Environment Agency

better sea trout and salmon fisheries

Our strategy for 2008-2021

We are the Environment Agency.

It's our job to look after your environment and make it a better place – for you, and for future generations. Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and society as a whole, we are making your environment cleaner and healthier.

The Environment Agency. Out there, making your environment a better place.

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Foreword

Sea trout and salmon have been returning to spawn in our rivers for thousands of years. Today one or both species can be found in over 100 rivers in England and Wales. They symbolise clean water and a high quality natural environment and their presence is strongly valued.

These fish face many challenges throughout their extraordinary life cycles. Although they are spreading to more rivers as our environment improves, in some rivers their numbers are very low. The impacts of climate change present a particular challenge. Much remains to be done to look after them and improve the benefits they can offer. Our strategy to 2021 sets out how we want to work with others, to protect these iconic fish and improve the fisheries they sustain.

Fish are one of the best indicators of a healthy water environment. The Water Framework Directive recognises this, and fish will become a measure of how well we are managing our catchments. The Directive requires us to work to river basin planning cycles aimed at meeting 6-year objectives in 2015 and then 2021 and onwards. To harmonise with the delivery of this important process, we have set out our strategy to 2021.

This time-scale incorporates two planning cycles and represents a little over two generations of salmon.

All our work to improve rivers, lakes and estuaries contributes to creating a better quality of life.

Working in partnership with others, we want to increase the economic, social and environmental benefits that fisheries can offer by exploiting these wider opportunities. I hope you will join us in taking this forward.

David King
Director of Water Management

Our *goal* is:
more sea trout
and more salmon…
in more rivers…
bringing more benefit

The key results we want to see by 2021 are:

1 Self-sustaining sea trout and salmon in abundance in more rivers

We want a greater proportion of rivers to meet their potential for sea trout and salmon. We will maintain our current management approach for salmon, applying management objectives linked to fish population thresholds (Conservation Limits). We will develop similarly robust means to describe the performance of sea trout stocks taking account of their more variable life history.

We want progress to achieving favourable condition for more of our rivers designated as special areas of conservation and sites of special scientific interest (where salmon is a feature).

We need to maintain a strong and diverse stock structure of sea trout and salmon in our different rivers. We must also conserve the genetic strains and diversity that help our stocks make the most of their home river environments. We will continue to use sound fisheries management and our stocking policy to address these issues.

We want healthy sea trout and salmon. The introduction of non-native species, parasites and diseases could have devastating impacts on our sea trout and salmon fisheries. We will work with governments and others to prevent such introductions and control any impacts should they occur.

Under-pinning all of this we need to extend the availability of a good quality environment. We want to ensure progress to achieving good ecological status, supportive of sea trout and salmon in more rivers.

2 Economic and social benefits optimised for sea trout and salmon fisheries

Sea trout and salmon fisheries contribute many millions of pounds to local economies. Many of us value the existence of sea trout and salmon in our rivers. We want to improve the social and economic benefits that can come from the sustainable use of these recreational and commercial fisheries.

We want to help further the conservation of these fish that represent an important part of our wildlife diversity. We want to make the most of the cultural values of some of the special fisheries they support.

We want more opportunities for more people to fish for sea trout and salmon. We want to increase the number and diversity of anglers. We'll find opportunities through our Angling 2015[1] programme including those that may be sustained on recovering rivers.

Such increased involvement in fishing should be realised without increasing risk to stocks.

3 Widespread and positive partnerships, producing benefits

We will continue to develop positive working relationships with a wide range of external partners. We'll build on these relationships and target our partnership work to achieve tangible benefits for sea trout and salmon.

(1) Fishing for the future; Angling 2015, Our plan to increase participation

Photo: Pete Gough

We need to extend the availability of good quality environment

What we will do

By 2021, we want to achieve results and make significant progress towards our goal. There are a number of specific aims, outlined below (and numbered 1 to 16), which are critical in supporting this achievement.

In order to realise a widespread improvement in the abundance of self-sustaining sea trout and salmon stocks in our rivers we must **(1) improve environmental conditions and increase the availability of good quality habitat.** To help advance this aim, with others we will **(2) promote and realise better land management practices.** We will **(3) work with our partners to remove barriers to migration or mitigate their effects.**

As a general principle we want to **(4) reduce the exploitation of at-risk stocks** and will seek to **(5) agree voluntary constraints or use mandatory controls on fishing to ensure stocks are sustained whilst fishing opportunity is optimised.**

We recognise that reduction in excessive and indiscriminate exploitation can be brought about by several means and will continue to work to **(6) ensure that illegal exploitation is minimised and to secure effective penalties for offenders.** However, whilst tackling illegal exploitation, we are mindful of the potential impacts of certain legal fisheries and, with this in mind, with Government we will **(7) seek improved legal powers and controls including a ban on the sale of rod-caught salmon and sea trout.** We will also **(8) move to close net fisheries that exploit predominantly mixed-stocks where our capacity to manage individual stocks is compromised.** On a wider scale, we will **(9) seek to limit the exploitation of English and Welsh fish in waters that are outside our direct jurisdiction.**

Protection of our fisheries extends beyond controlling exploitation. We will continue to work with government and others **(10) to secure the best protection for our fisheries against the introduction of high-risk species, including parasites and diseases.**

We recognise the considerable value of the economic and social returns that can come from these recreational and commercial fisheries. In support of this we will **(11) enable greater access to a wider diversity of sea trout and salmon fishing opportunities where it does not pose an additional risk to stocks.** In doing so we want to **(12) promote a culture of responsible angling** so that we can rely more on the positive behaviour of well-informed anglers and fishery managers, and less on prescriptive legislative controls.

We recognise that we can't do all of this alone; our own resources are limited and, in many instances, others are far better placed to deliver on behalf of the environment. We want to **(13) work with others to promote angling opportunity and stimulate wide participation.** We will **(14) make the most effective use of resources by working to the strengths of our partners.** As part of this increased emphasis on a partnership approach we will need to encourage openness and transparency and so we will **(15) ensure that the people we work with are kept well informed.**

Finally, throughout all of this work, we will **promote our fisheries and strive to (16) establish sea trout and salmon as widely recognised environmental icons.**

We will work with our partners to remove barriers to migration

Photo: Rebecca O'Connell

We will strive to establish sea trout and salmon as widely recognised environmental icons

Our priorities

We have finite resources dedicated to work specifically to manage sea trout and salmon fisheries (less than £11 million in 2007).

When hard choices are to be made we must ensure that we focus on those activities that only we can undertake and which bring about the greatest benefits – **our core role**. The first call on our fisheries resource will be to:

- Regulate fisheries activities using the principles of better regulation to ensure we are proportionate, efficient and effective;
- Deploy enforcement and crime prevention using a risk-based, targeted and intelligence-led approach;
- Carry out monitoring sufficient to inform our delivery of regulation and improvement;
- Produce information on stock and fisheries status;
- Ensure that our broad environmental programmes deliver for sea trout and salmon by effective use of our expertise and the information we collect;
- Minimise obstacles to migration through regulation and by working in partnership with others;
- Take account of social and economic needs in our making of regulations including the aim to stimulate diversity of opportunity and wider participation;
- Realise opportunities for salmon and sea trout fishing in our Angling 2015 participation programme; and
- Reserve part of our resource to support partnership, match funding or pump-priming initiatives. These will be focused towards and add significant value to achievement of our key results and aims

We will realise opportunities for salmon and sea trout fishing

We will target our partnership work to achieve tangible benefits

Framework for action

Under the programme for the Water Framework Directive, eleven River basin district plans will set out actions and priorities to protect and improve the water environment in England and Wales (see map below).

We will specifically identify priorities for action for sea trout and salmon within our planning at the River basin district level.

For each river, we will also address the local situation, assessing stock status, the issues affecting the stock and the solutions. We will consider the characteristics of the fishery, potential partners and opportunities to increase participation.

The eleven River basin districts in England and Wales under the programme for the Water Framework Directive

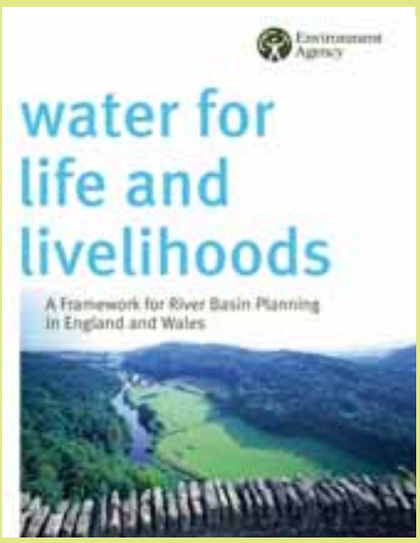
Under each River Basin District Plan we will classify all the rivers in terms of priority of work for sea trout and salmon. We will set out a six year register of actions to address the issues in line with our priorities and in relation to the resources available. The priorities for action will be determined using the status of the juvenile component of the stock together with performance against conservation limits and management objectives (and the equivalent assessments for sea trout) for each river together with any special conservation designations.

These plans and the river assessments will be used to help guide discussions with potential partners on how resources can be best used to achieve benefits for sea trout and salmon and for their fisheries. The plans will enable us to focus the use of our dedicated fisheries resource but will also be influential in directing wider environmental programmes to benefit sea trout and salmon. They will help us focus our delivery of measures to manage the impacts of climate change and to adjust our use of resources to respond to changes affecting sea trout and salmon fisheries.

The plans will be influential in guiding Water Framework Directive Programmes of Measures to take appropriate account of the needs of sea trout and salmon fisheries. We will ensure that we have a lead officer to co-ordinate the development and implementation of measures for sea trout and salmon under each plan.

For salmon, the existing 68 Salmon action plans will form a source of reference. Critical assessments and actions that they contain will be taken forward into the new plans.

River basin district plans will be drafted by December 2008 and finalised by December 2009. New plans will then be agreed every six years, in 2015, 2021 and so on. The existing Salmon action plans will continue to inform our programmes for salmon until these are superseded by the new plan for the relevant River basin district. Those with interests in the sea trout and salmon fisheries of each River basin district will be involved in determining the priorities for action and how between us those actions can be most effectively delivered.



The Water Framework Directive introduces River basin planning

Measuring progress

Measure	Baseline
Proportion of rivers in "at risk" categories for salmon	56% of rivers outside (better than) the 'at risk' category in 2007
Proportion of monitored sites which are at or exceeding good ecological status for salmon and trout	TBC
Increase in combined accessible wetted area in the 64 principal salmon rivers as reported to ICES	11,834 hectares in 2007
Percentage of Habitats Directive (and SSSI) rivers in 'at risk' categories for salmon	52% of rivers outside (better than) the 'at risk' category in 2007
Salmon rod catch pre June 16 (numbers and % of total catch)	Mean rod catch (2002-05) 612 salmon = 3.6% of total catch
Catch (rod and net) of Sea trout >0+SW (number and % of total sea trout catch)	Mean (2002-05) 21,672 >0+SW sea trout = 51.4% of total catch
No outbreak of Gyrodactylus or similar notifiable disease etc	No outbreak
More rivers exceeding deminimus catch level salmon and sea trout	Mean number of rivers (2001-05) with reported rod catch > 50 salmon and/or 100 sea trout = 62
Migratory salmonid licence sales (including customer age distribution)	31,606 salmon/sea trout rod licences sold in 2006/07 400 licences sold for 12 to 16 year olds in 2005/06
Economic return (all sources)	Data from 2006 survey
Wider spread of people buying salmon and sea trout licences	78% out of 4461 England and Wales postcodes in 2006/07
Success rating by partners	Survey of partners to be implemented 2009

Target	Frequency/ Date	Result demonstrated
More fish		
70% of rivers outside the 'at risk' category in 2011	2011 and 2021	Rivers meeting their potential for salmon
To exceed previous 6 year mean	6-yearly	Condition of juvenile fish production Range of stock distribution
Increase accessible habitat by 200 hectares	5-yearly	Extent of available environment and progress with removing barriers
76% of rivers outside the 'at risk' category in 2013 New target to be set in 2013 for 2019	(2007), 2013, and 2019 (Habitats Directive reporting cycle)	Condition of stocks subject to conservation designation
To exceed previous 5-year mean	5-yearly	Stock diversity of salmon
To maintain spread of age classes of adult sea trout	5-yearly	Stock size and stock diversity of sea trout
No outbreak	2021	Disease and parasite risks successfully managed
More rivers		
To exceed previous 5-year mean	5-yearly	Number of rivers sustaining fisheries
More benefit		
2% increase in numbers sold Number of 12-16 year olds increases by 20%	Annual 2015	Number of anglers Number of young anglers – diversity of involvement
Measurable increase in return between assessments	5-yearly	Economic benefit
Spread increased by 10%	5-yearly	Diversity of population involved in angling. Greater availability of fishing
Improved rating	5-yearly	Partnerships producing results

Working together

In this Environment Agency strategy for managing sea trout and salmon fisheries we have set out the importance of working with our partners. Many organisations and individuals have interests in this important resource. We will achieve better results if we all work together. Everyone, at all levels from the individual to the government has an important role. The table on the following pages aims to illustrate and offer a prompt to the ways by which we can each contribute.

We will achieve better results if we all work together

Our roles – working together

Who	What
Individuals with an interest in the river environment and fisheries	• Consider helping projects to protect and improve sea trout and salmon fisheries • Help press for funds and action to address water quality and fish passage problems • Promptly report damage and threats to rivers and fisheries • Help promote the value of salmon and sea trout as indicators of quality rivers
Fishing licence holders	• Use best practices to enjoy sustainable fishing • Encourage others to fish, buy licences and use good practice • Report catches accurately to support effective management • Promptly report signs of illegal fishing, pollution or other damage
River and fishery owners	• Continue to protect and improve rivers and fisheries • Seek and use best advice to inform best practices • Use available funding sources to support sea trout and salmon • Encourage good fishing practices and sustainable fisheries management • Encourage more and diverse engagement in fishing consistent with sustaining fish stocks
River and Wildlife Trusts	• Continue and enhance work with river and land-owners to help reduce diffuse pollution and other damaging effects on fisheries • With partners invest in cost-beneficial river and fisheries improvements • Use the capacity to draw down funds to enhance effective improvements • Continue to influence other bodies to support the river environment • Share data and information
Fisheries and fishing representative bodies	• Encourage policies and practices based on principles of sustainability throughout constituencies • Continue to work for improvements in the fisheries environment • Help make the case for strong public support for salmon and sea trout • Offer leadership in embedding responsible fishing and fisheries management practices • Continue to develop effective programmes to engage and sustain participation in fishing consistent with protecting and improving stocks • Exploit access to funding opportunities to help support salmon and sea trout fisheries and fishing
Businesses, industries and developers who impact on rivers	• Integrate protection and improvement of the environment into business activities • Fully fund measures to protect fisheries where rivers are affected • Consider helping to support or sponsor fisheries improvements
Local Authorities and Regional Development Agencies	• Take account of sea trout and salmon needs in development plans affecting rivers • Take account of sea trout and salmon needs in sea fisheries management • Recognise the value these natural resources have for local economies and consider adding support to protect them and derive the benefits they offer • Account for these fisheries in regional sustainability and climate change plans • Consider exploiting the value of salmon and sea trout in your local rivers as an educational and tourism resource

Who	What
Countryside and conservation agencies	• Continue promoting environmentally-sensitive land management through the agri-environment programmes • Consider funding actions for sea trout and salmon as protected species or species of special interest • Provide support to achieve broad improvements in river and marine environments that help sea trout and salmon • Support appropriate regulatory measures that help conserve sea trout and salmon • Join in specific projects for sea trout and salmon
Environment Agency	• Work with farmers and others to promote the benefits from good soil and land management • Influence the programmes of investment in the sewerage and water supply systems operated by the water companies • Produce plans to manage water resources and protect the environment • Develop plans so that flood risk management investment contributes to sustainable fisheries • Use better regulation to achieve effective and sensitive control of exploitation • Apply intelligence-led enforcement and crime prevention to provide effective protection to stocks • Monitor and report on rivers, stocks and fisheries to support sound management • Undertake and support investigation and research to inform effective management • Share data and information • Manage broad environmental programmes to benefit sea trout and salmon • Regulate and work with others to remove barriers for sea trout and salmon • Stimulate diverse opportunity for and participation in fishing • Engage effectively with others to invest in improved fisheries • Work with others to secure necessary resources
Government	• Promote more sustainable land management, for example through the agri-environment programme • Provide funds sufficient to allow effective management of salmon and sea trout such public funding being justified for: – Anti-poaching enforcement – Repairing historic damage – Protecting and restoring sea trout and salmon affected by non-attributable environmental pressures – The public benefits from the sea trout and salmon resource – Contributing to the conservation of an important species • Support and facilitate our use of other sources of funding for specific high-value initiatives • Help prevent the introduction and spread of disease, parasites or non-native species posing high risk to sea trout and salmon • Support the needs of England and Wales sea trout and salmon through domestic and European Union initiatives and in international forums • Support changes to legislation to enable effective management • Support research and monitoring to help inform national and international management

Our approach

• to securing effective fisheries management and regulation

We want to secure proper protection for stocks and fisheries whilst being as efficient as possible, working with others effectively and being sensitive about the burdens we impose on others.

We will manage and regulate at the lowest appropriate geographic level. We will be responsive to changing circumstances, for example the impacts of climate change. We will use better regulation to enable us to deliver controls in a faster, more responsive and more efficient manner. When determining fishing controls, we will first aim to secure the conservation of stocks then, in deciding the best controls to apply, we will consider the economic and social benefits so as to deliver a productive and self-sustaining fishery. We will develop our understanding and take account of the cultural value of relevant fisheries. We will engage with local interests to deploy targeted, intelligence-led and risk-based enforcement.

• to securing the information and knowledge to support management

Our fisheries strategy[2] sets out that we aspire to science, tools, technology and services that are the best available. We aim to use our science programme so that we base our work on the best available knowledge.

For our work for sea trout and salmon fisheries we will base management decisions on sound scientific and technical evidence, applying a risk-based approach and having regard to costs and benefits. We will continually seek to improve the tools and knowledge we use to assess and manage stocks and fisheries.

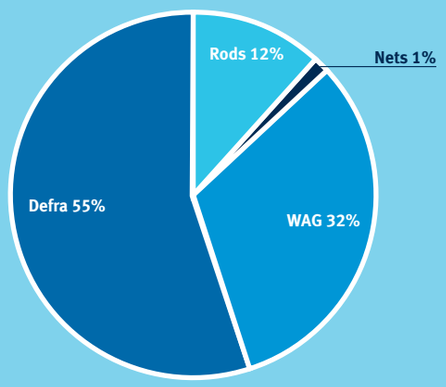
We will establish a science-based network and gather the best available information sufficient to support rational management through our own efforts and by engaging with others. We will continue to undertake and to support research to improve our knowledge of the fish and fisheries and to develop our tools for assessing and managing them. We will share our information and knowledge with the people with whom we work.

• to securing and using the necessary resources

Funding to deliver our own fisheries operations for sea trout and salmon comes from three principal sources, government grant, salmon and sea trout rod licences and licences for salmon and sea trout nets and traps. The pattern of income from licence revenue and direct government funding is shown in the following figure.

(2) A better environment, healthier fisheries; Better fisheries for our nations. Our strategy for 2006-2011

Sources of sea trout and salmon funding in 2007
Total = £10.9 million



We apply considerably greater levels of funding to our work to protect and improve the water environment. In 2006/07 we had £119 million from charges and Government grant to spend on water quality protection and £125 million from abstraction charges to fund our management of water resources. There are constraints on how these funds may be spent but we seek to ensure they are deployed to benefit the whole water environment.

Our governments, working with other agencies, control substantial funds directed towards agriculture and land management. The water companies apply major sums to benefit the environment within their investment programmes. How these resources are used and directed can have significant influence on the environment for sea trout and salmon.

Many other organisations and individuals work and invest significant resources to protect and improve sea trout and salmon. A range of other funding sources can be exploited. We want to underpin the delivery of the key results by ensuring that all available resources are deployed to maximum benefit.

In our work for sea trout and salmon, we will encourage increased investment in these fisheries and ensure that the strong case for public funding is understood.

The needs of sea trout and salmon fisheries will be embedded across the Environment Agency and other organisations and we will promote these requirements within our own work to deliver the Water Framework Directive.

We will continue the programmes needed to achieve better river quality and good ecological status to meet the needs of sea trout and salmon including:

- Contributing to more environmentally-sensitive land-use practices, and particularly those relating to agriculture;
- Influencing the programmes of investment in the sewerage and water supply systems operated by the water companies;
- Promoting environmentally-sensitive management of water resources;
- Incorporating environmental improvement into plans to manage flood risk;

We will identify and focus our use of resources on the critical factors limiting sea trout and salmon in each management plan area and at a local river level.

We will seek to ensure that bodies and individuals whose actions affect sea trout and salmon fisheries fund the full costs of proposals including monitoring, restitution and mitigation.

We will seek strong and effective engagement with partners so that all available resources and all with an interest come together to deliver optimal benefits.

Making the links

Our strategy for sea trout and salmon aims to support our broader plans for the environment and fisheries in England and Wales.

We have a vision for the environment: a better place for people and wildlife, for present and future generations.[3]

We want a better quality of life for people and an enhanced environment for wildlife.[3]

We want fisheries to play a greater role in England and Wales to encourage more people to help us protect and improve our environment and to help fishing contribute more to society.[2]

We plan to make big improvements in three areas:

1. Improved fish stocks and a better environment for wildlife and people.
2. More chances for more people to fish and fisheries performing better.
3. Sustainable fisheries boosting the local economy.[2]

This document describes our strategy to achieve these ends for sea trout and salmon.

Our fisheries strategy

Creating a better place

(2) A better environment, healthier fisheries; Better fisheries for our nations. Our strategy for 2006-2011
(3) Creating a better place: corporate strategy 2006-2011

Photo courtesy of Cain Valley Catchment Initiative which aims to raise awareness of the river amongst the local farming community.

Everyone at all levels from government to individuals has an important role to play

The salmon is a species requiring special protection

The wider world

The salmon is listed under the European Community Habitats Directive as a species requiring protection. It is amongst those wild species that Member States must maintain at, or restore to a favourable conservation status.

Additional protection is conferred on rivers where the presence of salmon is a qualifying feature in designation as a special area of conservation (12 rivers in England, 3 in Wales and 2 cross-border). In applying measures under the Habitats Directive, Member States are required to take account of economic, social and cultural requirements and regional and local characteristics.

The European Water Framework Directive aims to improve the ecological health of inland and coastal waters and prevent further deterioration. It drives towards achievement of 'good status', establishing programmes of measures for river basins that are to be delivered within six-year planning cycles. These programmes will provide an important driver to help increase the availability and quality of habitat for sea trout and salmon.

Salmon migrate from our waters to feed as far away as West Greenland. Their fate is affected by influences in the marine environment and potentially by fisheries operating at various points along their migration. Through the UK Government, we support the European Union delegation to the North Atlantic Salmon Conservation Organisation (NASCO). We aim to support the conservation and rational management of salmon across the North Atlantic through agreements reached in this forum.

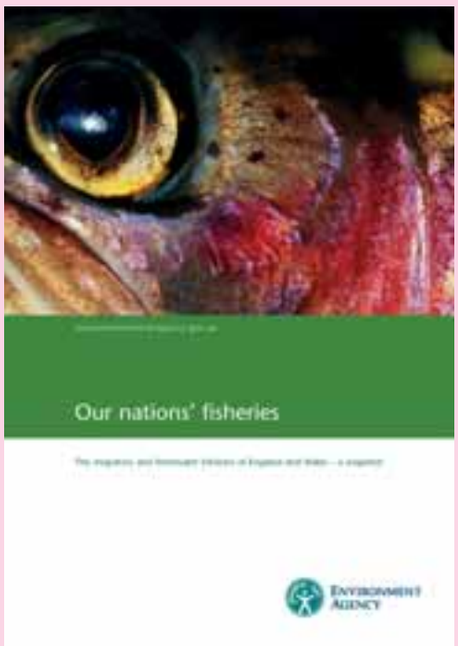
Our strategy for sea trout and salmon fisheries in England and Wales will apply within the context of this international framework.

Our fish stocks and fisheries

Recently hatched salmon

Photo: Clywedog Hatchery

Our nations' fisheries



Sea trout (locally known as 'sewin' in Wales) and salmon have complex lifecycles that expose them to environmental challenges and to both recreational and commercial fisheries, in freshwater and at sea. Adults migrate from the sea and ascend their natal rivers to spawn. The eggs hatch, and the young salmon and trout (initially referred to as fry, and later as parr) remain in freshwater for up to three years; they then enter the smolt stage and migrate downstream to begin the marine phase of their lifecycle. Salmon will remain at sea for between one and three years before returning to freshwaters again to spawn. Amongst sea trout a proportion will return within their first year at sea.

Sea trout are the same species as brown trout. A proportion of the brown trout population of each of our rivers (varying from none to most) takes up the migratory habit and these fish are then recognised as sea trout. Our approach to the management of brown trout fisheries is set out in our Trout and Grayling Fisheries Strategy. Sea trout have a more robust life history than salmon, many stocks having a high proportion of fish which spawn more than once. Also, from an angler's perspective, sea trout move under low flows and migrate before salmon, offering sporting opportunity earlier in the season on small spate rivers. However, their similarities to salmon make it sensible to use similar regulatory controls. For other management purposes, sea trout should be treated as a separate species.

We published our first comprehensive report on fish communities and fisheries in 2004 in *Our nations' fisheries*[4]. This presented a very mixed picture for sea trout and salmon that has changed only to a limited extent since.

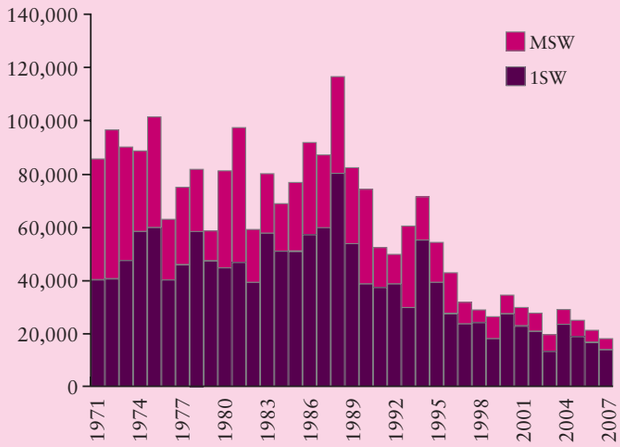
(4) Our nations' fisheries – The migratory and freshwater fisheries of England and Wales – a snapshot

Sea trout stocks had generally been doing very well until the early 2000s. Catches of sea trout had remained relatively stable from the late 1990s and represented an increase over the earlier part of the decade. Since the mid-1970s catches in the main sea trout rivers had increased in 24 rivers, but decreased significantly in 11. However, catches up to 2006 showed a decline from a peak in 2002.

Salmon stocks are generally depleted. This is the case in virtually the whole of the salmon's distribution across the North Atlantic. Survival at sea, from smolts leaving the rivers to returning adults, is generally low. The total reported catch of salmon for this whole region reached an historical low in 2007. In part this was due to the low levels of wild salmon stocks. Also, very high volumes of farmed salmon are now available for consumption. Approaching one and a half million tonnes of farmed Atlantic salmon was produced world-wide in 2007, over 900 times the total reported catch of wild fish. This undoubtedly has affected the market for wild-caught salmon. Agreements reached between Governments in the North Atlantic Salmon Conservation Organisation (NASCO) have reduced catches in previously major commercial fisheries at West Greenland and the Faroes Islands to very low levels. Controls on fishing are increasing in most countries.

Thirty-three of 64 principal salmon rivers in England and Wales were below their Conservation Limit in 2007, with seventeen achieving less than half this limit.

Estimated total catch of salmon in England and Wales between 1971 and 2007[5]



Agreements at NASCO have reduced catches in the West Greenland salmon fishery to very low levels

Photo: Guy Mawle

(5) Annual assessment of salmon stocks and fisheries in England and Wales 2007

Releasing a sewin in the Tywi

Photo: Graeme Harris

River Goyt, Mersey

Drift Netting in the North East

Photo: John Tickner

The low proportion of multi-sea-winter salmon in the populations is a significant concern. The numbers have declined in many rivers and these fish made up less than a quarter of the total catch of salmon by anglers in 2007. To protect and restore the early running (spring) component of the population, byelaws were activated in 1999 to reduce the number killed by angling and netting. The byelaws have only operated for less than two salmon generations and we cannot yet be certain of their effect. Our assessment is that spring salmon stocks in England and Wales generally remain fragile.

Sea trout and salmon require, and are representative of, a high quality environment. Salmon feature as a component of special conservation designation for 17 rivers under the Habitats Directive and in the designation of a further 4 rivers as Special Sites of Scientific Interest. Stocks were considered to be at risk in 10 of these 21 rivers in 2007.

There is better news. Stocks of both sea trout and salmon in some previously polluted rivers including the Tyne, Wear and Tees and rivers of the South Wales Valleys have recovered dramatically. Such recovering rivers accounted for some 25 per cent of the total salmon rod catch in 2006. They are also amongst the rivers with increasing sea trout catches, contributing 13 per cent of the overall sea trout rod catch (2006 figures). Sea trout and salmon are also now appearing in increasing numbers in the River Mersey, the Yorkshire Ouse and the Trent.

Fishing effort in the salmon and sea trout net fisheries of England and Wales has reduced over the past two decades, partly as a result of the phasing out of fisheries that target mixed-stocks. Consequently, the catch in most net fisheries has also fallen. In the North East Coast drift-net fishery, 16 nets fished in 2006 compared with 69 in 2002 and 142 in 1992. The declared catch of salmon in all North East nets in 2006 was a little under 7,600 and of sea trout was just under 22,500. In 1995 the catch had exceeded 53,000 salmon and more than 54,400 sea trout.

Partly in response to declining salmon stocks, the number of anglers fishing for salmon fell during the first half of the 1990's but has recovered since. Rod catches remained fairly steady, with the best of recent results in the three years 2004 to 2006. Increasingly, anglers are playing their part in the drive to restore salmon stocks. From just 10 per cent in the early 1990's, the proportion of rod-caught salmon released to augment the spawning stocks rose to reach 56 per cent in 2005 and 2006. The salmon released by anglers in 2006 (just over 10,500) contributed an estimated 34 million additional eggs into the breeding stock.

The value and benefits of sea trout and salmon come in different ways. They are indicators of a high quality environment and part of our valued wildlife. Salmon are a feature of national and international conservation designations with the European Habitats Directive requiring that states endeavour to achieve favourable conservation status for the species. We derive a sense of well being, knowing of and seeing these fish in local rivers. A survey in 2006 found that the average willingness to pay to prevent "a severe decline in all salmon populations across [England and Wales], with 95 per cent of salmon being lost for at least 25 years" was £15.80 per household per year. Aggregated across all households in England and Wales, this amounts to a total of around £350 million per year[6].

Like salmon, sea trout breed in freshwater but then migrate to sea to grow large and mature. This marine growth produces large returning adults that attract anglers and are the basis of the economic value of the fisheries. Sea trout support increasingly important fisheries around the UK, particularly in Wales and the north-west and south-west of England. Across this range sea trout fisheries (mainly sport fisheries in rivers, but also locally important net fisheries) are in varying states of well–being, but everywhere their sustainable development has become an important matter for regulators and stakeholders.

The sea trout and salmon rod fisheries of England and Wales represent a significant market value estimated at £128 million in 2001. Expenditure by anglers on their sport provides benefit to local economies. As a healthy, outdoor activity, angling brings other social benefits and can engage a range of different people. Net fisheries for sea trout and salmon were estimated to have a net capital value in 2001 of around £3 million although this will now have reduced with the decline in net fisheries. Such fisheries help support economies in some localities and may have significant cultural value where they represent traditional skills and occupations. Tourism may benefit through both angling and net fishing and both add value through the jobs and employment they support.

Photo: Guy Mawle

The sea trout and salmon rod fisheries of England and Wales represent a significant market value

(6) Economic evaluation of inland fisheries, Environment Agency 2007

The pressures they face

Sea trout and salmon fisheries face a number of risks. Although impacts were not fully quantified, our review in 2004 of progress with current salmon action plans identified the principal issues in our rivers as water quality, water quantity, channel structure, siltation and obstructions to migration. We also know that survival rates of salmon at sea have reduced, possibly linked to changes in ocean climate.

Dry river in Sussex

Climate change

There is uncertainty about how climate change will affect wildlife but temperature changes have already been shown to affect sea trout and salmon. Higher sea and river temperatures may be damaging salmon survival and migration. Changes in river flows also affect the number of fish – especially their migration. We've already experienced water temperatures in rivers and estuaries that are damaging to these fish. We need to better understand the future predicted ranges, the species ability to adapt and what role adaptation measures will have. It's important that we continue reducing current harm to conserve stocks and habitats. In the long term we need to be certain we're investing in waters where the species will thrive.

Damage to the habitat

Navigation, urban development, agriculture and land drainage all have played a part in damaging habitats in many rivers. Weirs and other barriers stop fish from migrating. In England and Wales, nearly half of lowland river sites are classed as 'obviously modified,' with over a quarter being 'significantly or severely modified'.

Siltation

Changes in the way land is used have led to more soil being eroded in many catchments. Silted up stream gravel means there are fewer areas for fish to spawn and fewer eggs and young fish survive. Eroded silt can smother river-bed gravels, harming aquatic plants, invertebrates and the eggs of fish. Trout spawning beds in 29 out of 51 river reaches surveyed across southern England contained more than 15 per cent of fine sediments, a threshold at which half the eggs and larvae are likely to die. In the rivers Test and Itchen, for example, over 95 per cent of fine sediments came from the surrounding land, where arable crops are a major land use.[7]

(7) The state of soils in England and Wales, 2004

Water quality

Further improvement is needed in water quality in some river reaches to allow the safe migration of sea trout and salmon. Spills and leakage of sheep dip into upper reaches of rivers have caused the deaths of many young salmon and trout. Chemical pollutants such as pharmaceuticals, veterinary medicines, pesticides and natural or synthetic chemicals that affect hormone levels may be preventing the development of healthy, self sustaining fish populations. The increased use of herbicides and insecticides as well as elevated levels of aluminium (from acid rain) impact on the survival of young salmon and sea trout in fresh water and at sea. Nutrient enrichment affects growth rates and so the timing of migration to sea of young fish in ways that can harm their chances of survival.

Non-native species and diseases

Because of tight controls on fish health and movements, fish in England and Wales are subject to fewer parasites and diseases than those on the European mainland. There is a potential significant risk to our fish from the spread of non-native parasites and diseases from Europe or the rest of the world. For salmon, it is critical that we minimise the threat from the parasite Gyrodactylus salaris that has devastated fisheries in Norway. Transferring non-native fish can also damage native fish communities through competition, habitat loss, predation and cross-breeding.

Overcoming a barrier to migration with a fish pass

Photo: Greg Armstrong

Sheep being treated with sheep dip

Soil erosion can cause siltation in streams

Photo: Nigel Thomas-Childs

Gyrodactylus salaris parasite

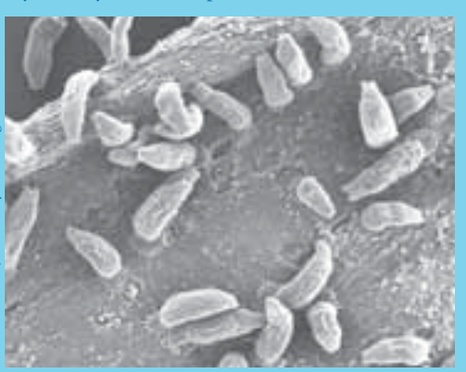


Photo: A. Shinn, University of Stirling

Predation

Sea trout and salmon are eaten by a wide variety of predators. The main known fish predators are pike, trout, zander and eel in freshwater, and cod and saithe while at sea. Otter and mink are the main mammalian predators in freshwater while dolphin and seal are the main known threat in coastal areas. Goosander, merganser and cormorant have been considered to be the most important bird predators. For all predators, assessing and quantifying their impact on stocks and fisheries has proven difficult; estimates can be expected to vary widely from site to site and over time.

Historically, the culling of predators has been considered a legitimate management option. However, many of the predators are now protected under UK and European legislation and managers are tending to take a more holistic view whereby the various problems facing particular stocks are evaluated and prioritised. Killing of some predators under licence is still possible, but only as an aid to scaring and where there is evidence of 'serious damage' to the fishery. Thus, for some predator species, alternative management measures need to be sought and trialled.

Exploitation

In the circumstance of stocks being at risk, we must be responsible and manage exploitation at levels that will not threaten their future. Controls on fishing have been increased in recent years and, in many places, voluntary constraints have been adopted to protect stocks. In the twenty years to 2006 the number of licensed nets and traps operating has reduced by more than 60 per cent. The practice of catch and release fishing by anglers, and in some net fisheries, has expanded markedly in the last ten years. Illegal, as well as legal fishing needs control. Our records suggest a decline in levels of poaching that may be linked to fewer wild fish and increased availability of farmed salmon as well as targeted enforcement. Our review in 2004 concluded that whilst exploitation needed more control in some places, overall other factors were equally or more important.

Goosander

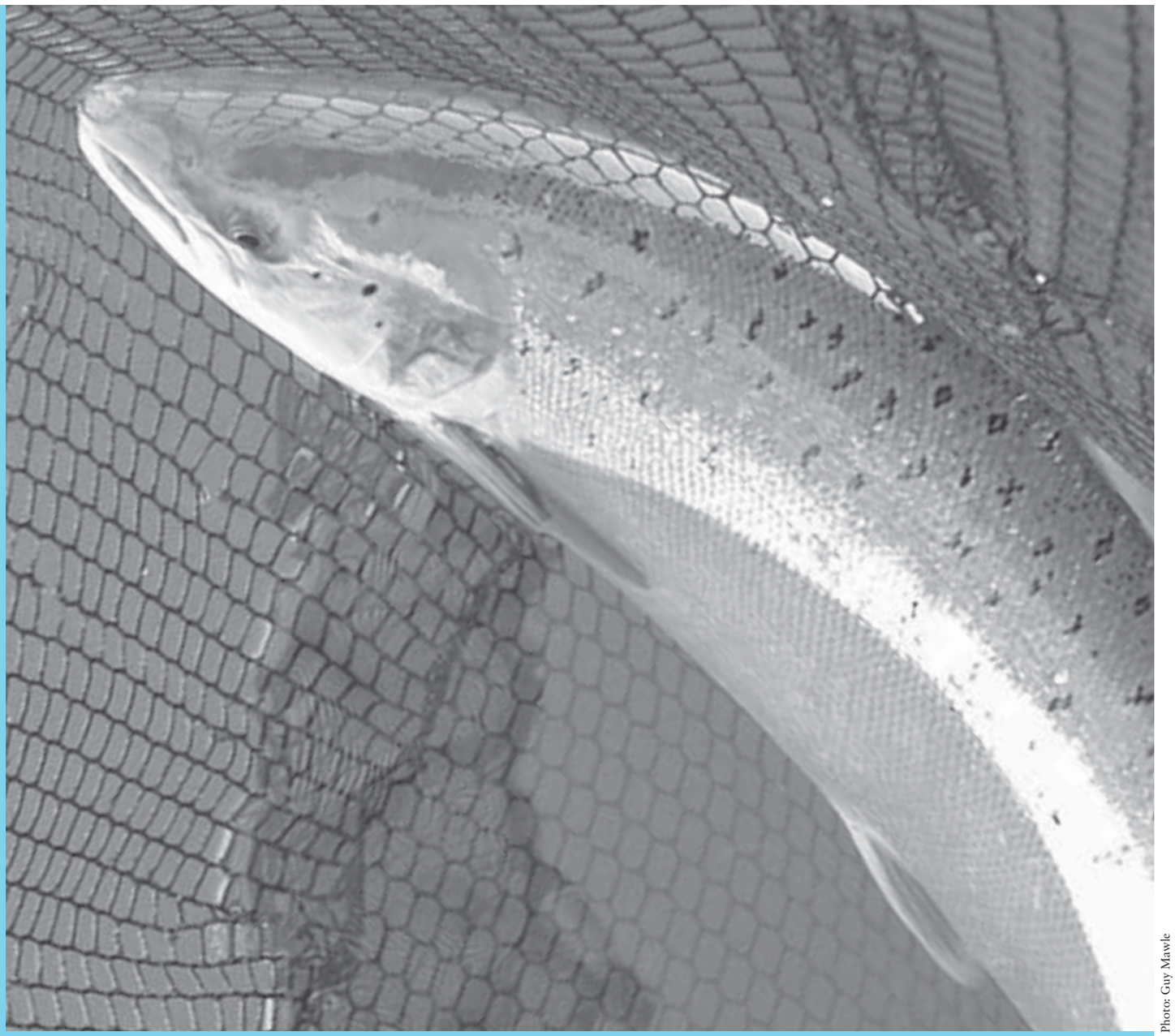


Photo: Guy Mawle

Sea trout and salmon are important to society. We want to protect these iconic fish and improve the fisheries they sustain

Glossary

Better regulation	Government strategy aimed at making regulation more streamlined, efficient and imposing a lesser burden on legitimate businesses.
Conservation limit (CL)	Reference point used in the management of salmon stocks. 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.
Favourable condition	A term used in relation to the Habitats Directive for where a designated feature and its associated environment is in good ecological condition.
Favourable conservation status	A term used in relation to the Habitats Directive for where a habitat or species in a state where its distribution, abundance, structure or function throughout the bio-geographic region is sustained over the long term.
Good ecological status	A key target under the Water Framework Directive. Water bodies of 'good ecological status' should have the biological and chemical characteristics expected under sustainable conditions. Clearly, practicality and the cost to society have to be considered in achieving this and this principle is inherent in the WFD.
Habitats Directive	The main aim of the EC Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species at a Favourable Conservation Status, introducing robust protection for those habitats and species of European importance.
Mixed stocks	Stocks of sea trout or salmon originating from different home rivers. The term is normally applied to stocks in the sea.
North East Coast drift net fishery	A number of nets-men are licensed to fish for salmon and sea trout off the Northumbria and Yorkshire coast using drift nets. The fishery is the subject of a Net Limitation Order that reduces numbers as licensees retire and additionally most of the nets ceased to operate from 2003 following a buyout agreement.
Net Limitation Order (NLO)	A regulation used to control the number of people fishing in any net or trap fishery for sea trout or salmon by restricting licence availability.
Programme of measures	The plan for each River basin district by which ecological objectives set out under Water Framework Directive will be achieved.
River basin district	The principle unit for management under the Water Framework Directive. Ten River basin districts have been defined in England and Wales as management and reporting units, together with one cross-border district partly in Scotland.

River Basin District Plan	For each River basin district, there is a statutory requirement to produce and regularly review a River Basin Management Plan. When these plans are produced, maps of the river basins are created and the quality of the water assessed. Environmental monitoring programmes are set up and what is being done to meet objectives is defined.
Special area of conservation (SAC)	An area designated under the Habitats Directive giving added protection to identified species and habitats.
Salmon Action Plan (SAP)	Environment Agency plan identifying key issues, actions and targets for salmon management on a catchment basis.
Sea winter (SW)	A term reflecting the age of a sea trout or salmon with respect to the time it has spent feeding at sea – for example expressed as one sea winter (1SW) or multi sea winter (MSW).
Sewin	Name given to sea trout in Wales.
Site of special scientific interest (SSSI)	A site designated for protection of wildlife and habitats of particular interest.
Water Framework Directive (WFD)	The European Directive that came into force on 22 December 2000 establishing a new, integrated approach to the protection, improvement and sustainable use of rivers, lakes, estuaries, coastal waters and groundwater.

References and relevant information

You may be interested in the following referenced and related Environment Agency publications:

Creating a better place: corporate strategy 2006-2011

A better environment, healthier fisheries
Better fisheries for our nations. Our strategy for 2006-2011

Fishing for the future
Angling in 2015. Our plan to increase participation

National trout and grayling fisheries Strategy 2003

Our nations' fisheries
The migratory and freshwater fisheries of England and Wales – a snapshot

Economic evaluation of inland fisheries. The economic impact of freshwater angling in England and Wales 2007

Annual assessment of salmon stocks and fisheries in England and Wales
Environment Agency and Cefas, published each year, latest (11th edition) 2007

Salmonid and freshwater fisheries statistics for England and Wales
Published each year, latest 2006

Cleaner coasts, healthier seas: Working for a better marine environment
Our strategy for 2005-2011

A better place to play
Our strategy for water related sport and recreation 2006-2011

Your rivers for life
A strategy for the development of navigable rivers 2004-2007

The state of soils in England and Wales, 2004

Soil: a precious resource
Our strategy for protecting managing and restoring soil, 2007

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