

# Delivering our Duties for Eel

## our ambition for eel in England

January 2014

We want to provide a substantive contribution to addressing man-made pressures on eel that offer the real chance to prevent a further decline and to support recovery in the stock of European eel (*Anguilla anguilla* (L.)). We must achieve escapement of silver eel to a minimum of 40% historic levels in each of the river basins we influence<sup>1</sup>. Our aim is to see eel fulfilling its role in the aquatic ecosystem and providing social and economic benefits from recreational and commercial fishing at sustainable levels.

To do this we will continue work to address the identified key pressures on eel for which we have the capacity to deliver remediation. We will use resources currently available to us and our regulatory powers in a risk-based, prioritised manner and will seek to work with and through others with an interest. Actions will be based on best available evidence and will not be at a level disproportionate to the cost of addressing the issue. Where costs are disproportionate we will focus on mitigation/compensation for the impacting activity. In addition we will not disadvantage other components of aquatic ecology through activities to improve the status of eel.

We have assessed the relative impacts of the range of pressures on eel in each River Basin District (RBD)<sup>2</sup>. In some RBDs fishing is the main pressure while in others it is access to available habitat. Fishing is already tightly controlled and it is feasible to manage the series of human impacts in total in each river basin district (RBD) to a level sufficient to secure stock recovery.

Continued fishing for eel offers a number of positive attributes:

- Providing economic and social returns in remote rural areas and in areas with low levels of income;
- Maintaining a substantive, vested interest in eel as a commodity and not simply representing a species of specialist conservation interest;
- For glass eel/elver fishing, contributing to the relocation of eel to newly improved/accessible habitat giving potential to extend natural eel production<sup>3</sup>;
- Generating and maintaining data on the status of eel that otherwise would be challenging and costly to obtain;
- Maintaining access to (EU) funding sources to support action for eel that are available only where connected with economic activity.

We will focus on addressing non-fishery sources of mortality as our highest priority while seeking to maintain a sustainable and economically viable eel fishery. Eel fishing will be regulated to levels assessed as meeting the need to restore and conserve stocks.

As eel is a relatively long lived species, any change in status will take a number of eel generations to recover. We therefore may need to take into account the impacts of climate change on our aims.

### Footnotes

1. The requirement of the EU Eel Regulation is to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock.

2. A river basin district (RBD) is a river basin, or several river basins, and the river basin's adjacent coastal waters. This is the scale the Environment Agency use for strategic planning and reporting to the European Commission for the Water Framework Directive. England and Wales has been divided into 11 RBDs.

3. The EU Regulation requires that by 31 July 2013 at least 60 % of the eels less than 12 cm in length caught by the fisheries during each year are reserved to be marketed for use in restocking in eel river basins for the purpose of increasing the escapement levels of silver eels.

## Our aims

Our over-arching aim is to secure sustainable eel populations and fisheries.

Our objectives, contributing to this aim are to:

- Make demonstrable progress to silver eel escapement targets in all 9 river basins that we influence within 2 eel lifecycle periods<sup>4</sup>, by 2045, seeing progress towards this aim with:
  - Achievement in 6 river basins by 2021; and
  - Achievement in 7 river basins by 2039;
- Secure improved access for eel past the 684 extant high priority barriers by 2021;
- Secure access for eel to an additional 3500 Hectares of habitat by 2021;
- Create 1000 Hectares of new and/or substantively improved habitat for eel by 2021;
- Ensure all high priority water intakes (surface water abstractions (691), hydropower plants (161), power stations (55) and pumping stations (420)), are screened by 2021 (numbers subject to individual site cost benefit appraisals);
- Enable that people responsible for assets which cannot meet the objective of the eel screening/passage requirements can mitigate for their damage to deliver environmental improvements and actions necessary to increase the biomass of silver eel escaping home waters;
- Maintain sustainable and economically viable eel fisheries while ensuring delivery of the above targets for achieving improved eel escapement;
- Regulate the fishery, alongside other man made impacts, such that the level of mortality is less than that above which the capacity of self-renewal of the stock is considered to be endangered;
- Seek to minimise eels lost to illegal fishing;
- Comply with other nature conservation legislation, such as the Conservation of Habitats and Species Regulations 2010 (SI no. 2010/490), when carrying out plans or projects designed to meet these aims;
- Have in place bio-security procedures to prevent the transfer of invasive non-native species if eel are moved between water bodies.

## Current status of silver eel escapement in England

In the UK eel are managed at the RBD level. The latest (2013) best estimates of silver eel escapement indicate that out of 9 RBDs in England (including two Districts bordering with Wales and one with Scotland)<sup>5</sup>: 5 potentially meet or exceed the 40% escapement target; and 4 fall below the target; and estimated annual escapement (outward migration) of silver eels from English waters currently amounts to a total of approximately 980 tonnes.

It should be noted however that eel escapement assessments are based on latest available data and exclude some significant sources of eel mortality. Assessments are subject to ongoing review and potential change.

4. For the purpose of this position paper the eel's lifecycle is taken as lasting 15 years.

5. Natural Resources Wales manages the Western Wales and Dee RBDs.

The main home-water impacts are access to habitat, entrainment, fishing, predation, parasites and contaminants. The influence these various factors have on the level of compliance differs between RBDs. For some RBDs the main loss of eel is from fishing while for others it is barriers which prevent access to habitat that is the most important. However, for certain RBDs even if all the sources of mortality are reduced to zero it would not be possible for the RBD to currently pass the 40% target. This is because the target is based on the level of recruitment prior to 1980 and recruitment now is at least an order of magnitude lower.

### Legal requirements

In managing eel in England to contribute to the pan-European conservation need we must satisfy the following legal requirements.

Environment Act 1995 requires Environment Agency to maintain, improve and develop fisheries of eel.

Ministerial guidance sets out that we must deliver this duty in the context of:

- Ensuring the conservation and maintaining the diversity of ...eels ...and conserving their aquatic environment;
- Enhancing the contribution [eel] fisheries make to the economy, particularly in remote rural areas and in areas with low levels of income; and
- Enhancing the social value of fishing as a widely available and healthy form of recreation.

The Council Regulation (EC) 1100/2007 (Establishing measures for the recovery of the stock of European eel) requires that we act to reduce anthropogenic mortalities so as to permit with high probability the escapement to the sea of at least 40 % of the silver eel biomass relative to the best estimate of escapement that would have existed if no anthropogenic influences had impacted the stock. To achieve this we must have in place an eel management plan for each river basin district containing actions that will achieve progress to this target and we must implement those plans. Reports on progress are required in 2012 (done), 2015, 2018 and then at 6-yearly intervals. This may become more frequent as a result of current negotiations on the EU Regulation.

The 2007 Regulation also requires that, by July 2013, 60% of all eel less than 12cm length taken by eel fishers must be marketed for use in restocking.

The Eels (England and Wales) Regulations, 2009 require that all water intakes (exceeding 20cu.m per day flow) from, and outfalls to rivers must have screening to prevent ingress of eel from January 2015 unless exempted by the Environment Agency.

### Eel Fishing Controls

We authorise fishing for eel by methods other than rod and line and fishing without authorisation is an offence. As for other freshwater and migratory fish, anglers from the age of 12 using rod and line must hold an Environment Agency licence.

Where we authorise or license fishing for eel and elver, the fishing is regulated by conditions to limit effort and protect vulnerable stocks:

- Eligibility: For fishing for adult eel with nets/traps we authorise only those people who held licences in 2008-2010. Each individual also has a limit on the number and type of instruments they may use;
- Seasons: The net fishing season for eels of 12 centimeters or less in length is restricted to 15 February to 25 May. For adult eel the fishing season is 01 April to 10 December;
- Methods and location:  
For glass eel/elvers, only hand held dip nets may be used and only in two zones - in parts of Southwest England and of Northwest England;  
For adult eel, only traps, fyke nets and eel racks to specified designs and dimensions may be used;
- Angling: Any eel caught on rod and line must be returned to the same water with as little damage as possible.

### The biology and status of eel

The European eel, *Anguilla anguilla* (L.) is found and exploited in fresh, brackish and coastal waters in almost all of Europe and along the Mediterranean coasts of Africa and Asia. Some aspects remain uncertain but current evidence of the lifecycle supports the view that young eel migrating into European continental waters originate in a single spawning stock in the Atlantic Ocean, presumably in the Sargasso Sea area, where the smallest larvae have been found. Larvae (*Leptocephali*) of progressively larger size are found between the Sargasso Sea and European continental shelf waters. While approaching the continent, the laterally flattened *Leptocephalus* transforms into a rounded glass eel, which has the same shape as an adult eel, but is un-pigmented. Glass eel migrate into UK coastal waters and estuaries mostly between March and April, before migrating, as pigmented elvers, on into rivers and eventually into lakes and streams between May and September. Following immigration into continental waters, the prolonged (up to 20 years) 'yellow eel' stage of growing to full (fertile) adulthood begins. During this stage, the eels may occupy freshwater or inshore marine and estuarine areas, where they grow, feeding on a wide range of insects, worms, molluscs, crustaceans and fish. Sexual differentiation occurs when the eels are partly grown, though the mechanism is not fully understood and probably depends on local stock density. At the end of the growing period, the eels mature, males on average 12 years and females on average about 18 years old, and return to the Atlantic Ocean; this stage is known as the silver eel

That the best evidence is that eels across Europe are of one spawning stock means that we must consider and manage eel in England as part of the whole European population.

The current level of recruitment of glass eel to Europe is at its lowest level in recent decades, at less than 5% with respect to 1960–1979.

## Fisheries of eel

All life stages of eel are exploited in England by approximately 600 eel fishermen. The main fisheries are for glass eel by dip-nets, in estuaries draining into the Bristol Channel, in particular from the Rivers Severn and Parrett, with smaller fisheries, such as that in Morecambe Bay, Cumbria. The main fisheries for larger eel are based in southern and eastern lowland England, with fyke nets being the preferred instrument used for capturing yellow and silver eel.

Sales of glass eel/elver licences (dip nets) were around 1100 per year from 1980 to 1994, increased rapidly thereafter to peak at nearly 2500 in 1998, declined to 2100 in 2000, and then fell to about 450 currently. The rapid increase in sales of licences in 1995-2000 was due to substantial increases in the market value of glass eel from about £100/kg to over £250/kg, due to extra demands from eel farms in the Far East,. There is now a ban (under CITES) on the export of eel from Europe to the Far East market. Currently the majority of glass eel caught are exported to other European countries, mainly for restocking (~65%) in support of the eel recovery plans and for aquaculture (~35%). Of the glass eel caught in the UK between 3 – 54% were stocked annually within the UK (2009-2011). The value of the fishery is in the region of £1 million to £3 million.

Environment Agency sales of yellow and silver eel licences (combined) have varied from around 1100 to 2900 over the period 1983-2007. In 2013 there were about 120 people operating approximately 3000 instruments for yellow and silver eel with a catch of between 20-30 tonnes and an estimated value of £100,000 to £150,000.

The European Eel Regulation (EC 1100/2007) requires us to regulate all eel fisheries. The UK government is also required to report the numbers of all eel removed for commercial or recreational purposes.

In 2009, on the basis that it was not appropriate for anglers to continue to kill eel as part of a recreational activity and following public consultation, we made a byelaw to prohibit this which was confirmed by the Minister. Anglers are still allowed to take eel by rod and line on a catch and release basis and all such fish must be returned alive to the water.

All removal or killing of eel is strictly regulated. We have made provisions to allow the continuation of family traditions for those people who do wish to take a small number of eel for the pot. The preferred method for this practice is by using small nets or traps.

**Environment Agency**

**2014**