



Background to the Development of the Sustainable *Eel* Group Standard

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Amendments

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1.0	18 May 2016	Original publication
1.1	17 October 2016	Minor updates to formatting
1.2	25 November 2016	Corrections to minor errors in the text

This document is the property of the Sustainable Eel Group. It has gone through a consultation process with all interested parties and has had the advice and approval from independent and respected eel scientists and conservationists, as a sub-group of the Sustainable Eel Group.



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1. Introduction

The European eel *Anguilla anguilla* is listed by the IUCN as critically endangered, and there is widespread agreement across Europe that effective action is urgently required to save it. The Sustainable Eel Group (SEG) believes that the creation of a responsible, sustainable commercial eel sector is an essential part of that action.

SEG's vision is to achieve "Healthy wild eel populations distributed throughout their natural range fulfilling their role in the aquatic environment and supporting sustainable use for the benefit of communities, local economies and traditions".

SEG believes that this vision can be achieved most effectively by focusing on achieving two interdependent and mutually reinforcing outcomes: Healthy Water Habitats and a Sustainable Eel Sector:

Healthy Water Habitats: defined as functionally intact water flow to support habitat for fish and vegetation, water quality, and ecosystem health, where natural residence of elvers, natural escapement of silver eels as well as free migration between the waters themselves is possible.

A Sustainable Eel Sector: defined as an eel sector that produces a fully traceable product, is financially viable, and is compatible with the achievement and long-term maintenance of healthy wild eel populations and provides a positive net impact on eel populations.

(from The SEG Theory of Change, May 2016)

To understand why SEG believes that a sustainable commercial eel sector has a positive part to play in saving the eel, rather than in contributing to its continuing demise, it is necessary to understand the eel's life cycle, and to understand the factors that are believed to be the most important reasons for the eel's decline. It is then possible to understand how the SEG Standard can contribute to the restoration of eel populations.

2. The Eel's Lifecycle

Mature 'silver' eels are thought to spawn in the Sargasso Sea south of Bermuda. The maturing eel larvae, *Leptocephali*, are then believed to return to European continental waters by drifting on the Atlantic currents, developing into the immature 'glass eel' stage of their lifecycle in the estuaries of European rivers.

On reaching an estuary, the glass eels swim towards fresh water and enter Europe's river systems, penetrating far inland. In the rivers the glass eels mature into elvers and eventually into the adult yellow eels. Maturation may take up to twenty years, depending on the eel's gender, and on the temperature and condition of its environment. Finally, the mature eels swim downriver to return to the sea and make the journey back across the Atlantic to Bermuda, where the cycle can begin again.





All the causes for the collapse in eel populations over the last couple of centuries are not fully understood, in part due to the lack of knowledge in relation to the oceanic phases of the eel's lifecycle. However, factors impacting on eel populations in relation to the continental phase of the lifecycle are known to include:

- Loss of freshwater habitat
- Water pollution
- Barriers to up- and downstream migration, such as dams, dykes, and weirs
- Mortality due to water intakes and pumps
- Mortality due to hydropower
- By-catch where eels are not the target species
- Glass eel take for dead or live trade, commercial or recreational
- Silver eel take for dead or live trade, commercial or recreational
- Yellow eel take commercial or recreational

The paucity of information as well as the lack of known conservation measures that could be applied to the oceanic part of the eel's life cycle means that efforts to restore healthy eel populations must necessarily focus on these factors.

3. Justification for the SEG Approach

Faced with the factors that are known to result in eel mortality, it may seem that an immediate ban on the recreational and commercial take of eels – including glass eels, silver eels and yellow eels – would be an obvious and potentially effective conservation measure. SEG believes, counter-intuitively, that this would be wrong. In fact a range of factors suggest that a sustainable, commercial eel sector would be a major force in restoring eel populations.

Most fundamentally, the continuing existence of a commercial sector is completely dependent on the maintenance of a healthy wild eel population. Despite more than 100 years of research it has to date proved impossible to breed eels in captivity. Eel aquaculture and ranching, as well as fishing for glass eels and adults is impossible without a wild population. Without a wild population there is no commercial eel sector. The eel sector has an existential motivation to protect and increase that population. And this is not simply a question of economic interest. The sector – including commercial, recreational and traditional fishers - has a deep, cultural relationship with the eel and eel trade, going back centuries.

Its dependence on the eel gives the eel sector a clear interest in the survival and growth of eel populations, but does not give it the tools to contribute, or show that a ban on the taking of eels would not be an effective long-term conservation measure. The arguments for this fall into four categories: technical, institutional, political and financial.

On the technical side, the eel sector has plenty of opportunity to contribute to the restoration of populations. Technical measures include the safe capture and handling of glass eels for translocation from estuaries and rivers that are blocked to potential upstream migration to rivers and wetlands where they can grow to adulthood and return to the sea to reproduce, and the establishment of eel fishing free periods, quota and areas or zones.

On the institutional side, it is essential to combat the illegal fishing and trade in eels. The trade of eels beyond European borders is already banned under CITES, and yet is estimated to represent 30 tons of eel a year – the same size again as the total legal European market. The illegal market



undermines the viability of the legal sector, and suggests also that simply banning eel fishing and trade is unlikely to be an effective measure. A responsible, legal commercial eel sector, with eyes at the water, implementing full traceability from water to end product, has the potential to reduce the illegal trade far more effectively than already over-stretched policing on its own.

Politically, the eel needs friends. In numbers the eel sector is thought to be worth over £500m per annum and provide employment for over 10,000 people spread across the EU and beyond. However, the sector is dispersed and disorganised. As a sporting and leisure activity eel fishing is pursued by hundreds of thousands of dedicated anglers. The eel's lifecycle and need for open, healthy waterways makes it a flagship species for the restoration of wetlands, water quality and water flow. Together and aligned in their interests the commercial sector, recreational anglers, scientists and conservationists make a powerful political alliance. Divided, their chance of succeeding in their shared aim of restoring eel populations is greatly reduced.

However, motivation without resources is insufficient. The eel sector not only has a fundamental interest in seeing healthy wild eel populations restored, but it has the potential to make a financial contribution to achieve this, without having to depend on public financing or NGO fundraising. A responsible, commercial eel sector could provide a source of well-directed financing aimed at answering key research questions, supporting effective public communication, and supporting the implementation of genuinely effective conservation measures.

Finally, and perhaps most importantly, simply banning the commercial taking of eels would not work, as it would have no impact on the underlying factors that are causing the collapse in eel populations. The most important of these factors are the loss of freshwater habitats, water pollution, barriers to up- and downstream migration, and eel mortality due to water intakes, pumps and hydropower. A united, engaged eel sector, committed to the restoration of healthy wild eel populations, implementing measures that are backed up by independent scientists and supported by conservation organisations, stands some chance of addressing these underlying factors. SEG believes that such an approach has the best chance of success.

4. Basis for the SEG Standard and Certification Programme

Based on this analysis, SEG believes that the development of a sustainability standard and associated certification programme provides an effective model to help it achieve its objectives.

SEG believes that this model will:

- Allow SEG to bring together scientists, conservationists and leading representatives of the eel sector to identify and define the key technical measures that a responsible players in the sector should be implementing to make the most effective contribution to the long-term sustainability and growth of the sector;
- Provide a reliable basis for ensuring that these measures are, in fact, implemented, and for driving commercial advantage for the responsible leaders of the sector and away from irresponsible, unsustainable and illegal practices;
- Provide a platform to communicate with the wider public about the plight of the eel and action that the public can take to support the eel's restoration, not only in relation to the support for a sustainable eel sector but also, and perhaps even more importantly, in relation to support for actions to open water ways to safe eel migration, and restore wetlands, water quality, habitat and flow.

In this context, the SEG Board of Directors has defined the goal of the SEG Standard as being to:



To maximise the contribution of eel fishers, ranchers, aquaculturalists, traders and consumers of eel products to the restoration of healthy eel populations, distributed throughout their natural range, fulfilling their role in the aquatic environment and supporting sustainable use for the benefit of communities, local economies and traditions.

This high level goal is supported by two specific design requirements:

- The requirements specified in the SEG Standard shall be designed to ensure that implementation of the SEG Standard at the level of each individual SEG certificate holder has a positive net impact on eel populations.
- The requirements specified in the SEG Standard shall support the collection of the long-term data necessary to monitor changes in eel populations over time and to demonstrate the efficacy of the SEG Standard in achieving its objectives.

SEG believes that the concept of 'positive net impact' is of critical importance to the credibility and success of the SEG Standard, as it will require each certificate holder to be able to demonstrate how *their activity* contributes to the restoration of healthy eel populations. This requirement is linked to the collection of the data that will be needed to demonstrate that the decline in eel populations is in fact being reversed, in order to show that the continued activity of the eel sector is compatible with the restoration of healthy eel populations.

Subject to these requirements, SEG believes that the best way to ensure that the SEG Standard achieves its goal is to convene leading representatives of the eel sector, eel science and eel conservation to draft the standard's specifications through an open, consultative, multi-stakeholder process. Amongst other requirements, the SEG Standard will need to define how the concept of 'positive net impact' should be implemented in practice, not only by eel fishers, aquaculturalists and ranchers, but also by eel traders and wholesalers.

SEG has already developed a draft standard, which has been used as the basis for a pilot certification programme over a three-year period. The draft standard includes provisions relating to:

- Commitment to SEG's goals;
- Disassociation from illegal activities;
- Alignment with nationally approved Eel Management Plans, developed in support of the regulatory framework for the European Eel Regulation 1100/2007;
- Minimisation of by-catch of non-target species;
- Elimination of damage to habitats;
- Minimisation of mortality in the fishing of live glass eels;
- Qualitative as well as quantitative requirements to support the effective re-stocking of viable wild eel habitats;
- Minimisation of mortality during the translocation of live eels at all stages of their lifecycle;
- Biosecurity;
- Quality requirements for eel aquaculture and ranching;



• Traceability of eels and eel products throughout the supply chain.

These provisions provide the starting point for a full review and revision process, designed to meet the requirements of the *ISEAL Code of Good Practice for Setting Social and Environmental Standards*, and launched in June 2016.

5. Scope

The SEG Standard will be designed to be applicable to eel fishing within European coastal, estuarine and freshwater systems, to eel ranching and aquaculture, and to the trade and transportation of live eels.

The SEG Standard will include provisions for the monitoring of the trade in live eels and for the monitoring of the trade of eel products from source to end consumer.

6. Consideration of Other Standards and Initiatives

Prior to the development of the SEG Standard and certification scheme SEG contacted and discussed its proposed approach with representatives of the Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC), and reviewed these schemes' respective standards. In discussion with these programmes it was concluded that the characteristics of the eel lifecycle, the lack of scientific certainty as to its population and an associated sustainable take, the dispersed nature of the eel 'fishery' and its status as a critically endangered species together prevented the application of their standards to the restoration of eel populations at the time.

SEG remains open to collaboration with these initiatives wherever there is potential to avoid duplication and overlap, and believes this may be possible in relation to aspects of the SEG Standard that address eel aquaculture where there are overlaps with ASC requirements, and in relation to the standards and processes for assuring traceability, where there are overlaps with both ASC and MSC standards and procedures.

SEG also believes that there is potential for collaboration with the Alliance for Water Stewardship (AWS) in relation to its model for cooperation at the watershed level in relation to the restoration of water quality, habitat and flow, and looks forward to discussions in the future during the process of SEG Standard development.

In addition to its consideration of voluntary schemes and initiatives, SEG has carried out a review of European Union and United Nations policies, including the European Eel Regulation 1100/2007 and the EU Water Framework Directive, to determine where and how the draft SEG Standard can contribute to their implementation, as summarised in the table below. Alignment with European Union and United Nations policies, and in particular with the European Eel Regulation, will remain a key consideration in the development of the revised SEG Standard.

EEL MORTALITY FACTOR	EU Policy	SEG Standard Direct Impacts	SEG Standard Indirect Impact
Oceanic factors	EU and UN Environment Policy	No	No
Loss of freshwater habitat	Water Frame Work Directive	No	Yes



EEL MORTALITY FACTOR	EU Policy	SEG Standard Direct Impacts	SEG Standard Indirect Impact
	Habitats Directive		
	Eel Reg		
Migration barriers, dykes and weirs	WFD, HD, Eel Reg	No	Yes
Water intakes and pumps	WFD, HD, Eel Regs	No	Yes
Hydropower	WFD, HD, Eel Regs	No	Yes
Fisheries: Glass Eel	Eel Regs	Yes	No
	Common Fisheries Policy		
Fisheries: Yellow Eel	Eel Regs CFP	Yes	No
Fisheries: Silver Eel	Eel Regs CFP	Yes	No
Eel buying and trading		Yes	No
Eel culture		Yes	No
Pollution	WFD, HD, Eel Regs	some	some
Biosecurity		Yes	
Eel handling & welfare		Yes	

SEG also aims to ensure that its programme aligns with and is supportive of other initiatives aimed at protecting threatened and endangered species, in particular CITES.

The eel is listed on Appendix 2 of the CITES Convention, meaning that trade is only allowed across the European Union borders under highly specific circumstances, which are not currently met. However, the scale of the illegal trade is considerable. SEG is working to ensure that the requirements of the SEG Standard include specific provisions to help combat this trade, and is working proactively beyond its standard and certification programme to support other efforts to eradicate the illegal trade.

Finally, SEG remains in close contact with the IUCN Committee responsible for monitoring the status of the eel in relation to the IUCN Red List process, and with the International Council for



the Exploration of the Sea (ICES), which has been appointed by the European Commission to advise it on the status of the eel, and measures to be taken to restore the population to a healthy condition.

7. Stakeholder Analysis

SEG has carried out an analysis of stakeholders that may be affected by the implementation of a SEG Standard, the results of which are summarised below. For the full analysis see Document 008 SEG Stakeholder Analysis.

Key Stakeholder Groups

Based on its stakeholder analysis SEG has proactively identified a number of key stakeholder groups who are likely to be interested in or affected by the development and implementation of the SEG Standard, summarised in the table below.

Key Stakeholder Groups: Parties with a special interest in or potentially affected by measures related to eel conservation	Interested/ directly affected by SEG Standard?	SEG Stakeholder Category
Fisheries scientists Marine scientists Research ecologists	Interested	Science
Hydropower companies	Potentially affected	Commercial
Water supply companies	Potentially affected	Commercial
Water extractors	Potentially affected	Commercial
Commercial eel fishers (glass eels, silver eels), ranchers and aquaculturalists	Directly affected	Commercial
Traders/ transporters of live eels	Directly affected	Commercial
Processors and traders of eel products.	Directly affected	Commercial
Other industries and activities affecting or affected by water quality	Potentially affected	Commercial
Equipment Manufacturers, suppliers	Interested	Commercial
Conservation organisations (Local, national, regional. Private/public)	Interested	Conservation
Government advisers	Interested	Observer/ adviser
Law enforcement agencies	Interested	Observer/ adviser
Political representatives	Interested	Observer/ adviser
River/ wetlands governance bodies (Local, national, regional. Private/public)	Potentially affected	Observer/ adviser (or assigned case by case)
Other relevant standards/ schemes	Interested	Observer/ adviser



Key Stakeholder Groups: Parties with a special interest in or potentially affected by measures related to eel conservation	Interested/ directly affected by SEG Standard?	SEG Stakeholder Category
Relevant policy experts	Interested	Case by case
Recreational fishers	Potentially affected	Case by case
Consumers	Directly affected	Case by case
Multi-stakeholder organisations	Interested	Case by case
Illegal sector: illegal fishing of eels; illegal impacts e.g. bycatch; illegal trade in eels and eel products	Directly affected	Excluded

SEG maintains a database of stakeholders within each of these groups who are kept informed of and consulted on the development of the SEG Standard.

Geographical Considerations

SEG recognises that consideration also needs to be given to potential differences in perspectives and interests of stakeholders within stakeholder groups in different countries, affected by different cultural, economic and geographical contexts. Different countries have differing ecological as well as infrastructural and institutional contexts, and have different roles in relation to the eel sector as a whole, as illustrated in the map below.



Further considerations

SEG recognises that consideration also needs to be given both to larger and more commercially oriented operations, and to small-scale 'amateur' or 'recreational' user interests.

SEG monitors stakeholder participation in its standards development processes based on these considerations, and endeavours to ensure that all interests and perspectives have been given a fair



opportunity to participate and to represent their views, prior to the finalisation of any SEG Standard.

One group of affected parties identified as a result of SEG's analysis includes participants in illegal activities. These parties are intentionally excluded from participation in the development of the SEG Standard.

SEG Stakeholder Categories

Based on its stakeholder analysis and its understanding of the coalition of interests that will be required to achieve its objectives, SEG has determined that the full range of stakeholders should be divided into three broad stakeholder categories for the purpose of decision-making on SEG Standards, representing Science, Conservation and Commercial interests, respectively.

SEG's governance structure has therefore been designed to ensure the fair and balanced representation for stakeholders from each of these categories within its decision-making processes, and in particular in relation to the development and approval of the SEG Standard in terms of their representation on the SEG Board, the SEG Leadership Group and the SEG Standards Panel.

SEG recognises that many stakeholders could legitimately be assigned to more than one of these categories. In these cases the SEG Membership Secretary provisionally assigns an applicant member to a given category. If the applicant requests to be assigned to a different category the issue is then considered by the SEG Board, whose decision is final.

Government bodies are not eligible to become SEG Members, and are not assigned to a specific SEG Stakeholder Category. They are however kept informed of SEG processes, encouraged to attend and participate in SEG meetings, and to review and comment on draft standards and policies in so far as their positions permit them to. Individuals working for government bodies are eligible to apply for SEG membership if they wish, and if so are assigned to a SEG Stakeholder Category based on their background and interests.

8. Risks and Mitigation

Finally, SEG has carried out an assessment of the risks (e.g. possible unintended negative social, environmental or economic impacts) in implementing its standard and considered ways to mitigate such risks, as shown in the tables below.

The first table considers risks at the level of the SEG programme as a whole. The second table considers risks in relation to the SEG Standard itself.

Risk	Mitigation
Complexity of the problem The multiple factors causing the collapse in eel populations and their inter relationship has created great scope for miss understandings and or simplistic solutions.	This is a key reason for creation of the standard owner organisation SEG. Work closely with science to communicate the causes of the eel population collapse and work closely with GO's and NGO's to deliver and communicate the necessary corrective measures.
Unity and division	This standard and the making of it credible and effective will create the confidence to enable high



Risk	Mitigation
Not only between the key stakeholders, Science, Conservation and the Industry but also within the stakeholders	levels of cooperation between the stakeholders. This process of building Trust is the basis for the sustainable eel agenda.
Independence & Credibility The Standard to be credible must be both independent from the industry and credible to the wider world.	The Standard is developed, maintained and managed by an independent group of scientist and conservationists who are internationally recognised for their objectivity and professional competence.
Inadequate Resources The environmental causes of the problems are so vast that the solutions and timescales so extended that the work is visionary in its implication.	This is one of the key roles of the standard setting organisation SEG. The SEG business model has been created and expanded to generate resource and deliver effective conservation measures. The measurement of overall effectiveness, the combination of the SEG standard and the whole organisation, are closely linked.
Cultural differences There are huge differences in attitude towards sustainability both within and between countries. The eel's wide geographical range makes this issue fundamental.	SEG has intentionally sort to create networks in each country to facilitate the adoption of the SEG wider approaches and the specific SEG Standard.
Political Will There are few votes in eels and effective action is expensive and sometimes competing with powerful interest like water and electrical power.	The SEG approach is to use the eel's extreme endangerment to help win resources for wider conservation gains.

Risk	Mitigation
A standard that supports the continuation of fishing for eels and the trade in eel products may have a negative rather than a positive impact on eel populations.	This concern is of course central to SEG and its membership in the light of SEG's vision, and it is explicitly addressed in SEG Theory of Change. SEG considers that the political, technical and financial involvement and support of eel fishers and traders in the restoration of eel populations is
As illustration, in 2014 ICES recommended to the European Commission that: " <i>The status of eel</i> <i>remains critical and ICES advises</i>	central to its success. Without such support the likelihood of change across the whole range of factors where change is needed is greatly reduced.



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that all anthropogenic mortality (e.g. recreational and commercial fishing, hydropower, pumping station and pollution) affecting production and escapement of silver eels should be reduced to – or kept as close to – zero as possible."	Such support would be undermined if the use of the SEG Standard in fact reduces eel populations. The Terms of Reference for the SEG Standard therefore specify that the implementation of the SEG Standard, at the level of an individual certificate holder, should have a net positive impact on eel populations. The SEG Standard will be developed by eel scientists and conservationists as well as by those with a commercial or recreational interest in eels to determine how best to achieve this in practice.
	In addition, SEG is committed to collecting the necessary data to monitor the impact of implementation of the SEG Standard. If these data show that the use of the SEG Standard has a negative impact on eel populations then SEG would expect to withdraw its use.
By setting a high performance threshold the SEG Standard may exclude fishers/traders that are constrained by access to technical or financial resources from participating in the SEG system.	The SEG Theory of Change is designed to restore eel populations to levels that can be maintained on a sustainable basis whilst supporting commercial and recreational use that is compatible with such restoration. The fundamental requirement is to address a crisis in eel populations, and this may imply the exclusion of fishers and traders who threaten eel population recovery.
	The role of the SEG Standard within the SEG Theory of Change focusses on changing the behaviour of larger scale, commercially-oriented fishers, ranchers, aquaculturalists and traders who supply larger-scale markets in which a recognised 'eco-label' may be a requirement to maintain access to such markets. Small scale, informal or recreational fishers and traders are not expected to be major suppliers of these markets.
	The SEG Standard is a voluntary standard, but it has been closely aligned with relevant European Regulations. The European Regulations provide for commercial fishing to be prohibited in EU countries that do not take sufficient measures to restore eel populations. In general terms, the alternative to compliance with a high performance standard is not the continuation of small-scale fishing and trading, but the complete prohibition of fishing and trading for all parties.
	Notwithstanding these considerations, SEG will monitor the impact of its standard on small-scale and commercial fishers and traders and will



	review the situation if there appear to be significant negative impacts that conflict with the achievement of SEG's vision.
A single, regionally applicable standard may not be sufficiently flexible to accommodate the full range of geographical, ecological and commercial contexts of eel management within the geographic scope, and may thus exclude some fishers/traders, not because their quality of management is inadequate, but because the SEG Standard is too inflexible to recognize their quality.	Experience gained during extensive pilot testing over a three-year period suggests that a single standard can be applied effectively across all countries within the scope of the standard's application, without the need for modification.
	However, to ensure that this remains the case, the SEG Standard will be developed with input from stakeholders across the range of countries in which it will be applicable.
By working in English as a working language the SEG Standards Panel cannot access appropriate technical expertise, and/or does not result in sufficiently diverse involvement from stakeholders and interested parties around the world to generate buy-in and subsequent uptake.	The SEG Articles of Association explicitly encourage the participation of representatives from a broad range of countries as SEG Board Members.
	The SEG membership includes substantial participation from key countries including France, Germany, the Netherlands, and Sweden. Certificates have been issued to fishers and traders in all of these countries during SEG's pilot phase of implementation.
	In addition, SEG has established close collaborative relationships with 'Eel Stewardship Groups' in the Netherlands and Germany, and the SEG Chairperson works closely with these groups, speaking regularly at their meetings.
	SEG works closely with SEG members in different countries to present and promote SEG's work.
	SEG aims to ensure that the SEG Standards Panel includes representation from diverse countries, including specifically France, Germany, Spain and the Netherlands.