Managing salmon fisheries in England and on the Border Esk

Consultation document

We are the Environment Agency. We protect and improve the environment.

Acting to reduce the impacts of a changing climate on people and wildlife is at the heart of everything we do.

We reduce the risks to people, properties and businesses from flooding and coastal erosion.

We protect and improve the quality of water, making sure there is enough for people, businesses, agriculture and the environment. Our work helps to ensure people can enjoy the water environment through angling and navigation.

We look after land quality, promote sustainable land management and help protect and enhance wildlife habitats. And we work closely with businesses to help them comply with environmental regulations.

We can't do this alone. We work with government, local councils, businesses, civil society groups and communities to make our environment a better place for people and wildlife.

Published by:

Environment Agency
Horizon House, Deanery Road,
Bristol BS1 5AH
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

Further copies of this document are available from our publications catalogue:
www.gov.uk/government/publications

or our National Customer Contact Centre:
T: 03708 506506

Email: enquiries@environment-agency.gov.uk.

Foreword

This consultation document sets out ways in which we could reduce the exploitation of salmon from our coasts, estuaries and rivers in England and on the Border Esk.

This consultation forms part of the commitment to restore salmon stocks in England which is made by the Salmon Five Point Approach. The Approach, which was launched in 2015 by the Environment Agency, government and its partners, aims to stabilise and recover salmon stocks to safeguard future populations. To do this, we have set out high level actions which tackle the various factors which affect salmon throughout their life cycle.

These actions include tackling water quality and water flow issues, barriers to migration and impacts in the marine environment, as well as further reducing exploitation by salmon fisheries.

The broad nature of these actions reflects the unique life cycle of our Atlantic salmon. Leaving its marine feeding areas, this iconic fish returns back to the river where it was born to lay eggs to secure future generations of salmon. Salmon are facing an increasing number of challenges: some are natural e.g. changes in sea currents and temperatures, others will be due to man's influence. Construction of barriers, abstracting water, adding nutrients, sediment and other pollutants have all added stress to salmon populations.

Evidence suggests that decreasing marine survival is the most significant factor facing salmon populations. This has resulted in a significant decrease in the numbers of returning adult salmon to our rivers and coasts over the last 20 - 30 years. The 2014 salmon stock assessment was the worst on record with many rivers failing to achieve their minimum safe levels. We have not seen significant improvements in salmon stocks since. This compels us to protect those that do return, ensuring that they can return back to their native streams, reproduce and increase salmon populations.

The responses gathered from this consultation will be used to help formulate and finalise a preferred set of measures to protect salmon stocks. Where the final preferred approach involves bringing in any new byelaws or Net Limitation Orders, these will be formally advertised providing another opportunity for you to comment on the measures presented. It is anticipated that, where necessary, any further consultation would take place during the autumn/winter of 2017.

We are consulting on both the salmon net and fixed engine fisheries and the salmon rod fisheries. Both exploit salmon and so are being examined together. We have divided this consultation into 4 subject areas.

1. National Salmon Byelaws:

   This looks at continuing the existing National Salmon Byelaws which were initially implemented in 1999. These controls expire next year and so we are asking whether they should continue. There are controls for both salmon anglers and salmon net fishermen and these were initially introduced to protect spring running fish which are usually bigger and so contribute more eggs to the river population.

2. Salmon net and fixed engine fisheries:

   This looks at future controls within the salmon net fishery and includes all nets and fixed engines which are licensed to catch salmon. These fisheries exist across England but the largest operates along the north-east coast. More salmon return to these east coast rivers than anywhere else in the country and these support the largest fisheries. We look at this fishery separately to the rest of the country for this reason.

3. Salmon rod fishery catch and release:

   This looks at whether there should be a requirement to return all salmon caught by rod and line outside of the current National Salmon Byelaws. We are asking for views whether this should be achieved by a voluntary approach or whether this should be made mandatory.

4. Salmon angling practices:

   This looks at angling practices and equipment that salmon anglers use to catch and land salmon. We are asking for views on voluntary, and possible mandatory, measures to improve the survival of caught and released salmon.

This consultation will finish on Monday 9 October 2017. You can respond on line or by post, as an individual or as part of a wider group or organisation. We welcome all responses and do recognise you may only want to consider part of the consultation, for example only the angling or salmon net fishing parts. You are most welcome to respond in part or in full.

In some rivers salmon were almost made extinct during the industrial revolution. Many disappeared from these rivers for over 200 years but returned as the water quality improved and barriers were made passable. The current low levels can potentially be reversed, this is a resilient species. However, we do need to work together in partnership to achieve this and ensure that future generations can enjoy our salmon.

Thank you.

Kevin Austin, Deputy Director Agriculture, Fisheries and the Natural Environment

Contents

1. About this consultation

1.1 What is the purpose of this consultation?

1.1.1 This consultation is seeking your views on possible options that have been developed to reduce the exploitation of salmon by rod, net and fixed engine fisheries in England and on the Border Esk. It forms part of the commitment to restore salmon stocks in England that is within the Salmon Five Point Approach and seeks to maximise the opportunity for salmon stock recovery and longer term sustainability. Any review of salmon exploitation will also have implications for sea trout stock management and your views on these fisheries are also welcomed.

1.1.2 This consultation will be of particular interest to anyone who fishes for and/or has an interest in the salmon and sea trout populations in English and border rivers, estuaries or coastal waters. This includes:

- commercial salmon and sea trout netsmen and their representative organisations
- rod and line anglers, their representative organisations and those who own, lease or manage fishing for salmon and sea trout
- other businesses that support, or are supported by, salmon and sea trout fishing
- salmon and sea trout conservation organisations
- other conservation organisations and Non-Governmental Organisations such as Wildlife Trusts and Rivers Trusts
- government agencies and authorities including Natural Resources Wales, Marine Management Organisation, Inshore Fisheries and Conservation Authorities, Natural England and local authorities
- members of the public

1.1.3 The objectives of the consultation are to:

- describe the current status of salmon stocks in England and the Border Esk and the need for further exploitation control protection measures
- present possible exploitation control options for rod and line, net and fixed engine fisheries
- seek views on the range of options presented from those who would be affected by or have an interest in them
- quantify and evaluate the extent of likely impacts or benefits of the presented options on the salmon stocks that you specifically have an interest in (both economically and socially)
- understand from your perspective the likely impacts and benefits to the wider environment of the options presented
- provide an opportunity to suggest alternative options to those which are presented here to protect salmon stocks
- ensure that we fully engage with stakeholders who have an interest or involvement in salmon fisheries management so that we have sufficient information to be able to meet our duties if bringing in any new set of regulations

1.1.4 In summary, this consultation set outs, and seeks views on, the establishment and implementation of a new national approach to controlling salmon exploitation in England and on the Border Esk. It is in addition to any local Net Limitation Order[1] and fishery byelaw consultations that the Environment Agency is currently conducting and which you may have recently been engaged with. We are keen to gather views on how the options presented in

[1] A net limitation order (NLO) is the mechanism within the Salmon and Freshwater Fisheries Act 1975 whereby the Environment Agency may apply to limit the number of nets or traps fishing a particular area.

this consultation document would interact with existing exploitation controls in English and Border Esk salmon fisheries.

1.1.5 Natural Resources Wales is currently, or soon will be, consulting on measures to protect salmon and sea trout in Wales. If you fish for or have an interest in both English and Welsh salmon stocks and their dependent fisheries we suggest that you respond to both of these consultations.

1.1.6 The responses gathered from this consultation will be considered and used to help formulate and finalise a preferred set of measures to protect salmon stocks. Where the final preferred approach involves bringing in any new byelaws or Net Limitation Orders, these will be formally advertised providing another opportunity for you to comment on the measures presented. It is anticipated that, where necessary, any further consultation would take place during the autumn/winter of 2017 and if measures were to be brought in we anticipate that the introduction would be by March 2018.

1.2 Seeking your views

1.2.1 To help gather your views on the possible options that have been developed we are asking specific questions which we make reference to throughout the consultation document. If you are completing this consultation using our online tool, you will find the questions under each section.

If you have been sent or requested a paper copy of this consultation, we have included a response form for you to use (Appendix 1). Word and PDF versions of this document are also available to download from the main consultation web page.

1.2.2 Please provide us with as much information as you feel necessary to answer each of the questions that you wish to respond to. If you would like to provide us with additional information that is relevant to this consultation, then we would be very happy to receive it.

1.2.3 The Small Business, Enterprise and Employment Act 2015 commits future Governments to publish, and then report on, their performance against a deregulation target – The Business Impact Target (BIT), which covers the economic impact of new or amended regulation on business and civil society organisations.

The BIT concerns the regulatory activities of central government and relevant regulators, such as the Environment Agency. As part of this duty we are carrying out an assessment of the financial impacts of the possible options. You can help by responding to the questions we have included to determine these impacts and inform our decision making.

1.2.4 Throughout the consultation we will look to make all comments (excluding personal information and financial data) publicly available on the Environment Agency's online consultation portal. This includes comments received online, by email, post and by fax, unless you have specifically requested that we keep your response confidential. We will not publish names of individuals who respond, but we will publish the name of the organisation for those responses made on behalf of organisations. Following the consultation we will produce a consultation response document by 31 January 2018, this document will be published online.

1.3 Completing the consultation questions

1.3.1 Firstly we would like to find out about where you fish and/or the type of salmon fisheries you are engaged with or have an interest in. By giving us this information we will be able to better understand the answers you have provided to the consultation questions. This information will also help us to record accurately those who have responded to this consultation and ensure that we have received responses from all sectors which may be affected by any new salmon fisheries management approaches. Please provide us this

information by answering **questions 1a and 1b**. You will need to complete these questions to proceed with the online consultation.

2. Introduction

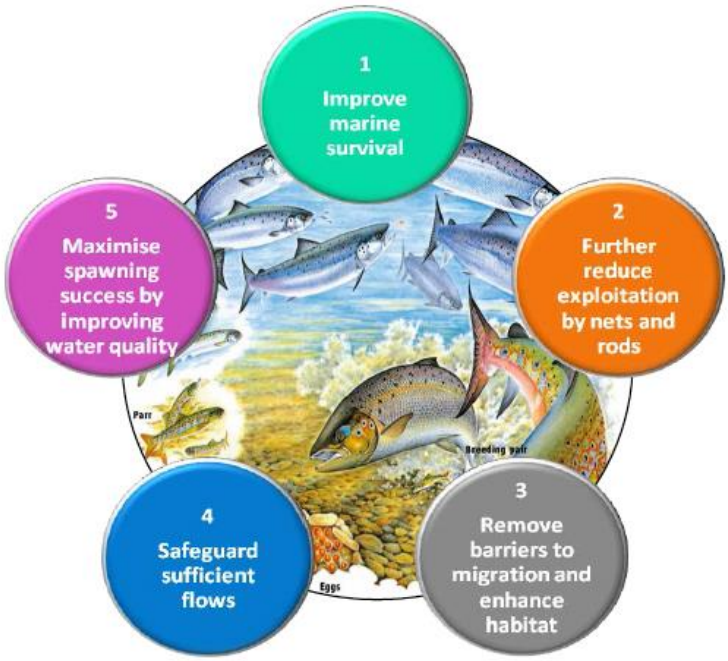
2.1 The Salmon Five Point Approach

2.1.1 Salmon are an iconic indicator of healthy river systems and are protected at key conservation sites around the United Kingdom e.g. the Hampshire Avon and River Eden in Cumbria. They provide enjoyment for those that fish for them, income to the recreational and commercial fisheries that they support and are a valued part of England's 'natural capital'. Salmon fisheries are estimated to support 900 full time jobs and provide £22million in household income (Environment Agency: Economic evaluation of inland fisheries 2009 – SCHO0109BPGI-E-P), which is particularly important for the rural communities and economies where salmon fisheries exist.

2.1.2 The 2014 salmon stock assessment for England was the worst on record with many rivers failing to achieve their minimum safe levels (Conservation Limit). To address this situation, the Environment Agency convened a Salmon Summit in November 2015 which brought together government, salmon net and rod fishery organisations and salmon conservation organisations. The Summit recognised the need for concerted action, taking advantage of improved opportunities for working in partnership and working across all parts of the Environment Agency, Department for Environment, Food and Rural Affairs, its agencies and stakeholders.

2.1.3 Following the Summit, the Environment Agency and its partners[2] developed the Salmon Five Point Approach (Figure 1) with the aim of stabilising and recovering salmon stocks to ensure their future sustainability. The Approach was launched in 2016 and sets out high level actions to tackle the factors that affect salmon throughout their whole life cycle. This includes tackling water quality and water flow issues, barriers to migration and impacts in the marine environment, as well as further reducing exploitation by salmon fisheries. Further detail on the Approach and all its actions is available at: http://bit.ly/Salmon5PointApproach

Figure 1: Five Point Approach to conserve and enhance England's salmon populations



[2] The Salmon Five Point Approach Partners: Environment Agency, Department for Environment, Food and Rural Affairs, Centre for Environment, Fisheries and Aquaculture Science, Angling Trust, The Rivers Trust, Atlantic Salmon Trust, Salmon and Trout Conservation UK, Wild Trout Trust and Institute of Fisheries Management.

2.1.4 Since the start of the Salmon Five Point Approach the outcomes that have been achieved for salmon by a range of organisations include:

- work completed on 12 barriers to fish migration, improving access for salmon to 555km of river
- 51 projects to improve salmon habitat
- 62 schemes to improve water quality, including reductions in sediment and phosphate inputs
- 1 scheme completed to reduce water abstraction and improve river flow
- instructional videos on catch-and-release best practice produced and promoted
- work with Inshore Fisheries and Conservation Authorities to ensure their fisheries byelaws also protect salmon and sea trout
- ensuring that low flows are addressed as part of the Price Review 2019 process with water companies

2.2 The current state of salmon stocks

2.2.1 The 2014 national salmon stock assessment in England indicated that salmon stocks in many rivers across England had failed to meet their minimum safe levels (Conservation Limit) and provided significant cause for concern. The 2015 salmon stock assessment has also indicated a similar status and is available at: https://www.gov.uk/government/publications/salmon-stocks-and-fisheries-in-england-and-wales-in-2015. The 2016 report, which will be published shortly, shows many salmon stocks continuing to be below safe levels.

2.2.2 A summary of the current state of salmon stocks (2016) is provided here and is supported by the evidence set out in Appendix 2:

- The estimated abundance of salmon at sea which originate from stocks in England and Wales has reduced by around 50% since the early 1970s. There has also been a recent marked decline in the abundance of grilse and an increase in numbers of multi sea winter fish.
- This recent increase in multi sea winter fish numbers is expected to have a disproportionate effect on egg deposition, given the substantially higher fecundity of these larger fish. However, when taken with the decline in grilse numbers and size, this poses risks to the sustainability of salmon stocks in the future. As reductions in the survival of returning multi sea winter salmon would result in proportionally greater reductions in egg deposition.
- The available estimates of marine survival for stocks in the UK and Ireland show a marked decline in marine survival around 1990 and persistent low levels of marine survival since. Similar patterns of reduced levels of marine survival in the last 20-30 years are evident for stocks throughout the north-east Atlantic. The reduction in the survival rate of salmon in the north-east Atlantic means that the same number of smolts leaving English rivers now will produce many fewer returning salmon than would have been the case in the 1980s.
- Electronic fish counters or upstream trap data from English and Welsh rivers show variable performance between the stocks on these rivers. Some runs have varied considerably year on year without any discernible trend, and others indicate an increasing trend over recent years. However, for a number of the rivers, there have been declines in salmon numbers in recent years. Counter and trap data from the River Tamar shows a reducing trend in grilse length and weight, and therefore the number of eggs they carry. This, if seen across the whole grilse stock, will have a compounding effect on the lower egg numbers produced due to reducing grilse numbers. Data from the Tamar also shows a reduction in the percentage of two sea winter salmon that run early in the year.

- The latest juvenile salmon assessments (2011-2016) indicate low levels of juvenile abundance across the country. There are concerns around the very low numbers of juveniles, in particular fry, recorded in many river catchments during 2016. The reduction in fry abundance is likely to result in reduced smolt numbers in 2018. There is already evidence of reduced smolt output for the River Frome in 2017, where the majority of smolts migrate after one year in freshwater.
- The national salmon stock assessment shows that, although some of the worst performing rivers are improving and are predicted to continue to do so, most salmon populations have declined, in some cases severely, and are generally not predicted to improve in the next five years. Only 4 of the principal salmon rivers (projected to be 5 in 2021) currently fall within the 'Probably Not at Risk' category and none fall in the 'Not at Risk' category, therefore there are no salmon stocks that we are very certain will meet their Management Objective. The majority of salmon stocks in England fall into the 'At Risk' and 'Probably at Risk' categories and thus remain in a depleted state.
- The very low numbers of salmon fry recorded from monitoring sites in English rivers in 2016 are not taken into account by the predicted 2021 classification, as it is based on the trends and variability of returning adult numbers for the years up to, and including, the current year (in this case 2016). Therefore, unless there is an improvement in salmon survival during a later life stage, it is likely that this will lead to lower management target compliance than the data is currently predicting in 2021.
- There has been a marked decline in net catches in England and Wales over the last 15 – 20 years. This is likely a consequence of increased regulatory controls, such as reducing net limitation orders and licence buy outs, along with the reduction in salmon stocks.
- In 2016 the catch by nets and fixed engines in England increased by almost 4000 fish over 2015 catch and was 24% above the average of the previous five years. This was principally due to an increase in the catch in the North East Coast Net Fishery, which also saw an increase in the catch rate of the beach nets in 2016. This, combined with the falling catch in other parts of the country, meant that the North East Coast Net Fishery catch comprised 93% of the total net catch in England and Wales in 2016.
- Long-term trends in rod catch show a progressive decline in catch numbers from the peak in the mid-1960s to a low in the early 2000s and although catch numbers improved between 2004 and 2011 they have subsequently fallen, and are currently amongst the lowest recorded. The 2016 catch numbers saw some improvement over those in 2015, but remain 25% below the 5 year average.
- The numbers of grilse caught by anglers (6256 in 2016) has fallen. This, combined with an increase in the multi sea winter fish catch (8968 in 2016), has led to this stock component making up the majority of the rod catch in the last two years.
- Catches of both grilse (fish <8lb) and multi sea winter salmon (fish >8lb) peak in the autumn. Over the five years investigated (2012 – 2016) the largest fish were also caught later on in the season, in August, September and October.
- The percentage of rod caught fish of all sizes released by anglers has increased progressively since such data were first recorded in 1993 to the current high of 80%. This does however mask a large amount of variation between rivers and sizes of fish, and it includes the mandatory release of all salmon caught prior to 16 June that has been required as part of the existing National Salmon Byelaws since 1999.
- The restrictions imposed as a result of the National Salmon Byelaws, since 1999, have reduced the number of early running fish caught and killed in both net and rod fisheries across England. This has led to a direct reduction in the exploitation pressure on early returning (majority multi sea winter) salmon. However, Appendix 2 has also highlighted that:

- both nets and rods are taking fish from stocks at the lowest classification status
- the declining number and size of grilse make multi sea winter fish increasingly valuable to stocks
- there is evidence from the River Tamar of a reducing trend in the percentage of multi sea winter fish running early in the year, reducing the proportion of the stock that is protected by the National Salmon Byelaws
- the majority of multi sea winter fish are caught after 16 June and are not therefore afforded the same level of protection as provided by current National Salmon Byelaws, leaving them reliant on voluntary catch and release rates
- there is not a large difference in the monthly average size of multi sea winter salmon caught by anglers throughout the year
- after 16 June anglers are most likely to release large multi sea winter salmon (> 14 lb) (voluntary catch and release rate of 72%), however the release rates of grilse (< 8 lb) and smaller multi sea winter salmon (8 – 14 lb) are identical (68%)
- a greater number of small multi-winter salmon (8 – 14 lb) are retained by anglers than either grilse (< 8 lb) or large multi sea winter salmon (> 14 lb)

2.2.3 It is apparent that the marked decline in salmon stock performance in recent years has primarily been driven by a reduction in the abundance of one sea winter grilse. This observed decline has not been offset by the improvement in multi-sea winter salmon stocks over the same period. The one sea winter stock component has supported salmon runs on many rivers since the significant decline of multi-sea winter stocks from the early to mid-1990s. There is therefore a serious risk that as the runs of salmon on each river become weaker and less predictable, they will become less resilient to other human and environmental pressures and at risk of local collapse. This assessment further highlights the need to urgently address the Five Point Approach commitments and the actions to deliver these.

2.2.4 We are seeking your views on the current state of salmon stocks, please answer **question 2.2a** if you would like to provide us with them.

2.3 What is causing the poor state of salmon stocks?

2.3.1 The most significant single factor impacting upon the status of salmon populations is believed to be the decline in marine survival rates i.e. the percentage of smolts migrating from freshwater which survive at sea to return and spawn in their river of origin, which have reduced markedly over the last 20 to 30 years. Reduced marine survival affects stocks across the North Atlantic and reflects changes in oceanographic conditions operating over a broad scale. Climate driven changes affecting ocean ecosystems are believed to be responsible, with probable impacts on the food available to salmon and possibly increased levels of predation. Given the obvious difficulties of influencing ocean and underlying climatic conditions, there is widespread recognition that, in the short term at least, managers need to focus on reducing the pressures on salmon in freshwater and coastal environments in order to maximise the numbers and quality of smolts leaving our rivers. These are key aims of the Salmon Five Point Approach.

2.3.2 The actions needed to improve salmon stocks on each river vary and these continue to be identified and tackled by catchment-based salmon conservation and fishing groups and local Environment Agency teams. The Five Point Approach actions are designed to increase the numbers and quality of smolts leaving rivers and thus maximise the number of adult salmon returning to spawn. This will be achieved by developing approaches and delivering new measures at a national scale. How increasing the number of adult salmon returning to spawn might be achieved by further reducing salmon exploitation by the regulated fisheries in England and on the Border Esk is the focus of this document.

2.3.3 We recognise that there is illegal exploitation and by-catch of salmon, which, in a few places, may exceed the regulated catch of licensed fisheries. We are actively reducing this by using a combination of tactics:

- targeted intelligence led enforcement
- ensuring traceability of fish; all salmon landed by net and fixed engine fishermen fishing in England and on the Border Esk must have a carcass tag to be sold
- a ban on sale of rod caught salmon
- full support from existing salmon netsmen which provides a self-regulating presence in the fishery
- working with Inshore Fisheries and Conservation Authorities to reduce the likelihood of salmon by-catch in estuarine and coastal fisheries that target sea fish

2.4 The Five Point Approach's actions for salmon exploitation

2.4.1 There are 49 rivers in England that regularly support salmon, although some of the stocks are very small and support minimal catches. Of these, 42 rivers have been designated 'principal salmon rivers'.

2.4.2 Rod fishing for salmon is permitted on all rivers supporting salmon stocks. Net or fixed engine fisheries are licensed or authorised to operate on many of the larger rivers/estuaries. On a small number of these rivers there is currently no active fishing although the potential for fishing to resume remains if stock levels improve. There is a national policy to phase out fisheries that exploit predominantly mixed stocks of salmon and sea trout where the capacity to manage individual pressured stocks is compromised. The two remaining fisheries for salmon and/or sea trout which meet this criteria are the north-east and Anglian coastal net fisheries, and these are currently subject to phase-outs (both fisheries have reducing Net Limitation Orders to zero in place).

2.4.3 There have been substantial decreases in the numbers of salmon killed in England over recent years. This reflects a reduction in the numbers of net and fixed engine licences and the increasing use of catch-and-release practices in rod fisheries and some net fisheries, as well as other regulatory and voluntary measures. The exploitation of salmon by those fishing for them in England is not the dominant factor responsible for the overall decline and continued poor state of salmon stocks. However, there is a clear need to maximise the numbers of salmon surviving to spawn in the short term since further reductions in exploitation will enable more salmon to spawn successfully. Efforts will also continue to address other limiting factors, such as removing barriers to fish migration, safeguarding sufficient flows and improving water quality. With stocks at such historically low levels, every salmon able to spawn is important.

2.4.4 The Salmon Five Point Approach and its partners have developed three sets of initial proposals to further reduce exploitation by nets and rods. These actions are:

i) **further reduce the take of salmon by existing salmon net and fixed engine fisheries**

ii) **increase levels of catch and release and survival in English and Border Esk rod and line salmon fisheries**

iii) **review the existing National Salmon Byelaws for England and the Border Esk that protect spring salmon stocks**

This development has been carried out over recent months through regular meetings of the Salmon Five Point Approach partner organisations, key rod and net fishery stakeholders and representatives. Input has also been provided by Defra, Cefas, Natural England and both local and national Environment Agency staff involved in salmon management and regulation.

2.4.5 We have set out the consultation in the following sections to guide your comments and views:-

- Section 3 - Deciding which salmon stocks need further protection
- Section 4 - Review of existing measures to protect spring salmon stocks
- Section 5 - Future proposals and options for net and fixed engine fisheries
- Section 6 – Future proposals and options for rod fisheries

The existing National Salmon Byelaws provide protection to spring salmon stocks. These byelaws expire on the 31 December 2018 and their review is incorporated within this programme of work. This byelaw review is covered in Section 4, with options for net and fixed engine fisheries (Section 5) and rod fisheries (Section 6) providing possible additional measures to those set out in Section 4.

2.4.6 The options identified within each section of the consultation propose both mandatory and voluntary regulatory measures (where these may provide a viable alternative to a mandatory approach). The possible use of voluntary measures follows Government principles to reduce the regulatory burden on businesses and communities. In each section, the opportunity is provided for all consultees to provide their views on the options that have been set out, how they are delivered and to suggest alternatives.

2.4.7 Twelve rivers in England have been designated Special Areas of Conservation (SACs), under the EU Habitats Directive 92/43/EEC, with salmon as a named qualifying species. This places an additional requirement on fisheries managers and government to maintain the habitats and population status of salmon in these rivers in a favourable condition. Any proposed amendment to salmon fishery regulations for net or rod fisheries that have potential to impact upon salmon populations within these rivers will require further consideration of these statutory designations.

2.5 Consideration of sea trout within the Five Point Approach

2.5.1 The Salmon Five Point Approach was specifically developed to tackle issues facing English and Border Esk salmon stocks. However, many of these issues also affect sea trout stocks and we would therefore anticipate that sea trout will also benefit from a number of the actions that are undertaken to deliver the Approach's commitments to salmon.

2.5.2 In England and the Border Esk, the majority of salmon net and fixed engine fisheries also target sea trout and, in some instances, sea trout landings form the majority of the total catch. For rod fisheries, sea trout are generally targeted separately from salmon, although the similarity in angling methods for both species can lead to the unintentional capture of the non-target species.

2.5.3 In many rivers throughout England, sea trout stocks are currently not a cause for concern with regulatory controls primarily being implemented to protect the salmon stock. There may therefore be situations where it is reasonable to allow continued exploitation of sea trout, while seeking to further reduce exploitation of salmon, provided any remaining fishery can be managed in such a way to safeguard salmon. Net and fixed engine fisheries which currently take a proportion of sea trout in the catch may therefore be allowed to continue to fish for sea trout provided this does not jeopardise the protection of salmon or the future status of sea trout stocks.

2.5.4 In developing options for further reducing the exploitation of salmon, the intention will be not to increase the level of sea trout exploitation in a fishery beyond the current typical level of exploitation. Sea trout stocks will be monitored and the need for any additional exploitation controls will be reviewed annually.

2.5.5 Sea trout have a more complex life cycle than salmon with a high proportion of adults spawning multiple times and a component of the adult population staying as resident brown trout within the river system. Although this is likely to make sea trout populations more resilient to impacts than salmon, it makes establishing their minimum safe spawning levels more

complex. This is recognised internationally and a working group has recently been established within the International Council for the Exploration of the Seas (ICES) that is specifically tasked with developing biological reference points for sea trout. The information provided by this work will inform the development of our assessment approaches for sea trout stocks in the future, as well as decisions on the possible need for further controls on their exploitation.

2.6 Recovering salmon rivers

2.6.1 Rivers that are recovering from historical degradation which do not have minimum safe spawning levels set for them e.g. the Trent, Yorkshire Ouse and Mersey, are currently considered not to be able support any exploitation of salmon. It is intended to retain this position in the measures which are developed to further reduce the exploitation of salmon by nets and rods. Therefore, fisheries that exist, or may develop, on these rivers will continue to be required to operate a zero take of salmon.

3. Deciding which salmon stocks need further protection

3.1 The current approach

3.1.1 Salmon stocks in England are managed in line with the guiding principles that are set out by the North Atlantic Salmon Conservation Organisation[3]. Further information on the NASCO guidelines relating to salmon fisheries management are available at: http://www.nasco.int/pdf/far_fisheries/Fisheries%20Guidelines%20Brochure.pdf

In brief, these guidelines indicate that conserving the productive capacity of individual salmon river stocks should be given priority over exploitation. The guidelines further state that fishing should not be permitted on stocks which are below their Conservation Limits[4]. However, if a decision is made to allow fishing on a stock which is below its Conservation Limit, on the basis of overriding socio-economic factors, fishing should clearly be limited to a level that will still permit stock recovery within a stated timeframe.

3.1.2 The status of stocks in the principal salmon rivers in England is assessed annually against the Conservation Limits and Management Targets[5] for these rivers, with the results used as a basis for assessing the need for management and conservation measures. The methods which are used are described in detail in Annex 7 to the Assessment of Salmon Stocks and Fisheries in England and Wales and are reproduced in Appendix 3 of this document.

3.1.3 In summary, this method involves estimating the numbers of salmon returning to spawn in a river each year, and hence the number of eggs deposited, against the Conservation Limit. The Conservation Limit is considered to be the **minimum safe level of spawning salmon** (described as the number of salmon eggs deposited) for each river. By regularly failing to reach this limit, the risk of that river's salmon stock suffering serious decline greatly increases.

3.1.4 Because salmon stocks naturally vary from year to year, the Environment Agency aims to ensure that **stocks meet the Conservation Limit in four out of five years on average**; this is the Management Objective. To meet this, the average level of a stock typically needs to be around 40% above the Conservation Limit (this higher level is termed the Management Target).

3.1.5 It is also important to look at the trend for a particular stock, whether it is stable, improving or deteriorating. Stocks are therefore classified according to whether, on the basis of the trend over the past 10 years, they are **likely to meet** the Management Objective in five years' time. This system is used because it gives an early warning of where a river's salmon stock will be if current trends are maintained. On the basis of this annual compliance assessment stocks are allocated to one of four categories based on the likelihood of meeting the Management Objective, these are set out in Table 1.

[3] North Atlantic Salmon Conservation Organisation is an international organisation, established by an inter-governmental Convention in 1984. Their objective is to conserve, restore, enhance and rationally manage Atlantic salmon through international cooperation taking account of the best available scientific information.
[4] The Conservation Limit (CL) is the minimum spawning stock level below which stocks should not be allowed to fall. The CL for each river is set at a stock size (defined in terms of eggs deposited) below which further reductions in spawner numbers are likely to result in significant reductions in the number of juvenile fish produced in the next generation.
[5] The Management target (MT) is a spawning stock level for managers to aim at in order to meet the management objective. The 'management objective' used for each river in England is that the stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time), on average.

Table 1: Likelihood of meeting the Management Objective and the associated category title

Likelihood of meeting the Management Objective	Less than 5%	Between 5% and less than 50%	Between 50% and less than 95%	95% and greater
Category name	At Risk (AR)	Probably at Risk (PaR)	Probably Not at Risk (PNaR)	Not at Risk (NaR)

3.1.6 To assist in determining the appropriate level of exploitation for a river's salmon stock a salmon fishery management Decision Structure (Appendix 3) was established, and has been in use, since 2007. The Decision Structure helps to guide a consistent approach to the implementation of management measures and seeks to manage exploitation at a sustainable level that promotes stock recovery whilst minimising the social and economic impacts of measures to control exploitation.

3.1.7 This approach has resulted in local based controls which typically seek to maintain an equitable balance between rod and net exploitation. Examples of this approach may include reductions in the number of netsmen, changes in the netting season to reduce the salmon catch or the introduction of 100% catch and release for the rod fishery to maximise spawning escapement.

3.2 The proposed approach

3.2.1 There has been a marked deterioration in the status of many salmon stocks in the last few years, as shown by the evidence provided in Appendix 2. This has occurred despite actions to tackle issues which impact salmon, national measures to reduce the exploitation of specific components of the salmon stock and the introduction of fishery based management measures (implemented in line with the Decision Structure) to reduce, limit and, where necessary, cease exploitation.

3.2.2 There is also increasing concern of the health of salmon stocks over the next few years as a result of information from recent juvenile surveys. These have indicated unusually low densities of salmon fry and parr in many rivers. This is potentially linked to abnormal weather conditions during sensitive juvenile development stages, as well as lower numbers of spawning fish in many rivers. It is therefore very apparent that more needs to be done to safeguard the worst performing stocks, and underpins why the measures under the Salmon Five Point Approach have been developed.

3.2.3 In developing different options to further reduce exploitation of salmon for net and fixed engine fisheries and rod fisheries, we have taken the view that stocks falling in the lowest two stock status categories (i.e. those with less than a 50% likelihood of reaching the management objective) should be subject to increased protection. We believe it is important to act now to try to arrest further declines. Stocks that continue to have a better than 50% likelihood of meeting the management objective (i.e. those classified as 'Not at Risk' or 'Probably Not at Risk') are considered to have some capacity for continued exploitation and might be regarded as having a certain level of harvestable surplus. We have asked for your views on this in **question 3.2a**.

3.2.4 The options to further protect vulnerable stocks through reducing exploitation of salmon by net and fixed engine fisheries and rod fisheries are set out in Section 4 (review of existing measures to protect spring salmon stocks), Section 5 (net and fixed engine fisheries) and Section 6 (rod fisheries).

4. Review of existing National Salmon Byelaws

4.1 Introduction

4.1.1 In 1999 National Salmon Byelaws were brought in to significantly reduce the exploitation of early run 'spring' salmon (those entering rivers before June). These measures were brought in for 10 years and were subsequently reviewed and renewed for a further 10-year period in 2008. The current National Salmon Byelaws:

- impose a delay in the start of netting season for salmon and sea trout to 1 June[6]
- specify no angling for salmon, other than with artificial fly or lure, before 16 June; and
- require the return, with minimum injury, of all salmon caught by anglers before 16 June

4.1.2 The current byelaws expire on the 31 December 2018 and we are incorporating their review within the options to further reduce exploitation of salmon by net and rod fisheries. This will ensure that any byelaws which are brought in, to either protect spring salmon stocks or achieve the commitments of the Salmon Five Point Approach, are covered in a single set of new National Salmon Byelaws.

4.1.3 Currently the measures to protect spring salmon stocks cover both England and Wales. Natural Resources Wales are in the process of consulting on measures to protect the whole salmon stock in Wales. We are therefore proposing that a new set of National Salmon Byelaws would cover England and the Border Esk only. The Environment Agency is working with Natural Resources Wales to establish how measures would be managed on the border rivers (Wye, Severn and Dee).

4.1.4 In addition to the existing National Salmon Byelaws, salmon are afforded additional protection by a range of local byelaws restricting fishing seasons and times, method restrictions and catch (bag) limits (see Appendix 2, Table 10). It is not proposed to alter these local byelaws as part of this programme of work, unless the preferred set of measures which are developed require existing local byelaws to be revoked. If this is the case it will be set out clearly in the consultation of these preferred set of measures later this year.

4.2 Proposal for measures to protect spring salmon stocks

4.2.1 Appendix 2 describes the current state of multi sea winter salmon stocks which make up a large proportion of salmon returning to our salmon rivers prior to the 1 June.

4.2.2 At the time of the review of the National Salmon Byelaws in 2008, criteria were set out for either relaxing or tightening the measures that were reviewed at that time (Appendix 2, Section 9). The 2008 review found that there was no substantial justification for either relaxing or tightening the measures that were in place at the time of the 2008 review, and hence they were renewed without alteration for a further 10 years.

[6] A few specified net fisheries are still allowed to net for sea trout before 1 June although any salmon caught must be returned immediately to the water with the least possible injury.

4.2.3 We have used the same criteria for this review of the existing National Salmon Byelaws. The full analysis is set out in Appendix 2, Section 9. In summary no rivers in England currently meet the criteria for relaxing the National Salmon Byelaws, this is due to:

- No rivers currently meeting their management objective with a high degree of certainty.
- The percentage of salmon caught before the 1 June[7] increased every year between 2011 (5.5%) and 2015 (13.2%) before dropping slightly to 10% in 2016. However, the data shows that numbers caught before the first of June remained relatively stable between 2011 and 2016. This indicates that the pre-1 June increase in percentage has not been due to an improvement in the spring catch, but rather a drop in the numbers caught later in the year. This is consistent with the decrease in the numbers of grilse caught by anglers.
- National figures point to a drop in the 5 year average pre-June catch, from 1609 between 1994 and 1998 to 1173 between 2012 and 2016.

4.2.4 It is therefore proposed that the existing measures to protect spring salmon stocks are renewed without amendment for England[8] and the Border Esk, so that:

- the start of netting season for salmon and sea trout continues to be the 1 June[9]
- there is no angling for salmon, other than with artificial fly or lure, before 16 June; and
- all salmon caught by anglers before 16 June are returned, with the minimum injury

If you would like to provide your views on this proposal please do so by answering **question 4.2a.**

4.2.5 From the evidence presented in Appendix 2, and summarised in Section 2.2 of this document, it is considered that further reductions in exploitation of salmon are needed by both net and fixed engine fisheries and rod fisheries. The options to deliver these further reductions in exploitation are set out in Section 5 (net and fixed engine fisheries) and Section 6 (rod fisheries). The options set out in both these sections are in addition to the continuation of measures to protect spring salmon stocks which are proposed in this section.

[7] The 1 June is used here so that comparisons can be made between net/fixed engine and rod catch data.
[8] How the continuation of these measures will apply to the English parts of the Rivers Wye, Dee and Severn is currently being discussed with Natural Resources Wales.
[9] A few specified net fisheries are still allowed to net for sea trout before 1 June although any salmon caught must be returned immediately to the water with the least possible injury.

5. Possible options for salmon net and fixed engine fisheries

5.1 Introduction

5.1.1 This section sets out a range of possible options for reducing the exploitation of salmon in net and fixed engine fisheries, in line with delivery of the Salmon Five Point Approach commitments. These possible options are in addition to the mandatory byelaws already in place to protect spring salmon stocks. The review of these byelaws, which are due to expire in December 2018, is included in this programme of work. This review is set out and your views are sought in Section 4 of this document.

5.1.2 In Section 5.2 we set out the possible options for river and estuary net and fixed engine fisheries across England and on the Border Esk. Section 5.3 sets out a specific approach for the North East Coast Net Fishery. This is the only coastal mixed stock fishery in England which takes a significant number of salmon[10]. Mixed stock fisheries present particular challenges as they need to be managed to ensure that they protect the weakest of the contributing stocks from being exploited at an unsustainable level (a requirement specified in the NASCO guidelines).

5.1.3 We want to understand what the impact of the proposed measures would be on those who are involved in net and fixed engine fisheries. **Therefore, the questions relating to Sections 5.2 and 5.3 are specifically aimed at net and fixed engine fishermen and those that they supply their catch to, although views from all stakeholders are also welcomed. Section 5.2 relates to net and fixed engine fisheries in England and on the Border Esk, except the North East Coast Net Fishery. Section 5.3 relates to the North East Coast Net Fishery only.**

5.1.4 In Section 5.4, estimates are provided of the additional salmon which would be available to spawn on each river, if the net and fixed engine fishery which exploits fish from that river were to cease. **Questions 5.4a to 5.4c** gives the opportunity for all consultees to provide their views on the options for net and fixed engine fisheries, with **question 5.4d and 5.4e** specific to the options set out for the North East Coast Net Fishery.

5.1.5 These options have been developed on the principle that to achieve the objectives of the Salmon Five Point Approach for net and fixed engine fisheries it is appropriate to stop the take of salmon directly for specific fisheries, rather than limiting effort further through additional season or timing restrictions or reducing catch through catch limits. Within the questions for Section 5.4 we provide the opportunity for all consultees to suggest alternative approaches to those which are set out here.

5.2 Possible options for salmon net and fixed engine fisheries

5.2.1 Table 2 (page 21) summarises the four possible options being considered for future restriction of salmon net and fixed engine fisheries and the fisheries affected. This table excludes the North East Coast fishery. In brief:

- option 1 would seek to introduce national byelaw to prohibit exploitation of salmon on all rivers

[10] In England the Anglian coast fishery is also considered a coastal mixed stock fishery. This fishery catches very few salmon (less than 10 per year) and therefore is not being considered as part of these options for further reducing the exploitation of salmon. To fulfil the Environment Agency's existing commitment to end coastal mixed stock fisheries that take salmon and/or sea trout this fishery is being phased out as the existing licensees leave the fishery.

- option 2 would affect only rivers classified as ‘at risk’ and ‘probably at risk’
- option 3 would affect only ‘at risk’ rivers
- option 4 would seek to regulate fisheries rivers classified as ‘at risk’ and ‘probably at risk’ using existing regulatory provisions (NLOs, etc.) thus allowing controls to be phased in over a longer time frame

5.2.2 For Options 1 – 3, a national byelaw prohibiting the take of salmon may not preclude some fisheries from continuing to target sea trout, with the immediate release of any salmon caught. We want to understand from you if you consider that this is a viable option, both in terms of the practicality of immediately releasing salmon upon capture and their likely survival, and whether sea trout-only fishing is financially viable. The first series of **questions (5.2a - 5.2d)** are asked on the basis that a particular fishery would close as the method of capture would not enable salmon to be immediately released with a very high likelihood of survival. Following these questions, a further set of **questions (5.2e – 5.2l**) are asked to establish:

- views on whether salmon from a particular fishery could be immediately released with a very high likelihood of survival
- if this would change the impact of the possible options, as that fishery may continue to take sea trout

5.2.3 The process for determining which fisheries might be permitted to continue to take sea trout and release salmon will be clearly set out in any later statutory consultation of the preferred set of measures. The information that is provided in answering the questions on the release of salmon will assist in this process.

5.2.4 Finally, **questions 5.2m and 5.2n** are seeking your views on the timing of bringing in new measures.

Table 2: possible options for net and fixed engine fisheries

	Proposal	Delivery of Salmon Five Point Approach (S5PA)	Salmon stocks affected (based on 2021 predicted stock status)	Net and fixed engine fisheries affected
Option 1	National byelaw prohibiting the take of salmon from all Principal Salmon Rivers. So those that are Not at Risk (NaR), Probably Not at Risk (PNaR), Probably at Risk (PaR) and At Risk (AR).	This option would remove exploitation by net and fixed engine fisheries on all salmon fisheries including those where stocks are not considered to be at particular risk.	**AR**: Dorset Stour, Ribble, Lune **PaR**: Hants Avon, Piddle, Dorset Frome, Exe , Teign, Dart, Tavy, Tamar Lynher, Fowey, Camel, Taw, Torridge, Kent, Leven, Eden, Border Esk, **PNaR**: Severn, Wye and Usk **NaR**: none currently	Christchurch Harbour*, Poole Harbour*, Exe, Teign, Dart*, Tavy, Tamar, Lynher*, Fowey*, Camel, Taw and Torridge, Ribble, Lune, Kent, Leven, Solway and Severn.
Option 2	National byelaw prohibiting the take of salmon from Principal Salmon Rivers that are Probably at Risk (PaR) and At Risk (AR).	This option would remove exploitation by net and fixed engine fisheries on salmon stocks which are considered to be most in need of further protection. This option therefore meets the S5PA commitments.	**AR**: Dorset Stour, Ribble, Lune **PaR**: Hants Avon, Piddle, Dorset Frome, Exe , Teign, Dart, Tavy, Tamar Lynher, Fowey, Camel, Taw, Torridge, Kent, Leven, Eden, Border Esk,	Christchurch Harbour*, Poole Harbour*, Exe, Teign, Dart*, Tavy, Tamar, Lynher*, Fowey*, Camel, Taw and Torridge, Ribble, Lune, Kent, Leven and Solway.
Option 3	National byelaw prohibiting the take of salmon from Principal Salmon Rivers that are At Risk (AR).	This option would remove exploitation by net and fixed engine fisheries on salmon stocks which are in the worst state. It would therefore not meet S5PA commitments as it would still allow exploitation of salmon stocks where they are Probably at Risk.	**AR**: Dorset Stour, Ribble, Lune	Christchurch Harbour*, Ribble and Lune.
Option 4	Revised fishery based Net Limitation Orders and catch/effort controls to move to zero exploitation of Probably at Risk (PaR) and At Risk (AR) salmon stocks.	This option would enable exploitation to reduce to zero over time for salmon stocks which are considered to be most in need of further protection. It would enable existing net and fixed engine fishermen to continue fishing, or voluntarily leave the fishery. This option therefore has less of an immediate impact on these individuals than Option 2, but would extend the time that the exploitation of these stocks could continue for.	**AR**: Dorset Stour, Ribble, Lune **PaR**: Hants Avon, Piddle, Dorset Frome, Exe , Teign, Dart, Tavy, Tamar Lynher, Fowey, Camel, Taw, Torridge, Kent, Leven, Eden, Border Esk,	Christchurch Harbour*, Poole Harbour*, Exe, Teign, Dart*, Tavy, Tamar, Lynher*, Fowey*, Camel, Taw and Torridge, Ribble, Lune, Kent, Leven and Solway.

Accompanying notes:

1. *Denotes fishery where zero exploitation of salmon took place in 2016 as a result of existing controls, agreements or buyouts for that fishery.
2. The river salmon stocks which are exploited by the North East Coast Net Fishery are not listed in the table as these are covered separately in Section 5.3.
3. All proposed options use the 5 year predicted risk category of salmon stock status from the 2016 national salmon stock assessment which represents the most recent data available. Therefore measures being developed in 2017 are using the predicted assessment for 2021 as included in the annual stock status report for 2016 and reported to the International Council for the Exploration of the Seas (ICES). The classifications which would be used to determine which fisheries the measures apply to will be confirmed when the statutory consultation is undertaken later this year, if the approach that is set out by one of these options is taken forward. However, these are not expected to change substantially from that presented in Table 2.
4. Under Options 1 – 3, a National byelaw prohibiting the take of salmon may not preclude some fisheries from continuing to target sea trout, with the immediate release of any salmon caught. Please note that net and fixed engine fisheries which currently have dispensation from the existing National Salmon Byelaws to operate and take sea trout prior to 1 June may not necessarily be able to have a similar dispensation after 1 June due to the ratio of sea trout to salmon that they catch. How any dispensation of this nature is applied will be clearly set out in the statutory consultation of the preferred set of measures, to which consultees will be able to provide their views.
5. If a river or estuary fishery is not covered by a particular option then it is proposed that the current Net Limitation Order and any associated fishery regulatory controls would remain in place. This would also be the case if sea trout continued to be taken by that fishery and **if** it is determined that salmon can be returned with a high likelihood of survival. For example:

   > The River X net fishery is currently restricted to 3 licences under its existing Net Limitation Order. The River X salmon stock is categorised as Probably at Risk in 2021. Therefore, **if** Option 3 from the table above was taken forward and implemented then the River X net fishery would not be subject to further restrictions, and its exiting Net limitation Order would continue to regulate the exploitation of salmon and sea trout by this fishery. **If** Option 2 was taken forward and implemented, then the River X net fishery would be prohibited from taking salmon and would close **if** it was determined that salmon could not be returned with a very high likelihood of survival.

6. It is the current intention to implement revised measures for further reducing the exploitation of salmon by net and fixed engine fisheries from the 2018 season, with the measures put in place for a period of five or ten years. The measures would then be subject to review at the end of this fixed period. This approach would mean that a fishery would not be removed from the measures if there were improvements in the status of a salmon stock (that it exploits) during this period. This would be to ensure that the associated salmon stock was demonstrating a stable recovery.

5.3 North East Coast Net Fishery

5.3.1 The North East Coast Net Fishery for salmon and sea trout comprises coastal drift nets and fixed beach nets, known as 'T' and 'J' nets, fishing the Northumbrian and Yorkshire coasts. The fishery catches salmon and sea trout returning to a number of English and Scottish Rivers, some of which have salmon and sea trout stocks below sustainable levels. Given this is a 'mixed stock fishery' we are unable to manage the fishery to protect these weaker stocks. It is the only coastal mixed stock fishery in England which catches a significant number of salmon and sea trout (Appendix 4 provides supporting evidence for the mixed stock fishery status).

5.3.2 Currently, both the drift and beach net fisheries are subject to phase-out through a reducing Net Limitation Order with no transfer of licences permitted. This means that as fishermen leave the fishery their licence does not become available for re-allocation the following season. In addition, at the time that the current Order was confirmed in 2012, the fisheries minister instructed the Environment Agency to close the drift net fishery at the end of the 2022 season. This would be regardless of whether any drift net licensees remained active at this date.

5.3.3 The fisheries minister also instructed the Environment Agency to undertake a mid-term review of the Order in 2017 with the specific remit of evaluating the potential for maintaining a beach net fishery in some form, provided it would comply with NASCO guidelines to ensure that the weakest stocks could be safeguarded. It would further be necessary to demonstrate with high confidence that exploitation of sea trout would not be increased or take place at a level that would prevent ongoing stock recovery in any of the contributing populations. The fishery would also have to provide clear social and economic benefits.

5.3.4 The Salmon Five Point Approach has set out that coastal mixed stock fisheries for salmon should end. It is therefore being considered how both the existing ministerial instructions and the Salmon Five Point Approach commitments can be met. Table 3 summarises possible options being considered for future measures for the North East Coast Net Fishery. **Questions 5.3a – 5.3l** are seeking the views of North East Coast fishermen, and those that they supply salmon and sea trout to, on the potential closure of the fishery. All consultees will be able to provide their views on these options by answering **questions 5.4d and 5.4e**.

5.3.5 The Environment Agency is asking for this information so that we can assess the impact of the measures which are developed. The status of salmon stocks for the rivers in England and Scotland which this fishery exploits are given in Table 4. Some of the English rivers are currently categorised as 'At Risk' and 'Probably at Risk' (i.e. the River Tees, Coquet and Yorkshire Esk) and a number of Scottish rivers have salmon stocks where action is needed to reduce exploitation or which are considered not to be able to sustain exploitation.

Table 3: possible options for the North East Coast Net Fishery

Option	Proposal	Delivery of Salmon Five Point Approach (S5PA)	Net and fixed engine fisheries affected
NE1	National byelaw prohibiting the take of salmon by the North East Coast Net Fishery from 2018	This option would close all salmon fisheries as the North East Coast Net Fishery is a mixed stock fishery. Maintaining a sea trout fishery would be considered, if such a fishery could be shown to have no significant impact on salmon stocks (e.g. if all salmon captured could be released with a high likelihood of survival).	The whole North East Coast Net Fishery i.e. drift and beach nets
NE2	National byelaw prohibiting the take of salmon by the North East Coast Net Fishery from 2022	This option would close all salmon fisheries as the North East Coast Net Fishery is a mixed stock fishery. Maintaining a sea trout fishery would be considered, if such a fishery could be shown to have no significant impact on salmon stocks (e.g. if all salmon captured could be released with a high likelihood of survival). This would delay meeting S5PA commitments but would bring the whole North East Coast Net Fishery in line with the closure of the drift net fishery in 2022, as instructed by the fisheries minister.	The whole North East Coast Net Fishery i.e. drift and beach nets
NE3	From 2018, revised fishery based Net Limitation Orders and catch/effort controls. These could include further reducing season length and/or equipment modifications and would retain the existing reducing Net Limitation Order and non-transfer of licences	This would not fully meet S5PA commitments.	The whole North East Coast Net Fishery i.e. drift and beach nets Drift net fishery would still close from 2022

Accompanying notes

1. A sea trout fishery would be permissible where any salmon captured could be released with a high likelihood of survival
2. Delaying the closure of the north-east coast beach net fishery to match the instructed closure of the drift net fishery in 2022 would allow existing fishermen to transfer efforts elsewhere, recognising that this may require purchase of different equipment and/or quotas. This Option has been tabled after discussion with the North East Coast Net Fishery. This could cause a lack of parity with the rest of the country unless a later date was applied consistently.
3. Reduction in season length or equipment restrictions would be informed by this consultation

Table 4: salmon rivers exploited by the North East Coast Net Fishery and their current stock status

English Principal Salmon River	2021 predicted salmon stock status	Relevant conservation designation
Coquet	Probably at Risk	SSSI
Tyne	Probably Not at Risk	None
Wear	Probably Not at Risk	None
Tees	At Risk	None
Yorkshire Esk	Probably at Risk	None
English recovering salmon river	**2021 predicted salmon stock status**	**Relevant conservation designation**
Yorkshire Ouse system	Considered At Risk as recovering salmon river	None
Scottish salmon river	**Scottish salmon river stock status grade for 2017**	**Relevant conservation designation**
Tweed	Grade 1	SAC
North Esk	Grade 1	None
South Esk	Grade 1	SAC
Dee	Grade 1	SAC
Tay	Grade 1	SAC
Forth	Grade 2	None
Teith	Grade 1	SAC
Ugie	Grade 3	None
Thurso	Grade 1	SAC
Spey	Grade 1	SAC
Ness	Grade 2	None
Conon	Grade 1	None
Deveron	Grade 1	None
Don	Grade 2	None
Findhorn	Grade 1	None
Forss Water	Grade 1	None
Dionard	Grade 1	None
Halladale River	Grade 1	None
Helmsdale	Grade 1	None
Borgie	Grade 1	SAC
Naver	Grade 1	SAC
Brora	Grade 1	None
Beauly	Grade 2	None
Berriedale	Grade 1	SAC
Shin system	Grade 2	None

Accompanying notes:

1. The Scottish system for determining the conservation status of their salmon stocks follows a similar approach to that undertaken in England and Wales, although a different grading system is used. Grade 1 confers that the exploitation of that stock is sustainable, Grade 2; that action is needed to reduce exploitation and Grade 3; that exploitation is unsustainable and mandatory catch and release for all methods is required for 1 year. In addition to these controls the retention of all salmon caught in Scottish coastal waters has been prohibited due to the mixed stock nature of the fisheries and the limited data on the composition of the catch, this measure will be reviewed in 2018. Further details of the approach that Scotland has adopted are available at: http://www.gov.scot/Topics/marine/Salmon-Trout-Coarse/fishreform/licence/status

5.4 All consultees' views sought on the options for net and fixed engine fisheries

5.4.1 In this section we would like to give the opportunity **for all consultees** to provide their views on the options which we have set out for net and fixed engine fisheries in Section 5.2 and the North East Coast Net Fishery in Section 5.3. To assist with this, we have provided provisional estimates of the number of additional salmon which might be expected to be available to spawn if the associated net/fixed engine fishery stopped taking salmon (Table 5). A number of assumptions have been made in deriving these estimates, so the values are intended to be indicative (see footnotes to Table 5 for details). The estimates have been based on catches in the most recent year. In deriving the estimates of possible additional spawners, resulting from the closure of net fisheries, allowance has been made for fish subsequently captured in rod fisheries (using appropriate levels of catch-and-release). Where fisheries exploit stocks from more than one river, the additional fish resulting from net/fixed engine fishery closure have been allocated to different rivers on the basis of their stock size. In the case of the North East Coast Net Fishery, allowance has also been made for the relative proportions of English and Scottish origin fish taken in the catch. Please refer to Table 2 to understand which option relates to which fishery and river. Please answer **question 5.4a** - **5.4e** if you would like to provide us with your views.

5.4.2 It is important to note that the estimates provided in Table 5 give the number of additional salmon which might be available to spawn in a particular river for the first year the measures are applied from. In each subsequent year the additional salmon would be expected to increase further as each generation produces more smolts and therefore more fish returning. As a result even small numbers of additional salmon available to spawn can accrue over a number of generations to provide a useful contribution to the sustainability of that river's salmon population.

Table 5: provisional estimates of additional salmon expected to be available to spawn, in the first year, for different rivers and assuming the closure of the specified net/fixed engine fishery (estimates based on catch levels in 2016)

Net fishery	English rivers with salmon stocks exploited by net fisheries	2021 predicted compliance category	Estimated number of additional salmon available to spawn
North East Coast Net Fishery	Coquet	Probably at risk	584
	Tyne	Probably not at risk	2742
	Wear	Probably not at risk	1242
	Tees	At risk	174
	Esk (Yorks)	Probably at risk	241
Christchurch Harbour*	Avon (Hants)	Probably at risk	See note 1
	Stour	At risk	See note 1
Poole Harbour*	Piddle	Probably at risk	See note 1
	Frome	Probably at risk	See note 1
Exe	Exe	Probably at risk	113
Teign	Teign	Probably at risk	63
Dart*	Dart	Probably at risk	See note 1
Tavy	Tavy	Probably at risk	4
Tamar	Tamar	Probably at risk	60
Lynher*	Lynher	Probably at risk	See note 1
Fowey*	Fowey	Probably at risk	See note 1
Camel	Camel	Probably at risk	13
Rivers Taw and Torridge	Taw	Probably at risk	29
	Torridge	Probably at risk	10
Severn	Severn	Probably not at risk	24
Ribble	Ribble	At risk	51
Lune	Lune	At risk	317
Kent	Kent	Probably at risk	1
Leven	Leven	Probably at risk	1
Solway (England)	Eden	Probably at risk	176
	Esk (Border)	Probably at risk	90

Accompanying notes:

1. These estimates are based on 2016 declared catch data, rather than an average annual net catch data from a number of years, as a number of net fisheries have had reducing exploitation measures in place. Fisheries marked with a * denotes where zero exploitation of salmon took place in 2016 as a result of existing controls, agreements or buyouts for that fishery.
2. These estimates are calculated as additional salmon available to spawn that would result from the closure of the specified net/fixed engine fishery. The calculations take account of the catch and release rate (as outlined in Section 6) of the rod fishery and some mortality of released fish. To do this the following assumptions have been made:
    - a rod exploitation rate of 15% applies - it is recognised that rod exploitation rates will vary across rivers, a standard rate has been used to simplify the calculation of these estimates
    - 100% catch and release for rivers that are in the At Risk compliance category
    - 90% catch and release for rivers that are in the Probably at Risk compliance category, unless the current catch and release rate is higher, in which case the latter is used
    - catch and release rates are maintained at their 2016 levels for rivers that are in the Probably Not at Risk compliance category
    - a figure of 10% mortality for released salmon has then been applied, which takes into account the reduction in mortality what might be achieved by the use of best practice angling techniques
3. The Ribble net fishery has had additional controls, which further restrict net catches, put in place for the 2017 season, to those that were in place for the 2016 season. Therefore, the gains in salmon for this river will be less than are estimated here as the calculations are based on 2016 data.
4. The north-east coast and Solway fisheries take salmon returning to Scottish rivers and the Severn fishery exploits fish returning to rivers in Wales (Wye and Usk). Additional salmon will therefore return to these rivers as a result of these fisheries ceasing to take salmon.

6. Possible options for rod fisheries

6.1 Introduction

6.1.1 This section sets out a range of possible options to reduce further the exploitation of salmon by rod fisheries. These options cover:

- increasing **the rates of catch and release** nationally, and particularly on rivers with the most threatened stocks
- increasing **the proportion of released fish which survive** so that they can go on to spawn by more widespread use of best practice angling and fish-handling methods

6.1.2 As part of their commitment to the Salmon Five Point Approach the Angling Trust has worked with key angling groups around the country to develop a range of voluntary measures to deliver both increased catch and release rates and improved survival of released salmon. These voluntary measures are set out in Sections 6.2 and 6.3 respectively. You can provide your views on them by answering **questions 6.2a - 6.2i and 6.3a – 6.3c**.

6.1.3 Government's general approach to regulation is to achieve its policy objectives through additional regulation only once it has been demonstrated that satisfactory outcomes cannot be achieved by alternative self-regulatory, or non-regulatory approaches. We have therefore explored both voluntary and mandatory options for the rod fisheries.

6.1.4 The delivery of measures for rod fisheries via a voluntary approach builds on the existing practices already in place. Following the end of the mandatory 100% catch and release period on 16 June, the declared catch returns indicate that voluntary catch-and-release rates are over 70% for the majority of Principal Salmon Rivers. In some rivers (e.g. Test, Itchen, Crake and Leven) the 100% release of salmon caught is continued voluntarily for the rest of the season. On the Hampshire Avon, this voluntary approach is part of a package of measures which has secured the release of all salmon caught on this river for the last fifteen years. This now includes the cessation of fishing once a specific water temperature is exceeded, to reduce the risk of salmon being caught in environmental conditions where their survival post release is reduced.

6.1.5 In discussion with the Angling Trust, a number of measures that could further improve the survival of released salmon have also been identified. These could be introduced using an appropriate byelaw. These measures are set out in Section 6.4 and you can provide your views by answering **questions 6.4a – 6.4g**.

6.1.6 In Section 6.5, estimates are provided of the potential benefits that the possible options for rod fisheries provide in terms of additional fish available to spawn. We have provided these to assist you in answering the questions relating to Sections 6.2, 6.3 and 6.4.

6.1.7 The proposed measures for catch and release and best practice angling and fish-handling methods set out in this section are in addition to the measures already in place under the existing National Salmon Byelaws to protect spring salmon stocks (see Section 4).

6.1.8 In some rivers, existing voluntary measures or local byelaws already exceed the catch-and-release objectives set out below. If this applies to the river(s) that you fish, please indicate this when answering the questions in Section 6 and provide the details of these measures and any views you have on them.

6.2 Options for increasing the catch and release of salmon

6.2.1 Table 6 sets out the possible options for delivering increased levels of catch and release of salmon by rod fisheries. These options cover both mandatory 100% catch and release and increased levels of voluntary catch and release. As with the options for net and fixed engine fisheries, the proposed levels are based on the salmon stock compliance assessment category. The views of all consultees are being sought as to whether you consider that the levels of catch and release set out in Table 6 are sufficient, too high or too low, and the best approach for their delivery (via mandatory byelaws and/or voluntary approach). Please answer **questions 6.2a – 6.2i** to provide your views.

6.2.2 The levels of voluntary catch and release that have been proposed following the Angling Trust's work with key angling groups around the country[11]. These voluntary catch and release levels are considered the best that can be practically achieved by a voluntary approach. These levels of voluntary catch and release would be achieved by influencing fishing clubs, river associations, fishery owners and individual anglers, with this being led by the Angling Trust.

6.2.3 If a voluntary catch and release approach is taken forward then compliance would be monitored on a river-by-river basis through mandatory rod catch returns declared to the Environment Agency. It is envisaged that the required levels of catch and release would need to be met from 2019.

If the required levels of catch and release were not met then the Environment Agency would bring in a mandatory catch and release byelaw requiring 100% catch and release of all salmon caught. This could be done on a national basis or on a river-by-river basis depending on the uptake of the voluntary approach.

6.2.4 The responses that are received to this consultation will inform future decisions as to how the delivery of improved catch and release can best be secured.

[11] South West Rives Association, the North West Angling Trust Fisheries Consultative Council, the North East Angling Trust Forum and representatives of angling clubs in parts of the country without regional representative structures through an Anglers' Advisory Group

Table 6: catch and release options for Rod Fisheries

Option	Proposal	Rivers affected	Catch and release level from 2018
1	Byelaw requiring the 100% catch and release of all salmon caught in England and the Border Esk post 16 June.	**AR**: Tees, Dorset Stour [α], Yealm*, Plym, Ribble, Wyre, Lune, Crake, Cumbria Calder and Derwent*. **PaR**: Coquet, Yorkshire Esk, Itchen*, Hampshire Avon*[α], Piddle[α], Dorset Frome[α], Axe, Exe, Teign, Dart*, Devon Avon, Erme, Tavy, Tamar, Lynher, Fowey, Camel*, Taw, Torridge, Lyn, Kent, Leven, Cumbria Esk, Irt, Ehen*, Eden*, Border Esk. **PNaR**:, Tyne, Wear, Test, Severn and Duddon (& Lickle)	Mandatory 100%
2	Byelaw for all rivers At Risk (AR), and Probably at Risk (PaR) to require 100% catch and release post 16 June.	**AR**: Tees, Dorset Stour[α], Yealm*, Plym, Ribble, Wyre, Lune, Crake, Cumbria Calder and Derwent*. **PaR**: Coquet, Yorkshire Esk, Itchen*, Hampshire Avon*[α], Piddle[α], Dorset Frome[α], Axe, Exe, Teign, Dart*, Devon Avon, Erme, Tavy, Tamar, Lynher, Fowey, Camel*, Taw, Torridge, Lyn, Kent, Leven, Cumbria Esk, Irt, Ehen*, Eden*, Border Esk.	Mandatory 100%
	Voluntary catch and release at levels proposed for all other rivers, post 16 June.	**PNaR**:, Tyne, Wear, Test, Severn and Duddon (& Lickle)	Voluntarily increase rates of release from their current levels
3	Byelaw for all rivers At Risk (AR) to require 100% catch and release, post 16 June.	**AR**: Tees, Dorset Stour[α], Yealm*, Plym, Ribble, Wyre, Lune, Crake, Cumbria Calder and Derwent*.	Mandatory 100%
	Voluntary catch and release at levels proposed for all other rivers, post 16 June.	**PaR**: Coquet, Yorkshire Esk, Itchen*, Hampshire Avon*[α], Piddle[α], Dorset Frome[α], Axe, Exe, Teign, Dart*, Devon Avon, Erme, Tavy, Tamar, Lynher, Fowey, Camel*, Taw, Torridge, Lyn, Kent, Leven, Cumbria Esk, Irt, Ehen*, Eden*, Border Esk.	Voluntarily increase rates of release to above 90% (or maintain existing rates if already higher)
		PNaR:, Tyne, Wear, Test, Severn and Duddon (& Lickle)	Voluntarily increase rates of release from their current levels
4	Voluntary catch and release at levels proposed for all rivers post 16 June.	**AR**: Tees, Dorset Stour[α], Yealm*, Plym, Ribble, Wyre, Lune, Crake, Cumbria Calder and Derwent*.	Voluntarily achieve as close to 100% catch and release as possible
		PaR: Coquet, Yorkshire Esk, Itchen*, Hampshire Avon*[α], Piddle[α], Dorset Frome[α], Axe, Exe, Teign, Dart*, Devon Avon, Erme, Tavy, Tamar, Lynher, Fowey, Camel*, Taw, Torridge, Lyn, Kent, Leven, Cumbria Esk, Irt, Ehen*, Eden*, Border Esk.	Voluntarily increase rates of release to above 90% (or maintain existing rates if already higher)
		PNaR:, Tyne, Wear, Test, Severn and Duddon (& Lickle)	Voluntarily increase rates of release from their current levels

* Denotes river that salmon form part of a Special Area of Conservation designation. Twelve rivers in England have been designated Special Areas of Conservation (SACs), under the EU Habitats Directive 92/43/EEC, with salmon as a named qualifying species. This places an additional requirement on fisheries managers and government to maintain the habitats and population status of salmon in these rivers in a favourable condition. Any proposed amendment to salmon fishery regulations for net or rod fisheries that have potential to impact upon salmon populations within these rivers will require further consideration of these statutory designations.

[α] Denotes rivers where voluntary catch and release rates form part of a package of existing measures to manage the exploitation of salmon

Accompanying Notes:

1. Where current catch and release rates exceed those that are proposed, as part of an existing package of measures to manage the exploitation of salmon, they would be required to be maintained. Where voluntary catch and release rates already exceed those that are proposed, we would advise that these are at least maintained.
2. It is the current intention to implement revised measures for further reducing the exploitation of salmon by rod fisheries from the 2018 season, with the measures to be put in place for a period of five or ten years. These would be subject to review at the end of this fixed period. This approach would mean that improvements in the status of a salmon stock during the period that the measures are in place for the associated fishery would not result in them being removed from the measures. This would be to ensure that the associated salmon stock was demonstrating a stable recovery. We would then assess any changes in the salmon population with a view to either continuing or revising the approach.
3. River – based on 2021 predicted status as reported in 2016. Please refer to Appendix 2: table 7 for 2016 total catch and release rates by river.

6.3 Proposed measures to improve survival of caught and released salmon

6.3.1 To ensure that as many salmon as possible survive after being caught by rod and line the Angling Trust, Atlantic Salmon Trust and Environment Agency are leading on the development and promotion of best practice catch and release techniques for all rivers. These build on the existing good practices which are already in place and have been promoted previously. Please see Appendix 5 for an example of this or by using the following link: http://www.wyeuskfoundation.org/files/C&R_2013.pdf

6.3.2 As improved catch and release practices apply to all of the salmon caught by a rod fishery they can provide an important contribution to the number of fish available to spawn. For example: for a fishery that catches an average of 200 salmon per season an increase of 10% in catch and release from 90% to 100% would see an additional 20 salmon not being killed. Improving catch and release practices so that the mortality of salmon post release reduced from 20% to 10% would also equate to an additional 20 salmon, when applied to all 200 salmon being caught and released. When combined together these two changes to rod fishery practices would result in an extra 40 salmon surviving to spawn.

6.3.3 The current recommendations identified below have been developed by the Angling Trust and the Anglers' Advisory Group. It is broadly based and developed from an independent review commissioned in 2016 by the Environment Agency which considered the methods available to improve the survival of rod caught salmon (a summary of this review is provided in Appendix 6 and the full report is available at: https://www.gov.uk/government/publications/impact-of-catch-and-release-angling-practices-on-survival-of-salmon). These recommendations are:

- Consider the appropriate angling method and tackle to use where catch and release is mandatory or where release is intended.
- Use appropriately strong and balanced tackle to minimise fight duration and therefore avoid fish becoming exhausted. This is particularly important at high water temperatures.
- Use a landing net.
- Avoid angling at high water temperatures (where they exceed 18 °C in the mid-morning).
- Use single or double barbless hooks to minimise risk of injury.
- Avoid the use of large treble hooks, particularly on Flying 'C' spinners, because they increase the risk of injury substantially.
- Use the least harmful bait/lure type (e.g. artificial flies with minimal, appropriately sized, barbless hooks fished actively), even though it may not be the most effective for catching fish. The physical impacts of some types of bait angling often result in higher mortality of released salmon.
- Identify where a fish can be safely landed before commencing fishing, preferably in slack water where the fish can be safely retained in a landing net and promptly released.
- Minimise air exposure, ideally not removing the fish from the water during landing, unhooking and photographing. Do not take fish out of the river onto the bank.
- Use fish-friendly landing nets with soft knotless mesh to help protect fish from abrasion injuries and split fins.
- Handle fish gently with wet hands and avoid squeezing as this can damage internal organs; contact with the gills and eyes should be avoided.
- Always support the fish under the belly and keep in an upright position, preferably underwater and facing into the current. However, during the unhooking process the fish can be laid on its side to stop it moving and to avoid injury. Do not hold fish up by the tail.

- Remove the hook with a long pair of forceps, disgorger, or other unhooking devices. When it is not possible to remove the hook, cut the leader as close to the hook as possible as the hook will work its way out: this is less damaging than prolonged handling.

6.3.4 The promotion of these recommendations will be led by the Angling Trust to river associations, angling clubs, fishery owners and individual anglers through a variety of direct and media driven communications. The Angling Trust have also partnered with the Atlantic Salmon Trust and FishPal to produce a series of 3 videos, titled 'The Gift', on best practice angling catch and release. Part 1 covers fishing tackle, Part 2 covers planning the river and Part 3 covers catch and release. Further information and a link to these videos can be found on the Angling Trust website at: http://www.anglingtrust.net/news.asp?itemid=3688&itemTitle=New+video+guide+to+responsible+salmon+fishing+is+a+hit+with+anglers&section=29&sectionTitle=Angling+Trust+News

6.3.5 Please see the **questions 6.3a – 6.3c**, where your views are sought on these recommendations and any implications that would result from applying them to the waters that you own or fish. Some of these recommendations may benefit from being implemented through national byelaws, rather than by a voluntary approach. These are set out and your views sought in Section 6.4.

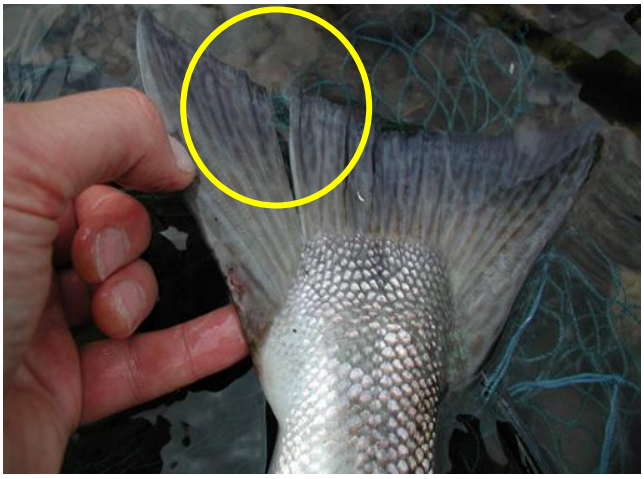
6.4 Possible mandatory measures to improve survival of salmon

6.4.1 There are a number of the measures referred to in the Section 6.3 that are likely to improve the survival of caught and released salmon which may benefit from being implemented through national byelaws, rather than by a voluntary approach. This would ensure that they are applied consistently across England and the Border Esk. To ensure that they are enforceable they would apply when fishing for both salmon and sea trout. These measures are set out below. Please refer to the report on methods to improve the survival of released fish for further information, this report is available here: https://www.gov.uk/government/publications/impact-of-catch-and-release-angling-practices-on-survival-of-salmon. We want to hear your views about whether you think these measures are reasonable, too restrictive or don't go far enough. Please answer **questions 6.4a to 6.4g** to provide us with these views.

6.4.2 In the vast majority of situations the use of a landing net with appropriately sized fish-friendly mesh is the best method of safely retaining salmon for unhooking and subsequent release. By not having a landing net available to use then there is an increased chance that salmon are damaged during landing and unhooking (for instance when 'beached' on a shallow bank). The use of a landing net is also likely to shorten the playing time of a fish considerably, allowing a faster recovery time. **Question 6.4a** is seeking your view on whether having a landing net available to use should be required by byelaw whilst fishing for salmon or sea trout in England and on the Border Esk.

6.4.3 The use of landing nets with large mesh can split the fins of salmon (see Figure 1), leading to increased chance of infection and affecting survival post release. **Question 6.4b** seeks your views on use of a landing net with a maximum mesh size of less than 20mm when fishing for salmon or sea trout.

Figure 1: picture showing split fin (highlighted by yellow circle) following landing in a large-mesh net



6.4.4 Reviews of hooking mortality studies undertaken by a number of authors (please see the report on methods to improve the survival of released fish for further information) show that barbless hooks are consistently less injurious and result in less mortality than barbed hooks. To ensure that anglers use hooks which cause the least injury when fishing for salmon a byelaw could be used to prohibit the use of barbed hooks when fishing for salmon or sea trout. This would mean that only barbless or de-barbed (where the barb is removed or flattened- see Figure 2) hooks could be used by law. **Question 6.4c** seeks your views on prohibiting the use of barbed hooks when fishing for salmon or sea trout.

Figure 2: an example of a barbed and de-barbed hook

6.4.5 The use of fewer hooks or single hooks generally reduces potential injury and unhooking times. Treble hooks (see Figure 3), and particularly when more than one set of trebles is used on lures (see Figure 4), are likely to have the greatest potential for causing injury and becoming entangled in landing equipment (e.g. landing nets). To ensure the risk of injury and delay in release is minimised for salmon your views are sought on whether the use of treble hooks should be prohibited when fishing with fly, lure or bait for salmon or sea trout. This would mean that all hooks used on flies, lures or when bait fishing would need to be single or double hooks (see Figure 3). **Question 6.4d** seeks your views on prohibiting the use of treble hooks when fishing for salmon or sea trout.

Figure 3: examples of treble, double and single hooks

Figure 4: an example of a lure with multiple treble hooks

6.4.6 The use of worms as bait when fishing for salmon can result in them becoming deeply hooked. This can prolong the unhooking process and increase the risk of damage whilst doing so. The use of circle hooks, which have the point of the hook turned towards the shank (see Figure 5), are designed to greatly increase the likelihood of hooking a fish in the corner of the mouth when using bait. On some rivers their use when worm fishing is already common practice and has been made a voluntary requirement of fishing there at certain times e.g. Fowey and Camel. **Question 6.4e** seeks your views on allowing the use of circle hooks when using worm as bait whilst fishing for salmon or sea trout.

Figure 5: an example of a circle hook

6.4.7 Flying ‘Cs’, which are typically fished with treble hooks, (see Figure 6) can be taken deeply by salmon resulting in damage and prolonging the unhooking process. This can result in reduced survival of salmon caught on Flying ‘Cs’ after release. **Question 6.4f** seeks your views on prohibiting the use of Flying ‘Cs’ or only allowing their use with single hooks when fishing for salmon or sea trout.

Figure 6: an example of a Flying “C” with treble and single hook

6.5 Estimated gains from rod fishery options

6.5.1 In Table 7 we have provided provisional estimates of the number of additional salmon that might be expected to be available to spawn on an individual river basis, if the voluntary rod catch and release (as set out in Table 6: Option 4) and best practice angling measures were adopted for that river. A number of assumptions have been made in deriving these estimates and so the values are intended to be indicative (see footnotes to Table 7 for details).

6.5.2 It is important to note that the estimates provided in Table 7 give the number of additional salmon which might be available to spawn in a particular river for the first year the measures are applied from. In each subsequent year the additional salmon would be expected to increase further as each generation produces more smolts and therefore more fish returning. As a result even small numbers of additional salmon available to spawn can accrue over a number of generations to provide a useful contribution to the sustainability of that river's salmon population.

Table 7: estimates of additional salmon returning to spawn resulting from improved levels of voluntary catch-and-release and fish handling practices in rod fisheries (based on catch levels in 2016)

	River	2021 Status	Estimated additional salmon returning to spawn from rod measures:
NE	Coquet	Probably at risk	195
	Tyne	Probably not at risk	291
	Wear	Probably not at risk	81
	Tees	At risk	21
	Esk-Yorks	Probably at risk	33
Southern	Test	Probably not at risk	17
	Itchen	Probably at risk	20
SW	Avon-Hants	Probably at risk	19
	Stour	At risk	0
	Piddle	Probably at risk	0
	Frome	Probably at risk	7
	Axe	Probably at risk	3
	Exe	Probably at risk	48
	Teign	Probably at risk	26
	Dart	Probably at risk	3
	Avon-Devon	Probably at risk	3
	Erme	Probably at risk	0
	Yealm	At risk	0
	Plym	At risk	1
	Tavy	Probably at risk	6
	Tamar	Probably at risk	54
	Lynher	Probably at risk	6
	Fowey	Probably at risk	24
	Camel	Probably at risk	33
	Taw	Probably at risk	43
	Torridge	Probably at risk	13
	Lyn	Probably at risk	1
Midlands	Severn	Probably not at risk	26
NW	Ribble	At risk	89
	Wyre	At risk	1
	Lune	At risk	237
	Kent	Probably at risk	41
	Leven	Probably at risk	2
	Crake	At risk	0
	Duddon (& Lickle)	Probably not at risk	4
	Esk	Probably at risk	15
	Irt	Probably at risk	8
	Ehen	Probably at risk	34
	Calder	At risk	2
	Derwent	At risk	58
	Eden	Probably at risk	160
	Esk-Border	Probably at risk	124

Accompanying notes:

1. These figures represent the additional salmon estimated to spawn resulting from the introduction of improved catch and release levels together with best practise angling techniques. The 2016 declared rod catch data for that river has been used as the basis for these calculations.
2. The estimates are based on a rivers current (2016) salmon run with the addition of any extra salmon which would be provided as a result of the nets stopping the take of salmon.
3. The above estimates are based on the following assumptions:
    - 100% catch and release applies for rivers that are in the At Risk compliance category
    - 90% catch and release applies for rivers that are in the Probably at Risk compliance category, unless the 2016 catch and release rate is higher than this, in which case the latter is used.
    - catch and release rates are maintained at their 2016 levels for rivers that are in the Probably Not at Risk compliance category
    - Post release mortality following catch-and-release set at 10% (rather than 20% as at present). This takes into account the reduction in mortality that might be achieved by the use of best practice angling techniques.
4. There are a number of rivers (e.g. Hants Avon, Frome, Piddle, Test and Itchen) where 100% catch and release of salmon is already being practiced and a number of the good practice angling techniques are already being applied. The values provided for these rivers are therefore likely to be over-estimates.
5. For a small number of rivers zero values are given. This is as a result of that river having an existing catch and release rate equal or above that used in the calculations and a very low overall rod catch. Therefore the overall gains in salmon for these rivers is estimated as fractions of a fish and have been recorded as zero.

7. Responding to this consultation

We welcome your comments on further reducing the exploitation of salmon by rod, net and fixed engine fisheries in general and in particular would value your views on the questions that we have specifically asked. If you would like to provide us with additional comments then please do so in **question 7**. If you are completing this consultation using our online tool, you will find these questions under each section.

If you have been sent or requested a paper copy of this consultation, we have included a response form for you to use (Appendix 1). A PDF and Word version of this document are also available to download from the main consultation web page.

Important dates

This consultation closes on Monday 9 October 2017.

How to respond

You can view the consultation documents and questions online at https://consult.environment-agency.gov.uk/portal/. Here you can submit your response using our online tool which will enable you to manage your comments more effectively. It will also help us to gather and summarise responses quickly and accurately as well as reduce the costs of the consultation.

If you would prefer to submit your response by email, or if you would like to ask for a printed version of the documents to be posted to you, please send this to S5PA@environment-agency.gov.uk or contact 03708 506506

If you would like to send your response by post, please send your completed response form by Monday 9 October 2017 to:

FAO Salmon Consultation Team
Environment Agency
Rivers House
Sunrise Business Park
Higher Shaftesbury Road
Blandford Forum
DT11 8ST

What will the responses be used for

The responses gathered from this consultation will be considered and used to help formulate and finalise a preferred set of measures to protect salmon stocks. Environment Agency staff dealing with this consultation will see all responses in full.

We will provide a full summary of the responses on our website by 31 January 2018.

How we will use your information

Throughout the consultation we will look to make all comments (excluding personal information and financial data) publicly available on the Environment Agency's online consultation portal. This includes comments received online, by email, post and by fax, unless you have specifically requested that we keep your response confidential. We will not publish names of individuals who respond, but we will publish the name of the organisation for those responses made on behalf of organisations.

If you respond online or provide us with an email address, we will acknowledge your response. After the consultation has closed a summary of the responses will be published on our website.

We will contact you to let you know when this is available. We will also notify you of any forthcoming consultations unless you tell us otherwise.

In accordance with the Freedom of Information Act 2000, we may be required to publish your response to this consultation, but will not include any personal information. If you have requested your response to be kept confidential, we may still be required to provide a summary of it.

Consultation Principles

Government is improving the way it consults by adopting a more proportionate and targeted approach. We are running this consultation in accordance with their Consultation Principles.

If you have any queries or complaints about the way this consultation has been carried out, please contact:

Emma Hammonds, Consultation Coordinator

Environment Agency

Horizon House

Deanery Road

Bristol BS1 5AH

Email: emma.hammonds@environment-agency.gov.uk

Glossary

This glossary has been extracted from various sources, but chiefly the EU SALMODEL report (Crozier *et al.*, 2003[12]) and Environment Agency reports.

Adult - Salmon after the middle of the first winter spent at sea, after which the main categorisation is by sea-age, measured in sea-winters (e.g. grilse, or 1SW; two sea winter, or 2SW).

Anadromous fish - Fish, born in freshwater, that migrates to sea, to grow and mature, and then returns to freshwater as an adult to spawn (e.g. salmon, sea trout).

Catchment - The area of land drained by a river (e.g. River Tyne catchment).

Conservation Limit (CL) - The minimum spawning stock levels below which stocks should not be allowed to fall. The CL for each river is set at a stock size (defined in terms of eggs deposited) below which further reductions in spawner numbers are likely to result in significant reductions in the number of juvenile fish produced in the next generation.

Exploitation - Removal of fish from a stock by fishing.

Fecundity – the number of eggs produced by a female salmon

Fixed engine (FE) - The term fixed engine is an ancient one used in the UK as a general descriptor of stationary fishing gears.

Fork length - The length of a fish from the tip of its snout to the centre of the fork in its caudal fin (tail).

Fry - Young salmon that have hatched out in the current year, normally in May at the stage from independence of the yolk sac as the primary source of nutrition up to dispersal from spawning areas (redds).

Grilse - An adult salmon that has spent only one winter feeding at sea before returning to freshwater to spawn; normally only applied to salmon in home waters (see also one sea-winter salmon).

Management target (MT) - A spawning stock level for managers to aim at in order to meet the management objective. The 'management objective' used for each river in England and Wales is that the stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time), on average.

Mixed stock fishery (MSF) - A fishery that predominantly exploits mixed river stocks of salmon. The policy in England and Wales is to move to close coastal net fisheries that exploit predominantly mixed stocks where the capacity to manage individual stocks is compromised. Fisheries, including MSFs, operating within estuary limits are assumed to exploit predominantly fish that originated from waters upstream of the fishery; these fisheries are carefully managed to protect the weakest of the exploited stocks, guided by the decision structure and taking into account socio-economic factors and European conservation status where applicable.

Multi-Sea-Winter (MSW) salmon - An adult salmon that has spent two or more winters at sea.

Net Limitation (Order NLO) - Mechanism within the Salmon and Freshwater Fisheries Act 1975 whereby the competent authority may apply to limit the number of nets or traps fishing a particular area.

One-Sea-Winter (1SW) salmon - An adult salmon that has spent one winter at sea (see also

[12] Crozier, W.W., Potter, E.C.E., Prevost, E., Schon, P-J. and O'Maoileidigh, N. (editors) 2003. A coordinated approach towards the development of a scientific basis for management of wild Atlantic salmon in the north-east Atlantic (SALMODEL). Queens University of Belfast, Belfast. 431 pp.

grilse).

Parr - Juvenile salmon in the stage following fry until its migration as a smolt, Salmon parr are typically <16 cm long and have parr-marks (dark vertical bars) on the sides of the body.

Post-smolt - Young salmon, at the stage from leaving the river (as smolts) until the middle of its first winter in the sea.

Pre-fishery abundance (PFA) - The PFA of salmon from England and Wales is defined as the number of fish alive in the sea on January 1 in their first sea winter. This is split between maturing (potential 1SW) and non-maturing (potential MSW) fish.

Production - The assimilation of nutrients to produce growth in a population over a given period.

Reference point - An estimated value derived from an agreed scientific procedure and/or model which corresponds to a state of the resource and/or of the fishery and can be used to assess stock status or inform management decisions.

Run - The number of adult salmon ascending, or smolts descending, a river in a given year. The main smolt run takes place in spring, whereas adult salmon runs may occur in spring, summer, autumn or winter.

Special Area of Conservation (SAC) - An area designated under the EU Habitats Directive (92/43/EEC) giving added protection to identified species and habitats. Where salmon is a "qualifying species", additional protection measures are required specifically for salmon.

Sea age - The number of winters that a salmon has remained at sea.

Sea trout - Anadromous form of the trout (*Salmo trutta*) from the post-smolt stage; the brown trout remains in freshwater throughout its life.

Site of Special Scientific Interest (SSSI) - An area of land notified under the Wildlife and Countryside Act 1981 by the appropriate nature conservation body as being of special interest by virtue of its flora and fauna, geological or physiographical features.

Smolt - The stage in the life cycle of a salmon when the parr undergo physiological changes, become silver in appearance and migrate to sea. Salmon smolts are typically 12–16 cm long and migrate to sea in spring.

Smolt age - The number of winters, after hatching, that a juvenile salmon remains in freshwater prior to emigration as a smolt (this does not, therefore, include the winter in which the egg was laid).

Spring salmon - Multi-sea-winter salmon which return to freshwater early in the year, usually before the end of May.

Stock - A management unit comprising one or more salmon populations, which may be used to describe those salmon either originating from or occurring in a particular area. Thus, salmon from separate rivers are referred to as "river stocks". (N.B. Very large management units, such as the salmon exploited at West Greenland, which originate from many rivers, are often referred to as 'stock complexes').

Two sea winter salmon (2SW) - An adult salmon that has spent two winters at sea.

Would you like to find out more about us or about your environment?

Then call us on
03708 506 506 (Monday to Friday, 8am to 6pm)

email
enquiries@environment-agency.gov.uk

or visit our website
www.gov.uk/environment-agency

incident hotline **0800 807060** (24 hours)
floodline **0345 988 1188** (24 hours)

Find out about call charges (www.gov.uk/call-charges)

Environment first: Are you viewing this on screen? Please consider the environment and only print if absolutely necessary. If you are reading a paper copy, please don't forget to reuse and recycle if possible.