



Newsletter

The Chairman's introduction to the first SEG Newsletter

It has been a really busy few months of building the SEG network and stimulating conservation action. September has taken me to Brussels, Amsterdam and Paris with October adding Tuscany, Bremen and Barcelona. This is of course without mentioning any travels within the UK. This burst of activity has been to support all your hard work on behalf of the eel.

This is our first newsletter and I am particularly grateful to Elisa Lorenzon, Environmental Specialist, for all the work she has done to enable this Newsletter to happen. The network of names is now 500 strong from 23 countries.

The Newsletter is not meant to be a scientific document or necessarily one that expresses the views of the SEG board rather it is meant to help link up the eel community and facilitate discussion and sharing of know how. There are no easy explanations to the eels decline nor are there any quick and easy solutions. This is going to take 1000's of actions from 10,000's of people to make the difference we are all working towards. At the recent Orbetello lagoon conference organised by Armando Piccinini and the state of Tuscany SEG/we first heard the local expression 'eel blood' to describe the enthusiasm of people who really care for the eels future. The newsletter is to link up those people who have eel blood. (I am increasingly optimistic that the lagoon will recover and that the fishery will adopt the SEG Standard. Thank you Armando and Simona).

One of SEG's key partners is DUPAN in Holland (The Sustainable Eel Fund). You will read in the article by Alex's of their work to catch record and release silver eels over the dyke in Holland, a great example of engaging with fishermen to help recover eel stocks as a short term solution in the face of enormous capital costs for reengineering gigantic pumps and dams. Less well known is DUPAN's leadership in supporting the Dutch industry's adoption of the Sustainable Eel Standard. So far 19 of 21 Smoke houses have been assessed and as this newsletter is published 11 of the 15 Dutch farms are starting their assessment. Both of these are examples of 'eel blood' searching for solutions.

Enough from me please enjoy the Newsletter and start to think about other stories you would like to share with the Network.

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Check the content of the newsletter on the next page



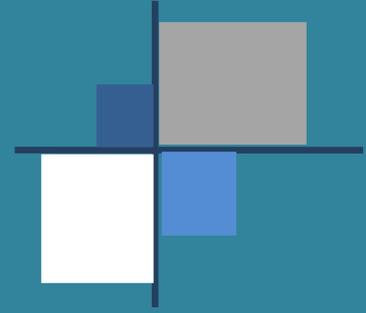


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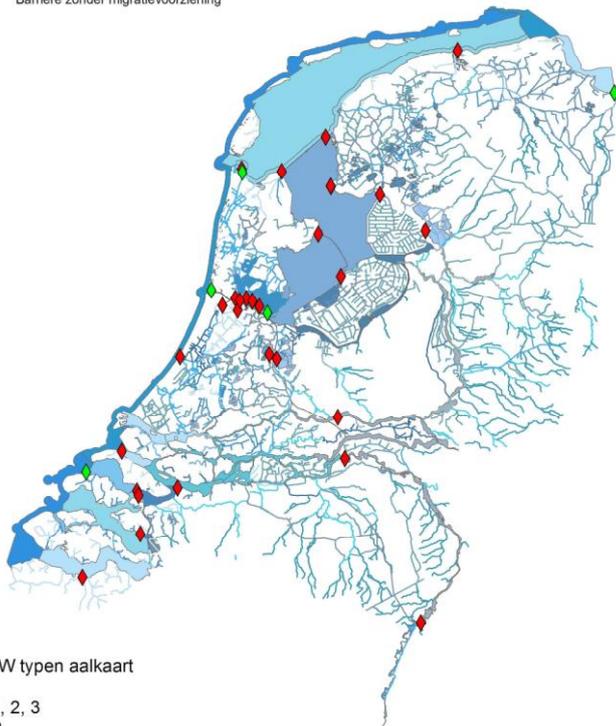
All hands on deck in the Netherlands

Aalkaart 2008

Legenda

Top 30

- ◆ Barrière met migratievoorziening
- ◆ Barrière zonder migratievoorziening



KRW typen aalkaart

- K 1, 2, 3
- O 2
- R 5, 6, 7, 8, 16
- M 3, 6, 7, 10, 14, 20, 21, 27, 30, 31, 32

(c) 2008 Sportvisserij Nederland, Deltares en Wanningen Water Consult

Holland is largely under sea level. The Dutch want dry feet. Thousands of pumping stations, turbines and dykes are withholding the eels from migration to and from the sea. Large numbers of eels that try, die doing so. And now the economic crisis is a big spoiler.

The top-30 migration barriers – responsible for the majority of eel mortality - in the Netherlands should be resolved at the end of 2015. According to the Dutch Eel Management Plan (2009) that is. But the adaption of the pumping stations that form these barriers is now postponed to 2027. Unacceptable, so decided the Dutch eel sector. In the winter of 2012 the Dutch Sustainable Eel Foundation (DUPAN) came up with a plan to rescue silver eels from the water barriers and ‘put them over the dykes’. Important stakeholders are convinced that human interference is unavoidable, as long as the barriers are not made suitable for eel migration, and the millions of Euro’s needed to do so not available. DUPAN working with, sports fishery organisations, regional governments and professional fishermen decided to allocate the necessary funding and carry out the plan together. The official pilot for the project, approved by the Dutch agricultural ministry, took place in the provinces of Zeeland and Noord Holland from September until November 2012. A total of 11 pumping stations are covered. The results of the pilot will be subject to the new governmental policy in 2013.

The first, very important result is clearly visible. It is possible to let stakeholders with different interests work together towards a mutual goal. And it is possible to allocate the money needed for research, project planning, control and fishery. Therefore it is DUPAN’s goal to expand the project in 2013. This time, two third of the top 30 migration barriers will be covered.

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(bottom left) Governmental help for eels over the dyke





Adjusted barrier management to improve glass eel migration at an estuarine barrier

European eel populations (*Anguilla anguilla* L.) have declined dramatically during the last decades and are now some of the most critically endangered fish populations in Europe. The limitation of upstream migration of glass eels is considered to be one of the key factors reducing eel populations. This paper presents the results of a study on the migration of glass eels and options to improve eel passage at a tidal barrier complex at the mouth of the River Yser, Flanders, Belgium.



Glass eels were sampled during tidal rise with stow nets and lift nets to analyse their distribution over the study area, while a fyke net was used to evaluate the impact of limited barrier opening on glass eel migration. Support-vector machine-based analysis of the lift net data indicated that migrating glass eels are attracted by the freshwater flow leaking from the barriers, whereas other variables such as the sampling location only had a weak impact on the glass eel density. Limited barrier opening during tidal rise appeared to be a cost-efficient and effective mitigation option to improve upstream glass eel migration, without significant intrusion of sea water. Adjusted barrier management could often be implemented and applied on numerous tidal barriers. Therefore the results of this paper are of interest to a wide range of river managers and stakeholders and may contribute to the conservation of many eel populations.

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(Top Right) Glass eel
(Bottom left) Lift nets

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France: a pioneering country in river's continuity and habitats restoration?

France has rarely been a leading country in the environmental field. Its various elites have regularly considered nature conservation as a fourth or fifth ranking priority. Thus, as other European countries have done, often considered better players, which is true in many fields, it has massively dammed almost all of its rivers, from spring to estuary. Consequently, France has almost wiped out their migratory fish populations. 60 000 structures at least have been built on the national watercourses, among them 539 large dams (3200 in Western Europe).

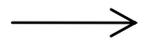
Hopefully, things are changing.

In the 90ies, the "Loire Vivante" campaign has ignited the first signal. The civil society had obliged the State to reconsider the Loire ("the last free flowing river left in Europe") massive dam building programme. All the large structures projects had been abandoned, and the "Plan Loire Grandeur Nature", an innovative tool created for the sustainable management of the large river has been launched. Beginning of the 2000ies, another major shift has taken place, a gift from Europe, with the obligation to implement the Water Framework Directive. In 2007, the "Grenelle de l'Environnement" launched by President Nicolas Sarkozy has sparked a new spirit and a stakeholders change of attitude towards nature conservation. A "Green and Blue Network" (Trame Verte et Bleue) process has been launched, on August 3rd 2009, which aims to seriously address the issue of rivers hydro-morphology restoration. Then a massive weirs and dams removal plan has been launched, on November 13, 2009, by Chantal Jouanno, then Minister of the Environment, which encompasses the removal or neutralization, with adapted and efficient fish ways, of 1200 structures on the French rivers at the end of 2012.



Loire River (photo from en.wikipedia)

On June 10, 2010, the State, its Ministry for the Environment, its agencies, the hydroelectricity companies (all of them), the elected officials and many important French NGO's, among them WWF-France, NASF, ERN-SOS Loire Vivante have signed, together with the professional fishermen (recreational fishermen have refused to undersign the document) a "Convention for Sustainable Hydroelectricity", which opens the way first to the removal of three large dams (two on the Selune basin, Vezins and La Roche qui Boit in Normandy, the other, Poutès on the upper Allier, the main tributary of the Loire), in order to restore salmon and migratory fish populations and second which promotes dialogue between stakeholders to regain rivers transparency and biodiversity, as soon as possible. This has been great news. For the first time, an agreement has been reached between dams operators, builders and NGO's, in order, between other goals, to restore migratory fish populations. Then, on December 14, 2010, a "National Strategy for Migratory Fish Restoration" has been adopted, with a first axis focusing mainly on habitats restoration.



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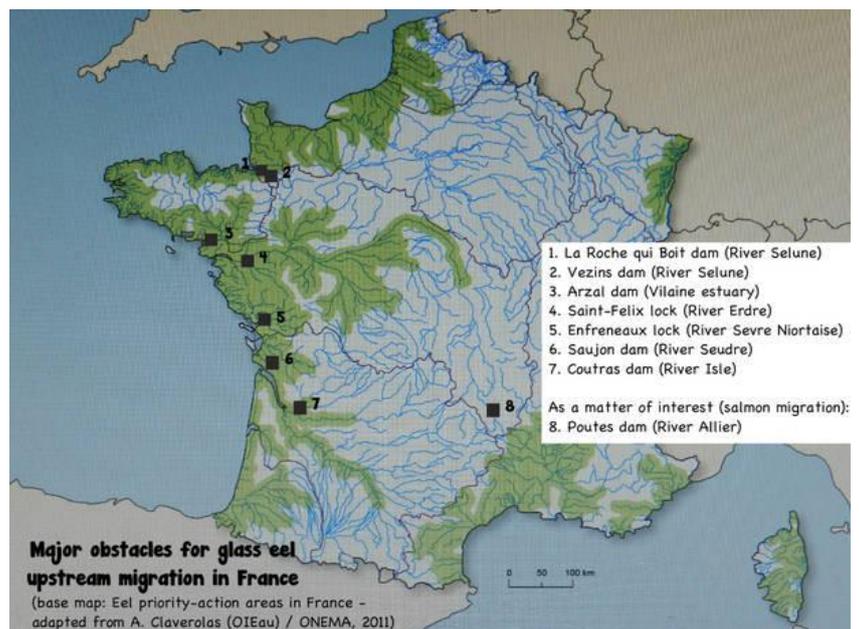
Many of these new policies have been coupled with the 2007 European Eel Regulation CE n° 1100/2007 translated into the “French Eel Management Plan” on February 15, 2010 (1555 obstacles including the emblematic dams of the Selune River have to be equipped or removed in the “Eel Priority-Action Areas”, most of them in the Loire basin) together with other institutional moves, such as the classification of stretches of pristine rivers in the 6 French Water Basins Agencies. All these prominent changes have an important impact on the global cooperation between the various stakeholders on the national, regional, local rivers. The most important factor is certainly (and it is extremely important in the present political climate over the Eel protection) that physical restoration of our riverine habitats is nowadays the number one priority.

Tens of obsolete dams have up to not been removed yet on French rivers basins in order to restore riverine and coastal habitats (including lagoons and other brackish waters coastal marshlands) migratory fish populations. It works. Many more are to come. Other dams have been equipped with efficient fish ladders when this option is good enough. Dam removal, the idea of restoring rivers continuity is of course a complex cultural, economical, ecological issue, which needs a lot of pedagogy in order to be understood, accepted and implemented, in a country where dam building had always meant Progress. This type of measure has of course to be twinned with more classical measures in dams operations for eel downwards migration, water quality restoration, restocking and of course a more clever fishing policy both for recreational and professional fishermen.

Emergency measures other than fishing regulations have to be implemented. Among these ones, the professional fishermen, to which has just been forced a new decreasing of the national catch quota for glass eels, ask with the support of WWF-France for a strict respect of free circulation principles for fingerlings and an appropriate management of water releases during all the time when glass eels are present for the following dams and locks: dams of Arzal on the Vilaine estuary, Saujon on the Seudre coastal river, Coutras on the Isle River (Dordogne tributary) as well as for the Enfreneaux lock on the Sevre Niortaise coastal river and the Saint-Felix lock at the confluence of the Loire and the Erdre Rivers, a major place for glass eel poaching in France. All these structures are serious obstacles to upstream migration where massive death rates of glass eels can be observed immediately downstream.

These emergency measures are necessary but we will never save the eel population if we do not address, all of us, whatever our place in the society, the complicated issue (sometimes discouraging because of the resistances it raises) of a real rivers continuity restoration. We need living and free flowing rivers.

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Approaches for optimizing the quality of glass eels produced in France in order to accelerate the recovery of the European eel stock

Eel restocking actions have meaning only if they induce a benefit for the species, in terms of production of healthy broodstock able to reach the sea, higher than the benefit obtained from fingerlings at the close of the stages of colonization, growth and downstream migration performed under natural conditions.

In absence of clear technical framework recognized and shared by the countries concerned by this measure, CNPMEM¹, CONAPPED² and ARA-France³, with the support of WWF France, developed in 2011 a "Good Practice Guide for Glass Eel Fishing and the Implementation of a Community-Wide Restocking Programme". This guide describes the rationale and objectives on which such a programme should be based, in the context of an ecosystem approach of the species restoration. It also lists recommendations on the conditions of fishing exercise, precautions for the storage and transport of glass eels, the choice of releasing sites and the supervision of restocking actions, in order to maximize the health and survival of individuals as well as the effectiveness of actions. If the guide intends to enrich feedback and initiatives that are to be realized across Europe, it sets out principles that the French glass eel sector has joined from 2011.

Indeed, in addition to various measures of managerial activity under the French eel management plan (licenses, dates, areas, fishing quotas, traceability, etc.), all glass eel fishers committed to respecting the good practice guide recommendations since the beginning of the 2011-2012 fishing season. Beyond awareness of the important role they have to play in favour of species and considering the practice changes observed in some river basins, real improvements in the quality of eels for restocking were recorded, as the following results of the examinations required by the technical protocol of the eel restocking programme in France, conducted from fingerlings samples coming from each operation, prove it:



Revealing of glass eels external lesions

- the proportion of glass eels free of any external injury has increased from 68.2% in 2011 to 92.0% in 2012. The proportion of fingerlings showing significant physical marks caused by fishing and/or during storage or transport and revealed by vital dye, fell from 8.7% in 2011 to less than 0.4% in 2012.
- mortality by 15 days, estimated from glass eels held captive on each releasing site in specific enclosures, was reduced by a factor of 2.4 between 2011 and 2012.

The ongoing in situ monitoring will probably make possible to confirm these trends towards restocking efficiency improvement after 6 months, 1 year and 3 years after release. Evidence of the survival and dispersal of fingerlings 6 months and 1 year after their release in the 2011 restocking sites have already been highlighted.

1. French national committee for marine fisheries and sea farming
2. French national committee of inland professional fishers.
3. Association for eel restocking in France

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In parallel, an experiment dedicated to improving the quality of glass eels using a new type of scoop net was created in 2012 on the Loire River basin, at the initiative of SAS *Anguilla anguilla*⁴, CRP-MEM Pays de la Loire⁵ and SMIDAP⁶. This fishing gear, which has been tested under the conditions recommended by the good practice guide, presents various technological changes compared to traditional scoop nets, which mainly concern the pocket for glass eel salvage. The first results which will be gathered in late 2012 show a significant difference in the quality of eels caught by the experimental scoop net: reduction in glass eels mortality by a factor of 6 and reduction in the number of external lesions by a factor of 5 compared to the results obtained by the conventional gear used simultaneously. Yields of both types of gear are however very similar.

If these very encouraging results are confirmed in the coming months, the French professional organizations will promote the use of this type of fishing gear in the glass eel fishing fleet of the Loire River basin and will explore the possibilities to extrapolate the approach to other watersheds and fishing gears types for which a margin of improvement in the quality of landings is still possible. Otherwise these results will make possible to adapt and specify the recommendations of the Good Practice Guide.



a



b

Representative structures and partners of French glass eel professional fisheries



c



a-c) traditional scoop net of the Loire River Basin. b) Glass eels. d) Restocking ARA-France.

4. French simplified joint-stock company *Anguilla anguilla* 5. Regional committee for marine fisheries and sea farming of Pays de la Loire 6. Public Technical centre for aquaculture and fisheries development in Pays de la Loire



Does it make sense to stop all stocking measures and eel fishing???

Again and again, NGOs, based on the assumptions of a few researchers, call for the stop of all anthropogenic mortalities affecting the eel. However, of the anthropogenic mortality factors such as hydropower, water pollution, water obstructions, fishing etc. only the call for the closure of fisheries or even stopping the restocking of spawning stock remains because there is no access to the initiators of any other of the above-mentioned mortalities. This is a terrible way of treating those who have been attending to the conservation of stock, notionally as well as financially. It also is terrible not least because the consequences of such actions can and would in fact negatively impact on eel stock. The table below weighs up the pros and cons of a ban on stocking and fishing and highlights possible consequences:

The only possible outcome of the weighing up of these factors is that fishers, anglers and eel researchers should be continued to be supported in their efforts to preserve eel stocks in Europe and to press ahead with the implementation of the approved eel management plans.

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if ban on stocking and fishing	then	comment/condition
density-dependent mortality on the coasts will	increase	-Stocking from surplus regions -Mortality during fishing and transport for stocking purposes necessarily decreases
existing growth areas in Europe will remain	unused	-stocking in suitable waters
the natural distribution area will get	smaller	94 million eels in Germany deliver approx. 2,000 t of eel spawn with positive trend
eel biodiversity will	deteriorate	-use of many different habitats
migration will	stagnate	-migration opportunities from across Europe are greater than only from a few river areas
the implementation of the EU eel act with regard to the stocking goals of the member states will be	at risk	-glass eel stock in Europe must have priority and must be ensured!!!
avoiding the export ban becomes	more interesting	-will not be stopped through bans -whereabouts of 62% of glass eels not clear?! -France must enforce export ban
Spawning stock and quality will	decrease	-large females from northern Europe have significant influence on reproduction
collecting fishing statistics will be	unnecessary	-no stocking – no fishing – no statistics
thus yield as the measure of the state of eel stocks will	no longer be used	-researchers will be deprived of their data pool
lake and river fishery as a cultural good will	cease to exist	-and replaced by fish poachers
the attractiveness of recreational fishing and economic charity effects will be	lowered	-recreational eel fishing cannot be prevented
eel research will become a	hobby	-lack of basic research and coordinated research efforts
Eel farms as eel suppliers will	die	-and therefore also their significance for research and food
the confusion regarding causes will	remain	-perhaps the stock decline is only the result of normal population dynamics or perhaps even from the stock decline because of export-dependent price increase???
overall disastrous socio-economic consequences and disadvantages for the eel stock will	come about	Result: Do not destroy what's been time-tested and do not sacrifice it to these that are pure speculation!!!



Montepescali, between history and nature



Montepescali is an old town in the South of Tuscany, in the Grosseto Province, which lies on the top of a hill (222 m high) and its name actually means “The mountain (Monte) of the fishermen (Pescali)”. Montepescali already exists in the XII century and became famous because of the wine, olive oils and fish. The old town was built at the edge of a huge lagoon, connected with the open sea and receiving many small streams. The relation between Montepescali and the water can be clearly seen in the heraldic symbol of the town from XIII century where two eels surround a green hill (meaning of very good land for agriculture), a ladder (meaning that the town is on a hill) and a lion (symbol of the Aldo Brandeschi family, owner of the town). The eels are the symbol of the richness coming from the fishing activity in the lagoon (most probably related to eel fishing).

This huge wetland had still an area of 50 square kilometres in the XVI century but later during the XIX century, because of the land reclamation program, promoted by Granduca di Toscana Pietro Leopoldo, the huge lagoon was reduced to only 1300 hectares, which are now part of the Regional Park of the Diaccia Botrona. This is what remains of this 50 square kilometres wetland. Nowadays from the town of Montepescali, only agriculture land can be seen where the lagoon was present. As concern with the eels, it is a clear example of habitat loss of a huge coastal lagoon. The protection of the coastal lagoons or what remains of them is a fundamental step for the recovery of the eels all around Europe.

(Top left) Montepescali Emblem of the old city
(Bottom left) Fisherman of the Orbetello Lagoon
(Bottom right) Natural reserve Daccia Batrona (Grosseto, Italy)

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Alresford: A small piece of our history

The Eel House at Alresford (about 7 miles east of Winchester) sits beside the Wayfarers' Way footpath in idyllic woodland in a valley about a mile and a half from the centre of the market town. It straddles the crystal clear waters of the tranquil River Arle with a foot on either bank. A modest but nicely proportioned building, some 11ft x 16ft, with a clay-tiled roof it dates from the 1820's when the Harris family of nearby Arlebury Park commissioned this minor masterpiece of 19th century ingenuity. Its sole purpose was to trap mature eels near to the start of their once in a lifetime three thousand mile journey back to the Sargasso.

Buildings constructed specifically for eel trapping are extremely rare in the United Kingdom. There is only one other that features in the English Heritage register of listed buildings, and a Google internet search currently throws up no others that now exist in anything approaching their original condition.

The building contains three water channels running through it which house the iron grills and traps. There is reliable evidence that these were still in working use in the early 1980's. For more than one hundred and sixty years the river keeper would arrive at The Eel House and, using a hurricane lamp for illumination, would open his sluices, set his traps and manoeuvre his catch into a boat shaped eel box. When the box was full he would tow it downstream to his keeper's cottage to await the arrival of merchants from as far away as Billingsgate in London who took the eels away in tanks to be sold, while still alive, at fish markets.

Restoration

In 2006 during work to remove the ivy that had completely engulfed the building, it became apparent that the south-west corner of the building was collapsing. The back-scouring of the river current, coupled with the energetic roots of a nearby ash tree, had completely undermined part of the building and was making rapid inroads into the rest of the foundations. The owner moved swiftly to have the building propped up and consultations between all interested parties then followed. These were complex, as the building is owned by one party while another owns the surrounding land and a third the fishing rights. Also involved were the Environment Agency and Natural England as protectors of the delicate environment of the River Arle and its surrounds.

A restoration team was set up, and a first phase of clearing the loose and collapsed foundations and replacing them with an extensive concrete 'pad' was effected so that the five-foot deep void beneath the building was completely filled. The second step was to restore the structure of the building, re-pointing the walls and replacing the roof tiles.

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The building c. 1870



Before restoration
2006



The remaining challenge



Restored

With the building now secure and with exterior structure repaired, detailed plans have been drawn up for the third step of restoring the building to working uses, repairing the sluices and traps. The aim is to make The Eel House, as far as possible, exactly as it was in past and to use it as an educational resource, demonstrating a specialised part of our agricultural history. With regular trap-ping (and releasing) it is hoped that accurate records can be built up of the diminishing eel population and possibly also participation undertaken in an eel-tagging programme. The total cost, when all is complete, is likely to be in the region of £50,000

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Update of Sweden's Eel Management Plan

Sweden's Eel Management Plan (EMP) is on the right road according to a press release from the Swedish University of Agricultural Sciences. The press release was in response to the publishing of a progress which highlighted the following three points:

- The goal of the Swedish EMP is nearly reached.
- The quantity of silver eels (25%) leaving Sweden is lower than the aim of 40% of the pristine population.
- The average mortality for eels while in Swedish waters is 25%, a mortality which is expected to achieve a recovery of the stock.

The most startling fact is the lower than expected lifetime mortality of 25% for all eels in Swedish waters – this means 75% will reach the silver eel stage and that level of survival is expected to result in the recovery of the stock. This will take time as the eel population is low and relies on other European countries strengthening the recovery by achieving a low mortality.

The major changes have been a reduction in fishing combined with a lower than expected impact of fishing on the saltwater eel population. In inland waters it is water turbines that exert by far the greatest effect on the freshwater eel population and a combination of re-stocking, and trap and transport is employed to try and reduce their effects. The numbers of small eels restocked has increased in recent years and is now concentrated in the south and west of the country.

The full report (in English) is available from www.slu.se and also the press release (in Swedish).

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Restockingsea is restocking of 1 g eels in brackish water.

Piraten is a person nicknamed the pirate holding a large eel.



The Fishmongers' Company

The Company is an ancient City Livery Company with an unbroken association with the fishing industry dating back over 800 years. Originally, there were two companies, the salt fishmongers and the stock fishmongers, who joined together pre-middle ages to form a single entity, the Fishmongers' Company.

In the early days if you wanted to sell fish in the City of London, the Borough of Southwark or the surrounding environs you were required to pay the Company a levy and it is from these monies that the Company generated its wealth. The monopoly the Company enjoyed was challenged many times and was finally lost in 1604 in the reign of James 1 when the Company was granted a Roy-al Charter which instead gave the Company a quality control power over the fish that was sold to ensure that it was fit for man's body and wholesome.

Today, four hundred years on the Company still has a small team of inspectors based at London's Billingsgate fish market exercising the Company's powers and ensuring that fish sold at the market is still of good quality. This and all the other areas of interest in the fisheries world are funded out of this original money which fortunately was wisely in-vested.

The Company is actively involved in many aspects of the fish industry and supports many organisations including, the Shellfish Association of Great Britain, the Salmon and Trout Association, the Billingsgate Seafood Training School, NUTFA (the new under ten metre fleet association) and of course the Sustainable Eel Group (SEG). Additionally, the Company supports research projects and bursaries at various universities for MSc and PhD studies.



The Company occupies a beautiful building located on the north-west corner of London Bridge. This is the third building the Company has had on this site, the first which sadly burnt down in the Great Fire of London in 1666, the second which was knocked down in 1829 to make way for the new London Bridge (which was eventually sold off to the Americans) and the current building which was the result of a national architectural competition and was completed in 1835

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Comparison of glass eels and pre-grown eel fingerlings on natural food

The Dutch DUPAN foundation is among others currently investigating how eel farms can make the most effective contribution to the recovery of the natural eel stocks. To enable assessment of the effectiveness of restocking of fingerlings, insight in the growth and mortality of restocked fingerlings in comparison with glass eels is indispensable.

The questions to be answered in this research were: Do farm reared finger-lings successfully switch back to natural food sources after being reared for some months in a farm and how does the growth and survival of farm reared fingerlings compare to that of wild glass eels?

For this purpose two trials were set up at Aquaculture Centre Valkenswaard. The outdoor pond conditions at these facilities provide a simulation of the conditions in the wild, but allow closer monitoring and exclude the influence of predator.

The first 47 days trial in aquaria revealed that both glass eels and fingerlings pre-dated well on the natural food items that were provided such as mosquito larvae and tubifex.

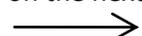


Elver released

In the main experiment either 100 glass eels or 100 pre-grown fingerlings (9 grams) were stocked in one of the 6 pond sections in triplicates (3 fish ponds were separated in 2 equal parts with permeable cloth, creating 6 pond sections of 500 m² each) on the 4th of May.

From mid October onwards eels were recovered from the ponds by eel traps and fyke nets. A week before the termination of the experiments, 100 marked fingerlings of approximately the same size were added to each pond section to calculate total survival rates (mark recapture). The remaining eels were recovered during 7 days of electro-fishing. The survival rate was 92% and 97% for glass eels and pre-grown eels respectively. The specific growth rate of the glass eels was 2.17 % of bodyweight/day (from 0.23 to 12 gram) and of the finger-lings was 0,47 % of bodyweight/day (from 9.1 gram to 21.0 gram). The glass eels body length increased from 6.7 to 19.4 cm average (0.69 mm/day or 0.58 %/day) and the fingerlings from 18.4 to 23.9 cm (0.31 mm/day or 0.15 %/day). The condition factor of the glass eels in-creased from 0.075 to 0.164 and that of the fingerlings went from 0.147 to 0.154.

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Ponds

Conclusions

The results of the experiments on feeding, growth and survival of glass eels and fingerlings after restocking can be summarised as follows:

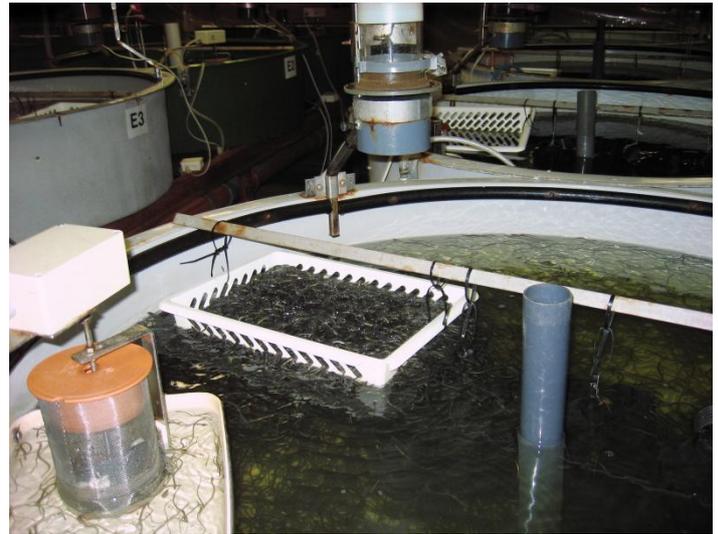
- ❖ farm reared fingerlings successfully feed on natural food sources and are capable to further increase their condition after restocking under semi-natural conditions;
- ❖ the glass eels in the ponds achieved an average growth rate that is comparable to reference values obtained from eel farms;
- ❖ the growth rate of the farm reared fingerlings in the ponds was lower than the reference values from eel farms however were comparable to the values found in eel stock in the wild;
- ❖ the survival of glass eels and farm reared fingerlings on natural food sources (92% and 97% respectively) was higher than expected compared to data known from literature on eels in temperate conditions.

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The Sustainable Eel Standard – Danish Case

Certification of aquaculture production is increasing and driven by requests by retailers and consumers. In Denmark national standards on organic fish farming were implemented from 2005 and replaced by the common EU regulation on Organic Aquaculture production in 2010. Currently the Freshwater Trout Aquaculture Dialogue (FTAD) standard is being implemented in Danish trout farms through the Aquaculture Stewardship Council (ASC). It is a global, measurable, performance based and transparent label for environmental and social sustainable farming of trout in fresh water. The process of implementing the salmon standard in Danish marine cage farmed trout is ongoing.



(Top right) Holding tanks - Section for glass eel being fed cod roe in the white basket

(Middle left) Holding tanks - Section for fingerlings, either for further growth to consumption eels or for restocking. (Photo: Morten Lauritzen).

The second most important fish species in Danish aquaculture is the eel. The European Fisheries Fund (EFF) has funded a project with the main aim to perform an implementation of the SEG-standard in a Danish eel farm (Jupiter Eel), and let other farms benefit from the experience. The second goal of the project is to disseminate knowledge and information about sustainable eel farming. The overall target is to provide a knowledge based tool to turn the negative image of the eel in the public to a positive image of eel farming as the tool to build up the wild stock of eel. The project is carried out by the Danish Aquaculture Organisation (DAO), Danish Eel producers/Jupiter Eel and DTU Aqua.

The current version of the Sustainable Eel Standard (May 2011) has been translated into Danish and put onto the DAO website. A detailed description of Jupiter Eel (technical installations and functions as well as daily management and self-regulations) is in progress. The test implementation of the SEG standard is expected during 2013.

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New elver station in the UK

You may have been told that I have retired and we are closing our operation in France. Far from it. The situation is quite different we are building a new glass eel facility in the UK. We are consolidating our three storage units into one and will reduce our holding capacity from 15,000 kg to 1,500 kg. The project is supported by the European Fisheries fund and it is probably the first of its kind to be funded to reduce rather than increase capacity. The glass eel business has changed forever. The new facility reflects the future catches of glass eels and the objectives of the Marine Management Organization not only to protect the fishery for future generations but also to maintain the economic, cultural and social values for the local community. The project is also aligned with the objectives of the Sustainable Eel Group.



It has been a difficult year in France. We have set new standards in France with reference to reductions in fishing mortality, improvements in husbandry, standards for storage, transport and biosecurity. Our partners of several years decided to abandon our long term plan for a sustainable agenda in exchange for short term gains and joined the AA Monopoly last year. Ironically it appears that in this case the short term gain and short term existence are complementary. The rumours are that there is now a split in the new group. No doubt the overall agenda was to compromise the development of a Sustainable program for the glass eel fishery in France. The fracture of our relationship with Chez Mouchet has in the short term damaged our sustainable objectives for France.



New storage units

Undeterred by this setback we have had to invest once again in France. However this time it is on our own account. Over the summer we have been building a new facility in France. For the future we shall work independently in France and I hope with support from the sector we will be able to continue to develop the Sustainable Standard which is, in long term, the only solution that will secure the supplies of glass eels for the future.



Peter Woods
UK Glass Eels

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The Environment Agency in England and Wales: Practical Measures to Protect Eels

The Environment Agency has reported back to Europe that 322 eel passes have been installed in the last three years giving access to an extra 2,000 Km of habitat.

In addition, at least 32 projects to re-duce entrainment of eel in water in-takes have been delivered.

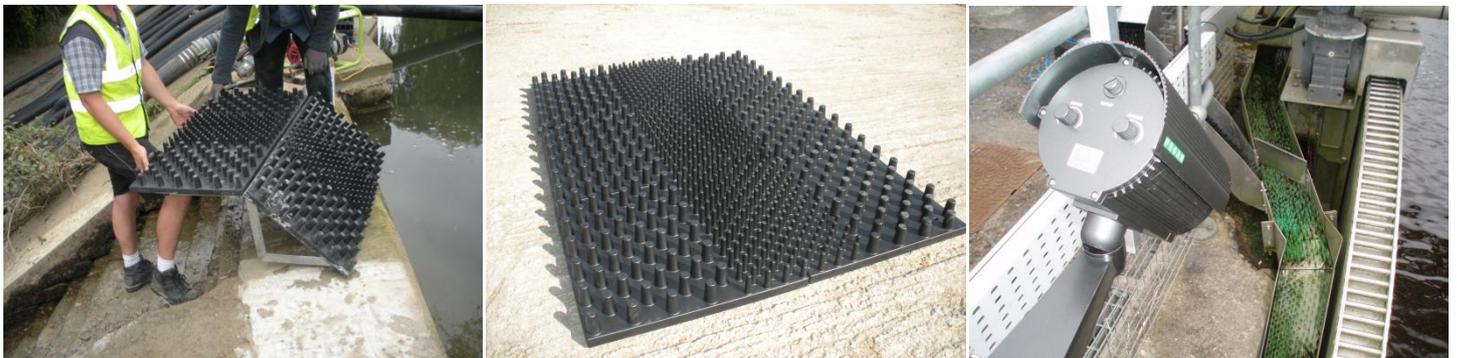
Many of these improvements have been achieved through projects that we have funded and delivered or through partnerships with others including the Rivers Trusts.

We have been able to use the legal powers gained via the 2009 'Eel Regulations' to require owners and operators of structures to deliver passage and screening improvements for eels.

We are adopting a clear, risk-based and consistent position to implement these measures and we have developed a robust prioritization tool to help identify the biggest bottlenecks and intakes with the potential to cause the most damage.

We have developed a very clear under-standing of the criteria that make a successful eel pass and to help installers and fishery managers alike we have produced various manuals to share this knowledge and experience.

Some of the eel passage solutions have been installed very quickly and economically using eel pass tiles:



We have also had great success in monitoring eel passes using CCTV. Each year we count around 40,000 eels using the pass in this picture:

For more information about the Environment Agency's work to help eel passage, contact Andy Don, Fisheries Technical Specialist: andy.don@environment-agency.gov.uk

See also: <http://publications.environment-agency.gov.uk/pdf/GEHO0411BTQB-e-e.pdf>

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Can estuaries and coastal lagoons be a better help towards the recovery of the European eel stock?

Age and length of silver eels in a Portuguese coastal lagoon – Santo André Lagoon

Coastal lagoons are among the marine habitats with the highest biological productivity. Recruitment by marine species occurs during spring and because fish can find protection and abundant food, they grow fast and support important fisheries. These systems can, however, include rich and diverse communities that require protection and as such, a conflict of interests may arise as a result of their importance both for conservation and fisheries, among other socio-economic activities.

Santo André Lagoon is a small coastal lagoon with an area of 150-250 ha and a mean depth of 1 m, located in the Tróia-Sines coastal area, SW Portugal. It is isolated from the sea by a sandbar and the opening of the lagoon to the sea is managed artificially, occurring each year during an equinoctial spring tide.



Reserva Natural das Lagoas de Santo André e da Sancha



(continue on the next page)

(Top right) Location of the Lagoon (image from wikipedia)
(Bottom) Reserva Natural das Lagoas de Santo André pictures





A study on the demographic structure of the eel population in this lagoon was conducted monthly during the fishing season 2011/2012 (October –February), with the use of fyke nets. From a total of 133 eels, 69 were silver and 64 were yellow eels. Male silver eels (n=65) ranged from 31.3 to 38.6 cm total length (TL) with a mean TL of 35.2 cm. Female silver eels were larger, with a TL ranging between 52.3 and 63.5 cm and a mean value of 58.3 cm. The proportion of male silver eels (94.3%) was much higher than the proportion of female silver eels. Age of silver eels ranged between 2 and 6 years for males, with a mean value of 2.9 years, and between 3 and 6 years for females, with a mean age of 4.3 years.

Despite the small number of female silver eels caught/aged, the results obtained showed a fast growth in this coastal system, reinforcing the idea that growth varies substantially within the species distribution range and habitat types, being favoured not only in southern latitudes but particularly in brackish water systems, which include estuaries and coastal lagoons.

The fishery in this lagoon is an important socio-economic activity with roots in the 18th century and the greatest importance has always been placed on the eel fishery. The fishery regulation has, however, been changing in the last decade, firstly because the lagoon was classified as a Natural Reserve (2000) imposing some restrictions on fishing activities, and lately as a consequence of the application of a closed fishing season (October-December) to comply with the measures set by the implementation of Regulation 1100/2007 and the Portuguese EMP. In this lagoon, fishermen are currently allowed to fish for eels in September and from January to March (until the opening day of the lagoon to the sea).

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[Opening of Santo André Lagoon to the sea, March 2012](#)

[Santo André Lagoon - The day after](#)

To watch the videos:

http://www.youtube.com/watch?feature=player_embedded&v=PA-ag4srq84

<http://www.youtube.com/watch?v=pNbsEsiEBT4&feature=watch-vrec>



Reserva Natural das Lagoas de Santo André pictures



The Living North Sea project and The Rivers Trust Autumn conference and awards dinner

Over 250 delegates from more than eight countries representing rivers trusts, fishery scientists, policy makers, and environmental interest groups gathered in the North East of England to attend the recent EU Living North Sea project conference and the Rivers Trust Autumn conference and awards dinner. The three-day event (13th-16th November) was jointly hosted by The Rivers Trust and rivers trusts from the North East of England. The first day saw delegates enjoy field visits to hear about some of the challenges facing migratory fish in the region and to see some of the excellent examples of community-led river improvements currently being delivered within the rivers trust movement.



Delegates listening to speakers from the Tees and Wear Rivers Trusts during field site visits

The following two days saw a full programme of plenary lectures covering a wide range of subjects to do with the biology, behaviour, management (including the role of community-led organisations) and threats from human activities to migratory fish species. Talks were given by representatives of several rivers trusts and by many of the 15 partners of the Living North Sea project (a €6.4M EU Interreg IVb project funded by the European Regional Development Fund) that aims to share knowledge and develop best practice on the management of migratory fish in the North Sea Region. Talks on eel management included the adjusted management of tidal barriers to maximise glass eel recruitment in Belgium, impacts of acidification and hydropower on eel production in Sweden, a novel by-pass system for silver eels at pumping stations, results of new studies on eel behaviour at barriers and during their migration in the North Sea, community led prioritisation of habitat creation and removal or easement of barriers to eels and other migratory fish species.

The following two days saw a full programme of plenary lectures covering a wide range of subjects to do with the biology, behaviour, management (including the role of community-led organisations) and threats from human activities to migratory fish species. Talks were given by representatives of several rivers trusts and by many of the 15 partners of the Living North Sea



Alistair Maltby (The rivers Trust), Living North Sea Project manager delivering the opening address



Living North Sea partners taking questions on the behaviour of eels and other migratory fish species at the conference



A number of scientific posters, displays, trade exhibits and interactive games were present inside the conference venue. This included “[Ely the eel game](#)” (an educational game for understanding the impacts of anthropogenic factors on the migration of elvers) that could be played on a giant screen.

Sandwiched in between the two days of the conference was the Rivers Trust Annual awards dinner. The Rivers Trust Awards recognise individuals for their contribution as Volunteers, in Science and Innovation, in the Environment and from the Public Sector. As a one off this year a special award of €10,000 was also made to the winner of a North Sea region-wide competition “The Sturgeons Lair”. This was an open competition for innovative solutions to fish migration problems and involved applicants “pitching” their ideas in front of an expert panel. The winner was a consortium of applicants proposing a tide gate damper which delays closure of tide gates, increasing the window for fish and eel passage.



(left) Dead eels removed from a hydropower screen in Sweden



(right) Examples of community-led solutions to migratory barriers for eels

For more information about the conference and the living north sea project please visit [The Rivers Trust](http://www.theriverstrust.org) webpage at www.theriverstrust.org





News from the European Commission: The Eel Regulation

The European Commission has received, over the last few months, the Member States' reports regarding the implementation of the eel regulation ((EC) No 1100/2007). It is clear from a preliminary examination of the reports that Member States have been progressively implementing more and more management measures as foreseen in their plans. These measures include fisheries restrictions, restocking, facilitation of upstream and downstream migration etc. There is however some disparity among Member States, regarding the degree of realisation of these measures: some Member States appear to be implementing the foreseen measures according to schedule, while others are lagging behind. Some of the most challenging measures to implement are the removal or modification of large obstacles, usually due to technical and financial constraints. The recovery plans have only been in place for 2-3 years. Given that it will take at least 2-3 eel generations, i.e. at least 10 years before any significant trends in the stock status can be observed, it is too early to draw conclusions as to the effectiveness of these measures.

The Commission will prepare a report based on the Member States' reports and submit it to the Parliament and Council before the end of 2013. In light of this report, and taking into account the advice of ICES, the Commission will propose amendments to the eel regulation with the aim of ensuring stock recovery. The amended regulation will probably be adopted in 2014, and Member States will have to adapt their plans in response to these amendments



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The Sustainable Eel Standard

Creating confidence in the supply of sustainable eels

A standard for trading responsibly in eels

In early 2011 the Sustainable Eel Group (SEG) developed a standard for trading in sustainably sourced eels. The Sustainable Eel Standard was developed by consultants MacAlister-Elliot & Partners who have much experience with the Marine Stewardship Council (MSC) system. The standard sets out the criteria companies trading in eels must meet to show they're acting responsibly. If wholesalers and retailers can show that their supplies of eels are from sustainable sources, they can use the Sustainable Eel logo on their packaging. This gives consumers confidence that they're buying from sustainable sources. It's similar in concept to the MSC logo seen on many fish products. The aim of the standard is to establish and encourage a market for sustainably caught eel and to discourage and ease out unsustainable practices.

How the standard works

Depending on what a company is handling, an independent assessor must check, for example:

- ∞ **fishing** - is the fishery meeting its eel escapement targets? Is there an Eel Management Plan?
- ∞ **buyers** – what are the handling and welfare standards? Mortality rates must be below set levels.
- ∞ **farming** – what proportion is made available for restocking?
- ∞ **smokeries** – are there clear batch traceability procedures to avoid mixing eels from different sources and incorrectly marking them with the SEG logo?

Companies also have to act legally and be committed to the goals of the Sustainable Eel Group.

Tests are scored as:-

- **Red** (fail)
- **Amber** (passed to an acceptable standard)
- **Green** (passed to a high standard)

To pass the standard, the company must achieve a majority of green to amber scores. Any red score results in a fail.

(continue on the next page)





How the assessment and certification works

- ∞ The company approaches an independent assessor who visits and audits them against the standard.
- ∞ The assessor produces a report on their findings and submits it to the Sustainable Eel Standard Panel of SEG.
- ∞ The Standard Panel checks the report against the standard and agrees whether the company has passed or failed.
- ∞ The Panel awards a certificate, identifies where to improve by the next review and updates the register of those certified on the SEG website. Certificates usually last two years and apply to the company only – they can't be transferred between companies.
- ∞ The company can use the SEG logo on their relevant products, on payment of a licensing fee.

The Eel Standard Panel has six members based in the UK and Europe. They are independent, with scientific and conservation interests and no commercial affiliations.

Eel businesses certified

The following have been certified since the standard was introduced. For an up to date list of those with valid certification, see the website at www.sustainableeelgroup.com

Fisheries

- Seudre & Gironde glass eel (France)
- Severn glass eel fishery (UK)
- Les Landes (Mimizan & Moliets) (France)
- Adour glass eel fishery (France)

Buyers

- Chez Mouchet (subject to re- assessment within AA Group)
- UK Glass Eel (UK)
- Deutsche Fischerei Verband (Germany)
- Civelle Durable

Farmers

- Deutsche Fischerei Verband (Germany)
- Royal Danish Aquaculture (Denmark)
- Industry Park of Sweden (Sweden)
- Passie Voor Vis (Netherlands)
- Valenciana de Acuicultura

Smokeries

- Severn & Wye Smokery (UK)
- Palingrokerij Vlug (Netherlands)
- Gebr Dil BV (Netherlands)
- Koman's Vishandel BV (Netherlands)
- Dutch Eel Co. (UK)

Raising standards

The standard is helping to improve the eel fishing industry. But we will also be improving the standard itself this winter using our experience of it in action.

Making a difference

The standard is already having an impact. On the French west coast, glass eels are caught in their millions by boat. This used to be done at high speed and often resulted in 50% mortality – a terrible waste of this precious resource.

(continue on the next page)





Some French fisheries are now using slow speed trawling with mortalities as low as 1%. Those that adopt this more sustainable method can be certified under the Sustainable Eel Standard; others will have to change as the market for unsustainable eel will dwindle.

The standard, those certified and their assessment reports can be downloaded and viewed in full at: www.sustainableeelgroup.com

David Bunt

Chairman of the Panel for the Sustainable Eel Standard

davidbunt@sustainableeelgroup.com



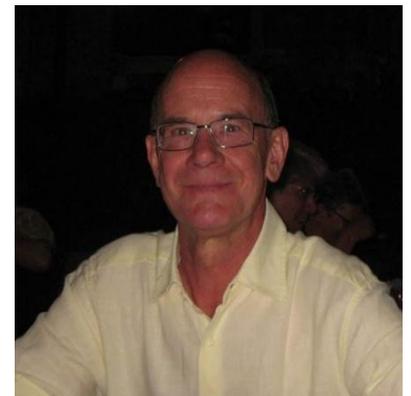
(Top left) Glass eel fishing boat, western France

Glass eels damaged by high speed trawling

Effectiveness of restocking

Earlier this year, Dr Mike Pawson was commissioned by SEG via the Living North Sea project to prepare a review of scientific literature to address the basic question “is there a net benefit of trans-locating eels compared with leaving them to migrate naturally?”

Mike is a fisheries consultant, having spent 39 years at Cefas, Lowestoft, carrying out biological research and providing scientific advice to Defra, the EC and other national and international organisations on fish stock abundance, technical conservation measures and fisheries management regulations. He worked on eel fisheries in the 1980s and, more recently, was a member of the ICES Eel Working Group during the period when advice was needed by the EC as the Eel Recovery Plan was being developed. Mike’s review provides a synthesis of the available data and information about the performance of stocked eels in terms of survival, growth and behaviour, as measured in fisheries and experimental studies across Europe and elsewhere, to elucidate the effectiveness of re-stocking with eels as a conservation measure to increase the net production of silver eels. These findings were presented at the Venice Conference in May, and the final report is available on the SEG web-site



Mike Pawson, Cefas



Stone With Woodford School.
Near Belkely
Gloss G13 9JX
20.7.11

Dear David and Richard.

Thankyou for letting
us look after the Eelers. We all enjoyed
feeding them. Also we loved seeing them in
the tank. They were trying to wriggle
free for part of the time. Most of the
time they were saving their energy by
sleeping in the plastic spinning log or they
would sleep at the bottom of the tank.
They were very happy when we set them
free and I hope I can see you again
soon.

Yours Sincerely

Lia
+ ♥ +