



Sustainable Eel Group

Newsletter July 2016



Chairman's Introduction

From the very earliest moments of the 'sustainable eel agenda' the Board of SEG has advocated science-based thinking, strategies and programmes – therefore I commend Dr Willem Dekker's latest paper on the eel recovery published by ICES Journal of Marine Science June 2016 and especially his summary written specifically for this Newsletter where he states that:

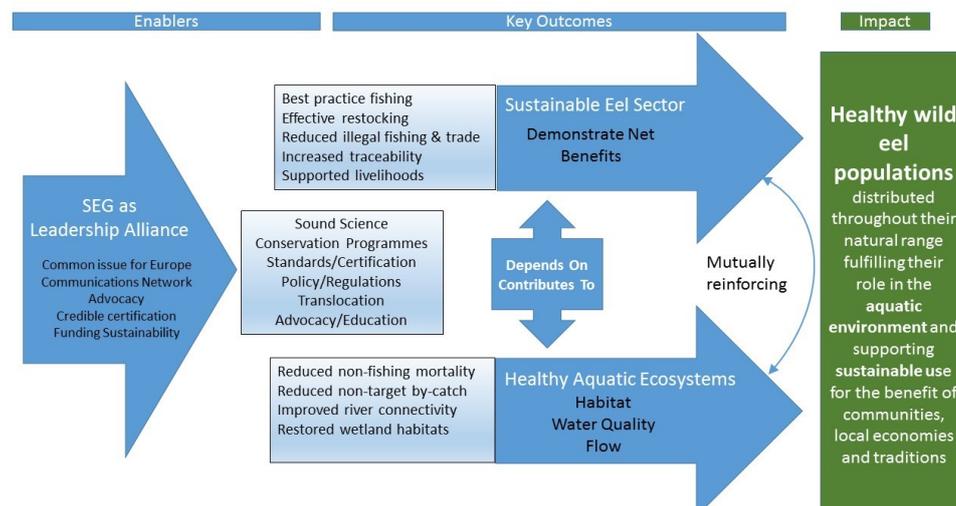
- Implementation has effectively come to a standstill
- The agreed goals have not been realised
- The required protection has not been achieved
- From 2012 – 2015 no further reduction in mortality has been achieved.

These headlines are very serious for the eel and whilst some comfort can be taken from the reported improvements to the recruitment of glass eels this needs to be seen in the context of starting from a very low base. Eel recovery has a long way to go.

The SEG leadership team has been working and developing our 'Theory of Change' and the recent workshop in Potsdam created this model to express how SEG by providing leadership can help to bring about our vision of eel recovery. The full document can be seen on the website www.sustainableeelgroup.org however it is summarised visually below.

By providing the leadership alliance, SEG will be able to help provide this missing element within the European Eel recovery and through the ISEAL membership programme demonstrate the credibility for the claims for a responsible and then sustainable solution.

Andrew Kerr, SEG Chairman



Staying in touch

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Diary Dates

June 13-15 2017 International Eel Science Symposium, ZSL London Zoo

Is the eel still slipping through our hands?

At the May 31 meeting of the Sustainable Eel Group in Fishmongers Hall in London, **Willem Dekker** (Swedish University of Agricultural Sciences) presented his recent socio-ecological analysis of the management framework for the eel across Europe (Dekker, 2016). Here he summarises his headlines.



After the successful adoption of a European Eel recovery plan in 2007, its implementation has now practically come to a standstill. How come, and how can the current impasse be broken?

The stock of the European eel is in a deplorable state. Landings have declined gradually to less than 10% of the 1960s level, and recruitment of young eel has diminished sharply since 1980, to only 1-10% of the abundance before. The stock is at a historical minimum.

To address this situation, the European Union (EU) adopted a protection and recovery plan in 2007, known as the Eel Regulation. At the same day, the CITES convention decided to regulate international trade in eel. In accordance with these decisions, export of eel from within the EU was banned (in 2010), national management plans for the eel have been developed in nineteen EU countries, protective actions have been implemented across the continent and more information on the status of the stock has been compiled. In the following years, an upward trend was observed in the recruitment of young eels to the continent. Though it is far too early to credit this unprecedented rise in recruitment to the protection plans, it does give hope that adequate protection might indeed recover the population!



Recent post-evaluations, however, now indicate that implementation of the Eel Regulation has effectively come to a standstill (ICES, 2016). That is: the agreed goals have not been realised, the required protection has not been achieved, and from 2012 to 2015, no further reduction in mortality has been accomplished. In a recent publication (Dekker, 2016), I analysed the background of this stagnation, and here, I discuss the results. I also present suggestions on how the current impasse might be broken.

In the previous century, extensive efforts were made to develop eel fisheries all across Europe – technical progress, restocking, market development, research on eel biology (Sargasso!), etc. Most of these efforts were made in parallel by all countries, independently (uncoordinated Collective Action). Meanwhile, other human impacts (water management, land reclamation, pollution, hydropower generation and many more) negatively impacted the stock to such a degree, that the stock and fisheries actually started to decline. Most fishery development actions were actually initiated to compensate for those negative impacts. But people involved in the development of the eel fisheries most often focused on the positive effects of their work, somewhat having a blind eye for the negative impacts occurring at the same time. Frequently, they had over-optimistic expectations of their own work. In summary: conflicting objectives (fisheries versus non-fishing impacts), unrealistic expectations, and many impacts – a disastrous situation, characterising as Awkward Drifting (that is: nobody chose to have a declining stock, it just went that way).



The adoption of the Eel Regulation in 2007 has changed this situation drastically. Most stakeholders and all countries now agree on a common objective: to protect and recover the stock, for sustainable use. Obviously, that objective has not been fully met yet. The adoption of the Eel Regulation has achieved broad awareness of the state of the stock, has involved many societal parties in the debates, and has sparked a lot of actions (monitoring and protection) – but current protection is still inadequate. The rising number of recruits, now observed, appears to be a lucky incident: we have not adequately created the necessary preconditions, we have

not achieved a responsible and sustainable protection yet. If we don't change that situation, there is a high chance we will remain trapped in the present deplorable situation, never achieving the goals that all our national plans aim for – trapped in a Utopian Deadlock (hopeful but unrealistic).

Some people (conservationists) argue, it would be best to terminate all eel fishing immediately. Though this would undoubtedly improve survival in the short run, it is absolutely unclear whether this would do enough to achieve recovery, and whether the exclusion of all fishers would leave a strong enough coalition to deal with all the other impacts (e.g. poaching, migration barriers & hydropower). Forceful but unproven action – acting as a Blind Goliath – makes a direct impact, but is unlikely to achieve a success.

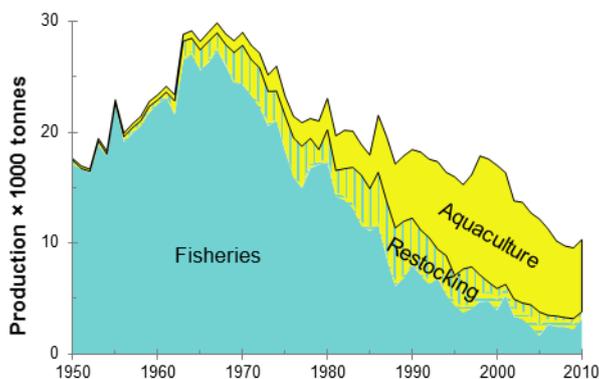
Others, (fishers, national plans), often promote intensifying research first, to solve the current uncertainty on the causes of the decline of the stock, and to better underpin the planned protection measures. After a century of over-optimistic attempts to achieve successful Collective Action, the lack of understanding is surely a reason for concern. Postponing protection until research has solved all problems, however, could postpone the actions the eel so direly needs, for a very long time, if not for ever.

The Eel Regulation has set common objectives at the international level, while distributing the implementation to national governments. This deliberate distribution of control has improved the communication between countrymen-stakeholders, and has initiated protective action all over the EU and elsewhere. After a century of failed attempts and losing ground, we have made a major step forward! But, as effective as this approach of orchestration and control-distribution has been so far, it has not achieved the desired protection level yet. In my view, the main cause for this failure is in the societal debates: pointless fights between opposing views within many countries, and a lack of involvement at the international level.



Remarkably, the current under-achievement of national Eel Management Plans is not reflected in the international scientific advice on the eel, or in the policy evaluation made by the EU in 2014. In the absence of full and reliable information on the status of the stock, the scientific advice just repeats its 2000 recommendation: on precautionary grounds, reduce all human impacts to a minimum. In doing so, one postpones the evaluation of ongoing protective action until ... the impossible has been achieved. Due to the extreme scattering of eel habitats all over the continent, we will never have a full overview of all details, and understand it all. Waiting for full and reliable information, the evaluation of protective actions would be postponed for ever.

What to do? Noting that the eel stock needs urgent protection, and that protective actions are actually taken all over the continent, the shortcomings of the current management framework should be addressed. Below, I will provide some practical suggestions, aiming at a better grip on the ongoing protective actions in the field. But ultimately, the shortcomings of the societal debates need to be addressed: the unproductiveness of



Time trend in eel production, combining fishing yield from the wild stock with aquaculture (using wild glass eel). For the fishing yield, the hatched part is that attributed to restocking.

polarising national debates, and the lack of international involvement of most stakeholders.

On a pragmatic level: first, re-focus all efforts, evaluations and advice on the achievement of adequate protection in each country – when adequately protected, the stock will hopefully recover. The current focus on long-term recovery and the many unknowns, is actually confusing societal debates and thereby postpones the urgently required protection.

Secondly, provide feedback on the achievements of national Eel Management Plans. This requires a change in focus of the scientific advice, and a subsequent change in

Is the eel still slipping through our hands? (cont)

the international evaluation. Even though the ultimate recovery of the stock might depend on combined efforts all over the continent (including the areas that are currently not actively involved), each national plan can achieve adequate protection on its own. Another one's shortcomings should be no excuse for one's own under-achievement.

Thirdly, scrutinise and consolidate national protection plans, and consider how to expand the areas covered, striving towards full geographical coverage. Finally, but not so urgently, consider what to do with all the long-term uncertainties and unknowns. In the long run, while providing the agreed protection, we might observe that the stock does not recover – that unknown other factors are more important than anticipated, or that we underestimated the required protection level. As unfortunate as that might sound, there is just one way to find out: to focus on the short run first, and to provide the agreed protection as soon as possible. The long-run uncertainties should not stand in the way of the short-term urgencies.

At the bottom line, these practical suggestions aim for a more effective implementation of the Eel Regulation. But in my view, an enhanced international societal debate on eel ultimately will be the best way to evaluate the Regulation's effectiveness, and to provide feedback on its continent-wide operation.

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Swedish University of Agricultural Sciences

Management of the eel is slipping through our hands!
Distribute control and orchestrate national protection.
ICES Journal of Marine Science, 73(x): 10.1093/icesjms/fsw094



Can we 'grab the eel by the tail', however difficult that may seem?

Painting: *Netherlandish Proverbs* by Pieter Bruegel



More than 50 delegates from 8 countries met at Fishmonger's Hall in London at the end of May for the SEG Conference, representing scientific, commercial and conservation interests.



MEP Ricardo Serrao Santos addresses the meeting from the European Parliament and calls for an end to eel trafficking.

First genetic evidence of illegal trade in endangered European eel (*Anguilla anguilla*) from Europe to Asia

Abstract: Eel farming in Asia relies on wild-caught juvenile ‘glass eels’ of the genus *Anguilla*. When supplies of Japanese eels (*Anguilla japonica*) declined in the 1990s, Asian eel farming shifted to using European eels (*Anguilla anguilla*). The European eel is currently classified as ‘Critically Endangered’, and export out of Europe has been suspended since December 2010.

In early 2016, glass eels were seized at the Hong Kong International Airport and genetically identified using the COI barcode region. Samples matched *A. anguilla* with a similarity range of 99.39–99.85 %. To our knowledge, this is the first documented case of illegal trade of *A. anguilla* from Europe into Hong Kong using genetic evidence. Furthermore, multiple isolated incidents of eel seizures by customs indicate that Hong Kong is a major hub facilitating illegal trade in eels from Europe to Asia.

We demonstrated that COI barcoding is a suitable tool in identifying illegally imported *A. anguilla*, which can support enforcement and prosecution as well as enable international cooperation between Europe and Asia.

Request free copy from author: [f.stein@tu-brauschweig.de](mailto:f.stein@tu-braunschweig.de)

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Illegal eel trade to Asia investigated

In December 2015, Florian Stein from the Sustainable Eel Group started a collaboration with the Coral Biogeochemistry Laboratory at the University of Hong Kong (thelifeisotopic.com).

In January 2016, glass eels were seized at the Hong Kong International Airport and genetically identified as European eel (*A. anguilla*).



Frozen glass eels

To our knowledge, this is the first documented case of illegal trade of European eel from Europe into Hong



Samples under analysis

Kong using genetic evidence. Samples of additional seizures are currently being analysed.

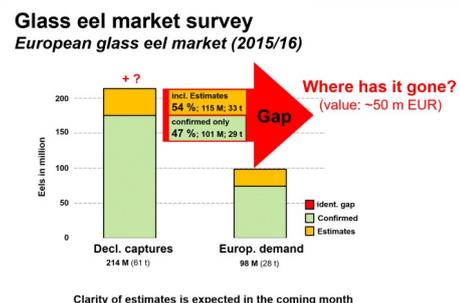
In April 2016, we started to analyse the European glass eel market for 2015/2016. The identified traffic gap (red arrow in figure, right)

indicates that about half of the declared European

glass eel captures (~100 M eels/30 tons), valued at ~50 M EUR, disappeared from the European market.

In addition to this gap identified within the legitimate market, there have been increasing signs that a significant volume is caught outside the licensed fishery. It is possible that the majority of the traffic gap and the IUU fishery is traded to Asia. Furthermore, we compiled information about glass eel seizures in Europe and Hong Kong during early 2016.

The presentation “Illegal trade threatens European eel recovery” from 31 May 2016 can be downloaded at www.sustainableeelgroup.org. Scientific publications will follow soon.



Where have all the glass eels gone?

Positive progress on eel movements in Ireland

There have been some promising developments in Ireland in relation to juvenile eel trap and transport/monitoring. Elver traps have recently been upgraded by the Electricity Supply Board (ESB) on the River Shannon at Parteen Regulating Weir, and on the River Erne at Cathaleen's Fall dam (pictured right and left below).

The possibility of improving and assessing the efficiency of these elver traps is also being explored. Ongoing discussions are also taking place in relation to upgrading elver traps and passes at other ESB dams. Inland Fisheries Ireland also upgraded their elver monitoring traps on the River Maigue this year, and have also engaged former commercial eel fishermen to assist in future juvenile eel monitoring as part of a scientific eel fishery.

There were indications of significant numbers of glass eels in the Shannon estuary in the early spring of this year, however due to the very cold April - and high river discharge levels - elver runs were late.

At the upgraded ESB facilities significant elver catches were made in June 2016, with over 2.6 million elvers trapped & transported at Cathaleen's Fall dam and over 800kg of bootlace eels trapped and moved upstream at Parteen weir by the end of June 2016. Almost 1 million elvers were also captured at the older ESB elver trap at Ardnacrusha, indicating the potential of this site and the relatively strong recruitment this year in Ireland.

There is still much work to do in Ireland of course, and it is clear that there is a requirement to establish new juvenile recruitment monitoring sites around Ireland.

It is recommended that some of these be run as independently managed citizen science projects. Opening up migration pathways for eels also requires urgent attention and investment. However, some work here has also commenced and plans are currently being progressed to install eel passes at a number of weirs. It is hoped that many more similar projects will be progressed in the future.

Dr. William O'Connor, ECOFACT (<http://ecofact.ie/>)



International Eel Science Symposium June 13th – 15th 2017, ZSL London Zoo

Following the success of their three previous eel-focused events, including the first European Eel Conference in 2013, the Institute of Fisheries Management (IFM), has joined forces with the Zoological Society of London (ZSL), and the Environment Agency (EA) to host a three-day global eel event at London Zoo.

The Symposium aims to provide a global forum for scientists and researchers to present the latest data and initiatives on the biology and management of Anguillid eels. It will foster and develop international links between key academic, policy, industrial and other stakeholders to promote better understanding of the issues, parallels and conservation opportunities for these iconic species.

Presenters and delegates from across the globe will gather in London on June 13 - 15 2017 for presentations, discussions and social events. The event will be lead by SEG Members Paul Coulson of the IFM, Matthew Gollock of ZSL and Andy Don of the EA.



If you would be interested in helping the team please get in touch with Paul on paul.coulson@ifm.org.uk. The team is also looking for sponsorship to help support the attendance of overseas speakers and to contribute towards venue costs. If you would like to support the symposium please let Paul know. This is sure to be THE eel event of 2017 so put it in your diary and we look forward to seeing you all there.

The Eel as a flagship species for healthy wetlands: the role of the Wetlands International European Association

Wetlands International – European Association is part of the global Wetlands International network, the only global not-for-profit network organisation dedicated to the conservation and restoration of wetlands such as lakes, marshes and rivers. Wetlands International works through its network of offices, partners and experts to achieve its goals. We have eighteen offices around the world, working independently but sharing the same Global Strategy.

Wetlands International - European Association brings together 8 European NGOs working together to raise awareness about wetland ecosystems and to advocate the sustainable use of wetlands for people and nature, in particular by linking science, policy and practice. The Sustainable Eel Group (SEG), was one of the founding members of the European Association in 2013.

Focus in Europe for a global impact

Wetlands International – European Association focuses on the development and implementation of European Union (EU) policy, and on its effects and impacts on global wetlands. We use the expertise of our members and our global network to inform EU

policy- and decision-makers, and we in turn inform our members and global partners on the implications for them of EU policy developments. In recognition of our contribution to EU environment policy the European Association has been awarded operational grants from the European Commission to support its activities.



The Severn Wetlands and river beyond

Why is the European Eel important for wetlands?

Engaging in conservation measures for the European Eel can deliver multiple benefits for wetland issues. Migratory fish species such as the Eel need a transitional zone in coastal areas to undergo the necessary physiological changes for living a very different environment, and to allow them to complete their life cycles. These important zones have been lost from many parts of the European coast, but are vital for a multitude of other species, water quality, coastal flood defence, and carbon storage. Equally, measures to improve their freshwater habitats upstream; including removing barriers and restoring natural river features provides similar benefits.

The European Eel has legal status under a range of international conventions, and regulated by the EU Eel Regulation which establishes legal measures for the sustainable use and recovery its population. The Wetlands International—European Association is engaging in advocacy for better implementation of these instruments, not only for the benefit of the Eel and its sustainable use, but for the habitats we all depend upon.

For more information contact: Cy.Griffin@wetlands.org



Before and after restoration work to enable the passage of fish in a Spanish gauging station in the Ebro River Basin.

Image source: Confederación Hidrográfica del Duero (CHD) and Eduardo Martínez.

More than 1 million barriers block Europe's rivers

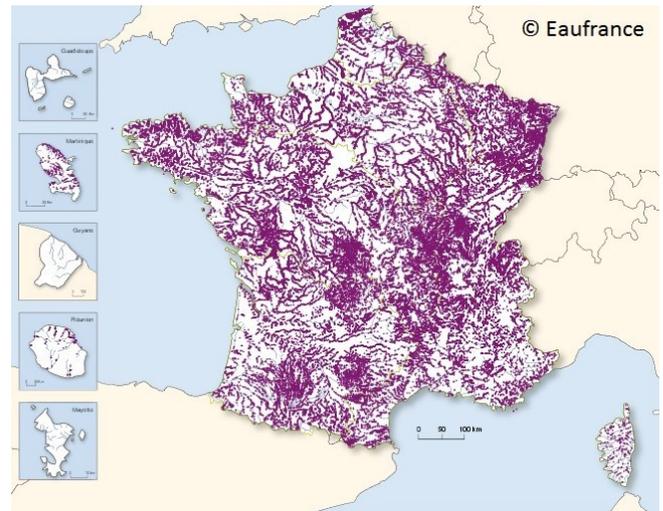
Do you know how many dams, weirs, culverts and bridges rivers endure? What about the rivers in your region? And in your whole country?

The majority of rivers in Europe are disconnected from the sea due to artificial barriers. These barriers impact every aspect of healthy rivers and one of the most affected are migratory fish, with many species becoming extinct. Very few countries are aware of how many transversal barriers there are in their rivers, and certainly nobody knows the dimension of the problem on a continental scale. The newly-started AMBER project (Adaptive Management of Barriers in European Rivers) seeks to raise awareness of the problems posed by stream fragmentation, the pressures on freshwater ecosystems and the need to provide innovative solutions to restore river connectivity for Europe.

AMBER is a Horizon2020 project where 20 partners (academic institutions, industrial partners, public sector bodies and NGOs) from 11 European countries work together combining citizen science, cutting-edge advances in environmental DNA, use of drones, and valuation of ecosystem services, to map the distribution of barriers and assess their effects on freshwater organisms. AMBER will work with hydroelectric companies, water providers, NGOs, anglers and local authorities to help restore river connectivity in a way that maximizes the benefits of water abstraction but reduces environmental impacts.

Some of the deliverables that AMBER will produce in the following years are:

- * The first global atlas of stream barriers in Europe.
- * A European citizen science programme, using a mobile phone app, to help complete and continue updating the barrier Atlas, also after the AMBER project has finished.
- * A practical guide for solving problems of barrier effects, including applications with real case studies.



Map of national obstacles inventory (more than 85,000) from France, one of the best and more complete databases in Europe.

All these and much more will be accessible for anybody who is interested when the project ends. In the meantime, we encourage citizens to contact us and be part of this important project!

Pao Fernández Garrido, World Fish Migration Foundation pao@fishmigration.org

40m spent on improvements to the River Adour

The Adour and its tributary, the Gave d'Oloron always had a very large number of migratory runs, including salmon, eel, shad, lamprey and sea trout. This is due to its proximity to the ocean and the high mountains of the Pyrénées which provide a constant flow of fresh water, even in August and its rich, lush river valley providing prolific food for all species.

In spite of 40 million euros investment from the French administration in the last 5 years, to create migratory fish ladders and eel ramps, the work of ONEMA and local associations to manage the river, massive and uncontrolled net fishing on the estuary of the Adour system are damaging this wonderful work and the return of all fish.

In spite of 2015 being the best year for these migratory species for 20 years, most of the fish were caught by the estuary nets and only 1.5% of silver eels escaped despite an original target of 40%. This is one of the worst performances in France which already has the lowest figures in Europe.

In 1925, an English fly fishing club was set up on the Gave d'Oloron. Its 42 members privatised the river and bought out all the river nets and encouraged the locals to join the association. A good allegory for our joint effort to properly manage the resource and the net fishing (not advisable though as there would be a second French revolution). An international meeting on the Gave d'Oloron takes place in October at Château d'Orion.

Jean Francois Gaillard