

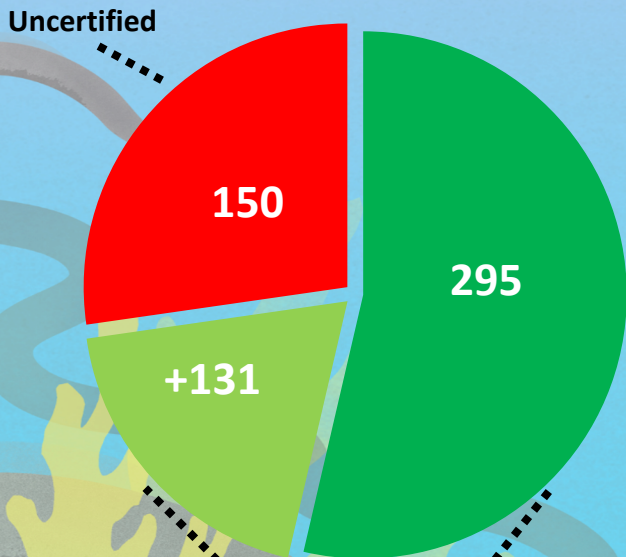
# Bending the Curve for the European Eel

**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**

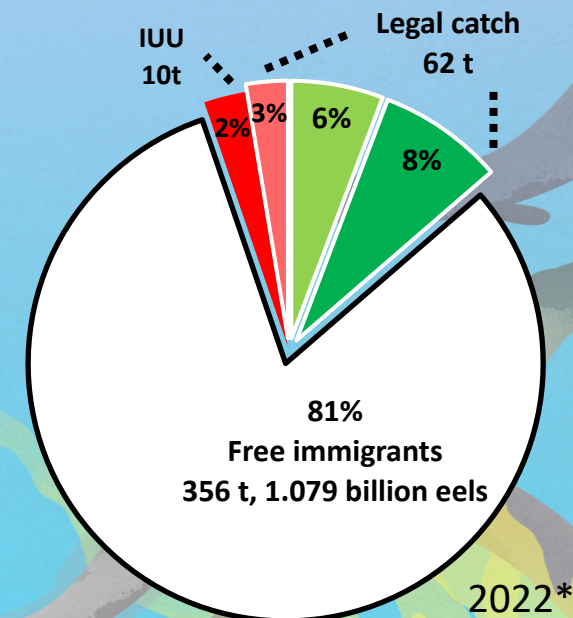
**Andrew Kerr  
Chairman**

Updated April 2022

**Sustainable  
*Eel* Group**



**Total 418 French Fishermen SEG Certified**



**2022\***

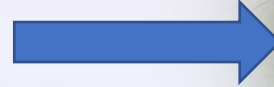
**\*WARNING, data still under verification**



3/4 of  
French  
Fishermen  
certified

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

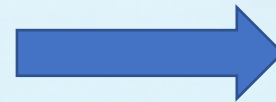


## Growing Impact of SEG Standard in building fully traceable supply chain



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

75% of  
farms in  
Europe



Sustain  
Eel

75%  
certified  
in NL &  
DE



17 Retailers / Smokehouses Certified  
in NL and Germany

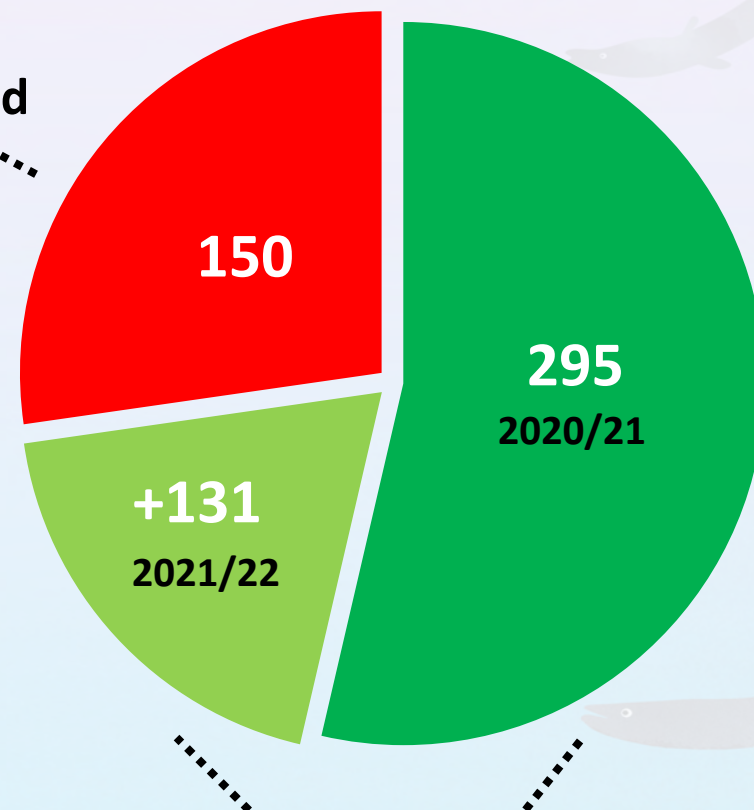


## Number of French Glass Eel Fishermen certified 2022

73% of  
French Glass  
Eel Fishermen  
certified



Uncertified

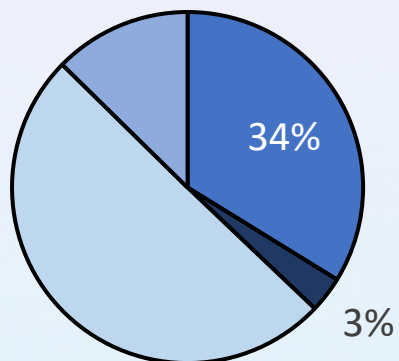


**Total 418 SEG Certified**

**Growing Impact of SEG Standard in building fully traceable supply chain**

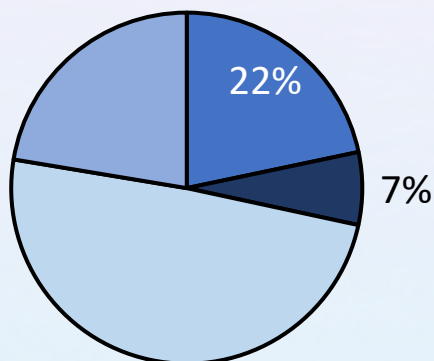
# SEG fish evolution within the plausible European market 2022

2015/2016



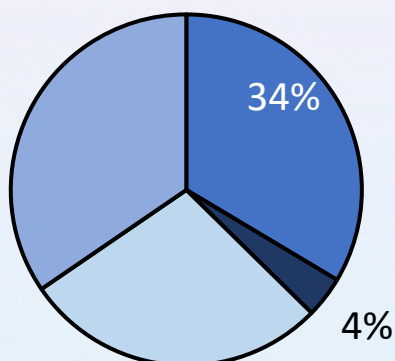
13M SEG fish

2016/2017



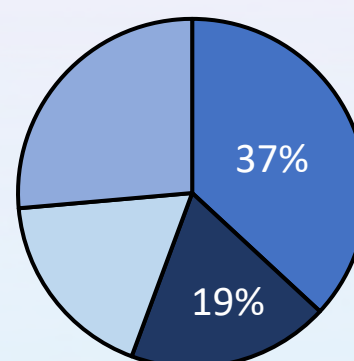
19M SEG fish

2017/2018



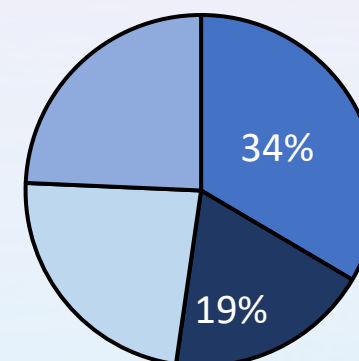
21M SEG fish

2018/2019



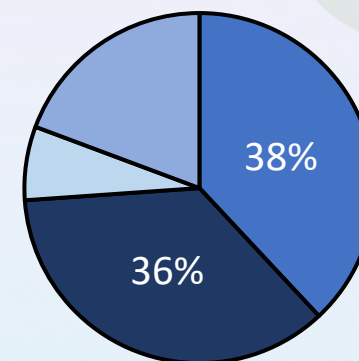
32M SEG fish

2019/2020



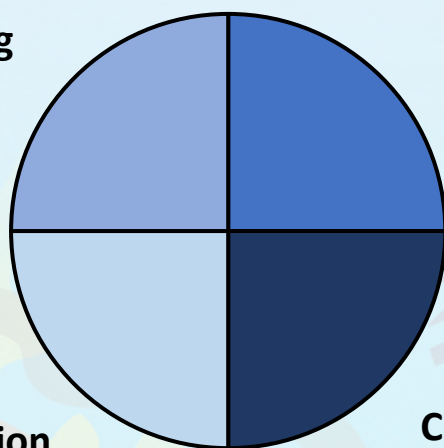
33M SEG fish

2020/2021



64M SEG fish

Restocking



Consumption

Restocking -  
SEG

Consumption-  
SEG

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.

Sustainable  
Eel Group



# Trafficking Updates 2022

## SEPRONA / EUROPOL

18<sup>th</sup> April 2018

MADRID

100 tons / 300 + million Glass Eels a year



Trafficking  
expected to  
grow in  
2022

## Reported Seizures

16 million	2016 - 17
17 million	2017 - 18
15 million	2018 - 19
10 million	2019 - 20
1.38 million	2020 - 21



Eel trafficking  
influenced by  
the COVID-19  
pandemic

## Reported Arrests

48	2016 - 17
98	2017 - 18
154	2018 - 19
108	2019 - 20
52	2020 - 21



85%  
Reduction  
since 2016\*

## Operation Lake V

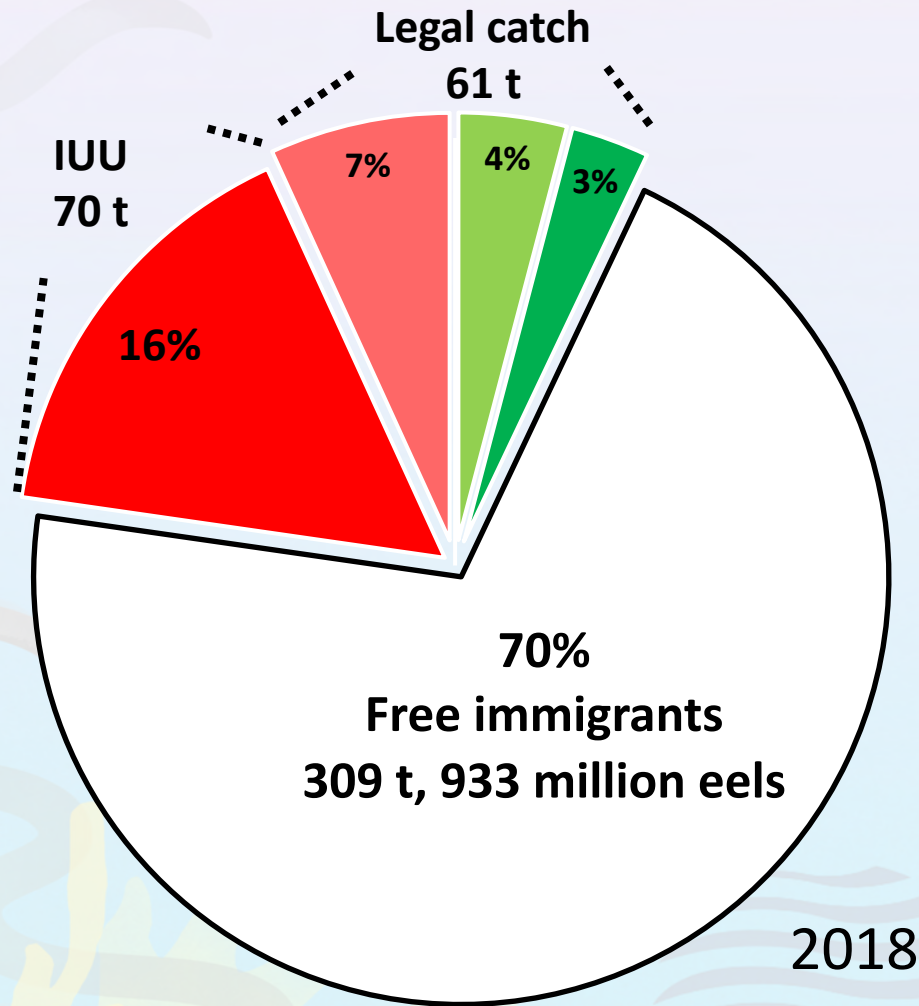
Update 19 Nov 2021

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

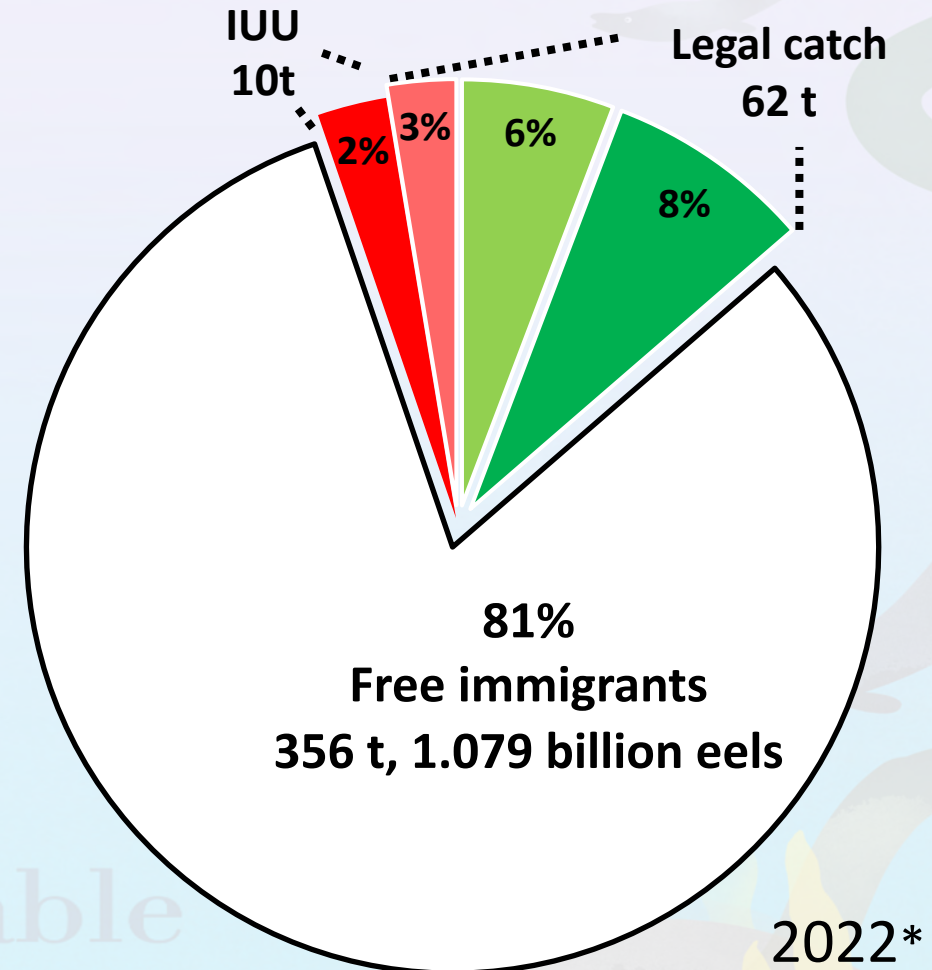
<https://www.europol.europa.eu/media-press/newsroom/news/eels-shipped-air-found-in-operation-lake-v>

# Exploitation of total glass eel recruitment

(440 tonnes per annum or 1.33 billion fish)



Eel Trafficking reduced  
approx. 80%



■ Illegally exported  
■ Illegally exported

■ Aquaculture, EU  
■ Restocking, EU  
■ Free immigrants

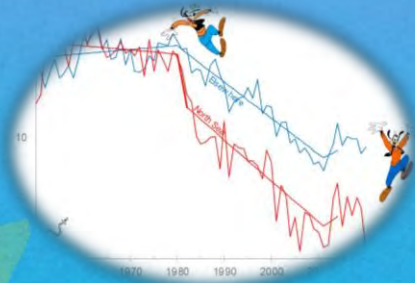
Sustainable  
Eel Group

\*SEG estimates prior to survey



# Bending the Curve for the European Eel

**Demonstrating the impacts of the Sustainable Eel Group through  
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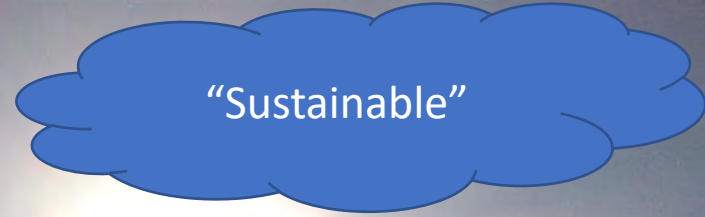
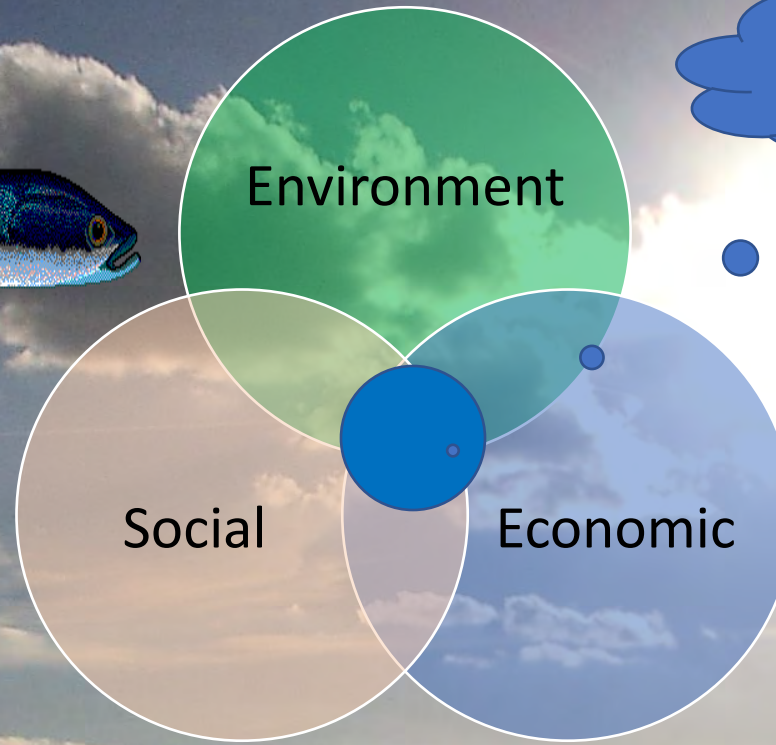


**Andrew Kerr  
Chairman  
December 2020 Slides**



**Sustainable  
*Eel* Group**





From IFM Bridgwater  
2009 presentation

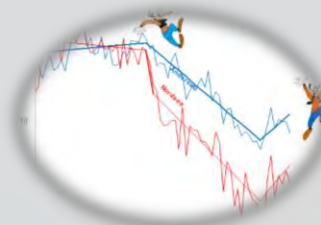
Brundtland Thinking

*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



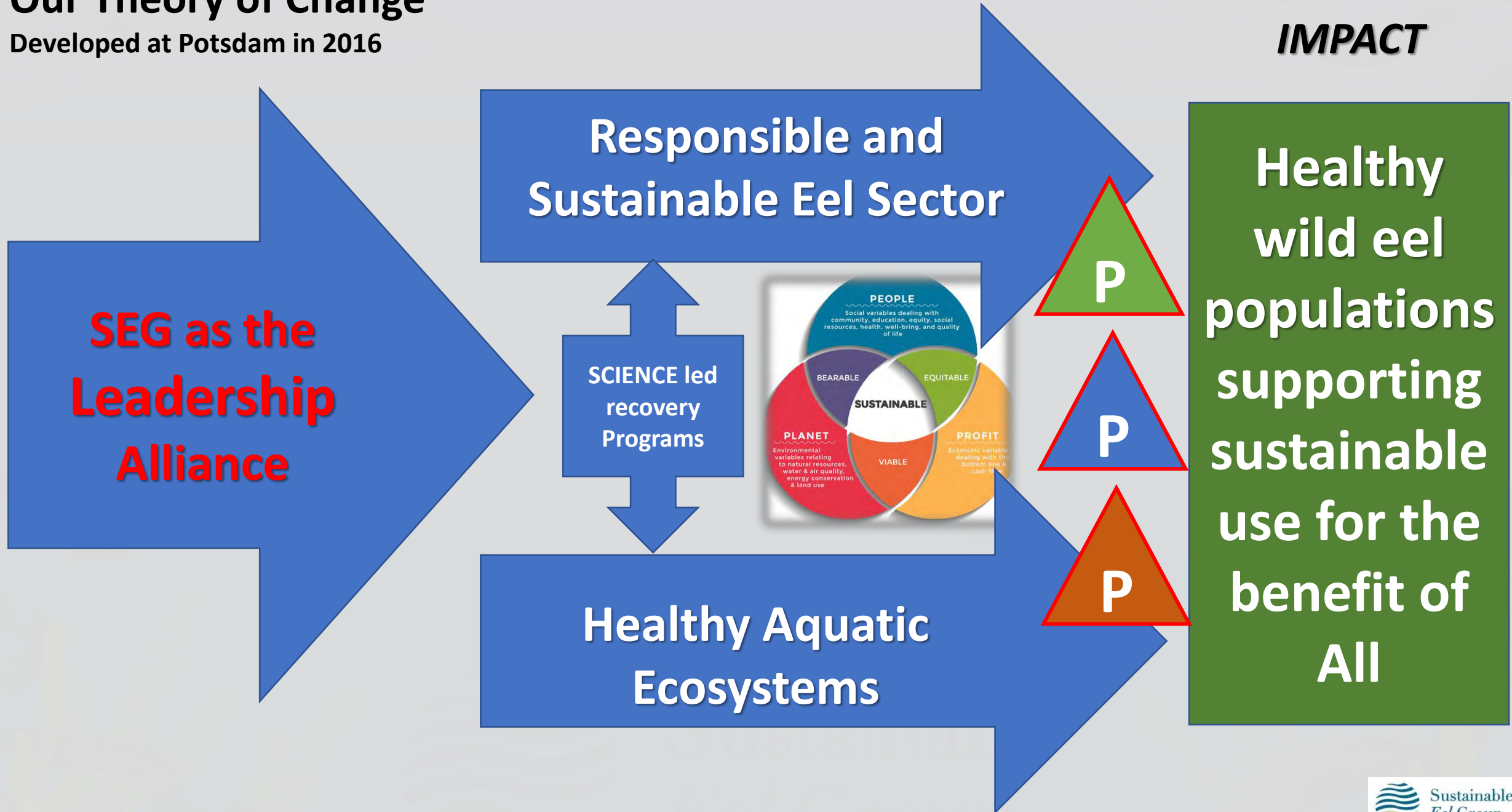
***“In 2020 SEG’s Eel Sustainability Claims,  
PPP - People Profit Planet - will mature”***



‘Triple Bottom Line’ 2002 John Elkington

# Our Theory of Change

Developed at Potsdam in 2016



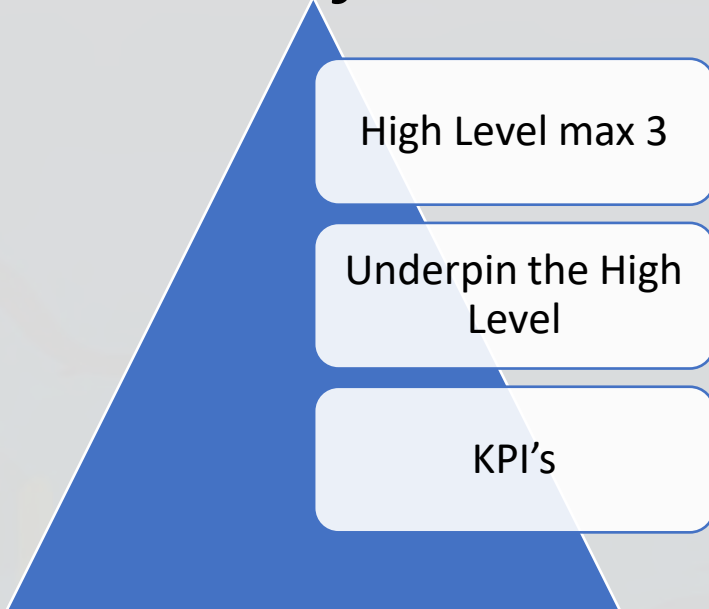




# Showing and communicating Sustainability Impacts across the three themes (direct & indirect)

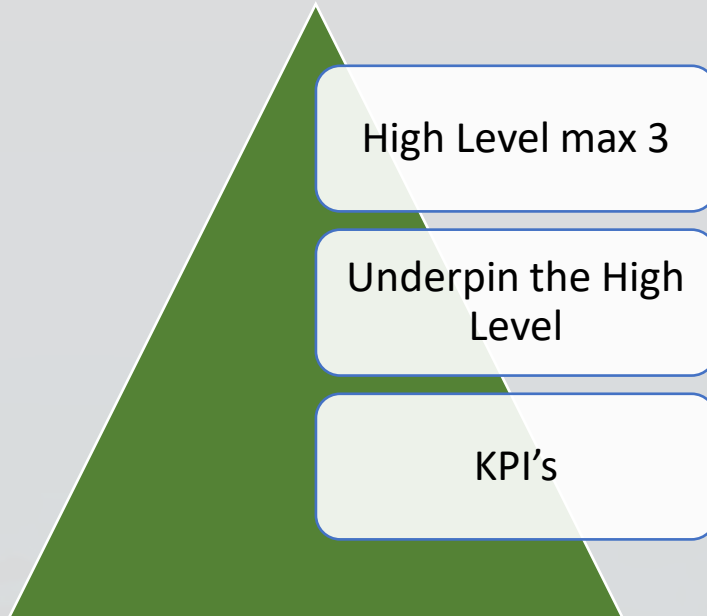
## ECONOMIC

### *Profit*



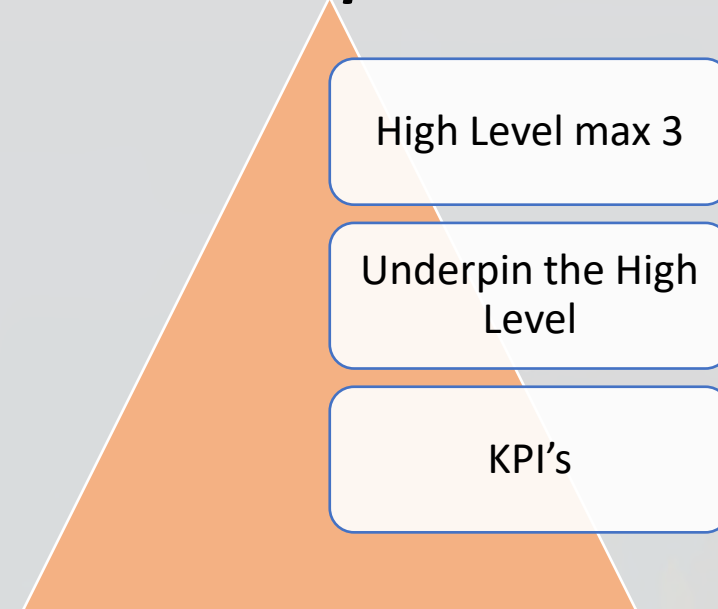
## ENVIRONMENTAL

### *Planet*



## SOCIAL

### *People*



High Level metrics are chosen for impact and are widely communicated

# SEG Sustainability Claims 2020

**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)***



**The reinvented  
sector based on  
SEG Standard**





## “Eel Regulation is Fit for Purpose”

*The recent evaluation of Regulation 1100/2007<sup>(1)</sup> 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’*



PPP 1  
Direct

**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



## Positive Evaluation - the EU Regulation and focusing on better implementation - SEG played a full part

IMPACT Question	Response
Is the SEG Standard producing the desired and <i>intended</i> 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 <i>unintended</i> 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 <i>attribution</i> to the observed effect (using this methodology)?	SEG Leaders were and are able to demonstrate the sectors 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 <i>factors</i> 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.



**PPP 1  
Direct**

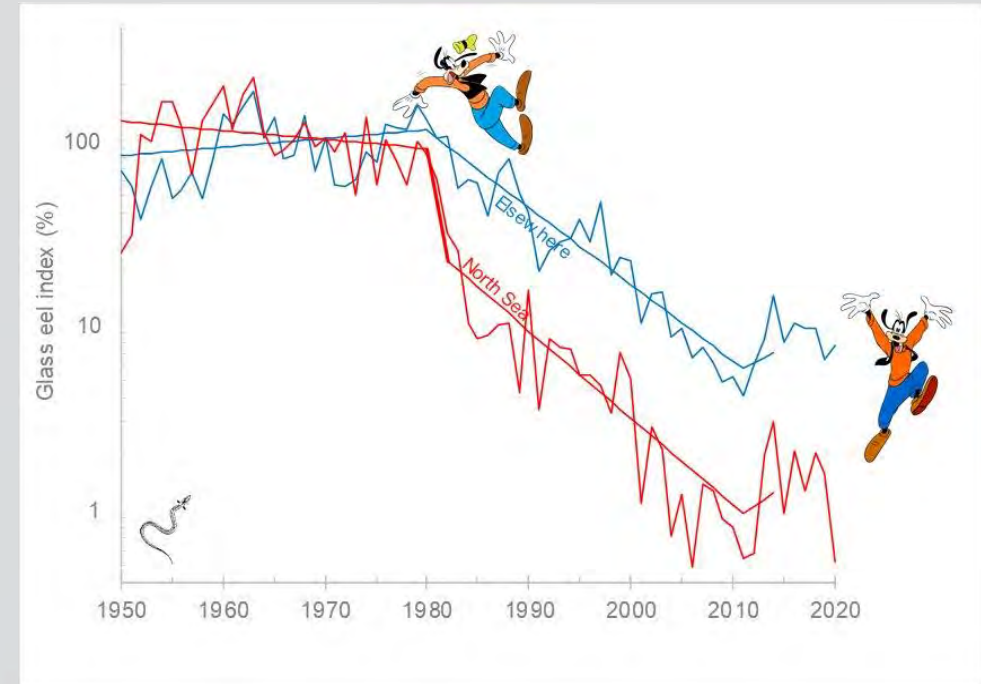
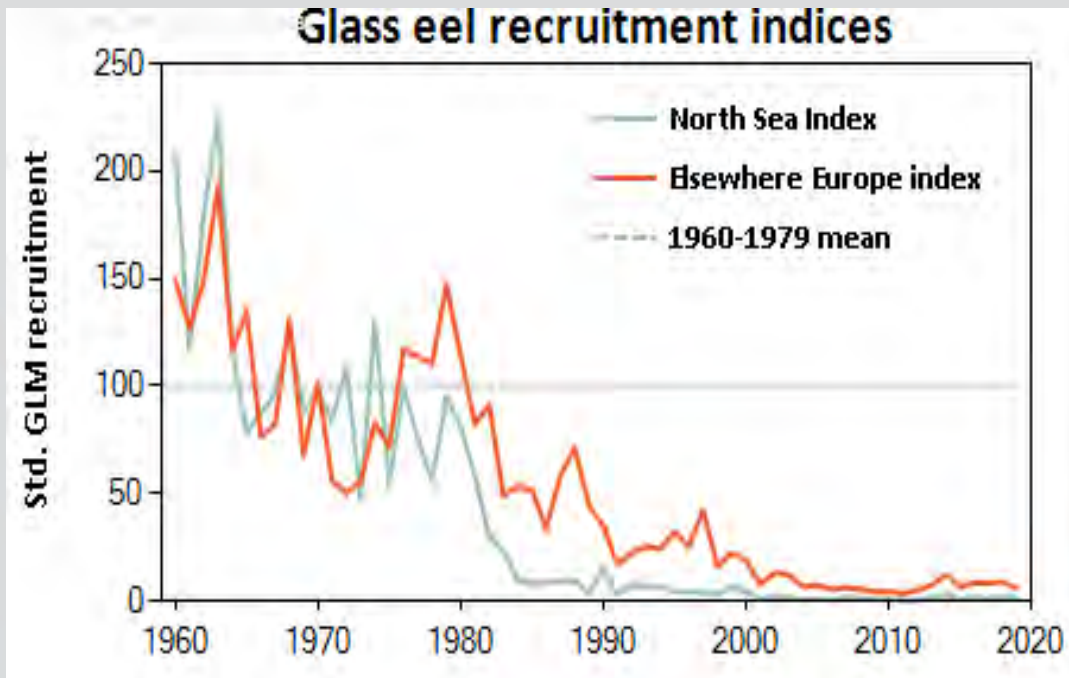


The Glass Eel index is used as the proxy measure for overall eel stock – the movement in the index is the key metric to indicate change. The stock has stopped decreasing since 2011

PPP 2  
Direct



*“Recruitment stopped decreasing in 2011”. ICES WGEEL 2020.*  
That is 2 years after the implementation of the Eel Regulation



ICES 2020 report left and right: same data on logarithmic scale

**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**



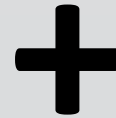
**PPP 2  
Direct  
Long term**

IMPACT Question	Response
Is the SEG Standard producing the desired and <i>intended</i> sustainability outcome?	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.
What <i>unintended</i> effects both positive and negative from the intervention?	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.
What is the possible <i>attribution</i> to the observed effect (using this methodology)?	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.
What <i>factors</i> have influenced, both internal to the SEG Standard and external?	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.



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

PPP 3  
Direct



Fishing mortality down from 42% (Briand 2007) to less than 8% (FishPass 2020) for the Villaine, Brittany for the 50 + SEG Certified fishermen

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

### PPP 3 Direct

ISEAL IMPACT Question	SEG Response
Is the SEG Standard producing the desired and <i>intended</i> 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 unintended 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 <i>unintended</i> 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 <i>attribution</i> 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 <i>factors</i> 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.





# Restocking Rewilding



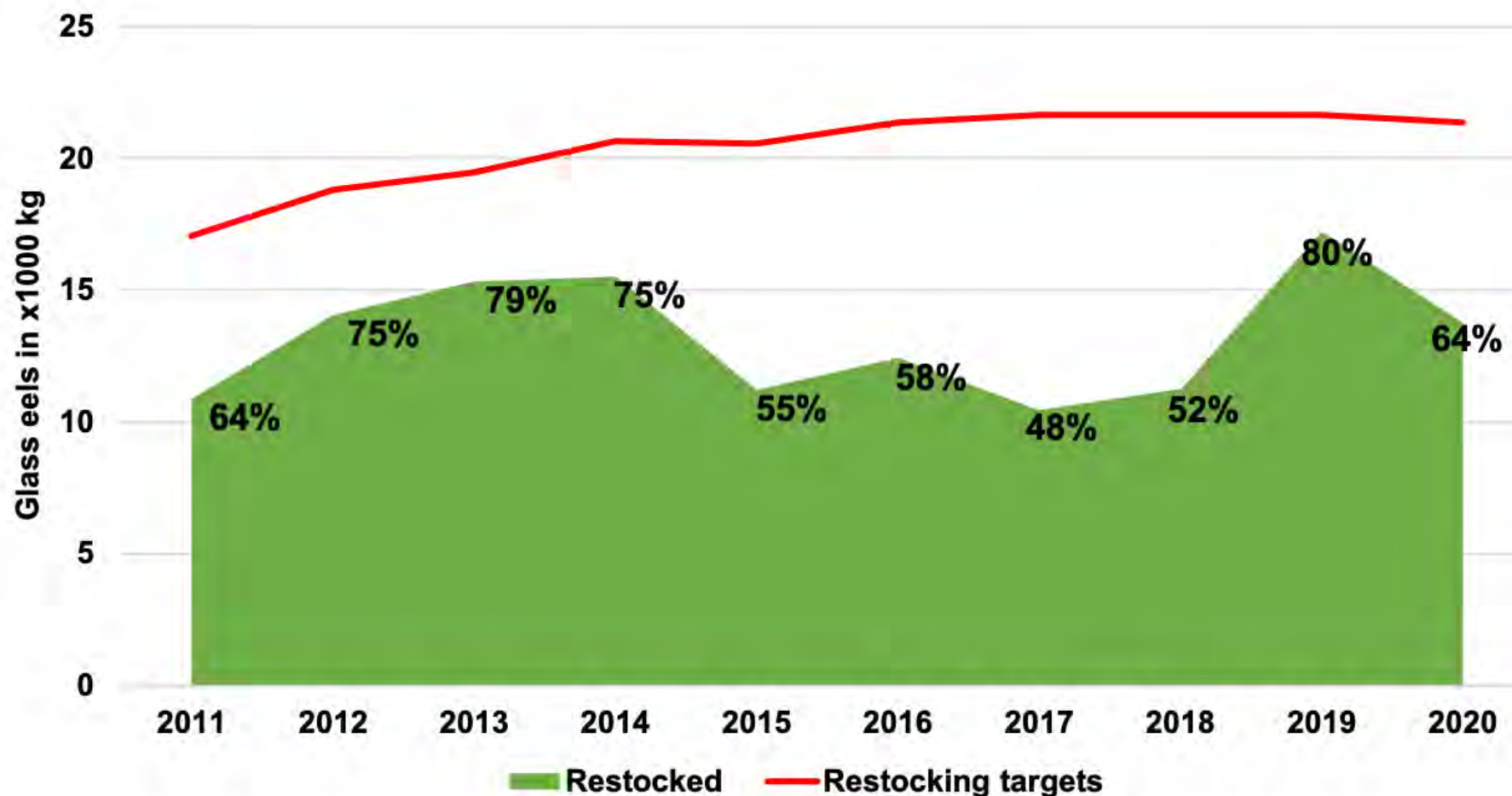
**PPP 4  
Direct**



**Up to 50 Million  
a year**

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

PPP 4  
Direct



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

### PPP 4 Direct

IMPACT Question	Response
Is the SEG Standard producing the desired and <i>intended</i> sustainability outcome?	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.
What <i>unintended</i> effects both positive and negative from the intervention?	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.
What is the possible <i>attribution</i> to the observed effect (using this methodology)?	Triggered major research into eel life cycle, survival and migration. This research has shown 90% of glass eel in Swedish fresh wates 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.
What <i>factors</i> have influenced, both internal to the SEG Standard and external?	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)



50%

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

PPP 5  
Direct



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

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

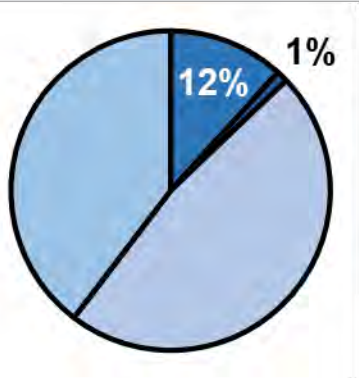
All the  
big  
farms

Most  
of the  
major

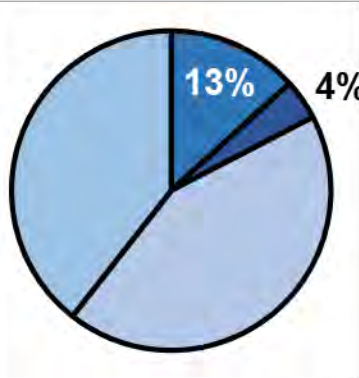
21 Processors / Smokehouses  
Certified in NL and Germany



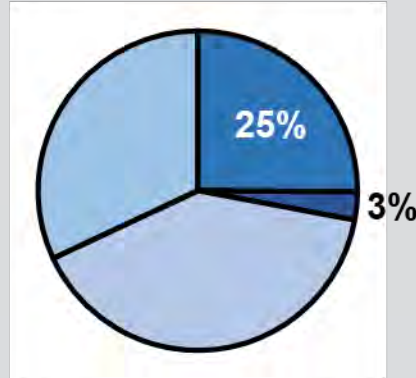
# SEG fish evolution within the plausible, European market over the period 2015/2016 to 2019/2020



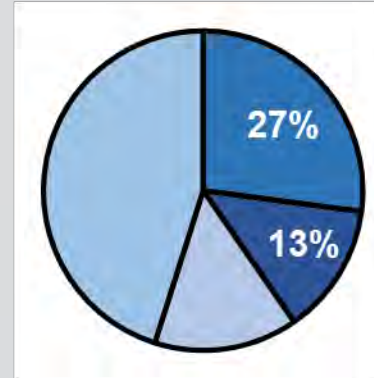
13 M SEG fish



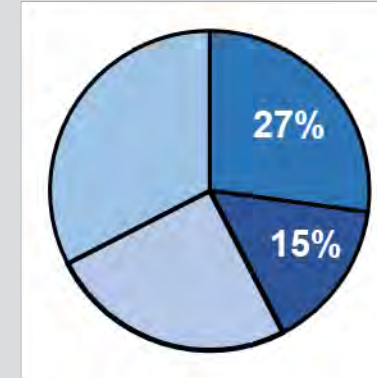
19 M SEG fish



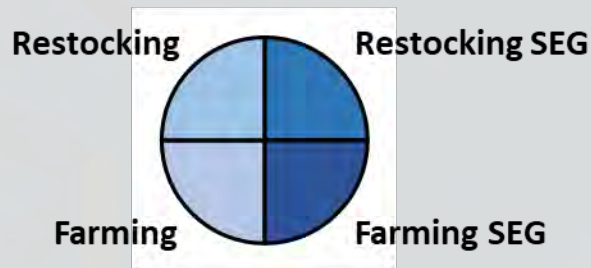
21 M SEG fish



33 M SEG fish



33 M SEG fish



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

PPP 5  
Direct



ISEAL IMPACT Question	SEG Response
Is the SEG Standard producing the desired and <i>intended</i> sustainability outcome?	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.
What <i>unintended</i> effects both positive and negative from the intervention?	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.
What is the possible <i>attribution</i> to the observed effect (using this methodology)?	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.
What <i>factors</i> have influenced, both internal to the SEG Standard and external?	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





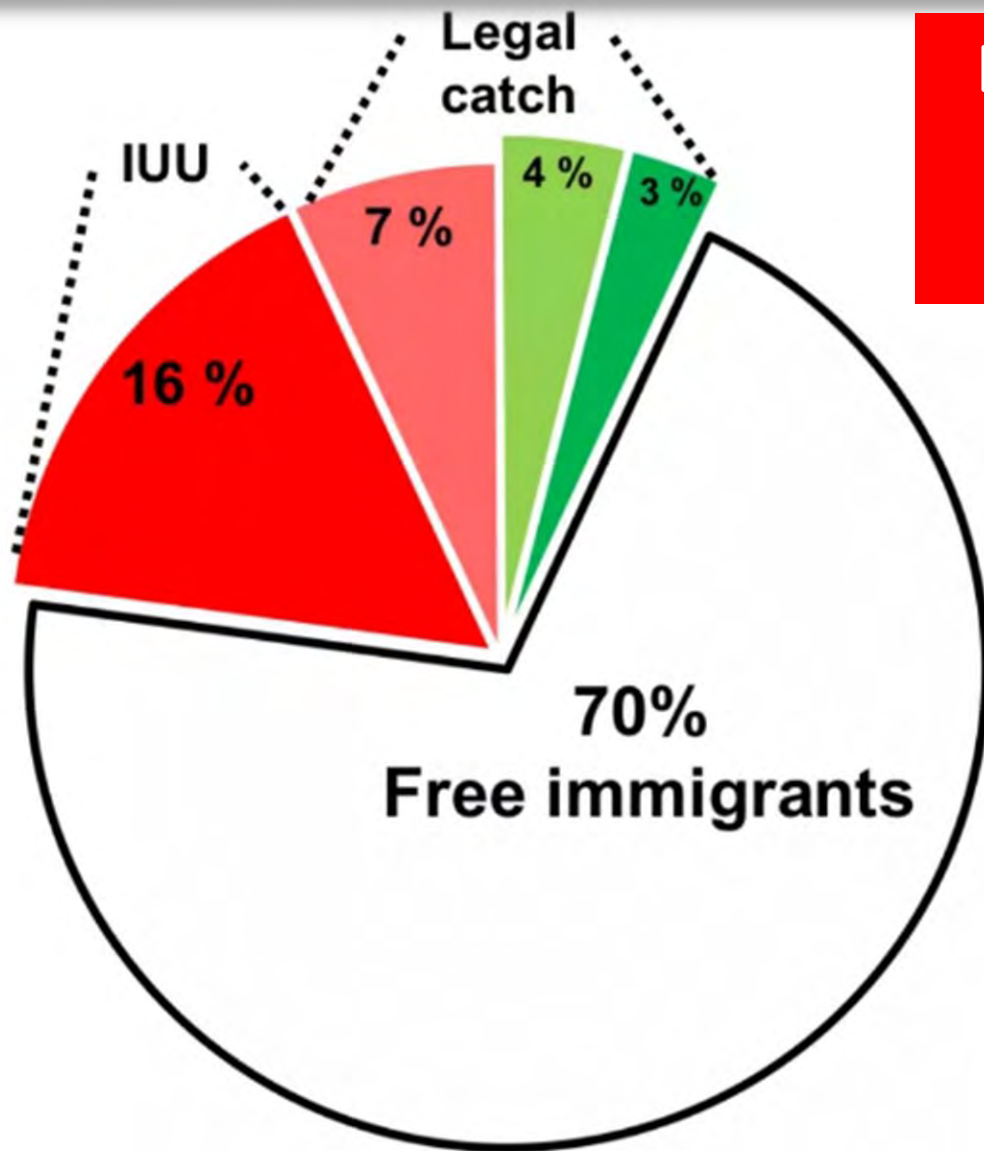
PPP 6  
Indirect



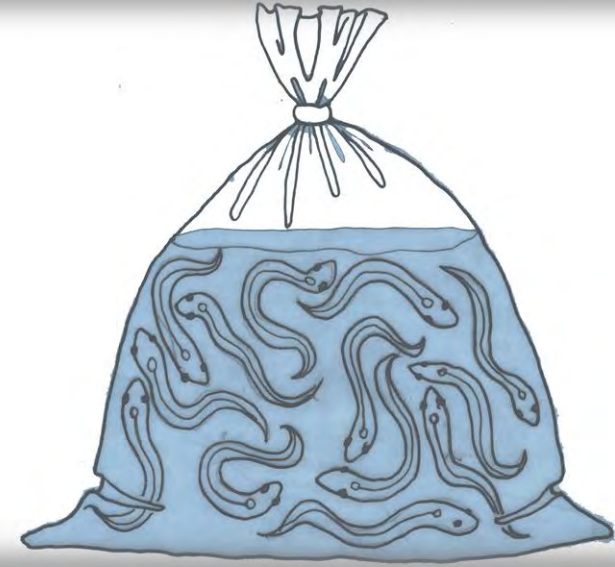
**Role of Civil Society in mobilising enforcement action**



**Eel Trafficking  
reducing the  
23% IUU**



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





# SEPRONA / EUROPOL

18<sup>th</sup> April 2018

MADRID

100 tons / 300 + million Glass Eels a year



## Reported Seizures

16 million	2016 - 17
17 million	2017 - 18
15 million	2018 - 19
10 million	2019 - 20

PPP 6  
Cont



## Reported Arrests

48	2016 - 17
98	2017 - 18
154	2018 - 19
108	2019 - 20



## Recent ASIA Press Reports

**Suggest 85% Reduction ??**

<https://www.sustainableeelgroup.org/counter-trafficking-success-is-reflected-by-crash-in-european-glass-eel-supply-into-chinese-eel-aquaculture/>

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

PPP 6  
Direct

IMPACT Question	Response
Is the SEG Standard producing the desired and <b>intended</b> 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 <b>unintended</b> 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 <b>attribution</b> 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 <b>factors</b> 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.







2013



2017



2019

PPP 7  
Indirect

**Making Eel an Issue and promoting collaboration**

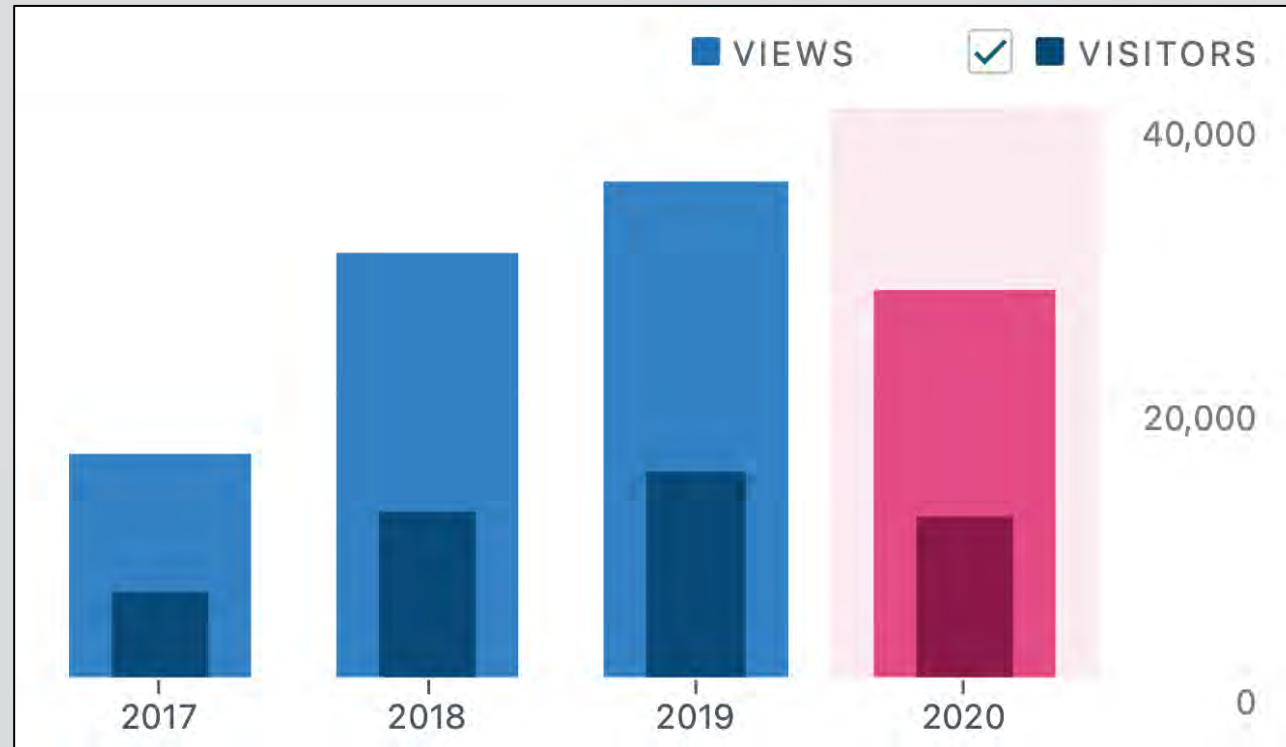


**Working with others**





**Increasing number of views and visitors to the SEG Web site**  
(reading taken 30<sup>th</sup> November 2020)





## Making Eel an Issue and encouraging the E NGOs and Agencies to collaborate

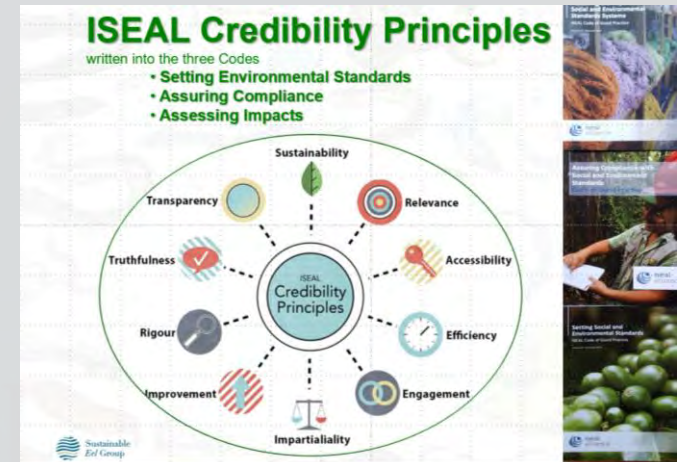
IMPACT Question	Response
Is the SEG Standard producing the desired and <i>intended</i> sustainability outcome?	It is ' <b>only eel</b> ' has been a common and widespread feeling - now ENGOs are taking up the cause for eel and other fish, especially the work to unblock migration pathways and restore wetlands. 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.
What <i>unintended</i> effects both positive and negative from the intervention?	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..
What is the possible <i>attribution</i> to the observed effect (using this methodology)?	Yes very high direct attribution for eel and indirect for the general ENGO focus on river and wetland restoration . SEG's 10 <sup>th</sup> 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.
What <i>factors</i> have influenced, both internal to the SEG Standard and external?	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.

### PPP 7 Direct and Indirect



## ***“Bending the Curve”***

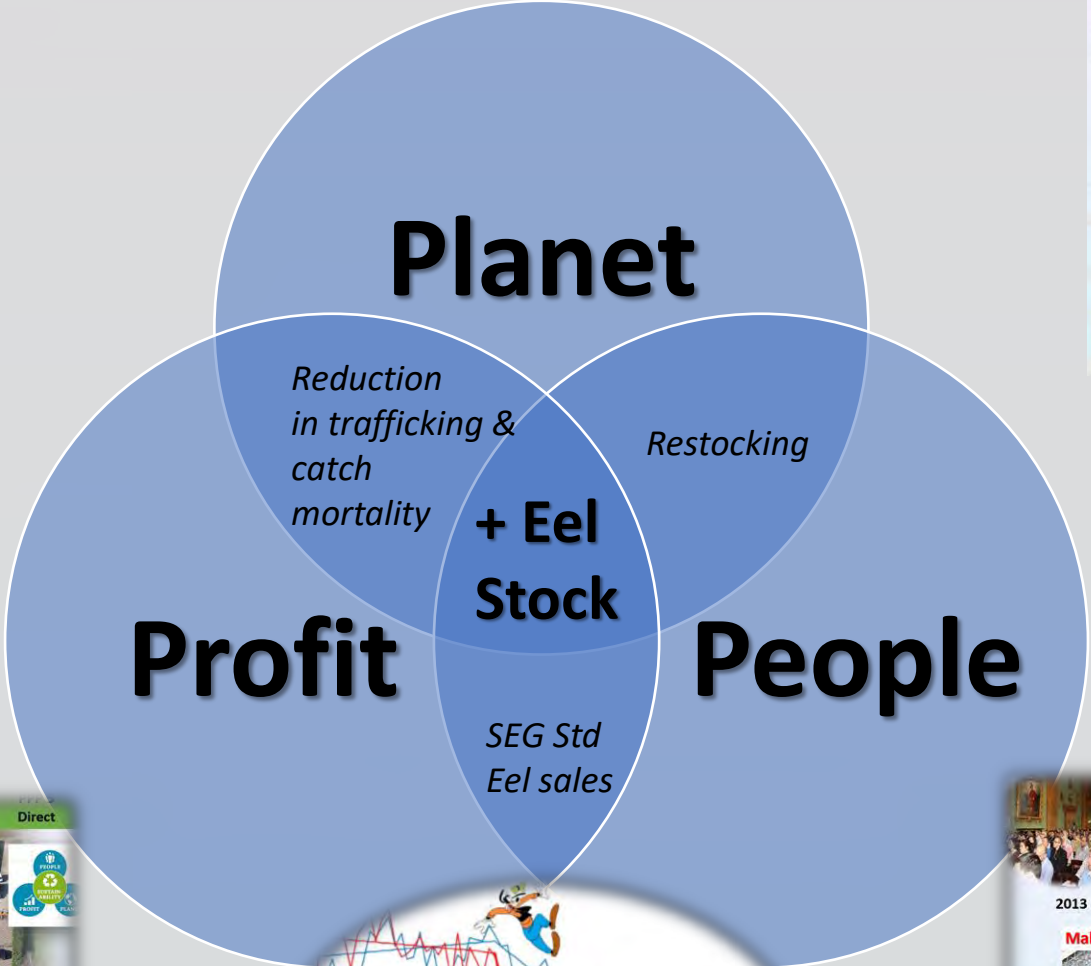
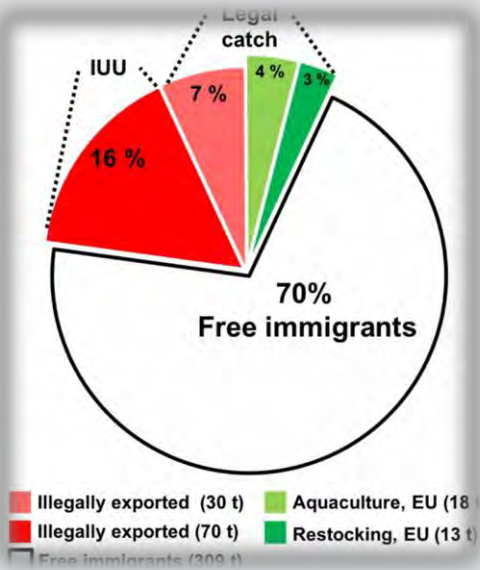
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Sustainable  
*Eel* Group



# SEG Outcomes & Impacts



50%

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

**Direct**

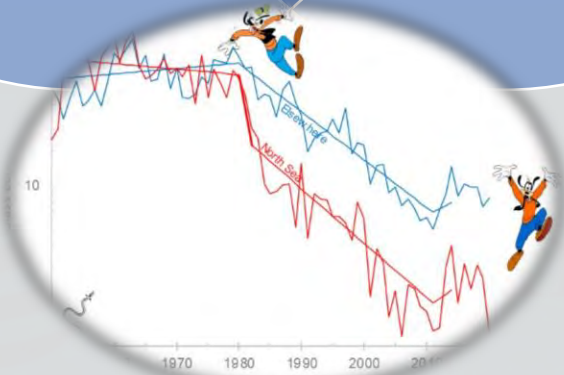
**Growing Impact of SEG Standard in building fully traceable supply chain**

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

All the big farms

Most of the major

21 Retailers / Smokehouses Certified in NL and Germany



2013 2017 2019

**Making Eel an Issue and promoting collaboration**

PPP 8 In Direct





**Standard Setting, Communicating – SEG Leading the sustainable journey**