal of barriers and reducing mortality within hydroelectric installations. Hanel (2019) examined the impact of measures undertaken in France, Germany, Greece and Spain and noted that:

- In France a number of habitat improvement actions have not been reported in the progress reports, especially when operating at local level.
- In Greece the Hellenic Eel Management Plan (HEMP) includes mid to long-term actions with measures targeting the improvement and upstream and downstream migration. The main threat foreseen is the presence of weirs, culverts, fords and ramps, which are being constructed sometimes without proper design and licencing, fragmenting the rivers prohibiting the migration of all fish species inhabiting the river. For this reason, the HEMP suggests the development of technical interventions that will allow the free moving of the fish species.
- In Spain, a decree was established in 2015 obliging electricity companies to transport eels upstream of their facilities (Decree 35/2013), so there has been a significant increase in the amounts of eels transported, ranging between 678 and 1076 kg for the 2015-2017 period. Many dams have been removed and passes have been installed; however, available information does not allow estimating the available habitat increase. In addition, different studies to inventory and catalogue the dams have been carried out.

Hanel concludes that in relation to habitat improvement and hydropower issues, the measures are often defined rather vaguely, probably because of restricted legal competence of the authorities responsible for the EMPs.

JC 2.4: Adult eel escapement progressed towards the long term 40% escapement objective

The management biomass reference limit of 40% of B_0 for eel, a Category 3 species in the ICES Data-Limited Species approach, is in line with the 40% maximum spawning potential (at F=0) reference point (a common proxy for MSY) advised for category 3 and 4 species by ICES (ICES, 2016b). As implicit in the Regulation, the target of 40% escapement of spawners (e.g. silver eels) is a key long-term objective, although no definitive time period is specified.

As noted by ICES (2018c) "*as the scope for further reduction of fisheries mortality is decreasing and the relative impact of non-fisheries mortality has been shown to be correspondingly increasing, it may be time for a raised focus on non-fisheries impacts on eel. The goal should be to further integrate these non-fishery impacts into the wider quantitative stock assessment*".

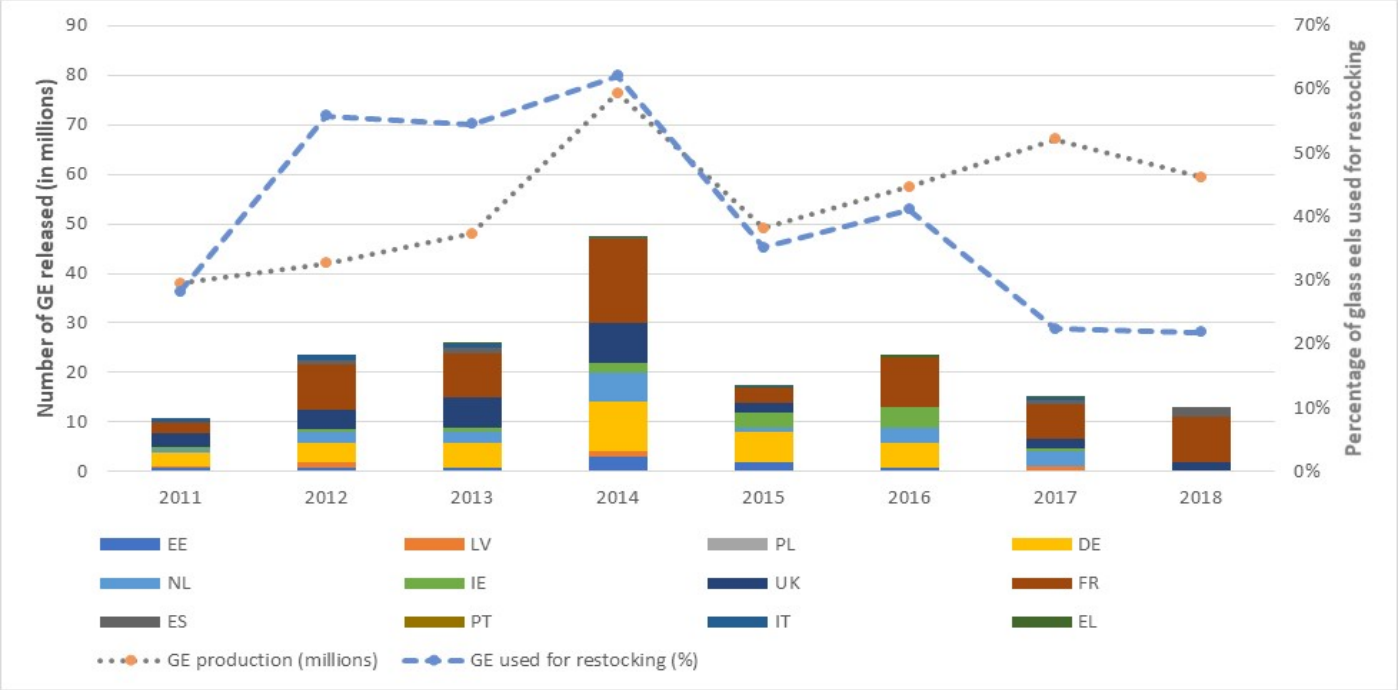
A number of authorities argue that a move from the current 40% regional level escapement targets to a mortality-based target in a revised version of an EU Regulation, which would also be in better agreement with the current ICES advice (ICES, 2018a) for the species ("*all anthropogenic mortalities should be reduced to as close to zero as possible*") (Hanel, 2019). Such mortality-based targets will need to be established at EMU levels, as different optimisation strategies need to be adopted depending upon the different characteristics (e.g. natural, fisheries-related and non-fisheries related) of each river basin. As noted by the Sustainable Eel Group (SEG) contribution to the PC, a move to mortality-based targets does not mean any change in targets and indicators in the Eel Regulation itself, but a better implementation of the existing ones.

JC 2.5: Supply of glass eels not sufficient for restocking operations

The Eel Regulation requires that at least 60% of glass eels caught in each Member State should be used for restocking (or translocation) within the EU. In 2008, prior to the inception of EMP's in 2009, twelve countries proposed the use of stocking in their management plans to enhance eel populations (ICES, 2008). At this time ICES reported on a perceived stocking requirement of approximately 40t to fulfil reported EU needs. By 2013, stocking of glass eel was undertaken in 16 Member States.

The restocking of glass eel peaked in the 1990s, followed by a steep decline to a low in 2009. The amount of glass eels restocked increased in 2014 when the lower market prices guaranteed a larger number of glass eels could be purchased for fixed restocking budgets but has decreased since then (see Figure 13 below). However, glass eel restocking has decreased since then.

Figure 13: Reported production and restocking of glass eel not including those in quarantine by country (in millions) and as a proportion of production (%)



Source: ICES, 2018b

Whilst stocking is a measure that features in many EMPs, only six achieved their EMP stocking target (ICES, 2016c). The figure above shows that the overall target of 60% use of reported catch in restocking was only achieved in 2014 when there was a plentiful supply of glass eels, but it has dropped to around 22% in 2018. Most EMU's had undertaken a limited quantity of their stocking targets while a few had yet to implement any of their stocking actions (ICES, 2013b). The most common reason given in 2013 for a country being unable to achieve its stocking target was a lack of funding to buy glass eel, which was different from that given in the recent past when the cost of glass eel was given as the cause.

More recently the availability of glass eel for stocking was highlighted as being restrictive, a situation exacerbated by the high cost and considerable administrative process required to tender for glass eel supplies under the EMFF. One major stakeholder involved in glass eel restocking noted (i) as the lowest of three tendered has to be taken the quality of such supply is often poorer than more expensive tenders and (ii) it is difficult to forecast the actual price of glass eels in advance, which discourages glass eels from tendering for Member State restocking programmes in advance.

It is noted that the translocation of glass eels should be considered a short to medium term measure that could be phased out if natural recruitment and spawner escapement were improved. Translocation generally considered an inherently inefficient and short-term response to fisheries stock management and is also an expensive process that has to be paid mainly through the EMFF.

JC 2.6: Fishing effort reduced by at least 50% relative to the average effort 2004-2006 or ensure reduction of catches by at least 50%

Art. 8 (1) of the Eel Regulation requires that "*Where a Member State operates a fishery in Community waters that catches eel, the Member State shall either reduce fishing effort by at least 50 % relative to the average effort deployed from 2004 to 2006 or reduce fishing effort to ensure a reduction of eel catches by at least 50 % relative to the average catch from 2004 to 2006. This reduction is to be*

achieved gradually, initially by steps of 15 % per year in the first two years over a 5-year period, from 1 July 2009".

To date, there is no standardised reporting of capacity and fishing effort to accompany the landings data requested by the WGEEL (ICES, 2018c). Information on fishing effort and the capacity of the fisheries, is necessary to correctly interpret the changes to the landings data over the years and the WGEEL is developing approaches to include and analyse fishing effort and capacity data in coming years. However, Member States are required to submit fishing effort data in their Progress Reports, and the most recent results for the six top eel fishing Member States in the EU is summarised in the Figure overleaf (note that France did not submit effort data in 2018).

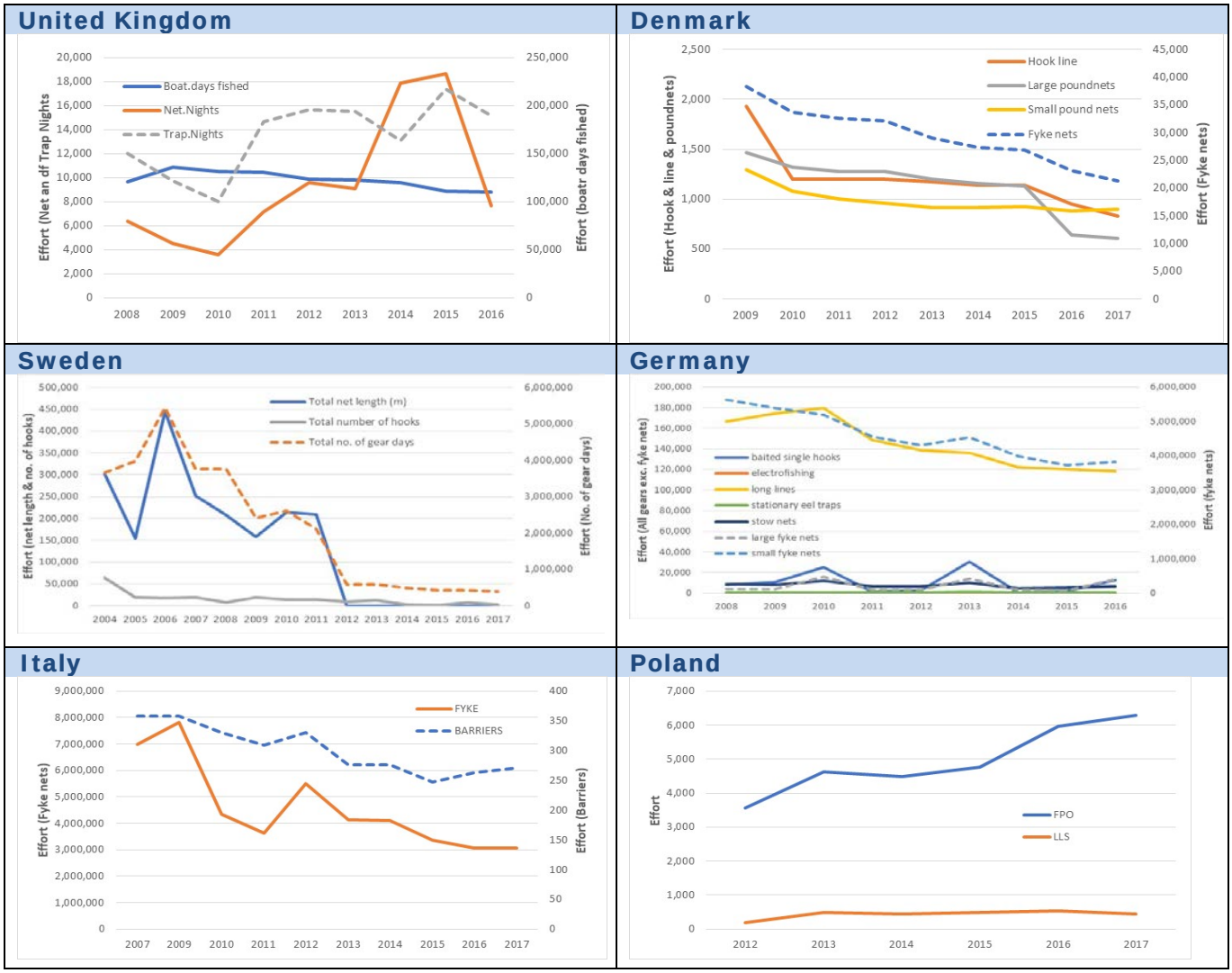


Figure 14: Fishing effort of the six major eel producers in the EU

Source: Data extracted from Form 7 of ICES data call (ICES, 2018c).

The figures above suggest that effort has declined in Sweden (by over 90%), Italy (just over 50%), Denmark (by almost 50%) and Germany (by 25%). However, effort appears to have risen to 135% of 2008 levels in the UK[50] and 180% of the 2012 level in Poland. As mentioned previously, wild eel fisheries landings varied between 8,000 and 10,000 t until the early 1990's when they declined to the current levels of around 2,500 t since 2010 onwards (see Figure 2 and Figure 3 on page 4) where they are now broadly stable.

[50] In the UK, it is understood that good glass eel catches rapidly stimulate further effort as the mainly part-time fishers communicate with others via smart phones.

JC 2.7: Origin and traceability of all live eels imported and exported from MS territory maintained.

Member States are required under Art. 12 to take all measures necessary to identify the origin and ensure the traceability of all live eels imported or exported from their territory - whether glass eels for restocking or yellow and silver eels for human consumption. However, a zero-import/export policy was set for the EU (EC, 2010), meaning that it was irrelevant for Member States to establish a traceability system for eels imported and exported from their territory. Member States had to ensure that the external trade prohibition was complied with, which for some Member States (e.g. ES, FR) require substantial efforts supported by the involvement of EUROPOL initiatives against environmental crime.

One glass eel trader noted that "*Traceability is an extra burden for legitimate traders whilst the illegal trade is inadequately controlled*". Some in the glass eel trade consider that EU external trade prohibition has actually contributed to illegal exports of glass eels from the EU in that it has increased prices and reduced overall traceability and understanding of eel flows out of the EU.

JC 2.8: Control and enforcement activities in support of the implementation of the EMPs have taken place in EU waters (and national fresh water) and at all stages of the eel supply chain

Analysis detailed in **Section 4.4** suggests that control and enforcement activities in support of the EMP have taken place in EU waters and in their territories, and at all stages of the eel supply chain. However, control of eels fisheries is hindered by some shortcoming of EU control system in relation to control of activities of vessels of less than 10 m that form the bulk of the fleet targeting eels and in relation to post-landing documentation (sales notes, transport documents). As a result, traceability of eels is difficult to establish, in particular when eels are transported from a Member State to another to fulfil MS obligations for restocking or to provide livestock for aquaculture farms.

However, certain Member States have implemented certain good practices, defined as practices implemented at national level in the field of control that go beyond minimum EU requirements. This include more stringent conditions for monitoring glass eel catches (FR, UK), use of modern technologies to detect illegal fishing (DK, EE, LT, LV, PL, SE), coordination of police forces at national level to fight illegal trafficking of glass eels (ES, FR), or support of citizens for reporting suspected infringements (DK, SE, UK, and PL).

Nonetheless, weak eel traceability from "net to plate" appear to be a significant risk factor. However, it could be noted that some Member States (e.g. GR, IT and SE) have used the opportunity provided by Article 8.5 of Council Regulation (EC) N°338/97[51] to involve their CITES management authorities in the national control system through national instruments (permit scheme in GR, CITES registries in IT and SE).

Finally, the Commission recently introduced the Commission Implementing Decision (EU) 2018/1986[52] which includes for the first time ever eel fisheries in the scope of Specific Control and Inspection Programmes (SCIPs) to be implemented by Member States under the operational coordination of the European Fisheries Control Agency (EFCA).

[51] Article 8.5 provides that detaining eels or offering eels for sale is prohibited except when it can be proved that the specimens were acquired in accordance with legislation in force for the conservation of wild fauna and flora

[52] Commission Implementing Decision (EU) 2018/1986 of 13 December 2018 establishing specific control and inspection programmes for certain fisheries and repealing Implementing Decisions 2012/807/EU, 2013/328/EU, 2013/305/EU and 2014/156/EU. C/2018/8461OJ L 317, 14.12.2018, p. 29–46

Effectiveness - Evaluation Question 3
If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 2, what factors have they hindered their achievement and how?
Data sources Examination of EMPs and the resultant progress reports. Discussions with stakeholders (inc. control authorities) and 'deep dives' at case study level. TRAFFIC reports.

JC 3.1: Identification of the key barriers to achieving the objectives

A number of barriers to eel stock recovery exist including:

1. **Hundreds of years of modifications to water courses** e.g. dams, water abstraction structures and other barriers are a major cause of reduced spawner escapement. This is not easily reversed, as either removing obstructions or putting in mitigation structures e.g. eel passes are costly, often required complex permitting and are not always necessarily effective. This will be a long-term process, and will require continued pressure on both environmental regulators, as well as private sector users of water courses to include eel connectivity in forward planning and investment.
2. **Continued loss of eel habitat** through land reclamation and drainage of eel holding waters – although now usually subject to more scrutiny from environmental regulators, there is pressure in a number of MSs to develop and alter floodplains and water courses for urban, industrial and agriculture development.
3. **IUU fishing for eels**, especially juveniles, continues to hold back improvements in recruitment. Illegal glass eel trafficking could account for the mortality of between 20 – 100 t (e.g. up to 300 million individuals[53]) per annum, mainly driven by demand from Asian eel aquaculture. Stakeholders suggest that this trade is facilitated by austere conditions in rural coastal and estuarine areas and the potential high financial rewards involved. In many cases glass eels are caught in one Member State, moved to another and then exported to Asia either directly or possibly via a neighbouring non-EU country, such as in North Africa (Outhwaite, W. and Brown, 2018).
4. **Differing levels of eel management through the EU**. In Spain, for instance, eel management is conducted by the different autonomous regions, where regulations and approaches can differ, even within the same EMU. At a wider level, the large number of organisations involved in fisheries, water and environmental management, both within and between MSs, means that coordination is a major challenge.
5. **Lack of comprehensive data**: despite the focus of the joint EIFAAC/ICES/GFCM Working Group on Eel (WGEEL), as well as annual and periodic reporting requirements from Member States via the Eel Regulation, data provision and knowledge is highly variable across the EU. Only 75 EMUs (from a total of 116) submitted data to WGEEL in 2018 had data on both total fisheries mortality rates (ΣF) and total non-fishing mortalities rates (ΣH).This has consequences for the ability for installing harvest control rules and other eel conservation measures.
6. **Increased mortality from the recovery of predator populations** – the recovery of, or increase in, predators such as the cormorant (Hansson *et al*, 2017) or the silurid catfish has increased the rate of natural mortality in eel populations. Whilst a natural function of a healthy ecosystem, this may hinder recovery of depleted species such as the European eel.
7. **Limited funding available to implement the Eel Regulation**. The Eel Regulation promotes a number of measures which generate costs for public authorities – such as restocking, monitoring, and enforcement – and private stakeholders – such as the reduction of the fishing effort. The possibility of fund these measures has been eligible for support under the European

[53] Assuming 3,000 individuals per kg

Maritime and Fisheries Fund (2014-2020) but uptake has been limited. However it is recognised that overall funding for eel conservation has increased as a result of the Eel Regulation.

In summary, as recently noted by WGEEL (ICES, 2018c), "*The current focus on fishery-based control, with established frameworks for annual reporting of the activity could easily lead to a general view that this internationally agreed and structured process will eventually lead to stock recovery. However, this is at the risk of overlooking the remaining large list of other factors contributing to eel stock decline. While taking immediate action to regulate and control eel fishing has been the obvious thing to do and an essential emergency first step to (hopefully) stabilising the situation and arresting decline, it is clear that eel stocks may not be recoverable to historical maxima by fishery management action alone. In addition, the scope for further fishery control/reduction will at some point be limited*".

JC 3.2: Identification of the common and outstanding successes and resulting best practises that have allowed progress towards achieving the objectives

Notwithstanding the above, the Eel Regulation has, on the whole, catalysed the approach of EU Member States to rebuild eel stocks. There have been a number of notable successes, including:

1. **Reduction in output and fishing effort**. As noted above, wild eel production declined rapidly from the 1990s to 2012 since it has stabilised. More significantly, fishing effort has reduced in most Member States, some reaching the 50% reduction target. However effort in others, such as the UK and Poland, seems to be rising, albeit slowly. It is likely that these changes are mainly due to a reduction in demand from mainstream retailers and other market changes, rather than legal restrictions in fishing, although this may change in the future as fishing opportunities are increasingly restricted, especially in the Baltic and the Mediterranean.
2. There have been some local successes in terms of **habitat restoration and improved spawner connectivity**. In Italy's Emilia Romagna region fish ladders have been opened on the rivers Po and Reno and are planned on the Savio. In the Reno ladder, eel passage has already been observed; in the Po river, a dedicated monitoring tool for eels is soon to be installed. The intervention on the Po river is expected to allow eels to return to a very large hydrographic basin, including Italian Northern lakes, such as Garda. Italy considers the target of 60% escapement could be achieved by 2050, and their intermediate target of 17.5% escapement by 2020 has already been achieved (see Italy Case Study in Annex 7). In Italy, attempts to focus restocking efforts into protected waters, often using glass eels from the same watershed, it also thought to increase potential spawner numbers.
3. In France *Agence Française de la Biodiversité* have conducted a **national census of all obstacles across rivers** which did not exist prior to the adoption of the FR EMP. Although relevant information was only available for certain areas in some EMUs, and not harmonised, the result is the ROE online database (*Référentiel des Obstacles à l'Écoulement)* which is maintained and updated.
4. **Modelling periods for temporary switch-off of electric turbines** : in the Loire region, a scientific model (Acou et al. 2009) has been developed and further refined to identify the best periods for temporarily switching-off of electric turbines with a reasonable accuracy. This supported implementation of the measure, which from operators perspective, must be implemented only when necessary due to the high associated foregone revenues. Similar models are yet to be developed or adjusted for other EMUs.
5. Again in Italy the **development of multi-stakeholder platforms in the preparation of regional EMPs** is considered a particular success. The process involved all relevant operators, including fishers, vallicoltura farmers and aquaculture operators and has been beneficial in: (i) raising awareness of the danger to the eel stock among local fishers; and (ii) tailoring the measures to the local conditions and habitats (e.g. in deciding when the rest period could be more effective while taking into account also the interests of local fishers, or where restocking would have higher success rates).
6. In the UK a series of **best practice guidance** has been produced, including the 'Eel Manual' that has four components covering (i) Eel and elver passes, (ii) screening at intakes and outfalls: measures to protect eel, (iii) stocking European eels and (iv) monitoring elver and eel

populations (Environment Agency, 2011). This document was developed from recommendations made at a workshop of experienced practitioners, bringing together expertise, shared practical experiences and lessons that have been learnt so far. The Spanish have also produced a guidance manual around five thematic lines (Management Plans, Eel Monitoring and Management Methods, Aquaculture and Marketing, Fisheries, Research and Management Measures) as a result of a series of national conferences (AZTI, 2013)

7. **Granting restocking financial support through a State Aid scheme rather than through EMFF: EMFF rules** prevent release of advance payments to beneficiaries, and this was seen as a major impediment for the attractiveness of the measure. Given this, in France authorities preferred not to open the relevant EMFF measure, and to implement financial aid for restocking through a State Aid Scheme that allows releases of advanced payments to beneficiaries. The French authorities applied a similar approach to support silver eel release in the Mediterranean with aids granted under the scope of the de minimis Commission's rules. These measures contributed to improve implementation of eel stock enhancement measures by professional organisations.
8. **Improved batch traceability in Greece has been achieved through their 'simple permitting scheme'.** A national system for controlling intra-EU trade in European eel is implemented by issuing the so-called 'simple permits'. With these simple permits from / to other European countries, after checking all the relevant documents, imports / exports are certified, preventing any illegal and non-conforming export (in other EU Member States) of such specimens. This mechanism is implemented by the Greek Regional Management Authorities after consultation with the relevant Regional Fisheries Authorities according to the following procedure:
    - A regional committee is present during all harvesting. For each harvest batch this committee issues Certificate of Restocking only after the free release of 30% of the batch for restocking purposes.
    - The committee issues a written Certificate of Legality for each eel batch, certifying that this is produced in accordance with National and Community legislation, including cohesion with the National Eel Management Plan. So the batch is legal for trade in Greece.
    - The Greek Regional Management Authorities of the CITES Convention issues the so-called 'simple permits' so the batch is permissible for intra-EU trade.
9. **Increased swiftness of catch declaration through an e-declaration system**. The private sector *Telecapêche* electronic reporting and data processing platform was developed in France and has now been used for over five years by professional fishermen, mainly in France but more recently on the River Parret in the UK. In the UK it allows the statutory administration to receive real-time catch declarations (via SMS) and has the potential to cover the entire supply chain. In France, *Telecapêche* does not have a legal basis and professional fishermen still have to comply with mandatory catch submission mechanisms based on declarations submitted on paper every two days (for glass eels) or monthly (for yellow and silver eels).

In the main, most of these successes have been fisheries-focused. Many are short-term gains e.g. reduction in fishing effort and output, but others maybe longer-term, e.g. fundamental changes in Member State and individual EMU management. However the main challenge is now to consolidate these successes and to address the longer-term, often non-fisheries related anthropogenic impacts on spawner escapement.

JC 3.3: Identification of best practices in transboundary areas

The Interreg Sudoe Programme of the European Regional Development Fund is supporting a regional (France, Portugal and Spain) project (SUDOANG, 2018 – 2021) to provide tools and concerted methods in order to carry out an effective evaluation, management and monitoring of the European eel and its habitats. To achieve this, an interactive internet application has been created, that houses tools to enable *Anguilla*-related managers to study indicators of population monitoring and different possible management scenarios. This is intended to assist decision-making based on better scientific

evidence and in a more coordinated fashion, as all the indicators will be obtained using consensus models and methodologies among these participating partners[54].

It is noted, however, only one transboundary EMP (between Spain and Portugal) has been delivered to date, despite this requirement in Art. 6 of the Regulation. However, eel management issues are discussed within the framework of international organisations managing transboundary rivers like the International Commission for the Protection of the Rhine or similar international organisations managing the Meuse and Scheldt rivers.

JC 3.4: Supply chain transparency and control points will need to be examined at key points within and on the borders of the EU, covering both inward and outward flows

Supply chain traceability has increased as a result of actions taken at Member State level to ensure that legally caught eels are accounted for via statutory reporting as well as through voluntary mechanism such as Sustainable Eel Group (SEG)'s Standard, where certified fishers must be accompanied by audited supply chains using batch coded chain of custody approaches adopted from the Marine Stewardship Council (MSC), supported by IT-based "tele-declaration systems'. However it is noted that the SEG standard says that it is preferable *but not mandatory* for certified fisheries to sell only to certified buyers. This suggests that it is possible for certified suppliers to sell to uncertified buyers, thus ending the chain of custody. Unlike other major certification schemes, there is limited multiple-retailer pressure to buy certified eels.

This said, the intent of the Regulation (Art 12) to "*take the measures necessary to identify the origin and ensure the traceability of all live eels imported or exported from their territory*" has not been fully realised to date. There is a need to better harmonise traceability systems, both *within* and especially *between* different Member States, to properly account for eel supply chain origin, volumes and final fate. The EU Control Regulation[55], combined with the IUU Regulation[56], requires traceability for all species (inc. eel), but this is still far from an effective system, that need considerable improvement in its implementation, including digitisation and other methods of automated mass balance analyses. This therefore requires concerted efforts both at Member State levels as well as at EU level to implement.

One particular issue raised by stakeholders is that the species range of *A. anguilla* exceeds the borders of European Union and consequently eels of different origin cannot be distinguished by genetics. SEG are managing an EMFF-funded project to determine the potential of otolith and tissue microchemistry for the traceability of glass eels which will end in May 2019.

JC 3.5: Have the control & enforcement measures at MS levels been adequately resourced and implemented?

France has a national system to trace all eel trade. Records are reported via the VISIOMER system to the French authority AGRIMER. This is a strictly national system used to cross-check landing declarations and its' information has not been shared with other countries in order to trace the eel trade beyond the national borders. Domestic seizure data from France indicates that the domestic control system seems to be quite effective (SEG, pers. comm., 17 January 2019). The *Telecapêche* electronic catch reporting system has been widely used in French POs.

In the **UK**, fishermen and traders report their catch / shipments to the Environment Agency (EA), with data publicly available upon request at the finish of the fishing season every May. During the last two fishing seasons, SEG, the EA and Manatee Lab have implemented the *Telecapêche* electronic catch

[54] AZTI, Institut National de recherche en Sciences et Technologies pour l'environnement et l'agriculture, Universitat de Girona, University of Córdoba, Interdisciplinary center of Investigação Marinha E Ambiental, Institute National de la Recherche Agronomique, Universidade de Lisboa, Université de Perpignan Via Domitia, Agence Française pour la Biodiversité, Fundacion Lonxanet for sustainable fisheries

[55] Council Regulation (EC) No 1224/2009 of 20 November 2009

[56] Council Regulation (EC) No 1005/2008 of 29 September 2008

declaration system (on the River Parret) which allows real time monitoring of the catches. However the future of the pilot project is uncertain.

In **Spain**, data on glass eel catches are reported on the level of the autonomous regions and collected and merged by AZTI Technology. Reporting seems to be of poor quality and covers a smaller proportion of the real catches.

In **Portugal**, glass eel fishing is prohibited except the Portuguese side of the Minho river (border with Spain). Poaching seems to be a huge problem across the entire Atlantic coast. According to SEG (pers. comm., 17 January 2019) reporting seems to be of poor quality and covers a smaller proportion of the real catches.

In **Greece** improved batch traceability has been achieved through their 'simple permitting scheme'. A national system for controlling intra-EU trade in European eel is implemented by issuing the so-called 'simple permits'. With these simple permits from / to other European countries, after checking all the relevant documents, imports / exports are certified, preventing any illegal and non-conforming export (in other EU Member States) of such specimens. This mechanism is implemented by the Greek Regional Managing Authorities of the CITES Convention after consultation with the relevant Regional Fisheries Authorities.

In summary, the main weakness of the system is not just the variable ability and willingness of Member States authorities to trace and track post-harvest eel movements but is also the lack of an EU-wide traceability system.

Effectiveness - Evaluation Question 4
To what extent has the Eel Regulation contributed to achieving the objectives of the Common Fisheries Policy, in particular to ensure that fisheries and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies?
Data sources Analysis of Progress Reports; ICES reports; stakeholder consultations, case studies; EUROSTAT, CITES and other trade data; & EU and Member State control reports.

JC 4.1: Extent to which wild eel fisheries (i) safeguard stock reproduction for high long-term yield, (ii) lay the foundations for a profitable industry and (iii) share out fishing opportunities fairly

Safeguard stock reproduction for high long-term yield: as discussed previously, eel recruitment, whilst now stable, is at a historic low level and does not show any particular signs of improving. Stock stabilisation is likely to have been supported by the reduction in fishing effort in many Member States (see above) but stock recovery is a long-term goal that can only be achieved through addressing spawner escapement through habitat rehabilitation and improved connectivity. As recognised by Dekker (2016) the objective of the Eel Regulation is alternately worded as either '*the protection*' (e.g. Article 1) or '*the recovery*' (e.g. the title of the Regulation) of the stock of European eel. Whereas protection can be achieved immediately and by each management area independently, recovery is necessarily a long-term, global objective, outside the competence of individual management areas, and overshadowed by uncertainties about stock dynamics.

Lay the foundations for a profitable industry: there is no doubt that some elements of the glass eel industry consider that the ban on the trade of EU caught eels outside of the EU has encouraged a parallel 'black' supply chain that has implications for both European eel management and recovery. This also impacts legitimate suppliers through price and other market distortions. They argue that controlling a limited external market would reduce the pressure for IUU fisheries and stabilise the market. In Greece intensive aquaculture operators must give 10%, and extensive aquaculture operators 30-% of their purchased glass eels for restocking without financial compensation, which has had repercussions on their business models.

Share out fishing opportunities fairly: the key issue is over legitimate versus IUU fishing. Legal, licensed fisheries are mainly based on traditional, location and gear specific enterprises. Volumes are relatively small and transactions mainly made through the formal banking system with a high level of transparency. Glass eel suppliers blame the unquantified but apparently significant black trade as unfair competition, e.g. don't have the costs of accountable businesses, often deal in cash and supply the high value Asian aquaculture market. One supplier mentioned that "*Our French company has not made a profit for five years and our UK company made a substantial loss in 2016*".

JC 4.2: Extent to which eel farming has developed in sustainable way to relieve pressure on wild stocks

The farmed production of European eel increased until the end of the 1990s. It clearly starts to decline since the mid-2000s from 8,000–9,000 tonnes to approximately 5,000–6,000 tonnes now (Figure 15 below). In 2017, the reported quantities of eels produced in aquaculture is 4,546 tonnes. It should be noted that eel aquaculture is based on wild recruits, and part of them is subsequently released as on-grown eel for restocking (around 10 million eels, making a mean weight of 20 g, 200 t). The Netherlands (2,005 t in 2017) and Germany (1,202 t in 2017) are the main EU aquaculture producers.

Reproduction of *Anguilla* has not yet been achieved in captivity and glass eels are normally purchased from the UK, French and less frequently Spanish and Portuguese wild fisheries. Progress is being made in terms of spawning, nursing and weaning onto first diets (Butts *et al*, 2016) but the large-scale, closed cycle farming of eels is not yet achievable. Until this is achieved, aquaculture, both legally in the EU and through illegal trafficking of glass eels to Asia, are still dependent upon glass eels and therefore have not reduced the pressure on wild stocks as yet. It is also noted that there are associated risks attached to stocking glass eel, young yellow eel and on-grown eel from aquaculture. These risks were originally identified by WGEEL (ICES, 2008) and include deliberate/accidental spread of parasites, diseases, altering sex ratios, genetic and biological fitness. It was noted that two of the four batches of glass eels imported to Sweden from France in 2017 were infected with a virus and around 4 million glass eels were destroyed as a result.

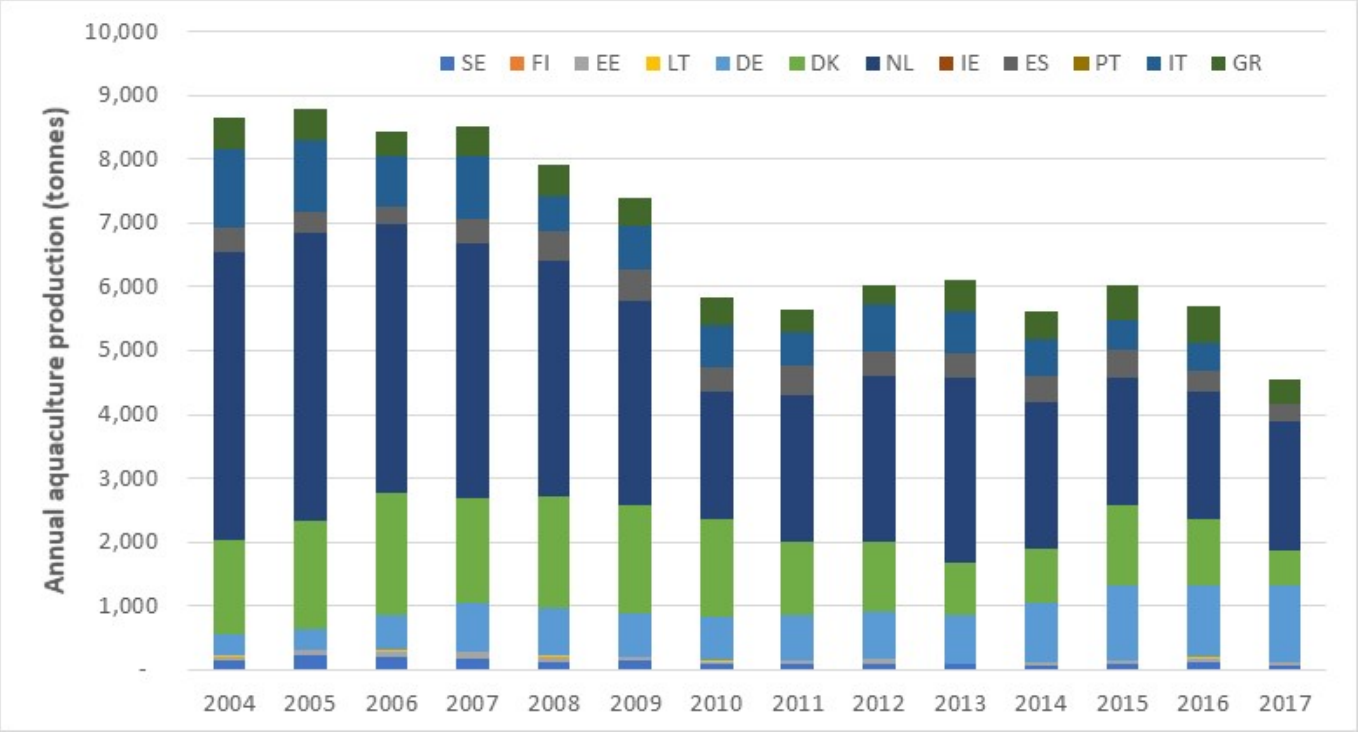


Figure 15: EU aquaculture production (2004 - 2017)

Source: ICES, 2018c

Box 2: Public and Roadmap Consultation Results – Effectiveness

To what extent have the current measures for the recovery of European eel stock under the Eel Regulation met its objectives?

The PC results confirm that the Eel Regulation process has been effective in that the Member States have developed EMPs (the majority of respondents agreed with this statement). The effectiveness in terms of achieving the targets set in those EMPs was rated low, as most respondents indicated that targets were not achieved.

Respondents' assessment of other achievements was ambiguous. A relative majority indicated that the regulation managed to increase the adult eels' escapement to the sea towards the 40% target. Almost equal proportions of respondents agreed and disagreed that the regulation managed to ensure a reduction in anthropogenic eel mortalities. The majority of respondents indicated that other objectives remained not achieved, such as:

- ensuring the origin and traceability of all live eels imported to and exported from MS,
- ensuring reduction of fishing effort and catches towards the 50% targets,
- ensuring that there is enough supply of glass eels for restocking operations,
- ensuring control and enforcement activities at all stages of the eel supply chain.

In an open-ended question, respondents highlighted achievements of the regulation. However, in most responses there were 'indirect' achievements, such as raising awareness of the critical condition of the stock and other (reducing fishing effort, removing barriers to migration, improved control, restocking programmes, implementation of EMPs). Only a small number of respondents mentioned direct achievements impacting the population (increased stock or reduced mortality).

If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 2, what factors have they hindered their achievement and how?

The PC results suggest that factors hindering effectiveness of the Eel Regulation are mainly beyond the regulation itself. Most respondents highlighted external factors, such as inability to reduce hydropower mortality or poaching, and insufficient implementation of the policy at the national level, rather than issues with the legislation itself (19%). In feedback to the evaluation roadmap, hydropower mortality and illegal fishing were also mentioned, as well as the lack of traceability system, insufficient implementation of EMPs and oceanic factors[57].

5.3 SUSTAINABILITY

Sustainability - Evaluation Question 5

Are the effects likely to last after the intervention ends?

Data sources

Analysis of Progress Reports; ICES reports; stakeholder consultations, case studies; EUROSTAT, CITES and other trade data; & EU and Member State control reports.

JC 5.1: The extent to which measures implemented under the Eel Regulation have long-term impacts, even if the intervention were to cease

There is no 'end date' for the Eel Regulation, so it is considered indefinite, at least until the European eel stock has fully recovered. As frequently mentioned in this evaluation, the recovery of the European eel population is a long-term process, with some Member States considering 2050 as a reasonable date by which the Regulation's target of 40% escapement across the EU might be reached. Once the European eel stock has fully recovered, at that point the Eel Regulation could be reconsidered and a revised sustainable management plan put in place. In the meantime the regular progress reports as required in the Regulation should be continued.

[57] Feedback received on: Evaluation of the Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/feedback_en?p_id=223664.

Reducing commercial fishing activity (e.g. reducing fishing effort to 50% of the 2004 – 2006 average) may have a long-term impact on fishing mortality. The risk is that IUU fishing, which by definition is unregulated and uncontrolled may sustain some level of fishing mortality which is both difficult to assess and may have implications for stock recovery and thus sustainability of the intervention.

Recreational / non-commercial fishing is the capture or attempted capture of living aquatic resources mainly for leisure and/or personal consumption. Recreational and non-commercial fishery covers active fishing methods including rod & line, spear, and hand-gathering and passive fishing methods including nets, traps, pots, and setlines. Recreational fisheries for glass eel used to exist in France and Spain but have been forbidden in France since 2010. Ireland and Sweden also ban recreational fisheries. Recreational landings were estimated as 2 t for glass eel in 2018, and 161 t for yellow and silver eel combined in 2017 (ICES, 2018c). The main countries with recreational eel fisheries are Germany and Denmark.

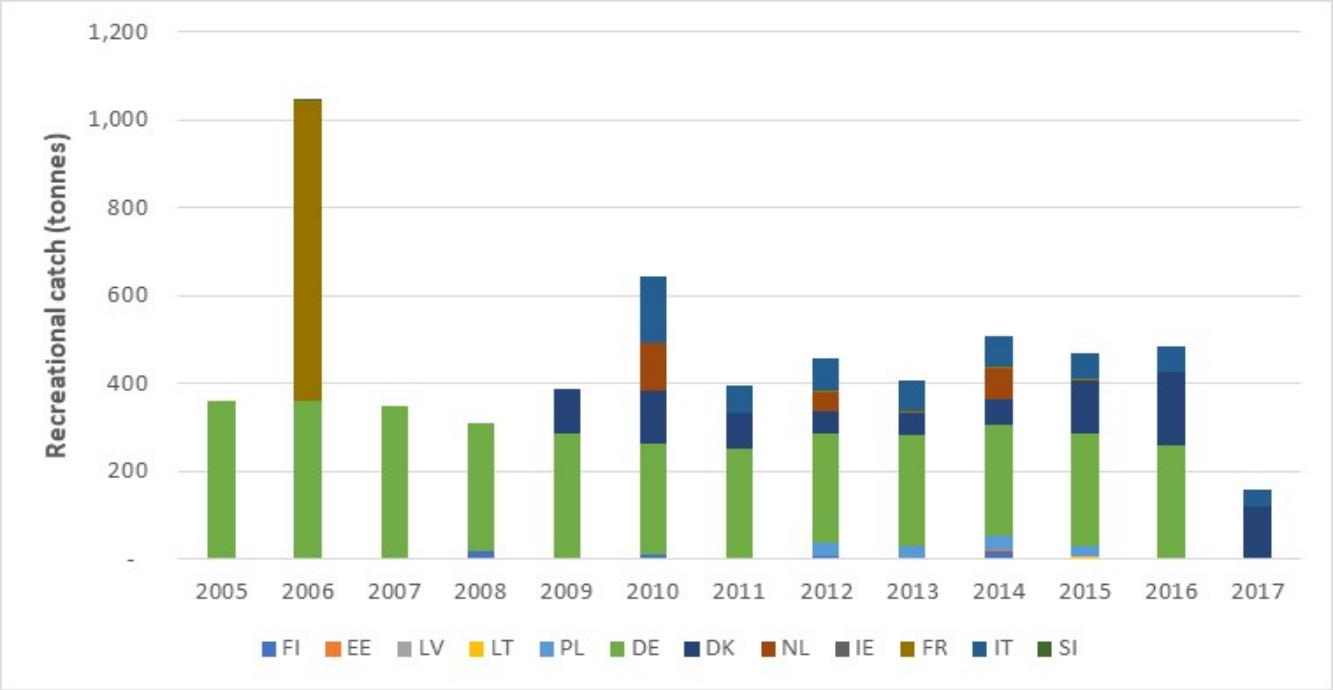


Figure 16: Recreational eel catches in the EU (2005 - 2017)

Source: ICES, 2018c

Overall, the impact of recreational fisheries on the eel stock remains largely unquantified although landings can be thought to be at a similar order of magnitude to those of commercial fisheries. A number of stakeholders contacted as part of this evaluation called for recreational fisheries for eel to be phased out or substantially reduced, often citing the example of France, Ireland and Sweden in banning recreational eel fishing. According to ICES (2013c), almost all countries planned management measures for recreational fisheries. However there has been little or no monitoring of the effects. Since recreational fishery is mainly directed towards yellow eel, the measures will likely have only a weak immediate effect and a larger delayed effect, at least if the measures are designed properly and result in a real reduction of fishing mortality.

As discussed earlier, **restocking** is a short to medium term measure that should be phased out as natural recruitment improves, and water course connectivity is improved. Translocation of eels, although effective in maintaining or supporting eel populations in compromised river systems, is an expensive and often administratively burdensome process. The outcome of stocking has been evaluated by ICES in 2006, 2008, 2009 and 2011 from WGEEL reports and it was clear from local studies that stocking had been beneficial by enhancing the yellow and silver eel stocks in a number of water bodies (Pawson, 2012; ICES, 2016c). These included several Danish, German, Swedish and Estonian Lakes, Lough Neagh in Northern Ireland as well as Danish streams and marine areas.

The benefit of stocking can be considered at three geo-political scales:

- local interests (the production gained locally by stocking);
- the national/EMU scale of Eel Management Plans (applying stocking to achieve EMP biomass targets);
- the continent-wide scale (stocking contributing to the general recovery of the stock).

However as noted by ICES (2016c) the studies on the effectiveness of restocking lack controls and/or a simultaneous assessment of the life history of those glass eel left *in situ*. This in effect means that, whilst a local benefit may be apparent, an assessment of net benefit to the wider eel stock is unquantifiable. As Dekker & Beaulaton (2016) noted, as successful as restocking might have been locally, it has not markedly changed the overall trends and distribution patterns or halted the general decline of the stock and fishery. However it is noted that freshwater eel production in countries like Sweden is almost entirely dependent upon artificial stocking.

Ultimately the success of a stocking programme will be judged on the ability of resultant silver eels to contribute to future generations. Whilst concerns over the negotiation of migratory pathways have been reduced, the contribution of translocated silver eel is still not quantifiable and is limited by the lack of knowledge on the spawning of any eel.

Structural measures to make rivers passable and improve river habitats, together with other environmental measures have the potential to make the most profound, long-term impacts on eel stocks. However there is little quantifiable evidence in the EMP Progress Reports to both assess what actions have been taken as a result of the Eel Regulation to make rivers passable and improve river habitats or the impact this might have had on spawner escapement rates.

Actions on habitat improvements were addressed in EMPs and 2012 progress reports of many EMUs. The descriptions of the actions taken, as well as the expected impact on escapement or mortality were often unspecific, vague and lacking specific reference to eel-specific habitats (ICES, 2013c). Most measures on habitat improvement were related to the implementation of the Water Framework Directive and therefore not specifically related to the EMP. Progress in implementation is often unclear. When actions concerning habitat are considered (e.g. by water level fluctuation to flood meadows), the effect on silver eel production and escapement would be expected only in the long term, while actions focused on improvement of habitat quality (e.g. reduction of pollution) could have an immediate effect, not only on escapement and mortality but also on migration and reproductive success. To assess the effect of actions taken, monitoring data and process knowledge are required.

Box 3: Public and Roadmap Consultation Results – Sustainability

Are the effects likely to last after the intervention ends?

Opinions about the sustainability of the effects of the Eel Regulation presented in the PC were diverse. A slight majority of respondents indicated that effects of the intervention would not last after it ended. A significant proportion of respondents, about one third, selected the “don’t know” option to this question. This does not necessary suggest a weakness in the sustainability of the intervention, but rather recognition that it is a long-term process.

5.4 EFFICIENCY

Efficiency - Evaluation Question 6
To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?
Data sources Targeted stakeholder consultations, Case studies & EMFF funding records (inc. recent FAME reports).

JC 6.1: Extent to which the costs of administering, implementing and overseeing EMP actions have been balanced by the environmental and socio-economic benefits accruing from improved eel stocks

A monetarised analysis of the cost-benefits of the Eel Regulation is impossible to quantify at this stage, as Member States do not quantify the direct costs of implementing the Regulation, the responsibility for which is often spread across a number of different government departments. The *direct* environmental benefits of the EMP actions (e.g. eel stock recovery through reduced fishing mortality and increased spawner escapement) and the *indirect* environmental benefits (reconnected coastal, estuarine and riverine ecosystems) are long-term in nature, still nascent and yet to be fully quantified in terms of their environmental benefits. Likewise it is difficult to quantify the socio-economic benefits of the EMP measures to date, especially given landings have stabilised and fishing effort has (mainly, but not in all Member States) reduced. Only when stock recovery becomes more evident and fishing opportunities consolidated will the socio-economic benefits become more apparent. In addition there is some evidence (SEG, 2018) that the growth of a parallel IUU fishery and unregulated supply chain to serve the Asian aquaculture market since the European eel was included in the CITES Appendix 2 and banned for extra-EU export has impacted on the sustainability of traditional, licensed eel fisheries.

Feedback from the Member States on this subject has been limited. Calculating the administrative burden and associated costs is complex, especially where EMUs are managed at local levels. Administration loads are also spread across fisheries management, fisheries control and environmental management bodies which in many cases operate under separate budgets and planning systems. In some Member States functions such as restocking maybe outsourced to the private sector.

Efficiency - Evaluation Question 7
Could the use of **other policy instruments or mechanisms have provided better cost-effectiveness**?
Data sources Targeted stakeholder consultations; & Case studies.

JC 7.1: The extent to which alternative options exist and an assessment of their relative cost-effectiveness and contribution to the objectives of the Regulation

The main finding of this evaluation is that the Regulation is essentially sound e.g. it has enabled the EU Member States to develop and monitor EMPs, and thus most Member State respondents indicated that alternative approaches have not been considered. However it is recognised that the implementation of many of the measures is a long-term process, and that many aspects are still yet to be fully realised.

This said, a number of improvements to the Regulation were suggested by a number of stakeholders. These are summarised below.

- **A proportionate focus on Member States with significant glass eel (FR, UK, ES & PT) and yellow and silver eel (FR, UK, DK, SE, IT, PL, NL, ES & EL) production for fisheries measures**, with a less rigorous approach to Member States with no or very little productivity. This proportionate approach could also be carried over into national planning, to ensure that the more productive (existing and potential) EMUs are the focus of national actions.
- **Greater emphasis on transboundary collaboration, both within and adjacent to the EU.** The shortage of transboundary EMPs as required by the Regulation is a considerable concern, especially given the transboundary connectivity between in the Baltic Sea and between France and Spain (in the Bay of Biscay and the Mediterranean). This also suggests regional initiatives such as the GFCM Multiannual Mediterranean Management Plan, including an EU Tunisia (and Algeria) multi-annual management plan for fishing activities catching European eel in the Mediterranean Sea[58].
- **Greater pressure on Member States to fulfil the Regulation in its entirety**. As discussed earlier, the EMPs vary in quality and fitness for purpose. This has resulted in the partial rates in implementation to date and the variability in responses to progress reporting requirements and data calls (both by the EU and ICES).
- **Greater focus on the non-fisheries anthropogenic causes of mortality and recruitment impairment**. The current Regulation, whilst including this aspect to some extent, is more dedicated to reducing fishing mortality and this is reflected in the EMPs. As noted by ICES (2018c) "*as the scope for further reduction of fisheries mortality is decreasing and the relative impact of non-fisheries mortality has been shown to be correspondingly increasing, it may be time for a raised focus on non-fisheries impacts on eel* ".
- **More specific timelines and interim targets across the Regulation**. Whilst recognised as a long-term approach, the Regulation Is not time-bound. There are good reasons for this, but many stakeholders have asked that interim targets are developed and the progress towards this monitored. Some MS have adopted timebound targets (e.g. interim escapement targets in some Italian EMUs) but in others most plans are made on more vague timescales. It is important that such interim targets not only cover fisheries-related mortality, but also non-fisheries related mortality and proxy indicators (e.g. improved connectivity of rivers). As noted by Dekker (2016), this may require re-focusing all protective actions, assessments, evaluations and advice on anthropogenic mortality goals and indicators— considering each of the management areas (countries) individually.
- This could feed into the preparation of a **wider strategic plan** to scrutinise and consolidate existing assessments and management plans, and to expand their spatial coverage, ultimately striving towards full geographical coverage of the whole European eel population. This plan would need to be based upon the progress made in scientific understanding (mainly via the joint WGEEL) as well as a comprehensive stakeholder consultation process. It may also need to include reviews of the pristine eel biomass (B_0) and related escapement targets. It is noted that ICES produced g**uidance on European eel management measures that can be applied to both EU and non-EU waters** in 2014 (ICES, 2014).
- Allied to the point above, there is a **need for a central coordinating body for the recovery of the European Eel**. The Eel Regulation provides a united approach across the EU, but the core issue of stock recovery needs a stock range wide approach. One stakeholder mentioned the North Atlantic Salmon Conservation Organisation (NASCO) as a possible model.
- **Improvements to the traceability requirements of the Regulation** to ensure that all eel harvest and distribution is traceable, including across EU borders. In the event of the UK - a key glass eel supplier to many other EU restocking programmes - leaving the EU, mechanisms should be in place to account for the UK's new status as an exporter to the EU.

[58] 42nd Session of the GFCM-FAO headquarters, Rome, Italy, 22–26 October 2018

- **A more cohesive funding approach for EMP and associated measures**. Few MS provide budgets for implementing their EMPs (EC, 2018a) to cover such aspects as restocking costs and habitat improvement projects. This should include the role of the EMFF and other EU public funding, the role of the private sector and possibly development of specialist Financial Instruments to fund long-term eel conservation and management. This suggests that the Eel Regulation and its measures should be specifically reflected in MS EMFF operational programmes for the next funding period (2021 – 2027).

Efficiency - Evaluation Question 8
How **timely and efficient is the process for reporting and monitoring**?
Data sources Member State Progress Reports & ICES WKEMP analyses

JC 8.1: The extent to which the tri-annual Member State reporting system works in terms of timeliness and sufficiency

In **2012** eighteen of the nineteen countries with EMPs produced progress reports. Only six countries provided all the stock indicators required in Article 9 of the Eel Regulation nine reported incomplete data and three did not provide any of the required stock indicators. Furthermore, since the national reports did not follow a standard format, the level of detail of the reporting differed significantly, and reports were written in a range of languages. ICES issued a request for Stock Indicator data in February 2013 at the ICES Data Call. This request was sent to national delegates of ICES countries and ICES Advisory Committee (ACOM) representatives. The reason for making the request was to seek the most-up-to-date information on stock indicators in order to ensure that stock assessments performed by ICES were based on the best available and most complete dataset. Not all relevant contacts in the countries received the Data Call and some countries are not members of ICES.

In **2015** it is understood that fourteen of the 19 MS submitted progress reports (HR, CZ, EE, LU and ES failed to report). ICES was not asked to review the EMPs for this round of reporting.

In **2018** the Commission changed their approach by providing Member States (on 5th April 2018) with seven Excel templates as follows:

Table 1: Overview of stock indicators by EMU
Table 2: Biomass indicators
Table 3: Mortalities quantities
Table 4: Mortality rates
Table 5: Stocking
Table 6: Management measures
Table 7: Fishing effort

The completion of these templates was highly recommended but not compulsory. WKEMP collated the data and information reported to EU . Reporting by MS was not 100% (see Table 6 below). Of those MS with EMPs; Luxembourg and Portugal did not report at all, the Czech Republic, Finland and Ireland provided a description but no data tables, and France and Poland did not provide all seven data tables; the Czech Republic, Finland, Greece, Ireland, Latvia, Poland and Spain reported after the deadline.

Table 6: Summary of Member States reporting in their 2018 EMP Progress Reports

Member State	Data Tables 1-7	Description of the Methodology	Comment
Belgium	Y	Y	
Czech Republic	N	Y	Reported late 4/7/18
Denmark	Y	Y	
Estonia	Y	Y	
Finland	N	Y	Reported late 5/7/18
France	Y, missing Tables 3, 7	Y	
Germany	Y	Y	
Greece	Y	Y	Reported late 11/7/18
Ireland	N	Y	Reported late 13/11/18
Italy	Y	Y	
Latvia	Y	Y	Reported late 2/7/18
Lithuania	Y	Y	
Luxembourg	N	N	Did not report
Netherlands	Y	Y	
Poland	Y, missing Table 3	Y	Reported late 2/7/18
Portugal	N	N	Did not report
Spain	Y	N	Reported late
Sweden	Y	N	
UK	Y	Y	

Source: ICES, 2018d.

Austria, Cyprus, Hungary, Malta, Romania and Slovakia are exempted from preparing EMPs. WKEMP also used data and information reported to the EU in 2015, to ICES in response to the 2018 data call, Country Reports provided to ICES for the annual meetings of the joint EIFAAC/ICES/GFCM Working Group on Eel (WGEEL), and data and information provided directly to WKEMP. WKEMP's gap analysis excludes those EU MS given derogations from implementing EMPs because natural recruitment was considered to be very low in the past. Based on the 2018 return, ICES (2018d) recommended that:

1. **Reporting format and content should be obligatory** rather than voluntary to ensure consistent and comparable information is available from which to judge the state of biomass and mortality rates.
2. It would reduce the burden on MS if the **reporting requests from DG MARE, ICES and others could be coordinated and combined**.
3. While submitting the information in Excel spreadsheets is an improvement over submitting in paper form or in Word files, **data verification, compilation and analysis would be greatly facilitated if the data were input in a database by MS** and verified by knowledgeable personnel before being added to the database. WKEMP understood that WGEEL is developing this approach and recommended that all support is provided to make this happen.
5. **All data and methods used to estimate all biomass and mortality rates should be fully documented and available in a single location**. ICES could act as a depository via the WGEEL page.
6. The **treatment of restocking in all estimates of biomass and mortality must be clearly described**.
7. The **Habitats Assessed part of the Overview Table** should include the option to record Not Applicable for when a habitat type is not assessed because it does not exist in the EMU.

Box 4: Public and Roadmap Consultation Results – Efficiency

To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?

The PC results confirm the difficulty to measure cost-effectiveness of the Eel Regulation and its implementation at the national level. In general, opinions on efficiency were ambiguous but also many respondents selected either "neither agree nor disagree" or "don't know" answers. As regards proportionality of the costs of administrating and implementing the regulation to the environmental and socio-economic benefits that the regulation has generated, slightly more than one third of respondents assessed them as not proportionate. More than four in six respondents selected "neither agree nor disagree" or "don't know" answers. Out of the remaining respondents, similar proportions agreed and disagree that the same or better result in terms of stock recovery could have been achieved at lower costs. Most respondents were not able to assess whether the administration and implementation of the regulation had been carried out at the lowest possible cost.

Could the use of other policy instruments or mechanisms have provided better cost-effectiveness?

In the PC most of the respondents were not able to assess the efficiency of the regulation in comparison with other policy instruments or mechanisms (the majority indicated that they "didn't know"). Out of the remaining respondents, most disagreed that other instruments provided better cost-effectiveness.

5.5 COHERENCE

Coherence - Evaluation Question 9

To what extent are the **measures for recovery of the European eel stock under the Eel Regulation coherent with wider policy and interventions which have similar objectives** (e.g. Common Fisheries Policy, fisheries control regulation, environmental legislation and in particular Water Framework Directive)?

Data sources

Desk research, with some stakeholder consultation.

JC 9.1: The extent to which wider fisheries and environmental policies remain coherent with the objectives and measures under the Eel Regulation

A key objective of the CFP reform in 2013 is to restore or maintain fish stocks at levels that support maximum sustainable yield (MSY) by 2015 and at the latest 2020. The Eel Regulation sets an escapement biomass target of 40% of the spawning biomass, which is considered a proxy for MSY. Whether this target is achievable across all Member States by 2020 is unlikely and there are considerable difficulties in applying the MSY approach to catadromous species such as the European eel.

The CFP quota regulations (2018/210) set no TAC or quota for eels but does prohibit fishing for a consecutive three-month period to protect spawners during migrations. This is relevant to spawning biomass of eels, so works cohesively with the 40% escapement target set in the eel regulation.

The Water Framework Directive (WFD) serves to ensure the 'good status' of eel aquatic habitats in coastal, transitional and inland surface waters across a range of ecological and chemical quality indicators. A range of monitoring parameters are required to ensure Member States reach good status, together with requirement to establish management plans, e.g. river basin management. While the WFD framework is considered fit for purpose, significant effort is required to meet good ecological and chemical status across European surface waters. Furthermore, there is scope to improve connectivity between River Basin Management Plans and EMPs, and the authorities tasked with their delivery, including harmonisation and prioritisation of measures, specifically around hydro-morphological pressures.

The Marine Strategy Framework Directive (MSFD) aims to achieve or maintain good environmental status of marine waters by 2020 by adopting an ecosystem-based approach to management that is implemented through a common regional approach. In relation to eels, the MSFD is important to reaching and maintaining good environmental status of the marine environment, which (as with the WFD), may have a positive effect on the reproductive potential of silver eel (ICES, 2018).

The Habitats Directive provides for two eel-related habitat types - estuaries and coastal lagoons –to be designated as a 'Special Area of Conservation' (SAC). However *A. anguilla* is not listed as a species within the species Annexes, including both the original Directive (22 June 1992) and consolidated version of the Annexes (01 June 2013).

Coherence - Evaluation Question 10
To what extent are the measures under the Eel Regulation coherent with international obligations (e.g. under CITES and CMS)??
Data sources Desk study; and Targeted stakeholder consultations e.g. with TRAFFIC, CITES.

JC 10.1: The extent to which the Eel Regulation continues to be coherent with the current eel-related measures and commitments under (i) the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and (ii) the Convention on Migratory Species (CMS)

CITES: European eel was CITES-listed at the 14th Conference of the Parties to CITES in June 2007, with an 18-month delay before implementation so that the listing came into effect on 13 March 2009. The listing was implemented in the EU by the inclusion of European eel in Annex B of Council Regulation (EC) No. 338/97 (Council of the European Union, 1996), which is the equivalent of the CITES Appendix II. See **Section 4.7.2** for more details on the European eel and CITES.

Appendix II of CITES is for "*species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival*". Trade is defined in CITES as "*export, re-export, import and introduction from the sea*". In other words, CITES only controls trade across international borders and does not have implications for trade within countries or, in this instance, the EU bloc. This is a critical point, as full traceability across EU borders is essential (see JC 3.4 and 3.5) CITES regulates trade through a system of permits, requiring export permits for trade in CITES Appendix II specimens.

In 2015 ICES provided in response to a request from the European Commission to provide scientific information and advice on criteria (such as stock indicators), scales and possible conditions that could be used to make a CITES non-detriment finding (ICES, 2015).

In summary, the Eel Regulation and CITES are closely connected and are complementary. Due to the probable high volumes of illegal trade in glass eels, it is difficult to assess what impact this IUU fishing mortality has had on the recovery of the European eel stock.

CMS: the addition in 2014 of the European eel to Appendix II of the Convention on Migratory Species (CMS) is important because it requires the EU and other CMS parties to endeavour to agree cooperative conservation actions among Range States. With the exception of Iceland, Turkey and Russia, all countries within the range of *Anguilla* are CMS parties. Given the need – and emphasis of the Regulation on, transboundary cooperation, the CMS is fully coherence with the Regulation. This said, further action needs to be undertaken to take advantage of this convention and to ensure it contributes to improving the conservation status of the European eel and its management. In practical terms this means the development of an appropriate instrument, whether in the form of a legally binding agreement or in the form of any other solution already in existence among the large of CMS family of instruments.

Box 5: Public and Roadmap Consultation Results – Coherence

In contrast with our own analysis, the PC results may suggest that there is an issue with coherence of the Eel Regulation, in particular regarding international instruments to regulate fisheries. Most respondents disagreed that the regulation was coherent with international instruments or with other EU instruments. However, the proportion of respondents who indicated that they "neither agreed nor disagreed" and "didn't know" exceeded one third in both cases. This shows that it is difficult to assess the coherence of the regulation. In their contributions to an open-ended question, some respondents referred to inconsistencies within Common Fisheries Policy (MSY principle, Water Framework Directive not applicable to eels, Habitats Directive) or other issues (e.g. ban of export leading to illegal trade, protecting predators within environmental policy etc).

5.6 EU ADDED VALUE

EU added value - Evaluation Question 11
What is the **additional value resulting from the EU measures for the recovery of European eel stock** under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?
Data sources PC, Targeted consultations, & Case studies

JC 11.1: Extent that the Eel Regulation has provided additional impetus / support to address eel conservation objectives

Traditionally eel fisheries throughout Europe have been managed as freshwater fisheries on a very local scale (Dekker, 2016). Deelder (1970) describes a number of approaches to eel management at the time, including minimum legal sizes, closed seasons, restocking, restricted licensing, gear restrictions, and more. Since the early 1970s, the European Inland Fisheries Advisory Commission (EIFAC[59], 1971) and ICES (ICES, 1976) organised a standing Eel Working Group, to document the status of the stock and to investigate potential mitigation measures. Although this group eventually discussed the need for continent-wide protection in the 1990s, its recommendations primarily focused on national or even localised protective measures. Meeting regularly from 2001, WGEEL started as the EIFAC / ICES WG in 1994, with GFCM joining in 2014.

Following multi-decadal decline of the European eel stock across Europe, the EU adopted a regulation to put in place measures for the protection and recovery of this complex panmictic species in 2007. The Eel Regulation requires Member States (MSs) to address common objectives and uniform reference points. An international evaluation process was developed but the design and implementation of protective actions and monitoring were delegated to the Member States.

The key additional inputs / support provided by the Eel Regulation include:

- The preparation of **Eel Management Plans** for 19 Member States (Member States where river basins or maritime waters lying within its territory do not constitute natural habitats for the European eel were able to obtain derogation e.g. AT, BG, CY, HU, MT, RO, SI & SK. Some of these are at national level, whilst others have separate EMPs for different Eel Management Units (EMUs) (see Table 3) for more details).
- **Establishment of common targets** e.g. 40% escapement of silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock. This required estimates of the pristine biomass (B_0) for each river basin.
- **Benchmarking of the present situation of eel populations** in each river basin.

[59] EIFAC, established in 1957, became EIFAAC in 2008

- **Development of management measures** based around eight different approaches (see Art. 2 (8) with associated timescales).
- **Development of transboundary EMPs** with both other Member States as well as with relevant third countries. However, to date only one transboundary EMP (between Spain and Portugal) has been prepared.
- **Mandatory restocking targets for eels** <12 cm caught in EU fisheries (60% to be achieved by 2013).
- **Reduction in fishing effort by 50%**
- **Establishment of control and enforcement** (inc. catch monitoring) mechanisms.
- A **requirement to collect data** on eel biomass estimates, mortality rates, fishing effort and stocking rates for analysis by the Commission and its partners.

In addition to these direct functions, the Eel Regulation has catalysed the development of eel conservation and management legislation in Member States. It has also brought managers in together from different regions and organisations within Member States to develop the plans and associated measures. For instance the EMP development process in Italy has been highly participatory (see Section 4.2) and has resulted in some comprehensive documents on best practises from the UK and Spain. The role of the Joint EIFAAC/ICES Working Group on Eels WGEEL has been considerably enabled by the Eel Regulation and its data reporting requirements.

The Eel Regulation has also stimulated other EU-funded actions to support the recovery of the European eel. One such example is the recently started (March 2018) SUDOANG project that aims to provide managers with tools and joint methods that support the conservation of the European eel and its habitat in the SUDOE area and is being funded under the under the priority axis "Protecting the environment and promoting resource efficiency" of the Interreg SUDOE programme in SW Europe. As discussed earlier, SUDOANG supports a number of task groups building various models to estimate barrier-related mortality, eel recruitment in the SUDOE region, escapement and also investigates various government platforms. Other EU-funded projects include AMBER (citizen-mapping of barriers in European rivers), the Interreg IIIB Atlantic area Project Indicang (establishing abundance indicators) and POSE (a DG Mare service contract to estimate the escapement of silver eels (see Walker *et al*., 2011)).

Finally the Regulation has raised awareness of the need for conserving and managing European eels throughout its range.

JC 11.2: Extent that it is possible to isolate results and outcomes that could or would not have been otherwise achieved without the Eel Regulation

It is difficult to systematically isolate the results and outcomes that could or would not have been otherwise achieved without the Eel Regulation, especially given its close relationship with other EU initiatives (esp. the WFD) and the CITES listing. All of these will have contributed to the impacts so far e.g. the overall reduction in fishing pressure and the stabilisation of landings.

The WFD is expected to deliver a range benefits associated with improved water quality, ecological and chemical status of surface waters (e.g. lakes, rivers, coastal waters), including improving river continuity. These are expected to benefit a range of migratory species including eel, salmon, sturgeon etc. However, isolating the outcomes of measures implemented via WFD specifically for individual species (i.e. eel) is challenging and not currently documented within progress assessments for River Basin Management cycles.

EU added value - Evaluation Question 12
What would be the **most likely consequences of stopping the application of the measures as required in the Eel Regulation**?
Data sources PC, Targeted consultations, & Case studies.

JC 12.1: Extent that MS authorities are able to identify positive and negative implications of stopping the application of the measures as regulated in the Regulation

The MS authorities contacted over this evaluation stressed the fact that the objectives of the Regulation can only be achieved over the long-term (e.g. 50 years or more) and therefore consider this to be a permanent process that needs to be continued to be effective. No Member States contacted indicated that they thought the Regulation was ineffective – indeed most voiced their support for the Regulation and its continued relevance.

At present the only major change in the MS participation in the Regulation is that of the United Kingdom in the event of their exit from the EU. The UK's Department for Environment, Food and Rural Affairs (Defra) have confirmed that, as with other relevant EU legislation, the Eel Regulation will be rolled over into UK legislation under provision within the UK Withdrawal Act (Defra, pers. comm., 16 January 2019). This might mean that the measures and activities would be continued on a local basis, but some of the EU progress reporting may be discontinued. However we understand the intention is to continue to work with DG Mare and the joint EIFAAC/ICES/GFCM WGEEL WG, including responding to any related data calls they might make, and continue to participate in management of this widespread stock. In such an event it is likely that there will not be any major consequences in terms of rates and timescales of European eel recovery as intended through the Regulation, although the movement of glass eels between the UK and the EU may not continue, depending upon the final EU exit agreement reached.

The impact of one or more Member State stop applying the measures from the Regulation depends on which one and their territory's particular contribution to the European eel stock. For instance France is a key participant due to the importance of the Bay of Biscay in terms of glass eel flows and spawner escapement and thus has a significant role in the conservation and management of this panmictic stock.

Box 6: Public and Roadmap Consultation Results – EU Added value

What is the additional value resulting from the EU measures for the recovery of European eel stock under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?

According to PC respondents, it is clear that the Eel Regulation provided additional added value to what could be achieved by Member States at the national or regional levels in terms of recovering the eel population. More than three quarters of respondents valued the EU intervention (most "strongly agreed" with the statement that the Eel Regulation provided additional value), compared with only 7.9% who did not.

What would be the most likely consequences of stopping the application of the measures as required in the Eel Regulation?

Respondents to the PC were asked to indicate which consequences they foresaw if the intervention would be withdrawn. Most (almost two thirds) referred to negative consequences, mainly the eel population being more endangered and a risk that Member States will no longer implement protective measures. One in ten respondents mentioned positive consequences, for instance fishing no longer being limited.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 RELEVANCE

6.1.1 What is, or is not, working and the lessons learned

The **Eel Regulation is still highly relevant**. The latest ICES advice (November 2018) states that "*the status of eel remains critical*" and that that "*when the precautionary approach is applied for European eel, all anthropogenic impacts (e.g. caused by recreational and commercial fishing on all stages, hydropower, pumping stations, and pollution) that decrease production and escapement of silver eels should be reduced to – or kept as close to – zero as possible in 2019*" (ICES, 2018a). Analysis from ICES also suggests that that in 2017 the spawner (silver eel) escapement from the majority of EMUs in the EU was below the 40% level and serves to emphasise that silver eel escapement levels from the majority of EMUs is still below the 40% escapement reference point (ICES, (2018c).

As a reflection of the Regulation's predominant focus on reducing fisheries-related mortality, **some progress has been made in reducing fishing effort and meeting the goal to reduce fishing effort** by at least 50% relative to the average effort deployed from 2004 to 2006 (or reduce fishing effort to ensure a reduction of eel catches by at least 50 % relative to the average catch from 2004 to 2006). Since the Regulation was published, fishing effort has declined in Sweden (by over 90%), Italy (just over 50%), Denmark (by almost 50%) and Germany (by 25%). However effort appears to have risen to 135% of 2008 levels in the UK and 180% of the 2012 level in Poland. **Therefore continued focus on reducing fishing mortality to sustainable limits is still required.**

The **long-term use of restocking as a key measure is questioned**, other than as a short term emergency measure until greater natural migration in freshwater is possible, given its uncertain contribution to spawner escapement and subsequent recruitment, as well as the risks involved (e.g. disease introduction, as well as mortality from poor handling).

Non-fisheries related anthropogenic mortality has not declined significantly over the last decade. There is a case to be made that the **Regulation focuses too much on fisheries-related measures and targets**. As noted by ICES (2018c) "*as the scope for further reduction of fisheries mortality is decreasing and the relative impact of non-fisheries mortality has been shown to be correspondingly increasing, it may be time for a raised focus on non-fisheries impacts on eel*". This suggests that **future emphasis should be put on addressing the non-fisheries anthropogenic sources of mortality, supported by any necessary research and financial assistance**. Hanel (2019) suggests that such efforts should be focused on the lower reaches of rivers where the silver eel runs are concentrated[60]. The WFD and the Habitats Directive both preceded the Eel Regulation and are broadly supportive and coherent.

6.1.2 Future needs and recommendations

Recommendations	
EU-specific	**Wider actions**
• EMPs are developed at EMU-level in all Member States unless credible evidence exists that multiple-EMU plans are justified. • Glass eel stocking, esp. that supported by EMFF and other public funds, needs to be better justified in terms of its net benefit to silver eel escapement.	• Internationally coordinated research is required to determine any net benefit of restocking on the overall population, including carrying capacity estimates of glass eel source estuaries, detailed mortality estimates at each step of the stocking process, and performance estimates of stocked vs. non-stocked eels.

[60] Hanel states that in France and Spain, 60% of the national silver eel run is affected by hydropower plants located within 250 km from the sea. At this distance, only 25% of total hydropower plants are found.

Recommendations	
EU-specific	**Wider actions**
• The European eel could be better used as indicator of ecological status in the implementation of the WFD. • Increased research and monitoring to better understand why eel stocks are not recovering.	• The current poor status of the European eel needs to be better publicised so that greater public pressure can be applied to improve eel management and water basin conditions.

6.2 EFFECTIVENESS

6.2.1 What is, or is not, working and the lessons learned

The **Eel Regulation process has been effective in that the key EU Member States have developed comprehensive EMPs** and these are being reported upon and the results of this monitoring evaluated in detail.

An overwhelming sentiment from the majority of stakeholder respondents is that **the recovery of the European eel will take many decades**. Whilst the Regulation has catalysed a wide range of actions at Member State level, the fact is that the European eel stock is still in a critical condition and whilst its decline appears to have been stabilised, it is still at a historical low. **It is also apparent that measures and actions have to be specified at EMU rather than national level, as they differ in terms of ecological status, connectivity and anthropogenic activity**. The fact that only five EU MS (Germany, Spain, Ireland, Italy (9/20 EMUs) and the UK) have EMPs that operate at EMU level is a concern.

However, **the Regulation's effectiveness in terms of ensuring the recovery of the European eel is still far from certain** and as remarked above, it is still very much early days. Overall fishing effort has reduced, albeit not in all Member States, and catches of yellow and silver eels has declined, although reported glass eel catches are steadily increasing. There is also likely to be considerable un-observed and un-estimated glass eel mortality through IUU fishing in EU waters, which is partially enabled by the poor level of traceability across the EU.

The Eel Regulation sets an ultimate goal (40% of B_0) for silver eel escapement. ICES still focus on biomass and recruit abundance, whilst focusing on mortality may be more appropriate. Dekker (pers. comm., 18 January 2019) argues that **ICES could set a definite mortality limits to assist implementation of the Eel Regulation**, a sentiment echoed by the recent report to the European Parliament (Hanel, 2019).

Whilst stocking is a measure featuring in many EMPs, **only six achieved their EMP stocking target** (ICES, 2016c). The overall target of 60% use of reported catch in restocking was only achieved in 2014 when there was a plentiful supply of glass eels, but it has dropped to around 22% in 2018. ICES (2018a) suggests that stocking should take place only where survival to silver eel escapement is high and **should not be used as an alternative to reduce anthropogenic mortality**.

There have been some success stories, including the generation of good practices in relation to addressing both fisheries and non-fisheries mortalities, as well as improving the traceability of European eel production (see **Section 4.2**).

Member State estimations suggest that hydropower mortality accounts for more than 50% of anthropogenic mortality in 33 of 62 EMUs where data for fishing and hydropower mortality was reported (ICES 2017b). This echoes the earlier conclusion (see previous section) that **future eel conservation efforts should more focus on reducing non-fisheries anthropogenic mortality**. One of the current constraints to this has been that non-fisheries related measures in the EMPs are often defined rather vaguely, probably because of restricted legal competence of the authorities responsible for the EMPs in relation to riverine and watershed management.

In addition, **the Eel Regulation itself is rather vague non-fisheries related measures**, referring only to (i) "*structural measures to make rivers passable and improve river habitats, together with other environmental measures*" and (ii) the "*temporary switching-off of hydro-electric power turbines*".

Full-cycle aquaculture of the European eel is still yet to be achieved. Although some progress is being made with *Anguilla japonica*, the successful reproduction, weaning and survival of *A. anguilla* glass eels is yet to be demonstrated at scale. The development of commercially viable eel hatchery and nursery technology could provide a sustainable source of artificially-produced glass eels, both for table eel farming as well as for re-stocking.

As the export of eels from the EU is currently not permitted, there are no systems required to monitor formal eel trade within the bloc. Despite recent successes in combatting the trade of IUU caught eels, there is still a substantial IUU flow of eels from the EU. In particular **the control of eels fisheries is hindered by some shortcoming of EU control system in relation to control of activities of vessels of less than 10 m that form the bulk of the fleet targeting eels** and in relation to post-landing documentation. As a result, traceability of eels is difficult to establish, in particular when eels are transported from a Member State to another to fulfil Member State obligations for restocking or to provide livestock for aquaculture farms. On a positive note, the Commission recently included eel fisheries in the scope of Specific Control and Inspection Programmes (SCIPs) to be implemented by Member States under the operational coordination of the European Fisheries Control Agency EFCA.

6.2.2 Future needs and recommendations

There is no reason that this Regulation should not be effective over time – there is just a need for sustained and robust implementation at Member State level, further engagement and action at transboundary level, and a regular review and improvement of the EMPs at the tri-yearly review points. Given the slow progress to date, it is suggested that the current three yearly review[61] continue for the foreseeable future, rather than every six years as currently anticipated.

The PC echoed this, suggesting that factors hindering effectiveness of the Eel Regulation are mainly beyond the regulation itself. Most respondents highlighted external factors, such as inability to reduce hydropower mortality or poaching, and insufficient implementation of the policy at the national level, rather than issues with the legislation itself (19%).

Recommendations	
EU-specific	**Wider actions**
• EMPs need to be developed to provide greater focus on non-fisheries related measures such as (i) structural measures to make rivers passable and improve river habitats, together with other environmental measures and (ii) the temporary switching-off of hydro-electric power turbines. Where necessary, the design of these measures should be conducted jointly with those authorities mandated to implement the associated actions. • Progress reviews of the EMPs needs to be continued on a three-yearly basis for the time being. • Greater efforts should be made to compile and develop good practices achieved at national level and to disseminate these within the EU and other countries managing the European eel stock.	• EMU level mortality limits are considered in replacement of the current 40% regional escapement target. • Coordinated research into anguillid aquaculture techniques in order to develop commercially viable artificial European eel glass eel production. • Improve national management for implementation of their CITES obligations.

[61] Art. 9 of the Regulation sees reporting every six years following the 2018 review. However 2017 Declaration on eels call on MS to continue reporting on 3year-basis.

6.3 SUSTAINABILITY

There is no 'end date' for the Eel Regulation, so it is considered indefinite, at least until the European eel stock has fully recovered. Once the European eel stock has fully recovered, at that point the Regulation could be reconsidered and a sustainable management plan put in place. In the meantime the regular progress reports as required in the Regulation should be continued. This part of the evaluation therefore focuses on what elements of the Eel Regulation (rather than the evaluation itself) are sustainable over the medium to long term.

6.3.1 What is, or is not, working and the lessons learned

Both the management organisations and other stakeholders consider that the **Eel Regulation is a sustainable approach and needs to be recognised as a long-term process**. Licensed fishing activity, especially for yellow and silver eels is likely to continue to fall as the elderly fishers drop out of the fishery and many of the traditional markets for eel are in decline. One **possible threat to the sustainability of the Regulation is the continued IUU fishing**, especially of glass eels, driven by very high prices and demand from Asian aquaculture.

One key measure under the Regulation, restocking, is a short to medium term measure that is unsustainable and should be phased out as natural recruitment improves, and water course connectivity is improved. As Dekker & Beaulaton (2016) noted, as successful as restocking might have been locally, it has not markedly changed the overall trends and distribution patterns or halted the general decline of the stock and fishery. However, it is noted that freshwater eel production in countries like Sweden is almost entirely dependent upon artificial stocking.

Structural measures to make rivers passable and improve river habitats, together with other environmental measures have the potential to make the most profound, long-term impacts on eel stocks. However, the descriptions of the actions taken, as well as the expected impact on escapement or mortality were often unspecific, vague and lacking specific reference to eel-specific habitats (ICES, 2013c). When actions concerning habitat are considered (e.g. by water level fluctuation to flood meadows), the effect on silver eel production and escapement would be expected only in the long term, while actions focused on improvement of habitat quality (e.g. reduction of pollution) could have an immediate effect, not only on escapement and mortality but also on migration and reproductive success. To assess the effect of actions taken, monitoring data and process knowledge are required.

The Commission's EMFF Impact Assessment SWD suggests that the "**Member States will be required to strengthen national management plans in order to protect eels in the inland waters**" (EC, 2018c).

6.3.2 Future needs and recommendations

The PC results suggest that the Regulation will need to be in place over the longer-term, as continued pressure will need to be put on Member States to implement their EMPs and where necessary, revise them in line with both progress made and to incorporate solutions to emerging issues that emerge from scientific research and monitoring.

Recommendations	
EU-specific	**Wider actions**
• The progress of the EMPs should be regularly reviewed to ensure that they remain robust, relevant and effective. This will require ongoing research, as well as monitoring of environmental conditions, river connectivity and catch documentation and traceability (CDT) effectiveness • Continued emphasis on fisheries control to reduce IUU fishing, especially of glass eels. This should be supported by developing a Europe-wide traceability system that tracks and monitors intra-EU eel movements and fate.	• Development of parallel management actions in non-EU countries, including development of comprehensive eel management plans (at transboundary level, both with the EU and

Recommendations	
EU-specific	**Wider actions**
• The evaluation identified a possible source of legal misinterpretation of Article 7.1 of the Eel Regulation in relation to restocking suggesting that 60% of glass eels caught each year may not be marketed for this purpose as expected. As a result, control authorities cannot enforce this prescription.	third countries), coordinated research.

6.4 EFFICIENCY

6.4.1 What is, or is not, working and the lessons learned

It is **very difficult to assess how efficient the measures undertaken by Member States to implement the Eel Regulation have been** to date. Eel management is complex, involving multiple organisations and stakeholders at different levels within Member States. Based on stakeholder feedback, the **use of EMPs to provide a strategic approach at MS level to eel conservation has been fundamental** in bringing together these different interests and charting a unified approach. However there **needs to be a more coordinated strategy between Member States**, as well as with third countries who also share the European eel's range, possibly through development of an international management body for this species.

A **monetarised analysis of the cost-benefits of the Eel Regulation is impossible to quantify at this stage**. The *direct* environmental benefits of the EMP actions (e.g. eel stock recovery through reduced fishing mortality and increased spawner escapement) and the *indirect* environmental benefits (reconnected coastal, estuarine and riverine ecosystems) are long-term in nature, still nascent and yet to be fully quantified in terms of their environmental benefits. Likewise it is difficult to quantify the socio-economic benefits of the EMP measures to date, especially given landings have stabilised and fishing effort has (mainly, but not in all Member States) reduced. Only when stock recovery becomes more evident and fishing opportunities consolidated will the socio-economic benefits become more apparent.

The main finding of this evaluation is that **the Regulation is essentially sound, and thus most Member State respondents indicated that alternative approaches have not been considered**. The synergies with the WFD, MSFD and the Habitats Directive are also important factors in improving its efficiency. However it is recognised that the implementation of many of the measures is a long-term process, and that many aspects are still yet to be fully realised.

There are recognised short-comings in terms of reporting levels and progress monitoring at Member State levels. Not all have produced Progress Reports and there has been considerable variation in their quality and robustness. Since the first reporting round in 2012, no Member State reports on glass eel prices have been submitted, although Belgium, Denmark, Estonia and the UK have provided some price data in their recent 2018 Annual Progress Reports. This represents a major failure in the Regulation's monitoring requirement. The inclusion of Excel-based data tables in the most recent (2018) progress reporting round has provide very valuable, although needs to be developed and improved.

The role and added value of the joint ICES/EIFAAC/GFCM Working Group on Eel (WGEEL) in developing eel management monitoring and evaluation is strongly noted. Based on the 2018 return, the ICES Workshop for the Review of Eel Management Plan Progress Reports (WKEMP) (ICES, 2018d) recommended that:

1. **Reporting format and content should be obligatory** rather than voluntary as it is now, to ensure consistent and comparable information is available from which to judge the state of biomass and mortality rates.
2. It would reduce the burden on MS if the **reporting requests from DG MARE, ICES and others could be coordinated and combined**.

3. While submitting the information in Excel spreadsheets is an improvement over submitting in paper form or in Word files, **data verification, compilation and analysis would be greatly facilitated if the data were input in a database by MS** and verified by knowledgeable personnel before being added to the database. WKEMP understood that WGEEL is developing this approach and recommended that all support is provided to make this happen.

8 **All data and methods used to estimate all biomass and mortality rates should be fully documented and available in a single location**. Perhaps ICES could act as a depository with a link provided from the WGEEL page.

9 The **treatment of restocking in all estimates of biomass and mortality must be clearly described**.

10 The **Habitats Assessed part of the Overview Table** should include the option to record Not Applicable for when a habitat type is not assessed because it does not exist in the EMU.

6.4.2 Future needs and recommendations

Recommendations	
EU-specific	**Wider actions**
• A proportionate focus on Member States with significant glass eel (FR, UK, ES & PT) and yellow and silver eel (FR, UK, DK, SE, IT, PL, NL, ES & EL) production for fisheries measures, with a less rigorous approach to Member States with no or very little productivity. This proportionate approach could also be carried over into national planning, to ensure that the more productive (existing and potential) EMUs are the focus of national actions. • Greater emphasis on transboundary collaboration, both within and adjacent to the EU. The shortage of transboundary EMPs as required by the Regulation is a considerable concern, especially given the transboundary connectivity between in the Baltic Sea and between France and Spain (in the Bay of Biscay and the Mediterranean). This also suggests regional; initiatives such as the Multiannual Mediterranean Management Plan, including an EU Tunisia (and Algeria) Proposal on a multi-annual management plan for fishing activities catching European eel in the Mediterranean Sea. • Greater pressure on Member States to fulfil the Regulation in its entirety. As the EMPs vary in quality and fitness for purpose, this has resulted in the partial rates in implementation to date and the variability in responses to progress reporting requirements and data calls (both by the EU and ICES). • More specific timelines and interim targets across the Regulation. Whilst recognised as a long-term approach, the Regulation is not time-bound. There are good reasons for this, but many stakeholders have asked that interim targets are developed and the progress towards this monitored. Some MS have adopted timebound targets (e.g. interim escapement targets in some Italian EMUs) but in others most plans are made on more vague timescales. It is important that such interim targets not only cover fisheries-related mortality, but also non-fisheries related mortality and proxy indicators (e.g. improved connectivity of rivers). As noted by Dekker (2016), this may require re-focusing all protective actions,	• This could feed into the preparation of a wider strategic plan to scrutinise and consolidate existing assessments and management plans, and to expand their spatial coverage, ultimately striving towards full geographical coverage of the whole European eel population. This plan would need to be based upon the progress made in scientific understanding (mainly via the joint WGEEL) as well as a comprehensive stakeholder consultation process. It may also need to include reviews of the pristine eel biomass (B0) and related escapement targets. It is noted that ICES produced guidance on European eel management measures that can be applied to both EU and non-EU waters in 2014 (ICES, 2014).

Recommendations	
EU-specific	**Wider actions**
assessments, evaluations and advice on anthropogenic mortality goals and indicators- considering each of the management areas (countries) individually. • Allied to the point above, there is a need for a central coordinating body for the recovery of the European Eel. The Eel Regulation provides a united approach across the EU, but the core issue of stock recovery needs a stock range wide approach. One stakeholder mentioned the North Atlantic Salmon Conservation Organisation (NASCO) as a possible model. • A more cohesive funding approach for EMP and associated measures. Few MS provide budgets for implementing their EMPs (EC, 2018a) to cover such aspects as restocking costs and habitat improvement projects. This should include the role of the EMFF and other EU public funding, the role of the private sector and possibly development of specialist Financial Instruments to fund long-term eel conservation and management. This suggests that the Eel Regulation and its measures should be specifically reflected in MS EMFF operational programmes for the next funding period (2021 - 2027).	

6.5 COHERENCE

6.5.1 What is, or is not, working and the lessons learned

The **Eel Regulation is strongly coherent with a number of EU and wider international initiatives** to support the recovery of the European eel. The CFP provides a policy framework for eel fisheries management, with the Eel Regulation providing greater environmental coverage away from the CFP's marine focus. Both the WFD and MSFD are highly relevant to eel-related habitat and environmental protection, and thus contributing to the reproductive potential of eels populations. Particularly important under the WFD are measures introduced by River Basin Management Plans that aim to restore river continuity. However, with a high proportion of waters failing good status due hydro-morphological pressures, significant effort is required to realise this aim. The Habitats Directive is also highly relevant to the conservation of eel-related habitats, although it is questioned why the eel itself is not a listed species for protection within the Directive.

In the Mediterranean, the GFCM has established a multi-annual management plan for catching European eels in the Mediterranean Sea (GFCM, 2018). This included targeted, incidental and recreational catches in marine, brackish and freshwater. This precautionary approach to "*to immediately adjust fishing mortality levels together with other possible measures and to address the critical state of the stock*" concurs with the Eel Regulation, as do the transitional management measures to reduce fishing effort and monitor the effects of restocking.

The Eel Regulation and **CITES** are closely connected and are complementary. The addition in 2014 of the European eel to Appendix II of the **Convention on Migratory Species** (CMS) is important because it requires the EU and other CMS parties to endeavour to agree cooperative conservation actions among Range States. With the exception of Iceland, Turkey and Russia, all countries within the range of *Anguilla* are CMS parties. Given the need – and emphasis of the Regulation on transboundary cooperation, the CMS is fully coherent with the Regulation. This said, further action needs to be undertaken to take advantage of this agreement.

It should be noted that the PC results suggested that there may be an issue with coherence of the Eel Regulation, in particular regarding international instruments to regulate fisheries. Most respondents disagreed that the Regulation was coherent with international instruments or with other EU instruments. However, the proportion of respondents who indicated that they "neither agreed nor disagreed" and "didn't know" exceeded one third in both cases. This shows that it is difficult to assess the coherence of the Regulation. In their contributions to an open-ended question, some respondents referred to inconsistencies within Common Fisheries Policy (MSY principle, Water Framework Directive not applicable to eels, Habitats Directive) or other issues (e.g. ban of export leading to illegal trade, protecting predators within environmental policy etc).

6.5.2 Future needs and recommendations

It is important that further developments of the CFP and its implementing regulations remain coherent with the Eel Regulation and its freshwater components. Furthermore it is evident that the potential for the recovery of the European eel population is dependent upon greater connectedness in in Europe's rivers, and thus water basin management – including hydro-power, flood defence and transport considerations – are also cognisant of the needs of this iconic species.

Recommendations	
EU-specific	**Wider actions**
• Consideration of the European eel as a listed species for protection within the Habitats Directive. • EU to contribute to GFCM transitional management measures and the long-term management plan proposed for adoption in 2023.	• Further action needs to be undertaken to take advantage of Convention on Migratory Species (CMS) and to ensure it contributes to improving the conservation status of the European eel and its management. In practical terms this means the development of an appropriate instrument, whether in the form of a legally binding agreement or in the form of any other solution already in existence among the large of CMS family of instruments.

6.6 EU ADDED VALUE

6.6.1 What is, or is not, working and the lessons learned

Following multi-decadal decline of the European eel stock across Europe, the EU adopted a regulation to put in place measures for the protection and recovery of this complex panmictic species in 2007. The **Eel Regulation has provided a strong catalyst for Member State action to address the issues affecting the recovery of the European eel**. The key additional inputs / support provided by the Eel Regulation include:

- The preparation of **Eel Management Plans** for 19 Member States (Member States where river basins or maritime waters lying within its territory do not constitute natural habitats for the European eel were able to obtain derogation e.g. AT, BG, CY, HU, MT, RO, SI & SK. Some of these are at national level, whilst others have separate EMPs for different Eel Management Units (EMUs) (see Table 3) for more details).
- **Establishment of common targets** e.g. 40% escapement of silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock. This required estimates of the pristine biomass (B_0) for each river basin.
- **Benchmarking of the present situation of eel populations** in each river basin.
- **Development of management measures** based around eight different approaches (see Art. 2 (8) with associated timescales).
- **Development of transboundary EMPs** with both other Member States as well as with relevant third countries. However to date only one transboundary EMP (between Spain and Portugal) has been prepared.

- **Mandatory restocking targets for eels** <12 cm caught in EU fisheries (60% to be achieved by 2013).
- **Reduction in fishing effort by 50%**
- **Establishment of control and enforcement** (incl. catch monitoring) mechanisms.
- A **requirement to collect data** on eel biomass estimates, mortality rates, fishing effort and stocking rates for analysis by the Commission and its partners.

In addition to these direct functions, the Eel Regulation has catalysed the development of eel conservation and management legislation in Member States. It has also brought managers in together from different regions and organisations within Member States to develop the plans and associated measures. The Eel Regulation has also stimulated other EU-funded actions to support the recovery of the European eel, such as the recently started SUDOANG project in South-West Europe. The Regulation has raised awareness of the need for conserving and managing European eels throughout its range.

The MS authorities contacted over this evaluation stressed the fact that the objectives of the Regulation can only be achieved over the long-term (e.g. 50 years or more) and therefore consider this to be a permanent process that needs to be continued to be effective. No Member States contacted indicated that they thought the Regulation was ineffective – indeed most voiced their support for the Regulation and its continued relevance.

6.6.2 Future needs and recommendations

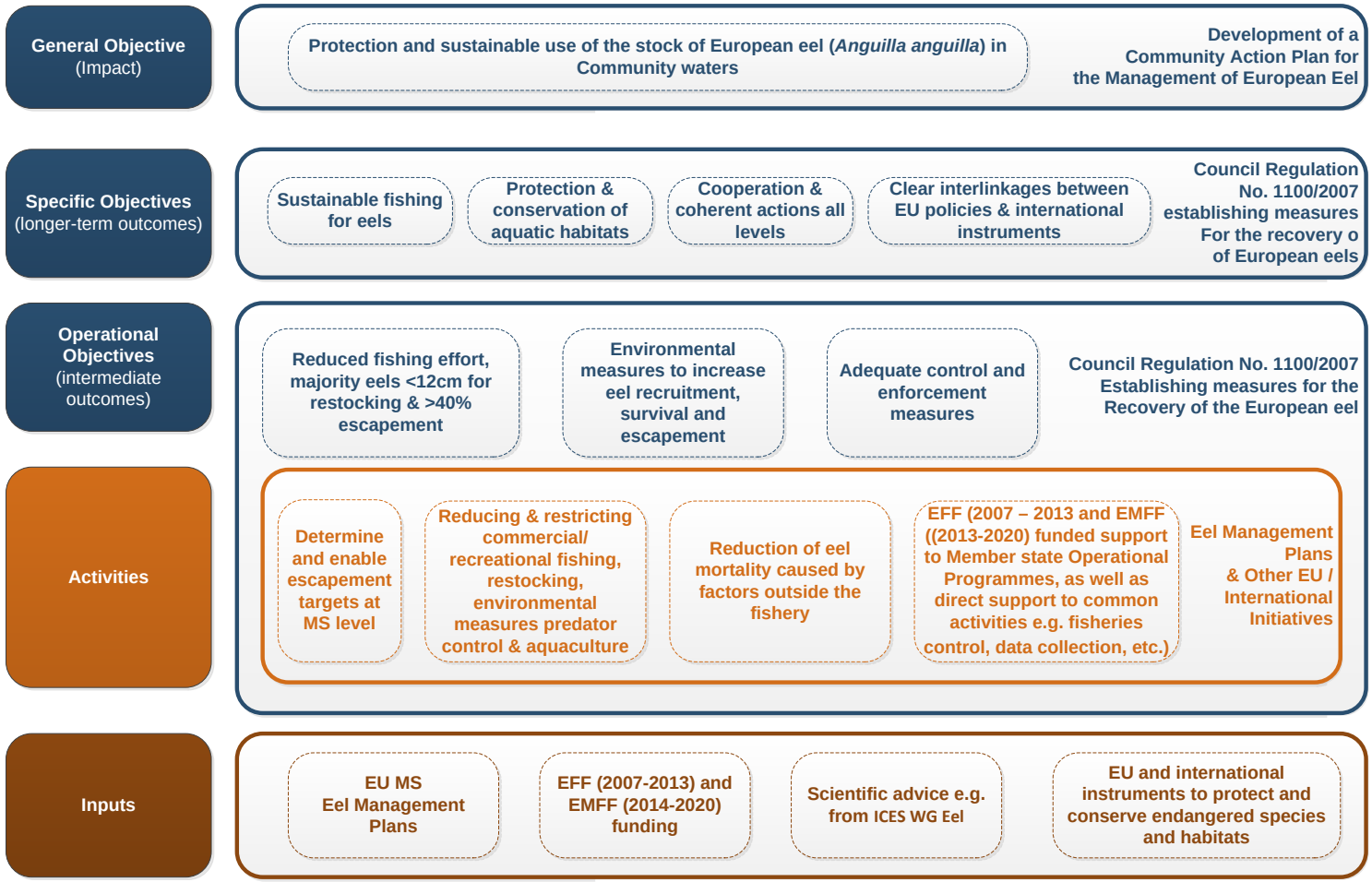
Through the Eel Regulation, the EU has provided both a framework and impetus for managing the European eel in EU waters. The impact is not restricted to the EU waters, as it has provided a working model for eel management for other States that share this panmictic stock, including Norway, Turkey and Russia, as well as an emerging array of best practises for eel management implementation. As remarked above and recognised by many PC respondents, this is not a short-term initiative, but will probably require a number of decades of focused and persistent management to reduce and mitigate both anthropogenic mortality, as well as the wider implications of natural and climate change induced environmental change.

Recommendations	
EU-specific	**Wider actions**
• In the event of the UK - a key glass eel supplier to many other EU restocking programmes - leaving the EU, mechanisms should be in place to account for the UK's new status as a potential exporter to the EU.	• Further efforts are made to develop European eel management mechanisms and best practises for adaptation and use outside the EU.

ANNEX 1A: INTERVENTION LOGIC

A schematic for the Eel Regulation's intervention logic is shown in the figure below. It has been developed from that provided in the original ToR and illustrates a hierarchy of objectives, from inputs through to the ultimate desired impact of the Eel Regulation.

Figure 17: Eel Regulation Intervention Logic



ANNEX 1B: EVALUATION QUESTIONS MATRIX

RELEVANCE			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ1. To what extent are the existing measures for the recovery of European eel stock under the Eel Regulation still relevant ?	1. The current state of the eel stock and whether conservation measures are still required. 2. The EMP structure as defined by the Eel Regulation is still relevant to current needs.	1. Trends in recruitment indices for key European sea basins over 2007 - 2017. 2. Measures stipulated as required in the EMPs are relevant and adequate to current needs.	1. Examinations of scientific evidence. 2. Face to face meeting with ICES / WGEEL group members.
EQ1a How well the objectives of the Eel Regulation (still) correspond to needs within EU?	1. The extent to which eel landings, escapement levels and river basin conditions have recovered sufficiently to warrant the measures being continued.	1. Eel landing patterns, escapement levels and river basin management plan indicators (GES status change).	1. ICES, EUROSTAT & GFCM data. 2. Progress reports, scientific reports, stakeholder consultations, case studies. 3. RBMP reports (key selected river basins only).
EQ1b. How well adapted is the Eel Regulation to subsequent legal provisions or scientific advances / assessments (linked to the reformed CFP, environmental policy, reporting and compliance)?	1. Extent to which the Regulation's objectives and measures remain relevant following CFP reform, the introduction of new environmental policies and measures, and EU reporting and evaluation approaches.	1. Review of the key relevant reformed CFP elements (e.g. conservation, profitability, equal access, common market provisions (see EQ 3), developments in environmental policy (e.g. WFD, MSFD & Natura 2000) to ensure continued relevance.	1. Desk study 2. PC 3. Stakeholder consultations 4. Case studies
EQ1c. How relevant is the need for eel conservation and management to EU citizens ?	1. The extent to which EU citizens are aware and possibly affected by the status of European eel populations and the role of the Regulation in addressing this.	1. Qualitative assessment of public awareness of the issue and how it affects people.	1. PC.

EFFECTIVENESS			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ2 To what extent have the current measures for the recovery of European eel stock under the Eel Regulation met its objectives (see next column)?	1. EMPs implemented and specific targets achieved. 2. European eel stock has recovered. 3. Anthropogenic mortalities (e.g. non-fisheries related) have been reduced. 4. Adult eel escapement progressed towards the long term 40% escapement objective. 5. Supply of glass eels sufficient for restocking operations. 6. Fishing effort reduced by at least 50% relative to the average effort 2004-2006 or ensure reduction of catches by at least 50%. 7. Origin and traceability of all live eels imported and exported from MS territory maintained. 8. Control and enforcement activities in support of the implementation of the EMPs have taken place in EU waters and at all stages of the eel supply chain.	1. Measurable progress towards EMP targets. 2. Recruitment indices for glass & yellow eels. 3. Non-fisheries-related measures that have increase eel recruitment & survival. 4. Estimates of escapement levels in selected key river basins. 5. Restocking rates by MS and 3rd countries, market price analyses. 6. Eel landings[62] by MS and 3rd countries. 7. Inter-EU and extra-EU (banned since 2010) import and export levels. 8. Analysis of inspections / control activities carried out on eel fishing activities / farming across EU Member States (in marine and inland waters), content of controls and evidence as regards the enforceability of the measures for the recovery of the European eel stock under the Eel Regulation	1. Analysis of Progress Reports 2. ICES reports 3. Progress Reports, stakeholder consultations, case studies 4. Progress reports, scientific reports, stakeholder consultations, case studies 5. ICES data calls and price survey (<.12 cm) 6. ICES, EUROSTAT & GFCM data. 7. EUROSTAT, CITES and other trade data. Supported by stakeholder consultations to obtain non-quantitative and anecdotal information on legal and illegal trade patterns. 8. EU and Member State control reports, stakeholder consultations and case studies.

[62] Fishing effort is not currently monitored by WGEEL, only landings

EFFECTIVENESS			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ3. If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 1, what factors have they hindered their achievement and how?	1. Identification of the key barriers to achieving the objectives. 2. Identification of the common and outstanding successes and resulting best practises that have allowed progress towards achieving the objectives. 3. Identification of best practices in transboundary areas. 4. Supply chain transparency and control points will need to be examined at key points within and on the borders of the EU, covering both inward and outward flows. 5. Have the control & enforcement measures at EU and MS levels been adequately resourced and implemented?	1. Characterisation and if possible, quantification of key barriers, including social, cultural, legal, trade, political, fiscal and technical issues. 2. Common approaches that have been causal in achieving measurable progress towards EMP targets (see above in EQ 1). 3. Common approaches in resolving transboundary eel conservation issues. 4. High level mapping of the main supply chains and critical control points at EU level and more detailed in DK, FR & IT to identify main internal and border control points. Based on this, evaluation of controllability and leakage. 5. Based on (3) above, examination of the main control measures and their adequacy at fishery, supply chain and border points.	1. Examination of EMPs and the resultant progress reports. Discussions with stakeholders, and 'deep dives' at case study level. 2. Examination of EMPs and the resultant progress reports. Discussions with stakeholders, and 'deep dives' at case study level. 3. Examination of EMPs and the resultant progress reports. Discussions with stakeholders, and 'deep dives' at case study level. 4. Literature review, discussions with stakeholders, and 'deep dives' at case study level. TRAFFIC reports are particularly relevant. 5. Examination of EMPs and the resultant progress reports. Discussions with stakeholders (inc. control authorities), and 'deep dives' at case study level.
EQ4. To what extent has the Eel Regulation contributed to achieving the objectives of the Common Fisheries Policy, in particular to ensure that fisheries and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and	1. Extent to which wild eel fisheries (i) safeguard stock reproduction for high long-term yield (ii) lay the foundations for a profitable industry, (iii) share out fishing opportunities fairly, and (iv) conserve marine resources. 2. Extent to which eel farming has been developed in sustainable way that relieves pressure on wild stocks.	1. Indicators include (i) long-term recruitment indices, (ii) profitability of key parts of the value chain, (iii) no evidence of unequal fishing opportunities and (iv) evidence of ecosystem benefits from eel conservation actions.	1. Apart from the L/T recruitment indices, this will mainly be examined at case study level.

EFFECTIVENESS			
Evaluation questions	Judgement criteria	Indicators	Methods
employment benefits, and of contributing to the availability of food supplies.	3. Extent to which (i) producers are enabled to best market eel products, (ii) purchasers along the supply chain are well informed and (iii) common marketing standards are maintained.		

SUSTAINABILITY			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ 5 Are the effects likely to last after the intervention ends?	1. The extent to which measures implemented under the Eel Regulation have long-term impacts, even if the intervention were to cease.	1. Mainly qualitative analysis of the permanence and longer-term impact of fishing effort restrictions, river basin improvements (to assist survival and escapement) and restocking.	1. Case studies.

EFFICIENCY			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ6. To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?	1. Extent to which the costs of administering, implementing and overseeing EMP actions have been balanced by the environmental and socio-economic benefits accruing from improved eel stocks.	1. Qualitative assessment of the costs and benefits. 2. Quantitative assessment of the costs (administration and implementation of the measures, compliance, opportunity and other) and benefits (environmental, social and economic accruing from the EMPs).	1. Targeted stakeholder consultations. 2. Case studies. 3. EMFF funding records (inc. recent FAME reports).

EFFICIENCY			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ7. Could the use of other policy instruments or mechanisms have provided better cost-effectiveness?	1. The extent to which alternative options exist and an assessment of their relative cost-effectiveness and contribution to the objectives of the Regulation (see EQ 1).	1. Examination of the alternative options e.g. non-fisheries-related environmental (e.g. through the WFD, MSFD, Habitats Directive, etc) and trade (e.g. CITES) approaches to examine the additionality and cost-effectiveness of the measures under the Regulation.	1. Targeted stakeholder consultations. 2. Case studies.
EQ8. How timely and efficient is the process for reporting and monitoring?	1. The extent to which the tri-annual Member State reporting system works in terms of timeliness and sufficiency.	1. Examination of the responsiveness and adequacy of Member State Progress Reports in identifying progress made against their EMP targets and the overall objectives of the Regulation.	1. Member State Progress Reports. 2. ICES WKEMP analyses

COHERENCE			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ 9 To what extent are the measures for recovery of the European eel stock under the Eel Regulation coherent with wider EU policy and interventions which have similar objectives (e.g. Common Fisheries Policy, fisheries control regulation, environmental legislation and in particular Water Framework Directive)?	1. The extent to which wider fisheries and environmental policies remain coherent with the objectives and measures under the Eel Regulation.	1. Consultative identification of key conflicts or incompatibilities between EU polices and measures.	1. Desk research, with some stakeholder consultation.
EQ10 To what extent are the measures under the Eel Regulation coherent with international obligations (e.g. under CITES and CMS)?	1. The extent to which the Eel Regulation continues to be coherent with the current eel-related measures and commitments under (i) the Convention on International Trade in Endangered Species of Wild Fauna	1. Evaluation the latest CITES and CMS measures related to European eel conservation to determine consistency with the	1. Desk study. 2. Targeted stakeholder consultations e.g. with TRAFFIC, CITES

COHERENCE			
Evaluation questions	Judgement criteria	Indicators	Methods
	and Flora (CITES) and (ii) the Convention on Migratory Species (CMS).	measures under the Eel Regulation.	

EU ADDED VALUE			
Evaluation questions	Judgement criteria	Indicators	Methods
EQ 11 What is the additional value resulting from the EU measures for the recovery of European eel stock under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?	1. Extent that the Eel Regulation has provided additional impetus / support to address eel conservation objectives. 2. Extent that it is possible to isolate results and outcomes that could or would not have been otherwise achieved without the Eel Regulation.	1. There is consensus among MS Authorities and other stakeholders that the Eel Regulation has provided a significant boost to addressing barriers to eel stock recovery. 2. It is possible to identify results / outcomes that can be directly attributed to the Eel Regulation. 3. There is consensus among MS authorities and stakeholders that the identified results / outcomes would not have been achieved without the Eel Regulation.	1. PC 2. Targeted consultations 3. Case studies
EQ12 What would be the most likely consequences of stopping the application of the measures as required in the Eel Regulation?	1. Extent that MS authorities are able to identify positive and negative implications of stopping the application of the measures as regulated in the Regulation.	1. MS authorities and stakeholders identify main positive and negative implications.	1. PC 2. Targeted consultations 3. Case studies

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ANNEX 3: PC QUESTIONNAIRE

Public Consultation on the Eel Regulation

Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel

1. Introduction

Background to the public consultation

The European eel stock (*Anguilla Anguilla*) is in critical condition. Recruitment is at an all-time low and exploitation of the stock is currently unsustainable. The decline in eel stock has numerous causes including human activities such as fisheries (commercial and recreational), hydropower turbines and pumps, pollution, habitat modification and the creation of obstacles to eel migration. A further deterioration of the status of the stock should be avoided. In 2007 a framework to ensure the protection and sustainable use of the European eel stock was established at EU level (Regulation (EC) No 1100/2007 – the so called 'Eel Regulation').

Purpose of the Public Consultation

This Public Consultation is part of the evaluation of the Eel Regulation. The evaluation aims to assess the measures for the recovery of the stock of the European eel under the Eel Regulation, and in particular the contribution of the Eel Management Plans established and implemented under this Regulation. These plans include measures to ensure the long-term escapement of at least 40% of adult eels and include:

- limiting professional and recreational fisheries,
- facilitating fish migration through rivers, and
- restocking inland waters with young fish.

The **answers you provide as part of the consultation will form an important part of the Commission's evidence basis** for the evaluation. The results of this consultation and the evaluation study may be used to inform decisions on whether the Eel Regulation and/or the implementation measures need to be reviewed.

Scope of the consultation

This Public Consultation aims to gather input from all the stakeholders to evaluate the measures for the recovery of the European eel stock under the Eel Regulation of 2007. It forms part of a wider consultation strategy for the evaluation that also includes targeted stakeholder consultations and several case studies that will gather more detailed evidence at a national level.

This questionnaire takes about 15 minutes to complete. You will also be able to provide any other relevant information or comments at the end.

2. About you

Language of my contribution (‘radio button’ for language selection)

I am giving my contribution as:

- Academic/research institution
- Business association
- Company/business organisation
- Consumer organisation
- EU citizen
- Environmental organisation
- Non-EU citizen
- Non-governmental organisation (NGO)
- Public authority
- Trade union
- Other

First Name
Surname
Email (this won’t be published)
Organisation name

Scope

- International
- Local
- National
- Regional

Organisation size

- Micro (1 to 9 employees)
- Small (10 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 or more)

Transparency register number (255 character(s) maximum).

Check if your organisation is on the transparency register. It's a voluntary database for organisations seeking to influence EU decision-making.

Country of origin (‘radio button’ for language selection)

Publication privacy settings: The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

Anonymous

Only your type, country of origin and contribution will be published. All other personal details (name, organisation name and size, transparency register number) will not be published.

Public

Your personal details (name, organisation name and size, transparency register number, country of origin) will be published with your contribution.

* I agree with the personal data protection provisions

What is the main field of activity of your company / organisation?

a. fishery
b. aquaculture
c. environment
d. other (specific)

How would you best describe the nature of your understanding and involvement in matters related to the Eel Regulation?

a. I work for a state agency responsible for developing, implementing and/or monitoring the Eel Regulation
b. I am a fisher or farmer involved the production and/or sale of eels
c. I represent an international organisation with an interest in the implementation of the Eel Regulation
d. I work for an environmental body with an interest in the implementation of the Eel Regulation
e. I work for a research body with an interest in the Eel Regulation
f. I have a general interest in matters concerning fisheries in the European Union
g. Other (please specify)

How familiar are you with the EU Eel Regulation regulations?

a. I have at least a basic knowledge of the Eel Regulation and its implementation
b. I am not familiar with the Eel Regulation

3. Questions on Eel Regulation

Relevance

1. *The Eel Regulation has a number of objectives. To what extent do you consider that each of these remains relevant today?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*There remains a need for a European recovery plan for the European eel.	○	○	○	○	○	○
*There remains a need for Member States to implement Eel Management Plans.	○	○	○	○	○	○
*There remains a need to ensure that anthropogenic mortalities are reduced.	○	○	○	○	○	○
*There remains a need to ensure the escapement to the sea of at least 40% of the adult eel biomass.	○	○	○	○	○	○
*It remains appropriate to regulate the supply of glass eels for restocking operations.	○	○	○	○	○	○
*There remains a need to regulate fishing effort and catches to ensure the recovery of the European eel.	○	○	○	○	○	○
*There remains a need to ensure the origin and traceability of all live eels imported to and exported from MS.	○	○	○	○	○	○
*There remains a need to ensure that control and enforcement activities take place in EU waters and at all stages of the eel supply chain.	○	○	○	○	○	○
*It remains appropriate to seek to reduce catching of eels to at least 50% of 2006 levels.	○	○	○	○	○	○

2. * To what extent do you agree or disagree with the following statement?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*The target of 40% eel escapement is achievable.	○	○	○	○	○	◉

3. Please provide a reason for your answer as to why you think the 40% escapement goal is achievable or not (optional).

4. Do you think that alternative targets are needed to ensure that the Eel Regulation delivers on its objective of securing the recovery of the European eel?

   Yes

   No

   Don't Know

5. Which indicators or targets do you think would be more suitable? (optional).

6. To what extent do you agree or disagree with the following statement?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*The Eel Regulation requires amendment or simplification	○	○	○	○	○	○

7. Please provide a reason for your answer, and, if appropriate, identify which aspects of the Eel Regulation you think need to be amended or simplified (optional).

Effectiveness

8. *To what extent have the current measures for the recovery of European eel stock under the Eel Regulation achieved the following objectives?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*Implementing Eel Management Plans	○	○	○	○	○	○
* Achieving the targets set out in Eel Management Plans	○	○	○	○	○	○
*Ensuring a reduction in anthropogenic eel mortalities	○	○	○	○	○	○
*Increasing the escapement to the sea of adult eels towards the 40% target	○	○	○	○	○	○
*Ensuring that there is enough supply of glass eels for restocking operations	○	○	○	○	○	○
*Ensuring reduction of fishing effort and catches towards the 50% targets	○	○	○	○	○	○
*Ensuring the origin and traceability of all live eels imported to and exported from MS	○	○	○	○	○	○
*Ensuring control and enforcement activities at all stages of the eel supply chain	○	○	○	○	○	○

9. Reflecting your answers above, what do you consider to be the barriers to achieving the objectives of the Eel Regulation?

10. What do you consider to have been the successes of the Eel Regulation and its implementation to date?

11. * Do you support the following measures to recover the population of eel in Europe?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*Limiting professional eel fisheries in the sea	○	○	○	○	○	○
*Limiting professional eel fisheries in freshwater	○	○	○	○	○	○
*Limiting recreational eel fishing in the sea	○	○	○	○	○	○
*Limiting recreational eel fishing in freshwater	○	○	○	○	○	○
*Facilitating fish migration through rivers	○	○	○	○	○	○
*Restocking waters with young fish	○	○	○	○	○	○

12. Do you support the implementation of total or partial bans on eel fishing to aid recovery of the European eel stock?

YES
NO
DON'T KNOW

12a. Please provide a reason for your answer to explain why you support or do not support bans on eel fishing in the EU:

13. What other actions should the European Union or Member States undertake to recover the eel population in Europe? Who should undertake these actions (EU or MSs)?

Coherence

14. To what extent do you agree or disagree with the following statement?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
The Eel Regulation is coherent with other EU instruments to regulate fisheries (such as the Common Fisheries Policy, Fisheries Control Regulation, the Water Framework Directive and the Marine Strategy Framework Directive)	○	○	○	○	○	○
*The Eel Regulation is coherent with other EU instruments to regulate fisheries (such as the Common Fisheries Policy, Fisheries Control Regulation, the Water Framework Directive, the Marine Strategy Framework Directive, the Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES, and the Convention on the Migratory Species - CMS)						

14a. Please provide a reason for your answer to explain what factors lead to coherence or to identify those aspects that are inconsistent or a duplication of efforts under other measures:

EU ADDED value

15. * To what extent do you agree or disagree with the following statement?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*The Eel Regulation provided additional value compared to what could be achieved by Member States at national or regional level	○	○	○	○	○	○

15a. Please provide any comments below to explain your answer (optional). (single textbox)

16. * What would be the most likely consequences of stopping the application of the measures contained within the Eel Regulation (both positive and negative)?

Efficiency

17. * To what extent do you agree or disagree with the following statements?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
*Administering and implementing the Eel Regulation has been carried out at the lowest possible cost.	○	○	○	○	○	○
*The costs of administering and implementing the Eel Regulation are proportionate to the environmental and socio-economic benefits achieved.	○	○	○	○	○	○
*It is possible to simplify the Eel Regulation and still achieve the same results.	○	○	○	○	○	○
*The same or better results in terms of eel stock recovery could have been achieved at lower cost.	○	○	○	○	○	○

18. * Do you think that other policy instruments or mechanisms have provided better cost-effectiveness than has been achieved under the current Eel Regulation and associated Eel Management Plans?

YES
NO
DON'T KNOW

19. If yes, what other policy instruments or mechanisms do you think would have been more cost effective?

Sustainability

20. Are the effects likely to last after the intervention ends?

YES
NO
DON'T KNOW

4. Questions on eel conservation

21. Before starting this consultation, had you ever heard about the problem of decreasing population of the European eel? (choose one only)
    a. YES
    b. NO
    c. DON'T KNOW

22. Do you support action by the European Union to regulate eel fishing to ensure the recovery of the species? (choose one only)
    a. YES
    b. NO
    c. DON'T KNOW

23. Do you support the following measures to recover the population of eel in Europe?

	Strongly disagree	Rather disagree	Neither agree nor disagree	Rather agree	Strongly agree	Don't know
Limiting professional eel fisheries in the sea	○	○	○	○	○	○
Limiting professional eel fisheries in freshwater	○	○	○	○	○	○
Limiting recreational eel fishing in the sea	○	○	○	○	○	○
Limiting recreational eel fishing in freshwater	○	○	○	○	○	○
*Facilitating fish migration through rivers	○	○	○	○	○	○
Restocking waters with young fish	○	○	○	○	○	○

24. What other actions should the European Union or Member States undertake to recover the eel population in Europe? Who should undertake these actions (EU or MSs)?

5. Document upload and final comments

Should you wish to provide additional information (e.g. a position paper, report) or raise specific points not covered by the questionnaire, you can upload your document here. In preparing your response if you have specific recommendations, we would ask that you make it clear who you believe should action these.

Please note that the uploaded document will be published alongside your response to the questionnaire which is the essential input to this Public Consultation. The document is an optional complement and serves as additional background reading to better understand your position.

If you wish to add further information - within the scope of this questionnaire - please feel free to do so here.

2,000 characters max

ANNEX 4A: TARGETED CONSULTATION - STAKEHOLDER LIST

Prospective list of stakeholders to be consulted in the Member States

Member State	MS Competent authority	Other stakeholders
BE Belgium	Landbouw en Visserij	Amicale des Pêcheurs du Brabant (fishing society) Research Institute for Nature and Forest (INBO) (research body) Agency for Maritime Services and Coast (state agency) Brussels Institute for Management of the Environment (IBGE-BIM) Sustainable Eel Group (NGO)
CZ Czech Republic	Ministry of Agriculture	Czech Fishing Union (CFU) Board (fishery association) Czech Fish Farmers Association (fishery association) River Administrations (state agency)
DE Germany	Federal Ministry of Food and Agriculture	Institute of Inland Fisheries (state agency) Thünen Institute of Fisheries Ecology (research body) State research Centre of Agriculture and Fisheries (research body) German Fisheries Association (fishery association) German association of eel traders and eel farmers (Initiative zur Förderung des Europäischen Aals e.V, IFEA) (NGO) Albe fish farm GmbH & Co. KG (industry - farming) DEUTSCHER FISCHEREI VERBAND /Aalversandstelle (industry – restocking)
DK Denmark (Case Study)	Ministry of foreign affairs, Fishery political office	Danish AgriFish Agency Danish Technical University (research body) Danish Fishermen's Association (fishery association) Dansk Amatørfiskerforening (fishery association) DANISH AQUACULTURE ASSOCIATION (fishery association) Eel farm, Jupiter Ål (industry – farming) ROYAL DANISH SEAFOOD (eel farming, processing)
EE Estonia	Fisheries Resources Department of Ministry of Environment	Ministry of Agriculture, Fishery Economics Department (state agency) Estonian University of Life Sciences, Centre for Limnology (research body) Lake Võrtsjäve Fisheries Development Agency (industry – restocking coordination) Triton PR AS (industry – farming, processing)
ES Spain	Ministerio de Medio Ambiente y Medio Rural y Marino	Department of Marine Investigation, AZTI (state agency / research body) VALENCIANA DE ACUICULTURA (industry – farming) Universitat Politécnica de Valéncia, Grupo de Acuicultura y Biodiversidad (research body)
FI Finland	Ministry of Agriculture and Forestry	Natural Resources Institute Finland (state agency) Finnish Game and Fisheries Research Institute (research body) Federation of Finnish Fisheries Associations (fishery association) Finish Federation for Recreational Fishing (fishery association) Association of Sea Fishers in Southern Finland (fishery association) Finnish Association for Nature Conservation (NGO)
FR France (Case Study)	Ministre de l'Agriculture et de l'AlimentationMinistère de l'Agriculture et de la pêche	Comité de gestion des poissons migrateurs (state agency) Direction de la Pêche et de l'Aquaculture (state agency) Museum National Histoire Naturelle (reseatch body) Comité National des Pêches et des Elevages Marins (fishery association) Comité National de la Pêche Professionnelle en eau douce (fishery association) Association pour le Repeuplement de l'Anguille (fishery association) OP ESTUAIRES (producers organisation) ETHNOCONSERVATION (NGO) Gurruchaga Maree SARL (industry – buyer)
GR Greece	Ministry of Rural Development and Food	FISHERIES RESEARCH INSTITUTE (state agency / research body) University of Patras (research body)

Member State	MS Competent authority	Other stakeholders
IE Ireland	Department of Agriculture, Food and the MarineDepartment of Communications, Energy and Natural Resources	Department of Environment, Heritage and Local Government (state agency) Marine Institute (state agency / research body) Central Fisheries Board (fishery association) A Bord Iascaigh Mhara (BIM - The Irish Sea Fisheries Board) (state agency) Inland Fisheries Ireland (state agency)
IT Italy (Case Study)	Ministry of Agricultural, Food and Forestry	Centro di ricerca per la Zootecnia e l'Acquacoltura (ZA) (state agency / research body) Associazione Mediterranea Acquacoltori (fishery association) University of Bologna (research body) Emilia Romagna Region (regional authority) Federcoopesca Emilia Romagna (fishery association) AGCI AGRITAL – Emilia Romagna (fishery association) Federazione Italiana Pesca Sportiva e Attività Subacquee, Ferrara (fishery association) Ittica Luciani srl (industry – processing) Medusa (industry – processing)
LT Lithuania	Fisheries Department of the Ministry of Agriculture of the Republic of Lithuania (Baltic Sea) Ministry of Environment (inland waters)	Nature Research Centre, Laboratory of Marine Ecology (research body) Environmental Protection Agency (state agency)
LU Luxembourg	Ministère de l'Agriculture, de la Viticulture et de la Protection des consommateursDépartement de l'environnement	
LV Latvia	National Board of Fisheries of the Ministry of Agriculture	Ministry of Environment (state agency) Latvian Fish Resources Agency (state agency) Latvian Anglers Association (fishery association)
NL Netherlands	Department of Fisheries - Ministry of Agriculture, Nature and Food Quality	Dutch foundation of eel traders (NeVePaling) (fishery association) Dutch Association of fish farmers (NEVEVI) (fishery association) DUPAN Foundation (NGO) Nijvis Group (eel farms, traders, processors) IMARES / WAGENINGEN (research body) COMBINATIE VAN BEROEPVISSERS (fishery association) Glasaal Volendam BV (industry – hatchery)
PL Poland	Ministry of Maritime Economy and Inland WaterwaysMinistry of Agriculture and Rural Development	Sea Fisheries Institute (state agency / research body) Stanislaw Sakowicz Inland Fisheries Institute (state agency / research body) Polish Anglers Association (fishery association) Alldan (industry – glass eel trading)
PT Portugal	Ministério do MarDirecção Geral das Pescas e Aquicultura	Centre for Marine and Environmental Research (CIIMAR), University of Port oo (research body) Portuguese Institute of Sea and Fisheries (INIAP/IPIMAR) (research body)
SE Sweden	Ministry for Rural Affairs Ministry of Environment and Energy – Natural Environment Division	Swedish Agency for Marine and Water Management (state agency) Scandinavian Silver Eel (industry - farming) Skåne county board, Kristianstad (industry – restocking) Stockholm University, Baltic Sea Centre (research body) Swedish University of Agricultural Sciences, Institute of Freshwater Research (research body) Swedish Anglers Association (fishery association) Swedish Society for Nature Conservation (NGO)
UK United Kingdom	Department for Environment, Food and Rural Affairs	Environment Agency, Scottish Environment Protection Agency, Natural Resources Wales, Northern Ireland Environment Agency (state agencies) Marine Scotland Science (state agency / research body) Centre for Environment, Fisheries and Aquaculture Science (research body) Lough Neagh Eel (industry – fishery) / Lough Neagh Fishermen's Cooperative Society (fishery association)

Member State	MS Competent authority	Other stakeholders
		Glass Eels Ltd (industry- trade) Severn & Wye Smokery (industry – processing)

List of other stakeholders consulted

Stakeholder	Role / Remit
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) – Scientific Services	International agreement aiming to ensure that international trade of wild animals and plants does not threaten their survival.
Convention of Migratory Species (CMS) – Aquatic Species Team	As an environmental treaty focused on the conservation and sustainable use of migratory species, including eels. CMS brings together the States where migratory animal species spend different parts of their life cycle including migratory routes, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.
European Association of Fish Producers Organisations (EAPO)	Represents 38 Producer Organisations from 10 Member States.
European Inland Fisheries and Aquaculture Advisory Commission (EIFAAC)	Promote the long-term sustainable development, utilization, conservation, restoration and responsible management of European inland fisheries and aquaculture, consistent with the objectives and principles of the FAO Code of Conduct for Responsible Fisheries and other relevant international instruments.
Europeche	Representative body for fishermen in the European Union representing around 45,000 vessels, both artisanal and large scale, 80,000 fishermen and counting 16 member organisations from 10 European countries.
Fisheries and Aquaculture Monitoring and Evaluation (FAME) Support Unit	Assists the European Commission in monitoring and evaluating the implementation of the EMFF.
Fisheries Area Network (FARNET) Support Unit	FARNET is the community of people implementing Community-Led Local Development (CLLD) under the European Maritime and Fisheries Fund (EMFF). This network brings together Fisheries Local Action Groups (FLAGs), managing authorities, citizens and experts from across the EU.
Joint EIFAAC/ICES/GFCM Working Group on Eels	Report on the status of the European eel stocks and provide advice to support development and implementation of EC Regulation No. 1100/2007 for eel stock recovery.
Low Impact Fishers of Europe	Aim to provide a clear and coherent voice at EU level for smaller scale fishers who use low impact fishing gears and methods.
Coalition Clean Baltic	Joint NGO, comprised of NGOs from the countries of the Baltic Sea region, with goal of protecting and improving the Baltic Sea environment and natural resources. Eel status is one of their key working areas.
Eel Stewardship Association	The Eel Stewardship Association (ESA) is founder of the Eel Stewardship Fund and owner of the esf trademark. ESA was established in 2015 by industry organisations of the Netherlands and Germany and it is hoped it will be adopted elsewhere. The main goal is to accelerate the eels recovery in Europe and adopting measure to ensure sustainable use of the stock.
Advisory Councils	Advisory Councils e.g. Baltic Sea, North Sea, South-Western Waters, North Western Waters, Mediterranean, Aquaculture and Market.
European Anglers Alliance	The European Anglers Alliance (EAA) is the pan-European organisation for recreational angling.
Aquaculture Advisory Council (AAC)	This stakeholder-led organisation has as main objective to provide the European institutions and the Member States with recommendations and advice on issues related to the sustainable development of the sector.
Baltic Sea Fisheries Forum (BALTFISH)	Regional body providing a platform for discussion on important fisheries issues in the Baltic Sea.
North Western Waters Advisory Council (NWWAC)	A representative fisheries stakeholder body which is legally recognised as an organisation aiming an European Interest. It is established in Ireland and it produces regular advice on its own initiative or at request of the European Commission and the concerned Member

Stakeholder	Role / Remit
	States on all relevant matters related to fisheries management in the EC offshore waters within the EEZ of Ireland, part of United Kingdom and France (ICES areas Vb, VIa and VII).
North Sea Advisory Council (NSAC)	The NSAC prepares and provides advice on the management of fisheries in the North Sea on behalf of its members; fisheries organisations and other stakeholders including environmental organisations.
South Western Waters Advisory Council (SWWAC)	The SWWAC brings together all actors who have an interest in Fisheries Management to put forward opinions to the European Commission and the Member States on the management of the fisheries in the South Atlantic.
TRAFFIC	Wildlife trade monitoring network; an NGO working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.
IUCN Anguillid Eel Specialist Group	A specialist IUCN group of experts seeking to promote research on anguillid species and advocate their conservation.

ANNEX 4B: TARGETED CONSULTATION - MEMBER STATE AUTHORITY QUESTIONNAIRE

Introduction

The Eel Regulation

In 2007, the EU adopted specific measures for the recovery of the stock of European eel through Council Regulation (EC) 1100/2007 (the **Eel Regulation**). This required EU Member States to prepare eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation in 2009 onwards.

Eel management and conservation at Member State level

Under the Eel Regulation, Member States (MS) are obliged to monitor the eel stock, evaluate current silver eel escapement and post-evaluate implemented management actions aimed at reducing eel mortality and increasing silver eel escapement. Under the Regulation, each MS should report to the Commission initially every third year until 2018 and subsequently every six years on the monitoring, effectiveness and outcomes of EMPs, including:

- The proportion of silver eel biomass that escapes to the sea to spawn, or leaves the national territory, relative to the target level of escapement;
- The level of fishing effort that catches eel each year;
- The level of anthropogenic mortality factors outside the fishery; and,
- The amount of eel less than 12 cm in length caught and the proportions utilised for different purposes.

These reporting requirements were further developed by the Commission in 2011/2012 . This guidance added the requirement to report fishing catches (as well as effort), and provides explanations of the various biomass, mortality rates and stocking metrics required for international assessment and post-evaluation.

This evaluation

In view of the lack of improvement of the stock status, the European Commission and Member States agreed to step up their efforts to protect the stock. This includes carrying out an evaluation of the Eel Regulation.

The evaluation will look in particular into the content and implementation of the eel management plans and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock.

Member State concerned	
Person(s) interviewed (name - entity – position – contact details)	
Date(s) of interview	
Interviewer	

Many thanks in advance for your help. Please return the questionnaire to xxx by xx/xx/ 2018 or let us know if you require additional time to return a completed questionnaire. If you have any questions while completing the questionnaire, please feel free to write to the same email address. You can answer the questionnaire in your national language if easier for you, although an answer in English is our preferred option.

Questionnaire for Member State Authorities

General Questions

⊙ **Question: What key national measures are in place to promote recovery of the European eel stock?**
⏩ Answer

⊙ **Question: Since 2009, what key legislation has been enacted at national level to assist the recovery of eel stocks?**
⏩ Answer (please justify in a sentence or two)

⊙ **Question: To what extent have the following measures for the recovery of European eel stock met the objectives of the Eel Regulation?**

⏩ Answer

Approach	**Yes / No / Partially**	**Justification**
Implement Eel Management Plans to achieve specific targets;		
Ensured the anthropogenic mortalities (e.g. non-fisheries) are reduced;		
Increased the escapement to the sea of adult eels towards the 40% target;		
Ensured there is enough supply of glass eels for restocking operations;		
Ensured reduction of fishing effort and catches towards the 50% target;		
Ensured the origin and traceability of all live eels imported to and exported from MS;		
Ensure effective control and enforcement activities.		

⊙ **Question: What have been the key <u>success factors</u> that have assisted the implementation of the measures for the recovery of the European eel stock under the Eel Regulation?** Please consider administrative, social, cultural, legal, trade, political, fiscal and technical (inc. scientific and biological)issues when responding.
⏩ Answer

⊙ **Question: What have been the <u>key barriers</u> to implementation of the measures for the recovery of the European eel stock under the Eel Regulation?** Please consider administrative, social, cultural, legal, trade, political, fiscal and technical (inc. scientific and biological)issues when responding.
⏩ Answer

⊙ **Question: Is sufficient data available to report progress against each of the objectives of the Eel Regulation?**
⏩ Answer (please justify in a sentence or two)

⊙ **Question: How sustainable are the measures undertaken e.g. will they continue to be effective after the measures are completed or stopped?**
⏩ Answer

⊙ **Question: Did you fund any actions to achieve your Eel Management Plan through the <u>European Fisheries Fund</u> (EFF)? If yes, please provide a brief description of the actions taken, if possible with an indication of the budget allocated.**
⏩ Answer

⊙ **Question: Did you fund any actions to achieve your Eel Management Plan through the <u>European Maritime and Fisheries Fund</u> (EMFF)? If yes, please provide a brief description of the actions taken, if possible with an indication of the budget allocated.**
⏩ Answer

⊙ **Question: What <u>non-fisheries</u> related measures have been particularly effective in achieving the objectives of the Eel Regulation? Do you have any thoughts on their cost-effectiveness?**
⏩ Answer

⊙ **Question: What measures are in place to identify the origin and ensure the traceability of all live eels imported or exported, and how are these enforced?**
⏩ Answer

⊙ **Question: What other international and national policy instruments or mechanisms are important in aiding recovery of eel stocks? Do the objectives of these align with the objectives of the Eel Regulation?**
⏩ Answer

⊙ **Question: To what extent are measures for recovery of the European eel stock set out in the Eel Regulation still relevant?**
⏩ Answer

⊙ **Question: Has your organisation identified unexpected effects of Eel Regulation? If yes, what are these and are they positive or negative?**
⏩ Answer

⊙ **Question: Are there any conflict or incompatibilities between eel conservation measures and other national / EU policies and regulations?**
⏩ Answer

⊙ **Question: The Commission may consider a revision of the Eel Regulation. Do you have particular views on how the Regulation should evolve?**
⏩ Answer

Administrative workload

Developing and monitoring progress against the Eel Regulation may require specific working time for administrative agents in the Member States. The objective of this section is to understand the average number of full-time equivalent (FTE) involved in developing and monitoring the Eel Regulation at central and at regional level (if applicable). For example, one public agent spending half of his annual working time on the Eel Regulation shall be quantified as 0.5 FTE. Any non-person costs (e.g. IT costs) should also be estimated where possible.

Note, this is separate to workload associated with control and enforcement of the Regulation.

Estimates

Average number of FTEs at central level:

Average number of FTEs at regional level:

Comments:

Missing points: please develop below important points that are not adequately covered by the questions, and that are important to take account into the evaluation

Answer

ANNEX 4C: TARGETED CONSULTATION – CONTROL AUTHORITY QUESTIONNAIRE (DETAILED VERSION)

Background to this questionnaire

In 2007, the EU adopted specific measures for the recovery of the stock of European eel through Council Regulation (EC) 1100/2007 (the Eel Regulation). In view of the lack of improvement of the stock status, the European Commission and Member States agreed to step up their efforts to protect the stock. This includes carrying out the evaluation of the Eel Regulation.

The evaluation will look in particular into the content and implementation of the eel management plans and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock. The evaluation will also cover control and enforcement issues, both in marine and in inland waters. This is the focus of this questionnaire.

Our consortium has been contracted by DG MARE to carry out this evaluation (see attached authorisation letter). Since Member States experience for control and enforcement of eel protection measures is central to inform the decision whether the Eel Regulation needs to be reviewed or whether it is the implementation which needs to be improved, we would be grateful if your authority could answer the following questions, in order to enable the evaluation to fully reflect the views and experience of MEMBER STATE.

Many thanks in advance for your help. Please return the questionnaire to xxx by xx/xx/ 2018 or let us know if you require additional time to return a completed questionnaire. If you have any questions while completing the questionnaire, please feel free to write to the same email address. You can answer the questionnaire in your national language if easier for you, although an answer in English is our preferred option.

Respondent details

Member State concerned	
Name of respondent - entity – position – contact details	
Date of questionnaire completion	

National authorities involved in control and enforcement of eel management plan measures
⊙ **Question: what are the main national authorities involved for control and enforcement of eel measures in MEMBER STATE?** *Please list the different authorities involved with identification of their main area of competence (i.e. marine waters, freshwater bodies, aquaculture, import-export)*
⏩ Answer (list as appropriate) • Authority 1 (main area of competence) • Authority 2 (main area of competence)

⊙ **Question: what are the main national arrangements for coordination of the different national authorities involved?** *Please describe the arrangements to coordinate control and enforcement actions at national level (e.g. coordinating national authority ; preparation, implementation and monitoring of a national control plan)*
⏩ Answer
⊙ **Question: in the event a national control plan is prepared, is it based on a risk assessment? If so, how often is the risk assessment updated?**
⏩ Answer
⊙ **Please add any comment on the national organisation for the control and enforcement of eel conservation measures that should be brought to the attention of our evaluation team**
⏩ Answer

Description of main control measures implemented in MEMBER STATE
Control measures (as relevant in the case of MEMBER STATE)
⊙ **Question: What are the main control measures implemented at national level for control of eel conservation measures in <u>marine waters</u> (Community waters according to Reg. (EC) 1100/2007)?**
⏩ Answer
⊙ **Question: What are the main control measures implemented at national level for control of eel conservation measures in <u>freshwater bodies</u> (Non-Community waters according to Reg. (EC) 1100/2007)?**
⏩ Answer
⊙ **Question: What are the main control measures implemented at national level for control of ecological continuity of rivers?**

» Answer

⊙ Question: What are the main measures implemented at national level for control of eel aquaculture?

» Answer

⊙ Question: What are the main measures implemented at national level for control of import and export of eels?

» Answer

⊙ Question: What are the main measures implemented at national level for control of traceability of eels along the supply chain (from net to final sale)?

» Answer

Main risks of non-compliance

Question: According to your experience, what are the main risks of non-compliance with national eel conservation measure?

When replying, thanks to precise the nature of the risk and the environment in which risks occur the most i) marine waters, ii) freshwater bodies, iii) aquaculture and iv) import and export of eels (as relevant for the Member State)

» Answer

Question: What are the challenges met at national level to overcome risks identified according to the answer to the previous question.

» Answer

Control means

⊙ Question: In addition to traditional control means, do control authorities in MEMBER STATE use modern technologies that proved to increase cost-effectiveness of controls?

Traditional control means generally include manned inspections (on land, seaborne, airborne). Modern technologies consider use of unmanned control means like drones or

closed-circuit television (CCTV), or increased use of electronic traceability devices (i.e. RFID) or database cross-checking techniques

In the event such modern technologies is used by your control authorities, please specify for what infringement detection purpose.

Answer

The way forward

Question: according to your experience, what would be the main recommendations for improvement of control and enforcement of national eel measures implemented under Reg (EC) 1100/2007?

Answer

Question: In the event the Eel Regulation is reviewed, what would be your main recommendations in relation to control measures and enforcement thereof?

Answer

Costs of control and enforcement of eel measures

Question: do you have an estimate of costs of national control and enforcement eel measures?

Please provide any estimate available. Alternatively, please provide an estimate of the amount of workforce deployed on control of eel measures (e.g. number of control agents involved, number of full-time equivalent). If no estimate is available for your Member State, please state so.

If you provide estimate, please ensure that scope of estimates and units of estimates are sufficiently detailed.

Answer

Missing points: please develop below important points that are not adequately covered by the questions, and that may be important to take account into the evaluation according to MEMBER STATE experience

Important missing points

ANNEX 4D: TARGETED CONSULTATION – CONTROL AUTHORITY QUESTIONNAIRE (SIMPLIFIED VERSION)

Background to this questionnaire

In 2007, the EU adopted specific measures for the recovery of the stock of European eel through Council Regulation (EC) 1100/2007 (the Eel Regulation). In view of the lack of improvement of the stock status, the European Commission and Member States agreed to step up their efforts to protect the stock. This includes carrying out the evaluation of the Eel Regulation.

The evaluation will look in particular into the content and implementation of the eel management plans and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock. **The evaluation will also cover control and enforcement issues, both in marine and in inland waters. This is the focus of this questionnaire**.

Our consortium has been contracted by DG MARE to carry out this evaluation (see attached authorisation letter). Since Member States experience for control and enforcement of eel protection measures is central to inform the decision whether the Eel Regulation needs to be reviewed or whether it is the implementation which needs to be improved, we would be grateful if your authority could answer the following questions, in order to enable the evaluation to fully reflect the views and experience of MEMBER STATE.

We are aware that MEMBER STATE already responded a questionnaire submitted by DG MARE on the control of eel fisheries in 2018. This questionnaire focuses on areas not necessarily covered by the DG MARE questionnaire.

Many thanks in advance for your help. Please return the questionnaire to xxx by **xx/xx/ 2018**, or let us know if you require additional time to return a completed questionnaire. If you have any questions while completing the questionnaire, please feel free to write to the same email address. You can answer the questionnaire in your national language if easier for you, although an answer in English is our preferred option.

Respondent details

Member State concerned	
Name of respondent - entity – position – contact details	
Date of questionnaire completion	

Main risks of non-compliance
Question: According to your experience, what are the main risks of non-compliance with National eel conservation measure? *When replying, thanks to precise the nature of the risk and the environment in which risks occur the most i) marine waters, ii) freshwater bodies, iii) aquaculture and iv) import and export of eels (as relevant for the Member State)*
▸▸ Answer
Question: What are the challenges met at national level to overcome risks identified according to the answer to the previous question.
▸▸ Answer

Control means
Question: In addition to traditional control means, do control authorities in MEMBER STATE use modern technologies that proved to increase cost-effectiveness of controls? *Traditional control means generally include manned inspections (on land, seaborne, airborne). Modern technologies consider use of unmanned control means like drones or closed-circuit television (CCTV), or increased use of electronic traceability devices (i.e. RFID) or database cross-checking techniques* *In the event such modern technologies is used by your control authorities, please specify for what infringement detection purpose.*
Answer

The way forward
Question: according to your experience, what would be the main recommendations for improvement of control and enforcement of national eel measures implemented under Reg (EC) 1100/2007?
Answer
Question: In the event the Eel Regulation is reviewed, what would be your main recommendations in relation to control measures and enforcement thereof?
Answer

Costs of control and enforcement of eel measures
Question: do you have an estimate of costs of national control and enforcement eel measures? *Please provide any estimate available. Alternatively, please provide an estimate of the amount of workforce deployed on control of eel measures (e.g. number of control agents involved, number of full-time equivalent). If no estimate is available for your Member State, please state so.* *If you provide estimate, please ensure that scope of estimates and units of estimates are sufficiently detailed.*
Answer

Missing points: please develop below important points that are not adequately covered by the questions, and that may be important to take account into the evaluation according to MEMBER STATE experience

- Important missing points

Thank you for your cooperation

ANNEX 4E: TARGETED CONSULTATION - OTHER STAKEHOLDER QUESTIONNAIRE

Introduction

The Eel Regulation

In 2007, the EU adopted specific measures for the recovery of the stock of European eel through Council Regulation (EC) 1100/2007 (the **Eel Regulation**). This required EU Member States to prepare eel management plans (EMPs) for their river basins that constitute significant eel habitats for implementation in 2009 onwards.

Eel management and conservation at Member State level

Under the Eel Regulation, Member States (MS) are obliged to monitor the eel stock, evaluate current silver eel escapement and post-evaluate implemented management actions aimed at reducing eel mortality and increasing silver eel escapement. Under the Regulation, each MS should report to the Commission initially every third year until 2018 and subsequently every six years on the monitoring, effectiveness and outcomes of EMPs, including:

- The proportion of silver eel biomass that escapes to the sea to spawn, or leaves the national territory, relative to the target level of escapement;
- The level of fishing effort that catches eel each year;
- The level of anthropogenic mortality factors outside the fishery; and,
- The amount of eel less than 12 cm in length caught and the proportions utilised for different purposes.

These reporting requirements were further developed by the Commission in 2011/2012 . This guidance added the requirement to report fishing catches (as well as effort), and provides explanations of the various biomass, mortality rates and stocking metrics required for international assessment and post-evaluation.

This evaluation

In view of the lack of improvement of the stock status, the European Commission and Member States agreed to step up their efforts to protect the stock. This includes carrying out an evaluation of the Eel Regulation.

The evaluation will look in particular into the content and implementation of the eel management plans and Member States reporting under the Eel Regulation to assess if they have adequately addressed all mortality factors affecting the eel stock.

Person(s) interviewed (name - entity – position – contact details)	
Member State concerned	
Date(s) of interview	
Interviewer	

Many thanks in advance for your help. Please return the questionnaire to xxx by xx/xx/ 2018 or let us know if you require additional time to return a completed questionnaire. If you have any questions while completing the questionnaire, please feel free to write to the same email address. You can answer the questionnaire in your national language if easier for you, although an answer in English is our preferred option.

Questionnaire for stakeholders

⊙ **Question: In your view, is the Eel Regulation a relevant and effective instrument to promote the recovery and sustainable use of the European eel stock**? Please justify your answer.
⏩ Answer

⊙ **Question: In your view, are there measures available in your Member State to implement the Eel Regulation adequately?** If not, what should they include?	
Fisheries-related (e.g. limits on fishing effort, better control and limits on eel trade)	***Non-fisheries related (e.g. improvements to water quality, migration route connectivity, etc)***
⏩ Answer	⏩ Answer

⊙ **Question: What have been the key <u>success factors</u> that have assisted the implementation of the measures for the recovery of the European eel stock <u>under the Eel Regulation</u>?**
⏩ Answer

⊙ **Question: What have been the key <u>success factors</u> that have assisted the implementation of the measures for the recovery of the European eel stock <u>outside of the Eel Regulation</u>?**
⏩ Answer

⊙ **Question: In your view, what are the key barriers to recovery of the European eel stock <u>that can be addressed at Member State level</u>?**
⏩ Answer

⊙ **Question: In your view, what are the key barriers to recovery of the European eel stock that <u>cannot be addressed at Member State level and need wider international involvement</u>?**
⏩ Answer

⊙ **Question: In your view, what measures beyond those covered by the Eel Regulation, would aid recovery of the European eel stock?**
⏩ Answer

Question: In your view, what measures to aid recovery of the European eel stock are most cost-effective and why?

Answer

Question: In your view, are any other international and national policy instruments or mechanisms important in aiding recovery of eel stocks? If yes, in your view do the objectives of these align with the objectives of the Eel Regulation?

Answer

Question: Has your organisation identified unexpected effects of the Eel Regulation? If yes, what are these and are they positive or negative?

Answer

Question: The Commission may consider a revision of the Eel Regulation. Do you have particular views on how the Regulation should evolve?

Answer

Question: What else could EU Member States do to improve the status of European eels in EU waters?

Answer

Missing points: please develop below important points that are not adequately covered by the questions, and that are important to take account into the evaluation

Answer

ANNEX 5: SYNOPSIS REPORT ON THE PUBLIC, ROADMAP AND OTHER STAKEHOLDER CONSULTATIONS

1. INTRODUCTION

This report provides a concise overview of all consultation work carried out within the evaluation of the Eel Regulation in line with Better Regulation Toolbox, tool #55. According to the guidelines, the report should cover formal consultation work, *ad hoc* contributions directly linked to the preparation of the evaluation and information on the input received through the feedback mechanisms for roadmaps.

Our synopsis report presented below covers all consultation activities conducted throughout the evaluation study, including:

- 12-week public consultation (PC),
- Feedback received to the evaluation roadmap
- Ad hoc contribution,
- Targeted consultation.

2. PUBLIC CONSULTATION

The Commission launched the public consultation on 14 December 2018. With the obligatory 12-week consultation period the PC ended on 8 March 2019. The consultation aimed to gather feedback from two types of potential respondents:

- fisheries professionals, familiar with the Eel Regulation, and
- EU citizens not familiar with the legislation but interested in eel stock recovery.

To address the two groups, we have divided the PC questionnaire into two sections: an experts' survey and a general survey. The experts' survey included 12 closed and 11 open questions. The questions were more specific and complex, and they referred to all the five evaluation criteria. The general survey was more generic and briefer. It included three closed and one open question. The questionnaire was accessible on the EU Survey website in all EU official languages.[63]

In total, 160 respondents took part in the consultation, 152 responded to experts' survey and 8 to general survey. Ad hoc responses were also received from the Sustainable Eel Group (SEG, the Baltic Sea Advisory Council (BSAC) as well as the French and Netherlands governments. Below we present a characteristic of the respondents and a summary of their responses.

2.1 Respondents' profile

Sixteen Member States (57%) and two non-EU countries (Norway and Albania) were represented in the contributions. More than 40% of respondents came from France (66 contributions), followed by Spain (20), the Netherlands (14), Germany (10), the United Kingdom (8), Portugal (7), Belgium and Sweden (6 each).

Out of 160 respondents, 45 gave their contributions as "EU citizens" (without institutional affiliation) (28.1%) and 115 respondents in a professional capacity (71.9%) as representatives of: a company or business organisation (26), NGOs (19), academic or research institutions (18), environmental organisation (18), public authority (12), business association (8), trade union (3), and "other" (11).

[63] Public consultation on the Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/public-consultation_en.

Respondents' self-description in relation to the Eel Regulation was as follows:

- *I work for an environmental body with an interest in the implementation of the Eel Regulation* (18.1%);
- *I have a general interest in matters concerning fisheries in the European Union* (17.5%);
- *I work for a public administration responsible for developing, implementing and/or monitoring the Eel Regulation* (16.9%);
- *I am a fisher or farmer involved the production and/or sale of eels* (10%);
- *I work for a research body with an interest in the Eel Regulation* (8.8%);
- *I represent an international organisation with an interest in the implementation of the Eel Regulation* (6.9%);
- *Other* (21.9%), for instance hydropower producers, fisheries advisors, organisations representing fishermen and other NGOs.

Fields of activity of respondents' organisations were: environment (42.5%), fishery (31.3%), aquaculture (4.4%), other (21.9%), for instance hydropower, shipping, agriculture and law enforcement. Their organisations varied **in terms of size**: large with over 250 employees (20%), medium (10.6%), small (16.3%) and micro (25%).[64]

2.2 Public consultation results

Below we present the results of the OPC experts' survey (152 contributions).

Relevance

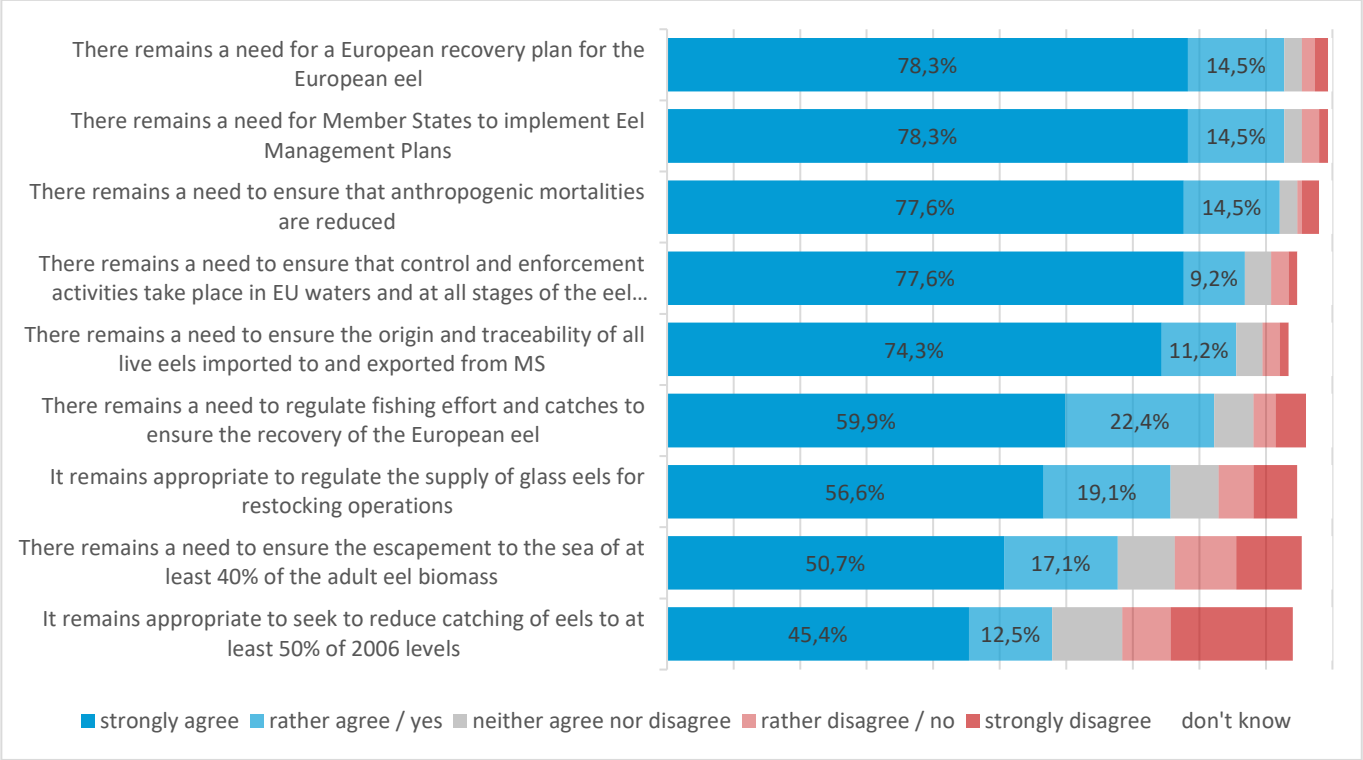
Overall, respondents assessed the relevance of the Eel Regulation positively. As presented in **Figure 18** overleaf, the majority of them considered all the objectives listed as still relevant. More than nine in ten respondents agreed that there remains a need to ensure that anthropogenic mortalities are reduced, for a European recovery plan for the European eel, and for Member States to implement Eel Management Plans. 86.8% agreed that there remains a need to ensure that control and enforcement activities take place in EU waters at all stages of the eel supply chain. 85.5% agreed that there remains a need to ensure the origin and traceability of all live eels imported to and exported from MS. 82.2% agreed that there remains a need to ensure fishing effort and catches are regulated. 75.67% of respondents agreed that it remains appropriate to regulate the supply of glass eels for restocking operations and 67.8% agreed that there remains a need to ensure the escapement to the sea of at least 40% of the adult eel biomass.

The lowest number of respondents, but still the majority, agreed that it remains appropriate to seek to reduce catching of eels to at least 50% of 2006 levels (57.9% agreed and 28.3% disagreed).

[64] Not all respondents specified the size of organisation, *n=115.*

Figure 18: How relevant is the Eel Regulation?

Q1: *The Eel Regulation has a number of objectives. To what extent do you consider that each of these remains relevant today?*

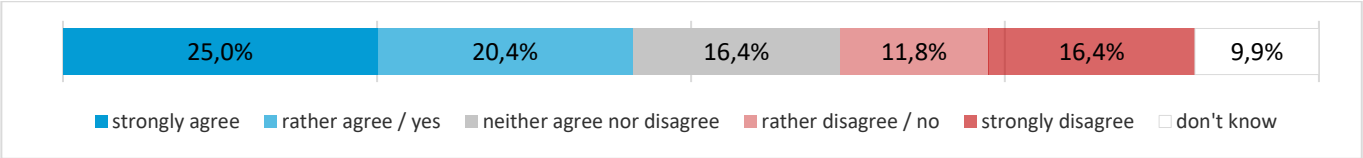


n=152

While the target to ensure 40% eel escapement to the sea was perceived as "relevant", less than half of respondents (45.4%) indicated that it was indeed "achievable" (see **Figure 19**).

Figure 19: Is the 40% escapement target achievable?

Q2: *To what extent do you agree or disagree with the following statement?: The target of 40% eel escapement is achievable*



n=152

When analysed by sector, business sector respondents tended to indicate more frequently that they disagreed with the statement that this target was achievable (44.1%), while representatives of NGOs and academic communities tended to agree (66.7% and 58.8%, respectively).

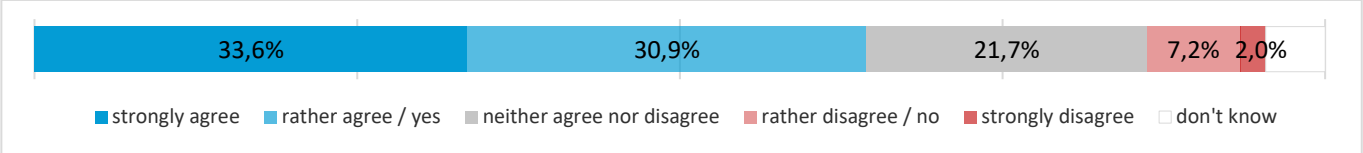
Respondents were able to provide additional comments on the possibility to achieve this target[65]. Out of those who provided additional comments (127), 34.8% highlighted a number of issues with the 40% target itself, namely: the target is not measurable, not ambitious enough, not based on scientific evidence, set for pristine rivers rather than real-life situations, not comparable between Member States or, in fact, too ambitious. Others referred to external reasons why the target is unachievable: unresolved problem with barriers to eel migration and hydropower-turbines mortality (14.8%), the policy at the national level being insufficiently implemented (6.7%).

[65] Q3: *Please provide a reason for your answer as to why you think the 40% escapement goal is achievable or not* (optional), n=127.

In a separate contribution provided to the Commission by the French national administration, it indicated that achieving the goal of a 40% escape rate is only possible in the long term, given the life cycle of the species and the state of the stock. Therefore, it is essential that intermediate objectives to achieve this long-term objective are implemented by the Member States in their management plans. Apart from assessing the relevance of the current objectives of the regulation, respondents were asked if the regulation needed amendments or simplification. The majority indicated that it did (64.5%), compared to only one in ten who disagreed and about one third without a specified opinion (see **Figure 20** below).

Figure 20: Should the Eel Regulation be amended of simplified?

Q6: *To what extent do you agree or disagree with the following statement?: The Eel Regulation requires amendment or simplification.*



n=152

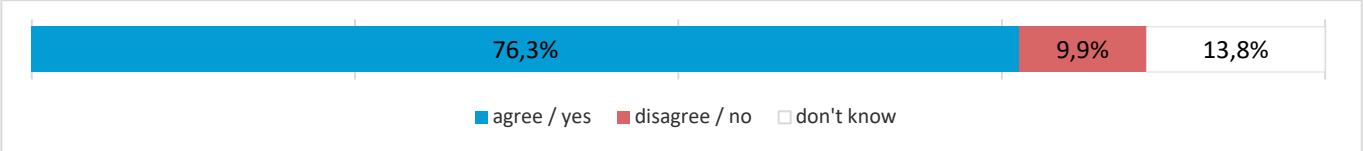
Respondents were also asked to provide suggestions on amendments or simplification in an open-ended question.[66] From those who provided answers, many (39.7%) did not specify concrete steps and 9.9% suggested it was the implementation that needed to be improved rather than the regulation itself. Other suggestions included:

- introducing stricter rules on fishing and trade (including a total ban on fishing) and reinforcing the regulation (20.7%),
- modifying the escapement objective (clarification or setting more realistic target) (9.1%),
- introducing more harmonized standards or indicators to assess effects across countries (7.4%).

The vast majority of respondents (76.3%) indicated that alternative targets were needed to ensure that the regulation delivers on its objective of securing the recovery of the European eel. One in ten respondents disagreed (see **Figure 21**).

Figure 21: Does the Eel Regulation need alternative targets?

Q4: *Do you think that alternative targets are needed to ensure that the Eel Regulation delivers on its objective of securing the recovery of the European eel?*



n=152

In an open-ended question, respondents provided additional comments and proposals for alternative targets and indicators.[67] Out of those who provide comments, 22.3% highlighted the need to further limit eel fishing, in particular glass eel fishing and recreational fishing, and 9.7% mentioned a total ban on eel fishing. 16.5% proposed targets related to reduction of migration barriers (hydropower, dams; turbines' closures during migration periods) and 11.7% proposed focusing on recovery of estuaries, rivers and habitats and reducing pollution (including PCBs and endocrine disruptors). Other proposed targets were related to: better understanding of the problem (scientific research and monitoring) (5.9% of respondents) and introducing interim targets and deadlines for implementation (5.3% of respondents).

[66] Q7: *Please provide a reason for your answer, and, if appropriate, identify which aspects of the Eel Regulation you think need to be amended or simplified* (optional), n=121.
[67] Q5: *Which indicators or targets do you think would be more suitable?* (optional), n=103.

Individual respondents also proposed concrete indicators such as:

- indicators related to migration barriers (number of those removed, number of hours of shutdown of turbines, km of watercourses restored),
- indicators of restoration of ecological continuity, rate of colonization of suitable spaces,
- the number of young eels colonizing habitats above estuaries,
- quantitative indicator of eel escapement in each catchment or representative catchment,
- minimum recruitment rates to be met by watershed below which any exploitation of stocks at all stages should be prohibited,
- number of eels that need to reach the spawning areas to reach a sustainable stock.

French authorities also indicated the need to adopt intermediate targets in EMPs that can be evaluated in the short or medium term, but also stressed the need to focus efforts not on a modification of the regulation but on the proper implementation of the EMPs.

Effectiveness

Respondents assessed the achievements of the regulation less positively than its relevance. They were asked to make judgement on the effectiveness of the current measures for the recovery of European eel stock against the same set of objectives of the regulation. Opinions were mixed.

The achievement of some objectives was assessed more positively than others, for example, the implementation of Eel Management Plans was the only objective that the majority of respondents (57.2%) agreed that it was achieved.

A relative majority of respondents also indicated that the regulation managed to increase the adult eels' escapement to the sea towards the 40% target (3.3 percentage points difference between positive and negative answers) and to ensure a reduction in anthropogenic eel mortalities (0.7 percentage points difference between positive and negative answers).

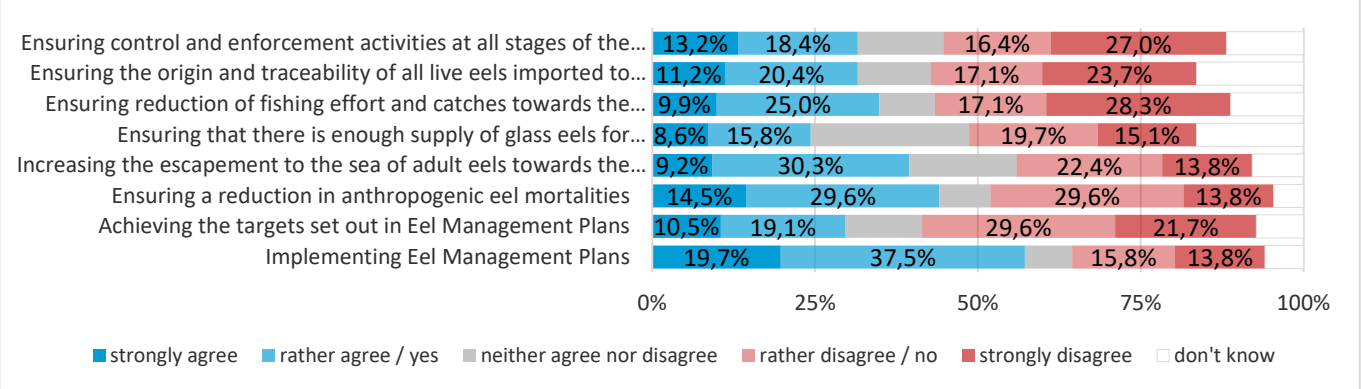
As regards other objectives, more respondents indicated that they were not achieved, and in most responses the difference in responses was between 9 and 12 percentage points:

- ensuring the origin and traceability of all live eels imported to and exported from MS (by 9.2 pp),
- ensuring reduction of fishing effort and catches towards the 50% targets (by 10.5 pp),
- ensuring that there is enough supply of glass eels for restocking operations (by 10.5 pp),
- ensuring control and enforcement activities at all stages of the eel supply chain (11.9 pp).

The majority of respondents (51.3%) indicated that targets set out in Eel Management Plans remain not achieved (see **Figure 22**).

Figure 22: What has the Eel Regulation achieved?

Q8: *To what extent have the current measures for the recovery of European eel stock under the Eel Regulation achieved the following objectives?*



n=152

Most respondents were also able to share their views on successes of the Eel Regulation[68] and barriers hindering its effectiveness in open text comments[69] (147 and 139, respectively). In terms of successes of the regulation, 7.5% of respondents who provided comments referred to increased stock or reduced mortality, 25.2% referred to more indirect effects which can lead to reducing mortality in the long term (reducing fishing effort, removing barriers to migration, improved control, restocking programmes, implementation of EMPs), and 29.9% referred to raised awareness of the problem, increased efforts and cooperation of different actors and Member States. 10.2% mentioned other achievements and 12.9% indicated no or limited achievements or negative consequences.

As regards barriers hindering regulation's effectiveness, respondents mentioned as follows:

- external barriers (39.1%), such as:
    - inability to reduce hydropower mortality (13.9%),
    - black market and poaching (12.6%),
- issues with the regulation itself (18.5%),
- problems with its implementation (17.2%), especially bad quality or insufficient implementation of EMPs.

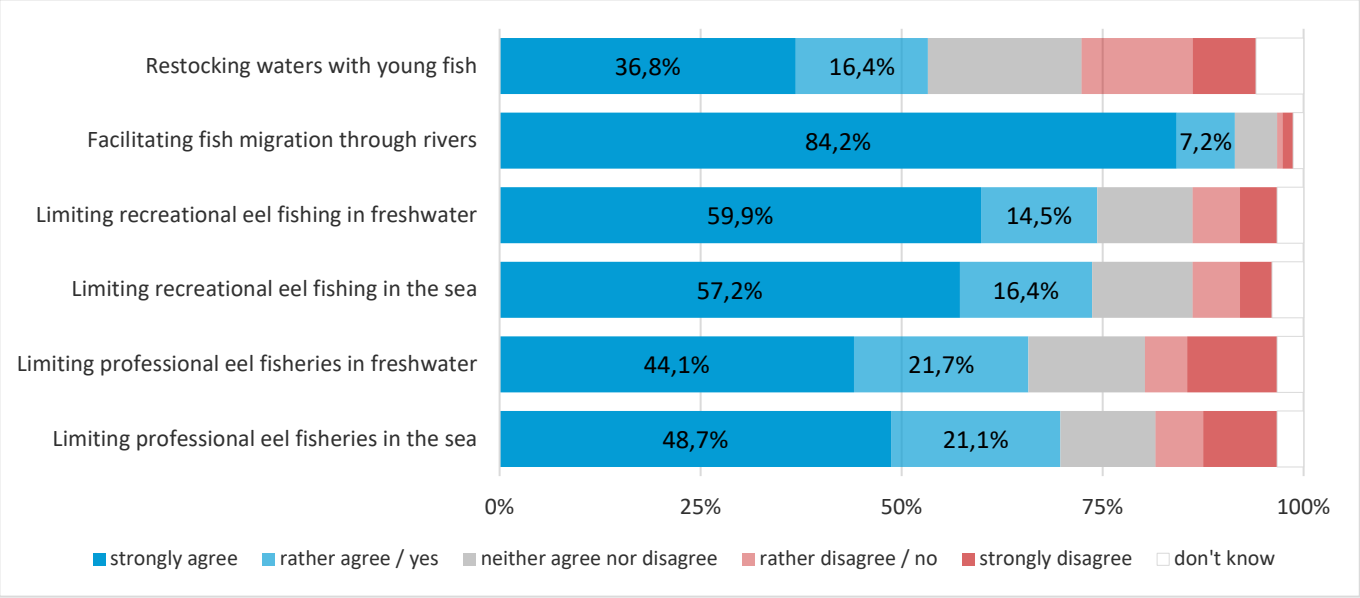
Support for Eel Regulation measures

Most of respondents indicated that they supported all the measures of the Eel Regulation. The measure most frequently supported (9 out of 10 respondents) was facilitating fish migration through rivers.

Almost three quarters of respondents supported limiting recreational eel fishing in freshwater (74.3%) and the sea (73.7%). The majority also supported limiting professional fisheries: in the sea (69.7%,) and freshwater (65.8%). Restocking waters with young fish was the least supported measure, but still supported by a majority of respondents (53.3%). The details are presented in **Figure 23**.

Figure 23: What is the support for Eel Regulation measures?

Q11: *Do you support the following measures to recover the population of eel in Europe?*



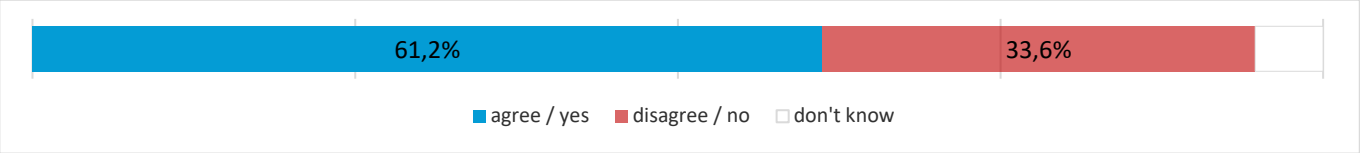
n=152

[68] Q10: *What do you consider to have been the successes of the Eel Regulation and its implementation to date?*
[69] Q9: *Reflecting your answers above, what do you consider to be the barriers to achieving the objectives of the Eel Regulation?*, n=151.

In a separate question, respondents were asked if they were in favour of implementation of total or partial bans on eel fishing to aid recovery of the European eel stock. This measure was also supported by a majority of respondents (61.2%) and opposed by one third of them, as indicated in **Figure 24**.

Figure 24: What is the support for a ban on eels fishing?

Q12: *Do you support the implementation of total or partial bans on eel fishing to aid recovery of the European eel stock?*



n=152

Respondents from the business sector were most likely to disagree that they supported the implementation of total or partial bans on eel fishing (58.8%)[70]. Conversely, 83.3% of respondents representing environmental organisations supported it.

Respondents also provided additional comments related to bans on eel fishing[71]: 34.3% justified supporting a total ban mainly because of the critical condition of the eel population and need for urgent action, and 5% mentioned fishing being of the main reasons of stock recline.

Out of those who indicated that they did not support a ban (28.6%), 15.7% highlighted that other factors are responsible for the decline of the stock (such as hydropower, pollution), 5.7% mentioned that a ban would lead to increased poaching, and another 5.7% referred to negative social and economic consequences of a total ban. Negative socio-economic consequences were also referred to in a separate contributions by the Baltic Sea Advisory Council[72] and the French government, submitted to the Commission, as well as in a few contributions to the evaluation roadmap submitted before the evaluation started.[73] The French government insists that fishermen have reached the objectives of the eel management plan and already significantly reduced fishing effort; now focus should be given to other anthropogenic mortality factors.

Respondents were also asked about other actions at EU or Member States levels that could be undertaken to recover the eel population in Europe.[74] 43.8% highlighted the need for ecological actions (restoring migration routes, rivers, shelters, reducing pollution etc.), 16.0% mentioned improving monitoring activities, traceability, scientific research and evaluation of current activities,13.9% referred to enhancing control of legal and illegal fishing, and 9.7% mentioned further limitation of fishing, including a total ban.

Coherence

The coherence of the Eel Regulation was assessed rather negatively. 39.5% of respondents indicated they disagreed that the regulation is coherent with international fisheries instruments ("external coherence") and 35.6% selected the same answer for coherence with other EU instruments ("internal coherence"). The proportion of respondents who disagreed that the regulation was externally coherent exceeded those who agreed by 12.5 percentage points. In terms of internal coherence negative assessment exceeded positive by 6.6% percentage points. The details are presented in **Figure 25**

[70] n=40

[71] Q12a: *Please provide a reason for your answer to explain why you support or do not support bans on eel fishing in the EU*, N=140.

[72] *BSAC is of the view that if all kinds of eel fishing were stopped, it would cost jobs and welfare in coastal regions. Eel is a part of the traditional food and culture in some regions, so it has high value for tourism*.

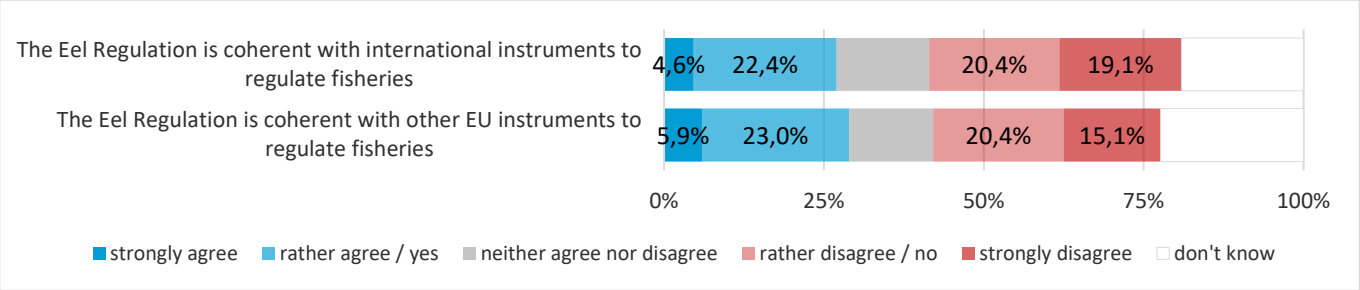
[73] For instance, the Alakusten's Cultural Heritage Association indicated that ell fishing is a Swedish cultural heritage. See: Feedback received on: Evaluation of the Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/feedback_en?p_id=223664.

[74] Q13: *What other actions should the European Union or Member States undertake to recover the eel population in Europe? Who should undertake these actions (EU or MSs)?*, n=144.

overleaf. The proportion of respondents who indicated that they "didn't know" was substantial and exceeded one third of all respondents in both cases.

Figure 25: How coherent is the Eel Regulation with other fisheries instruments?

Q14: *To what extent do you agree or disagree with the following statements?*



n=152

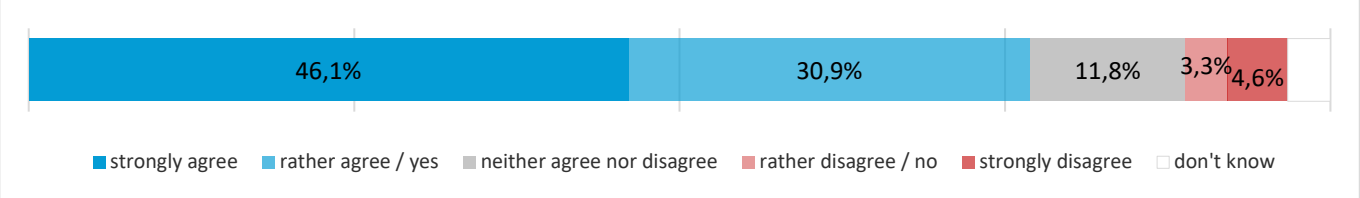
Respondents also provided additional comments on coherence but in most responses those comments did not clearly specify the issues with coherence[75]. 19.1% of those who provided comments referred to inconsistencies within Common Fisheries Policy (MSY principle, Water Framework Directive not applicable to eels, Habitat Directive) and 9.9% referred to other issues (e.g. ban of export leading to illegal trade, protecting predators etc).

EU added-value

Respondents indicated that the Eel Regulation provided additional added value to what could be achieved by Member States at national or regional levels. More than three quarters of respondents valued the EU intervention, compare to 7.9% who did not (see **Figure 26**).

Figure 26: What's the EU-added value of the Eel Regulation?

Q15: *To what extent do you agree or disagree with the following statement?: The Eel Regulation provided additional value compared to what could be achieved by Member States at national or regional level.*



n=152

In an open-ended question, respondents were also asked what the consequences of withdrawing the intervention would be.[76] Most of them (59.9%) referred to negative consequences, mainly the eel population being more endangered and a risk that Member States would no longer implement protective measures.12.9% mentioned positive consequences, such as fishing no longer being limited.

Efficiency

Opinions on the efficiency of the Eel Regulation were rather ambiguous. 40.8% of respondents disagreed that the same or better results in terms of eel stock recovery could have been achieved at lower cost, whereas 18.5% agreed with the statement. On the other hand, 36.2% disagreed that the costs of administering and implementing the regulation are proportionate to the environmental and socio-economic benefits achieved, with 18.4% agreeing with this statement. One quarter of respondents indicated that administering and implementing the regulation has been carried out at the lowest possible cost, however, a majority of respondents "neither agreed nor disagreed" and "did not

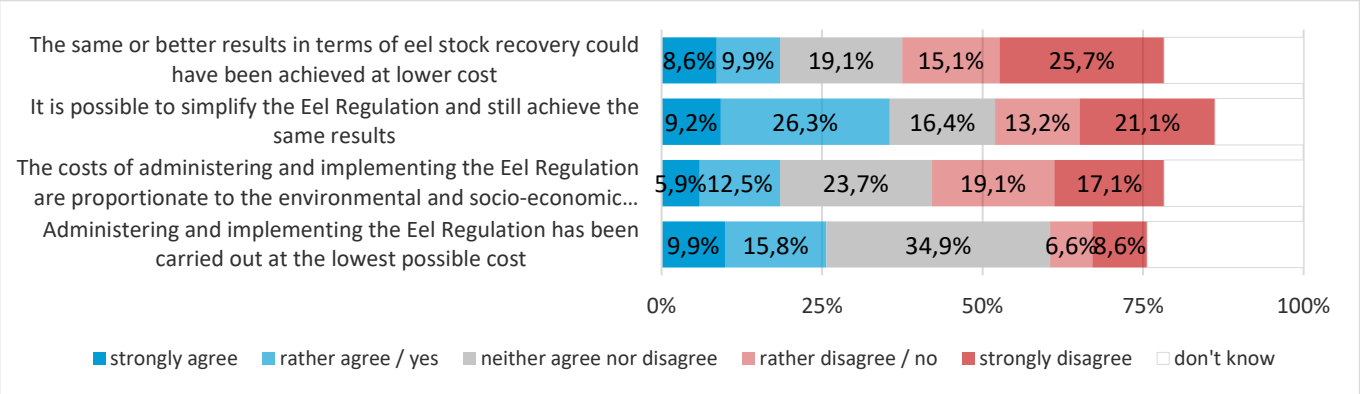
[75] Q14a: *Please provide a reason for your answer to explain what factors lead to coherence or to identify those aspects that are inconsistent or a duplication of efforts under other measures*, n=131.
[76] Q16: *What would be the most likely consequences of stopping the application of the measures contained within the Eel Regulation (both positive and negative)?*, n=147.

know" whether they agreed or disagreed with this statement (34.9% and 24.3%, respectively). We present the detailed results on efficiency in **Figure 27** below.

Opinions whether the regulation could be simplified but still achieve the same result were mixed. Almost equal proportions of respondents (35.5%) agreed and disagreed (34.2%) and did not specify their opinion ("neither agreed nor disagreed" and "didn't know" answers) (30.3%).

Figure 27: How efficient is the Eel Regulation?

Q17: *To what extent do you agree or disagree with the following statements?*

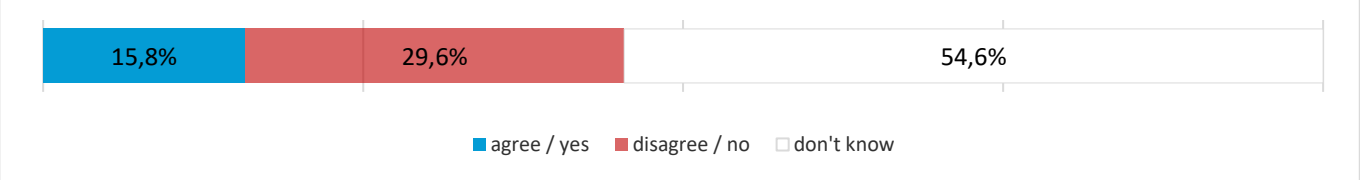


n=152

Most of the respondents were not able to assess the efficiency of the regulation in comparison with other policy instruments or mechanisms, as indicated in **Figure 28** (54.6% responded that they "didn't know"). Among the remaining respondents, a larger proportion disagreed that other instruments provided better cost-effectiveness.

Figure 28: How efficient is the Eel Regulation as compare to other instruments?

Q18: *Do you think that other policy instruments or mechanisms have provided better cost-effectiveness than has been achieved under the current Eel Regulation and associated Eel Management Plans?*



n=152

Respondent had the opportunity to provide examples of more cost-effective policy instruments and mechanisms in an open-ended question[77], but only 15% of all respondents provided comments and tended to propose alternative actions such as: recovery of migration routes and habitats, reducing fishing, improved international cooperation, and controlled opening of exports to Asia.

Sustainability

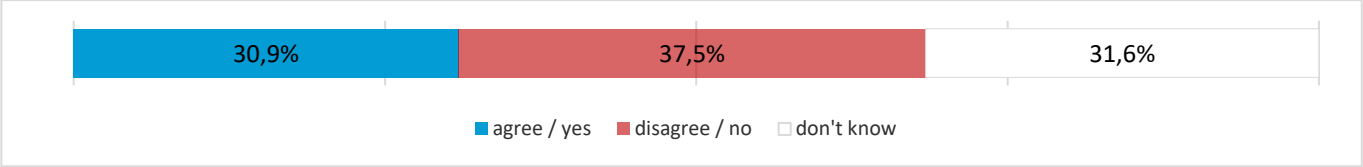
Responses to questions on the sustainability of the effects of the regulation were varied.

A slightly larger proportion of respondents indicated that they disagreed that the effects of the intervention were likely to last after it ended (37.5% compared to 30.9% who agreed, a difference of 6.6 percentage points). A substantial proportion of respondents (one third) indicated that they "did not know" whether the effects were likely to last.

[77] Q19: *If yes, what other policy instruments or mechanisms do you think would have been more cost effective?*, n=23.

Figure 29. How sustain are the effects of the Eel Regulation?

Q20: *Are the effects likely to last after intervention ends?*



n=152

General survey

The second section of the OPC was addressed to non-specialised respondents.[78] Out of eight respondents who participated in the survey, one indicated that they had never heard about the problem of the decreasing European eel population compared to seven respondents who had.[79]

All eight respondents indicated that they "rather agreed" that they supported action by the EU to regulate eel fishing to ensure the recovery of the species.[80]

With regards to specific measures to recover the population of eel in Europe[81], all respondents supported facilitating fish migration through rivers; seven out of eight respondents supported limiting professional eel fisheries in the sea and in freshwater, and limiting recreational eel fishing in freshwater, whereas six respondents supported restocking waters with young fish. Five out of eight respondents supported limiting recreational eel fishing in the sea.

Conclusions

There is a significant imbalance in the number of respondents to the OPC experts' survey (n=152 out of 160; 95%) and the general survey addressed to non-specialised respondents (n=8). This suggests that the issue of recovery of eel population could be too technical for the general public to provide feedback on, and that knowledge about and / or interest in this issue is rather limited. It is difficult to make any broader conclusions on the basis of eight contributions, but nonetheless almost all of those respondents supported actions by the EU to ensure stock recovery.

Contributions by experts to the OPC were significant with 152 respondents and a high completion rate. About 75% of respondents provided comments to all open-ended questions and one third of respondents also added general comments at the end of the survey. 15 respondents (9.4%) uploaded additional documents.[82] However, it is doubtful to what extent the results presented are indeed representative of the expert community across Europe, since 40% of all contributions came from just one country (France).

In terms of evaluation criteria, the relevance of the Eel Regulation was considered high. All objectives were assessed as fit-for-purpose by the vast majority of respondents. The vast majority of them also confirmed the EU added value of the intervention in comparison to what could be achieved by Member States at national or regional levels. However, respondents were much less convinced that the overall aim of achieving the 40% eel escapement target was achievable.

[78] This section displayed to those who selected the answer: *I am not familiar with the Eel Regulation*.
[79] Q21: *Before starting this consultation, had you ever heard about the problem of decreasing population of the European eel?*, n=8.
[80] Q22: *Do you support action by the European Union to regulate eel fishing to ensure the recovery of the species?*, n=8.
[81] Q23: *Do you support the following measures to recover the population of eel in Europe?*, n=8.
- *Limiting professional eel fisheries in the sea*
- *Limiting professional eel fisheries in freshwater*
- *Limiting recreational eel fishing in the sea*
- *Limiting recreational eel fishing in freshwater*
- *Facilitating fish migration through rivers*
- *Restocking waters with young fish*

[82] Additionally, 20 contributions were submitted to the evaluation roadmap, before the evaluation started, some of them highlighting the importance of the study. See: Feedback received on: Evaluation of the Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447/feedback_en?p_id=223664.

The measures to recover the population of eel in Europe were widely supported by respondents. The vast majority supported all forms of limiting eel fishing (recreational and professional, in freshwater and the sea) and facilitating eel migration through rivers, and a small majority also indicated to support restocking. However, the results also suggest that changes in addressing the issue of eel stock recovery are necessary. Three quarters of respondents indicated that the regulation requires alternative targets to ensure it delivers on its objectives and two thirds indicated that it requires amendment or simplification. Suggestions for amendments or alternative targets include: further restrictions of fishing and trade, generally reinforcing the regulation, reducing migration barriers and recovery of migration routes and habitats, and the need to better understand the problem (scientific research and monitoring).

Achievements of the regulation, especially at the national level, were assessed much less positively than its relevance. According to the majority of respondents, although Member States managed to implement Eel Management Plans, they did not manage to achieve the targets set in those plans. Respondents highlighted that the regulation managed to raise awareness of the critical situation of the eel population and to introduce some measures which may reduce pressure on the stock rather than directly increase the stock. As regards barriers hindering the effectiveness of the regulation, respondents highlighted in particular those that are external: hydropower mortality and poaching, or insufficient implementation (rather than the legislation itself). Similarly, when asked about other actions which could help the recovery of the eel population, most indicated the need to restore migration routes (address hydropower mortality) and habitats or reduce pollution. However, the majority of respondents also supported a total ban on eel fishing.

It was more challenging for respondents to assess efficiency, sustainability and coherence of the regulation and many of them selected either “neither agree nor disagree” or “don’t know” answers. Nevertheless, in the case of efficiency, the proportion of positive responses slightly exceeded the proportion of negative ones. With regards to coherence and sustainability, the opposite was the case.

3. FEEDBACK TO EVALUATION ROADMAP AND *AD HOC* CONTRIBUTION

An evaluation roadmap summarising the context, purpose and scope of the upcoming evaluation and outlining the expected approach was published at the Commission website prior the evaluation[83]. Stakeholders were able to provide feedback on the roadmap from 13 April to 11 May 2018.

The feedback was provided by 16 stakeholder organisations (5 from Sweden, 3 from France and the UK each, 2 from Germany, 1 from Greece and Finland each, and 1 Brussels-based EU level organisation – Europêche)[84] and two unaffiliated individuals (from Romania and the Netherlands).

Some of the key most-frequently raised issues in contributions included:

1. A significance hydropower mortality and illegal fishing as factors influencing the stock as well as oceanic factors;
2. A need for alternative targets in the Regulation to reduce anthropogenic (but not related to fishing), for instance: temporary shutdown of hydropower turbines, restoration of habitats, etc., and a need for intermediate targets;
3. A need for improved control, monitoring and traceability system;

[83] Evaluation of Eel Regulation, https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-1986447_en.

[84] Full list of organisations: Ålakustens Kulturarvsförening, Stockholm University - Baltic Sea Centre, ÅLFONDEN, Coalition Clean Baltic, The Fisheries Secretariat (Sweden); COREPEM, OP Estuaires, Comité National des Pêches Maritimes et des Elevages Marins (France); Glass Eels ltd., Lough Neagh Fishermen's Co-operative Society Ltd., Sustainable Eel Group (UK); Deutscher Angelfischerverband, Deutscher Fischerei-Verband (Germany); APC Advanced Planning Consulting SA (Greece); Suomen luonnonsuojeluliitto (Finland); Europêche (Belgium).

4. Insufficient and unequal implementation level of Eel Management Plans (EMP) in Member States;
5. Uncertainty of the effectiveness of restocking operations;
6. Socio-economic consequences of restrictions on eel fishing, in particular the total ban, as well as an importance of eel fishing as a cultural heritage (for instance in Sweden).

Some of those issues were also raised in *ad hoc* contributions. The Baltic Sea Advisory Council (BSAC), UK's Department for Environment, Food and Rural Affairs (Defra) and a coalition of NGOs provided *ad hoc* contributions to the evaluation roadmap, and Dutch and French governments to the Public Consultations. BSAC underlined a meaningfulness of fighting illegal fishery, facilitating migration routes, and in particular socio-economic consequences of total ban on eel fishing. The Dutch government expressed its support to strengthen the regulation. Both, French and Dutch governments stressed the need for improving implementation of EMPs.

4. TARGETED CONSULTATION

4.1 Approach to consultation

Targeted consultation was undertaken with key stakeholder groups across all relevant Member States to inform the evaluation of the Eel Regulation. Consultation focused on stakeholders that are directly impacted by the Eel Regulation (e.g. managing authorities responsible for developing, implementing and monitoring against EMPs, fishers and farmers, and those involved in eel restocking and trade), those that have an interest in the implementation of the Eel Regulation (e.g. international organisations such as bodies implementing CITES and the CMS, and NGOs), or those that may be under-represented in the public consultation (e.g. research bodies).

Consultation with stakeholders was based upon one of three questionnaires, as follows:

- A questionnaire targeted at Member State managing authorities;
- Two questionnaires (simple & detailed) and targeted at Member State fisheries control authorities; and
- A questionnaire targeted at all other stakeholders.

The questionnaires were comprised of between 13 and 18 questions, covering the same themes (e.g. effectiveness of the Eel Regulation, successes of and barriers to implementation of the Eel Regulation), but questionnaires issued to managing and control authorities sought additional feedback on the implementation of EMPs and control measures that support the Eel Regulation.

Consultation was conducted mainly via email and telephone. Further, more than 23 in-depth face-to-face and telephone interviews were held with relevant stakeholders; these were focused on stakeholders in case study countries (Denmark, France and Italy) but also included other key stakeholders both within and outside the EU. Interviews sought to follow the themes covered in the questionnaires.

In total, 174 questionnaires were issued, distributed to stakeholders in 24 Member States, and to a variety of stakeholders, as shown in **Figure 30**. Almost 50% of questionnaires were issued to stakeholders in six Member States (Italy, United Kingdom, Belgium, Sweden, the Netherlands and Germany), with lesser numbers of questionnaires issued to stakeholders in the remaining 18 MS.

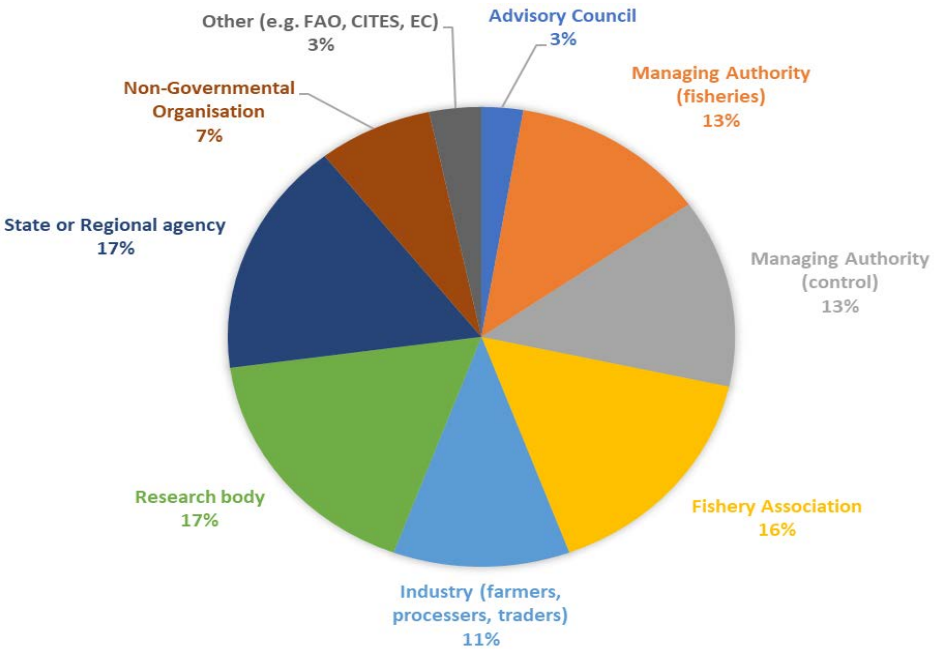


Figure 30: Questionnaire distribution by stakeholder category

4.2 Respondents profile

Around 80 responses to questionnaires were received. Responses were received from stakeholders across 15 Member States from a variety of stakeholders as shown in **Figure 31**, and over 40% of responses were received from respondents in Italy and the Netherlands, reflecting to some extent the distribution of questionnaires.

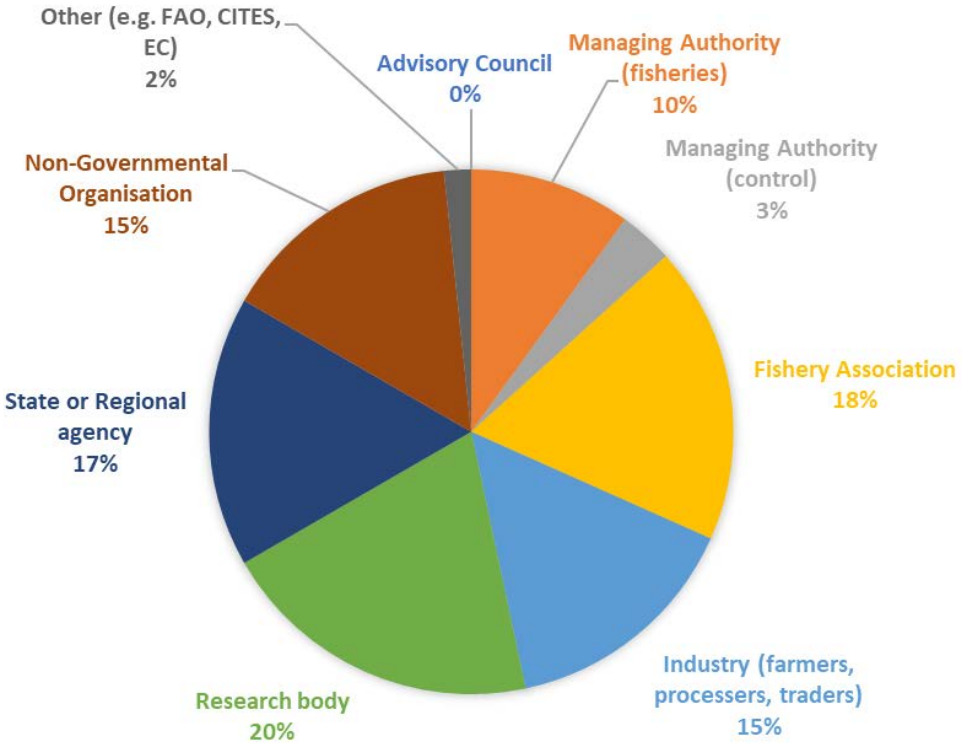


Figure 31: Questionnaires received by stakeholder category

4.3 Targeted consultation results

Responses to questionnaires were collated in a database and analysed. Almost all respondents reported that the Eel Regulation remains highly relevant given the critical status of the eel population. It has usefully driven forward the preparation of Eel Management Plans in Member States and established common targets for eel recovery. Many stakeholders considered the Eel Regulation to have been particularly effective in reducing fisheries-related eel mortality, though noted that the focus has perhaps been too much on fisheries-related management measures and that there has been insufficient action taken by Member States to address non-fisheries anthropogenic mortality.

In terms of the effectiveness of the Eel Regulation, a number of respondents suggested that recovery of the eel population will take many decades and thus it is difficult to judge the effectiveness of measures already taken under the Regulation. Stakeholders typically acknowledged that the Eel Regulation has usefully driven forward the preparation of Eel Management Plans within Member States, though in many cases also suggested that the approach to preparing, implementing and monitoring progress against EMP management measures needs to be improved and made more consistent across Member States. In the majority of Member States, EMPs have remained as static documents, rather than being used to encourage adaptive management based on the findings of the latest monitoring and research. As an example of this lack of responsiveness, most EMPs encourage restocking, which is now felt to be an ineffective long-term management measure. Regular review and update of EMPs, and improved reporting on progress against EMP targets, should be encouraged, as should the sharing of any recognised good practices or key research findings across Member States.

Many stakeholders highlighted concerns about the evident trade in illegal, unreported and unregulated fished eels undermining the effectiveness of the Eel Regulation. It was broadly felt that there is a need for improved control measures to assist in addressing illegal trade, particularly around the activities of small fishing vessels that are understood to form the bulk of the fleet targeting eels.

Considering the sustainability of the Eel Regulation, respondents again suggested that management efforts around non-fisheries anthropogenic mortality should be increased, looking at improving eel habitat connectivity and improving the quality of eel habitat. Such measures are considered most likely to have long-term beneficial impacts on the eel population.

Stakeholders held mixed views around the coherence of the Eel Regulation with EU and international initiatives, and typically considered that the efficiency of the Eel Regulation could be improved through better exploiting synergies with EU and international instruments, such as the Water Framework Directive and Habitats Directive, which could better reflect the critical status of the eel population. It was also suggested that efficiency could be improved by encouraging the further development and improvement of progress reporting on EMPs, noting that this has historically varied substantially in quality and robustness, making monitoring of overall progress under the Eel Regulation very challenging. The burden on Member State reporting could also be eased by reporting requests from various bodies, including DG MARE and ICES, being coordinated. Finally, a number of questionnaire respondents indicated that it would be beneficial for the Eel Regulation to allow for interim targets and encourage the setting of timelines for achievement of targets.

Other points raised by several stakeholders included the need for a central coordinating body for the recovery of the European Eel, the need for a more cohesive funding approach to implement EMPs and associated management measures, and the need for greater efforts to raise the profile of eel and its critical status.

ANNEX 6: REVIEW OF THE AMENDMENTS PROPOSED BY THE COMMISSION FOR THE REFIT OF THE EU FISHERIES CONTROL SYSTEM

The first two columns of the table are a reproduction of the table presented by the Commission in its proposal for an amendment to the EU fisheries control system (COM(2018) 368 final – page 7 to 12). Text displayed in the column titled "Added value of the proposal in the case of eels" is our own elaboration to highlight the contribution of the proposal to an improved EU control system of eel fisheries as relevant. Green characters are used to denote improvements, red characters denote suggested points of vigilance.

Amendments to Council Regulation (EC) No 1224/2009 establishing a Union control system for ensuring compliance with the rules of the common fisheries policy		
TOPIC 1: ENFORCEMENT		
Subtopic	**Articles**	**Added value of the proposal in the case of eels**
Inspection and surveillance	Amended: 73, 74, 75, 76, 77, 78, 79, 80	Will support enforcement of the Eel conservation measures + future JDP performances
Sanctions	New: 89a, 91a, 91b, 92a, 92b, Annexes III and IV Amended: 82, 85, 90, 91, 92	Will support enforcement of Eel conservation measures for marine fisheries. Other sanctions (administrative and criminal) remain under MS competence.
TOPIC 2: DATA AVAILABILITY, QUALITY AND SHARING		
Subtopic	**Articles**	**Specific provisions of the proposal**
Vessel's tracking	Amended:4, 9, 10, 12 New: 9a	Proposed tracking specifications will benefit to control of Eel fisheries as almost all vessels concerned are less than 12 m.
Logbook	Amended:14	Probably of little use for the Eel Regulation as most vessels are less than 12 m, not subject to logbooks.
Vessels below 12 metres	Amended:9, 14, 15 New: 15a	Very supportive for control of Eel concervation measures although the tolerance margin for catches of less than 50 kg (20%) seems high (for glass eel fishing, the average catch is ≈ 1.5 kg per fishing trip).
Transhipment declaration and landing declarations	Amended: 20, 21, 22, 23, 24 Deleted: 16, 25, 28	Very supportive for the Eel Regulation in relation to sales notes, assuming no derogation will be granted in the case of fishing vessels targeting eels (as proposed Art. 24.5 a)
Prior notification	Amended: 17, 19 Deleted: 18 New: 19a	Probably of little use for the Eel Regulation. Extension of prior notification to vessels < 12 m under cerain circumstances (e.g. multiannual palns) could have been an useful tool for MS control authorities in the case of eels.
Control of recreational fisheries	Amended: 4, 55	Very supportive for control of Eel concervation measures as recreational catches may be significant in some MS, underlining that the exemption for control of recreational fishing from shore in the current Control Regulation seems to have been removed.
Traceability	Amended: 4, 56, 57, 58 New: 56a	Very supportive for control of Eel concervation measures as traceability along the chain is currently difficult to establish for eels as for any fisheries and aquaculture products. However, the 5 kg derogation for traceability of sales to consumers may be set too high in the case of glass eels. The scope of the traceability system will also need to be clarified in relation to diadromous species (fishing, aquaculture)

Weighing, transport and sales procedures and data	Amended: 59, 60, 62, 64, 65, 66, 68 New: 59a, 60a Deleted: 61, 63, 67	New weighing clauses adequately support Eel conservation measures. However, the derogation permitted for unsorted landings not destined for human consumption may not be desirable in the case of glass eels intended for restocking. New prescriptions for transport documents and take-over declarations very supportive for control of Eel conservation measures. However, the 5 kg derogation for sales notes may be set too high in the case of glass eels
Data availability and exchange	Amended: 33, 34, 109, 110, 111, 112, 114 and 115 New:111a; 112a Deleted: 116	Will support transnational enforcement of the Eel conservation measures + future JDP performances
TOPIC 3: BRIDGING THE GAPS WITH THE CFP		
Subtopic	**Articles**	**Specific provisions of the proposal**
Definition of 'rules of the common fisheries policy'	Amended:4	No comment
Fishing licence and fishing authorisation	Amended: 6, 7	No comment
Landing obligation	New: 25a	No comment
Fishing capacity	New: 39a Amended: 38, 41	No comment
National control programmes and annual reports	Deleted: 46, Annex 1 Amended:55 New: 93a	Revised Regulation include recreational fisheries, which will support control of eel conservation measures.
TOPIC 4: SYNERGIES WITH OTHER POLICIES		
Fishing gears	Amended:14, 43, 55	Provisions on the marking and control of fishing gears for recreational fisheries will support control of eel measures (numerous occurences of eel poaching with traps reported by MS)
Fishing restricted areas	Amended: 4, 50	
TOPIC 5: ALIGNMENT WITH THE LISBON TREATY		
Alignment with the Lisbon Treaty	Numerous Articles amended or introduced	No comment

Amendments to Council Regulation (EC) No 768/2005 establishing a European Fisheries Control Agency		
Topic	**Articles**	**Specific provisions of the proposal**
Alignment to CFP	Amended:2 and 3 Amended:17	Agency's inspection powers in the EU territory will support control of eel CFP measures
Exchange of data	Amended:16	No comment
Alignment to Common approach	Amended:26, 29, 39	No comment

on EU decentralised Agencies		
Budget	Amended:35	No comment

Amendment to Regulation (EC) No 1005/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing		
Topic	**Articles**	**Specific provisions of the proposal**
Digitalisation of IUU catch certificate (CATCH)	New: 12a to 12e	Potentially useful external if trade prohibition is lifted. However, eels are only partially covered by the catch certification scheme.
Inspections	Amended: 10	No comment
Fishing vessel engaged in IUU fishing	Amended: 2, 3, 11	No comment
Proceedings and enforcement measures (including serious infringements)	New: 42a, Amended: 27, 42, 43 Deleted: 44 to 47	No comment

Amendment to Council Regulation (EC) No 1967/2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea Amendment to Regulation (EU) 2016/1139 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks		
Topic	**Articles**	**Specific provisions of the proposal**
Regulation (EC) No 1967/2006	Amended: 17 Deleted: 21, 23	No comment (proposed changes streamline concepts of recreational fisheries across sea-basins)
Regulation (EU) No 2016/1139	Deleted: 12, 13	No comment

ANNEX 7: CASE STUDIES

France

Italy

Denmark

Evaluation of the Eel Regulation
Specific Contract No. 10
under Framework contract
EASME/EMFF/2016/029

France Case Study

A fisherman unloading baskets of eels at Le Logeo on the Gulf of Morbihan, Brittany, France

Cover photo credit: Stephen Dorey / Alamy Stock Photo)

ACRONYMS / ABBREVIATIONS

Acronyms / Abbreviations	Definition
AFB	Agence Française pour la Biodiversité
ARA	Association pour le Repeuplement de l'Anguille en France
CEREMA	Centre d'Études et d'Expertise sur les Risques, l'Environnement, la Mobilité et l'Aménagement
CMEA	Commission pour le Milieu Estuarien et les poissons Amphihalins
CNPMEM	Comité National des Pêches Maritimes et des Elevages Marins
CONAPPED	Comité National des Pêcheurs Professionnels en Eau Douce
DEB	Direction de l'Eau et de la Biodiversité / Ministère de la Transition Ecologique et Solidaire
DEB	Direction de l'Eau et de la Biodiversité
DPMA	Direction de la Pêche Maritime et de l'Aquaculture / Ministère de l'Agriculture
DPMA	Direction de la Pêche Maritime et de l'Aquaculture
EDA	Eel Density Analysis
EFF	European Fisheries Fund
EMFF	European Maritime and Fisheries Fund
EMP	Eel Management Plan
EMU	Eel Management Unit
FR	France
INRA	Institut National de Recherche Agronomique
LEMA	L'Eau et les Milieux Aquatiques[85]
MFSD	Marine Strategy Framework Directive
MNHN	Muséum National d'Histoire Naturelle
PGA	Plan de Gestion de l'Anguille
RAMSAR	International Convention on Wetlands
ROE	Référentiel des Obstacles à l'Écoulement
WFD	Water Framework Directive

[85] See https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000649171

1. OVERVIEW OF THE CASE STUDY

INTRODUCTION

This report on France is one of three case studies (the others being Denmark and Italy) being conducted by this evaluation. The case studies provide more detailed insight into the implementation of the Eel Regulation at national, regional and local levels, beyond the information gathered through the synthesis of the EMPs and their progress report, and the targeted consultation with the other Member States. They are intended to:

- Understand the extent to which measures under the 2009 Eel Management Plans (EMPs) have been able to address the main objectives of the Eel Regulation
- To determine whether the Eel Regulation, and the responses detailed by the EMPs, remain relevant to the drivers and pressures relating to the recovery of the European eel stock, and the extent to which they can be addressed by the EU alone.
- To assess what additional or alternative measures might be taken to achieve the objectives of the Eel Regulation.
- To assess added value of the Eel Regulation and the sustainability of the measures being undertaken through the EMPs and their long-term impact after the interventions have ceased.

METHODOLOGY

This case study has been conducted through a mixture of a review of *background information* (such as EMP Progress Reports, scientific reports and other relevant studies) and *face to face and telephone interviews* guided by semi-structured questionnaires. The interviews were with a mixture of participants, with representatives of national and regional administrations and the industry (main national professional organisations and where possible a few operators).

For a list of entities interviewed, see the table below.

Table 1: Entities interviewed in support of the case study

Organisation / function
DPMA – Sous-Directeur
DPMA – desk EMP for marine fishing issues
DPMA – Aquacuture (restocking)
DPMA – Control
MNHN / Research
INRA-AFB / Research
CNPMEM (prof. organisation marine fishermen) – desk diadromous fisheries
Prof. fisherman – Member CNPMEM Commission for diadromous species
ARA France (restocking)
CONAPPED (prof. organisation freshwater fishermen)
DEB
Fédération Nationale de la Pêche en France (FNPF)

Table 2: Document sources

Document reference
Acou A., Boisneau C. & Feunteun E. 2009. Prédiction des pics de dévalaison des anguilles argentées à partir des données environnementales : état des connaissances et développement d'un modèle opérationnel sur la Loire pour la gestion du turbinage. Rapport du Muséum National d'Histoire Naturelle, CRESCO, Dinard
Amilhat E., Simon G., Faliex E., (2017). Rapport technique du suivi scientifique des relâchers d'anguilles argentées menés en Méditerranée en 2015/2016. CEFREM Université de Perpignan Via Domitia. 58pp.
Besse (2017) – Turbines ichtyophiles et dispositifs d'évitement pour les anguilles en avalaison. Tableau de Bord Anguille du Bassin Loire (LOGRAMI)
Briand, C., P-M, C., Beaulaton, L., Drouineau, H., Lambert, P. (2018) Eel density analysis (EDA 2.2.1). Escapement of silver eels (Anguilla anguilla) from French rivers. 2018 report.DE
CEREMA (2016) Impact à la dévalaison de l'anguille des centrales hydroélectriques de grande capacité de l'aval de la Seine.
FranceAgriMer (2014) Le marché de l'anguille européenne. Rapport Service Marchés et Études de Filières
Mathieu A., Babut M. (2012) Contamination des poissons d'eau douce par des contaminants persistants - Etude des relations biote-sediment (PCB). Onema – Irstea, Vincennes, 42 p.
Ministère de la Transition Ecologique et Solidaire (2017) – Appel à projets 2017-2018 pour la mise en œuvre du programme de repeuplement de l'anguille en France
Plan de gestion anguille de la France – rapport de mise en œuvre – juin 2018
Plan de gestion anguille de la France – rapport de mise en œuvre – juin 2015
Plan de gestion anguille de la France – rapport de mise en œuvre – juin 2012
Plan de gestion anguille de la France – Volet national – 2010
Rigaud, C., Beaulaton L., Briand, C., Charrier F., Feunteun E., Mazel V., Pozet F., Prevost E., Treguier A., & Verreault G., 2015. Le programme français de repeuplement en civelles. Bilan des trois premières années de transferts. GRISAM, 229 pp.

2. OVERVIEW OF EEL PRODUCTION, MANAGEMENT AND CONSERVATION IN FRANCE

EEL PRODUCTION AND TRADE

Wild production

Professional fishermen

The next table shows available eel catch data according to their different stages and to the environment in which catches were obtained. For some entries, catch data are available on a fishing period basis (e.g. 2015-2016 to cover winter season) or on a calendar year basis.

Table 3: Eel catches in France

Tonnes	Marine waters				Freshwater			
	2014-2015	2015-2016	2016-2017	2017-2018	2014-2015	2015-2016	2016-2017	2017-2018
	2015	2016	2017	2018	2015	2016	2017	2018
Glass eel	*31.2*	*41.1*	*40.0*	*na*	*3.9*	*5.2*	*6.0*	*5.1*
Yellow eel	240.1	303.1	264.3	*na*	29.0	26.7	16.1	*na*
Silver eel	*74.5*	*91.3*	*104.0*	*66.9*	*0.8*	*12.0*	*0.8*	
Total	**345.8**	**435.5**	**408.3**		**33.7**	**43.9**	**22.9**	

Source: Rapport PGA France 2018
Note : data in italic refer to fishing period
Catch data do not take into account restocked glass eels and released silver eels

While catches by professional fishermen in marine and freshwater are estimated to be correctly monitored, there are some doubts over the statistical coverage of eel catches in freshwaters in view of the large differences between the number of licensed recreational fishermen having declared catches and the total number of licensed fishermen.

The main Eel Management Units (EMUs) where catches have been obtained in 2016-2017 or in 2017 are shown below. For glass eel, the *Loire, Côtiers Vendéens et Sèvre Niortaise* (LCVS) is the main EMU, preceding the *Garonne, Dordogne, Charentes, Seudre, Leyre* (GDC) EMU. Concerning yellow and silver eels, most catches originate from the *Rhône Méditerranée* (RMD) EMU.

Table 4: Main Eel Management Units from which catches from professional fishermen have been obtained

Tonnes	Marine waters	Freshwater
Life phase		
Glass eel	LCVS (20.0)-GDC (10.8)-BRE (5.8)	ADR (3.0) - LCVS (1.8) - GDC (1.3)
Yellow eel	RMD (238.7)-LCVS (15.1)	LCVS (12.4)-GDC (2.2)
Silver eel	RMD (102.8)-Corse (1.2)	na

Source: Rapport PGA France 2018
Note : LCVS : Loire, Côtiers Vendéens et Sèvre Niortaise / BRE : Bretagne / ADR : Adour, Cours d'eaux côtiers / GDC : Garonne, Dordogne, Charentes, Seudre, Leyre / RMD : Rhône Méditerranée

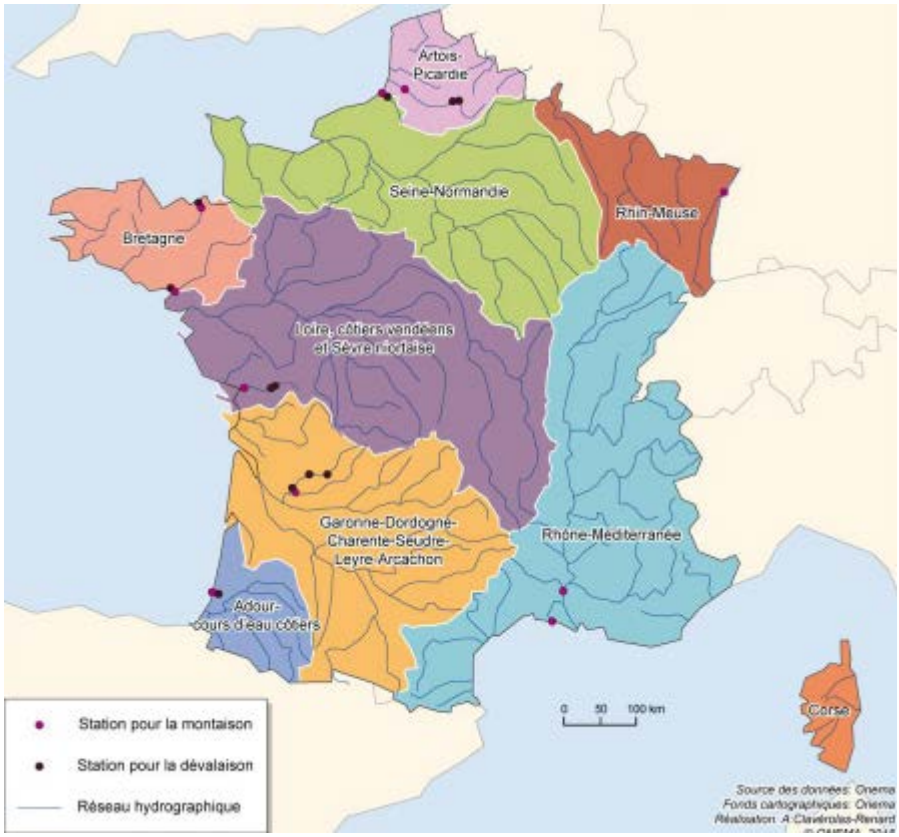


Figure1: Eel Management Units defined in France

Source: ONEMA in *Rapport PGA France 2018*

Aquaculture

There is no eel aquaculture in France, neither commercial nor for growing before restocking.

Trade in eels

According to FranceAgriMer (2014)[86], the main markets for wild eels caught in France and intended for consumption are as follows:

- Concerning **glass eels**, the main market for human consumption is the Intra-EU export market (no or insignificant domestic market). For direct human consumption, glass eels are exported to Spain. For glass eels intended for aquaculture, main markets are Netherlands, Denmark and Germany, but also Spain, Greece and Italy). For glass eels of less than 12 cm intended for restocking, markets are France and Northern and Eastern Europe Member States including Netherlands, Germany, Denmark and Poland according to EU trade statistics. According to PGA (2018), average first sale prices of glass eels are in the region of EUR 240 / kg for restocking and EUR 380 / kg for consumption (average 2017-2018 fishing season). Before CITES listing, live glass eels were sold in the region of 3 000 EUR / kg on the Asian market.

- Concerning **yellow and silver eels**, the main market is the domestic market (restaurants, retail shops) with some eels being exported to Italy. Retail prices on the domestic market are reportedly around EUR 30 / kg for whole eels.

[86] FranceAgriMer (2014). Insights into the European eel market chain. June 2014. 52 pp.

EEL MANAGEMENT PLAN

Key measures and approaches

The French EMP has a comprehensive geographical coverage. The plan encompasses all marine and freshwater areas of the national territory up to 1,000 m elevation, including Corsica. The geographical scope includes all areas under national jurisdiction where eels are expected to be found.

The French EMP considered several key measures i) to reduce eel mortality attributable to fishing in marine and freshwater environment with specific reduction targets of 40% in 2012 and 60% in 2015 for glass eels, and 30% in 2012 and 60% in 2015 for yellow and silver eels, ii) to reduce mortality attributable to other anthropogenic sources with a specific target of 30% in 2012, 50% in 2015 and 75% in 2018, and iii) to enhance stock rebuilding through restocking of glass eels with a specific target of 35% in 2010 and 60% in 2015, including 5 to 10% for restocking French waters.

Measures to reduce eel fishing mortality

Spatial restrictions on fishing

Fishing for glass eel is authorised for professional fishermen only in EMUs concerning the North Sea / English Channel / Atlantic side. Glass eel fishing is prohibited in Mediterranean EMUs and for recreational fishermen in any EMU. Fishing for yellow eel is authorised in all EMUs for professional and recreational fishermen.

Fishing for silver eels is authorised in Mediterranean EMUs only for professional fishermen in marine waters (including coastal lagoons), in some rivers and waterbodies of LCVS, BRE and RMD EMUs for professional fishermen in freshwaters, and prohibited for recreational fishermen in any EMU.

Temporal restrictions on fishing

Fishing for eels at different stages is allowed only during certain periods which vary according to EMUs. For example, for BRE EMUs, fishing for glass eels is allowed between 1st December and 30th April, fishing for yellow eel allowed between 1st April and 31st August in rivers and 15th April and 15th September in marine waters, and fishing for silver eels allowed between 1st October and 15th January in certain rivers (silver eel fishing is prohibited as per spatial restrictions detailed above). For RMD, fishing for yellow eel has different opening periods (ex. 1st March-15 July and 1st September-15 January) and fishing for silver eel open between 1st October and 1st March. There is no EMU in which fishing for eel is allowed year-round.

For recreational fishermen, fishing for yellow eel is authorised only during certain periods of the year.

Fishing authorisations

Professional and recreational fishermen are subject to a specific authorisation scheme. Maritime professional fishermen targeting eels in English Channel / Atlantic areas must have a specific authorisation called *Licence CMEA* (CMEA for *Commission pour le Milieu Estuarien et les poissons Amphihalins*) to fish for eel and diadromous species in marine and estuarine waters. Fishing authorisations are managed by CNPMEM and its regional declinations. Fishing authorisations specify *inter alia* the biological stage (glass and/or silver) and the authorised fishing area. Freshwater professional fishermen targeting eels must have a specific (different) fishing authorisation. In the Mediterranean, there is also a specific fishing authorisation scheme but managed by the *Préfet*.

Recreational fishermen targeting eels with fishing gears (traps or nets) in freshwater are subject to a fishing authorisation regime. There are no such authorisation regimes for recreational fishermen in marine waters as catches are estimated to be insignificant. Recreational fishermen targeting eels in freshwater with hook and line also need an authorisation with a specific authorisation to catch diadromous species. According to information available, about 4 200 recreational fishermen obtained the authorisation to catch diadromous species out of a total population of 1 500 000 recreational freshwater fishermen.

Catch limits

Catch quota for glass eels are enforced since the 2009-2010 season for marine and freshwater components of the fishery. There are no catch quota enforced for yellow and silver eels. Catch quota for glass eels are set according to scientific advice taking into account recruitment and exploitation rate. The national catch quota agreed is distributed:

- Between marine and freshwater glass eel fisheries on the basis of a 87%/13% distribution key
- Between consumption and restocking according to a 40%/60% distribution key aligned with EMP prescriptions
- Between EMUs on the basis of a constant regional distribution key ensuring relative stability.

Quota uptake is monitored on the basis of catch declarations from fishermen cross-checked with purchase notes submitted by authorised buyers. In 2018, there were ≈ 10 legal entities authorised to buy glass eels in France.

There are no catch quota for yellow and silver eels.

Other measures contributing to reduce fishing mortality

Public health measures adopted to reduce consumer's exposure to PCB, an environmental toxin classified as a persistent organic pollutant, led to close certain freshwater areas to yellow and silver eel fishing with a compensation scheme implemented for freshwater professional fishermen impacted. Eels are among the largest PCB bio-accumulator given their diet and long life-cycle.

Measures to reduce eel mortality attributable to other anthropogenic sources

Ecological continuity of rivers

Following adoption of the EU WFD, France adopted end of 2006 a National law to transpose WFD (i.e. *Loi sur l'Eau et les Milieux Aquatiques* – *LEMA*). Among the measures adopted, the LEMA enforced a classification of rivers into two categories:

- Category 1 rivers including rivers (and waterbodies) evaluated as in a good status, including in relation to ecological continuity, and for which any new work likely to undermine ecological continuity is prohibited. Category 1 rivers represents 30% of total river length in France.
- Category 2 rivers including rivers for which ecological continuity must be restored with any existing or new work managed, equipped and maintained to ensure ecological continuity within a 5-year delay. Category 2 rivers represent 11% of total river length in France

Classification of rivers has been carried out at regional level on a water basin basis under *Préfets* authority. The first official lists of rivers according to LEMA classification has been published through *Arrêtés* in 2012 (e.g. LCVS, BRE), then in 2013 (e.g. RMD, ADR) and finally in 2015 (Corsica). The publication of lists marked the start of the mandatory 5-year period to improve ecological continuity of category 2 rivers. The delay has been extended by another 5 years in 2018 when it became clear that the initial time-frame was unrealistic.

Under the FR EMP, priority areas for eel restoration had been defined based on multicriteria analysis (left hand side of the next figure) and this supported identification of certain category 2 rivers. The identification of category 2 rivers considered additional rivers with eels as target species for restoration of ecological continuity (right hand side of the next figure).

In parallel, French authorities (*Agence Française de la Biodiversité – AFB)* started a census of all obstacles to river flows. As of 2015, 80 000 works have been inventoried with results published online, including 15 000 in category 2 rivers. Among these, close to 10 000 concern works on category 2 rivers with eel as target species for restoration.

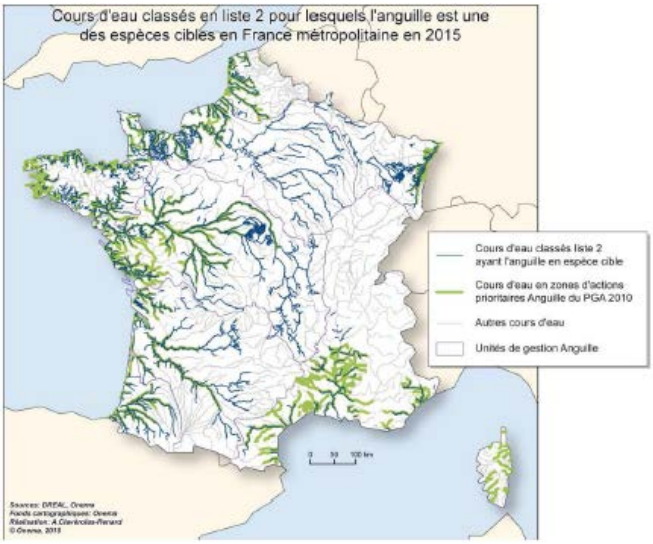


Figure 2: Priority areas for eel restoration (left) and category 2 rivers with eel as target species for restoration of ecological continuity (right)

Source: FR EMP and Rapport PGA France 2018

Temporary switch off of hydro-electric turbines

Hydro-electric turbines are known to be a significant source of mortality for migrating silver eels (CEREMA, 2016). There a high number of hydro-electric turbines in France, the larger ones are owned by public companies, but there is also a fairly high number of hydro-electric turbines privately owned. Private hydro-electric turbines have been developed under government incentive to develop renewable energies in France.

French authorities implement a programme to impose temporary switch-off of electric turbines during the peak of silver eels migrating seasons. Research has also been supported to develop models of eel-compatible turbines (Besse, 2017) that could equip new installations, or replace existing turbines.

Elimination of micropollutants

Concerning PCB, an action plan has been implemented between 2008 and 2014 as foreseen by the WFD. The action plan included sampling of PCB concentrations in eels (and other freshwater fish species). Results led to close certain rivers to eel fishing, in particular in the RMD EMU, and to issue a general recommendation to avoid consumption of wild yellow and silver eels in view of the high concentrations detected.

A new action plan covering the 2016-2021 period has been adopted. The plan takes into account EU WFD and EU MFSD prescriptions. It aims at reducing micropollutant concentrations, including drug residues. Fight against pesticides is the objective of a different action plan (*Ecophyto*).

Research is ongoing to establish the impacts of pollutants on eel life cycles. Pollutants may generate mortalities and/or modify eel biology with impacts on its maturation / reproductive capacities.

Measures to restore eel habitats

Measures to preserve and restore inland eel habitats consider measures for monitoring rivers flows and for protecting and restoring wetlands in line with the RAMSAR convention[87].

[87] The Ramsar is an international treaty for the conservation and sustainable use of wetlands ratified by France in 1986.

Fighting predators

Two main predators are identified in the FR EMP:

- The great cormorant (*Phalacrocorax carbo sinensis*) a protected species according to the EU Bird Directive. However, in view of their impacts on inland aquaculture stocks, a derogation allowing the destruction of about 21 200 specimens per year has been granted by FR authorities. The need for an EU management plan for great cormorant has been reported by FR authorities.
- European catfish (*Silurus glanis*) is an invasive freshwater fish species reported to prey on eels and other freshwater species (e.g. salmons), in particular when they concentrate in fish pass. European catfish can be fished but with some restrictions, and FranceAgriMer launched a market study to find market outlets for professional fishermen to increase economic attractiveness of the species.

Measures to enhance stock rebuilding

Eel restocking of FR EMUs

As envisaged by the EU Eel Regulation, measures to support eel restocking have been implemented. Glass eel quota include a 60% share for eels intended for restocking in France and in other Member States. The national restocking programme implemented as from 2011 consist in transferring 5 to 10% of glass eels caught on the FR territory to habitats in good ecological status with good potential for growth (low eel natural density) and reduced sources of mortality until the seaward migration to ensure contribution to the EMP general objective. Restocking operations are organised under the coordination of an association, the *Association for the Repeuplement des Anguilles* (ARA France) in close cooperation with relevant scientific institutes.

Eel restocking operations are implemented through annual public call for projects under scientific supervision defining the best areas for restocking, a protocol for glass eel handling and a protocol for monitoring the results of restocking operations. Annual budget for restocking operations is EUR 2 million, with price of glass eels purchased to fish merchants capped at EUR 350 / kg comprising price paid to fishermen, costs for stocking, health analysis, conditioning and transport. Selected projects can receive up to 96% of eligible costs in public funding if the beneficiary is a public organisation, 80% if the beneficiary is a private entity The annual budget is a State Aid duly declared as such to the Commission (case SA 40944).

Only EMUs where glass eels are caught are eligible to the restocking programme to avoid spread of diseases. This means that Mediterranean EMUs where glass eel fishing is prohibited cannot receive glass eels from other regions.

Release of silver eels

In the Mediterranean, a programme consisting in releasing silver eels caught in coastal lagoons during their seaward migrations in the open sea has been implemented as from 2011. Silver eels are paid using public funds to fishermen at a fixed price set at the beginning of the fishing season. Annual budget is EUR 420 000 per year, considered as *de minimis* aid as provided for by the relevant Commission Regulation[88]. Release operations are implemented under a scientific supervision defining protocols for verifying the quality and the handling methods of the silver eels.

Release operations are used to collect scientific information on silver eels, including on their survival rate and migration path once in the sea.

[88] Commission Regulation (EU) No 717/2014 of 27 June 2014 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid in the fishery and aquaculture sector

Progress to date

Progress toward the general objective of EMP

Silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock is evaluated through complex modelling (Eel Density Analysis – EDA). Data collected to feed the model include surveys of selected rivers to collect data on presence and biological characteristics of eels at all stages and available data on past eel catches and recruitment levels.

The main conclusion drawn is that all EMUs are still in the red zone (biomass less than 40% of B_0, very significantly for some EMUs, and mortality higher than objective of 0.92), which is in part explained by the fact that the current silver eel biomass includes eels born before the implementation of protection measures. It is estimated that the results of the eel plan will be visible only as from 2020 when glass eel born from eels under the management plan (see graph below) will enter French rivers.

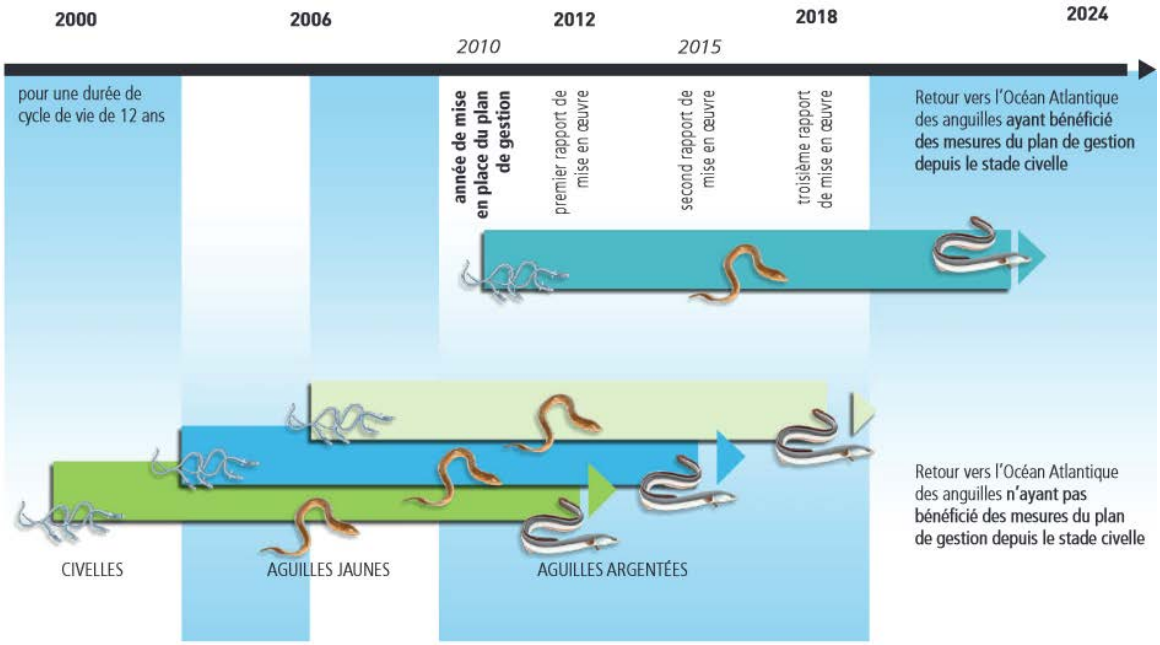


Figure 3: Forecast for the results of the French EMP

Source: Agence Française pour la Biodiversité

However, the model outputs show that mortality reductions achieved since the implementation of the plan support progresses toward the 40% B_0 objective. Although this objective may not be fully achieved, fishing mortality is estimated as at levels likely to contribute to stock rebuilding in the longer term.

However, the accuracy of the model results is undermined by several shortcomings:

- There are not enough surveys sites for sampling downstream migrations
- The main sampling method (electric fishing) can sample only shallow areas (≈ 70 cm), and is not adequate to sample deep areas
- Large areas are not covered by the model, including coastal zones, Mediterranean lagoons or Gironde estuary to cite only the main
- Uncertainty on the value of natural mortality parameter input in the model;
- Measures of accessibility of rivers do not take into account fish pass, and;
- Failure to include other sources of mortality including pollution, wetland areas reductions, predation and hydroelectric turbines induced mortality

Each of these shortcomings have different consequences on model outputs (over or underestimate of biomasses), but to a yet unknown extent.

In conclusion, the situation of France with respect to the general EMP objective is uncertain as a consequence of the difficulties to obtain reliable estimates of B_0 and of $B_{current}$ of silver eels. Nonetheless, estimates available show that France is still short of the EMP general objective, but that mortality reduction achieved, mainly through reductions of fishing mortality, may support rebuilding of the stock in the longer term, which is the objective of the EMP.

Progress toward reduction of fishing mortality

The various measures implemented to limit fishing (*inter alia* time-area closures, licencing and catch quota policy) supported dramatic reduction of the amounts of eels caught, in particular glass eels, compared to the period preceding the implementation of the EMP.

The number of fishing authorisations has been decreased over the past few years to reduce fishing mortality. The next table shows that fishing authorisations for glass eels decreased by 51% over the 2006-2018 period for glass eels in marine waters and 71% for glass eels in freshwaters, and by 57% overall. Phasing out of marine fishermen has been supported by permanent cessation schemes implemented under EFF and EMFF. According to FR authorities, costs for decommissioning vessels fishing for eel in maritime waters was in the region of EUR 10 million.

Table 5: Number of fishing authorisations granted for glass eel fishing between 2006 and 2018

	2006	2010	2011	2012	2013	2014	2015	2016	2017	2018	2006-2018
Marine fishermen	853	643	573	500	475	457	413	420	437	417	-51%
Freshwater fishermen	371	180	158	147	145	129	126	112	109	109	-71%
Total	**1 224**	**823**	**731**	**647**	**620**	**586**	**539**	**532**	**546**	**526**	**-57%**

Source: Rapport PGA France 2018

The number of fishing authorisations for yellow and silver eels have also been decreased. Its number went down from 1 330 in 2006 to 785 in 2018, a 40% reduction.

As shown in the figure below, the glass eel quota has been reduced from 44.6 tonnes for the 2010-11 season to 34 tonnes for 2012-2013. It has been subsequently increased up to 75 tonnes in 2014-15 underpinned by higher glass eel recruitment levels and consideration of an optimistic scenario. The quota was then decreased and set at 64.7 t for 2016-2017 and conservatively carried over at the same level for 2017-2018 and 2018-2019 fishing seasons although available evidences suggested that recruitment had improved. Total quota uptake (on a fishing season basis) has remained below the 100% limit. However, data published in PGA (2018) suggest that the consumption quota was exceeded between 2010 and 2014 (up to 140% in 2012-2013), but not since, with the restocking quota was consistently underused over the whole period.

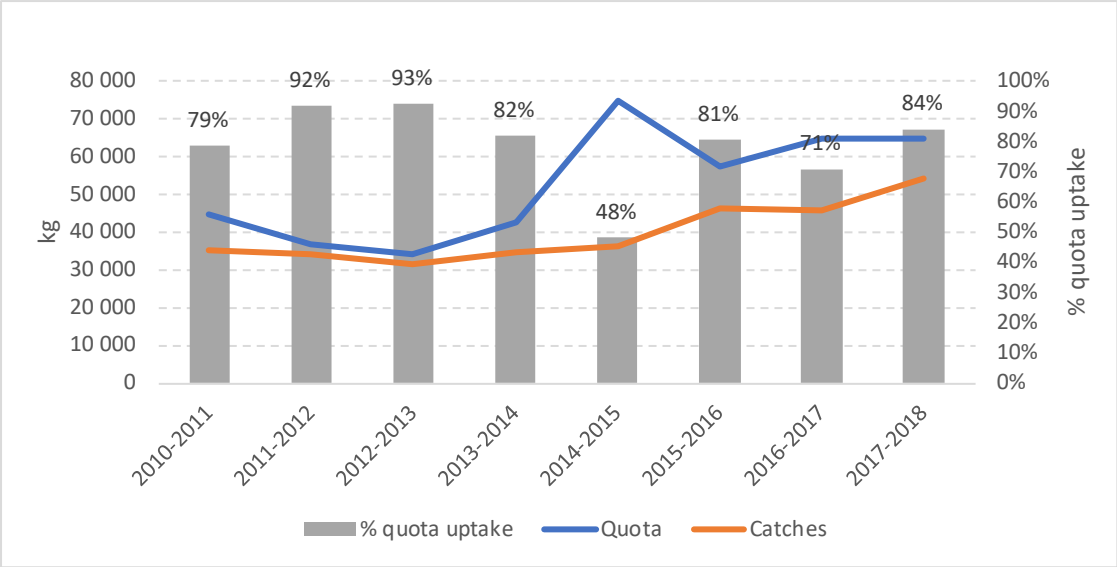


Figure 4: Glass eel quota and catches by fishing season

Source: from data submitted in rapport PGA France 2018

Compared to the reference catches for the 2004-2008 period as established by ICES for France (78.6 tonnes on average), glass eel catches decreased by 41%. Current glass eel catches include glass eels intended for restocking, a practice that did not exist prior to the adoption of the EU EMP.

In terms of exploitation rate (taking into account recruitment and catches), available information shows that exploitation rate of glass eels relative to 2004-2008 decreased dramatically as from implementation of the FR EMP in 2009-2010 until 2013-2014. Exploitation rate increased after and was close to 49% of 2004-2008 index in 2016-2017. As above, exploitation rate does not consider survival of eels through restocking operations.

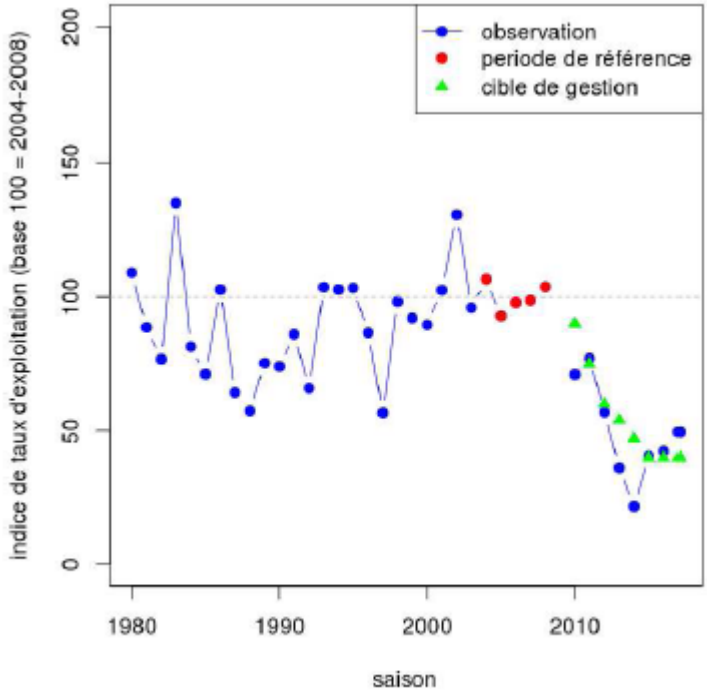


Figure 5: Evolution of glass eel exploitation rate

Source: Rapport PGA France 2018
Note: Exploitation rate establishes a relationship between recruitment and catches

Concerning yellow and silver eels, it is not possible to assess the evolution of fishing mortality mainly as a result of i) the low submission rate of catch data from recreational freshwater fishermen, and ii) the difficulties to establish the reference 2004-2008 situation (no catch declarations were enforced prior to the EMP implementation). The 2004-2008 situation is being evaluated based on data available, but information is not yet available. Before the EMP, catch declarations were not mandatory. The 2004-2008 baseline must be established through statistical methods using the incomplete information available for this period.

Measures to restore eel habitats

Ecological continuity of rivers

One of the main measures implemented by the FR EMP was to make a comprehensive census of all obstacles likely to hinder fish migrations, in particular eels. Before the implementation of the plan, there was not such information available, except at certain local levels. The result is a comprehensive database (ROE – *Référentiel des Obstacles à l'Écoulement*) that is used to identify obstacles and to take actions to restore ecological continuity of Category 2 rivers as enforced by the FR law implementing the WFD.

The table below shows that as of 01/01/2018, 20% of works were compliant in relation to ecological continuity, meaning that 80% were still non-compliant. For some important EMUs, like the LCVS (*Loire etc)* where abundance of glass eels is the highest in France, only 11% of works are compliant, including 8% in eel priority areas.

Table 6: Status of compliance with legal prescriptions concerning restoration of ecological continuity in Cat. 2 rivers

EMU	RMS	ARP	SEN	BRE	LCVS	GDC	ADR	RMD	Corse	Total
Number of cat. 2 river works with eel as target species	1 538	383	2 620	841	2 394	1 067	403	276	46	9 568
Inc. works in eel priority areas	284	226	422	475	927	192	106	276	42	2 950
Number of river works conform as of 01/01/2018	94	121	603	146	252	313	107	235	11	1 882
Inc. Prioriry area	21	74	118	69	77	59	26	42	10	496
% conform	6%	32%	23%	17%	11%	29%	27%	85%	24%	20%
Inc. Priority areas	7%	33%	28%	15%	8%	31%	25%	15%	24%	17%

Source: Rapport PGA France 2018

According to FR authorities, restoration of ecological continuity takes a long time. Legal owners of the ≈ 10 000 works have to be identified, then contacted to require them to improve the ecological continuity, and then followed-up. All concerned owners have reportedly good reasons for not doing the required improvements. For these reasons, the initial delay of 5 years has been extended by another five years. Operators concerned can receive a technical support from AFB to identify solution, and financial support from the different *Agences de l'Eau* for the required works.

Eel mortality attributable to the lack of ecological continuity of rivers cannot be measured. This source of mortality was an important component of the targeted 75% reduction of non-fishing anthropogenic mortality. Since only 20% of inventoried obstacles have been improved, it can be assumed that the FR EMP is short of its objective.

Temporary switch-off of electric turbines

Some progresses have been achieved in certain EMUs. However, temporary switch off have a cost for operators in the form of foregone revenues from sale of electricity produced, requiring an as precise as possible identification of switch-off periods by authorities (silver eels are known to start their downstream migration during a few nights in the winter seasons, i.e. when electricity production is the most needed).

In the Loire EMU, a model for prediction of silver eel migrations has been successfully developed and used to determine the mandatory switch-off periods. For other EMUs, the model needs to be adapted. Meanwhile, FR authorities have difficulties to identify and mandate switch-off periods. As a result, mortality induced by hydro-electric turbines is likely to be significant (20% and more for certain installations as suggested by CEREMA (2016)), although it cannot be measured at national level.

Wetland restoration

According to FR stakeholders, as much as 70% of wetlands areas have been destroyed over the past decades. Protection and restoration of wetlands areas remains a priority in line with RAMSAR convention. An action plan has been implemented over the 2010-2012 period. Its evaluation concluded that the action plan has been effective to raise awareness and federate actions of the different entities concerned but raised that there were no signs of tangible results in relation to restoration and protection of wetlands. An updated action plan for the 2014-2018 period is being implemented. The action plan considers specific actions (e.g. action # 49) to improve knowledge and assess the potential of coastal wetlands for eels in support of the FR EMP.

Measures to enhance stock rebuilding

Restocking

Recorded catch levels for glass eels intended for restocking show that amounts considerably increase, from 5.5 t in 2010-2011 to 30.1 t in 2017-2018. Current catches of glass eels intended for restocking represented ≈ 55% of total catches in 2017-2018 (30 tonnes). Amounts of glass eels catches intended for restocking stand below the 60% target due to underutilisation of the restocking catch quota which is explained by the low economic attractiveness of the activity (i.e. prices paid by public operators for glass eels intended for restocking are reportedly low compared to market prices for glass eels intended for consumption) and the logistic complexity of the operations.

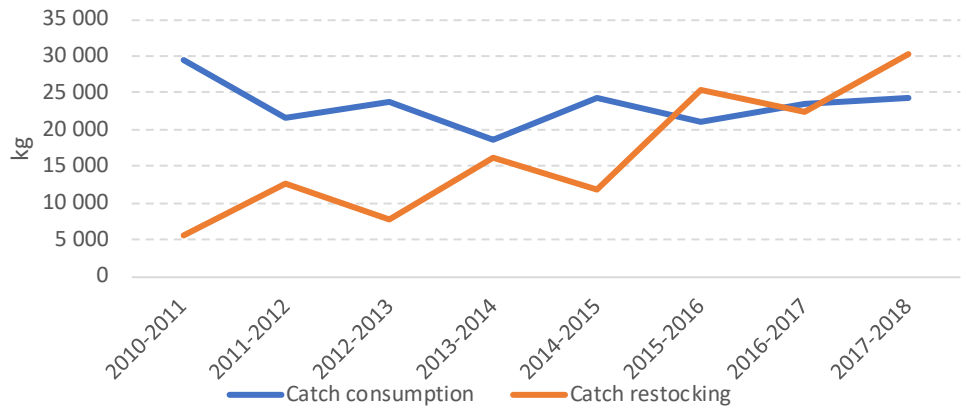


Figure 6: Evolution of glass eel catches intended for consumption and for restocking

Source: from data submitted in rapport PGA France 2018

As established by the FR EMP, glass eels intended for restocking are used to enhance stocks in the FR EMUs for an earmarked quantity of 5-10% of the total catch quota. The remainder, i.e. 50-55% of the total catch quota is intended for restocking operations in other Member States, with Northern Member States being the main importers of glass eels (e.g. Netherlands, Germany, Denmark, Poland or Sweden).

Before adoption of the EMP, restocking was not implemented in France.

For restocking operations implemented in France, operations include a monitoring component aiming at assessing the survival rate of glass eels up to three years after release. First results (Rigaud et al. 2015) show a high variability but are low overall (i.e. less than 15%) and are decreasing over time (up to 36 months). Additional research is deployed to improve knowledge on glass eel survival rates after restocking, with reference to natural survival rate, and to obtain an estimate on the proportion of restocked glass eels that eventually migrate to the open sea. Experience already shows that eel restocking operations have some shortcomings: glass eel mortality can be high between catching and releasing due to stocking[89] and handling operations, and restocking can underpin spread of pathogens, including EVEX (Eel-Virus-European-X) and the parasite *Anguillicola crassus*.

Since the start of the French operations for restocking with public support under the coordination of ARA France, uptake of budget has been below expectations (70% budget uptake on average). The reasons put forward by FR stakeholders are i) the low economic attractiveness of the operation due to lower selling prices, ii) the additional burden imposed on buyers of eels intended for restocking who have to implement prior checks in their premises (e.g. sanitation, tagging), and iii) the level of financial support available that is acceptable only for public entities (96%), with as a result, only Regional Committees for Fisheries submitting applications (the 80% rate offered to private operators is reportedly too low). In order to improve the financing conditions, France decided not to open the relevant EMFF measure, but to finance restocking operations from State budget. The main advantage of doing so was to allow a down-payment to selected operators, which is not readily possible under EMFF.

For live glass eels exported to other Member States for restocking operations, French stakeholders report a lack of information on operations implemented and on their impacts on eels biomasses. Eels reported for restocking can be released directly in their natural environment or grown up to 20 cm in aquaculture farms. There are suspicions that eels intended for restocking may be used for consumption, either sold as glass eels or grown up to commercial grade by aquaculture for consumption. Recent investigations from Bulgarian and Romanian operators to buy glass eels intended for restocking somehow reinforced these suspicions. FR authorities do not have the competence to monitor what happens to glass eels intended for restocking after exports. FR stakeholders also report that there is a mismatch between the FR glass eel fishing season and international demand for live glass eels intended for restocking. Most of the market demand is in February – March when water starts to warm up, i.e., when the FR glass eel fishing season arrives at its end.

Release of silver eels in the Mediterranean

Operations supporting release of silver eel in the open sea could be implemented as expected with public support from State budget (≈ EUR 420 000 per year). Since 2011, 170 tonnes of silver eels have been released in the open sea (Mediterranean only), representing 1.1 million silver eels.

Release operations are implemented in partnership with a scientific institute. It could be verified through electronic tagging that silver eels may pass the Gibraltar strait and continue their Westward migration (Amilhat et al. 2017). However, the farther point where tagged eels could be monitored was near Azores. The extent to which silver eels released contribute to the spawning stock in Sargassum Sea is yet unknown. Scientific information collected also suggests that migrating silver eels are subject to important predation, with as much of 50% of tagged eels being predated by other fish after migration in the open sea.

[89] According to a professional fishermen, a good catch for one vessel is ≈ 2 to 3 kg glass eel in a night. Buyers need to build 500 kg stocks for restocking.

3. KEY FINDINGS

RELEVANCE

EQ1. To what extent are the existing measures for the recovery of European eel stock under the Eel Regulation still relevant ?

JC1a(1): The extent to which eel landings, escapement levels and river basin conditions have recovered sufficiently to warrant the measures being continued.

According to results presented in the 2018 FR triennial report, fisheries management measures succeeded to reduce eel landings and associated fishing mortality in a relatively short time frame, in particular for glass eels caught in marine and estuarine waters. Measures to improve escapement levels and river basin conditions took time to design and implement and are likely to stand below the FR EMP stated objective of 75% reduction of mortality.

Given the length of the life-cycle of eels in France (≈ 12 years, including more than 10 years in freshwater bodies), the results of the EMP initiatives will be visible only in 2020, and probably only after since it takes more time than expected to reduce non-fishing sources of mortality (ecological continuity, temporary switch off of turbines, pollution).

The conclusion, shared by all stakeholders consulted, is that EMP measures remain fully relevant at least until 2020.

EFFECTIVENESS

EQ2. To what extent have the current measures for the recovery of European eel stock under the Eel Regulation met its objectives?

JC2 (1): EMPs implemented and specific targets achieved.

All components of the FR EMP have been implemented. Specific targets have been achieved at various extent, depending on the types of measures :

Fishing mortality

Fishing mortality for glass eels has been reduced close to initial specific objective of 60% due to various restrictions on professional fishing, including cessation schemes, catch quota and time-area closures of glass eels fisheries. For yellow and silver eels, measures have also been implemented to limit fishing mortality, mainly through various fishing time-area prohibitions. However, the impacts of these measures on yellow and silver eels cannot be estimated in terms of % reduction as a result of i) the low submission rate of catch data from recreational freshwater fishermen, and ii) the difficulties to establish the reference 2004-2008 situation (no catch declarations were enforced prior to the EMP implementation).

Other non-fishing anthropogenic mortalities

This pillar of the FR EMP is probably below its objective of 75% of reduction of eel mortality. In 2018, only 20% of river works impacting eel migration were estimated to be compliant with legislation imposing ecological continuity, and programmes for temporary switch-off of turbines were not fully implemented (no quantified indicators for this). Measures foreseen in the EMP have been more difficult to implement due to the large number of existing river works and the resistance of public and private owners of these river works. However, a positive outcome of the measures is that a comprehensive database of obstacles has been assembled, and placed in the public domain (ROE – *Référentiel des Obstacles à l'Écoulement*). This database provides a basis for competent authorities to plan actions and monitor progresses. Before the EMP, there was no such inventory at national level of obstacles impacting migratory fish species.

Other measures such as wetland restoration or fight against river pollution are being implemented, but with results expected only in the longer terms

Fighting predators

European catfish and cormorant are identified as possible, although unquantified, sources of mortality for eels. For European catfish, there are anecdotal evidences of individuals gathering near obstacles and feeding on glass eels trying to migrate upstream. Professional fishermen are willing to increase fishing pressure on catfish. However, they are reportedly prevented to do so by recreational fishermen who want to keep this species for big game fishing. For cormorant, authorisations are granted to eliminate about 20 000 individuals in some regions, but a wider management is hampered by the protected status of the species under the bird directive, and strong opposition from environmental NGOs.

Enhancing stocks

The mandated obligation to reserve 60% of the glass eel catch quota for restocking is complied with. The measure of the FR EMP to use 5 to 10% of total glass eel catches for restocking operations in France is now implemented under scientific supervision to ensure an acceptable survival rate and a contribution to the production of silver eels. Glass eels intended for restocking and not used by the FR programme are exported to other Member States with no further information on their contribution to the EU EMP. FR stakeholders also report a lack of feedback on the effectiveness of restocking operations in other MS, and lack of exchange of experience on methodologies applied to restocking.

JC2 (2): European eel stock has recovered.

NB : this is addressed under JC 2(4)

JC2 (3): Anthropogenic other than fishing mortalities have been reduced.

NB : this is addressed under JC 2(1)

JC2 (4): Adult eel escapement progressed towards the long term 40% escapement objective.

The situation of France with respect to the general EMP objective is uncertain as a consequence of the difficulties to obtain reliable estimates of B_0 and of $B_{current}$ of silver eels. Nonetheless, estimates available show that France is still short of the EMP general objective, but that mortality reduction achieved, mainly through reductions of fishing mortality, may support rebuilding of the stock in the longer term, which is the objective of the EMP.

JC2 (5): Supply of glass eels sufficient for restocking operations.

Answer depends on what is considered as sufficient for restocking operations. As far as France, the EMP objective was to use 5 to 10% of the catch quota for restocking operations. Glass eel supply is sufficient for the FR Programme. For glass eels caught in France, catch quota reserved for restocking was probably too high compared to demand as evidence by underutilisation of this quota. However, utilisation of the quota reserved for restocking tended to improve over the last few years, being at 77% in 2017-2018. Still, supply of glass eels for restocking operations appear to be in excess of demand, largely driven by demand from other MS.

JC2 (6): Fishing effort reduced by at least 50% relative to the average effort 2004-2006 or ensure reduction of catches by at least 50%.

NB : this is addressed under JC 2(1)

JC2 (7): Origin and traceability of all live eels imported and exported from MS territory maintained.

There are no imports of live eels in France, only exports. Traceability is ensured through transport documents up to the borders. After exports, France does not have competence to ensure traceability. French authorities somehow regret that the CITES intra-EU traceability documents have been abandoned, albeit it is acknowledged that they generated administrative burden.

JC2 (8): Control and enforcement activities in support of the implementation of the EMPs have taken place in EU waters and at all stages of the eel supply chain.

Controls and enforcement activities have taken place in EU waters and in non-EU waters (= freshwater environment) on the following basis:

- For EU waters, the competent authority is the *Direction de la Pëche Maritime et de l'Aquaculture* of the Ministry for Agriculture. All obligations stemming from the EU Control Regulation have been implemented for eel, including mandatory catch declarations from fishermen, purchase declarations from authorised buyers and transport documents as enforced by a 2015 Arrêté with a 2017 Arrêté specifying obligations in the case of the eel fishery. Traceability requirements from net to plate set out by the EU Control Regulation are not yet enforced in France. For catch declarations, professional fishermen have to submit monthly declarations (regime for all vessels not subject to logbooks) which are centralised by *FranceAgrimer*. For purchase declarations of glass eels, buyers have to declare electronically through a dedicated web interface called *Visiomer*. Compliance with catch or purchase declaration, as well as compliance with technical rules on fishing activities (licences, technical measures) is verified by authorised Ministry personnel as it is the case for all marine fishing authorities. Inspections are coordinated at regional levels by the competent maritime authorities (*Direction Interrégionales de la Mer (DIRM*) according to control strategies.

- For non-EU waters, the competent authority is the *Direction de l'Eau et de la Biodiversité* of the Ministry for Ecology. Catch declarations have been mandated for both professional and recreational through a 2010 Arrêté and further detailed by a 2013 Arrêté for professional fishermen targeting eels. Sales notes and transport documents enforced for marine fishing through the EU Control Regulation have been extended to eel caught in freshwater environment. Like for marine fishing, buyers of glass eels caught by freshwater professional fishermen have to declare purchases electronically.

  Professional fishermen (both freshwater and marine) have autonomously implemented an simple electronic reporting system via SMS (Télécapêche with a specific module for glass eels Télécacivelle). Electronic declarations have no legal value according to legislation, but they are used to monitor uptake of the glass eel quota by fishermen organisations in near real-time.
- Control of ecological continuity of rivers falls under the *Police de l'Eau* aiming at controlling enforcement of environment and biodiversity legislation, including eels measures. Control responsibility and objectives were framed by a 2010 Circular recently replaced by a *Note Technique* published in 2017.

For fishing activities, common controls focus on compliance with reporting obligations and compliance with technical rules. As an example, for the 2016-2017 fishing season, a total of 115 marine fishermen have been controlled in Brittany / Pays de Loire (the largest EMUs for glass eels fishing) with 14 detected infringements (12%), mainly in relation to reporting obligations and closed seasons. In freshwater environment, 328 inspections have taken place with 132 infringements detected (40%).

France is exposed to a high risk of glass eel fishing underpinned by the high prices of live products on the Asian market. The CITES listing of European eel somehow encouraged glass eel trafficking by phasing out legal operators from this lucrative business. Glass eel poaching activities (fishing, transport, export) operate in the form of organised crimes requiring cooperation of all authorities involved (fisheries control activities, *Gendarmerie*, Customs, etc.). Over the past few years, several operations succeeded to dismantle certain illegal networks. For serious infringements subject to penal sanctions including jail sanctions, French courts dedicated specific audiences to be able to deal more easily with the technical specificities of the eel trafficking business.

EQ 3. If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 1, what factors have they hindered their achievement and how?

JC3 (1): Identification of the key barriers to achieving the objectives.

According to stakeholders consulted, the main key barriers to achieving the eel objective are the slow progresses to improve the conditions for eel survival in rivers, in particular to restore ecological continuity of rivers or to decrease mortality induced by hydro-electric turbines. A factual evidence is that only ≈ 20% of works across rivers are compliant with legislation.

JC3 (2): Identification of the common and outstanding successes and resulting best practises that have allowed progress towards achieving the objectives.

The following points detail what appear as good practices to support progresses towards the objectives:

- **The geographical scope of the French eel management plan** : the FR EMP includes all eel habitats up to 1,000 m elevation, including Corsica. The geographical scope of the plan, and therefore the geographical scope of the eel restoration and conservation measures includes all marine and freshwater environment of the French national territory (excluding outermost regions) where eels can be found.
- **The national database of rivers obstacles** : the objective to restore ecological continuity of rivers led FR authorities to implement a national census of all obstacles across rivers which did not exist prior to the adoption of the FR EMP. Relevant information was only available for certain areas in some EMUs, and not harmonised. The result is the ROE database available online (*Référentiel des Obstacles à l'Écoulement)* which is maintained and updated according to results obtained by a central authority.
- **Voluntary electronic catch declarations by FR professional fishermen** (freshwater and marine waters): according to legislation, FR fishermen have to declare catches on paper forms to be submitted by courier to two different authorities. In view of the relative inertia of the declaration system to monitor glass eel quota uptake, professional fishermen develop an electronic reporting system (Télécacivelles) to monitor quota uptake in near-real time. The professional electronic reporting system reportedly prevented overshooting of the quota.
- **Scientific monitoring of eel restocking operations**: eel restocking operations are framed by a scientific protocol defined to improve survival rate of restocked glass eel and to monitor results over a three year period. Areas for restocking are also identified with scientific expertise to increase the contribution of the eel restocking operations to restoration of eel populations. Compliance with scientific protocols is one of the conditions imposed to organisations benefiting from public support for eel restocking.
- **Granting restocking financial support through a State Aid scheme rather than through EMFF** : EMFF rules prevent release of advance payments to beneficiaries, and this was seen as a major impediment for the attractiveness of the measure. Given this, FR authorities preferred not to open the relevant EMFF measure, and to implement financial aid for restocking through a State Aid Scheme that allows releases of advanced payments to beneficiaries. FR authorities applied a similar approach to support silver eel release in the Mediterranean with aids granted under the scope of the *de minimis* Commission's rules. These measures contributed to improve implementation of eel stock enhancement measures by professional organisations.
- **Public contribution for restoration of ecological continuity** : through the *Agences de l'Eau*, owners of rivers obstacles can obtain public technical and financial support for restoring the ecological continuity of their works. As an example, the *Agence de l'Eau Loire-Bretagne* committed a EUR 295 million budget over the 2019-2024 period to protect and restore the aquatic environment.
- **Modelling periods for temporary switch-off of electric turbines** : in the Loire are, a scientific model (Acou et al. 2009) has been developed and further refined to identify the best periods for temporarily switching-off of electric turbines with a reasonable accuracy. This supported implementation of the measure, which from operators perspective, must be implemented only when necessary due to the high associated foregone revenues. Similar models are yet to be developed or adjusted for other EMUs.

- **Involvement of Courts**: Courts competent for areas where glass eel trafficking is the most likely to happen specialised by grouping audiences concerning infringement to eel measures in one or two annual sessions. This contributed to increase the Court knowledge on these issues, and to better balance sanctions according to the severity of the infringement. A large publicity is also given to sanctions imposed as a deterrent (jail sanctions have been imposed in addition to fines to offenders involved in organised eel trafficking, see example1 and example 2).

JC3 (3): Identification of best practices in transboundary areas.

Scientists from France, Spain and Portugal created in 2018 an exchange platform on stock modelling through the Interreg project SUDOANG coordinated by Azti (ES). The main objective of this project is to harmonise approaches for scientific modelling of eel populations, including harmonised approach to identify the situation of silver eel abundance compared to the 40% objective set out by the Eel regulation.

JC3 (5): Have the control & enforcement measures at MS levels been adequately resourced and implemented?

Both enforcement authorities competent for marine fisheries and enforcement authorities competent for freshwater fisheries could not provide information on the control resources deployed as control of eel measures is part of the broader control of fisheries and environmental measures. Consequently, it is not possible to assess the extent to which resources are adequate.

SUSTAINABILITY

EQ 5. Are the effects likely to last after the intervention ends?

JC5 (1): The extent to which measures implemented under the Eel Regulation have long-term impacts, even if the intervention were to cease.

According to all stakeholders consulted, the measures implemented through the Eel Regulation may have long term impacts. Measures of the FR EMP in relation to monitoring and control of fishing activities and in relation to restoration of eel habitats in rivers and lakes have been transposed into national law, and are likely to remain applicable even if the intervention was to cease. However, restocking measures may not be continued in the absence of EU prescriptions in view of their costs for the National budget and in view of the lack of clear scientific demonstration of their effectiveness.

EFFICIENCY

EQ 6. To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?

JC6 (1): Extent to which the costs of administering, implementing and overseeing EMP actions have been balanced by the environmental and socio-economic benefits accruing from improved eel stocks.

The cost-benefit of the FR EMP has not been assessed. The problem is twofold: identifying the costs and identifying the socio-economic benefits. Some stakeholders report that the value of eel is not only socio-economic. Eels have also a patrimonial value which is not readily monetizable.

EQ7. Could the use of other policy instruments or mechanisms have provided better cost-effectiveness?

JC7 (1): The extent to which alternative options exist and an assessment of their relative cost-effectiveness and contribution to the objectives of the Regulation.

None of the stakeholders consulted raised a need for an alternative approach. According to feedback received, the Eel Regulation includes relevant protection measures all along the life-cycle of the species and a shared opinion is that all foreseen measures should be implemented up to stated objective to ensure eel stock recovery. In this respect, addressing non-fishing anthropogenic sources of mortality, and therefore ensuring that all measures of the FR EMP are implemented, should be seen as a priority. In particular, efforts to restore ecological continuity of rivers should be increased as evidenced by the relatively low proportion of rivers works addressed so far (17%, see Table).

COHERENCE

EQ 9. To what extent are the measures for recovery of the European eel stock under the Eel Regulation coherent with wider policy and interventions which have similar objectives (e.g. Common Fisheries Policy, fisheries control regulation, environmental legislation and in particular Water Framework Directive)?

JC9 (1): The extent to which wider fisheries and environmental policies remain coherent with the objectives and measures under the Eel Regulation.

No issues of incoherence have been identified during the consultations. It has been raised that the EU Eel management plan is potentially impacted by several other EU instruments, *inter alia:*

- **The Common Agriculture Policy** that encourages productivity of the sector, with potential effects on natural water resources quality and availability;
- **Europe 2020** strategy that encourages the development of alternative sources of renewable energy including the development of hydro-electric energy that creates incentives to increase the number of river works potentially hindering eel movements.
- The **Water Framework Directive** supporting improved management of natural water resources and of their ecological functions
- The **Bird Directive** that includes protection measures for certain eel predators

All these EU instruments have a legitimate objective. However, the main problem encountered in France is to strike an acceptable balance between socio-economic interests and environmental interests. Eel management plan measures are an illustration of the difficulties to strike this balance, in particular for non-fishing anthropogenic sources of mortality.

EU ADDED VALUE

EQ 11. What is the additional value resulting from the EU measures for the recovery of European eel stock under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?

JC11 (1): Extent that the Eel Regulation has provided additional impetus / support to address eel conservation objectives.

There is a broad consensus between all stakeholders consulted to support the view that the EU Regulation supported an integrated approach for restoration of eel populations, by including in its scope all identified sources of mortality in relation to human activities and in relation to other ecological factors such as predators. The eel regulation provided an impetus for a comprehensive approach which did not exist prior to its adoption. Although there is still a clear dichotomy in France between authorities in charge of the marine sector and authorities in charge of the freshwater environment, the Eel Regulation prompted establishment of a dialogue that was not necessarily existing before the Eel Regulation. As a spin-off effect, the Eel Regulation is also likely to benefit to other diadromous species (e.g. salmon, shad, sturgeon) which are also impacted by the quality of the environment in rivers and lakes, including ecological continuity of waterways.

However, several stakeholders (professional organisation and national authorities) raised that additional EU interventions through the annual TAC and quota regulation, which concern only marine fishing, do not send the right signal. By nature, Tac & quota measures put additional limitations on marine fisheries only, a sector which has already been dramatically reduced, while reduction of other sources of eel mortality in rivers and lakes are considerably delayed compared to initial objectives without being subject to similar emergency measures.

JC11 (2): Extent that it is possible to isolate results and outcomes that could or would not have been otherwise achieved without the Eel Regulation.

The main outcome of the Eel regulation is the comprehensive approach used to address all sources of eel mortality.

EQ12 What would be the most likely consequences of stopping the application of the measures as regulated in the Eel Regulation?

JC12 (1): Extent that MS authority is able to identify positive and negative implications of stopping the Regulation.

In the event the Eel Regulation is discontinued, measures transposed into National legislation for regulating fisheries and for restoring eel habitats would continue to apply. However, restocking measures may not be continued in the absence of EU prescriptions in view of their costs for the National budget and in view of the lack of clear scientific demonstration of their effectiveness.

4. CONCLUSIONS AND RECOMMENDATIONS

France implemented the measures promoted by the Eel Regulation in relation to implemented i) to decrease fishing mortality, ii) to decrease other anthropogenic sources of mortality and iii) to enhance stocks through restocking of glass eels and release of silver eels. In the first 8 years following the adoption of the FR EMP, tangible results have been obtained for the reduction of fishing mortality of glass eels, and implementation of a FR restocking plan. Concerning yellow and silver eels, reduction of fishing mortality through several fishing prohibition has also been obtained but results in terms of decrease of fishing mortality cannot be evaluated as yet due to difficulties to quantify the 2004-2006 baseline compounded by a lack of catch declarations by recreational fishermen. Reduction of non-fishing anthropogenic sources of mortality was given high priority in the plan with a high 75%, but progress has been slow. It took time to establish a legislative basis for restoration of ecological continuity of rivers, to have a comprehensive census of existing rivers works (≈ 10 000 works) and to incentivise the owners of these works to do the required improvements.

According to scientific estimates, France is still below the general objective of the Eel Regulation to reduce anthropogenic mortalities so as to permit 40% escapement of silver eel biomass relative to pristine biomass. However, the current levels of fishing mortality are assessed to support restoration of the eel population up to this objective in the long term in line with the general objective of the Eel Regulation. Given the duration of the life cycle of eels, results of the FR EMP are not expected to be visible until 2020. A view shared between all stakeholders consulted is that the Eel Regulation remains relevant, and that it should be maintained at least until 2020. Professional fishermen in both freshwater and marine waters raised that the professional fishing sector has already paid a large socio-economic contribution for eel restoration, and that priority should be given to restoration of eel habitats in the medium term in view of the low progresses achieved in this area since 2010.

At EU level, French stakeholders raised two difficulties that could be addressed with support of the Commission:

- **Traceability of eels**: once transported out of the national territory , FR authorities do not have the competence to ensure that eels intended for restocking in other MS are used for this purpose. Anecdotal information suggests that it may not always be the case.

- **Exchange of knowledge and good practices on eel restocking**: French operators reported that there is little information available on restocking protocols used in other Member States. Since restocking is one of the pillars of the Eel Regulation, exchange of good practices should be supported at EU level instead of each Member State inventing and implementing its own procedures.

Evaluation of the Eel Regulation
Specific Contract No. 10
under Framework contract
EASME/EMFF/2016/029

Italy – Case Study

Eel Fishmonger, Traditional Nativity, Bologna 2018

ACRONYMS/ABBREVIATIONS

Acronyms/ Abbreviations	Definition
ARPAT	*Agenzia Regionale per la Protezione dell'Ambiente – Toscana* (Regional Agency for Environmental Protection – Tuscany)
CEO	Chief Executive Officer
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CREA	*Consiglio per la Ricerca in agricoltura e l'analisi dell'Economia Agraria* (Council for Research in Agriculture and Angricultural Economics)
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission
EFF	European Fisheries Funds
EMFF	European Maritime Fisheries Fund
EMP	Eel Management Plan
EMU	Eel Management Unit
EU	European Union
FAO	Food and Agriculture Organisation
GFCM	General Fisheries Commission for the Mediterranean
ICES	International Council for the Exploration of the Sea
IUCN	International Union for Conservation of Nature
MS	Member States
MIPAAFT	Italian Ministry for Agricultural, Food, Fishery and Tourism Policies
PEMAC	*Pesca Marittima e Acquacoltura* (Fisheries and Aquaculture)
WGEEL	Joint EIFAAC/ICES/GFCM Working Group on Eels
WFD	Water Framework Directive

1. OVERVIEW OF THE CASE STUDY

INTRODUCTION

This report presents the results of the case study on Italy, one of the three case studies (the other focusing on Denmark and France) being conducted in this evaluation. The case studies will provide more detailed insight into the implementation of the Eel Regulation at national, regional and local level, in addition to the information gathered through the synthesis of the Eel Management Plans (EMPs) and their progress report, and the targeted consultation with the other Member States. They are intended to:

- understand the extent to which the measures taken under the 2009 EMPs have been able to address the main objectives of the Eel Regulation;
- determine whether the Eel Regulation, and the responses detailed in the EMPs, remain relevant with regard to the drivers and pressures relating to the recovery of the European eel stock, and the extent to which the latter can be addressed by the EU alone;
- assess what additional or alternative measures might be taken to achieve the objectives of the Eel Regulation;
- assess the added value of the Eel Regulation and the sustainability of the measures being undertaken through the EMPs and their long-term impact after the interventions.

METHODOLOGY

This case study has been conducted through both a review of *background information* (such as EMPs, Progress Reports, scientific reports and other relevant studies) and *face to face and telephone interviews* guided by semi-structured questionnaires. The case study has also benefitted from two round tables organized by the Italian Minister of Agricultural, Food, Forestry and Tourism Policies (MIPAAFT) and the Emilia Romagna Region, respectively. The interviews allowed to collect information from different subjects active in the entire eel management spectrum, ranging from legal to scientific and commercial insights, thus developing a variegate but consistent understanding of the problem at issue, of what actions have been taken and of what still needs to be done. In addition to national and regional officials, a number of representatives from research bodies (e.g. universities, Unimar) and trade associations (e.g. Associazione Cooperative Italiane, Legacoop Agroalimentare Nord Italia) have been involved in the discussion. A list of the interviewees and of the sources consulted is included in the tables below.

Table 1: Interviews carried out in support of the case study

Organisation
Ministry of Agricultural, Food, Forestry and Tourism Policies / *Direzione Generale della pesca e dell'acquacoltura*
Carabinieri Forestali – Raggruppamento CITES
Emilia Romagna Region
Friuli Venezia Giulia Region
Lombardy Region
Tuscany Region
Ente Tutela Pesca Friuli Venezia Giulia
University of Bologna
University of Ferrara
University of Roma Tor Vergata
Unimar
CREA - Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria
Associazione Cooperative Italiane
Legacoop Agroalimentare Nord Italia
Associazione Pescicoltori Italiani

Table 2: Document sources

Document reference
Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel
National and Regional EMPs, Progress Reports, Other Legal Acts
Piano Nazionale di Gestione per l'anguilla in Italia, September 2009
Piano Nazionale di Gestione per l'anguilla in Italia - Regolamento (CE) 1100/2007 – Rapporto Annuale Italia art.9 – Anno 2015
Piano Nazionale di Gestione per l'anguilla in Italia - Regolamento (CE) 1100/2007 – Rapporto Annuale Italia art.9 – Anno 2018
Decreto del Ministero delle Politiche agricole alimentari e forestali del 12 gennaio 2011, Disciplina della pesca e della commercializzazione del novellame di anguilla della specie Anguilla (Cèca)
Ministry for Agriculture, Food and Forestry Policies, Circular on CITES – *Inclusione della specie Anguilla nell'allegato B del Reg. (CE) 338/97, Chiarimenti in merito alla detenzione del registro di detenzione CITES di cui al D.M. 8 gennaio 2002*
Ministry for Agriculture, Food and Forestry Policies, Circular on CITES – *Inclusione della specie Anguilla nell'allegato B del Reg. (CE) 338/97, Chiarimenti in merito alla detenzione del registro di detenzione CITES di cui al D.M. 8 gennaio 2002 – intergazione*
Piano di gestione regionale dell'anguilla (Anguilla anguilla) Regione Veneto, August 2009, drafted following the *Deliberazione della Giunta regionale n. 2278 del 28 luglio 2009, Implementazione delle misure per la ricostituzione dello stock di anguilla europea imposte dall'Unione Europea (Regolamento n.1100/2007 del Consiglio)*
Piano di gestione dell'anguilla (Anguilla anguilla) in Friuli Venezia Giulia, October 2011, attached *to the Delibera della Giunta regionale, n. 1848 del 7 ottobre 2011, relativa al Piano di gestione dell'anguilla (Anguilla anguilla) in Friuli Venezia Giulia – Attività di monitoraggio dello stock di anguilla nella laguna di Marano*
Documento di Attuazione Regionale del Piano Nazionale per la gestione dell'anguilla Regione Toscana, attached to the *Deliberazione della Giunta regionale n.* 558/*2012 di approvazione del documento di attuazione del piano nazionale dell'anguilla*
Academic and Grey Literature
Aschonitis, V., Castaldelli, G., Lanzoni, M., Rossi, R., Kennedy, C., & Fano, E. A. (2017). Long-term records (1781–2013) of European eel (Anguilla L.) production in the Comacchio Lagoon (Italy): evaluation of local and global factors as causes of the population collapse. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *27*(2), 502-520
Brunelli, F., (2012). Evaluation of silver European eel (*Anguilla anguilla*) for the implementation of an effective Eel Management Plan in Mediterranean coastal lagoons. PhD Thesis – University of Bologna, Italy
Capoccioni, F., Ciccotti, E. & Leone, C., (2018), Report on the eel stock, fishery and other impacts, in Italy 2018 in: ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)
Capoccioni, F., Ciccotti, E., Leone, C. & Schiavina, M., (2018), Report on the eel stock, fishery and other impacts, in Italy 2017 in: CITES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)
FranceAgriMer (2014). Insights into the European eel market chain.
Franchi E. (2015). *Il Piano di gestione dell'anguilla europea in Toscana e la sua applicazione nella laguna di Orbetello*, presented during the seminar *Le lagune della Sardegna: sviluppo sostenibile, tradizioni, prodotti e ambiente*, Oristano, 27 March 2015
ICES (2017), Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)

Document reference
ICES (2018), Country Reports 2017–2018: Eel stock, fisheries and habitat reported by country, Annex 5 to the ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)
ICES (2018), Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)
Sustainable Eel Group (2018). Quantifying the illegal trade in European glass eels (*Anguilla anguilla*): Evidences and Indicators. SEG-Report:2018-1-V1
Violani, A., (2014). *Attuazione del Piano di Ripopolamento dell'Anguilla in Toscana Anno 2013*, ARPAT

1. OVERVIEW OF THE CASE STUDY

EEL PRODUCTION AND TRADE

According to the stakeholders, **about 850 tonnes of eels have been produced in Italy in 2017**, from fishing, extensive and intensive aquaculture, with a production value of about EUR 10 million. In detail, about 600 tonnes are produced from intensive aquaculture, and 250 tonnes from fishing and extensive breeding in semi-open coastal lagoons ("*vallicoltura*"). These figures are grossly in line, albeit somehow higher, with the fishing data reported by the WGEEL.

Fishing (including vallicoltura)

Data on eel fishing in Italy show certain discrepancies, depending on the sources used and the definitions applied. In particular, whether *vallicoltura*[90] is considered as aquaculture or fishing remains unclear. Italian sources and stakeholders usually tend to include it among fishing activities.

Commercial landings of yellow and silver eel, as reported by the WGEEL[91], amount to **200 tonnes in 2017, that is about 10% of the total EU landings**. In 2017, Italy was the sixth EU producer of yellow and silver eels, after Denmark, France, the UK, the Netherlands, and Sweden. This value is largely in line with the **stakeholders' estimates, putting the total production from commercial fishing and *vallicoltura* at about 250 tonnes**. The trend is also consistent with the stakeholders' perception, as WGEEL data report a mild increase in the 2012-2015 period (when landings amounted to about 170 tonnes per year).

According to the same data, **eel fishing in Italy has been declining significantly**, both in absolute and relative terms to the other EU MS, and this is vastly confirmed by stakeholders *('There is almost no more commercial eel fisheries in Italy compared to the past, now the activity is largely marginal*'). In the 80's, Italy was among the top three eel fishing countries in the EU, together with Denmark and France, and the top producer in certain years, with about 2,000 tonnes of yearly landings. In that decade, the Italian output accounted for between 15% and 20% of the total EU production. The production has steeply declined since then: if in 1995 the output was still above 1,000 tonnes, it had declined to about 380 tonnes in 2004, and stayed at below 100 tonnes in the 2005-2008 period, before recovering to the current levels.

The decline in the fishing output corresponded to a parallel decrease in the size of the Italian eel fisheries sector. In 2007, about 1,600 eel fishers operated in Italy; today about 1,100 remain.[92] On a longer time-horizon, one stakeholder commented that in one single fishing area nearby the Po estuary, the number of fishers declined from 600 in the 80's, to about 40 today. Not only the number of fishers declined, but also the importance of eels among total catches, so that eels represent a significant share of their landings only for very few operators, becoming for most of them a by-catch, rather than a target species. However, eel fishing and *vallicoltura* remain important for certain fishing areas around the coastal lagoons, and for the smallest and least structured fishing operators in these areas.

Eurostat data on eel catches[93] report about 98 tonnes fished in Italy in 2017, that is about 10% of the total EU production. Catches for 2017 seem underestimated, but it is unclear whether Eurostat data include *vallicoltura*. The 2017 value is the highest since the early 2000's; between 2008 and 2015, catches hovered between 3 and 36 tonnes per year. However, such very low catches are not consistent with the information retrieved from the interviews, given that stakeholders did signal an increase over the last few years, but not of such an order of magnitude.

Glass eel fishing is almost absent in Italy and is practiced by no more than 10 operators in the Tyrrenhian area (Tuscany and Latium). The Italian Ministry and WGEEL data concur in reporting about 0.1 tonne of glass eel fished in 2017.

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[90] *Vallicoltura* is a form of extensive fish breeding, which includes eels as well as other euryhaline species, typical of the Adriatic coast, carried out in brackish water basins, enclosed by embankment or dykes, and open to sea water via artificial channels.

[91] Report on the eel stock, fishery and other impacts, in Italy 2018 in: ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL),

[92] Italian EMP Progress Report 2018.

[93] Eurostat, Fisheries, Catches by fishing area - European eel (1980-2017).

The main fishing areas – again, including *vallicoltura* – in Italy include the Adriatic lagoons (Grado and Marano in Friuli Venezia Giulia; Caorle, Chioggia, Venice and the Po mouth in Veneto, the Po mouth and Comacchio in Emilia Romagna), two sea lakes in Puglia (Lesina and Varano); Sardinian and Tuscan wetted areas, internal lakes in Umbria and Latium and the estuary of the Tiber river in Latium. Adult eel fishing in marine waters is practically absent in Italy. The table below reports the estimated production in the various Italian Eel Management Units (EMUs).

Table 3: Yellow and Silver Eel Catches in the Italian EMUs

EMU	Annual catch 2017 (t)
Apulia	5
Emilia Romagna	18
Friuli Venezia Giulia	4
Latium	13
Lombardy	6
Sardinia	56
Tuscany	37
Umbria	4
Veneto	22

Source: Report on the eel stock, fishery and other impacts, in Italy 2018 in: ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL)

Aquaculture

According to the stakeholders, in 2017 **the Italian eel aquaculture production amounted to about 600 tonnes**. 2017 data are not included in the WGEEL report: in 2015 and 2016, production reached about 450 tonnes, while in 2014 it amounted to slightly less than 600 tonnes. Italy is thus the fourth or fifth largest producer, on par with Spain and Greece, and significantly below the top three-producers (Germany, Denmark, and the Netherlands). The Italian share of the EU eel aquaculture production hovers around 8-10%. FAO data on eel aquaculture are also consistent, putting the Italian production for 2013-2015 at about 550-650 tonnes[94]. The average price amounts to about EUR 11€/kg, at farm's gate.

The decline in the Italian eel aquaculture production is significant, but much less steep compared to fishing activities. WGEEL data go back until 2004, when the Italian production amounted to about 1,200 tonnes, i.e. twice the current levels. FAO data show that in the 80's and 90's the production ranged between 2,500 and 3,500 tonnes. Until 1985, Italy represented more than 90% of the EU eel aquaculture, a share which declined to less than 50% in 1995 and less than 25% in 2001, following the increase in Northern European production.

In Italy, aquaculture started as a way to re-use small yellow eels, whose size was not sufficient for being sold on the market. Hence, it hardly relied, and still hardly relies, on glass eel supply. Today, due to the decline in the Italian eel fishing, most of the yellow eels used for farming purposes come from other EU MS, in particular France. The breeding technique is traditional, and eels are farmed in open-air basins, where the growth period is longer than in recirculating plants, so that the product comes qualitatively closer to wild catches. The sector boomed in the 70's and 80's, before the competition from Northern European recirculating plants arose. In recirculating plants, production costs are lower, and so are prices at farm's gate (currently, 3€/kg lower than in Italian plants). The competition led to a decline in eel prices and significant closures of Italian plants in the early 2000's, with farmers switching to other species. A new EU market equilibrium was found after (i) Chinese

[94] FAO Fisheries & Aquaculture - Fishstat Plus database, Global Aquaculture Production – European eel (1980-2016).

exports in the early 2000's put Northern European operators under pressure, thus leading to a reduction in their production capacity;[95] and (ii) the subsequent eels trade bans and limitations, which largely foreclosed the European market from external (i.e. Chinese) competitive pressures. Today, **less than 10 eel aquaculture producers operate in Italy**, with one major plant in Lombardy, one medium-sized plant in Veneto, and few smaller operators.

Domestic and Intra-EU Trade in Eels

The market for eel consumption in Italy is small and declining. Most of the eels are traded alive on local markets nearby the fishing areas, or at arm's length directly from fishers. Only for the Christmas period the consumption increases, and non-local traders or supermarkets sell eels. Large aquaculture producers sell a large share of their production to other EU countries, especially to Germany, for subsequent processing (in particular smoking). Differently, more than 50 tonnes of eels are processed in Italy to produce marinated eel, a typical product of the northern Adriatic coast.

EEL MANAGEMENT PLAN

Here below, the main features of the Italian EMP are discussed, together with the EMPs of the three regions with whom direct interviews were carried out (Emilia Romagna, Friuli Venezia Giulia, and Tuscany).

Key measures and approaches

In Italy, the competence on eel fisheries is shared between the national and the regional tiers of government. The national government is responsible for fishing activities in sea waters up to the river mouths; the regions are responsible for fishing activities in inland fresh waters and coastal lagoons. Since, as discussed above, adult eel fishing in marine waters is practically absent in Italy, most of the competences on eel fishing and management fall onto regions.[96] The central government remains responsible for (i) the fishing of glass eel in marine waters and river mouths; and (ii) coordinating regional EMPs.

As for the fishing of glass eel in marine waters and river mouths, a secondary legislative act – a Ministerial Decree – was approved jointly with the adoption of the Italian EMP.[97] The Decree establishes that, by 2013, 60% of glass eel catches are to be used for restocking purposes in waters communicating with the sea. In addition, it sets up a national register of fishers of glass eels, which are required to obtain an annual authorisation granted by the Ministry, through which catching quotas could be allocated. Furthermore, glass eel fishers are required to submit catch returns. In 2017, four operators were authorised, and the number has always remained below 10 units since the entry into force of the Decree. In other words, the Decree was implemented as to prevent the entry into the market of new operators.

As discussed above, glass eel fishing in inland waters and lagoons is carried out only in the regions bordering the Tyrrenhian sea. At regional level, it has been prohibited in Sardinia, while it is subject to a regional authorisation in Tuscany and Latium. In both regions, about 3-4 licensed operators exist. For operators wishing to operate both in marine and inland waters, both the national and regional licenses are to be obtained. Glass eel fishing is also prohibited in Adriatic regions (e.g. Veneto and Friuli Venezia Giulia), where, however, the presence of glass eels is very limited and no related fisheries exist anymore.

As for eel management in inland and brackish waters, the Italian government decided to identify regions as the relevant EMUs[98]. Nine regions adopted an EMP[99], while 11 did not. In the regions were

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[95] See in particular the decline in Dutch aquaculture, as emerging from the WGEEL data.
[96] Italian EMP; ICES (2018), Country Reports 2017–2018: Eel stock, fisheries and habitat reported by country, Annex 5 to the ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL).
[97] Decree of the Ministry for Agriculture, Fishery and Food Policies, 12.01.2011, Disciplina della pesca e della commercializzazione del novellame di anguilla della specie Anguilla Anguilla.
[98] As foreseen in Article 2 of the Eel Regulation.
[99] Lumbardy, Friuli Venezia Giulia, Veneto, Emilia Romagna, Tuscany, Umbria, Latium, Sardinia, and Apulia.

an EMP was not adopted, eel fishing is prohibited. While not all 11 regions have included the prohibition into their legal framework yet, the measure is enforced and sanctioned, as it is deemed to derive directly from the Regulation[100]. The government played a coordinating role and suggested regions to focus on two sets of measures: (i) in the short term, restocking and reduction of the fishing effort; and (ii) in the long-term, reduction of other forms of anthropogenic mortality by restoring water and transit conditions. The various regions largely conformed to this approach. More in detail:

- In ***Friuli Venezia Giulia***, the EMP was adopted in October 2011. Two main interventions were deployed: restocking of juvenile eels, and reduction of the fishing effort. For professional fishing, a rest period was introduced, for 2 months in 2011 and 4 months thereafter, corresponding to a 33% reduction. A fishing ban was also considered, but deemed as not compatible with the sustainability of the eel fishing and aquaculture sectors. For recreational fishing, each fisher cannot catch eels for more than 8 days per month over six months, with a maximum of two catches per day of minimum 40 cm. This corresponds to an effort reduction by 75%. For restocking, annual releases of juveniles in lagoons and other freshwater environments communicating with the sea have been deployed, up to the current levels of about 1 to 1.5 tonnes per year (depending on the market price). In the long-term, further actions will be deployed to improve the quality of eel habitats and waters and re-establish river passages for eel.

- In ***Emilia Romagna***, the EMP was communicated to the Ministry of Agriculture and Fisheries, but never approved as a formal regional act. However, the measures included were later introduced in the revised fishing regulation, adopted in November 2017. The regional EMP mainly focused on a reduction of the fishing effort, in particular by introducing: (i) a prohibition of commercial and recreational eel fishing in the month of November, which is considered the key period for eel escapement; (ii) a maximum amount of 2 catches of minimum 40 cm for recreational fishers; and (iii) the prohibition of recreational fisheries with *bilancioni*[101] in the Comacchio area, from the first weekend of March till May, 30th. Furthermore, alive or dead eel cannot be used as baits. Restocking of juveniles was also carried out (0.5 tonnes in 2017). Other interventions included the opening of fish ladders over the Po and Reno rivers, and the fight against predators (in particular *Silurus glanis*).

- In **Tuscany**, the following actions have been taken: (i) regulation of glass eel fishing in inland waters (as describe above); (ii) restocking of 25% of glass eel fished in Tuscany in the protected wetted area of the Orbetello lagoon; (iii) re-establishment of passage conditions in Tuscan rivers; (iv) e-monitoring of eels in protected areas; (v) introduction of a cap to daily catches for recreational fishing (10 per days) and min-max dimensions (35-70 cm); and (vi) fight against predators (again, of the *Silurus* species).

Progress to date

[Information reported under effectiveness – JC2.1]

[100] Regolamento regionale di attuazione delle disposizioni in materia di tutela della fauna ittica e dell'ecosistema acquatico e di disciplina della pesca, dell'acquacoltura e delle attività connesse nelle acque interne, a norma dell'articolo 26 della legge regionale 7 novembre 2012, n. 11.
[101] Fixed squared fishing net operated by levers.

2. KEY FINDINGS

RELEVANCE

EQ1. To what extent are the existing measures for the recovery of European eel stock under the Eel Regulation still relevant?

JC1a(1): The extent to which eel landings, escapement levels and river basin conditions have recovered sufficiently to warrant the measures being continued.

While an improvement of eel stocks and fishing outputs in Italy has been noted by both public authorities and market operators after the introduction of the Eel Regulation, levels remain significantly lower than in the previous decades, and in particular in the 80's. As a consequence, the analysis suggests that **the main driver for the introduction of this piece of legislation remains valid and warrants the continuation of the measure**. Rather, the approach and the rationale could be revised and updated, taking into account the more recent policy developments, and in particular the inclusion of the European eel in the CITES convention.

JC1b(1): Extent to which the Regulation's objectives and measures remain relevant following CFP reform, the introduction of new environmental policies and measures, and EU reporting and evaluation approaches.

With few caveats, **Italian stakeholders consider the objective and the measures of the Eel Regulation as still relevant**. The drafting and application of EMPs is considered as relevant or partly relevant by all public authorities consulted, pointing out that attention is – obviously – to be paid to the actual content of the plans, the timing of the measures proposed, and the associated monitoring efforts, both on the status of eel stocks, and on the actual carrying out of the measures themselves. In this context, all interviewees suggest that the inclusion of detailed control and monitoring provisions in both the Regulation and in the EMPs is crucial for this policy to reach its objectives *('The Regulation goes nowhere without proper monitoring and enforcement'*). As for monitoring, the Regulation should be accompanied by sufficient resources to implement proper plans.

The 40% escapement target is considered necessary and relevant by public and private stakeholders, especially because the additional escapement of silver eels already apt for reproduction can have an immediate positive effect on the status of the stock (as compared to other more long-term measures, such as restocking and installation of river passages). However, stakeholders questioned whether the decision to set the objective at 40% is realistic, and the scientific basis for opting for this level is sound, given that (i) there is no real data on the 'pristine' stock; and (ii) most importantly, since the 1980s the habitats for eels have been largely reduced (in Italy and elsewhere in the Southern part of the EU), due to the fact that in many cases lagoons have been dried out for agricultural or other urban zoning purposes. As one stakeholder put it, '*it will be impossible to have a 40% escapement compared to pristine condition if less than 40% of the habitats is available today'.* However, Italian eel habitats, and in particular lagoons, still have large 'spare room' to accommodate additional eel stock, and thus contribute to the 40% target.

With respect to the reduction of the fishing efforts, opinions are more diverse. The majority of the public authorities consider that as an extremely relevant measure, capable of having an immediate and large effect on the stock. Indeed, the early partial recovery of the stock in Italy is linked by a number of researchers to the reduction of the professional fishing effort in the EU. Other stakeholders, including local administrations and, most vocally, economic operators, suggest that eel fishing in Italy is already at such a low level – ten times lower than 25 years ago – that any further reduction in fishing efforts would be of no relevance for the status of the eel stock and that, in any case, it would definitely hamper the socio-economic sustainability of the eel sector, and would thus need to be accompanied by compensatory measures. Both groups agree that a targeted effort to reduce or eliminate recreational fishing could also be relevant, and with no or negligible negative consequences.

As for other forms of reduction of anthropogenic mortalities – such as river and lagoon restoration – stakeholders consider them relevant, but only in the long-term, and with a significant caveat. The installation of fish ladders works well to repopulate river sections or lakes in which the eel used to live. However, since it is usually not accompanied by interventions to allow the eel to return to the river mouth, its contribution to the 40% escapement objective remains questionable. Other measures, such

as traceability and the availability of a sufficient supply of glass eels for restocking, are considered useful by the stakeholders, but only together with the more relevant measures described above.

EFFECTIVENESS

EQ2. To what extent have the current measures for the recovery of European eel stock under the Eel Regulation met its objectives?

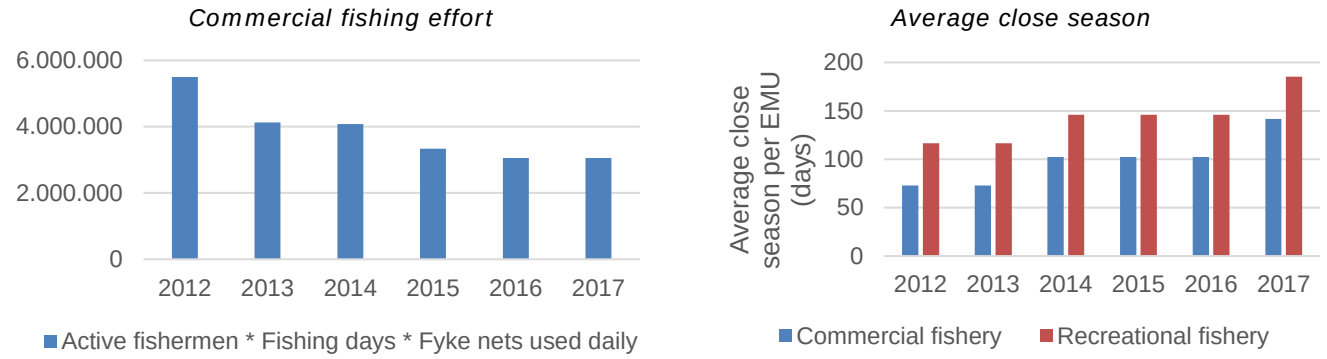
JC2 (1): EMPs implemented and specific targets achieved.

The implementation of the national and regional EMPs[102] has proceeded steadily, albeit, at times, slowly.[103] At national level, the measures on glass eels have been implemented and enforced and froze the number of operators and fishing efforts in the sector. Furthermore, the national EMPs have been successful in coordinating regional plans, and thus efforts, in a consistent direction, and have led to the collection of sufficient data for monitoring the Regulation in Italy.

At regional level, the various EMPs have led to an adaptation of the local fishing rules, which reduced the fishing effort by both professional and recreational fishers. In all regions covered, a resting period for the commercial fisheries has been introduced. In principle this is a positive measure, but, as pointed out, eel fishing activities are seasonal, and eel escapement can be supported only by intervening in certain months, i.e. those in which eels are more likely to return to the sea. As for recreational fishing, all regions except for Apulia have introduced limitations to the number of catches and the minimum size, and to the period in which eels can be fished.

The available information on the reduction of the fishing effort and the introduction of resting periods is summarised in **Figure** below. On the left side, the fishing effort by commercial operators deployed in the nine EMUs in which eel fishing is allowed is reported, measured in terms of active fishermen, fishing days, and fyke nets. By this aggregated measure, the effort has declined by 44% between 2012 and 2017, from about 5.5 million units, to about 3 million. On the right side, the average resting period per EMU for both commercial and recreational eel fishing is displayed. For both types of fishing activities, the resting period enlarged more and more. More in details, for commercial fishing, the close season has doubled, from an average of 73 resting days in 2012, to 143 in 2017; for recreational fishers, it increased from about 120 to half a year (185 days).

Figure 1: Reduction of fishing effort



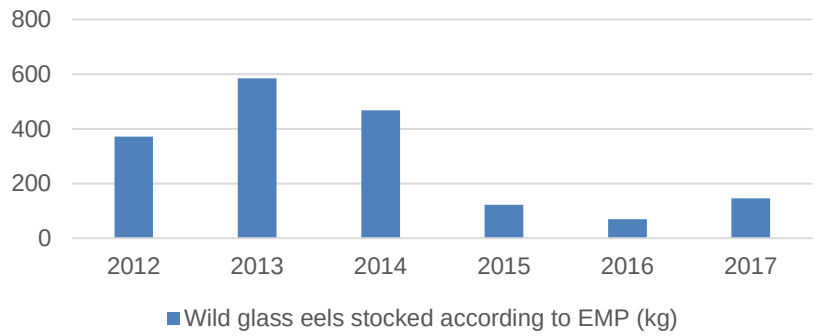
Note: data covering Italy's nine regional EMUs. Source: Italian EMP Progress Report 2018

[102] As above, the analysis mostly focuses on the three regions covered by the interview programme: Tuscany, Emilia Romagna, and Friuli Venezia Giulia. For a more comprehensive picture, cf. Italian EMP Progress Reports for 2015 and 2018, and in particular Table 6 – Management measures.

[103] Cf. Report on the eel stock, fishery and other impacts, in Italy 2018 in: ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), at p. 273; Italian EMP Progress Report 2018, at p. 15.

The limitations to the fishing efforts have been complemented by restocking activities, which have however not been undertaken extensively in all regions, especially because they required mobilising public resources for purchasing glass eels or juveniles. As shown in Figure below, while between 2012 and 2014 about 400-600 kg of glass eels were restocked across the 9 EMUs each year, this figure dropped to around 100 kg in the period 2015-2017. In Tuscany, one measure particularly praised by the stakeholders concerned the restocking of locally-sourced glass eels into the protected habitat of the Orbetello lagoons, where fishing efforts are controlled and eels can thus escape once they become sexually mature. Most of the EMUs, however, do not carry out glass eel restocking, or have stopped during the period under analysis. In addition, few regions, such as Friuli Venezia Giulia and Veneto, carry out restocking activities with other juvenile eels, purchased in other Member States and then grown locally.

Figure 2: Restocking activities



Note: data covering Italy's nine regional EMUs. *Source: Italian EMP Progress Report 2018*

As described above, other forms of intervention, such as habitat restoration, were considered as long-term interventions. For this reason, only few regions have already carried out these measures (such as Emilia Romagna on the Po and Reno rivers, or Tuscany, which financed river passage restorations for about € 80,000 via European funds). In other regions, such as Friuli Venezia Giulia, a requirement has been introduced for new river installations to include, by default, a fish ladder. While further information on regional measures is described further below, no overall assessment is available from public sources.

JC2 (2): European eel stock has recovered.

Italian stakeholders cannot have a comprehensive view on the status of the European stock, but have provided some indications of the availability of adult or juvenile eels in Italy, or in other EU markets in which they operate:

1) in Emilia Romagna, based on fish data and fishers' feedback, the stock of yellow and silver eels is considered stable, or, possibly, slightly growing. However, there is no sufficient granular monitoring of adult eels and recruitment levels; and

2) in Friuli Venezia Giulia, catches have recently increased, but this does not automatically mean that the stock has also increased, given that the fishing effort, weather conditions and market conditions could impact catches. The recruitment, as monitored by the region, has remained limited.

One economic operator reported no significant change in the availability of European eels across the EU markets, and, more specifically, no upward pricing trend in the recent years. Rather, the price trend is cyclical, with price growth followed by significant restocking in farms, leading to excessive production, and then to a price decrease. The cyclic-but-stable price is assumed to be a signal of stable catches and, possibly, a non-declining stock. Another economic operator which imports eels from France noticed that the share of smaller eels in the total population has increased, and this suggests that the density of the stock in the French lagoons is increasing. A similar phenomenon is occurring in Greece, according to the same operator. Overall, according to these operators, the level of catches of wild eels in Europe point to no additional stock decrease.

JC2 (3): Anthropogenic mortalities have been reduced.

Interventions to reduce anthropogenic mortalities have been included in the national and regional EMPs; however, they were included among the long-term measures, while short-term policies largely focused on the reduction of the fishing effort and restocking. Several regions have, however, introduced measures for habitat restoration over the 2007-2018 period, both by relying on own resources and, especially for larger interventions, by relying on EU funding (e.g. EFF or LIFE+ programme). In Emilia Romagna, fish ladders have been opened on the rivers Po and Reno and are planned on the Savio. In the Reno ladder, eel passage has already been observed; in the Po river, a dedicated monitoring tool for eels is soon to be installed (as the ladder is very recent). The intervention on the Po river is expected to allow eels to return to a very large hydrographic basin, including Italian Northern lakes, such as Garda.

As discussed above, stakeholders consider these interventions as very important to enlarge the habitats for eels. At the same time, if not accompanied by descent measures, they can hardly contribute to the 40% escape target, as eels may "easily" go up the river but would still find significant barriers in their descent. In particular, hydroelectric power plants represent an important source of mortality for eels and are present (usually in multiple instances) in all eel-relevant Italian hydrographic basins. An intervention on hydropower plants to favour escapement would need to be coordinated among regions – responsible for inland waters –, public authorities responsible for electricity production, and plant operators.

JC2 (4): Adult eel escapement progressed towards the long term 40% escapement objective.

As for the achievement of the 40% target, the Italian authority considers that it could be realistically achieved by 2050 and adopted a number of intermediate objectives. In particular, by 2020 a 17.5% target should be achieved. **This intermediate target was already overcome in 2017**, when the estimated biomass of escaping eel spawners reached 21% of the pristine condition, or 54% of the Eel Regulation target. Italy thus appears on track for reaching the 40% objective by 2050[104].

Importantly, however, most of these early gains resulted from the limitations to adult eel fishing adopted in Europe and were sort of 'low hanging fruits'. Reasonably, in the near future the rate of growth of the biomass of escaping eel spawners may decrease, and any further increase can only be sustained by an increase in eel recruitment – which is hardly noticeable at the moment. However, since glass eels are hardly present on Italian shores, this would rather depend on actions at EU or other MS level.

JC2 (5): Supply of glass eels sufficient for restocking operations.

In Italy, 60% of the glass eels fished must be used for restocking purposes. All glass eels fished over the recent years (2015-2017) were used for restocking purposes in freshwaters or coastal lagoons. Actually, glass eel fishers in certain areas (Tuscany, Apulia, Latium) go fishing only if and when the regional authority commits in advance to buy the output for restocking purposes. In 2012-2014, glass eel catches were in part used for farming purposes; while the exact quantities are unknown, the percentage is likely to amount to less than 40% of total catches[105].

Restocking is done in river or coastal areas, some of which benefit from fishing limitations. The latter is the type of restocking that is considered the most effective by public authorities and private stakeholders, since juveniles are moved from an area in which they are subject to anthropogenic pressure, to an area from which they enjoy a higher escapement rate. However, in other cases, restocking is used to repopulate fishing areas, *vallicoltura* or areas from which the eel population had disappeared, and these types of restocking are likely to have a more limited impact on the achievement of the 40% escapement objective. For this reason, even though several restocking campaigns were successful and subsequent monitoring verified that eels established in the selected

[104] Italian EMP Progress Report, 2018.
[105] *Ibid.*, at p. 16.

areas and started growing, they may have had a limited impact so far on the reconstitution of the stock, possibly much lower than the reduction of the fishing effort.

The Italian glass eels supply is too limited to meet the demand for restocking, since many regional authorities have included this measure in their EMPs among their priorities. For this reason, certain regions also restock larger eels (i.e. bigger than 12 cm) and, most importantly, buy supply from other MS, in particular France. The price of glass eels is considered an obstacle by the regional administrations, so that the amount of restocking is affected by yearly price conditions (since the available public budget is set in advance). However, glass eel availability was not considered as an issue by regional authorities.

One economic operator pointed out that, in Italy, glass eel restocking is not used as an indirect subsidy for aquaculture producer, with positive impacts on the effectiveness of this measure. Indeed, in certain MS, glass eels for restocking purposes are reportedly bought from famers, so that there is the risk that the best specimens are kept for aquaculture, and that a 'second quality' population is used for restocking, with corresponding lower success rates.

JC2 (6): Fishing effort reduced by at least 50% relative to the average effort 2004-2006 or ensure reduction of catches by at least 50%.

All regions have reduced the commercial fishing effort, mainly by introducing rest periods or reducing the number of active fish days[106], and partly by identifying areas where eel fishing is limited or prohibited. In 2017, the fishing effort reduction over the 9 EMUs where eel fishing is allowed totalled about 3 million units[107]. While there is no available baseline to verify whether this corresponds to a 50% decrease compared to the 2004-2006 efforts, the qualitative assessment from stakeholders suggests that the reduction may be in this order of magnitude. In particular, the number of active fishers declined by about one third (from 1,700 to about 1,200), and this, combined with the reduction in the fishing period, suggests that the decrease is close to or higher than the 50% objective.

As of 2017, all regions except for Apulia had introduced some measures for the reduction of recreational eel fisheries[108]. The measures include: (i) limitation of the fishing period; (ii) limitation of the number of days in which eels can be caught over the fishing period; (iii) introduction or reduction of catch quotas; and (iv) introduction of maximum or minimum catch size. Even following these measures, recreational catches remain significant. In Friuli Venezia Giulia, a sample analysis of recreational fishers suggests that the amount of catches could reach up to 2.6 tonnes, that correspond to about three quarters of the commercial landings in that region. Data submitted to the WGEEL suggest that, in Italy, recreational catches could reach up to 40 tonnes[109], that is 20% of commercial landings of wild eels. No region has so far introduced a ban of eel recreational fishing, and the reasons seem to be a resistance from traditional fishers, the fear of going against an established local tradition, and the difficulty in monitoring the ban. Several stakeholders have pointed out that the recreational eel fishing activity is marginal and practiced only by elder fishermen; however, this seems in contradiction with the total catches estimated by both the model analysis, and, most importantly, the few available real data on catches.

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[106] Italian EMP Progress Reports, 2015 and 2018.
[107] That is, number of fishers * fishing days * number of fyke nets used daily; barriers efforts not considered. Cf. Italian EMP Progress Report 2018, Table 6 – Management Measures.
[108] *Ibid.*
[109] Report on the eel stock, fishery and other impacts, in Italy 2018 in: ICES, Report of the Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL), at p. 263-265.

JC2 (7): Origin and traceability of all live eels imported and exported from MS territory maintained.

In Italy, traceability of all live eels imported into and exported from the MS territory is maintained and enforced by the CITES group of the *Carabinieri Forestali* (one of the Italian police corps). In Italy, international traders, as well as economic operators detaining live eels, are subject to CITES obligations, and in particular required to keep a detailed purchase and sale registry, where the origin of the live eels and their destinations are recorded. An exception has been introduced for economic operators detaining live eels only for domestic trading purposes; however, eel farmers and processors are subject to CITES obligations even if they do not engage in international trade, but only use locally- or EU-sourced live specimens. Domestic eel traders are, to the contrary, only subject to the traceability requirements applicable to all fish species[110] (i.e. indication of the catch zone and technique).

Imports and exports of adult eels is subject to licenses; exports and imports of juvenile eels is banned. Checks are carried out at borders, as well as internally at traders', famers', and processors' premises. Following the introduction of the European eel in Appendix II of the CITES convention, and the transposition in the Italian legislation, the *Carabinieri Forestali* engaged in training activities for local inspectors to make them aware of the new limitations and of the characteristics of the specimen.

JC2 (8): Control and enforcement activities in support of the implementation of the EMPs have taken place in EU waters (and national fresh water) and at all stages of the eel supply chain.

The introduction of the Eel Regulation, and the consequent national and regional EMPs, are unanimously considered by the stakeholders as a key change in the control and enforcement of eel-preservation policies in Italy. The Regulation and the EMPs were instrumental in putting the problem 'on the radar' of public authorities and enforcement bodies, and even more so after the inclusion of eels in the CITES Appendix. While the enforcement of the measures described above, and in particular of the limitation of recreational and commercial fishing efforts, is still less than perfect, an improvement was clearly noticed by all stakeholders ('*There was no attention to eels at all before; now you have prohibitions and some people going around and verifying compliance')*. The awareness raised among commercial fishers by the drafting and deployment of the EMP also fostered a number of 'self-regulation' actions, as legal fishers became more active in signalling fraudulent activities. In this regard, certain stakeholders suggest that any control policy needs to necessarily rely on regular commercial fishers.

[110] Cf. Ministry for Agriculture, Food and Forestry Policies, Circulars on *CITES – Inclusione della specie Anguilla Anguilla nell'allegato B del Reg. (CE) 338/97,* 19 May 2009 and 26 October 2009;

EQ 3. If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 1, what factors have hindered their achievement and how?

JC3 (1): Identification of the key barriers to achieving the objectives.

A number of barriers have been identified by Italian stakeholders as preventing the full achievement of the objectives set by the Eel Regulation, and in particular the improvement of the stock and the fulfilment of the 40% target for escapement of spawners. The near totality of stakeholders have mentioned **glass eel fishing** as the most significant threat to the improvement of the stock. Various drivers have been mentioned as leading to the overexploitation of this resource, including legal demand for aquaculture activities in Europe[111], and the smuggling of glass eels towards extra-EU farmers, especially in Asia, which, according to some sources, could represent up to 50% of EU traceable legal catches (i.e. not counting illegal fishing activities[112]). In this context, DNA controls on imports of adult eels from other jurisdictions, and in particular from China, would allow to verify that they do not belong to the *Anguilla* subspecies, thus reducing the incentives for smuggling European glass eels that eventually come back to the EU as adult eels. In Italy, glass eel smuggling is considered by public authorities and economic operators alike as very low or absent, given that in many regions glass eels are not present and legal fishing activities are limited to Tuscany and Latium. In a limited number of cases, fishers have been fined when moving from their own area to neighbouring regions, but no cases of smuggling where signalled[113]. The use of glass eels for human consumption in certain MS has also been mentioned by some stakeholders as a secondary driver, which, though of a lesser importance, contributes to stock depletion and has not been addressed so far by the Eel Regulation.

The second main obstacle mentioned by the stakeholders, and in particular by public authorities, is the **lack of funding associated to the Eel Regulation**. The Eel Regulation promotes a number of measures which generate costs for public authorities – such as restocking, monitoring, and enforcement – and private stakeholders – such as the reduction of the fishing effort. However, the Regulation does not provide for some forms of compensation for public and private stakeholders. Using EFF / EMFF resources is difficult, since these funds do not provide for dedicated lines for the implementation of the Eel Regulation specifically, or eel management more in general. Some regions have been able to use EFF or LIFE+ resources to finance certain measures, but this was only sporadic and could not guarantee a sufficient continuity for multi-year interventions. In particular, regions have not been able to use EFF resources for compensating rest periods (‘*EFF resources can be used for general rest periods, but it is very difficult to justify their use when rest periods are species-specific*’). Italy has also failed to allocate at central level resources for the deployment of the EMPs, which could have been then used by regions to finance their measures.

Other factors include:

- the growth of eel predators, both among fishes, which have been targeted by abatement measures, and among birds (as discussed below in the ‘Coherence’ section);
- changes to climate and ocean conditions which could affect the migration to and return from the Sargasso seas;
- decrease in the production of the *japonica* subspecies, which increased the demand for European eels (including glass eels); and
- anthropogenic pressure, which led to a loss of eel habitats.

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[111] Cf. Aschonitis, V., Castaldelli, G., Lanzoni, M., Rossi, R., Kennedy, C., & Fano, E. A. (2017). Long-term records (1781–2013) of European eel (*Anguilla anguilla* L.) production in the Comacchio Lagoon (Italy): evaluation of local and global factors as causes of the population collapse. Aquatic Conservation: Marine and Freshwater Ecosystems, 27(2), 502-520.

[112] Cf. Sustainable Eel Group (2018). Quantifying the illegal trade in European glass eels (*Anguilla anguilla*): Evidence and Indicators. SEG-Report:2018-1-V1.

[113] Local media sometimes mention cases of eel smuggling or illegal fishing, but they concern adult eels.

JC3 (2): Identification of the common and outstanding successes and resulting best practises that have allowed progress towards achieving the objectives.

Two best practices emerged from the fieldwork in Italy, one concerning an output of the Regulation, i.e. a **good restocking practice**, and one concerning a process, i.e. the **involvement of stakeholders** in the drafting and approval of the EMPs.

As already discussed above, the effectiveness of restocking is questioned when just resulting into moving resources from an area in which they would be subject to exploitation, to another area in which they would still be subject to fishing, or in aquaculture farms and *valli.* Unfortunately, in Italy, and reportedly in other EU MS, restocking is partly carried out that way, i.e. by measures which pursue the conflicting objectives of sustaining both the stock and the escapement of spawners, and eel production in coastal areas where recruitment is insufficient. Differently, in several cases (e.g. in Tuscany, Friuli Venezia Giulia, and Sardinia) part of the restocking takes place in protected areas, subject to active monitoring, so that the eels growing therein are not (or limitedly) subject to anthropogenic pressure and fishing efforts. As these areas are connected to the sea, the likelihood that juveniles become escaping spawners is much higher. This is considered a particularly good practice when restocking relies on local supplies, which also creates a gain for fishers, which can fish glass eels for supplying the public authority, and also get a compensation for running incubators in which glass eels are bred before being released in the wild.

The other best practice concerns the way regional EMPs have been drafted. In all cases, the process involved all relevant operators, including fishers*, vallicoltura* farmers and aquaculture operators. On the negative side, this may have slowed down the process and limited the regions' leeway to impose stricter fishing limitations. However, the creation of multi-stakeholder platforms has been beneficial in: (i) raising awareness of the danger to the eel stock among local fishers; and (ii) tailoring the measures to the local conditions and habitats (e.g. in deciding when the rest period could be more effective while taking into account also the interests of local fishers, or where restocking would have higher success rates).

JC3 (5): Have the control & enforcement measures at MS levels been adequately resourced and implemented?

A key criticism brought forward by the Italian regional administrations concerns the lack of targeted funding, at national and EU level, to finance the control and enforcement measures foreseen by the EMPs, and to compensate stakeholders for their impacts. As discussed above, this applies first and foremost to fishing rest periods. The same reasoning, however, also applies to control and monitoring. Collecting the data necessary to monitor compliance with the Eel Regulation and the progress towards its objectives requires costly campaigns, for which no or limited resources were posted at EU or national level. Certain regions (e.g. Friuli Venezia Giulia) financed their own monitoring systems of eel stock and recruitment; other (such as Tuscany) used EFF resources to do so (via a € 90,000 project on monitoring eels in local protected areas). However, the use of the EFF reportedly creates problems of continuity, especially because there is no dedicated line of funding for eel management. As for enforcement efforts, the stakeholders largely agree that additional enforcement actions have been deployed, relying on existing structures and institutions, i.e. both the environmental police and the regional administrative control systems.

SUSTAINABILITY

EQ 5. Are the effects likely to last after the intervention ends?

JC5 (1): The extent to which measures implemented under the Eel Regulation have long-term impacts, even if the intervention were to cease.

All stakeholders consider that long-term measures would be sustainable even if the Regulation were to cease, while short-term measures would not. In particular, the restocking carried out in these years would produce positive results over the following 10 years – although it is uncertain how many adult eels are going to escape thanks to the restocking activities carried out so far; furthermore, the restoration of river and lagoon habitats and the introduction of fish ladders would continue to produce beneficial effects on the status of the stock. On the contrary, other short-term measures, such as the reduction of recreational and commercial fishing efforts, would no longer generate impacts if the Regulation and its implementing measures were to cease.

EFFICIENCY

EQ 6. To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?

JC6 (1): Extent to which the costs of administering, implementing and overseeing EMP actions have been balanced by the environmental and socio-economic benefits accruing from improved eel stocks.

Italian stakeholders were largely not in the position to compare the costs of the local measures adopted and the benefits in terms of improving eel stocks, because the improvement of the stock is not only a local phenomenon and the related information is scant. However, they have been able to provide an informed guess on the reasonable cost-effectiveness of certain measures, which can be summarised as follows.

- **Rest period for professional fishers.** The reduction of the fishing efforts by introducing rest periods is reportedly having a positive effect on the status of the eel stock, though imposing a burden on professional fishers, who cannot produce revenues from eels during those periods. Given that, as discussed above, eel rest periods are hardly compensated, the socio-economic sustainability of eel fisheries can be put at risk. Even though the economic importance of eel fishing is decreasing, this activity remains an important source of income for small fishers in coastal lagoons, also because eels are one of the few winter catches in these areas. Both private and public stakeholders concur that any further decrease in the fishing effort would put the survival of Italian eel fisheries at risk, if not properly compensated. Though reducing catches and improving the stock, this would generate a social cost in the areas where eel fishing is still present and deprive the eel management system from a 'privileged point of observation' on the status of the stock and on eel habitats, and of a self-interested safeguard against illegal fishing.

- **Restocking.** Obviously, restocking requires regional authorities to mobilise public funds for buying glass eels or juveniles. This can be done via own resources which needs to be found each year in the regional budgets. For instance, in the recent years, Friuli Venezia Giulia spent about € 50,000 per year to buy and restock juveniles (about 1 tonne, depending on price and market conditions), and to compensate local *vallicoltori* for using their areas for breeding. In Tuscany, restocking was financed through EFF resources (about € 100,000 over four years). Since the effects on the stock are yet to be determined given the time lag between restocking and escapement/recruitment, assessing the cost-effectiveness of restocking is not possible yet.

- **Installation of fish ladders.** This measure can be very costly, up to several millions € (e.g. for the fish ladder of Isola Serafini, on the Po river). For smaller rivers, the costs are estimated between hundreds and tens of thousands of euros, depending on the complexity of the project. On the one side, these installations contribute to the general restoration of river environments and benefit many species other than eels only. At the same time, given that eels need to both climb and descend the rivers, the cost-effectiveness of fish ladders is limited, if not accompanied by interventions to favour eel descent, and thus escapement.

- **Traceability.** Traceability requirements impose a cost on economic operators, in particular the obligation to keep detailed registries of purchases and sales. In Italy, this requirement applies not only to importers or exporters, but also to farmers and processors detaining live eels. The issue is not perceived as a significant burden by farmers: on the one side, they are accustomed to keep a number of veterinary registries, and on the other they buy from and sell to a limited number of customers via a limited number of transactions. As for fish processors, the costs of detaining the CITES registry are considered as very high for various reasons. On the one side, the requirement is considered as 'unfair', since fish processors in general have to comply with a number of trade limitations for their fish supplies (e.g. under FAO rules), but only eel processors have also to comply with CITES requirements. Fish processors have also pointed out that CITES requirements are designed for small imports of protected animals or vegetable specimens, not for animals used for food production, which are bought and processed in large stocks. Finally, another difficulty is that their distribution chain is ramified, with thousands of customers, overcomplicating downward traceability. One processor has estimated that one person has to work almost full time over the eel season (about four months) to comply with CITES requirements. Applying the Standard Cost Model methodology and given the average earning of a clerk in Italy, this would correspond to an administrative burden for the company of about € 11,100 per year[114]. While the per-company figure is very high, the number of operators subject to these requirements is limited (in addition to international traders, the population consists of up to 10 farmers and no more than a few processors). As a result, total costs are probably limited, and the cost-effectiveness of CITES traceability measures, which are consistently considered a positive evolution of the policy landscape, can be deemed as positive.

EQ7. Could the use of other policy instruments or mechanisms have provided better cost-effectiveness? Do you think there are better and more cost-effective methods that can be implemented instead of the existing?

JC7 (1): The extent to which alternative options exist and an assessment of their relative cost-effectiveness and contribution to the objectives of the Regulation.

Stakeholders have pointed to other alternative measures that should be considered, but could provide limited information on their relative cost-effectiveness:

1) Prohibition of recreational fishing of eels. Apart from resistance from local fishermen, this measure would have no or negligible associated costs;

2) Severe limitation to the fishing of glass eels. All glass eel fishing would be subject to authorisation and quotas, and quotas would be granted only based on the needs of the aquaculture sector or for restocking measures. No glass eels could be used for other purposes (e.g. human consumption). This could reduce the socio-economic sustainability of glass eel fisheries.

3) Deployment of additional funds for research on eels, especially on their reproduction in captivity.

[114] Considering an average salary for an Italian clerk of € 41,500 per year (source: Eurostat Earning Statistics, 2014), and that the clerk works four months for 80% of his/her time on complying with CITES.

COHERENCE

EQ 9. To what extent are the measures for recovery of the European eel stock under the Eel Regulation coherent with wider policy and interventions which have similar objectives (e.g. Common Fisheries Policy, fisheries control regulation, environmental legislation and in particular Water Framework Directive)?

JC9 (1): The extent to which wider fisheries and environmental policies remain coherent with the objectives and measures under the Eel Regulation.

No coherence issue has been signalled by stakeholders between national legislation and the Eel Regulation. As for coherence with other EU pieces of legislation or international policies, the following points have emerged from the consultation:

1) international policy changes intervened after the approval of the Regulation, in particular the inclusion of the *Anguilla Anguilla* within the CITES Convention (in Appendix II) and within the red list of critically endangered species by the IUCN. The Regulation should reflect these policy developments and update the list of suggested and required measures for eel protection. In particular, the fact that the Regulation still allows for the fishing of juveniles of a critically endangered species seems to be a significant inconsistency;

2) a positive role has been played by the Water Framework Directive (WFD)[115], whose measures, aimed at requiring MS and local authorities to improve water quality and aquatic ecosystems, strongly complemented the Regulation's objective to reduce anthropogenic mortality by means other than the reduction of the fishing efforts; and

3) the Birds Directive[116] negatively interacts with the Eel Regulation with respect to cormorants (species *Phalacrocorax*). The Directive lists cormorants among the species in Annex I, i.e. species which are particularly threatened. However, cormorants are one of the eel predators, and their presence in Italian wetted areas has increased significantly over the last decades, contributing to the decline of the eel stock. While regions can contain fish predators, deploying containment and selected reduction actions against cormorants is much more difficult, given their status under the Birds Directive. Although derogations are possible,[117] obtaining them in order to deploy effective local reduction plans became more difficult given the cormorants' status the Birds Directive.

EU ADDED VALUE

EQ 11. What is the additional value resulting from the EU measures for the recovery of European eel stock under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?

A limited number of stakeholders could comment on how the situation would have evolved if no EU action were taken. The EU action is largely considered as desirable and needed in this context, as in Italy, at both central and regional level, the attention to eels was very limited before the adoption of the Regulation. Furthermore, since the stock is European, without a coordinated EU action there could be a tendency to free-riding and a limited incentive for MS to introduce costly actions, such as fishery rest periods or restocking.

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[115] Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.
[116] Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds.
[117] Cf. Article 9(1)(a) of the Birds Directive.

3. CONCLUSIONS AND RECOMMENDATIONS

Italian stakeholders hold a moderately positive view of the Eel Regulation, and the way it has been implemented at central and regional level, although views are nuanced from EMU to EMU and across private vs. public stakeholders. Even though certain measures have been deployed sometimes slowly and sometimes only partially, all EMUs have intervened by reducing fishing efforts, carrying out restocking, and, in some cases, restoring lagoon and river environments. Italy is on track for achieving the 40% escapement objective by 2050, and currently the estimated escapement level is at 21% of the pristine condition. Though monitoring is far from perfect, the operators have signalled that catches are growing, and local stock levels seem stable or possibly even growing, though remaining still very low compared to the 80's.

The situation is far from being perfect, and the effectiveness of regional EMPs is still only partial, especially taking into consideration that, 11 years after the adoption of the Eel Regulation, only few regions have moved from short-term to long-term interventions (and some short-term interventions have been adopted only over the last couple of years). Furthermore, interventions on recreational fisheries have probably been yet too shy, and enforcement and monitoring actions too limited. Even taking into consideration these negative aspects, however, the Eel Regulation, as implemented by national and regional EMPs, remains a game changer in introducing eel management and preservation policies, and in putting the problem on policymakers and stakeholders' radars.

To progress further, the following recommendations have been collected from stakeholders:

1) **strongly reduce glass eel fishing across the EU**, by clamping down on illegal fishers and traders, and by reducing legal fishing efforts. Ideally, glass eels should be subject to a quota-system, so that no more than what is needed for aquaculture and restocking purposes can be caught. Human consumption of glass eels should be prohibited;

2) **further progressively reduce the fishing effort of adult eels**, in particular by intervening when socio-economic drawbacks are smaller, i.e. by banning recreational eel fishing and providing incentives for fishers and farmers to switch to other species. Any further constraint on professional fishing efforts should be compensated via monetary subsidies;

3) **introduce dedicated lines for eel management and preservation in the EU fishery funds**, which could be used to support restocking, rest periods, and monitoring efforts;

4) **improve traceability of adult eel imports**, by introducing DNA tests at border controls; and

5) **further support research on eels**, and in particular on the possibility to obtain reproduction in captivity[118].

[118] See for example the research led by Prof. Oliviero Mordenti at the University of Bologna, http://www.scienzemedicheveterinarie.unibo.it/it/dipartimento/salviamo-languilla

Evaluation of the Eel Regulation Specific Contract No. 10 under Framework contract EASME/EMFF/2016/029

Denmark Case Study

Cover photo credit: Michael Ingemann Pedersen – DTU Aqua

ACRONYMS/ABBREVIATIONS

Acronyms/ Abbreviations	Definition
CFP	Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CMS	Convention on Migratory Species
CR	Critically Endangered
DG MARE	Directorate-General for Maritime Affairs and Fisheries
DK	Denmark
EIFAAC	European Inland Fisheries and Aquaculture Advisory Commission
EMFF	European Maritime Fisheries Fund
EMP	Eel Management Plan
EQM	Evaluation Questions Matrix
EU	European Union
FR	France
GES	Good Ecological Status
GFCM	General Fisheries Council of the Mediterranean
ICES	International Council for the Exploration of the Sea
IT	Italy
IUU	Illegal, Unreported and Unregulated
IUCN	International Union for the Conservation of Nature
MS	Member State
MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
OPC	Open Public Consultation
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SPA	Special Protection Area
ToR	Terms of Reference
WGEEL	Joint EIFAAC/ICES/GFCM Working Group on Eels
WFD	Water Framework Directive

1. OVERVIEW OF THE CASE STUDY

INTRODUCTION

This report on Denmark is one of three case studies (the others being France and Italy) being investigated by this evaluation. The case studies will provide more detailed insight into the implementation of the Eel Regulation at national, regional and local levels, beyond the information gathered through the synthesis of the EMPs and their progress report, and the targeted consultation with the other Member States. This report intends to:

- Evaluate the extent to which measures under the 2009 Eel Management Plans (EMPs) have been able to address the main objectives of the Eel Regulation
- Determine whether the Eel Regulation, and the responses detailed by the EMPs remain relevant to the drivers and pressures relating to the recovery of the European eel stock, and the extent to which they can be addressed by the EU alone
- Assess what additional or alternative measures might be taken to achieve the objectives of the Eel Regulation
- Assess added value of the Eel Regulation and the sustainability of the measures being undertaken through the EMPs and their long-term impact after the interventions have eased.

METHODOLOGY

This case study has been conducted through a combination of a review of *background information* (such as EMP Progress Reports, scientific reports and other relevant studies) and *face to face and telephone interviews* guided by semi-structured questionnaires. The interviews were with a mixture of participants, with representatives of national and regional administrations and industry (main national professional organisations and where possible a few operators).

For a list of interviewees and document sources, see the tables below.

Table 1: Interviews carried out in support of the case study

Organisation / function
Bælternes fiskeriforening (fisheries association for small scale costal fishermen)
Technical University of Denmark, National Institute of Aquatic Resources in Lyngby (DTU Aqua)
Technical University of Denmark, National Institute of Aquatic Resources in Silkeborg (DTU Aqua)
Dansk amatørfiskeriforening (Danish amateur fishery association)
Royal Danish Fish
Ministry of Foreign Affairs of Denmark, Danish Fisheries Agency
Danish Aquaculture Association

Table 2: Document sources

Document reference
Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel.
Danish Eel Management Plan, In accordance with Council Regulation (EC) No 1100/20017 of 18 September 2007, December 2018. Ministry of Food, Agriculture and Fisheries.
Danish Report to be submitted in line with Article 9 of Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel (First Danish progress report, 2012). Fisheries Agency at the Ministry of Foreign Affairs of Denmark.
Second Danish progress report (2015) on implementation of the Eel Regulation and Eel Management Plan (EMP) in Denmark, Fisheries Agency at the Ministry of Foreign Affairs of Denmark.
Third Danish progress report (2018) on implementation of the eel regulation and Eel Management Plan (EMP) in Denmark, Fisheries Agency at the Ministry of Foreign Affairs of Denmark.
Danish answers to Commission questionnaire on the control of eel fisheries, Sept 2017, Fisheries Agency at the Ministry of Foreign Affairs of Denmark.
Memo on the “Effect of eel regulation for 2018”. Produced by Danish Technical University National Institute of Aquatic Resources (DTU Aqua) for the Fisheries Agency at the Ministry of Foreign Affairs of Denmark. 2 May 29018.

2. OVERVIEW OF EEL PRODUCTION, MANAGEMENT AND CONSERVATION IN DENMARK

EEL PRODUCTION AND TRADE

Denmark is a major producer of commercially and recreationally caught eels in the EU (see table 3). It is also a major aquaculture producer, mainly involving indoor heated farming systems.

Wild production

Table 3: The key river basins/lake/fjord/sea basin where eel fishing takes place in Denmark[119]

River basin/lake/fjord/sea basin	Annual catch 2017 (tonnes)
Sea basin: Belt Sea and Western Baltic (22-IIIc)	140.0
Sea basin: The sound (23-IIIb)	65.9
Sea basin: North Sea (IV)	12.5
Sea basin: Kattegat (IIIaS)	21.0
Lake: Arresø	5.4
Lake: Flade sø	2.9
Lake: Saltbæk vig	2.7
River: Gudenå	2.1
Total catch in 2017	**256.5**

Aquaculture

Glass eels for aquaculture are imported from France, Portugal and England. There are 5 aquaculture production sites for eel in Denmark that in total produced 550 tonnes in 2017. In average 880 tonnes have been produced in the last five years. An important reason for aquaculture is to produce eel for restocking purposes and eels for restocking are exported to other EU nations. The total production of eel in aquaculture is shown in table 4.

Table 4: The total production of eel in aquaculture [120]

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Volume tonnes	1,699	1,532	1,154	1,129	7,85	789	1,231	1,067	550
Value in 1000 EUR	13,088	12,374	11,291	12,884	9,079	6,654	10,940	11,504	6,733

Trade in eels

Danish exports have been declining for several years, only reaching 728 tonnes in 2017, with a total value of 9.5 million EUR. The domestic market is limited, and many supermarket chains do not sell eel because it listed as an endangered species on CITES. It is not possible to separate small eel for restocking purposes, aquaculture eel, captured eel and eel for consumption in available statistics.

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[119] Third Danish progress report, Ministry of Foreign Affairs of Denmark, Danish Fisheries Agency, 2018

[120] Ministry of Foreign Affairs of Denmark, Danish Fisheries Agency, 2018

Figure 1 shows the most important export markets and their development over the last three years. The Netherlands, Germany, Italy and Poland are the most important export countries.

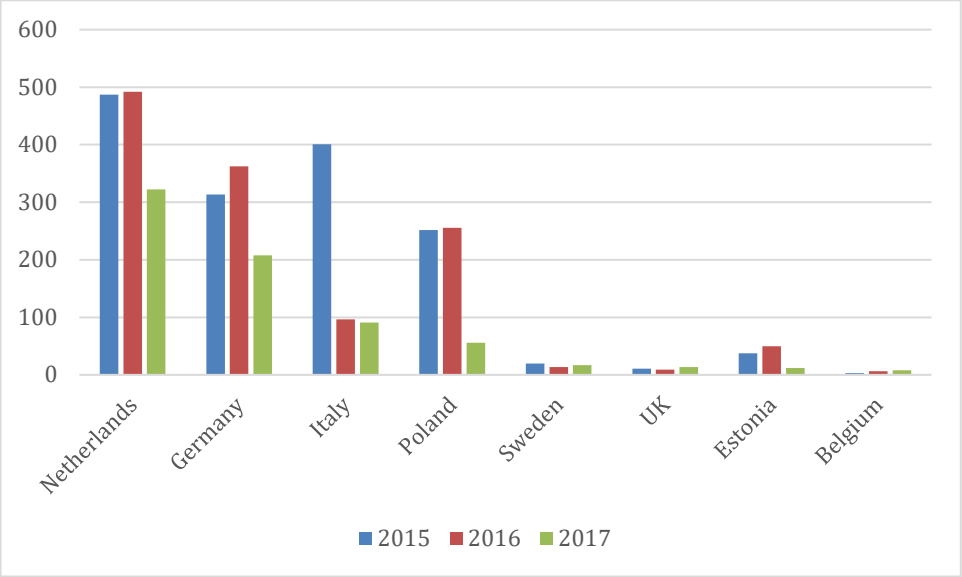

Figure 1. The eight major countries for the Danish eel export (Volume exported in tonnes)[121]

EEL MANAGEMENT PLAN

Key measures and approaches

The Danish EMPs consist of two elements; one MP for inland waters and another for marine waters.

Inland waters: Due to the small size of the country and the fact that the river ecosystems are similar in habitat, there was no justification for designing unique management plans for each of the 887 river basins, instead one plan covers the whole country. The objective of the inland water's MP is, in the long term, the reduction of anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock.[122]

Marine waters: Similar to inland water's MP, this MP covers the entirety of the coastal line including the fjords and sheltered bays.

The objective of the marine water's MP is introducing reductions in fishing effort by at least 50% relative to the average effort deployed from 2004 to 2006[122]ORMAT [122].

Transboundary River Basins: Two river basins are classified as transboundary. Drainage occurs in Denmark and Germany. Instead of creating a specialised MP, both countries have agreed that both countries will work in collaboration on monitoring both glass eel recruitment and silver eel escapement.

The focal point of the overall MP is to manage and reduce fishing effort and mortality in eel fisheries. The Danish fisheries authorities have legislative and administrative jurisdiction.

Management measures

In order to achieve the objectives, set out in the EMP, measures were identified, primarily focusing on reducing fishing effort and reducing mortality together with improving habitat conditions and a restocking plan. The EMP contained two elements (inland and marine), and slight difference in measures were implemented.

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[121] Ministry of Foreign Affairs of Denmark, Danish Fisheries Agency, 2018

[122] Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

Inland waters – Measures implemented for inland waters are focused on increasing escapement to the sea of at least 40% of pristine levels by reducing anthropogenic mortalities, fishing pressure and improvements to the inland freshwater ecosystems including habitat restoration, river connectivity, predation reduction and restocking.

Fisheries: The EMP applies management tools addressing fishing pressure and mortality in both recreational and commercial eel fishing by tightening legal size, gear type, fishing season, selectivity and catch registration regulations. See appendix A for the detailed description of measures.

In addition, commercial freshwater fishers are subject to the following conditions:

- Only fishermen and entities with reported and registered eel catches of a minimum total of 600 kg or 30,000 DKK. in the reference period 2004-2006 and a minimum of 200 kg or 10,000 DKK. in 2007 are eligible for commercial eel fishing licences.
- Licences are non-tradable and non-transferable. Licenses are annulled if fishing activities cease.
- The license allows only for a maximum level of fishing activity equal to the effort documented in 2007. Fishermen and entities are not allowed to increase the number of gear.
- Only the following gear types are allowed in fresh water eel fishing: fyke nets, pound nets and eel traps.
- With regard to the protection of the European eel and any other elements undertaken by the Law on Fisheries, the Directorate of Fisheries decides on the final number and type of gear included in each license.
- Type, size and position coordinates of pound nets and eel traps used must be registered at the Directorate of Fisheries prior to use.
- Effort and catch records must be reported to the Directorate of Fisheries.
- Further reductions may be implemented pending ongoing monitoring activities, developments in the European eel stock and the results of the proposed 2012 evaluation[123]

No new commercial eel fishing licences in fresh water have been issued since 2009. There were 18 fresh water licences in 2009 and there are 10 licences in 2019.
Obstructions to migration: Many of the inland water ways in Denmark are affected by barriers, such as weirs, used in connection to old mills, fish farms and hydropower. All barriers are required by law to be fitted with eel passes. The ability of these passes will continue to be inspected by the department of fisheries. A review of the effectiveness of eel passes will continue to be undertaken.

Hydropower: As with *obstructions to migration* all 61 hydropower stations are routinely monitored by the department of fisheries ensuring the functionality of their mitigating installations such as eel and fish passes and will be reviewed.

Aquaculture: As mentioned above, all flow-through fish farm systems are monitored to address the efficiency of the screens with respect to eel mortality and again will be reviewed.

Predation: Continuation of monitoring programs and research on predation impact on fish stocks.

Parasites and contaminants: Monitoring will continue of the spread of *Anguillicola crassus* and its effect on wild eel populations. There is continued testing of restocking eel for IPN, VHS and IHN viruses, and an attempt to generate data regarding silver eel and contaminants.

Eel habitats: In accordance with the implemented Water Framework Directive, Denmark is improving the habitat for eels concentrating on premium growth areas.

Restocking: Under the EMP certain rivers were selected for restocking, based on selective criteria, including eel direct migration to the Sargasso Sea and consideration that there was no silver eel fishery in the surrounding waters.

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[123] Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

Marine waters – In order to achieve the objective of the marine water component of the EMP, measures directed to the reduction of fishing pressures were implemented.

The table in appendix B illustrates the measures for reduction and registration of fishing effort. This is similar to that of inland waters concentrating on both commercial and recreational fisheries.

Additionally, the introduction of a licence system for commercial fisheries will allow for greater transparency and structure of the industry. Recreational fisheries will also need to be registered and adhere to the newly implemented fishing regulations.

Progress to date

According to the third Danish progress report (2018) on implementation of eel regulation and the eel management plan in Denmark the following describes the level of implementation of measures adopted in the initial EMP;

Fisheries – All foreseen measures have been implemented.

Outcomes from the EMP for the commercial fishery are;

- a gradual reduction in commercial eel fishing licenses from 406 to 277
- a substantial reduction in fishing effort for eel relative to the average effort deployed from 2004 to 2006. The reduction in eel fishing licenses has resulted in the following reduction in fishing effort relative to the average effort deployed from 2004 to 2006:
    - fyke nets: 51.1% reduction
    - small pound nets: 43.3% reduction
    - large pound nets: 61.6% reduction
    - hook lines: 86.9% reduction
- a reduction in commercial marine catches by 55% relative to the average catch in the period 2004-2006
- a substantial regional reduction in commercial catches targeting eel from the Baltic Sea relative to the catches in the period 2004-2006
    - 100% reduction in the Eastern Baltic (ICES area 24-IIId)
    - 61.1% reduction in the Belt Sea and Western Baltic Sea (ICES area 22-IIIc)
    - 49.4% reduction in the Sound (ICES area 23-IIIb)
    - 23.4% in the Kattegat (ICES area IIIas).

Outcomes from the EMP for the recreational fishery is;

- Recreational eel fishing effort in marine waters was estimated to be reduced by 50% by implementing closed seasons for fyke nets and hook lines. Catches of recreational fishermen have been estimated at approximately 100 ton in 2009 and estimated to have been reduced to approximately 55 ton in 2014 but have raised to 117 ton in 2017.

- Recreational fishery in freshwater is estimated to have been reduced from approximately 16 tons to 8.3 tons in 2017 by implementing a closed season i.e. a very limited period for eel fishing from 1 August until 15 October.

Escapement levels – For 2017 the best estimate for escapement was 169 tons, taking into account the mortalities estimated at 43.7 tonnes. This falls well short of the 40% pristine target level of 444 tonnes. The following table illustrates the breakdown of production and losses.

Table 5: Escapement (2017) from inland waters[124]

Inland water	Area (ha)	Silver eel production (kg/ha)	Total production (tonnes)
Running water	15,000	6.8	101.5
Lakes	45,000	1.5	67.5
Total	60,000		169.0
Mortality (fisheries, hydropower, predation)			43.7
Current escapement			125.3
Target level – 40% pristine			444.0

Obstructions to migration: During the period of the EMP numerous barriers have been or are currently being removed. This has benefitted river connectivity and the survival rate of silver eel. Routine inspections are still being undertaken where necessary.

Hydropower and aquaculture: Mortality and delay of silver eel caused by both hydropower and aquaculture facilities are significant, as shown by reports. Complete removal provides the best mitigating solutions. Finding alternative solutions to hydropower and flow through farming techniques are being and will continue to be encouraged, thus increasing the survival rate of eel.

Predation: Culling of cormorants continue, following the national management plan for cormorants. No new research has been conducted evaluating the effect of cormorants on eel populations, but it can be surmised that the reduction in number of cormorants will only reduce the mortality rate of eel.

Parasites and containments: Testing restocking eels for viruses and parasites has and will continue as well as the monitoring of *Anguillicola crassus* in wild populations. No new knowledge has become available.

Eel habitats: In accordance with the WFD, Denmark continues to improve and restore waterways to good ecological state. Improved water ways will benefit eels.

Restocking: Restocking effects have been fully implemented as described in the EMP. The following table highlights the increasing levels of restocking over the decade.

Table 6: Restocking of eel in Danish waters[125]

	Number of restocked eel size 2-5 gram		
Year	**Lakes**	**Rivers**	**Total**
2009	203,900	50,000	253,900
2010	574,350	672,000	1,246,350
2011	771,000	590,000	1,361,000
2012	644,00	640,000	1,284,000
2013	665,400	610,000	1,275,000
2014	712,000	630,000	1,342,000
2015	790,000	609,000	1,399,000
2016	690,000	700,000	1,390,000
2017	690,000	700,000	1,390,000

[124] Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

[125]Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

3. KEY FINDINGS

RELEVANCE

EQ1. To what extent are the existing measures for the recovery of European eel stock under the Eel Regulation still relevant?

JC1a(1): The extent to which eel landings, escapement levels and river basin conditions have recovered sufficiently to warrant the measures being continued.

Eel landings

There is consensus among all stakeholders interviewed that the target of 50% reduction of the eel fishing effort has been reached and that the measure should continue until the eel stock recovers.

The targets in the national EMP have been reached in Denmark. This includes the implementation of a 50% reduction on eel fishing effort in marine waters, however an additional ban on the commercial eel fisheries was introduced for 3 months (November, December 2018 and January 2019) by the EU. The Danish coastal small-scale eel fishers are expected to further lose about 40% of the expected annual turnover by the ban through 2018/2019. Many stakeholders believe that if this winter ban is continued unchanged it will signal the closure of the industry. A side effect of a total eel fisheries ban is that information about the eel stock is missing. This has been highlighted by researchers interviewed as a problem for the monitoring processes.

Denmark modified the new eel fisheries ban from 1st December 2019 to 29th February 2020, allowing fishers to add “catch openings” to enable any eels to escape but retain other finfish species in the nets during the eel fisheries ban period. Fishers now accept the eel catch ban because they can derive a small income from other finfish species over the ban period.

Escapement levels

Current escapement levels are below that of the limit set within the initial EMP, measures have been continuously undertaken to improve this, including barrier removal and restocking.

There are only a few places in Denmark left where the water ways are blocked today. These include three hydro power plants in Denmark, and all have “eel ladders” to allow the escapement of the eel (and other fish as well). Investments to improve the conditions for eel are made every year (approximately 9.5 million EUR is invested annually). Many aquaculture plants are converted into recirculation aquaculture plants and do not use water from the water ways anymore.

Several stakeholders said, to improve escapement levels, further regulation is required to protect the eel from predation. They believe the current measures are insufficient to protect the eel from predation.

All stakeholders highlighted the fact the restocking of eels in marine water is not supported by the EU, although there is evidence from research to support this measure. Such measures could improve the escapement of eel into the Sargasso Sea because eel released in saltwater grow faster and reproduce faster according to the researchers interviewed. Releasing of eel has been supported by EU in freshwater areas only. There are huge areas with brackish water in Denmark ideal for releasing eel (that is saltwater according to the EU definition).

One stakeholder identified the practice of draining low level waters within the EU. It was stated that the methods used are low tech and provide zero protecting for eels when they reach pumps without a grid and “eel ladders” to release the eel to the sea.

The conclusion is that the EMP measures continue to be relevant.

JC1b(1): Extent to which the Regulation's objectives and measures remain relevant following CFP reform, the introduction of new environmental policies and measures, and EU reporting and evaluation approaches.

Denmark has achieved all the measures set out in the national eel management plan. Further limitations on the catch in Denmark will not have a huge effect on saving the eel stock. Measures on other non-fisheries issues will have much larger effect from now on according to all stakeholders interviewed.

There is a consensus among all stakeholders interviewed that the EMP measures remain relevant following the CFP reform.

The implementation of the WFD in order to improve the river basin management of Denmark, includes river habitat and connectivity improvements required for the eels.

The majority of the interviewed stakeholders think the Danish eel fisheries have been reduced enough and any additional reduction in fishing pressure will have an insignificant effect the status of the eel population.

New measures following a CFP reform could introduce greater focus on other non-fisheries related measures (water quality, predators, migration connectivity). In addition, they believe there is a lack of knowledge about what works. Research should be intensified to understand the reasons behind the poor conditions for the eel stock. New regulation should regulate cormorants and seals to a higher degree than it is done today.

A CFP reform should support restocking activities of eel in saltwater areas too. Today it is only supported in freshwater areas probably because of lack of knowledge when the EMP was prepared back in 2004 and the focus was on freshwater areas only. Later in the process 2004-2007 saltwater areas were included before the EMP was approved in 2007- but without any support for restocking in salt water areas. There is evidence that restocked eels grow much faster and reproduce faster when restocked to saltwater areas according to the researchers interviewed.

IUU fishery and export of glass eel is a very important issue according to all stakeholders. The control and prevention of illegal catch and export must be intensified further in a CFP reform.

Research to be able to understand the eel reproduction should be intensified according to the majority of stakeholders interviewed. Research to enable a full reproduction circle for eel in aquaculture should be supported heavily. Restocking activities could be intensified as well from captured glass eel until aquaculture can manage the full reproduction circle.

EFFECTIVENESS

EQ2. To what extent have the current measures for the recovery of European eel stock under the Eel Regulation met its objectives?

JC2 (1): EMPs implemented and specific targets achieved.

The measures foreseen in the Danish Eel Management Plan have all been implemented and objectives met as stated in the section "2.2.2 Progress to date". The regulation and restrictions for commercial eel fishing activities were implemented as of 1 July 2009. The regulation and restrictions for recreational eel fishing activities were implemented as of 1 February 2009[126]. Denmark has not encountered major difficulties in the implementation of the Danish EMP. Since the implementation of the Danish EMP, Danish fisheries authorities and the National Institute of Aquatic Resources have had a close cooperation with all segments of eel fishing.

JC2 (2): European eel stock has recovered.

There is a general agreement among the Danish stakeholders that the measures to recover the eel stock have been implemented in Denmark as planned. However, it is believed that it will take a long time until the effect of the implemented measures can positively impact the European eel stock to

[126] Third Danish progress report (2018) on implementation of the eel regulation and Eel Management Plan (EMP) in Denmark, Fisheries Agency at the Ministry of Foreign Affairs of Denmark.

recover. Up to 20 years according to the researchers interviewed. The greatest concern is if other EU nations are not fully implementing their measures and contributing to the recovery of the eel stock. Many stakeholders also express deep concern about the illegal catch and export of glass eel to Asia and the effect it has on the eel stock. The eel management plan functions well in Denmark according to all the stakeholders interviewed, with the commercial fishery strictly controlled and very few new fishermen coming into the eel fishery.

JC2 (3): Anthropogenic mortalities have been reduced.

Reduction of the anthropogenic mortalities are among the long-term measures in the Danish eel management plan and they follow the plan. Investments to remove barriers and help the passage of eels are implemented every year (about 9.5 million EUR is invested annually. A high number of obstacles are currently being removed, in line with the EU Water Frame Directive Denmark aims, during the years 2012-2023. This includes two major hydropower stations (Harte and Karlsgårde) and close to 100 smaller dams and weirs, many of which were fish farm dams. These measures have improved both up- and downstream eel passage and reduced silver eel mortality substantially in the restored rivers. Routine control of eel passes and their functionality at remaining obstructions in rivers has continued.

The mortality and delay (silver eels) caused by hydropower facilities are significant and can best be mitigated by complete removal of the facility or by letting a significant proportion of the water run through a bypass channel. The Danish stations are old and produce insignificant amount of power. Currently, only 3 larger facilities remain.

The mortality and delay (of silver eels) caused by traditional fish farms are again significant and can best be mitigated by complete removal of the facility or by letting a significant proportion of the water run through a bypass channel. Recently, many Danish fish farms are being converted into fully recycled facilities, which do not require weirs to divert water through. Thus, numerous weirs have been removed and the river connectivity restored. This process is encouraged by the authorities and is expected to continue. A removal of fish farm barriers will clearly benefit migrating eels. All stakeholders interviewed agree that removal of obstacles and helping the passage of eels has a great potential to recover the eel stock.

The anthropogenic mortality was 43.7 tonnes in 2017 compared to 36 tonnes in 2014 and has not been reduced at this point. Despite no major difference was observed in the overall production of silver eels since the Danish progress report from 2015, the models of the National Institute of Aquatic Resources (Pedersen and Rasmussen 2013) suggest that escapement of silver eels will decrease until years ~2030, from where it will start increasing again. A detailed specification of the anthropogenic mortalities is already given in section “2.2.2 Progress to date”.

JC2 (4): Adult eel escapement progressed towards the long term 40% escapement objective.

The escapement in 2017 was 125.3 tonnes per year in Denmark. The long-term target level is 444 tonnes. The production in running water and lakes is 169 tonnes per year and the mortality 43.7 tonnes per year (fishery mortality included). Total estimated fishery mortality is 24.7 tonnes.

Despite all the implementation of measures under the EMP and the goals set out in the WFD, escapement is yet to reach the 40% objective. Stakeholders discussed additional activities that could be done to increase adult eel escapement – eel ladders could be inspected more often; the last three hydro power plants could have stronger demands for eel ladders and minimum water supply for the eel ladders also in dry periods. Cormorants and seals can be regulated harder that they are currently.

JC2 (5): Supply of glass eels sufficient for restocking operations.

Restocking has been fully implemented as described within the Danish EMP and the supply is sufficient for restocking operations. The amount of restocked eel in freshwater has increased from year 2010. In the Danish EMP the number of eels to be restocked was proposed at 0.8 million eels. The actual number of restocked eels has increased to 1.2-1.4 million eels during the years 2010 – 2017. 1,390,000 eels weighing 2-5 gram each were restocked in 2017. As there is no glass eel fishery in Denmark, eels are to be purchased from sources in the EU. The fees from permits to participate in

recreational fisheries are the funds used for the purchasing of glass eel for restocking. According to the interviewed researchers from the National Institute of Aquatic Resources farmed eel for restocking survive and grow better than the wild and there seems to be no advantage in using a larger eel compared with small 2-5 g eels for restocking.

JC2 (6): Fishing effort reduced by at least 50% relative to the average effort 2004-2006 or ensure reduction of catches by at least 50%.

Commercial marine catches have been reduced by 55 % relative to the average catch in the period 2004-2006 according to the management plan. There is full control of the commercial fishery and the plan is updated every year. One stakeholder mentioned that there is limited regulation of certain sports fishermen ("fritidsfiskere"). They are allowed to fish with 6 eel fyke nets yet are not required to record their catches to authorities. These sports fishermen are not allowed to sell their catch – the catch is only for personal use. It is hard to control recreational fisheries activities and new ways to control them could be invented. The recreative fisheries organisations are very active to establish new habitats for eel, making "eel ladders" and removing obstacles on a voluntary basis. The restocking activities are carried out voluntary in Denmark by recreational fisheries organisations today.

JC2 (7): Origin and traceability of all live eels imported and exported from MS territory maintained.

Eel farmers cannot receive any glass eel at the eel farm without a "Intrastat" transport document accompanying the glass eel that certifies that the glass eel are CITES approved. When an eel farm export eel for restocking, they fill-in a "TRACES" (European Commission TRAde Control and Expert System) document online. The documents are controlled by Danish Veterinary and Food Administration (the Export Control Centre). There is no demand of unique lot number to identify batches of live eel in Denmark. There is no catch of live glass eel in Denmark.

JC2 (8): Control and enforcement activities in support of the implementation of the EMPs have taken place in EU waters and at all stages of the eel supply chain.

Aquaculture plants farming imported glass eel for consumption or restocking:

Eel farmers cannot receive any glass eel at the eel farm without a "Intrastat" transport document accompanying the glass eel that certifies that the glass eel are CITES approved.

Glass eel from France are designated for two different purposes (consumption or restocking).

Glass eel from UK or Spain has no specific purpose of use.

They try the best to keep batches apart in the process, but it is impossible in practice because they have limited number of tanks and they can have problems with eel sickness as well. Eels needs to be size graded often to reduce cannibalism and to increase growth. Farmers have a huge interest to keep batches apart to be able to identify good or bad suppliers of glass eel. They do their best to keep batches apart.

When they export eel for restocking, they fill-in a "TRACES" (European Commission TRAde Control and Expert System) document online. The documents are controlled by Danish Veterinary and Food Administration (the Export Control Centre). Different eel sizes are used for restocking in different countries.

There is no demand for a unique "lot number" on eel batches that can be traced back to the glass eel "lot number" (for traceability).

The eel farmers have to fill-in two annual reports to the authorities.

One report is for the Danish Environmental Protection Agency stating:

1) The number of eels that has been sold for restocking
2) Their average weight
3) The total volume

The second report is for the Danish Fisheries Agency stating:

1) The number of glass ell supplied the farm
2) The total volume glass eel supplied
3) The number, volume and price of the eel sold either for restocking or consumption.
4) A current status of the eel at the farm (number and volume)

Captured eel:

The Danish fisheries authorities have implemented a control and catch monitoring system to monitor Danish fisheries, including the regulation implemented according to the Danish Eel Management Plan (EMP). Thus, the developments in fishing effort, effort reduction, and the developments in eel catches and reduction in eel catches have been closely monitored. Since 2007 the Danish fisheries authorities have applied a risk based strategic control and monitoring of both commercial and recreational fishing activities, in order to target and optimize the utilization of the authority resources based on a dynamic assessment of the risks in each type of fishery. The risk-based control and monitoring strategy has mainly focused on "hot spot" (high priority) areas, periods and species and supported by a biological assessment from the National Institute of Aquatic Resources. The Danish fisheries authorities have furthermore established an electronic reporting system that helps to collect and distribute information about observed irregularities. Since implementation of the Danish EMP in 2009, this risk-based control and monitoring strategy has targeted control and monitoring of the restrictions implemented in Danish legislation for all types of eel fishing in both marine and freshwater in line with the Danish EMP – i.e. closed seasons, number and type of gears allowed, eel passes, and increased minimum legal size for yellow eel.

Glass eel monitoring takes place at a few selected sites in the Danish waters. There is no yellow eel monitoring established. As stated in the Danish EMP, silver eel escapement is monitored in 3 out of 887 river systems. The results from these river systems are converted into production per area (kg/ha) values and then up-scaled to national level. Concerning the stocking measure and expected outcome, Denmark initiated a program to monitor the effect by stocking tagged eels in selected areas[127].

The Danish fishery agency is responsible for enforcing the control and the inspection of eel fishermen. Companies exporting eel are inspected by the Danish Veterinary and Food Administration (under the Ministry of Environment and Food).

Eel fishers in DK are small scale and they have only vessels with a length under 12m - many under 8m. These vessels have a few exceptions compared to larger vessel above 12 m.

Vessels under 8m must register the catches within 48 hours after catch if they catch under 100kg.

If they have catches above 100kg they must inform the authorities 2 hours before landing. They can register the catches online at the Danish Fisheries Agency. Information is recorded on vessel name/number, catch date, catch area and species and volumes.

Vessels from 8-12m use traditional paper logbooks for registration of the catch.

Vessels above 12m are in saltwater and is not designated for eel fishery. The Danish electronic reporting system (common database system) is called “SIF” (The Danish fisheries traceability system). The electronic logbook on the fishing vessels sends the data directly to the SIF database. SIF fulfils the requirements of the fishing industry, EU1224/2009 and other relevant standards. The system provides full tracking from vessel and all the way to the consumers, providing relevant information as required by the EU1224 – art 58. It enables tracing of any fish product back to the point of catch and provides relevant information to buyers, processing companies, authorities and consumers. SIF renders necessary documentation, spans over the complete supply chain and allows an indefinite number of transformation operations, such as; merging or splitting of lots, processing, renaming, repacking, etc. SIF is designed to accommodate any input, whether RFID, bar- code or manual and any ID whether company specific ID’s or proprietary ID’s such as EAN or EPC/GS1 (EPCIS). Data

[127] Third Danish progress report (2018) on implementation of the eel regulation and Eel Management Plan (EMP) in Denmark, Fisheries Agency at the Ministry of Foreign Affairs of Denmark.

interfaces are established in order to reduce the workload of resellers and processing companies enabling them to automatically exchange updated tracking information with SIF. A major emphasis has been on ensuring compliance with international standards on traceability for fish, such as: ISO 12875 “Traceability of Finfish products” and European legislation (EU1224). SIF is prepared to document discard and register compliance to MSC or other eco-labels.

EQ 3. If the measures for the recovery of European eel stock under the Eel Regulation have only partially met the objectives in EQ 1, what factors have hindered their achievement and how?

JC3 (1): Identification of the key barriers to achieving the objectives.

As stated under JC2(3) the anthropogenic mortality was 43.7 tonnes in 2017 compared to 36 tonnes in 2014 and has not been reduced at this point. River restoration will continue to improve under the WFD and approximate 9.5 EUR is invested annually to improve the conditions for eel every year (removal of barriers in water ways, eel ladders, restoration of eel habitats etc.). Investment could be increased to improve the conditions faster.

Stakeholders highlighted the fact the restocking of eels in marine water is not supported by the EU, although there is evidence to support this measure. Such measures could improve the escapement of eel into the Sargasso Sea because eel released in saltwater grow faster and reproduce faster according to the researchers interviewed. Releasing of eel has been supported by EU in freshwater areas only. There are huge areas with brackish water in Denmark ideal for releasing eel (that is saltwater according to the EU definition).

Danish stakeholders acknowledged that IUU fishing is a key issue and the proceeding illegal trade of glass eel greater effects the chances of increases in the eel population. Although not a direct measure from the Danish EMP, the CFP aims to improve control and reduce this problem. Additional recommendations from stakeholders focus on international cooperation between Europe and Northern Africa on the illegal eel trade.

JC3 (2): Identification of the common and outstanding successes and resulting best practises that have allowed progress towards achieving the objectives.

The 50% reduction of the fishing effort catches has been achieved.

A best practise example is that the fee from recreational fisheries permits are used to restocking activities. The practical restocking of eel is done voluntary by recreational fisheries organisations. The fees are doubled by the EU support and all funds are used to buy eels from aquaculture for restocking.

JC3 (3): Identification of best practices in transboundary areas.

There is no information available on best practice in the Danish and German transboundary area Vidå and Kruså river basins draining ground.

JC3 (4): Supply chain transparency and control points will need to be examined at key points within and on the borders of the EU, covering both inward and outward flows.

This has been addressed under JC2 (8)

JC3 (5): Have the control & enforcement measures at MS levels been adequately resourced and implemented?

This has been addressed under JC2 (8)

SUSTAINABILITY

EQ 5. Are the effects likely to last after the intervention ends?

JC5 (1): The extent to which measures implemented under the Eel Regulation have long-term impacts, even if the intervention were to cease.

With the majority of the measures already implemented from the EMP, Denmark should benefit in the long-term. In particular, fishing pressure has been reduced lower than originally planned and may continue to decrease as a result socio-economic demographics of the fishery. Positively, certain measures undertaken will not stop in Denmark including the improvement of waters under the WFD and the yearly restocking of waterways with eels.

The average age of fishers in the eel fishery is 68 years and there are only 240-250 fishing permits left. The remaining eel fisheries are in rural areas, it is coastal small-scale, gentle fishing and it is cultural. Further reduction of fisheries will have very limited effect on the eel stock.

EQ 6. To what extent have the costs associated with implementing the Eel Regulation been proportionate to the environmental and socio-economic benefits that this has generated? Could the same results have been achieved with less funding?

JC6 (1): Extent to which the costs of administering, implementing and overseeing EMP actions have been balanced by the environmental and socio-economic benefits accruing from improved eel stocks.

The following is the breakdown of costs associated with the EMP;

- The administrative costs at central level for the eel management is estimated 0.6 FTE.
- The administrative costs at regional level for the eel management is estimated 0.3 FTE.
- The control and enforcement of the regulation is estimated 2 FTE.
- (There have not been any specific IT costs by implementing this regulation and the measures.)

Overall, the costs of administering, implementing and overseeing the EMP actions are relatively small in Denmark. There has been no calculation on the environmental and socio-economic benefits associated with the implementation of the EMP.

EQ7. Could the use of other policy instruments or mechanisms have provided better cost-effectiveness? Do you think there are better and more cost-effective methods that can be implemented instead of the existing?

JC7 (1): The extent to which alternative options exist and an assessment of their relative cost-effectiveness and contribution to the objectives of the Regulation.

The most cost-effective measures in Denmark according to many stakeholders as listed below are in line with the measures implemented by the EMP.

- Increased restocking activities
- Remove barriers in water ways
- Install eel ladders
- Reduce predators (cormorants and seals)
- Restore eel habitats
- Increased knowledge about the eel life cycle and eel reproduction in captivity by massive investments in research projects.

Continuation of river restoration under the WFD will benefit the EMP. Contribution from the WFD will enhance the effectiveness of the EMP.

COHERENCE

EQ 9. To what extent are the measures for recovery of the European eel stock under the Eel Regulation coherent with wider policy and interventions which have similar objectives (e.g. Common Fisheries Policy, fisheries control regulation, environmental legislation and in particular Water Framework Directive)?

JC9 (1): The extent to which wider fisheries and environmental policies remain coherent with the objectives and measures under the Eel Regulation.

The EMP is coherent with the WFD and the CFP.

Stakeholders express that the eel stock is one European stock and therefore the solution is European. This ties with the WFD and the CFP, a framework encompassing the entire EU.

EU ADDED VALUE

EQ 11. What is the additional value resulting from the EU measures for the recovery of European eel stock under the Eel Regulation, compared to what could reasonably have been expected from Member States acting at national and / or regional levels?

JC11 (1): Extent that the Eel Regulation has provided additional impetus / support to address eel conservation objectives.

All stakeholders interviewed has expressed their support to the EMP and its positive effect on the recovery of the eel stock. Restoration of water ways and establishment of eel ladders have positive effects for many other fish species than eel.

JC11 (2): Extent that it is possible to isolate results and outcomes that could or would not have been otherwise achieved without the Eel Regulation.

The Regulation has assured a coordinated approach all over the EU which probably never would have happened without.

EQ12. What would be the most likely consequences of stopping the application of the measures as regulated in the Eel Regulation?

JC12 (1): Extent that MS authority is able to identify positive and negative implications of stopping the Regulation.

There has been no expression of interests to stop the Regulation. There is strong support to the Regulation. Recovering the eel stock is seen as a pan European task because the eel stock is pan European. There would be a risk restocking measures could be stopped or slowed down in case the EU co-funding ceased.

4. CONCLUSIONS AND RECOMMENDATIONS

The eel management plan has been implemented as planned in Denmark and there is a consensus between all stakeholders that the management plan is working well and as intended. The foreseen measures have been implemented as described within the adopted Danish EMP. However, it is believed that it will take a long time until the effect of the implemented measures can positively impact the European eel stock to recover. Up to 20 years according to the researchers interviewed.

The long-term target for escapement levels, 444 tonnes, has not been reached at this point. For 2017 the best estimate for escapement was 169 tons. Measures have been continuously undertaken to improve this, including barrier removal and restocking - it follows the EMP.

Danish stakeholders consider the reduced fishing effort is implemented as planned and a further reduction in fishing pressure will have limited effect on recovering the eel biomass.

Other measures and initiatives should be strengthened as suggested by stakeholders:

1) The glass eel fisheries should be strongly reduced across the EU. It should be regulated stronger and limited to aquaculture purposes and restocking activities only.
2) Cooperation between southern Europe and North Africa could fight the trafficking of glass eels towards Asia.
3) Research in understanding the eel and its lifecycle.
4) Research in reproduction of eel in captivity should be heavily supported by the EU
5) Research of the effect of restocking and effectiveness of eel ladders.
6) The reduction of other anthropogenic mortalities
    a. Further reduction in barriers in the waterways, protecting eel from inflow pipes towards powerplant and inlet to aquaculture plants, protecting large eel from water pumps draining low level areas.
    b. Establishment/documentation of eel ladders best practice and regular control to ensure correct operation, assuring minimum water flow for eel ladders to work properly - also in dry periods.
    c. Intensify restocking activities. EU support to restocking activities in saltwater areas too.
7) The predators of eel could be regulated to a higher degree (cormorants and seals).

Appendix A: Measures in Inland fisheries

Source: Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

Factor	DK eel regulations prior to 1st July 2009	Eel fisheries regulation in accordance with Danish Eel Management Plan (from 01/07/09)
Legal size	• 45 cm minimum legal size for yellow eel.	• 45 cm minimum legal size for yellow eel
Gear	• Fyke nets, eel traps, pound nets, seine nets, long lines, eel pots and varieties of spears and rods allowed. • No limits on the number of gear. • Minimum 100 m distance between fyke- or pound nets. • Only eel traps are registered with the Directorate of Fisheries.	• Only fyke nets, pound nets, eel traps, long lines and fishing rods are allowed for eel fishing. • Eel traps must be made unable to catch eel by 31st December 2013. • For licensed commercial fishing activities the number and type of gear must be at 2007 level or lower. • Minimum 100 m distance between fyke- or pound nets. • Type, size and position coordinates of all pile fixed fyke nets, pound nets and eel traps must be registered with the Directorate of Fisheries prior to use.
Fishing season	• No time limits on fishing activities in lakes • Eel traps allowed in operation through- out the year from sunset to sunrise, except for the period 1st March to 31st May. • Fyke nets in streams allowed from 1st June – 30th November.	• In lakes, only licensed commercial fishermen are allowed to use a limited number of fyke and pounds nets designed to catch eel in the period between October 16th and July 31st. • Eel traps allowed in operation only from sunset to sunrise, in the period August 1st until October 15th. • All fishing activities with fixed nets in streams are restricted to the period August 1st until October 15th. • All eel caught for recreational purposes in fixed gear, between October 16th and July 31st, must immediately be returned to the wild. • Depending on stock developments all eel fishing activities may be phased out by 31st December 2013.
Selectivity	• Minimum 32 mm (full mesh) mesh size (10x10 cm) window in rear fyke bag.	• Minimum 32 mm mesh size (14x14 cm) window in rear fyke bag. • All fyke nets and pound nets used in lakes, by non licensed fishermen, outside the period allowed for eel fishing must be fitted with a mesh window, hindering the catch of eel. • Gear must be presented for, registered with and approved by the Directorate of Fisheries.

Factor	DK eel regulations prior to 1st July 2009	Eel fisheries regulation in accordance with Danish Eel Management Plan (from 01/07/09)
Catch registration	• All commercial catches must be reported to the Directorate of Fisheries.	• All commercial catches and effort information must be reported frequently to the Directorate of Fisheries, according to specifications in license. • Historic catch data and effort must be reported to the Directorate of Fisheries in license application.

Appendix B: Measures in marine fisheries

Source: Danish Eel Management Plan In accordance with COUNCIL REGULATION (EC) No 1100/2007 of 18 September 2007

Factor	DK eel regulations prior to 1st July 2009	Eel fisheries regulation in accordance with Danish Eel Management Plan (from 01/07/09)
Legal size	• Minimum legal size for yellow eel ranges from 29.5 cm to 38 cm.	• Minimum legal size for yellow eel will be step wise increased (In year 2013 the legal size ranges from 38 cm to 40 cm.)
Fishing season	• No season.	• Only licensed commercial fishermen are allowed to use long lines, fyke nets and pounds nets designed to catch eel in the period from May 10th until July 31st.
Selectivity	• No selectivity	• Long lines will be banned from May 1st until September 30th for recreational fishermen. • All fyke nets and pound nets used for non licensed fishing activities, targeting species other than eel must be fit- ted with mesh windows or square openings throughout the fyke, hindering the catch of eel.
Gear	• No limits on number and type of gear/units for commercial fishermen. • Fyke nets, pound nets, seine nets, trawl, long lines, eel pots, a variety of spears and light enhancers allowed. • Position coordinates of pound nets and other gear fixed on piles must be registered with the Directorate of Fisheries prior to use. • Recreational fishermen are allowed to use a maximum of 6 fishing units: 6 long lines (600 hooks), 6 fyke nets (8 m leader) or 3 nets (max. 45 m). One fyke net can be fixed on piles and have a 40 m leader.	• The use of trawl, seine nets, eel pots, spear, torchlight and all other gear not explicitly described as legal, will be banned. • Long lines will be banned from 1st May until 30th September for recreational fishermen. • Only fyke nets, pound nets, long lines 5 and fishing rods are allowed for eel fishing. • Number of gear for all licensed commercial fishing activities must be equal to the level documented in 2007 or lower. • Type, size and position coordinates of all pile fixed fyke nets and pound nets must be registered with the Directorate of Fisheries prior to use. • Recreational fishermen will be allowed to use only 6 fyke nets or 3 nets during the fishing season. (The pile fixed fyke net will be banned)
Effort registration	• All commercial catches must be reported to the Directorate of Fisheries.	• All commercial catches and effort information must be frequently reported to the Directorate of Fisheries, according to specifications in license conditions. • Catch data and effort information (2004- 2007) must be reported to the Directorate of Fisheries in license application.

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