Consultation on management options for the Yorkshire and North East sea trout net fishery

May 2022

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

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create 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:
http://www.gov.uk/government/publications

or our National Customer Contact Centre: T: 03708 506506

Email: enquiries@environment-agency.gov.uk

Executive summary

A net fishery for salmon and sea trout has been in operation in one form or another in the North East of England for at least 180 years.

As part of our duty to maintain, improve and develop salmon and sea trout fisheries in England, the Environment Agency has the power to licence fishing for salmon and migratory trout, and to make Orders setting limitations for the provision of net licences, known as Net Limitation Orders (NLOs).

NLOs are used to secure sustainable exploitation of salmon and sea trout stocks by controlling the number of licensed nets allowed to operate in specified fisheries.

In limiting the number of licences issued, we also consider the interests of those who are licensed to fish and are dependent on fishing for their livelihoods, to ensure the economic impacts of our regulation of the fishery are minimised, as well as protecting vulnerable fish stocks.

In December 2012, the number of licences available in the Yorkshire and North East coastal net fishery for salmon and sea trout was determined by the North East Coast (Limitation of Net Licences) Order 2012.

This Order expires in December 2022. We are therefore consulting with all interested parties to assist us in determining the future management of the net fishery after that time.

This consultation considers provisions for replacing the existing NLO, together with other means of regulating the North East coast net fishery, including relevant legislation, national and regional fisheries byelaws and licence conditions. It also considers whether a beach net fishery for sea trout can be maintained in some form or another.

The consultation will be of interest to anyone who fishes for and/or has an interest in the salmon and sea trout populations and fisheries in North East England, their conservation and management.

In this report, we describe the Yorkshire and North East coastal net fishery and summarise the historic management, levels of participation and catches of salmon and sea trout in the fishery.

We also describe the current status of salmon and sea trout stocks exploited by the net fishery, review the socio-economic value of the fishery and present possible options for management of the net fishery after the 2012 Net Limitation Order expires.

We summarise the extent of likely impacts or benefits of the presented options on salmon and sea trout stocks, and on those who fish for sea trout.

Our foremost consideration is the conservation of salmon and sea trout stocks, but we will be mindful of the economic impact that any NLO, together with the other means of regulating the net fishery, would have on those who rely on fishing for sea trout as part of their livelihoods.

In reviewing the options for managing the net fishery after the current NLO has expired, we will seek to achieve the best balance between providing vulnerable stocks with much needed protection, while minimising the economic and social impacts of regulating the beach net fishery for sea trout.

We will seek to allow a sea trout fishery as far as that is sustainable and consistent with providing adequate protection for fish stocks, and in line with precautionary principles of fisheries management.

We will consider the impact of our management proposals on sites and species with statutory nature conservation designations, including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Sites of Special Scientific Interest (SSSI).

We recognise that factors other than exploitation in net fisheries impact upon salmon and sea trout stocks, and that marine survival is one of the most important of these factors.

We are working with partners to address all factors affecting salmon and sea trout stocks under the Salmon Five Point Approach, including water quality, fish habitat and access improvements, as well as working to better control levels of exploitation.

A number of options are presented for managing the fishery after December 2022. Each option would have some degree of impact on the livelihoods of beach net licensees and on the level of protection offered to stocks of salmon and sea trout exposed to the net fishery.

These options are summarised below:

Option 1

Do nothing. Allow the current NLO to expire in December 2022 without replacement. Anyone applying for a T or J net licence would be issued with one.

Option 2

Replace the 2012 NLO with a new reducing NLO with identical provisions - licences are restricted to those already operating in the net fishery, and as current licensees retire, the number of licences is reduced.

Option 3

Introduce a fixed NLO that caps the number of licences at the current level, such that as existing licensees retire, their licences are made available to other fishermen.

Option 4

Introduce an NLO which sets the number of licences available at zero, suspending all netting for sea trout.

Following the consultation process, we will carefully review and consider all responses we receive.

We will also consider the latest data on the performance of the stocks contributing to the fishery, together with the impact of the fishery upon those stocks, the socio-economic impacts of our regulations, best practice in fisheries management, North Atlantic Salmon Conservation Organisation (NASCO) advice and government policy to identify our preferred option, which will be advertised later this year.

We will produce a consultation response document summarising responses to the consultation, and our recommendations for the future management of the net fishery. This document will be published online. Hard copies will be made available upon request.

Contents

1. About this consultation

1.1 What is the purpose of this consultation?

As part of our duty to maintain, improve and develop salmon and sea trout fisheries in England, the Environment Agency has the power under Section 26 of the Salmon and Freshwater Fisheries Act 1975 (SAFFA) to licence fishing for salmon and migratory trout, and to make Orders setting limitations for the provision of net licences, known as Net Limitation Orders (NLOs).

NLOs are used to secure sustainable exploitation of salmon and sea trout stocks by controlling the number of licensed nets allowed to operate in specified fisheries.

In limiting the number of licences available under an Order, we also consider the interests of those who are licensed to fish and are dependent for their livelihoods on fishing, to ensure the economic impact of the Order is minimised, as far as that is consistent with protecting vulnerable fish stocks.

In December 2012, the number of licences available in the Yorkshire and North East coastal net fishery for salmon and sea trout was determined by the North East Coast (Limitation of Net Licences) Order 2012.

The 2012 NLO restricted the issue of net licences to licensees already participating in the fishery and currently holding licences.

Under the provisions of the 2012 NLO, as existing licensees retire from the fishery, their licences are not made available to other potential netsmen. In this way, the fishery reduces in size over time, but in a way that allows existing fishermen to continue to take out a licence each year and continue fishing, should they wish to do so.

This approach increases protection to vulnerable fish stocks contributing to the net fishery over time, but in a way that minimises the economic impact on fishermen already working in the fishery.

NLOs are time limited. The current NLO came into effect when it was confirmed by the Fisheries Minister on 6 December 2012, and it expires on 6 December 2022.

Whilst the Environment Agency has the power to make or revoke NLOs, there is no provision within the legislation to amend or extend existing NLOs. Consequently, when an existing NLO expires, it can be replaced if necessary.

This consultation considers provisions for replacing the existing NLO, together with the other means of regulating the North East coast net fishery, including relevant legislation, national and regional fisheries byelaws and licence conditions. It also considers whether a beach net fishery can be maintained in some form or other.

Following the consultation process, we will carefully review and consider all responses received. We will also consider the latest data on the performance of the stocks contributing to the fishery, together with the impact of the fishery upon those stocks, the socio-economic impacts of our regulations, best practice in fisheries management, North Atlantic Salmon Conservation Organisation (NASCO) advice and government policy to identify our preferred option, which will be advertised later this year.

1.2 Who may be interested in this consultation?

This consultation will be of interest to anyone who fishes for and/or has an interest in the salmon and sea trout populations and fisheries in North East England, their conservation and management, including:

– commercial sea trout netsmen and their representative organisations
– 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 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 Inshore Fisheries and Conservation Authorities and Natural England
– members of the public with an interest in salmon and sea trout management and conservation
– elected members, especially coastal MPs, whose constituents may be affected

1.3 What are the objectives of the consultation?

This consultation set outs, and seeks views on, options for managing the Yorkshire and North East coastal net fisheries once the 2012 Net Limitation Order expires. The objectives of the consultation are to:

– describe the Yorkshire and North East coastal net fishery and summarise the historic management, levels of participation, catches and contributing stocks of salmon and sea trout.
– describe the current status of salmon and sea trout stocks exploited by the beach net fishery
– present possible options for replacing the 2012 Net Limitation Order
– invite views on the range of options presented from those who would be affected by or have an interest in them
– evaluate the extent of likely impacts or benefits of the presented options on salmon and sea trout stocks
– understand the likely impacts and benefits to the wider environment of the options presented
– engage with stakeholders who have an interest or involvement in management of the beach net fishery so that we have sufficient information to be able to meet our duties in proposing any changes to the management of the fishery.

1.4 What are the outcomes of the consultation?

The consultation will help the Environment Agency deliver a management framework that will support:

– healthy and sustainable salmon and sea trout populations returning to east coast rivers, meeting conservation objectives.
– sustainable exploitation of sea trout stocks by fisheries that contribute to the local economy, with economic impacts on netsmen minimised, as far as that is consistent with protecting fish stocks.
– a low and manageable risk from exploitation to the stocks of sea trout returning to individual east coast rivers.
– management of salmon and sea trout stocks that takes account of commitments to international law, UK legislation (e.g. Habitats Regulations) and agreements (e.g. by NASCO).

The views and aspirations of all stakeholders are invited and will be taken into consideration in reaching our conclusions. Everyone with an interest will have had the opportunity to contribute and have their views carefully considered.

1.5 The Environment Agency's approach

We will review options for managing fisheries considering the performance of the stocks of salmon and sea trout exposed to the net fishery, the impact of the net fishery upon those stocks and taking account of best practice and current policy positions.

In reaching our conclusions, we will seek views from a wide range of stakeholders and will closely consider the best and latest available scientific evidence.

Our foremost consideration is the conservation of salmon and sea trout stocks, but we will be mindful of the economic impact that any NLO together with the other means of regulating the net fishery would have on those who rely on fishing for sea trout as part of their livelihoods.

In reviewing the management options for managing the net fishery after the current NLO has expired, we seek to achieve the best balance between providing vulnerable stocks with much needed added protection, while minimising the economic and social impacts of regulating the beach net fishery for sea trout. We will license a sea trout fishery as far as such a fishery is sustainable and consistent with providing adequate protection for fish stocks, in line with the precautionary principle.

We will consider the impact of our management on sites and species with statutory nature conservation designations, including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Sites of Special Scientific Interest (SSSI).

We recognise that factors other than exploitation in net fisheries impact upon salmon and sea trout stocks, and that marine survival is one of the most important of these factors. We are working with partners to address all factors affecting salmon and sea trout stocks under the Salmon Five Point Approach, including water quality, fish habitat and access improvements, as well as working to better control levels of exploitation.

This forms part of our commitment to restore and protect salmon and sea trout stocks in England, maximising opportunities for stock recovery and longer-term sustainability.

At the same time, we are seeking to provide opportunities for sea trout net fisheries, as far as this can be achieved in a way which is consistent with providing necessary protection for both salmon and sea trout stocks contributing to those fisheries.

1.6 Seeking your views

Electronic copies of this consultation report are available on the Environment Agency's consultation website. Paper copies of the reports are available on request.

The closing date for this consultation is 17 June 2022.

Responses may be made on the Environment Agency in three ways:

Using the online response form on the Environment Agency's consultation website:

https://consult.environment-agency.gov.uk/north-east/north-east-coast-nlo-2012

By email to: jonathan.shelley@environment-agency.gov.uk

By post to: Mr Jon Shelley
Environment Agency
Tyneside House
NE4 7AR

Please provide us with as much information as you feel necessary to support your position, and indicate your preferred option, or alternative recommendation.

Any responses we receive to the consultation (excluding personal information and financial data) will be made publicly available. This includes comments received by email and post unless respondents have specifically requested that we keep their 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 summarising responses to the consultation, and our recommendations for the future management of the net fishery. This document will be published online. Hard copies will be made available upon request.

2. Description of the net fishery

A net fishery for salmon and sea trout has been in operation in one form or another in the North East of England for at least 180 years. The earliest stake nets were made from natural hemp or cotton fibres and fixed by anchors to the beach or foreshore. These were first recorded in the late 1830s on the North East coast.

Drift nets are referred to in historical fisheries reports from the 1860s and 1870s which record that drift netting for salmon and sea trout using hemp 'hang nets' began in the North East around 1840.

In the late 1940s, a new type of beach net, which later became known as a T net, began appearing along the Northumberland coast, initially near the port of Amble. At first these nets were lightly anchored to the seabed, and drifted to some extent with the tide, but over time the size of the anchors increased, and these nets eventually became fully fixed. A simpler type of anchored beach net known as a J net was developed independently in North Yorkshire.

These early nets were made from highly visible natural fibres, so they could only be fished effectively at night. With the introduction of synthetic multifilament netting in the 1960's, and monofilament nets from 1967, fishing in daylight became possible, since the nets became considerably more effective because fish could not easily see them. As a result, net catches increased markedly, which attracted new entrants into the fishery.

Consequently, the first Net Limitation Order was introduced in 1964, to set a limit on the number of licences available, to better protect fish stocks. This Order was followed by successive Orders in the 1970s and 1980s regulating different parts of the North East net fishery, to protect stocks by limiting fishing effort.

The whole of the net fishery was brought under a single unifying NLO in 1992, which was replaced in 2002 and again in 2012.

The current net fishery is comprised of the tidal waters from Berwick on Tweed to the mouth of the Humber estuary. It extends between the high-water mark and the seaward limit of the Environment Agency’s jurisdiction at six nautical miles to sea (see Figure 1).

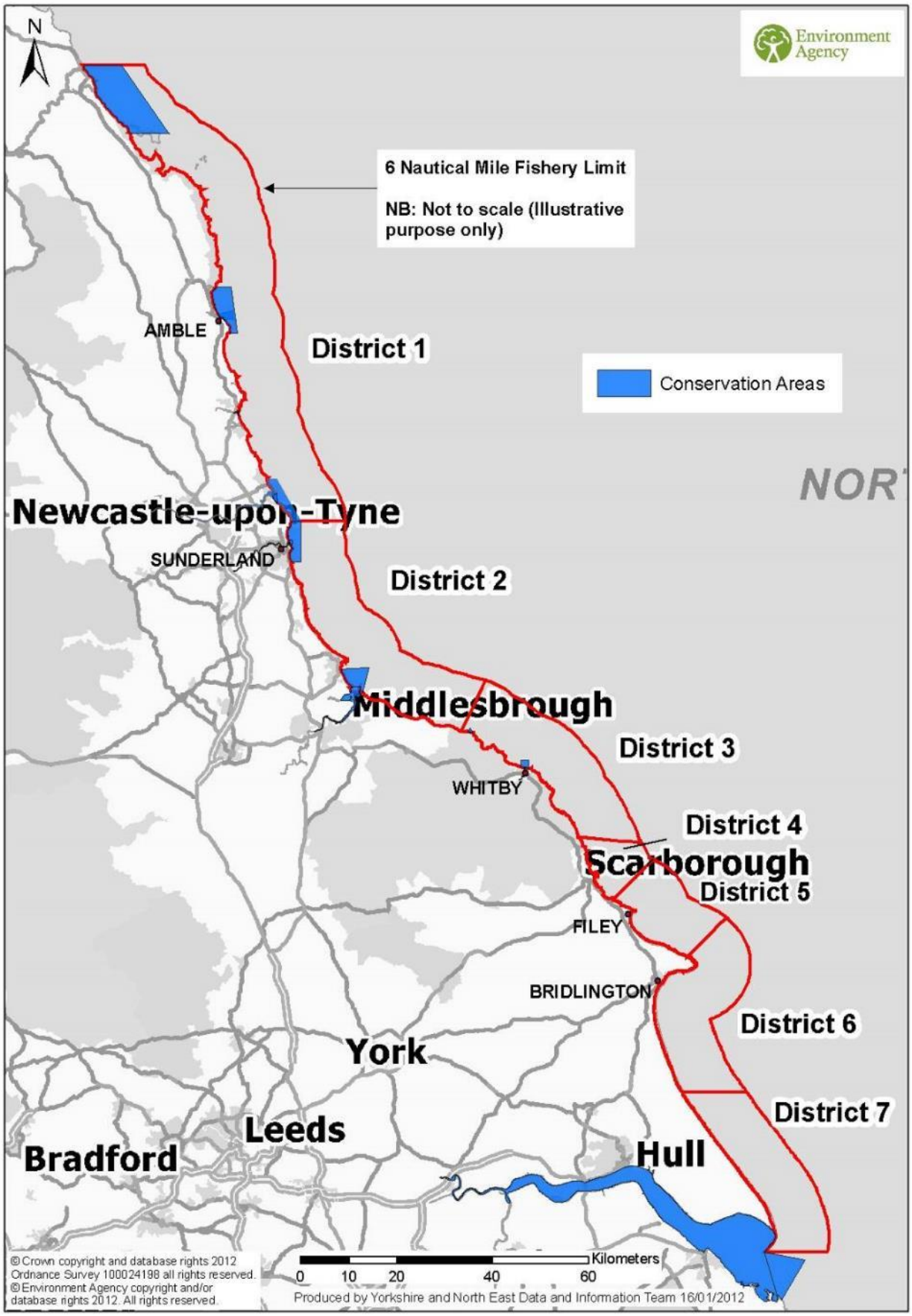

Figure 1: Districts of the North East coast net fishery map.

To provide necessary protection to contributing salmon stocks, the drift net fishery was reduced over time by this series of Orders, until it was permanently closed after the 2018 netting season under the provisions of the National Salmon and Sea Trout Protection Byelaws 2018. At this time, the beach net fishery (T and J nets) was also closed for salmon but allowed to continue as a sea trout only net fishery.

The provisions to reduce the number of net licences issued as existing licensees retired were extended to beach nets under the 2012 NLO.

The fishery is divided into seven districts for beach nets. Net fishing is generally prohibited in conservation areas, also known as ‘playgrounds’ or ‘boxes’ at and near the mouths of principal salmon rivers through regional fisheries byelaws, to better protect stocks.

Limited T netting is permitted in Tyne Conservation Area B (two berths) and Coquet Conservation Area B (5 berths).

2.1 Drift nets (historic fishery, now closed)

Drift nets (see Figure 2) were designed to enmesh or entangle fish and comprised a plain sheet of netting attached to a head rope with floats along the top, and to a weighted footrope along the bottom.

Drift nets, as the name implies, float and drift freely with the tide. Migratory salmonid drift nets were limited to a length not more than 550 metres along the head rope when the net was wet.

Drift nets were normally set at right angles to the line of the coast. Fish were caught in drift nets either by swimming into the net and becoming wedged in the mesh or by becoming snagged or tangled in the netting by their fins, gill covers or other parts of their body.

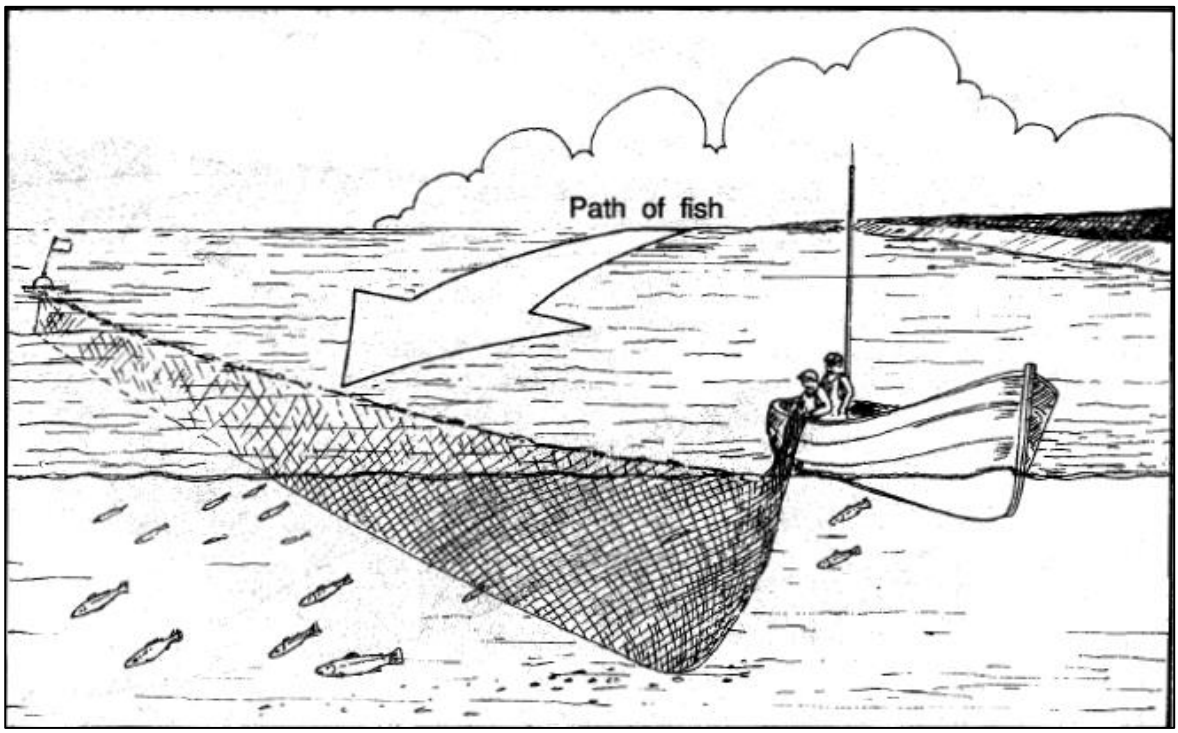

Figure 2. Diagram of a drift net (from MAFF laboratory leaflet 69 - Gill Netting)

2.2 T nets

T nets (Figures 3 and 4) are operated close to the shore. They comprise a 'leader' usually about 200 metres in length, stretching out from the beach to a “headpiece” which contains a number of traps or 'monks', with net funnel entrances.

A T net is comprised of plain unarmoured sheets of netting having one or more bags, pockets or monks, and consist of a headpiece not exceeding 92 metres in length and a tail piece not exceeding 230 meters in length and be shot from a boat manned by not more than three persons or laid along the ground at low water in the form of a letter ‘T’ and be or intended to be, maintained stationary by anchor or weights and suspended in the water by means of floats. The bags of the T-net must have a mesh size between 38 and 50mm knot to knot.

T nets are principally used in District 1 of the fishery.

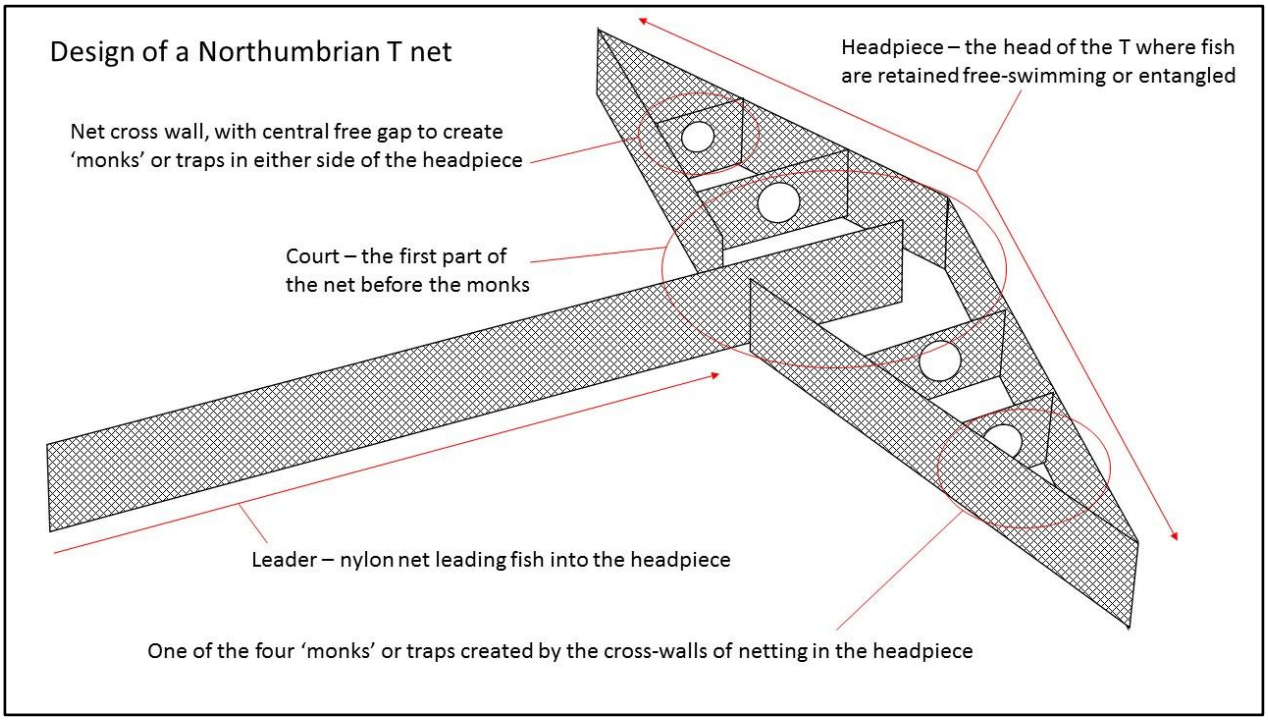

Figure 3. Diagram of a T-net

There is normally no monofilament netting used in T net, which are generally comprised of nylon netting, although the current byelaw specifications do not stipulate which materials the net may be constructed from.

The leader of a T net can enmesh salmon and sea trout, although typically only a small proportion of the catch is taken this way. Most fish, especially salmon, are retained in the bags or traps comprising the headpiece free swimming, other fish, particularly the smaller sea trout, become entangled in the netting of the headpiece.

Figure 4. Photograph of a T-net taken from the headpiece, looking towards the shore.

2.3 J nets

The construction of this second type of net known as a J net (Figures 5 & 6) is much simpler than the T net.

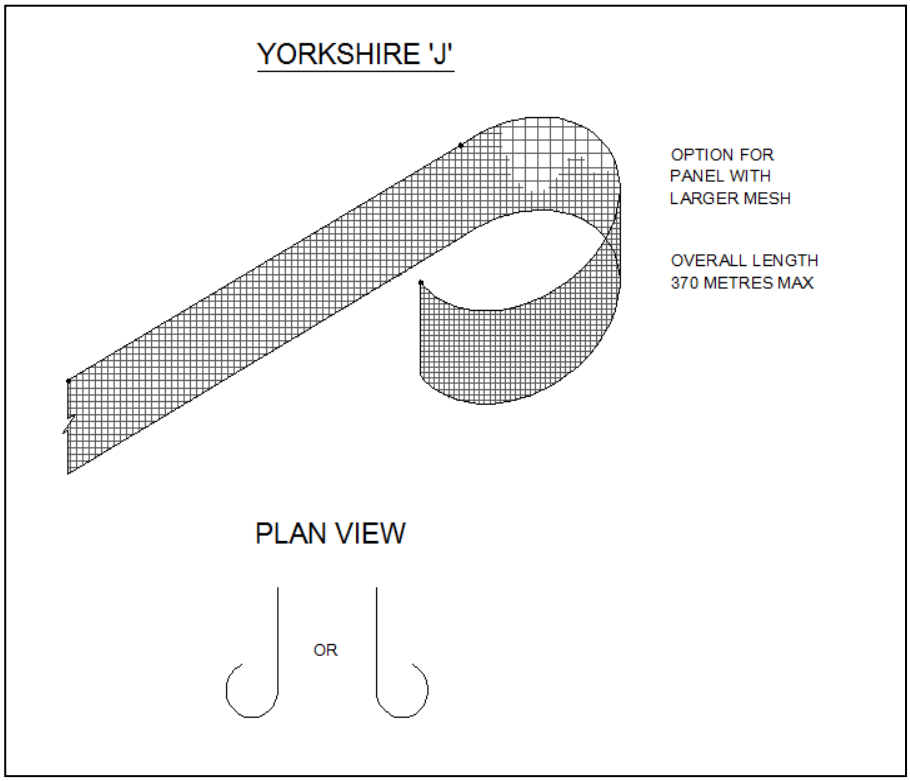

Figure 5: Diagram of a J net

A J net is comprised of plain unarmoured sheets of netting without bags or monks and must not exceed 370 metres in total length measured along the head ropes. It can be shot from a boat manned by not more than three persons or laid along the ground at low water in the form of a letter ‘J’. It is intended to be maintained stationary by anchors and weights and suspended in the water by means of floats attached to the head rope.

The minimum size of mesh in the nets that may be used must be approximately 51mm from knot to knot, or approximately 204mm round the four sides.

Fish are caught in J nets by becoming enmeshed or entangled in the leader or within the walls of the compound forming the terminal letter J, which is comprised of monofilament netting.

J nets are principally used in Districts 3 to 7 of the fishery.

Figure 6: Photograph of a J net

2.4 The North East coast net fisheries as mixed stock fisheries

Both T nets and J nets operate as mixed stock fisheries, in that both types of nets formerly exploited salmon and continue to exploit sea trout from a large number of different rivers, and hence separate populations, along the eastern coast of Britain.

This mode of operation introduces difficulties in fisheries management, as it is not easy to effectively protect the most vulnerable of the contributing stocks. This is because it is not possible to determine with high confidence the impact of the fishery on each of the contributing stocks in each year.

The proportion of sea trout from each population contributing to the net fishery will differ from year to year, and in different parts of the fishery in each year. The variable contribution to the net fishery from each of the individual fish populations makes an assessment of the impact of the net fishery on individual contributing stocks very difficult.

As a result of these annual variations in catch composition, protecting the weakest of the contributing stocks proves problematic, since the impact of the fishery on the weakest stocks cannot be known with confidence.

The UK Government met international obligations to NASCO in closing the North East coastal mixed stock fisheries for salmon at the end of the 2018 netting season. This is because it was not

possible to manage these nets in such a way as to effectively protect contributing salmon stocks, particularly the weakest of the contributing stocks.

Although T and J nets now operate as sea trout only fisheries, with any salmon entangled being released, there is a possibility of inadvertent by-catch mortality of salmon, either directly in the net, or post-release. Consequently, the net fishery for sea trout must be managed in such a way as to take account of the potential by-catch mortality of salmon.

There are multiple lines of evidence confirming the mixed stock fishery status of the North East coast net fishery, which are summarised below.

The same principles of precautionary management applied to salmon is also applied to sea trout stocks, and the fishery must be managed in a way that protects the weakest and most vulnerable of the contributing stocks.

Salmon populations known to have contributed significantly to the North East nets include the Yorkshire Ouse system, Yorkshire Esk, Tees, Wear, Tyne, Coquet, Aln, Tweed, Forth, South Esk, North Esk, Tay and River Dee. Further north, rivers including the Spey and Deveron are known to contribute salmon to the net fishery in smaller numbers.

The contribution of salmon to the net fishery is a function both of the size of the salmon population in each river and the proximity of the river to the fishery. Larger populations are likely to contribute to catches to a greater degree than smaller ones, and catchments nearer to the fishery are more likely to contribute a greater proportion of fish than more distant catchments.

2.4.1 Adult tagging studies

In Ministry of Agriculture Fisheries and Food (MAFF) tagging studies undertaken in the late 1970s, a total of 670 adult salmon captured in drift and T nets in the North East were externally tagged before being released. Subsequent recaptures of these tagged fish in other fisheries indicated that they returned to all the major east coast British salmon rivers, from the River Wear in the south to the Aberdeenshire Dee in the north.

2.4.2 Microtag recoveries of salmon and sea trout

Microtags are very small pieces of coded wire inserted under anaesthetic into the cartilage in the nose of juvenile salmon and sea trout that can subsequently be detected by scanners, extracted and read under a microscope.

Between 1983 and 1994, over 675,000 salmon, and a smaller number of sea trout reared at the Environment Agency's Kielder Hatchery were microtagged before release to the region’s principal salmon rivers. Over 100,000 wild salmon and sea trout from the rivers Wear, Esk and Coquet were also captured as smolts and microtagged during this period.

Microtagged fish had their adipose fin removed as an identifying feature, and the net fishery was scanned for recaptures through a targeted programme of checking the landed catch at the various fish merchants receiving the landings.

The majority of salmon from all rivers of origin were recovered in the northern part of the fishery, in Districts 1 and 2, where fishing effort was greatest. This pattern was particularly pronounced for the more northern rivers, reflecting the abundance of fish returning to their native rivers. It is likely that the majority of these recoveries were from drift nets.

The districts in the Yorkshire area of the fishery, where fishing effort was lower, and at a greater distance from the principal salmon rivers, took fewer salmon.

The pattern of exploitation for sea trout showed a greater degree of local exploitation. This reflects a higher exploitation of sea trout in the T and J nets than in the drift net fishery which was operating at this time.

Sea trout were predominantly taken in the district containing the home river - District 3 for the Esk, District 2 for the Wear and District 1 for the Coquet, although sea trout from all three rivers were taken across the whole of the net fishery.

2.4.3 Salmon genetic analyses

Both Atlantic salmon and sea trout exhibit strong homing behaviour and return to spawn in their native rivers and streams with a high degree of accuracy. This results in relatively distinct groups of interbreeding individuals which have a degree of reproductive isolation. Therefore, distinct genetic groups can develop between rivers. Such genetic structuring can be exploited to investigate the composition of fish catches by river of origin. Two differing genetic techniques have been employed to analyse catches in the North East net fishery.

In 2011, genetic analyses using microsatellites of almost 2,000 adult salmon captured in the net fishery demonstrated that all parts of the fishery exploited mixed stocks, taking salmon from rivers along the east coast of Britain in both England and Scotland.

The estimated proportion of Scottish origin fish was 70-75% in the Northumbrian drift nets, 30-50% in the Northumbrian T nets, 60-70% in the Yorkshire drift nets and around 50% in the Yorkshire J nets. A map showing the location of major salmon populations contributing to the net fishery is shown in Figure 7 below. (NB. The rivers Eden and Lune on the west coast do not contribute to the North East net fishery).

In 2013, a different genetic technique using Single Nucleotide Polymorphism (SNP) analyses was performed to determine the origin and proportions of different stock components captured in the fishery. A total of 1,000 fishery samples were screened, and the analysis confirmed again that all parts of the North East Coast net fishery exploited mixed stocks of both Scottish (c.47%) and English (c.53%) origin salmon.

2.4.4 Sea trout genetic analysis

In 2011 a Single Nucleotide Polymorphism (SNP) genetic study of 917 sea trout captured during the 2011 netting season confirmed that sea trout from a large number of catchments were also exploited by the fishery.

Of the sea trout samples provided by netsmen for this study, 727 (79%) could be reliably assigned to their river of origin using the baseline profiles. The largest proportions of individual river stocks were caught closest to the river of origin.

Sea trout from the Tweed, Aln and Coquet river systems could not be separated into discrete populations and were therefore grouped together as a single population group.

The majority of sea trout originated from rivers in Yorkshire and the North East of England, and from the River Tweed, with a smaller number from other Scottish rivers on the east coast.

Very small numbers of sea trout from the River Adur in Sussex and from catchments along the west coast of Denmark were also identified from genetic samples.

A total of 463 sea trout samples taken from the T net fishery in District 1 could be assigned to a specific sea trout population with a high level of confidence. The results of these analyses are shown in Figure 8 below.

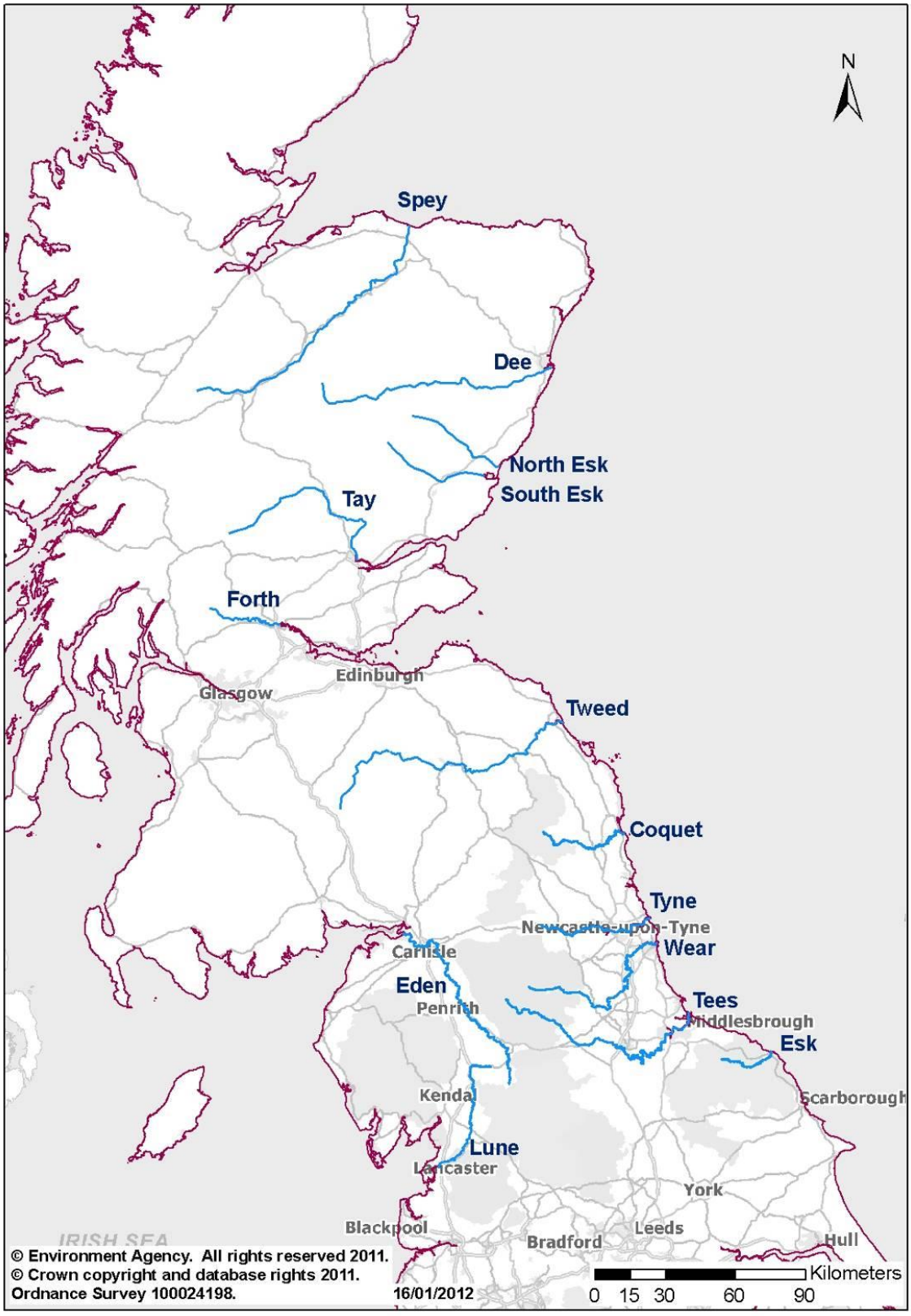

Figure 7. Map showing the location of major salmon populations contributing to the net fishery (NB The rivers Eden and Lune on the west coast do not contribute to the fishery).

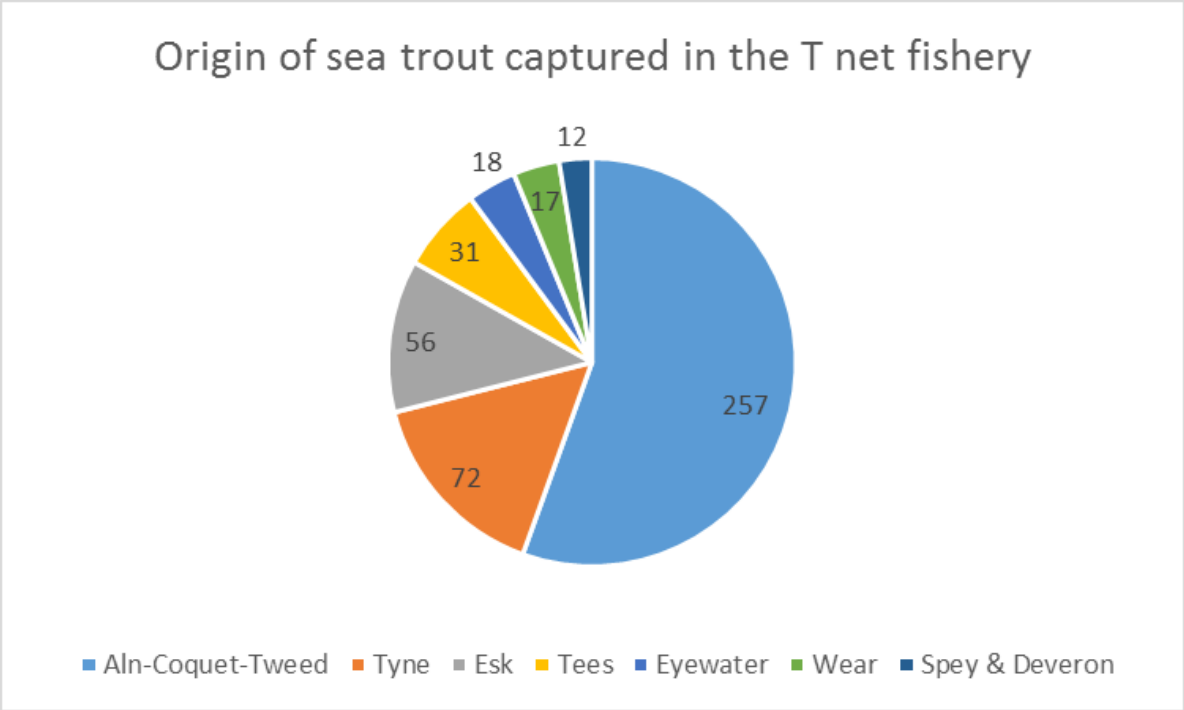

Figure 8. The origin of sea trout captured in the T net fishery in District 1

A smaller number of samples were analysed from the J net fishery in Yorkshire and provided similar results to those from the T net fishery.

3. The policy framework

We have a duty under the Environment Act 1995 to maintain, improve and develop fisheries of salmon, trout, freshwater fish, eel, lamprey and smelt. NLOs may be used to control the extent of fishing in support of this duty or to protect the marine or coastal environment from significant harm. We also have more general duties to:

1. Promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters;
2. Conserve flora and fauna dependent on the aquatic environment;
3. Have regard to desirability of promoting economic growth when we make regulatory decisions;
4. Comply with the requirements of the Regulators' Code

A summary of the key elements of the policy framework concerning the management of exploitation of salmon and sea trout in the net fishery is given below:

3.1 Better Sea Trout and Salmon Fisheries Strategy 2008 - 2021

It is our position, set out in ‘Better Sea Trout and Salmon Fisheries, Our Strategy for 2008-2021’ to move to close coastal net fisheries that exploit predominantly mixed stocks where our capacity to manage individual stocks is compromised.

As a general principle, our aim is to reduce the exploitation of at-risk stocks to zero, first by seeking voluntary constraints then, where voluntary measures prove ineffective or impractical, by introducing mandatory controls on fishing to ensure stocks are sustained whilst fishing opportunity is optimised.

We also take into account the NASCO Guidelines for the Management of Salmon Fisheries (see 3.4 below).

In managing levels of exploitation, conservation needs are determined first and then options are reviewed for management which meet that need, taking into account the costs and benefits together with social, cultural and economic implications.

Under the Environment Act 1995 we must consider the economic and social well-being of rural communities and have regard to the costs and benefits of our regulatory actions.

We support regulated exploitation of sea trout populations, provided that such exploitation is sustainable. When reducing exploitation, we give due regard to the needs of those dependent on the fishery to earn a living.

3.2 National Trout and Grayling fisheries strategy policy

The National Trout and Grayling Fisheries Strategy Policy 13 states " In line with the views of the Salmon and Freshwater Fisheries Review, we will continue to phase out mixed stock net fisheries for sea trout except where stocks from a small number of rivers are exploited, in which case catches will be regulated to protect the weakest stock."

3.3 Salmon Five Point Approach

To address concerns regarding the poor performance of salmon stocks across England, the Salmon Five Point Approach was developed by the Environment Agency, Government and partner fishery organisations in 2015.

The Approach's mission is "to restore the abundance, diversity and resilience of salmon stocks throughout England", and it is doing this in five key areas:

1. Improve marine survival
2. Further reduce exploitation by nets and rods
3. Remove barriers to migration and enhance habitat
4. Safeguard sufficient flows
5. Maximise spawning success by improving water quality

The Approach recognises that the single most important factor impacting the status of salmon populations is declining marine survival but addressing pressures on salmon stocks across all five of these areas is needed so that the number of adult salmon returning to spawn can be improved.

The review of the 2012 NLO is contributing to the key area of reducing exploitation. The Five Point Approach sets out that we will review the regulation of net and fixed engine fisheries, with a presumption of only allowing exploitation where there is a harvestable surplus, and of ending coastal mixed stock fisheries for sea trout where these cannot be demonstrated to be sustainable.

3.4 NASCO advice on Mixed Stock Fisheries

NASCO defines a mixed stock fishery as one exploiting a significant number of salmon from two or more river stocks. NASCO guidance is that mixed-stock fisheries, particularly in coastal waters or

on the high seas, pose particular difficulties for management. This is because they cannot target only stocks that are at full reproductive capacity, if there are stocks below their conservation limit within the mixed stock being fished. We apply the same principles to our management of coastal sea trout fisheries.

Management of such fisheries should be based on the status of individual river stocks which are exploited by the fishery. Conservation would be best achieved if fisheries target stocks that have been demonstrated to be at full reproductive capacity.

NASCO guidance for management of salmon is that:

1. In managing salmon fisheries, priority should be given to conserving the productive capacity of all individual salmon river stocks;

2. Managers should demonstrate that they are being more cautious when information is uncertain, unreliable or inadequate, and the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures;

3. Ideally, forecasts of stock abundance for all stocks contributing to the fishery would be used to determine the harvestable surplus or appropriate level of fishing effort, with in-season adjustments being made to reflect actual returns;

4. Where forecasts of abundance are not available, harvest levels could be based on historical data to assess if there is likely to be a harvestable surplus;

5. Fishing on stocks that are below conservation limits should not be permitted. If a decision is made to allow fishing on a stock that 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.

Specifically for mixed stock fisheries, the further advice from NASCO is that:

1. Rational management of a mixed stock fishery requires knowledge of the stocks that contribute to the fishery and the status of each of those stocks;

2. Where such fisheries operate, managers should have a clear policy for their management that takes account of the additional risks attributable to, among other things, the number of stocks being exploited and their size and productivity;

3. Management actions should aim to protect the weakest of the contributing stocks.

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

3.5 Statutory nature conservation designations

Under the Conservation of Habitats and Species Regulations 2017 (as amended) the Environment Agency is required to have regard to the regulations when carrying out any of its functions. In respect of fisheries this is addressed by assessing the effects of management options and undertaking an appropriate assessment if they are likely to have a significant effect.

These provisions relate to species or sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA) under the Habitats Regulations.

Under the Wildlife and Countryside Act 1981, the Environment Agency is required to consult Natural England when granting any consent, licence or permit for activities to be carried out in or capable of affecting SSSIs.

Advised by the responses to this consultation, and all other relevant information and evidence, we will undertake assessment under the Habitats Regulations and Wildlife and Countryside Act of any options to be taken forward and consult with Natural England and NatureScot.

4. Regulation of the net fishery

Fishing for migratory salmonids within the territorial waters of England and Wales has been licensed since 1865. With the introduction of synthetic nets in the 1960s, netting became more productive, and more fishermen applied for licences. As a result, it was considered necessary to introduce additional restrictions on fishing effort by limiting the number of licences that could be issued in different areas and for different netting methods.

Consequently, the first NLO was introduced in 1964, followed by successive Orders in the 1970s and 1980s regulating different parts of the North East net fishery to protect stocks by limiting fishing effort. The whole net fishery was brought under a single unifying NLO in 1992.

Since 1973, fishing for migratory salmonids has been prohibited in waters off England and Wales beyond the six-mile limit. Within this limit, fishing is licensed by the Environment Agency.

4.1 The Environment Agency's role

Within the six-mile limit, it is an offence for anyone to fish for migratory salmonids without a fishing licence issued by the Environment Agency under the Salmon and Freshwater Fisheries Act 1975. The methods that may be employed are specified in legislation and byelaws.

In the North East and Yorkshire, the only types of nets permitted are T and J nets. The size and construction of these nets and when and where they may be used are specified and controlled by regional fisheries byelaws.

Under current legislation, in the absence of an NLO, we would be required to issue a licence to fish with a T or J net to anyone who applies and pays the appropriate fee. There would be no limit on the number of licences that could be issued.

Key milestones in the modern regulation of the North East net fisheries are summarised below:

4.2 The 1991 Ministerial Review

In 1991 a Ministerial Review of salmon net fishing in north east England and eastern Scotland was undertaken (the Salmon Net Fisheries Review). The review concluded that "The net fisheries in North East England exploit several salmon and sea trout stocks and account for a substantial proportion of the catch from a number of different river systems. The dependence of the drift net fishery on a multiplicity of stocks makes the task of conservation and management more difficult".

The review recognised the risk to management and conservation of stocks breeding in each of the rivers posed by the fishery but concluded:

"This review has not produced evidence of an immediate threat to stocks and thus any justification for depriving existing licensees of their licences at a stroke. It would, however, aid and improve the management of individual east coast salmon and sea trout stocks if the drift net fishery were to come to an end. We consider therefore that it is desirable to phase out the drift net fishery, but gradually, so as not to cause unnecessary hardship".

4.3 The 1992 Net Limitation Order

Following the 1991 Review, the National Rivers Authority was invited to consider how regulation of the North East net fishery could be improved.

As a result, in 1992 the National Rivers Authority replaced the various existing NLOs with a single unifying NLO which came into operation on 22 January 1993, for a period of 10 years.

This NLO restricted the issue of drift net licences to applicants who had held a licence in the previous year and could demonstrate dependency for their livelihood on fishing by the proportion of their income they derive from fishing activities. This NLO began the phase out of the drift net fishery as licensees retired or otherwise left the fishery voluntarily, and their licences were not made available to other potential licensees.

In this way, from 1993, the drift net fishery began to reduce over time, without preventing those already participating in the fishery from continuing to do so if they chose to do so, before being finally closed by national byelaws at the end of 2018.

The issue of T and J net licences was at this time limited to a set number, specified for each of the seven districts of the fishery, and not subject to a reducing NLO.

4.4 The 1995 Regional Fisheries Byelaws

In February 1995 a series of new regional fisheries byelaws covering Yorkshire and the North East were confirmed. These byelaws currently regulate much of the operation of the North East net fishery, including annual and weekly closed periods, fishery district boundaries, the location of conservation areas, and the length, dimensions and design of licensed nets.

4.5 National spring salmon byelaws 1999

In 1999 national byelaws to protect declining stocks of early-running spring salmon were introduced. This had the effect of preventing salmon being captured in the fishery before 1 June in any year. Both T and J nets were allowed to fish in this early part of the season but were required to return unharmed any salmon they catch, whereas the drift netting season was shortened to begin on 1 June, to protect spring fish. These restrictions were re-confirmed until 2018 in December 2008. These byelaws were superseded by the 2018 national byelaws which closed the salmon net fishery entirely.

4.6 Review of Salmon and Freshwater Fisheries 2000

The Review of Salmon and Freshwater Fisheries in 2000 recorded, under the heading ‘Mixed Stock Fisheries’ that conflicting evidence had been presented regarding the North East net fishery.

It had been argued that the phase out of drift nets under the 1992 NLO was unjustified, but the counterargument that the fishery should be subject to immediate closure was also put forward.

The review stated “We did not consider that a case had been made for either of these extreme options. We conclude, however, that it would be desirable to accelerate the phase out (of the drift net fishery) and we recommend compensation be offered to netsmen to encourage them to leave the fishery on a voluntary basis as soon as possible”.

The review further concluded that “...accelerating the phase out of the fishery would have substantial economic benefits for rod fisheries and that those who benefited, in particular riparian owners and anglers in both England and Scotland, should contribute a major share of the cost”.

Following the review, the Government provided substantial funds to assist compensation arrangements to accelerate drift netsmen leaving the fishery on a voluntary basis. Funds were also contributed by private interests - see 4.8 below.

4.7 The 2002 Net Limitation Order

The 1992 Order was reviewed in 2002. At this time, it was concluded that the established principle that the drift net fishery, as a predominantly mixed stock fishery, should be phased out should be maintained.

This position took account of the advice from NASCO that overall exploitation of salmon stocks should be reduced. Because there was no evidence of a decline in local salmon and sea trout stocks at this time, and in fact many stocks were seen to be recovering, an accelerated rate of reduction in drift net fishing was deemed unnecessary.

Because T and J net effort was relatively low, and these nets were seen to predominantly exploit sea trout stocks, without threat to the conservation of the species, the number of T and J net licences was retained at the same level as that set for each district in the 1992 NLO.

We concluded that the new NLO should essentially carry forward the same provisions as the 1992 NLO, and on this basis the 2002 NLO was confirmed on 6 December 2002.

4.8 Drift net buy-out 2003

In 2003, following the 2002 NLO review confirming the reducing NLO on the drift nets and the Review of Salmon and Freshwater Fisheries report in 2000, compensation arrangements were agreed with drift netsmen. A voluntary buy-out of drift net licences jointly funded by Defra and the privately financed North Atlantic Salmon Fund UK was implemented. This had the effect of greatly reducing the number of drift nets operating in the fishery from 67 in 2002 to 17 in 2003.

4.9 Carcass tagging byelaw 2009

In 2009, new requirements for the carcass tagging of all net caught salmon and migratory trout, and for netsmen to complete a fishing logbook, came into effect through new national byelaws. This was to prevent the passing off of rod caught salmon as net caught fish, following the implementation of a ban on the sale of rod caught salmon and sea trout to better protect stocks.

4.10 The 2012 Net Limitation Order

A new NLO was made in 2012, replacing the previous 2002 NLO. The provisions of the 2012 NLO removed the ability for any T or J net licence to be transferred from the current licence holder to an endorsee or any other person.

The drift net fishery had been the subject of such a reducing Order since 1992, and in 2012 it was decided to extend this provision to beach nets as well, for the better protection of vulnerable salmon stocks, and to meet international commitments to NASCO.

Therefore, the issue of licences was restricted across the whole of the net fishery to those who had held such a licence in the previous year, in order to reduce net exploitation of salmon further and more speedily in the fishery, whilst still allowing those already participating in the fishery to continue if they chose to do so.

At this time, the Fisheries Minister instructed the Environment Agency to act to close the drift net fishery at the end of the drift netting season on 1 September 2022, the year the 2012 NLO would expire, and to review the provisions of the NLO at the mid-point of the Order.

The drift net fishery was subsequently closed by national byelaw from 1 January 2019 (see 4.12 below).

The Minister also instructed the Environment Agency to investigate the possibility of using quota and/or effort controls to cap the salmon catches in the future (see 4.11 below).

4.11 Review of the use of catch limits 2015

At the time the 2012 NLO was confirmed in December 2012, the Minister instructed the Environment Agency to investigate the possibility of using catch limits to regulate catches of salmon and sea trout in the net fishery for both drift nets and for T and J nets.

Having carefully considered all the evidence available at that time, we concluded that further protection of salmon stocks was required to ensure their future survival and improvement. Setting catch limits for salmon would not, given the performance of salmon stocks, provide adequate protection for the most vulnerable of the contributing stocks, and did not meet the commitment to reduce exploitation in the short term, set out in the Five Point Approach.

In response to continued concerns over the status of contributing salmon stocks, we recommended that alternate means of controlling exploitation in the fishery were preferred to the introduction of any catch limits, by limiting fishing effort through reducing the number of licences issued and fishing season length. These recommendations were accepted.

4.12 National salmon and sea trout protection byelaws 2018

The UK Government has international obligations to NASCO to close coastal mixed stock fisheries for salmon, as it is not possible to manage them in such a way as to effectively protect contributing salmon stocks. In 2012, the Fisheries Minister instructed the Environment Agency to close the drift net fishery in 2022, and to review the future management of beach (T and J) nets.

Since that time, concerns over the performance of salmon stocks increased. In response, we reviewed the regulation of both rod and net fisheries to better protect stocks, with a presumption of only allowing exploitation where stocks are sustainable, following the precautionary principle.

Our review concluded that without action we risk the collapse of our salmon stocks. Taking into account the latest evidence available relating to the status of salmon populations, the impact of the North East net fisheries upon contributing stocks, and the impact upon salmon net fishermen in the North East, we introduced new byelaws to close the drift net fishery from 2019.

These byelaws had a substantial impact on the North East coastal net fishery from 2019, summarised below:

1. The North East coast drift net fishery was closed from 1 January 2019.

2. The T and J net fisheries was closed for salmon from 1 January 2019.

3. A sea trout only beach net fishery was licensed in Yorkshire and the North East as follows:

Districts 1:	26 March to 31 May inclusive
District 3:	26 March to 30 June inclusive
Districts 4 & 5:	26 March to 31 July inclusive
Districts 6 & 7:	26 March to 31 August inclusive

4. No person is authorised to use a net to fish for salmon and sea trout during the hours of darkness, (defined as from one hour before sunrise to one hour after sunset) in the Yorkshire and North East net fishery.

Under the provisions of these byelaws, the salmon catch has been reduced to a level close to zero, as the drift nets no longer operate and T and J nets fish on a sea trout only basis, with any salmon captured being returned with the least delay.

Sea trout catches have also significantly reduced, due to the closure of the drift net fishery, and the shortening of the fishing season across most of the T and J net fishery to better protect salmon stocks. The prohibition on night fishing has also served to reduce catches of sea trout.

The Minister confirmed these byelaws on 19 December 2018.

4.13 Review of the use of modified nets 2019

Between June and August 2019, the Environment Agency undertook extensive experimental field trials of modified designs of nets in the Yorkshire and North East beach net fishery to determine whether these modified nets could be used to catch sea trout preferentially to salmon.

Following publication of the results, an extensive public consultation and considering all other factors, it was determined in 2020 that it would not be appropriate or precautionary to extend the sea trout netting season.

The current sea trout netting season dates in each district in the Yorkshire and North East net fishery were maintained, as defined by the 2018 national salmon and sea trout protection byelaws (see 4.12).

5. Catches and fishing effort in the North East net fishery

5.1 Historic salmon catches

Historic salmon catches in the North East net fishery since 1952 are shown in Figure 9 below.

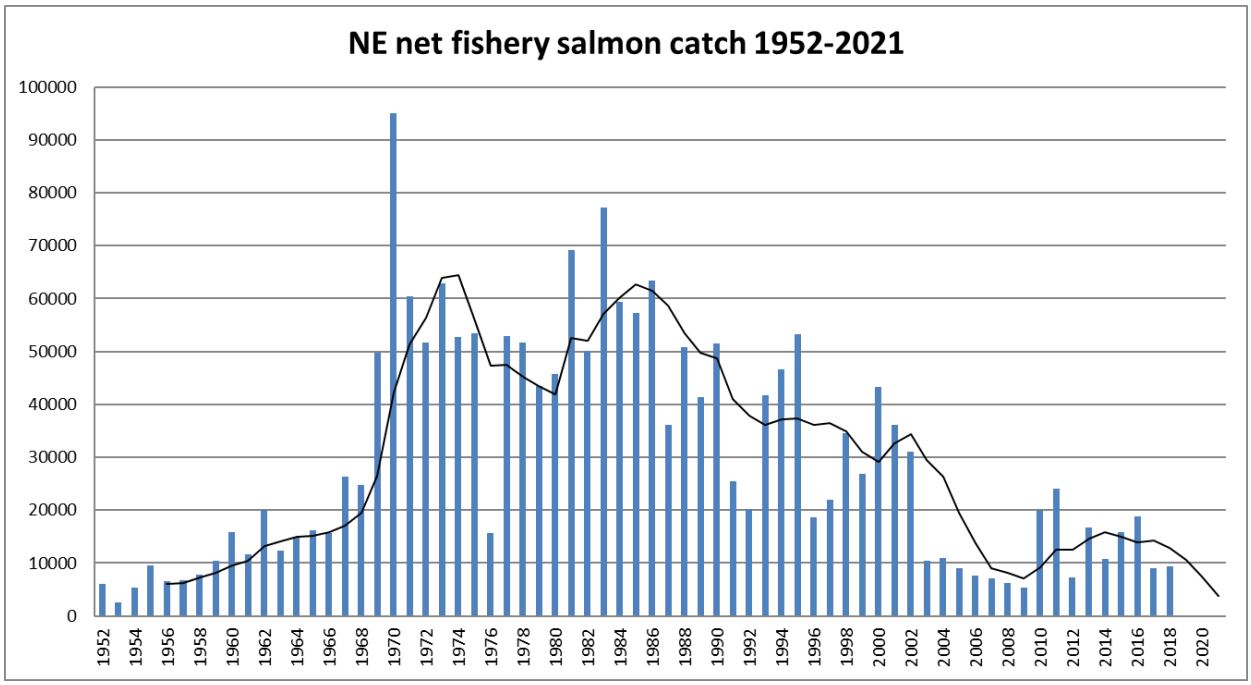

Figure 9: Salmon net catches in the North East net fishery 1952 - 2021

Over this period, drift nets accounted for the majority of the salmon catch, which peaked at almost 95,000 in 1970, following the introduction of synthetic nets and increased participation in the fishery. After this time a series of NLOs were introduced to control exploitation.

Salmon catches fell substantially following the drift net buy-out of 2003, decreasing from 30,980 salmon in 2002 to 10,427 in 2003. A number of fishermen who relinquished drift nets at this time were able to remain in the fishery by transferring to T or J nets, which had an impact on the pattern of catches in the fishery.

The recent salmon catches are shown in Figure 10 below, broken down into drift net and T and J net catches.

The proportion of the salmon catch taken in the T and J net fishery increased since the 2003 buy-out of drift licences as the balance of fishing effort changed. The T and J net fishery catch exceeded the drift net catch for the first time in 2009, and in a number of subsequent seasons, due to changes in relative fishing effort.

The salmon catches from 2003 to 2009 were consistently low compared to historic levels, with the lowest catch of 5,395 salmon landed by the fishery in 2009. This reflects a substantial reduction in fishing effort as drift net licences fell from 67 licences in 2002 to 17 in 2003. Since 2010, salmon catches have been more variable, with the last catch figures from 2018 recording 9,433 salmon landed in the net fishery.

Over this period, the majority of salmon taken in the net fishery is accounted for by the drift nets, averaging 87% of the total salmon catch before the 2003 buyout. Since that time, the provisions of the 2002 NLO and subsequent 2012 NLO saw the number of drift net licences, and hence catches in the drift net fishery fall to around half the total declared catch in the latter years of the drift net fishery.

District 1 T nets made up the next most significant catch, with the remaining Districts 2-7 accounting for only a small proportion of salmon catches (<5%).

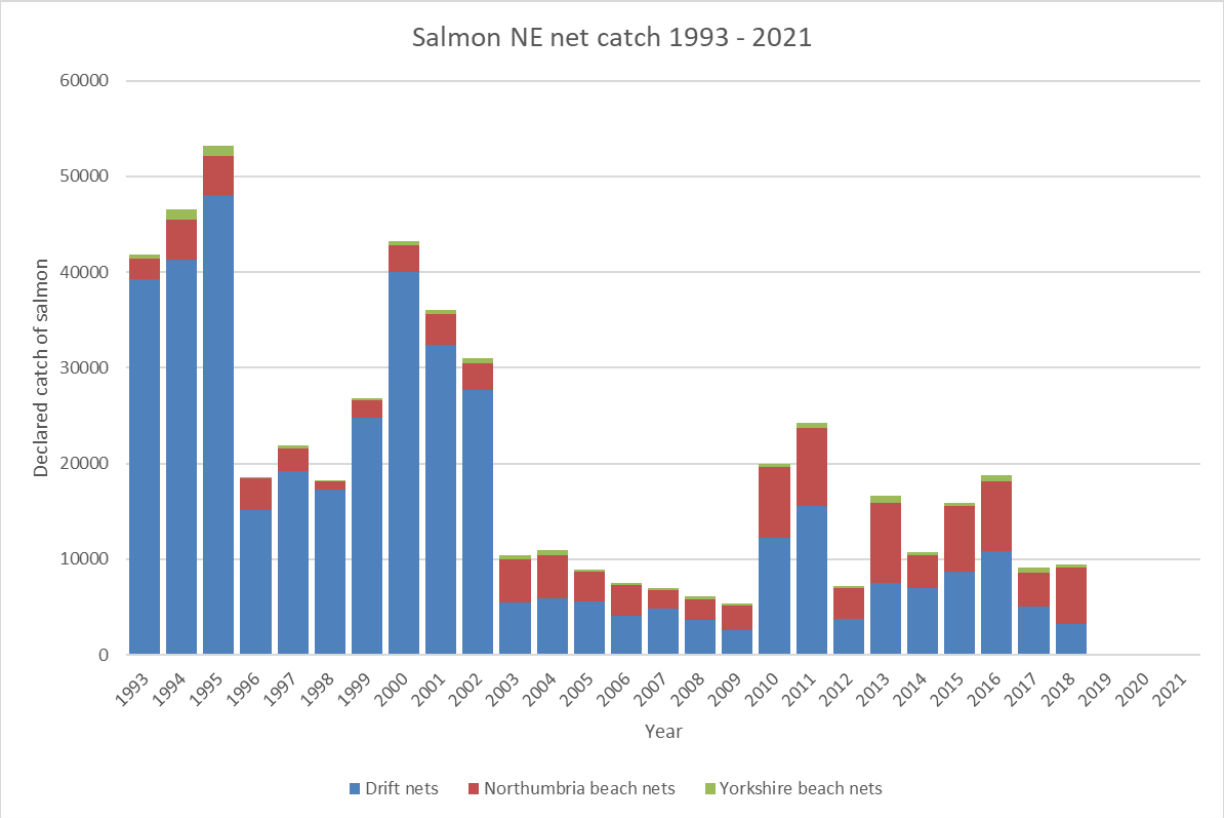

Figure 10. Salmon net catches 1993 to 2021

With the closure of the net fishery for salmon after the end of the 2018 season, the net catch of salmon has since been zero, with any salmon incidentally entangled as by-catch returned with least delay to continue their onward spawning migration.

Field trials undertaken in 2019, including observations from boat-based fisheries observers and the use of underwater cameras, provide clear evidence that the great majority of salmon released from nets are lightly entangled and can be released with minimal damage.

5.2 Historic sea trout catches

Historic sea trout catches in the North East coast net fishery since 1952 are shown in Figure 11 below.

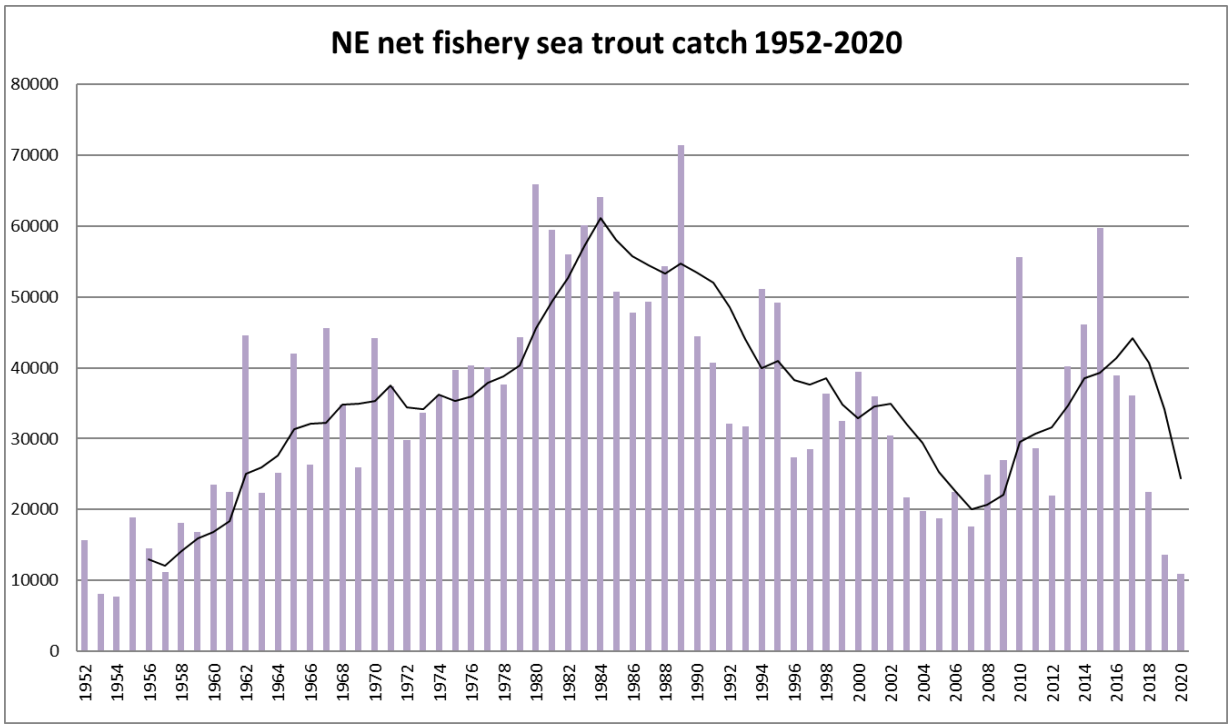

Figure 11: Sea trout net catches in the North East net fishery 1952 - 2020

The highest sea trout catch of 71,369 was recorded in 1989, with catches showing a downward trend from that point until 2007, after which time catches began to increase. The 2015 catch of almost 60,000 was the highest recorded since 1989.

Since 2015, sea trout catches have fallen year on year, assisted by the introduction of the national byelaws in 2018, shortening the netting season in most districts, and with reducing numbers of licensees operating in the fishery.

The 2020 sea trout catch of 10902 is the third lowest since records have been collated, and the lowest sea trout catch since 1955.

Although 2021 returns are still being collated, an indicative provisional catch return of approximately 5000 sea trout is anticipated. This would be the lowest sea trout catch ever recorded in the net fishery by some margin.

Catches since the introduction of the 1992 NLO are shown in Figure 12 below, broken down into drift net and T and J net catches.

The proportion of the total sea trout catch taken in T and J nets significantly increased from 2003, following the drift net buy-out and resulting reduction in fishing effort in the drift net fishery, and corresponding increase in beach netting effort.

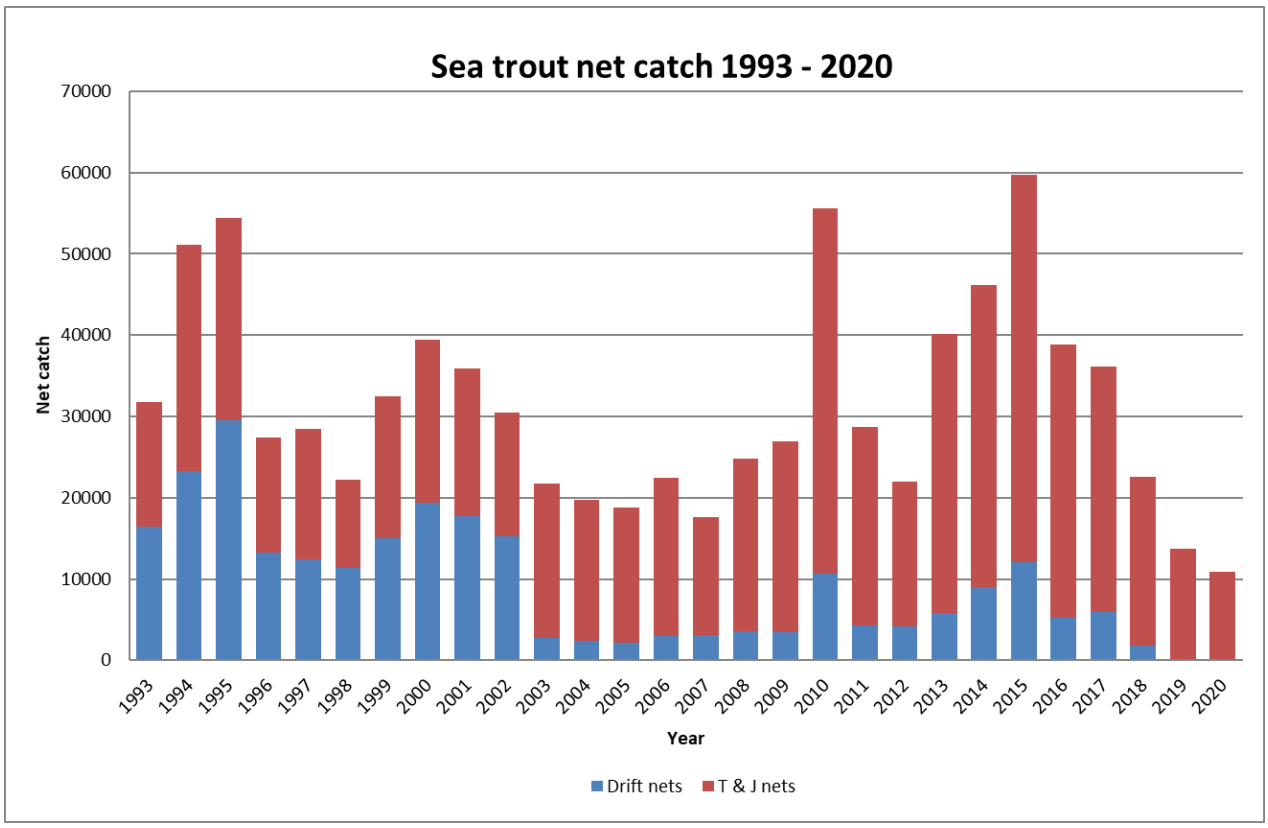

Figure 12. Sea trout net catches 1993 to 2017

The declared sea trout catch split by individual net fishery district is shown below in Figure 13.

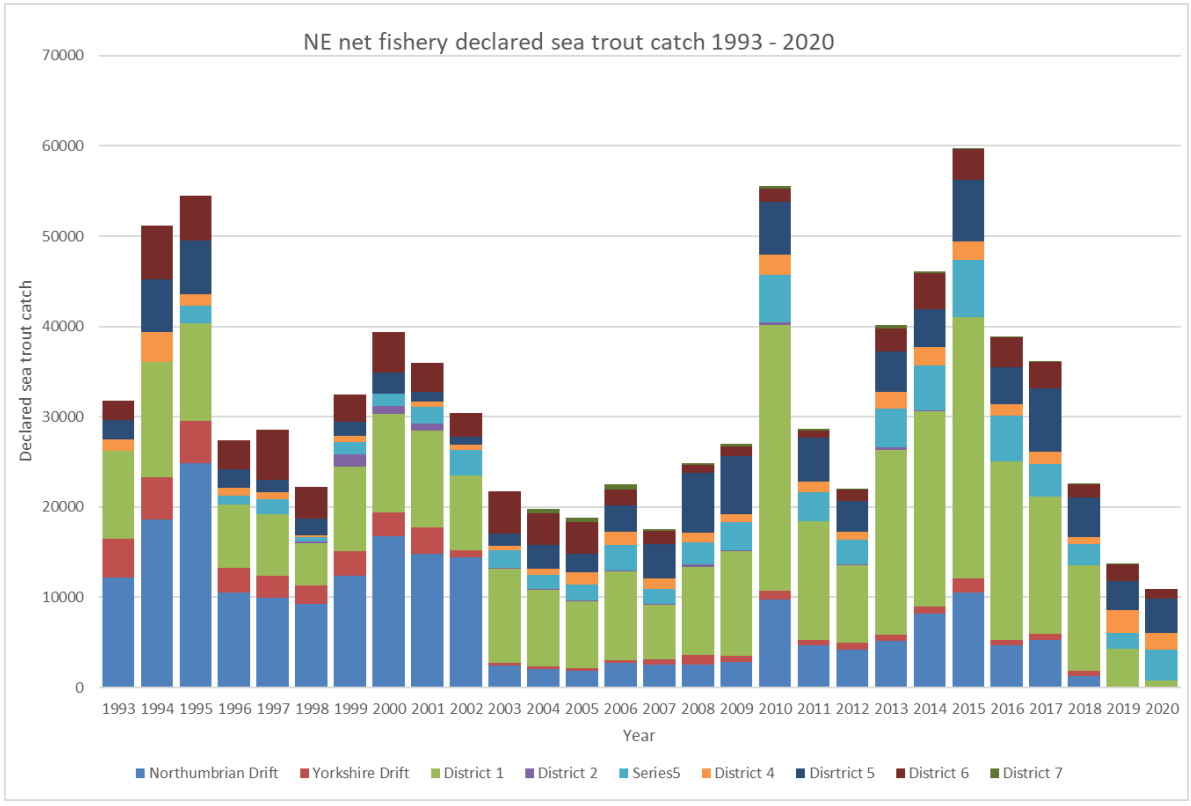

Figure 13. Sea trout net catches by district, for all net types

Sea trout catches are far more evenly distributed than salmon net catches between different districts in the net fishery, making a sea trout only fishery a viable alternative to a combined salmon and sea trout net fishery.

Prior to 2018, the T nets in District 1 accounted for the largest percentage of catches, averaging around half the declared sea trout catch, with around 20% of sea trout catches taken in the drift net fishery, and the remaining 30-35% of catches being taken in the J net fishery in Yorkshire.

Considering the beach net (T & J net) catch alone, (i.e. discounting drift net catches) the catch distribution of landings from each of the seven districts comprising the net fishery is shown in Figure 14 below.

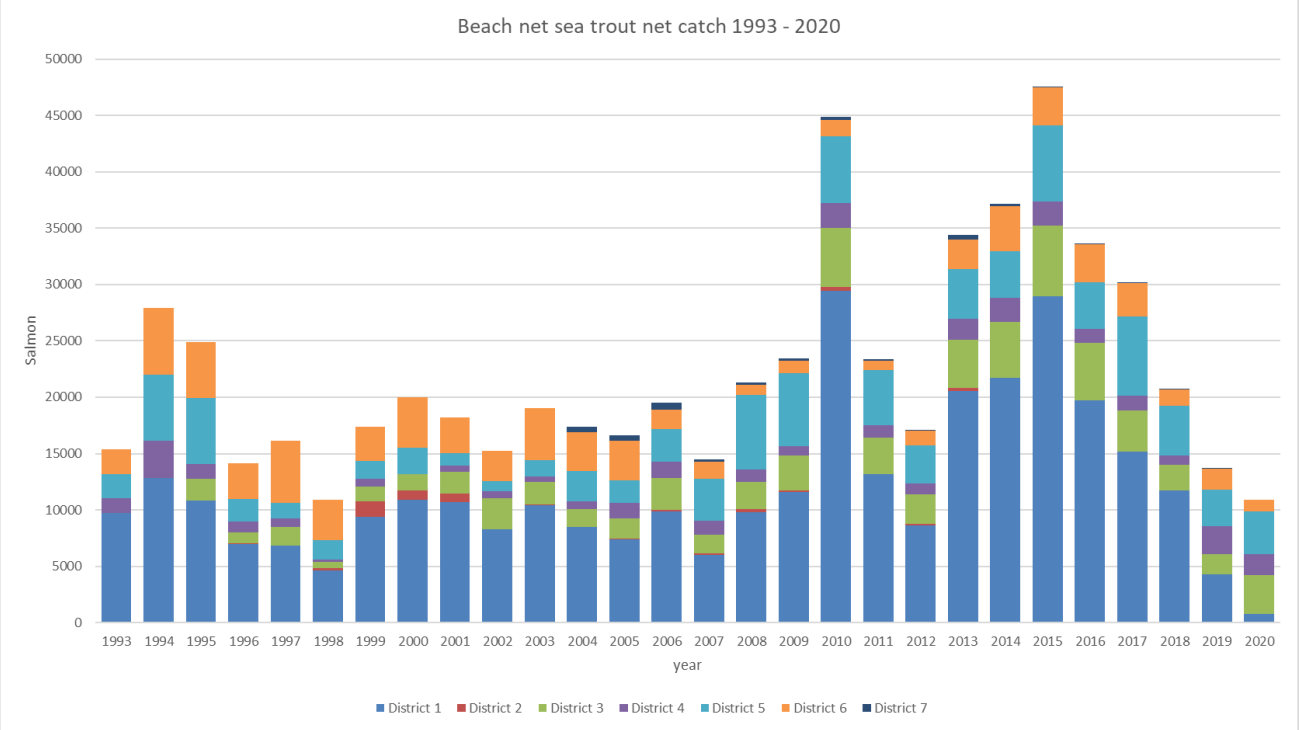

Figure 14. T and J net catches of sea trout 1993 to 2020

Catches from District 1 predominated until the introduction of the 2018 national byelaws, which resulted in a significant reduction of the netting season in District 1. The proportion of the total sea trout catch accounted for by District 1 fell substantially to account for only 7% of the total net catch of 10902, at 798 sea trout in 2020.

The higher District 1 catch in 2019, the first year affected by the 2018 byelaws, was artificially raised by the trial extension of the netting season, when most of the District 1 sea trout catch was landed as part of experimental field trials of modified nets, outside of the new netting season.

5.3 Changes in fishing effort in the net fishery

Over the period the net fishery has been subject to a series of unified reducing NLOs (1992-present), there has been a reduction in drift net licence numbers, predominantly due to the drift net buy-out in 2003, until the drift net fishery was closed after the 2018 netting season.

The number of licences issued in each year since 2012 for both drift and T and J nets is shown in Figure 15 below:

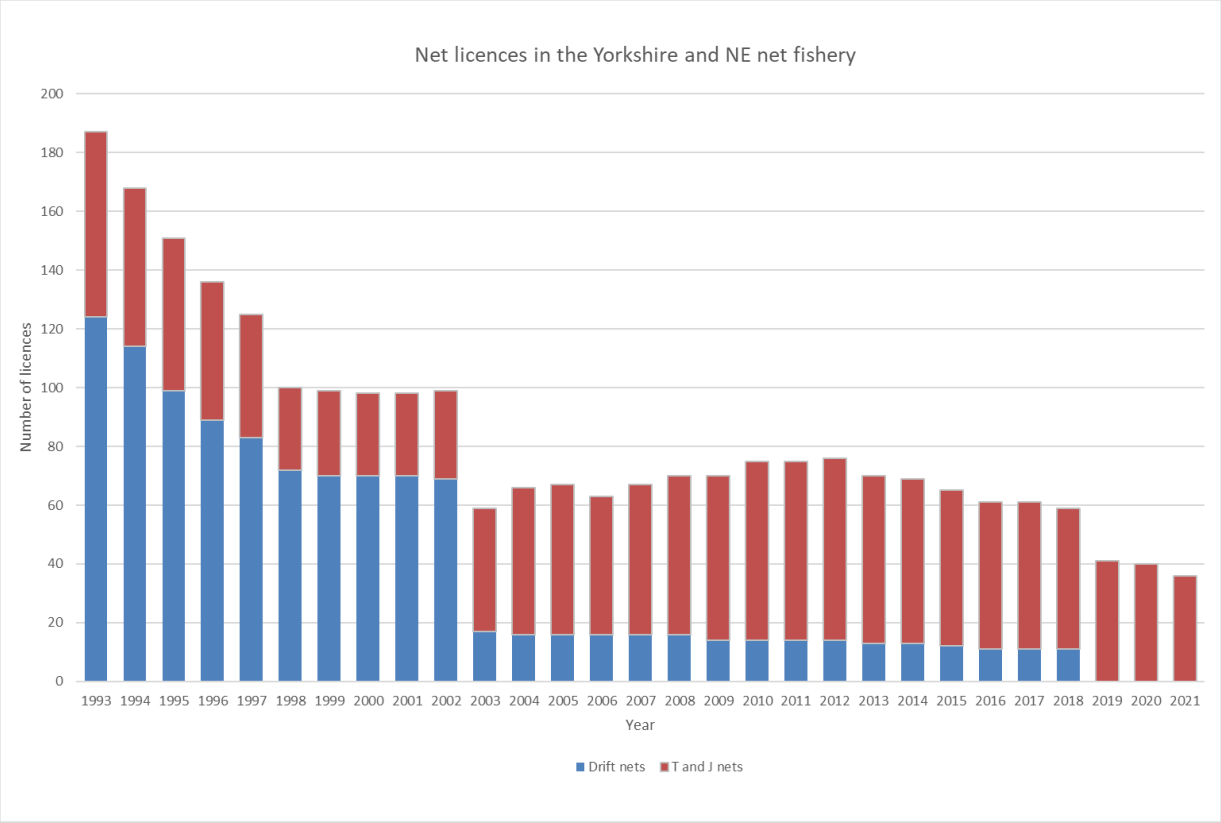

Figure 15. Net licences issued in the North East net fishery 1993 - 2021

At the beginning of the period in 1993, there were 124 drift net licences issued. This number reduced over time as licensees left the fishery through retirement to 67 drift net licences in 2002.

The number of drift net licences issued fell substantially to 17 in 2003, as 50 licensees participated in a buyout co-funded by Defra and the private sector. The continuation of the reducing NLO saw a modest continued decline in the intervening period. In 2018, a total of 11 drift net licensees remained in the drift net fishery, at the time of its closure.

The number of T and J net licenses issued shows a different pattern. At the start of the period, 62 licences were issued for T and J nets. This number had fallen to 28 by 2000, as the number of licence applications fell short of the number of licences available.

After the 2002 drift net buyout, the number of T and J net licences issued increased, partly as a result of former drift net licensees opting to transfer fishing effort to beach nets. This increase continued steadily until 2012, when the maximum number of 62 licences for T and J nets was issued.

The confirmation of the 2012 NLO extended the reducing Order on net licences to T and J nets, such that only those licensees already holding a T or J net licence were able to apply for the same type of licence in the following year, and licences could no longer be transferred.

IN 2012, there were 14 drift net licensees, and 62 T and J net licensees in the net fishery. Since that time, the NLO has caused the number of net licences issued to fall as licensees left the fishery and their licences were not reallocated.

The number of beach net licences issued in each district, and for drift nets to 2018 since 2012 is shown in Figure 16 below:

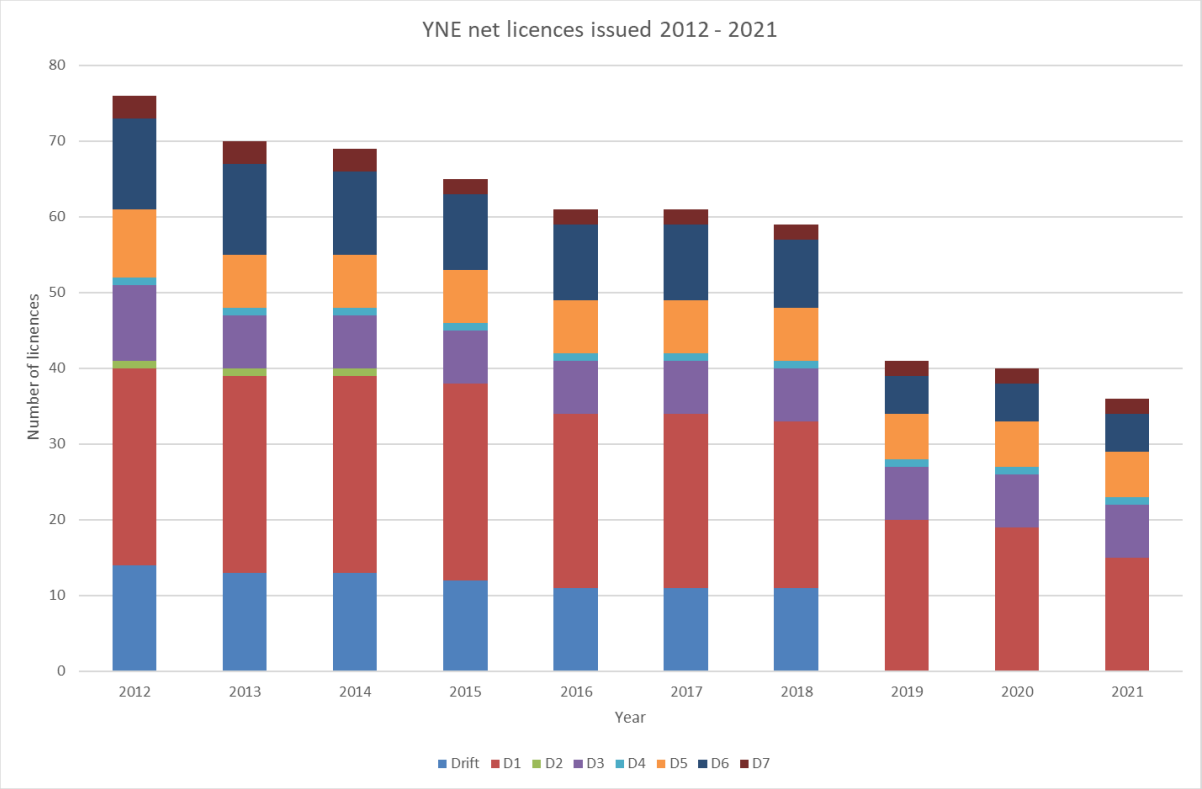

Figure 16. Licences issued by net type and district 2012 - 2021.

In 2021, a total of 36 T and J net licences were issued, as shown in Table 1 below:

District	Licences
D1	15
D2	0
D3	7
D4	1
D5	6
D6	5
D7	2
Total	36

Table 1. Issue of T and J net licences 2021

Of the 15 licences issued in District 1 in 2021, almost half, seven licensees, took out a licence but did not fish. Therefore, the effective fishing effort was eight licences.

In Districts 3 to 7, four of the 21 licensees who took out a net licence did not fish (19% of licensees).

5.4 Catch per Unit Effort in the net fishery

Catch per unit effort may provide an indirect measurement of the size of the stock exposed to the fishery but is also affected by changes in the regulation of the fishery, including changes to the netting season timing and length, gear types, closed periods etc. and the proportion of the total

populations of fish exposed to the nets. The nature of fishing conditions - wet or dry years etc, can also affect catchability and therefore catch per unit effort in the net fishery.

Catch per unit effort data are presented below in Figures 16 and 17 for the Northumbrian T net fishery (District 1 only as District 2 has had no licences issued since 2014) as annual catch per licence and catch per licence hour for sea trout.

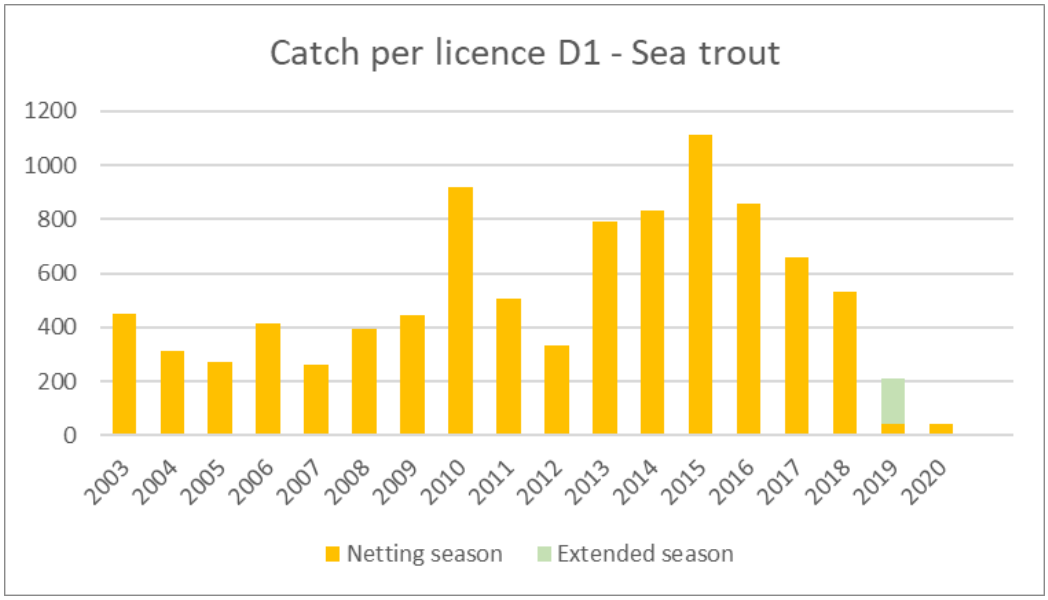

Figure 17. Annual catch of sea trout per licence in District 1 from 2003 - 2020

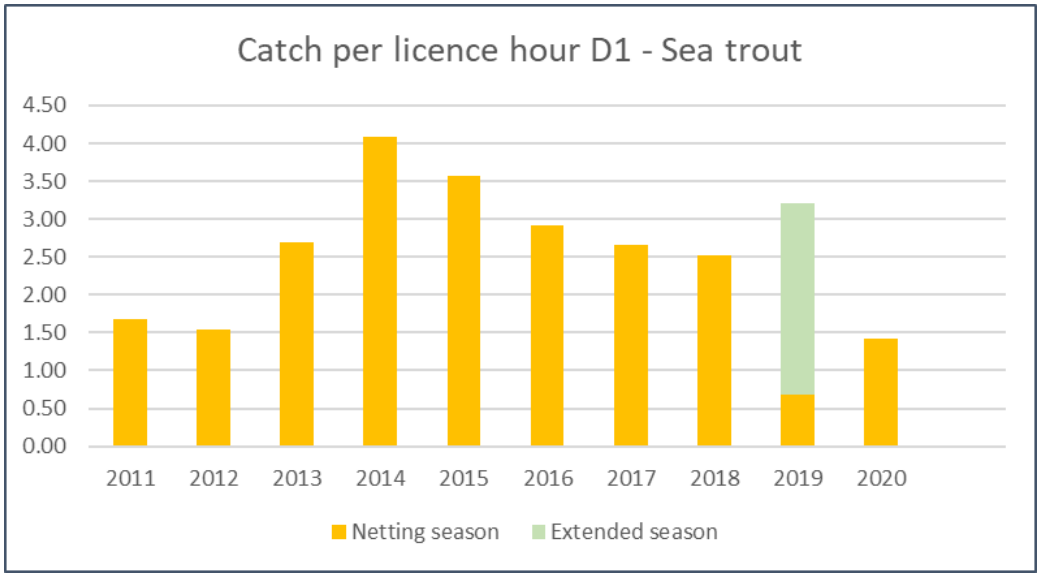

Figure 18. Catch per licence hour for sea trout in District 1 2011 - 2020

Catches per licence fell very substantially in 2019 and 2020, as a result in the significant shortening of the sea trout netting season, and loss of the more productive months (June - August inclusive) of the historical netting season.

The sea trout catch per licence is shown for the 2019 season in two parts - the catch for the newly reduced season only, and the catch for the season extended under the provisions of the trial of modified T nets in District 1. The 4 berths operating during the trial were responsible for almost 80% of the 2019 sea trout catch in District 1.

Catches per net hour fished were also lowest in 2019 and 2020, as a smaller proportion of the returning sea trout run was exposed to the fishery, the majority of sea trout returning to the coast after the end of the new netting season from June onwards. This is highlighted by the increased catch per net hour during the net trial in June - August, where a far larger number of sea trout were available to the fishery.

When the trial netting period is included, the catch per net hour in 2019 was one of the highest recorded in the data series, whereas the catch rate in the shortened netting season in 2019 was the lowest over this period. Reductions in catch per licence and catch per net hour are therefore likely to reflect a reduction in the proportion of the returning run of sea trout exposed to the net fishery, rather than a reduction in overall stock size.

Catch per unit effort data are presented below in Figures 19 and 20 for the Yorkshire net fishery (Districts 3 - 7).

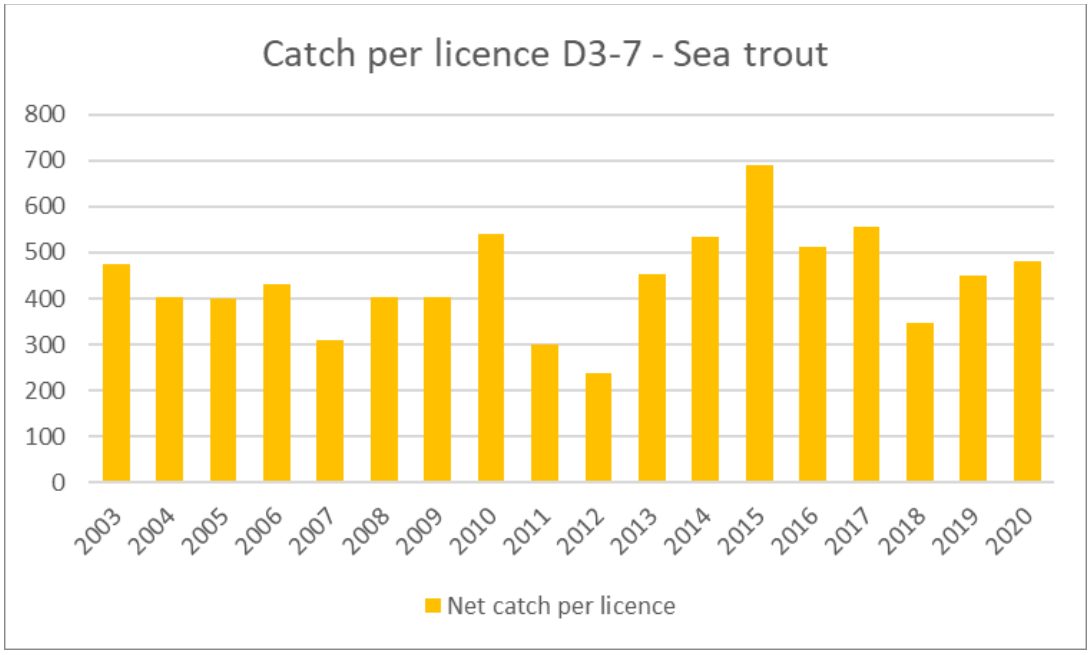

Figure 19. Annual catch of sea trout per licence in District 3-7 from 2003 - 2020.

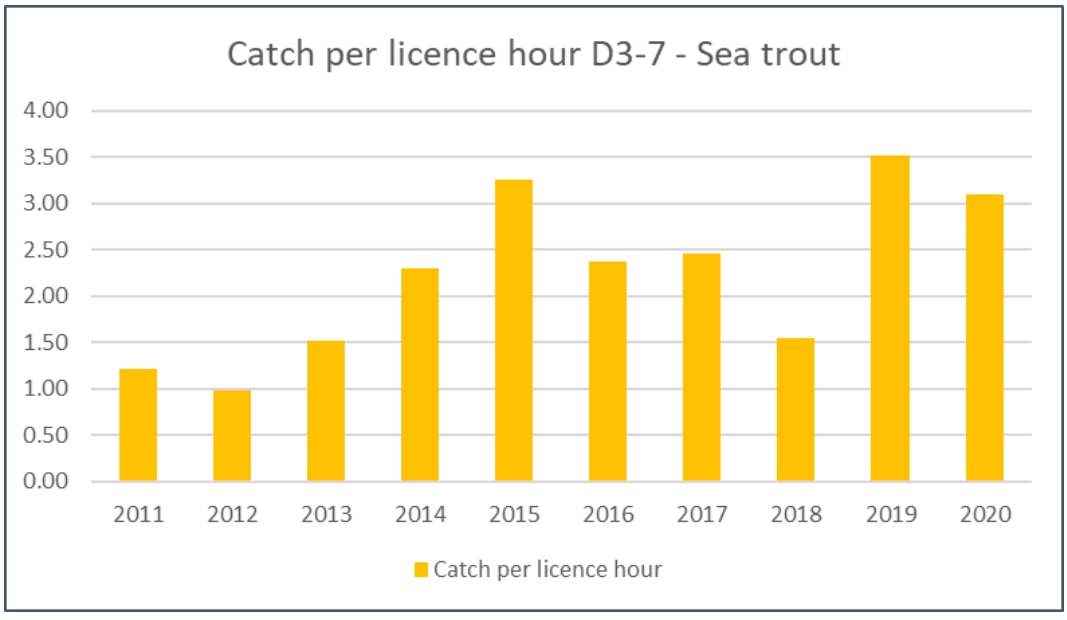

Figure 20. Catch per licence hour for sea trout in Districts 3-7 from 2011 - 2020

Annual sea trout catches per licence remain relatively stable over the period, in part reflecting the relatively small reductions in fishing effort introduced by the 2018 National Salmon and Sea Trout Protection Byelaws and suggest sea trout stocks are relatively stable.

Sea trout catches per licence hour show a similar pattern, with relatively high catch rates in 2019 and 2020.

6. Performance of contributing stocks in England

6.1 Introduction

As described above, salmon and sea trout from a large number of populations are exploited by both beach (T and J) and drift nets in the North East net fishery.

The performance of the contributing stocks in England is summarised below. The performance of the contributing stocks in Scotland is set out in section 7 following.

Two principal sources of data have been used to assess the status of salmon and sea trout stocks in each catchment. These are declared rod catch and compliance with Management Objective, where one has been established.

Declared rod catch has been used to represent the performance of sea trout stocks. For English stocks, a classification using the sea trout rod fishery performance assessment tool has also been made.

For salmon, compliance with egg deposition target and rod catches have been used to illustrate the performance of salmon stocks.

Where Environment Agency operated fish counters are present, we have also presented and considered fish counts and estimates of returning stock size.

An annual programme of juvenile salmonid electric fishing surveys has been undertaken since 1991 across catchments in Yorkshire and the North East. These surveys provide information on the spatial distribution and numbers of juvenile salmon and trout. The surveys have most commonly been single run, semi-quantative surveys which provide minimum density estimates.

Whilst useful in providing a general overview of the distribution of spawning activity at a catchment scale, and the degree of habitat utilisation at a reach scale, results from electric fishing surveys for juvenile salmonids show considerable inter-annual variation both within and between sites.

Previous analyses show there are no consistent long terms trends evident in these data, and that juvenile salmonid densities do not reliably predict future smolt output or returning adult run size for each catchment.

Therefore, electric fishing survey results are not considered further in this report.

6.2 Declared rod catches

All salmon and sea trout anglers in England are legally required to submit an annual catch return to the Environment Agency under the Salmon and Freshwater Fisheries Act 1975.

The declared catch provides an assessment of the number of rod caught salmon and sea trout for each river. For the purposes of this report, rod catch data from 1952, which is the date from which we have continuous data on all catchments, is considered, and provides sufficient historical context.

Rod catch may be used to provide an indication of stocks size by assuming there is a relationship between the size of the salmon or sea trout population returning to the river in each year, and the declared rod catch of each species.

There are a number of assumptions and uncertainties associated with this approach, since the relationship between the sizes of the salmon or sea trout runs returning to each river and the rod catch in that river is influenced by a number of factors, which include:

- The level of fishing effort, influenced by changes to regulations, access to opportunities to fish, angler perceptions of likely success and other factors.
- The ease by which fish may be caught, influenced by fishing conditions, tackle regulations, season length and the expertise of individual anglers.
- Errors in reporting the declared rod catches, including under-reporting and illegal fishing.
- Differential exploitation rates for early and later running fish and changes to fishery regulations e.g. prohibition of specific types of tackle, etc.

Therefore, estimates of the size of the salmon and sea trout run in each catchment based on rod catch must be treated with caution. These limitations notwithstanding, rod catches remain a useful indicator of stock size, and particularly in trends or changes in stock size over time.

6.3 Conservation Limits in England

To address some of the issues regarding the use of rod catch statistics as an indicator of stock size, Conservation Limits have been developed for the principal salmon rivers in England and Scotland. At present, Conservation Limits have not been developed for sea trout due to their more complex reproductive strategy, whereby sea trout smolts are produced from resident brown trout populations as well as from migratory trout.

For each of the Principal Salmon Rivers in England, Conservation Limits have been developed. The Conservation Limit is considered to be the minimum safe level of spawning salmon for each river. By regularly failing to reach this limit, the risk of that river's salmon stock suffering serious decline greatly increases.

These Conservation Limits are expressed as the number of salmon eggs deposited by returning fish and are based on catchment specific characteristics such as catchment area, gradient and other features.

This method involves estimating the numbers of salmon returning to spawn in a river each year, and hence the number of eggs deposited, and assessing this number against the number of eggs comprising the Conservation Limit.

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).

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.

Annual compliance with the Conservation Limit is estimated using egg deposition figures. These are derived from returning stock estimates, where such data are available, but for rivers without

adult fish traps or fish counters, the usual procedure for estimating egg deposition involves calculating run size from rod catch, using estimates of rod exploitation.

The categories for each salmon population are as follows:

1. Not at risk – greater than 95% probability of meeting the management objective.
2. Probably not at risk – between 50% and 95% probability of meeting the management objective.
3. Probably at risk – between 5% and 50% probability of meeting the management objective; and
4. At risk - less than 5% probability of meeting the management objective.

The use of Management Targets and Conservation Limits to provide an objective assessment of the performance of salmon populations is a well-established, nationally consistent approach. Our assessments of salmon stocks are based on internationally accepted methods and are reviewed to ensure they provide us with the most accurate estimates of stock performance possible.

6.4 Sea trout fishery performance assessment

An assessment of the status of sea trout stocks is made using rod fishery performance as an indicator of stock size. As explained in 6.1 above, rod catches do not necessarily represent stock performance, and are influenced by a range of other factors.

It is therefore necessary to interpret this classification with some caution, but the approach provides a useful indicator of stock size and trends in stock performance.

The assessment of sea trout stock performance is based on two criteria - trend in catch per unit effort (CPUE) in the last 10 years and current CPUE relative to the previous 10 years. The results have been divided into 4 risk categories, as with salmon populations:

1. Not at risk
2. Probably not at risk
3. Probably at risk
4. At risk

There is no forward prediction for status in five years' time as there is with salmon. The assessment of sea trout fishery performance is designed to give an early warning about potential problems and assist with considering whether any further management actions, including exploitation controls, are required.

These assessments for sea trout fisheries should be considered alongside the Water Framework Directive assessments (where they exist) for juvenile trout for the constituent water bodies in the catchment. The assessment of sea trout fishery performance is designed to give an early warning about potential problems and assist Areas with considering whether any further management actions, including exploitation controls, are required.

6.5 Fish Counters

The Environment Agency has operated a network of fish counters on the region’s salmon rivers for a number of years.

These counters provide an assessment of the number of returning adult salmon and sea trout, which provides a minimum estimate of upstream migration that is independent of estimates derived from rod catches.

Fish counter data are available for the rivers Tyne, Wear and Tees.

On the River Tyne a fish counter has operated at Riding Mill since 1996. In 2004, underwater video cameras were installed to allow the species identification of fish passing upstream and to validate results from the fish counter.

Restriction on the use of the video system during high flows and in periods when the river water is turbid or highly coloured limit its application. Nevertheless, it is possible to apportion the returning run of migratory salmonids to species using this system.

The Tyne is the only river for which a separate estimate of the number of returning adult salmon and sea trout is available. For the other rivers, a combined count of salmon and sea trout is generated.

On the River Wear fish counter data are available from 1995 from the Framwellgate weir counter in Durham City. The counter gives a total combined upstream count of salmon and sea trout. There are no data available for 2004 and 2006 due to operational difficulties experienced during those years resulting in the counter not being in operation.

A fish counter on the River Tees has been operating at the Tees Barrage at the tidal limit since 2011. There are several route by which adult salmon and sea trout can pass upstream at the barrage, of which the fish pass containing the counter is one. Therefore, the counter only monitors the upstream migration of salmon and sea trout through the fish pass and provides a minimum count of returning fish.

Additional upstream migration routes exist through the main barrage gates, canoe slalom, turbine fish pass and the navigation lock. To help fish migrate, the Environment Agency and the Canal and River Trust keep the main barrage gate open as much as possible, which improves fish passage but reduces the efficiency of the counter.

6.6 Summary of the performance of English stocks

Details of the rod catches, salmon spawning target compliance, sea trout fishery performance and where available fish counter information for individual English stocks contributing to the North East Coast net fishery are detailed in Appendix 1.

6.6.1 Performance of salmon stocks

The performance of salmon stocks contributing to fishery in Principal Salmon Rivers in England is summarised in Table 2 below:

River	Management Target compliance			Trend	Certainty
	2019	Current 2020	Predicted 2025		
Coquet	Prob at Risk	Prob not at Risk	Prob at Risk	-	Uncertain
Tyne	Prob not at Risk	Not at Risk	Prob not at Risk	---	Uncertain
Wear	Prob not at Risk	Prob not at Risk	Prob at Risk	---	Uncertain
Tees	At Risk	At Risk	At Risk	--	Uncertain
Yorkshire Esk	Prob at Risk	At Risk	Prob at Risk	--	Uncertain

Table 2: Current and predicted performance of salmon stocks

Only the Tyne has a current classification of Not at Risk. The salmon populations of the Coquet and the Wear are currently classified as Probably not at Risk, and both the Tees and the Esk are At Risk.

The predicted performance of these stocks in 2025 provides cause for concern, with the Tees predicted to remain At Risk, and the Coquet, Tyne and Wear to deteriorate.

The beach net fishery also exploits stocks from smaller and recovering rivers, including the River Aln in Northumberland and the Yorkshire Ouse system, notably the River Ure, which are not designated as Principal Salmon Rivers.

These rivers have very small salmon populations and/or are at an early phase in the recovery of their salmon stocks and are vulnerable to over-exploitation. Any reduced exploitation would be likely to accelerate and stabilise the recovery in these rivers.

6.6.2 Performance of sea trout stocks

The sea trout fishery performance in these rivers is show in Table 3 below:

River	Sea trout fishery assessment	
	2019	2020
Coquet	Prob at Risk	Prob not at Risk
Tyne	Prob not at Risk	Not at Risk
Wear	Prob at Risk	Prob at Risk
Tees	Prob at Risk	Prob at Risk
Yorkshire Esk	Prob not at Risk	Prob not at Risk

Table 3: Current performance of sea trout stocks

This latest assessment of the status of sea trout stocks in Yorkshire and the North East which contribute to the net fishery provide some cause for concern. Some populations have been assessed, by reference to the performance of their respective sea trout rod fisheries, to be 'Probably at Risk' whereas others are assessed as 'Probably not at Risk'. Only the sea trout population from the River Tyne is assessed as 'Not at Risk'.

Sea trout stocks are likely to benefit from reduced exploitation in the North East coastal net fishery.

7. Performance of contributing stocks in Scotland

As explained above, salmon and sea trout from a large number of populations are exploited by both beach (T and J) and drift nets in the North East net fishery.

Scottish salmon rivers which contribute to the North East coastal net fishery include the Tweed, Forth, Tay, South Esk, North Esk and the Aberdeenshire Dee. Contributions are made from smaller rivers within these Districts and in smaller numbers from rivers further north, including the rivers Spey and the Deveron.

The performance of contributing stocks in Scotland is summarised below.

Two principal sources of data have been used to assess the status of salmon and sea trout stocks in each catchment. These are declared rod catch and compliance with the Conservation Limit. Data have been provided via the Scottish Government website under a UK Open Government Licence (OGL).

Declared rod catch has been used to represent the performance of sea trout stocks contributing significantly to the North East net catch, which are confined in Scottish rivers to the River Tweed sea trout population only.

7.1 Declared rod catches

Salmon and sea trout rod catch data are obtained from returns made in response to an annual questionnaire sent to the proprietors or occupiers of salmon and sea trout fisheries under the provisions of the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.

The same caveats and assumptions set out in 6.1 above apply to rod catch data secured in Scotland.

7.2 Conservation Limits in Scotland

The performance of each salmon stock is assessed in accordance with the same principles as in England but uses a different methodology.

Stock performance is assessed by setting an egg deposition requirement for the stock and estimating whether or not this requirement is met. As recommended by NASCO, the egg requirement is set to maintain the sustainability of a stock, rather than maximise juvenile output.

The numbers of salmon eggs estimated to have been deposited is used as the basis for assessment to account for changes through the season and over the years in biological characteristics such as size of the fish or sex ratio of the stock.

Assessments are undertaken for each river for each of the most recent five years to calculate the percentage chance that the egg requirement has been reached for each of the last five years and used to determine the grade for each river. Rather than a simple pass or fail, stocks are allocated to one of the following three grades, each with its own recommended management actions:

Grade 1. At least an average chance of 80% that the egg requirement has been met over the past 5 years. Exploitation is sustainable therefore no additional management action is currently required. This recognises the effectiveness of existing non-statutory local management interventions.

Grade 2. An average chance of 60-80% that the egg requirement has been met over the past 5 years. Management action is necessary to reduce exploitation; mandatory catch and release will not be required in the first instance, but this will be reviewed annually.

Grade 3. An average chance of less than 60% that the egg requirement has been met over the past 5 years. Exploitation is unsustainable therefore management actions required to reduce exploitation for 1 year i.e., mandatory catch and release (all methods).

Further information is available here: Summary of Conservation Regulation Methods

7.3 Summary for Scottish stocks

Details of the rod catches, and compliance with conservation limit for salmon for the most significant Scottish stocks contributing to the North East Coast net fishery are detailed in Appendix 2. The performance of all contributing Scottish salmon and sea trout stocks is summarised below.

7.3.1 Performance of salmon stocks

The largest of the east coast Scottish salmon rivers contributing to the North East coast net fishery, the Tweed, Tay, North Esk, South Esk and Dee, are assessed as Grade 1 for 2021 and proposed

Grade 1 for 2022, and therefore likely to meet their conservation limit over a 5-year period with no additional management action currently required.

The performance of the contributing salmon stocks in Scotland is shown in Table 4 below.

River system	Grade					Proposed Grade 2022	Change
	2017	2018	2019	2020	2021		
Tweed	1	1	1	1	1	1	No change
Almond	3	3	3	3	3	3	No change
Avon	3	3	3	3	3	3	No change
Carron (Granegmouth)	3	3	3	3	3	3	No change
Devon	3	3	3	3	3	3	No change
Forth	2	2	2	2	2	2	No change
Leven (Fife)	3	3	3	3	3	3	No change
Teith	1	1	1	2	2	2	No change
Earn	2	3	2	3	3	3	No change
Eden	2	3	3	3	3	3	No change
Tay	1	1	1	1	1	1	No change
South Esk	1	2	1	2	2	2	No change
North Esk	1	1	1	1	1	1	No change
Carron Water	3	3	3	3	3	3	No change
Cowie Water	3	3	3	3	3	3	No change
Dee	1	1	1	1	1	1	No change
Ugie	3	3	3	3	3	3	No change
Thurso	1	1	1	1	1	1	No change
Spey	1	1	1	1	1	1	No change
Ness	3>2	3>2	1	2	1	2	↓
Conon	1	1	1	1	1	1	No change
Deveron	1	2	1	2	2	2	No change
Findhorn	1	1	1	1	1	1	No change
Don	2	3	3	3	3	3	No change
Forss Water	1	2	1	1	1	1	No change
Dionard	1	3	1	1	2	2	No change
Halladale River	1	1	1	1	1	1	No change
Helmsdale	1	1	1	1	1	1	No change
Borgie	1	1	1	1	1	1	No change
Naver	1	1	1	1	1	1	No change
Brora	1	1	1	1	1	1	No change
Beauly	2	3	1	1	1	1	No change
Berriedale	1	3	1	1	1	1	No change
Shin	2	1	1	1	1	1	No change

Table 4. Performance of Scottish salmon populations contributing to the NE net fishery

However, many of the smaller catchments known to be contributing to the North East net fishery are in less favourable condition, with 11 of the 35 contributing salmon populations assessed as Grade 3 for 2021 and proposed for 2022, meaning likely compliance with their spawning target is uncertain. The closure of the North East net fishery for salmon in 2018 has assisted in reducing exploitation of these stocks.

7.3.2 Performance of sea trout stocks

Sea trout from the River Tweed catchment contribute to catches in the North East coastal net fishery. Sea trout rod catches have shown a moderate downward trend over the last 10 years, with an improved rod catch in 2019 and 2020. The 2020 declared sea trout catch for the Tweed was 1742 fish. Sea trout rod catches for the River Tweed are shown in Figure 21 below.

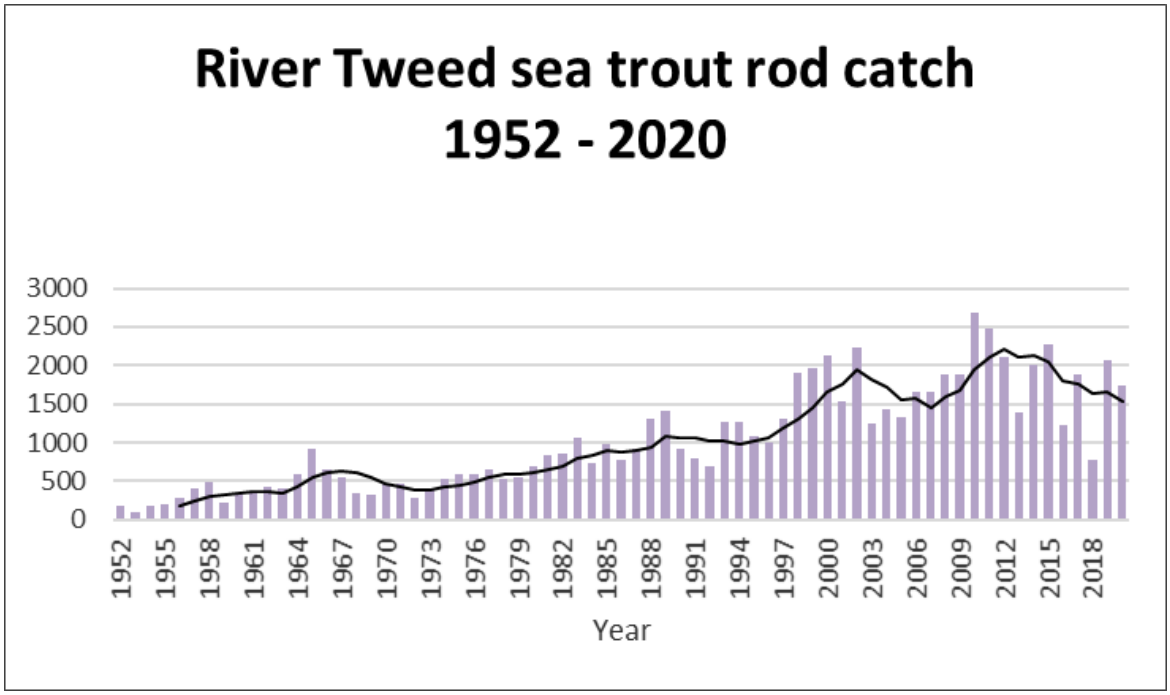

Figure 21. Declared sea trout rod catch 1952 to 2021 for the River Tweed.

8. Impact on protected sites and species

The potential exists for coastal sea trout netting activities to impact on protected sites and species. These are briefly described and assessed below.

In 2012 when the current NLO was confirmed, we undertook a formal Habitats Regulations Assessment which concluded there was no potential for significant adverse impact, either alone or in combination, on any designated sites or species, with the exception of Flamborough Head and Bempton Cliffs Special Protection Area (SPA) within District 5 of the net fishery - now renamed and extended as the Flamborough and Filey Coast SPA.

At that time, we completed an Appropriate Assessment to consider impacts on the bird species designated under the provisions of the SPA.

In order to reduce the potential adverse effect of bycatch mortality on sea birds, we reduced the number of beach net licences available in District 5 from 14 licences available to a maximum of 8 nets. The number of licences issued in District 5 for the 2021 season had fallen to 6 licences.

8.1 Impact on SAC rivers designated for Atlantic salmon

Five salmon populations known to be exploited by the North East coastal net fishery are designated as an interest feature in Special Areas of Conservation (SACs).

The most recent condition assessment for these salmon populations were reported in 2011, and are given in Table 5 below together with the latest Conservation Status Assessment:

SAC Name	Location	Condition Assessment	2021 Grade
River Dee SAC	Scotland	Favourable maintained	1
River South Esk SAC	Scotland	Unfavourable recovering	2
River Tay SAC	Scotland	Favourable maintained	1
River Teith SAC	Scotland	Unfavourable recovering	1
River Tweed SAC	England/Scotland	Favourable maintained	1

Table 5. Condition Assessment for salmon in SAC rivers (2011) and 2021 grading

Given the length of time since these assessments were reported, the condition assessment is primarily included for completeness. The Conservation Status Assessments for 2018 above provide a more recent assessment of the current status of salmon populations in these SACs, and in other salmon populations.

With the exception of the South Esk, all of the designated salmon populations exposed to the net fishery are classified at Grade 1 and have a proposed Grade 1 grading for 2022.

The South Esk was Graded 2 for 2021 and provisionally 2 for 2022.

Given the closure of the salmon net fishery, requirements that all salmon captured must now be returned, the reduction in netting season in most districts and the reduced number of licences issued in the net fishery, it is very likely that the conclusion of the previous HRA that the North East coastal nets have no adverse effect on the site integrity, either alone or in combination with other pressures, on designated salmon populations, remains correct.

8.2 Impact on Flamborough and Filey Coast SPA

The Flamborough Head and Bempton Cliffs SPA was originally designated in 1993 for its internationally important colony of black-legged kittiwakes. The designation was recently extended, and the site renamed as the Flamborough and Filey Coast SPA.

This extension provided specific protection for another three species (Northern Gannet, Common Guillemot and Razorbill) and the overall seabird assemblage.

In the mid to late 2000s, it became apparent that large numbers of guillemots and razorbills were being fatally caught in J nets fishing in District 5 for salmon and sea trout in Filey Bay during the summer months.

In response, the Environment Agency, working in partnership with Natural England and the Royal Society for the Protection of Birds (RSPB) implemented regional fisheries byelaws and a Code of Conduct to introduce measures to reduce seabird bycatch in Filey Bay in 2010.

The byelaws were introduced to avoid significant disturbance or deterioration to the Flamborough and Filey Coast SPA and local seabird populations, whilst maintaining a viable salmon and sea trout fishery.

The byelaws require netsmen, during the month of June, to attend their nets at all times, not leave nets out overnight (between 9.00pm and 5.00am), use high visibility multifilament nylon material in the leader of the net and if the headpiece of the net is made of monofilament material it must not exceed 70m in length.

At any time during the fishing season byelaws also require the netsmen to remove any seabirds caught in their net as quickly as possible and with the least possible injury and to keep a record of the number of each species of seabird caught in the net and the number of sea birds released alive and provide a copy of that record to the Environment Agency (or an authorised person) upon request.

During 2010 and 2011 netsmen were required to report any bird fatalities and hand over any dead birds for disposal.

Additionally, throughout the fishing season all licensees must take reasonable steps as outlined in the Code of Conduct to make sure that the use of the net does not result in the death of sea birds.

The Code of Conduct requires the netsmen to attend the net at all times when there are significant numbers of birds in the vicinity and if a significant number of birds are being caught in the net to take preventative action. It also requires the netsmen to undergo training in the safe removal of birds from the net.

Our Appropriate Assessment in 2012 concluded that the number of net licences fishing in District 5, which includes the Flamborough and Filey Coast SPA, should be reduced from 14 to 8. This reduction was implemented as part of the 2012 Net Limitation Order.

Natural England, as the statutory nature conservation body, measures the condition of the site's designated features at regular intervals. Although no specific condition assessments have been undertaken, a full seabird colony count was completed during summer 2017. This was the first full colony count to be undertaken since 2000.

Recent counts have indicated a significant decrease in the kittiwake population within the SPA. In 1987, approximately 83,700 pairs of kittiwakes were nesting around Flamborough Head. After an extreme low of 37,617 pairs in 2008, the population was counted at 51,372 pairs in 2017.

The gannet colony has grown rapidly to over 27,000 individuals since the 1980s, when only a handful of pairs were present.

Guillemots are one of the most numerous seabirds within the breeding colony; with a population of approximately 60,887 pairs.

The breeding colony of razorbills around Flamborough has been steadily increasing since the late 1960's and now consists of around 20,252 pairs. Razorbills are the most vulnerable species to being killed by entanglement in fishing nets. Thus, entanglement in fishing nets is a potential hazard to the razorbill population of the SPA.

Previous work based on population modelling has identified a trigger level for bird mortalities, below which a significant impact would not result. Based on the 2008 population census, which records the total number of individual razorbills at 14,927, a trigger level of 224 razorbill mortalities over the whole season (1.5 per cent of the breeding population) and 112 razorbill mortalities in a five-day period (0.75 per cent of the breeding population) has been identified as providing appropriate protection to the razorbill population.

The RSPB worked with individual fishermen to trial innovative seabird deterrent techniques at the nets and an independent consultant monitored compliance with the byelaw from 2009 - 2015.

Results indicated that overall seabird bycatch reduced by 85% from 2009 and, of those birds that were caught in fishing nets, 60% were released alive in 2015.

Analysis has found that management measures, such as maintaining presence at the nets and the prohibition of leaving nets to fish overnight, have been important in reducing seabird bycatch, alongside the work of individual fishermen.

The latest records of seabird mortalities in J nets in Filey Bay for the 2020 netting season show a marked reduction in seabird bycatch and a very small number of mortalities. The latest records are shown in Table 6 below.

Considering the very low levels of bird bycatch mortality in J nets, it is very likely there is no significant effect, either alone or in combination from sea trout netting on bird species designated in the Flamborough and Filey Coast SPA or from other designated sites.

Species	Released		Total
	Alive	Dead	
Gulillemot	1	0	1
Cormorant	1	0	1
Razorbill	8	3	11

Table 6. Releases and mortalities of seabirds in District 5 in 2021.

8.3 Impact on other designated sites and species

The potential exists for adverse effect, either directly for example through entanglement in nets or physical damage to the seabed during deployment or indirectly through disturbance to species.

In 2012 when the current NLO was confirmed, we undertook a formal Habitats Regulations Assessment which concluded there was no potential for significant effect, either alone or in combination, on any designated sites or species.

Since that time the fishery has reduced from 62 licences in 2012 to 36 licences in 2021, and the netting season has been reduced in Districts 1 to 5 inclusive.

It is therefore very likely that the conclusion of the 2012 HRA that there is no likely significant effect, either alone or in combination from sea trout netting on other protected sites or species remains valid.

9. Socio-economic evaluation

9.1 Our approach to considering socio-economic impacts

Our primary objective in managing the net fishery is the conservation and restoration of stocks of salmon and sea trout to healthy and self-sustaining levels. However, when reviewing regulations, we look carefully at their potential social and economic impacts. In doing this we consider:

- Whether proposed measures will have an unreasonable effect on someone's livelihood. In the case of reviewing the NLO, this would be the loss of income from commercial net fishing.
- The effects of our regulation on different groups. We consider the balance of impacts on commercial fisherman in different parts of the fishery, and the apportionment of the regulatory burden of providing necessary and appropriate protections from exploitation to salmon and sea trout stocks.
- The effect of our proposed regulations on the commercial viability of fisheries.
- The provisions of the Regulators' Code and our duty of promoting economic growth when we make regulatory decisions.
- The heritage value of fisheries where fishing methods are unique to a small number of locations, where we consider retaining a residual fishery wherever the achievement of conservation objectives allows this to be possible.

In determining our position, we follow the NASCO guidelines and apply the Precautionary Approach to the conservation and management of salmon populations, thereby giving priority to conserving and protecting salmon stocks.

We follow the Regulators' Code and the statutory principles of good regulation as well as our duty under the Environment Act 1995 to have regard to economic and social wellbeing of local communities in rural areas.

We consider the potential impact of our proposed regulations on economic growth, both for individual businesses and more widely, alongside consideration of our statutory duty to maintain, improve and develop fisheries.

We understand that our regulation may place a financial burden on licensees, and we seek to maintain a net fishery where to do so would not impact on salmon and sea trout stocks.

9.2 Assessing the value of the North East fishery

In 2018, as part of a national salmon and sea trout byelaw review, the Environment Agency commissioned a study from Amec Foster Wheeler (AFW).

The objective of this study was to identify and analyse the societal impacts of proposed new measures, monetise these impacts where possible and provide supporting narrative.

The outputs provide sufficient information to complete a government Business Impact Target (BIT) assessment but were not intended to allow a full Cost Benefit Analysis.

Although commissioned to advise the national byelaw development process, the findings of the AWF study provide information appropriate to assess the social and economic value of the North East net fishery, and to inform this consultation.

This study built upon, and updated information gathered as part of the process of making the 2012 NLO, and questionnaire responses from licensees operating in the North East net fishery submitted to advise and inform negotiations to consider a possible buyout of net fishery licences in 2013.

9.3 Value of the North East net fishery

The AFW study estimated the average gross income received of the North East coast T net fishery in District 1 as £531K per annum and the J net fishery in Districts 3 to 7 at £194K per annum.

This equates to an estimated average gross income per licensee of around £25K for T netsmen and approximately £7K in the J net fishery.

It should be noted that these average values may not reflect the individual income of licensees, some of whom expend a relatively low level of effort, whilst others utilise a high proportion of their available fishing time.

These values also include income derived from salmon netting, which is no longer permitted under the provisions of the 2018 byelaws, and to fishing over (for most parts of the net fishery) a longer netting season. Consequently, the current first sale value of the sea trout net fishery is significantly lower.

All licensees affected by the closure of the drift net fishery at the end of the 2018 netting season, and the closure of the T and J net fishery for salmon, and the shortening of the netting season for sea trout in Districts 1 to 5 inclusively were compensated by the Environment Agency under the provisions of the Water Resources Act 1991.

A previous Environment Agency study of 2012 yielded similar results using estimated first sale values and reported catches. The average estimated first sale incomes to each beach net licensee was £10.3K and ranged from £3K to £39.5K

This study showed costs and overheads incurred in operating in the fishery amount to between £2K and £8K and were on average £5.9K.

Costs to licensees include licence duties, insurance, harbour fees, fuel, nets and net repairs, boat maintenance and boat licences and transport.

It should be noted that many licensees work with one and sometimes two endorsees who receive payment, which is not reflected in the estimates above.

In order to assess the net income for licensees, a number of earnings deductions must be considered. The estimated figures derived above represent gross income from salmon and sea trout fishing and sales.

As part of the 2011 survey of netsmen, returns from 8 licensees suggest that the costs they incur in operating in this fishery amount to between £2000 and £8,000, average £5,900.

Some of the costs are fixed, such as the costs of the Environment Agency licences as shown in Table 7 below:

District	Licence fee
D1	£324
D2	No licences
D3	£470
D4	£620
D5	£620
D6	£770
D7	£770

Table 7. Licence duties for each District 2021

The price for sea trout fluctuates significantly depending on availability throughout the season and between ports. For the 2012 NLO, we estimated, based on licensees' information, an average price of £2.90 per lb for sea trout. In calculating compensation in respect of the impact of the 2018 national byelaws, we agreed an average price with the NFFO of £5/kg for sea trout, roughly £2.50 per lb.

Lack of salmon available to the market from 2019 and a shorter season for sea trout are pressures likely to increase the first-sale price of sea trout. Conversely, the closure of the salmon net fishery and the reduction in the length of the netting season in districts 1 to 5 will have reduced the levels of income derived from the net fishery.

A further factor is that for the last 2 years, as a result of the Coronavirus pandemic, there have been intermittent issues with transportation to wholesalers and other markets and reduced demand in the restaurant and hospitality industry for much of the time, which will serve to reduce the first sale price for sea trout and demand.

Based on provisional catch returns for 2021, and assuming a representative average price of £5 per lb for sea trout, the gross value of the whole fishery (at first point of sale) is estimated at around £92K in 2021.

Eleven of the 36 licensees (31%) did not fish at all in the 2021 season, so gained no income and have incurred a loss from paying licence fees. In NE area, seven of the 15 T-net licensees in D1 (47%) did not fish. It is assumed they are continuing to take out T net licences to maintain eligibility in future years under the provisions of the NLO, should the regulatory regime change. In Yorkshire, 4 of 21 licensees did not fish (19%).

A further 4 licensees made less from fishing than their licence fee, bringing the total licensees who made a loss to 15 of 33, before any other costs are taken into account.

A summary of the estimated income from sea trout netting, considering the cost of the net licence, but not other costs (which are widely variable) is provided in Figure 22 below:

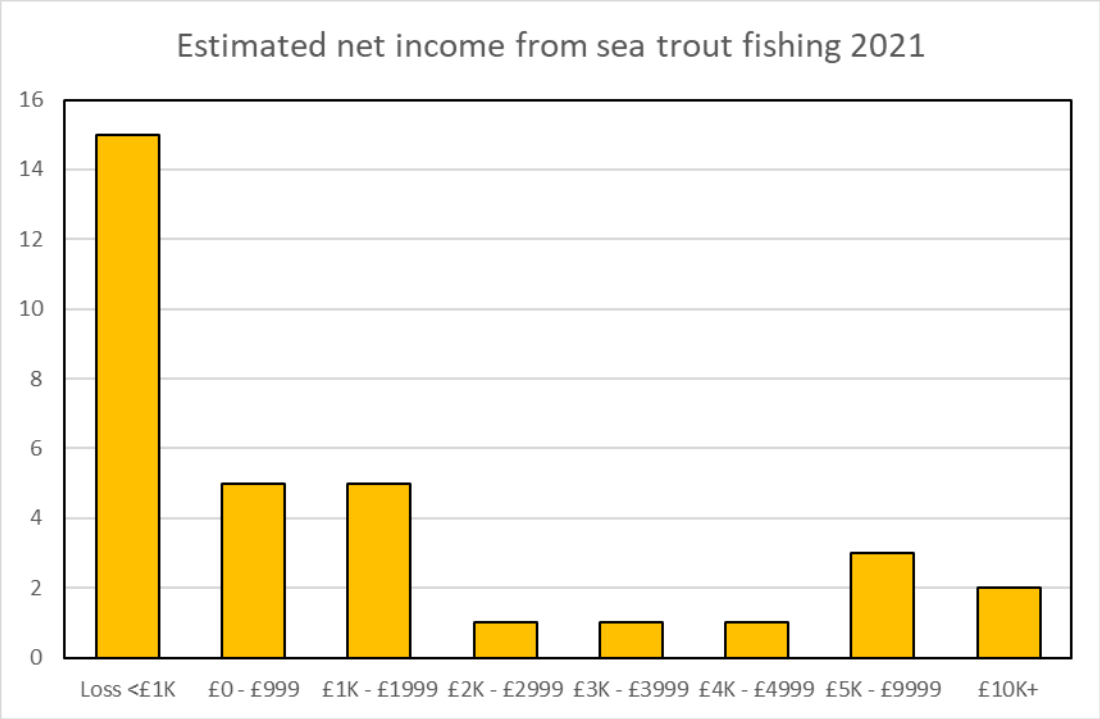

Figure 22. Estimated income after net licence fees per licensee, 2021.

Net licence holders are regarded as an important source of business to local fish merchants, chandlers, boatyards and suppliers, and help to sustain the local fishing industry.

The range of economic influence of the net fishery extends beyond the local community and includes fish merchants, large wholesalers, and a range of retail outlets before the fish finally reaches the consumer.

This means that the total economic value of the fishery is substantially greater than that estimated for point of first sale value (netsmen to fish merchant).

There is not a single supply chain for every fish landed and different netsmen sell though different routes. Additionally, fish prepared for specialist markets (e.g. the kosher and halal markets) are sometimes sold directly by netsmen to retail outlets at a premium.

9.4 Future levels of participation in the beach net fishery

Future levels of participation in the net fishery, and therefore both the economic value of the fishery and the impact of beach netting on contributing stocks, are dependent on a number of factors.

The provisions of the 2012 Net Limitation Order mean that as existing licensees retire from the fishery, their licences are not made available to new entrants. In this way the fishery reduces over time, but in such a way that those current licensees who wish to continue net fishing for sea trout may continue to do so.

As detailed in 5.3 above, the number of licences has fallen from 62 in 2012 to 36 in 2021. The net fishery is likely to continue to reduce as existing licensees retire or otherwise choose to leave the fishery.

The age profile of licenses is shown in Figure 23 below. Licensees choosing to leave the fishery may retire, take up alternative fishing options, for example potting for lobsters or crabs, or fishing for marine fish species, or seek employment in non-fisheries related areas of work.

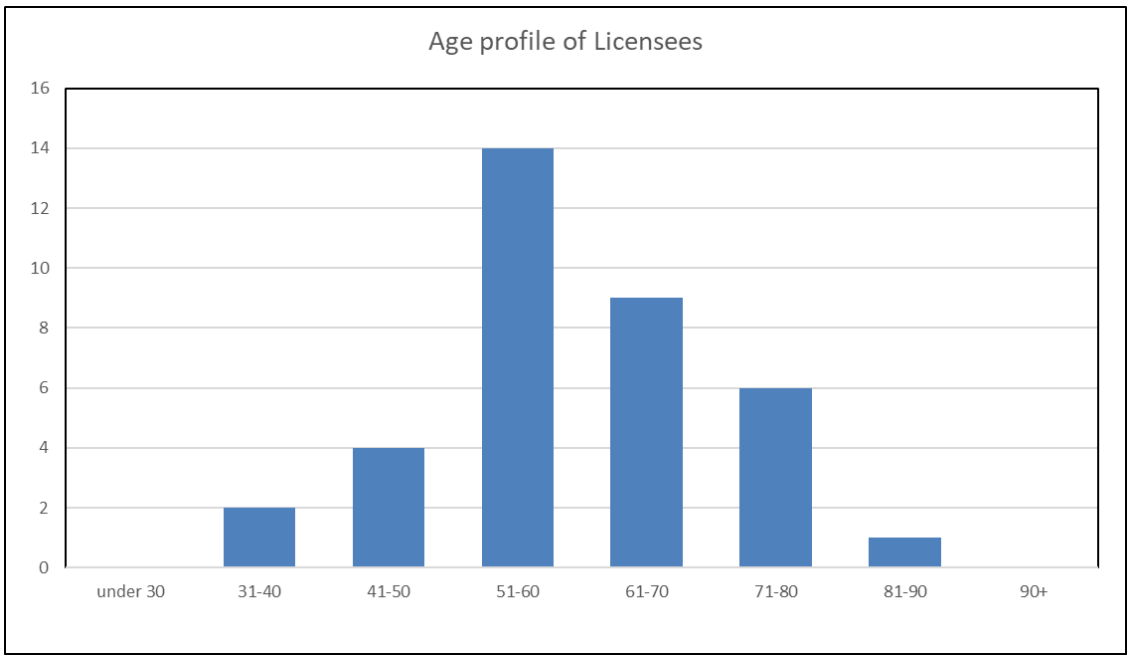

Figure 23. Age profile of beach net licensees

The current NLO expires in December 2022. Maintaining an upper level on the number of beach net licences that may be issued will require this NLO to be replaced on or before that date.

9.5 Social, heritage and experience values from the net fishery

Commercial fishing is widely considered to contribute to tourism in coastal communities, either from the value people derive from watching the boats and unloading of the catch or the fact that fresh fish and shellfish can be bought locally and in the enjoyment of eating locally caught produce.

Coastal towns such as Amble, North Shields, Whitby and Filey have a strong fishing heritage and other coastal communities continue to have a fishing brand as part of their attraction to tourists.

However, the degree to which any reduction in netting for sea trout might deter or reduce tourism, in light of the wide range of other fishing activities and tourist attractions in coastal locations is unclear.

Whilst there is a strong tradition and heritage of fishing along the North East and Yorkshire coast, it should be recognised that the technology employed in the manufacture of modern sea trout nets was developed only 50 years ago, and that netting for sea trout using these types of net does not reflect the continuation of a long held traditional method of fishing in the net fishery.

Although commercial fishing is primarily undertaken for monetary gain, many licensees in the North East net fishery gain a significant level of satisfaction and enjoyment from net fishing activities. It is not possible to quantify this level of enjoyment, but it is recognised that reduced fishing opportunities are likely to provide a commensurate reduction in the personal enjoyment licensees derive from their participation in the net fishery.

9.6 Value of the rod fisheries

The total expenditure associated with salmon and sea trout fishing within the whole of the Yorkshire and North East region is estimated at £5.5 million.

Average expenditure across the Yorkshire and North East region is estimated at an average of £72 per day per angler. Any increase in angler activity might therefore reasonably be argued to increase economic input into the region by approximately £72 per angler per day.

Whilst much of the money derived from angling is from anglers living within the region (and would therefore arguably be spent on other activities if salmon and sea trout fishing were not available) over 30 per cent of angling activity is from visiting anglers who are therefore bringing additional income to the region.

Angling also helps to support a wide range of businesses including hotels, bed and breakfast establishments, food outlets and pubs.

It is estimated that salmon and sea trout angling creates 192 jobs (direct and indirect) across the Yorkshire and North East region. In England it is illegal to sell any salmon or sea trout taken by rod and line so there can be no legitimate direct sale value from any fish taken by angling.

It is recognised that angling offers social as well as economic benefits. Research has shown that, as well as offering a chance to relax and enjoy the natural environment, many people use clubs or associations to pursue angling.

Consequently, this activity is well structured and organised. These organisational structures allow people to come together, for clubs to draw in new participants from schools and communities and to promote the health and physiological benefits of the sport.

Reducing the net catch of sea trout further would result in greater availability of sea trout to the rod fishery, which may improve the quality of angling and promote additional expenditure in the rod fishery.

10. Review of the Net Limitation Order

This section of the report reviews the provisions of the 2012 NLO, briefly summarises changes relevant to the management of the North East coast net fishery since the conformation of the current NLO, and provides a number of options for management actions, and on the possibility of maintaining a future net fishery.

10.1 The provisions of the 2012 Net Limitation Order

The 2012 NLO makes the following provisions:

1. The Agency shall issue a drift net licence to any applicant who demonstrates that they are dependent for their livelihood on fishing as a fisherman, and who held a drift net licence in the area in the year preceding the licence year.

Note: This provision was subsequently superseded by the closure of the drift net fishery under the 2018 National Salmon and Sea Trout Protection Byelaws

2. The Agency shall issue a T and J net licence to any applicant who held a T and J net licence in the district in respect of which the application is made in the year preceding the licence year.

3. The number of T and J net licences to be issued in any year shall be limited to 8 in District 5 (Filey Bay).

At the time of confirming the 2012 NLO, the Minister also directed the Environment Agency to:

"…provide a full evaluation of the potential for maintaining some T and J and/or estuary nets that will conform to national policy and NASCO guidance on salmonid fishery management to further inform decisions on the future of this component of the fishery"

10.2 Changes since the 2012 NLO

The key changes relating to the management and regulation of the North East net fishery are summarised below:

10.2.1 Participation in the net fishery

As described in Section 5 above, as a result of the reducing provisions of the 2012 NLO, participation in the North East coastal net fishery has declined since the Order was confirmed in 2012.

In 2012, there were 14 drift net licensees, and 61 T and J net licensees participating in the net fishery. Since that time, the reducing provisions of the NLO have seen the number of net license issued fall as licensees have left the fishery and their licences were not reallocated.

For the 2021 netting season, there were 36 T and J net licences issued, although of these, 11 licensees did not actually fish.

These reductions are in line with forecasts based on the age profile of licensees made at the time of the making of the 2012 NLO and the number of licenses issued is likely to continue to fall as licensees retire from the net fishery, under current NLO provisions.

10.2.2. Catches in the net fishery

Net catches of sea trout increased from 2012 to 2015, despite the contraction in the size of the fishery, to a high of 59,674 sea trout in 2015.

Since that time, catches of sea trout in the beach net fishery have fallen year on year to a historically low level of 10,902 in 2020, due to the closure of the drift net fishery, reduced licences for beach nets and the shortening of the netting season in most districts. See Section 5 above for more details.

The salmon net fishery was closed at the end of the 2018 netting season. All salmon caught in the net fishery must be immediately returned. Evidence from the 2019 trial of modified T and J nets provided confirmation that the great majority of salmon are lightly entangled and can be released successfully with minimal damage.

10.2.3 Performance of contributing stocks

As described in Sections 6 and 7 above, there are concerns regarding the performance of both salmon stocks exposed to the net fishery and sea trout stocks contributing to the net fishery.

Of the salmon stocks in England contributing to the net fishery, only the Tyne is currently classified as 'Not at Risk', with the Coquet and Wear ' assessed as 'Probably not at Risk' and the rivers Tees and Yorkshire Esk assessed as 'At Risk'.

The performance of salmon stocks in the Tees and Esk is a particular cause for concern and recent compliance with their respective Conservation Limits indicates these rivers would benefit from decreased exploitation to better support spawning activity.

The forecast performance of salmon stocks in 2025 predicts that the Tyne will have fallen from 'Not at Risk' to be 'Probably not at Risk' the Coquet, Wear and Yorkshire Esk will be 'Probably at Risk' and the Tees will remain 'At Risk'.

Some rivers are at an early phase in the recovery of their salmon stocks (for example the River Ure) or have very small salmon populations (such as the River Aln) and are vulnerable to over-exploitation. Any reduced exploitation would be likely to accelerate and stabilise the recovery or support the increase of stocks in these rivers.

In Scotland, many of the smaller catchments known to be contributing salmon to the net fishery are not in a favourable condition, with 11 of the salmon populations contributing to the North East net fishery being assessed as Grade 3 for 2021, meaning likely compliance with their spawning target is uncertain and current exploitation is unsustainable, requiring action is required to reduce exploitation to zero. These stocks would benefit from a reduction in exploitation in the North East coastal net fishery.

All of the designated salmon populations exposed to the net fishery are classified at Grade 1 and have a proposed Grade 1 grading for 2022, with the exception of the South Esk SAC, which is assessed as Grade 2 for 2021 and is proposed as Grade 2 for 2022.

Sea trout stocks also present a cause for concern, with rod catches showing a declining trend from 2012 to 2018, with an upturn in 2019 and 2020, which may be in part related to the shortening of the sea trout netting season in Districts 1-5 and the resulting decrease in net catches.

The Wear and Tees, by reference to the performance of their respective sea trout rod fisheries to be 'Probably at Risk' in the 2020 assessment. These stocks are likely to benefit from reduced exploitation in the North East coastal net fishery.

Sea trout rod catches from the River Tweed showed a slight downwards trend since 2012 but have increased from a low point in 2018 in the last two years.

10.2.4 Changes in regulation

The most significant changes to the regulation of the North East coastal net fishery have been introduced by the 2018 national salmon and sea trout protection byelaws which closed the drift net fishery in 2019, closed the T and J net fishery for salmon and restricted the netting season for sea trout in Districts 1 to 5 inclusively.

The salmon catch has been reduced to a level close to zero, as the drift nets no longer operate and T and J nets fish on a sea trout only basis, with any salmon captured being returned with the least delay.

Sea trout catches have also significantly reduced, due to the closure of the drift net fishery, and the shortening of the fishing season across most of the T and J net fishery to better protect salmon stocks.

10.3 Impact on protected sites and species

We will conduct a formal Habitats Regulations Assessment before making any changes to the regulation of the net fishery including proposal to draft a new NLO. Having assessed the impact of the North East coastal net fishery on protected sites and species (see section 8 above) there does not appear to be any adverse effect on site integrity, either alone or in combination from sea trout netting on any designated species or site under the current regulatory regime.

10.4 Socio-economic considerations

The value of the North East net fishery was assessed in 2018 by Amec Foster Wheeler (see Section 9 above) as part of the national review of salmon and sea trout protection byelaws.

This study estimated the average gross income received of the North East drift net fishery as c£550K per annum, the T net fishery in District 1 as £531K per annum and the J net fishery in Districts 3 to 7 at £194K per annum.

The provisions of the 2012 NLO are such that any licensee currently holding a net licence may apply for the same type of licence in the following year.

In this way, any person currently participating in the net fishery is able to secure a licence for the following year, but the fishery is closed to new entrants and so will reduce over time as current licensees retire or otherwise leave the fishery and their licences are not re-allocated.

By this means of operation, the current NLO does not introduce any economic disbenefits, since the Order does not prevent those licensees wishing to continue participate in the fishery from doing so.

10.5 Evaluating the potential for maintaining some T and J and/or estuary nets

At the time of confirming the 2012 NLO, the Minister directed the Environment Agency to:

"…provide a full evaluation of the potential for maintaining some T and J and/or estuary nets that will conform to national policy and NASCO guidance on salmonid fishery management to further inform decisions on the future of this component of the fishery"

10.5.1 The potential to maintain a T and J net fishery

This evaluation was undertaken as part of the review of national salmon and sea trout protection byelaws in 2018.

The evaluation concluded that without action we risk the collapse of our salmon stocks. Taking into account the latest evidence available relating to the status of salmon populations in contributing rivers, the impact of the North East net fisheries upon those stocks, and in seeking to achieve the best balance between improving protection for vulnerable stocks and minimising the social and economic impacts, it was determined that:

1. The drift net fishery should close in 2019

2. T and J net fisheries should close for salmon in 2019 but remain open for sea trout as far as that is possible without adversely impacting salmon stocks.

The length of the sea trout netting season was set at that date after which it was estimated that the level of bycatch of salmon became too great. For Districts 1, 2 and 3, season from 26 March to 31 May was adopted.

This represents a 3-month reduction from the former 31 August end date, to offer increased protection to vulnerable salmon stocks, but still allows a sea trout fishery in the earlier part of the year.

Further south, a closure date of end of June for Districts 4 and 5 was adopted and a decision was made to retain the end of 30 August for Districts 6 and 7, where very few salmon are caught.

These changes were introduced to offer increased protection to vulnerable salmon stocks, but still allow a sea trout fishery in the earlier part of the year in order to minimise the economic impact on those participating in the fishery.

A further trial during 2019 was undertaken, using a modified design of T net and J net with a view to allowing a possible extension of the netting season on a sea trout only basis, if it could be clearly demonstrated that salmon can be released or escape the net unharmed.

The trial concluded, after public consultation and a careful evaluation of all the evidence, that the current sea trout netting season dates in each district in the Yorkshire and North East net fishery should be maintained, as defined by the 2018 national salmon and sea trout protection byelaws.

10.5.2 The potential to develop an estuarine net fishery

There are currently no estuarine net fisheries for sea trout operating in the North East or Yorkshire. Conservation Areas have been established by regional fisheries byelaw to specifically exclude netting for sea trout in and around estuaries for the better conservation of sea trout stocks, which are known to congregate in these areas in large numbers in response to freshwater outflows, which attract returning migratory fish and act as a cue to upstream migration.

A small estuarine net and coble fishery, at the Gardo netting station, is still maintained within the River Tweed estuary at Berwick upon Tweed, but this fishery operates outside the jurisdiction of the Environment Agency.

We know from previous studies (e.g. on the River Tees estuary) that salmon from a number of different rivers may enter estuaries other than the estuary of their home river, as part of their returning migration pattern, as the freshwater flow from the estuary attracts fish seeking their home river.

Fish may travel some distance into an estuary before returning to sea to continue in their migration to their home catchment. Therefore, estuarine net fisheries are likely to act as mixed stock fisheries to some degree, intercepting salmon and sea trout from a number of different populations.

Any such estuarine fishery would be subject to similar management difficulties of the existing beach nets, although probably to a lesser degree than a coastal fishery, as a greater proportion of fish would be likely to originate from the home catchment.

The provisions of the 2018 national salmon and sea trout protection byelaws have closed the North East drift net fishery and closed the T and J net fishery for salmon, allowing a restricted sea trout only fishery to continue.

Given the current concerns regarding the performance of salmon and sea trout stocks contributing to the North East net fishery, the uncertainty regarding the response from the existing net fishery to these recent changes in regulations, and the mixed stock nature of any potential new estuarine net fishery, a precautionary management approach is advised.

Under these circumstances, it would not be appropriate to establish or trial a new net fishery in estuaries or elsewhere. It is at present uncertain how the North East fishery will respond to the new regulatory regime, and the future level of continued participation in a sea trout only beach net fishery.

A decision on the possible development of new estuarine net fisheries for sea trout should be deferred until such time as the effect of changes to the current regulatory regime have been assessed, including the response of fish stocks to changes to exploitation in the existing net fishery, at a time when the 2018 national byelaws are reviewed.

11. Options for replacing the 2012 Net Limitation Order

As part of our duty to maintain, improve and develop salmon and sea trout fisheries in England, the Environment Agency has the power under the Salmon and Freshwater Fisheries Act 1975 Section 26 to make Orders setting limitations for the provision of net licences, known as Net Limitation Orders.

Net Limitation Orders are time limited. The current NLO came into effect when it was confirmed by the Fisheries Minister on 6 December 2012, and it expires on 6 December 2022.

Whilst the Environment Agency has the power to make or revoke NLOs, there is no provision within the legislation to amend existing NLOs.

A number of options for replacing the 2012 NLO are set out in Table 8 below, setting out pros and cons relating to the regulation and protection of fish stocks for each option.

Option	Pros	Cons
Option 1. Do nothing. Allow the current NLO to expire in December 2022 without replacement. Anyone applying for a T or J net licence would be issued with one.	Increased opportunities for fishing (in the short term).	Would compromise salmon and sea trout stocks, as well as posing a threat to the integrity of designated nature conservation sites. This option is not supported by our latest assessment of the performance of contributing stocks, the impact of the net fishery upon those stocks and the need to provide additional protection to many of those stocks by reducing exploitation. This would be likely to substantially increase the level of exploitation in the fishery and would be contrary to our assessment of fisheries management need, our sea trout and salmon strategy and guidelines on the management of salmon issued by NASCO. This would not meet our statutory duty to maintain, improve and develop fisheries. This option also has the clear potential to pose a threat to those rivers which are failing to meet their Conservation Limit, or which are assessed as Grade 3 and having no available surplus stock for harvest or are recovering. This option is unviable and included for completeness.
Option 2. Replace the 2012 NLO with a new reducing NLO with identical provisions - licences are restricted to those already operating in the net fishery, and as current licensees retire, the number of licences is reduced.	This option would maintain continuity with existing NLO provisions, achieving the same balance between providing necessary protection to vulnerable stocks with allowing those netsmen currently participating in the fishery to continue to do so as is in place at present. This would minimise economic disbenefits, by allowing existing licensees to continue fishing, should they wish to do so, while increasing	Does not immediately reduce the pressure on sea trout stocks assessed as vulnerable and which would benefit from reduced exploitation. Would not provide a known or guaranteed increased level of protection to stocks, as licensees would be able to continue fishing if they chose to do so. This option has some potential to pose a threat to those rivers which are failing to meet their Conservation Limit, or which are assessed as Grade 3 and having no

	the level of protection provided to contributing stocks as the net fishery reduces over time as existing netsmen retire. This option is consistent with the precautionary principle and Environment Agency fisheries management policy.	available surplus stock for harvest or are recovering, although would introduce increased protection over time through gradual reduction in fishing effort.
Option 3. Introduce a fixed NLO that caps the number of licences at the current level, such that as existing licensees retire, their licences are made available to other fishermen.	Maintains the current level of protection for fish stocks and allows the continuation and preservation of a net fishery that, in historical terms, is greatly reduced in terms of fishing licences issued and sea trout net catches. Would maintain current level of economic benefit to existing and entrant licensees, and coastal communities.	Does not continue the process of reducing the pressure on sea trout stocks which would benefit from reduced exploitation. Is not consistent with the National Trout and Grayling Fisheries Strategy Policy to phase out mixed stock sea trout fisheries. This would not meet our statutory duty to maintain, improve and develop fisheries. This option also has the clear potential to pose a threat to those rivers which are failing to meet their Conservation Limit, or which are assessed as Grade 3 and having no available surplus stock for harvest or are recovering.
Option 4. Introduce an NLO which sets the number of licences available at zero, suspending all netting for sea trout.	Offers the maximum level of protection to both salmon and sea trout stocks with least delay.	Would maximise economic disbenefits on current licensees and businesses they support. Would be likely to divert fishing effort to other fisheries exerting pressure on different stocks. Would remove the benefits of self-policing the fishery. There is no evidence that such an urgent level of intervention is necessary, given net catches have substantially reduced in recent years and are likely to continue to do so under existing regulatory provisions.

12. Bibliography

Amec Foster Wheeler (2018) Economic Impact of Salmon Fishing Measures. Report to Environment Agency

Anon. (1991) Salmon Net Fisheries Report. MAFF & the Scottish Office

Bekkevold, D, Piper A, Campbell R, Rippon P, Wright R, Crundwell C, Wysujack K, Stevens J, King R, Aarestrup K, Maltby A (2020) Genetic stock identification of sea trout (Salmo trutta L.) along the British North Sea Coast shows prevalent long-distance migration. ICES Journal of Marine Science.

East Riding of Yorkshire County Council (2016) Flamborough Head European Marine Site Management Plan

East Riding of Yorkshire County Council (2020) Flamborough Head European Marine Site Management Scheme Annual Report 2019

Environment Agency (2012) Analyses of the origin, exploitation and migration of Sea Trout in the North Sea

Environment Agency (2012) Appropriate Assessment for Flamborough Head and Bempton Cliffs for North East Coast Limitation of Net Licences Order 2012

Environment Agency (2012) Habitats Regulations Assessment of the North East Coast Limitation of Net Licences Order 2012

Environment Agency (2012) Habitats Regulations Assessment of the North East Coast Limitation of Net Licences Order 2012. Supporting Technical Report

Environment Agency (2012). North East Net Limitation Order Review 2012: Fisheries Assessment Report

Environment Agency (2012) North East Net Limitation Order Review 2012 Summary Report

Environment Agency (2012) North East Net Limitation Order Review 2012: Socio-economic Report

Environment Agency (2015) Better regulation of the North East salmon and sea trout net fisheries: Final Report

Environment Agency (2015) Better regulation of the North East salmon and sea trout net fisheries: Supplementary Report

Environment Agency (2020) Consultation response report. Options for extending the sea trout beach net fishery in Yorkshire and North East England

Environment Agency (2018) Managing salmon fisheries in England and on the Border Esk Technical Case in support of proposed new regulations

Gilbey J, Stradmeyer, L, Cauwelier E, & Middlemas S (2012) Genetic Investigation of the North East English Net Fisheries. Marine Scotland Science Report

HMSO (2012) Environment Agency (North East Coast) Limitation of Nets Order 2012

JNCC (2007) Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006

NASCO (2009) Guidelines for the Management of Salmon Fisheries. CNL (09)43

NASCO (2014) Management of single and mixed stock fisheries, with particular focus on fisheries on stocks below their conservation limit. CNL (14)51

Potter ECE and Pawson MG (1991) Gill Netting. Laboratory Leaflet 69. MAFF

Potter ECE and Swain A (1982). Effects of the English north-east coast salmon fisheries on Scottish salmon catches. Fisheries Research Technical Report No. 67

Appendix 1: Performance of contributing salmon and sea trout stocks in England

1. River Coquet

A summary of the performance of salmon and sea trout stocks in the Coquet is given below.

1.1 Coquet salmon rod catch

The declared salmon rod catch for the River Coquet, and the five-year average catch is shown in Figure 1 below:

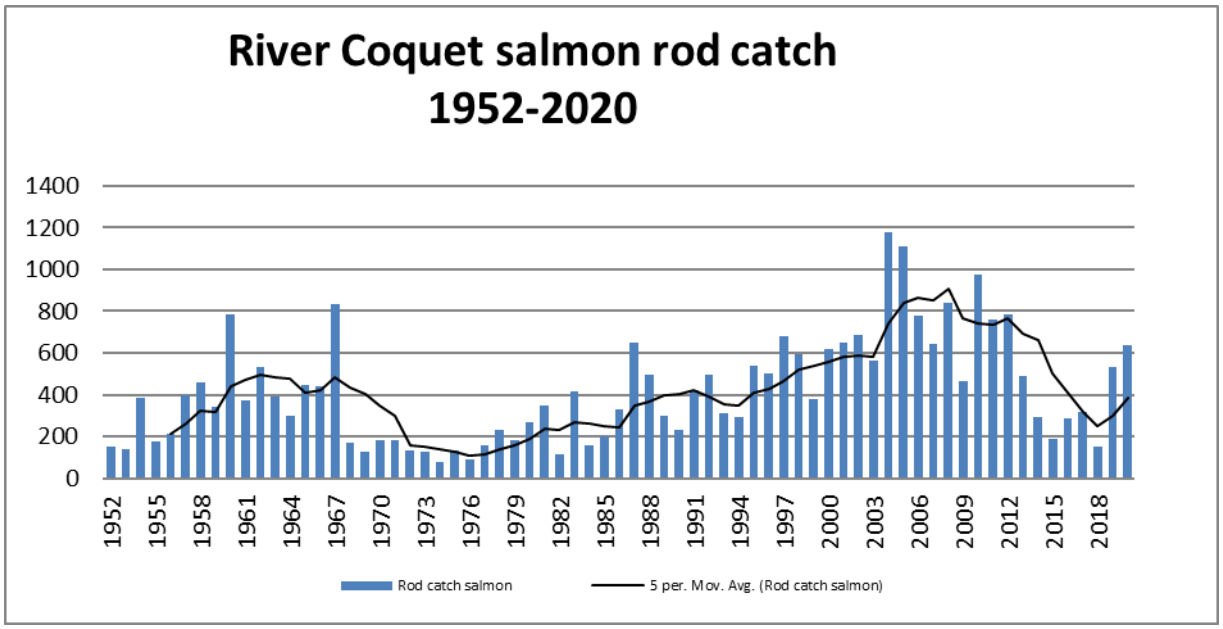

Figure 1. River Coquet declared salmon rod catch and five-year average

Salmon rod catches on the Coquet show an improving trend from their lowest point in the early 1970's to a high of 1177 in 2004. Catches reduced since that time, falling to 1154 in 2018, with a marked improvement shown in the last two year to a declared salmon rod catch of 634 in 2020.

1.2 Coquet salmon spawning target compliance

Estimated compliance with the conservation limit for the Coquet is shown in Figure 2 below. The Coquet is currently assessed as being 'Probably not at Risk' but forecast to reduce to 'Probably at Risk' in 2025. Egg deposition has generally been at a level above the Conservation Limit, but with an overall downwards trend in deposition.

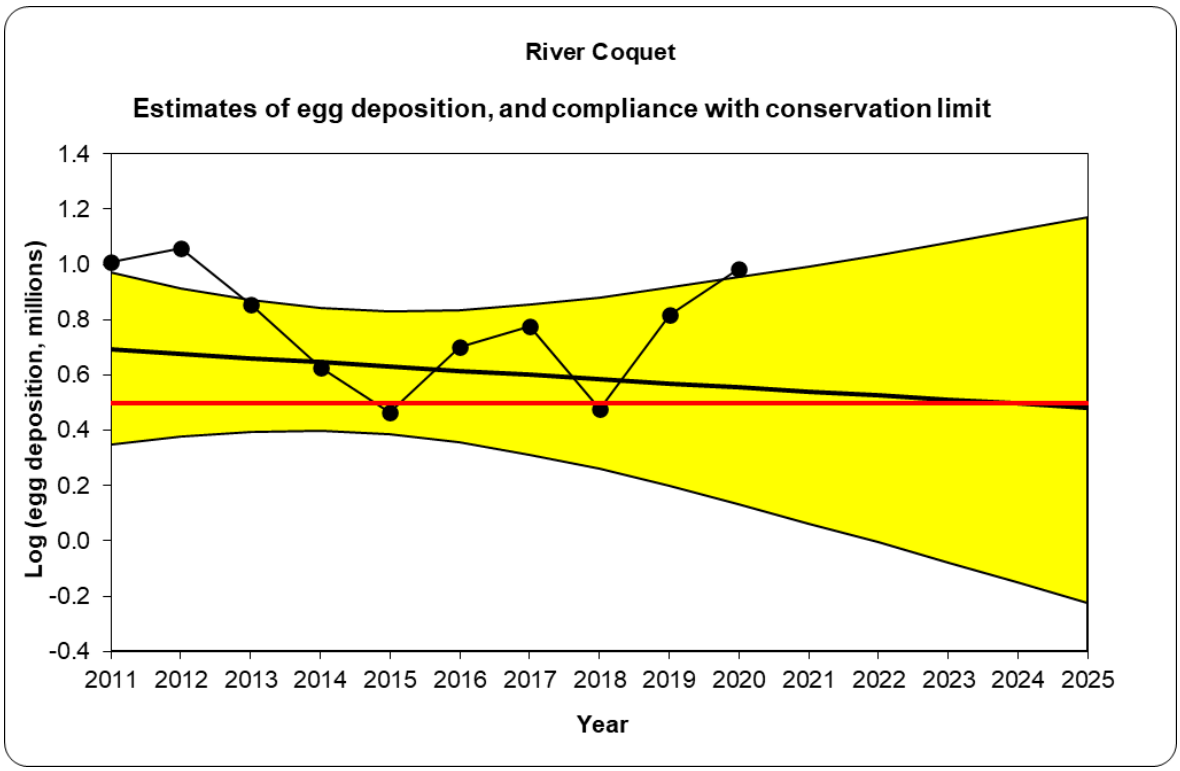

Figure 2. Egg deposition and compliance with the Conservation Limit for the River Coquet

1.3 Coquet sea trout rod catch

The declared sea trout rod catch for the river Coquet, and the five-year average catch is shown in Figure 3 below:

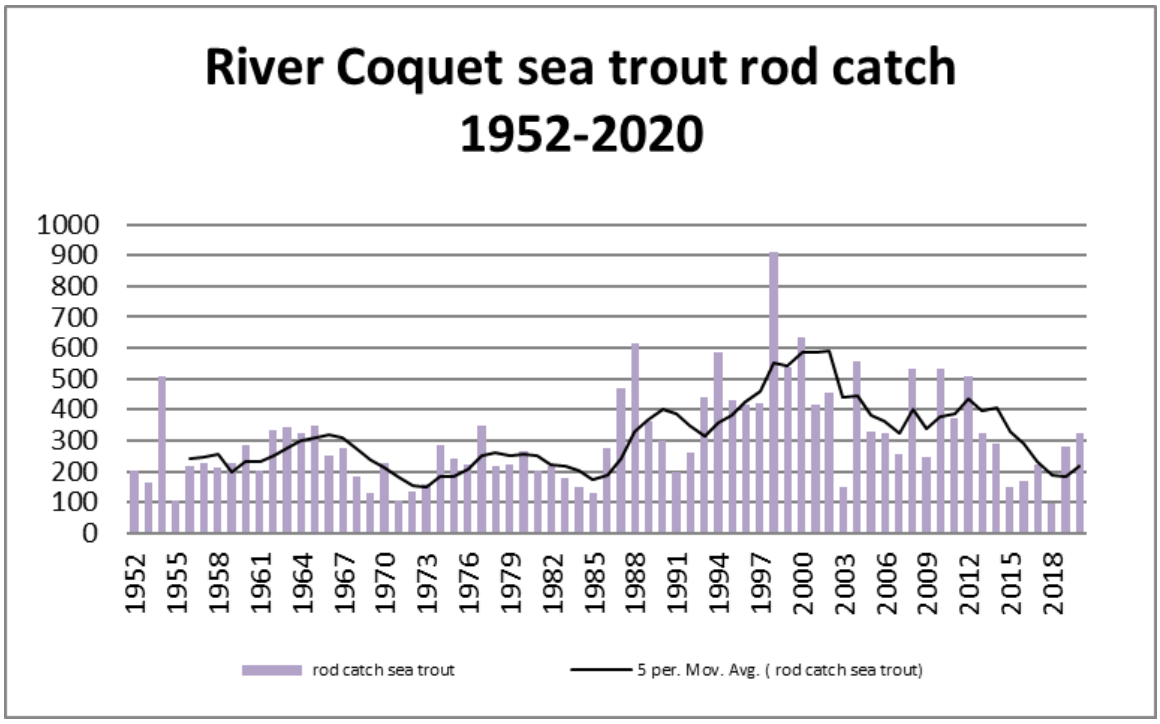

Figure 3. River Coquet declared salmon rod catch and five-year average

Coquet sea trout rod catches reached a high point of 909 in 1998 then declined over the next decades to a low of 96 in 2018. The declared sea trout rod catch increased to 322 in 2020.

Based on the performance of the sea trout rod fishery, the Coquet's sea trout population is currently classified as 'Probably not at Risk.'

2. River Tyne salmon

A summary of the performance of salmon and sea trout stocks in the Tyne is given below.

2.1 Tyne salmon rod catch

The declared salmon rod catch for the River Tyne, and the five-year average catch is shown in Figure 4 below.

Following decades of industrialisation leading to severe pollution of the estuary, the Tyne's salmon population began a recovery as water quality improvements were made from the late 1960's onwards, reaching a high point of 5630 salmon in 2011. Catches have fallen since then to a low point of 1868 in 2015. In 2020 the declared rod catch was 2802 salmon.

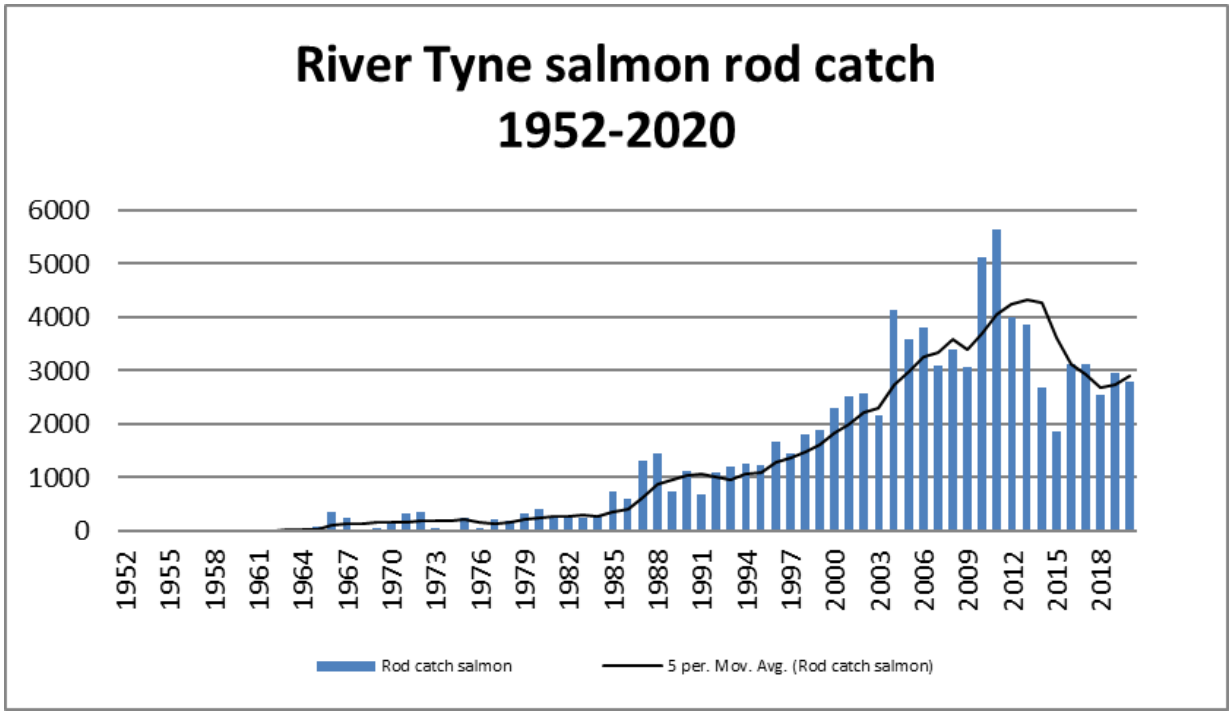

Figure 4. River Tyne declared salmon rod catch and five-year average

2.2 Tyne salmon spawning target compliance

Estimated compliance with the conservation limit for the Tyne is shown in Figure 5 below. The Tyne is currently assessed as being 'Not at Risk' and forecast to reduce to 'Probably not at Risk' by 2025. Egg deposition has been above the Conservation Limit, but with a declining trend.

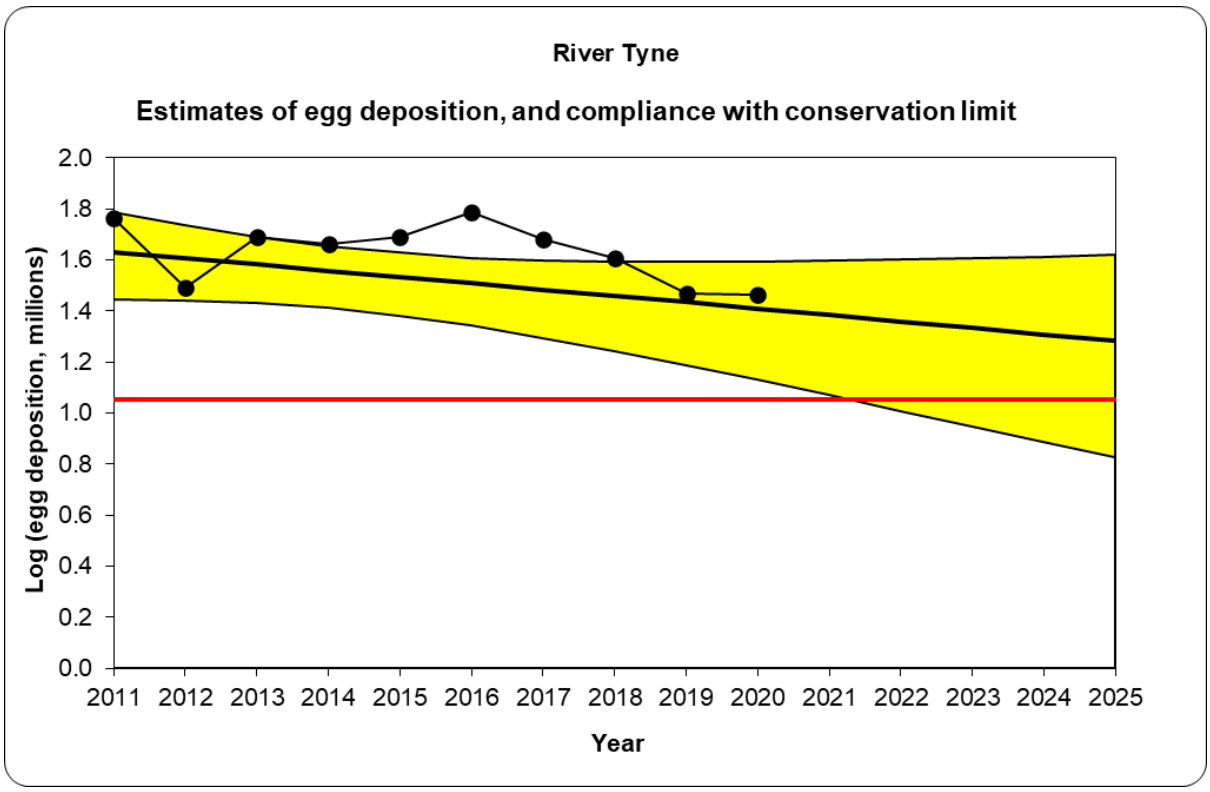

Figure 5. Egg deposition and compliance with the Conservation Limit for the River Tyne

2.3 River Tyne sea trout rod catch

The Tyne declared sea trout rod catch is shown on Figure 6 below:

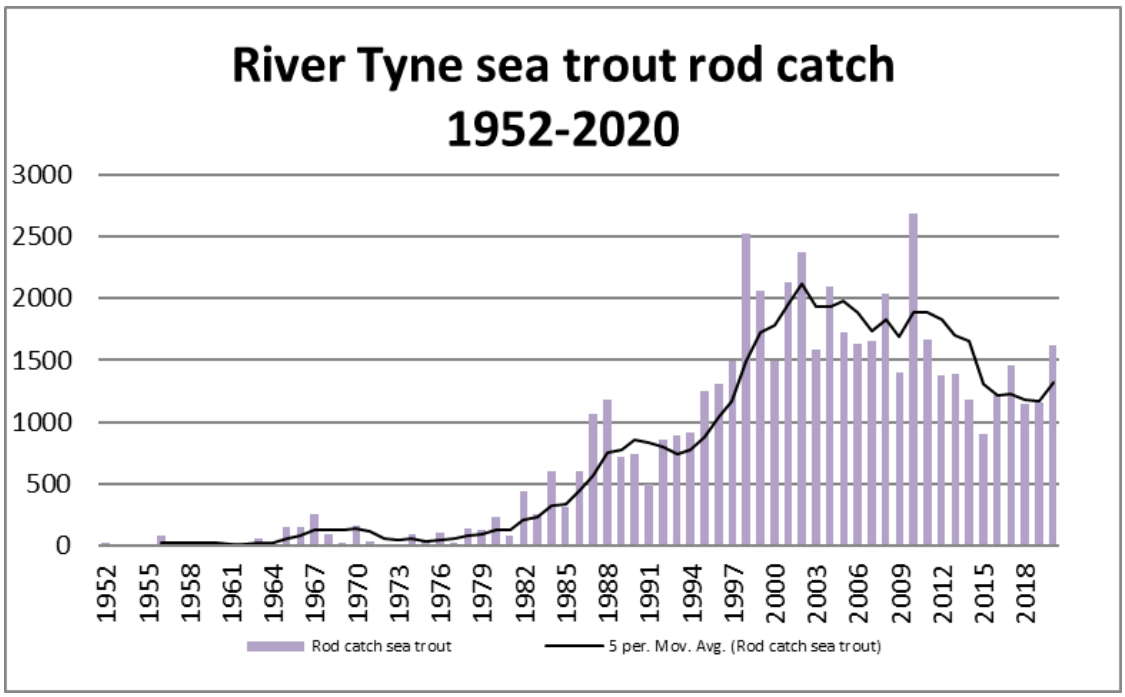

Figure 6. River Tyne declared sea trout rod catch and five-year average

Sea trout rod catches closely follow those for salmon in the Tyne, with increasing rod catches reported from the late 1960's onwards, as populations responded to continued improvements to estuarine water quality, reaching a high point of 2687 sea trout in 2010. Catches have fallen since that time but increased since 2017 to a declared catch of 1615 sea trout in 2020.

Based on the performance of the sea trout rod fishery, the Tyne's sea trout population is currently classified as 'Not at Risk.'

2.4 River Tyne fish counter results

Total annual upstream counts of returning adult salmon and sea trout for the River Tyne are given in Figure 7 below. Where review of underwater video footage has been analysed, the counts are given as salmon and sea trout separately. No split by species is available before 2004, when the camera array was installed. Footage from 2020 and 2021 has not yet been fully analysed.

It should be noted that the 2020 count is incomplete due to operational downtime between April and August of that year, and significantly under-estimates the total returning salmon and sea trout run.

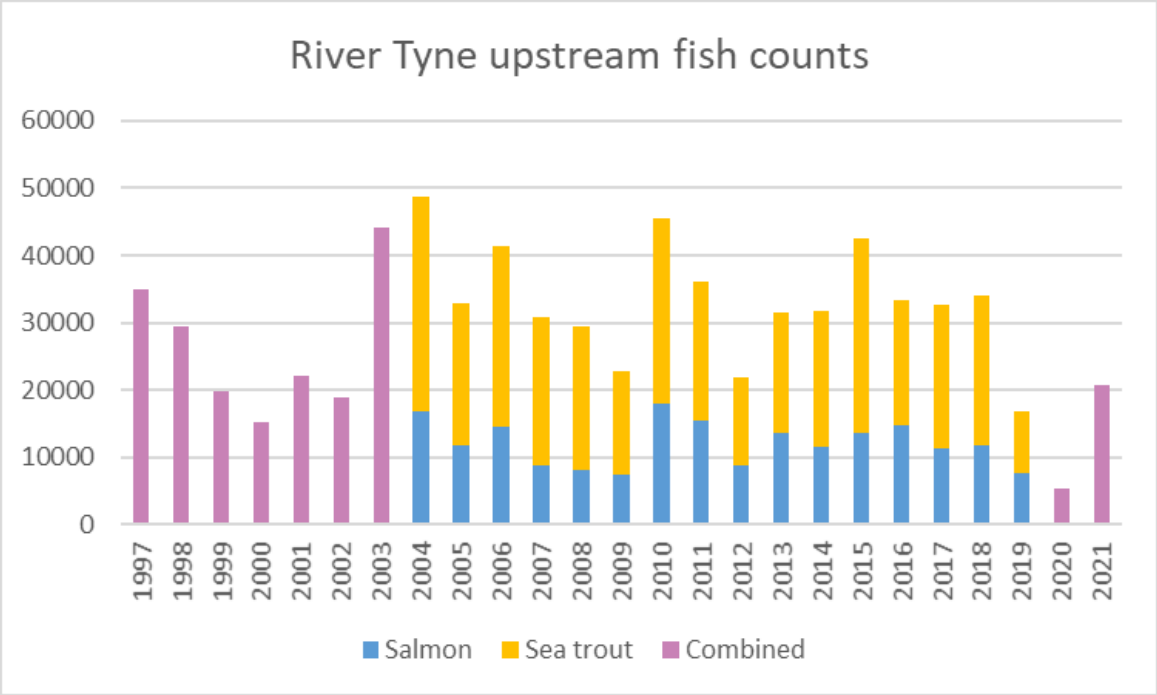

Figure 7. Upstream counts of salmon and sea trout at Riding Mill, River Tyne

The returning stock estimates, both for combined counts and for, where available, estimates of the number of returning salmon and sea trout separately, show no clear pattern over the period.

A comparison between the estimated returning run of salmon and sea trout and the declared rod catch for each year where returning stock estimates are available for each species separately is given in Figures 8 and 9 below.

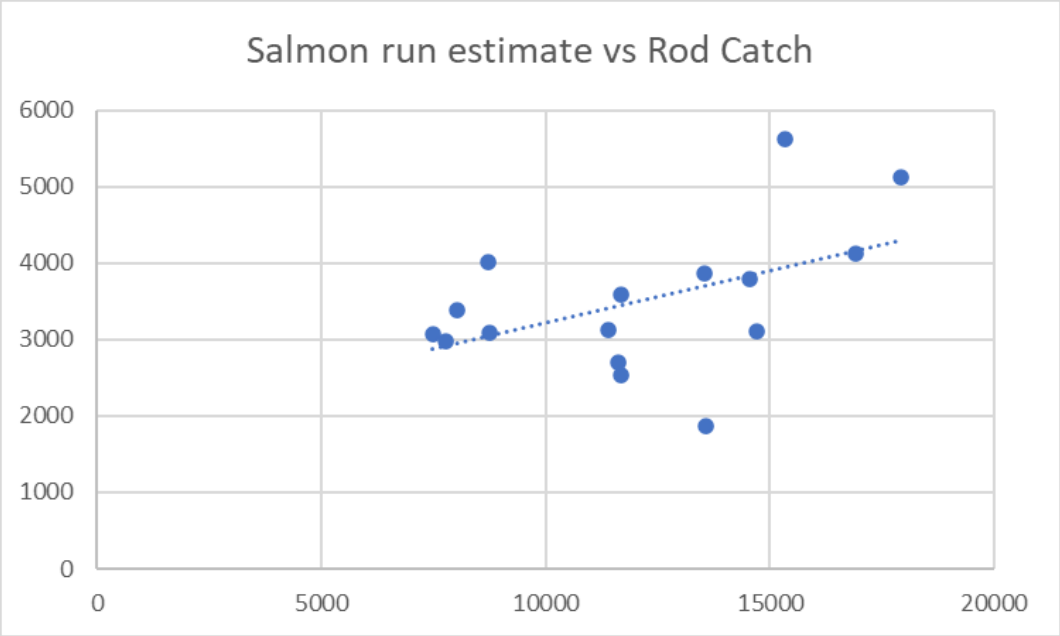

Figure 8. Tyne salmon returning stock estimate versus declared rod catch 2004 - 2019

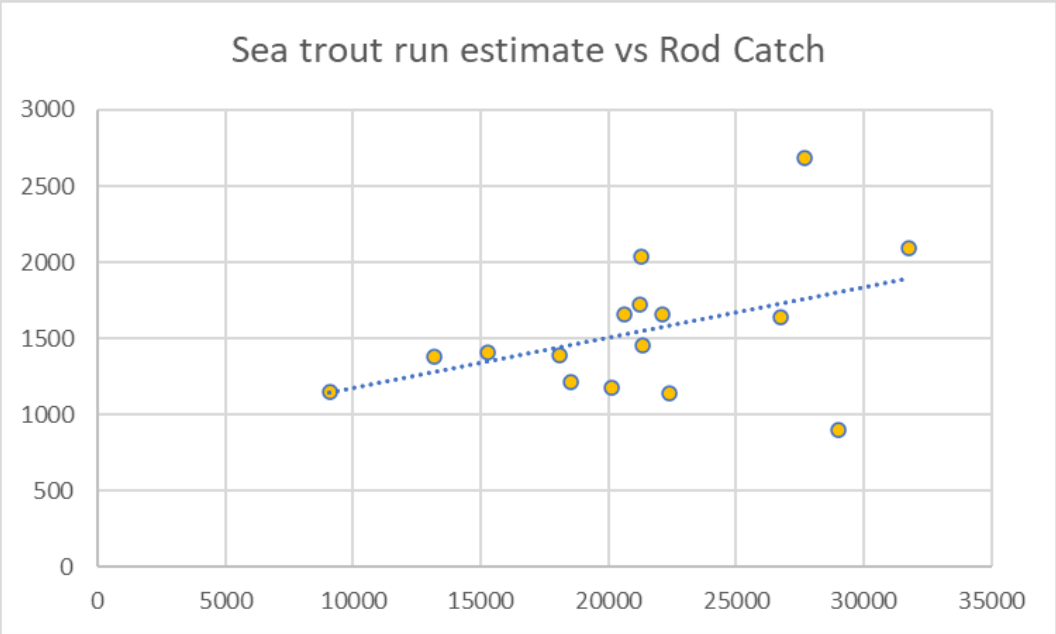

Figure 9. Tyne sea trout returning stock estimate versus declared rod catch 2004 - 2019

Declared rod catch and returning stock estimate for salmon and sea trout are independent measures of stock size, in that they are calculated using different datasets.

For both salmon and sea trout, there is a general relationship that years where a high returning stock estimate is made tend to correspond to a declared high rod catch, and vice versa.

There are a number of caveats associated with each assessment, including that exploitation rates in the rod fishery are likely to vary between years, and the observed proportion of salmon and sea trout in video footage may not accurately represent the actual proportion of returning adult salmonids in the river.

Nevertheless, this relationship suggests that salmon and sea trout rod catches reasonably represents run sizes for the respective species on the River Tyne.

3. River Wear salmon

A summary of the performance of salmon and sea trout stocks in the Wear is given below.

3.1 Wear salmon rod catch

The declared salmon rod catch for the River Wear, and the five-year average catch is shown in Figure 10 below:

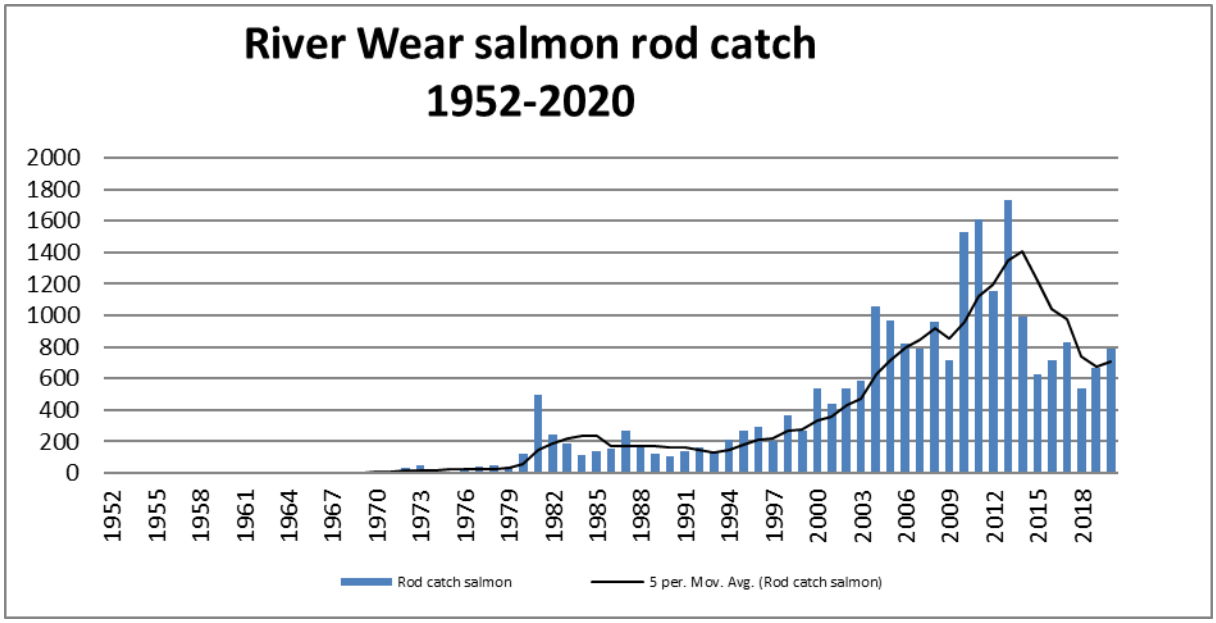

Figure 10. River Wear declared salmon rod catch and five-year average

The first salmon recorded captured on rod and line in the Wear was in 1965. As estuarine water quality improved over the next four decades, salmon stocks recovered to a high point in 2013 of 1731. Catches fell markedly after this time, to a low of 538 in 2018, recovering to 786 in 2020.

3.2 Wear salmon spawning target compliance

Estimated compliance with the conservation limit for the Wear is shown in Figure 11 below.

Rod catches on the Wear follow a similar pattern to the Tyne, but lagged by around a decade, driven by improvements to estuarine water quality. After an improving trend for 30 years, salmon rod catches reached a peak of 1613 in 2010, followed by a decline, recovering over the last 3 years.

The Wear is currently assessed as being 'Probably not at Risk' but forecast to be 'Probably at Risk' in 2025. Egg deposition has been above the Conservation Limit, but the trend is declining.

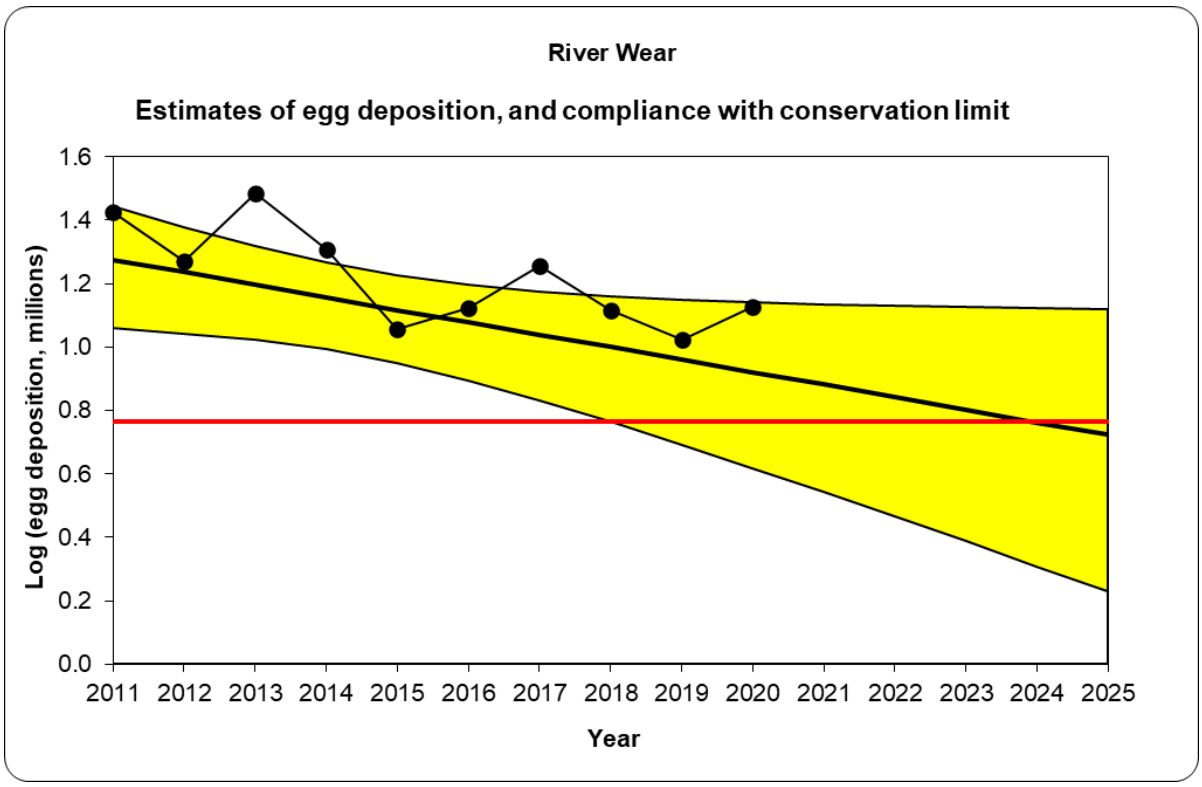

Figure 11. Egg deposition and compliance with the Conservation Limit for the River Wear

6.5.3 River Wear sea trout rod catch

The declared sea trout rod catch for the River Wear, and the five-year average catch is shown in Figure 12 below:

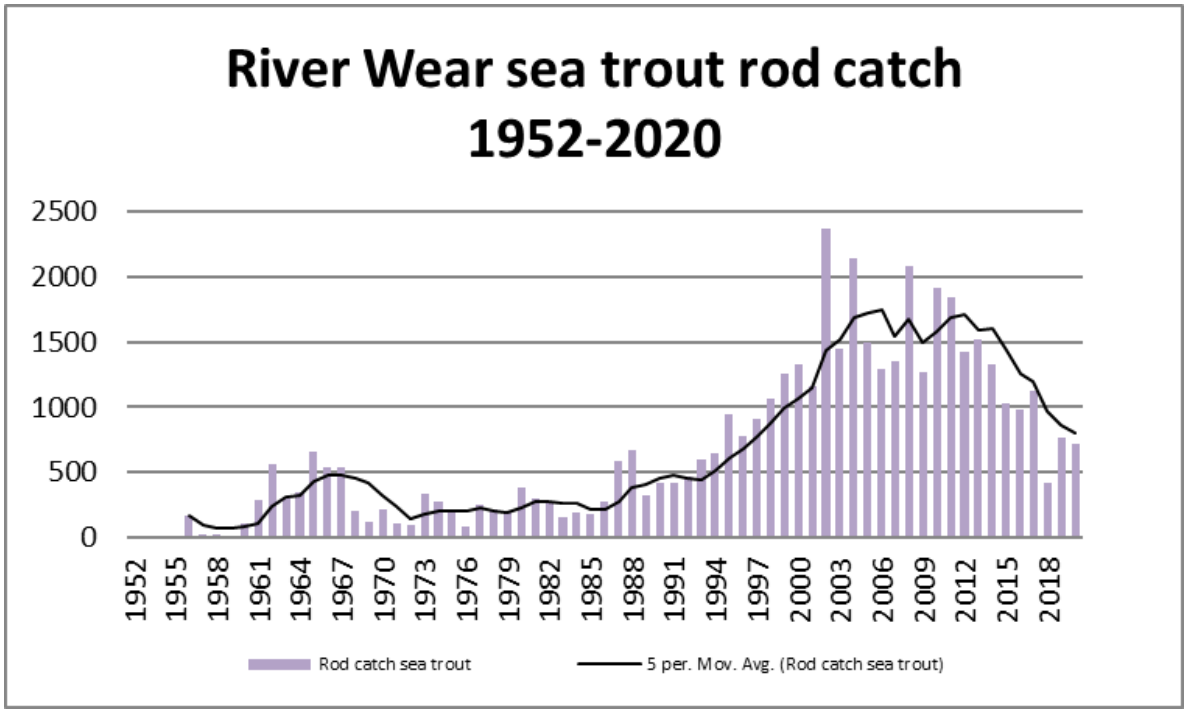

Figure 12. River Tyne declared sea trout rod catch and five-year average

As with the Tyne, sea trout rod catches closely follow those for salmon in the Wear, with increasing rod catches reported from the late 1970s onwards, as populations responded to continued improvements to estuarine water quality.

Catches reached a high point of 2374 sea trout in 2002, but have since fallen, with a sea trout rod catch of 721 being recorded in 2020. Based on the performance of the sea trout rod fishery, the Wear's sea trout population is currently classified as 'Probably at Risk.'

3.4 River Wear fish counter results

Total annual upstream counts of returning adult salmon and sea trout for the River Wear are given in Figure 13 below. NB No data are available for 2004 and 2006 when the counter was not operational.

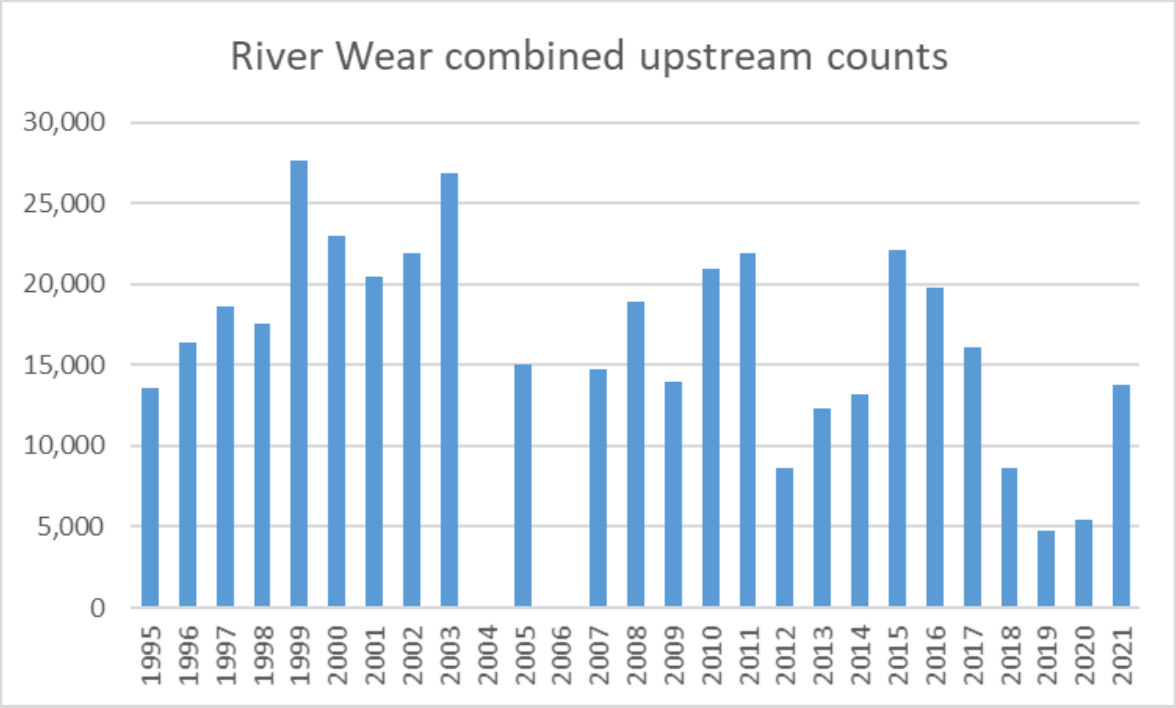

Figure 13. Combined upstream counts of salmon and sea trout for the River Wear

The returning stock estimates for the combined count of the number of returning salmon and sea trout separately shows no clear pattern over the period.

4. River Tees salmon

A summary of the performance of salmon and sea trout stocks in the Tees is given below.

4.1 Tees salmon rod catch

The declared salmon rod catch for the River Tees, and the five-year average catch is shown in Figure 14 below.

As with the other rivers with heavily industrialised and urbanised estuaries in the North East, pollution saw salmon populations all but extinct in the Tees by the 1950s.

As estuarine water quality began to improve, salmon populations recolonised the river, reflected by increasing declared rod catches from the mid 1980s to a high point of 267 in 2008.

This recovery has not been sustained, and salmon catches fell substantially, reaching a low of 16 salmon in 2014, the lowest recorded salmon rod catch since 1993. In recent years, salmon catches have remined low, with a recorded rod catch of 21 in 2020.

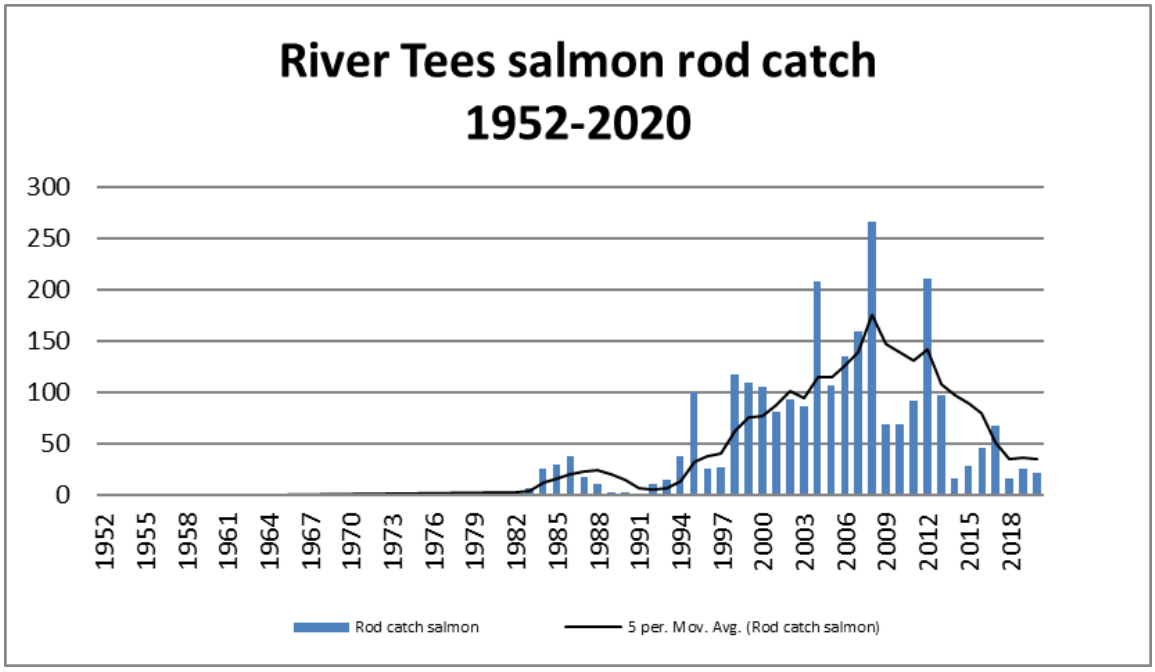

Figure 14. River Tees declared salmon rod catch and five-year average

4.2 Tees salmon spawning target compliance

The estimated compliance with the conservation limit for the Tees is shown in Figure 15 below.

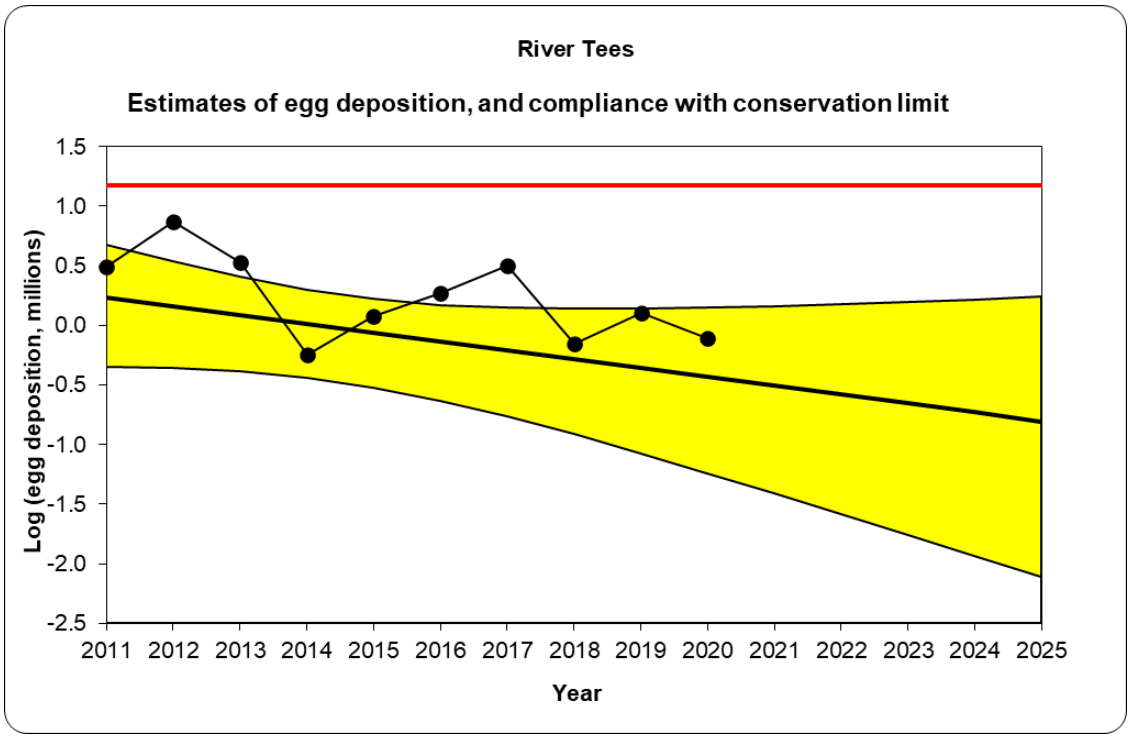

Figure 15. Egg deposition and compliance with the Conservation Limit for the River Tees

The Tees is currently assessed as being 'At Risk' and forecast to remain 'At Risk' in 2025.

Spawning activity has failed to meet the Conservation Limit at any time over the last 10 years. The trend is of declining egg deposition over the 10-year period, with a declining trend in egg deposition.

4.3 River Tees sea trout rod catch

The declared sea trout rod catch for the River Tees, and the five-year average catch is shown in Figure 16 below:

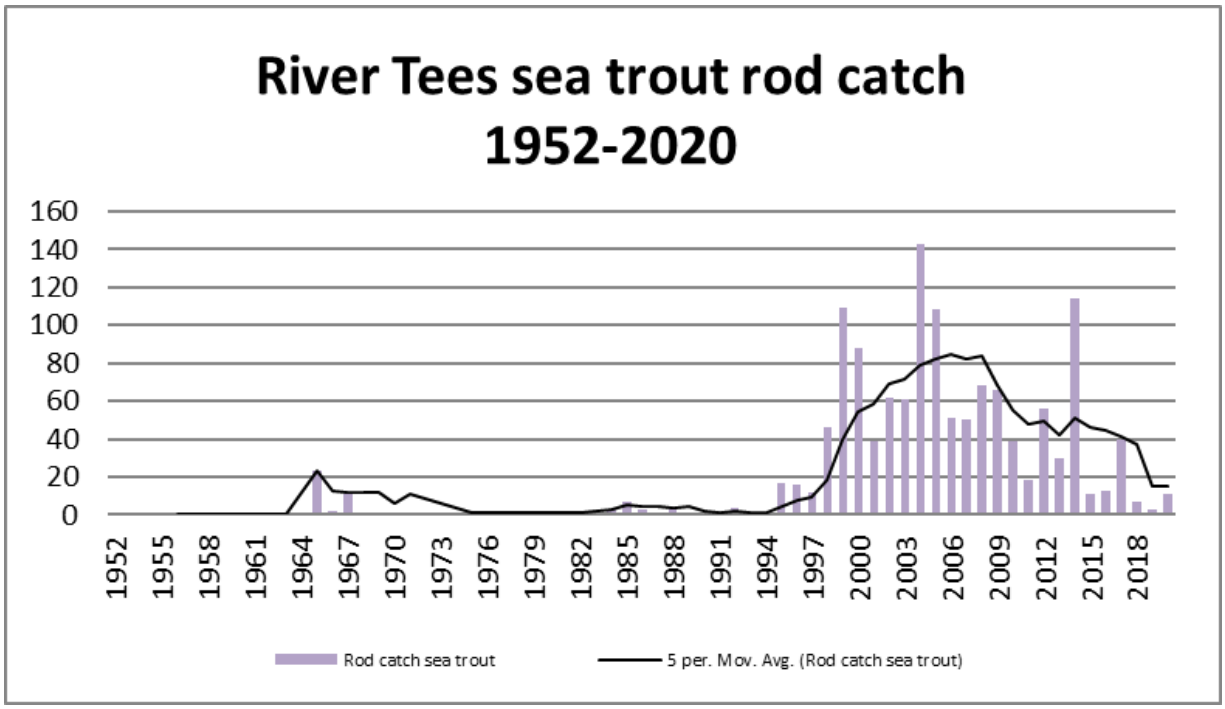

Figure 16. River Tees declared sea trout rod catch and five-year average

The sea trout rod catch on the Tees follows a similar pattern to that of salmon, with increasing rod catches reported from the mid-1990's as the sea trout population recovered in response to improvements to estuarine water quality. The recovery was not sustained, and after reaching a high point of 114 in 2014, rod catches declined to a low of 11 in 2015.

The unusually high reported rod catch of sea trout 2014 has been investigated and appears to have been artificially raised by the inclusion of catches of sea trout smolts. Based on the performance of the sea trout rod fishery, the Tees sea trout population is currently classified as 'Probably at Risk.'

4.4 River Tees fish counter results

Total annual upstream counts of returning adult salmon and sea trout for the River Tees are given in Figure 17 below.

The combined count of returning adult salmon and sea trout for the River Tees should be interpreted with caution, as it represents a minimum count. Changes to the operation of the radial gates at the Tees barrage and other operational changes introduced to provide better opportunities for returning fish to migrate upstream have created multiple opportunities for upstream fish passage which circumvent the fish counter.

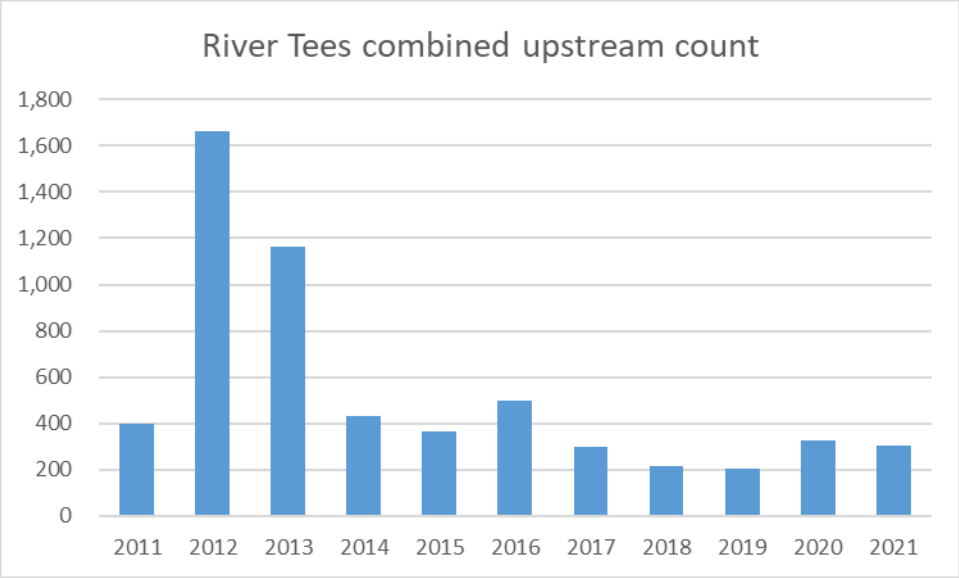

Figure 17. Upstream counts of salmon and sea trout for the River Tees

These results are therefore included principally for completeness.

5. River Yorkshire Esk

A summary of the performance of salmon and sea trout stocks in the Yorkshire Esk is given below.

5.1 Yorkshire Esk salmon rod catch

The declared salmon rod catch for the Yorkshire Esk, and the five-year average catch is shown in Figure 18 below:

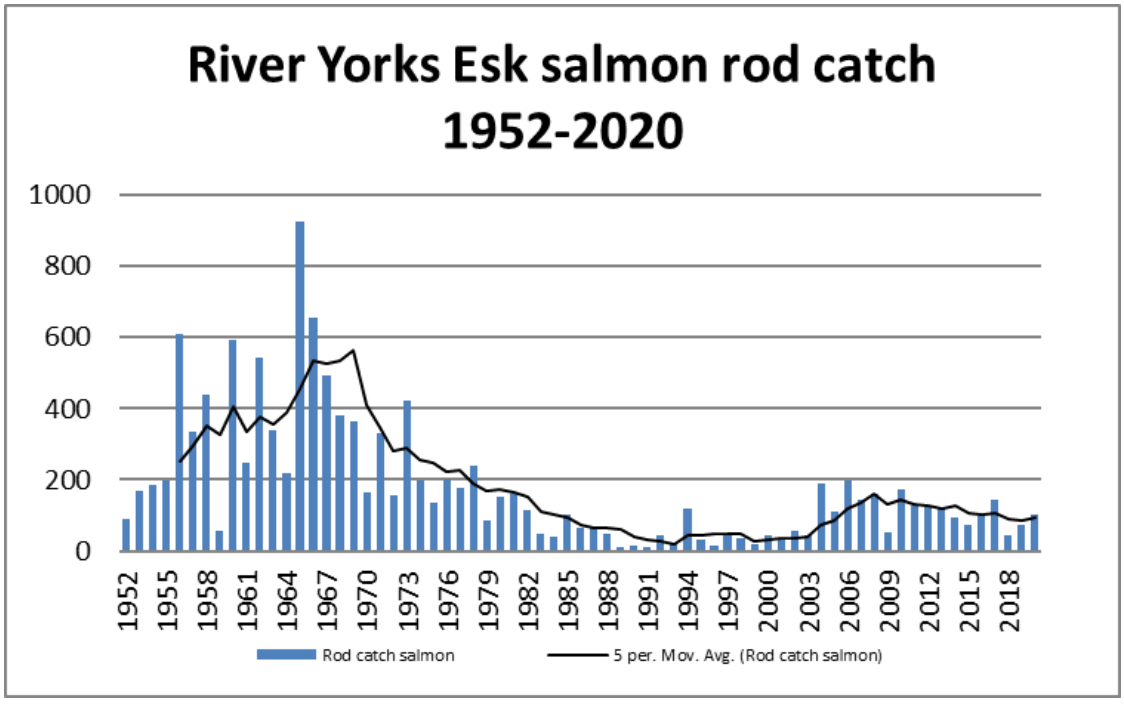

Figure 18. River Yorkshire Esk declared salmon rod catch and five-year average

The Yorkshire Esk recorded its highest salmon rod catches in the late 1960's, with the highest catch of 924 recorded in 1965. Catches have fallen substantially since that time, remaining low throughout the 1980s and 1990's, improving moderately from the early 21st century. The declared rod catch in 2020 was 102 salmon.

5.2 Yorkshire Esk salmon spawning target compliance

Estimated compliance with the conservation limit for the Yorkshire Esk is shown in Figure 19 below. The Yorkshire Esk is currently assessed as being 'At Risk' and forecast to improve to become 'Probably at Risk' in 2022.

Egg deposition has been below the Conservation Limit in recent years, with a declining trend.

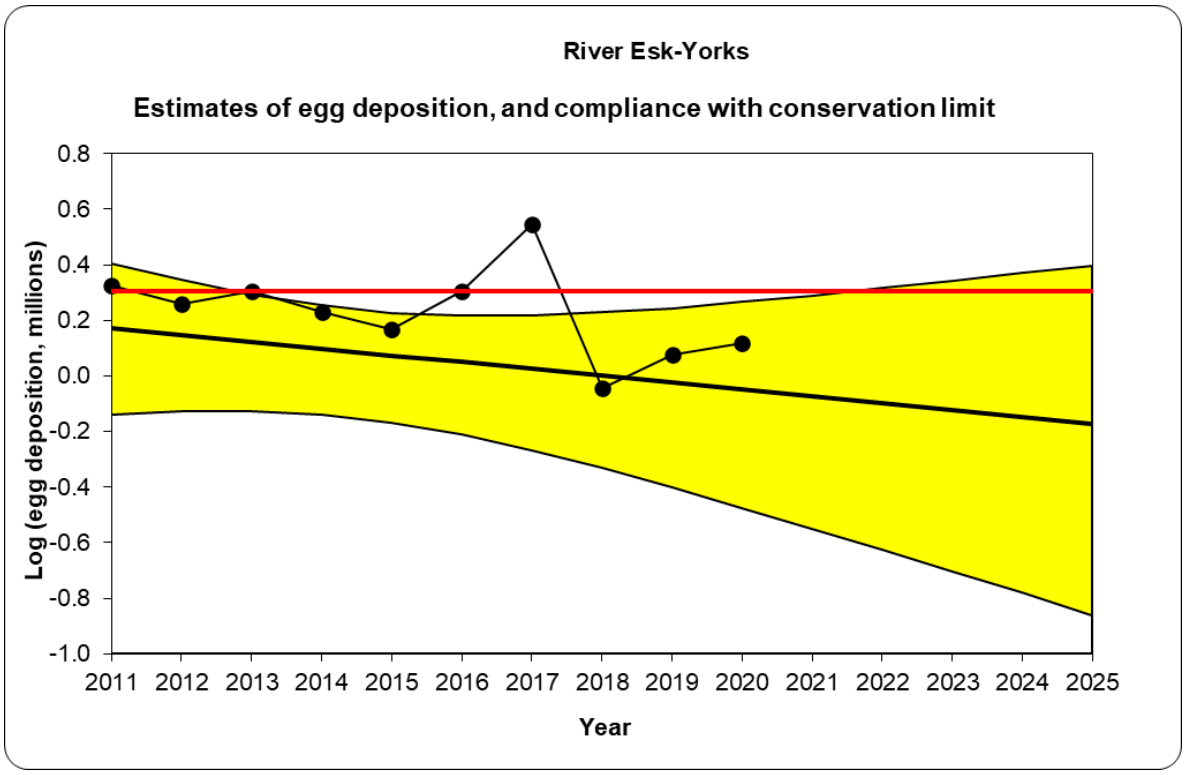

Figure 19. Egg deposition and compliance with the Conservation Limit for the River Yorkshire Esk

5.3 Yorkshire Esk sea trout rod catch

The declared sea trout rod catch for the Yorkshire Esk, and the five-year average catch is shown in Figure 20 below.

Rod catches in have shown a stable trend in recent years and the 2020 rod catch of 724 is the third highest on record.

Based on the performance of the sea trout rod fishery, the Yorkshire Esk's sea trout population is currently classified as 'Probably Not at Risk.'

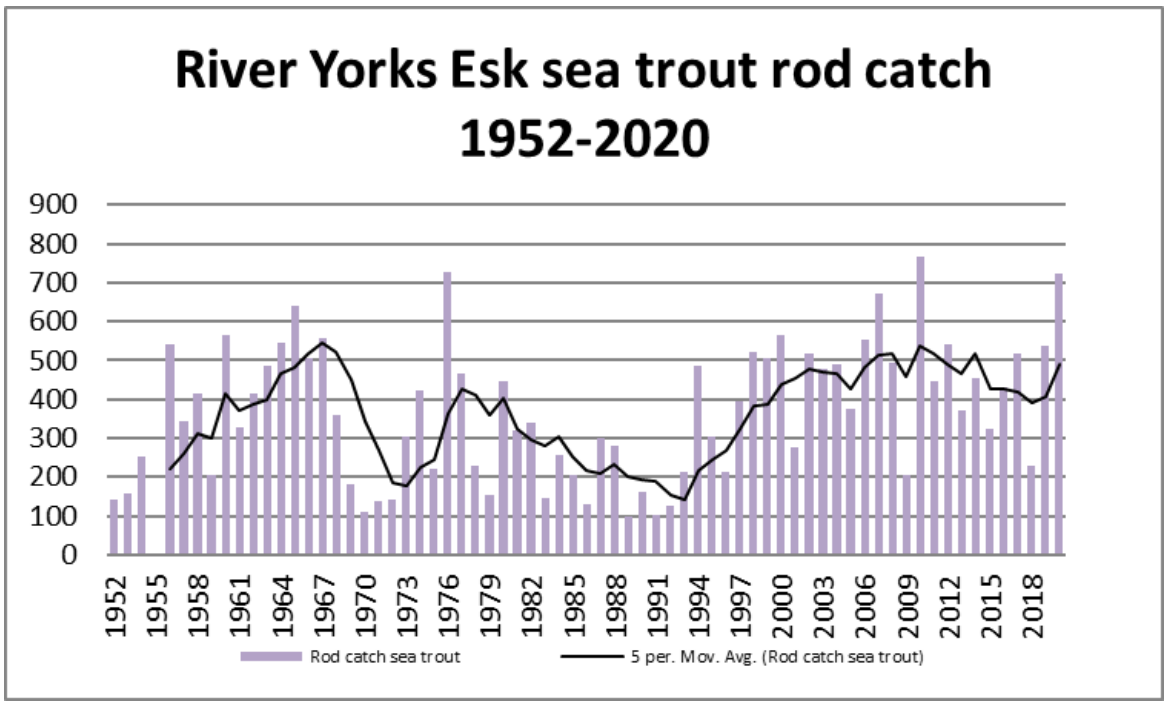

Figure 20. River Yorkshire Esk declared sea trout rod catch and five-year average

6. Recovering and minor English salmon rivers

In addition to the five principal salmon rivers in the North East and Yorkshire, salmon and sea trout populations are present in a number of other rivers.

Some rivers, including the Yorkshire Ouse system, the smaller rivers Blyth and Wansbeck in Northumberland, and the Tyne Derwent, a large tributary of the Tyne, are in the early stages of recovery as salmon and sea trout populations naturally return to catchments where they have been excluded, sometimes for hundreds of years, as obstructions to fish passage are removed and water quality is improved.

The recovery of salmon populations in both the Wansbeck and Blyth catchments is at such an early stage that no historic salmon rod catches have been made.

Other rivers, including the River Aln in Northumberland have not suffered to the same extent from pollution or obstructions, but only hold small populations of migratory fish, and are therefore more vulnerable to increases in pressures upon stocks, including reduced marine survival, diffuse pollution and exploitation.

These rivers do not have Conservation Limits set, and at support only small salmon and sea trout populations, which would benefit from increased protection.

6.1 Yorkshire Ouse system

The Yorkshire Ouse system, which includes the major tributary the River Ure, is in the early stages of recovery. Following the loss of its salmon and sea trout populations in the early 1950s as a result of pollution and obstructions to fish passage, salmon and sea trout began returning in the 1980's and populations have improved since that time.

The rod catch has improved substantially since 2010. This may be a function both of improved returns of adult salmon, and greater fishing effort leading to increased exploitation, as salmon stocks continue to recover.

The River Ouse salmon rod catch since 1990 is shown in Figure 21 below:

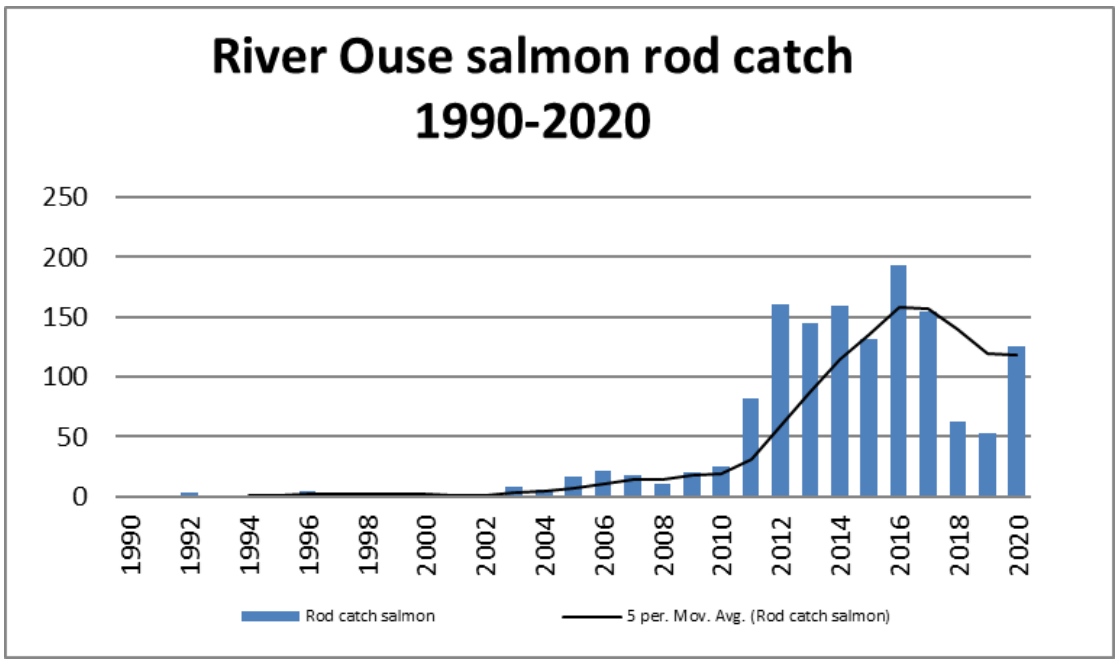

Figure 21. River Ouse declared salmon rod catch and five-year average

6.2 River Aln

The River Aln salmon rod catch is shown in Figure 22 below:

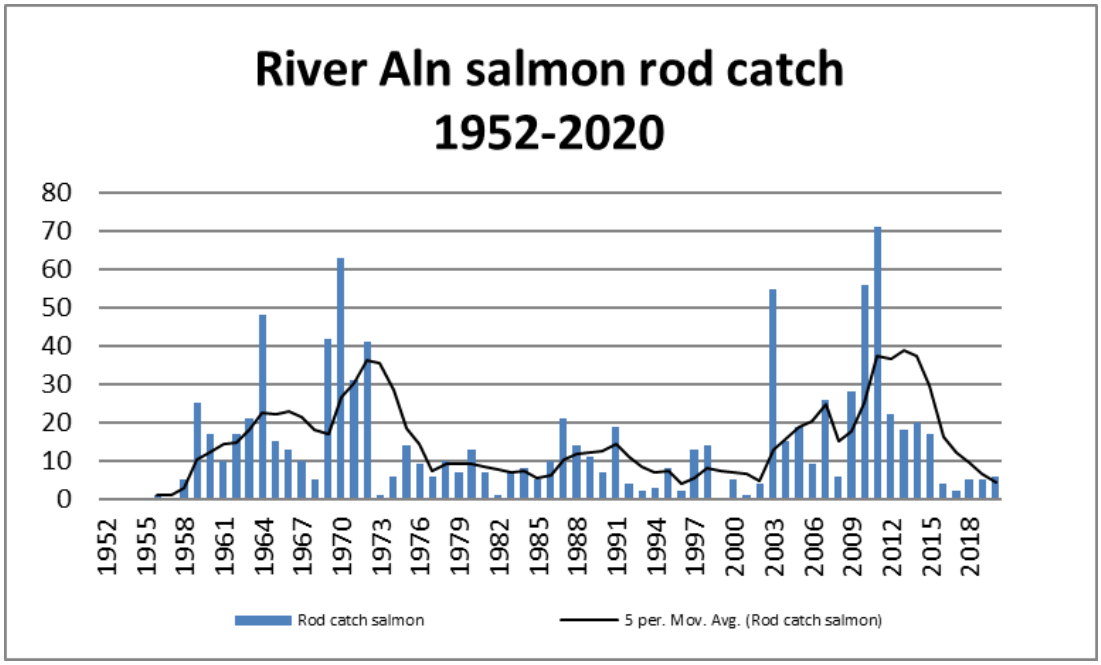

Figure 22. River Aln declared salmon rod catch and five-year average

The Aln has shown a variable rod catch over this time period, with higher catches in the early 1970s, followed by lower rod catches from the mid-1970s to the early 2000s. The salmon rod catch reached a peak of 71 fish in 2011 but has fallen to single figures in recent years. The 2020 salmon rod catch was 6 fish.

Appendix 2: Performance of major contributing salmon and sea trout stocks in Scotland

1 River Tweed

A summary of the performance of salmon and sea trout stocks in the Tweed is given below.

1.1 Tweed salmon rod catch

Declared salmon catches on the River Tweed are shown in Figure 1 below.

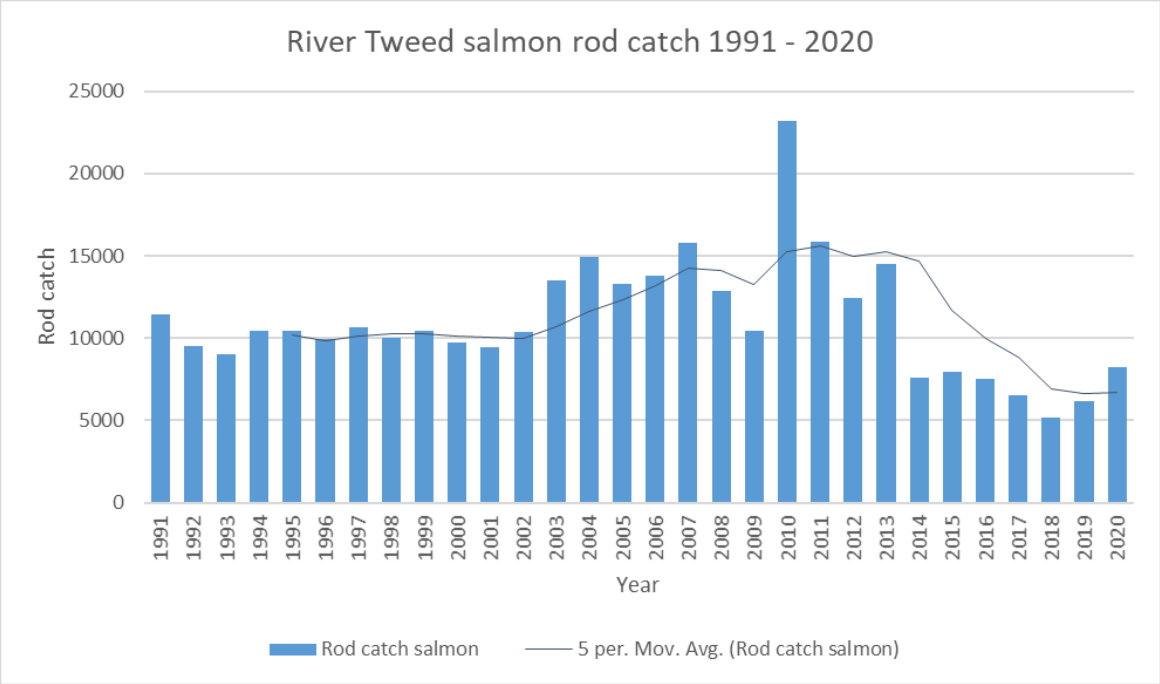

Figure 1. River Tweed salmon rod catch and five-year average

Stable catches through the 1990s increased in the 2000s to a high of 23179 in 2010, but subsequently fell to 5150 in 2018, the lowest catch reported over the 27-year reporting period. Catches have improved in the last two years to 8215 in 2020.

1.2 Tweed Conservation Status Assessment 2021

The Tweed is assessed as Grade 1 for 2021, and provisionally Garde 1 for 2022. This grading indicates the probability of the stock meeting its conservation limit over a 5-year period is over 80%.

Management advice is that exploitation is sustainable, and therefore no additional management action is currently required.

1.3 Tweed sea trout rod catch

Declared salmon catches on the River Tweed are shown in Figure 2 below.

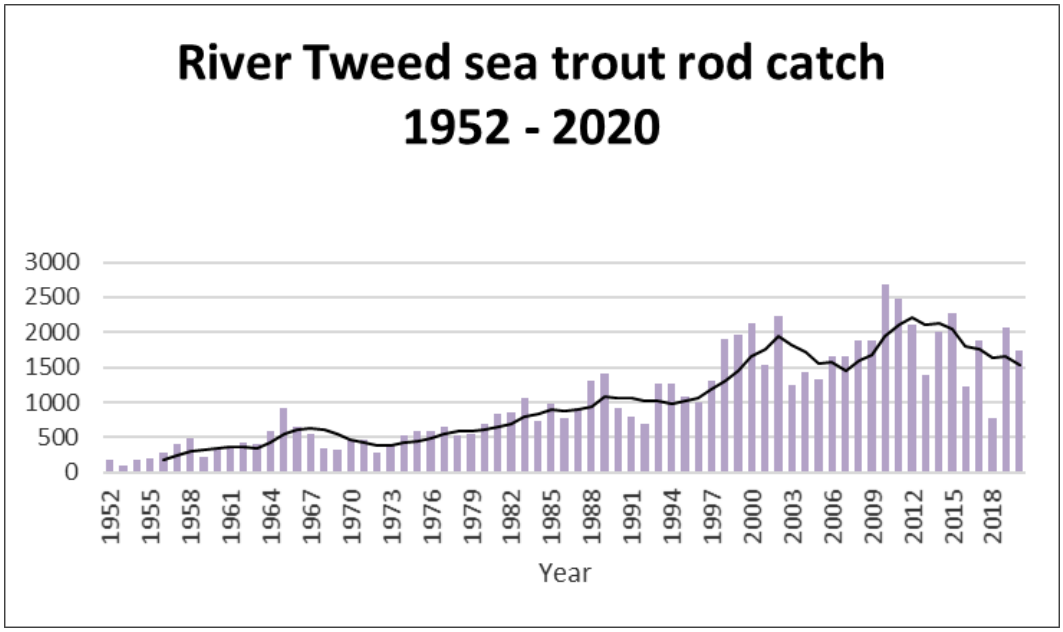

Figure 2. River Tweed salmon rod catch and five-year average

Sea trout rod catches showed a moderate upward trend over the reporting period to 2012, but subsequently fell to a low of 766 in 2018, recovering to a declared catch of 1742 sea trout in 2020.

2. River Forth

A summary of the performance of salmon stocks in the Forth is given below.

2.1 Forth salmon rod catch

Declared salmon catches on the River Forth are shown in Figure 3 below.

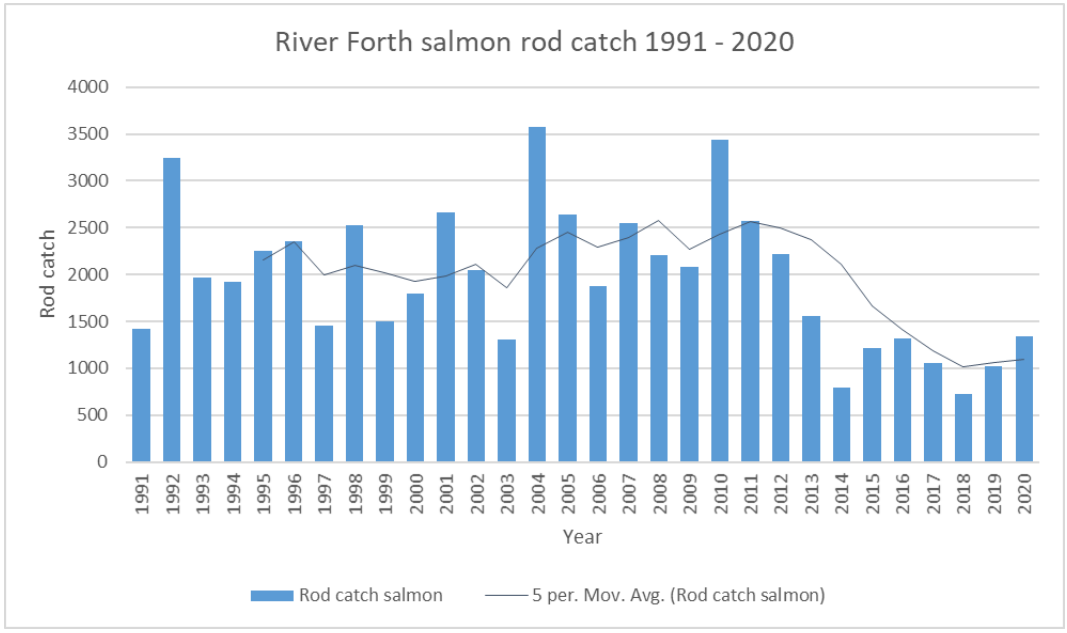

Figure 3. River Forth salmon rod catch and five-year average

Stable catches were reported in the Forth District from 1991 to 2010, reaching a high of 3579 in 2004, but have fallen from 2010 to a low of 729in 2018. Catches have improved over the last two years, with a declared rod catch of 1336 salmon in 2020.

2.2 Forth Conservation Assessment 2021

The Forth Conservation Assessment for 2021 was Grade 2, meaning there is an average chance of 60-80% that the egg requirement has been met over the past 5 years. Management action is necessary to reduce exploitation; mandatory catch and release will not be required in the first instance, but this will be reviewed annually.

3. River Tay

A summary of the performance of salmon stocks in the Tay is given below.

3.1 Tay salmon rod catch

Declared salmon catches on the River Tay are shown in Figure 4 below.

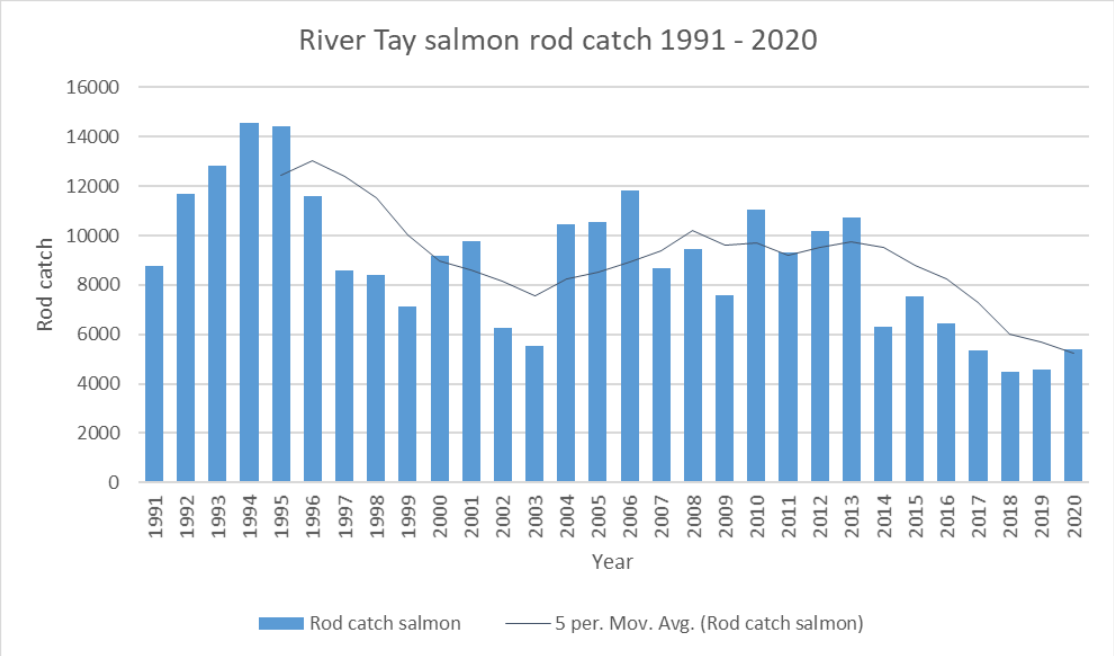

Figure 4. River Tay salmon rod catch and five-year average

The salmon rod catch on the Tay shows a declining trend across the time series, with notably lower rod catches in the last four years. The salmon rod catch in 2021 was 5388, a slight improvement on the previous two years.

3.2 Tay Conservation Assessment 2021

The Tay is assessed as Grade 1 for 2021, and provisionally Grade 1 for 2022. This grading indicates the probability of the stock meeting its conservation limit over a 5-year period is over 80%.

Management advice is that exploitation is sustainable, and therefore no additional management action is currently required.

4. River South Esk

A summary of the performance of salmon stocks in the South Esk is given below.

4.1 South Esk salmon rod catch

Declared salmon catches on the River South Esk are shown in Figure 5 below.

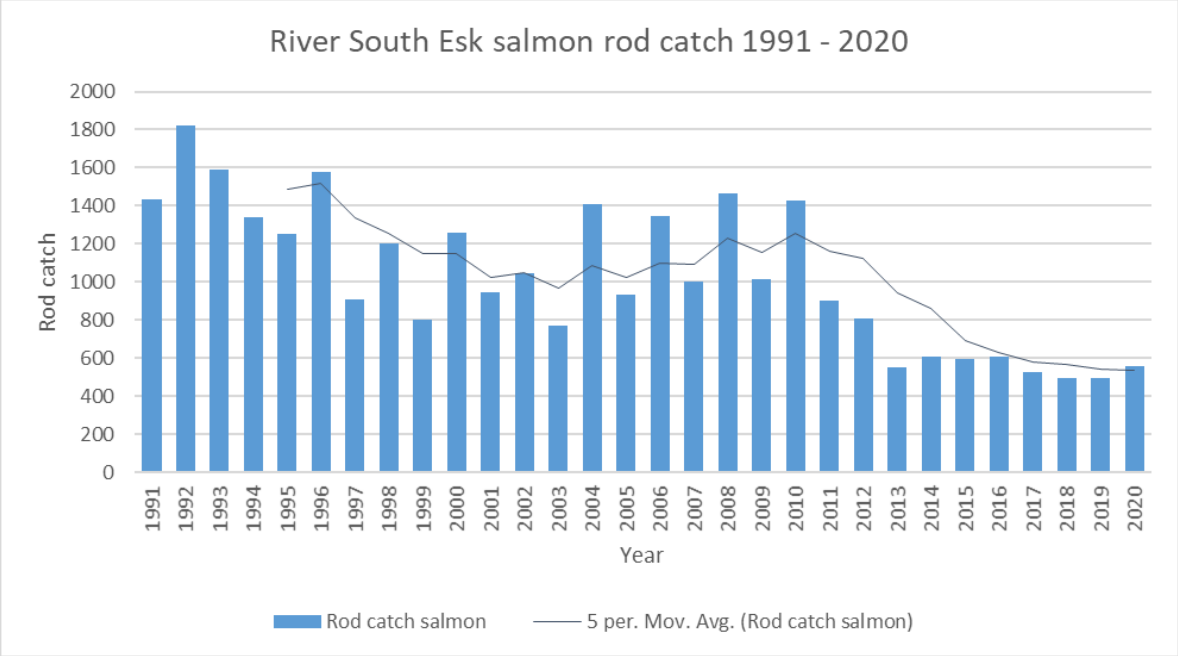

Figure 5. South Esk salmon rod catch and five-year average

Salmon rod catches have fallen over the period and have remained at a historically low level since 2013. The 2020 declared salmon rod catch was 561 fish.

4.2 South Esk Conservation Assessment 2021

The South Esk Conservation Assessment for 2021 was Grade 2, meaning there is an average chance of 60-80% that the egg requirement has been met over the past 5 years. Management action is necessary to reduce exploitation; mandatory catch and release will not be required in the first instance, but this will be reviewed annually.

5. River North Esk

A summary of the performance of salmon stocks in the North Esk is given below.

5.1 North Esk salmon rod catch

Declared salmon catches on the River North Esk are shown in Figure 6 below.

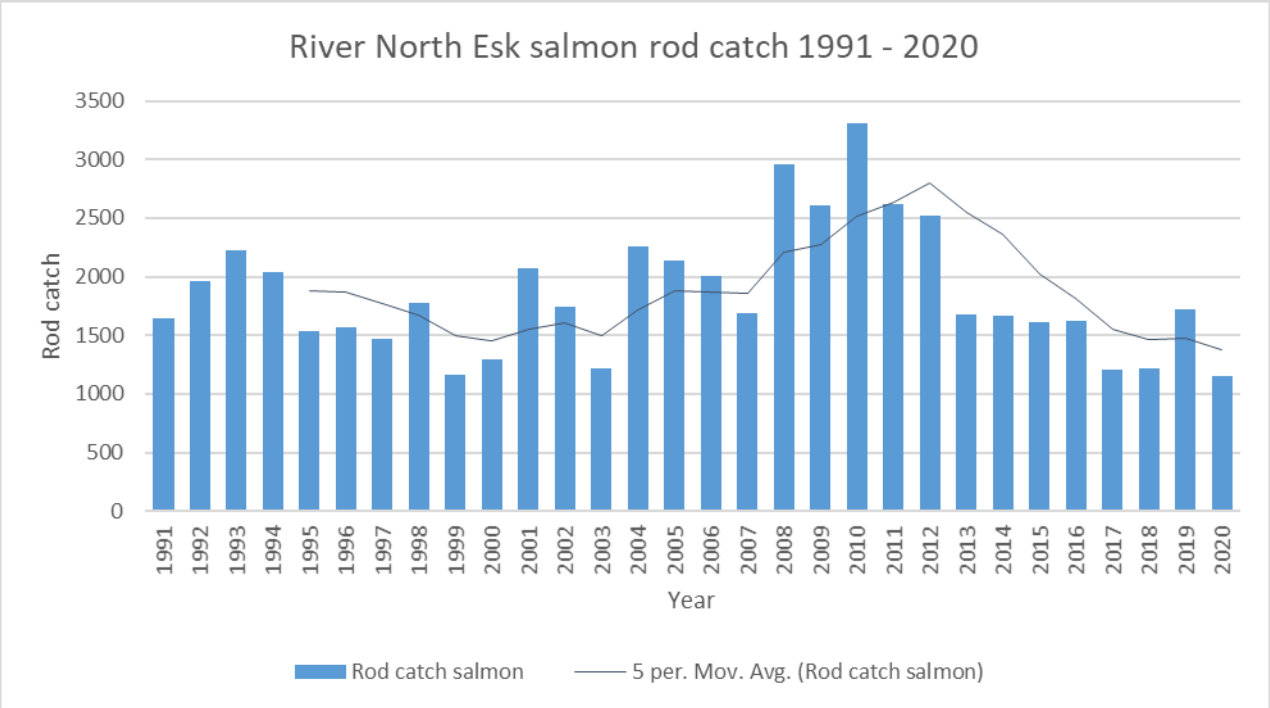

Figure 6. North Esk salmon rod catch and five-year average

Stable catches were reported in the North Esk through the 1990s, increasing in the 2000s. Catches reached a high of 3308 in 2010. Rod catches have fallen subsequently to 1151 salmon in 2020, the lowest recorded rod catch in the reporting period.

5.2 North Esk Conservation Assessment 2021

The North Esk is assessed as Grade 1 for 2021, and provisionally Garde 1 for 2022. This grading indicates the probability of the stock meeting its conservation limit over a 5-year period is over 80%.

Management advice is that exploitation is sustainable, and therefore no additional management action is currently required.

6. River Dee

A summary of the performance of salmon stocks in the North Esk is given below.

6.1 Dee salmon rod catch

Declared salmon catches on the River North Esk are shown in Figure 7 below.

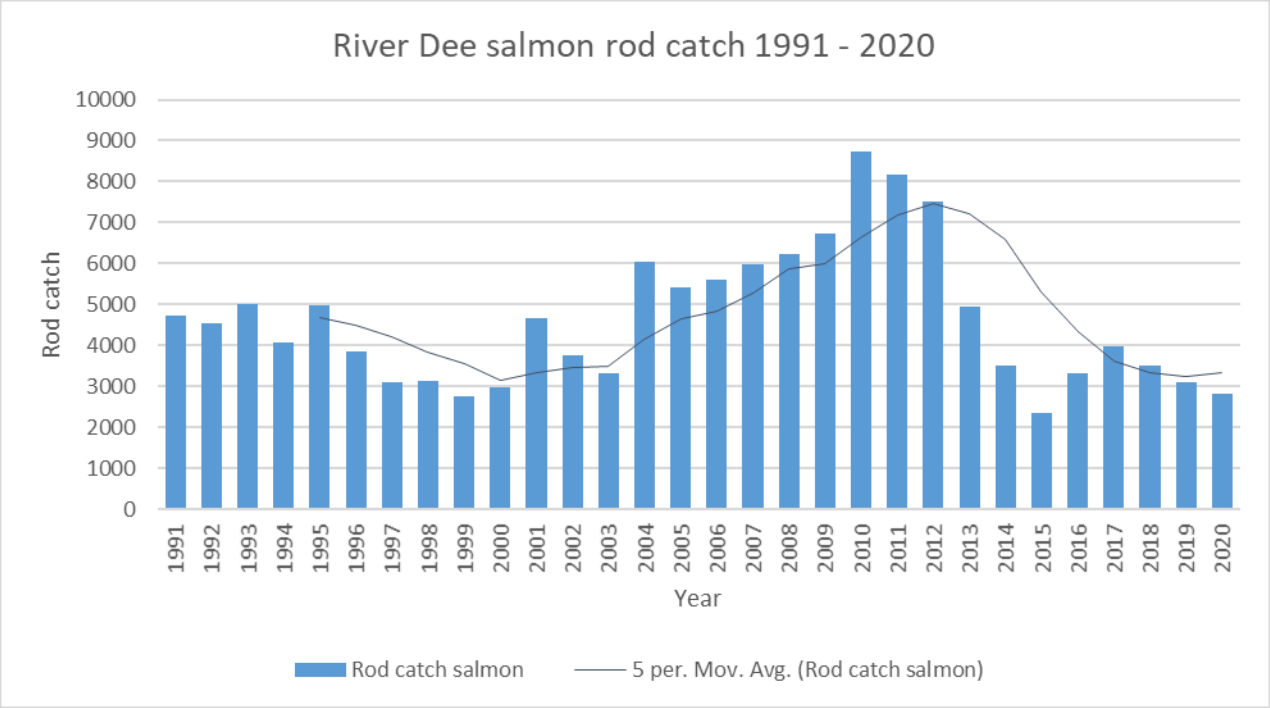

Figure 7. Dee salmon rod catch and five-year average

Salmon rod catches on the Dee improved through the 2000, to a high point of 8728 in 2010. Rod catches have declined since then, falling to a low of 2365 in 2015. The 2021 rod catch was 2821 salmon.

5.2 Dee Conservation Assessment 2021

The North Esk is assessed as Grade 1 for 2021, and provisionally Grade 1 for 2022. This grading indicates the probability of the stock meeting its conservation limit over a 5-year period is over 80%.

Management advice is that exploitation is sustainable, and therefore no additional management action is currently required.

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.