Bending the Curve for the European Eel

Demonstrating the impact of the Sustainable Eel Group through
A decade of eel protection, accelerating the eel recovery and refining the SEG standard for sustainable use

Andrew Kerr
Chairman
Updated April 2022

*WARNING, data still under verification

Uncertified
150

Total 418 French Fishermen SEG Certified

+131

Free immigrants
356 t, 1.079 billion eels

IUU
10 t

Legal catch
62 t

81%

81%
France 418 Fishermen
UK all 300 part time

21 million Glass Eel 2018
32 million Glass Eel in 2019
33 million Glass Eel in 2020
64 million Glass Eel in 2021

Growing Impact of SEG Standard in building fully traceable supply chain

18 farms certified
90% in NL, DE, FR and SW

75% of farms in Europe

75% certified in NL & DE

17 Retailers / Smokehouses Certified in NL and Germany
Number of French Glass Eel Fishermen certified 2022

- Total 418 SEG Certified
- 295 2020/21
- +131 2021/22
- 150 Uncertified

73% of French Glass Eel Fishermen certified

Growing Impact of SEG Standard in building fully traceable supply chain
Data about the plausible, European glass eel markets were collected by means of the annual SEG glass eel market surveys. Data presented are SEG’s best estimates as of January 2022.
**SEPRONA / EUROPOL**  
18th April 2018  
MADRID

100 tons / 300 + million Glass Eels a year

**Reported Arrests**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 - 17</td>
<td>48</td>
</tr>
<tr>
<td>2017 - 18</td>
<td>98</td>
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<tr>
<td>2018 - 19</td>
<td>154</td>
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<tr>
<td>2019 - 20</td>
<td>108</td>
</tr>
<tr>
<td>2020 - 21</td>
<td>52</td>
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</table>

**Reported Seizures**

<table>
<thead>
<tr>
<th>Year</th>
<th>Seizures</th>
</tr>
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<tbody>
<tr>
<td>2016 - 17</td>
<td>16 million</td>
</tr>
<tr>
<td>2017 - 18</td>
<td>17 million</td>
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<tr>
<td>2018 - 19</td>
<td>15 million</td>
</tr>
<tr>
<td>2019 - 20</td>
<td>10 million</td>
</tr>
<tr>
<td>2020 - 21</td>
<td>1.38 million</td>
</tr>
</tbody>
</table>

**Operation Lake V**  
Update 19 Nov 2021

58 000+ inspections across Europe

Seizures including: 387 kg of glass eels and 25 kg of adult eels valued at about EUR 1.241 million


Eel trafficking influenced by the COVID-19 pandemic

**Trafficking Updates 2022**

85% Reduction since 2016*
Exploitation of total glass eel recruitment
(440 tonnes per annum or 1.33 billion fish)

2018
70% Free immigrants
309 t, 933 million eels

2022*
81% Free immigrants
356 t, 1.079 billion eels

- Legally caught: 61 t
- IUU: 70 t
- Illegally exported: 309 t, 933 million eels
- Aquaculture, EU: 16% (70 t)
- Restocking, EU: 4% (3 t)
- Free immigrants: 70% (309 t)

Eel Trafficking reduced approx. 80%

*SEG estimates prior to survey
Bending the Curve for the European Eel

Demonstrating the impacts of the Sustainable Eel Group through a decade of eel protection, accelerating the eel recovery and refining the SEG standard for sustainable use

Andrew Kerr
Chairman
December 2020 Slides
Andrew Kerr 2009: ‘The falling glass eel population is not just about the fishery, the development of aquaculture or the exports to Asia. It is an environmental problem that has been brought about by a society that is dominated by a desire for economic growth regardless of the consequences. The eel is a symbol of a sound eco system’.
SEG Leadership Team

“In 2020 SEG’s Eel Sustainability Claims, PPP - People Profit Planet - will mature”

‘Triple Bottom Line’ 2002 John Elkington
Our Theory of Change
Developed at Potsdam in 2016

SEG as the Leadership Alliance

Healthy Aquatic Ecosystems

Responsible and Sustainable Eel Sector

Healthy wild eel populations supporting sustainable use for the benefit of All

SCIENCE led recovery Programs
Showing and communicating Sustainability Impacts across the three themes (direct & indirect)

**ECONOMIC**
Profit
- High Level max 3
- Underpin the High Level
- KPI’s

**ENIRONMENTAL**
Planet
- High Level max 3
- Underpin the High Level
- KPI’s

**SOCIAL**
People
- High Level max 3
- Underpin the High Level
- KPI’s

High Level metrics are chosen for impact and are widely communicated
Positive Evaluation - the EU Regulation and focusing on better implementation - SEG played a full part

The Glass Eel index is used as the proxy measure for overall eel stock – the movement in the index is the key metric to indicate change. The stock has stopped decreasing since 2011

Decline in Glass Eel Fishing handling Mortality by up to 40%

The number of Glass eels restocked annually has reached up to 50 million

Growing adoption and Impact of SEG Standard with now 42% of legal catch as SEG Certified

Progress with Counter Eel Trafficking – the volume of illegal trade has been reduced by at least 50%

Making Eel an Environmental Issue and encouraging the E NGOs and agencies to collaborate
Journey to ISEAL Code Compliance. SEG is an ISEAL Community Member (Aug 2019)
“Eel Regulation is Fit for Purpose”

The recent evaluation of Regulation 1100/2007 found that the regulation is fit for purpose; however, more efforts are needed to ensure that Member States implement it appropriately, and to ensure in particular a greater focus on non-fisheries related measures to help the stock recover. The Commission is assessing the most suitable way forward to address the findings of the evaluation. As underlined in the President of the Commission’s mission letter to the Commissioner for Environment, Oceans and Fisheries, priority is given to the full implementation of the relevant EU policies in line with the mandate of the current Commission.

14 Sept 2020

‘For protection and sustainable use’

Retaining the EU Regulation and focusing on better implementation - SEG played a full part
The EU Eel Regulation 2007:
the essential enabling framework

Next steps – better implementation

- Focus on non-fisheries factors
- Continue addressing fisheries impacts
- Make use of good practices and projects
- Reinforce control and enforcement
- Strengthen transboundary cooperation
- Improve connectivity RBMPs and EMPS
- Increase EU funds uptake
- Improve efficiency of reporting
- Consider revising EMPS
### IMPACT Question | Response
--- | ---
**Is the SEG Standard producing the desired and intended sustainability outcome?** | The Eel Regulation is set at a very high level and accountability is via 3 yearly reporting by individual member states. Implementation and coordination are variable and inconsistent. The SEG Standard is aligned to the Regulation and operates laterally across Member States (+ UK & Morocco) and the supply chain. It sets specific medium and low level metrics. The Standard acts to stimulate the eel sector to take the lead in a stewardship role supporting and influencing Eel Management Plans.

**What unintended effects both positive and negative from the intervention?** | The Standard was not developed to defend the Eel Regulation however its adoption by so many commercial players has helped convince the Commission and the EU Parliament’s PECH Committee of the merit in retaining a sector working responsibly and implementing the Regulation. The standard is directly linked to retaining the Eel Regulation.

**What is the possible attribution to the observed effect (using this methodology)?** | SEG Leaders were and are able to demonstrate the sector’s contribution to eel recovery. The attribution is significant, because without the Standard the Eel Fisheries may well have been closed in more countries and the cost of the Regulation deemed not worthwhile and disproportionate. SEG leaders across Europe and North Africa continue to promote the Regulation and the eel sector through its Stewardship role is its prime champion.

**What factors have influenced, both internal to the SEG Standard and external?** | When the SEG standard was conceived the scale of glass eel trafficking to Asia was unknown but assessed as smaller than the legal use within Europe. Developing and implementing the SEG Standard revealed the enormity of the crime (3 x the legal European Market) and served to stimulate and accelerate action.
The Glass Eel index is used as the proxy measure for overall eel stock – the movement in the index is the key metric to indicate change. The stock has stopped decreasing since 2011.

"Recruitment stopped decreasing in 2011". ICES WGEEL 2020. That is 2 years after the implementation of the Eel Regulation.
### IMPACT Question

<table>
<thead>
<tr>
<th>IMPACT Question</th>
<th>Response</th>
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<tbody>
<tr>
<td>Is the SEG Standard producing the desired and <em>intended</em> sustainability outcome?</td>
<td>The key indicator is the ‘elsewhere’ series of measurements accounting for about 90% of the annual glass eel recruitment stock of about 1.3 billion which has been rising for 10 years above its 2011 nadir base line. The fishery and eel sector is a major contributor to mortality and also to restocking (the movement of glass eel from where they are in surplus to places often other countries where natural migration is failing). So the sector has a major impact on the outcome. The yellow eel index for the next life stage in the lifecycle shows a more prolonged decline that has also levelled off but a little later. As a lag indicator this is perhaps unsurprising. The time delay is some 10 to 15 years to Silver Eel.</td>
</tr>
<tr>
<td>What <em>unintended</em> effects both positive and negative from the intervention?</td>
<td>The Commission has moved the emphasis for eel protection away from the fishery towards the other environmental factors and is calling upon Member States for more action to reduce these non fisheries impacts saying the fishery has now delivered a 50% reduction.</td>
</tr>
<tr>
<td>What is the possible <em>attribution</em> to the observed effect (using this methodology)?</td>
<td>Attribution is difficult as eel mortality is caused by a mix of factors and fishing is estimated to have less impact than the environmental factors of extensive water engineering (the one million+ barriers to migration, the unscreened water intakes to turbine blades and the loss of wetland habitat). So the reduction in fishery mortality is key to attribution.</td>
</tr>
<tr>
<td>What <em>factors</em> have influenced, both internal to the SEG Standard and external?</td>
<td>The reluctance of some fishermen to work to SEG standard as it means abstaining from trafficking where greatest profit can be made. The external counter influence has been the enforcement agencies growing proficiency and determination to stop illegal trade. The responsible legal traders of glass eels want to know and be able to trace their purchase to legal players only; the SEG Standard provides that assurance.</td>
</tr>
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</table>
Decline in Glass Eel Fishing handling Mortality by up to 40%
### ISEAL IMPACT Question | SEG Response
--- | ---
**Is the SEG Standard producing the desired and *intended* sustainability outcome?** | The fishery is very dispersed across Europe with the greatest concentration in the Bay of Biscay, especially western France. There is clear evidence of a reduction in the un-intended mortality in capture and through out the supply chain. The Vilaine fishery in France is used for evidence. One difficulty is the lack of quality information of mortality prior to the introduction of the SEG Standard. Here on the Vilaine some 40% less fish need to be caught for the same level of survival.

**What *unintended* effects both positive and negative from the intervention?** | The unintended effects include a 10% premium payment for fish caught that meet the SEG Standard in France. Also the number of fishermen needed to catch for a legal and controlled market of some 50 tons is some 300 to 400 where as 10 years ago 1200 fishermen were employed and the catch volume, including the legal market, was estimated to have been 200 tons plus.

**What is the possible *attribution* to the observed effect (using this methodology)?** | Very high attribution and cause and effect is strongly linked - the SEG Standard is the motivator to change towards a new vision of sustainability and recovery. The SEG standard helped with slowing boat speeds, the introduction of the sensitive nets and the focus on reducing fishery mortality through monitoring and measurement.

**What *factors* have influenced, both internal to the SEG Standard and external?** | Local leaders have emerged to champion sustainability and take ownership for the stewardship role of the sector. Without these leaders the SEG standard could never have ‘taken off’. Similarly without the national policies triggered from the Eel Regulation the national changes may not have occurred.

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Decline in Glass Eel Fishing Mortality by up to 40%
Restocking
Rewilding

Up to 50 Million a year
On average, only 65% of planned levels (aggregated national restocking plan) were achieved between 2015 - 2020.

The number of eels restocked annually has reached up to 50 million.
### IMPACT Question

<table>
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<tbody>
<tr>
<td>Is the SEG Standard producing the desired and intended sustainability outcome?</td>
<td>This important metric illustrates the multiple factors at play and especially the trafficking factor where seeking immediate profit has been the driving factor. The problem is aggravated by restocking coming late in the season so if the fish have already been caught there is not enough left for the restock market and the prices are very high. The positive impact is eagerly anticipated. There is unspent money for restocking in EMFF. The standard also has a positive effect on survival after release.</td>
</tr>
<tr>
<td>What unintended effects both positive and negative from the intervention?</td>
<td>Restocking is a conservation measure within the Eel Regulation. Its effectiveness as a measure is difficult to prove. Currently there is no way of determining which eels successfully return to the Sargasso Sea to breed. Science can’t prove the originating country or if restocked or wild. Restocked eels are known to continue their life cycle and complete at least the first half of their ocean return migration.</td>
</tr>
<tr>
<td>What is the possible attribution to the observed effect (using this methodology)?</td>
<td>Triggered major research into eel life cycle, survival and migration. This research has shown 90% of glass eel in Swedish fresh waters are from restocked sources; Germany is an example of a country where restocking is central to fulfilling their Eel Management Plan. Also shows near identical return migration behaviour through satellite tracking.</td>
</tr>
<tr>
<td>What factors have influenced, both internal to the SEG Standard and external?</td>
<td>The key factor is availability of glass eel at the end of season which is driven by the number miss-used in trafficking (now declining but remaining a huge threat)</td>
</tr>
</tbody>
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Growing Impact of SEG Standard in building fully traceable supply chain in accordance with best-practice-guidelines

France 146 Fishermen
UK all 300 part time

7.1 tons of glass eel 2018
33 million glass eels in 2019
33 million glass eels in 2020

50% of the major
direct

25 farms certified
20 in NL, 3 in GE, 1 in S, DK, and F.

All the big farms

PPP 5 Direct

21 Processors / Smokehouses Certified in NL and Germany

Most of the major

Growing Impact of SEG Standard in building fully traceable supply chain in accordance with best-practice-guidelines

France 146 Fishermen
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21 Processors / Smokehouses Certified in NL and Germany

Most of the major
SEG fish evolution within the plausible, European market over the period 2015/2016 to 2019/2020

Data about the plausible, European glass eels market were collected by means the annual SEG glass eel market surveys. Data presented are SEG’s best estimates, available until November 2020.
**Growing adoption and Impact of SEG Standard with 42% of legal catch now as SEG Certified**

<table>
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<tr>
<th>ISEAL IMPACT Question</th>
<th>SEG Response</th>
</tr>
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<tbody>
<tr>
<td><strong>Is the SEG Standard producing the desired and intended sustainability outcome?</strong></td>
<td>Over half the eels legally traded in 2020 are now through the SEG certified supply chain. 80 more fishermen, another 30% of the total French fishermen are seeking to be certified in the 2020-21 season. However the standard so far has had near zero impact on yellow and silver eel fishermen. SEG will need to address and target these areas from 2022 and when resources allow.</td>
</tr>
<tr>
<td><strong>What unintended effects both positive and negative from the intervention?</strong></td>
<td>Sales of eel through the major supermarkets of northern Europe ceased under key NGO pressure to stop all eating of eel. On the one hand this triggered many business closures and fishermen losing their jobs, however it was also a stimulus to reinvent the sector around the SEG Standard.</td>
</tr>
<tr>
<td><strong>What is the possible attribution to the observed effect (using this methodology)?</strong></td>
<td>Attribution is direct and strong. On balance this has been a positive force however continued opposition to the sustainable approach is now increasingly seen as counter productive to the specie’s recovery and achieving the desired long term sustainable outcome.</td>
</tr>
<tr>
<td><strong>What factors have influenced, both internal to the SEG Standard and external?</strong></td>
<td>Concepts for sustainability like Brundtland and role model examples like MSC Blue Label have all been external positive influences. Internal has been the SEG Leadership team with their shared sustainable vision and professional leadership</td>
</tr>
</tbody>
</table>
Role of Civil Society in mobilising enforcement action
Eel Trafficking reducing the 23% IUU

70% Free immigrants

- Illegally exported (30 t)
- Aquaculture, EU (18 t)
- Illegally exported (70 t)
- Restocking, EU (13 t)
- Free immigrants (309 t)
Reported Arrests

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>48</td>
</tr>
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<td>2017-18</td>
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<tr>
<td>2018-19</td>
<td>154</td>
</tr>
<tr>
<td>2019-20</td>
<td>108</td>
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</table>

Reported Seizures

<table>
<thead>
<tr>
<th>Year</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>2016-17</td>
<td>16 million</td>
</tr>
<tr>
<td>2017-18</td>
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</tr>
<tr>
<td>2018-19</td>
<td>15 million</td>
</tr>
<tr>
<td>2019-20</td>
<td>10 million</td>
</tr>
</tbody>
</table>

Recent ASIA Press Reports

Suggest 85% Reduction ??

**IMPACT Question**  |  **Response**  
--- | ---  
Is the SEG Standard producing the desired and **intended** sustainability outcome? | The SEG Standard is a statement of Eel Competence and know how. The knowledge and process created acts as a building block for control both within an organisation and across the international supply chain. The traceability requirements of the SEG Standard closely align to the needs of the counter trafficking agenda. Losing SEG certification for a fisherman or trader is a growing deterrent. Increasingly legal trade requires SEG certification. A clean record is required for SEG certification and effective counter-trafficking is reducing the illegal market.  
What **unintended** effects both positive and negative from the intervention? | Dividing the market in two whereby those with certificate have to be 100% legal and only trade in SEG certified product. There are two more years of transition to run before this rule is fully implemented. Regrettably SEG has been briefed against as a monopoly operation as though SEG was a trader and this has been used to slow take up of the standard. As the eel sector matures this negative message is in decline.  
What is the possible **attribution** to the observed effect (using this methodology)? | Very high attribution. For successful international coordinated action between customs and police forces competence, expertise and confidence needs to be built up within the established bodies like EUROPOL, INTERPOL, World Customs Organisation and OLAF (European Anti Fraud). SEG and the SEG Standard by providing Eel expertise and acting as a conduit of knowledge, enthusiasm and energy is a key stimulus for effective action.  
What factors have influenced, both internal to the SEG Standard and external? | The Eel Regulation as the platform for policy has been very significant. However change has needed leadership and many people have stepped up to deliver. The annual successes in combating the crime is having a self reinforcing effect and plans for 2021 are already advanced.  

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**Progress with Counter Eel Trafficking** – the volume of illegal trade has been reduced by at least 50%

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**PPP 6 Direct**
Making Eel an Issue and promoting collaboration

Working with others
Increasing number of views and visitors to the SEG Web site
(reading taken 30\textsuperscript{th} November 2020)
## Making Eel an Issue and encouraging the E NGOs and Agencies to collaborate

<table>
<thead>
<tr>
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<tr>
<td>Is the SEG Standard producing the desired and intended sustainability outcome?</td>
<td>It is ‘only eel’ has been a common and widespread feeling - now ENGOs are taking up the cause for eel and other fish, especially the work to unblock migration pathways and restore wetlands. Key NGOs as partners have worked in UK from the start of SEG and, with the support of Wetlands International European Association, there are now many more NGO joining. This intended effect is measured through the growing number of views to SEG web (40,000). Without a credible Standard the sustainable and stewardship approaches would have had weak foundations and lacked credibility.</td>
</tr>
<tr>
<td>What unintended effects both positive and negative from the intervention?</td>
<td>Led to a polarisation within the NGOs between supporters and detractors. This issue is still being played out. The positive is eel as a significant conservation issue has been raised from the hidden and the past negatives of ‘it’s only eel’. The lasting negative is the bitterness of the ideology within some of the detractors who passionately believe eel should not be fished or eaten. The Commission wish to use Water Framework Directive and the Eel Regulation together in a combined form to set legally binding targets Recently illustrated 150 NGOs coming together to form a Water Stewardship Network..</td>
</tr>
<tr>
<td>What is the possible attribution to the observed effect (using this methodology)?</td>
<td>Yes very high direct attribution for eel and indirect for the general ENGO focus on river and wetland restoration . SEG’s 10th Anniversary conference attracted 200 delegates and leading speakers from science, conservation and commercial interests as well as international policy and enforcement from more than 20 countries.</td>
</tr>
<tr>
<td>What factors have influenced, both internal to the SEG Standard and external?</td>
<td>SEG leadership and determination to build an eel recovery agenda has been the central factor. The leadership has been able to work with many important partners because the issues were and are both important, historically hidden and with high impact. Most noticeably have been the sheer scale of the trafficking crime and the shock of turbine mortality.</td>
</tr>
</tbody>
</table>
“Bending the Curve”

- Tackling the root causes of unsustainable practices
- Learning from evidence and doing
- Delivering real and lasting change

Demonstrating SEG impacts, direct and indirect, and linked to PPP
SEG Outcomes & Impacts

- **Planet**
  - Reduction in trafficking & catch mortality
  - Restocking

- **Profit**
  - SEG Std Eel sales

- **People**
  - + Eel Stock

Additional text:
- IUU catch: 16% (Free immigrants)
- Aquaculture, EU: 30% (Illegally exported, EU)
- Restocking, EU: 10% (Illegally exported, EU)
- Free Immigrants: 20% (Illegally exported, EU)

Images include: Restocking Rewilding, Eel sales, Growing Impact of SEG Standard in building fully traceable supply chain, and Sustainable Eel Group logo.
Standard Setting, Communicating – SEG Leading the sustainable journey