Technical case supporting a public consultation on proposals for new fishing controls to protect salmon and sea trout stocks on the River Usk and the River Wye.

About Natural Resources Wales

Natural Resources Wales' purpose is to pursue sustainable management of natural resources. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

Evidence at Natural Resources Wales

Natural Resources Wales is an evidence based organisation. We seek to ensure that our strategy, decisions, operations and advice to Welsh Government and others are underpinned by sound and quality-assured evidence. We recognise that it is critically important to have a good understanding of our changing environment.

We will realise this vision by:

- Maintaining and developing the technical specialist skills of our staff;
- Securing our data and information;
- Having a well-resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

This document is the Technical Case produced by Natural Resources Wales to support decisions on new fishing regulations on the River Wye (in Wales) and the River Usk. It contains background, evidence and an appraisal to identify the preferred option to secure the future for our important salmon and sea trout stocks on these two rivers. It forms part of a collection of documents supporting a public consultation:

See our public consultation

Ewch i'n hymgynghoriad cyhoeddus

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Executive summary

This technical document sets out the case for the introduction of fishing controls to protect stocks of salmon and sea trout in the River Usk and the River Wye (in Wales) and presents concluding proposals for new byelaws to regulate fishing and the keeping of captured fish. This follows our review of evidence of the stock status derived from catch statistics, and the continued concerns over the status of juvenile fish populations in these two catchments.

The byelaws would replace the current byelaws mandating the release of all rod caught salmon and sea trout on the Wye that have been in place since 2012, and all salmon throughout the season and any sea trout caught before 1st May on the Usk, which are each due to end on 31st December 2021. NRW's case is that the proposed byelaws meet all three of the requirements of necessity, proportionality and reasonableness.

If new byelaws are not put in place for the 2022 season onwards, then there would be reduced protection of the vulnerable salmon and sea trout stocks in the rivers Usk and Wye. In evaluating management options, conservation and sustainability of the salmon and sea trout resources should take precedence. The proposals are also set in the context of maximising spawning escapement and promoting stock recovery towards improved resilience and sustainability.

The proposals would, if confirmed and implemented, see byelaws requiring statutory catch-and-release (C&R) fishing for all salmon and sea trout caught by rod on the River Wye (in Wales) and on the River Usk for all salmon throughout the season, and for any sea trout caught before the 1st May.

Natural Resources Wales is now seeking views on these proposals.

Our overall objective for salmon and sea trout is:-

> ***"To protect, through the application of best-practice science and management, the sustainability of our natural resource of wild salmon and sea trout stocks in Wales."***

This technical case describes the status of stocks in the rivers Usk and Wye, considers issues around the exploitation of salmon and sea trout stocks and sets out the options for sustainable management.

In recent decades the status of most of our stocks of migratory salmonids in Wales has declined: the Usk and Wye are no exception. There is a complicated range of factors that has contributed to this, including the reduced survival of fish at sea, the pressures on freshwater habitats (including water quality), and past unsustainable fishing effort in high seas and other interceptory fisheries including some fisheries in home waters. Some of these pressures have been addressed or removed, including introduction of mandatory catch and release of all salmon and sea trout in the Wye in 2012. However, stocks have not returned to levels of historical abundance, or even to a position of sustainability where exploitation can be allowed.

Our position is that stocks may be exploited when they are sustainable, but that until they are, we must ensure that pressures are moderated or excluded in order to achieve this goal. In line with this position, we introduced the 'All Wales' byelaws which came into force in January 2020, which mandate the release of all salmon caught by rod or net in Wales. On the Usk, they also mandate the release of any sea trout caught before the 1st May and all sea trout longer than 60cm.

Salmon is a species listed under Annex 2 of the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) and currently contributes to the designations of the Usk and Wye as Special Areas of Conservation (SACs). At the last report by the UK in 2019 the status of Atlantic salmon was reported as Unfavourable-Inadequate, because both population and future prospects were assessed as inadequate.

Both salmon and sea trout are listed as UK BAP (Biodiversity Action Plan) priority species. Both are therefore currently regarded as most threatened and requiring conservation action.

Under the Environment (Wales) Act 2016, there is a duty on public authorities to:-

> ***"seek to maintain and enhance biodiversity so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'".***

Both species are included in the list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

Evidence

We have considered 3 principal sources of evidence in concluding our preferred option for management change:-

1. The status of adult stocks of salmon and sea trout in both rivers
2. The status of juvenile salmon and trout stocks in both rivers
3. The status of salmon as a designated feature of the Usk and Wye SACs

Salmon

The most recent assessment of our stocks indicates that the Usk is currently 'Probably at Risk' and the Wye is 'At Risk' of failing to achieve their management objectives (in 2020), and both are predicted to be 'Probably at Risk' in 5 years' time (in 2025). Based on average egg deposition levels over the last 5-years (2016-2020), both the Usk and Wye have recorded deficits against their indicative Management Targets of 4.35 and 24.52 million eggs, respectively. These deficits approximate to 1,449 and 8,175 8lb fish equivalents.

The status of salmon as designated features of both the Usk and the Wye SACs was 'unfavourable' in the most recently published round of Condition Assessments (Milner et al, 2013), driven largely by poor adult runs.

Sea trout

The most recent assessment of our sea trout stocks indicates that the Usk stock is currently 'At Risk' of failing to meet its conservation limits and is predicted to remain 'At Risk' in 2025. The Wye stock is currently 'Probably At Risk' of failing to meet its conservation limits and predicted to still be as such in 5 years' time.

Juvenile Salmonids

The status of juvenile salmon stocks in the Usk is of serious concern. Since 2015 there has been a decline in fry across the catchment with a significant failure of recruitment in 2016 (Gregory et al, 2020). Returning adult salmon numbers have been low in 2019 and 2020, although some uncertainty remains as to whether this can be wholly attributed to the 2015/2016 recruitment failure. The numbers of juvenile salmon in the Usk catchment have not substantially recovered since this time, remaining at low abundance in both 2018 and 2019.

Whilst the 2015/16 recruitment failure seen on the Usk was also evident on the Wye, it was not as severe, and some recovery has been seen since. However, the juvenile salmon population on the Wye has been below average in recent years and remains of concern.

Options

We have considered the following principal options:-

1. **Do nothing** further, allowing the current catch and release byelaws on the Usk and Wye fisheries to lapse on 31st December 2021.
2. **Maintain current C&R restrictions.**
3. **Maintain current C&R restrictions and introduce additional measures.**
4. **Closure of the rod fisheries,** resulting in negative socio-economic impacts.

Further options around season dates and method restrictions have also been considered and are detailed later in this technical case.

We conclude that: Option 2 is required for the Usk, and for sea trout on the Wye;
Option 3 is required for salmon on the Wye.

Our proposals

We are proposing to seek confirmation of new byelaws for rod fishing on the River Usk and the River Wye. We propose the following measures to run until 31st December 2029, a date selected to synchronise dates with the period of the 'All Wales' and 'Cross Border' byelaws that were implemented in 2020.

River Usk

A. Salmon

Statutory catch and release fishing at all times.

B. Sea trout

Statutory catch and release fishing from the start of the fishing season until 1st May each year

River Wye

A. Salmon

Statutory catch and release fishing at all times.

Revised finish date for the season, the open season to run from 3rd March to 17th October for the whole River Wye.

B. Sea trout

Statutory catch and release fishing at all times.

Note: NRW is working with the Environment Agency on the technical case and rod fishing byelaws for the Wye and is seeking to ensure commensurate byelaws for the Wye in England, thereby ensuring a consistent catchment approach for the cross-border river.

Your response

We would like your views on our proposals and invite you to submit these using the form designed for the purpose which is available via our consultation hub.

Respond to the consultation on proposed Usk and Wye byelaws

Hard copies of the documents can be requested by emailing fisheries.wales@naturalresourceswales.gov.uk: Or by writing to:-

Sophie Gott
Usk and Wye byelaws
Natural Resources Wales
Fortran House
St Mellons Business Park
St Mellons
Cardiff
CF3 0EY

Respondents on matters for the River Wye should note carefully that representations to this consultation for arrangements in Wales will be received by Natural Resources Wales. The consultation for the River Wye in England will be a different consultation and representations to that will be received by either the Environment Agency or by Defra.

1. Introduction

The current byelaws which implement catch and release on the River Usk for all salmon and any sea trout caught before the 1st May; and on the River Wye for all salmon and sea trout, are due to expire on 31st December 2021. Unless new byelaws are implemented, this will end any requirement to release rod caught salmon and sea trout in the two rivers.

This document is the Technical Case supporting our proposals for the future regulation of rod fishing for salmon and sea trout on the Usk and the Wye (in Wales).

NRW takes the management lead for diadromous fish stock management. Discussions with the EA have resulted in agreement that NRW and the EA will seek to agree a single technical case and set of byelaws in the statutory consultation with the intent to introduce new measures prior to the 2022 fishing season. These proposals also seek to ensure an integrated approach to fishery regulation in these catchments.

1.1 Mission Statement

NRW's objectives for salmon and sea trout stocks are to restore the natural resources represented by these wild populations to a sustainable status so that the multiple benefits, including socioeconomic and wellbeing benefits, are secured and protected for future generations.

These objectives are shaped by our general duty under Article 4 of The Natural Resources Body for Wales (Establishment) Order 2012 to pursue sustainable management of natural resources and apply the principles of sustainable management of natural resources, as contained in S4 of the Environment (Wales) Act 2016, in the exercise of its functions:-

> Read NRW's introduction to sustainable management of natural resources

and our duties to "..maintain, improve and develop fisheries…" placed upon us under the Environment Act (1995):-

> Read the Environment Act 1995

From this we draw our mission statement for the management of salmon and sea trout in Wales:-

> **"To protect, through the application of best-practice science and management, the sustainability of our natural resource of wild salmon and sea trout stocks in Wales."**

1.2 Sustainability in salmon and sea trout stocks

Our fisheries duties are set out in the sections below. The new Welsh legislation supports core duties for fisheries set out in national legislation (Environment Act, 1995; Marine and Coastal Access Act, 2009) to define a legal framework for the way in which NRW manages inland and diadromous fisheries resources. As set out in our mission statement above, we will manage the sustainability of our wild fisheries resource through the deployment of best practice science and management. We do so through the use of best available evidence, and we will seek to expand on this wherever possible, within the confines of the resources available to us.

Natural Resources Wales (NRW) undertakes annual assessments of the status of stocks of salmon and sea trout in most of our rivers. These assessments are used to help ensure stocks are maintained at sustainable levels and where this is not the case, to identify and implement management actions aimed at restoring them to sustainable levels. In doing so we have regard to the abundance of stocks, their genetic variability and resilience to environmental pressures, and to their capacity to support exploitation by rod and net fishing.

NRW notes that:-

- The salmon rod fisheries of the Usk and Wye are iconic, renowned, and highly valued contributing significantly to the local economy and communities.
- The status of salmon stocks in the Usk and Wye support their designations as Special Area of Conservation (SAC) sites.
- We work towards the sustainable management of our wild fish resource – seeking to ensure that measures to regulate the fisheries provide the necessary protection to vulnerable stocks.

1.3 Our statutory fisheries duties

NRW has a statutory duty to operate a licensing system for fishing under Section 25 of the Salmon and Freshwater Fisheries Act.

1. Natural Resources Wales has a duty under section 6(6) of the Environment Act 1995 “to maintain, improve and develop fisheries of salmon, trout, eels, lampreys, smelt and freshwater fish”.
2. Government guidance on this duty is:
    - to ensure the conservation and maintain the diversity of freshwater and migratory fish, and to conserve their aquatic environment;
    - to enhance the contribution migratory and freshwater fisheries make to the economy, particularly in remote rural areas and in areas with low levels of income;
    - to enhance the social value of fishing as a widely available and healthy form of recreation;
    - Our role for fisheries encompasses protection of fish stocks and their environment and a service to anglers paid for from the rod licence duty to manage fisheries.

3. The powers to meet these duties are contained primarily in the Salmon and Freshwater Fisheries Act 1975 (including licensing of angling and net fishing), the Water Resources Act 1991 (including making of byelaws to regulate fishing), the Eels (England and Wales) Regulations 2009 (including powers to facilitate eel passage) and the Keeping and Introduction of Fish Regulations 2015 (including regulating the movement and introduction of fish).
4. There are specific powers relating to licensing of angling by rod and line and netting of fish in section 25 of the Salmon and Freshwater Fisheries Act 1975, which includes provisions for operating a licensing system for rods and nets and setting licence duties (fees) for them, and to authorising of other fishing methods in section 27A.
5. The duties and powers are imposed on Natural Resources Wales in relation to regulation of freshwater and migratory fisheries in Wales.
6. Natural Resources Wales also has a duty under section 6(1) of the Environment Act 1995 which requires us to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and of land associated with such waters; the conservation of flora and fauna which are dependent on an aquatic environment; and the use of such waters and land for recreational purposes.

1.4 National and international commitments

NASCO

The UK subscribes to NASCO (the North Atlantic Salmon Conservation Organisation), an international organisation established by an inter-governmental convention in 1984. It has been a member of one of 6 parties represented by the European Union, however since the UK exit from the European Union the UK is now a member of the convention in its own right. The objective of NASCO is to conserve, restore, enhance and rationally manage Atlantic salmon through international cooperation.

NASCO and its parties have adopted and are applying a precautionary approach which is applied to the Atlantic salmon resource and the environment in which it lives.

The agreed approach requires that:-

> "…… more caution is exercised when information is uncertain, unreliable or inadequate. The absence of adequate scientific information should not be used as a reason for postponing conservation and management measures."

The Precautionary Approach requires *inter alia*:

- consideration of the needs of future generations;
- avoidance of changes that are not potentially reversible;
- prior identification of undesirable outcomes;

- initiation of corrective measures without delay;
- priority to be given to conserving the productive capacity of the resource;
- appropriate placement of the burden of proof."

NASCO has developed specific agreements in relation to:-

- management of fisheries;
- habitat protection and restoration;
- impacts of aquaculture, introductions and transfers and transgenics;
- stock rebuilding programmes;
- use of socio-economic factors in management decisions.

NRW, to which the fisheries duties and powers of Welsh Government are devolved, will follow the principles and guidance developed by NASCO in carrying out its statutory duties.

Read 'Conserving and restoring wild Atlantic salmon' on the Nasco website

The International Council for the Exploration of the Sea (ICES)

The ICES Working Group on North Atlantic salmon (WGNAS) provides scientific advice to NASCO on the status of stocks in the North Atlantic to inform management decisions and also provides catch advice for the mixed stock fisheries at West Greenland and the Faroes. Eastern Atlantic salmon stocks are assessed within the North-East Atlantic Commission (NEAC); stocks are divided between a northern stock complex and a southern stock complex. Wild salmon stocks in UK (England & Wales) are included as part of the southern stock complex, along with stocks in rivers in UK (Northern Ireland), UK (Scotland), Ireland, France, Spain and the south and west of Iceland.

"ICES advises that when the MSY [Maximum Sustainable Yield] approach is applied, fishing should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. [Note Conservation Limits in E&W are set using the MSY approach]. Furthermore, because of the different status of individual stocks within stock complexes, mixed-stock fisheries present particular threats. The management of a fishery should ideally be based on the individual status of all stocks exploited in the fishery."

The assessments include model forecasts for the southern stock complex and its constituent countries, including England and Wales (E&W), of maturing and non-maturing Pre-Fisheries Abundance (PFA), 1SW and MSW Lagged Eggs, and the proportion of PFA maturing. The latest (2020) assessment for the southern stock complex notes*:

- "1SW and MSW stocks in the Southern NEAC complex were considered to be at full reproductive capacity prior to the commencement of distant-water fisheries in the latest available PFA [Pre-Fishery Abundance] year [2019/2020], although this is due, at least in part, to changes in the UK

(Northern Ireland) and UK (Scotland) SERs [Spawning Escapement Reserve] and CLs [Conservation Limits].

- The abundance of maturing 1SW recruits (PFA) for Southern NEAC demonstrates a declining trend over the time period. Both maturing and non-maturing 1SW stocks [survivors of the latter returning as MSW fish] have, however, been at full reproductive capacity prior to the commencement of distantwater fisheries for all but three and one years, respectively [of a 50-year time-series].
- The 1SW spawners in the Southern NEAC stock complex have either been at risk of suffering reduced reproductive capacity or have suffered reduced reproductive capacity for six of the most recent ten years. In contrast, MSW spawners in the Southern NEAC stock complex have been at full reproductive capacity for all of the most recent ten years.
- In Southern NEAC, maturing and non-maturing stocks in UK (Northern Ireland), Ireland, and France were suffering or at risk of suffering reduced reproductive capacity both prior to the commencement of distant-water fisheries and at spawning.
- In contrast, maturing and non-maturing stocks in UK (Scotland) were at full reproductive capacity both prior to the commencement of distant-water fisheries and at spawning. In UK (England and Wales), the maturing stock was suffering reduced reproductive capacity both prior to the commencement of distant-water fisheries and at spawning, whereas the non-maturing 1SW stock and MSW spawners were at full reproductive capacity throughout. [Note: Separate Conservation Limits at the river level are not set for 1SW and MSW fish in E&W, only for the stock as a whole]."

ICES is not asked to develop catch advice for homewater fisheries but has previously noted that while the abundance of stocks remains low, particular care should be taken to ensure that fisheries in homewaters are managed to protect stocks that are below their CLs.

Read ICES latest advice on fishing opportunities, catch, and effort

The Conservation of Habitats and Species Regulations

Following the UK's withdrawal from the EU, we remain committed to the principles and objectives of the Habitats Directive as transposed into UK law. Welsh Government has said there will be "no change to the level of environmental protection, nor to environmental standards in Wales". Wales' Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) have the same protections they had when the UK was part of the EU. Amendments made to the Conservation of Habitats and Species Regulations 2017 (as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) involved transferring functions from the European Commission to the appropriate authorities in England and Wales. Because the legislative requirements in the 2017 Regulations as amended, are partly defined by reference to the terms of the Habitats and Birds Directives, the obligations of a competent authority for the protection of sites or species has not changed.

Read the changes to the Habitats Regulations 2017

The Atlantic salmon (*Salmo salar* L.) is a species listed under Annex 2 of the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora). This designation and associated obligations still apply under the 2017 Regulations, as amended.

The Directive states that:

> "If a species is included under this directive, it requires measures to be taken by individual member states to maintain or restore them to favourable conservation status in their natural range".

From a Welsh perspective, there are currently 6 rivers (or tributaries of rivers) designated as SAC's where salmon are a qualifying interest; these now form part of the UK National Sites Network:–

- Wye UK0012642
- Usk UK0013007
- Teifi UK0012670
- Eden Cors Goch Trawysfenydd UK0030075 *
- Gwyrfai and Llyn Cwellyn UK0030046
- Dee and Bala Lake UK0030252

* Salmon is a primary reason for selection of each site except the Eden where it is present as a qualifying feature, but not a primary reason for site selection

In applying the Conservation of Habitats and Species Regulations as amended, consideration must be given to all of the salmon populations and not just specifically in these six rivers.

The conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within its territory. This *conservation status* will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis…"

The Conservation of Habitats and Species Regulations, as amended, specifically allow for provision to be made for management measures for salmon, if their conservation status so warrants, including the prohibition of certain means of capture or killing, whilst providing for the possibility of derogations on certain conditions.

Under the terms of the 2017 Regulations, as amended, every 6 years the appropriate bodies in the UK are obliged to submit a report detailing the conservation status of their salmon stocks. At the last report in 2019 the status of Atlantic salmon

was reported as Unfavourable-Inadequate, because both current population and future prospects were assessed as inadequate:-

Read the current UK conservation status assessment for Atlantic salmon

Fishery management measures have been identified as instrumental in maintaining the number of spawning adult salmon over the long term, despite substantial reduction in marine survival.

The 'Common standard monitoring guidance for freshwater fauna' (JNCC, 2015) sets out the protocol for monitoring and assessing Atlantic salmon populations in sites designated as SACs and SSSIs.

The population distribution, juvenile density and adult run size for the SAC river is assessed using electrofishing surveys, rod catch returns and, where available, fish counter and trap data. Compliance with Conservation Limits, set as egg deposition targets, are used to assess the status of spawning stocks at whole catchment scales. These analyses in conjunction with an assessment of environmental attributes such as river flow, habitat and water quality (JNCC, 2016) are used to classify the Atlantic salmon feature as either "Favourable" or Unfavourable" for each SAC river.

Other international commitments for salmon and sea trout management

Other international agreements and conventions are also of relevance for the management of salmon and their environment, and remain unchanged since the UK exit from the European Union:-

- The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) (ETS No.104)

This convention, adopted in Bern Switzerland in 1979, came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. The Habitats Regulations 2017 (as amended) provide a legal framework to deliver the UK's obligations under the Bern convention.

Read details of the Bern Convention

- The Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention, EC Decision 82/461/EEC of 24 June 1982).

This convention deals specifically with the conservation of migratory species of wild animals.

Read details of the Bonn Convention

- The OSPAR Convention (Convention for the Protection of the Marine Environment of the North-East Atlantic convention, 1992).

OSPAR is the mechanism by which 15 Governments and the EU cooperate to protect the marine environment of the North-East Atlantic.

Read details of the OSPAR Convention

1.5 Salmon and Sea Trout Stocks in Wales

Salmon and trout are widely distributed around Wales. There are 23 rivers in Wales designated as 'principal salmon rivers' following a Ministerial Directive in 1998 that required the derivation and initiation of a precautionary stock management system based on Conservation Limits and annual compliance assessment (Annex 1). The River Usk and the River Wye are both designated as principal salmon rivers. Many of these rivers are also significant for their sea trout stocks and fisheries and form an important part of our 33 main (or 'principal') sea trout rivers and fisheries in Wales (Annex 2).

The Usk and Wye are also two of the six Welsh rivers also designated as SACs with salmon as one of the primary reasons for site selection and are part of the UK National Sites Network. This recognises the international significance of these rivers as environments supporting salmon, and the need to conserve them.

Each of the designated rivers have, at some point in the past, supported flourishing rod fisheries of local and national significance. Each has contributed significantly to the social and economic well-being of the areas in which they are located.

Across Wales, salmon stocks are performing poorly. On all principal rivers - including the Usk and Wye – stocks are classified as 'at risk' or 'probably at risk' of failing to achieve their Management Objective: *i.e.* that they should meet or exceed the Conservation Limit 4 years out of 5 (or 80% of the time) in the long run. The poor status of salmon stocks in Wales mirrors a similar picture of decline evident over the last two or three decades across the North Atlantic range. While this common picture of decline may be driven by large scale environmental factors *e.g.* resulting in less favourable conditions at sea; local constraints to the wellbeing of stocks also remain important and should not be overlooked.

Of concern is the very poor status of the one-sea-winter (1SW) salmon stock component (those fish that spend one winter at sea before returning to their natal river). These fish are commonly referred to as grilse and have tended to dominate returns on smaller rivers – including most rivers in Wales. However, grilse numbers have declined markedly in the last decade. Larger salmon are typically 2SW fish (spending two winters at sea) with still older fish present in some rivers – notably the Wye. Somewhat in contrast to grilse, returns of multi sea winter (MSW) fish have been steady or even increasing on some rivers in recent years, but not to levels observed in the past, or to the extent that the conservation status of the salmon stock as a whole can be considered secure.

Sea trout stocks are also depleted on many of the principal rivers in Wales. This is the case on the Usk and Wye, although both rivers have relatively small sea trout stocks which do not feature in the fishery to the same extent as other more renowned sea trout rivers in Wales.

Following public consultation in 2017 and a local public inquiry in 2018/19, new byelaws were introduced for rivers wholly within Wales in 2020 requiring all salmon caught by net and rod fisheries to adopt statutory catch and release fishing, ensuring all salmon are returned immediately to the water with the least possible injury.

In addition, complementary byelaws restricting methods (hook restrictions requiring barbless hooks, restrictions on bait fishing and reductions in season) were introduced to ensure released fish had the best possible chance of survival.

Similar measures are in place for the cross-border (Wales and England) rivers Wye, Severn and Dee.

These byelaws, which came into force on the 1st January 2020, are an integral component of a suite of measures to preserve vital breeding resources whilst other threats to relevant habitats are addressed. The byelaws are effective because they will reduce the intentional killing of fish, which will maximize the number of fish that survive to spawn each year:

i. even relatively small numbers of fish are crucial in order to recover stocks in as short a time as possible;

ii. there would be accumulated benefits over spawner numbers over time; and

iii. there is a further imperative to preserve the fittest fish which have managed to survive natural mortality factors. It is therefore essential that spawning stocks are maximized if populations are to have the best chance of recovery.

Estimates of the additional salmon eggs laid in a single year as a result of the measures amount to an additional 2 million salmon eggs being deposited across Wales in year 1 alone. Thereafter there would be accumulated benefits of spawner numbers over time.

In 2020 provisional catch figures suggest that anglers released 2,042 salmon whilst the net fisheries released 184 salmon.

Overall, NRW has sought to ensure that the socioeconomic benefits associated with rod and net fisheries are protected, in so far as is commensurate with securing the savings in stocks required to reduce ongoing pressure on them.

The ‘All Wales’ byelaws can be found on our website and the ‘Cross border (England)’ byelaws in Annex 4. Note that the confirmation instruments should be read alongside the byelaws:

Read the confirmation instrument for the Wales Rod and Line (Salmon and Sea Trout) Byelaws 2017

Read the Wales Rod and Line (Salmon and Sea Trout) Byelaws 2017

Read the confirmation instrument for the Wales Cross border Dee and Wye byelaws 2017

Read the Wales Cross border Dee and Wye byelaws 2017

2. Assessing and managing stocks of salmon and sea trout in the Usk and Wye

2.1 Monitoring stocks and fisheries in the Usk and Wye

Monitoring programmes for salmon and trout / sea trout - targeting various life stages – have been long established by NRW, the Environment Agency (EA) and predecessor organisations, and provide the evidence base to evaluate stock status and inform management decision making.

The key monitoring activities on the Usk and Wye are:

a) The collection, collation and reporting of rod and net catch statistics. These are available from at least the 1940s on the Usk and Wye. Rod catches were recorded more consistently from 1975 when regional licence-based catch return and reminder systems were introduced. These were replaced in the early 1990s with a single, national (England and Wales) rod licence and catch return system which has collected catch, catch and release, and fishing effort data in a broadly consistent way since that time. The exception to this is the Wye where long established fishery owners' returns are used to assess rod catch trends and stock status.

b) Annual monitoring of the abundance and distribution of juvenile salmon and trout populations since the mid-1980s using electrofishing (EF) methods. Whilst the frequency and extent of annual EF surveys have been variable in most rivers across Wales, the core annual programmes on the Usk and to a lesser extent on the Wye have remained largely consistent. The programme underwent a review in 2001 and the sites have been surveyed consistently since that date. The surveying programme is split between NRW, who are responsible for monitoring the Wye in Wales, and the Environment Agency who monitor the Wye in England.

Data from these sources are analysed and presented in Sections 3 and 4 and further detail on the juvenile monitoring is found in Annex 3.

2.2 Management of mixed species

Although most rivers in Wales support notable stocks and fisheries for both salmon and sea trout, the Usk and Wye are rivers where migratory salmonid fishery interests have always been overwhelmingly dominated by salmon.

Current byelaws specific to the River Wye salmon rod fishery include regulatory controls for sea trout. This eliminates the risk of anglers misidentifying fish, leading to the inadvertent or deliberate killing of salmon. It is noted that the Wye is not recognised as a sea trout river, the reported annual rod catch having only exceeded 50 fish in five of the last 25 years.

There is a more notable sea trout run on the Usk which is actively fished for in some reaches (pers. comm. Usk LFG 2021), although at a very low scale, and is therefore considered here alongside the salmon fishery.

2.3 Adult stock assessment procedures

2.3.1 Salmon

Following the advice of ICES and NASCO, Conservation Limits (CLs) and associated Management Targets have been used to assess the status of salmon stocks in England and Wales (E&W) since the early 1990s. This approach was enshrined in a Ministerial Direction in 1998 which, among a number of actions, required Conservation Limits to be set and used to assess stocks annually on 64 principal salmon rivers in E&W.

The Conservation Limits derived for all principal salmon rivers have been based on modelled stock and recruitment (SR) curves which relate spawner or egg numbers to smolt output (Fig. 1). SR curves have been developed from river specific measures of the extent and quality of freshwater habitat. See Annex 1.

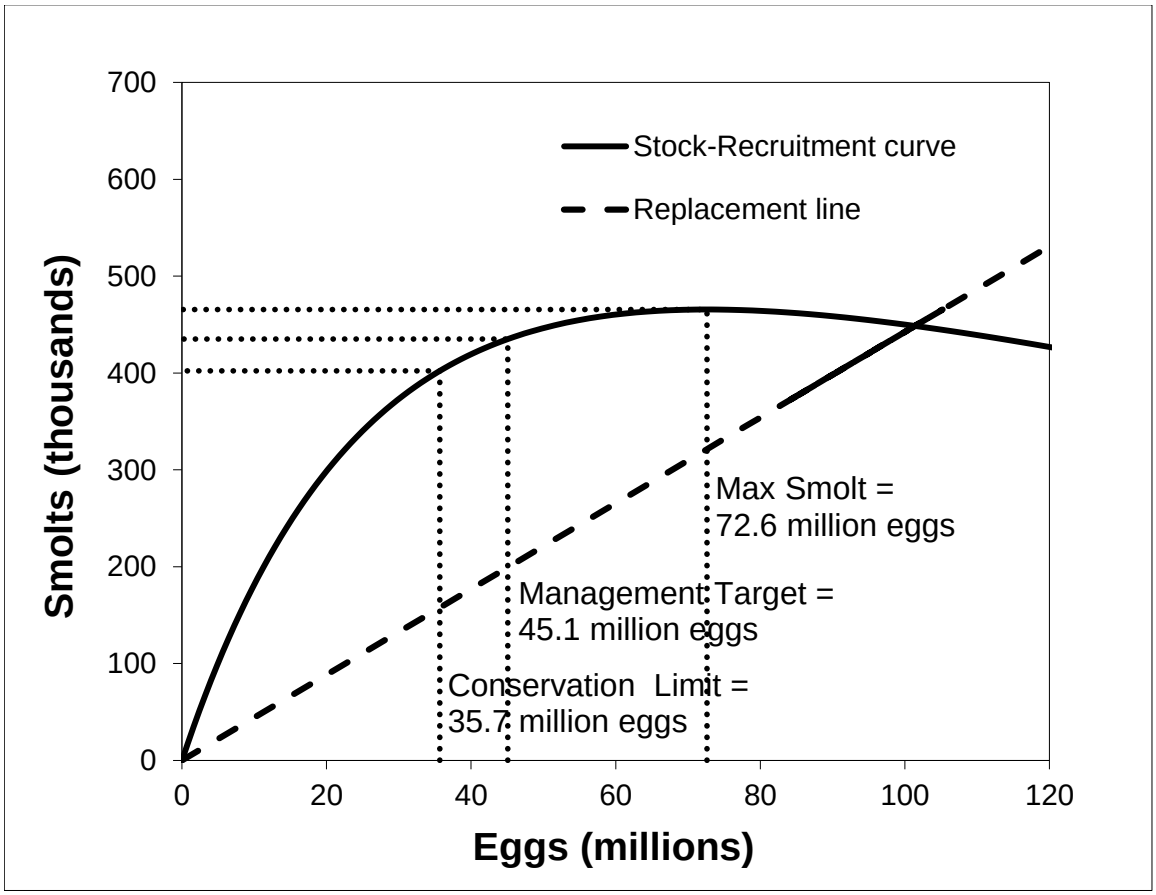
Additional information on sea survival (the 'replacement line' in Fig. 1) and the average sea age and size composition of returning stocks is also required to set the CL (again based on observations from index monitored rivers as well as river specific data).

CLs serve as a 'limit' reference point below which further reductions in spawner numbers are likely to result in a significant fall-off in smolt production.

Compliance procedures are built around a 'Management Objective' which ensures there is a high probability that stocks are meeting their CL. This requires that spawning levels are at or above the CL four years out of five, in the long term, (*i.e.* 80% of the time) for a stock to formally 'pass' its Management Objective . The 'Management Target' (MT) is a 'target' reference point which indicates where stock levels need to be, on average, in order to achieve the Management Objective.

The CL and MT reference points are both indicated on the SR curve shown in Figure 1. A further reference point – 'Maximum Smolt' - is also shown to identify the maximum smolt output that may be expected from a catchment.

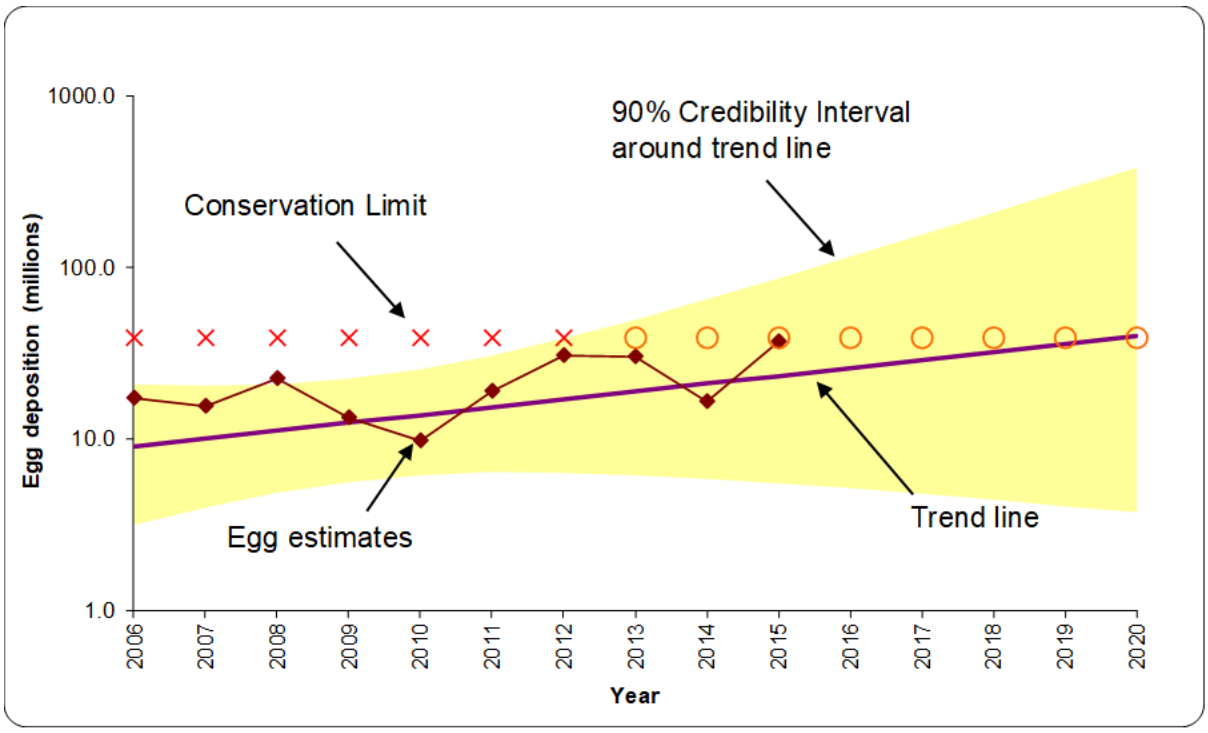
Figure 1 Conservation Limit and other reference points defined by the stock-recruitment curve and replacement line



For each river stock of salmon, estimates of spawner numbers and egg deposition are produced annually. In most cases (except for rivers with counters or traps) these estimates are derived from rod catches and assumed angling exploitation rates (the latter based on observations from counted rivers). Other information, for example relating to the size and sea age composition of returning salmon, catch declaration rates and the egg contribution of rod-released fish is also built into the spawner/egg estimates.

Compliance with the Management Objective is tested each year using a statistical procedure which fits a trend line to the latest 10-year time-series of egg deposition estimates for each river and examines the position of that trend line (and the uncertainty band or 'credibility interval' around that line) relative to the Conservation Limit. This procedure includes extrapolation of the trend line to assess the possible status of the stock in 5-years' time (Fig. 2).

Figure 2 Compliance with Management Objective: Example graphical assessment for 2015



The resulting compliance status for each river is examined annually against a 'Decision Structure' (DS) (Annex 1) which provides a standard and consistent decision framework to identify management actions for the regulation of exploitation of stocks in both the rod and net fisheries. This recognises that exploitation control is the most immediate remedy to shortfalls in spawning stocks, however it is also the case that longer term initiatives, for example the protection and restoration of river habitats, are fundamental to the recovery and future health of our salmon populations.

Annex 1 provides further information on the derivation and use of Conservation Limits in salmon management in E&W – including additional details relating to compliance assessment and the application of the Decision Structure.

2.3.2 Review of salmon stock assessment process

The 1998 Ministerial Direction placed a requirement on the Environment Agency in England and Wales (whose role and duties for fisheries in Wales have been taken on firstly by NRW) to "ensure that target setting and compliance assessment procedures are regularly revised to take account of improvements in methodologies and new data". Consequently, NRW, working with the EA and Cefas, are currently undertaking such a review. The commitment to do so is included within the NASCO Implementation Plan for England and Wales which has received ministerial approval and commitment.

The review is currently underway, but amendments have not yet been confirmed.

2.3.3 Sea Trout

Until recently no established methods of setting Conservation Limits or similar 'Biological Reference Points' (BRPs) for sea trout were available. This was rectified when a methodology based on that for salmon was introduced by NRW in its Technical Case supporting the 'All Wales' byelaws. The new approach, which received positive feedback from key fisheries NGOs is a stock-based assessment method utilising rod catch return data to derive run and egg deposition estimates for sea trout in much the same way as that for salmon assessment. For example, it uses estimated rod exploitation rates and catch data to derive run estimates and adopts standard sex ratios and weight-fecundity relationships to generate egg deposition figures.

These data sets have been used to generate stock and recruitment relationships for individual river stocks of sea trout, deriving from these relationships Conservation Limits that are broadly equivalent to those used in the salmon assessment, and which allow use of the same trend-based statistical compliance procedures to assess the 'risk' status of the stock.

The details of this method are set out in in Davidson *et al.* (2017b) and in the Technical Case supporting the 'All Wales' byelaws, with procedures for estimating adult returns from rod catches, spawner numbers and levels of egg deposition summarised in Annex 2.

2.4 Juvenile population assessments

Electrofishing (EF) surveys to assess the distribution and abundance of juvenile salmon and trout have been undertaken on most catchments in Wales - with the earliest data sets (on the Usk and Wye) extending back to the mid-1980s.

The current EF monitoring programme comprises a temporal component, where a number of fixed sites are surveyed annually, and a spatial component where considerably more sites spread across the whole catchment are surveyed every 6 years as a "snapshot" assessment of spatial variation of catchment fish populations. The number of sites in the temporal and spatial programmes vary between catchments and relate to the size of the catchment. The monitoring programmes were fully reviewed in 2001 and have remained largely consistent since.

Data collected from the annual (temporal) programme are used to examine trends in salmonid fry and parr numbers. Long-term trends reflect a range of factors affecting juvenile populations, from spawner abundance to the quality of freshwater habitat. Trends are examined using a long-term time-series from the start of monitoring but are more usually assessed for the most recent ten-year period, which includes two salmon cohorts.

Spatial data are used to look at differences in fish populations within catchments in a single year. This will help to identify parts of the catchment where, for example fry numbers are lower than expected levels, and will help to target investigative or remedial work.

The data collected in these surveys are used for various purposes, including Water Framework Directive (WFD) and other assessments which identify environmental constraints and prompt remedial measures.

The current status of juvenile salmon and trout stocks in the Usk and Wye is presented in Section 4.2 with further data and analyses available in Annex 3.

2.5 Reporting our data

The data that we collect, and the assessments that we make on juvenile and adult salmonid stock status are reported on a local, national and international level.

Salmonid and freshwater fisheries statistics

Annual fisheries statistics reports for commercial and recreational fisheries in England and Wales, including declared catches for salmon and sea trout by rods, nets and other instruments are available from the .Gov website.

Read the 2010 to 2018 Salmonid and freshwater fisheries statistics for England and Wales

Read the 2019 Salmonid and fisheries statistics for England and Wales

New annual reports are generally published in July of each year.

Salmon stock status report

In addition, annual reports by Cefas, EA and NRW on the status of salmon stocks and fisheries in England and Wales have been produced since 1997. These reports present a preliminary assessment for the latest year to assist ICES in providing scientific advice to NASCO and to provide early feedback to fishery managers and anglers. These are also available from the .Gov website.

Read the 2019 Assessment of Salmon Stocks and Fisheries in England and Wales

NASCO Implementation Plans and Annual Progress Reports

Following the departure of the UK from the European Union in 2020, the UK became a full member of NASCO and is required to adopt all of its measures and agreements.

In 2005 NASCO committed to the development by subscribing parties of implementation plans' (CNL(05)49). These are required to detail committed measures to be addressed over the five-year plan lifetime of work in relation to three areas of concern:

- Management of salmon fisheries;
- Protection and restoration of Atlantic salmon habitat; and
- Management of aquaculture, introductions and transfers and transgenics.

Implementation Plans and their associated Annual Progress Reports provide a succinct, transparent, fair and balanced approach for reporting on the implementation of NASCO's Resolutions, Agreements and Guidelines by the Parties.

The Implementation Plans are the key documents in the third and current NASCO reporting cycle. They are focused around the three theme areas and emphasise:-

- the actions to be taken over the period of the Implementation Plan (2019 – 2024);
- clearly identifiable measurable outcomes and timescales; and
- appropriate monitoring to evaluate the effectiveness of the measures taken.

Annual reports on progress against these plans provide detail on action taken by each jurisdiction including that on habitat protection and restoration, and the minimisation of adverse impacts of aquaculture, introductions and transfers.

The primary purposes of the annual progress reports are to provide details of:

- Any changes to the management regime for salmon and consequent changes to the Implementation Plan;
- actions that have been taken under the Implementation Plan in the previous year;
- significant changes to the status of stocks, and a report on catches; and
- actions taken in accordance with the provisions of the Convention.

The reports can be found on the NASCO web site.

Read the NASCO Implementation Plans and Annual Progress Reports

3 Fisheries in the Usk and Wye

The rivers Usk and Wye are two of 23 rivers in Wales that have been designated as 'principal salmon rivers'. Conservation limits (CLs) and Management Targets (MTs) have been set for all principal salmon rivers and are used to assess the status of stocks against a common framework and to indicate the requirement for intervention measures to improve stocks (Section 2). Management action includes the control of fishing to maximise spawning escapement, but should also be interpreted as triggering the need for other initiatives such as river improvement.

The Usk and Wye are also two of the 33 sea trout fisheries that are assessed each year, although sea trout runs in both rivers are low in comparison to other fisheries in Wales. There is no significant fishing for sea trout on the Wye, whilst the Usk does support a small fishery.

3.1 Current restrictions on rod fishing in the Usk and Wye

Both rivers currently have byelaw control overfishing that require catch-and-release fishing, together with certain method controls.

As of 1st January 2020, under the 2017 'All Wales' byelaws, catch and release (C&R) applies to all salmon caught on the Usk, and to any sea trout caught before the 1st May or above 60cm in length at any time in the season.

On the Wye, catch and release applies at all times to all salmon and sea trout under the 2011 river-specific byelaws.

These C&R restrictions on both the Usk and Wye end on 31st December 2021.

A summary of the seasons and method restrictions affecting the rod fisheries on the Usk and Wye is presented in the tables below (Tables 1 and 2). For more detail on these byelaws, read the Welsh angling byelaws (fishing rules) on our website and see the English Cross Border byelaws in Annex 4.

Under the 'All Wales' and the 'cross border' byelaws, there are also method restrictions on hooks that apply to both salmon and sea trout fishing (note that these do not expire until December 2029):-

- All hooks must be barbless or de-barbed;
- On artificial flies with a hook gape greater than 7mm, hooks are restricted to singles or doubles;
- On artificial flies with a hook gape 7mm or less, hooks are restricted to a maximum of two hooks with a total of four points between them;
- No treble or double hooks are permitted on lures used for spinning;
- Spinners and spoons can have only one single hook with a gape of 13mm or less;
- Plugs can have a maximum of three single hooks, each with a gape of 13mm or less.

Finally, under the 1995 byelaws, the use of any natural bait or float and restrictions on the use of spinners on the Wye is also regulated.

Table 1 Summary of current salmon rod fishing byelaws on the rivers Usk and Wye.

River	Open season	Method restrictions
Usk	3rd March to 17th October	No worm fishing for salmon Shrimp and prawn 1st September to 15th September only Fly and spin only 1st June to 17th October Fly only 3rd March to 17th October
Wye downstream of Llanwrthwl Bridge	3rd March to 17th October	No bait fishing at any time Fly and spin only 3rd March to 31st August Fly only 1st September to 17th October
Wye upstream of Llanwrthwl Bridge and Wye tributaries	3rd March to 25th October	No bait fishing at any time Fly and spin only 3rd March to 31st August Fly only 3rd March to 25th October

Table 2 Summary of current sea trout rod fishing byelaws on the rivers Usk and Wye.

River	Open season	Method restrictions
Usk	20th March to 17th October	Worm 1st June to 15th September* Fly and spin only 1st June to 17th October Fly only 20th March to 31st May
Wye	20th March to 17th October	No bait fishing at any time Fly and spin only 20th March to 31st August Fly only 1st September to 17th October

*worm fishing is only allowed for sea trout with a single worm using a single barbless hook with a gape less than 8mm.

Note - natural earthworm may be used to fish for non-migratory brown trout on both the Wye and Usk.

3.2 Salmon and sea trout rod catches

The main indicators of the state of adult salmon and sea trout stocks are the catches made and reported by rod fisheries.

All fishing is controlled through licencing systems. The national rod licence for salmon and migratory trout has been in place in Wales and England since 1994. This and an associated catch return and reminder system have operated since that time and is one of the most consistent and comprehensive catch recording systems in Europe. The rod licence sales and administration service in Wales is managed on our behalf by the Environment Agency under a formal agreement.

The national catch recording system provides information on each fish caught as well as the activity of fishermen. This includes:

- weight of individual fish;
- whether killed or released (note that this data is only available from 1993);
- date and river of capture;
- method of capture (fly/spin/bait);
- total number of days fished each season (pre and post 16th June).

Catches for salmon and sea trout in the Usk and Wye are presented in the following sections. The rod catch data for the Usk are declared catches from licence returns, however that for the Wye is based on an owners' return system that has been in place for many decades. Catch data are used to assess rod catch trends and stock status.

3.2.1 Usk

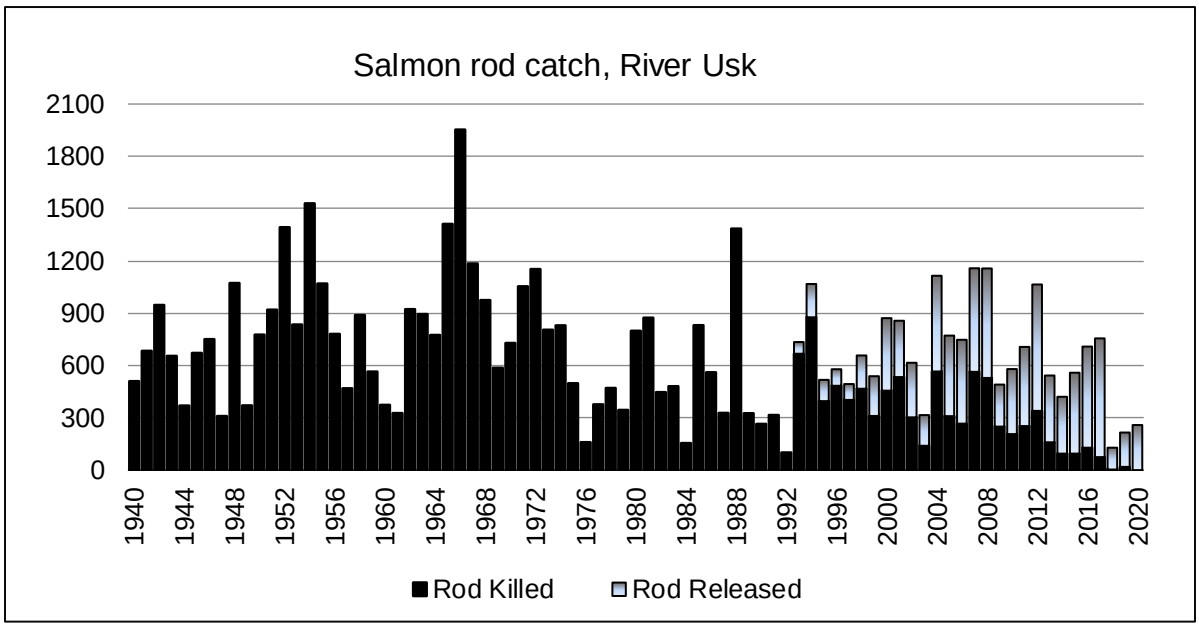
Since the 1940s, annual catches of salmon on the Usk have varied greatly, from a low of just 101 in 1992 to a high of almost 2,000 fish in 1966 (Fig. 3). Numbers peaked in the 1950s and again in the 1960s but on average have been lower since then. In more recent years, the rod catch had started to increase from the mid-1990s, but the overall trend in the last ten years has been downwards, with 2018, 2019 and 2020 catches being amongst the lowest recorded.

The proportion of released fish has increased from 9% in 1993 to a 5-year average in 2019 of 86%.

Since 2016 the juvenile salmon stock on the Usk has performed poorly. Some of the lowest levels of juvenile salmon have been recorded in recent years.

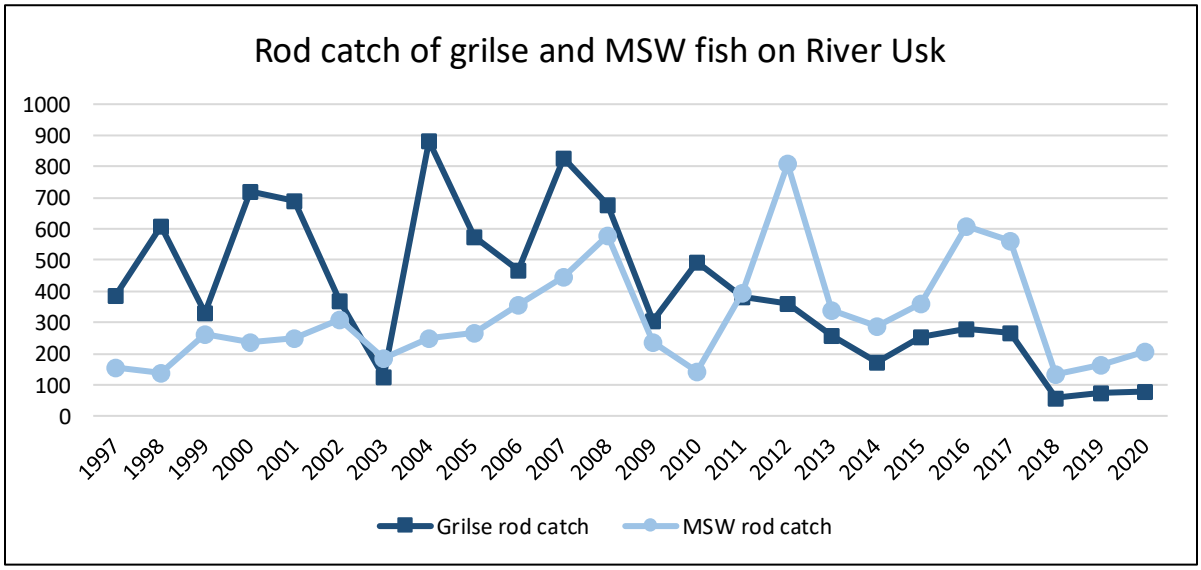
The extremely poor 2016 salmon fry (0+) populations in the Usk suggested that in 2019 and 2020 greatly reduced numbers of adult salmon would return to the river; 2019 and 2020 being when most of the 2016 cohort of salmon fry would be expected to return from the sea as either one sea winter (2019) or two sea winter (2020) adult salmon. Adult numbers have indeed been low in these years; however, some uncertainty remains as to whether this can be wholly attributed to the 2015/2016 recruitment failure with numbers of grilse and MSW being slightly higher in 2019 and 2020 than the poor catches of salmon in 2018.

Figure 3 Salmon rod catch on the River Usk since 1940. Notes: 2020 data are provisional; reporting of numbers of released fish only started in 1993; national mandatory C&R of all salmon caught before 16th June came into force in 1999; and mandatory C&R for all salmon in Wales came into force in 2020.



Grilse have made up a significant proportion of the catch on the Usk, although numbers started to drop off in about 2007 and have declined since (Fig. 4), a pattern reflected across much of Wales. There had been a general increase in MSW salmon caught in the Usk since the late 1990s, although again, numbers have decreased in the last three years in line with an overall decrease in rod catch.

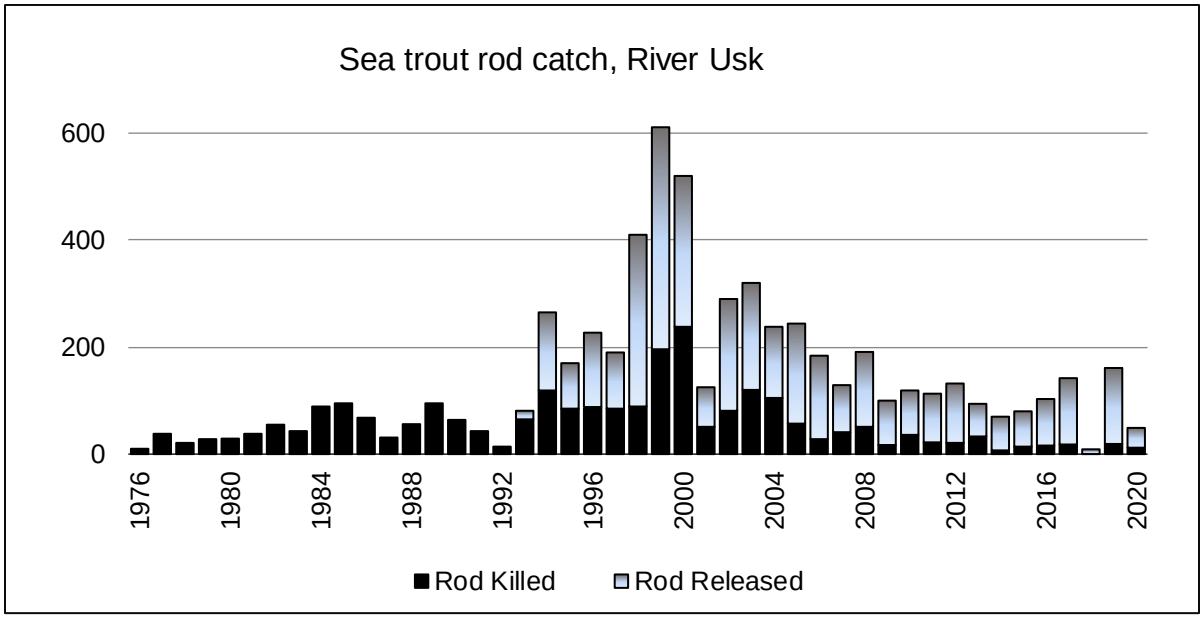
Figure 4 Grilse and multi sea winter (MSW) rod catch on the River Usk since 1997. Notes: 2020 data are provisional; national mandatory C&R of all salmon caught before 16th June came into force in 1999; and mandatory C&R for all salmon in Wales came into force in 2020.



The sea trout catch on the Usk is small in comparison to most other Welsh rivers and to the salmon catch. There were higher catches in the period 1994 - 2008, peaking at over 600 fish in 1999, but with the exception of one very poor year in 2018, when just 9 fish were reported, annual catches have averaged around 110 fish in the last decade (Fig. 5). Most sea trout are returned by anglers (a 10-year average of 84%).

The proportion of released fish has been at least 50% since 1994 and reached a 5-year average in 2019 of 88%.

Figure 5 Sea trout rod catch on the River Usk since 1976. Notes: 2020 data are provisional; reporting of numbers of released fish only started in 1993; mandatory catch and release on all sea trout caught before 1st May and all sea trout above 60cm, came into force from 2020.



3.2.2 Wye

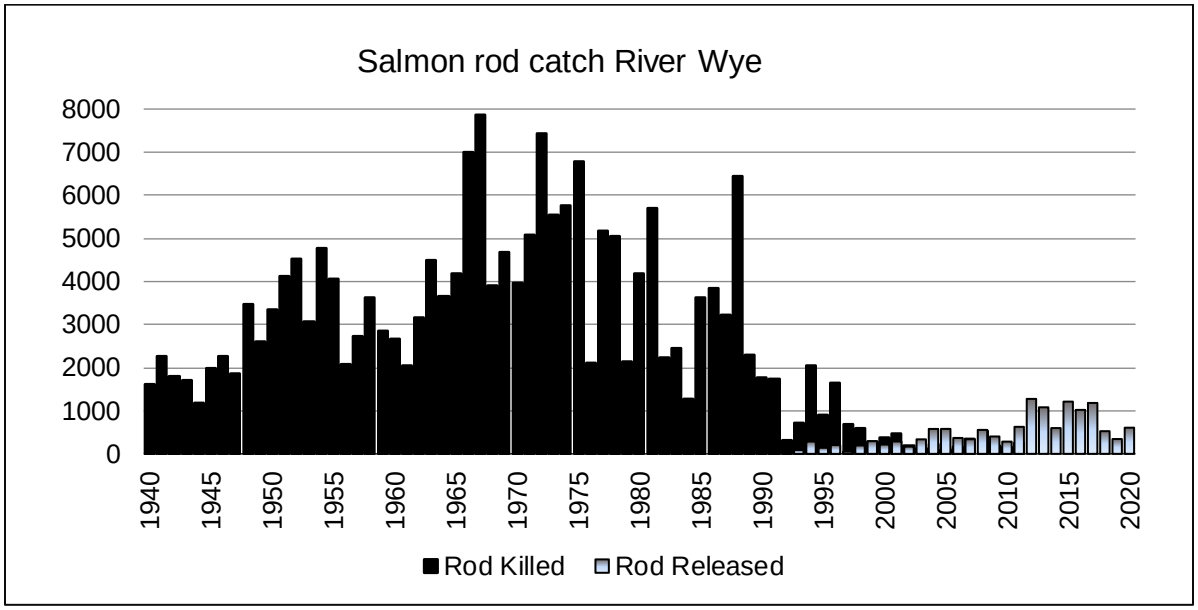
The overall catch of salmon within the Wye rod fishery has declined substantially over the past few decades. Although a similar decline is reported for most salmon rivers in England and Wales, the decline in the Wye salmon catch has perhaps been more pronounced, possibly due to factors affecting the characteristic spring run of the Wye and its other multi-sea-winter salmon, together with the historic relative small run of grilse in the river.

Over the past half century, annual catches of salmon on the Wye have declined to a fraction of their peak in the 1960s, when annual catches often exceeded 5,000 salmon (Fig. 6). As recently as 1990, the rolling 5-year average catch was still about 3,500, however the catch fell substantially after this time to as few as 320 salmon in 1992. The catch showed tentative signs of a small recovery from about 2011 when the subsequent annual average catch exceeded 1,000 salmon until 2017. However, catches in 2018 - 2020 are amongst the lowest catches recorded on the river.

Based on assessments at the time, indicating salmon stocks in the Wye to be ‘At Risk’ with no evident trend of improvement, byelaws were introduced in 2011 by

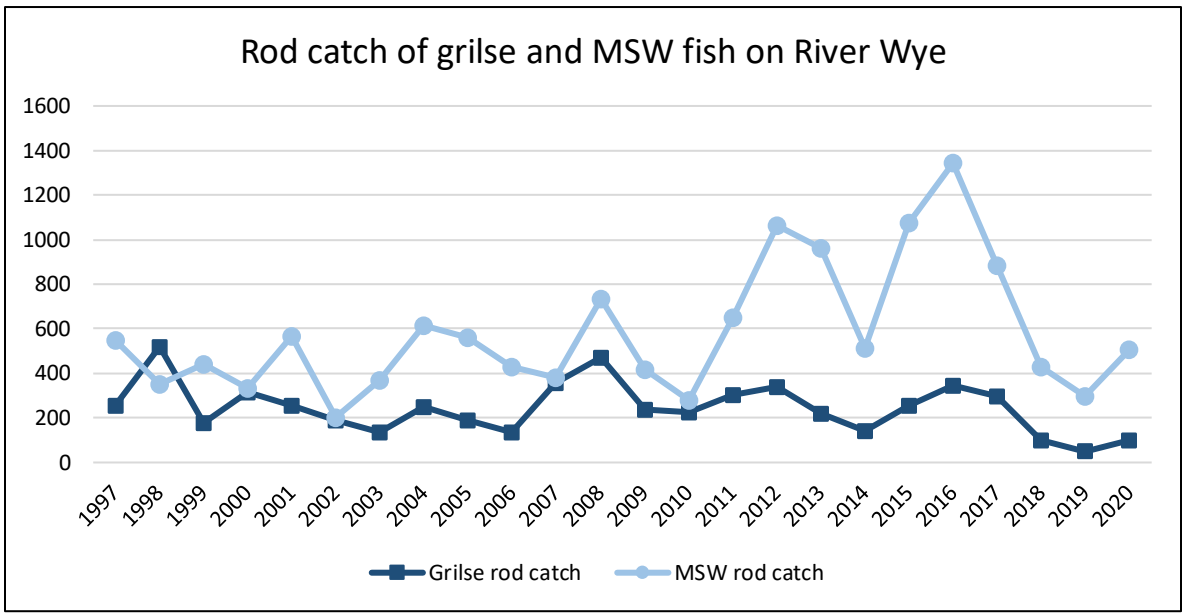
Environment Agency Wales which prohibited the taking of any salmon or sea trout on the river. These came into force on the 1st January 2012.

Figure 6 Salmon rod catch on the River Wye since 1940. Notes: 2020 data are provisional; reporting of numbers of released fish only started in 1993; national mandatory C&R of all salmon caught before 16th June came into force in 1999; and mandatory C&R for all salmon on the Wye came into force in 2012.



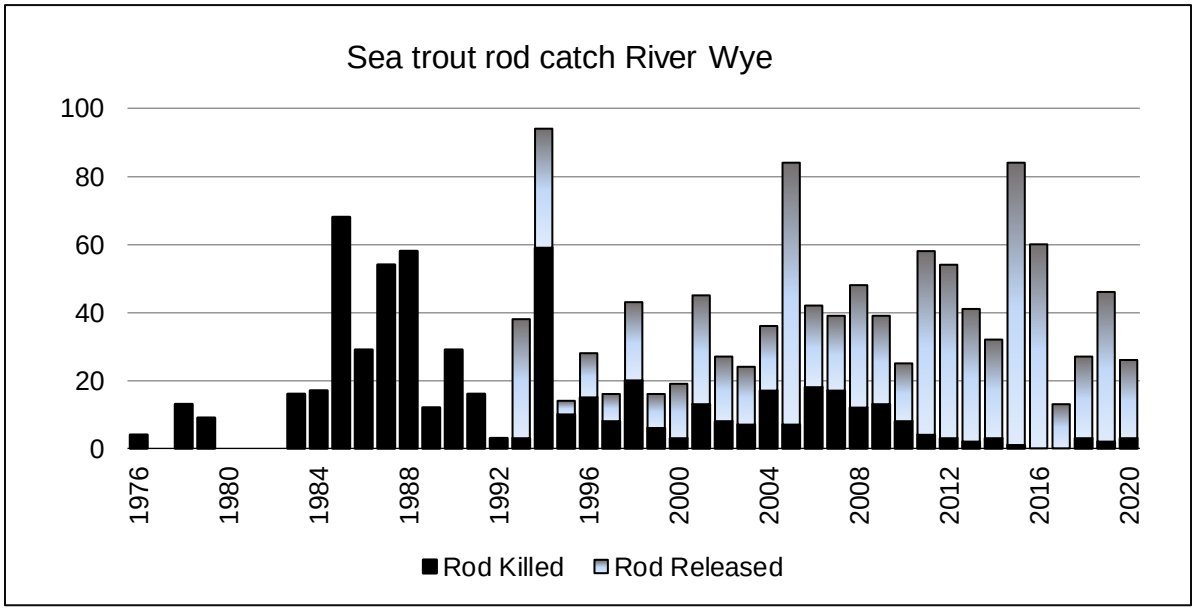
Traditionally the Wye catch was dominated by early-running large MSW or 'spring' salmon, although numbers of this run component declined markedly in the latter part of the 20th century. This decline in the spring run was reflected in many rivers across Wales and England and resulted in the introduction in Wales of targeted fishing byelaws on the Wye, Usk and Dee that were followed by the national spring salmon byelaws in 1999 (renewed in 2009), requiring all salmon caught by rod before the 16th June to be released. In the last 20 years the decline has slowed and there have been tentative signs of a recovery, albeit small and annually variable, in abundance. Numbers of both MSW and grilse have been lower than average since 2018 (Fig. 7).

Figure 7 Grilse and multi sea winter (MSW) rod catch on the River Wye since 1997. Notes: 2020 data are provisional; national mandatory C&R of all salmon caught before 16th June came into force in 1999; and mandatory C&R for all salmon on the Wye came into force in 2012.



The sea trout catch on the Wye is very small with annual catches averaging about 40 fish in the last decade and only exceeding 50 fish in nine years since 1975 (Fig. 8).

Figure 8 Sea trout rod catch on the River Wye since 1976. Notes: 2020 data are provisional; reporting of numbers of released fish only started in 1993; and mandatory release of all sea trout caught on the Wye came into force in 2012.



3.2.3 Angling participation

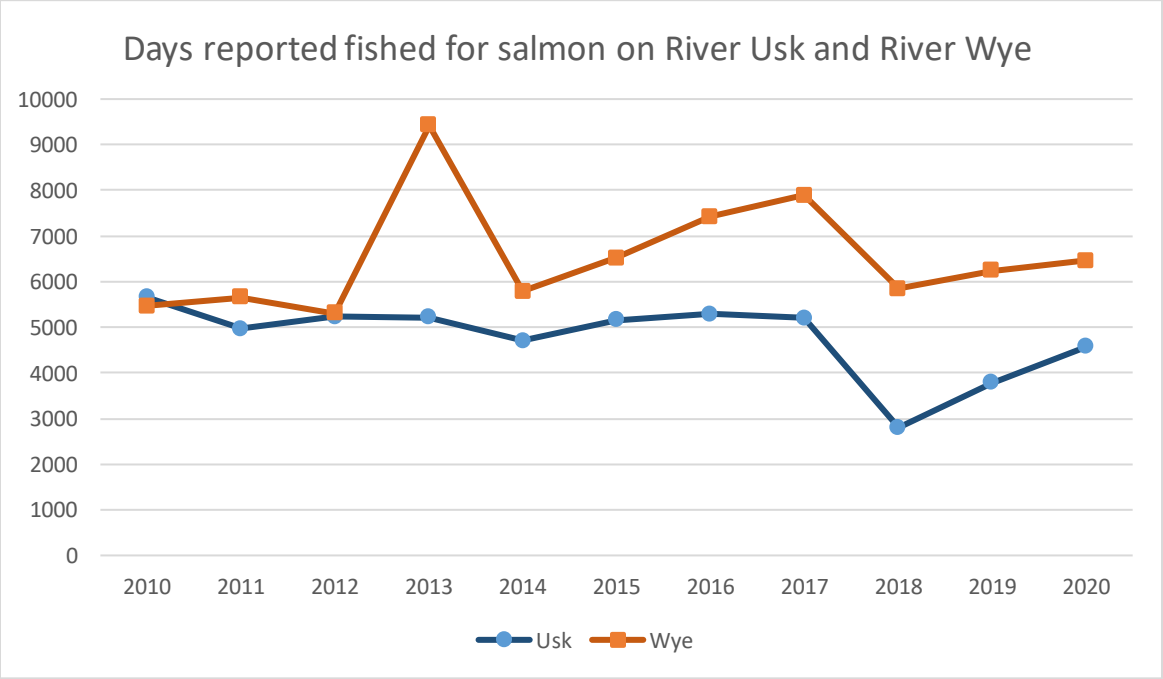
Salmon and sea trout licence holders are required to make a return declaring both catches and effort. Only licence returns that have recorded effort data are included in the following analyses.

Restrictions on movement due to the Covid-19 pandemic were in place for some of the 2020 fishing season. The effects on fishing effort of these restrictions have been examined and initial assessment suggests that while Covid restrictions may have affected effort in the early part of the season in particular, overall fishing effort in 2020 was broadly similar compared to recent years.

The reported days fished on the Usk has remained within a range of approximately 4,500 to 5,500 days fished over the past decade, with the exception of 2018 and 2019, where lower effort was reported (approximately 2,800 and 3,800 days fished respectively).

There has been an overall increase in reported days fished for salmon on the Wye over the last decade, with a peak in 2013 but, as reported on the Usk, lower reported effort in 2018 and 2019 (Fig. 9) corresponding with lower catches. These figures suggest that the introduction of mandatory catch and release fishing for salmon on the Wye in 2011 did not have an adverse impact on angling participation.

Figure 9 Days fished for salmon on the rivers Usk and Wye. Notes: These data are from licence returns and only from those returns that have recorded effort; Covid-19 restrictions on movement were in place for some of the 2020 fishing season.



3.3 Net fisheries

Salmon fishing has taken place on the Severn Estuary for at least the last two centuries. The fishery, although sizeable historically, has greatly reduced in line with the declining salmon stocks. The fishery in the English estuary has consisted over the past decade of up to 5 historic installations (putcher ranks); 1 draft net and up to 25 lave nets now fish the Severn estuary. In Wales the main estuary fisheries at Uskmouth (8 drift nets) and at Goldcliffe (a putcher rank) closed over a decade ago, whilst a heritage lave net fishery continues at Black rock near Chepstow.

The stock exploited by all the estuary fishermen is a mixed one, supported by stocks originating in the rivers Severn, Wye and Usk (Swain, 1982) and by stocks from the rivers Ebbw, Rhymney and Taff (Jones, 1994). As such, the fishery and its catch have implications for the Wye and Usk salmon populations and their stock status.

The Environment Agency have recently (March 2021) consulted upon byelaw and Net Limitation Order (NLO) changes in the Severn Estuary which, if enacted in their current proposed form, will prohibit the capture and taking of salmon within the Severn rod fishery and the Severn Estuary net fisheries. The only allowable net catch would be a catch and release lave net fishery. The Environment Agency byelaws and NLO will seek to protect the salmon and sea trout stocks of the Severn, Wye and Usk.

> Read the consultation documents on the Environment Agency's 2021 River Severn net limitation order and byelaws

The latest published declared catches (2019) for Wales and England can be found at:-

> Read the 2019 salmonid and fisheries statistics for England and Wales

3.3.1 Wye

The only remaining net fishery exploiting salmon destined to return to the Wye is the Black rock lave net fishery located at Black rock, just downstream of the Wye estuary at Chepstow. The fishery does not report any sea trout catch.

The Black rock fishery is located within the Wye Fishery which is owned by NRW. Fishing is managed through a lease to the ‘Black rock Lave Heritage Net Fisherman’s Association’ and is regulated through the terms of that lease. There is currently a maximum of 8 annual licences (one of which is for a trainee) and an annual catch limit of 15 salmon.

Net licences are applied for on an annual basis and determination of the applications is subject to a Habitats Regulations Assessment (HRA). For the 2020 season, the HRA concluded that we could not demonstrate ‘no adverse impact’ (NAI) in allowing 15 salmon to be taken, due to the ongoing failure of the local designated sites to meet their conservation objectives. As mitigation to enable a conclusion of NAI, thereby allowing the fishery to proceed, a catch and release licence condition was put in place. However, no licences were taken out in 2020.

In 2021, the annual HRA again concluded that NAI could be demonstrated unless the fishery operated under a catch and release condition. NRW also considered within the HRA, but rejected, the offer from the fishery lease holder to reduce the annual kill of salmon to 5 fish.

The 2021 licences were issued with a condition “All salmon caught must be immediately returned to the water with the least possible injury”. This allowed the fishery to continue under catch and release conditions, allowing the lave net fishermen to continue to undertake fishing activities, and to participate with their public to demonstrate their heritage activities. It is important to note that these Byelaw proposals do not affect the lave net fishery.

Since 1985, when it became the only net fishery to exploit Wye salmon, the Black rock lave nets reported an annual catch of between zero and 31 salmon, averaging about six salmon annually. In the last ten years the catch has never exceeded nine salmon (Table 3).

Table 3 Declared salmon catch by the Black rock lave nets in the past ten years. Note the recent annual catch limit has been 15 fish. No licences were taken out in 2020.

Year	Declared salmon catch	Number of licences taken out
2011	6	8
2012	7	7
2013	0	0
2014	0	8
2015	9	8
2016	6	8
2017	5	8
2018	4	8
2019	2	8
2020	-	0

3.3.2 Usk

The Uskmouth drift net fishery and the nearby Goldcliffe putcher rank were both closed, by byelaw and acquisition by NRW’s predecessor respectively, before 2007. Voluntary cessation of fishing in preparation for a buy-out of the drift net rights resulted in no commercial fishing for either salmon or sea trout in the outer Usk Estuary and surrounding area since 1999.

4. Current status of salmon and sea trout stocks in the Usk and Wye

4.1 Adult stock status

The use of river specific Conservation Limits to assess the status of adult salmon and sea trout stocks has been described in Section 2 and Annexes 1 and 2.

Results for the latest assessment year: 2020 are provisional or, in some cases, incomplete at this stage, and so are only utilised in this report to examine the status of salmon and sea trout stocks on the Usk and Wye.

Otherwise, assessment results for 2019 are referred to as the most definitive data set available for all principal rivers in Wales and England. For a more comprehensive examination of the salmon assessment results for 2019 see:

Read the 2019 'Assessment of Salmon Stocks and Fisheries in England and Wales'

4.1.1 Salmon assessment

Table 4 and Figures 10 and 11 show the latest (2020) assessment results for the Usk and Wye.

Three measures of performance are examined for each river stock:

- 'risk' status against the CL in the latest year (2020) and in 5 years' time (2025).
- the trend in egg deposition estimates over the latest 10-year period (the method by which 'risk' status is projected in 5-years' time).
- estimates of the egg shortfall/surplus against the Management Target based on the most recent (5-year average) levels of spawning escapement.

The current (2020) assessment for salmon on the Usk classifies the stock as 'Probably at Risk' (PAR) of failing to achieve the Management Objective both in 2020 and projected to 2025 (Fig. 10 and Table 4).

As recently as 2017, the River Usk was classified as 'Probably Not At Risk' (PNAR) and only dropped into the PAR category in 2018, corresponding with a substantial drop in rod catch.

The Wye has been classified as PAR consistently in recent years, but the current assessment indicates that the salmon stock is 'At Risk' (AR) of failing to achieve the Management Objective in 2020 but projected to have moved to the PAR category by 2025 (Fig. 11 and Table 4).

Figure 10 River Usk salmon stock compliance with the Management Objective: 2020 assessment year (for explanation of the graph see Section 2.3 and Appendix 1).

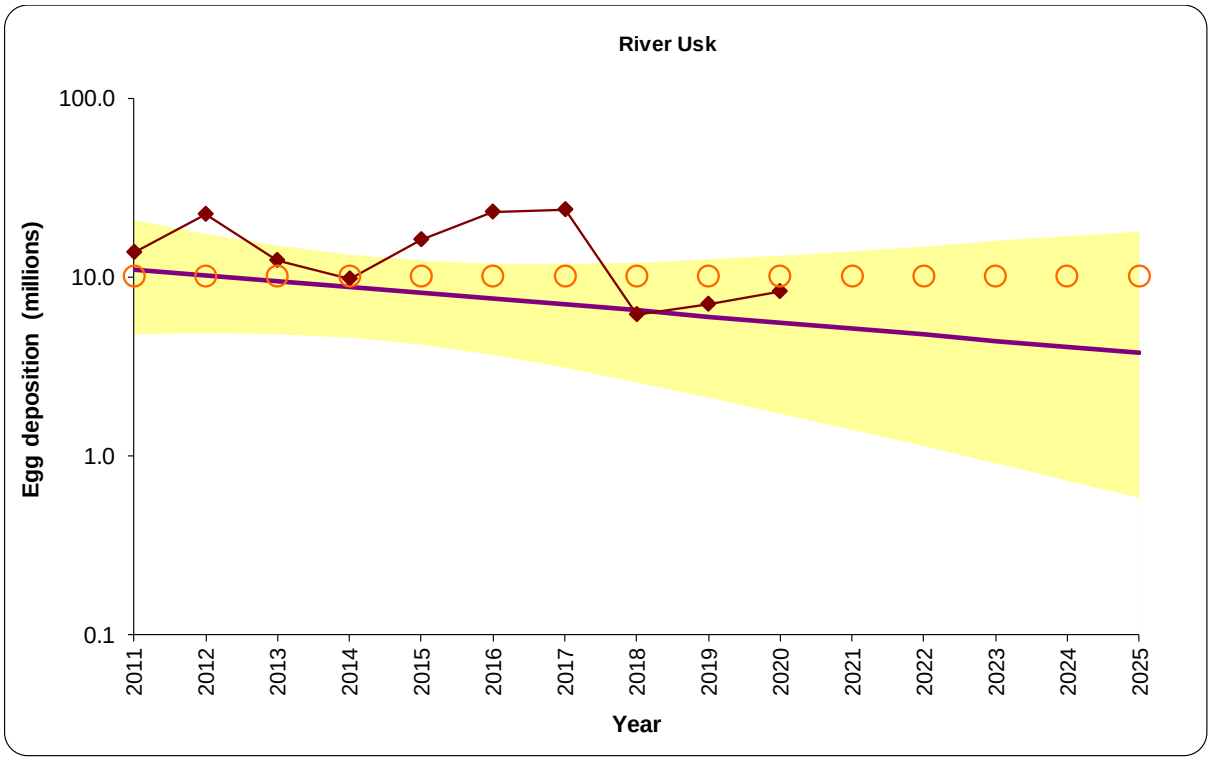


Figure 11 River Wye salmon stock compliance with the Management Objective: 2020 assessment year (for explanation of the graph see Section 2.3 and Appendix 1).

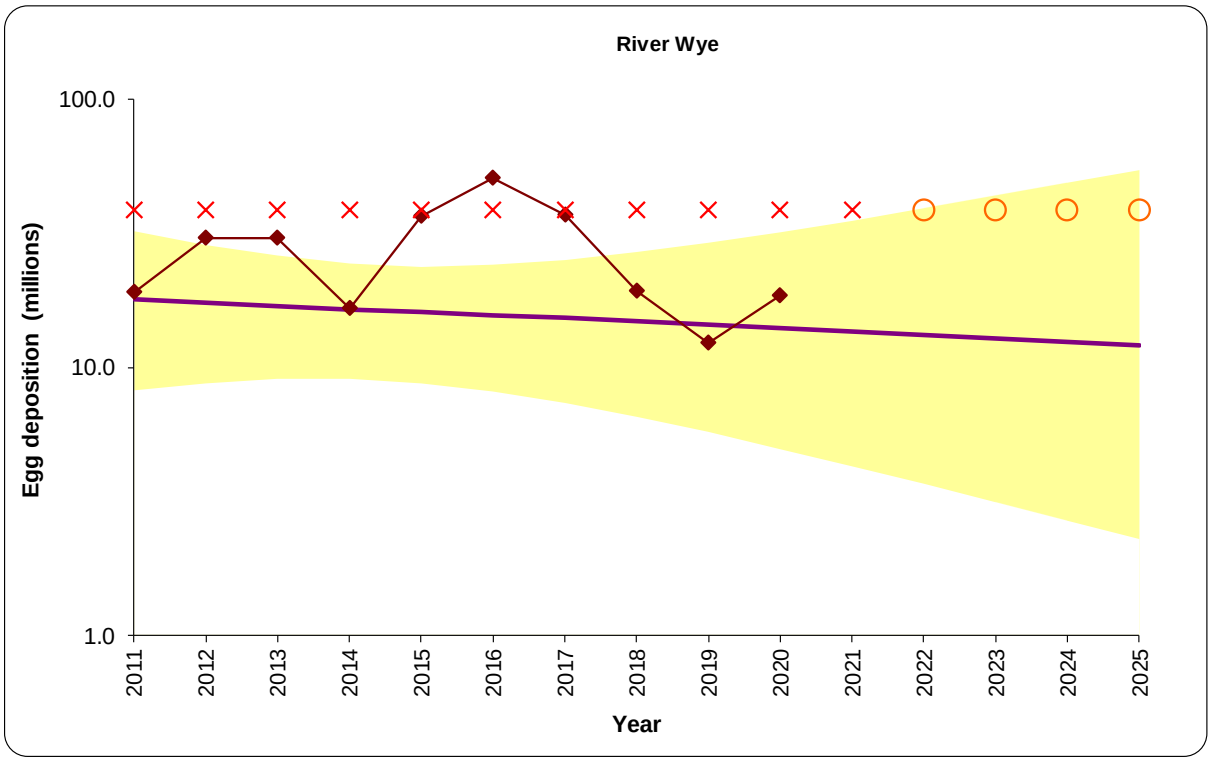


Table 4 Summary of salmon stock status on the Rivers Usk and Wye: provisional assessment results for 2020.

	Usk	Wye
Current compliance status (2020)	Probably at Risk	At Risk
Predicted (+5yr) compliance status (2025)	Probably at Risk	Probably at Risk
Trend*	Declining (--)	Declining (-)
Conservation Limit	10.11 million eggs	38.57 million eggs
Management Target	15.82 million eggs	48.69 million eggs
Egg deficit on MT**	4.35 million eggs	24.52 million eggs
Spawner deficit***	1,449	8,175

** Declining trend: Slight (-); Moderate(--); Steep (---)*
*** Egg deficit based on 5-year mean 2016-2020*
**** Spawner deficit expressed as 8lb fish equivalents; where average fecundity = 3,000 eggs per fish*

Based on average egg deposition levels over the last 5-years (2016-2020), both the Usk and Wye have recorded deficits against their indicative Management Targets of 4.35 and 24.52 million eggs, respectively. These deficits approximate to 1,449 and 8,175 8lb fish equivalents.

The salmon stocks on the Usk and Wye are not unique in their situation. For example, salmon stocks across Wales and England are facing challenging times with assessment results for 2019 indicating 63 out of 64 principal river stocks projected to be ‘at risk’ or ‘probably at risk’ of failing to achieve their Management Objective in 2024. Salmon assessment results for 2019 for all principal rivers in Wales are shown by catchment in Figs 12 (2019) and 13 (projected to 2024).

Figure 12 ‘Risk’ status for the principal salmon rivers in Wales: 2019 (the most recent definitive data set).

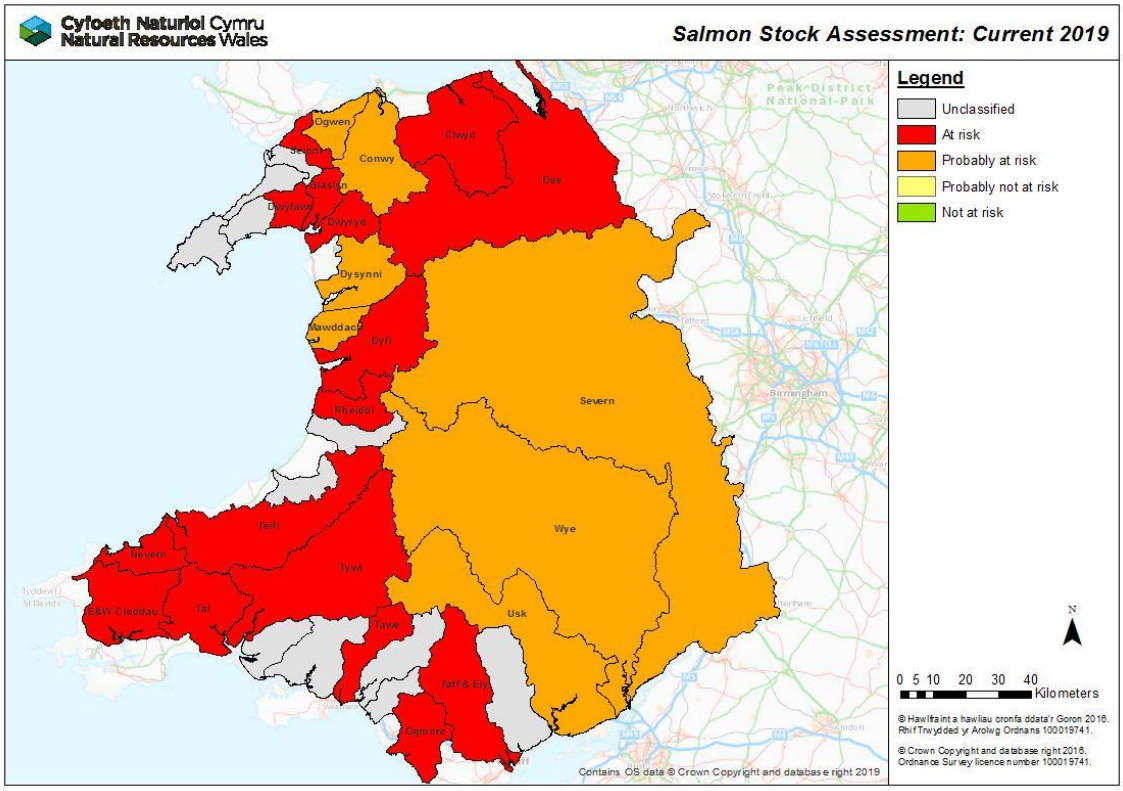
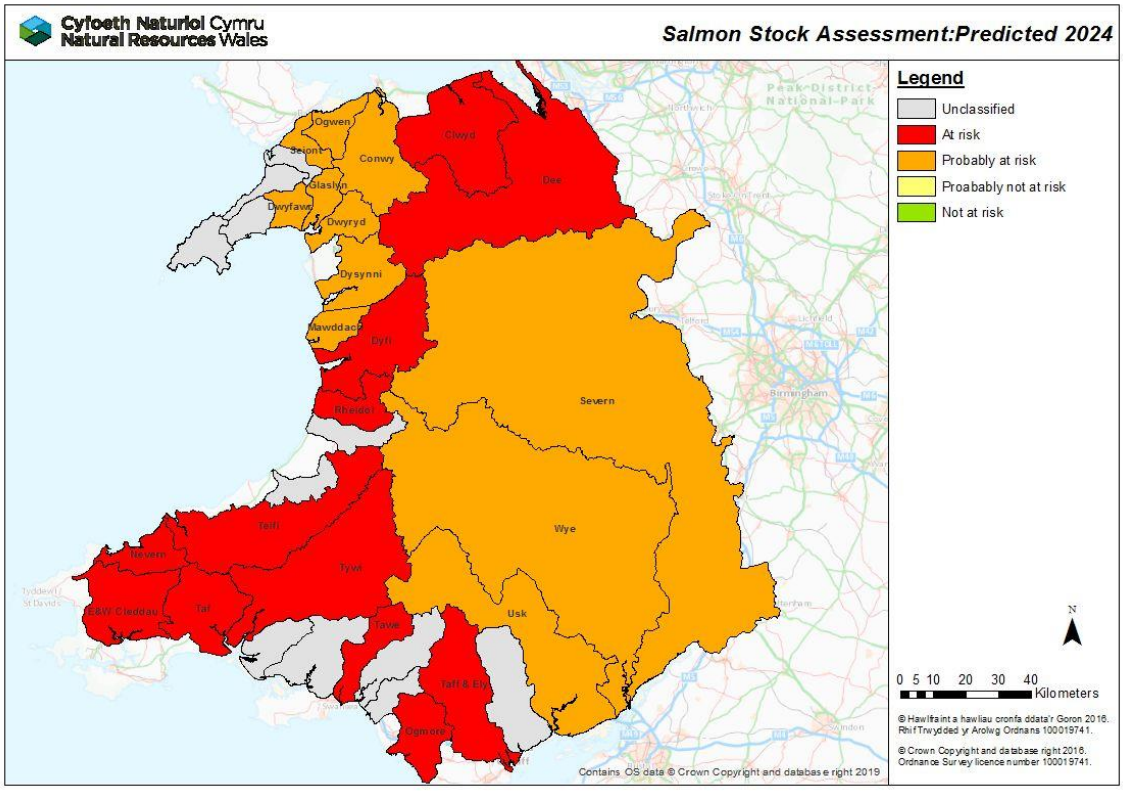


Figure 13 ‘Risk’ status for the principal salmon rivers in Wales: projected 2024.



4.1.2 Sea trout assessment

Table 5 and Figures 14 and 15 show the latest (2020) assessment results for the Usk and Wye – equivalent to those given for salmon above.

The current (2020) assessment for sea trout on the Usk classifies the stock as 'At Risk' (AR) of failing to achieve the Management Objective both in 2020 and projected to 2025 (Fig. 14 and Table 5).

For the Wye, the sea trout stock is classified as 'Probably at Risk' (PAR) of failing to achieve the Management Objective in both 2020 and 2025 (Fig. 15 and Table 5).

Figure 14 River Usk sea trout stock compliance with the Management Objective: 2020 assessment year (for explanation of the graph see Section 2.3 and Appendix 2).

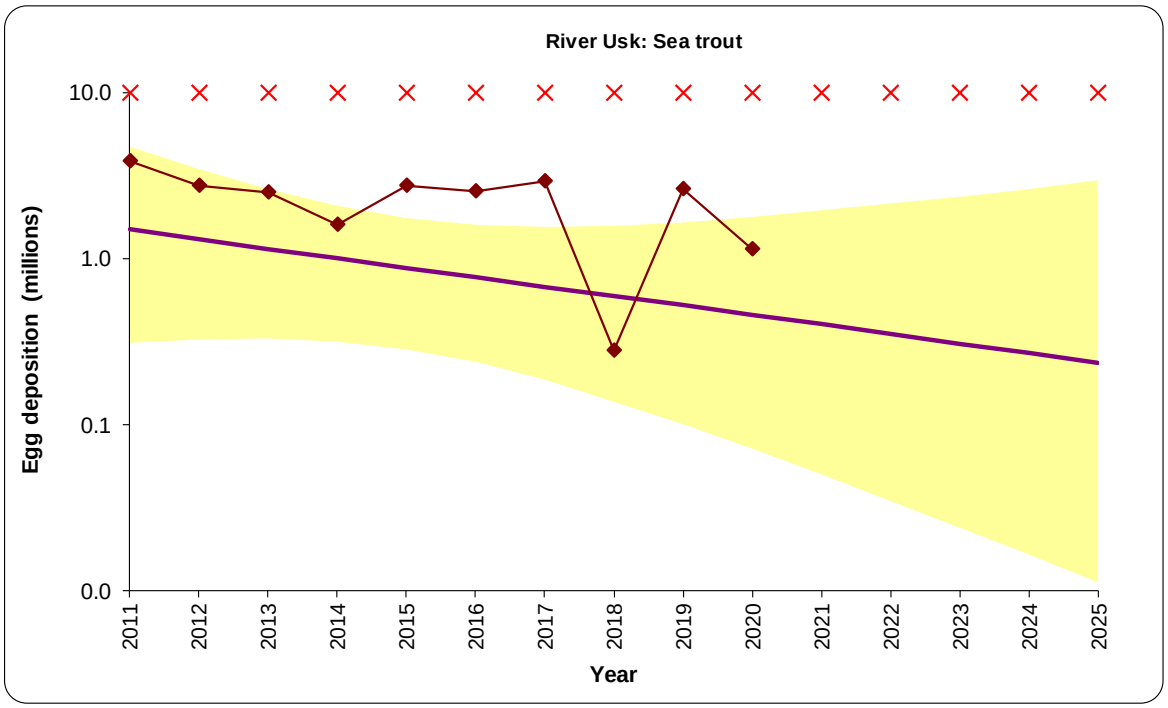


Figure 15 River Wye sea trout stock compliance with the Management Objective: 2020 assessment year (for explanation of the graph see Section 2.3 and Appendix 2).

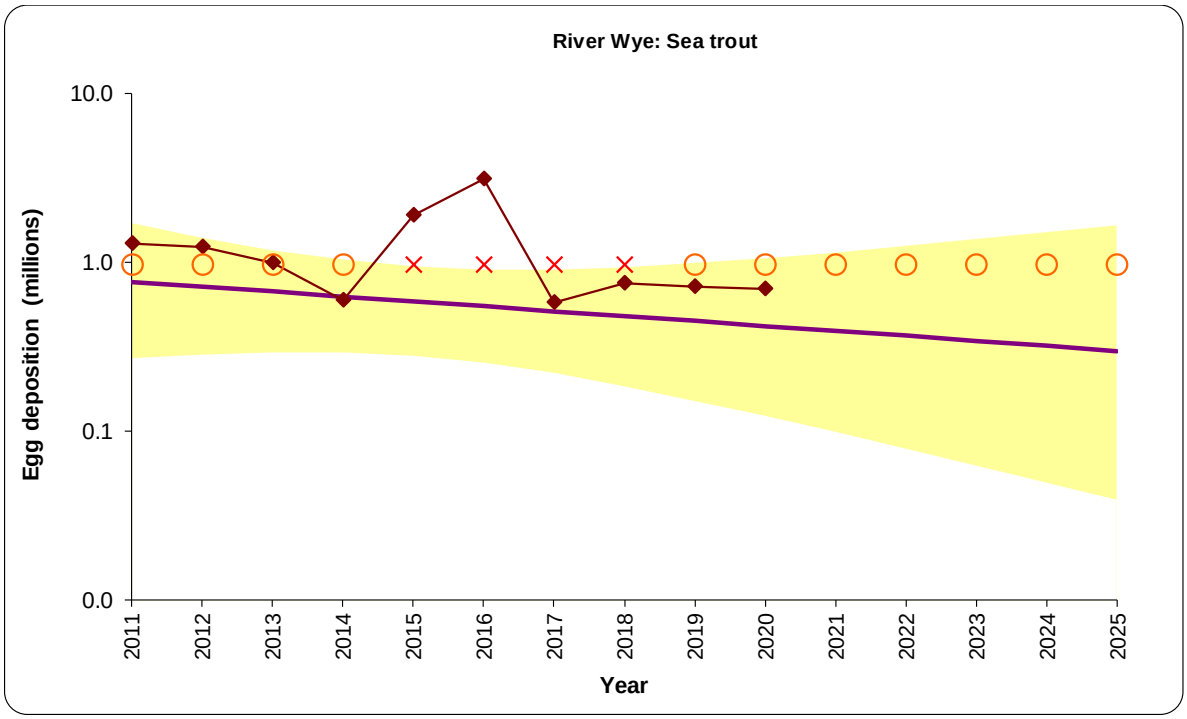


Table 5 Summary of sea trout stock status on the Rivers Usk and Wye: provisional assessment results for 2020.

	Usk	Wye
Current compliance status (2020)	At Risk	Probably at Risk
Predicted (+5yr) compliance status (2025)	At Risk	Probably at Risk
Trend*	Declining (--)	Declining (--)
Conservation Limit	9.90 million eggs	0.97 million eggs
Management Target	10.75 million eggs	1.64 million eggs
Egg deficit on MT**	9.31 million eggs	0.71 million eggs
Spawner deficit***	4,657	355

** Declining trend: Slight (-); Moderate(--); Steep (---)*
*** Egg deficit based on 5-year mean 2016-2020*
**** Spawner deficit expressed as 3lb fish equivalents; where average fecundity = 2,000 eggs per fish*

Based on average egg deposition levels over the last 5-years (2016-2020), both the Usk and Wye have recorded deficits against their indicative Management Targets of 9.31 and 0.71 million eggs, respectively. These deficits approximate to 4,657 and 355 3lb fish equivalents.

As noted with salmon, this situation is not unique to the Usk and Wye, with most of the 33 principal sea trout rivers in Wales classified - in 2019 - as either PAR or AR of failing to achieve their Management Objectives (see Figs 16 and 17). This picture is unlikely to change markedly once the assessment results for 2020 are finalised – as the figures described here for the Usk and Wye suggest.

Figure 16 ‘Risk’ status for the main sea trout rivers in Wales: current year 2019.

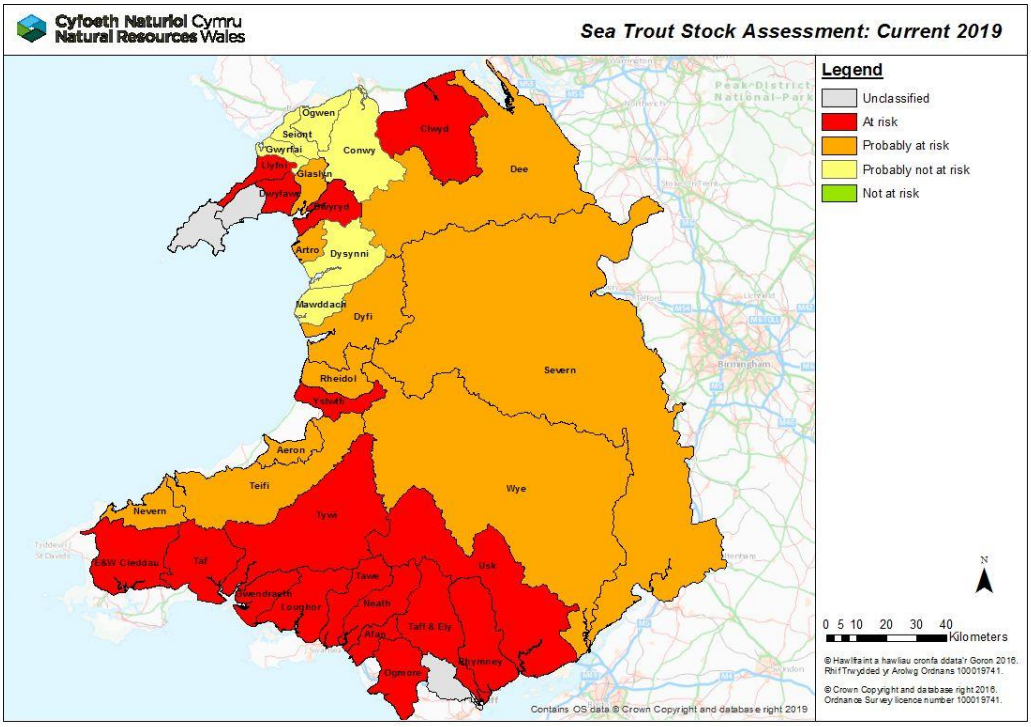
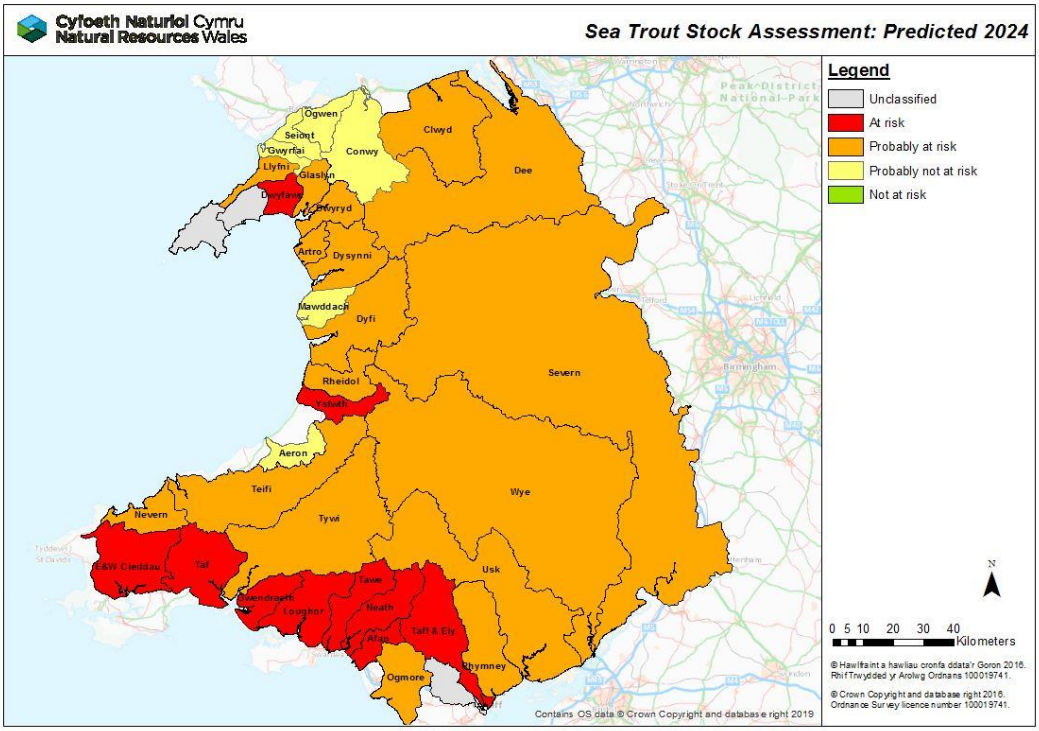


Figure 17 ‘Risk’ status for the main sea trout rivers in Wales: projected 2024.



4.2 Juvenile salmon and trout stock status

The juvenile survey data from the Usk and Wye is discussed in this section, but for further data and analyses see Annex 3.

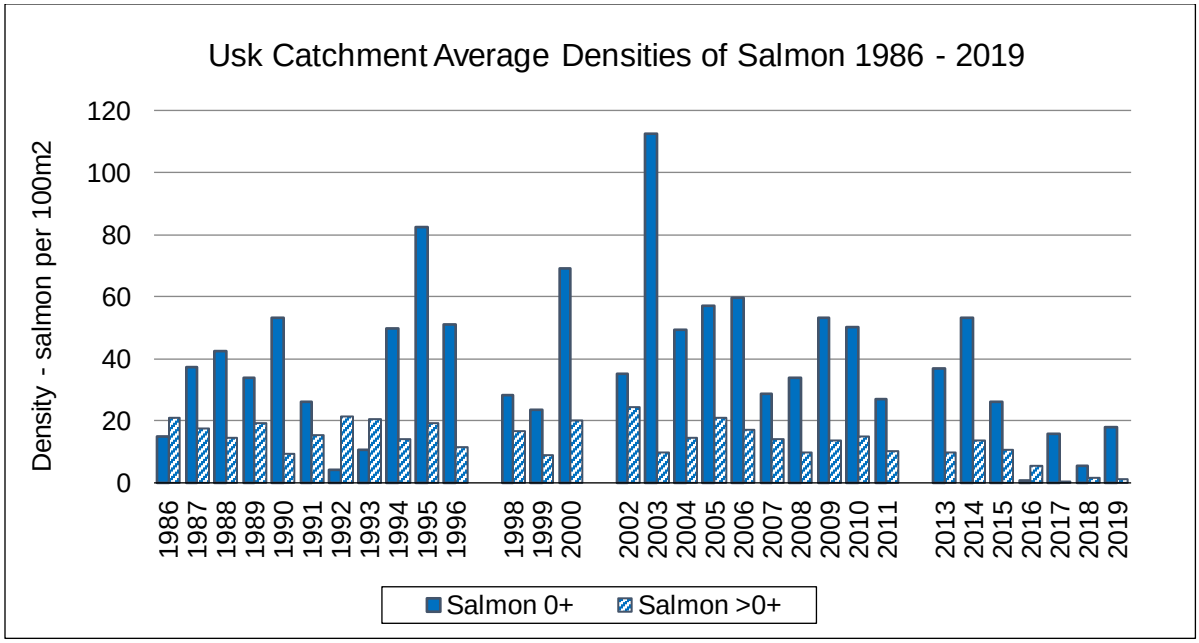
4.2.1 Usk

There is little evidence of an overall trend in salmon fry or parr numbers since 1985. Numbers vary year on year with peaks of fry densities in 1995, 2000 and 2003. The data in recent years however show a decline in salmon fry; there has been poor recruitment since 2015, notably an almost total absence of fry in the catchment in 2016 (despite extensive surveying). In line with declines in salmon fry, a decline in parr numbers is also evident from 2016 (Fig. 18).

Routine monitoring in 2016 revealed fry numbers, especially young salmon hatched in the spring of 2016, at critically low levels in the Usk catchment (a 96% reduction in catchment density recorded in 2015 and 97% of the 5-year average). Of significance was the widespread absence of fry from sites where they have consistently been present. With this decline in fry numbers came a greatly reduced spatial distribution of salmon in the catchment, with juveniles absent from many of the key spawning tributaries in the upper river.

Juvenile numbers of salmon in the Usk catchment at the lowest recorded in the 33 years of monitoring, with the 5-year average just 13.3 fry and 3.9 parr per 100m^2.

Figure 18 Catchment average densities of juvenile salmon in the Usk since 1986.

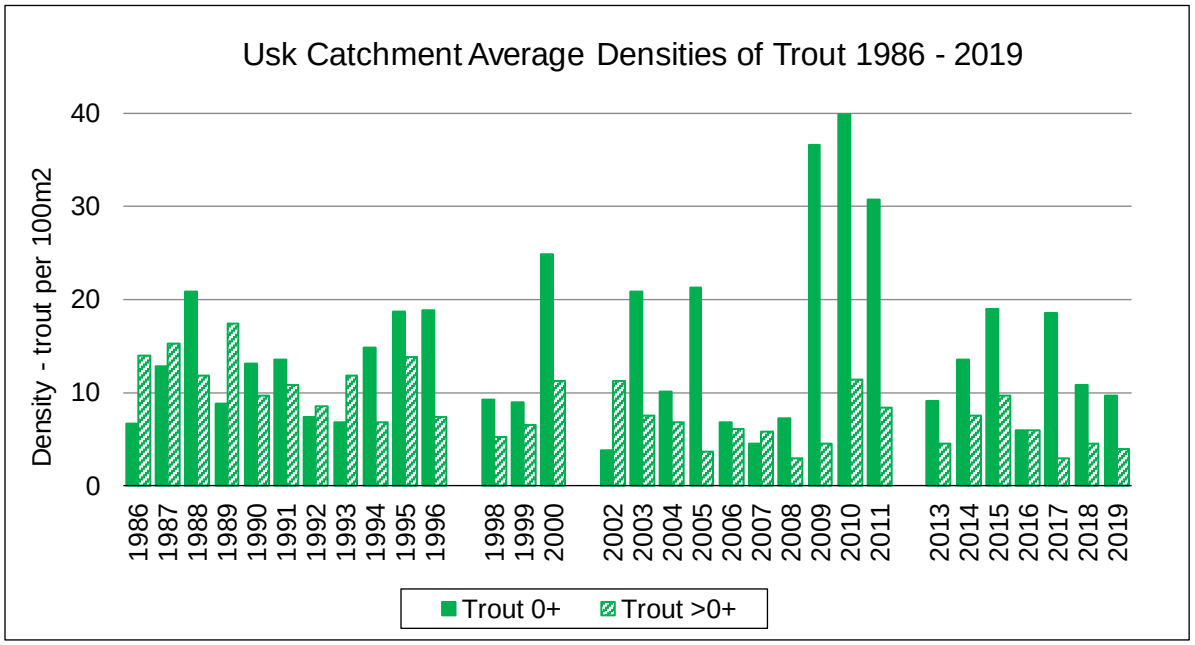


There is little evidence of a trend in trout fry populations in the Usk catchment since 1986. Numbers vary year on year between approximately 4 and 25 fish per 100m^2 but with a notable peak in fry densities in 2009 to 2011 (exceeding 30 fish per 100m^2). The trend in brown trout parr is generally downwards over this time but must

be carefully interpreted as sampling sites are generally selected to be representative of salmon spawning and fry recruitment sites (Fig. 19).

Although the poor recruitment seen in salmon in 2016 was also evident in trout (a 68% reduction on the catchment density recorded in 2015 and 66% on the 5-year average) – and the corresponding poor year for parr in 2017 – the fry populations have recovered to broadly similar numbers since. Parr numbers however, remain below average.

Figure 19 Catchment average densities of brown trout in the Usk since 1986.



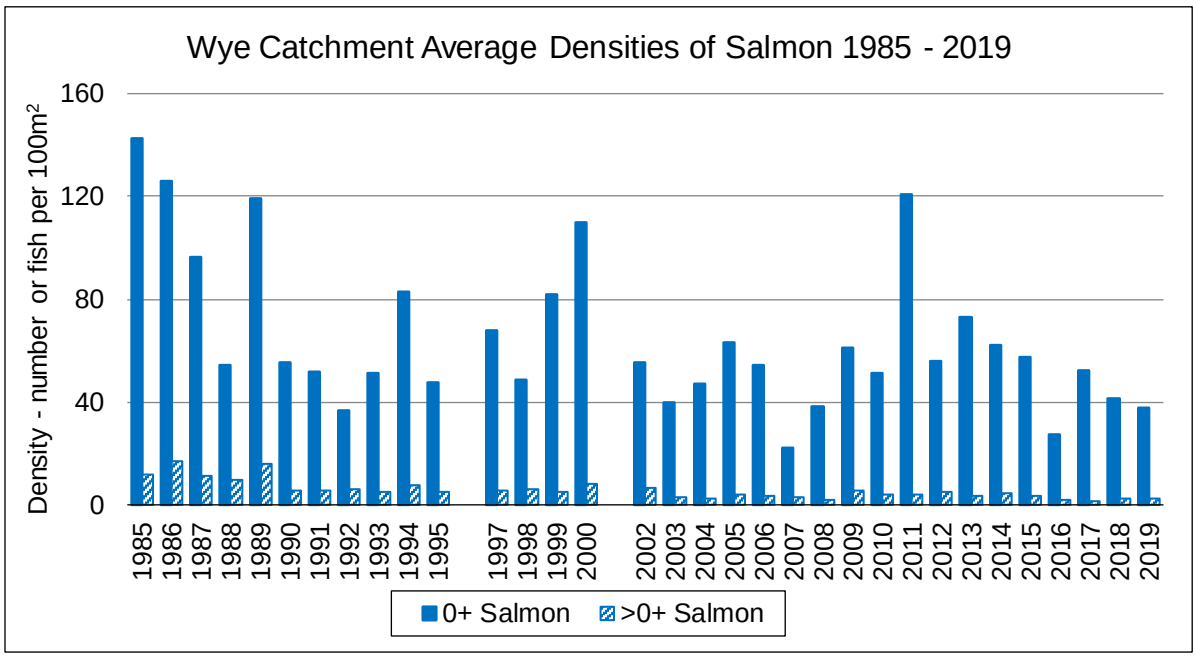
4.2.2 Wye

There has been an overall downwards trend in densities of both salmon fry and parr in the Wye catchment, despite spikes in fry density in the late 1990s and in 2011 (Fig. 20).

As seen in the Usk catchment (and elsewhere in Wales), salmon fry numbers in the Wye in 2016 were considerably lower than in recent years, although similar to those of 2007 (approximately half of the 5-year average catchment density). However, there were none of the widespread absences of fry or reduced spatial distribution noted in the Usk catchment. These poor fry numbers are seen to have tracked through into the parr numbers in 2017.

The salmon fry and parr populations have recovered somewhat since 2016, but numbers for the catchment remain low with a 5-year average of just 48 fry per $100m^2$.

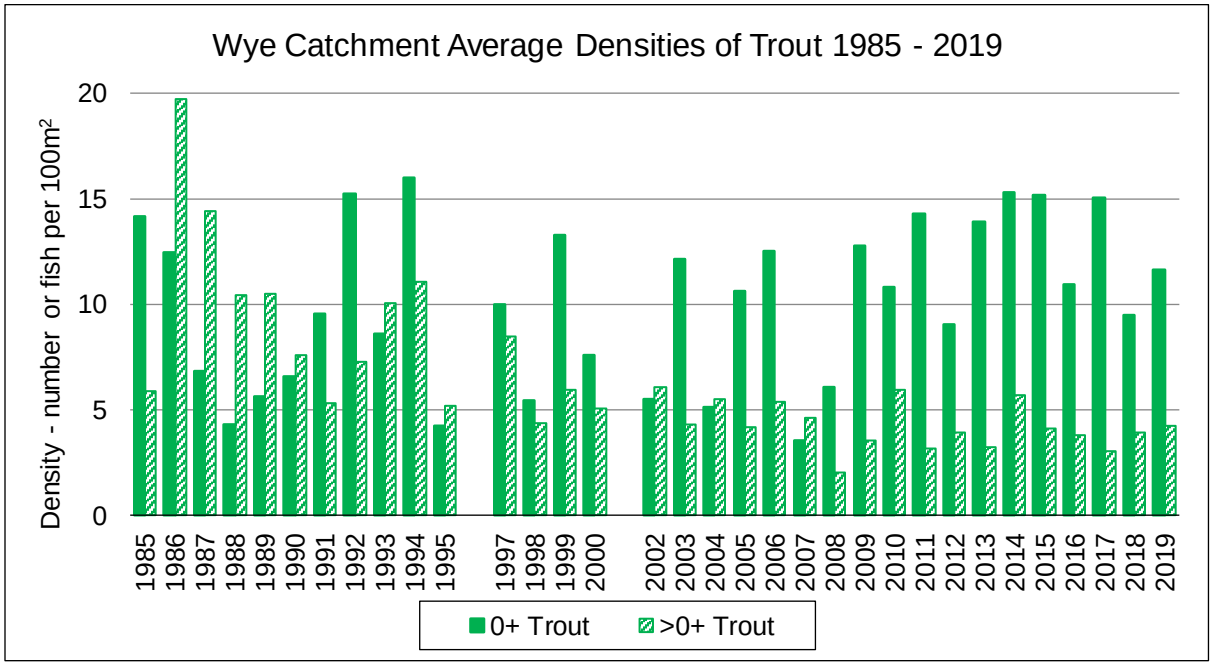
Figure 20 Catchment average densities of salmon in the Wye since 1985.



There is little evidence of a trend in trout fry numbers in the Wye, however the long-term trend in parr is downwards, driven by higher average densities prior to 1997; numbers have stabilised since then (Fig. 21).

The fry recruitment concerns noted in 2016 for salmon fry and parr do not appear to have had such an impact on the trout populations, with fry numbers only being about 10% lower than the 5-year average and no impact noted in parr populations.

Figure 21 Catchment average densities of brown trout in the Wye since 1985.



5. Challenges to stocks: (Plan of Action for Salmon and Sea Trout)

In common with most other countries across the North Atlantic distribution of salmon and the European range of sea trout, populations have declined over the past few decades. This has been most evident for salmon, but recently a sharp decline in Welsh sea trout stocks has also occurred.

Our response to these declines has included two decades of investment in habitat restoration, working in partnership with the rivers trusts that have emerged in this time. However, this has been localised and constrained by availability of resources, whilst there is much still to do.

In the past, stocks were more resilient to environmental challenges and were able to sustain significant mortality in rod and net fisheries. However, as the range of pressures has increased and new challenges have emerged, threatening the survival of fish in both the marine and freshwater environments, the overall status of stocks has progressively declined. Declines are generally ongoing, threatening the future of our populations of fish as never before.

In confirming the new protective byelaws for salmon and sea trout in 2020, the Minister for Environment, Energy and Rural Affairs required NRW to:

> "…take the lead on a Welsh specific Plan of Action for the protection of Salmon and Sea Trout, working with stakeholders."

The Plan was needed to pull together all the current work being taken forward by all relevant parties, as well as identifying the gaps and devising actions to address these.

The purpose of the Plan of Action is to drive forward the remediation of adverse pressures on salmon and sea trout stocks where it is in our direct capability to do so. But it is also intended to influence actions on pressures arising outside our immediate jurisdiction that also threaten to damage our stocks. We need to be prepared to adapt our plan and strategies as pressures change and as novel issues emerge.

The plan summarises the ongoing and new actions needed to address the pressures affecting our fish populations. There is general agreement amongst partners and stakeholders on the identity and, in most cases, the nature of these pressures that - sometimes in isolation but often cumulatively - adversely impact upon our stocks. The wellbeing of our stocks depends on favourable conditions at sea and in our rivers. Together with our stakeholders, we reviewed and identified the pressures damaging our stocks. It has been very clear that there is much to be done.

Together, we need to transform river quality so that it is optimised for fish survival and production. The fish saved by new fishing regulations must have the best chance of successful breeding and their progeny must survive to maximise smolt output. It is important to note that successful optimisation in this way will deliver

multiple benefits such as ecosystem resilience, improved condition status of Natura 2000 features and WFD target outcomes.

Read the 'Salmon and sea trout plan of action for Wales 2020'

Pressures on our water environment are also considered in other, non-fisheries specific work that NRW does.

- River Basin Management Plans

These plans are produced as a requirement of the Water Environment (WFD) (E&W) Regs 2017. Our rivers, lakes, wetlands, ground waters, estuaries and coastal waters, including those in protected areas all fall under these plans. They are updated on a six yearly cycle and are prepared in consultation with a wide range of organisations and individuals.

The approved river basin management plans and supporting documents are available on our website.

Read the 2015 to 2021 River Basin Management Plans

- SoNaR

NRW has compiled and published two reports on the state of the natural resources of Wales (SoNaR). The reports have assessed the extent to which natural resources in Wales are being sustainably managed and recommended proactive approaches to building resilience. For the first time, the reports link the resilience of Welsh natural resources to the well-being of the people of Wales. The reports consider how pressures on Wales' natural resources are resulting in risks and threats to long-term social, cultural, environmental and economic well-being, as set out in recent legislation.

Read the 2020 State of Natural Resources Report (SoNaRR) for Wales

- Area Statements

NRW has developed a series of Area Statements which use an integrated approach with partners through the Public Service Boards to identify the key challenges facing a particular locality, what can be done to meet those challenges, and how we can better manage our natural resources for the benefit of future generations. The rivers Usk and Wye fall into the Area Statements for both South East Wales and Mid Wales.

Read the latest Area Statements

6. Engagement and liaison with stakeholders

NRW has sought the views and advice of our local fisheries stakeholders in any decision-making process for management of fisheries. At extraordinary meetings of the Usk and the Wye Local Fishery Groups (LFGs) in March 2021 we sought comments and proposals on how the Groups felt that the salmon and sea trout fisheries on their rivers fish might be managed, taking into account the status of the supporting stocks.

There was widespread support from both the Usk and Wye LFGs to maintain full catch and release fishing for salmon, with methods that would maximise survival of released fish. Both groups also recognised and agreed with proposals for continuation of past catch and release controls for sea trout.

Further proposals were made by Groups at the meeting and in the weeks following. There was not unanimous support within the LFGs for any of these additional measures, some of which were directly contradictory. However, we have carefully considered all proposals made, and the valued views and comments received.

A summary of all suggestions and responses with the advantages and disadvantages of each proposal is given below. For more details of how these options were assessed, see Annex 5.

NRW's final proposals have been developed taking these into account whilst also adopting a rational, reasonable and responsible approach to regulation of the fisheries.

River Usk - full catch and release fishing for salmon.

Advantages	Disadvantages	Accept or Reject?
Approach widely supported by stakeholders in the catchment through the Usk Local Fishery Group. Compliant with "NASCO" principles, commitments in the England and Wales 5-year Implementation Plan and NRWs Salmon and Sea Trout Plan of Action: • 'No Take' (harvest) of salmon population below conservation limit. • priority should be given to conserving the productive capacity of all individual salmon river stocks. Consistent with the approach to the 'All Wales' byelaws that was tested through the Local Public Inquiry in 2019. No additional pressure on existing fish stocks. Maximises spawning escapement by ensuring exploitation does not damage stock recovery prospects, whilst also contributing to better socioeconomic outcomes. Potential stock saving of approximately 46 salmon annually to the spawning stock (compared to a return to a voluntary C&R rate of 86%). Maintains current level of protection for vulnerable stock.	Ongoing prohibition on taking any salmon. Some stakeholders may not agree, maintaining objections to the approach of mandatory catch and release. Might result in fewer migratory salmonid licences sold, however there is little evidence of large-scale decline in angling participation as a result of the 'All Wales' Byelaws.	**Accept** Measure is proportionate and appropriate to protect the vulnerable stock. It maintains the current level of protection for salmon and is consistent with approach taken with all other rivers in Wales. The measure allows fishing to continue whilst minimising the risk to the stock.

River Usk - bring forward start of spinning season to 3rd March (currently 1st June).

Advantages	Disadvantages	Accept or Reject?
Consistent with the approach on most other Welsh rivers, with broadly similar start and end dates for fly fishing and spinning methods.	Potential for increased exploitation of a vulnerable stock below Conservation Limit. Would not be compliant with NASCO advice and principles. Potential move from fly to spin as method of choice, which is less compatible with high levels of catch and release survival (Lennox et al, 2017). Estimated additional loss of approximately 9* salmon annually to the spawning stock after post release mortality.	**Reject** It is not acceptable to increase exploitation of a vulnerable stock.

* In assessing the impact on the salmon stock of the proposal to bring forward the start of the spinning season, the assumption has been used that effort for spinning or fly fishing would remain relatively consistent, and no account is taken of any switch in preference or additional uptake of spinning. As such, these assessments may represent an underestimate of potential impact.

River Usk - delay start of the spinning season to 1st July (currently 1st June).

Advantages	Disadvantages	Accept or Reject?
Decrease in exploitation of vulnerable stock. Estimated saving, on average, of approximately 10 salmon annually after post release mortality (calculations based on an assumption of mandatory C&R).	Not broadly supported by the Usk LFG. Additional restrictions on one of the two principal angling methods. Inconsistent with the approach taken in the 'All Wales' byelaws.	**Reject** Measure is not broadly supported by Usk LFG. Measure is not deemed compatible to angler preference. Inconsistent with the approach taken elsewhere in Wales.

River Usk - extend prawn/shrimp fishing season to 1st September to 17th October (currently 1st September to 15th September).

Advantages	Disadvantages	Accept or Reject?
More aligned to length of shrimp fishing season elsewhere in Wales. Gives increased scope to anglers wishing to use this technique.	Potential for increased exploitation of a vulnerable stock below its Conservation Limit. Would not be compliant with NASCO advice and principles of increasing exploitation on stock below their conservation limit. Estimated loss of additional 1 to 2* salmon per annum to the spawning stock after post release mortality. Unlikely to be acceptable in HRA.	**Reject** It is not acceptable to increase exploitation of a vulnerable stock.

* In assessing the impact on the salmon stock of increasing the shrimp fishing season the assumption has been used that effort for bait fishing would remain relatively consistent, with no increased uptake of shrimp fishing due to relaxing the measures. As such, these assessments may represent an underestimate of potential impact.

River Usk - ban on prawn/shrimp fishing for salmon.

Advantages	Disadvantages	Accept or Reject?
Decrease in exploitation of vulnerable stock below conservation limit. Predicted saving of approximately 1 salmon annually after post release mortality. Consistent with existing position on the Wye and proposed approach on the Severn.	A restriction for older and less able anglers who favour shrimp fishing. Inconsistent with the approach taken on most other rivers in Wales.	**Reject** Measure is not deemed proportionate. Potential inequity ion restriction for older or less able anglers.

River Usk - catch and release for sea trout caught before 1st May.

Advantages	Disadvantages	Accept or Reject?
Maintains current level of protection for vulnerable stock. Consistent with the approach of the 'All Wales' Byelaws and with other rivers in Wales with vulnerable sea trout stocks. Potential with no mandatory C&R to lose approximately 1 sea trout annually to the spawning stock (assuming a return to a voluntary pre-1st May C&R rate of 93%).	Some stakeholders may not agree, maintaining objections to the approach of mandatory catch and release.	**Accept** Measure is proportionate and appropriate to protect the vulnerable stock. It maintains the current level of protection of sea trout and is consistent with approach taken on other rivers in Wales with vulnerable stocks. The measure allows fishing to continue whilst minimising the risk to the stock.

River Usk - full catch and release for sea trout.

Advantages	Disadvantages	Accept or Reject?
Decrease in exploitation of vulnerable stock. Predicted saving of an additional approximately 11 sea trout annually after post release mortality. Removal of chance of misidentification of salmon as sea trout. Consistent with current approach on Wye and proposed approach on the Severn, fisheries that are predominantly salmon fisheries with only occasional bycatch of sea trout.	Inconsistent with approach on most other Welsh rivers in the 'All Wales' Byelaws. Potential for confusion with rules on brown trout fishing.	**Reject** Measure inconsistent with approach taken on most other Welsh rivers and not deemed proportionate.

River Usk - ban on fishing with worm for sea trout.

Advantages	Disadvantages	Accept or Reject?
Further protection of sea trout stock. Lower risk of bycatch of salmon. Consistent with approach on Wye and that proposed on Severn. Predicted saving of an additional approximately 2 sea trout annually after post release mortality.	Inconsistent with approach on most other Welsh rivers and 'All Wales' byelaws. Potential for confusion and conflict with rules on brown trout fishing, where worm bait is allowed.	**Reject** Measure not consistent with approach taken on most other Welsh rivers and not deemed proportionate.

River Wye - full catch and release for salmon.

Advantages	Disadvantages	Accept or Reject?
Approach widely supported by stakeholders in the catchment through the Wye Local Fishery Group. Compliant with "NASCO" principles, commitments in the England and Wales 5-year Implementation Plan and NRWs Salmon and Sea Trout Plan of Action: • 'No Take' (harvest) of salmon population below conservation limit. • priority should be given to conserving the productive capacity of all individual salmon river stocks. Consistent with the approach to the 'All Wales' byelaws that was tested through the Local Public Inquiry in 2019. No additional pressure on existing fish stocks. Maximises spawning escapement by ensuring exploitation does not damage stock recovery prospects, whilst also contributing to better socioeconomic outcomes. Potential stock saving of approximately 111 salmon annually to the spawning stock (assuming a return to a voluntary C&R rate of 86%**). Maintains current level of protection for vulnerable stock. Consistent with the approach on the River Severn.	Ongoing prohibition on taking any salmon. Some stakeholders may not agree, maintaining objections to the approach of mandatory catch and release. Might result in fewer migratory salmonid licences sold, however there is a little evidence of large scale decline in angling participation as a result of the 'All Wales' Byelaws or the Catch and Release byelaws that have been on lace for 10 years on the Wye.	**Accept** Measure is proportionate and appropriate to protect the vulnerable stock. It maintains the current level of protection salmon and is consistent with approach taken with all other rivers in Wales. The measure allows fishing to continue whilst minimising the risk to the stock.

River Wye - full catch and release for sea trout.

Advantages	Disadvantages	Accept or Reject?
Approach widely accepted and supported in the catchment and fully supported by the Wye LFG. Potential with no C&R to lose an average of 5 sea trout annually to the spawning stock (assuming a return to a voluntary C&R rate of 86%**). Eliminates the risk of anglers misidentifying fish, leading to the inadvertent or deliberate killing of salmon. Maintains current level of protection for vulnerable stock. Consistent with the proposed approach on the River Severn.	Differs in the approach to other rivers in Wales.	**Accept** Measure is proportionate and appropriate to protect the vulnerable stock. It maintains the current level of protection and is widely accepted and supported by anglers.

** In assessing the impact of C&R proposals for the Wye, voluntary C&R rates from the Usk have been used (86% for salmon and for sea trout). Voluntary C&R rates for the Wye from the period 2007 to 2011 would not accurately reflect the overall increase in voluntary release rates seen across Wales over the past decade.

River Wye - end salmon season for whole river on 17th October (currently ends 26th October above Llanwrthwl Bridge and tributaries).

Advantages	Disadvantages	Accept or Reject?
Protects salmon late in the season that have reached spawning areas – on average between 1 and 2 fish annually. Brings consistency with the rest of the catchment.	Potential disadvantage to salmon angling in the upper river above Llanwrthwl bridge, and tributaries (areas noted for grayling fishing through the autumn and winter periods).	**Accept** Measure protects fish in a late stage of maturity that are nearing their spawning beds. Ends anomaly of different season end-dates.

River Wye - start season on 26th January (currently 3rd March).

Advantages	Disadvantages	Accept or Reject?
Addresses some concerns raised by fishery owners and anglers for loss of fishing opportunities during peak canoe season.	Potential increased exploitation of vulnerable stock below Conservation Limit. Would not be compliant with NASCO advice and principles. Predicted loss of between about 1 and 2 salmon to the spawning stock after post release mortality. Any increase in loss of adult salmon is unlikely to be acceptable in HRA.	**Reject** It is not acceptable to increase exploitation of a vulnerable stock. The issue of loss of fishing opportunity through adverse impact on angling due to canoe activity should rightly be a matter for the Wye Navigation Advisory Committee.

River Wye – use only single barbless hooks for spinning or barbless doubles for dead baiting, whether salmon fishing or coarse fishing. Possible exemptions for certain coarse angling waters.

Advantages	Disadvantages	Accept or Reject?
Removal of risk of accidental by-catch of salmon using methods not compatible with post release high levels of survival.	Little evidence of accidental bycatch of salmon by coarse anglers. No support from the coarse angling community and objections from some coarse angling representation on Wye LFG. Unintended adverse impact on coarse angling, which has become highly popular and more accessible over the past 20 years in the catchment, supporting many fisheries. Potential, with exemptions for specific clubs or water, for byelaws to become over-complicated and difficult to enforce.	**Reject** Little evidence of accidental bycatch of salmon by coarse anglers, and likely opposition from coarse angling groups.

River Wye - ban use of worm for fishing regardless of targeted species. Possible exemptions for certain coarse angling waters.

Advantages	Disadvantages	Accept or Reject?
Removal of chance of accidental catch of salmon by anglers using worm, which is largely incompatible with post release survival.	Little evidence of accidental bycatch or deliberate targeting by coarse anglers. No support from coarse angling stakeholders. Unintended adverse impact on coarse angling, which has become increasingly popular and more accessible over the past 20 years in the catchment, supporting many fisheries. Potential with exemptions for specific clubs or water, for the byelaws to become over-complicated and difficult to enforce.	**Reject** Little evidence of accidental bycatch of salmon by coarse anglers and no support from the coarse angling community.

7. Managing stocks on the Usk and Wye

7.1 Analysing stock status and the need for additional regulations

The measure of stock status has been used to rank individual river stocks of salmon and sea trout according to their status and therefore their need for additional protective regulatory measures (Figs. 22 and 23).

For both species this ranking process (based on the 2019 assessment) takes account of three measures of stock status applied as follows:

1. Ranking on the basis of 'risk' status in 5-years' time (*i.e.* 2024 for the 2019 assessment) - this is based on the outcome of the statistical procedure used to evaluate compliance with the Management Objective.
2. Ranking on the basis of the latest 10-year trend in egg deposition estimates (*i.e.* a measure of whether the stock is showing any strong tendency toward recovery or decline).
3. Ranking on the basis of the (most recent 5-year) average (%) egg shortfall/surplus against the Management Target (*i.e.* a measure of the average performance of the stock in recent years).

Fisheries operating on river stocks falling into the following categories are considered to require additional protective regulatory measures:

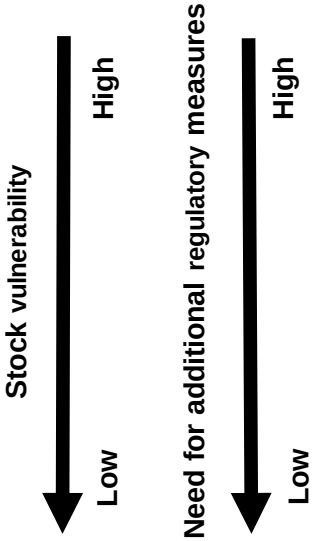
A. River stocks classified as 'At risk' and 'Probably at risk' in 5 years' time (2025) *i.e.* in-line with the management response identified in the Decision Structure (Sections 2.3 and 4.1 and Annex 1 and 2).
B. River stocks classified as 'Probably not at risk' but with a downward or weak ('+' or '++') upward trend and where the (most recent 5-year) average egg deposition has been below the Management Target.

This analysis of stock assessment results places both the Usk and Wye in category 'A', above, for both salmon and sea trout.

The Decision Structure guides us to "Identify a range of options to ensure sufficient spawning escapement to move to <50% probability of failure (of meeting the management objective) within five years (Probably not at risk category) while looking to maintain socio-economic benefits where possible."

Figure 22 Overview of salmon stock status and requirement for additional regulatory measures: 2019 assessment.

River		Risk' status: 2024	Trend	*Egg deficit/surplus on Management Target (%)
Tawe		At risk	- - -	-84.7
Teifi	#	At risk	- - -	-79.0
Taf	#	At risk	- - -	-69.8
Clwyd		At risk	- - -	-88.4
Ogmore		At risk	- - -	-86.0
E&W Cleddau	#	At risk	- - -	-73.9
Nevern	#	At risk	- - -	-56.0
Tywi	#	At risk	- - -	-54.2
Dee		At risk	- - -	-44.6
Rheidol		At risk	- -	-87.7
Taff & Ely		At risk	- -	-84.2
Dyfi	#	At risk	- -	-68.1
Dwyfawr		Prob at risk	- -	-89.3
Seiont		Prob at risk	- -	-84.7
Dwyryd	#	Prob at risk	- -	-58.3
Glaslyn	#	Prob at risk	- -	-47.3
Mawddach	#	Prob at risk	- -	-17.4
Conwy	#	Prob at risk	- -	-9.0
Wye		Prob at risk	-	-44.4
Severn	##	Prob at risk	-	-32.1
Ogwen		Prob at risk	-	-19.9
Usk		Prob at risk	-	-16.7
Dysinni	#	Prob at risk	+	-88.0



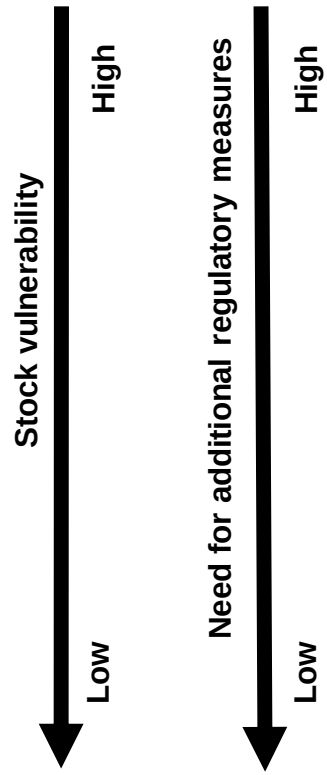
Trend:	
p<0.05	---
p<0.10	---
0.10<=p<0.30	--
0.30<=p<0.50	-
0.70=>p>0.50	+
0.90=>p>0.70	++
p>0.90	+++
p>0.95	+++

Review of Net Limitation Order 2017
England lead on fisheries regulation

* Egg deficit/surplus based on 5-year mean 2015-2019

Figure 23 Overview of sea trout stock status and requirement for additional regulatory measures: 2019 assessment.

River		Risk' status: 2024	Trend	*Egg deficit/surplus on Management Target (%)
Taf	#	At risk	- - -	-75.9
Neath		At risk	- - -	-55.9
Ystwyth		At risk	- - -	-43.7
Tawe		At risk	- - -	-75.3
E&W Cleddau	#	At risk	- - -	-67.6
Dwyfawr		At risk	- - -	-51.5
Taff & Ely		At risk	- -	-89.8
Gwendraeth		At risk	- -	-76.1
Loughor		At risk	- -	-71.2
Afan		At risk	- -	-27.5
Nevern	#	Prob at risk	- - -	-14.8
Rhymney		Prob at risk	- -	-95.2
Llyfni		Prob at risk	- -	-65.2
Tywi	#	Prob at risk	- -	-36.0
Clwyd		Prob at risk	- -	-34.8
Ogmore		Prob at risk	- -	-34.0
Artro		Prob at risk	- -	-20.6
Glaslyn	#	Prob at risk	- -	-14.3
Dyfi	#	Prob at risk	- -	-3.2
Usk		Prob at risk	-	-84.1
Dwyryd	#	Prob at risk	-	-71.8
Wye		Prob at risk	-	-30.3
Rheidol		Prob at risk	-	-27.7
Severn	##	Prob at risk	-	-10.3
Dee		Prob at risk	-	2.2
Dysinni	#	Prob at risk	-	22.4
Teifi	#	Prob at risk	+	-13.6
Mawddach	#	Prob not at risk	- -	32.8
Conwy	#	Prob not at risk	+	42.4
Ogwen		Prob not at risk	+	48.5
Aeron		Prob not at risk	++	-45.4
Gwyrfai		Prob not at risk	++	-6.1
Seiont		Prob not at risk	++	31.6



Trend:	
p<0.05	---
p<0.10	---
0.10<=p<0.30	--
0.30<=p<0.50	-
0.70=>p>0.50	+
0.90=>p>0.70	++
p>0.90	+++
p>0.95	+++

Review of Net Limitation Order 2017
England lead on fisheries regulation

* Egg deficit/surplus based on 5-year mean 2015-2019

7.2 Options for salmon and sea trout

Option 1 – Do nothing – allow current restrictions to fall away on 31st December 2021

There is strong and compelling evidence on the poor current and predicted status of adult salmon stocks in the Usk and Wye. The reduction in juvenile salmon numbers in the past 4 years, notably in the Usk but also evident on the Wye and other rivers in Wales, raises further concern. Having reduced protection for the salmon and sea trout of these rivers would not comply with our own Decision Structure guidance and approach and is therefore not considered any further as a viable option.

Option 2 – Make and implement new byelaws – maintain current fishing restrictions for rod fisheries (100% mandatory catch and release for salmon and sea trout on the Wye; 100% C&R for all salmon on the Usk and any sea trout caught before the 1st May: maintain fishing method restrictions).

Mandatory catch and release measures for the whole season have now been in place on the Wye for 10 years, and on the Usk since 2020, with a period prior to that of increasing rates of voluntary C&R. It has become widely accepted by the angling communities of these rivers as a necessity to maximise spawning escapement by reducing the kill of fish whilst maintaining the socio-economic value of the fishery.

Option 3 – Make and implement new byelaws - maintain catch and release measures; alter fishing method restrictions and / or seasons.

Discussions with stakeholders highlighted some areas in which the current controls could be amended, or new ones introduced. An assessment of the advantages and disadvantages associated with these proposed controls is listed in Tables 6 and 7.

Option 4 – Implement a policy of zero kill of salmon and sea trout by closing the rod fisheries.

At the present time we do not believe that full closure of the rod fisheries is warranted. We recognise the clear benefits of retaining a rod fishery on the Usk and Wye, including the maintenance of socioeconomic and wellbeing benefits and the ongoing presence of anglers on the riverbank.

Salmon preferred option

- The preferred option for salmon is Option 2 on the Usk and Option 3 on the Wye

Sea trout preferred option

- The preferred option for sea trout is Option 2 for both the Usk and the Wye

The rationale for these measures is explored further below.

Salmon:

As outlined in this technical case, there is strong and compelling evidence of the current and predicted poor status of salmon stocks in the Usk and Wye and the recent worrying reductions in juvenile salmon numbers. There is a good understanding within the angling community for the need to protect these vulnerable stocks, and widespread support for the proposed options.

The following measures are proposed for salmon:

Mandatory catch and release for all salmon caught on the Usk and Wye.

Catch and release measures are well understood and established as a means of controlling exploitation of vulnerable stocks to maximise spawning escapement whilst maintaining the socioeconomic values of the associated fisheries. Catch and release measures were first introduced in National (England and Wales) byelaws in 1999, that required all rod caught salmon to be released before 16th June. Full mandatory catch and release measures will have been in place on the Wye for 10 years and have been in place on the Usk since 2020, with periods prior to these arrangements of increasing rates of voluntary catch and release fishing.

Catch and release fishing for salmon has become widely accepted by the angling communities of these two rivers and the reintroduction of the current measures as they stand received the unanimous support of the Wye LFG, whilst there was only one objection noted from the Usk LFG.

Stock savings:

The stock savings arising from full C&R for salmon on the Usk and Wye are estimated as savings compared to:

1. No protection and an assumption of 100% catch and kill

   Based on an average of the 5-year rod catch (2015-2019), C&R would deliver an annual saving of 414 salmon on the Usk and 991 salmon on the Wye. However, this is not realistic as voluntary catch and release was reported to be in excess of 80%.

2. No protection and a return to previous rates of voluntary C&R

   The average voluntary release rate on the Usk over the 5 years prior to mandatory C&R (2015-2019) was 86%. Based on this rate, and including the assumption of a 20% mortality rate, C&R would deliver an annual saving of about 46 salmon to the Usk stock.

   The Wye has been under mandatory C&R measures since 2011. Using voluntary C&R rates for the period 2007 to 2011 would not reflect the overall increase in voluntary release rates seen across Wales over the past decade. Adopting the figure of 86% from the neighbouring River Usk and the same 20% mortality rate, C&R would deliver an annual saving of about 111 salmon to the Wye stock.

There would be no savings compared to current regulations as the proposed options would replace like with like.

With salmon stocks in the Usk classified as 'Probably at Risk' and in the Wye as 'At Risk', and given the widespread support for such a measure, mandatory C&R for all salmon caught in the Usk and Wye is adopted as the requisite conservation measure.

Wye salmon fishing season to end on 17th October on the whole river including tributaries.

The end of the season on the River Wye upstream of Llanwrthwl Bridge and in tributaries is currently 26th October, compared to 17th October on the river downstream of Llanwrthwl Bridge. This historic extension to the season recognised the late arrival of fish in the upper reaches but was conceived during a time of relatively high abundance of returning salmon.

The additional weeks' fishing has exploited a component of the stock which has travelled a long way up the catchment, are close to their spawning grounds and in an advanced stage of maturation. The merit of fishing for salmon in this condition is questionable and the stock is probably better served by preserving these fish. This proposal would bring the end of season in line with most other rivers in Wales.

Stock savings:

Based on an average of the rod catch (18th to 26th October) in the last five years, closing the season on the 17th October would deliver an annual saving of less than 1 salmon to the Wye stock. However, this proposal is made on the basis of saving salmon near their spawning grounds and in a late stage of maturation, but also to achieve consistency throughout the catchment

Sea trout:

The following measures are proposed for sea trout:

Mandatory catch and release of all sea trout caught on the Wye.

There is no real recognised sea trout fishery on the Wye, any captures being an accidental bycatch. The introduction of mandatory catch and release of sea trout, whilst helping to conserve the few sea trout that are caught, is aimed primarily at eliminating the risk of misidentifying fish, leading to the inadvertent or deliberate killing of salmon. Sea trout C&R measures have now been in place on the Wye for 10 years and are widely accepted by the angling community.

Stock savings:

The stock savings of implementing full C&R for sea trout on the Wye can be calculated as savings compared to:

1. No protection and an assumption of 100% catch and kill

   Based on an average of the 5-year rod catch (2015-2019), C&R would deliver an annual saving of about 46 sea trout to the Wye stock. However, this is not

a realistic scenario as some level of voluntary catch and release would be likely.

2. No protection and a return to previous rates of voluntary C&R

   The Wye has been under mandatory C&R measures since 2011. Using voluntary C&R rates for the period 2007 to 2011 would not reflect the overall increase in voluntary release rates seen across Wales over the past decade. As such, a surrogate figure of 86%, the C&R rate for the neighbouring River Usk has been used. Based on this rate, and including a 20% mortality rate, C&R would deliver an annual saving of about five sea trout to the Wye stock.

There would be no saving compared to the current regulations as this proposal would replace like with like.

Mandatory catch-and-release of all sea trout on the Usk caught before the 1st May.

There is a relatively small sea trout fishery on the Usk. Catch and release measures have been in place since 2020, mandating the release of all sea trout caught before 1st May, and any sea trout larger than 60cm. There was wide support at the March Usk LFG for the maintenance of C&R in some form, with many of the objections to reinstating the regulations as they currently exist proposing that there should be 100% C&R.

Stock savings:

The stock savings of implementing C&R for sea trout on the Usk prior to the 1st May can be calculated as savings compared to:

1. No protection and an assumption of 100% catch and kill of fish before 1st May

   Based on an average of the 5-year rod catch (2015-2019) for sea trout caught between 20th March and 30th April, C&R would deliver an annual saving of 14 sea trout to the Usk stock. However, this is not a realistic scenario as some level of voluntary catch and release would be likely.

2. No protection and a return to previous rates of voluntary C&R

   Using an average voluntary release rate from pre-May 1st for the 5 years prior to mandatory C&R (93%) and including a 20% mortality rate, C&R would deliver an annual saving of about one sea trout each year to the Usk stock.

There would be no saving compared to the current regulations as this proposal would replace like with like.

7.3 Maintaining the rod fishery under C&R

NRW is required to consider the socio-economic impacts of any proposed regulatory action. We are conscious that the economic benefit arising from migratory salmonid fisheries in the Usk and Wye is very important. We are also aware that the way to

maximise this benefit is through the recovery of stocks so that runs and catches are more abundant. Our management proposals are intended to achieve this.

The practice of C&R in rod fisheries has become increasingly common as a salmon management and conservation measure in light of the widespread decline in salmon abundance across the North Atlantic range of the Atlantic salmon.

Catch and release has been required since the introduction of the national spring salmon byelaws in 1999, prohibiting the taking of salmon caught before the 16th June. On the River Wye, catch and release has been mandatory throughout the season for salmon and sea trout since January 2012 and, prior to that, rates of voluntary C&R were about 60%. On the Usk, C&R all season for salmon, and before the 1st May for sea trout, has been mandatory as part of the 'all Wales' byelaws since January 2020, with around 80% of salmon released voluntarily before this date.

Over the last 10 years there has been a marked culture change in angling, embracing catch and release as a necessary tool in the management of stocks. There was widespread support for ongoing catch and release fishing on both rivers at the liaison meetings with the Usk and Wye Local Fisheries Groups (LFGs).

Rod licence evidence on the number of days fished supports evidence of this cultural change, and that the introduction of catch and release has not had the effect of turning anglers away from the sport; in fact, angling effort has increased in the last ten years on the Wye (see Fig. 9 Section 3.2.3).

The key aim of C&R angling is to ensure that individual fish, once they have been caught and released back to the river, survive to contribute to the fish stock by successfully spawning. Implicit in C&R is the assumption that fish experience low rates of mortality and minimal sub-lethal effects and that consequently, they demonstrate high rates of survival. This was the basis for the inclusion of method restrictions in the 'all Wales' and 'cross border' byelaws (2017).

The practice of C&R is aimed at increasing the number of fish surviving to spawn and thus supporting other initiatives as NRW and partners seek to ensure that rivers are more likely to meet their conservation limits and achieve the goal of long-term sustainability.

8. Legal framework

8.1 Use of byelaws in regulating fishing

The regulation of fishing activity is undertaken to provide the basis of fish stock protection measures. The protection of stocks seeks to manage exploitation, the killing of fish, to ensure that sufficient numbers of fish survive to spawn. This is necessary in order to populate our rivers with the optimum number of juvenile fish for future stock maintenance.

In the current circumstances, there are many factors that are contributing to the reduction in stock levels. These include the current low level of survival, mainly of salmon at sea, but it also includes other factors that harm the habitat of fish and consequently suppress their recruitment and survival. These and other 'challenges to stocks' are discussed in Section 5. Whilst we and partner bodies seek to resolve these matters it is important to ensure that as many adult fish as possible survive to spawn each year.

Rod fishing is regulated by a system of licensing, however controls on precisely how fishing may take place are established through byelaws.

Byelaws are used to control levels of rod exploitation of salmon and sea trout in Wales through regulation of fishing gear, where and when fishing may take place, and whether fish can be deliberately killed or not. Ultimately, they may be used to close fisheries.

NRW also have emergency byelaw powers to respond to unforeseen and critical matters such as severe disease outbreaks.

8.2 The Natural Resources Body for Wales - *Vires* for action

In order to progress with proposals for any statutory regulation of fishing, it is necessary to establish the legal basis to do so. The *vires* for regulation of fishing is set out below:

1. Relevant Enabling Powers

The proposed byelaws find statutory authority in section 210 of the Water Resources Act 1991 ("the 1991 Act"). That section gives effect to Schedule 25 to the 1991 Act which confers on the Natural Resources Body for Wales **("NRW")** powers to 'make byelaws for purposes connected with the carrying out of its functions'.

2. Byelaw-making power

2.1 Paragraph 6 of Schedule 25 provides NRW with byelaw making powers for the purposes of its fisheries functions. Paragraph 6(1) reads:

[NRW] shall have power, in relation to the whole or any part or parts of the area in relation to which it carries out its functions relating to fisheries under Part V of this Act, to make byelaws generally for the purposes of -

(a) the better execution of the Salmon and Freshwater Fisheries Act 1975; and
(b) the better protection, preservation and improvement of any fisheries of fish to which this paragraph applies.

2.2 Paragraph 6(1A) states that the whole of paragraph 6 of Schedule 25 applies to:

(a) salmon, trout, eels, lampreys, smelt, shad and freshwater fish; and
(b) fish of such other description as may be specified for the purposes of this paragraph by order under section 40A of the Salmon and Freshwater Fisheries Act 1975.

3. Lawful purpose of Byelaw making power

3.1 In addition to the general purposes set down in paragraph 6(1), paragraph 6(2) of Schedule 25 sets out the more specific purposes for which NRW may make byelaws under paragraph 6(1). These include a power:

"in relation to the whole or any part or parts of the area mentioned in sub-paragraph (1) above to make byelaws for any of the following purposes ...

(2)(a) prohibiting the taking or removal from any water, without lawful authority, of any fish to which this paragraph [6] applies, whether dead or alive;

(2)(aa) specifying close seasons or times for the taking of any fish to which this paragraph [6] applies by such means as may be prescribed by the byelaws;

(2)(c) prohibiting the use for taking of fish to which this paragraph [6] applies of any instrument in such waters and at such times as may be prescribed.

3.2 Whilst it might appear that catch and release byelaws fall within the scope of one or more of the above specific purposes, this question was considered by the Court of Appeal in R v Ministry of Agriculture, Fisheries and Food and the Secretary of State for Wales, ex parte Mott [2000] WL 33116468.

3.3 In that instance, the owner of a fishery challenged the Environment Agency's powers to make catch and release byelaws for salmon fishing. The Court held that sub-paragraph (2)(a) above related to poaching and therefore did not provide the necessary authority for catch and release byelaws. Sub-paragraph 2(c) was also considered by the court but deemed not applicable because it related to the prohibition of instruments for taking of salmon whereas catch and release byelaws allowed the taking of salmon and only prohibited the removal of such fish when so taken.

3.4 The Court of Appeal found that paragraph 6(1)(b) provided the Environment Agency with sufficient authority to make the proposed catch and release byelaws.

3.7 Accordingly, NRW rely on section 210 of, and paragraph 6(1)(b) of Schedule 25 to the 1991 Act in order to make these byelaws.

4. Geographical scope of byelaw making power

4.1 Paragraph 6(1) of Schedule 25 specifies that the 'area' over which the power to make byelaws is that in respect of which NRW carries out fisheries functions under Part V of the 1991 Act'. Section 114 of the 1991 which set down the fisheries functions has been repealed and NRWs functions are now set down in section 6(6) of the Environment Act 1995. This reads:

It shall be the duty of [NRW] to maintain, improve and develop fisheries of:

(a) salmon, trout, eels, lampreys, smelt and freshwater fish, and

(b) fish of such other description as may be specified for the purposes of this subsection by order under section 40A of the Salmon and Freshwater Fisheries Act 1975.

4.2 Section 6(7) of that Act identifies the area over which NRW should exercise these functions as being the whole of Wales, together with such parts of the territorial sea adjacent to Wales as extends for six miles from the baselines from which the breadth of that sea is measured ("the Area").

4.3 Accordingly, it is this Area, to which the byelaw making power in section 210 of the 1991 Act applies.

8.3 Byelaws proposed for the Usk and Wye

This technical case makes the case for new byelaws for rod fishing on the River Usk and the River Wye. It is proposed that these would continue until the 31st December 2029, a date coinciding with the end of existing ‘All Wales’ and ‘Cross Border’ byelaws and would not have a mid-term review.

There is no proposed change to method restrictions already required by the ‘All Wales’ and ‘Cross Border’ byelaws; or to the requirement on the Usk to return sea trout larger than 60cm under the ‘All Wales’ byelaws.

Table 6 Byelaws proposed for the Usk

Proposed Measure	Objectives & Reasoning
Byelaw. **Full catch and release of salmon (no kill)**	Requires the immediate release, alive and well, of all salmon caught by rods. Salmon stock levels in the Usk are well below the level that we consider to be either sustainable or desirable. Allowing fish to be killed whilst stocks are depleted presents an unacceptable risk.
Byelaw. **Catch and release of rod caught sea trout before 1st May**	Requires the immediate release, alive and well, of all sea trout caught by rods before the 1st May on the River Usk. Sea trout stock levels in the Usk are well below the level that we consider to be either sustainable or desirable. Allowing fish to be killed whilst stocks are depleted presents an unacceptable risk.

Table 7 Byelaws proposed for the Wye

Proposed Measure	Objectives & Reasoning
Byelaw. **Full catch and release of salmon (no kill)**	Requires the immediate release, alive and well, of all salmon caught by rods. Salmon stock levels in the Wye are well below the level that we consider to be either sustainable or desirable. Allowing fish to be killed whilst stocks are depleted presents an unacceptable risk.
Byelaw. **Full catch and release of sea trout (no kill)**	Requires the immediate release, alive and well, of all sea trout caught by rods. As an additional measure to protect salmon stocks on the Wye, the C&R of sea trout should be maintained to eliminate the risk of anglers' mis-identifying fish, leading to the inadvertent or deliberate killing of salmon. The Wye is not recognised as a sea trout river.
Byelaw. **Wye salmon fishing season to run 3rd March to 17th October**	Requires fishing for salmon to end on 17th October for the whole River Wye (in Wales) and tributaries. Salmon stock levels in the Wye are well below the level that we consider to be either sustainable or desirable. The additional week's fishing afforded to the river upstream of Llanwrthwl Bridge and the Wye tributaries, exploits a part of the stock that is nearing its spawning grounds and fish that are in the late stage of maturation. This would bring the end of season in line with most other rivers in Wales.

9. Conclusions

This technical case document, and associated annexes, represents the evidence base, options, and proposals for fishing controls on the rivers Usk and Wye.

We are mindful that the existing byelaws come to an end on the 31st December 2021. If new byelaws are not put in place, there is the potential for there to be no protection of the vulnerable salmon and sea trout stocks in these rivers.

In coming to our conclusion, NRW has paid careful attention to the recent legislation requiring a focus on the sustainable management of natural resources which is a key area of work for public sector bodies in Wales.

The resource is shared between society, including those who target the fish for recreation but also those for whom the stocks are a vital component of our natural resources. This additional value and importance are recognised by the designations of habitats and species for their fundamental nature conservation value. The issue is not simply one of provision of a resource for exploitation, although that is an important part of the debate.

Our objective is the sustainable management of our natural resource of salmon and sea trout, including their sustainable exploitation, and this document sets out the current status and the actions that are required to sustain the stocks.

NRW's case is that the proposed byelaws meet all three of the requirements of necessity, proportionality and reasonableness

First, the nature and extent of the problem is severe. Salmon and sea trout stocks on the Usk and Wye are falling below their management targets and are deemed unsustainable because of the risk of ongoing decline to unsafe stock levels.

Secondly, there is a range of factors that contribute to the decline of salmon and sea trout. It is recognized that anglers are not the primary cause of declining stocks, but in the current context of the severity of the depletion of the stocks, the killing of fish is considered to be unsustainable and to contribute to the problem. Anglers must therefore be part of the solution.

Thirdly, NRW's solution is its proposed broad range of measures to address the numerous and complex causes of this problem and ensure that land and water are managed sustainably (see the 'Salmon and Sea Trout Plan of Action 2020'). The byelaws are an integral component of this suite of measures as they would preserve vital breeding resources whilst other threats to relevant habitats are addressed. The byelaws would be effective because they would reduce the intentional killing of fish, which would maximize the number of fish that survive to spawn each year:

i. even relatively small numbers of fish are crucial in order to recover stocks in as short a time as possible,

ii. there would be accumulated benefits for spawner numbers over time and

iii. there is a further imperative to preserve the fittest fish who have managed to survive natural mortality factors. It is therefore essential that spawning

stocks are maximized if populations are to have the best chance of recovery.

Finally, less onerous restrictions would not suffice. NRW recognizes that there is a risk that the proposed measures would lead to a decline in angling fisheries activity, and has therefore sought to ensure that the socioeconomic benefits associated with angling are protected, in so far as is commensurate with securing the savings in stocks required to reduce ongoing pressure on them.

NRW therefore submits that the proposed byelaws are necessary, proportionate and reasonable

We have sought to engage with stakeholders throughout the process of gathering and assessing evidence, with informal liaison and discussions with stakeholder groups including the Local Fisheries Groups.

Liaison and discussion with the EA regarding the River Wye, where NRW takes the management lead for diadromous fish stock management, have resulted in agreement that NRW and EA will seek a single integrated approach to fishery regulation with equivalent byelaws applying in respect of the English and Welsh parts of the river.

We have identified the options which will continue to protect salmon and sea trout stocks of the Usk and Wye rivers, and we commend these options.

These proposals are being taken forward as the existing byelaws end on the 31st December 2021. If new byelaws are not put in place for the 1st January 2022 onwards, there is the potential for there to be less protection of the vulnerable salmon and sea trout stocks in the rivers Usk and Wye. These proposals therefore amount to betterment in comparison to a scenario of no regulation. The proposals are also set in the context of maximising spawning escapement and promoting stock recovery towards improved resilience and sustainability.

What are we consulting on?

This consultation is on our proposals for new byelaws that will affect the salmon and sea trout rod fisheries on the rivers Usk and Wye (in Wales).

The measures will, if approved, run until 31st December 2029, to synchronise with the end of existing ‘All Wales’ and ‘Cross Border’ byelaws, and would not have a mid-term review.

The proposals are:

Usk - salmon

- Statutory C&R fishing at all times

Usk – sea trout

- Statutory C&R fishing before the 1st May

Wye – salmon

- Statutory C&R fishing at all times
- Fishing season 3rd March to 17th October

Wye – sea trout

- Statutory C&R fishing at all times

10. Next steps

This document supports a public consultation exercise that seeks views from stakeholders into the future management of salmon and sea trout fisheries on the rivers Usk and Wye.

We have set out options for both species, and for the rod fisheries that currently exploit them, and we have provided background to enable people to consider the issue and their preference for future fishing controls.

The consultation will run for a period of 12 weeks from the date of publication.

We will review responses and, as far as is practicable, we will respond to each one. Subject to the outcome of this we will make our case for any required legislative change to the Welsh Government Minister for Natural Resources.

The position in July 2021 is summarised below.

STATUS: Completed

1. Completion of informal consultation with relevant stakeholders

   This process was completed for stakeholders on the Usk and Wye, following debate at extraordinary Local Fisheries Group meetings in March 2021.

STATUS: Ongoing

2. Consultation with Environment Agency

   The cross-border nature of the River Wye necessitates ongoing engagement with the EA and, through them, DEFRA and Natural England.

STATUS: Completed

3. Make the byelaws

   The legal process in which the statutory byelaws instruments are ‘made’ and confirmed ready for publication as part of the consultation process.

STATUS: Completed

4. Statutory advertisement of made byelaws (formal consultation).

   This requires completion of sign-off procedures for:-

   a) The made byelaws
   b) The technical case
   c) Response forms
   d) A ‘frequently-asked questions’ paper

STATUS: Scheduled for Autumn 2021

5. Review and reply to responses to the statutory consultation
6. Consider and apply amendments to byelaws as necessary

7. Final application to the Welsh Government Cabinet Secretary for the rod byelaws to be approved.

STATUS: Scheduled for Winter 2021/2022

8. If successful publicise the new measure, advise stakeholders, amend registers and notify enforcement staff.

GLOSSARY

2017 Regulations – see Conservation of Habitats and Species Regulations 2017 (as amended).

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

'All Wales' byelaws – byelaws introduced on all rivers in Wales which following public consultation in 2017 and a local public Inquiry in 2018/19, new byelaws were introduced for rivers wholly within Wales in 2020 requiring all salmon caught by net and rod fisheries to adopt statutory catch and release fishing. Release of all sea trout larger than 60cm, and any sea trout caught before the 1st May in designated vulnerable rivers was also mandated. Method controls, including hook types, sizes and bait used, were introduced to improve post release survival rates.

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

'At Risk' (AR) – When river stocks are statistically failing to meet their management objective.

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

By-catch -The capture of non-targeted fish.

Catch and Release – a method of angling where some or all the fish caught are released after capture.

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

Condition assessment – Under the Conservation of Habitats and Species Regulations 2017 (as amended), each country in the UK assesses the condition of features of each SAC as to whether they are in 'favourable' or 'unfavourable' condition.

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

Conservation of Habitats and Species Regulations 2017 (as amended) - Amendments made to the 2017 Regulations (as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) involved transferring functions from the European Commission to the appropriate authorities in England and Wales. This applies to the Habitats Directive in the UK post the EU Exit.

CPUE - Catch per unit effort.

'Cross Border' byelaws - byelaws introduced in 2020 on the rivers Wye and Dee in Wales requiring the Dee to adopt statutory catch and release fishing for salmon (already in place on the Wye) and release of all sea trout larger than 60cm, and any sea trout caught before the 1st May. Method controls, including hook types, sizes and bait used, were introduced for both rivers to improve post release survival rates.

Decision Structure - The Decision Structure (Annex 1) is a simple flow diagram to help identify the level and type of fishery management intervention required to address stocks assessed as formally passing ('not at risk') or failing ('at risk') their Conservation Limits, or in some intermediate position ('probably not at risk', 'probably at risk').

Diadromous Fishes - Diadromous is a general category describing fish that spend portions of their life cycles partially in fresh water and partially in salt water. These represent both anadromous and catadromous fish.

Ecosystem - A community of organisms and their physical environment interacting as an ecological unit.

Egg shortfall or deficit – The difference in the number of eggs required to meet conservation limit and what is calculated to be produced.

Escapement - Fish that survive to spawn after exploitation of the stock.

EU Directive - A European Union legal instruction, binding on Member States, but which must be implemented through national legislation within a prescribed timescale.

Exploitation - Removal of fish from a stock by fishing.

Fishery - The area where it is, or may be, lawful to fish and where the resource is exploitable.

Fry - Young salmon or trout that have hatched out in the current year, normally in May at the stage from independence of the yolk sac as the primary source of nutrition up to dispersal from spawning areas (redds). Referred to as 0+ when caught in the summer months, prior to their first winter in freshwater.

Good ecological status - A key target under the Water Environment (WFD) (E & W) Regs 2017. Water bodies of 'good ecological status' should have the biological and chemical characteristics expected under sustainable conditions. Practicality and the cost to society must be considered in achieving this and this principle is also inherent in the WFD.

Grilse - An adult salmon that has spent only one winter feeding at sea (1SW salmon) before returning to freshwater to spawn; normally only applied to salmon in homewaters.

Heritage fishery – A fishery which uses a method that is considered to have an aspect of worth or importance attached by people to qualities of places, communal or historical value. *e.g.* coracle fishing.

Juvenile - Young fish including fry and parr, mostly similar in form to adult but not yet sexually mature. In some cases, refers to a stage unlike the adult in appearance.

Management Objective (MO) - Compliance procedures require that spawning levels are above the Conservation Limit in four years out of five, (*i.e.* 80% of the time) in order for a stock to formally 'pass' its Conservation Limit. This is the 'Management Objective' and the associated 'Management Target' (a 'target' reference point) defines the average stock level required to achieve this. The compliance procedure ensures there is a high probability that stocks are exceeding their Conservation Limit – a precautionary approach in-line with the recommendations of ICES and NASCO, and in-keeping with the methods applied by other jurisdictions

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

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

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

UK National Sites Network – Network created by the 2017 Regulations including existing SACs and SPAs (created under the Habitats Directive), and any new SACs and SPAs designated under these Regulations. Previously part of the EU's Natura 2000 ecological network.

Net limitation Order (NLO) - Mechanism within the Salmon and Freshwater Fisheries Act, 1975 whereby the competent authority may apply to limit the number of nets or traps fishing a public fishery. Each order limits the number of licences for fishing with nets that may be issued in any specific fishery for up to 10 years

No Adverse Impact (NAI) – Requirement of the Habitats Regulation Assessment (HRA), to show no adverse impact from the proposal on the feature status of the SAC.

'Not at Risk' (NAR) – When river stocks are statistically meeting their management objective.

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

Parr - Juvenile salmon or trout in the stage following fry until its migration as a smolt (in salmon or sea trout). Parr are typically <16 cm long. Referred to as >0+ when caught in the summer months, after their first winter in freshwater. Salmon parr may spend between 1 and 3 years in the river before migrating to sea.

Principal Salmon River – Rivers which on average have a catch of over 50 fish per year and therefore require a Salmon Action Plan to ensure that conservation limits are met.

'Probably At Risk' (PAR) – When the likelihood of river stocks passing their management objective is less than 50%.

'Probably Not At Risk' (PNAR) – When the likelihood of river stocks passing their management objective is greater than 50%.

Quantitative Survey - Quantitative surveys utilise a catch depletion method, which gives a population estimate. Electric fishing is carried out for a measured length of the watercourse, which is netted at either end to ensure a closed population. This area is fished three times successively or until a good depletion is obtained. The fish are then identified, measured and counted.

Recruits - The abundance of fish measured at a particular point in the life cycle, *e.g.* at the juvenile stages, the smolt stage, prior to the first fishery (recruitment to the fishery), or as returning spawners.

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

Salmonid - A fish belonging to the family *Salmonidae*, which includes the Atlantic salmon (*Salmo salar*), brown trout / sea trout (*Salmo trutta*), char (*Salvelinus alpinus*) and rainbow trout (*Oncorhynchus mykiss*).

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

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

Semi-Quantitative Survey - Electric fishing is carried out for a measured length of the watercourse. The fish are then identified, measured and counted. Unlike the quantitative method this method does not rely on a depletion so a P value can be applied to calculate and estimate of what a quantitative method would have produced.

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

Smolt Output – A general term that refers to the numbers of salmon or sea trout smolts produced by a river system – usually on an annual basis. The capacity of a system to produce smolts (and earlier life stages) is largely dependent on the extent and quality of the freshwater environment. This capacity is also referred to as the 'carrying capacity' and signifies that there are limits to the numbers of fish any one river can produce. Poor survival at sea is currently a major and universal constraint on the numbers of adults returning to our rivers, but an area where we have little control. Hence, ensuring that as many fish as possible survive to spawn and maintaining and improving the quality of the freshwater environment in order to maximise smolt output are key management objectives.

Spatial Survey – Surveys that are completed once every 6 years on a rolling programme and consist of a greater number of sites which cover the entire catchment. These surveys aim to show spread of species rather than trends over time (see temporal surveys).

Spawning stock - The part of a stock which is mature and breeding, the number or biomass of all fish beyond the age or size class in which 50% of the individuals are mature.

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

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

Stock recruitment models - Fishery models that predict the amount of juvenile recruitment as a function of the parent stock.

Stocking - The intentional release of fish into an ecosystem.

Sustainable management of natural resources (SMNR) - Using natural resources in a way and at a rate that maintains and enhances the resilience of ecosystems and the benefits they provide, in doing so, meet the needs of current generations without compromising the ability of future generations to meet their needs, and contribute to the achievement of the well-being goals set out in the Well-being of Future Generations Act. Also referred to as sustainable management

Sustainable use - The use of a biological resource in a way and at a rate that does not lead to the long-term decline of its potential to meet the needs and aspirations of present and future generations. Sustainable use does not imply that abundance is constant.

Temporal Survey – Surveys that are completed once a year to show population trends over time.

Vires – The legal power to carry out statutory duty.

ABBREVIATIONS

1SW – One sea winter

AR – ‘At Risk’

C&R – Catch and Release

CEFAS – Centre for fisheries management, environmental protection and aquaculture

CL - Conservation Limit

CPUE – Catch per Unit of Effort

DEFRA – Department for environment, food and rural affairs

DS – Decision structure.

E&W – England and Wales

EA – Environment Agency

HRA – Habitats Regulations Assessment

ICES - International Council for the Exploration of the Sea

LFG – Local Fisheries Group

MSW – Multi sea winter

MSY – Maximum Sustainable Yield

MT – Management Target

NAR – ‘Not At Risk’

NASCO - North Atlantic salmon Conservation Organization

NEAC – North-East Atlantic Commission

NAI – No Adverse Impact (HRA)

NLO – Net Limitation Order

NRW – Natural Resources Wales

OSPAR – Mechanism by which 15 Governments and the EU cooperate to protect the marine environment of the North-East Atlantic (OS –Oslo, PAR – Paris Agreement)

PFA – Pre-fisheries abundance

PAR – ‘Probably At Risk’

PNAR – ‘Probably Not At Risk’

SACs - Special Areas of Conservation

SMNR – Sustainable Management of Natural Resources

SONAR – State of Natural Resources Report

SR – Stock recruitment

SSSI – Site of Special Scientific Interest

WG – Welsh Government

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